UNIVERSITÀ DEGLI STUDI DI PALERMO

Ph.D. Program in Model Based Public Planning, Policy Design and Management (Modelli per il miglioramento della performance nel settore pubblico)
Dipartimento di Scienze Politiche e delle Relazioni Internazionali (DEMS)
SSD: SECS-P/07

An Integrated Theory for the Accumulation of Mentally Ill Offenders and the Effect of Realignment in California

IL DOTTORE
PHD CANDIDATE
(name and surname)

IL COORDINATORE
PHD COORDINATOR
Prof. Carmine Bianchi

IL TUTOR
THESIS SUPERVISOR
Prof. _____

CICLO XXVI
ANNO CONSEGUIMENTO TITOLO 2017

Abstract

High mental illness prevalence in California state prisons has drawn much attention of scholars and policymakers in the past three decades. The problem with a high concentration of mentally ill prisoners culminated when the California Department of Corrections and Rehabilitation (CDCR) was sued for the violation of inmates' rights under the Eighth Amendment in early 1990s. Consequently, CDCR's health care was placed under Federal receivership to reform prison health care. The State government also introduce the Realignment policy in 2011 to reduce the prison population in order to make room for prison health care reform.

Our study aims to understand the pathways through which the mentally ill individuals end up and remain in prisons and identify the high impact leverage points to sustainably reduce the mental illness prevalence in prisons. We develop a model to integrate theories from the criminology, criminal justice, and public health to advance our thinking about the problem.

The Realignment policy, with the focus of diverting the inflow of first-time or reoffending prisoners is a drastic intervention to the system at the population level. Even so, the sustainability of the policy is contingent upon efficient planning at the institutional level. At the system-level, a system-wide goal ensure the actors in the criminal justice system and community work toward the goal to reduce the population with criminal history. At the institutional-level, it is essential that sufficient budgets are allocated to prison health care and community services. Particularly, the emphasis on community service capacity needs to be constant in order to shift the system from punishment-oriented to rehabilitation-oriented.

Keywords: Realignment, prison mental illness, mass incarceration, decarceration, Public Safety AB 109, prison health care reform, prison mental health care, shifting burden

Contents

Figures

1 Background

This chapter provides an overview of the mental illness prevalence in prisons with respect to the recent history and overall development of the California corrections[1]. High mental illness (MI) prevalence[2] in California state prisons has drawn much attention of scholars and policymakers in the past three decades. The MI prevalence in the state prisons conveys the magnitude of the problem. However, data relating to the corrections[3] in California is scarce and fragmented (Petersilia, 2006). The difficulty in measuring the size of the mentally ill prisoner population is even harder due to the lack of uniform definition of mentally ill offenders (A. N. Davis, 2012). The major source of confusion stems from the broad definition of mental illnesses, which leads to different definitions among various agents and actors, such as the corrections, state, counties, and in-custody personnel, health care personnel, and post-imprisonment personnel (A. N. Davis, 2012).

Against the backdrop of much uncertainty and ambiguity, Figure 1 presents the MI prevalence in California state prisons and the general population. As MI has only started gaining attention since three decades ago, large-scale reliable population-level (both the prison and general population) prevalence study before this period is non-existent. Even though consistent efforts in collecting MI prevalence in the general population has started from 2001, the definition of MI in these studies changes over time[4].

---

[1] A generic term that includes all government agencies, facilities, programs, procedures, personnel, and techniques concerned with the investigation, intake, custody, confinement, supervision, or treatment of alleged or adjudicated adult offenders, juvenile delinquents, or status offenders.

[2] MI prevalence in this study refers to a ratio unless other units, such as percentage, is specified to be consistent with other cited studies.

[3] Corrections is defined the branch of the criminal justice system that deals with individuals who have been convicted of a crime.

[4] For example, when Diagnostic and Statistical Manual of Mental Disorders Criteria (DSM-1) was first published in 1952, there were only 106 mental disorders being defined. Nevertheless, the diagnoses have grown to 265 in DSM-5[4] published in 2013. Refer to Appendix A for the timeline of Diagnostic and Statistical Manual of Mental Disorders Criteria(DSM) development. Published by the American Psychology Association (APA) in 1951 to provide a common language and standard criteria for the classification of mental disorders. The latest edition, DSM-5, was published in 2013.
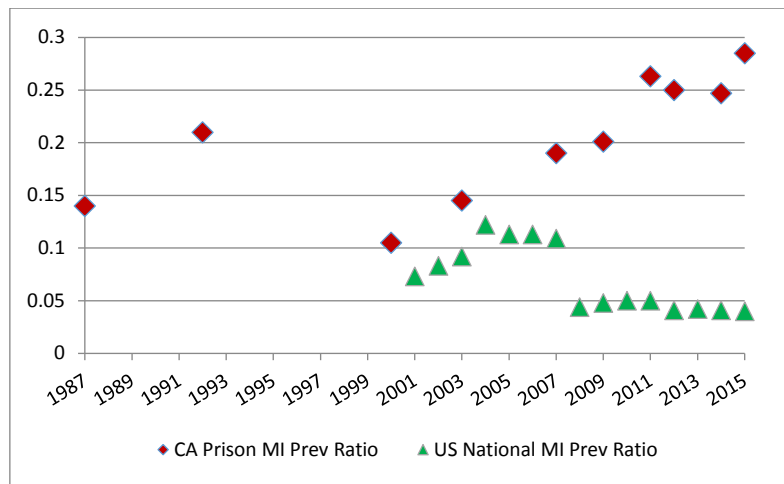
Figure 1 Mental Illness Prevalence Ratio in California's state prisons and U.S. general population

Sources:

CA Prison MI Prevalence Ratio

1987—From the Sterling Report published at the request of California state government in 1986 for the *Coleman v. Wilson* lawsuit. This ratio represents the serious mental disorder prevalence.

1992—The Scarlett Carp Report published at the request of California state government in 1992 for the *Coleman v. Wilson* lawsuit. The reported prevalence ratios were: male SMI (0.1107), male MMI (0.0947); female SMI (0.1521); female MMI (0.0903). I averaged these ratios to 0.21. See appendix A for calculation.

2000—Allen J. Beck & Laura M. Maruschak, Bureau of Justice Statistics, U.S. Dept. of Justice, Mental Health Treatment in State Prisons (2001) (reporting 2000 data). These figures are for enrollment in programs, not overall demand. Given the staffing problems in California prisons, the figures are likely to underestimate demand.

2003—Human Rights Watch states the population of California state prisoners with mental illness at 23,439 as of 2003. Human Rights Watch, Ill-Equipped: U.S. Prisons and Offenders with Mental Illness 18 (2003).

2007—California Department of Corrections and Rehabilitation (CDCR)

2009—Opinion and Order by the Three-Judge Court on *Plata v. Schwarzenegger* court case (p. 22)

2011—The Future of California Corrections (2012) by CDCR (p. 29 – 30)

2012—An Update to the Future of California Corrections (2016) by CDCR (p.12-13)

2014—CA Governor's Budget Report: Entire Corrections and Rehab Budget; MH Program-The pop of inmates requiring MH treatment is projected to be 33480 in 2013-2014 and 34,118 in 2014-2015

2015— An Update to the Future of California Corrections (2016) by CDCR (p.12-13)

U.S. National MI Prevalence

The National Surveys on Drug Use and Health (NSDUH) sponsored by Substance Abuse and Mental Health Services Administration (SAMHSA) is the largest scale and most comprehensive survey conducted at the national level to date. However, the measured variable—mental illness prevalence—has been modified several times from 2001 – 2013.

Between 2001 and 2003, only serious mental disorders (SMI) were measured. At that time, SMI was defined as "having at some time during the past year a diagnosable mental, behavioral, or emotional disorder that met the criteria specified in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)". From 2004 to 2007, serious psychological distress (SPD) was measured instead of SMI. SPD indicates that a respondent recently experienced "heightened distress symptomatology that may be affecting health and behavior". In 2008, the results reported only SMI. From 2009 to 2015, both SMI and AMI (Any Mental Illness) are reported. To maintain consistency, SMI is used in the graph whenever data are reported. Otherwise, SPD is shown.

The comparison between MI prevalence in California prisons and the general population yields some insights into the severity of the problem. Before 2007, the MI prevalence data points are collected from various literature that used different diagnostic criteria, samples, and collection mechanisms. After 2007, time series data emerge as more consistent empirical studies were conducted. In 1987, the MI prevalence ratio in California state prisons was 0.14. Figure 1 shows that the MI prevalence ratio among California prisoners had been higher than that of the general population. The MI prevalence of the general population had been less than 0.15 from 2001 onwards while the prevalence

of California prisoners continued to increase from 0.1 in 2000 to 0.26 in eleven years. After 2011, the MI prevalence ratio of prisoners dropped about 1% to 2% for the subsequent two years. Nevertheless, the ratio surged about 4% in 2015. This suggests that a larger fraction of the prisoners with MI remain or enter in the prison than before.

The problem culminated when the California Department of Corrections and Rehabilitation (CDCR)[5] began to engage in a series of lawsuits for the violation of inmates'[6] rights under the Eighth Amendment[7]. In 1991, a civil lawsuit was filed by an inmate, Coleman, alleging the State for the violation of his rights to receive mental health care (MHC) during imprisonment[8] ("*Coleman v. Wilson*," 1994). This class-action lawsuit[9] became the "vehicle for a constitutional challenge under the cruel and unusual punishment clause of the Eighth Amendment to the entire California prison mental health care system" (Specter, 1994). Together with another lawsuit, *Plata v. Schwarzenegger[10]*, it resulted in an order from the Three-Judge-Courts *("Plata v. Schwarzenegger*," 2009) to require CDCR to develop and implement remedial plans to upgrade the prison mental health care and medical care to the constitutional standard. Nevertheless, CDCR persistently fell short in implementing the reforms. The primary reason cited for the failure was prison overcrowding ("*Coleman v. Wilson*," 1994). This led to another intervention from the federal court: capping and reducing the prison population in order to make room for medical care reform ("*Coleman v. Wilson*," 1994). A receiver was appointed to supervise, report, and oversee the implementation of necessary remedial efforts to meet constitutionally accepted medical care in the prisons. Consequently, the federal court's intervention led to the birth of the "Realignment Policy[11]" in the end of 2011 (further explanation below).

---

[5] Before 2005, California's adult prisons were managed by the California Department of Corrections, a department under the state's Youth and Corrections Agency. After 2005, California Department of Corrections was reorganized and renamed as the California Department of Corrections and Rehabilitation ("CDCR"). For consistency purpose, CDCR is used through this study.
[6] Inmate refers to someone confined to an institution such as hospital or prison. "Inmate" and "prisoner" are used interchangeably through the thesis. "Inmate" or "offender" is used to describe individuals convicted to prison or jail sentence.
[7] "The Eighth Amendment prohibits the infliction of cruel and unusual punishment on convicted prisoners and applies to the 'the treatment a prisoner receives in prison and the conditions under which he is confined'". *Helling v. McKinney*, U.S. 25, 113 S. Ct. 2475, 2480, 125 L.Ed.2d 22 (1993).
[8] *Coleman v. Wilson* (1994)
[9] A type of lawsuit where a group of people who are represented collectively by a member of the group. Source: https://www.law.cornell.edu/wex/class_action
[10] *Plata*, filed on April 5, 2001, involves the state prison system's unconstitutional medical care provided to the inmates.
[11] There were two Realignment Policies in California in the past two decades. The first Realignment took place in 1991 for with the purpose to delegate the responsibility for MH treatment from the state government to local counties through fund appropriation. The most recent one was implemented in October 2011. It is also referred as "Public Safety Realignment Act of 2011" with the purpose to deter the inflow of offenders to state prisons and release certain groups of offenders to parole under the custody of local counties.

The concentration of mentally ill prisoners deserves attention of the policymakers because prisons are obliged to provide appropriate health care under the constitution. Treatment provision in prison is much more costly than provision in the community. On one hand, CDCR needs to maintain necessary treatment capacity for the expanding prison population; on the other hand, CDCR is under pressure to reduce spending in order to curb the increasing corrections budget. In order to achieve the first goal, policymakers need to have an effective in-custody treatment capacity-planning tool. However, to tackle the second goal will require the understanding of the causal structures that lead mentally ill individuals into the prison. Hence, the first objective of this study is to unfold the causal structures that lead to the increasing concentration of mentally ill prisoners. Oxford dictionary[12] defines "structure" as the "arrangement of and relations between the parts or elements of something complex". Only through the understanding of the causal structures that lead these mentally ill individuals to prison can we find sustainable levers to reduce the MI prevalence in the prisons.

2   Conceptual Framework

This chapter presents the conceptual framework of our study. A conceptual framework entails a tentative theory of how and why the issue at hand is investigated for a well-defined purpose. This tentative theory of how a study is conducted helps to refine the study objectives, carve appropriate research questions, select appropriate research method, and justify the findings (Maxwell, 2013).

A sound body of literature on issues pertinent to mentally ill prisoners may be grouped into three broad categories: (1) MI prevalence and characteristics (such as demographics and bio-psycho-social status) of this prison population ; (2) causes and impacts of the large number of mentally ill prisoners; and (3) recommendations to reduce the mentally ill prison population. Prevalence and prisoner characteristics studies are useful in forming an understanding of the severity of the problem. Overtime, this kind of studies also contributes to policy design and evaluations (Sarteschi, 2013). However, in order to device effective and sustainable policies, an adequate understanding of the causes that lead to the development of the concentration of mentally ill prisoners is required. The frequently cited causes of the persistently high MI prevalence in prisons in literatures include the confinement conditions (Human Rights Watch, 2003; Sarteschi, 2013), lack of community services (Council of State Governments, 2002; H. R. Lamb et al.; R. H. Lamb et al., 1998; Lurigio et al., 2004; The Sentencing Project, 2002), sentencing and corrections policies (James et al., 2006; Sarteschi, 2013; The Sentencing Project, 2002; Torrey et al., 2010), and lifestyles and behaviors (Baillargeon et al., 2010; Ball, 2007). Studies that center on confinement conditions, lifestyles and behaviors grounded on human behavior or psychological perspectives. On the other hand, literatures based their arguments

---

[12] Oxford Online Dictionary (https://en.oxforddictionaries.com/definition/us/structure)

on sentencing and correction policies take on a legal and criminal justice policy perspectives. Finally, studies attribute causes to the lack of community supports root their arguments on the sociological and public health angles.

Some researchers in the public health domain have turned to adopting systemic views on public health issues by connecting the issues to a broader context instead of investigating the issues as an isolated phenomenon (Berben et al., 2012). Mittelmark (2012) even acknowledges the understanding that public health issues are embedded in an environment where multiple agents are involved can avoid placing blame solely on certain sectors or agents. Criminal justice issues have been viewed by some researchers as public health problems in the recent years (Akers et al., 2009; Drucker, 2015; Potter et al., 2012). These researchers propose a collective view on the causes of the problem instead of seeing the causes as isolated occurrences and treat them individually.

Akers et al. (2009) promotes the integration of criminology and epidemiology. Criminology involves the "systematic study of the nature, extent, cause, and control of law-breaking behavior (p. 398)" while epidemiology is the study of population illnesses to introduce interventions and preventions in the interest of the public. Social epidemiology emerges from the recognition that societal characteristics affect the disease pattern. The attempt to understand the causality of high MI prevalence in prisons will invite questions such as "What are the impacts of social factors on prisoners with MI once they return to the community?" Criminal justice[13] and epidemiology also share some commonalities, one of which is the stage-dependent intervention focus. These two disciplines deal with prevention and immunization, treatment and rehabilitation, and reinfection. In public health terms, these efforts correspond to primary, secondary, and tertiary interventions. In the case of the mentally ill prisoners, the primary intervention characterizes efforts in preventing the vulnerable individuals with MI from falling into the criminal pathways--committing crime and remaining criminal. These include measures to protect and avert this high-risk group from engaging criminal behaviors in the first place or recidivate in the second. Hence, one of the prerequisites for primary intervention is a deep understanding of factors that lead to criminal behaviors in the first place. The secondary intervention relates to implementing policies to handle individuals who have already committed crimes. Instead of imposing the same punishment for mentally ill offenders, which may be ineffective, it is essential to discern other effective ways to handle this group. For mentally ill offenders who are already imprisoned, tertiary intervention that facilitate education and rehabilitation deter future recommitment is crucial.

Drucker (2013) delves a level deeper to map the effect of criminal justice polices on the public in the United States. He conceptualizes mass incarceration as an epidemic (pp.37-49), which is determined

---

[13] Refers to the crime control practices, philosophies, and policies used by police, courts, and corrections.

5

by the rapid growth of incarcerated population and large magnitude impact in the society. In conjunction with the persistence and self-sustaining capabilities to reproduce itself through creating new cases and keeping individuals in the loop, and hence the epidemic[14]. With this conceptualization, Drucker demonstrates a model that span across sectors, such as criminal justice, public health, and social welfare through his text. His works implies a cross-sectoral collaboration is necessary to keep potential offenders and help existing offenders to stay out of the criminal pathways. This collective view of events differs from the contemporary and dominant criminal justice practice, which usually sees events as isolated occurrences and treat them individually (Akers et al., 2009; Auerhahn, 2008a; Drucker, 2013; Jeffrey, 1959)[15].

L. Davis et al. (2009) embrace the public health perspective in dealing with ex-convicts' reentry. The researchers go as far as to construct a map to identify areas with high concentration of parolees, the proximity to various kinds of community services, and the capacity of these services. They find that the parolees in their study have a higher need for mental health care and substance abuse treatment than physical health needs.

From the theoretical analysis perspective, criminology theories are divided into the macro-, meso-, and micro-levels. Macro-level analysis studies structures and policies of criminal justice; meso-level analysis is about the influence of family, group, organization, and community on criminal behaviors. The micro-level analysis scrutinizes individual behaviors. Although criminology is seen as a multidisciplinary study, the level of analysis and underlying theories that criminologists base upon in their studies is heavily influenced by their core discipline, i.e. criminology or criminal justice, from which the researchers are trained in (Potter et al., 2012). Very often, researchers in the criminology study rarely venture outside of their fields and adopt different methods, approach and theories to study problems at hands (Auerhahn, 2008a; Jeffrey, 1959). Furthermore, Potter et al. (2012) acknowledge the limitation of discipline-specific or single-theory solutions to tackle criminal justice problems and pinpoint the dynamics in the criminal justice system. Their research suggest that criminal justice problem is a systemic problem. Systemic problems refers to the problematic behaviors arise within systems characterized by nonlinear interrelationships and process where cause and effect are indirect and distant in time. In this case, the macro-, meso- and micro-level factors are interacting to produce the unintended problematic behavior. The legislative organization at the macro-level (national, state, and local) affects the development of formal social control, such as laws, which defines

---

[14] Centers for Disease Control and Prevention (CDC) defines epidemic as "*an increase, often sudden, in the number of cases of a disease above what is normally expected in that population*". Retrieved from CDC's website https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section11.html , on January 16, 2017.
[15] Drucker (2013), p. 68

and differentiates criminal and non-criminal behaviors. This in turn influences the informal social control, an inherited value and belief systems formed through social networks. Eventually the changing individual value and belief system feeds back to the macro-level.

Nevertheless, this systemic perspective seems to be lacking when the Federal Court ordered CDCR to reduce the prison population. The goal of the order was to increase per capita health care resources by reducing the prison population. While the state declares success in reducing prison population through the Realignment policy, the state corrections spending remains high and recidivism rates remains unchanged (Loftstrom et al., 2013). Six months after the introduction of the Realignment policy, the jail population surged and more counties reported higher percentage of early release of pretrial detainees or sentence offenders to reduce free up jail capacity (Loftstrom et al., 2013). The annual State Corrections savings exceed $1 billion, but it was offset by counties increased corrections spending after shouldering the additional inmates and parolees responsibilities (California Budget Project, 2013). Despite the high awareness of MI prevalence and economic burden of the disease, communities have yet to prioritize resources to increase access to mental health services, let alone addressing the ex-convicts' mental health service needs (Council of State Governments, 2002). At the same time, counties fail to capitalize on the extra funding from the state government to reduce incarceration through community services (CURB, 2015). Instead, the number of new jails are on the rise. In a social system, goals of subsystems frequently contradict the well-being of the broader system (p. 236) (Forrester, 1975).

The persistently high MI prevalence in prisons is a criminology, criminal justice and public health problem. The attempt to understand the cause of the high concentration of mentally ill prisoners in California requires a "shift of mind" (Senge, 1994). Therefore, a "shift of mind" enables stakeholders from "seeing parts to seeing wholes". The "shift of mind" prompts the stakeholders to study the structure that generates the problematic behavior. Developing an in-depth knowledge of the process of how structure affects behavior empowers stakeholders to identify high impact leverage point, with which a small change of action leads produces a significant change in the system behavior (Meadows, 1999). Taking a single perspective and treating the development without relating the problem to a broader context will only produce sub-optimal solutions to temporarily relief symptoms. Therefore, a platform that enables the integration of theories from the criminology, criminal justice, and public health will advance our thinking about the problem. Seeing the problem from a fresh perspective can also lead to new inquiries and methods and help us understand our mental models.

The following diagram summarizes our conceptual framework (Figure 2).
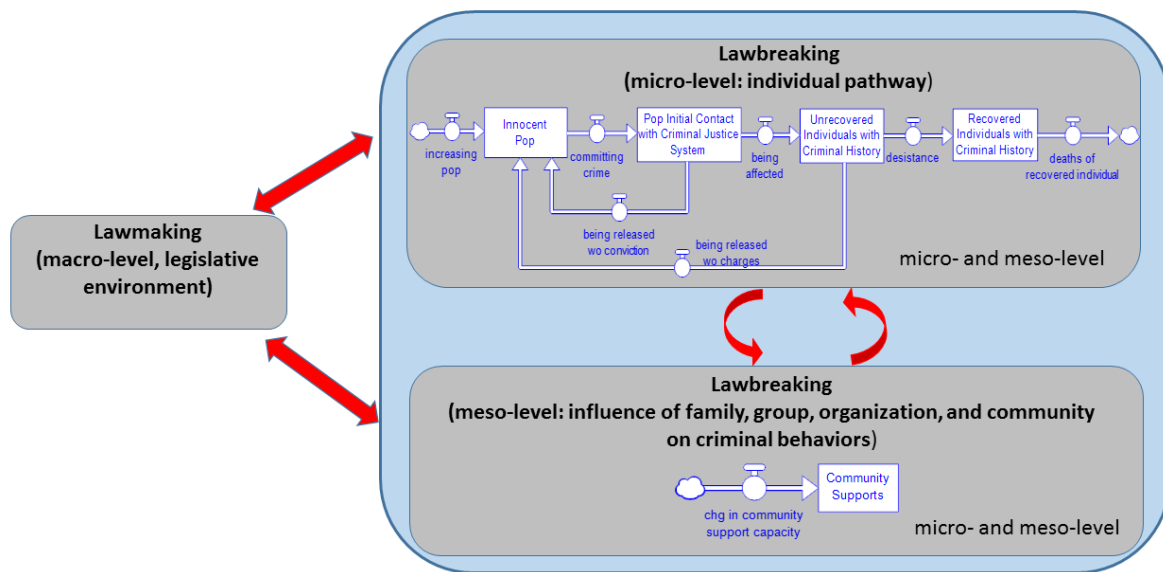
Figure 2 Conceptual Framework

When an individual commits crime, the act is considered as a lawbreaking behavior. The legislative environment, meso-organization factors, and individual behavior affect the individuals' lawbreaking behaviors. Initially, the legislation attempts to deter individuals from involving in the lawbreaking behavior. But once these individuals are involved, the lawbreaking behavior prompts actions from law enforcement, judiciary, corrections, and community. These responses have determining effects on the mentally ill offenders' future path; whether they remain in the lawbreaking path, where the stages are characterized by the boxes, or they manage to leave this path successfully. In our study, we treat the lawmaking environment as an exogenous input and focus on the progress of lawbreaking individuals and the interactions between them and the community (the blue box).

The "Innocent Pop" box represents a stock of individuals who have not been affected by mental illness or engaged in criminal activities. However, they may be vulnerable due to their history and environments. Once these individuals become mentally ill and commit crimes, they flow into the adjacent box, which is the "Pop Initial Contact with Criminal Justice System" stock. These individuals are arrestees and suspect. If they are charged, the move to the "Unrecovered Individuals with Criminal History" stock on the right. These individuals stay in this box from the first day they are in contact with the criminal justice system. These individuals only leave the stock through three outflows: recovering, being released without conviction, and deaths (omitted from Figure 2). The "recovering" outflow refers to the situation when the mentally ill prisoners fulfilled their punishment and return to the community as law-abiding citizen. When these individuals with criminal history stop reoffending, they enter the "Recovered Individuals with Criminal History" stock. The meso-level deals with the capacity

8

of community support to facilitate smooth reentry transitions for the mentally ill convicts. Identifying the necessary supports needed by this population and planning for capacity for community services are crucial in keeping the recovered individuals from reoffending.

2.1   Research Questions

Our study aims to understand the pathways through which the mentally ill individuals end up and remain in prisons and identify the high impact leverage points to sustainably reduce the mental illness prevalence in prisons. As such, we specifically seek answers for the following questions:

- How has the mental illness prevalence in prisons evolved over time?
- As a dynamically complex social problem, how does underlying system structure affects the concentration of mentally ill prisoners?
  - What is the main mechanism through which mentally ill individuals become prisoners and retain in the criminal justice system?
- What is the sustainable policy to reduce mental illness prevalence in prisons?
  - How does the implementation of the Realignment Policy contribute in reducing mental illness prevalence in prisons?
  - What are the necessary adjustments to the policy needed to bring outcome closer to the goal, which is to reduce mental illness prevalence sustainably?

3   Method

Our study adopts an integrated approach to develop a dynamic hypothesis for the accumulation of mentally ill prisoners in California. Grounded on structural theory, we develop a system dynamics (SD) by integrating the theories from criminology, criminal justice and public health to probe how individuals with MI who engage in criminal activities progress through, and, out of the criminal justice system and how community supports affect their progressions. Both relevant qualitative and quantitative data will be used to populate the model. Quantitative data are obtained from various sources, including prisoner data from California Department of Corrections and Rehabilitation (CDCR), financial data from the California Department of Finance, Legislative Analyst Office (LAO), California State Controller, California State Auditor and prevalence data from United States Department of Justice and various national studies. In the case of lacking of data, we cross check data obtained from various literatures. We opt to elicit qualitative data to build confidence in our model from other relevant literature when deemed necessary. Through simulations, we analyze the endogenous causes that lead to the increasing number of mentally ill inmates. Then, the model is used for experiment in

order to identify high impact policy levers. As such, the model is not intended to be used for prescription or prediction. In other words, SD is a methodology to study causal relationship between structures of systems and behaviors, as opposed to empirical models.

Considering that system dynamics is grounded on structural theory, time evolutionary behavior of social systems can be justified by feedback loops and state variables; the explicit presentation of feedback loops and the relationship between state variables helps forming theories to explain behavior of social systems over time. Therefore, the concept of model validity focuses on the consistency between the model structure, which is the real world abstraction, and the fitness model output and real world data. The fitness is not defined by point-by-point matching, but rather structure-behavior matching. Hence, structure-oriented tests, such as extreme condition tests, parameter sensitivity, phase relationship, modified-behavior test, and qualitative feature analysis, will be conducted to reveal critical model structure flaws (Barlas, 1996).

Using system dynamics to understand issues pertaining to problems associated with incarceration is not novel. Auerhahn has proposed dynamic system simulation to be used as a planning tool for projection and policy planning (Auerhahn, 2008a). Auerhahn also analyzes the effect of Three-strikes law on California's prison demographic composition and future (Auerhahn, 2008b), and evaluate the reason for the counterintuitive outcome resulted from well-intended national and state policies (Auerahahn, 2004).

4   Dynamic Hypothesis

This chapter presents an overview of the major feedback loops and explanation of each major feedback process before and after the Realignment policy.

4.1   Overview of Major Feedback Loops

"Causal loop diagrams provide a language for articulating our understanding of the dynamic, interconnected nature of our world (p.5)" (Kim, 1992). CLDs explain the behavior of a system by identifying the interconnected elements in the system through feedback process. A feedback process is the circular causality of interconnected and interdependence variables in a system. Figure 3 provides an overview of the major feedback in our dynamic hypothesis.
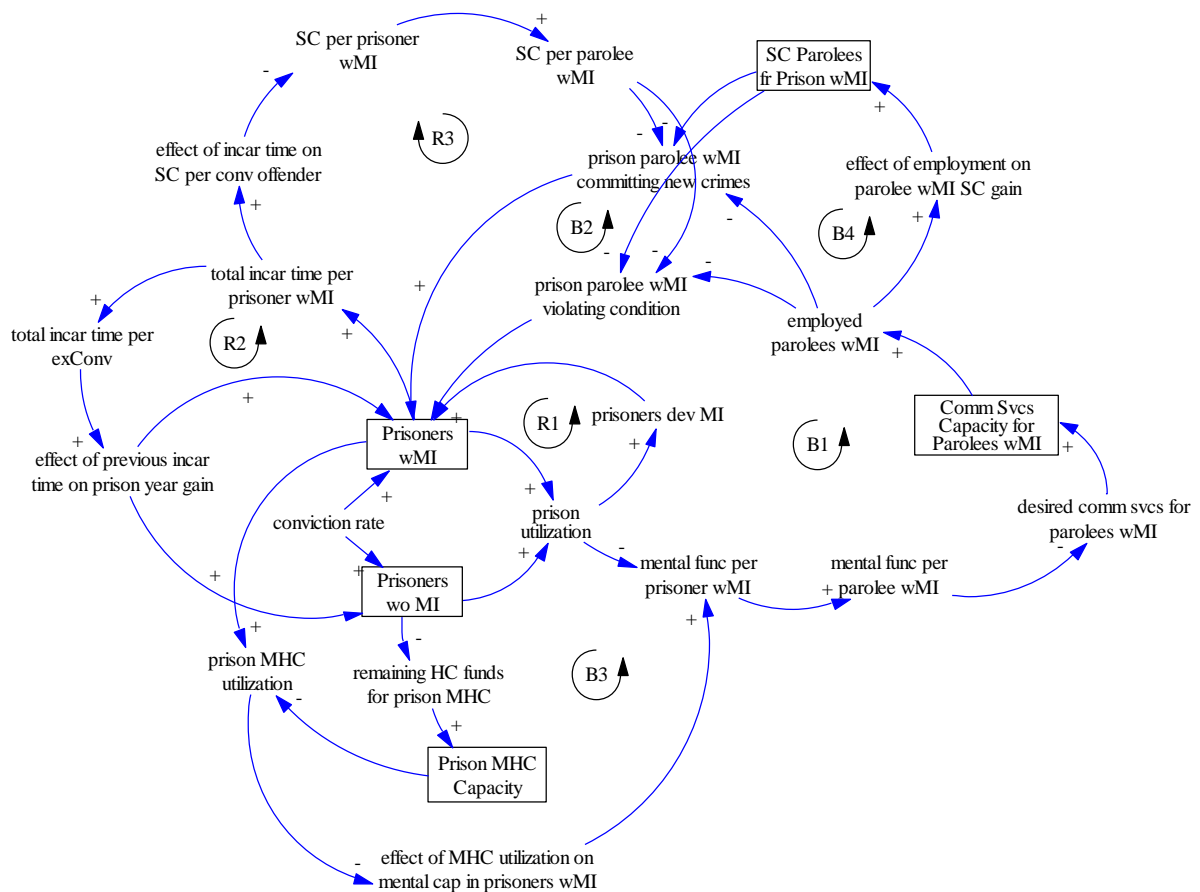
Figure 3 Overview of the Main Feedback Loops

The symbol with a combination of the alphabet "R" with a numerical value represents positive feedback loops. A positive feedback loop has a reinforcing effect. Thus, a positive feedback loop is also called a "reinforcing" feedback loop. A positive feedback loop means that when the cause increases, the effect will increase above what it otherwise would have been, or if the cause decreases, the effect will decrease below what it otherwise would have been (Sterman, 2000). A negative feedback loop,

also called a "balancing" feedback loop, is denoted by a label with "B" and a numerical value. A negative loop means that the cause increases, the effect will decrease below what it otherwise would have been, or if the cause increases, the effect will increase what it otherwise would have been.

4.2   Individual Main Feedback Process

This section explains each causal loop individually and the feedback generated when these loops interact with each other.

4.2.1   Prison Overcrowding Effect on MI Development (R1)
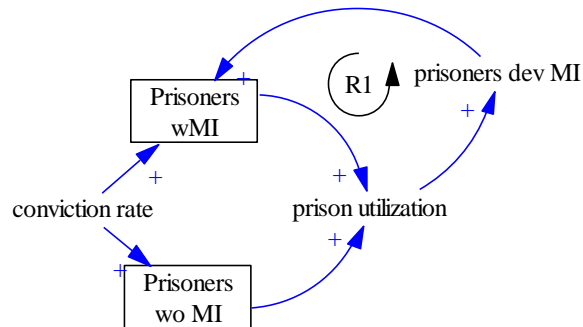
Figure 4 CLD[16] - Prison Overcrowding Causes the Development of MI

At the national level, several major laws were passed during the "tough-on-drug" and "tough-on-crime" era between 1986 and mid-1990s. Consequently, the tightening of law increased drug-related arrest rate, which in turn increase the inflow of prisoners through increase in conviction rate (Figure 4). At the same time, the inflow of prisoners with mental illness (wMI) also increased. In conjunction with the enactment of laws that punish habitual criminals with longer sentences, the prison population swelled. The already harsh prison environment combined with increased density, the probability for prisoners without MI to develop increases. Thus, the *prisoners dev MI rate* is higher than it would have been when the admission of MI new prisoners increases or the number prisoners without MI develop MI increases. The higher the stock of prisoners wMI, the higher the prison utilization. Prisoners wMI are convicts who have MI, either diagnosed or undiagnosed. Hence, this reinforcing loop leads to more prisoners wMI.

---

[16] Acronym for causal loop diagram. This acronym will be used throughout the text.

4.2.2 Community Services Affects Parolees' Recidivism (B1) and Parole Violation Rate (B2)

Figure 5 CLD - Prison Mental Health Care Adequacy Influences Community Service Capacity and Recidivism

Figure 5 exhibits two balancing causal loops, B1 and B2. These two loops illustrate that the inadequate mental health care provision in prisons leads to further deterioration of mental capital per prisoner. After these prisoners are released, they have higher need for community supports. If they receive adequate community supports, the fraction of these parolees employed will be higher than it would been. Thus, fewer of them end up back in prisons, either through parole violation path (B1) or committing new crimes (B2).

The roles of rehabilitating and reintegrating ex-convicts have never been clearly defined between California Departments of Corrections and Rehabilitation (CDCR) and local counties. Once the offenders MI are released to the communities, which were ill-equipped with necessary services that support offenders' reintegration, they either violated the strict parole conditions or reoffend to survive amid deteriorating human and social capitals. Subsequently these offenders return to prison within a short time. Eventually some of these mentally ill offenders become habitual criminals.

4.2.3 Prison Mental Health Care Affects Recidivism (B3)
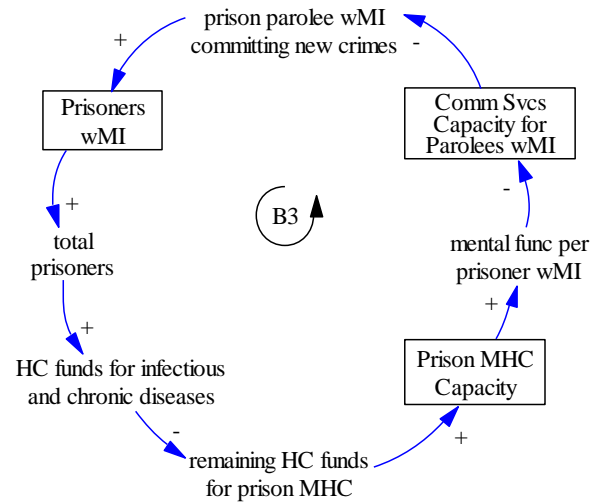
Figure 6 CLD-Increasing Prisoners Siphon Health Care Resources Away for Mental Health Care

Figure 6 depicts the effect of increasing prisoners on resources for mental health care in prison. In a confined environment, overcrowding becomes a breeding bed for various communicable diseases. Fearing the consequences associated with outbreak of communicable diseases (CD), health care resources are prioritized for CD treatment. The remaining resources are shared elderly care and mental health care (MHC). Due to longer sentences, the proportion of elderly offender increased steadily. Compared to MI, age-related chronic diseases are more easily defined and diagnosed. So the pressure for more resources to elderly care surpassed the pressure from MHC. Consequently, more parolees with lower mental capability than it would have been end up in the community. This development shift the pressure to the community to boost up its capacity to handle parolees with poorer mental capability. If the community support is adequate, the fraction of parolees employed either remain the same or higher than it would have been. Then the recidivism remains the same or lower. Note that the recidivism in this section refers to the sum of parolees returning to prisons due to new offense or parole violation (this causal loop is omitted in Figure 6).

4.2.4 Previous Incarceration Time Served Increases Recidivism (R3)
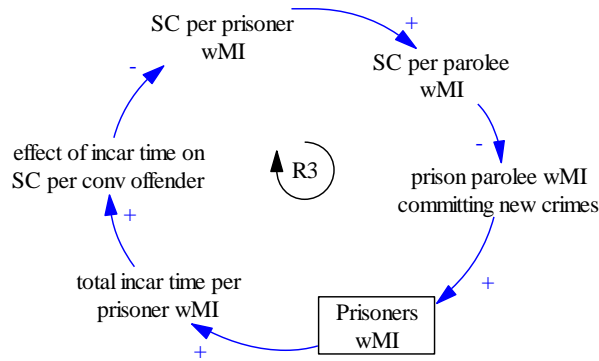
Figure 7 CLD-Effect of Three-Strikes-Law on Social Capital of Parolees wMI

Figure 7 shows the relationship between the previous incarceration time served and recidivism because of deteriorated social capital of parolees wMI. After three-strikes-law was implemented, ex-convicts' previous criminal histories play an important role in driving up recidivism. Under this law, reoffenders will be sentenced much longer than the sentence for the first time offenders for the same commitment. When the offenders recommit the third time, they will be granted either 25 years or life sentence. The longer sentence results in further reduce the already low social capital of parolees wMI. When the social capital is reduced, the probability of recidivism among the parolees wMI is higher than it would have been. Note that the recidivism in this section refers to the sum of parolees returning to prisons due to new offense or parole violation (this causal loop is omitted in Figure 7).

4.2.5 Social Capital Influences the Needs for Social Supports (B4)
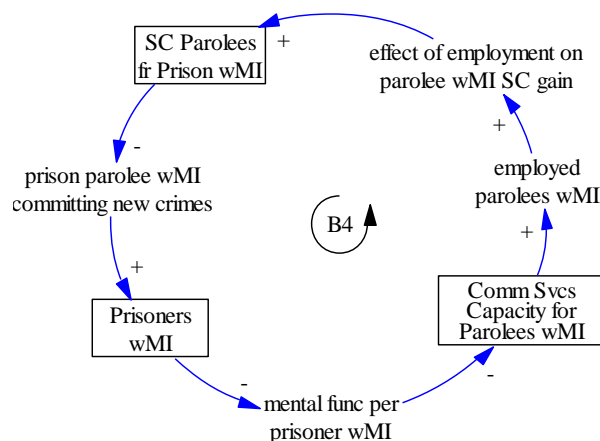
Figure 8 CLD-Effect of Social Capital on Demand for Social Support

Figure 8 shows the influence of social capital on parolees' need for community supports. Lower social capital of parolees wMI renders higher demand for community support. If the demand is met, the

fraction of parolees wMI remain the same or lower than it would have been. However, if community support fall short demand, the parolees benefit less from the marginal social capital gain from employment. This leads to higher recidivism. As the prison utilization increases, the mental functions of prisoners depreciate further.

4.3 Overview of Major Stock and Flow Structures - Before Realignment Policy

This section explains the dynamic hypothesis through major stock and flow structures. Detailed stock and flow diagrams are included in Appendix ___. The model consists of 11 modules. Each module contains a related set of stock and flow structure.
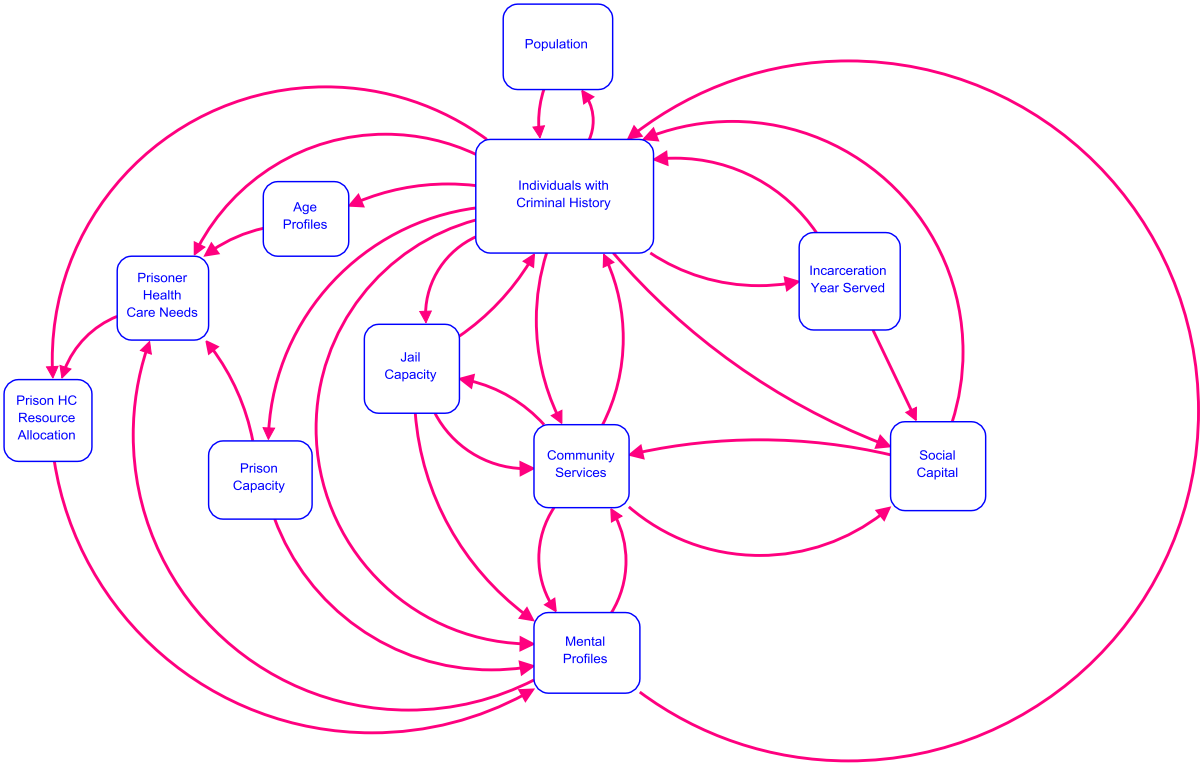
The **Population** module comprises a highly aggregated aging chain of the population groups that have no contact with the corrections system, contacted by the corrections system, affected, and recovered.

In the **Individuals with Criminal History** module, convicted offenders distributed in prison, jail, or probation are characterized in an aging chain consists of these three forms of punishment. This subsector also demonstrates the movement of the offenders from their first contact with the corrections system until they become desisted ex-convicts.

The subsectors below the **Individuals with Criminal History** module illustrate the process in which the offenders' demographic and sentence characteristics affect the health care resources being distributed in the prison. This in turn influence mental health care provision in the prison. The demographic

characteristics that influence the health profiles of the offenders include age, mental functions, previous incarceration years, and social capital. These characteristics are modeled as co-flow structures in separate modules. **Prison Capacity** also affects the **Prisoner Health Care Needs** and **Mental Profiles**. **Jail Capacity** influences the sentence served by jail offenders and **Community Services**. The **Incarceration Years Served** module contains the cumulative incarceration time served by offenders in all three types of punishment. The accumulated criminal history has an impact on the average prison time served because under Three-strikes-law, the recidivists serve longer sentence than it would have been for the first time offender.   The cumulative incarceration time served also influences the fraction of cases being dismissed. Finally, increase in cumulative incarceration time served also depreciates inmates[17], **Social Capital**. The social capital stock of inmates has an inverse effect on demand for **Community Services**. The health profiles of prisoners also have a negative relationship with demand for community services.

The following sections explain the each module in detailed in the form of stock and flow diagram (SFD).

4.3.1   Population

---
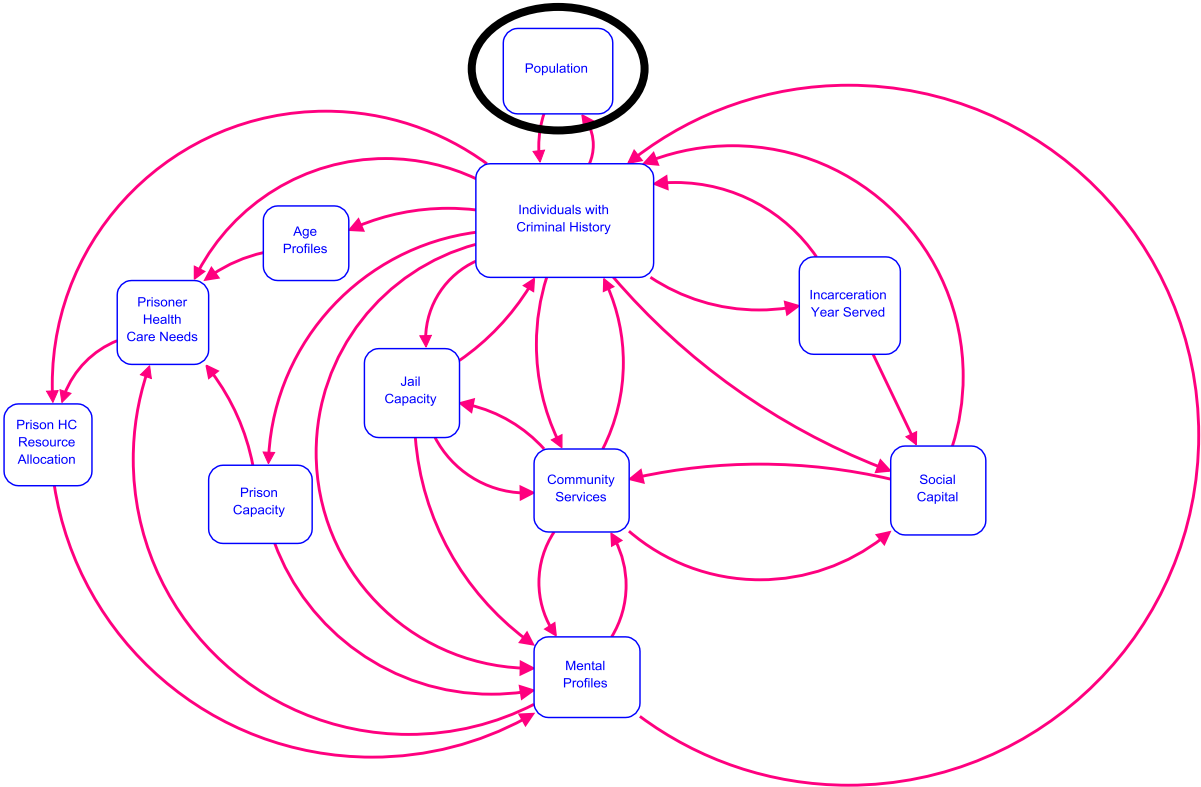
[17] In our study, inmates refer to convicted offenders who serve their punishment in prisons or jails. Offenders serve in prison are prisoners and those in jails are termed jail offenders.

The Population module consists of aggregate stocks from the Individuals with Criminal History module. The structure within Population demonstrates the progression of certain individuals through the criminal pathway from innocence to desistance.

From 1987, California's population growth has been slowing down (Figure 9). Annual growth rate declines from 2.5% to 1% in 2014. As such, California population is growing at a decreasing rate from about 27.7 million to 38.8 million between 1987 and 2014. However, the composition of innocent population, people without criminal history, and those with criminal historical is changing over time. After a period of mass incarceration from 1980s, the population with criminal history is expected to be rising given that those who have had criminal history will remain so until they die.
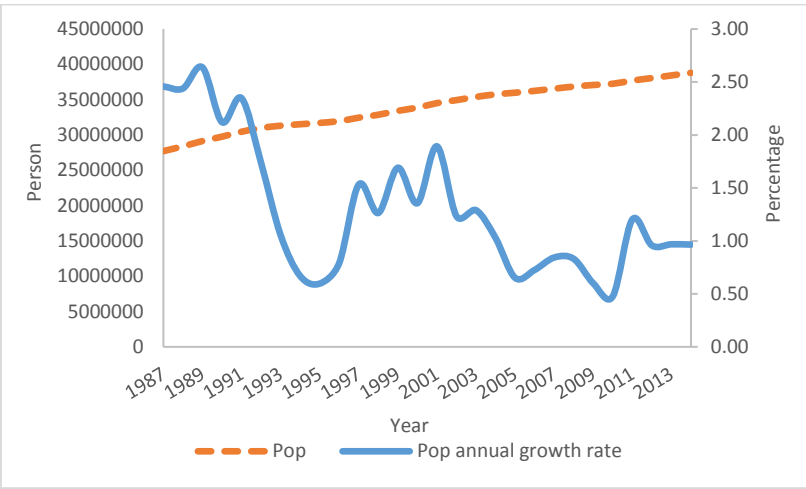
Figure 9 California Population and Annual Population Growth Rate (1987 - 2014)

Figure 10 demonstrates the structure of the composition of the innocent population and population with criminal history. The second stock from the left consists of individuals may or may not have committed crimes while the last two stocks on the right consist of individuals with criminal history.
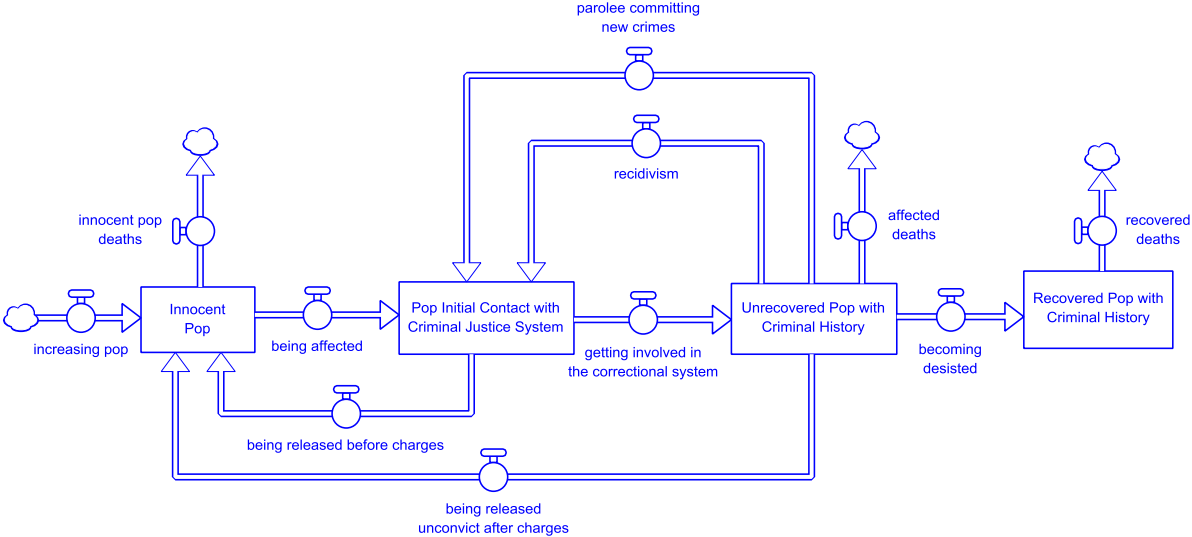
Figure 10 Overview of the Simplified Stock-and-Flow Structure in Population Module

The "Innocent Pop" represents all individuals without criminal history. The inflows to this stock are the increase in population, individuals being released before charges pressed from "Pop Initial Contact with Criminal Justice System", and individuals being released unconvict after charges pressed from "Unrecovered Pop with Criminal History". The two outflows from "Innocent Pop" are individuals being affected by being arrested and deaths.

Once the individuals enter the "Pop Initial Contact with Criminal Justice System" through arrest, there are only two outflows from this stock at the aggregate level, namely being released by the law enforcement without any charges or being arraigned and enter the "Unrecovered Pop with Criminal History".

"Unrecovered Pop with Criminal History" stock represents individuals who have developed criminal background and have still have a high recidivism possibility. This stock contains individuals who are waiting for trial, either in jail or community, convicted offenders, parolees, and ex-convicts who may still recidivate. Recidivism in our study refers to new offense. This differs from parole violation. When individuals with criminal background recidivate due to new offenses, they are arrested and booked in the jail. The whole prosecution and judiciary starts anew. This structure distinguish the recidivism by parolees and ex-convicts. Parolees are individuals who are released on parole condition for a period. Once they fulfill parole requirements, they are discharged and become ex-convicts. The relatively high recidivism rate among the parolees form the basis for separating the two recidivism flows in order to

track the flows of parolees and ex-convicts. Given the short period the arrestees stay in the "Pop Initial Contact with Criminal Justice System", the number of annual deaths is unlikely to be significant. Thus, the deaths outflow is omitted from this stock. However, individuals stay in the "Unrecovered Pop with Criminal History" stock comparatively long. Hence, deaths outflow is included.

After release or discharge from punishment for a long time, some individuals have reintegrated into the society and committed to be law-abiding citizens. These individuals eventually become the desisted population. In this structure, they are termed as "Recovered Pop with Criminal History".

Apparently, this structure shows that once individuals are affected by engaging in criminal activities and convicted, they will live with the criminal history until they die. Some individuals may still be able to lead normal lives with criminal history and entered and last stock while some persistently fail to leave the "Unrecovered Pop with Criminal History" stock.

California's penal system has switched from rehabilitative to punitive since 1970s. After 59 years of indeterminate sentencing for felony conviction[18], California's adopted the determinate sentencing system[19]. To shape the system to be even more punitive, Three-strikes Law and Truth-in-Sentencing Law were enacted in 1994. Consequently, California saw an increasing recidivism trend because convicts are released without being rehabilitated. This resulted in a rapidly increase prison population. Facing budget pressure, the State government passed other laws in the past decade to deter inflow to the prison, such as:

- The establishment of mental health court to deter the inflow of mentally ill offenders;
- The Realignment policy to delegate criminal justice responsibility to the county government in order to sentence low-level offenses in jail and to keep parole violators at county's supervision;
- Proposition 47 to re-sentence existing inmates to reduce penalties in order to release certain inmates earlier; and
- Proposition 64 to legalize recreational use and cultivation of marijuana as well as resentence the punishment for marijuana-related offenses.

---

[18] Indeterminate sentence law was enacted in 1917. Under such system, sentence length was defined with a minimum and maximum term. After the convicts started serving sentence, the prison governing authority set the incarceration duration for the convicts. Depending on the convicts' performance in the prison, the governing authority could adjust the incarceration duration within the minimum and maximum terms set by the courts. Indeterminate sentence law aimed to mitigate punishment and emphasize reformation of the convicts (Johnson, 1977).

[19] Under determinate sentence law, sentence length is decided by the courts based on the seriousness of the offense. Whether the convicts have be reformed or not, the convicts will be released at the end of his or her sentence. Consequently, convicts may not incentivized to participate in the rehabilitation programs in prison as they know they would be released regardless (Petersilia, 2006) .

These new laws passed mainly aim to reduce prison population and have little regard on the attempt to remove individuals with criminal background from the "Unrecovered Pop with Criminal History". Only until the introduction of the Realignment policy has the State government increased resources to beef up community services. This move characterizes the recognition of criminal justice issue as a public health problem. Having acknowledged that the community contribution is a lever to reduce the inmate population will gradually shift the correctional from punitive closer to rehabilitative.

4.3.2 Individuals with Criminal History
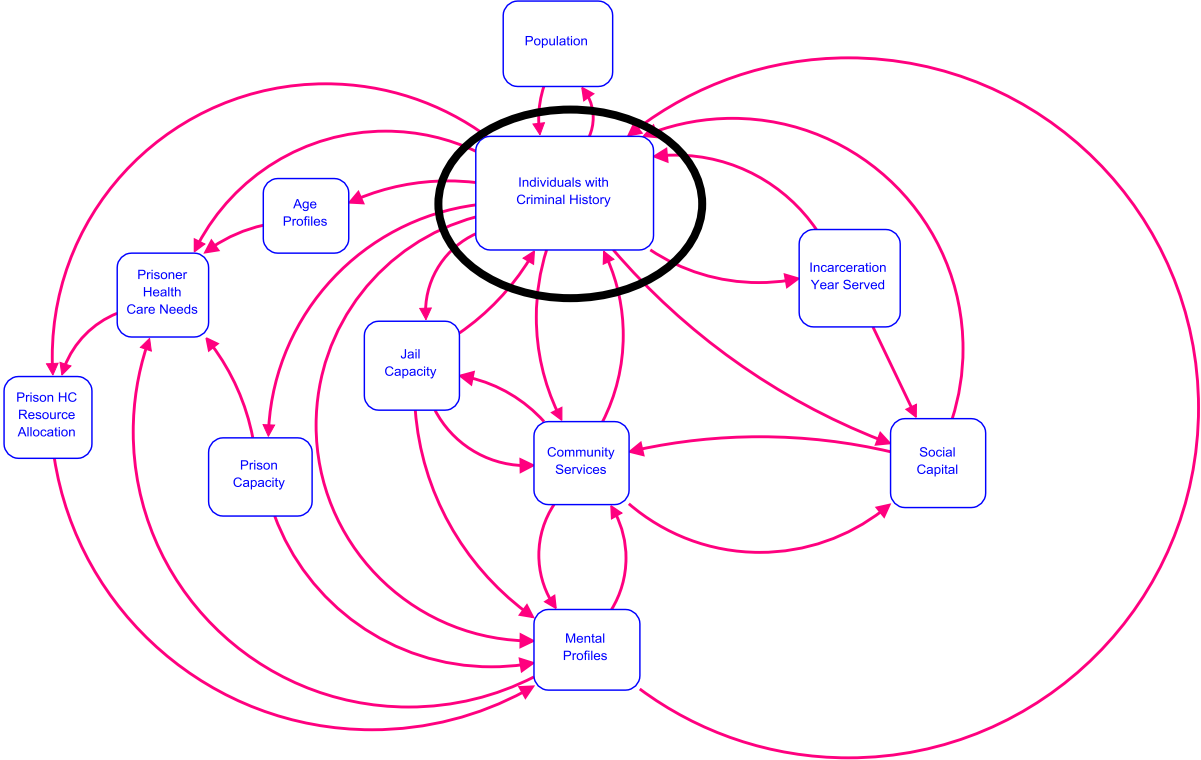
This is the core module consisting the logistics for individuals with criminal history. Figure 11 provides a highly aggregate and simplified structure of the *Individuals with Criminal History* module.
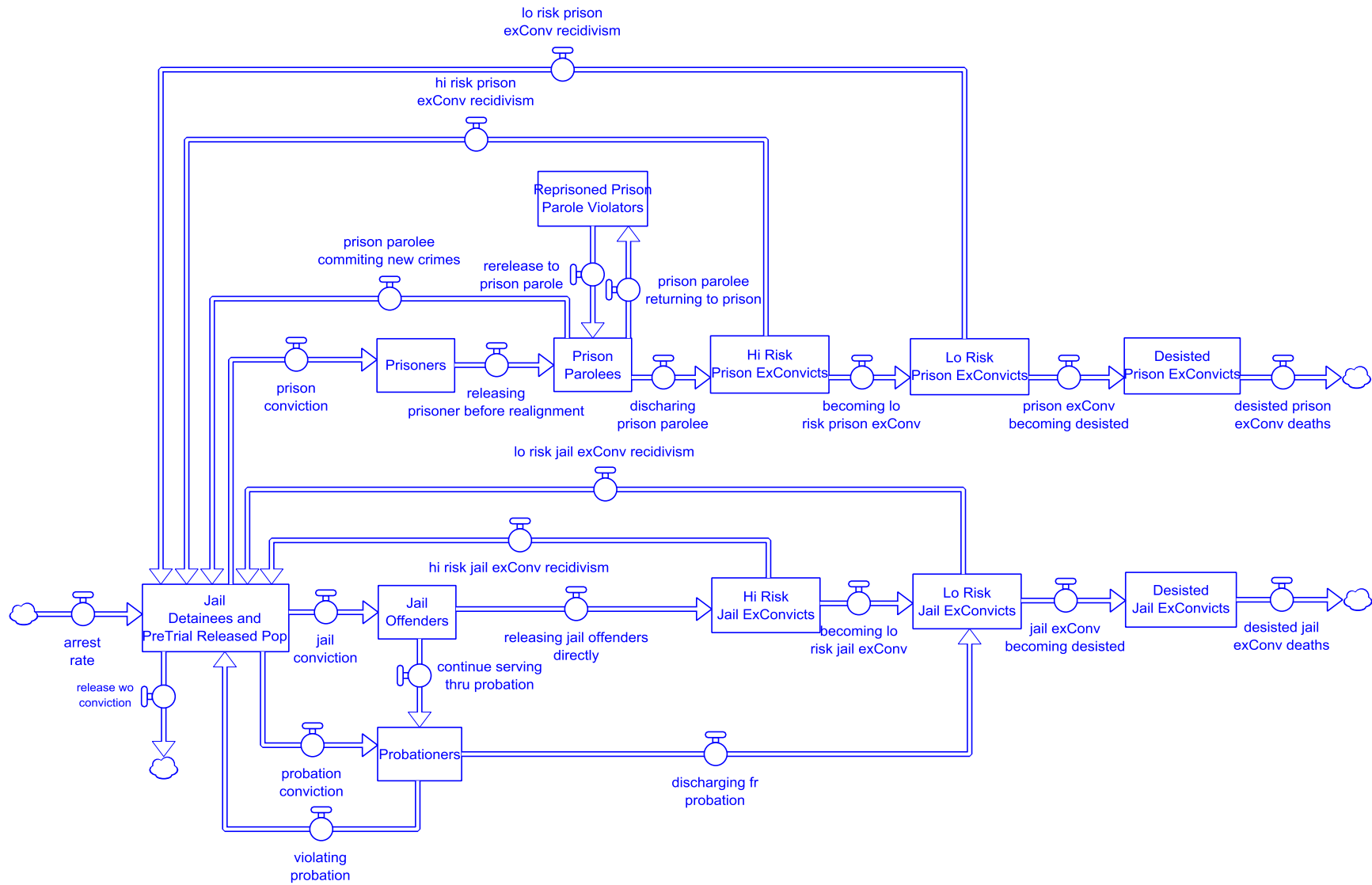
Figure 11 Overview of the Simplified Stock-and-Flow Structure in Individuals with Criminal History Module

Figure 11 features a highly aggregate and simplified logistics of the criminal justice system in which individuals with criminal history move around. The simplified representation of the system provides an orientation concerning the grouping of the actual stocks in the structure in this module. This representation also facilitates and orient the detailed explanation later. Note that the names of the stocks in Figure 11 intend to categorize the relevant structures by functions rather than actual stocks in the module. Hence, these stocks do not correspond to the actual stocks in the module.

The initial contact point of the system lies in the "Jail Detainees and PreTrial Released Pop" stock (see Section 4.2.2.4 to 4.2.2.6). This stock aggregates the following stocks (Table 1):

Pre-trial Detention	Pre-trial Release
Arrestees	
Suspects in Custody	Pre-trial Suspects in Community
Suspects in Custody with Cases Filed	Suspects in Community with Cases Filed
Defendants in Custody Being Trialed	Defendants in Comm Being Trialed
PreSentencing Defendants in Custody	PreSentencing Defendants from Comm in Custody

Table 1 Individual Stocks in the "Jail Detainees and PreTrial Release Pop" Stock in the Overview of the Individuals with Criminal History Module

Subsequently, the individuals in "Jail Detainees and PreTrial Released Pop" stock are either released without conviction or being convicted to one of the three sentences: prison, jail, probation. Convicts with prison and jail sentence progress through the aging chain. Prisoners advance to parole and become ex-convicts. The jail offenders do not serve parole. Instead, some of them serve split-sentence where they are put on probation after serving jail time. When prison parolees violate parole condition, they return to prison to serve short sentence and then they are reparoled. However, if the parolees commit new crimes, they are arrested and enter the "Jail Detainees and PreTrial Released Pop" stock. The same goes for the jail ex-convicts who commit new crimes. Within the aging chain for prisoners and jail offenders, each type of convicts are further divided by their mental health status. The prisoners and jail offenders who have mental Illness (MI) have separate but similar progression as those without MI (see Section 4.3.2.1 to 4.3.2.3 and 4.3.2.7).
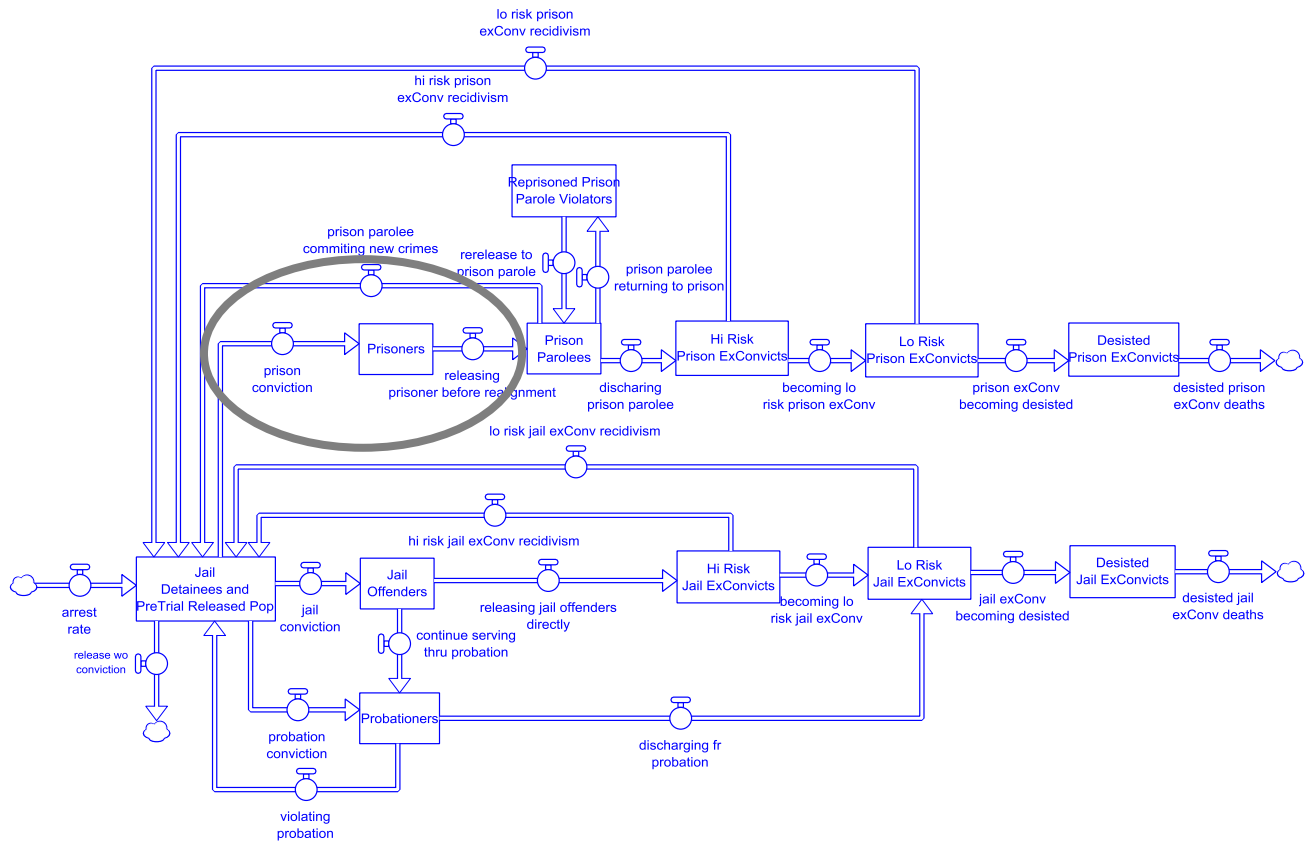
The main stock for this study is the prisoners with mental illness (wMI). Figure 12 is an stock-and-flow diagram (SFD)[20] portrays part of the structure related to prisoners wMI.

---

[20] Acronyms for "Stock and Flow Diagram". This abbreviation will be used throughout this document.
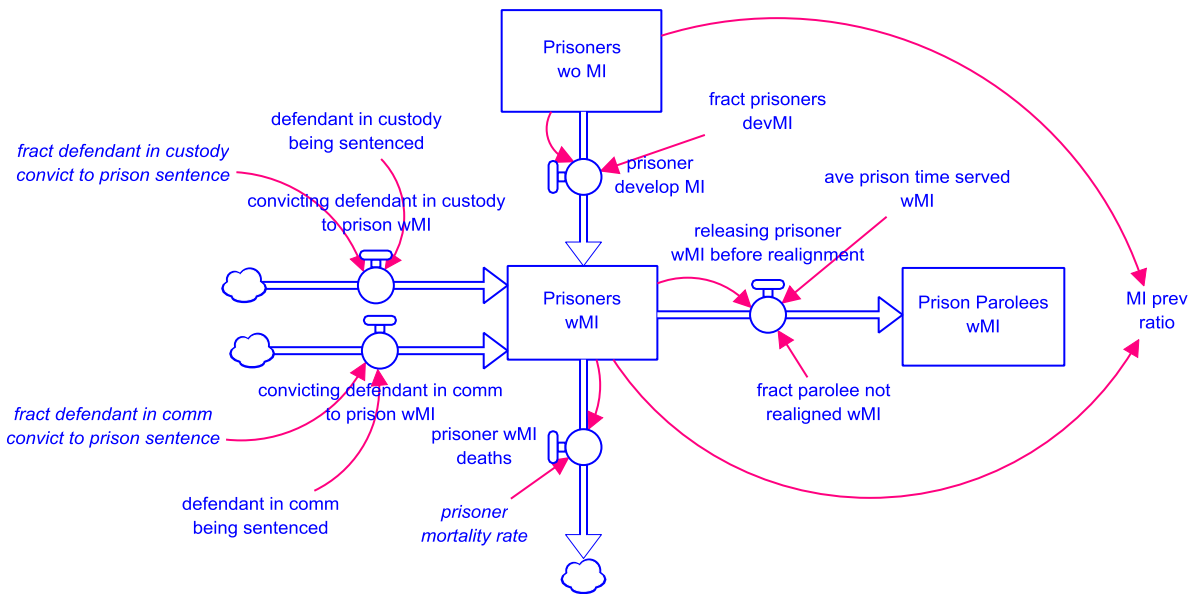
Figure 12 The core stock—Prison Convicts with Mental Illness—and its Inflows and Outflows

Prevalence of MI is a ratio of the number of prisoners wMI in the prisons and total number of prisoners. MI prevalence ratio is frequently used in measuring the fraction of a designated population assumed or diagnosed with MI. "State prisoners" and "prisoners" are used interchangeably thorough the text and model to emphasize that prisons are under the responsibility of the state government. The inflows are the admission of newly convicted offenders wMI and non-mentally ill prisoners develop MI. The admission of newly convicted offenders is divided into the conviction of defendants[21] being held in custody, i.e. in jails, and pretrial-released defendants. These two are inflows are the split flows[22] from of "defendant in custody being sentenced" and "defendant in comm being sentenced" in Section 4.3.2.6. The outflows from this stock are prisoners wMI being released to parole and deaths. The structures for prisoners wMI and without MI (wo MI) are identical. There is a connecting flow, "prisoner devMI" between the "Prisoners wMI" and "Prisoners wo MI" stocks. This flow characterizes the development of MI among the prisoners wo MI. The definition of MI development encompasses medical diagnosis or self-reports.

---

[21] Refers to arrested suspects whose cases are trialed.
[22] This structure splits an outflow into subflows that lead to other stocks. Refer to Hines (1996) for more explanation.
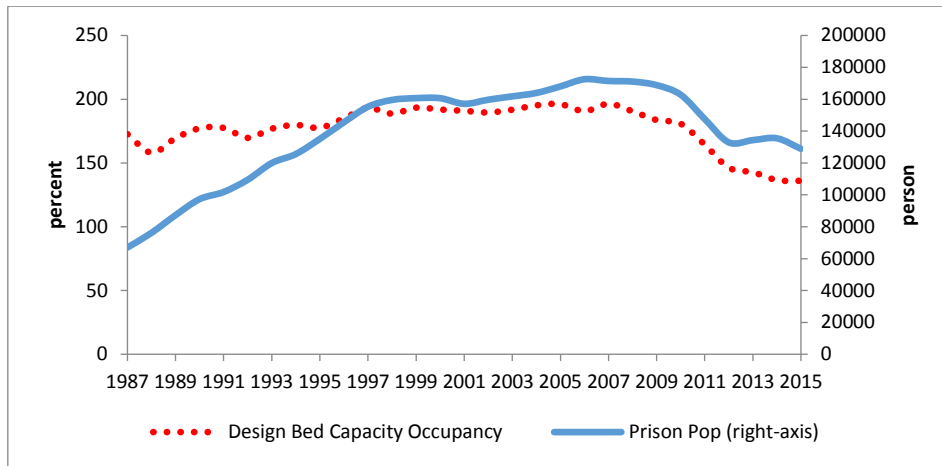
Figure 13 Number of Prisoners and Capacity Occupancy Level

Source: CDCR Annual Prisoners and Parolees Reports 1987 – 2010
"Historical Trends 1987-2007" by CDCR Offender Information Services Branch (Data Analysis Unit)
CDCR Monthly Population Reports 2011 - 2016

The development of MI is related to prison overcrowding. California adult prison population had risen 700% from about 20,000 inmates in 1970s to over 160,000 in 2010 (Figure 13). Much of this increment emerged after 1980s. In 1994, California enacted Three-strikes Law[23]. Under this law, the offenders with second conviction, who are normally called "second strikers", will receive twice as long the sentence for the first conviction with the same offense. The third strikers or lifers, offenders who are convicted for the third time, receive life or at least a twenty-five-year sentence. With Three-strikes Law[24], California prison population was expected to grow[25] (LAO, 1995). Since the late 1980s, the prison population has exceeded the design capacity by 50%. From late 1990s until 2010, the prisons housed over 200,000 offenders beyond its design capacity. After 2011, the prison population has declined after the implementation of the Realignment policy (see Section 4.4).

The Sterling Report commissioned by California state government for the *Coleman v. Wilson* lawsuit reports that the prevalence of severe mental disorder in 1987 was 0.14 (Figure 1). Thus, 0.86 of the total prisoners is assumed to be mentally fit. In 1987, the total number of prisoners was 66,975. Assuming that the reported 0.14 MI prevalence in 1987 was accurate, the stock of prisoners wMI and

---

[23] Under this law, the convicts with second conviction, who are normally called "second strikers", will receive twice as long the sentence of the first conviction for the same offense. The third strikers or lifers, convicts who are convicted for the third time, receive life or at least a twenty-five-year sentence.

[24] California enacted both laws concurrently in 1994. So it is difficult to assess the effects of these laws separately.

[25] The report presented the projected population growth by California Department of Corrections (CDC) before and after the implementation of Three-Strikes Law. CDC estimated the increase in "Three Strikes" admission would be 35,000 offenders between 1994 and 1999. But after the implementation in fall 1994, CDC reduced the expected increment to 19,000. But in the long run, CDC projected the prison population would grow by 275,000 in fiscal year 2026/27.

without MI are 9,377 and 57,600 respectively. Nieto (1998) reveals that between 10 – 18 percent of incoming offenders, which was more than 20,000 each year , are in need of mental health attention[26].

It has been reported that 7% of the state prisoners in the U.S. had a recent history[27] of mental problem without any prior symptoms (James et al., 2006). The study was conducted in 2006, but our model is initialized at 1987 during which the prison utilization[28] was 160% over the design capacity as compared to 190% in 2006, we adjusted the fraction of prisoners develop MI through calibration and find that a fraction higher than 2% yields an exceptionally high MI prevalence. If available data has underestimated MI prevalence, then a fraction of prisoners develop MI larger than 2% might be realistic. However, in the absence of more accurate data to provide a basis for such argument, we take a value of less than 2% as the fraction of prisoners develop MI. This number may be further calibrated and updated through calibration later.

The "ave prison time served wMI" represents the actual time served by prisoners from the first day of admission to the prison to the day of their first release to parole. This parameter differs from the actual sentence length determined by the court. After the prisoners start serving sentence, there are good conduct credit-earning programs and work or education participation programs that reduce the serving time (Prison Law Office, 2016). Since 2010, other new credit laws have been passed to target second strikers, lifers, ill and elderly prisoners. Under the new credit laws, about 29,000 of non-violent, non-serious, and non-sex-offenders (the 3Nons) prisoners have been released earlier between 2010 and 2016 (Prison Law Office, 2016). The average prison time served had been relatively stable from 1998 to 2009; it ranged between 1.63 and 1.73 year per prisoner (Figure 14). However, it started to climb to 3.99 in 2012. This is due to the diversion of the 3Nons to county jails instead of the prisons

---

[26] P.1. The author obtained this figure from prison medical staff.
[27] "Recent history" is defined as the occurrence of mental health disorders diagnosed by mental health professionals, overnight stay in a hospital due to mental disorders, using prescribed medication or receiving professional mental health therapy. The study broadly categorizes mental disorders into three groups: major depression, mania, and psychotic disorder. The symptoms on which the professionals diagnosed major depression are depressed mood or decreased interest or pleasure in activities plus 4 additional depression symptoms; the criteria of mania are persistent angry mood or 3 symptoms in a 12-month period; symptom for psychotic disorder is either delusion or hallucination. Hence, these are the prisoners who are assumed to have developed MI during custody.
[28] "*Design bed capacity*"-number of inmates that a prison is designed to accommodate according to standards developed by the Commission on Accreditation and the American Correctional Association. This standard covers the consideration of the need for humane conditions, environment that prevent violence, and provision adequate health care. The number can be based on any combination of single-occupancy cells, double-occupancy cells, single- or double-bunked multiple occupancy rooms, or dormitories; "*operable capacity*"-takes the space requires for effective programming, safety, and security into consideration. It is greater than the design capacity.; "*maximum safe and reasonable capacity*" – represents the maximum number of prisoners to be housed safely and reasonably based on custody level, staffing levels, and physical structure of the facilities (Corrections Independent Review Panel, 2004).

after 2011. Hence, those who remained in the prisons were convicts of more serious felonies with longer sentences. Figure 14 also shows that the average prison sentence length for felonies in 33 states in the U.S. The numbers lingered around 5 years from 1998 to 2006. If Californian prison population is a representative sample of the prison population of these 33 states, the Californian prisoners likely served about 40% of their sentences.
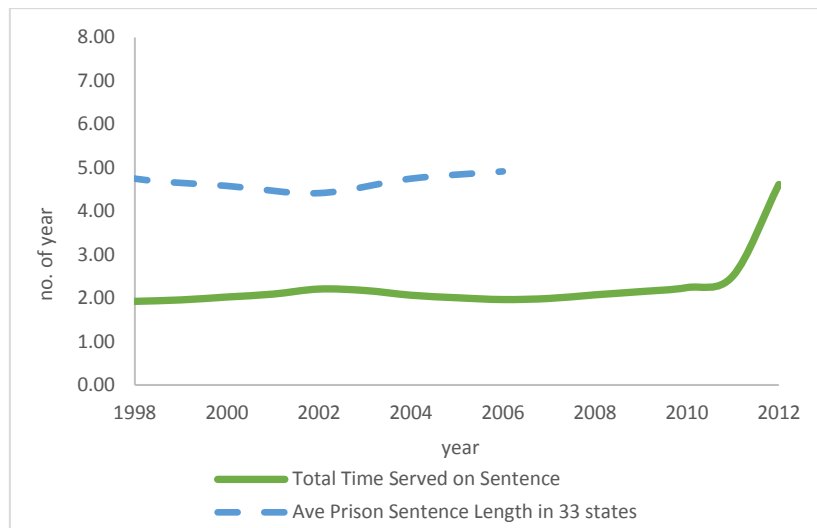
Figure 14 A Comparison of Average Prison Sentence Length and Average Prison Time Served

Source: CDCR Annual Time Served On Prison Sentence Report from 1998 to 2012
         Felony Sentences in State Courts (Bureau of Justices Statistics, 1986-2006)

Studies suggest that the actual time served by prisoners wMI is longer than those without MI. A national study reported that mentally ill prisoners were expected to serve 15% longer sentence than those without MI (Ditton, 1999). The same study also reveals that mentally ill prisoners were likely to be convicted for violence crimes (53% as compared to 46%), about 52% of this group of offenders had three or more prior offense (compared to 42% for other offenders). The higher number of prior offenses and violence offence infer that many of the prisoners wMI might be strikers. The mentally ill prisoners tend to have difficulty in abiding prison rules. Hence, they can be easily charged with infractions (Torrey et al., 2010). Prisons are also a holding place for these offenders before they are offered a place in treating facilities[29] (LAO, 1999a).

The "ave prison time served wMI" is modeled with a built-in third-order information delay function, "SMTH3". This formulation reflects the delay in measurement and reporting of the average prison time served by the prisoners who are being released. CDCR cannot report the instantaneous time

---

[29] In the past, the Board of Prison Terms might keep offenders who were about to be release on parole in the state prison for another year due to the lack of capacity in community psychiatric treatment facilities. But starting from 1998, this practice has been ruled by the court as illegal.

served of the prisoners who are leaving. It must average over a period of time to filter out short-term variations.

In California, almost all offenders released from prisons are placed on parole. The purpose of parole are to ensure successful reintegration to the community and public safety. Released prisoners wMI flow into the "Parolees wMI" stock; prisoners wo MI flow into the "Parolees wo MI" stock (not shown in Figure 11). Some prisoners die during incarceration. The average prisoner mortality rates ranged between 0.001 and 0.003 from 1987 to 2000[30] (CDCR, 1987-2010). Comparing CDCR's prison mortality rate to the national data, the latter shows a significant leap (i.e. 0.004 – 0.005 between 2001 and 2013). Hence, we take a constant number of 0.003 as the mortality rate for prisoners.

4.3.2.2   Parolees Stocks and Flows
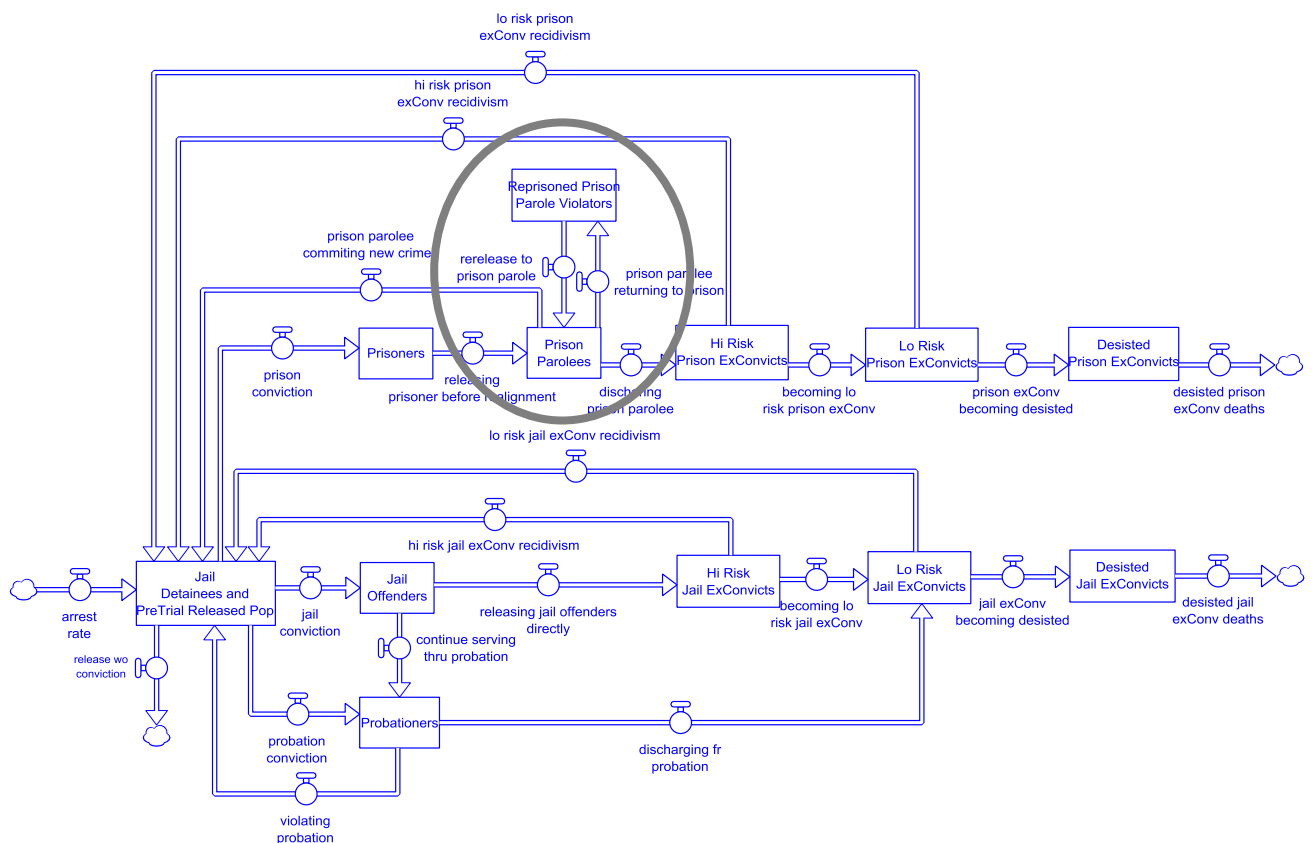
The following structure depicts the stock and flow structure for parolees wMI, parole violators wMI, and reprisoned parole violators wMI (Figure 15). The structure for parolees wo MI, parole violators wo MI, and reprisoned parole violators wo MI are identical.

---

[30] CDCR's modata series discontinued in 2000.

Figure 15 Influence of National and Statewide Policies on the Inflows of Offenders

All the prisoners are released to parole under the CDCR parole supervision, i.e. the "Parolees fr Prison wMI" or "Parolees fr Prison wo MI" (omitted from Figure 15) stocks. There were 40,900 parolees in 1987 (Figure 16). This population peaked in 2007 with 125,200 parolees. After the Realignment in 2011, about 30,000 prisoners are released per year to post-release community supervision (PRCS), operated by counties (CPOC, 2012; Loftstrom et al., 2012). In this model, this new type of supervision is called "county parole" to differentiate from existing "prison parole". Consequently, prison parole population dropped by about 40% from 2011 to 2012. After that, the parole population continued to decrease (Figure 16).

Figure 16 Stock of Parolees (1987 to 2013)

Source: CDCR Annual Prisoners and Parolees Report 1998 to 2010
Parolee Census Data Dec 2012 and Dec 2013

Not all parolees complete parole successfully. Parole violators are defined as "parolees returned to prison for violating their parole conditions, parolees returned pending a parole revocation" (CDCR, 1987-2010). Some of the parolees have their parole revoked on the ground of technical violation or new commitment. Technical violation refers to parolee's failure in compliance to the parole process; revocation due to new commitment refers to new crime commitment during parole. At the discretion of the parole officer, parole violators will be sent to the parole board hearing if they have violated parole condition. The parole hearing board decides whether these parolees will be returned to prisons. Parole violators return to prisons due to technical violation enter the "Reprisoned Prison Violators wMI" stock whereas the violators with new commitments reenter the conviction process anew (see Section 4.3.1.4). Petersilia et al. (1993) discover that more intensive supervision leads to higher parole revocation. This is because that under closer surveillance, the violations may receive more official attention than other types of less intensive supervision. In fact, about 50% of the parolees have at least one formal parole violation (Grattet et al., 2008). 35% of the 50% parole violation are for technical violation. This translates into a fraction of 0.18 technical violation among parolees and a fraction of 0.32 new crime commitment among the parolees. The fraction of parolees RTP due to violation and due to new crime commitment are set as 0.09[31] and 0.12[32] in the model.

---

[31] This number is reduced from 0.18 (in 2008), because 2008 is the peak of the parolee population and there was about three times as many parolees in 2008 as in 1987. Assuming that the development of this trend is linear, the number is divided by three, which yields 0.08. Considering that parolees wMI has a 45% higher chance of being re-incarcerated, the fraction of prison parolee wMI RTP rate is set at 0.12 (0.08 * 1.45).
[32] This number is reduced from 0.32 (in 2008) for the same reason stated in footnote 30. Considering that parolees wMI has a 45% higher chance of being re-incarcerated, the fraction of prison parolee wMI reoffend is set at 0.16 (0.11 * 1.45).

The risk of parole violation is the highest within six months following the prisoners' release and the violation rate continues to decline afterward[33] (Grattet et al., 2008). Grattet et al. (2008) observe that parolees with mental illness have a higher risk to reoffend. In a community study, a total of 94% of the mentally ill parolees were returned to prisons (Shield, 2003) as compared to 65% of non-mentally ill parolees statewide. This fraction is affected by the war on drugs policy, which was introduced in mid-1980s and carried over to early 1990s, the incarceration time served by parolees wMI, and the employment level of the parolees wMI.

Following the tightening of law on drugs, federal resources expansion to increase drug-related arrests in this era. A table function is used to model this exogeneous effect (Figure 17). The input to the horizontal axis is the time between 1987 to 1994. The output of this table function is the effect of war on drugs on the RTP rate. During this period, due to expansion in resources, more individuals were arrested for drug-related felony offenses. When these convicts were released to parole, a high fraction of them fail to pass drug-test. This led to higher RTP rate.
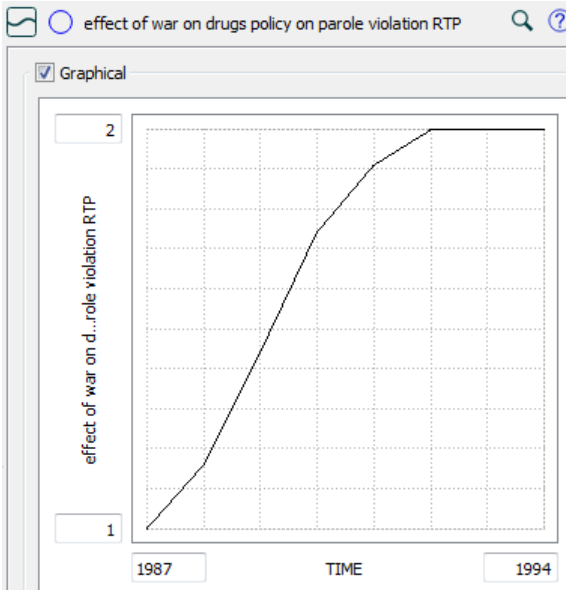
Figure 17 Exogenous Effect of War on Drugs on Parole Violation Return-to-prison (RTP) Rate

In order to simplify the effect of parolees' felony offenses and two previous felony convictions, we use a table function to reflect this relationship (Figure 18 and 19). The input parameter to the table function in Figure 18 is the relative total incarceration time served per prison parolee wMI. This parameter represents the change in incarceration time served compared to the initial value. The higher the change in total incarceration time served, the higher the RTP rate. As parolees with serious felony offenses and two previous felony convictions will most likely have longer previous incarceration

---

[33] The authors collect data on every adult parolee between January 1, 2013 and December 31, 2014. The sample size consisted 254,468 unique individuals without double count.

time served per person. Also, the higher the previous incarceration time served per parolee wMI relative to the initial value, the larger the fraction of parolees in the stock of violated conditions are assigned to more intensive supervision. Consequently, more of them are being reported for parole violation and thus sent back to prison.
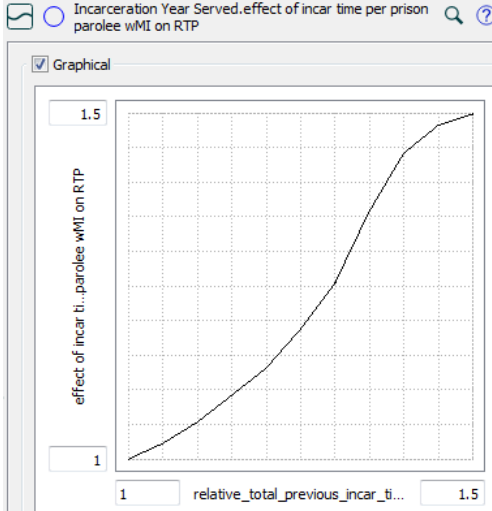
Figure 18 Effect of Incarceration Time Served per Prison Parolee wMI on Return-to-prison (RTP) Rate
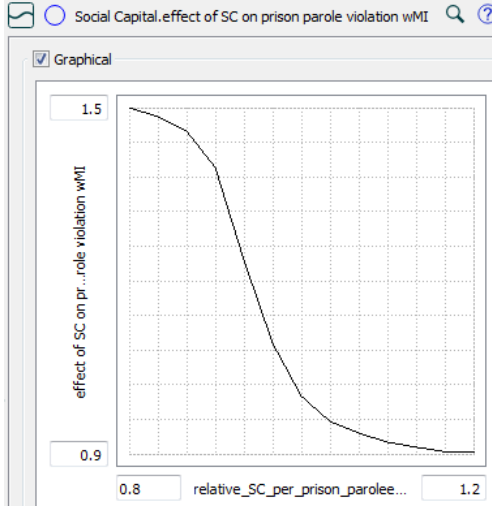
Figure 19 Effect of Social Capital on Prison Parole Violation by Parolees wMI

The fraction of parolees wMI who violate condition is set at 0.75. This assumption is based on the premise that a large fraction of parolees, whether they are assigned to the intensive supervision or low-level supervision, violates parole condition. Only those who with intensive supervision are most likely to be returned to prison after they violated condition. Those with lower-level supervision manage to finish serving parole without being reported because they are rarely in contact with their parolee officers. Sometimes parole violators only receive warnings for minor parole violations.

The pre-condition of returning parole violators to prison is the determinant of parole violation. Parole violation is conditioned by the social capital of parolees (Figure 19). Social capital (SC) refers to the structure and nature of individuals' personal relationships and the supports can be received from such relationships (see Section 4.3.11). As the relative SC per prison parolee wMI, which is the capital per parolee wMI relative to the initial value, increases, the likelihood of parolees wMI violate parole condition reduces because positive personal relationships with law-abiding citizens may serve as informal social control to guide parolees to adhere to the social norm (Figure 19). The table function in Figure 19 portrays this relationship. The input parameter to the horizontal axis is the relative SC per prison parolee wMI. Under the normal condition, the relative SC per prison parolee wMI is one. The input corresponds to the values on the vertical axis, which is the effect on parole violation. If the relative SC per prison parolee wMI is lower than one, the probability of parole violation increases.

Employment is an important factor in reducing parole violation and recidivism. In order to get permanent employment, the prerequisite conditions such as stable accommodation and health need to be fulfilled first (Roebuck, 2008). Once the parolees maintain gainful employment and be independent, they will be less likely to engage in survival crimes[34] (Novac, 2006). Therefore, employment is seen as an indicator of the probability of parole violation and recidivism. The following equation explains this concept:

$$(Prison\_Parolees\_wMI - Community\_Services.employed\_prison\_parolees\_wMI) *$$
$$fract\_prison\_parolee\_wMI\_violate\_condition \qquad (4\text{-}1)$$

Equation 4-1 reads that the employed prison parolees wMI are subtracted from the total number of prison parolees wMI. The remaining parolees wMI are unemployed. Among these unemployed parolees, a fraction of them violates parole condition. The similar equations are used for parolees wMI commit new crimes.

When the parolees wMI commit new crimes, they are sent to jail to start the prosecution and judiciary process again (see Section 4.3.2.4). Then they start new sentences correspond to the offense that they are convicted for. On the other hand, if the parolees wMI return to prison for parole violation, they a significantly shorter duration in prison, i.e. an average of four to five months (Grattet et al., 2008) , as opposed to about two years for felony conviction (CDCR, 1998 - 2012). Once these reprised parole violators serve their sentence, they return to the community to finish their remaining parole period. Before the Realignment, these parole violators returned to prison; after the realignment, a fraction of them return to jail (see Section 4.4.1.2).

The high parole revocation and RTP rate may superfically shift the blame on the parole officers' efficiency in identifying parolees' violation. Nevertheless, despite the increasing caseloads, the caseload mix of each parole officers changes little. The parole officers' caseload is measured by "points" (Grattet et al., 2008). The points of each case determine the intensity of supervision. The higher the points associated with the case, the more intense the surveillance a parolee receives. As stated in the agreement with the California Correctional Peace Offiers Association (CCPOA), each parolee officer's caseload may not exceed 160 points[35]. Parolees are subject of one of the levels of supervision associated with the frequency and level of oversight by the parole officers when they are released from prison. As such, the parole officers have no input to the decision on the level of supervision the parolees receive. The decision is literary based on the seriousness of crimes the

---

[34] Refers to nonviolent crimes to get food, shelter, money, or drugs.
[35] Refer to Appendix __ for California Parole Population Caseloads and Supervision Requirements.

parolees are convicted for (sex offenders, gang members, and other serious crimes), previous convicted felonies (second striker), and behavioral patterns (severe mental illness).

There were about 12,000 or 10% of offenders released with history of psychiatric problem documented in their record appeared on state parole caseloads (LAO, 2000b). This implies that about 106,000 parolees did not have MI.The fraction of parolee wMI seems to have increased in 8 years as Grattet et al. (2008) claim that 21% of parolees "had an officially documented mental health condition" (pp.12). On average, parole period is about three years[36] (Grattet et al., 2008). By calculating the residence time[37] of parolees with equation 4-2, the parole length has actually been reducing by more than half (Figure 19).

$$Residence\ Time = Stock\ /\ Outflow \qquad (4\text{-}2)$$

The data series used to calculate the residence time is stock is Parolees wMI and number of parolees being discharged from parole from 1987 to 2013. The residence time of parolees shows a downward trend (Figure 20). Parole length is set by the state law and determined by the type of commitment offense. Once the parolees fulfilled the supervision, they are discharged officially.
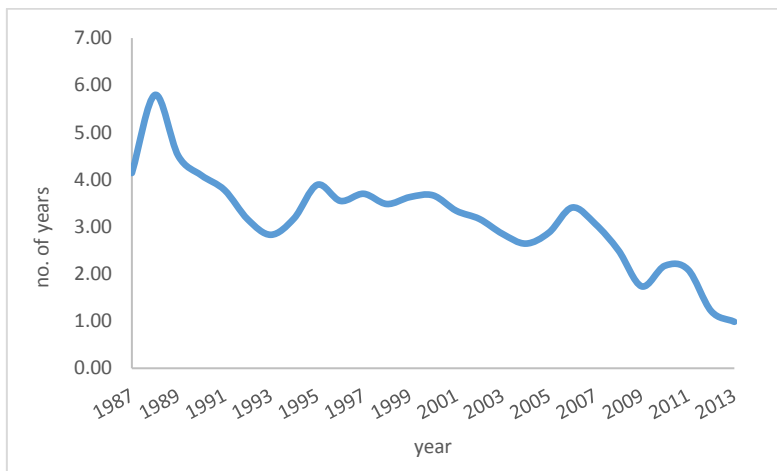
Figure 20 Parolee Residence Time (1987 - 2013)

---

[36] There are three-, five-, ten-, twenty-, and life-long based parole period. For further information, refer to Prison Law Office (2013).

[37] Residence time is the time a unit of material or information remain in the stock before it exits.
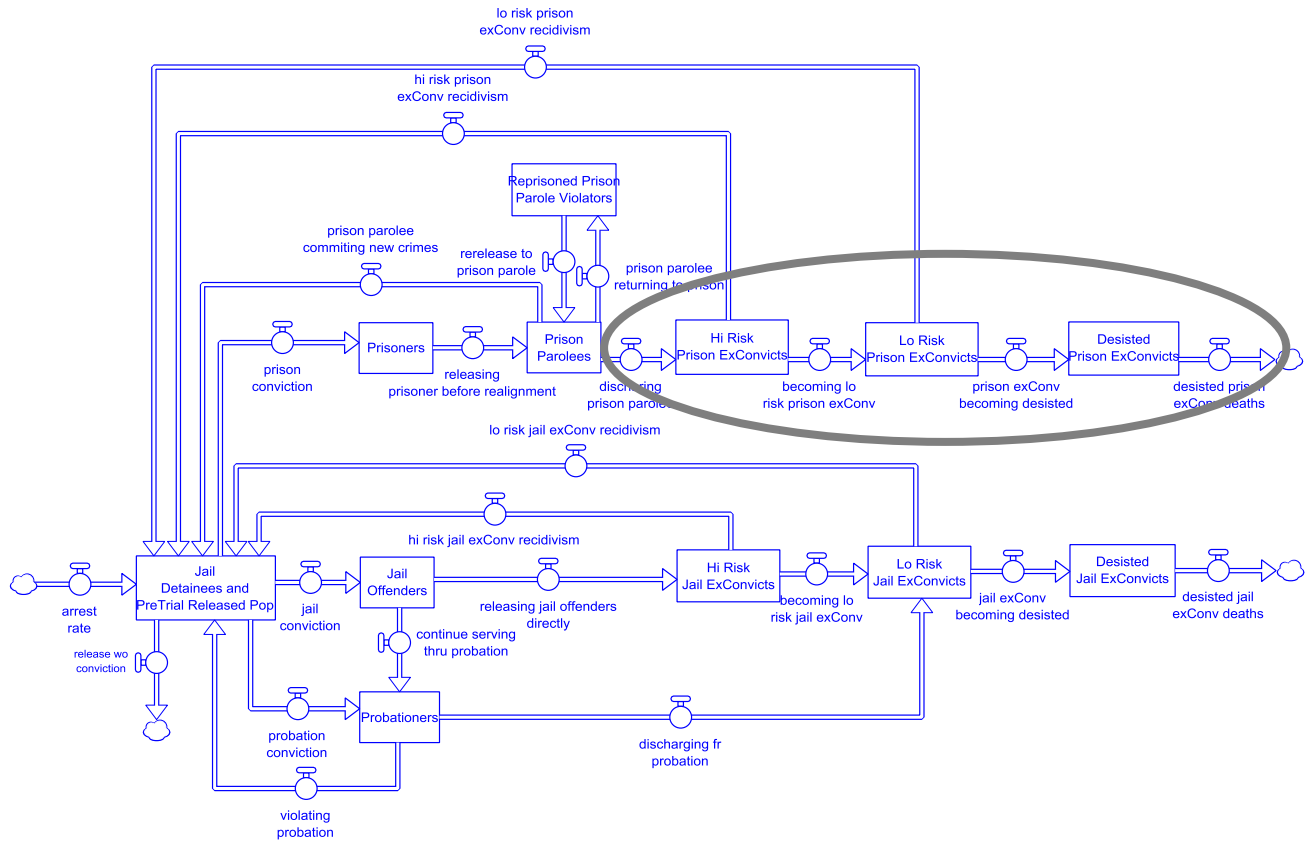
This stock and flow structure presents the progression of discharged parolees (Figure 21).
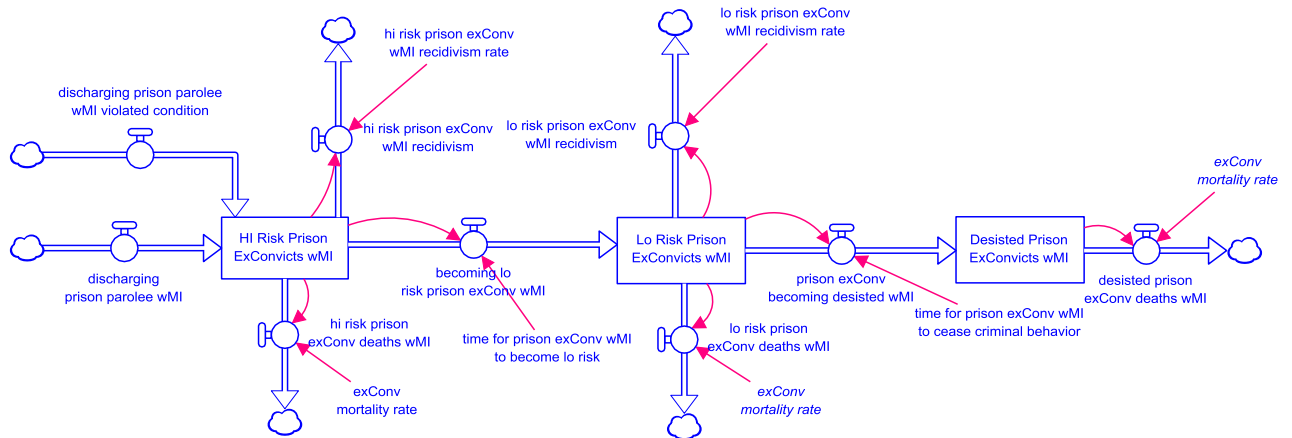
Figure 21 Progression of Discharged Parolees from High Risk Ex-convicts to Desisted Ex-convicts

Figure 21 illustrates the progression structure of ex-convicts wMI. The structure of ex-convicts wo MI is identical. If parolees are discharged, they become high-risk ex-convicts. The same is true for violators.   After a period, the high-risk ex-convicts becomes low-risk ex-convicts if they do not recidivate. The low-risk ex-convicts become desisted ex-convicts if they do not recidivate. These three

stocks have deaths as outflows. The mortality rate of ex-convicts is the same as the rate of the general population, i.e. 0.008.

A national study conducted by the Bureau of Justice reveal that the return-to-prison rates of ex-convicts in fourth and fifth year post release were less than 3% (Durose et al., 2014). Return-to-prison (RTP) rate is one of the variables used to measure recidivism rate. Recidivism rate refers to the number of prisoners released in a particular time who are rearrested, reconvicted and resentenced. Return-to-prison rate is the measure used to reflect the magnitude of resentencing. However, this study considers both types of RTP (technical violation and new commitment) as recidivism. We assign 0.08 and 0.02 to the fractions of high risk ex-convicts and low risk ex-convicts recidivism respectively. As parole duration has been shortening over the years, some of the ex-convicts who have similar risk for recidivism might have entered the "Hi Risk ExConvicts wMI" stock earlier than before. These parolees still possess a considerably high risk of recidivism. The fraction of ex-convicts recidivate can be adjusted during the model validation stage to better fit the historical data.

The corrections has four goals, namely retribution, incapacitation, deterrence[38], and rehabilitation (Kifer et al., 2003). Sentencing serves the first two purpose, but not the last two. The process of permanent abstention from criminal activity is called "desistance". The outcome of desistance is "termination". In our case, crime termination is conceptualized as the accumulation of ex-convicts who permanently cease criminal activity. As such, they are termed the "Desisted Prison ExConvicts wMI"[39].

Scholars from various disciplines attempt to understand the underlying factors that lead to termination of criminal activity permanently in order to design effective re-entry programs to help ex-convicts to reintegrate to the community (Denney et al., 2014; Jeffrey, 1959; Laub et al., 2001). It has been generally acknowledged that desistance stems from a complicated interactional process related to developmental, psychological, and sociological factors, yet scholars have difficulties in concretizing the concept. Primarily, the challenges lie in the definition of desistance.

Laub et al. (2001) suggest the use life-course framework to understand desistance. In Laub and colleagues' analysis, desistance appears to be a gradual process influenced by individuals' choice, situational context, and structural impact from institutions. Essentially, they postulate that the "turning point" of ex-convicts' criminal activity cessation is the result of a dynamic interaction between

---

[38] Generally, deterrence refers to instilling fear to prevent repeated or new criminal behaviors. In this specific context, deterrence refers to the preventing the criminals from reoffending.
[39] Desisted ex-convicts from prison without MI, desisted ex-convicts from community supervision with and without MI have the identical progression structure. Hence, these structures are omitted for the sake of simplicity.

vertical level factors, such as individual, situational, and community, and across horizontal environmental factors, such as one's family, work, and social group association. The major premise from the life-course framework to explain desistance is the variability of individuals' development being embedded in "time-varying social context" (Laub et al., 2001). More specifically, the ex-convicts' decisions in engagement such as marriage, employment, or social groups contribute to "structured role stability" through which provide these individuals well-defined and meaningful daily lives, and newly established social identities. These new changes aid individuals to achieve a degree of maturity through family, work, and social responsibilities. As such, ex-convicts reorient themselves from short-term impulse to commit crimes to long-term commitments to social conformity.

Due to the challenges in defining desistance and complexity of the process of crime ceasing, we are unaware of any studies to date that explicitly spell out the average time for permanent criminal activity termination to take place. From long-term observations of recidivism rate of ex-convicts, Kurlychek et al. (2012) acknowledge that high-risk ex-convicts recidivate in the earlier stage at a faster rate upon release than the medium- and low-risk ex-convicts. In other words, some ex-convicts are already desisted upon their release while there are some who reoffend long after their release. This implies a long tail for the desistance time. The authors analyze a data set of about 1,000 offenders sentenced between 1976 and 1977 and each of the record of the offenders was followed for eighteen years. Their analysis shows that the ex-convicts in their data set had the highest risk[40] to reoffend at the twelfth months upon release. Using the survival analysis to study the ex-convicts' recidivism trend, their finding demonstrates that the accumulative re-arrest rate increases linearly in the first twelve months after the ex-convicts are released (Figure 22). Then the accumulative re-arrest rate increases at a decreasing rate until it almost levels off at about 0.75 from two hundred months (16.7 years) after release. The graph shows that the reoffend rate seems to approach zero after 150 months (12.5 years).
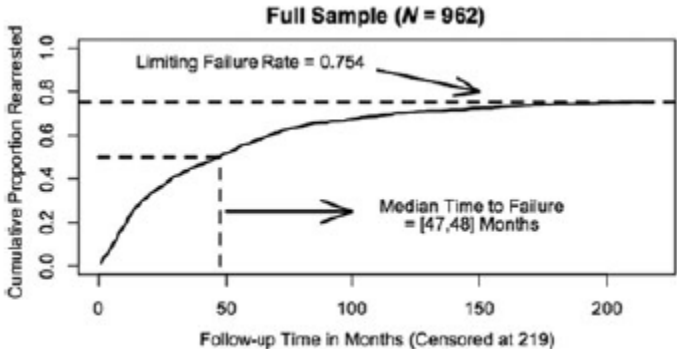
Figure 22 Accumulative Re-arrest Rate of Ex-Convicts in Kurlychek et al. (2012)

---

[40] The authors actually refer the risk as "hazard rate". This is actually a ratio of the number of ex-convicts re-arrested and the number of the remaining number of ex-convicts who had not been re-arrested.

Combining the theoretical perspective and empirical findings, we model desistance as a gradual transformation process (Figure 20). The ex-convicts transit from the parole stock to high-risk ex-convict stock if they do not reoffend. Given the long tail in reoffending time, we define the residence time for the low-risk ex-convicts to remain in the stock as seven years. This value can be modified in the validation stage to should a better-fit value arises.

4.3.2.4 First Contact Point with the Criminal Justice System - Arrest
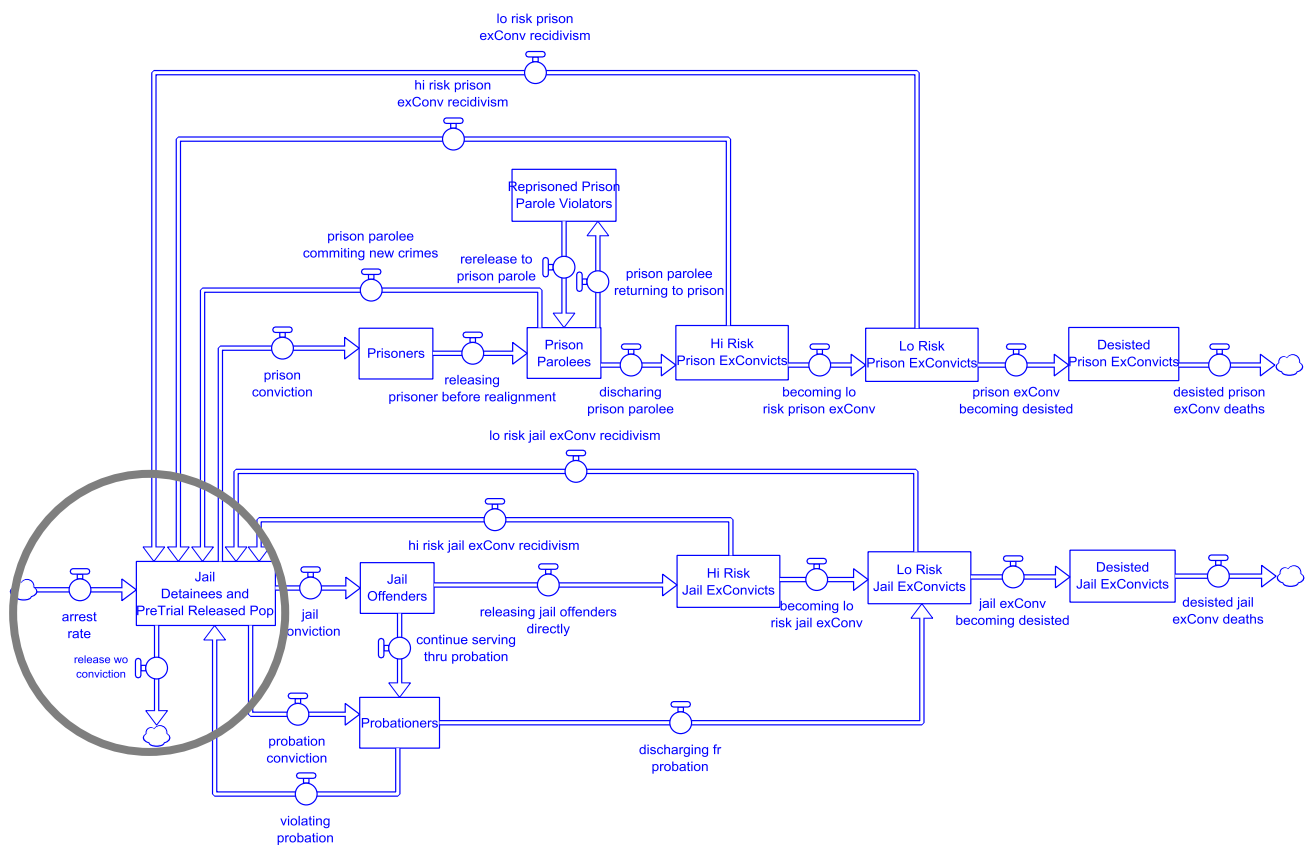
Jail is the first contact point to the criminal justice system. . In California, jails are operated by counties and it is a place where arrested suspects' records and offenses first registered. This process is termed as "booking". Thus, jails do not only function as a confinement for convicted offenders with short sentences, it also serves as a holding place for some suspects.

After the law enforcement[41] agency acknowledges a crime commitment, a suspect must be identified and arrested[42]. Following the arrest, the police present information about the case to the prosecutor. The prosecutor decides whether formal charges will be filed. Because of this process, in our model we differentiate the suspects into "arrestees" and "suspects" stocks. All the arrested individuals are considered as arrestees when they are arrested (Figure 23). They flow out of the system if the prosecutors decide not to file charges (California Courts, 2017). If the prosecutors decide to file charges and the arrestees are brought before a trial court, the court informs the arrestees about accusations against them, provides advice on rights of criminal defendants, and asks the arrestees to enter a plea to the charges. This process is called "arraignment". As stipulated by the law, arraignment must take place within 48 hours after arrest[43] (California Courts, 2017). Given the short time frame between arrest and arraignment, our model treats the release of arrestees due to prosecutors and trial court decisions as one type of outflow.
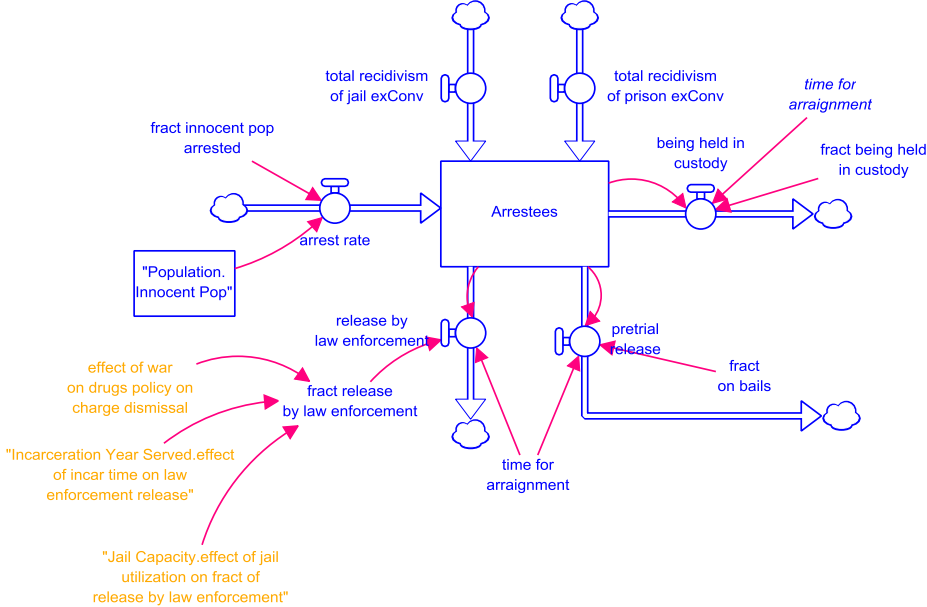
Figure 23 Stock and Flow Structure of Arrestees (Simplified)

At the arraignment, the court may decide if the suspects will be release on bail before trial or remain in custody. The decision for pretrial release is based on the nature and circumstances of the offense, suspects' character, financial stability, social ties, past conduct, criminal history, and public safety (American Bar Association, 2017). Prior arrest or conviction reduces the likelihood of getting pretrial

---

[41] Refers to the individuals and agencies responsible for enforcing laws and maintaining public order and public safety. Law enforcement includes the prevention, detection, and investigation of crime, and the apprehension and detention of individuals suspected of law violation.
[42] Refer to Appendix __ for the case flow within the criminal justice system
[43] Only working days are considered by the law. Holidays and weekends are excluded from this 48 hours limitation.

release (Cohen et al., 2007). Figure 24 depicts the downward sloping trends of the fraction of individuals released from jail due to pretrial release and early release.
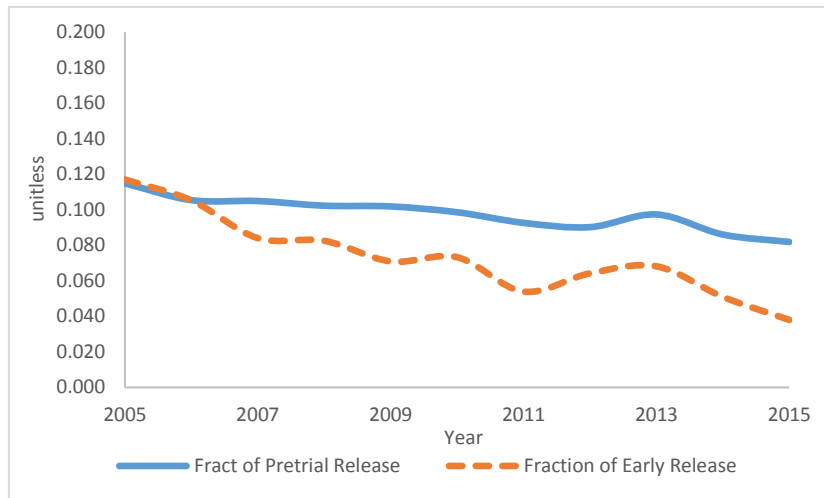
Figure 24 Fraction of Pretrial Release and Early Release as the Total Fraction of Jail Release (2005 - 2015)

There are three major inflows and three outflows from the stock of Arrestees (Figure 23). In our model, "arrest rate" denotes number of individuals without criminal history being arrested. These are individuals from the "Innocent Pop" stock in the **Population** module. The other two aggregate inflows represent the total recidivism rates from prison and jail ex-convicts. In the actual structure, these aggregate flows consist of recidivism from parolee stocks, high-risk ex-convict stocks, and low-risk ex-convict stocks respectively. Our model separates the arrest rate into an exogenous inflow new arrestees (those without criminal history) and arrestees who are suspected of committing new crimes as an endogenous input. Hence, "fract innocent pop arrested" is a calibrated table function range between 0.03 and 0.06 from 1987 to 2015 (Figure 25).
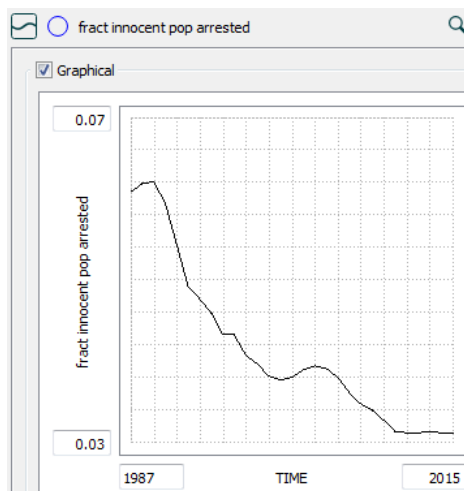
Figure 25 Table Function with Calibrated Fraction of Innocent Population Being Arrested

All the inflows add up to the historical arrest rate in Figure 26.   From 1987, arrest rate had been declining steadily from about 1.6 million to 1.0 million person per year.   This trend does not distinguish the arrest of individuals with criminal history and without.

Despite the decrease in arrest, the fractions of arrestees being released before arraignment had also been declining from 0.83 to 0.72 (Figure 26). This infers that more arrestees are arraigned even though fewer people are arrested.
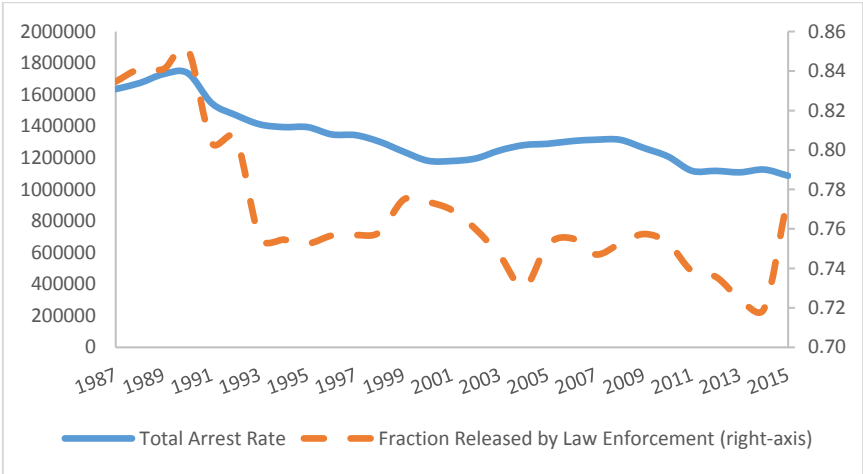
Figure 26 Arrest Rate and Fraction of Arrestee Released By Law Enforcement Before Arraignment (1987 - 2015)

Source: CDCR

These outflows are modeled as split flows because all the arrestees must be arraigned or released within 48 hours after arrest. This means that all arrestees must leave the stock about the same time and transfer to the appropriate adjacent stocks in a relatively short time. The fraction of arrestees released by law enforcement without charges depends on the exogenous effect of drug policy from mid-1980s to mid-1990s, average incarceration year served by recidivists (see Section 4.2.9.7), and jail capacity (see Section 4.2.8).

Figure 27 presents the exogenous effect of drug policy on law enforcement release in a table function.
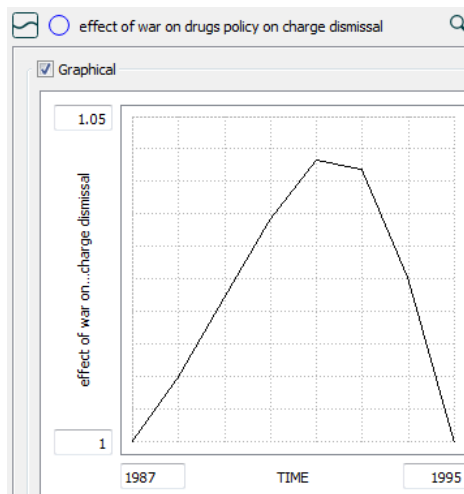
Figure 27 An Exogenous Effect of War on Drugs on the Fraction of Arrestees Released without Charges

The war on drugs policy emerged from the mid-1980s. The effect gained momentum between 1987 and 1991, after which the impact of this policy faded and returned to one. This means that the fraction of law enforcement release is merely influenced by incarceration year served and jail capacity.

4.3.2.5   Process from Arraignment to Sentencing
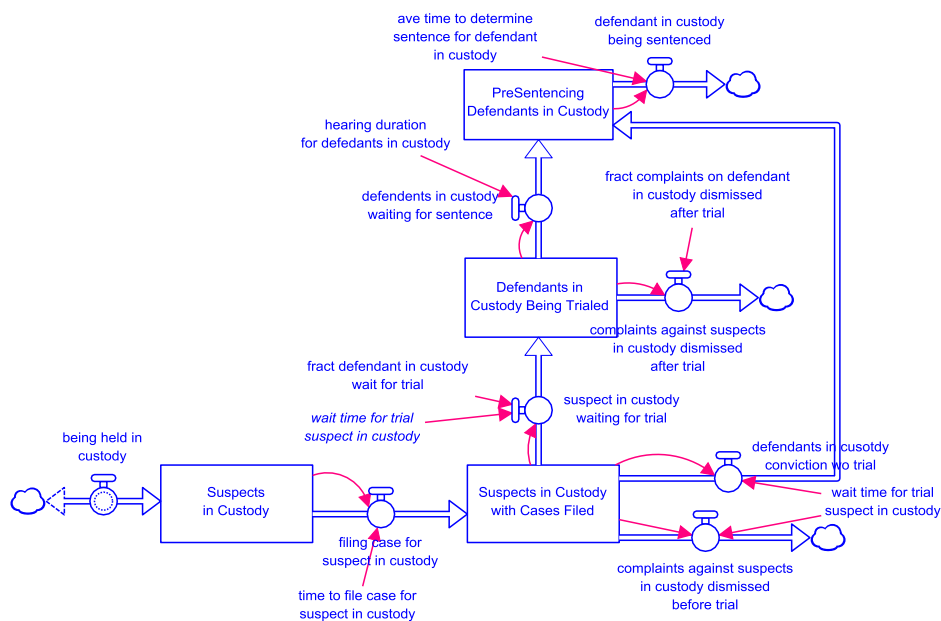
Figure 28 Progression from Arraignment, Case Filed, Trial, and Pre-Sentencing

Figure 28 presents the progression from arrestees to suspects, from suspects to defendants, and from defendants to conviction. Suspects in community share the same progression structure as that of the suspects in custody, except that the "Defendants in Comm Being Trialed" stock has an additional inflow

from "Probationers". This inflow characterizes the probation violators who are sent back to court for hearing.

After arraignment, suspects wait for cases filed. The waiting time is about a week. Those who plead guilty will be convicted directly without trial. Thus, these convicts flow into the pre-sentencing stocks. If the defendants plead not guilty, they will wait for trials. At the initiation of the trial, suspects are considered as defendants. Another outflow from "Suspects in Custody with Cases Filed" is charge dismissal, which is named as "complaints against suspects in custody before trial". If cases are dropped after trials begin, it is called "complaints against suspects in custody after trial". This is one of the outflows from the "Defendants in Custody Being Trailed".

Most of the trials take less than two weeks, after which convicts enter the pre-sentencing stock to wait for sentencing decision. The sentencing decision may take about one to twelve months after conviction. Then, the convicts leave the adjudication and sentencing stage to move on to the corrections system, the last stage of the criminal justice system[44]. About 30 - 40% of the defendants are released without conviction after the trial (California Department of Justice 1975-2005, 1996-2015).

---

[44] Refer to Appendix __ .
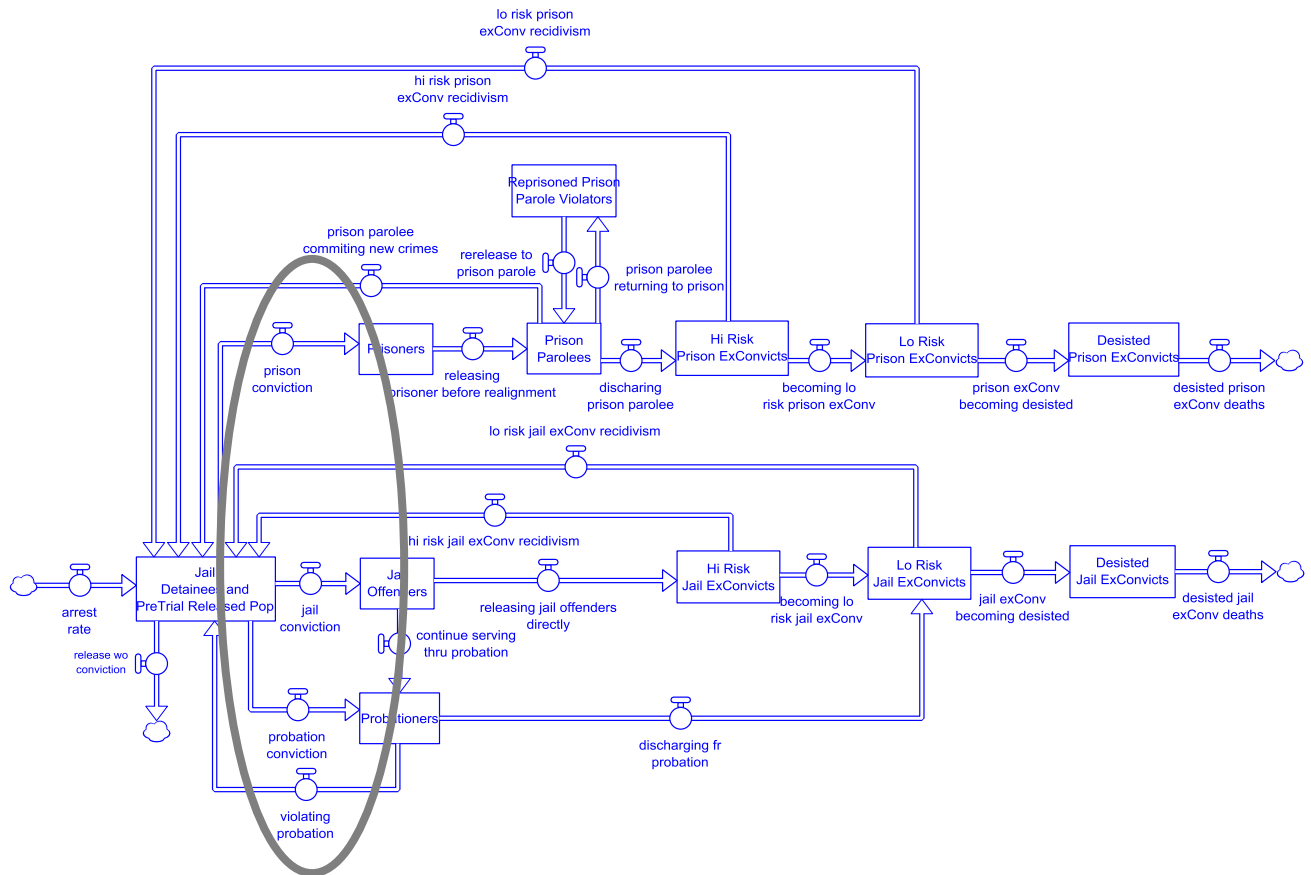
This section presents the structure of sentence distribution, namely state institution[45], jail, probation, and split-sentence[46]. Figure 29 displays the conviction by sentence time between 1993 and 2015. The most frequent type of conviction is split-sentence. However, the fraction of split-sentence imposed has been decreasing slightly over the years. The second most popular type of sentencing is prison sentence. The fraction of prison sentence conviction hovers around 0.2 and only shows a slight decrease after 2011. Usually prison sentence is longer than a year; incarceration conviction of less than a year is most likely jail sentence.

---

[45] State institutions include sentences to death, prison, California Rehabilitation Center, and Youth Authority. Only after 2004, convictions to state institutions is categorized by prison, California Rehabilitating Center, and Youth Authority.

[46] Split sentence is a kind of sentence which is split into two parts. The first part is served by incarceration, usually jail time, and the second part is served by community supervision, such as probation.
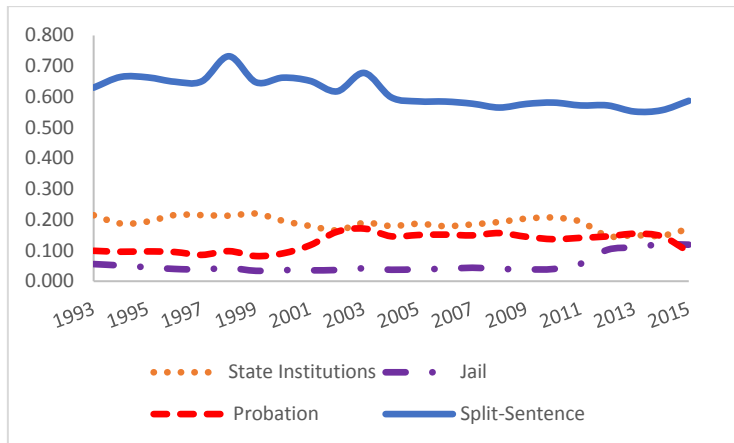
Figure 29 Conviction by Sentence Types (1993 - 2015)

Source: Office of the Attorney General (http://ag.ca.gov/)

Data show that the average time served by prisoner is about 2 years (CDCR, 1998 - 2012) while the average length of stay in jail per offender is about 20 days (Board of Corrections, 1987-1994, 2004-2015) (Figure 29).
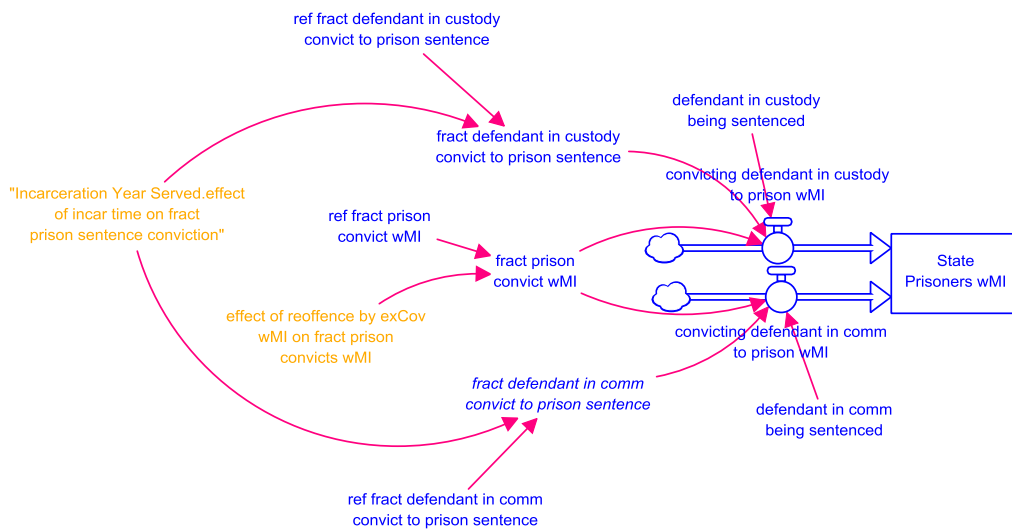
Figure 30 Convictions to Prison Sentence

Figure 30 shows the formulation of conviction to prison sentence. Defendants in custody and defendants in community being sentenced to prison enter the stock through two different inflows. Inferring from the pretrial release conditions, it is assumed that higher fraction of defendants in custody being convicted to prison sentence committed felonies[47], which are more serious crime than misdemeanor[48]. Hence, the fraction of defendants in custody convicted to prison is slightly higher than

---

[47] Felony is a serious crime that is punishable with death or by imprisonment in the state prison for more than a year.
[48] Misdemeanor is a crime punishable by imprisonment in county jail up to a year.

the fraction of defendants in community. The "ref fraction of defendant in custody being" is set at 0.35 while the "ref fraction of defendant in custody being" is 0.26. The "ref fract prison convict wMI" is assigned a value of 0.14.

The fraction of defendants receiving prison sentence is changing overtime and is influenced by the relative previous incarceration time served by the recidivists. Recidivists is a broad term inclusive of parolees, high risk and low risk ex-convicts from prison and jail. The calculation of the average previous incarceration time served by recidivist is located in Section 4.3.9.5. The positive relationship between previous incarceration year served and prison sentence conviction is expressed in the form of a table function in section 4.3.9.4.

The fraction of prison convicts with MI entering the "Prisoners wMI" stock changes over time and hinges on the fraction of recidivists with MI. Table function in Figure 31 explains this positive relationship. The input parameter to the table is the relative fraction of reoffense by recidivist wMI. This is a ratio between the actual fraction of reoffense by recidivist wMI and the initial value. Due to the lack of data, we assume a linear relationship between these two parameters. As the reoffenses committed by recidivist wMI increases, the fraction of prison sentence convicts wMI also increases.
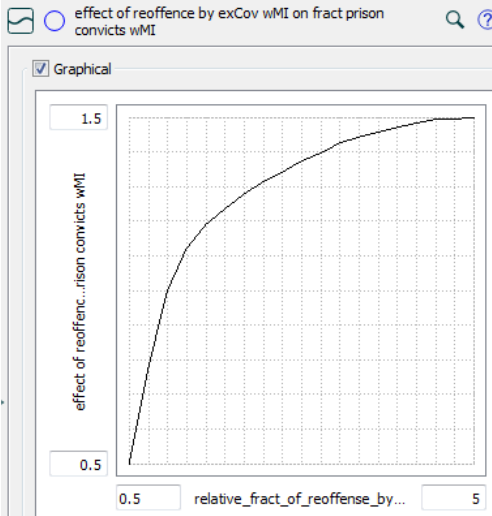
Figure 31 Effect of Reoffense Fraction by Recidivist wMI on Fraction of Prison Sentence Conviction wMI

Figure 32 presents partial structure of offenders in jail wMI and probationers.
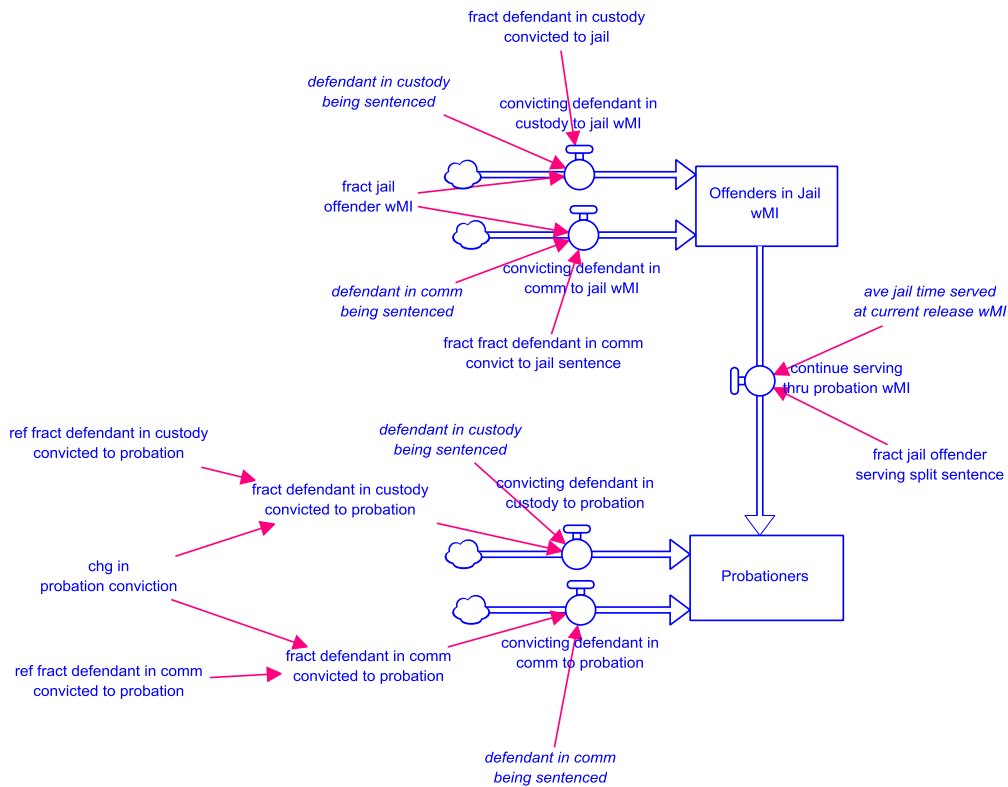
Figure 32 Conviction to Jail Sentence, Probation, and Split-sentence

The inflows to jail are similar to that of prison. However, the fraction of defendants convicted to jail is determined by the following equation:

1 - (fract defendant in custody convicted to probation + fract defendant in custody

convict to prison sentence)   (4-3)

This equation explains that if either the fraction of defendants convicted to probation or to prison increases or both fractions increase concurrently, the smaller the fraction of conviction to jail. Conviction to jail sentence was relatively stable and remained at the 0.05 level until 2011. After the Realignment, jail conviction has leaped to about 0.1. Under split-sentencing, convicts are required to serve sentence in incarceration first and then continue to probation. Thus, the inflows to jail consists of convicts carry split-sentences. After serving an average jail time, a fraction of the offenders in jail are released to probation. This becomes one of the three inflows to the "Probation" stock. The other two inflows consist of defendants in custody and defendants in community being convicted to probation only. Probation conviction had remain stable at around 0.1 before 1994. After 1994, there were a significant hike in probation conviction. The fraction of conviction to probation increased steadily and oscillated around 0.15. Reason cited for the increase in probation conviction is to reduce jail spending (LAO, 1994). As overall jail spending is outside of the boundary of our model, we use a

built-in RAMP function in the "chg in probation conviction" parameter in the following expression to generate an increment in "fract defendant in custody convicted to probation" and "fract defendant in comm convicted to probation".

RAMP (0.002, 1987)

This expression leads to an annual increment of 0.002 fraction in "fract defendant in custody convicted to probation" and "fract defendant in comm convicted to probation" from 1987 onwards.

Probationers are not distinguished by their mental health status because none of such data has been collected in the past. Probation supervision is the responsibility of county governments and probationers are not required to be screened for MI.

4.3.2.7   Jail Offender Progression
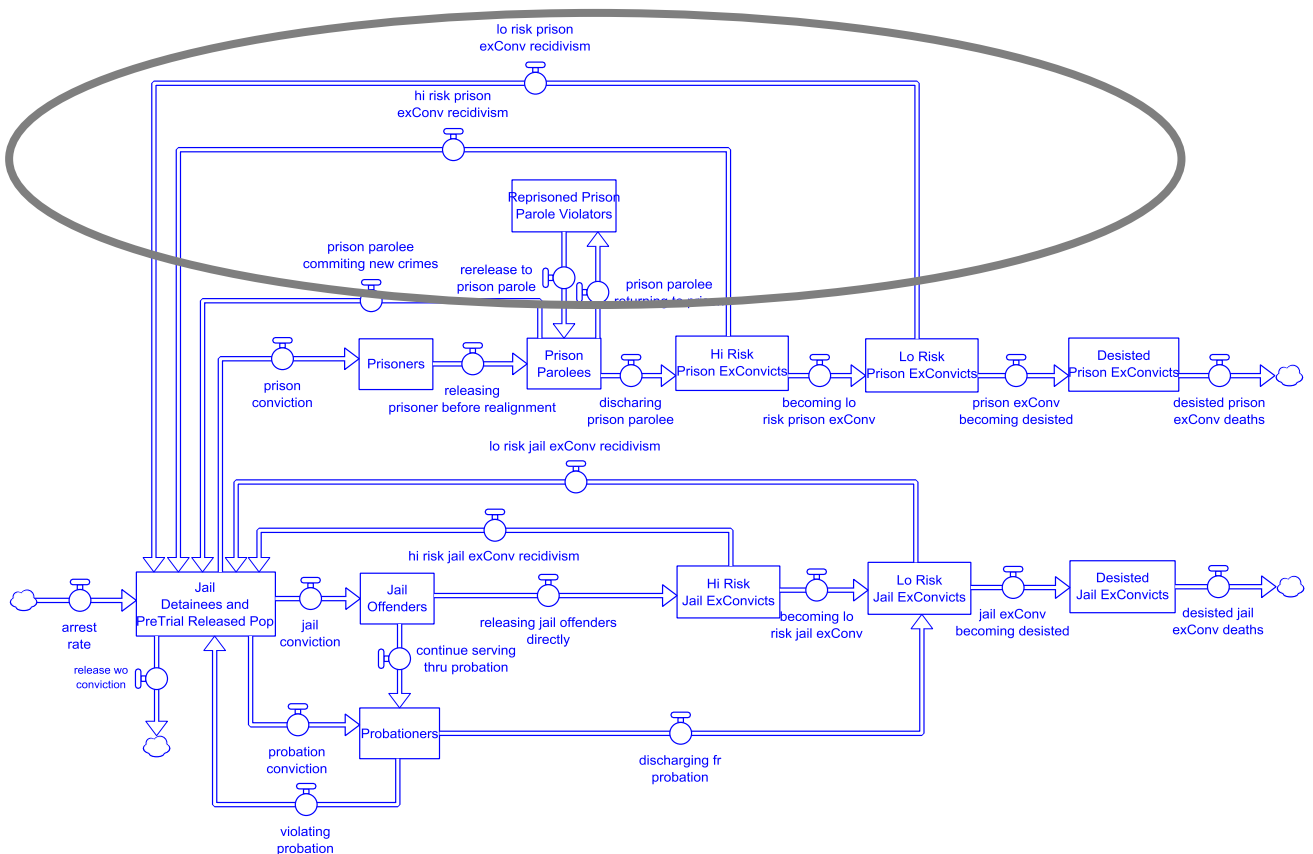
This structure presents the progression of jail offenders wMI (Figure 33). On average, jail offenders' average sentence length is about 6 months (U.S. Department of Justice, 1992-2006) .
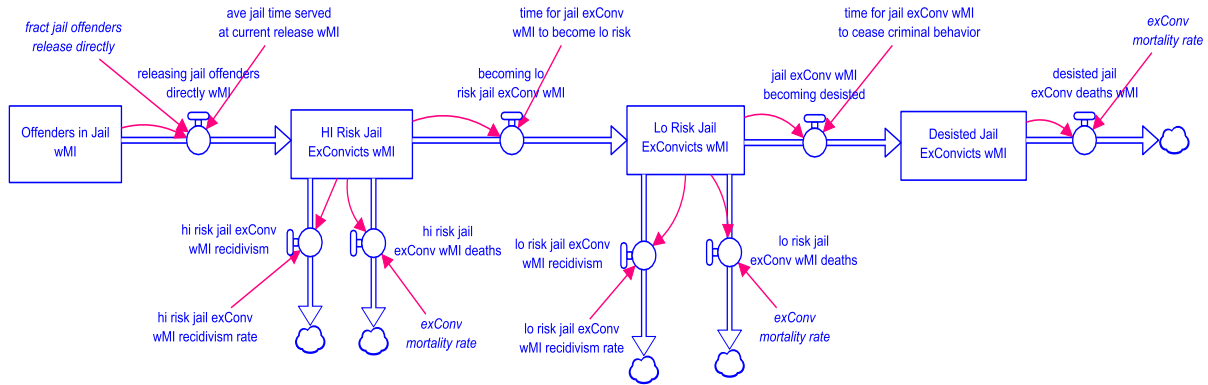
Figure 33 Jail Offender wMI Progression

Studies observe that county jails with population cap[49] have couple of options at their disposal, such as pretrial release and early release, to manage the jail population (Lawrence, 2014; Lofstrom et al., 2013; Turner et al., 2015). Jail offenders may be granted an accelerated release for a maximum of thirty days or 10% of the offenders' original jail sentence (Couzens et al., 2016). Figure 34 exhibits daily average population (ADP)[50] in jail population. The ADP has been increasing moderately and gradually over time.
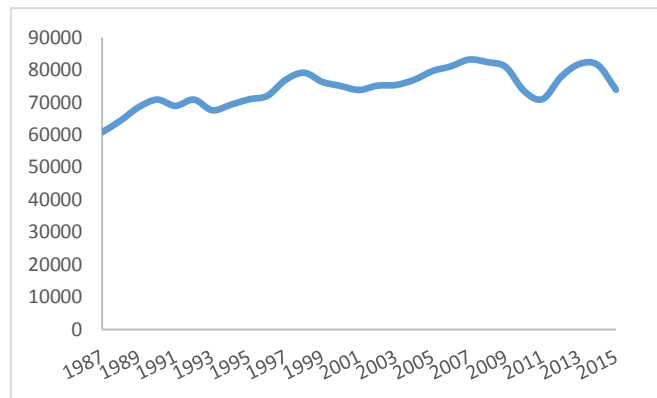
Figure 34 Jail Average Daily Population (1987 - 2015)

Source: BSCC (1987-2015)

Jail offenders were entitled the right to apply for parole in lieu of serving the remaining sentence[51]. Usually only the offenders committed felony offenses with long jail sentence apply for parole to reduce

---

[49] Population cap refers to the court-ordered jail population limits. Currently there are 19 out of 58 California county jails (33%) are operating under the population cap. Population cap is usually ordered at the facility level instead of county level.

[50] ADP for a given year is calculated by summing the daily population for 365 days and then divided by 365.

[51] According to California Penal Code Section 3079 (a) Article 3.5. County Boards of Parole Commissioners, "No application for parole shall be granted or denied except by a vote of the board at a meeting at which a quorum of its members are present. This paragraph shall not be applied to the denial of applicants who are ineligible by order of the superior court, or to the granting of parole in emergency situations."

their incarceration time. Because the county parole board is authorized to release jail offenders on parole for a maximum two-year parole, it is unlikely for the offenders with relatively short sentences to request for parole (Couzens et al., 2016). Hence, the jail offender parole stocks are omitted. The jail offenders who are not serving split-sentence will released directly to the "High Risk Jail ExConvicts wMI" stock. As in the prison progression structure, newly released ex-convicts have a higher probability to reoffend. In comparison to ex-convicts wo MI, ex-convicts wMI have a higher risk to reoffend, so the time that high-risk and low-risk ex-convicts remain in the respective stock are longer than those without MI. After 2.5 years, high-risk ex-convicts wMI become low-risk ex-convicts if they do not commit new crimes. After 8 years, the low-risk ex-convicts wMI become desisted ex-convicts if they do not recidivate. Death outflows are included in all the stocks except for the "Jail Offenders wMI" and "Jail Offenders wo MI) (omitted from Figure 33) stocks. This is because that the offenders stay in jail for about 6 months, the number of deaths among jail offenders is unlikely to be significant.

4.3.2.8   Outflows of Probationers
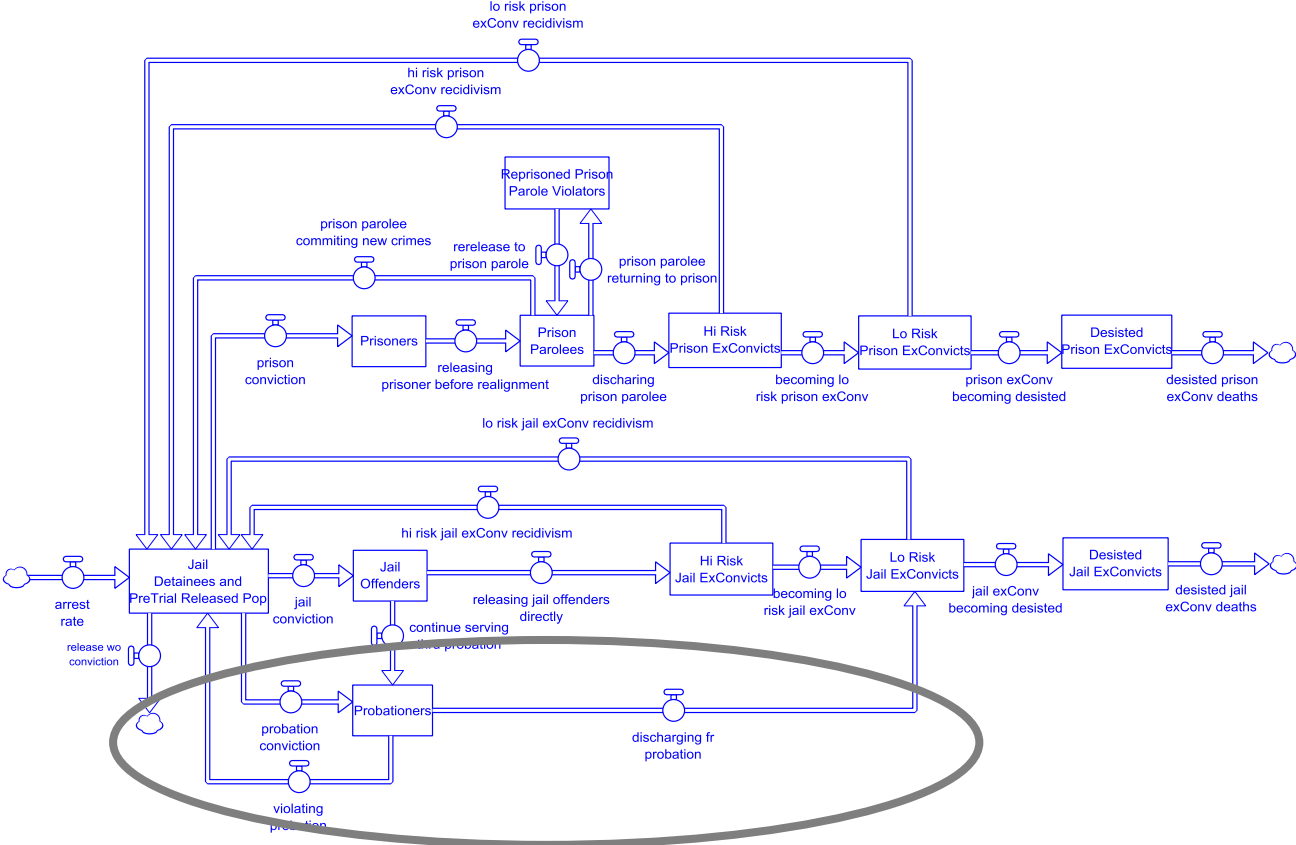
This structure demonstrate the outflows from the "Probationers" stock. The inflows have been illustrated in section *4.3.2.6*. The first outflow is the discharge of probationers when they fully served their sentence without violation. Given that the condition to receive probation sentence is based on

the severity of offence, prior criminal history, demographic, economic, and social factors, we infer that these ex-convicts are likely to have lower risk to recidivate compared to convicts who receive incarceration sentence. Due to the lack of data to differentiate probationers wMI from those without MI, the model is formulated under the assumption that these probationers do not suffer from MI. Hence, they discharged probationers flow to the "Lo Risk Jail ExConvicts wo MI" stock.
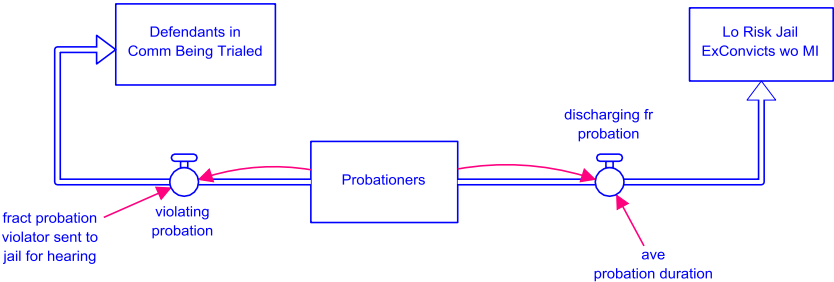
Figure 35 Outflows from the Probationers Stock

The stock of probationers had been growing slowly from 1987 to 2009 and then it started to decline until 2015 (Figure 35). Probationers can be divided in to felony probationers and misdemeanor probationers. The probation length is set by the court when the individuals are sentenced. The most common length of felony probation is 5 years, but a maximum probation term that matches maximum felony incarceration may be imposed in California if the felony probationers violate probation condition (Watts, 2014). For misdemeanor probation, California caps the maximum misdemeanor probation length at 5 years.
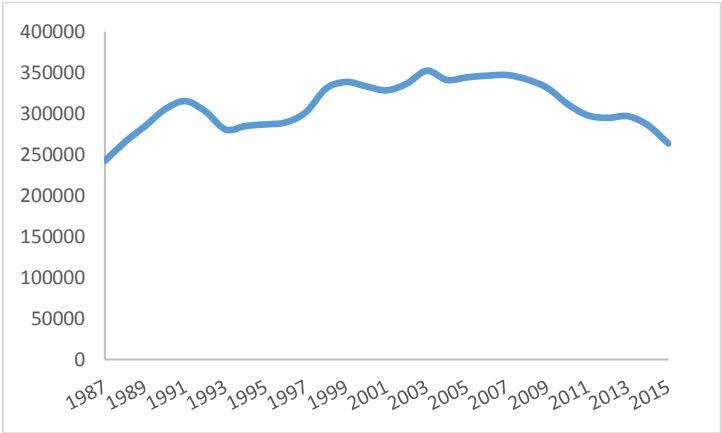
Figure 36 California Adult Probationers (1987 - 2015)

Source: Office of the Attorney General (2015)

Not all probationers complete their sentence successfully. About 15% of the probationers had their probation revoked (Nieto, 1996). Probationers who violated probation conditions and sent to courts

53

by the probation officers enter the "Defendants in Comm Being Trialed". After that, they go through the entire adjudication and sentencing process until the court decision is made.

4.3.3   Age Profile

This module presents the aging of individuals in the criminal justice system in a coflow structure[52]. Since it is almost identical to the fundamental stock and flow structure, that is the stock-and-flow structure in the **Correctional System** module, only the major structure with differences from the fundamental stock will be pointed out.
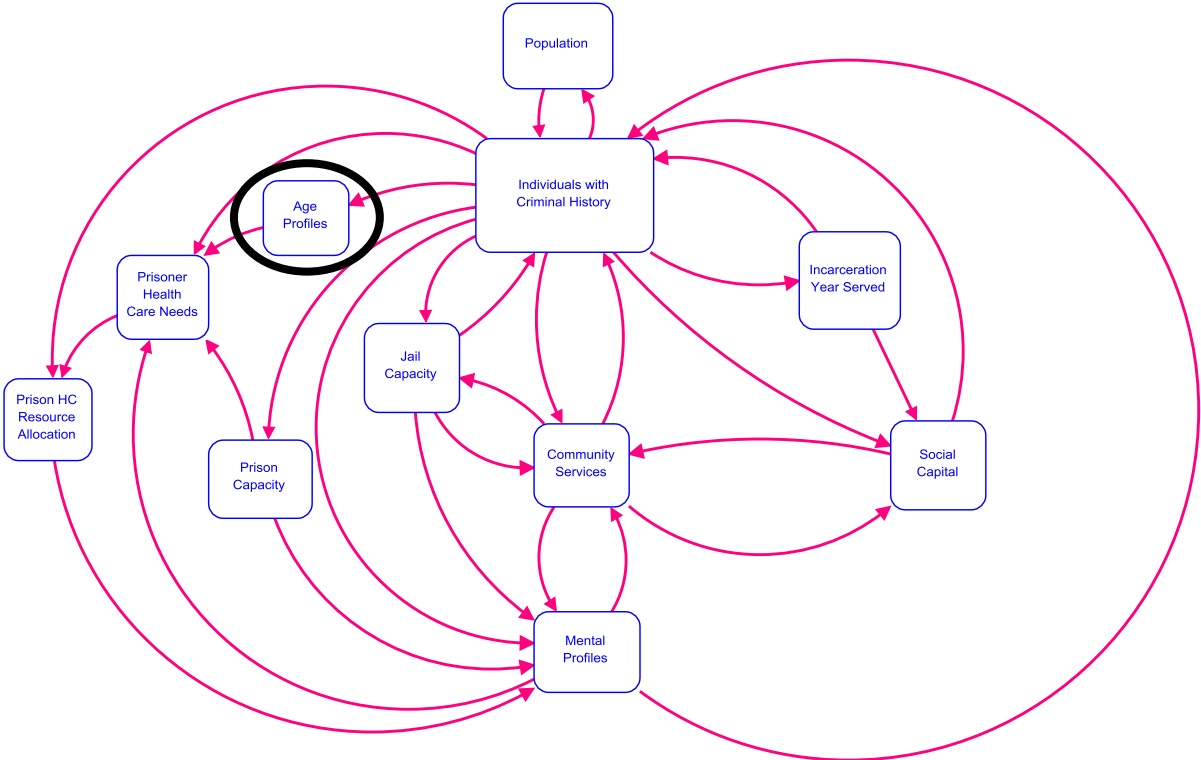
The overview of the structures in **Age Profile** module is presented in Figure 37. This is a highly aggregate structure similar to the overview of the core module, **Individuals with Criminal History**, shown in Section 4.3.2, except that this module contains a coflow structure to capture the age dynamics of the individuals with criminal history background. In the following subsections, only the structures that are different from the core module will be illustrated in detail.

---

[52] A nearly identical stock and flow structure to the fundamental stock and flow structure that is used to capture the attribute or characteristics of the fundamental stocks.
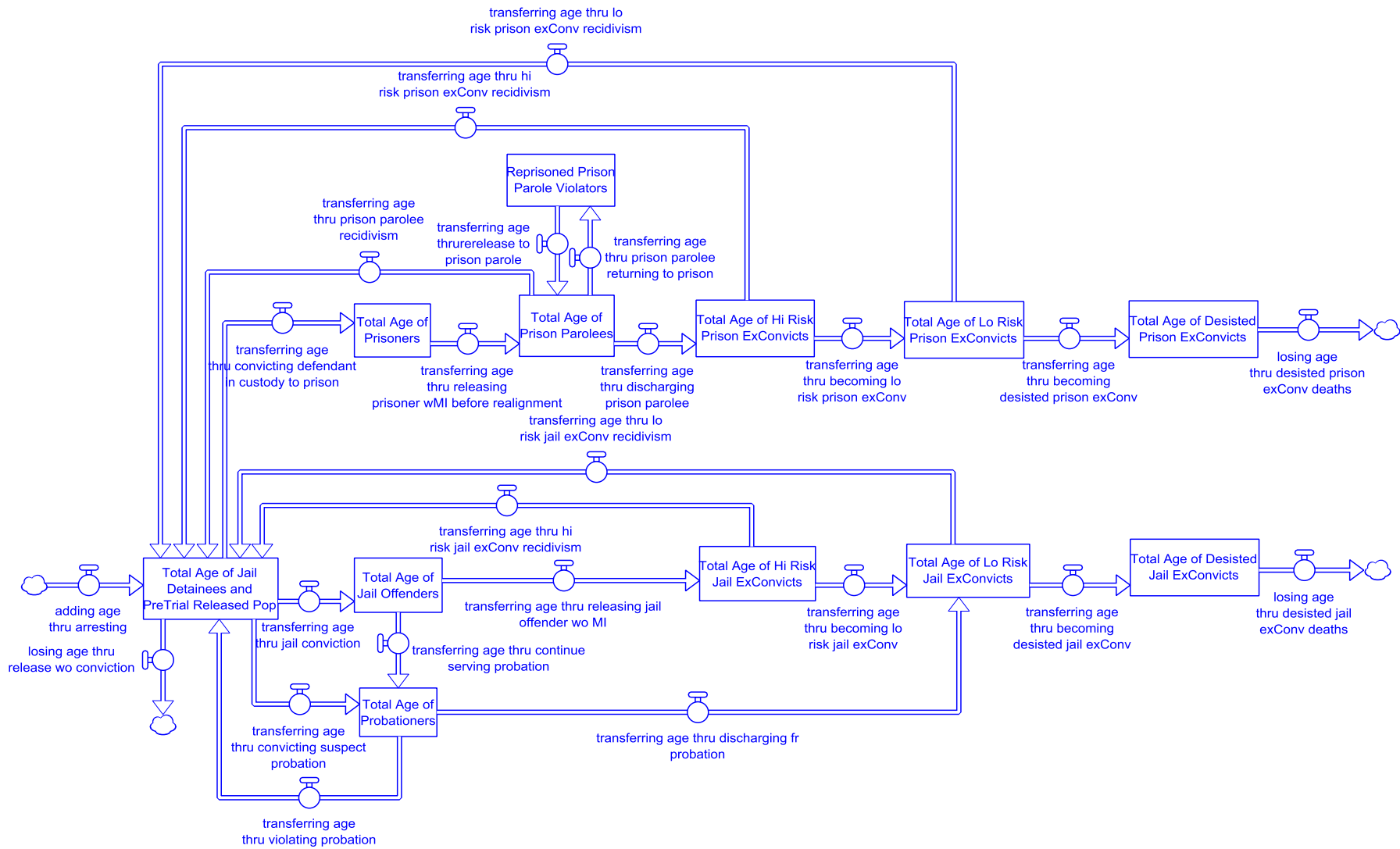
Figure 37 Overview of the Simplified Stock-and-Flow Structure in Age Profile Module

4.3.3.1   Coflow Structure of the Age of Arrestees

Figure 38 presents the coflow structure of the age of arrestees. Arrestees are the individuals who are at the first contact point with the criminal justice system. There are three inflows to the "Total Age of Arrestees" stock. The first inflow is to increase the total age of arrestees by arresting individuals without criminal history. The age of first commitment refers to the age at which the individuals are arrested. The age at commitment is reported to be 28[53] in 1987 (CDCR, 1988). The mean age at commitment grew to 34 in 2013 (CDCR, 2014). The recidivists bring with them the average age associated with the stocks they are in. For example, the prison ex-convicts wMI who reoffend enter the "Arrestees" stock with the average age per prison ex-convict wMI. This structure is the same for jail ex-convicts who reoffend. Hence, the inflows of arrestees contribute to the "Arrestee" stock with different ages. Then these various ages are blended in the stock.
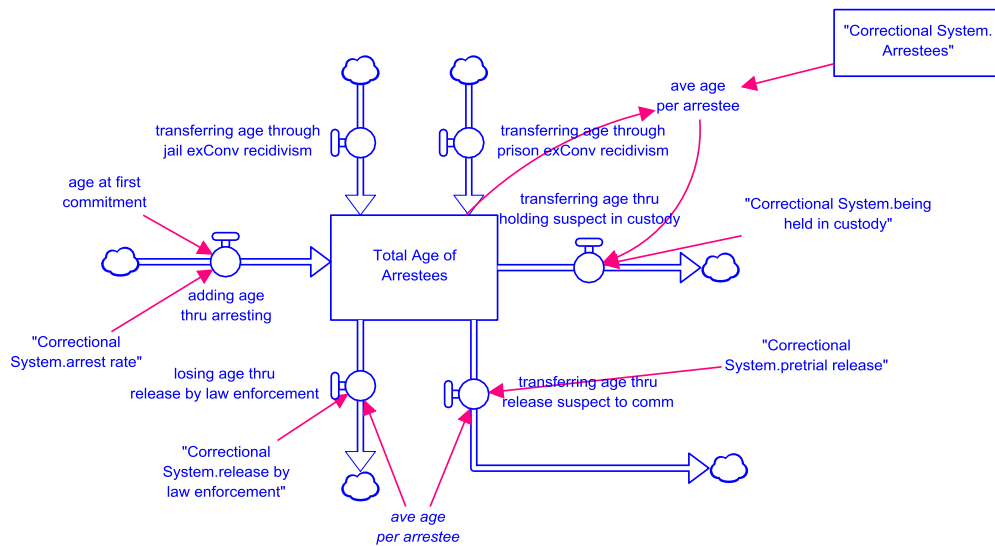
Figure 38 Formulation of Age Coflow of Arrestees

When the arrestees are released without charges by the law enforcement, they leave with the "ave age per arrestee". "Ave age per arrestee" is the division of "Total Age of Arrestees" by the number of arrestees, a fundamental stock in the ***Individuals with Criminal History*** module. The arrestees who are charged leave the stock with the average age per arrestee to the next relevant stocks corresponding to their status, i.e. they are either held in custody or released to community.

4.3.3.2   Coflow Age Structure of the Prisoners wMI

Figure 39 shows the coflow structure of the age of prisoners wMI. As the convicted offenders enter prisons, each of them brings in an average age, which are either called "ave age per preSentencing defendant in custody" or "ave age per preSentencing defendant in community". When prisoners who

---

[53] Only the median age at admission is reported.

develop MI flow into the "State Prisoners wMI" stock, they bring in the average age per prisoner wo MI.
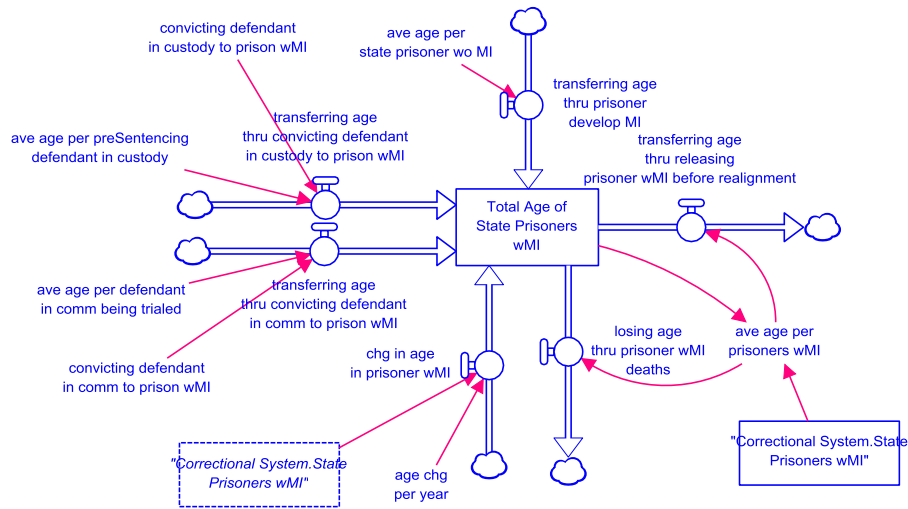
Figure 39 Coflow Structure of Age of the State Prisoners wMI

The two outflows from the stocks are deaths and release. These individuals leave the stock with an average age of prisoner wMI.

Note that there is an inflow that does not exist in the fundamental stock: "chg in age in prisoner wMI". This inflow captures the aging of prisoners. As long as the prisoners stay behind bars, each of them gains 1 year/person/year. This aging process is captured in most of the stocks in this module, except for stocks with average residence time less than one year, such as stocks in the adjudication and sentencing stage, jail offenders, and reprisoned parolees. For the rest of the structure in this module, individuals either circulate through the criminal justice system or progress through the criminal justice system with increasing average ages.

4.3.4   Mental Profile

This module describes the mental functions of individuals in the criminal justice system in the form of coflow. At the reception centers[54] , professionals screen new convicts' mental health with the Global Assessment Functioning (GAF)[55] diagnostic tool. The purpose of this assessment is to diagnose mental illness among the incoming convicts. GAF is a scoring system that measure the impact of mental illness severity on individuals' psychological, social, and occupational functioning. In generally, score of 70 and above is considered as normal and acceptable symptoms that have minimal impact on individual's functiong; 61-70 is characterized as mild symptom; 51-60 falls within the range of moderate symptoms; scores of 31-40 indicate severe symptoms with suicidal ideation and major impairment in daily social life; any score under 30 suggest severe impairment that require inpatient services.
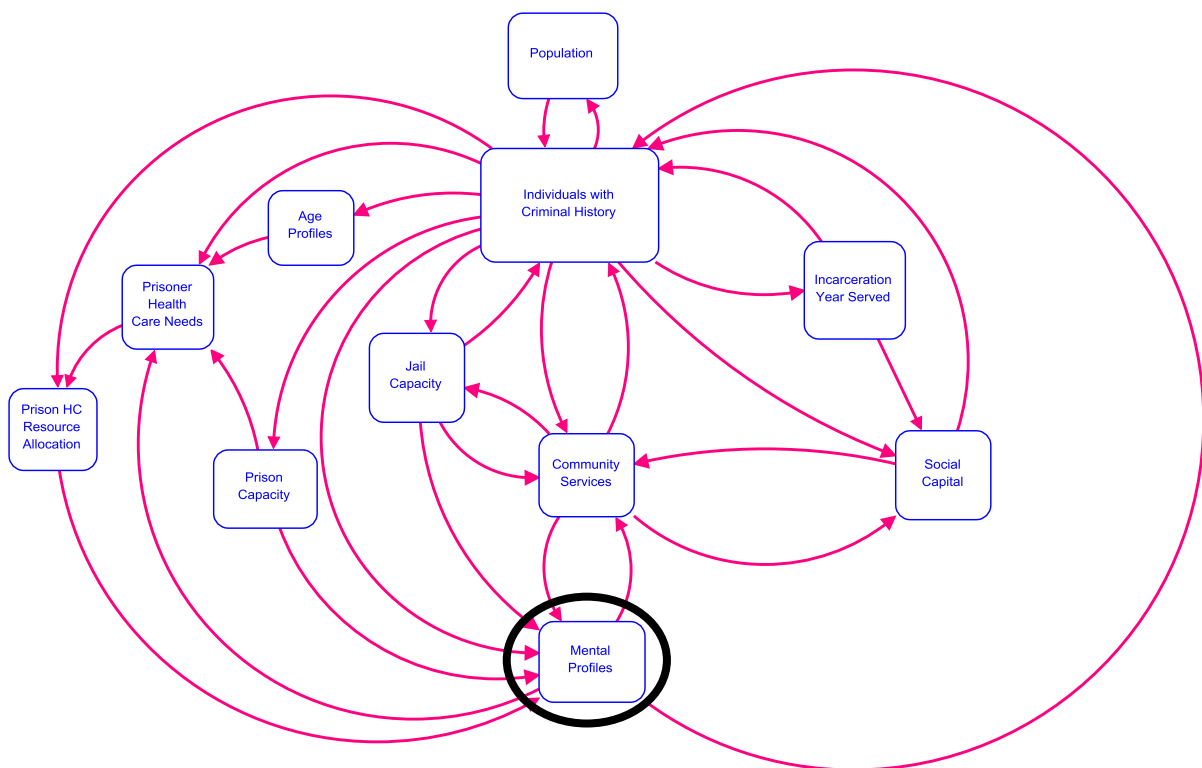
Figure 40 presents the a highly aggregate structure similar to the overview of the core module, *Individuals with Criminal History*, shown in Section 4.3.2, except that this module contains a coflow structure to capture the mental functions dynamics of the individuals with criminal history

---

[54] The missions of Reception centers stated on CDCR website is to safely and securely house and process incoming inmates by: (1) compiling and evaluating the inmates' criminal records, life histories, medical, dental, physiological and mental health histories, and social histories, and (2) determining the inmates' custody score, identify any specific placement needs, and assigning them to one of the 34 State prisons. Retrieved from http://www.cdcr.ca.gov/Adult_Operations/Reception_Center.html on June 07, 2017.

[55] Refer to Appendix ____ for further details.

background. In the following subsections, only the structures that are different from the core module will be illustrated in detail.
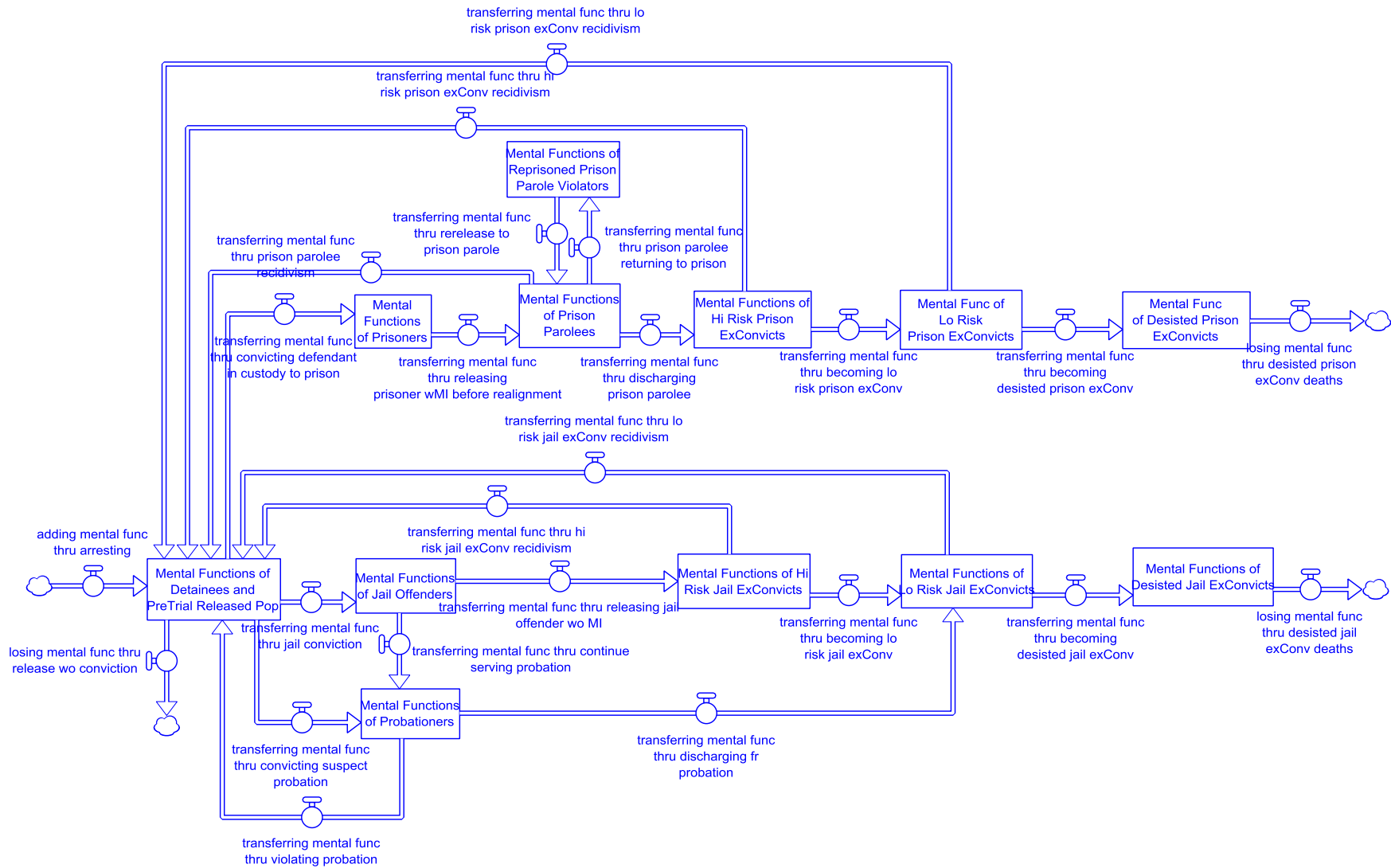
Figure 40 Overview of the Simplified Stock-and-Flow Structure in Age Profile Module

4.3.4.1   Coflow Structure of Mental Functions of the Arrestees

Figure 39 presents the formulation of accumulated mental functions of arrestees. As the "Arrestees" stock is the first contact point of the criminal justice system, the inflow of new suspects bring an average mental functions with them into the stock. The "mental cap per new suspect" is an exogenous input. With all the incoming convicted offenders to prisons, each of them enter the prisons with different level of mental functions, which is measured with a score between 0 to 100. Trestman et al. (2007) report that the GAF score of new admissions to the jail for individuals who had history of MI is about 57 on average while those without is 72. Hence, we assign the average of these two scores, i.e. 65, to the "mental cap per new suspect".

Combined with the mental functions brought in by the ex-convicts with prison and jail convictions. These mental functions of each individuals are blended in the stock. Subsequently, when the arrestees leave the stock through one of the three outflows, i.e. being held in custody, pretrial release, and release by law enforcement, they leave with the average mental functions per arrestee. The "average mental cap per arrestee" is a division of the total mental functions of all arrestees by the number of arrestees.
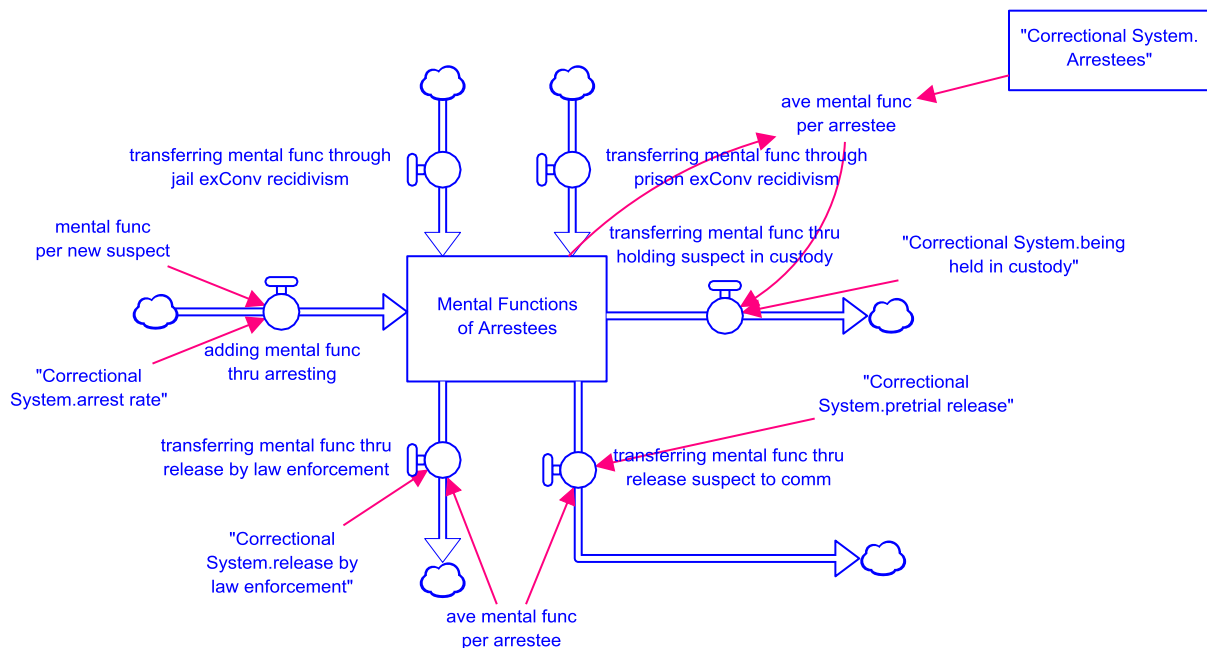
Figure 41 Coflow Structure of Mental Functions of the Arrestees

4.3.4.2   Coflow Structure of Mental Functions of the Prisoners wMI

Figure 42 depicts the formulation of mental functions of prisoners wMI. There are three inflows and three outflows in this structure. When defendants in custody and community being convicted to serve prison sentence, they enter the prison with an average mental functions per person. These averages

are generated by the model endogenously and the values may change over time. When prisoners develop MI, they become prisoners wMI. Then they bring along the average mental functions per prisoner wo MI. The average mental functions per prisoners wo MI is higher than the average per prisoners wMI for two reasons. First, the prisoners wo MI enter prison with higher mental functions; second, the mental functions of prisoners wMI deteriotes over time during custody. This process is captured by the outflow named "chg in mental cap in prison".   The total mental functions lost per year, which is a product of the total number of prisoners wMI and mental functions change per year per person (Figure 43). "mental func chg per year" is defined 2 score/year/person. This means that in the absence of mental health care in prison combined with prison overcrowding, each mentally ill prisoners will lose mental functions further. The effect of mental health care provision and prison overcrowding are illustrated in Sections 4.3.6.4 and 4.3.7.1 respectively.

The deterioration of mental functions also exists among jail offenders wMI (not shown in Figure 42). Hence, an outflow from the stock of jail offenders wMI characterizing such process also exists. However, mental health care in jail is nonexistent given the short stay of jail offenders.
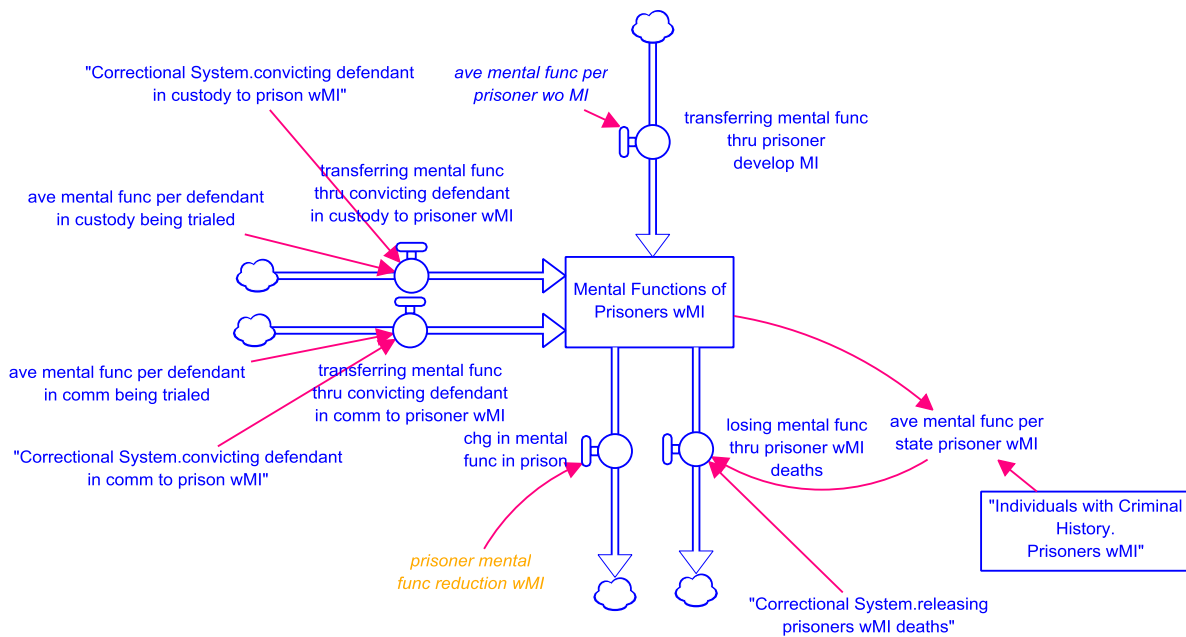
Figure 42 Coflow Structure of Mental Functions of the State Prisoners wMI
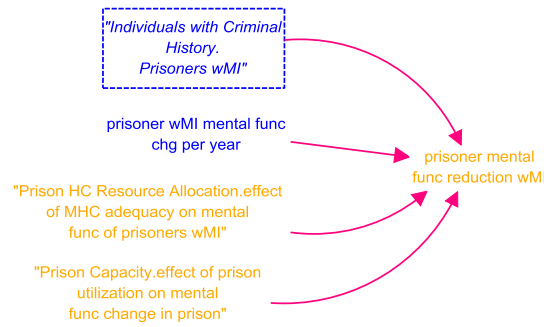
Figure 43 Formulation of Prisoner Mental Function Reduction of Prisoners wMI

4.3.4.3   Mental Functions of Prison Parolees wMI Change by Community Services

The "Mental Functions of Prison Parolee wMI" has a similar structure to the fundamental stock in the **Individuals with Criminal History** module. Hence, this section only focuses on the additional inflow in this coflow structure which is nonexistent in the core module: "increasing mental func of prison parolee wMI thru comm svcs" (Figure 44). Inadequate mental health care in prison has a deleterious effect on mentally ill prisoners' mental function (see Section 4.3.6.4). Without proper treatment in prison, the parolees wMI are released from prison with lower mental functions than it would have been.
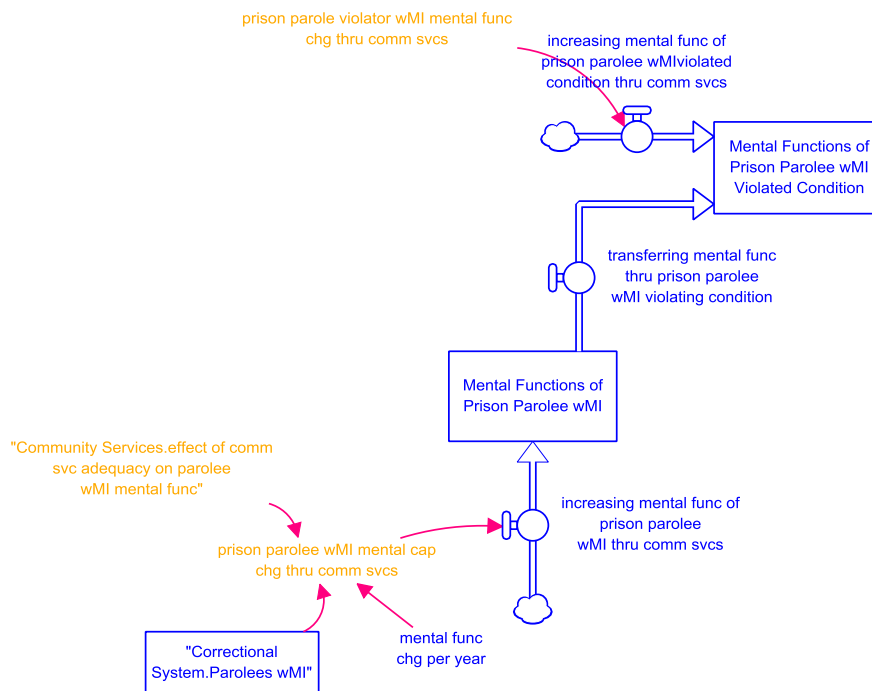
Figure 44 Change of Mental Functions of the Prison Parolees wMI and Parole Violators wMI through Community Services (simplified)

This inflow "increasing mental func of prison parolee wMI thru comm svcs" characterizes the increase of mental functions of parolees wMI. It is a function of three parameters, namely the stock of parolees wMI, mental function change per year, and the effect of community service adequacy. The "mental

func chg per year" in Figure 44 is the same parameter as the one in Figure 42. In the prison, the prisoners lose two score/year/person in the absence of mental health care. On the contrary, the parolees wMI gain mental functions by adding by two score/year/person if community service capacity is adequate. Inadequate community service capacity has a harmful effect on parolees wMI's ability to regain mental functions while living in the community. The effects of community service capacity is explained in section 4.3.10.4.

When some of the parolees wMI violated parole condition and move into the "Prison Parolees wMI Violated Condition" stock, they transfer with the average mental functions per parolees wMI. The mental function gaining process also take place among the parolees wMI who have violated the parole condition (Figure 44).

This process does not exist in the jail structure because jail offenders do not serve parole.

4.3.5   Prisoner Healthcare Needs

This module integrates the output from the *Age Profile* and *Mental Profile* modules to evaluate the changing health profile of prisoners. *Prisoner Healthcare Needs* describes the main disease patterns in the prison and needs for care. In our model, the three largest disease groups, namely infectious disease, chronic disease, and mental illness, are included.
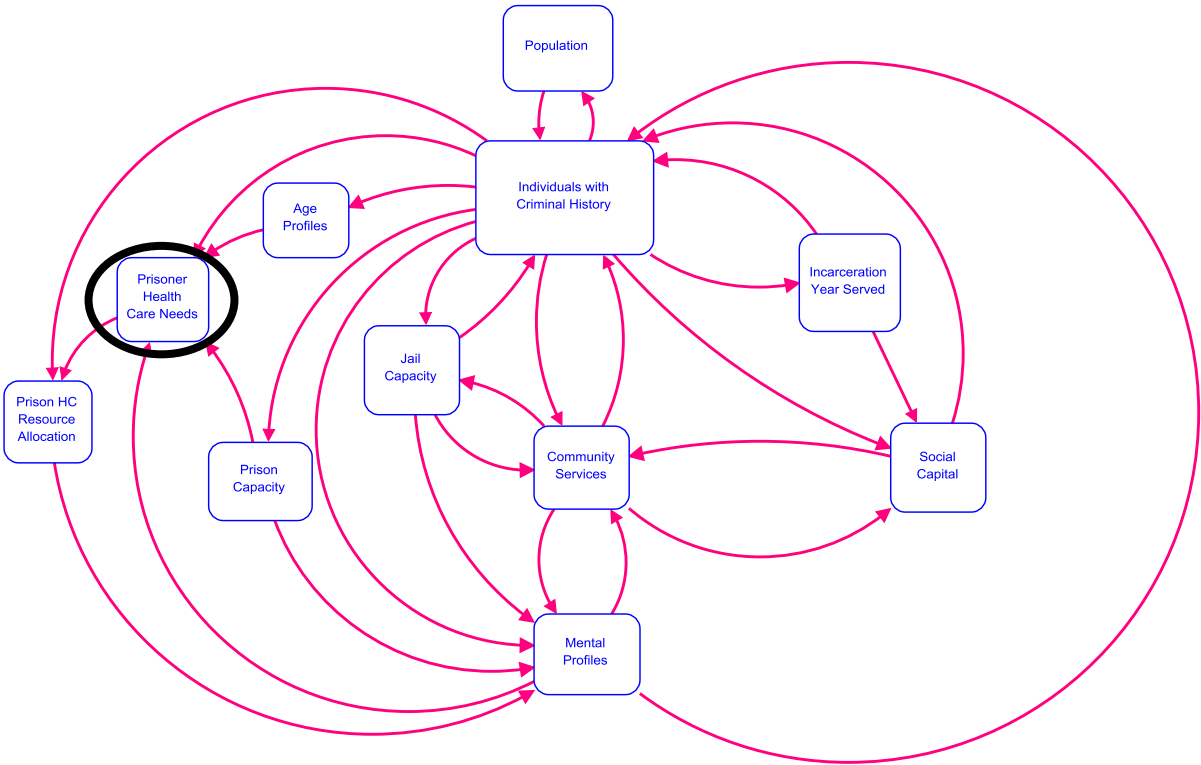
4.3.5.1 Needs for Infectious Disease (ID) Treatment

This section presents the calculation of the needs for infectious disease treatment. As prison capacity increases, the space between prisoners reduces (Figure 45). Hence, the increasing density in prison prompts the increase of infection rate. Consequently, a larger number of prisoners are infected than it would have been.
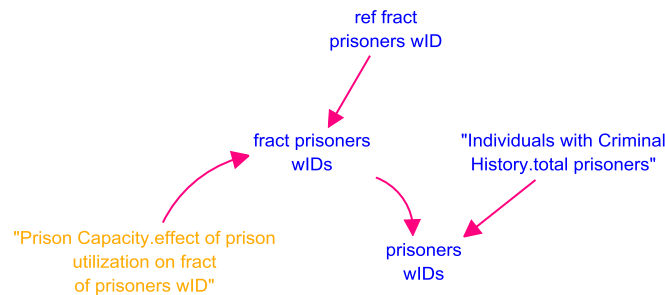
Figure 45 Formulation to Determine the Needs for Infectious Disease Treatment

Prison population expansion has profound effects on health profile and resource requirements. An overcrowding prison, which is a confined system, becomes a breeding bed for communicable diseases. The reported major infectious diseases (ID) in prisons are HIV/AIDS, tuberculosis, Hepatitis B and C (Nieto, 1998).

Correctional officials estimated that about 1,400 offenders in prisons were diagnosed with HIV (Nieto, 1998). The growth rate for this group of offenders was about 2 percent per year (Nieto, 1998). However, prison medical staff suggested that the number could be between 5,000 to 8,000 offenders (Nieto, 1998).

The second major ID is tuberculosis (TB), which is highly contagious. Offenders are required to be tested against tuberculosis at the reception center[56]. The incidence rates for tuberculosis for 1995 and 1997 were 18.1 and 12.1 per 100, 000 respectively (Nieto, 1998) . Treatment adherence is an important factor to determine the success of TB treatment, which usually last for 6 to 9 months[57]. The cost for a successful treatment for non-multidrug-resistant TB[58] is about $17,000 per person.

In 1994, 41 percent of offenders entering the prison tested positive for Hepatitis C, but only 3 percent developed end-stage or chronic symptoms that required treatment. For Hepatitis B, 34 percent were

---

[56] *California Penal Code, Section 7570 et al.*
[57] According to the Centers for Disease Control and Prevention (CDC) website
(https://www.cdc.gov/tb/topic/treatment/tbdisease.htm). Access on May 24, 2017.
[58] Multidrug resistant TB refers to drug-resistant *Mycobacterium tuberculosis* (MDR). In the United States, only 1.0% - 1.5% of TB patients have MDR TB. But this disease requires lengthy and costly treatment (Suzanne et al., 2014).

tested positive but only 2.2 percent were chronic[59] (Nieto, 1998). 20% of the 2.2 percent inmates who contracted chronic Hepatitis C develop end-stage liver disease die. Hepatitis B is treatable, but Hepatitis C is not (Nieto, 1998). Thus, the remaining prisoners with Hepatitis C may live up to twenty years to develop end-stage liver disease.

Based on the information presented previously, we perform several calculations to estimate the fraction of prisoners with infectious disease. As prisoners infected with Hepatitis B do not require treatment in general, this fraction of the population is omitted from the estimation of prevalence of prisoners with infectious disease. The estimated fraction of prisoners being infected by HIV/AIDS, TB, and Hepatitis C are presented in Table 1. Detailed calculations are presented in Appendix E.

HIV/AIDS	0.04
Tuberculosis	0.00015
Hepatitis C	0.01

Table 2 Estimated Prevalence of HIV/AIDS, TB, and Hepatitis C in Prison

Therefore, we assigned the value of 0.03 to "ref fract prisoners wID" as the initial value. The actual fraction of prisoners wID is influenced by prison utilization over time. The effect of prison utilization on fraction of prisoners wID is explained in Section 4.3.7.3. The number of prisoners who need ID treatment is the product of fraction of prisoners wID and total number of prisoners.

4.3.5.2   Formulation of Relative Age of Prisoners
This section presents the calculation of average age and relative age in prison (Figure 46).
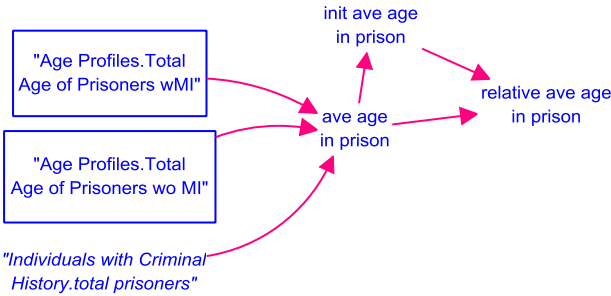
Figure 46 Formulation to Determine the Needs for Chronic Disease Treatment

The average in the prison is the average of prisoners wMI and prisoners wo MI. Compared to the initial average age in prison, which is the initial value of "ave age in prison", the "relative ave age in prison" measures the changes of the average age over time. Ever since the enactment of the Three Strikes Law in 1994, the striker population has been on the rise. The striker population increased from less

---

[59] According to CDC website (https://www.cdc.gov/std/tg2015/hepatitis.htm) Acute Hepatitis B is short-lived and will resolve on its own. Hence, treatment may not be needed. Only 1% of infected patients were reported to develop liver failures or deaths.

than 5% in 1994 to 34% in 2016 (Figure 47). Striker population receives longer sentences. Consequently, the proportion of prisoners over age 55 has increased from 2% to 11% from 1994 to 2013 (CDCR, 1987 - 2010, 2011 - 2013). Accelerated aging is common among prisoners owing to the history of poverty, poor access to healthcare, or engagement in unhealthy lifestyle. The socially and medically vulnerable prisoners tend to develop chronic diseases and disability 10 to 15 years earlier than the general population (B. Williams et al., 2014). Thus, CDCR defines prisoners over fifty-five years old as older prisoners (LSPC, 2010).
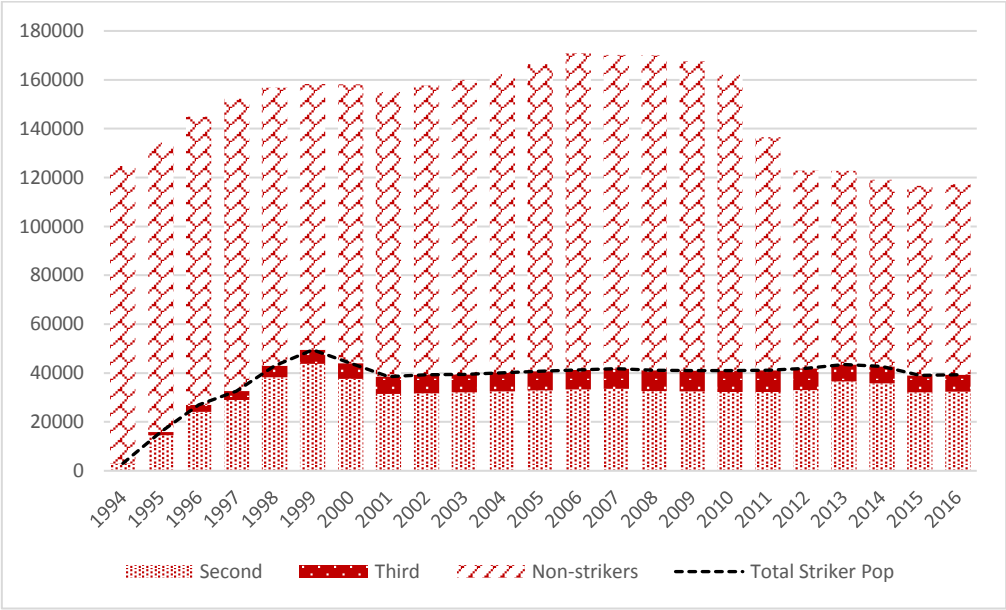
Figure 47 Striker and Non-striker Population in Prison (1994 - 2016)

Source: 1994, 1996, 1998 - Austin et al. (2000); 1995 - LAO (1996); 1997 - LAO (1997); 1999 - LAO (1999b); 2000 – 2016 - CDCR Second and Third Striker Felons in the Adult Institution Population December Reports

4.3.5.3   Needs for Chronic Disease (CD) Treatment

The relative change in age becomes the input to the horizontal axis of the table function named "effect of age on fract of older prisoners" to reflect the effect of relative change on the proportion older prisoners (Figure 48).
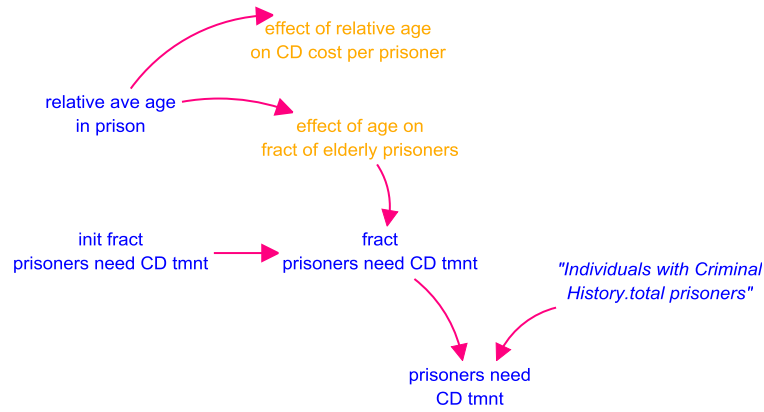
Figure 48 Effect of Relative Age of Prisoners on the Proportion of Elderly Prisoners and Chronic Disease Cost per Prisoner
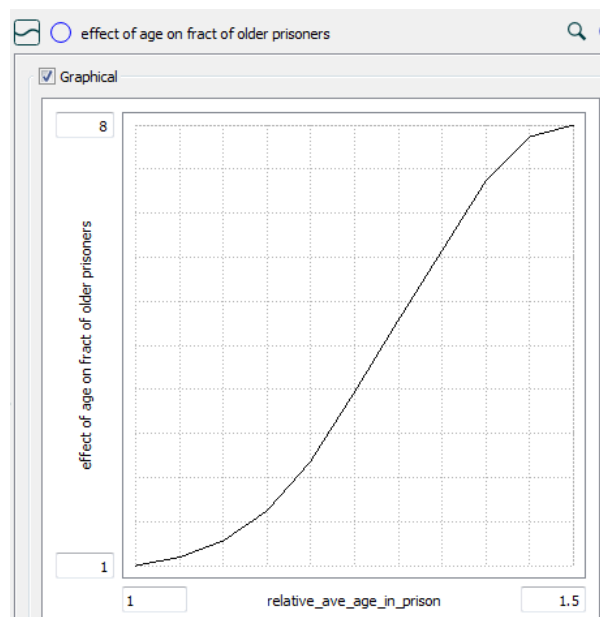
Figure 49 Effect of Relative Age of Prisoners on the Proportion of Elderly Prisoners

The input parameter to Figure 49 is the relative age of prisoners. The output parameter on the vertical axis is the effect of prisoners' aging on the fraction of elderly prisoners. The shape in Figure 49 imitates the shape of the curve in the graph in Figure 47. Figure 50 presents the relationship of average age of prisoners and fraction of prisoners over 55 years old with historical data. The purpose of this graph is to get an overview of the corresponding values of these two variables. The graph does not aim to defend the correlation between these two variables.
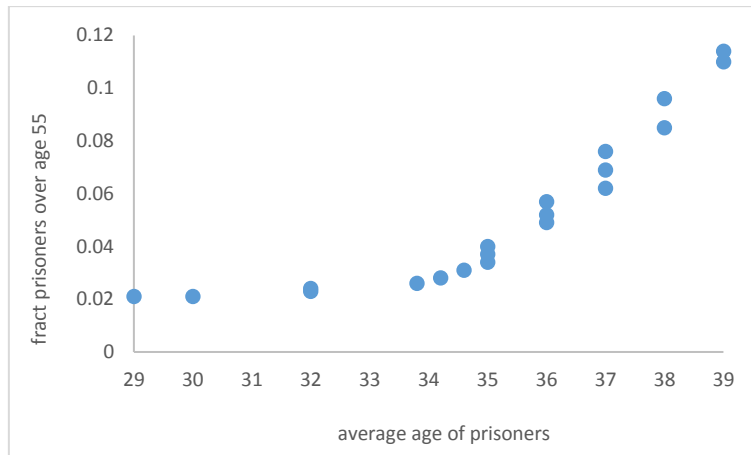
Figure 50 Change in Prisoners' Median Age versus Change in Fraction of Prisoners over 55 Years Old

Source: CDCR (1987-2010)

Figure 50 portrays a positive relationship between average age of prisoners and the fraction of elderly prisoners. This table function shows that when the relative age in prison remains unchanged, the proportion of older population also remains unchanged. As the average age in prison increases, the proportion of older population will increase nonlinearly. The nonlinear growth of older population will eventually level off because there will be higher deaths among older population than it would have been.

CD is defined by WHO[60] as an illness that last for at least three months, non-communicable, and progresses slowly. The prevalence of CDs increases with age (Ward et al., 2014). Therefore, the number of prisoners who need CD treatment is the product of the fraction of prisoners over 55 years old and the total number of prisoners.

Another effect of changing average age of prisoners is on the cost of CD treatment. As CD progresses with age, treatment can only reduce the symptoms but can rarely cure the disease. The older the prisoners become, the more costly it is to maintain or mitigate their conditions. The table function in Figure 51 outlines the relationship between the relative average age of prisoner on CD cost per prisoner.

---

[60] Retrieved from http://www.who.int/topics/noncommunicable_diseases/en/. Accessed on February 19, 2017.
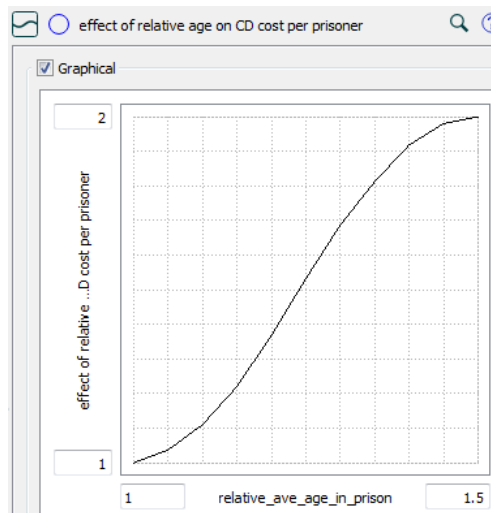
Figure 51 Effect of Relative Age of Prisoners on Chronic Disease (CD) Treatment Cost per Prisoner

The input parameter to the table function is the relative average age per prisoner. The output parameter is the effect on CD cost per prisoner with corresponding values on the vertical axis. When the prisoners start aging, the upward pressure of CD cost per prisoner is less significant compared to later stage when the prisoners become much older. The pressure on CD cost soars at a faster rate as prisoners become older.

4.3.5.4   Needs for Mental Health Care (MHC) in Prison

This section explains the formulation of the need for mental health care (MHC). To estimate the needs for MHC, we take the prison population wMI and MI severity into consideration (Figure 52). The mental health care needs is not only estimated based on the number of prisoners who suffer MI, it is also influenced by their MI severity. The "ref total mental functions in prison" is normal mental functions to which the "actual mental functions" is compared against to determine the total discrepancies of mental functions among the prisoners. The total discrepancies constitutes to the "needs for MHC". "Actual mental functions" is obtained by combining the stocks of mental functions of prisoners wMI and prisoners wo MI.
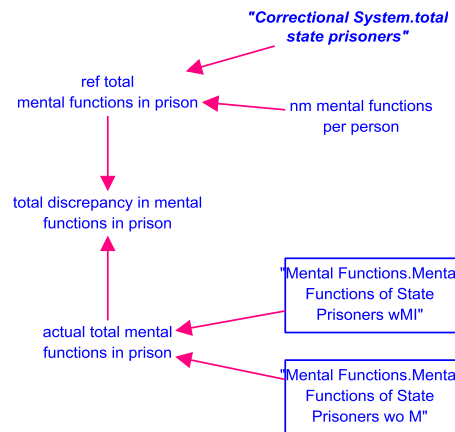
Figure 52 Formulation to Determine the Needs for Mental Health Care in Prison

Defining the needs for MHC has been difficult due to the inherent complexity of the concept of "needs". Prevalence of MI is an indicator evaluating the size of the affected population, but it is not an accurate indicator for capacity planning. Depending on the types of MI and severity, prisoners who suffer from MI require different treatments supported by various level of involvement from professional staff. In our study, we adopt the definition by Jeffers et al. (1971):

> "[Q]uantity of medical services which expert medical opinion believes ought to be consumed over a relevant time period in order for its members to remain or become as 'healthy' as is permitted by existing medical knowledge" (p.46)

"Become as 'healthy' as is permitted" becomes a relative concept. This expression implies progression under the limitation of technological advancement. As such, the medical professionals rely on a well-defined diagnostic standard to compare the prisoners' mental status to good mental status. As Global Assessment of Functioning (GAF) is used to assess the mental health status of incoming and existing prisoners (CDCR, 2009), we use the same scoring concept to appraise the need for MHC by estimating the discrepancy between the average mental health status of the prisoners wMI and good mental health as the definition of needs for MHC.

4.3.6   Prison Health Care Resource Allocation

The Prisoner Health Profiles module forms the basis on which the prison health care resources are allocated. The Prison Health Care Resource Allocation module contains the health care resources adjustment and allocation, and treatment capacity adjustment processes.
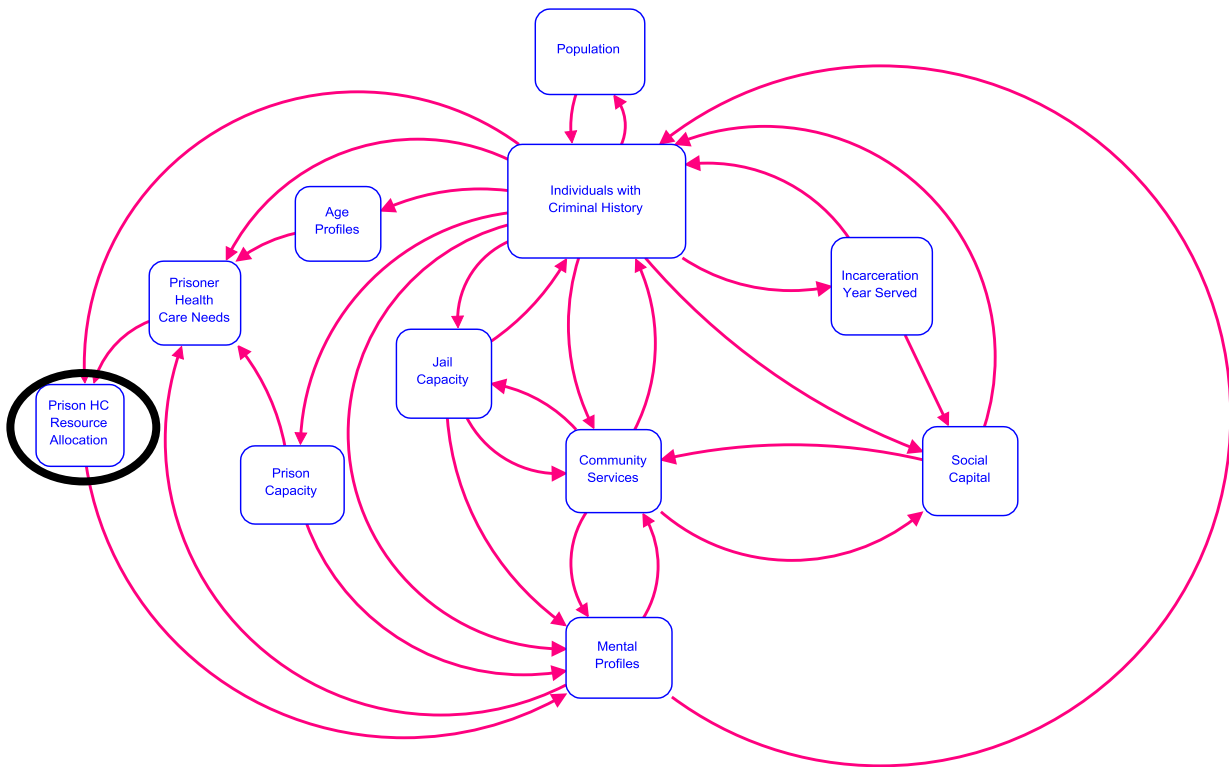
4.3.6.1 Total Health Care Budget Adjustment Process

This section presents the total prison health care budget adjustment process. California adopts the budget change proposal process[61]. Under this budgetary process, the department prepares a proposal for budget change in the end of the year. This proposal will undergo a review process within CDCR before getting an approval from the overseeing agency. Then, the proposal will be submitted to the Department of Finance, followed by committee review and Legislative Analyst Office's. Then the final budget will be announced in the mid-year. Then in the following year, prison health care capacity can be adjusted.

---

[61] Refer to California Budget Process on http://www.dof.ca.gov/budget/Budget_Process/index.html for more details.
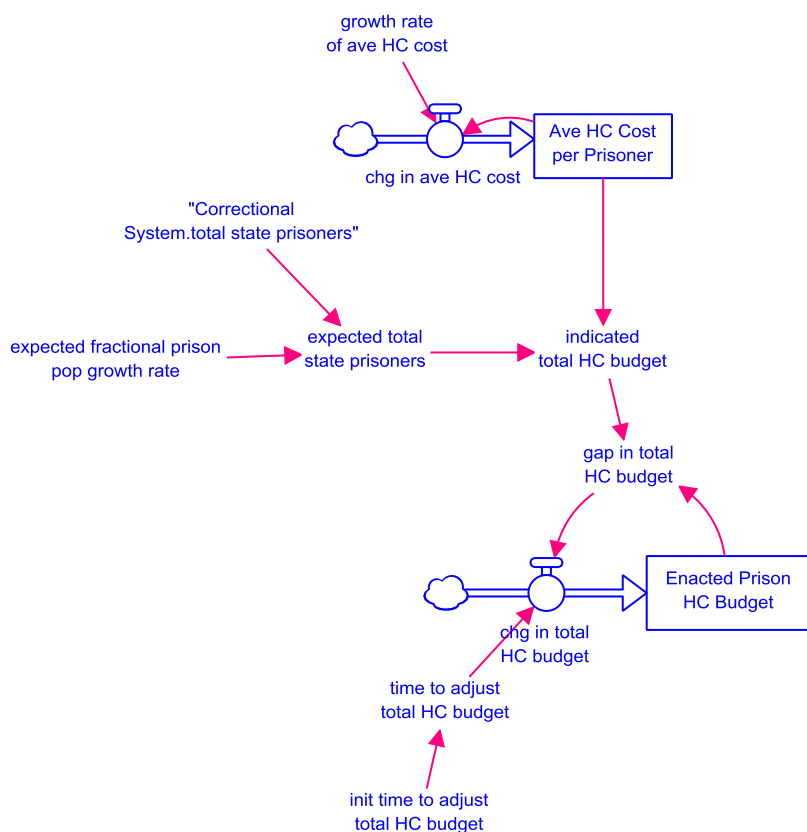
Figure 53 Prison Health Care Budget Adjustment Process

The "Total Prison HC Budget" stock characterizes the budget allocated for prison health care operation (Figure 51). In 2000, the budget for prison health care was $714 million[62] (Figure 53). This translates into a $4,500 average health care cost per prisoner per year. Figure 54 shows that even when the prison population only grew slowly before 2006, health care budget increased considerably. When the prison population started to decline after 2010, health care budget plummet before the growth resumed. The growth of prison health care budget outgrew the previous trend and the growth continues. Based on CDCR's projection, the expected prison population size is estimated for budget adjustment for next fiscal year. CDCR adjusts and proposes the expected health care budget with the projected prison population for the next fiscal year, i.e. the "indicated total HC budget" (LAO, 2000a). When the indicated total health care budget differs from the existing budget, a gap appears.

---

[62] Prison health care budget was not presented in the Governor's budget prior to year 2000. $714 million is adjusted for real price with 2009 as the base year. All the financial terms in this thesis is adjusted in real price at year 2009 with GDP deflator obtained from U.S. Bureau of Economic Analysis, Gross Domestic Product: Implicit Price Deflator [GDPDEF], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPDEF, January 21, 2017.
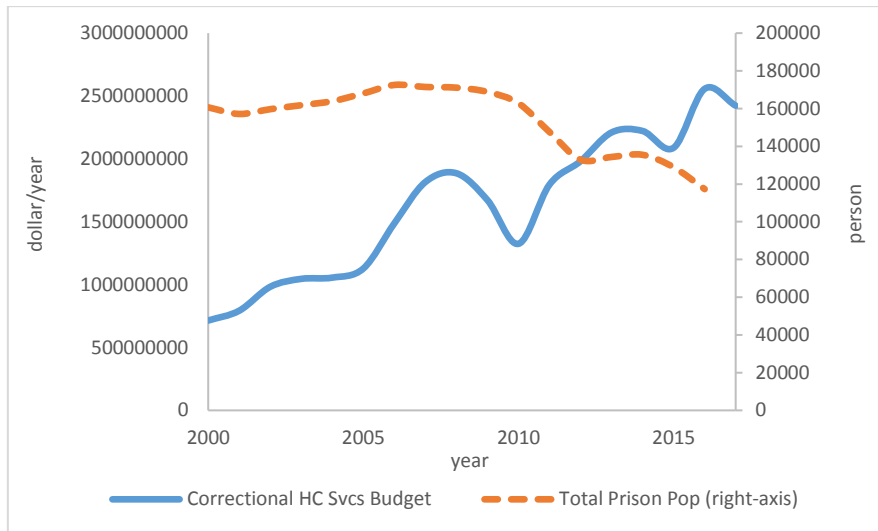
Figure 54 Correctional Health Care Services Enacted Budget and Total Prison Population (2000 – 2017)

Source: California Department of Finance Enacted Budget 2000 – 2016

There is a delay to adjust and update the budget. However, in the hearing of the Three-Judge Court ("Plata v. Schwarzenegger," 2009), the Court expressed that "during the eight years of the *Plata* litigation and the 19 years of the *Coleman* litigation, the political branches of California government charged with addressing the crisis in the state's prisons have failed to do so"[63,64]. Inferring from the ruling, the time to adjust prison health care budget was long and slow because after such a long time, CDCR still failed to provide adequate health care to the prisoners. The budget adjustment process alone takes about two years, but in the lack of proper data gathering mechanism in prisons, the actual needs for health care provision was undermined. Consequently, CDCR relied on outdated data to determine the appropriate budget for the following fiscal year. To demonstrate this slow and long process, we set 10 years for the initial time to adjust total prison health care budget.

The drivers for the increasing health care spending include the size of the prison population, health status, and age of prisoners (PEW, 2014). However, health care spending is also driven up by medical cost inflation due to technological advancement, medical equipment, and pharmaceutical costs. The medical cost inflation is reported to be 4% in 2015 and 2016 (Aon Hewitt, 2016). Thus, the average health care cost per prisoner is modeled as a stock with an annual change in the health care cost. The growth rate for average health care cost per prisoner is set at 0.07 per year to fit the historical data (Figure 55).

---

[63] The *Plata* litigation was filed in 2001 and the *Coleman* litigation was filed in 1994.
[64] "Plata v. Schwarzenegger" 2009), p.118
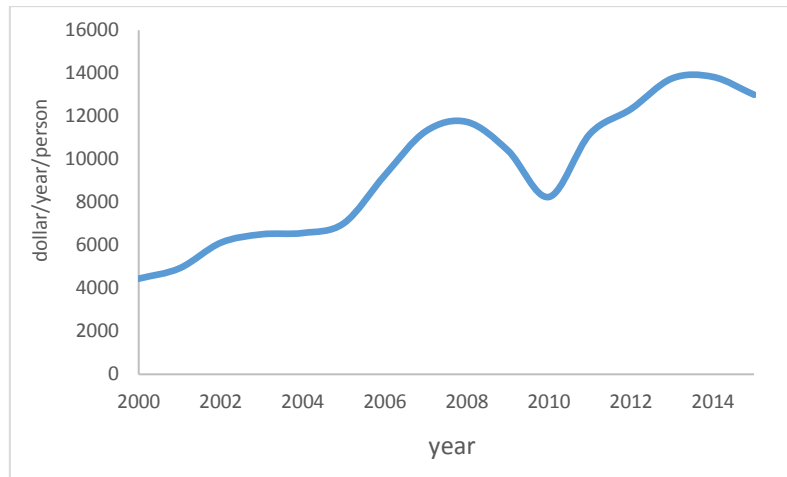
Figure 55 Correctional Health Care Cost per Prisoner (2000 - 2015)

Source: Author's calculation with California Department of Finance Enacted Budget 2000 – 2016 and Prison Population data from CDCR Annual Prisoners and Parolees Reports 1987 – 2010 and CDCR Monthly Pop Report (December) 2011 – 2015

4.3.6.2   Adjustment of Infectious Disease (ID) Treatment Capacity

This section presents the budget allocation to adjust ID treatment capacity. After the enacted budget is made available, resources are prioritized to adjust ID treatment capacity for the reason explained in section 4.3.5.1. Hence, "funded ID tmnt capacity" refers to the capacity that can be supported by the current budget (Figure 56). It is a function of the enacted budget and ID treatment cost per prisoner Compared to the existing ID treatment capacity, a gap will be adjusted with a delay.   The delay, "time to adjust ID capacity", is relatively shorter compared to the adjustment time of the capacities for chronic disease (CD) and mental health care (MHC) due to the urgency for intervention to prevent ID outbreaks in the prison. "Needs for ID treatment" is the number of prisoners with IDs estimated in Section 4.3.6.2.
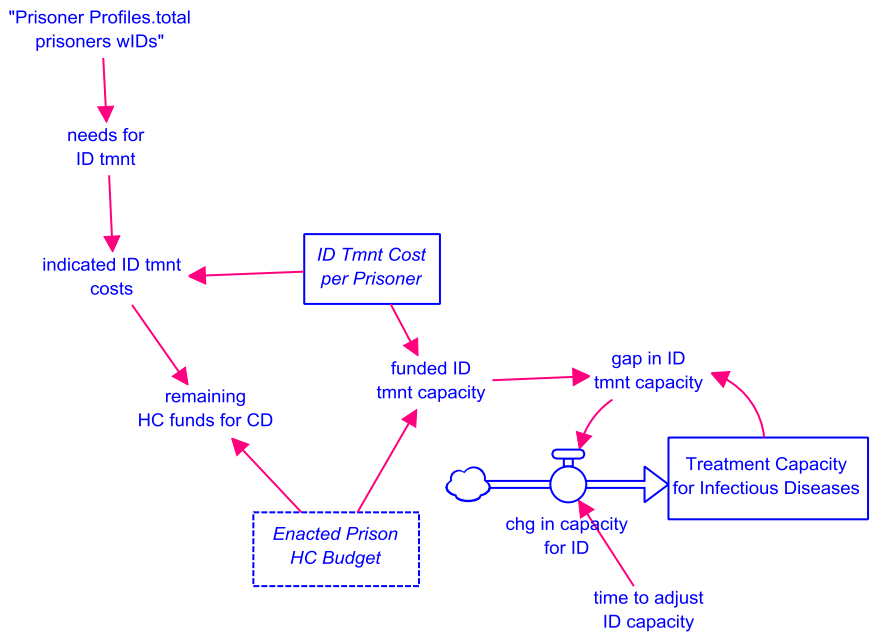
Figure 56 The Budget Allocation and Capacity Adjustment Process for Infectious Disease Treatment

Figure 57 shows that the medical cost[65] per prisoner has been increasing exponentially over time. As medical costs inflate over time, so is the treatment cost for ID.
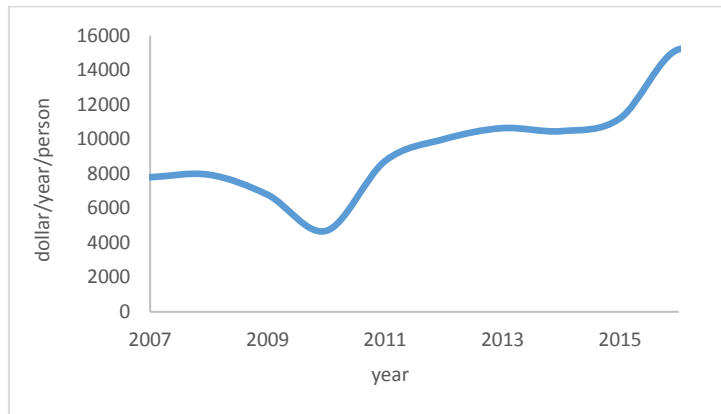
Figure 57 Medical Cost per Prisoner (2007 - 2016)

Source: California Department of Finance Enacted Budget 2007 - 2016

Hence, the following structure (Figure 58) is developed to capture the ID treatment costs adjustment process according to the historical trend. In this formulation, ID treatment cost per prisoner generates an exponential growth or decay. If the fractional growth rate is positive, ID treatment cost per prisoner

---

[65] Refer to Appendix ___ for a comprehensive definition for CDCR medical services for inmates.

will be increasing exponentially; if fractional growth rate is negative, ID treatment cost per prisoner will be decreasing exponentially.
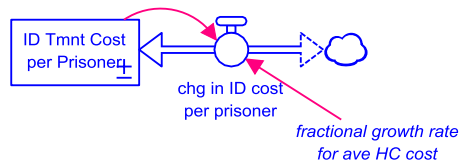
Figure 58 Adjustment Process of Infectious Disease Treatment Cost per Prisoner

4.3.6.3   Adjustment of Chronic Disease (CD) Treatment Capacity

This section explains the capacity adjustment process for CD treatment. The "indicated ID tmnt costs" refers to the total amount needed to treat all prisoners wIDs. Then the remaining health care budget is allocated to fund CD treatment.
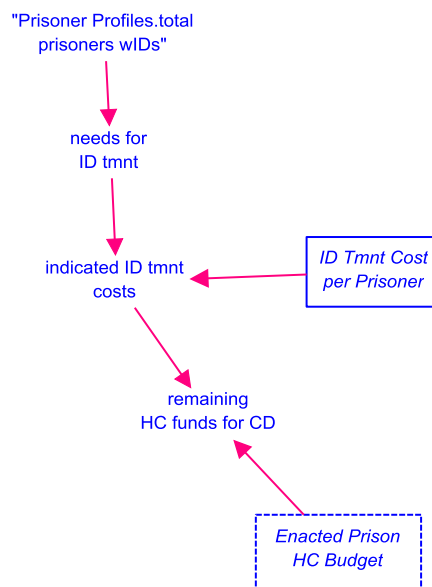
Figure 59 Budget Allocated to Chronic Disease Treatment after Funding Infectious Disease Treatment

Figure 59 demonstrates the adjustment process for CD treatment capacity. With the remaining health after allocation to ID treatment, the funded treatment capacity is compared to the existing capacity. However, needs for the treatment capacity are also taken into the consideration when determining the gap to be closed to adjust the CD treatment capacity. The needs for CD treatment capacity is defined as the prisoners who are in need for CD treatment determined in the **Prisoner Healthcare Needs** module with a perception delay. The perception delay symbolizes the delay in perceiving actual needs due to inadequate screening, diagnosing, tracking, and follow-ups (Kelso, 2008). This delay is reflected in the equation in "needs for CD tmnt" with a smooth built-in function:

SMTH3(Prisoner_Health_Profiles.prisoners_need_CD_tmnt,

perception_delay_in_CD_tmnt_demand,

Prisoner_Health_Profiles.prisoners_need_CD_tmnt)   (4-3)

As indicated in section 4.3.5.2, a chronic disease is diagnosed if symptoms persist longer than 3 months. Given the lack of health care capacity in prison, the diagnosis will likely take longer. Information is reported on annual basis if data is collected in a timely and organized manner. Based on these assumptions, we set the "perception delay in CD tmnt needs" as 2 years.
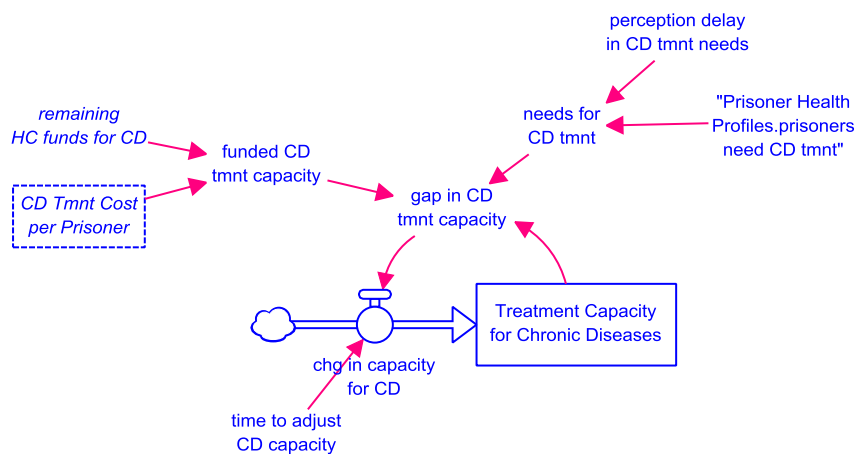
Figure 60 Capacity Adjustment Process for Chronic Disease Treatment

Then, the discrepancy between the new and existing capacity is adjusted with a delay.

"Timely access is not assured. The number of medical personnel has been inadequate, and competence has not been assured. Accurate and complete patient records are often not available when needed. Adequate housing for the disabled and aged does not exist. The medical facilities, when they exist at all, are in an abysmal state of disrepair. Basic medical equipment is often not available for use. Medications and other treatment options are too often not available when needed. Custody resources needed to facilitate access to care and provide the security necessary to deliver health care safely in a prison setting are inadequate, lacking both the personnel and structure to ensure timely access to health care services (Kelso, 2008)." (p. 2)

Compared to ID capacity adjustment, CD capacity adjustment takes longer time. According to the Receiver's Turnaround Plan, the leading cause of preventable deaths, which was 17% in 2006, were

due to chronic condition (Kelso, 2008). The reasons cited for the lack of treatment for chronic conditions are personnel's incompetence and inadequacy, and reporting system failure.

The gap is the difference between the funded CD treatment capacity or the needs for CD treatment, whichever is lower, and the existing capacity. Logically, the new capacity should not be higher than what is needed and the maximum capacity is funded. In other words, even if the fund for CD treatment capacity is larger than the needed capacity, the authority only increase the capacity to the extent it is sufficient to treat the number of prisoners who need the service. If the needed capacity exceeds the funded capacity, the authority can only adjust the capacity to the extent that it is permitted financially. The cost to care for elderly prisoners is nearly three times of the cost of the younger prisoners (Kinsella, 2004).

The "time to adjust CD capacity" consists of the following equation:

IF funded_CD_tmnt_capacity < needs_for_CD_tmnt AND funded_CD_tmnt_capacity = 0

THEN adj_time_for_zero_funding

ELSE IF funded_CD_tmnt_capacity < needs_for_CD_tmnt AND

funded_CD_tmnt_capacity <> 0

THEN adj_time_for_funded_CD_capacity

ELSE IF needs_for_CD_tmnt < funded_CD_tmnt_capacity

THEN adj_time_for_needs_for_CD_tmnt

ELSE adj_time_for_funded_CD_capacity   (4-4)

where,

adjustment time for zero funding = 1 year

adjustment time for funded CD capacity = 2 year

adjustment time for needs for CD tmnt = 4 year

Equation 4-4 formulates a nonlinear adjustment time effect in which the adjustment time for the CD capacity modification contingent upon the inputs. It explains that when no fund is available for CD treatment capacity, the time it takes to erode the capacity will be much faster compared to the other two situations. If the fund is available even though it is less than the needs, the capacity will be adjusted in a shorter time because knowing the amount of the available fund aids the authority to plan for the capacity accordingly. In the last situation when the needs for treatment capacity is lower than the funded capacity, the authority scrutinizes the needs carefully before committing in adjusting the capacity upward to avoid building excessive capacity.

The adjustment for CD treatment cost per prisoner (Figure 56) has a similar structure as the ID treatment cost in previous section (Figure 61), except that the increasing relative age of prisoners has a positive and nonlinear relationship to CD treatment cost per prisoner (Figure 59). This relationship is formulated through a table function explained in Section 4.2.5.3 (Figure 49). The table function depicts that as the relative age in prison remains unchanged, so does the average CD treatment cost per prisoner. When the relative age starts to rise, the CD treatment cost per prisoner will become more expensive.
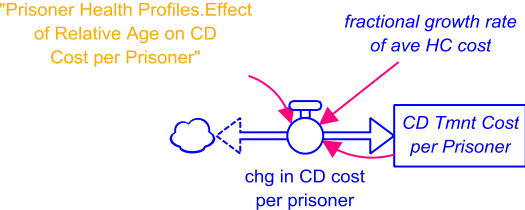
Figure 61 Chronic Disease Treatment Cost per Prisoner is Affected by Prisoners Relative Age and Fractional Growth Rate of Health Care Cost

4.3.6.4   Adjustment of Mental Health Care (MHC) Capacity

This section presents the adjustment process of MHC capacity. It has a similar structure to the adjustment process of CD treatment capacity except that the definition of MHC capacity is based on severity instead of number of persons. Therefore, this section will focus on the differences compared to the previous section, which is the determination of needs for MHC.
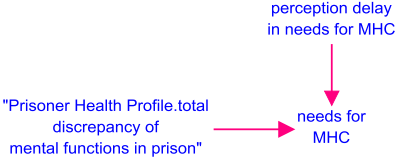
Figure 62 Determination of the Needs for MHC

Figure 62 shows that the needs for MHC is determined by the discrepancies of mental functions of prisoners wMI with a perception delay. Considering that the definition of and difficulty in MI diagnosis, the time taken to update the perceived needs for MHC is longer than CD. The perception delay is thus set at four years.

As the needs for MHC is defined by severity, the cost for MHC will be assessed by mental function improvement per financial resources invested. Under the assumption that the treatment at MHC is effective, each mental function discrepancy treated costs $24 per score[66].
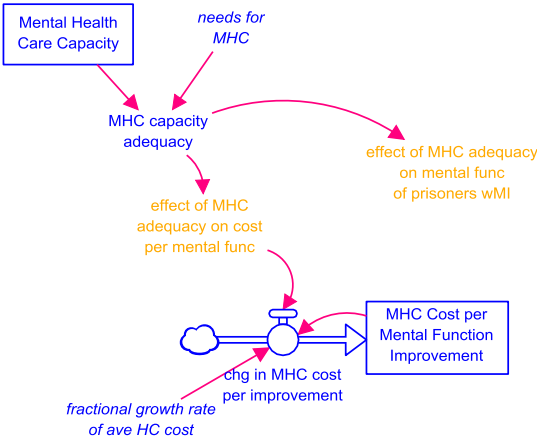
Figure 63 Adjustment Process of Mental Health Care Cost per Mental Function Improvement

As in the previous two sections, cost for MHC grows consistently with the health care cost inflation (Figure 63). Additionally, the treatment capacity also affects the MHC cost negatively. The lower the MHC capacity adequacy, the faster MHC cost increases. This is because that when prisoners wMI fail to receive treatment, their illnesses progress. This inverse relationship between MHC capacity and treatment cost is presented in the table function in Figure 63. The relationship describes that when the MHC capacity is below the desired level, which is the level equivalent to the needs for MHC, the cost per mental function improvement will be higher than it would have been. As the capacity gradually approaches the needs for treatment, the cost per mental function improvement will be returning to the initial value.

---

[66] Refer to Appendix __ for detailed calculation.
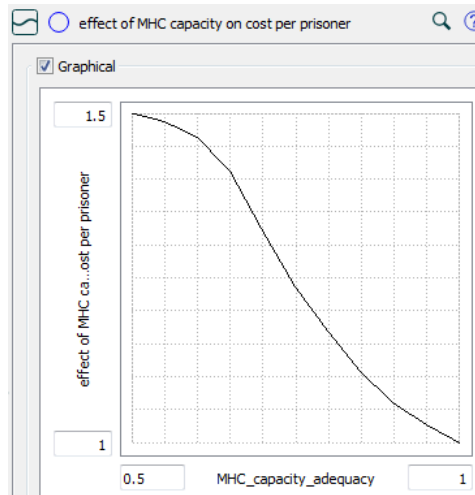
Figure 64 Effect of Mental Health Care Adequacy on Mental Health Care Cost per Mental Function Improvement

MHC adequacy also affects the mental functions of prisoners wMI (Figure 64). In the **Mental Profiles** module (section 4.3.4.2, Figure 42), there is an outflow named "chg in mental func in prison". MHC adequacy has an inverse impact on the change of mental functions of prisoners wMI (Figure 65). When MHC capacity is inadequate to treat the prisoners in need of treatment, i.e. when "MHC capacity adequacy" is less than one, the mental functions of prisoners wMI deteriorate at a faster rate than it would have been. Thus, the mental functions stock of prisoner wMI depletes at a higher rate. On the contrary, if MHC capacity is adequate, i.e. when it is one or above, the effect on the outflow will be a negative. This means that the outflow of mental functions becomes an inflow of mental functions.
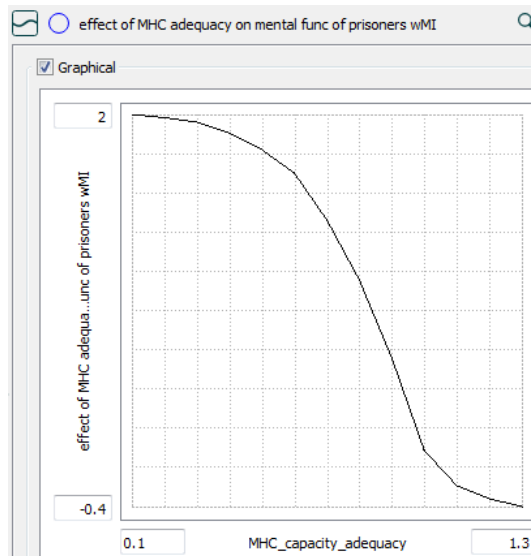
Figure 65 Effect of Mental Health Capacity Adequacy on Mental Functions of Prisoners wMI

82

4.3.7 Prison Capacity

This module explains the adjustment process of prison capacity and the effects of prison utilization on three areas: mental illness development in prisons, mental capabilities deterioration, and infectivity of infectious diseases in prisons.
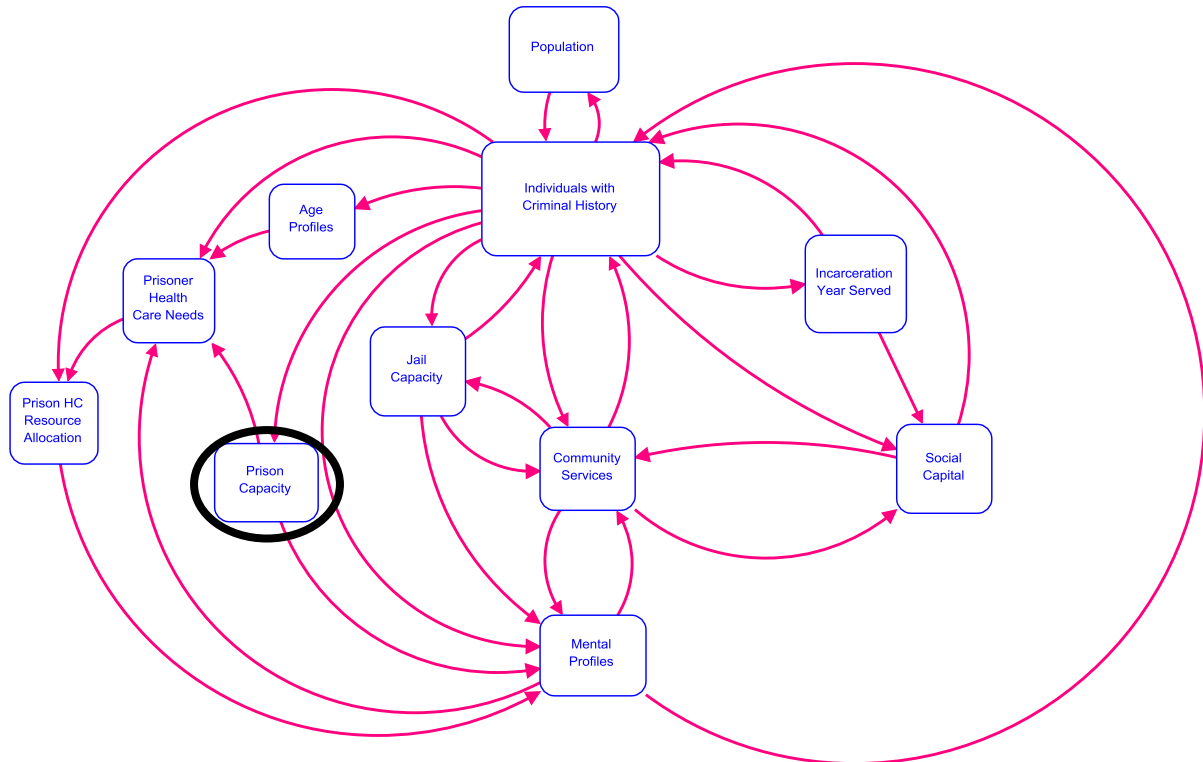
4.3.7.1 Adjustment Process of Prison Capacity

Figure 66 shows the prison capacity adjustment through a first-order structure with a negative feedback loop. This structure will generate a goal-seeking behavior with the total number of state prisoners as the goal of the structure. When the gap appears because the prison capacity is below the actual number of prisoners, the prison capacity will be increased to meet the goal over a delay. The "time to adjust prison capacity" represents the delay in perceiving the need for prison expansion, acquiring new budget, pre-planning, and actual construction process. The budget acquiring process takes about two years[67]; the construction of a new prison may take up to a year for pre-construction planning and two years to build the prison (Kelso, 2008). Depending on the length of the perception delay, adjusting prison capacity may take more than four years.

---

[67] As stated in Section 4.2.6.1, "California adopts the budget change proposal process. Under this budgetary process, the department prepares a proposal for budget change in the end of the year. This proposal will undergo a review process within CDCR before getting an approval from the overseeing agency. Then, the proposal will be submitted to the Department of Finance, followed by committee review and Legislative Analyst Office's. Then the final budget will be announced in the mid-year. Then in the following year, prison health care capacity can be adjusted."
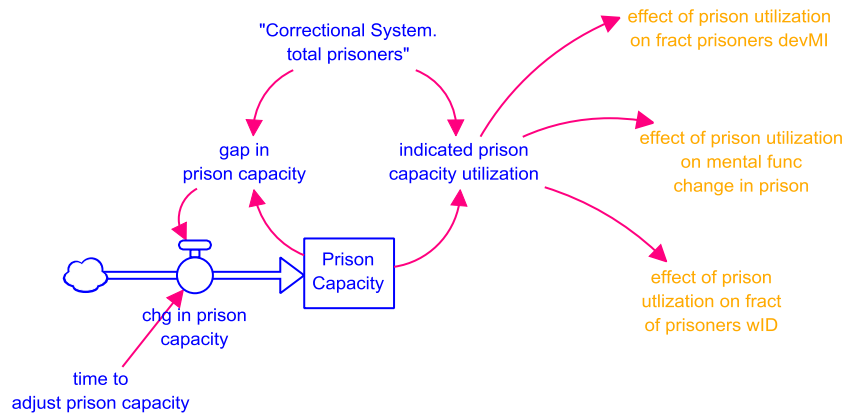
Figure 66 Prison Capacity Adjustment Process and Effects of Prison Capacity Utilization

4.3.7.2 Effect of Prison Utilization on Mental Illness Development in Prison and Mental Functions Deterioration Among Prisoners wMI

In 1987, California's prison utilization was 173% of the design bed capacity (Figure 13). Due to the delay in new capacity expansion, the prison capacity constantly lagged behind the prison population. The utilization level, the prison population over prison's design capacity, rose to almost 200% from end of 1990s to early 2000s.

Overcrowding leads to the deterioration of prisoners' mental health in two ways. First, overcrowding reinforce the negative effect on mental health during incarceration. Thus, prisoners may develop MI during custody. Second, overcrowding may speed up the deterioration of the mental functions of those who are experiencing MI. Figure 67 shows the effect of prison capacity utilization on the fraction of prisoners developing MI. The prison has already been severely over-capacitated in 1987. If the relationship between prison overcapacity and fraction of prisoners developing MI is assumed to be linear, then the fraction of prisoners develop MI in 1987 is 1.7 times than the normal value. If so, when the indicated prison utilization is at 1.7, the effect on fraction of prisoners develop MI is seven times of the reference fraction of prisoners develop MI. If prison utilization continues to rise, more prisoners will develop MI. If prison utilization falls below the design capacity, the effect on fraction of prisoners develop MI drops.
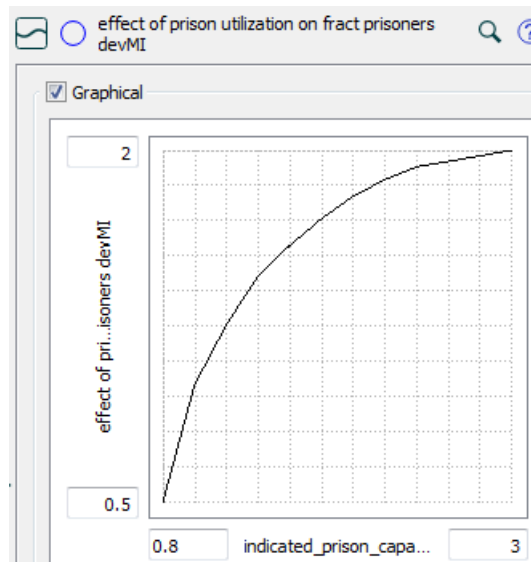
Figure 67 Effect of Prison Utilization on Mental Illness Devleopment in Prison

Prison overcrowding causes more stress to the prisoners wMI, whose mental functions are already deteriorated. Increasing capacity utilization leads to further deterioration in mental functions. This effect has a similar table function as Figure 66.

4.3.7.3   Effect of Prison Utilization on Infectious Disease Development

Lastly, prison capacity utilization affects the infectivity of infectious diseases. The more crowded the prison is, the higher the chances for infectious diseases to spread. Figure 68 captures this relationship.
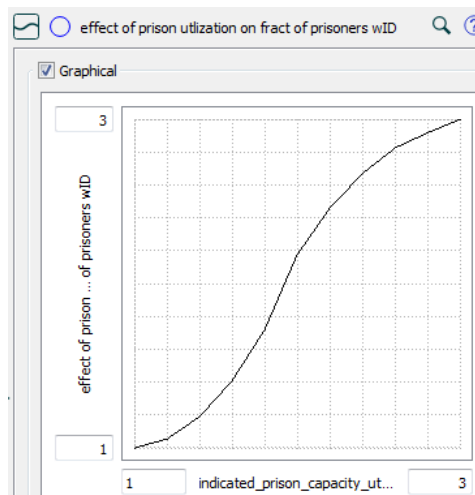
Figure 68 Effect of Prison Capacity Utilization on the Development of Infectious Diseases (ID)

The input parameter to the table function in Figure 68 is the indicated prison utilization. The output parameter, which is the effect on fraction of prisoners contracted ID, is shown on the vertical axis with corresponding numerical values. When prison capacity is equal to the prison population, i.e. 1 on the horizontal axis, the fraction of prisoners infected remains at the normal value, which is also 1 on the

vertical axis. As the prison utilization increases and over the designated capacity, the fraction of prisoners being infected also increases.

4.3.8 Jail Capacity
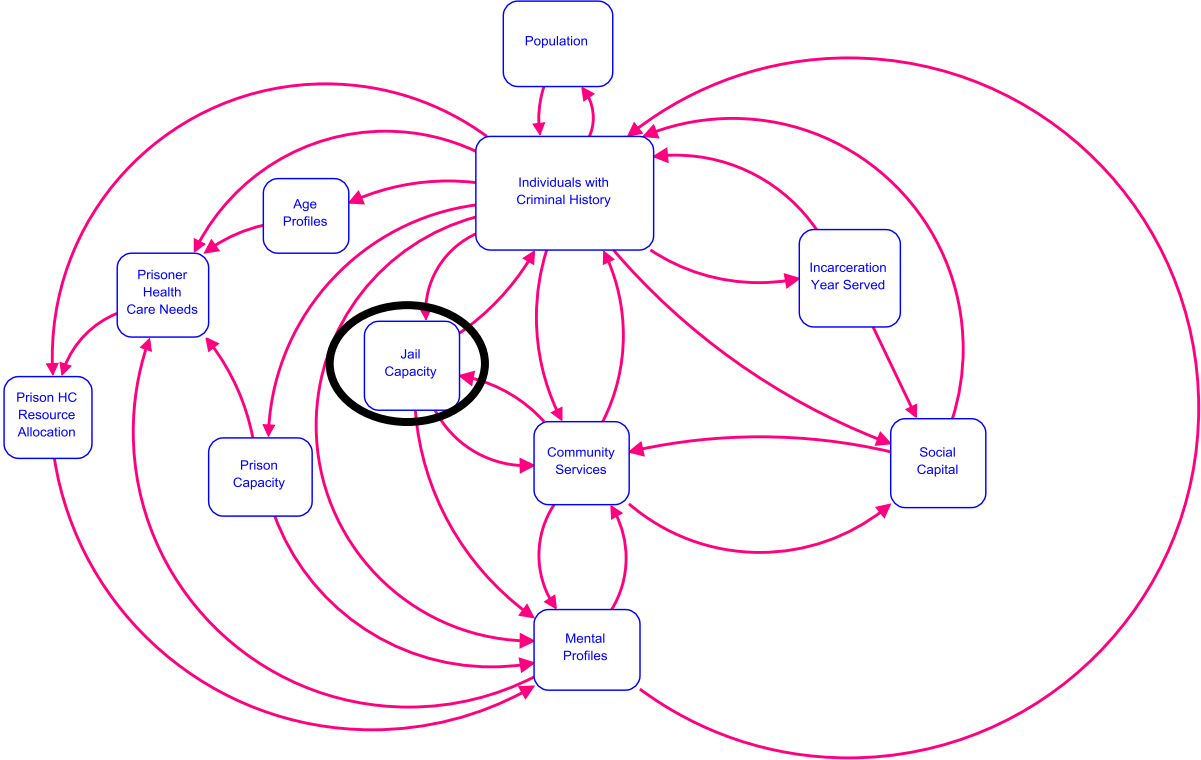
4.3.8.1 *Adjustment Process of Jail Capacity*

The adjustment process of jail capacity is similar to that of the prison capacity. 33% of California county jail systems that are operating under court-ordered population cap are housing 65% of the jail population (Lawrence, 2014). Contrary to the widely held belief, the jail population did not increase as much as expected over time. Statewide jails are operating at 105% of the rated capacity[68]. Overcrowding is not as prevalent in jails as in prisons mainly due to two reasons: (1) increase state spending on jail facilities expansion and (2) the use of early release to regulate jail offender population. The State allocated grants under AB 900 and SB 1022 for $1.2 billion and $500 million in 2007 and 2015

---

[68] According to American Jail Association, "rated capacity refers to the number of inmates or beds determined by an official body and often based on architectural design and construction. Rated capacity represents the number of inmates at which a facility can operate safely. This number is usually determined by the agency head or facility supervisor." Retrieved from https://members.aja.org/About/StatisticsOfNote.aspx on June 07, 2017

respectively for jail construction expansion. These construction funds may add a total of about 12,000 jail beds (Martin et al., 2014).

Some counties see the population cap as a benefit as it becomes the basis to request for funds from state government to expand jail capacity. At the same time, the court grants the sheriffs discretionary rights to release jail detainees or offenders earlier[69]. Given the long delay in planning for and construction of jail facilities, i.e. about five to seven years (Martin et al., 2014), early release becomes a convenient measure to regulate jail capacity.
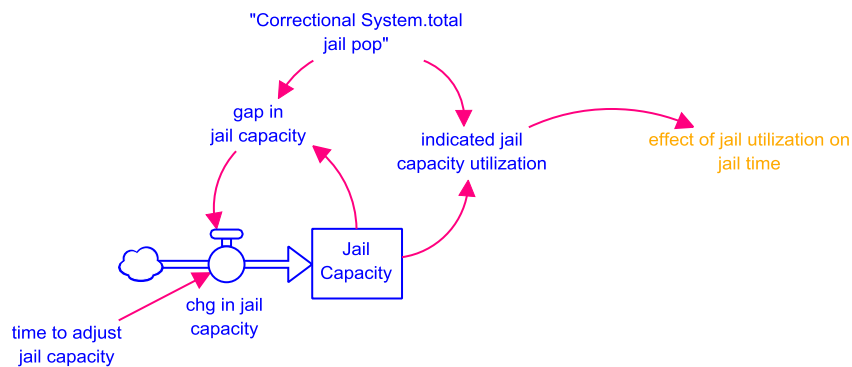
Figure 69 Jail Capacity Utilization and Jail Release

The formulation in Figure 69 presents a simple first-order structure with a negative feedback loop in modeling the jail capacity adjustment process. The "Indicated jail capacity utilization" is the ratio between jail capacity and total jail population. When jail capacity fails to accommodate the growing jail population, jail utilization increases. The use of early lease of jail offenders is attributable to the increase in jail utilization. This coping mechanism is literally shortening the sentence the offenders.

---

[69] Generally, the detainees or offenders are released earlier based on the following priority adapted from Lawrence (2014):
- Unsentenced/unconvicted persons charged with misdemeanors;
- Sentenced misdemeanants in descending order of the percentage of their sentence already served;
- Unsentenced persons charged with felonies, in ascending order of the amount of bail; and
- Sentenced felons in descending order of the percentage of their sentence already served for felons sentenced for crimes against property and felons sentenced for crimes against persons.

Figure 70 displays the inverse relationship between of jail utilization and jail time. The input parameter to the horizontal axis is the "indicated jail capacity utilization". The output is the effect on jail time showing on the vertical axis. Under normal circumstances, when jail capacity utilization equals to one, capacity is sufficient to accommodate the number of jail offenders. Then jail offenders serve the normal jail time. When jail utilization increases above one, the effect on jail time becomes smaller. Thus, jail offenders spend smaller fraction of their sentences in jail.
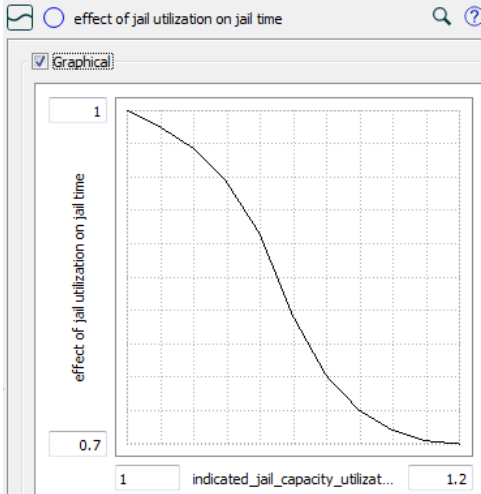
Figure 70 Effect of Jail Capacity Utilization on Jail Time Served by Jail Offenders

4.3.9 Incarceration Year Served

This module presents the accumulation of incarceration years of offenders and the effects of imprisonment on various aspects of the criminal justice system.
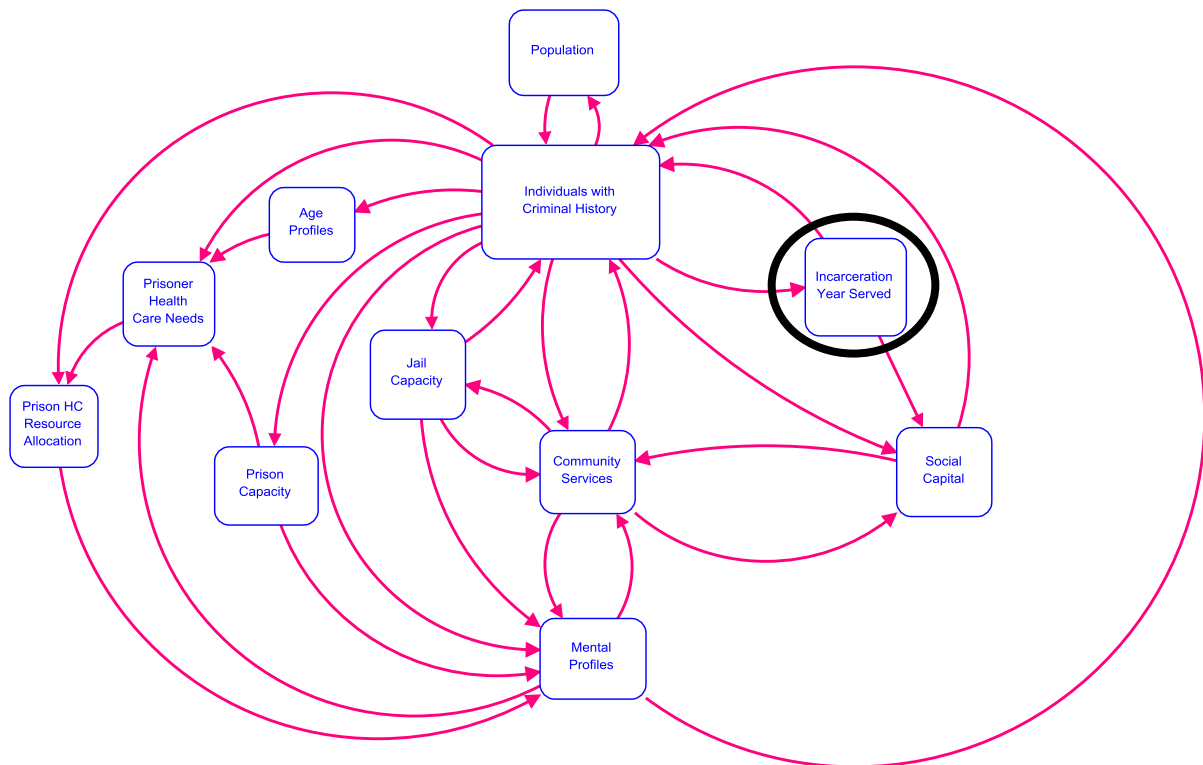
Ever since the implementation of the Three-Strikes Law in 1994, the average total incarceration years of prisoner is increasing. Additionally, the high return-to-prison (RTP) rate also contribute to the increment of incarceration years. It is important to distinguish time served in prison or jail from sentence length. Time served in prison or jail refers to the total time offenders actually spend during incarceration, whereas sentence is length decided by the court at conviction. Time served in prison is usually shorter than the sentence granted due to the availability of various credit-earning programs to incentivize offenders to abide to the prison rules and participate in rehabilitative programs (see Section 4.3.2.2, Figure 14).

Figure 71 presents an overview of the structures in this module. Most of the structure in this module resembles the **Individuals with Criminal History** module, which is the core module, thus only the differences between the structures will be illustrated.
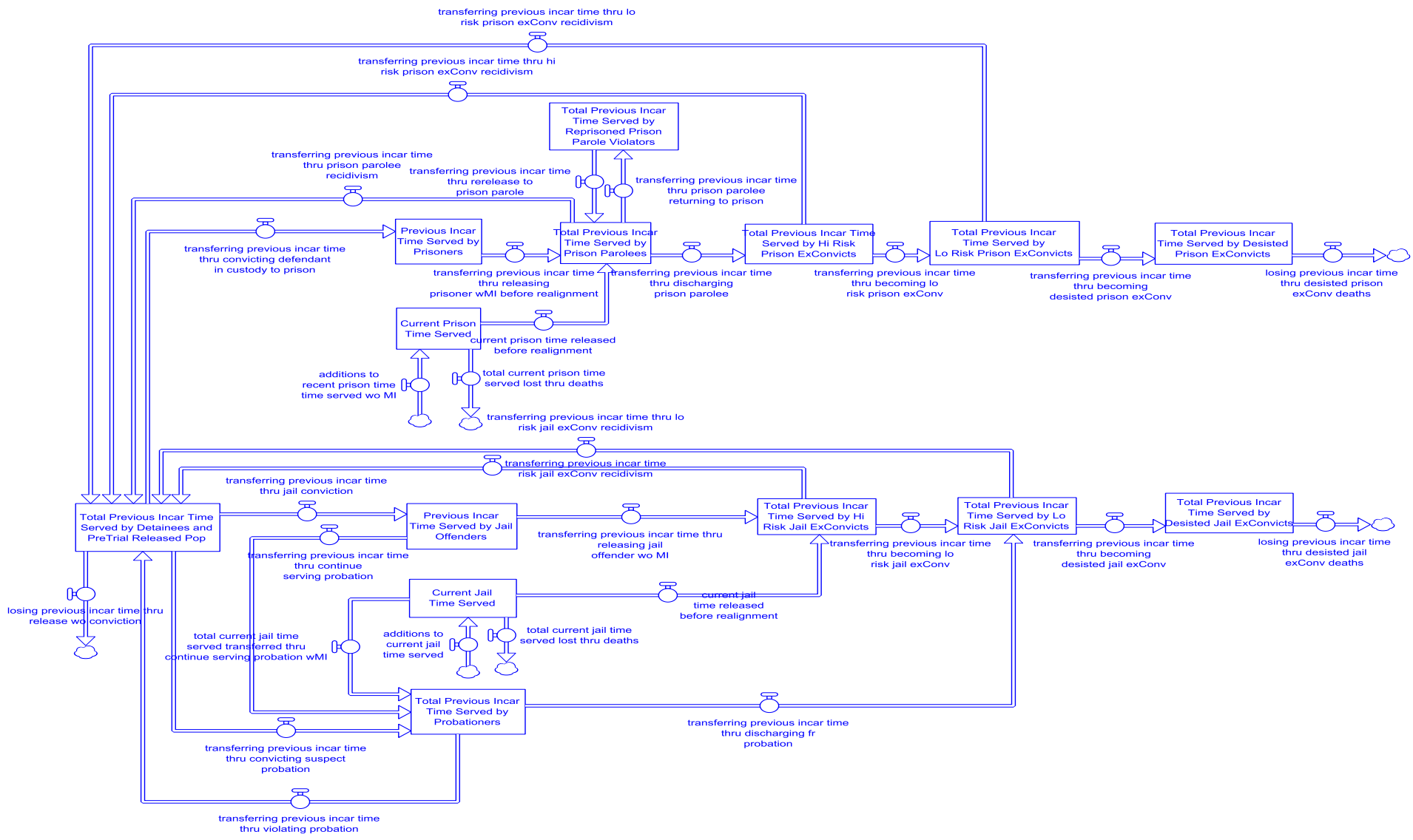
Figure 71 Overview of the Simplified Stock-and-Flow Structure in Incarceration Year Served Module

4.3.9.1   Current Prison Time Served by Prisoners wMI

This section presents the coflow structure of the time served by prisoners wMI for the current sentence. There are two inflows to the stock: "current time served transferred thru devMI" and "additions to recent sentence time served wMI" (Figure 72).

"Current time served transferred thru devMI" characterizes the average time prisoners wo MI have served up until they become mentally ill being transferred along with them to the stock of "Prisoners wMI". The second inflow to the stock, "additions to recent sentence time served wMI",characterizes an annual increase in current prison time served. This inflow symbolizes the accumulation process in which each prisoners wMI gains one year in time served for each year they stay behind bars. The time served accumulation process for each of them will only cease after they leave the prison.

When the prisoners wMI are released to serve parole, they leave with the time they finish serving in prison to the "Total Incarceration Time Served by Prison Parolees wMI" stock. The time served transferred by these prisoners is termed as "ave current prison time served wMI", which is a division of the "Total Incarceration Time Served by Prison Parolees wMI" stock by the number of prisoners wMI from the **Individuals with Criminal History** module (section 4.3.2.1). The "prison time served wMI" from the **Individuals with Criminal History** module differs from the "ave current prison time served wMI" as the former refers to the average time that has been served while the latter refers to the average time that the prisoners who are still serving. Therefore, when prisoners wMI die, the average time that prisoners wMI are deducted through the death outflow.
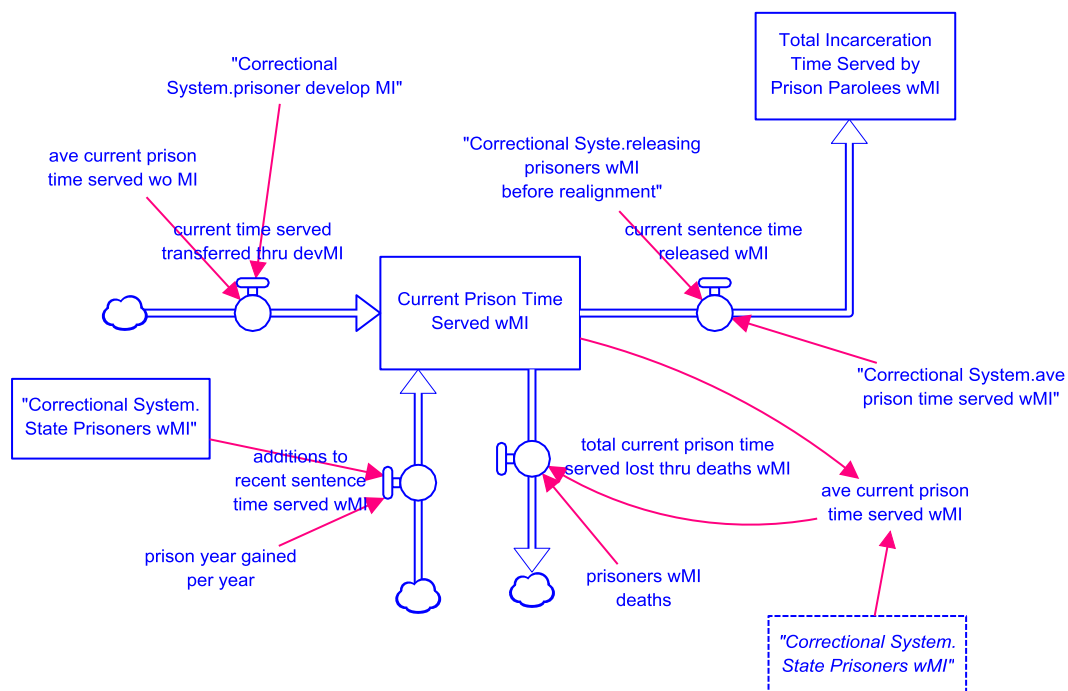
Figure 72 The Accumulation Process and Transfer of Current Prison Time Served by Prisoners wMI from Prison to Parole

 "Total Previous Incarceration Time Served "represents the previous incarceration year the prisoners wMI have accumulated before they enter prison (Figure 73). Previous incarceration year served is defined as any time the convicts have previously served in prison or jail, including the time spent in custody.
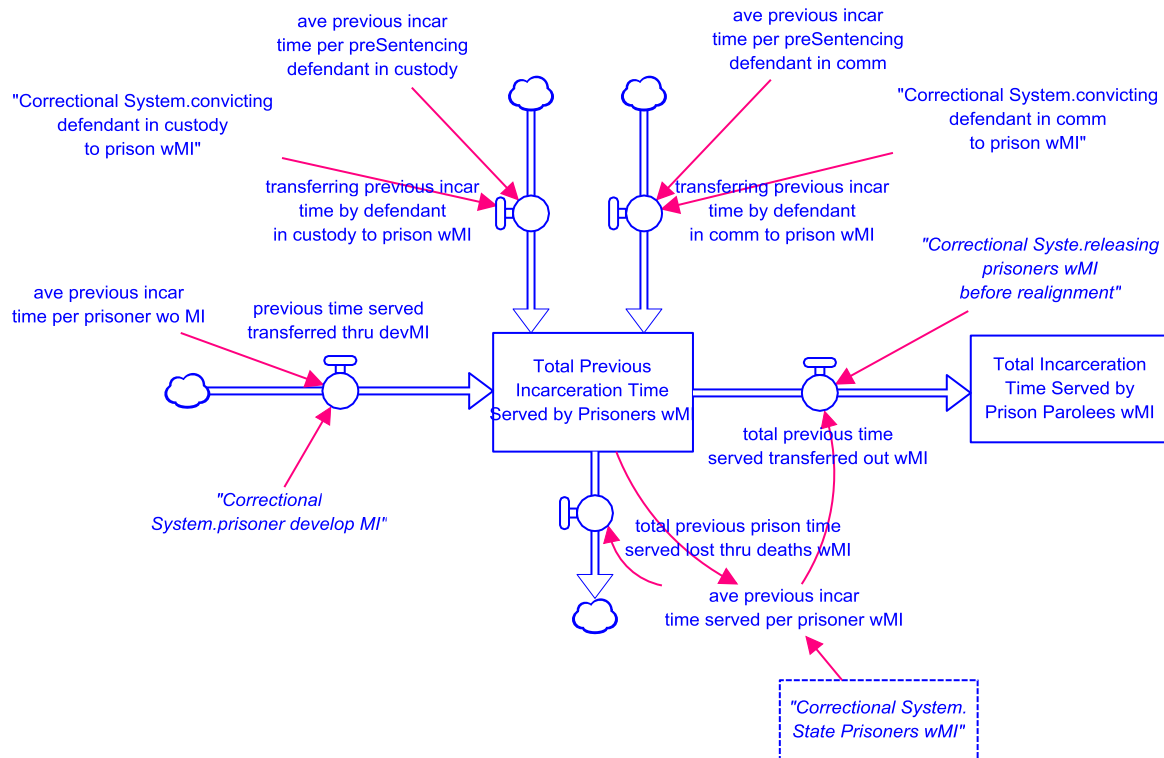
Figure 73 Accumulation Process and Transfer of Previous Incarceration Time Served by Prisoners wMI from Prison to Parole

The previous incarceration time served of prisoners wMI is blended in the stock. When these prisoners leave the prison either due to deaths or release, each of them leave with the average previous incarceration time served per prisoner wMI.

The "Total Incarceration Time Served by Prison Parolees wMI" integrates the previous and current time served of the prisoners when they become parolees. When these parolees leave the parolee stock, they leave with an average of total incarceration year served that reflects their incarceration history ,defined by total year spent behind bars, to the next stage in the correctional system.

The prisoners wo MI, jail offenders wMI, and jail offenders wo MI have a similar structure to that of the prisoners wMI, except that jail offenders do not serve parole. Consequently, the "Total Incarceration Time Served by High Risk Jail ExConv wMI" or "Total Incarceration Time Served by High

Risk Jail ExConv wo MI" integrates the previous incarceration years with the current time served of relevant jail offenders.

4.3.9.3   Total Previous Incarceration Time Served by Arrestees

This section demonstrates that accumulation process of total previous incarceration time as an endogenized process. The "Arrestees" stock is the first contact point individuals establish with the correctional system.   Unlike other coflow structure, the "Total Previous Incar Time Served by Arrestees" does not have an inflow (Figure 74). The accumulative incarceration time served behind bars increases through the increasing time served in prison or jail (section 4.3.2.1). The longer the offenders stay in prison or jail, the higher the incarceration time served is accumulated. When these individuals recidivate through new crime commitment, they transfer the total previous incarceration time served to the "Total Previous Incar Time Served by Arrestees" stock. Eventually the circulation has an reinforcing effect on the average previous incarceration time served by individuals with criminal history. This average previous incarceration time served per individual continues to increase as long as they recycle between custody and community.
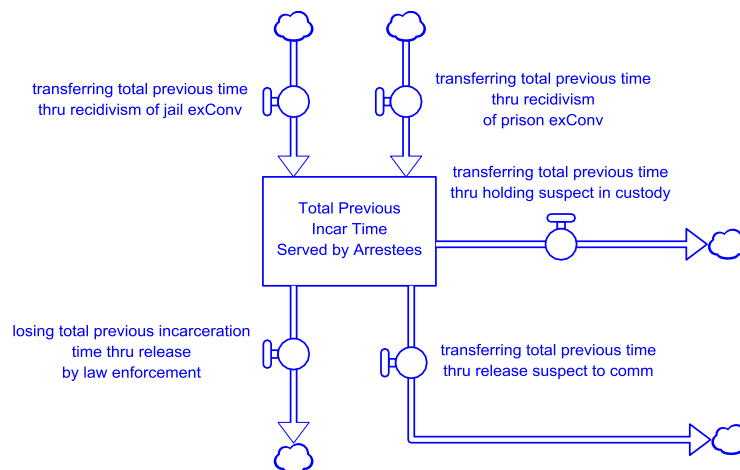
Figure 74 The Accumulation Process of Total Previous Incarceration Time Served by Arrestees (simplified)

As these arrestees progress through the correctional system, the average previous incarceration time served also circulates through the system until they leave the correctional system, either through deaths or through desistance. The formulation in this module intends to capture the dynamics of Three-strikes Law and its effects on various aspects of the criminal justice system and public health.

The average previous incarceration time per prisoners or jail offenders will not increase continuously under the Three-strikes law because the maximum time an ex-convict can circulate is two times[70]. For

---

[70] Only if the ex-convict has two previous felony convictions. A misdemeanor conviction is not counted as a strike. Theoretically, jail ex-convicts can circulate the system indefinite times that lead to the increase in

the third offense, the ex-convict will receive a 25 years sentence or life sentence. Figure 45 shows that the size of the second and third striker populations remain relatively stable after 2002. The average prison sentence length also exhibits a steady trend (Figure 13). Hence, the increase in average previous incarceration time per prisoners or jail offenders is expected to be moderate for now because the first offenders convicted as third-striker will only be released in 2019. Nevertheless, the longer time spend behind bars leads to unintended consequences among the prisoners and ex-convicts.

4.3.9.4   Effect of Average Previous Incarceration Time Served by Recidivist on Fraction of Prison Sentence Conviction

Previous incarceration time served by recidivists has a positive relationship to the fraction of prison sentence conviction. This relationship is expressed in the table function in Figure 75.
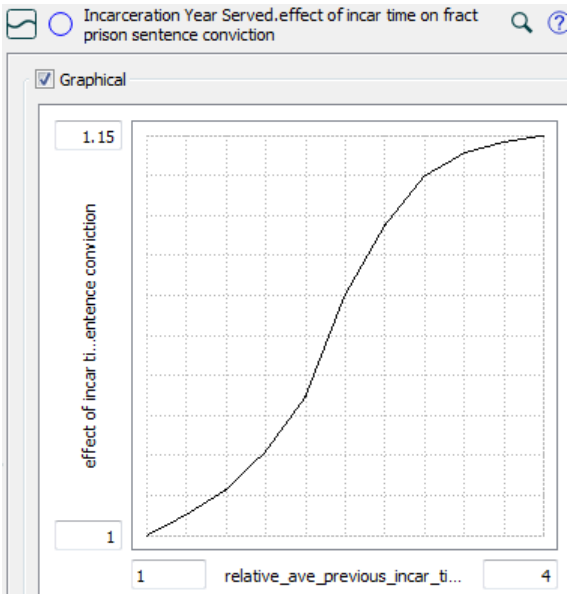
Figure 75 Effect of Average Previous Incarceration Time Served by Recidivist on Fraction of Prison Sentence Conviction

The input parameter to the horizontal axis is the relative average previous incarceration time served per recidivist (see Section 4.3.9.6 for the calculation). This is a ratio of the average previous incarceration time served per recidivist and the initial value. The effect of the change average previous incarceration time served is reflected on the vertical axis. When the recidivists spend more time recycling in the correctional system or longer time behind bars, the average previous incarceration time served increases over time. As this ratio rises, the effect on the fraction of defendants receiving prison sentence conviction also increases. This is because that the considerable leap in previous incarceration history implies that seriousness of offense. Serious offenses are considered as felonies.

---

average previous incarceration time without becoming strikers if they are convicted for misdemeanor offences. However, jail time is relatively shorter than prison time. Hence, multiple misdemeanor convictions do not increase average previous incarceration time significantly.

Under Three-strikes Law, the sentences for second felony offense is double the sentence length for the same felony for the first striker.

4.3.9.5   Effect of Average Previous Incarceration Time Served by Recidivist on Prison Time Served

This formulation specifies the positive relationship between the average previous incarceration time served by recidivist, which includes reoffenders from the parolees, prison ex-convicts, and jail ex-convicts stocks, and prison time served (Figure 76). The "initial average previous time per recidivist" is the initial value of "average previous time per recidivist". As the "average previous time per recidivist" increases relative to the initial value, the prison year served per prisoner increases (Figure 77). This formulation accounts for the dynamics between the Three-strikes Law and its impact on the lengthening of imprisonment for second and third strikers.
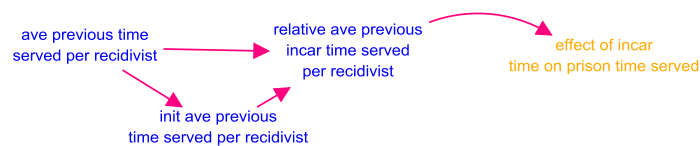
Figure 76 Formulation of the Relative Average Previous Incarceration Time Served per Recidivist and Its Effects on Prison Time Served
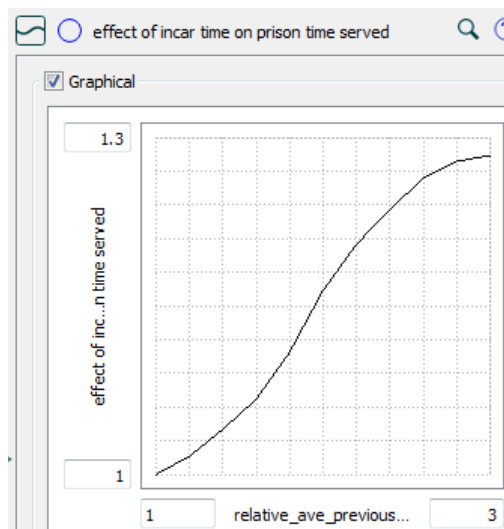
Figure 77 Effect of Average Previous Time Served per Recidivist on Prison Time Served

The table function in Figure 77 depicts a reinforcing effect of relative average previous incarceration time per recidivist on the average prison time served. Under the normal condition, when the average previous incarceration time served per recidivist remains unchanged, the prisoners serve the normal prison time. As the previous incarceration time served increases over time, the average prison time served by prisoners also increases due to Three-strikes Law.

This section describe the calculation of a weighted average of previous time served per recidivist. Weighted average is chosen over regular average because the previous time served by parolees contributes more weight to the effects on other parts of the system compared to other ex-convict groups. Also, the parolees, who have the highest recidivism rate within the first year post-release, carry the most recent incarceration year. It is this group that is most affected by their previous incarceration year when they reenter the society.

First, the total recidivist from the stocks of parolees, high-risk ex-convicts, and low-risk ex-convicts are obtained by summing up the relevant stocks. This is because that the probabilities of reoffending for these three groups vary drastically (see Section 4.3.2.2).
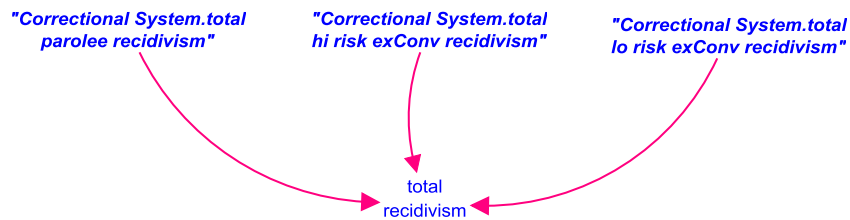
Second, calculate the fraction of recidivism of each of these groups.
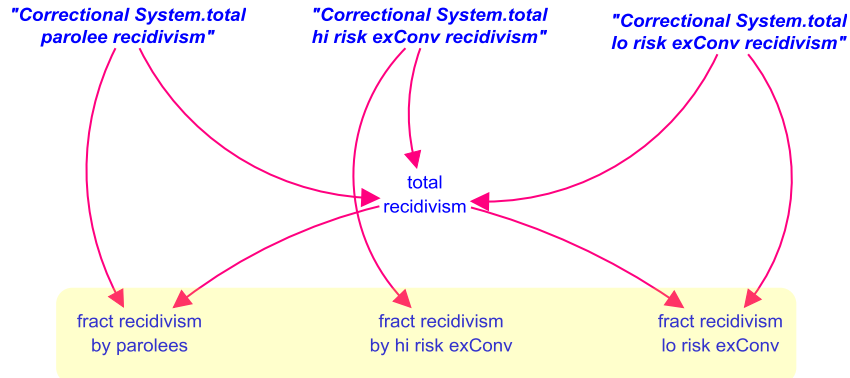
Third, weights are assigned to each group of recidivist because those who are released most recently have a higher probability of reoffending.

96
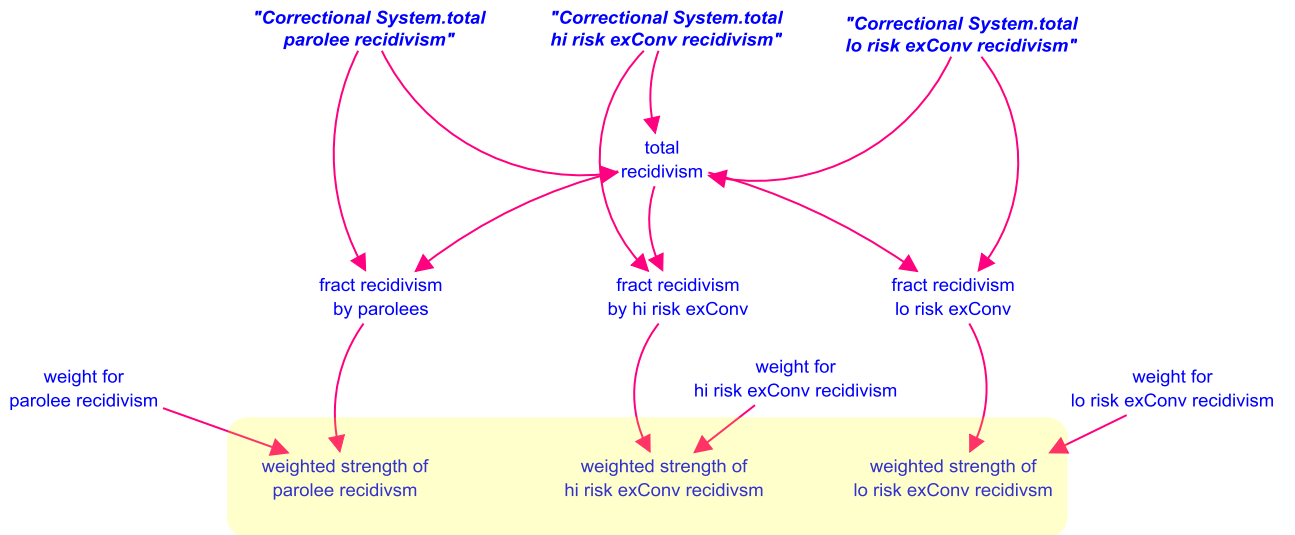
Fourth, the relative strengths of recidivism of each group of recidivists are calculated.
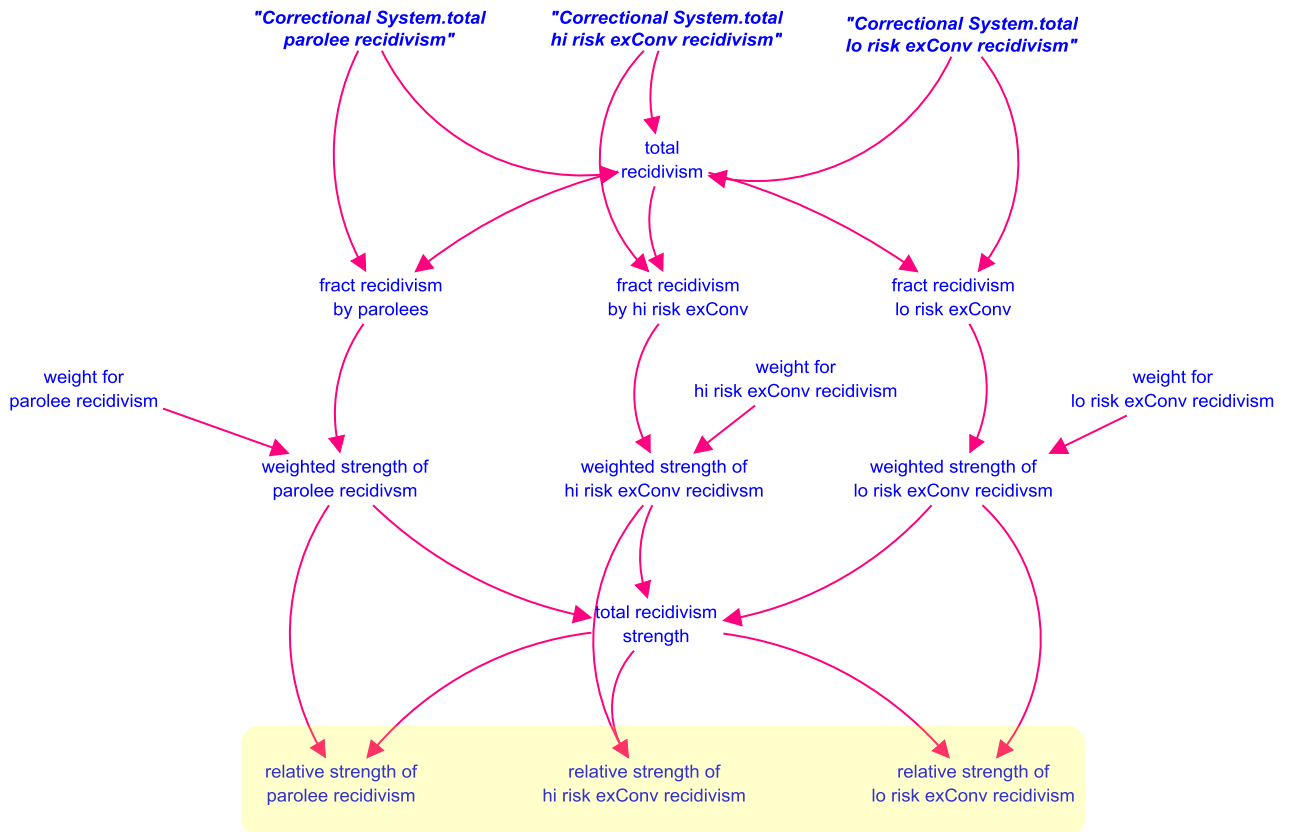
Finally, the averages incarceration time of each group of recidivists are multiplied by the relative strength of recidivism to obtain the weighted average of previous time served per recidivist.
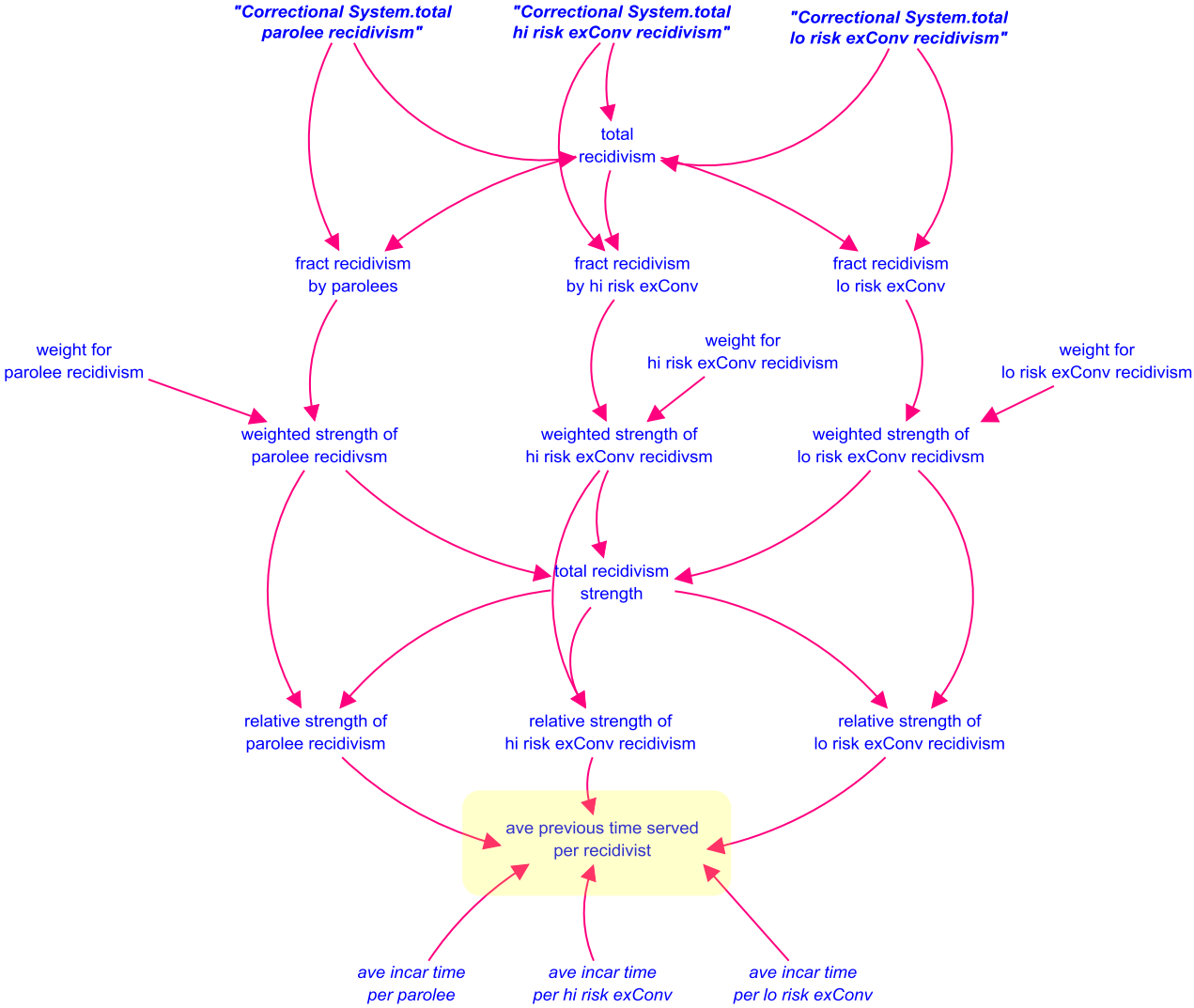
4.3.9.7   Effect of Average Previous Incarceration Time Served by Recidivist on Law Enforcement Release

This section outlines the formulation of the effect of average previous incarceration time served by recidivist on the fraction of arrestees being released by law enforcement. Under California law, law enforcement agency and prosecutors have the discretion to charge certain crimes as felony or misdemeanors (LAO, 2013). Increasing previous incarceration time implies a greater proportion of recidivists may be third strikers or have other convictions related to felony offenses. The growing number of habitual criminals lead to lower fraction of the arrestees being released without charges. Figure 78 shows that as the average previous incarceration time served per recidivist increases relative to the initial value, the fraction of arrestees being released without charges will drop.
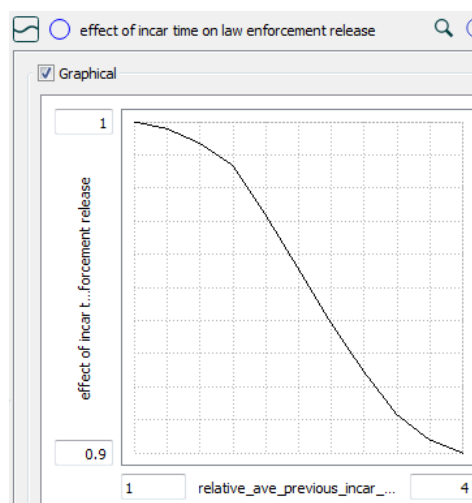
Figure 78 Effect of Average Previous Incarceration Time Served per Recidivist on the Fraction of Arrestees being Released by Law Enforcement without Charges

4.3.9.8 Effect of Average Previous Incarceration Time Served by Recidivist on Suspect Held in Custody

This section presents the effect of average previous incarceration time served by recidivist on the fraction of suspect being held in custody. The court decides on pretrial release based on several criteria (see Section 4.3.2.4). One of the criteria is previous conviction or arrest. Hence, the average previous incarceration time served, which may be used as a proxy to quantify the criminal history of the recidivists, becomes the input to the table function to estimate the impact on pretrial release (Figure 79). When the average previous incarceration time served increases, the fraction of arrestees being released without charges decreases. As pretrial release reduces, the fraction of suspect held in custody increases.
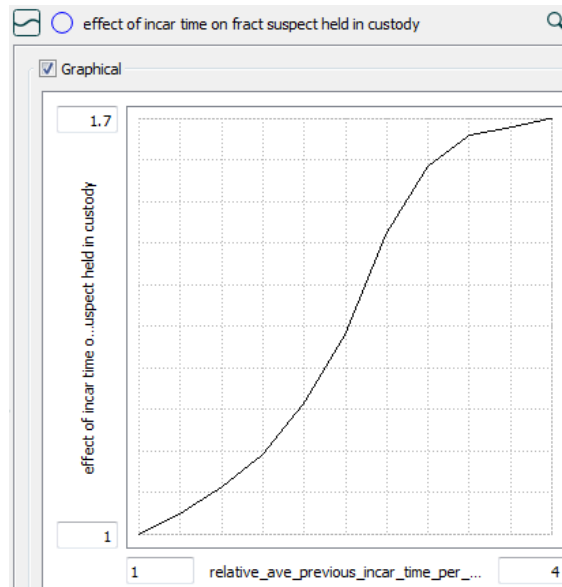
Figure 79 Effect of Average Previous Incarceration Time per Recidivist on Fraction of Suspect Being Held in Custody

4.3.9.9 Effect of Average Previous Incarceration Time Served by Recidivists on Complaints Dismissed After Arraignment

This section shows the formulation of the effect of average previous incarceration time served per recidivist on complaints dropped after arraignment. Complaints may be dismissed after arraignment but before trial or be dismissed after trial (see Section 4.3.2.5). However, we assume the effect of previous incarceration time has the same effect on the complaint dismissal rate for both situations. The following table function describes that when the average previous incarceration time per recidivist increases relative to the initial value increases, the fraction of complaints being dismissed will be lower than it would have been (Figure 80).
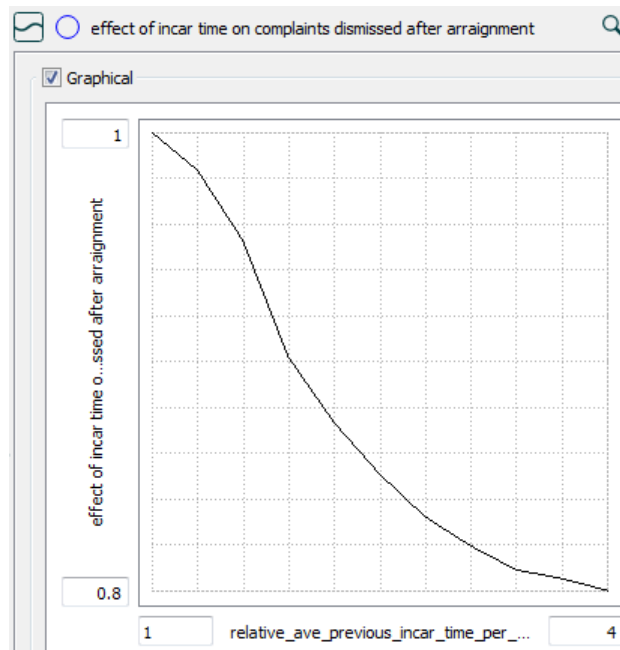
Figure 80 Effect of Average Previous Incarceration Time Served per Recidivist on the Fraction of Complaints Dismissed

4.3.9.10 *Effect of Average Previous Incarceration Time Served by Prisoners on Prisoners wMI's Social Capital Loss*

This section demonstrates the effect of the imprisonment history of prisoners wMI on the social capital loss of this group of prisoners when they are incarcerated. "Ave previous incar time served per prisoner wMI" represents the average imprisonment history each prisoners wMI carries with them when they are admitted for the current sentence (Figure 81). Note that this parameter is different from the "ave current prison time served". As the average imprisonment history of the prisoners wMI are rising relative to the initial value, the higher capital loss will the prisoners wMI encounter.
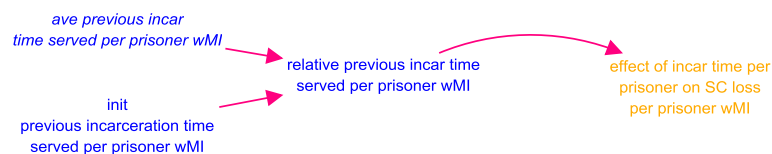
Figure 81 Formulation of Relative Previous Incarceration Time Served per Prisoners wMI and Its Effect on Prisoners wMIs' Social Capital Loss

The following table function demonstrates that when the relative previous incarceration time served per prisoner wMI rises higher than 1, the social capital loss of prisoners wMI also increases higher than one. This means that the annual prisoner social capital loss per prisoner wMI will increase (see Section 4.3.11). If the previous imprisonment duration continues to extend, the reentering prisoners who spend more time being isolated from the community is projected to have larger and more difficult needs to reintegrate to the society (Petersilia, 2001). The input parameter to the table function in Figure 82 is the relative previous incarceration time served per prisoner wMI and the output is the effect on SC loss per prisoner wMI. As the relative previous incarceration time served increases, the prisoners lose more SC while serving sentence (see Section 4.3.11).
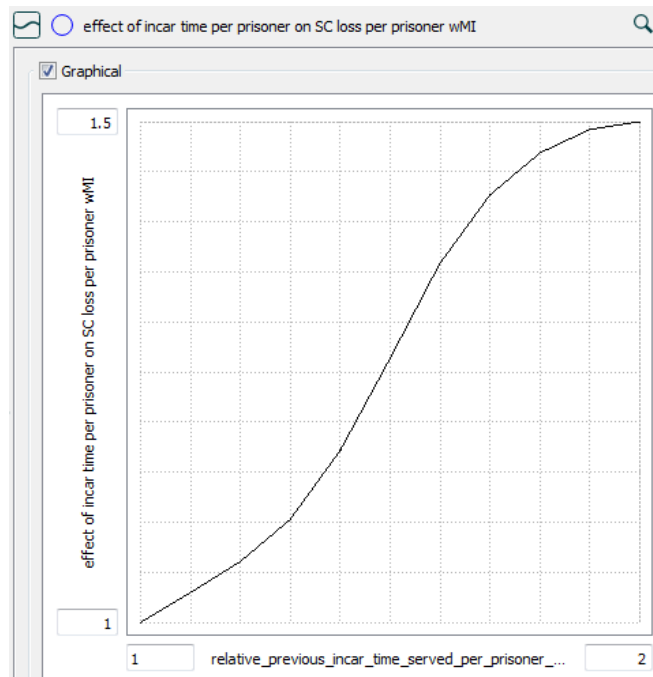
Figure 82 Effect of Relative Previous Incarceration Time Served per Prisoner wMI on Social Capital Loss per Prisoner wMI

4.3.9.11   *Effect of Average Previous Incarceration Time Served by Parolees wMI on Return-to-prison (RTP)*

This formulation shows that the determination of relative total previous incarceration time per parolee wMI (Figure 83). It is the ratio between the average incarceration time each parolee wMI has accumulated as compared to the initial value. When the average rises higher than the initial value, more parolees wMI will be returned to prison for parole violation (see Section 4.3.2.2).
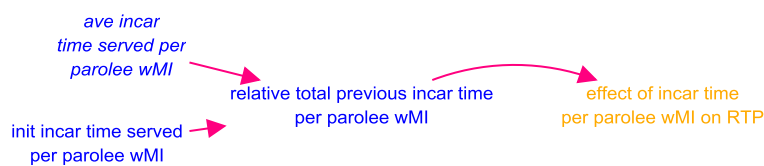
Figure 83 Formulation of Relative Total Previous Incarceration Time Served per Parolee wMI as the Input to the Effect on Parolees wMIs' Return to Prison (RTP) Rate

The table function in Figure 84 outlines the nonlinear relationship between the relative total previous incarceration time served per parolee wMI and the RTP of parolees wMI. As the relative imprisonment history per parolee wMI rises relative to the initial value, more parolees wMI who have violated parole condition will be sent back to prison.
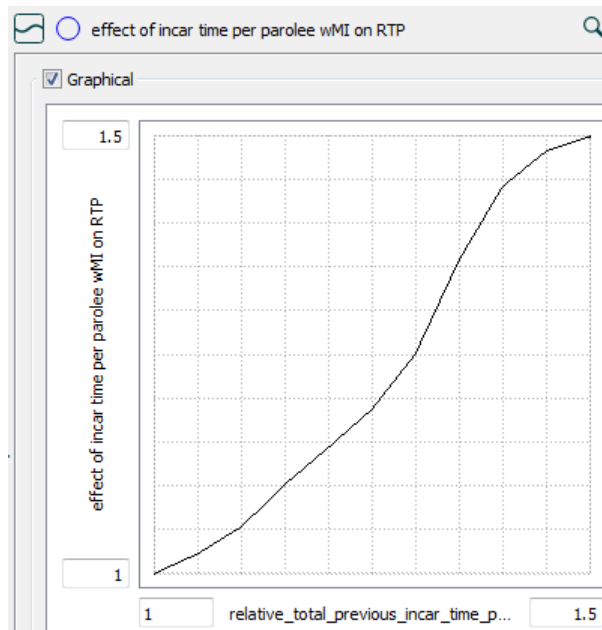
Figure 84 Effect of Relative Average Previous Incarceration Time per Parolee wMI on Return-to-prison (RTP) Rate

The input parameter to the table function is the relative average previous incarceration time served per parolee wMI. The output is the effect on parolees wMI's RTP rate. This reinforcing relationship emphasizes that the higher the average previous incarceration time served leads to higher RTP rate among parolees.

4.3.9.12 Effect of Previous Incarceration Year Served on Annual Social Capital Loss per Person

This section provides an overview of the effect of previous incarceration time served on the SC loss rate of prisoners wMI. Figure 85 presents this relationship. The input parameter to this table function is the "relative ave previous incarceration time served per prisoner wMI". This is a ratio representing the change in average previous incarceration time served by each prison relative to the initial value. As the average previous incarceration time served per prisoner wMI increases over time, the effect on SC loss also increases. Normally, each prisoner is losing two scores of SC per year. As the previous incarceration served accumulates when ex-convicts recidivate, these individuals experience greater loss in SC. Although the prisoners wo MI also experience SC loss, their SC loss rate per person is set as a constant at two score per person per year.
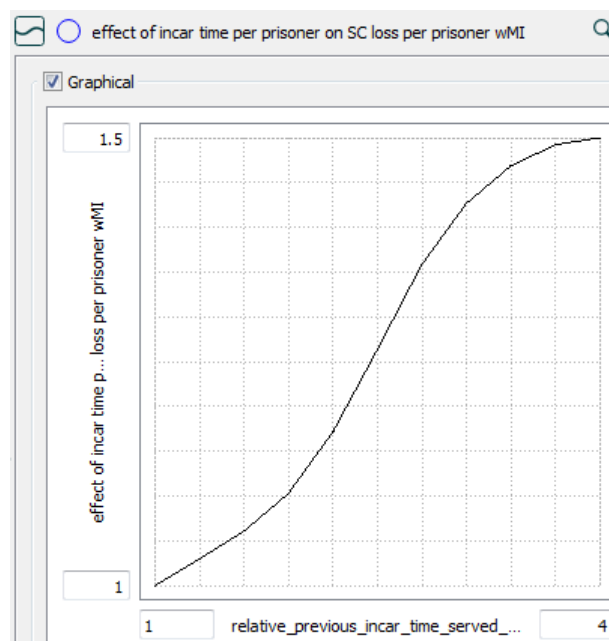
Figure 85 Effect of Previous Incarceration Time Served per Prisoner wMI on Annual Social Capital Loss per Prisoner wMI

4.3.10 Community Services

This module defines the community services associated with ex-convicts' reentry. "Reentry" refers to programs or activities with the goal to aid individuals who have served their punishment by serving their sentences to return to the society and live as law-abiding citizens (Travis, 2001). This module models by the abstracting of all the possible social services parolees wMI may need for successful reentry to the community an inclusive term of "Community Services".
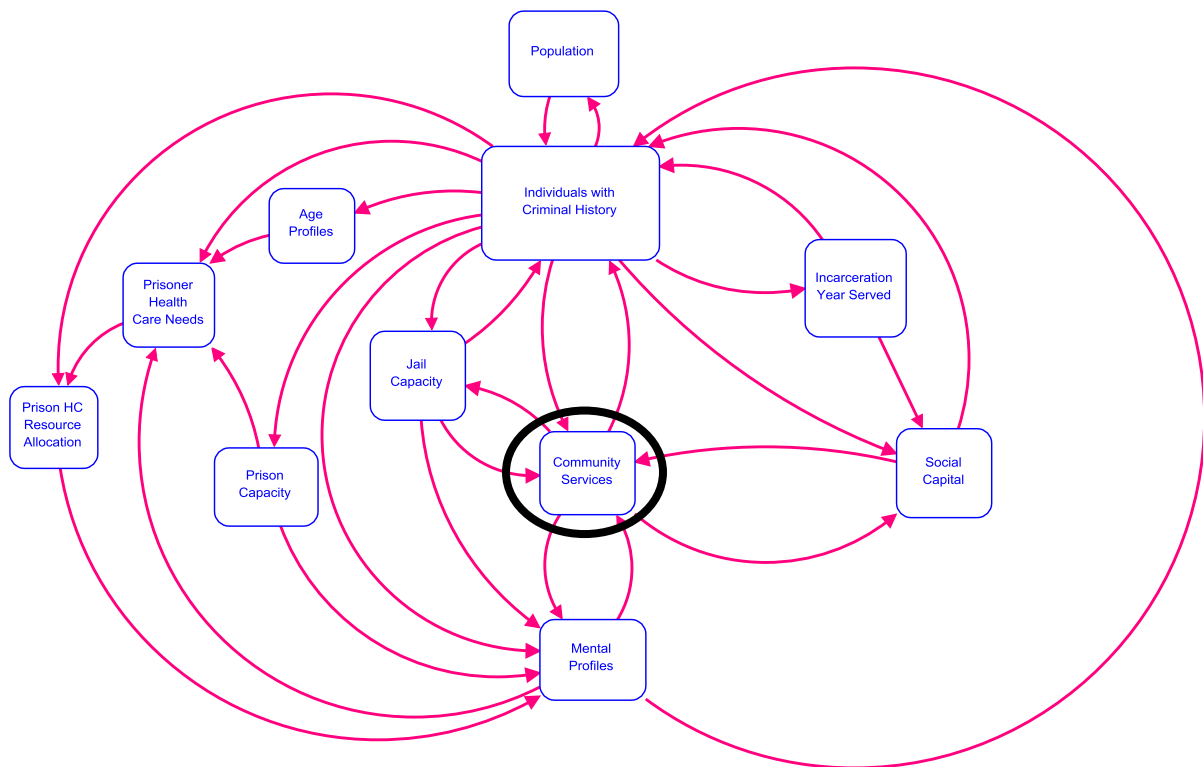
The number of parolees in California has increased from about 40,000 in 1987 and peaked at 120,000 in 2008 (Figure 16). Two years after the Realignment, the number dropped significantly to 47,000 in 2013. After their release, 80% of the parolees were not financial independent within the first year after their release. Only about 40% of the parolees were supported "frequent" employment in the first year after their release (F. P. Williams et al., 2000). However, only 20% of the parolees' primary source of financial support was from employment (F. P. Williams et al., 2000). Study estimates that incarceration led to a 15-30 % decline in subsequent employment rates (Freeman, 1991). 75% of the parolees lived with their families or someone they know in the first year after their release (F. P. Williams et al., 2000). 6.5% of the parolees were homeless in the first year. 86% of the parolees had previous arrest history (U.S. Department of Justice-Bureau of Justice Statistics, 2016).

Since data on parolees are limited, we use prisoners' profile as a proxy. Albeit an imperfect proxy given that prisoners are still serving their sentences while the parolees have left the prison, it still provides

some indication for the parolee profile. Many California prisoners have long histories of criminal and few marketable skills (Little Hoover Commission, 2000). Prior to incarceration, the average education attainment and working experience of the parolees are lower than the average individuals in the community. In conjunction with the idle time during incarceration that contribute to the further deterioration of the human capital of these parolees. Only 60% of the prisoners had high school diploma or GED (U.S. Department of Justice-Bureau of Justice Statistics, 2016). The study by U.S. Department of Justice-Bureau of Justice Statistics (2016) shows that 69% employed in the month prior to arrest; 63% received income through employment in the month prior to arrest. During incarceration, only half of the prisoners had a work assignment or were in a program and less than 25% enrolled in education or vocational training (Petersilia, 2000). Also, there was only 5% of the prisoners completed a reentry program prior to release (Petersilia, 2000).

Study reveals that only 22% of prisoners receive any drug treatment since admission (U.S. Department of Justice-Bureau of Justice Statistics, 2016). In county jails, 10 – 15% of jail offenders were reported to be mentally ill (Nieto, 1999). LAO (2000a) acknowledges that on average 12,000 of prisoners released to parolee had history of psychiatric problem. However, the Parole Outpatient Clinics (POCs) only cared for 9,000 parolees. LAO further indicated the POCs resources have been misused because under statutory requirement, CDCR is required to register sex-offenders to POCs even though they are not mentally ill. This practice strains POCs resources and turns away those parolees who need mental health care (MHC). Consequently, community mental health care clinicians struggle to handle caseloads as high as 160 to 1. Mentally ill parolees only receive infrequent and inadequate MHC. Being homeless further exacerbates the situation. Homeless and MI offenders are neglected in county mental health system (LAO, 2000a). Very often, ex-convicts receive initial treatment, but fail to adhere to treatment and take medication due to the lack of follow-up. Thus, they relapse into problematic behavior.

Inadequate provision of MHC has severe consequences on parolees' recidivism. 94% of the parolees received MHC in prisons and then released to parole, returned to prisons within two years (LAO, 2000a). Community mental health care (CMHC) has a serious provision gap. Community health providers in CMHC are disinclined to care for parolees. Additionally, the local and state government have difficulty in defining who should bear the responsibility for caring the mentally ill patients with MI (LAO, 2000a). Thus, the lack of well-defined responsibilities and commitment in assisting ex-convicts' reentry leave the vulnerable ex-convicts to re-engaging in criminal activities.

4.3.10.1 Adjustment Process for the Community Services Budget

This section presents the adjustment process for community services for parolees wMI. The community services here refers to the crucial needs that newly released ex-convicts require for successful reentry, such as healthcare (Travis & Petersilia, 2001), employment and housing (Denny et al., 2014).

36% and 60% of the parolees need residential and financial assistance respectively. Past criminal history, MI, and the lack of sociodemographic assets are the major contributing factors to homelessness (Greenberg et al., 2008). Housing is critical for the success of reentry for MI offenders because it is the requirement for the access to treatment and other services (Administrative Office of the Courts, 2011) and participate in community life (O'hara, 2007). Higher unemployment rate is also associated with homeless offenders (Greenberg et al., 2008). Greenberg et al. (2008) speculate that the older age and longer criminal history among the homeless offenders are the risk factors. To summarize, incarceration has been acknowledged to pose adverse effect on community and family ties, straining employment opportunities, and access to supported housing (Travis, Solomon, et al., 2001).
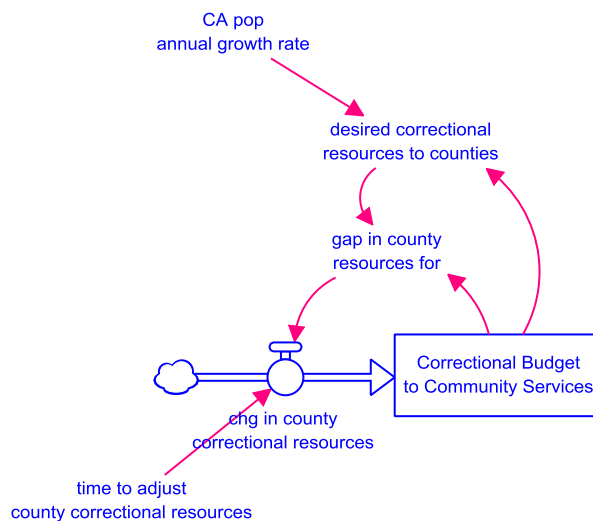
Figure 86 Correctional Budget Allocation for Community Services Adjustment Process

Figure 86 illustrates the adjustment process for correctional budget to community services. A gap is defined by the desired correctional resources to counties and the existing budget. The "desired correctional resources to counties" is a function of the existing budget with an expected annual population growth. As stated in Section 4.3.6.1, California adopts the budget change proposal process, we assume it will take an additional year to collection data from county government. Hence, the "time to adjust county correctional resources" is set as three years.

This section explains the budget adjustment process for community services for parolees wMI. The formulation for community services for parolees wo MI is similar, so explanation is omitted in this section.

Figure 87 outlines the budget adjustment process specifically for community services for parolees wMI.
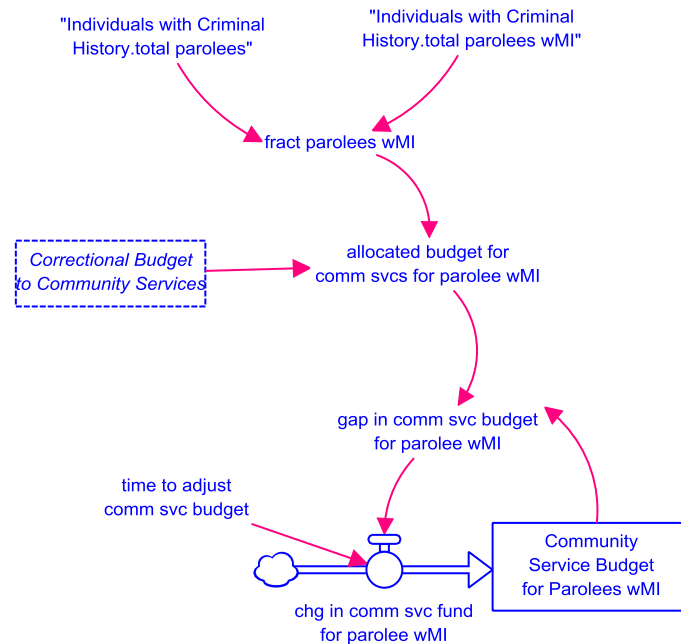
Figure 87 Adjustment Process for Budget Allocation to Community Services for Parolee wMI

The "Community Service Budget for Parolees wMI" is adjusted based on the gap in budget. The gap is the allocated budget for community services for parolees wMI, which is defined by the fraction of parolees wMI and the available correctional budget for community services. The delay in adjusting the community service budget is set at one year.

4.3.10.3   Adjustment Process for Community Service Capacity for Parolees wMI

This section presents the adjustment process for community services capacity for parolees wMI.
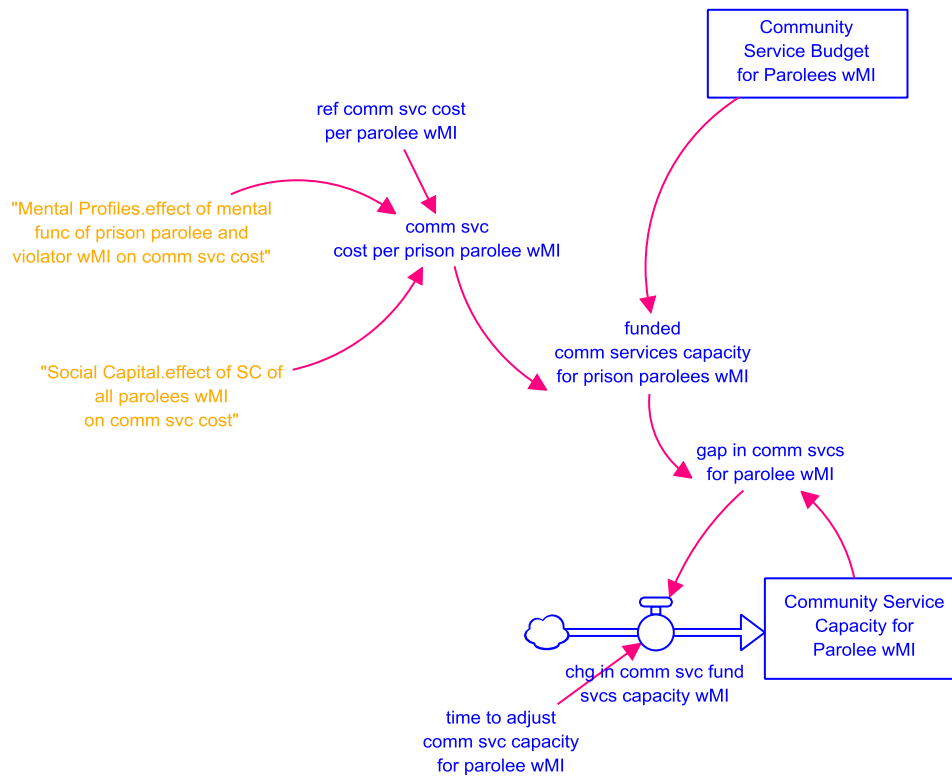
Figure 88 Adjustment Process for Community Service Capacity for Parolee wMI

Figure 88 presents the capacity adjustment process for community services. The stock of "Community Services Capacity for Parolee wMI" is defined by monetary term as it symbolizes a range of services including mental healthcare provision and housing assistance for the parolee wMI.   The existing capacity is compared to the desired community services capacity to determine the necessary adjustment. The "desired comm services capacity by prison parolees wMI" refers to the total number of parolees wMI from prison. This distinction is made because after the Realignment in 2011, some prisoners are released to parole under the county supervision instead of CDCR's.

The counties spent about $35 million per year on community services for parolees wMI in 1987[71]. The community service cost per parolee has grown from $1000 to $4,200/person/year. To model the increasing spending in community services, we develop a first-order delay structure with a negative

---

[71] In 1995-96, the spending on community services is reported to be $41 million per year (LAO, 2000a). Using this figure and population growth rate, we estimated the community service spending in 1987 to be $35,066,267. The annual population growth rates between 1987 and 1995 decreased from 2% to 0.5%.   In 1987, there were 39,183 parolees. Thus, the community service cost per parolee wMI in 1987 is $985/person/year. But the community service cost per parolee wMI grew to $4,200/person/year in 1995-96.

feedback loop (Figure 87). This formulation illustrates that the community services spending grows linearly with California's population. "Annual CA pop growth rate" is an exogenous data series taken from historical data[72]. It is assumed that the time to adjust the community services for parolees wMI is long due to the lack of information sharing practice between CDCR and counties. So the delay is set at 8 years.

Community services cannot be treated as the sole factor that contributes to successful reentry. Family strength and social network (Nelson et al., 2011b), which symbolizes the social capital of the ex-convicts, has an interactional effect on the success rate for reentry. Due to this interactional effect, successful reentry is a challenging task because the inadequacy or lacking of one of the two supports render the reentry effort unsuccessful. Therefore, social capital has an inverse relationship to the community service cost of the parolees (see section 4.2.10).

The capacity adjustment process for community services for parolees wo MI and community service spending are similar to Figure 88, except that the community services cost per parolees wo MI has been reported to be $2,100/person/year (LAO, 2000a).

---

[72] Population data is obtained from the Demographic Research Unit of the Department of Finance of California from http://www.dof.ca.gov/Reports/Demographic_Reports/ retrieved on May 29, 2017.

4.3.10.4 Effect of Community Service Adequacy on Parolee wMI Employability

This section maps the effect of community sevices on the employment level of parolees wMI. The effect of community service utilization on parolee wo MI has a similar structure. Figure 89 shows that as the ratio of needs over capacity for parolee wMI increases due to increasing needs for community services, a larger fraction of parolees wMI will be employed. As the community services for parolees is defined in monetary term, multiplying the "comm cost per prison parolees wMI yields a capacity defined by person.

As indicated in the previous section, community services include mental health care and housing assistance. When the parolees wMI receive appropriate mental health care and have a permanent place to live, the chances of getting employment increases.

Residential and financial needs are the pre-requisites for ex-convicts to benefit from other social services (CPOC, 2013). 36% and 60% of the parolees need residential and financial assistance respectively. Past criminal history, MI, and the lack of sociodemographic assets are the major contributing factors to homelessness (Greenberg et al., 2008). Housing is critical for the success of reentry for MI offenders because it is the requirement for the access to treatment and other services (Administrative Office of the Courts, 2011) and participate in community life (O'hara, 2007). Higher unemployment rate is also associated with homeless offenders (Greenberg et al., 2008).
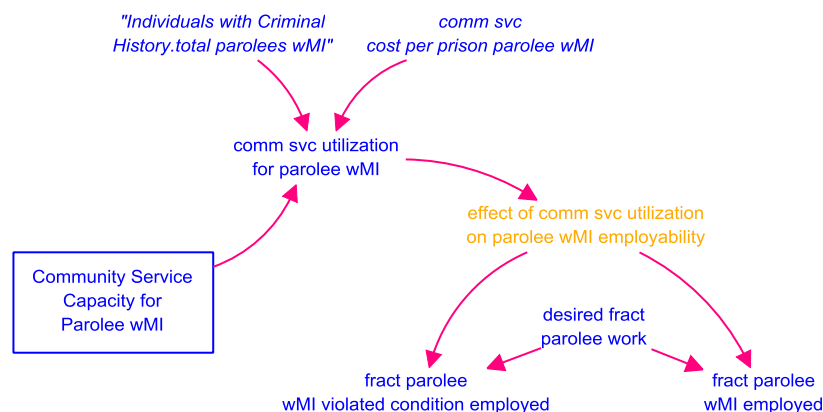
Figure 89 Community Service Adequacy as Input to the Effect on the Fraction of Parolees wMI Employed

Community service capacity wMI and total parolees wMI determine the "comm svcs needs over capacity for parolee wMI" (Figure 89). This ratio indicates the community service adequacy level. When community service capacity is suffcent, i.e. the number of parolees wMI equals to the capacity, the ratio is one. When the parolees wMI exceeds the community services capacity, the ratio rises above one. A ratio of less than one implies excessive community service capacity.

The "desired fract parolee work" is set as a constant at 0.6 to align with the historical employment rates[73] (Figure 90). The "effect of comm svc utilization on parolee wMI employability" affects the fraction of parolee wMI employment inversely (Figure 92). The community service utilization is the input the the horizontal axis in table function in Figure 92. The output is the effect on parolees wMI's employability, which is reflected on the vertical axis. The higher the community service utilization, the lower the fraction of parolees wMI are employed. This is based on the assumption that community service agencies address parolees wMI's mental health care, housing, and job-search needs. When these services fall below an adequate leve, a larger fraction of parolees wMI fail to get jobs.
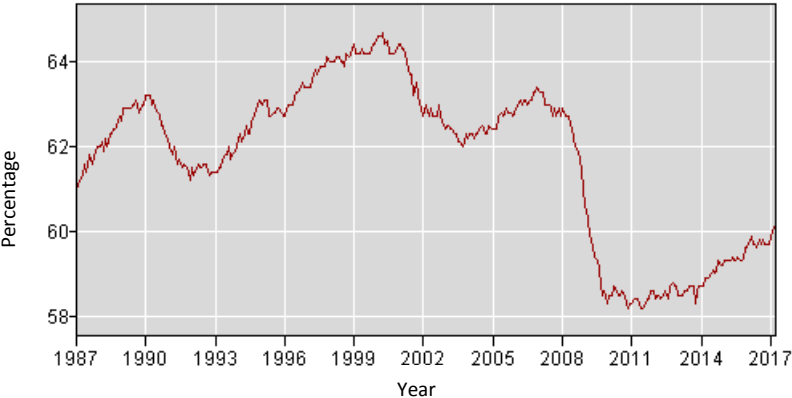
Figure 90 Historical Employment Rate of the United States (1987-2017)

Source: United States Department of Labor retrieved from https://data.bls.gov on May 29, 2017

The number of parolees wMI worked are calculated by multiplying the stocks of parolees wMI (the stock of parolees wMI those who have violated parole condition or those who have not violated condition) (Figure 88). By summing up these two numbers and divide this total by the total number of parolees wMI, the "parolee wMI employment ratio" is obtained. This ratio serves as the input to "effect of employment on parole wMI SC gain". This effect will be explained in section 4.3.10.6.

---

[73] The range of employment percentage ranged between 64% to 58%. Averaging the two numbers obtains 61%. Hence, the constant take 60%, which is 0.6 as a fraction.
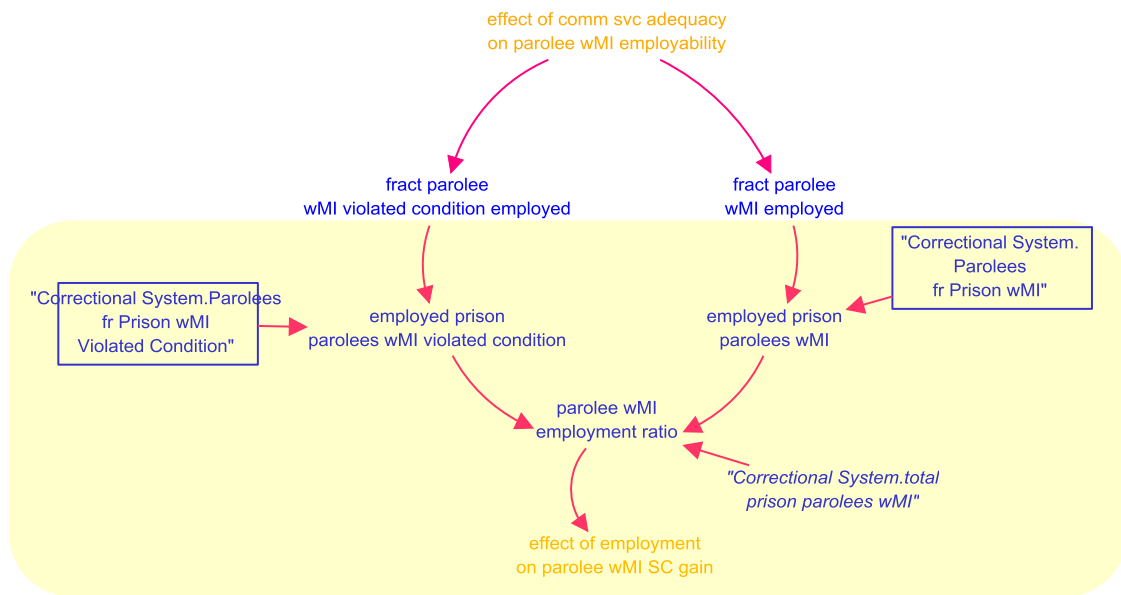
Figure 91 Determination of the Employment Ratio of Parolee wMI

4.3.10.5 *Effect of Community Service Utilization on Fraction of Parolee wMI and Parolee wo MI Work*

This section shows the table functions used to model the effect of community service utilization on the employment ratio of parolee wMI (Figure 92) and parolee wo MI (Figure 93). The purpose of this comparison is to demonstrate the different effect of community service utilization on parolee wMI and parolee wo MI. In both cases, community service utilization has an inverse relationship with the fraction of parolees who work. The higher the utilization rate, the smaller the fraction of parolees work. However, the curves for the two groups of parolees differ slightly. Figure 92 (effect on parolee wMI) shows a steeper downward slope than Figure 93 (effect on parolee wo MI). This is to emphasize the sensitivity of community service adequacy on the employment ratio of parolees wMI. Parolees wMI rely community supports much more compared to parolees wo MI because parolees wMI need mental health care, housing, and jobs. Lacking one of these assistance renders lower employability of the parolees wMI. As community service utilization rises, especially utilization exceeds one, the fraction of parolees who work drops at a faster rate compared to the parolees wo MI. The contrary is also true; when the capacity of community services rises and utilization drops, larger fraction of parolees wMI work.

Figure 92 Effect of Community Service Adequacy on Fraction of Parolee wMI Work
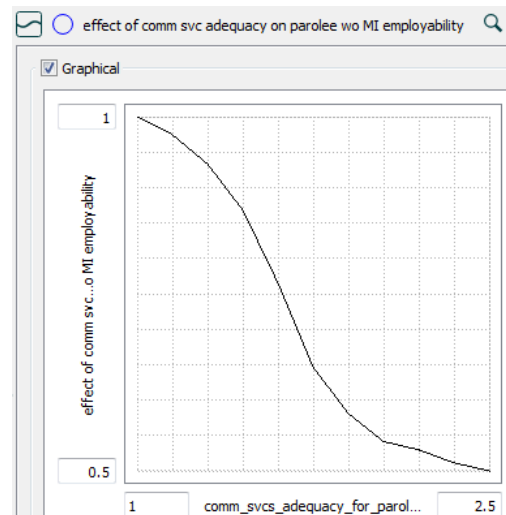
Figure 93 Effect of Community Service Adequacy on Fraction of Parolee wo MI Work

4.3.10.6   Effect of Community Service Adequacy on Parolees wMI's Mental Function Gain

This section explains the inverse relationship between community service adequacy and parolees wMI's mental function gain (Figure 94). The input variable to the table function in Figure 95 is the "comm svc utilization for parolee wMI" ranges between one to eight. This is a ratio of the total needs for community services by parolees wMI and the existing available capacity. In the ideal situation, the ratio equals to one, which means the capacity is sufficient to provide services to those in need. When the ratio increases beyond one, it means that the needs for services exceeds the capacity. This development leads to lower mental functions gain among parolees wMI. The output parameter on the vertical axis represents the corresponding effect in numerical values on parolees wMI's mental function gain. If the "community service needs over capacity" reaches eight, parolees wMI do not benefit from any mental function gain given the little community services they might receive.

Figure 94 Community Service Utilization as the Input to the Effect of Community Service Utilization on Parolee wMI's Mental Functions
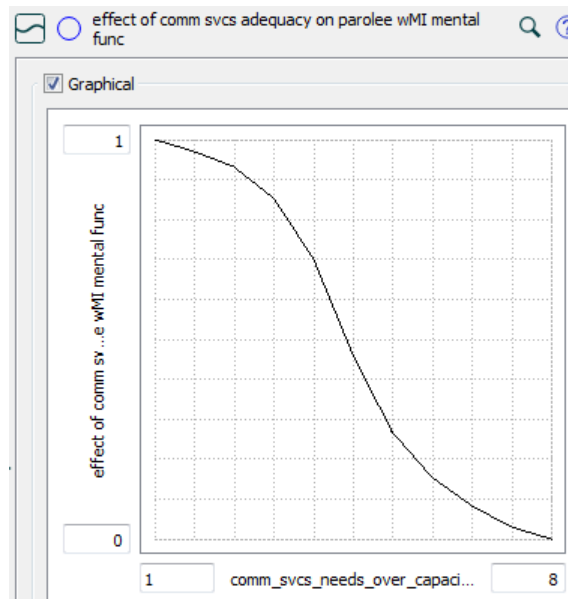
Figure 95 Effect of Community Service Adequacy on Parolees wMI's Mental Function Gain

4.3.10.7 Effect of Employment on Parolee wMI Social Capital (SC) Gain

This section demonstrates the formulation of the effect of employment ratio of parolees wMI on the SC gain (section 4.3.11). When some parolees are employed and becoming financially independent, their social networks expand. Figure 96 illustrates this effect.
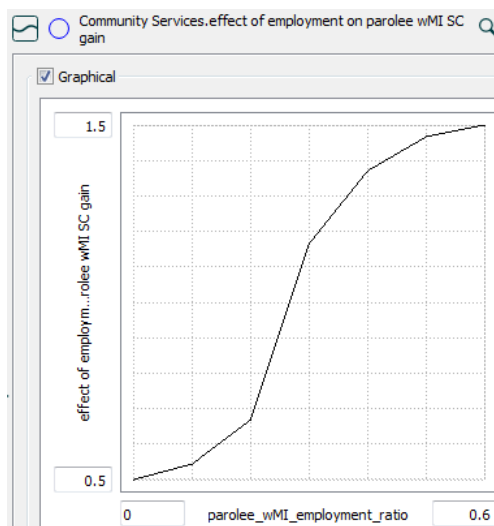
Figure 96 Effect of Parolee wMI Employment Ratio on Parolee wMI Social Capital Gain

Parolees' SC will only increase when the annual SC gain per parolee increases. Among all other drivers, employment is one of the ways to increase parolees' social capital. As employment ratio increases from 0.5 and approaches the desired fraction of parolees wMI employed, i.e. 0.6, parolees wMI gain 50% more on the annual SC gain per parolee than it would have been. On the contrary, if the fraction

of parolee wMI employed falls below 50% of the desired fraction parolees work, the parolees do not benefit from any SC gain, but only experience SC depletion over time.

4.3.11 Social Capital (SC)

This module contains the structure of social capital in the form of the coflow to the core module, the *Individuals with Criminal History* module.
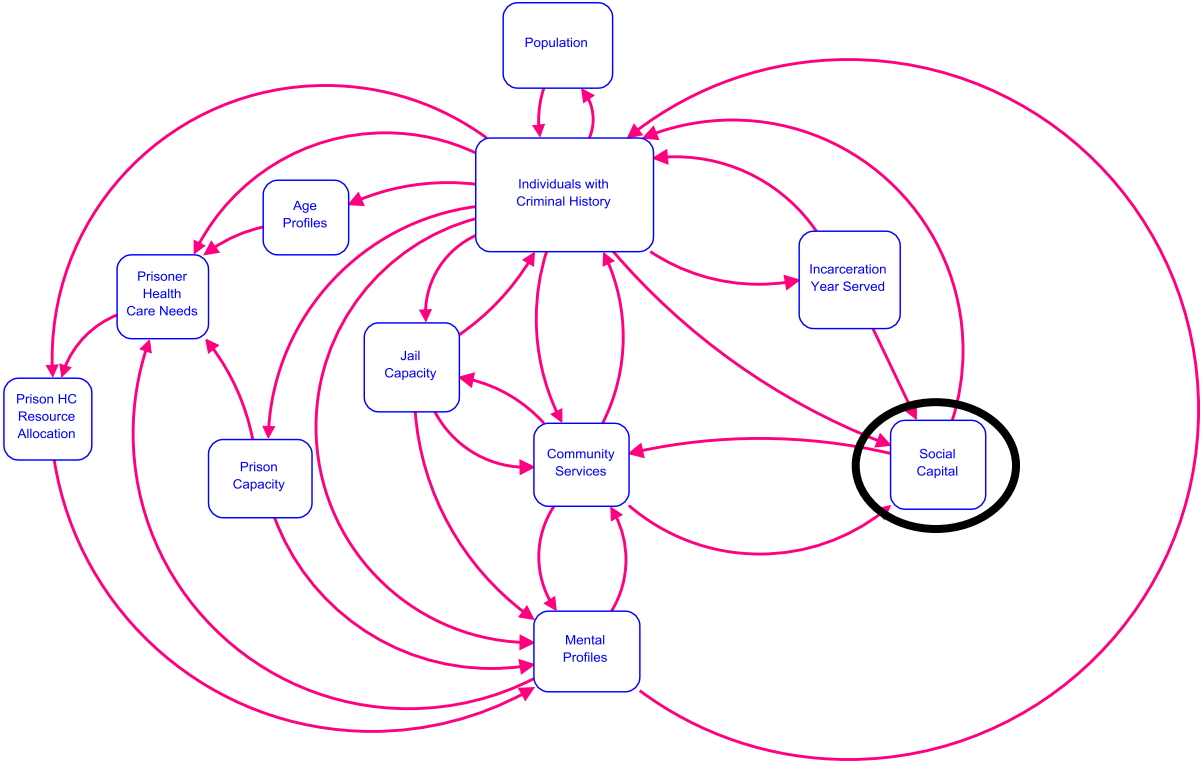
Social capital is "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationship of mutual acquaintance and recognition" (Bourdieu, 1986) (pp.51). Bourdieu reasons that SC is conversable, convertible, and reproducible. Individuals invest time and labor to maintain and reproduce social relationships. Thus, the accumulation of SC is the outcome of time and labor, to which are transformed from the economic capital. The economic capital is the accumulation of assets defined by monetary form. In other words, to maintain or increase social connection in order to expand SC, ones need to invest resources, which may be represented in monetary terms. The "convertibility of the different types of capital is the basis of the strategies aimed at ensuring the reproduction of capital" (Bourdieu, 1986)(pp. 54). On the contrary, SC may deteriorate as social bonds weaken (Putnam, 1995). Summing up Bourdieu and Putnams' views, resources are needed to maintain and grow social capital, otherwise SC may decline.

Coleman believes that SC consists of some social structures that assists the actors of the structure to perform actions. Therefore, the purpose of SC is to serve certain functions. He depicts family as the

core social control within the social structure. The erosion of family's role leads to a long-term deterioration of SC, which the societal functioning depends on.

Putnam (2001) considers SC as an outcome of multiple-dimensional factors, such as participation in civic, community, and organizational activities, volunteerism, informal sociability, and social trust. As SC is an abstract concept, Putnam analyzes vast amount of community-level, cross level, and longitudinal data to understand the factors that may influence social capital. In turn, these factors serve as indicators to conceptualize social capital in his research. Of the data he analyzes, several predictors are particularly relevant to our study. Violent crime and tax evasion have negative association with the level of SC (Putnam, 2001). On the other hand, health, tolerance, and economic equality have positive relationships to SC (Putnam, 2001). In general, criminality appears to be higher in areas where people have lower interaction and cohesion (OECD, 2001). The variation of crime rate is also explained by economic inequality and social trust (Halpern, 2001). In areas with strong networks, the communities have high respect for the law enforcement agencies. The cooperation between communities and law enforcement agencies generates an informal tie to control crime. Hence, this reinforces the accumulation of SC.

Social capital are crucial to ex-convicts for successful reintegration. Even though there has not been a widely acceptable measurement to quantify SC, omitting this structure due to data limitation is equivalent to professing zero effect of social capital on individuals affected by criminal histories (Sterman, 2000). The ex-convicts gained confidence through family acceptance (Nelson et al., 2011a). Eventually they find new jobs, make new friends, and continue making plans. Searching for jobs without assistance is time consuming. Another function of social capital is the role as informal social control. Ex-convicts express that social support is a major aspect that has been neglected in most reentry program (Denney et al., 2014). As much as they can obtain assistance in getting housing and employment from community services, social support is difficult to secure. As (Denney et al., 2014) put it:

> " Among the most frequently expressed desired forms of social support were a mentor to guide them to make everyday decisions, peers with whom to share struggles, and a support system to hold them accountable for their lifestyle and behavior." (pp.47)

Positive social ties do not only serve as a network for the ex-convicts to get jobs and housing, they also serve as a type of informal social control that guide ex-convicts to live as law-abiding citizens. This will lead to lower recidivism in the long run.

transferring SC thru lo
risk prison exConv recidivism

transferring SC thru hi
risk prison exConv recidivism

SC
Reprisoned Prison
Parole Violators

transferring SC
thru prison parolee
recidivism

transferring SC
thrurerelease to
prison parole

transferring SC
thru prison parolee
returning to prison

SC
Prisoners

SC
Prison Parolees

SC Hi Risk
Prison ExConvicts

SC Lo Risk
Prison ExConvicts

SC Desisted
Prison ExConvicts

transferring SC
thru convicting defendant
in custody to prison

transferring SC
thru releasing
prisoner wMI before realignment

transferring SC
thru discharging
prison parolee

transferring SC
thru becoming lo
risk prison exConv

transferring SC
thru becoming
desisted prison exConv

losing SC
thru desisted prison
exConv deaths

transferring SC thru lo
risk jail exConv recidivism

transferring SC thru hi
risk jail exConv recidivism

SC Jail
Detainees and
PreTrial Released Pop

SC of
Jail Offenders

SC Hi Risk
Jail ExConvicts

SC Lo Risk
Jail ExConvicts

SC Desisted
Jail ExConvicts

transferring SC thru releasing jail
offender wo MI

transferring SC thru continue
serving probation

transferring SC
thru becoming lo
risk jail exConv

transferring SC
thru becoming
desisted jail exConv

losing SC
thru desisted jail
exConv deaths

adding SC thru
arresting

losing SC thru
release wo conviction

transferring SC
thru jail conviction

SC
Probationers

transferring SC
thru convicting suspect
probation

transferring SC
thru violating probation

transferring SC thru discharging fr
probation

Figure 97 Overview of the Simplified Stock-and-Flow Structure in Social Capital Module

This section presents the structure of SC of prisoners wMI. Measuring SC has long been a challenge. SC measurement is crucial because measurement difficulty coincides with quantification; the social capital stock be only be quantified with valid measurement vehicles. Putnam (2001) proposes a composite index based on thirteen indicators to measure SC. As most indicators involve trust, engagement and interaction in social groups, these are "…tacit and relational, defying easy measurement or codification (pp. 43)" (OECD, 2001). However, such data for prisoners have not been collected. Siegler (2014) proposes a framework to measure social capital from four aspects. These aspects are personal relationships, social network support, civic engagement, trust and cooperative norms. Given the lack of data, in order to operationalize the SC concept in our model, we take a narrower definition of SC. We adopt partial framework by Siegler and define "social capital" stock as the structure and nature of individuals' personal relationships and the supports can be received from such relationships. These relationships are embedded in the networks of family, friends, colleagues and communities. The assumption is that the SC stock of each individual without criminal history contains 100 scores. Individuals with criminal histories or MI have a relatively lower SC (Albert et al., 1998; Walker et al., 2014). Lower than 100 scores is considered as sub-optimal and thus, so the goal of the system is to bring the social capital stock of ex-convicts to the ideal standard.
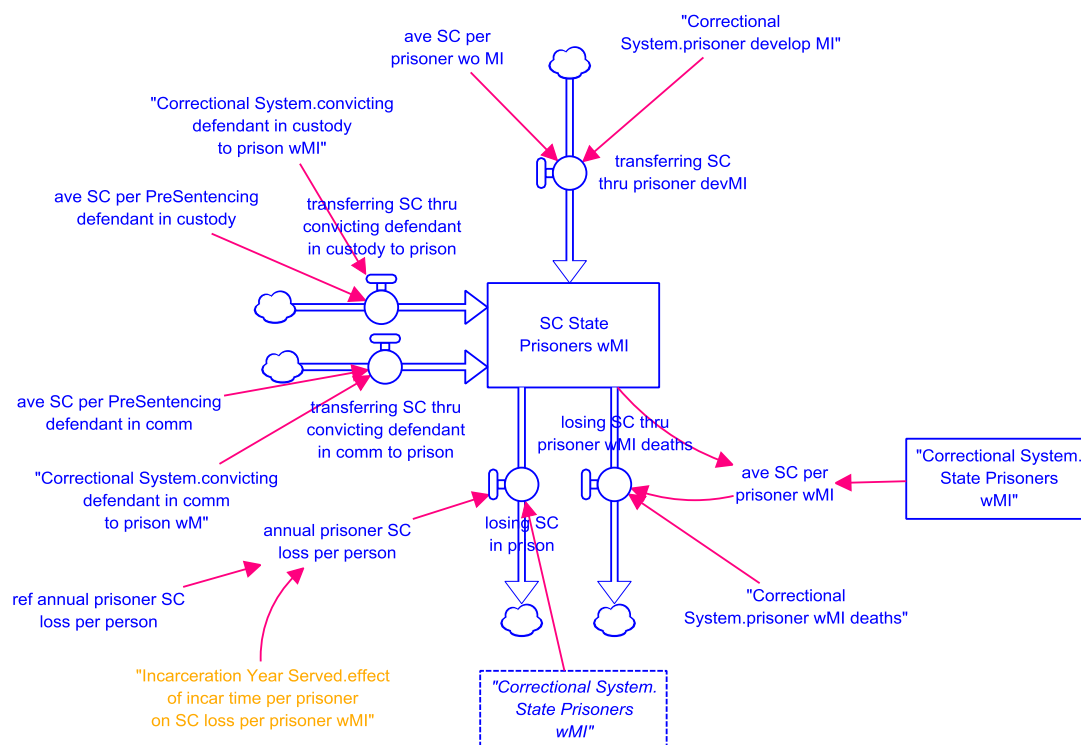
Figure 98 Structure of Social Capital of Prisoners wMI

Figure 98 shows the SC stocks of prisoners wMI and its inflows and outflows. The inflows includes the two inflows represent the transferring of SC of defendants in custody and community who are

convicted to prison sentence and one inflow represents the transferring of SC of prisoners who develop MI during custody. These individuals bring along the average SC from the stock they are leaving from into the stock of SC of prisoners wMI. When the prisoners wMI leave prison, either through deaths or release, they leave with the average SC of the stock. The average SC of prisoners wMI is the ratio of SC per prisoner wMI.

The outflow, "losing SC in person", represents the total amount of SC of prisoners wMI loss each year while staying behind bars. Both prisoners wMI and prisoners wo MI are expected to lose two scores of SC per person per year because they are highly unlikely to build their networks while being isolated from the community. It is a significant challenge for the prisoners to continue investing in maintaining or reproducing social ties (Walker et al., 2014). A study shows that after imprisonment, some individuals' networks shrink through losing their friendships and only rely on family ties after release (Volker et al., 2016). The other outflows are the transferring of SC through deaths or release.

The negative relationship between incarceration year served by prisoners wMI and the SC loss rate is presented in the following section.

4.3.11.2   Social Capital of Parolees wMI

This section shows the transfer of SC from the stock of SC of Prisoners wMI to the stock of SC of Parolees wMI (Figure 99). Another inflow of SC to this stock is the SC of the reprisoned prison parole violator wMI. When these violators are rereleased to parolee, they bring with them the average SC of reprisoned parolee wMI.
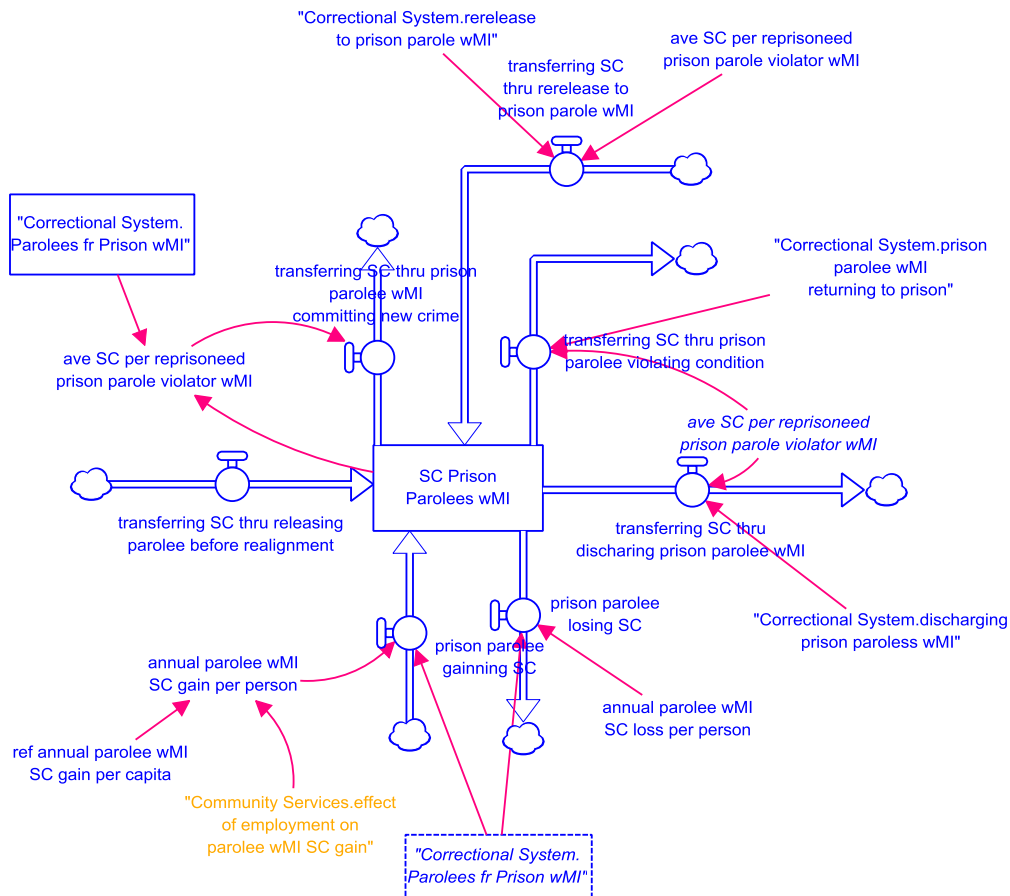
Figure 99 Structure of Social Capital of Parolees wMI

When the parolees wMI commit new crimes, they bring the average SC with them to the SC stock of arrestees (see Section 4.3.11.3). If these parolees violate parole condition, they bring the average SC of parolees wMI to the SC Parolees fr Prison wMI Violated Condition stock. When they are discharged after fully serve the parole, they also leave with the average SC.

In this structure, the parolees gains and lose SC. As mentioned earlier in this module, SC can be gained, but it can also depreciate. To prevent SC from depleting, parolees wMI need to invest time and labor to maintain and reproduce SC. The fact that parolees wMI's SC stock can deplete or increase, it differs from the SC structure of prisoners in which SC stock of prisoners wMI only depletes. This is because that maintaining SC is difficult for prisoners when they are isolated from the community. Unlike prisoners, parolees can interact with others in the community to reinforce the growth of their social

capital. However, if they fail to invest adequate resources, such as time and labor, their SC remains at steady state unless prisoners are released with higher or lower SC later on. In order to grow SC, parolees wMI increase SC gain through employment. The effect of employment on parolees' SC gain is explained in Section 4.3.10.7.

4.3.11.3 Social Capital of Arrestees

This section shows the SC structure of arrestees. The three inflows to increase SC of arrestees are recidivisms by prison ex-convicts and jail ex-convicts[74], and arresting new suspects (Figure 100). A new suspect is an individual without criminal history from the "Innocent Pop" stock in the **Population** module. Hence, the "SC per new suspect" is expected to be higher than the recidivists. The social capital concept in this module is a relative concept. A normal SC per individual is defined as 100 score per person while the "SC per new suspect" is set at 70 score per person. This comparison highlights that on average a new suspect possess one-third less SC than Then, the SC of recidivists and SC of suspects without criminal history are blended in the stock.

Since the suspects stay in the stock for a short period of time, i.e. about two days, as stipulated by the law, the SC accumulation and depletion processes are expected to be inconsequential. If these suspects are not charged, they are released by the law enforcement along with the average SC per arrestee. When these suspects move further into the criminal justice system (inclusion of the judiciary and correctional system), they carry the average SC per arrestee with them. The average SC per arrestee is the division of the stock "Social Capital of Arrestees" by "Arrestees" in the **Individual with Criminal History** module.

---

[74] The two recidivism inflows are simplified representation of the sum of recidivist from prison and the sum of recidivist from jail. Recidivists from prison include parolees wMI, prison parolees wMI violated condition, prison parolees wo MI, prison parolees wo MI violated condition, high risk prison ex-convicts wMI, high risk prison ex-convicts wo MI, low risk prison ex-convicts wMI, and low risk prison ex-convicts wo MI; recidivists from jail include high risk jail ex-convicts wMI, high risk jail ex-convicts wo MI, low risk jail ex-convicts wMI, and low risk jail ex-convicts wo MI
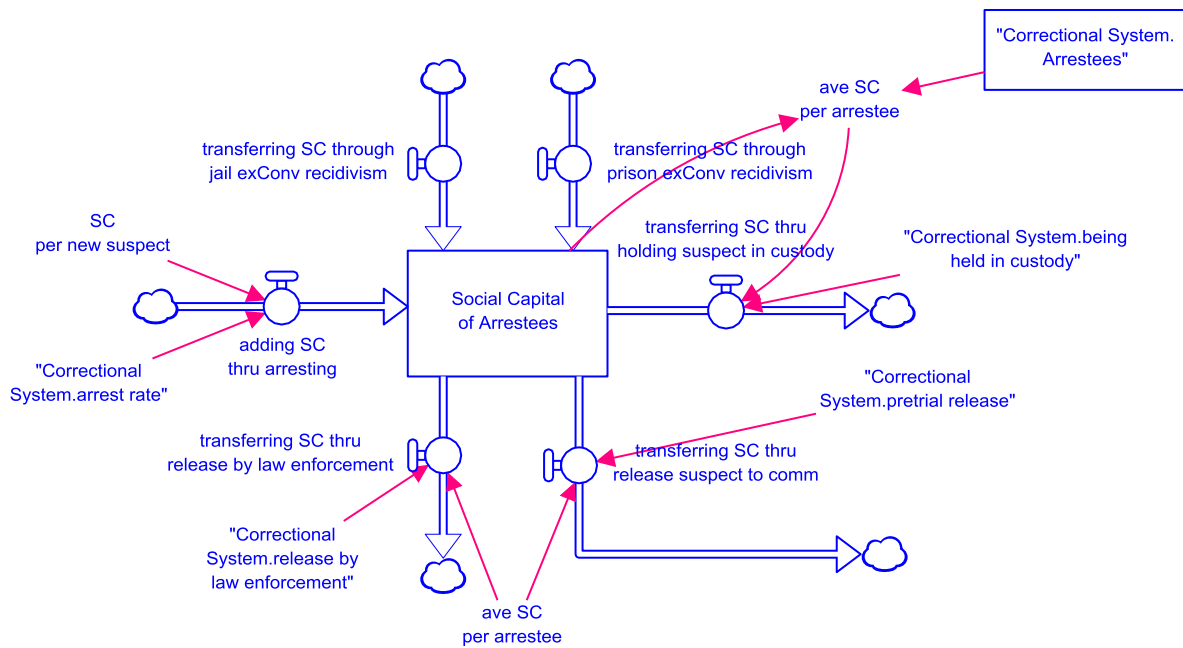
Figure 100 Structure of Social Capital of Arrestees (Simplified)

4.3.11.4 Effect of Social Capital on Prison Parolees wMI Recidivism

This section explains the effect of SC on prison parolees wMI's receidivism in the form of a table function (Figure 101). The input parameter to the horizontal axis in this table function is the "relative SC per prison parolee wMI". The "relative SC per prison parolee wMI" is the ratio between the average SC per prison parolee wMI relative to the initial value. The output is the effect on fraction of parolees wMI recidivate with the corresponding value on the vertical axis.

The horizontal axis is defined with a range values between 0.8 to 1.2. The vertical axis is defined with a range of values between 0.8 to 2. Under a normal condition, the relative SC per prison parolee wMI equals to one, which characterizes a constant SC per prison parolee wMI. Then the corresponding effect on recidivism also equals to one. This means that there will no effect on the fraction of prison parolees wMI recidivate. When the relative SC per prison parolee wMI rises above one, the effect on the fraction of prison parolees wMI recidivate decreases. This leads to a smaller fraction of parolees wMI commit new crimes than it would have been. On the contrary, if the relative SC per prison parolee wMI is lower than one, the average SC per prison parolees wMI drops relative to the initial value. If so, the corresponding effect on the fraction of parolees wMI recidivate exceeds one. Then, the fraction of prison parolees wMI commit new crimes is larger than it would have been.

124
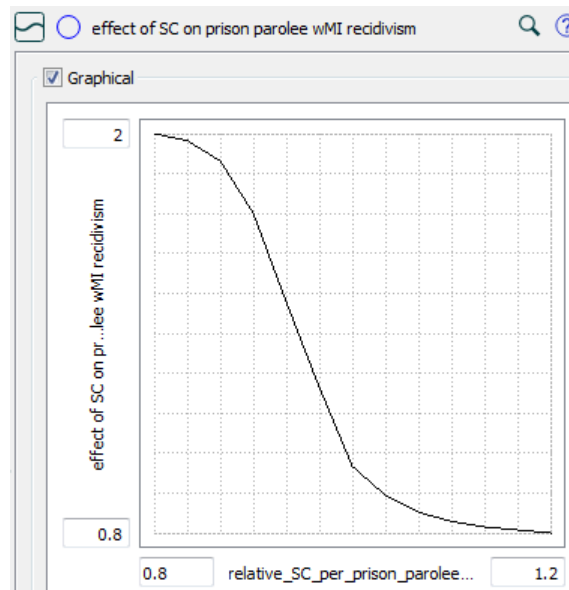
Figure 101 Effect of Social Capital (SC) on the Fraction of Parolees wMI Recidivate

4.3.11.5   Effect of Social Capital on Prison Parole Violation wMI

This section explains the effect of SC on prison parolees wMI parole violation in the form of a table function (Figure 102). The input parameter to the horizontal axis in this table function is the "relative SC per prison parolee wMI". The output is the effect on fraction of parolees wMI violate parole condition with the corresponding value on the vertical axis.

The horizontal axis is defined with a range values between 0.8 to 1.2. The vertical axis is defined with a range of values between 0.8 to 2. Under a normal condition, the relative SC per prison parolee wMI equals to one, which characterizes a constant SC per prison parolee wMI. Then the corresponding effect on recidivism also equals to one. This means that there will no effect on the fraction of prison parolees wMI violate parole condition. When the relative SC per prison parolee wMI rises above one, the effect on the fraction of prison parolees wMI violate parole condition decreases. This leads to a smaller fraction of parole violation among parolees wMI than it would have been. On the contrary, if the relative SC per prison parolee wMI is lower than one, the corresponding effect on the fraction of parolees wMI exceeds one. Then, the fraction of prison parolees wMI violate condition is larger than it would have been.
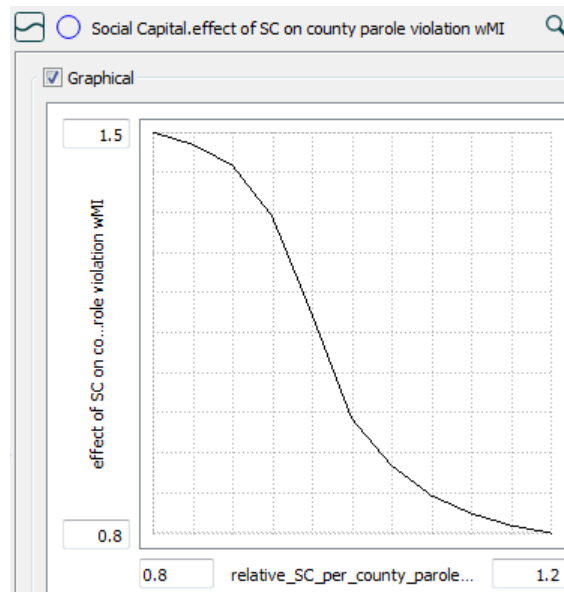
Figure 102 Effect of Social Capital (SC) on the Fraction of Parolees wMI Violate Parole Condition

4.3.11.6 Effect of Social Capital of All Parolees wMI on Community Service Cost per Parolee wMI

This section explains the effect of SC on prison parolees wMI's receidivism in the form of a table function (Figure 103). The input parameter to the horizontal axis in this table function is the "relative ave SC of all parolee wMI". This parameter is different from the input parameter mentioned in the previous two sections. The "relative ave SC of all parolee wMI" is the division the sum of the SC stocks of all parolees wMI, including prison and county (after Realignment) parolees divided by the sum of all the parolees wMI stocks, including prison and county (after Realignment) parolees. The output is the effect on community services cost per parolee wMI with the corresponding value on the vertical axis. The purpose of this formulation is to capture the effect of social capital of all parolees wMI in the pre- and post-Realignment eras because regardless of the authority of supervision the parolees wMI are placed under, the total number of them who require community services remain the same.

The horizontal axis is defined with a range values between 0.5 to 1.5. The vertical axis is defined with a range of values between 0.2 to 4. Under a normal condition, the "relative ave SC of all parolee wMI" equals to one, which characterizes a constant SC per prison parolee wMI. Then the corresponding effect on community cost per parolee wMI also equals to one. This means that there will no effect on on community cost per parolee wMI. When the on community cost per parolee wMI rises above one, the effect on community cost per parolee wMI decreases. This leads to lower community services cost per parolee wMI than it would have been. Then, with the existing fund, more community service capacity is available to address the needs for parolees wMI. On the contrary, if the "relative ave SC of all parolee wMI" is lower than one, the effect on community cost per parolee wMI increases. Given

the allocated fund, the available capacity is lower than it would have been. Fewer parolees wMI would receive community services or each parolee wMI receive fewer community services than they need.
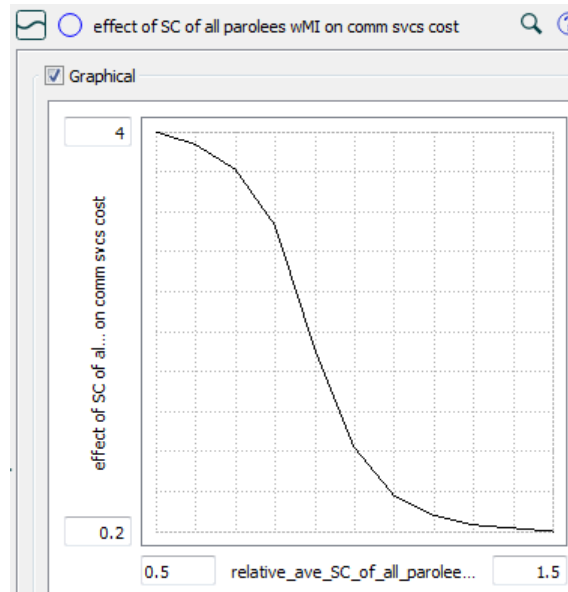
Figure 103 Effect of Social Capital per All Parolees wMI on the Community Services Cost
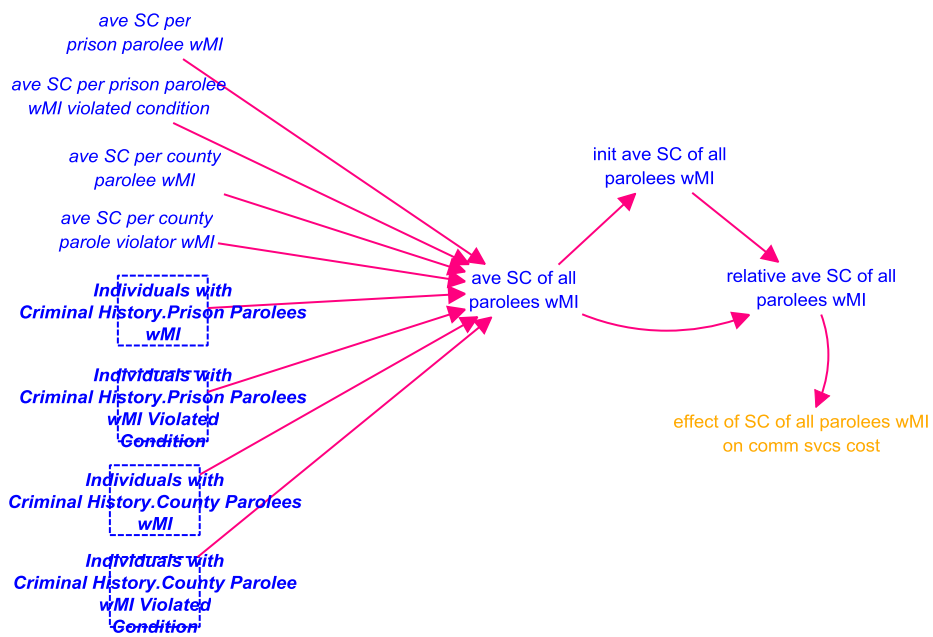
Figure 104 Calculation of Average SC of All Parolees with Mental Illness

4.4   Overview of Stock and Flow Structure - After Realignment Policy

This section presents the new structure added to Section 4.2 after the Realignment policy introduced in 2011.   The commonly called "Realignment" is the short form of California's Public Safety Realignment Act of 2011.   The purpose of the Realignment are (Krisberg et al., 2011):

1. Reducing state spending on corrections;
2. Reducing prison overcrowding;
3. Improving the system

In 2011, the Federal Court ordered California state government to reduce the prison population from 164% of the design capacity to 136% in 2 years.   By reducing the prison population, California will also reduce state spending on the corrections population.   The implicit goal of the spending reduction is to increase health care resource per prisoner in order to upgrade the medical care in prison to the constitutional level.   One of the basis for the Realignment stems from the rationale that county governments are in a better position to provide rehabilitative supports, such as medical and mental health care, jobs, and housing, to facilitate ex-convicts to reenter the community.   As jails are also operated by the county governments, integrating rehabilitative support with the shorter-term sentence in jails is presumably a more efficient way to rehabilitate the offenders.

Under Realignment, inflows of prisoners are regulated through the deterrence of the lower-offense convicts from the state to local correctional system; some convicts serve their felony sentences in jail instead of prisons.   The outflow from prison is also modified under Realignment.   Some parolees are transferred to the local supervision under the system of post-release community supervision (PRCS) from CDCR's supervision. Through this reform, the parolees under county supervision return to jail instead of prison if they violate parole conditions.

The impact of Realignment can be assessed from three aspects: judiciary system, CDCR and county government.

Impact on Judiciary System

In line with the Realignment, the Criminal Justice Realignment Act of 2011 has changed the sentencing and supervision of felony offenders.   The modifications to the statutory include the logistic where convicts will serve their sentences and the type of post-release community supervision.   The following are the statutory changes under Realignment (CDCR, 2013):

Diverting custody from state to local

- No inmates are transferred from state prisons to county jails.

- No state prison inmates are released early.

- All felons sent to state prison prior to the implementation of Realignment will continue to serve their entire sentence in state prison.

- All felons convicted of current or prior serious or violent offenses, sex offenses, and sex offenses against children will go to state prison.

- There are nearly 70 additional crimes that are not defined in the Penal Code as serious or violent offenses but at the request of law enforcement and district attorneys were added as offenses that would be served in state prison rather than in local custody.

- Convicts who are diverted to county custody under section 1170(h) are not required to serve parole (Couzens et al., 2016)

Releasing Prisoners to County Supervision

CDCR still oversees the prisoners who were released prior to Realignment. The following list of prisoners are illegible for county parole supervision and continue to be under state parole supervision after Realignment:

- Inmates paroled from life terms to include third-strike offenders;

- Offenders whose current commitment offense is violent or serious, as defined by California's Penal Code §§ 667.5(c) and 1192.7(c);

- High-risk sex offenders, as defined by CDCR; Mentally Disordered Offenders; nor Offenders on parole prior to October 1, 2011

Parole Revocations

- After Realignment, all parole revocations are served in county jail instead of state prison. The resentenced time can only be up to 180 days[75].

- County government cannot contract the parole violators back to state prison[76].

---

[75] Prior to Realignment, parolees may receive up be reprisoned in state prison for up to 12 months. On average, reprisoned parolees serve about 6 months after reduction from credit-earning programs.
[76] Except for the convicts who has served or serve life sentence prior to the parole.

Impact on CDCR

By mid-2015, CDCR had successfully reduced the prison population to 137% of its design capacity, a reduction of about 35,000 prisoners (CDCR, 2012). No existing prisoners were released or transferred to the county jail or released early under Realignment. The parole population has also dropped about 60% a year after Realignment. 23,000 of the parolees who were transferred to the county supervision (CPOC, 2012). Prior to Realignment, the average admission rate was about 55,000 – 60,000 persons per year (CPOC, 2012). After realignment, this rate has reduced to 36,000. Among those offenders who were diverted from prison sentence, 15,000 served jail sentence[77]. Given the more sentencing mechanisms county governments have, some of the diverted offenders serve other types of sentences, such as split-sentence[78] or pure probation. Before Realignment, California had one of the highest return-to-prison (RTP) rate in the nation (Bird et al., 2016). From 2011 to 2012, the first-year RTP rate has reduced from 0.36 to 0.1 (Figure 105). In the subsequent year, the first-year RTP rate further reduced to 0.07. However, the second-year RTP rate shows a sign of increasing again.
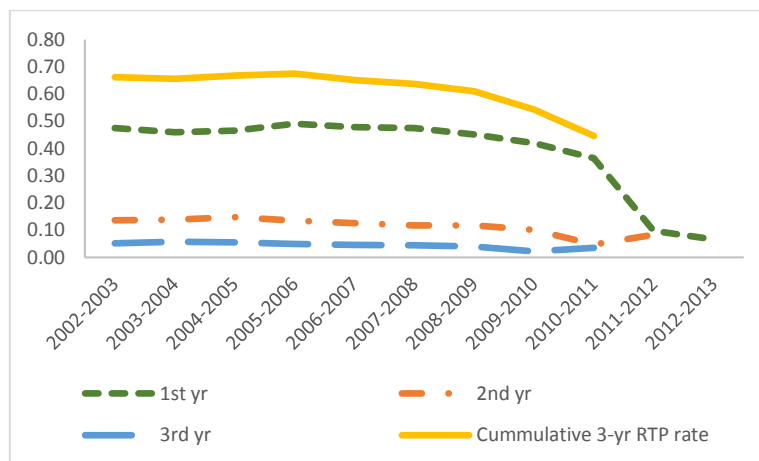
Figure 105 California State Prison's Return-to-Prison (RTP) Rate (2002 - 2013)

Impact on County Governments

The assessment of the impact of Realignment at the county level focuses on the local criminal justice system and community services. California's jail population has increased after the introduction of the Realignment policy. Six months after Realignment, jail population surged 12% with 6 more counties with jails operating above the rated capacity (Turner et al., 2015). Although some counties use early release to cope with overcrowding, statewide data shows that early release due to jail overcapacity is

---

[77] Under the new Penal Code section 1170(h)
[78] Refers to a combination of jail sentence and followed by mandatory community supervision.

actually decreasing before and after Realignment (Figure 106). This implies that jail overcapacity may not have been at the critical level for jail administrator to increase the use this mechanism to reduce jail utilization. Currently, data on return-to-jail rate due to recidivism is unavailable to estimate the extent to which recidivism affects jail after Realignment. However, the probability of being reconvicted for serious crimes after the county parolees are rearrested has increased after Realignment (Bird et al., 2016). This development suggests it is possible that reconvicting county parolees with serious crimes may be a back channel to reduce the local correctional system's burden.

County governments are given significant liberty in planning and implementing the reform. With Realignment funds, the two main strategies county governments adopt to implement the reform are divided into "enforcement-focus" and "reentry focus" (Bird et al., 2016). The counties that adopt enforcement-focus approach allocated four times of the Realignment funds to sheriff, jail beds, and law enforcement than the counties that adopt reentry-focus approach; on the contrary, counties that adopt reentry-focus approach allocated twice as many resources to programs and services to facilitate reintegration than the enforcement-focused counties. Evidence shows that the rearrest and felony reconviction rates were about 2% higher in law-enforcement counties. This implies that the goals of counties that adopt different approach may affect the recidivism rates at both the state and local level because parolees who are reconvicted for felony will most likely receive prison sentence. If these reconvicted parolees have previous felony offenses, they will end up being second or third strikers in state prisons.
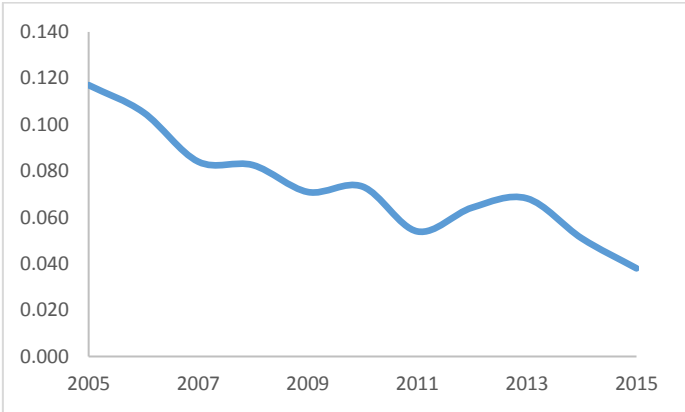
Figure 106 Fraction of Early Release Due to Jail Overcrowding (2005-2015)

On the other hand, the federal court has placed CDCR's healthcare under receivership. Receivership is an uncommon remedy adopts by a federal court when other court orders have failed to remedy an institutional violation. The receiver's job goes beyond upgrading CDCR's health care system to the constitutional level; the receiver also needs to ensure the new system can sustain after the responsibility to manage the prison health care system is returned to CDCR. Essentially, the Receiver's

plan aims to increase access to health care in prison by providing effective care, keeping accurate patient records, providing adequate housing, medical facilities, equipment, and process, accessing to appropriate medication, treatment modalities, specialists, and appropriate level of care (Kelso, 2008).

In the following sections, the structures that are affected by Realignment will be presented in green color and explained in detail.

4.4.1 Individuals with Criminal History

4.4.1.1 Some Prisoners wMI Released to County Parole

This section presents the structure that facilitates some prisoners wMI to be released to county parole post-Realignment (Figure 107). Under Realignment, mentally disordered prisoners are not eligible for county parole supervision. However, "mentally disordered" soon-to-be released prisoners refer to the prisoners with severe MI who are required to serve parole condition by undergoing treatment at the Department of State Hospitals (Couzens et al., 2016). The Scarlett Carp Report published at the request of California state government in 1992 for the Coleman v. Wilson lawsuit discloses the prevalence of severe MI was about 10%. Hence, 10% of the prisoners wMI being released be under the county parole supervision while the remaining 90% will be released to the "Prison Parolees wMI" stock (Figure 101).
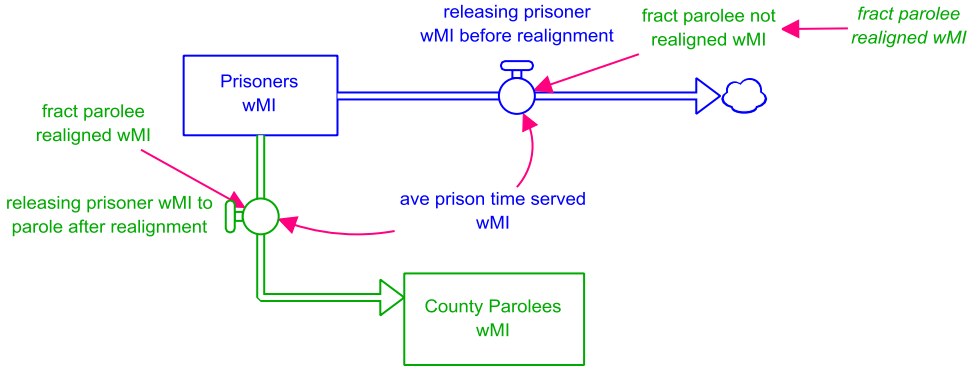
Figure 107 Post-Realignment - A Portion Prisoners wMI Released to County Parole

4.4.1.2 Some Convicts Are Diverted to Jail Instead of Prison

One of the objectives of the Realignment policy is to re-categorize some offences from felonies to misdemeanors. This offence reclassification change the location where relevant convicts serve their sentences. "Prison sentence conviction reduction post realignment" is an exogenous input. It influences the "fract defendant in custody convict to prison sentence" and "fract defendant in comm convict to prison sentence" simultaneously. The decrease in these two fractions lead to decreases in

the inflows to the Prisoners wMI stock after Realignment. The same reduction also influences the inflows of prisoners wo MI (not shown in Figure 108).
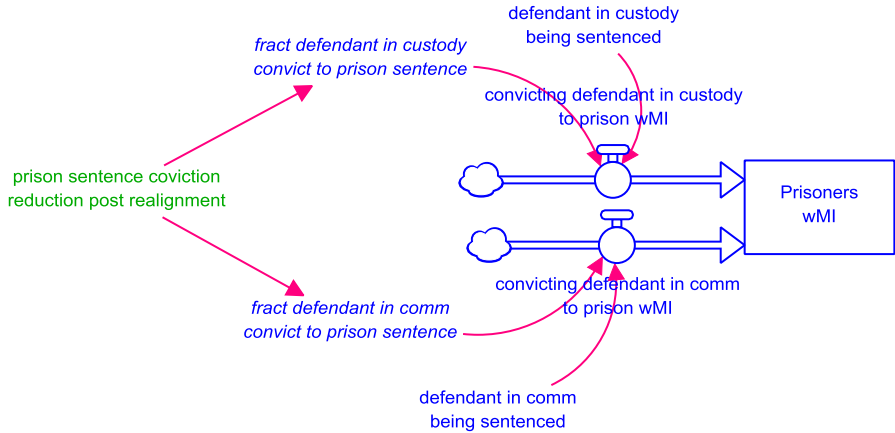
Figure 108 Formulation of the Diversion of Convicts from Prison Sentence to Jail Sentence after Realignment

To model this change, the prison sentence reduction rates from 2011 to 2015 is formulated with a table function in "prison sentence conviction reduction post realignment" (Figure 109). The input to the horizontal axis is the simulation time horizon, i.e. from 1987 to 2015. The output is reflected on the vertical axis, which is the fraction of prison conviction ranges between 0.6 and 1. Any value less than one characterizes a reduction in prison sentence conviction. From 1987 to 2010, the fraction remains at one. This means that this parameter has no effect on "fract defendant in custody convict to prison sentence" and "fract defendant in comm convict to prison sentence" in this period. The reduction only takes place between 2011 and 2015.
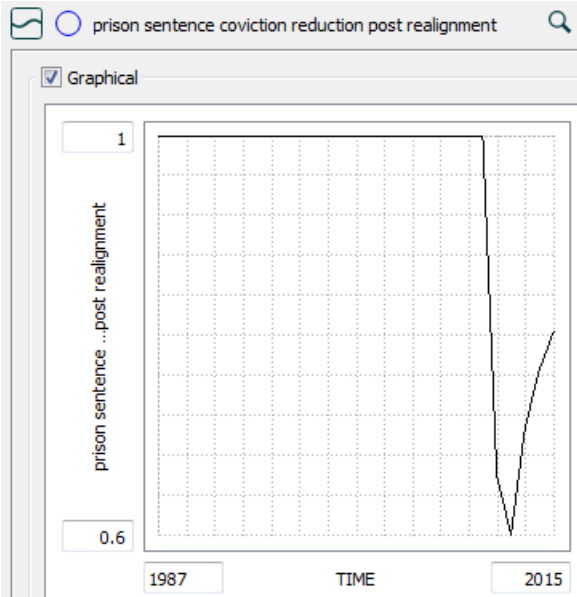
Figure 109 Table Function Used as an Exogenous Input to Reduce the Prison Sentence Conviction

Figure 110 presents the comparison between the simulated and historical growth rate of prison conviction. The behaviors of these two trends are similar. But the simulated growth rate of prison conviction is adjusted to better fit the historical data of the stock of total prisoners, a parameter elsewhere in the model.
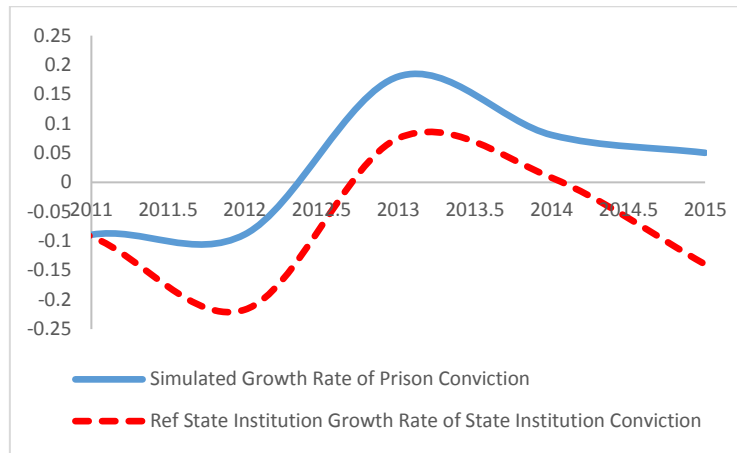
Figure 110 Comparison of the Simulated and Historical Growth Rate of Prison Conviction after Realignment (2011 - 2015)

Source: Office of the Attorney General (http://ag.ca.gov)
Note: Historical prison conviction data is reported as state institution conviction. State institution consists of prison, rehabilitation center (for civil addict), and youth authority.

4.4.1.3   County Parolee wMI Progression

This section shows the process of county parolees wMI being released from prison and various exit pathways thereafter (Figure 111). The structure is almost similar to the prison parolee wMI stock-and-flow structure in Section 4.3.2.2 with two exceptions. First, the parolees from "County Parolee wMI" and "County Parolee wMI Violated Condition" are released to "Hi Risk Jail ExConvicts wMI" instead of "Hi Risk Prison ExConvicts wMI" stock. Second, the reprisoned parolees wMI who violated condition will serve the rest of their sentence in jail until they are discharged to the "Hi Risk Jail ExConvicts wMI" stock. This structural change is main distinction between the pre- and post-Realignment era. In pre-Realignment prison parolees wMI are required to continue serving their unfinished parole even after they are reprisoned.

There are three exit pathways for the county parolees wMI. First, the county parolees wMI finish serving their paroles and discharged. Second, the county parolees wMI violate condition. A fraction of the parolees wMI who violate condition are reprisoned while the others continue serving parole until they are discharged. Third, the country parolees wMI commit new crimes. As the data on county parolee RTP rate have not been collected and reported, we set the "ref fract county parolee wMI RTP rate" as the same value as the fraction prison parolee wMI RTP rate, which is 0.12/year (see Section 4.3.2.2). Incarceration year has a positive relationship with the fraction of prison parolee wMI RTP rate. This relationship is expressed in a table function similar to the effect of previous incarceration

time served per prison parolee wMI on prison parolees wMI's RTP rate (Figure 84, Section 4.3.9.11), except that the input parameter to the horizontal axis is the "relative ave previous incar time per county parolee wMI".
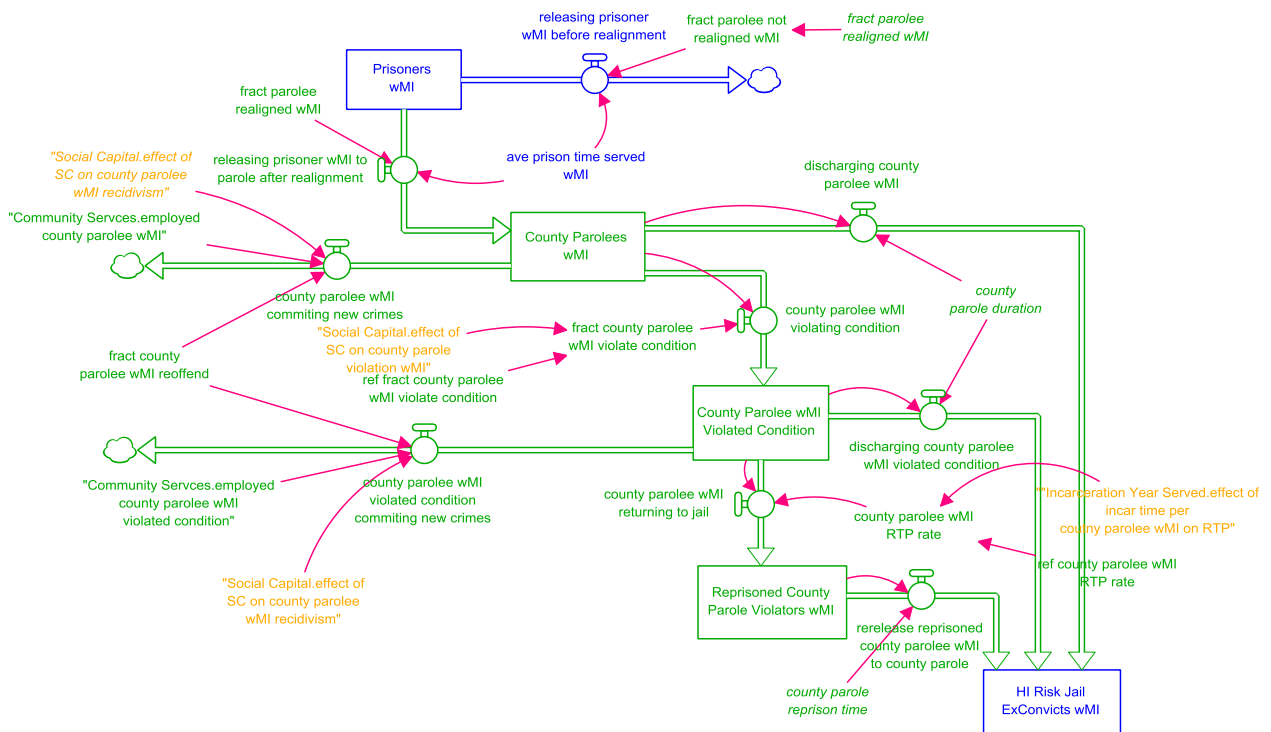
Figure 111 Progressions of Country Parolees wMI

The fraction of county parolees wMI violated condition is estimated to be 0.75 per year, same as the fraction of prison parolees wMI. The effect of social capital on county parolee wMI parole violation is similar to the table function for the prison parolee wMI (Figure 102, Section 4.3.11.5), except that the input parameter to the horizontal axis is the "relative ave SC per county parolee wMI".

The fraction of county parolees wMI reoffend is also estimated to be the same as the prison parolees wMI. Hence, this fraction is set as 0.16 per year. Social capital affects county parolee recidivism as in the case of prison parolees wMI (Figure 101, Section 4.3.11.4), except that the input parameter to the horizontal axis is the "relative ave SC per county parolee wMI".

This section explains the recovery of prisoners wMI from mental illness (MI). After Realignment, the Receiver has considerably increased health care capacity in prison. Consequently, the prisoners wMI may recover from the debilitating MI.   However, the concept of recovery in mental health care is a controversial one. Predominantly, there are two types of definition for recovery. The advocates for the first definition view recovery as alleviating the symptoms associated with MI and returning the patients to the health status prior to the onset of the illness (Davidson et al., 2007). The advocates for the second definition embrace that recovery is a long-term process. The patients may or may not fully return to the health status prior to onset, but this deficit does not hinder the patients from leading a normal life as other healthy individuals. In other words, patients learn to accept the condition and live with the illness. As patients learn how to reclaim control over their lives, mental illness will increasingly become a smaller part in their lives. Eventually, even if the patients do not fully recover from MI, as they have learned how to cope with a new life with the co-existing manageable mental illness. This concept spans across clinical and rehabilitative practices. It is with the second definition of recovery we model the recovery route for prisoners wMI post-Realignment.

Considering that CDCR is facing budget constraint, it is reasonable to believe that CDCR would adopt the most cost-effective approach, i.e. maximizing the financial resources to treat the maximum number of prisoners in need with the most effective treatment protocol. Simply put, investing the least health care resources per prisoner in need that yields the best result in terms of functionality improvement leading to acceptable quality of life most likely supersedes the idealistic but costly treatment goal.

Additionally, the four dimension of recovery suggested by Substance Abuse and Mental Health Services Administration (SAMHSA, 2012) are: health, home, purpose, and community.   The health dimension refers to the symptoms associated with MI. The "home" dimension attributes to a stable and safe living place. The "purpose" dimension describes the engagement in meaning daily activities, such as work, school, family caretaking, volunteerism, and financial independence. Lastly, the "community" dimension relates to the relationship with the community and social networks. The health aspect may be addressed by mental health care (MHC) in prison. But the last three dimensions may be difficult address because the prisoners are isolated from the community. In conjunction with financial constraints, we argue that the implicit prison MHC treatment goal is unlikely to assists mentally ill prisoners to regain the full mental functions of mentally healthy individuals without any criminal history.

Figure 112 shows the added flow between "State Prisoners wMI" and "State Prisoners wo MI". Taking the treatment goal as to helping prisoners wMI gaining a level of mental functions to enable them to

live with an acceptable quality of life, the "ref time to recover fr wMI in prison" is set at a lower threshold. Assuming that MHC in prison aims to relieve MI symptoms, we set the "ref time to recover fr wMI in prison" as two years. This adjustment time is influenced by the mental function per prisoners.
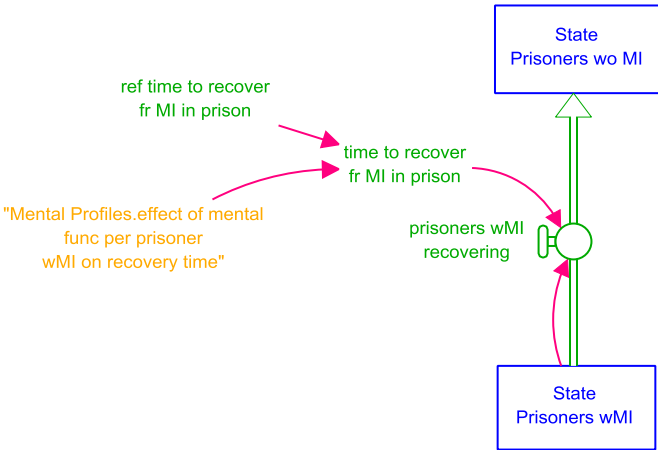
Figure 112 Prisoners wMI Recover from MI after Realignment (simplified)

4.4.1.5   Effect of Mental Functions per Prisoner wMI on the Recovery Time

Figure 113 demonstrates the formulation of the effect of mental functions of prisoners wMI on the recovery time through a table function. The input to the horizontal axis of the table is the "relative mental func per prisoner wMI". "Relative mental func per prisoner wMI" is a ratio of mental function per prisoner wMI and desired mental func per recovered prisoner" (Figure 114). As explained in the previous section, the definition of recovery in MHC in prison is the achievement in restoring prisoners' mental functions to the minimum level that prisoners can tolerate in daily lives or to the level prior to the onset of MI. Albeit lower than the mentally healthy individuals without criminal history, the initial value of the average mental functions per prisoner wo MI (Figure 114) is considered to be the minimum level a prisoner can live with. A declining "relative mental func per prisoner wMI" represents deterioration in mental functions among the prisoners wMI. This implies a larger correction will required to bring the mental functions of the prisoners wMI to the desired level.The "init mental func per prisoner wo MI" is used as a goal for MHC treatment and it is the input parameter to "desired mental func per recovered prisoner".

The horizontal axis of the table function in Figure 113 ranges between 0.73 and 1. The incremental unit at the horizontal axis is 0.027. The output of the table function is the effect on recovery time, which is reflected on the vertical axis. The shape of the graph reads that when the "relative mental func per prisoner wMI" is one, which means the "ave mental func per prisoner wMI" equals to the "desired mental func per recovered prisoner", the time for recovery is 50% less than the "ref time to

recover fr MI in prison". Initially, the "ave mental func per prisoner wMI" is 17% lower than the "desired mental func per recovered prisoner". Then, the time for recover from MI in prison is the same as is the same "ref time to recover fr MI in prison". This reinforcing relationship shows that when the mental functions of prisoners wMI is closer to the desired level, the prisonoers recover faster. On the contrary, when the "relative mental func per prisoner wMI" reduces to 0.5, the recovery time is 30% longer than the "ref time to recover fr MI in prison". This characterizes the deterioration of the mental functions of prisoners wMI. The decreasing "relative mental func per prisoner wMI" also implies more severe MI.
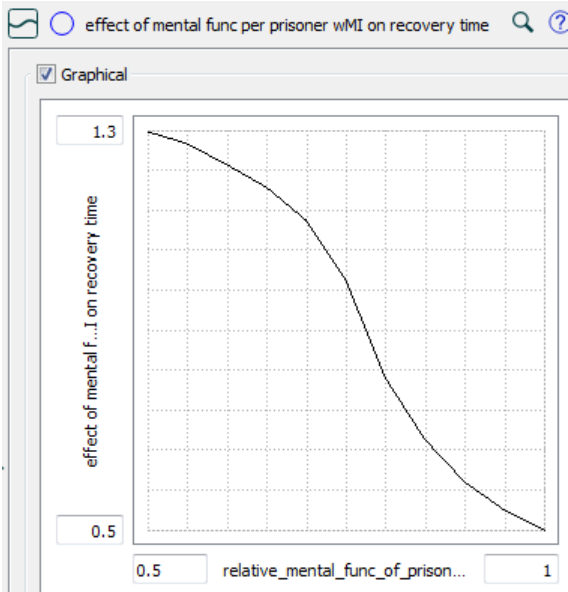
Figure 113 Effect of Prisoners wMI Mental Function Ratio on Recovery Time

The clarification on the recovery concept that we adopt is important because it forms the basis for the rationale of not having any inflows to improve the mental functions of the high risk and low risk ex-convicts and desisted ex-convicts in the model. It is assumed that even these individuals have lower mental functions than the mentally healthy individuals without criminal history, the ex-convicts have learned to live with their MI in the community.
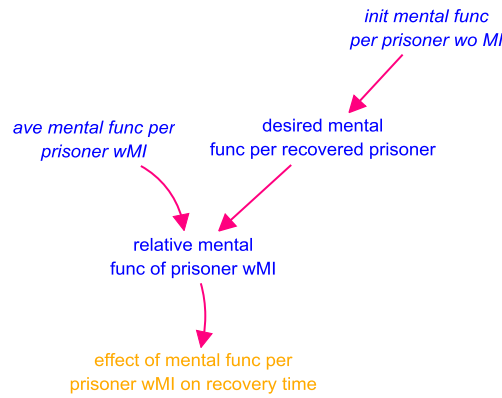
Figure 114 Composition of Prisoners wMI Mental Function Ratio

4.4.1.6   Jail Offenders Develop Mental Illness

This section illustrates the flow that captures jail offenders wo MI moving into the "Jail Offenders wMI" stock after Realignment. Before Realignment, jail offenders served an average of 6 months of jail time (U.S. Department of Justice, 1992-2006). After Realignment, the convicts sentenced to jail consists of offenders with more serious felony convictions, and thus the average jail time served jail offender increases accordingly. Furthermore, higher jail utilization leads to overcrowding. An even more crowded environment then it was before Realignment contributes to the deterioration of mental functions of jail offenders.
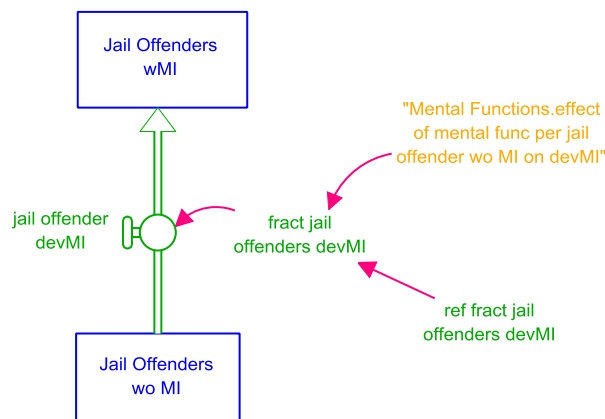
Figure 115 Jail Offenders Development Mental Illness in Jail After Realignment

Figure 115 shows the additional flow from "Jail Offenders wo MI" to "Jail Offenders wMI". The fraction of jail offenders who develop MI is determined by two parameters: the normal fraction, which is assumed at 0.1, and the effect of mental functions of jail offenders wo MI.

4.4.1.7   *Effect of Mental Functions of Jail Offenders without Mental Illness on Mental Illness Development*

The table function in Figure 116 shows an inverse relationship between mental functions and MI development in jail. The input variable to the horizontal axis is the relative average mental functions per jail offenders wo MI, which is a ratio representing the change in mental functions of offenders wo MI relative to the initial value (Figure 117). The output of this table function is the effect of the "average mental functions per jail offenders wo MI" on the fraction of jail offenders wo MI develop MI. The effect is reflected on the vertical axis in a range of values between 0.8 and 1.2. This functional relationship revolves around the concept of a normal system. At the normal condition, when the value of the relative average mental functions per jail offender wo MI is one, the fraction of jail offenders develop MI equals to the "ref fract jail offender devMI" (Figure 117). However, when the input variable increases beyond one, the corresponding value on the vertical axis will drop below one. This attributes to a smaller fraction of jail offenders develop MI. On the contrary, when the relative average mental functions per jail offender wo MI drops below one, the corresponding value on the vertical axis is higher than one, which means the fraction of jail offenders develop MI is larger than it would have been.
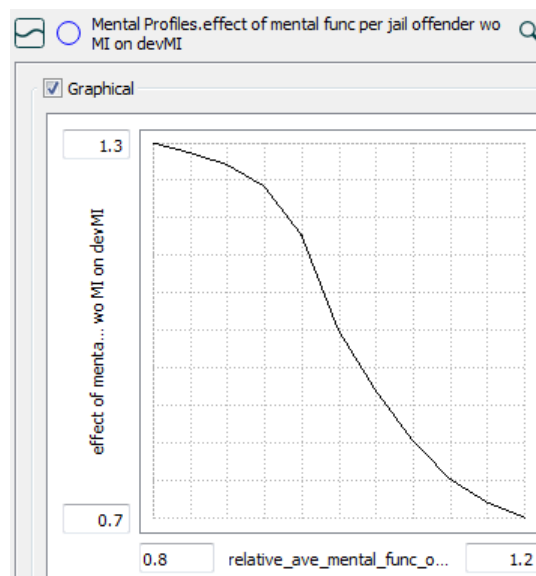
Figure 116 Effect of Mental Functions per Jail Offender wo MI on Mental Illness Development
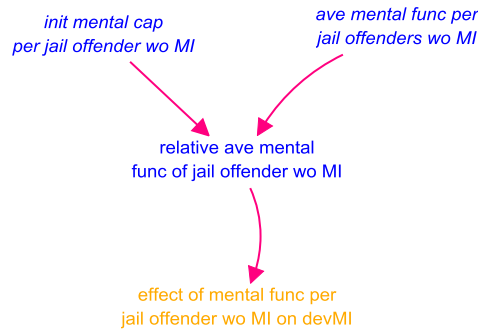
Figure 117 Relative Average Mental Functions per Jail Offender wo MI as the Input to the Effect of Mental Functions per Jail Offender wo MI on Mental Illness Development

4.4.2   Age Profile

The *Age Profile* module contains similar structure as in pre-Realignment with the additional structure explained in Section 4.4.1.1 to 4.4.1.4.

4.4.3   Mental Profile

The *Mental Profile* module contains a similar structure as in the coflow structure in pre-Realignment era (see Section 4.3.4). After the Realignment, some prisoners wMI are released to county parole. The same goes for prisoners wo MI. Based on the criteria for prisoners to be put under county parole, mentally ill prisoners that require inpatient treatment do not qualify for county parole. Also, county parole is only reserved for convicts with certain less serious offense. Hence, the mental functions of prisoners released to county parole is assumed to be higher than those who are place under CDCR parole. The average mental function per prisoner wMI bring with them to county parole is assumed to be higher. This assumption is modeled through the addition of "multiplier of ave mental func of prisoner to county parole" (Figure 118). "Multiplier of ave mental func of prisoner to county parole" is set at 1.5. This represents that the average mental functions of prisoners wMI flowing to the "Mental Functions of County Parolees wMI" is 1.5 time higher than the flow to the "Mental Functions of County Parolees wMI" stock.
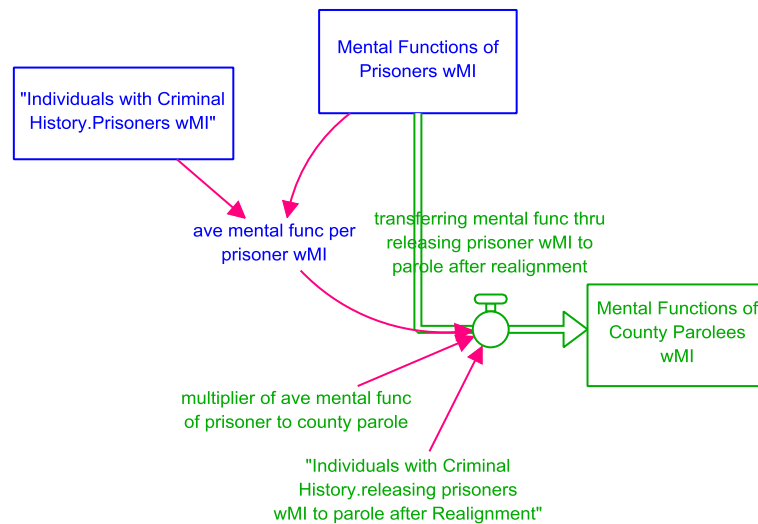
Figure 118 Higher Average Mental Functions per Prisoners wMI Placed Under County Parole After Realignment

Figure 119 presents another inflow, "increasing mental func of county parolee wMI thru comm svcs", to the Mental Functions of County Parolees wMI" stock. This flow is the product of the total number of county parolees wMI, "parolee wMI mental func gain per year", and the effect of community service adequacy on parolee wMI mental function change. "County Parolees wMI" is an input from the ***Individuals with Criminal History*** module. "Parolee wMI mental func gain per year" is a constant defined as one score per person per year. Under normal condition, each parolees wMI gains one score per person per year. This is an assumption that when community services are adequately to address the needs of parolees wMI, they gain one score per person per year. Community service adequacy has the same effect on parolees wMI's mental function gain as in the pre-Realignment era. This effect is documented in Section 4.3.10.6.

Community service adequacy also influences mental function gain of parolees wMI who have violated condition. "Increasing mental func of county parolee wMI violated condition thru comm svcs", is the product of the stock of "County parolee wMI Violated Condition", constant parolee wMI mental function gain and the effect of community service adequacy.
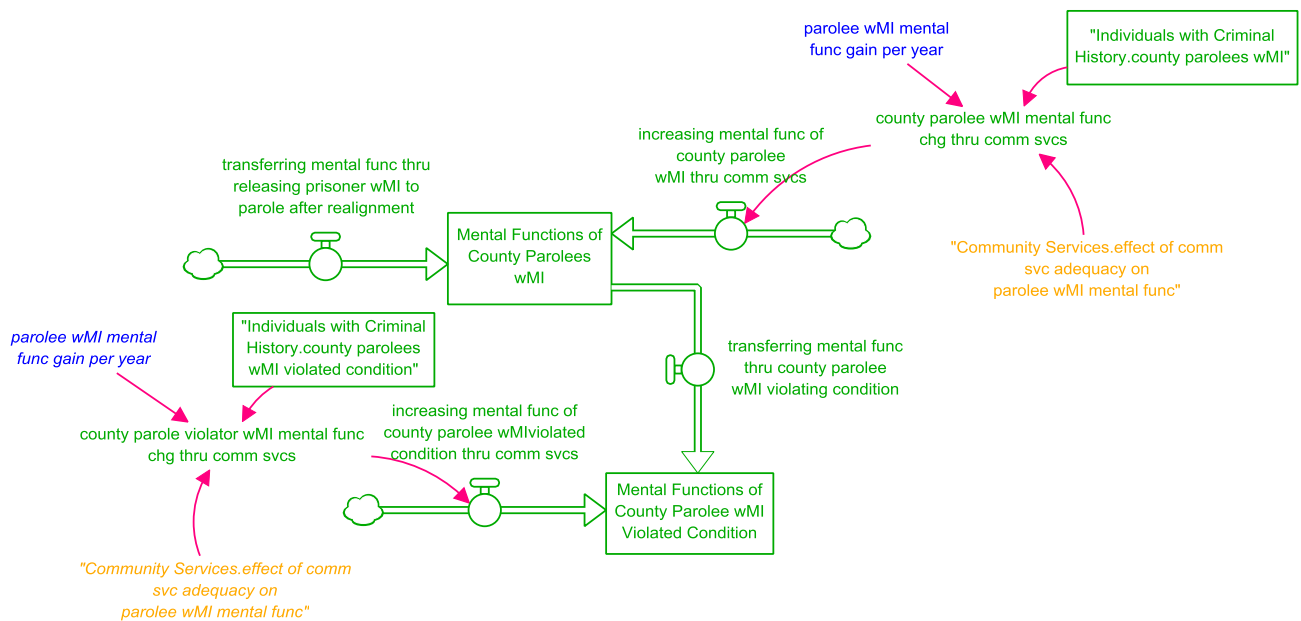
Figure 119 Effect of Community Service Adequacy on Parolee wMI Mental Functions (simplified)

The additional three coflows (not shown graphically) in this module are:

1. the transfer of mental functions from the "Mental Functions of Parolees wMI" stock to "Mental Functions of Parolees wo MI" stock when prisoners wMI recover from MI;

2. the transfer of mental functions from the "Mental Functions of Jail Offenders wo MI" stock to "Mental Functions of Jail Offenders wMI" stock when jail offenders develop MI; and

3. the transfer of mental functions from the "Mental Functions of Reprisoned County Parolee wMI Violated Condition" stock to "Mental Functions of Hi Risk Jail exConv wMI" stock through discharge (instead of transferring back to continue serving parole).

4.4.4   Prison Health Care Resource Allocation

This section focuses on the change in prison health care budget adjustment and allocation process, treatment capacity for infectious disease (ID), chronic disease (CD), and mental health care (MHC) in the prison.

4.4.4.1   Total Health Care Budget Adjustment Process

Before Realignment, CDCR adopts a general health care budget adjustment approach. With this approach, CDCR applied for budget adjustment based on expected prison population growth (Section 4.3.6.1). After Realignment, the Receiver implemented an acuity-based budget adjustment approach. Under this approach, Receiver projects the needs for the three types of health care capacity in prison, i.e. infectious disease (ID), chronic disease (CD), and mental health care (MHC). The estimation for these three types of needs can be found in Section 4.3.5.
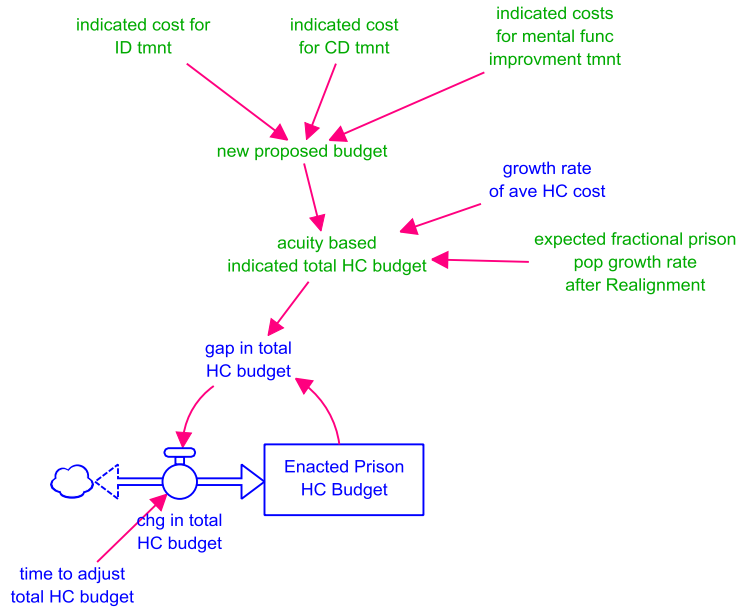
Figure 120 Acuity Based Health Care Budget Adjustment

Figure 120 shows the acuity-based budget adjustment process after Realignment. "Acuity based indicated total HC budget" is result of the new proposed budget, which resulted from the sum of costs needed for ID treatment capacity, CD treatment capacity and MHC capacity. Prison population growth rate after Realignment and HC cost growth rate are taken into account to estimate the "acuity based indicated total HC budget". In the post-Realignment era, the prison population growth rate has reduced drastically from about 5% to minus growth. Then, "acuity based indicated total HC budget" is compared to the existing budget. When a gap appears, it takes two years to adjust and update the budget. The application process for budget adjustment takes one year. The new budget is reflected in the next fiscal year.

After the new budget is updated and allocated, resources are distributed to the three treatment capacities based on the fraction of budget each type of capacity previously claimed. The calculation of these fractions are shown in Figure 121.
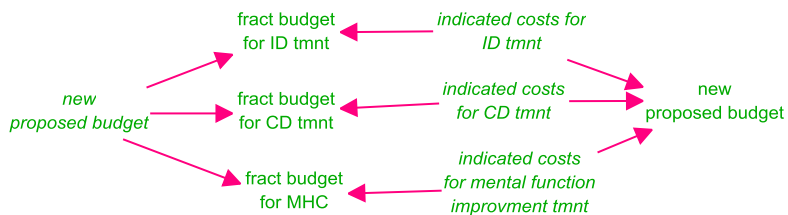
Figure 121 Calculation of Fraction of Budget to be Allocated to Each Type of Treatment Capacity

144

The "new proposed budget" is the sum of all the expected costs for the three types of treatment capacities estimated before the budget adjustment. The calculation of various indicated costs is explained in Section 4.3.6.2 – 4.3.6.4. The fraction of each types of budget is the division of indicated costs for each treatment capacity by the new proposed budget.

4.4.4.2   Adjustment of Infectious Disease (ID) Treatment Capacity

This section illustrates the acuity-based budget allocation to ID treatment capacity. Under the new budget allocation approach, a fraction of the newly enacted budget is allotted to adjust the treatment capacity for ID (Figure 122). This differs from the approach prior to Realignment, which prioritizes fund to ID treatment capacity over the other two treatment capacities.
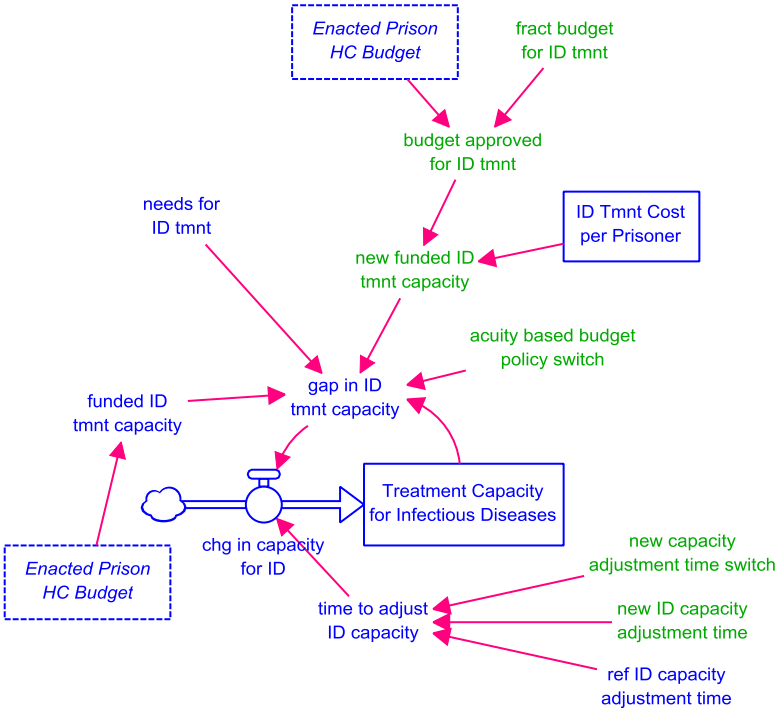
Figure 122 Infectious Disease (ID) Treatment Capacity Adjustment with Fraction of Budget for ID Treatment

After Realignment, the budget approved for ID is based on the fraction of budget ID treatment applied for. ID treatment will not cut into the fund prepared CD treatment capacity and MHC capacity. "Gap in ID tmnt capacity" is determined by the minimum of the two parameters: "needs for ID tmnt" or "new funded ID tmnt capacity". "Needs for ID tmnt" is the number of prisoners need ID tmnt. This is and output from Section 4.3.6.2. "New funded ID tmnt capacity" refers to the ID treatment capacity available with "budget approved for ID tmnt" divided by ID treatment cost per prisoner (Figure 122). The "gap in ID treatment capacity" is formulated with the following equation:

(1-acuity_based_budget_policy_switch) * (MIN (funded_ID_tmnt_capacity,
needs_for_ID_tmnt) - Treatment_Capacity_for_Infectious_Diseases)
+
acuity_based_budget_policy_switch * (MIN (new_funded_ID_tmnt_capacity,

needs_for_ID_tmnt) - Treatment_Capacity_for_Infectious_Diseases)   (4-5)

Equation 4-5 reads that when the "acuity based budget policy switch" is off, i.e., when acuity-based policy is inactive, the gap represents the difference between the minimum value of "funded ID tmnt capacity" or "needs for ID tmnt" and the existing capacity. When the acuity-based budget policy is activated, the minimum value used to determine the gap of treatment capacity is the new funded ID treatment capacity or the actual needs for ID treatment. "Budget approved for ID tmnt" is the product of "Enacted Prison HC Budget" and "fract budget for ID tmnt".
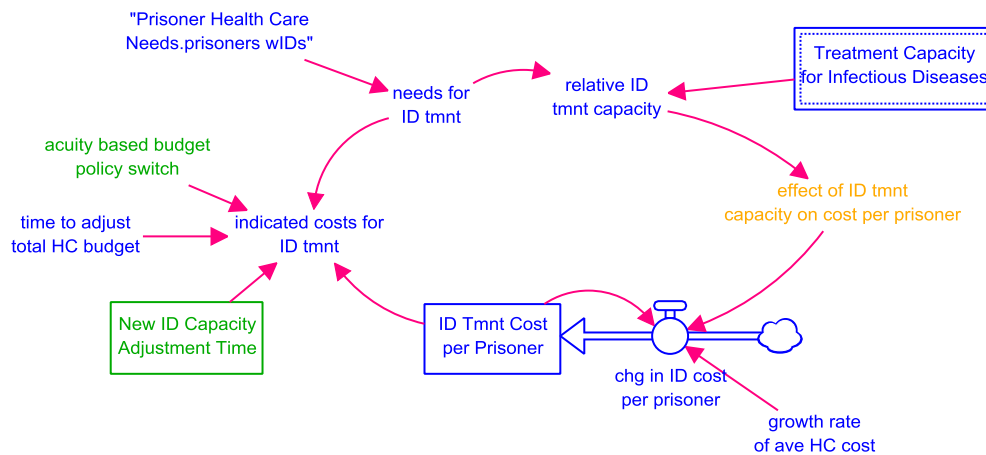
Figure 123 Formulation of Infectious Disease Cost per Prisoners with Acuity-based Budget Policy

Figure 123 demonstrats the formulation of "ID Treatment Cost per Prisoner" as a stock and the formulation of "indicated costs for ID tmnt" after Realignment. "ID Tmnt Cost per Prisoner" represents the average cost of treating a prisoner wID. This average cost grow over time due to inflation in health care costs due to medical professionals' salaries, technology or pharmaceutical costs. "Growth rate of ave HC cost" is set as 0.07 per year[79].

With acuity-based budget estimation, the "indicated costs for ID tmnt" takes the budget and capacity adjustment times into consideration. Given that the process of increasing budget and upgrading capacity takes time, the budget obtained lags behind the actual needs. Therefore, padding up the indicated costs with the consideration of delay will actually leads to the approval for the desired budget. This approach aims to correct the steady state error of a system. Steady state refers to the

---

[79] See Section 4.3.6.1 for explanation on health care cost inflation

persistent gap between the actual and desired state even the system has settled into a steady state (Sterman, 2000)[80]. The pre-Realignment structure is explained in Section 4.3.5.1.

"Indicated costs for ID tmnt" is expressed in the equation 4-6. The equation reads that when acuity-based budget policy is not activated, "indicated costs for ID tmnt" is represented by the "needs for ID tmnt" (the number of prisoners with IDs) and "ID Tmnt Cost per Prisoner". When the acuity-based budget policy is activated, the total cost of ID treatment is inflated by factoring in the delays in ID treatment capacity adjustment and HC budget adjustment.

(1 - acuity_based_budget_policy_switch) * needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner +

acuity_based_budget_policy_switch * (needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner) * (New_ID_Capacity_Adjustment_Time + time_to_adjust_total_HC_budget)   (4-6)

After Realignment, the Receiver introduced new system-wide database infrastructure to maintain prisoners' medical records properly in order to facilitate prisoners' mobility within the system and plan for health care capacity. Thus, the new framework has considerably reduced the capacity adjustment time. This new adjustment time replaces the "ref ID capacity adjustment time" with "New ID Capacity Adjustment Time" (Figure 124). The changes in ID capacity adjustment time takes place gradually. Before the Realignment, the "ref ID capacity adjustment time" was four years. After the Realignment, the Receiver targets a rapid response to address the needs for ID treatment. Hence, one year is assigned to the "desired new ID capacity adjustment time".
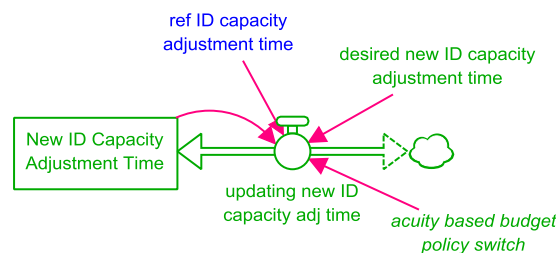
Figure 124 New Infectious Disease Capacity Adjustment Time

"Updating new ID capacity adj time" is modeled as a bi-flow so that this flow will increase the stock level when the value of the flow is positive but will decrease the stock level when the value of the flow is negative. This bi-flow is expressed in equation 4-6:

(1 - acuity_based_budget_policy_switch) * 0 +

---

[80] P. 671-672

acuity_based_budget_policy_switch *

((desired_new_ID_capacity_adjustment_time -

New_ID_Capacity_Adjustment_Time) / ref_ID_capacity_adjustment_time)   (4-7)

Equation 4-7 reads that when acuity-based budget policy is activated, the "updating new ID capacity adj time" will be determined by the difference in "desired new ID capacity adjustment time" and the "New ID Capacity Adjustment Time" over a period. The "ref ID capacity adjustment time" is the adjustment time required in modifying the capacity adjustment time.

4.4.4.3   Adjustment of Chronic Disease (CD) Treatment Capacity

Figure 125 presents the treatment capacity adjustment process after Realignment. The formulation of the gap in CD treatment capacity is similar to the gap formulation for ID treatment capacity adjustment. The formulation for the post-Realignment CD treatment capacity adjustment time, "time to adjust CD capacity", is similar to the adjustment process explained in previous section. However, the time it takes to adjust the "New CD Capacity Adjustment Time" is the "adj time for funded CD capacity". Essentially, the formulation for the adjustment of new CD treatment capacity explains that it takes the same duration for the treatment capacity to adapt to the new adjustment time as it update the CD treatment capacity based on available fund.
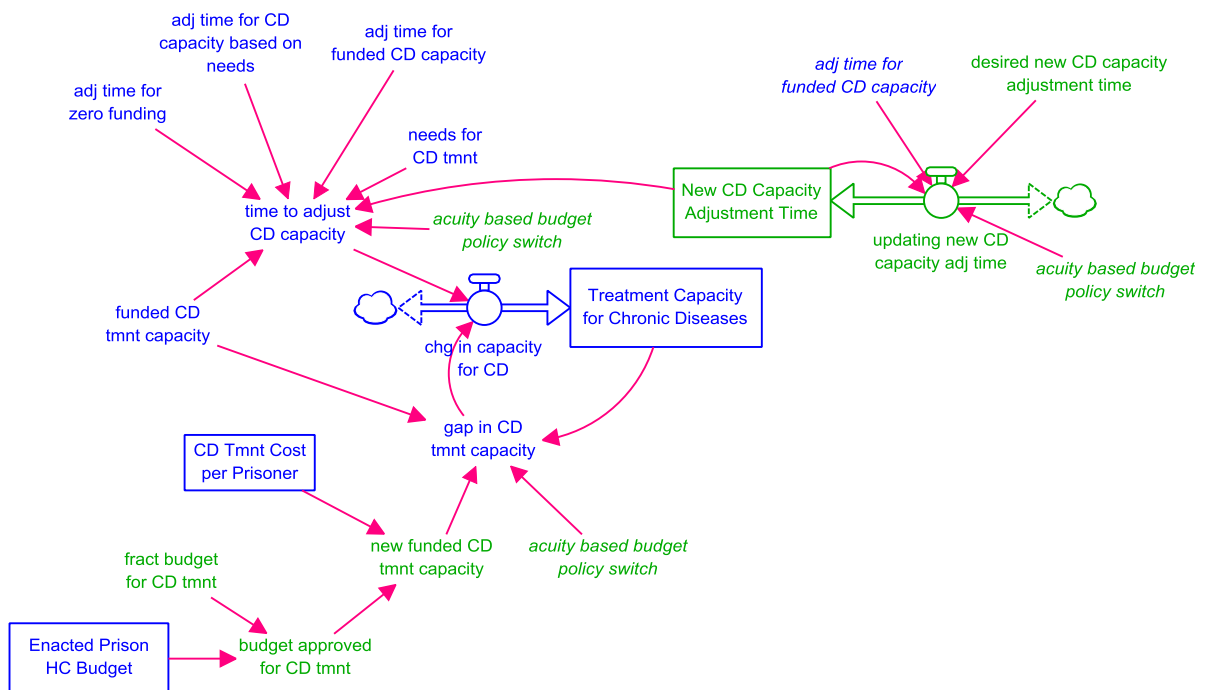
Figure 125 Adjustment Process for Chronic Disease Treatment Capacity

Figure 126 illustrates the formulation of chronic disease treatment cost per prisoner. Similar to the ID treatment cost adjustment, indicated costs for CD tmnt" also take the new capacity adjustment time and health care budget adjustment time into account when deciding the new budget for CD treatment capacity to prevent steady state error. The only difference of the CD treatment cost per prison in the post-Realignment era is the inclusion of the delay in budget approval and capacity adjustment in deciding the new budget for CD treatment capacity in order to avoid steady state error. The pre-Realignment structure is explained in Section 4.3.6.3.
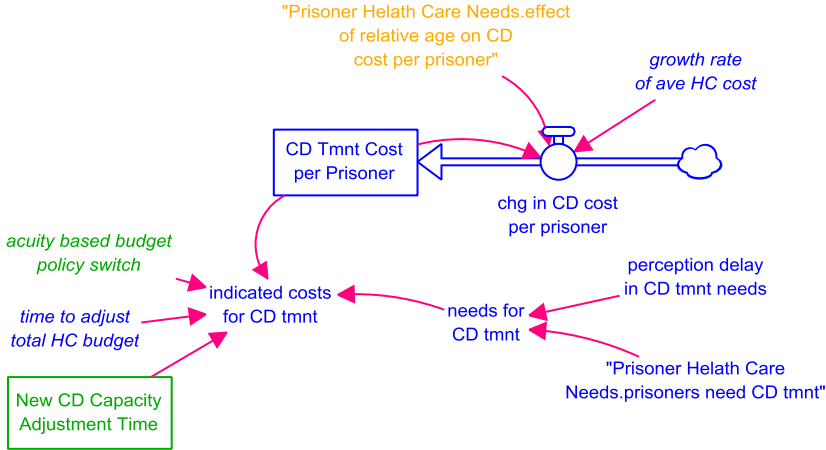
Figure 126 Formulation of Chronic Disease Cost per Prisoners with Acuity-based Budget Policy

4.4.4.4 Adjustment of Mental Health Care (MHC) Capacity

This section explains the adjustment process for MHC capacity. Similar to the previous section, we first present the budget allocation process to MHC. Subsequently, we continue to the MHC capacity adjustment process.

The budget allocation process for MHC is similar to the ID and CD budget allocation processes explained in the previous two sections, except that the MHC cost is calculated by per mental function improvement instead of per prisoner (Figure 127). Using mental function to determine MHC capacity is a more accurate method to determine capacity because prisoners may have various degree of severity with their MI. As explained in Section 4.3.4 and 4.3.5.4, mental functions in our model is defined by score. The severity of MI is defined by range of scores. If the prisoners' mental functions fall into the range of scores that deviate from the normal range of scores slightly, the prisoners may not need treatment immediately. Even if they need treatment, the appropriate treatment may require lower medical attention. Hence, the rationale of using mental functions for capacity planning yields a more accurate goal for the system to seek.

149
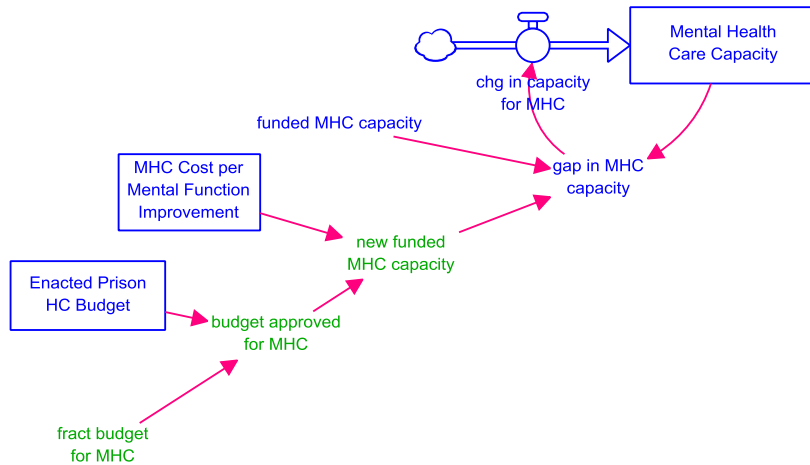
Figure 127 Formulation of the Gap in Mental Health Care Capacity under Acuity-based Budget Policy

Figure 128 presents the formulation for MHC cost per mental function improvement. This variable refers to the financial investment required to improve one mental function score (see Section 4.3.6.4). Consistent with the general health care (HC) cost, "MHC Cost per Mental Function Improvement" grows over time. The growth rate is assumed to be the same as the growth rate for HC cost. Before Realignment, "indicated costs for mental function improvement tmnt" is determined by the total discrepancies in the mental functions of prisoners and "MHC Cost per Mental Function Improvement". After Realignment, the delays in adjusting MHC treatment capacity and total HC budget are included in the consideration for the new budget. Thus, "indicated costs for mental function improvement tmnt" is expressed with the equation similar to equation 4-6 in Section 4.4.4.2.
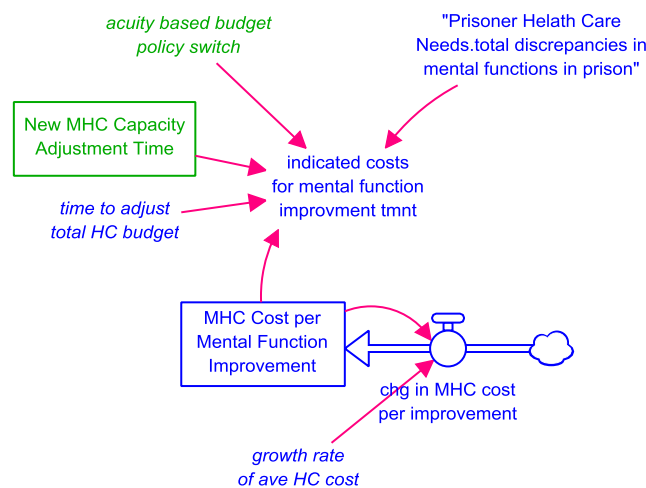
Figure 128 Formulation of New Budget Request by Factoring in Delays

Figure 129 shows the structure of MHC capacity adjustment time after Realignment. This structure is similar to the CD treatment capacity adjustment structure in Section 4.4.4.3.

Before Realignment, MHC capacity adjustment time is contingent upon the availability of funding (see Section 4.3.6.4). Similar to CD treatment capacity adjustment process, if the budget available for MHC capacity is zero, then the adjustment time to reduce MHC capacity is one year. If the budget available for MHC capacity is insufficient to address the needs, then the capacity adjustment time is three years. If the needs for MHC treatment is lower than the available funded capacity, only the needed capacity is adjusted. Due to lack of data collection and record keeping framework, adjusting MHC capacity based on needs was challenging. Hence the time it takes to adjust MHC capacity based on needs is set at 20 years. However, one of the goals of the Receiver is to shorten the adjustment time for health care capacity in prison. The "desired new MHC capacity adjustment time" is set at one year. The desired adjustment time for MHC also takes time to update. "New MHC Capacity Adjustment Time" represents the new adjustment time. This stock adjusts slowly to meet the "desired new MHC capacity adjustment time" with a delay.

The adjustment process for cost per mental function improvement after Realignment is similar to the CD costs adjustment. The rest of the structure before Realignment is explained in Section 4.3.5.4. The main difference for between CD and MHC costs adjustment process is the perception delay in MHC needs (Figure 130). As mental illness is difficult to diagnose, it usually takes the medical professional longer observation time.   Before Realignment, MHC is almost non-existent in prison.   So, the perception delay is set as four years. After Realignment, the perception delay is expected to be lower due to the increasing MHC capacity and up-to-date system-wide medical record keeping, better-defined treatment protocol and guidelines, and properly staffed health care services in prison. When the acuity-based budget policy is activated, the "New MHC Capacity Adjustment Time" replaces the "ref perception delay in MHC needs" with a delay time. However, there is a delay in replacing the old perception delay. This is because that people need time to adjust to the new way of collecting, analyzing, and reporting information. Thus, a stock (green structure) is used to model the gradual change in "perception delay in needs for MHC". The "desired perception delay in MHC needs" is set

as two years. The time to adjust to the desired perception delay is same as the old perception delay. Over time, the stock of "New MHC Capacity Adjustment Time" will be lowered to the desired perception delay.
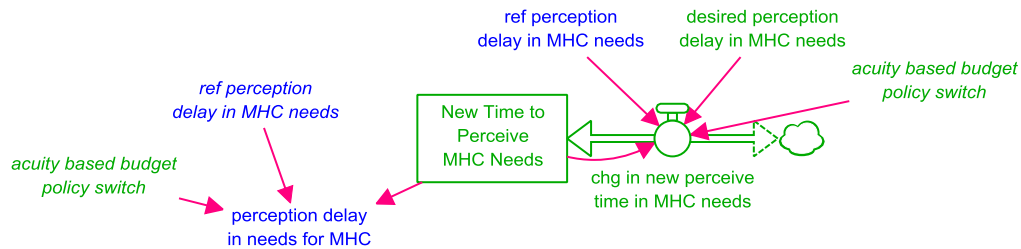
Figure 130 Formulation of the New Mental Health Care Needs Perception Time After Realignment

4.4.4.5   Medical Screening Capacity at Reception Centers

Medical screening is provided to the incoming prisoners at the reception centers[81]. Prior to the handover to the Receiver, the medical screening at the reception centers was unproductive ("Plata v. Schwarzenegger," 2009)[82]. The lack of space combined with 200% to 300% over the capacity, many of the reception centers only spent seven minutes to administer each medical screening procedures to assess incoming prisoners' general health. Even though the medical screening includes mental health assessment, having many prisoners cramp into a small space, prisoners generally do not take the assessment seriously. Also, seven minutes for complete medical screening is insufficient. A minimum period for acceptable medical screening is 15 minutes. This implies that prior to the intervention of the Receiver, mental health screening is almost non-existent.

---

[81] Reception center is the initial holding places for the incoming prisoners. In the reception center, the new prisoners undergo health screening, including mental health assessment.

[82] P.60-65
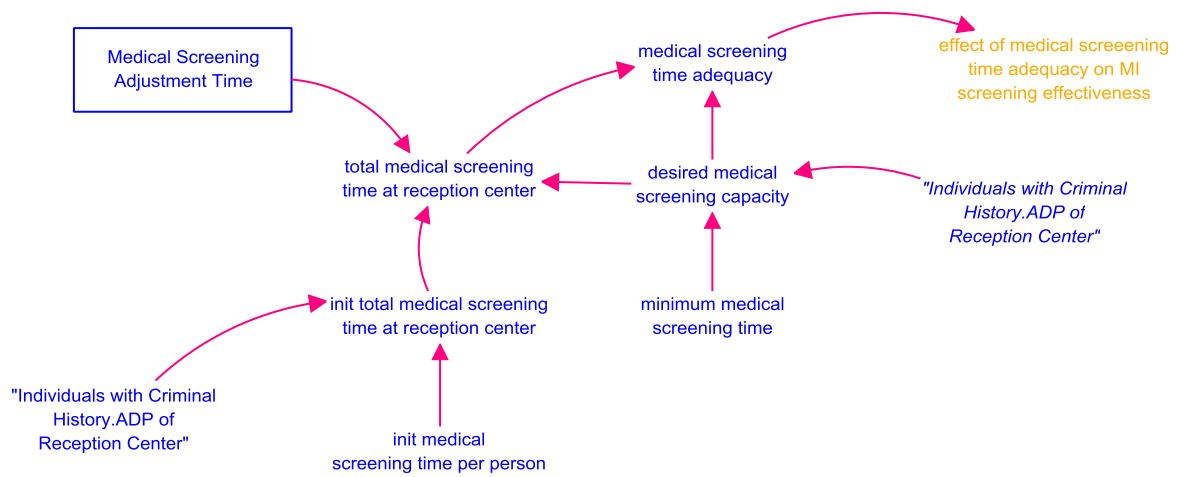
Figure 131 Formulation of the Medical Screening Capacity at the Reception Center After Realignment

Figure 131 presents the formulation of the medical screening capacity at the reception center. The number of prisoners per day in the reception center along with the initial medical screening time constitutes to the "initial total medical screening time at reception center". The "init medical screening time per person" is seven minutes. The "ADP of Reception Center" is the average daily population derived from the number of new prisoners at the reception center divided by 365 days. "Initial total medical screening time at reception center" is compared to the "desired medical screening capacity". The gap between the actual and desired states indicates a gap. This gap is adjusted over the Medical Screening Adjustment Time. Then, the "total medical screening time at reception center" leads to the change in "medical screening time adequacy". This parameter is an input to the "effect of medical screening time adequacy on MI screen effectiveness", which will be explained later in the next section.
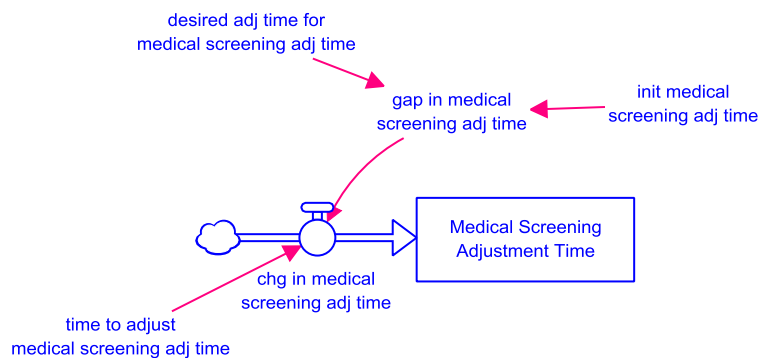
Figure 132 Formulation of the Medical Screening Adjustment Time as a First-Order Negative Feedback Structure

Medical Screening Adjustment Time is formulated as a stock because this adjustment time is adjusted over time (Figure 132). The initial value in the Medical Screening Adjustment Time stock is set as 20 years. It is inferred from the "Plata v. Schwarzenegger" 2009) case that after eight years, the medical

screening capacity at the reception center still failed to provide sufficient services. This court case was filed in the early 1990s. After the Receiver took over CDCR's health care, one of the objectives was to increase the medical screening capacity at the reception center as soon as possible. Therefore, the "desired adj time for medical screening adj time" is set at two years.

Figure 133 demonstrates the calculation of the average daily population at the reception center by using a simple stock-and-flow structure. The "total new prison admission" is the total number of incoming prisoners. As every one of them has to enter the reception centers before admitting to the prison, the "admitting to reception center" equals to the "total new prison admission". To capture the number of newly admitted prisoners who get medical screening, this structure accumulates all the new prisoners in the reception center for one year. Then they leave the stock. While the stock is accumulating, the parameter "year to day conversion" convert the annual new prisoners at reception center for medical screening to a daily population. "Year to day conversion" is defined as 365 days.
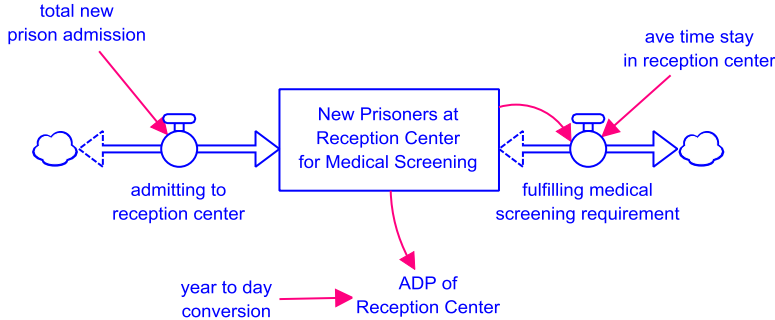
Figure 133 Formulation of the Average Daily Population of the Reception Center

This section presents the effect of medical screening time adequacy on the effectiveness on identifying MI among the incoming prisoners in a table function (Figure 134).
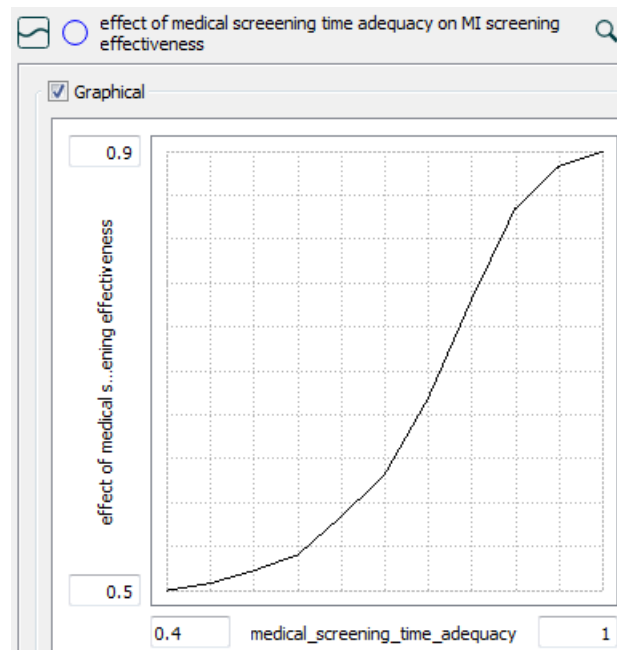
Figure 134 Effect of Medical Screening Time Adequacy on MI Screening Effectiveness

The input to the horizontal axis of the table the "medical screening time adequacy". This ratio represents the sufficiency level of screening time by comparing the actual total screening time to the desired total screening time. The horizontal axis ranges between 0.4 and 1. The incremental unit at the horizontal axis is 0.06. The output of the table function is the effect on MI screening effectiveness. When the initial medical screening time adequacy starts at 0.4, the effectiveness of screening the mental health of the incoming prisoners is only 0.5. As the screening capacity builds up and approaches one, the effectiveness in mental health screening gradually reaches 0.9. In the beginning as the screening capacity increases, the MI screening effectiveness increases slowly. When the screening capacity closed to full, the screening effectiveness increases much faster. However, the screening effectiveness will not reach one because of the possibility of misdiagnosis.

4.4.5   Jail Capacity

To delegate correctional responsibility to the counties for Realignment, the State government has appropriated two new jail construction funds in 2007 and 2012 and further allocated $2 billion for 2013-2014 fiscal year (Lin et al., 2014). The AB 900 new jail construction fund of $1,586 million was allocated in 2007 with a plan to build 9,768 jail beds. The SB 1022 new jail construction fund of $500 million was allocated in 2012 with the aim to build another 2,221 jail beds. County governments may

still apply for the Five-year Realignment fund appropriated between 2013 and 2017 to expand jail capacity. Prior to Realignment, county government receives fund from the State government to expand jail capacity based the needs projected from population growth.

County governments are given generous autonomy to decide how they spend the Realignment fund (appropriated between 2013 and 2017). In general, the spending of the Five-year Realignment fund by the county governments between 2013 and 2014 can be broadly categorized into law enforcement-related activities and community services-related activities. About 45% of the county governments take the law enforcement approach under which the fraction of Realignment fund spent on law enforcement, jail expansion, and sheriff is four times larger than the counties that adopt the reentry-focused approach. Half of the counties allocated 0% to 20% of the Realignment fund to jail expansion (Bird et al., 2014).

The post-Realignment structure is added to the jail capacity module in Figure 135.
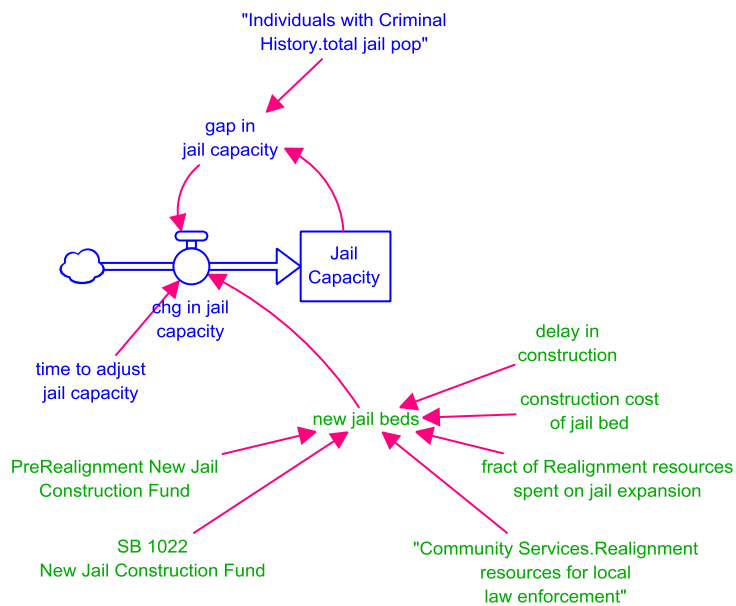
Figure 135 Additional Jail Expansion with Realignment Fund

Figure 135 shows three different types of fund allotted to the county government to build new jails or expand jail capacity. The "PreRealignment New Jail Construction Fund" represents the AB 900 fund allocated to the county governments for new jail construction purpose. Since this is a one-time appropriation, the "IF THEN ELSE" built-in function is used. "PreRealignment New Jail Construction Fund" is expressed in the following equation:

$$\text{IF TIME}=2007$$
$$\text{THEN } 1586000000$$
$$\text{ELSE } 0 \qquad\qquad (4\text{-}8)$$

Equation 4-8 reads that if TIME, the simulation time unit, is equal to 2007, then the "PreRealignment New Jail Construction Fund" is $1,586,000,000 per year. In other time unit throughout the simulation, "PreRealignment New Jail Construction Fund" equals to zero. "SB 1022 New Jail Construction Fund" has a similar equation, except that the amount and fund allocation time are $500,000,000 per year and 2012 respectively. The Five-year Realignment Fund is represented in the table function in Figure 125.
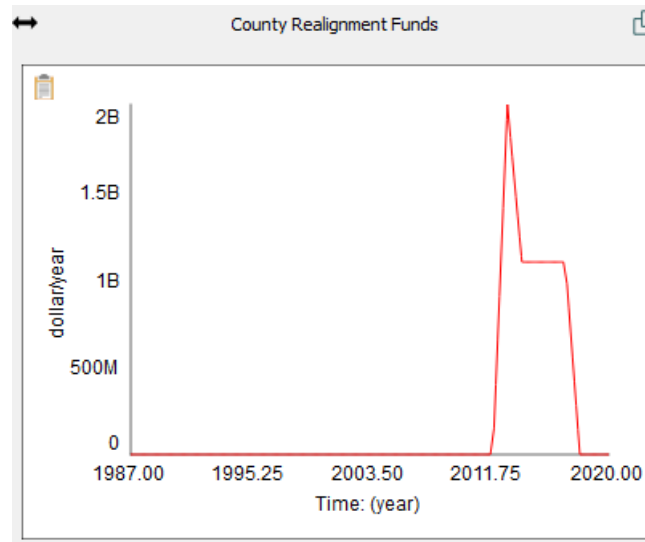
Figure 136 The Five-Year Realignment Fund to County Governments Timeline (1987 - 2020)

Note: This image of a table function is different from previous table functions. Due to the limitation on the numerical presentation on the vertical axis, this is a screenshot of the result of the simulation. It shows the same appropriation as in the table function.

In fiscal year 2013-14, the State government distributed an additional $2 billion Realignment fund to the counties for 2013-2014 and then $4.4 billion for 2014 to 2017.   "New jail beds" is the number of new beds made available with the Realignment fund. It is a function of the Pre-Realignment Fund, SB 1022 New Jail Construction Fund, and fraction of Realignment fund spent on jail expansion and construction cost per jail bed. "Realignment resources for local law enforcement" denotes the sum of Realignment fund spent on law enforcement-related activities. Jail expansion falls under law enforcement spending. The fraction of Realignment resource spent on jail expansion is set as 0.2. The construction cost per jail bed is assumed conservatively at $174,000 per new jail bed construction[83] (Martin et al., 2014). The average time for a jail construction is six years including the planning process

---

[83] Author's calculation by averaging the construction cost per jail bed under the Pre-Realignment and SB 1022 Funds. For further details, refer to Martin et al. (2014)

and additional delay in construction (Martin et al., 2014). The formulation of "new jail beds" as the following:

(PreRealignment_New_Jail_Construction_Fund +

SB_1022_New_Jail_Construction_Fund +

Community_Services.Realignment_resources_for_local_law_enforcement *

fract_of_Realignment_resources_spent_on_jail_expansion) /

construction_cost_of_jail_bed   (4-9)

The gap in jail capacity due to population growth plus the "new jail beds" makes up the total correction that the "Jail Capacity" stock will adjust with a delay.

In 2014, California passed Proposition 47, a statue that re-categorizes and re-sentence the offences for which existing prison and jail inmates are convicted; penalties for certain non-violent, non-serious, and non-sex-offence convictions have been reduced (Turner et al., 2015). It has been reported that under this statue, about 4,500 prisoners have been released earlier and jail has reduced daily population by 9,000 persons (Stanford Justice Advocacy Project, 2015).   However, evidence shows that the jail population rebounds due to the decrease in pretrial release from jail. In other words, the reduction in jail population due to Proposition 47 is offset by the reduction in pretrial release. Suspects are released before trial due to jail overcrowding. Some convicted jail offenders are also released earlier due to overcrowding. This implies a balance feedback loop at force that governs the jail population and renders it resistant to the attempt in reducing the jail population, through either pretrial release or early release (see Section 4.3.8).

4.4.6   Community Services

As mentioned in the *Jail Capacity* module, the State government distributed an additional $2 billion Realignment fund to the counties for 2013-2014 and then $4.4 billion for 2014 to 2017. Half of the counties directed 8% to 33% to programs and services expenditures (Bird et al., 2014). Counties adopting reentry-focused approach in Realignment budget allocation spent twice as much as the counties follow enforcement-focused model on programs and services. In the following subsections, the budget allocation and community service capacity adjustment process will be explained. As the structure for community services for parolees wo MI is similar to that for parolees wMI, only community services for parolees wMI will be illustrated. Differences between these two structures will be underscored.

Figure 137 provides an overview of the subsections in the **Community Services** module to be covered in this section.
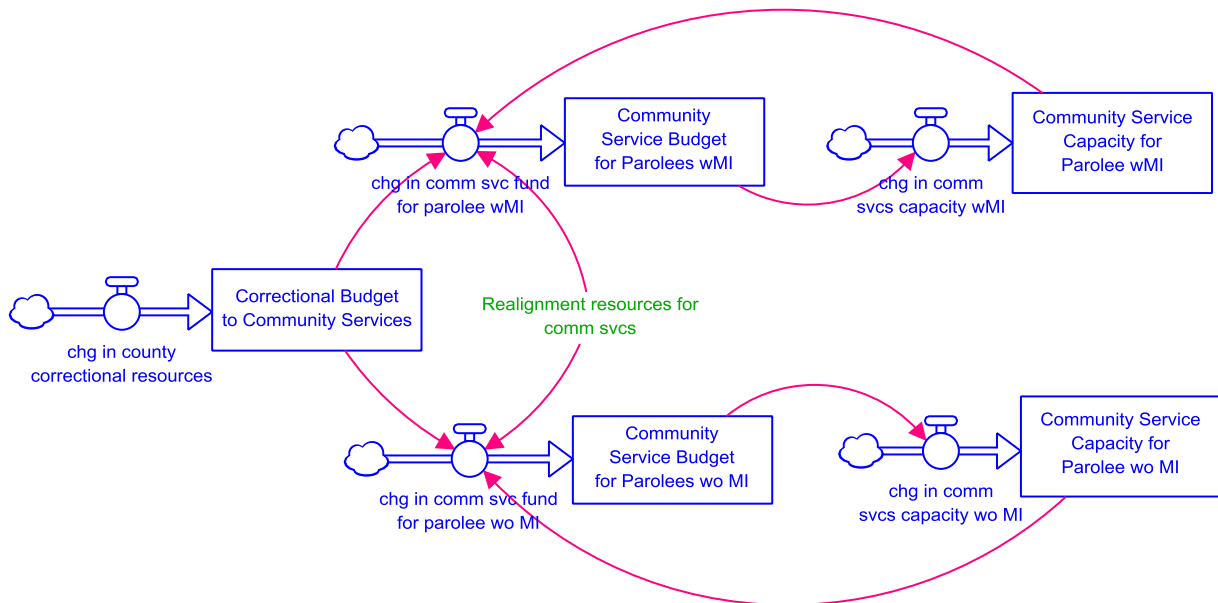
Figure 137 Overview of Subsections in Community Services (simplified)

"Correctional Budget to Community Services" refers to the ordinary correctional budget appropriated to the county governments. "Realignment resources for comm svcs" is the additional budget allocated from the State to counties to encourage counties' to increase community service capacity in the effort to reduce statewide incarceration population. Together with the ordinary budget, counties plan and adjust community service capacity accordingly.

4.4.6.1   County Level Correctional Resources Allocation
This section is similar to the structure in Section 4.2.10. The structure remains unchanged post-Realignment.

4.4.6.2   Community Service Budget for Parolees wMI
This structure shows the inclusion of Realignment resources to the existing fund to increase the capacity of community services for parolees wMI (Figure 138). The distribution of the ordinary and Realignment funds is contingent upon the fraction of parolees wMI. If the fraction increases, the resources directed to services for parolees wMI will increase. Note that since budget is fixed, the increase in spending for parolees wMI leads to the decrease in spending for parolees wo MI. The community service budget for parolees wMI is updated after an adjustment period. The value for "time to adjust comm svc budget" is set as one year. The total delay in adjusting the community service

budget for parolees wMI is four years: three years delay in updating "Correctional Budget to Community Services" and one year for community service budget for parolees wMI.
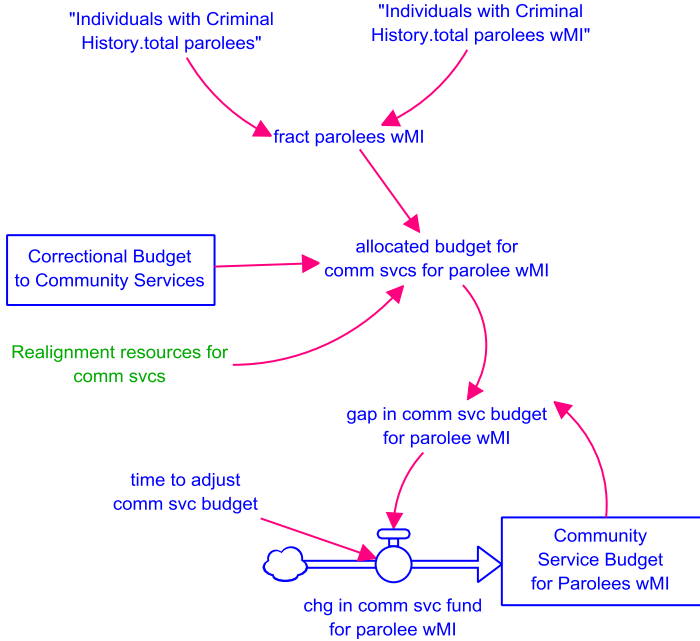
Figure 138 Additional Realignment Budget to Community Service Budget for Parolees wMI

4.4.6.3 Adjustment of Community Service Capacity for Parolees wMI

This section covers the community service capacity adjustment process after Realignment.
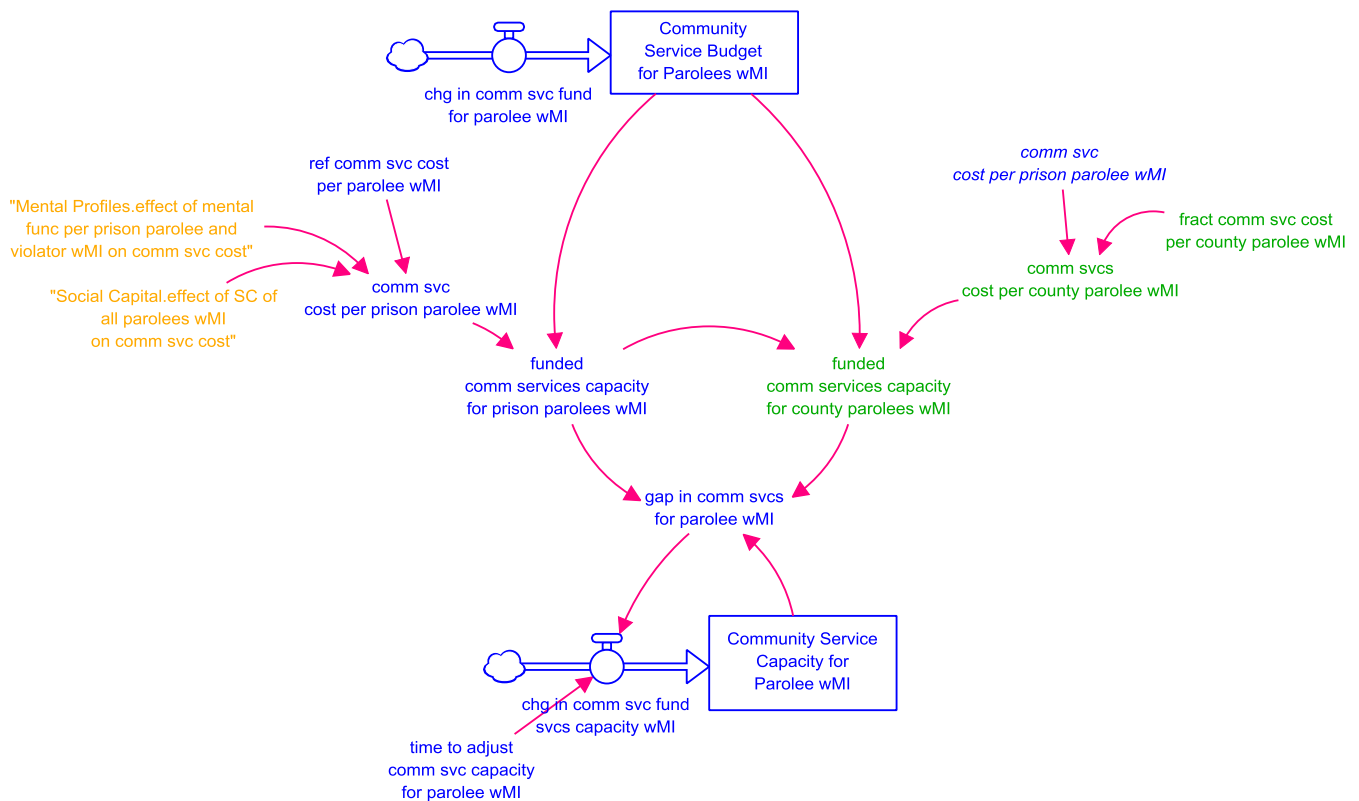
Figure 139 Adjustment Process for Community Service Capacity for Parolees wMI

Figure 139 shows that with the adjusted budget, community services for county parolees, a population emerges after Realignment, are funded. The capacity for county parolees is determined by the community services cost per county parolee wMI and the residue of budget after funding the prison parolees wMI. This is because that the added capacity will be absorbed by the existing parolees who are in need for community services, who have been in the waiting lists. The cost for community services of county parolees wMI is expected to be lower than the prison parolees given the less serious offense that the county parolees commit and shorter previous incarceration time served (incarceration time served as adverse effects on mental functions, social capital, and needs for community services). The supervision cost for a mentally ill probationer is reported as $2,845 as opposed to the supervision costs of a mentally ill prison parolees at $4,200 (LAO, 2000a). Hence, "fract comm svc cost per county parolee wMI" is set as 0.68. After Realignment, the number of prison parolees is reduced and be transferred to the county supervision. A portion of the expenditure is relocated to the shoulders of county governments. The advocates for Realignment hypothesize that the county governments, who are responsible for managing community services, are in a better and closer position to estimate and provide community services to the parolees. If county supervision yields success in rehabilitating these parolees in terms of reduction in recidivism, long-term savings in the corrections will be materialized.

This section explains the decision-making process of counties in allocating the realignment fund between law enforcement and community services.
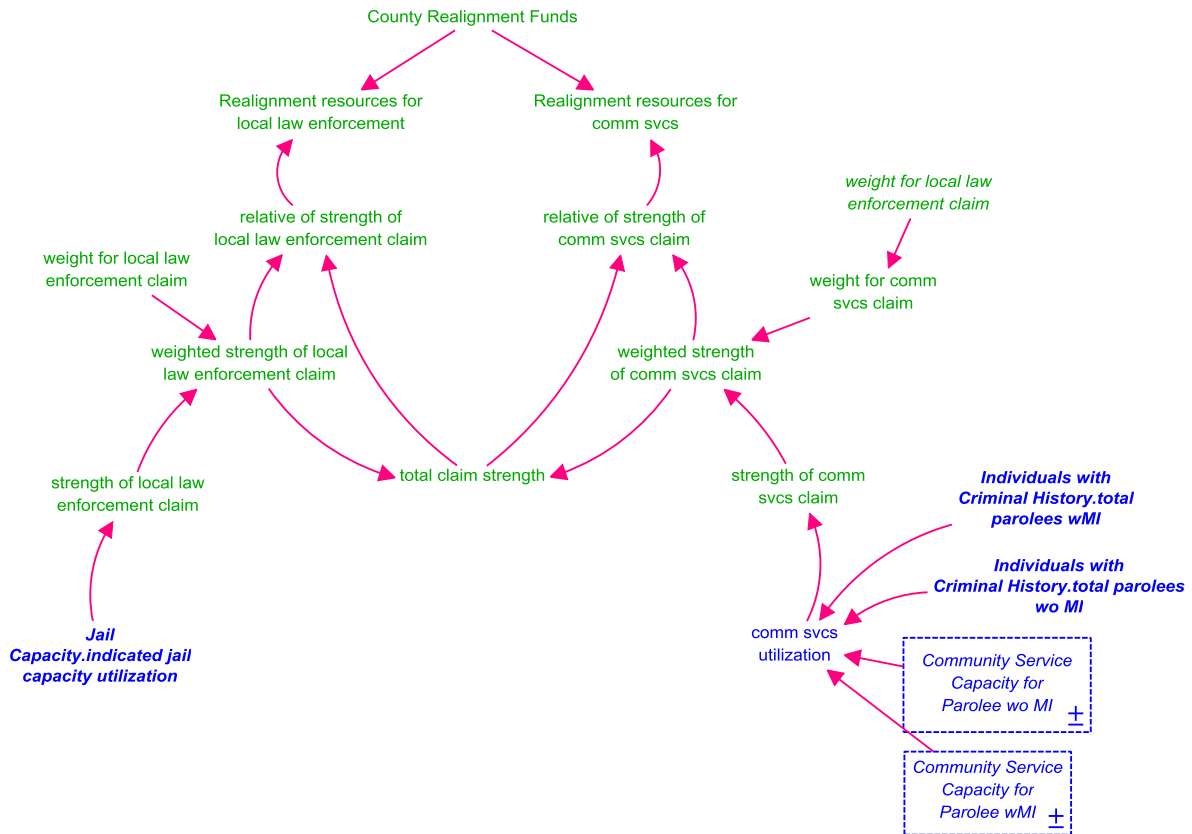
Figure 140 Decision-making Process on Allocating County Realignment Fund between Law Enforcement and Community Services

Primarily, the Realignment fund allocations is broadly dispensed to two categories of activity: local law enforcement and community services (Figure 140). The determination on the amount spent on each category is influenced by the relative strength of the local law enforcement and community services claims. The relative strength of community services claim is the product of the weighted strength of community services relative to the total claim strength. Weight is assigned to the two groups of spending. 55% of the counties adopt the reentry-focused approach while 45% take the enforcement-focused approach (Bird et al., 2014). Hence, the weights for community services claim and local law enforcement are set at 0.55 and 0.45 respectively. The strength of community services claim results from community services utilization level, which is determined by the capacity availability for the all types of parolees. On the other hand, the strength of local law enforcement hinges upon jail utilization (Lin et al., 2014). The higher the community services utilization, the larger the weighted strength of

community services claim, and thus the higher the budget allocation to community services. The same is true for budget appropriation to local law enforcement activities.

4.4.7   Incarceration Year Served

The post-Realignment structure for the *Incarceration Year Served* module is similar to the pre-Realignment structure in Section 4.2.9 and additional structure in Section 4.4.1.

After the Realignment, some prisoners wMI are released to county parole. The same goes for prisoners wo MI. Based on the criteria for prisoners to be put under county parole, mentally ill prisoners that require inpatient treatment do not qualify for county parole. Also, county parole is only reserved for convicts with certain less serious offense. Hence, the total incarceration time served per prisoner wMI is expected to be shorter than those who are place under CDCR parole (under State government's responsibility). The "ave previous incar time served per prisoner wMI" and "ave current prison time served wMI" brought by the prisoner wMI to county parole is assumed to be shorter (Figure 141). This assumption is modeled through the addition of "multiplier of ave incar time served by prisoner to county parole". "Multiplier of ave incar time served by prisoner to county parole" is set at 0.5. This represents that the average previous incarceration time served and current incarceration time served by prisoners wMI flowing to the "Total Incar Time Served by County Parolees wMI" is 0.5 time lower than the flow to the "Total Incar Time Served by Prison Parolees wMI" stock.
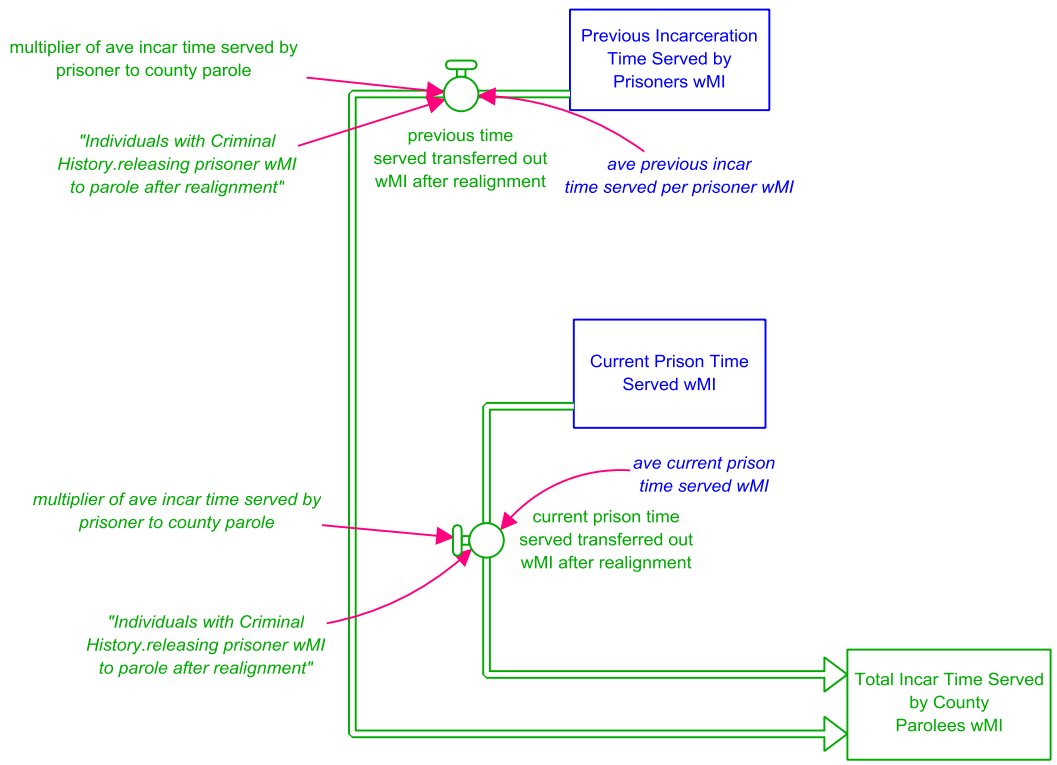
Figure 141 Transferring Previous Incarceration Time Served by Prisoners wMI and Current Prison Time Served by Prisoners wMI to the County Parolees wMI Stock After Realignment

Figure 142 presents the second additional flow in this module. After Realignment, mental health care (MHC) capacity is building up gradually. Hence, it is possible that prisoners wMI are benefited from MHC provision and recover from MI. When these prisoners leave the "Prisoners wMI" stock to "Prisoners wMI" stock, they bring the "ave previous incar time served per prisoner wMI" with them. So their criminal history move along with them to the new stock.
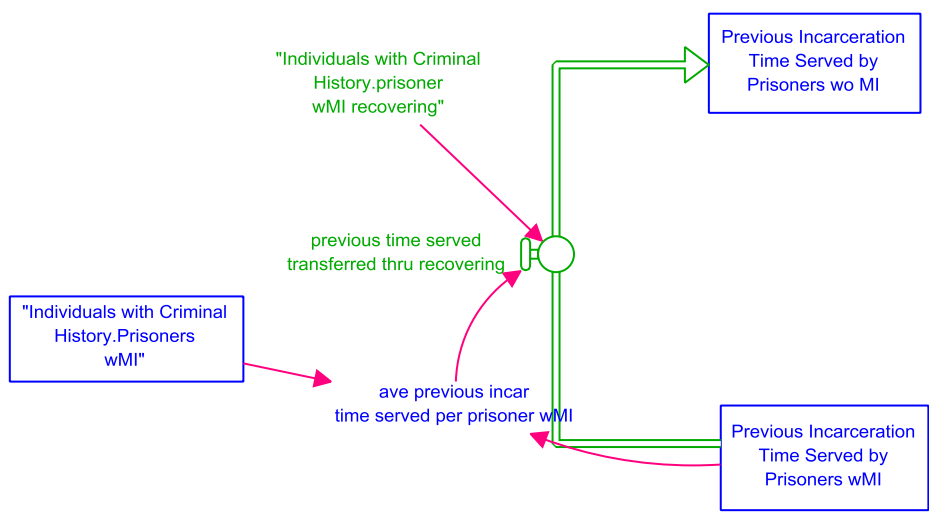
Figure 142 Transferring Previous Incarceration Time Served by Prisoners wMI Through Recovery After Realignment

The recovered prisoners wMI also bring the "ave current prison time served wMI" with them to the "Current Prison Time Served wo MI" stock (Figure 143). This parameter represents the average current sentence they have served up until the point of their transfer. It does not refer to the total time they have served when they are released from prison.
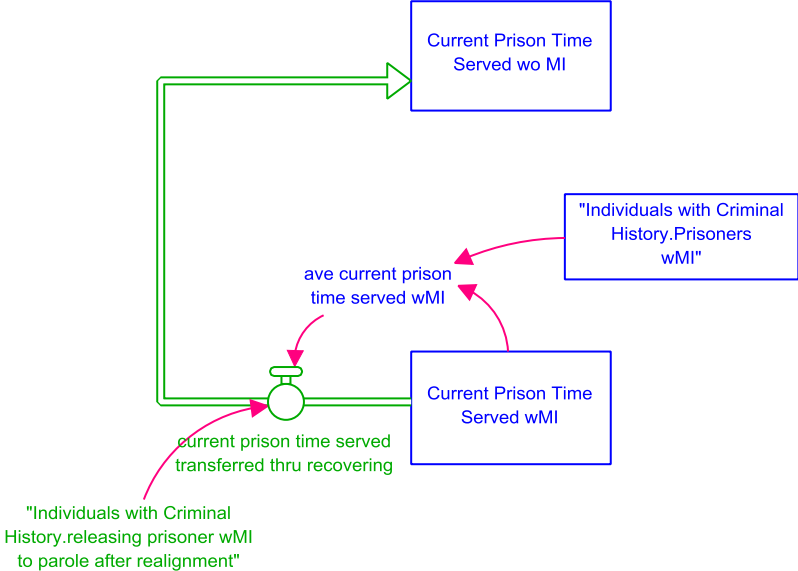
Figure 143 Transferring Current Prison Time Served by Prisoners wMI Through Recovery After Realignment

4.4.8   Social Capital (SC)

The post-Realignment structure for the ***Social Capital*** module is similar to the pre-Realignment structure in Section 4.3.11 and the post-Realignment structure in the ***Individuals with Criminal History*** module in section 4.4.1. . The "multiplier of ave SC per prisoner to county parole" is set as 1.5. This means that the average SC brought along by prisoners released to county parole is expected to be 1.5 times higher than those who are released to parole under CDCR supervision (either "Prison Parolees wMI" stock or "Prison Parolees wo MI" stock).

4.5   Chapter Summary

Chapter 4 presents the dynamic hypothesis in the form of causal loop diagrams (CLDs) and stock-and-flow diagrams (SFDs). CLD presentation is helpful in identifying the dominant causal loops and the process of shifting dominance. SFD presentation is a useful approach to explain the low-level technical aspects of the dynamic hypothesis in the form of a model. Also, through detailed and explicit explanation of the model with supporting evidence helps building confidence in the model. All 11 modules are illustrated. The pre- and post-Realignment structures are differentiated and explained.

5   Validation and Analysis

5.1   Validation

Model validation tests are crucial because the validity of the results from the model is contingent upon the validity of the model (Barlas, 1996). Barlas argues that the accuracy of the model's ability in reproducing the real behavior observed is only meaningful if we have enough confidence in the model structure. Therefore, the suggested logical sequence of model validation is to test the validity of model structure first, then the behavior accuracy.

5.1.1   Testing Structure Validity

The purpose of this type of testing is to examine the variables in the model, the values of the variables, and their causal relationships.

Direct Structure Tests

Through comparison to the knowledge of the real world for which the model attempts to extract, this test assesses the validity of the model structure. The available tests for this purpose include structure and parameter confirmation tests, extreme conditions test, and dimensional consistency test. The structure and parameter confirmation tests are passed by including detailed and specific references and historical data analysis in Chapter 4 to document the formulation of the structures. This ensures that the formulation corresponds to the real system. The model also passed the dimensional consistency test. Extreme condition tests are also conducted.

Extreme condition tests involves examining the model-generated behavior under the following conditions. Appendix I presents the results of these extreme condition tests.

1. Zero population growth
2. 100% population growth
3. Zero fraction of defendants with prison conviction
4. Zero fraction of defendants with probation conviction
5. Increase Initial Age at First Commitment to the Expected Life Expectancy of Prisoners
6. Increase Average Mental Functions per New Arrestee to 100
7. Increase Social Capital per New Arrestee to 100
8. Reduce Prison Health Care Budget by 90%
9. Reduce Correctional Community Service Budget by 90%

The purpose of this group of tests is to assess the validity of the model structure indirectly through testing the model-generated behavior. This kind of tests can reveal potential structural flaws. Tests included for this kind of purpose are stress testing, modified behavior prediction, and phase-relationship test.

5.1.2   Testing Behavior Validity

Once we gain enough confidence through the previous structure validity tests, behavior validity testing is the next step. Suggested tests include trend comparison and removal, period comparison using the autocorrelation function, averages comparison, variations comparison, testing for phase lag using autocorrelation function, and graphical or visual measures of typical behavior features.

5.1.2.1   Behavior Reproduction

The purpose of the behavior reproduction test is to examine how well the model-generated behavior matches the observed behavior in the real system. Note that the emphasis of the behavior reproduction test is on pattern prediction instead of point or event prediction. As such, this test aims to compare the model-generated behavior pattern to the observed behavior pattern in real system. In our study, the purpose of the model is to understand the cause of the increasing concentration of mentally ill prisoners and to assess ways to alleviate the development. Therefore, behavior reproduction test serves to build confidence that the model is reasonable represent the real-world problem for the intended purpose.

Figures 144 (a) – (f) demonstrates the major behavior reproduction of major stocks.

(a)

(b)

(c)

(d)

(e)

(e)
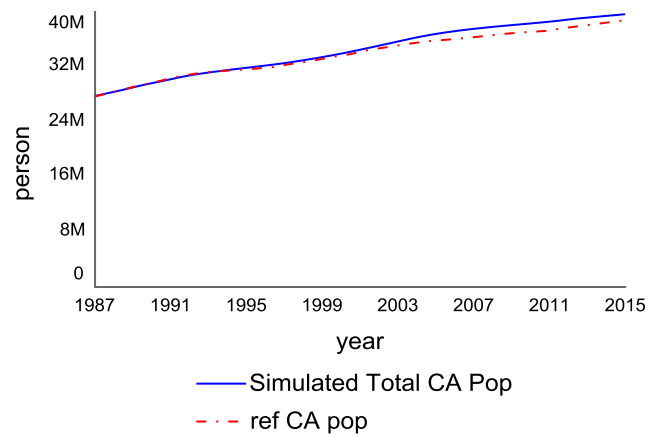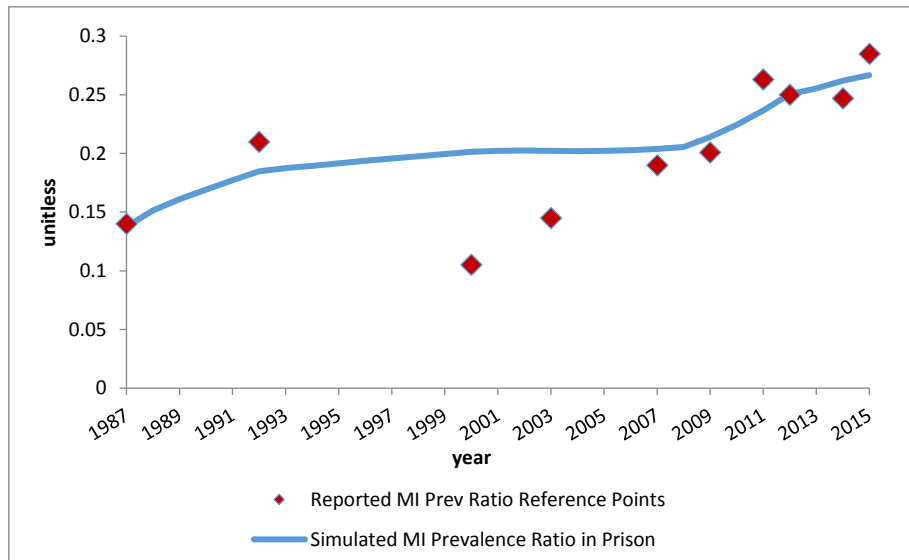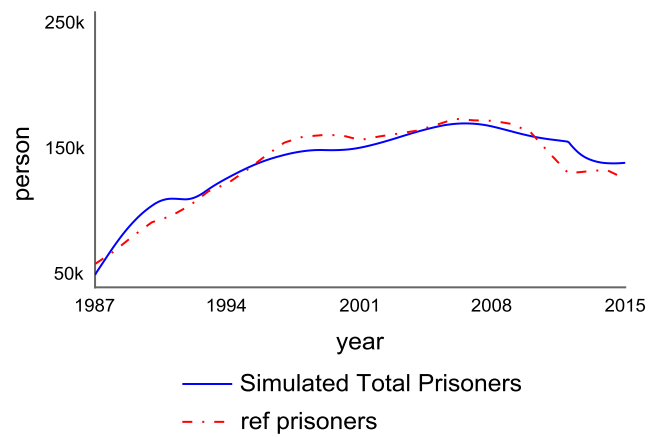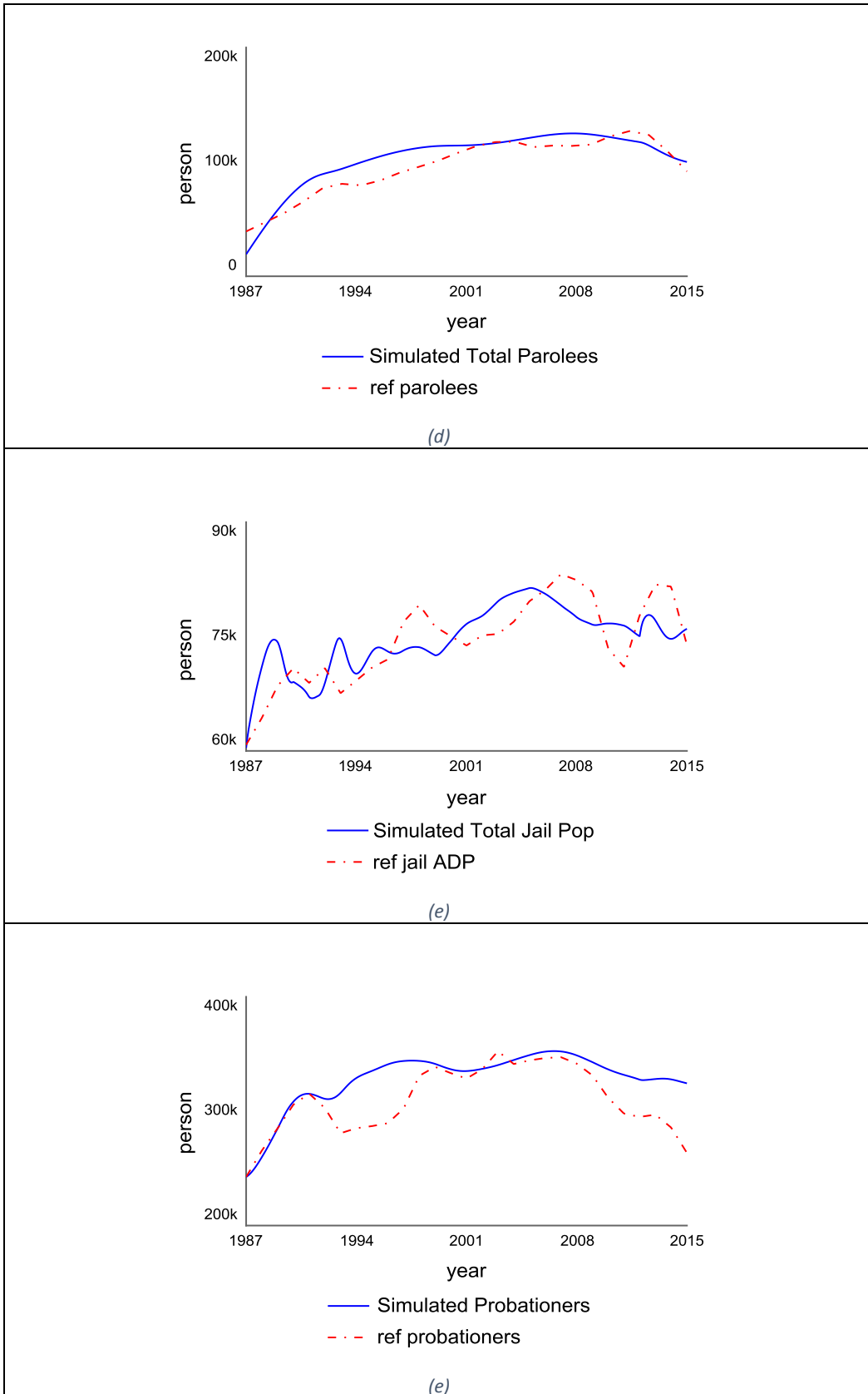
Figure 144 Comparison of Model-generated Behaviors to the Reference Mode
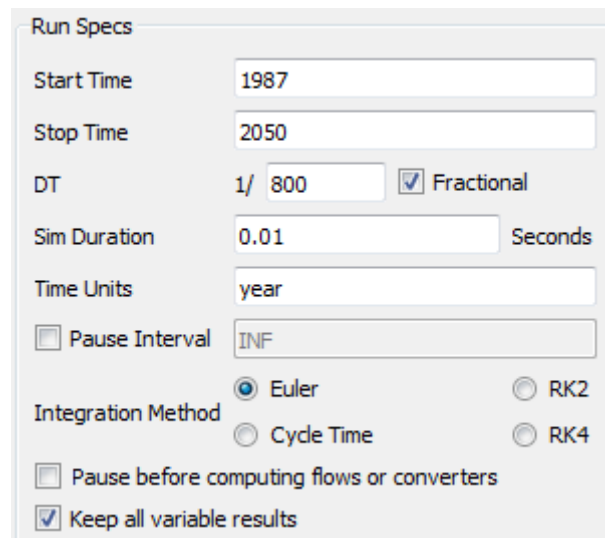
144 (a) – California Population; (b) – Mental Illness Prevalence Ratio in Prison; (c) – Total Prisoners; (d) – Total Parolees; (e) – Total Jail Average Daily Population; (f) - Probationers

5.2 Analysis

This section discusses the dynamics of the progression of the criminals through the criminal justice system as created by the simulation model presented in Chapter 4. A brief explanation of the setup of the simulation and validation will be provided and followed by system analysis.

5.2.1 Simulation Specification

Figure 145 presents the specification for the simulation:

Figure 145 Simulation Specification

The simulation runs from 1987 through 2050. The period from 1987 to 2012 is defined as the "Pre-Realignment" era and 2012 characterizes the "Post-Realignment" era. The software used to build and run the model is Stella Architect (version 1.3) by iSee Systems.

5.2.2 Analysis of the Driving Factors of Mental Illness Prevalence in Prison

This section explains the base case scenario. In the base case scenario, the model simulates the pre-Realignment and post-Realignment policies. To simulate the base case scenario, the following parameters are activated. Some of the parameters are activated before the implementation of Realignment policy, but they are also considered as part of the Realignment reform as those policies are preparation to facilitate the reform.

Pre-Realignment			
Parameter	Module	Input Type	Value
Ref fract prisoner devMI	Individuals with Criminal History	Constant	0.02 1/year
Expected prison pop growth rate	Prison HC Resource Allocation	Constant	0.05 1/year
Historical pop growth rate	Population	Time series (1987-2015)	-
Ref CA pop	Population	Time series (1987-2015)	-
Increase in probation conviction	Individuals with Criminal History	Table function (1987-2015)	-
Effect of war on drugs on law enforcement release	Individuals with Criminal History	Table function (1987-2015)	-
Effect of war on drugs on charge dismissal	Individuals with Criminal History	Table function (1987-2015)	-
Effect of war on drugs on parole violation RTP	Individuals with Criminal History	Table function (1987-2015)	-
Realignment			
Prison sentence conviction reduction post realignment	Individuals with Criminal History	Table function (2007-2015)	
MHC screening capacity building start time switch	Prison HC Resource Allocation	Constant (from 2008)	1
Delay in medical screening capacity building	Prison HC Resource Allocation	Constant (from 2008)	1
Acuity-based budget policy	Prison HC Resource Allocation	Constant	1
New budget adjustment time policy	Prison HC Resource Allocation	Constant	1
New budget adjustment time	Prison HC Resource Allocation	Constant	1
New capacity adjustment time	Prison HC Resource Allocation	Constant	1

Time to perceive CD needs	Prison HC Resource Allocation	Constant	1
Time to perceive MHC needs	Prison HC Resource Allocation	Constant	1
County realignment fund stops at 2017	Community Services	Table function (2013-2017)	-

In the following sub-sections, we will explain how the structure of the criminal system attributes to the increasing mental illness prevalence in prison.

5.2.2.1   Perturbation from the War on Drugs Policy

In mid-1980s, the federal government urged state-level law enforcement agencies to tackle the prevalence of drug use by increasing arrest and prosecution of drug-related offences by expanded federal resources. Consequently, arrest rate increased and resulted in a sudden surge of drug-related felony convictions to the prison. California saw an unprecedentedly large prison population since then (Figure 9). Even though the arrest rate per 100,000 has been decreasing since then, conviction rate oscillates but remains in the range between 200,000 to 250,000 person per year (Figure 146). The simulated behavior shows that the total conviction rate increase again after the implementation of the Realignment policy in 2012.
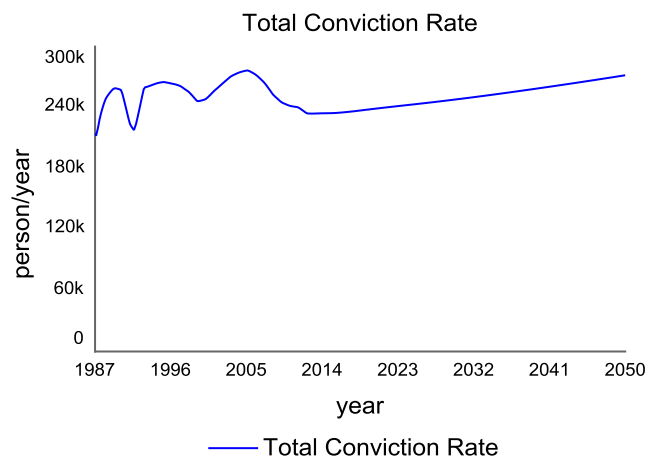
Figure 146 Simulated Total Conviction Rate
(Including prison and jail sentence convictions, and probation conviction)

As recidivism, defined as new offense commitments by ex-convicts (including the parolees and ex-convicts from prison and jail), are increasing (Figure 147), the enlarging fraction of reoffenders implies that the fraction of first-time offenders is decreasing or remains constant. Between 1987 and 1990, recidivisms for both groups of offenders hike significantly. After 1990, jail offender recidivism remains high but relatively stable while recidivism of prisoners continues to increase gradually. Prisoners'

recidivism grows slower due to the introduction of Three-strikes Law in 1994. Considering that reoffenders with third strikes will be convicted to life sentence or minimum of 25 years of sentence, habitual reoffenders will likely stop reoffending or are convicted to longer or life sentence in prison. After Realignment, prisoner recidivism drops significantly because the prisoners are likely strikers or those who are admitted for serious felonies with longer sentences. The majority of jail offenders are convicted for misdemeanors for shorter incarceration time, hence Three-strikes Law does not apply to misdemeanor offenders. Therefore, recidivism by habitual offenders with prior misdemeanor convictions continues. However, if these habitual offenders commit felonies that result in prison sentence conviction, they may be considered as strikers.
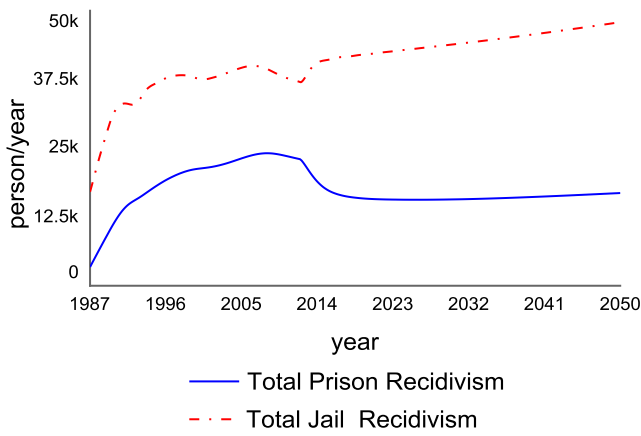
Figure 147 Simulated Total Prison and Jail Recidivism

The prison sentence conviction has increased gradually after the introduction of War on Drug policy (Figure 148a). Prison sentence conviction increases at a faster rate after the implementation of Three-strikes Law in 1994. Since then, the prison sentence conviction trend increases gradually until Realignment. Right after Realignment, prison sentence conviction drops considerably while jail sentence conviction spikes (Figure 148b) because some incoming offenders are convicted to jail sentence instead of prison sentence. However, prison conviction rebounds shortly after Realignment while jail conviction declines. This is because that the increase in previous incarceration time served by the offender implies a higher probability that the incoming offenders are strikers or have committed felony convictions (Figure 149). Felony conviction of more than one year is served in prison instead of jail.
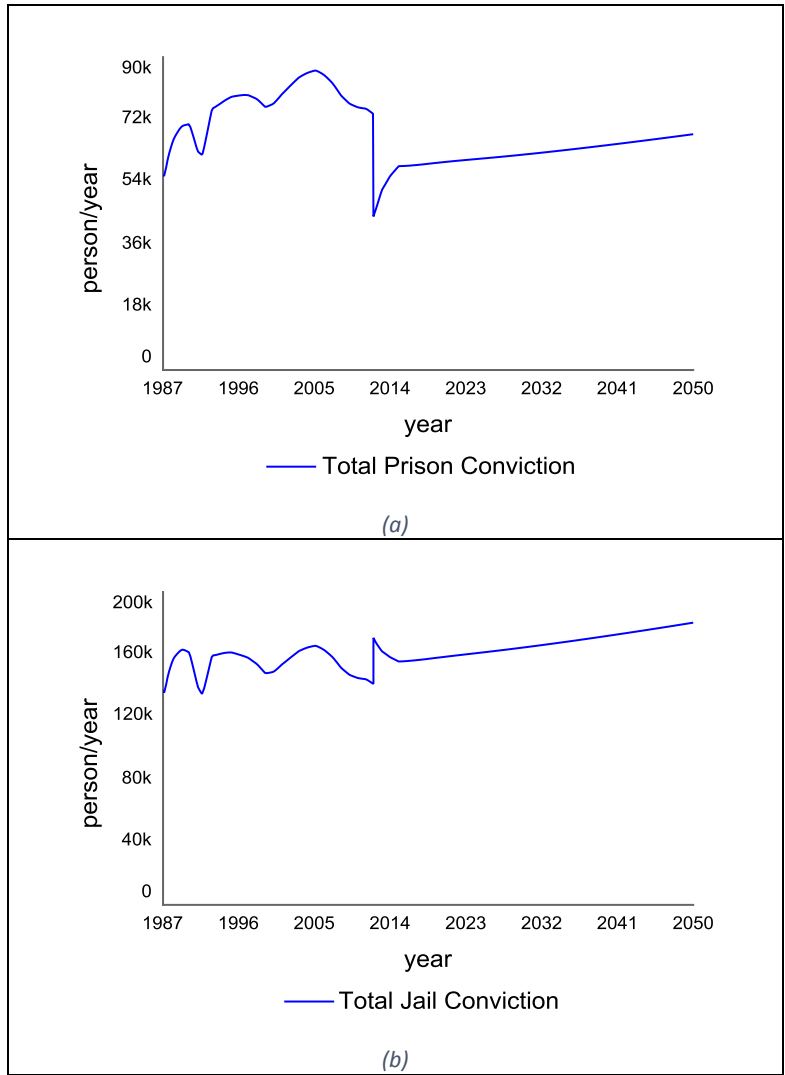
Figure 148 Simulated Prison Sentence, Jail Sentence, and Probation Conviction

148 (a) – Simulated Prison Sentence Conviction; (b) – Simulated Jail Sentence Conviction
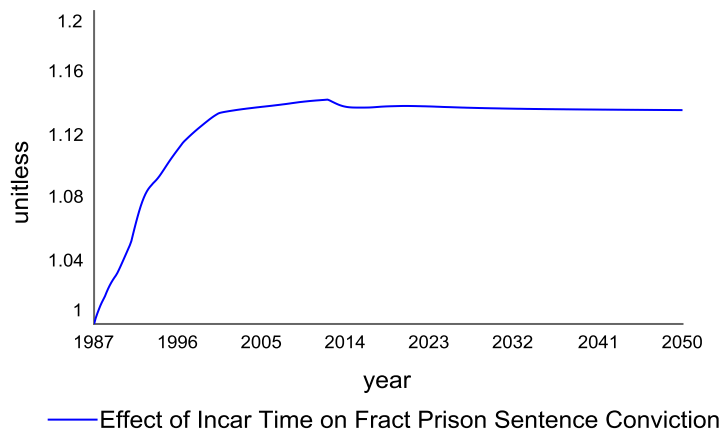
Figure 149 Effect of Previous Incarceration Time Served on the Fraction of Convicts Receiving Prison Sentence

Note: The y-axis keeps zeros invisible to show the details of the changes in the parameter.

From 1987 to 1990, previous incarceration time served has a stronger effect on prison sentence conviction due to a more aggressive law enforcement practice resulted from the War on Drugs policy. In the 1990s after Three-strikes Law was introduced and federal resources pertinent to War of Drugs was redirected to other priorities, the effect of incarceration time on prison sentence conviction continues to rise albeit at a slower rate. As habitual reoffenders are confined for longer time in prison, the effect of previous incarceration time served grows at a slower rate from late 2000s to 2012. After Realignment, the effect of previous incarceration time served diminishes slowly because of the reclassification of certain offenses. Some offenses were recategorized as misdemeanors instead of felonies. Thus, the inflow of prisoners is reduced.

Reviewing the stocks of prisoners wMI and wo MI separately (Figure 150) reveals that the stock of prisoners wo MI increases at a faster rate between 1987 and 1990. After that, the stock of prisoners wo MI increases at a slower rate until mid-2000s. Then the stock of prisoners wo MI starts to decrease until the Realignment. On the contrary, the stock of prisoners wMI grows at a slower rate from 1987 to the Realignment even when the stock of prisoners wo MI is decreasing. This means that the growth in prisoners wMI is not proportionate with the growth in prisoners wo MI. The concentration of mentally ill prisoners even continues to grow while the stock of prisoners wo MI declines. After Realignment, the stock of Prisoners wo MI decreases significantly while the stock of Prisoners wMI continues to grow.
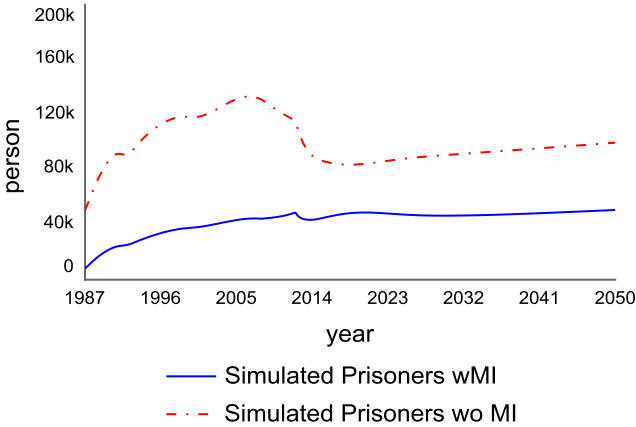
Figure 150 Simulated Prisoners with Mental Illness and without Mental Illness

Therefore, the prevalence of MI is increasing linearly (Figure 144 (b)). There five factors contributing to the increase in mentally ill prisoners:

- Influx of prisoners and prisoners wMI
- Medical screening capacity at the reception centers

175

- Prison time served

- Recidivism of Prisoners and Jail Offenders wMI

- MI development in prison

5.2.2.2   Influx of Prisoners and Prisoners wMI

As mentioned before, the influx of drug-related felony convictions to prison sentence causes the growth of prison population. The surge of incoming prisoners includes mentally ill offenders. At the same time, the fraction of newly admitted prisoners with MI is also increasing (Figure 151).   The fraction of incoming offenders convicted to prison sentence increases slightly between 1987 and 2008 due to the surge of drug-related conviction. As some of the ex-convicts wMI recidivate, together with the newly admitted prisoners wMI, the fraction of prisoners admitted with MI increases. A higher fraction of recidivists wMI leads a higher fraction of prison sentence convicts wMI from 1990s until 2030 (Figure 152). Then, the effect of recidivist wMI on offenders wMI receiving prison sentence conviction is reduced to a lower level than the in the initial condition. However, the trend seems to increase again at the end of the simulation.
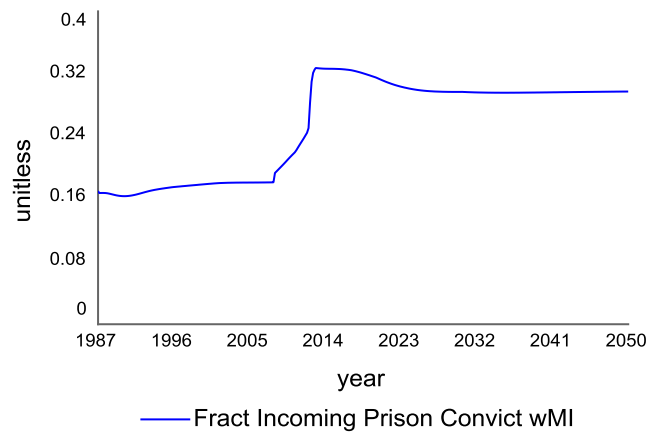
Figure 151 Simulated Fraction of Incoming Prison Convicts with Mental Illness
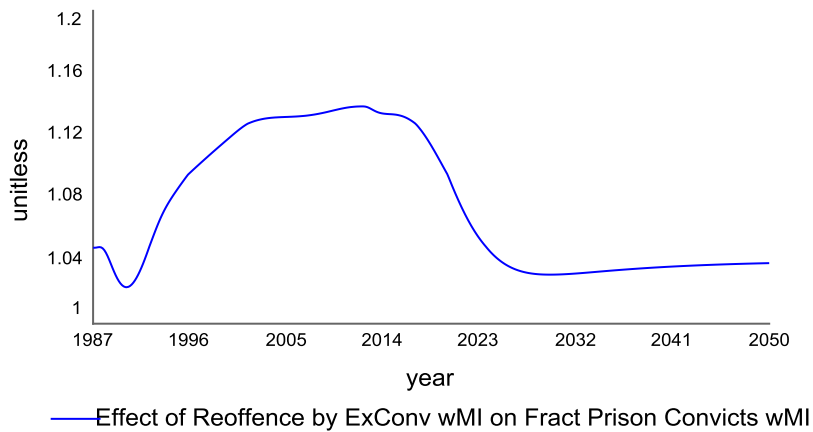
Figure 152 Effect of Reoffending Ex-Convicts with Mental Illness on the Fraction of Prison Sentence Convicts with Mental Illness

Note: The y-axis keeps zeros invisible to show the details of the changes in the parameter.

5.2.2.3   Medical Screening Capacity at the Reception Centers

Starting from 2008, the medical screening capacity at reception centers is building up. When medical screening capacity increases, screening becomes more effective and thus more incoming prisoners wMI can be identified. Hence, the fraction of incoming prison convicts wMI increases from 2008 to 2012. Before 2008, the effectiveness in screening MI is 0.5 (Figure 153). As the screening capacity is gradually increasing, the effectiveness increases from 0.5 to 0.9 in from 2008 to 2012.   After Realignment, some offenders are convicted to jail instead of prison. Hence, the screening resources are dispersed among fewer incoming prisoners and more time is spent on screening the incoming prisoners.   Considering that some prisoners wMI may still be admitted without being identified, screening effectiveness only reaches 0.9 in the maximum.
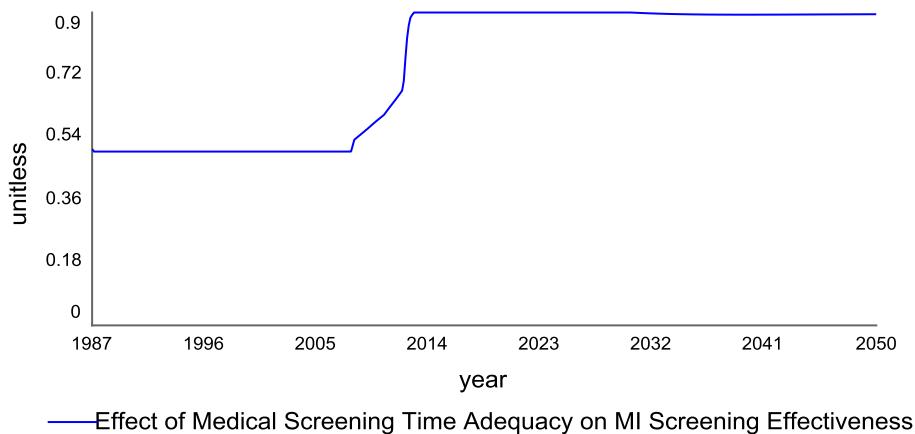
Figure 153 Effect of Screening Time Adequacy on MI Screening Effectiveness

5.2.2.4   Prison Time Served

The third factor contributes to the accumulation of mentally ill prisoners is the lengthening of prison time served (Figure 154). The average prisoner time served by prisoners wMI increases from 2.5 years to about 3 years. This results in a slower outflow and hence the accumulation of prisoners wMI.
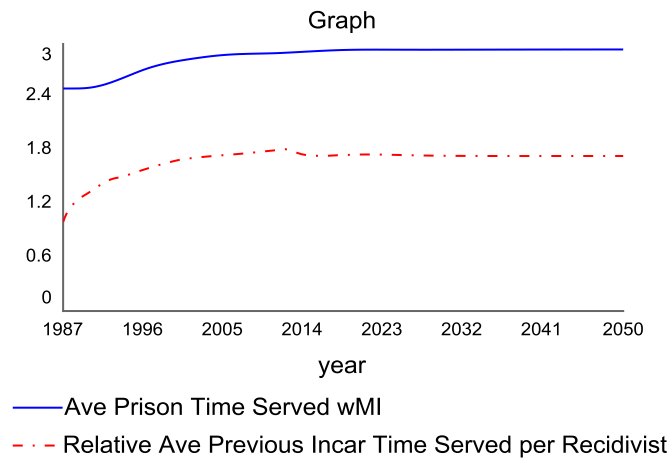
Figure 154 Simulated Average Prisoner Time Served by Prisoners with Mental Illness and Relative Average Previous Incarceration Time Served per Prisoner wMI

The lengthening of prison time served is influenced by the previous incarceration time of prisoners wMI. After the introduction of Three-strikes Law, reoffenders with prison convictions serve longer sentences than before. The average previous incarceration time per prisoner wMI relative to the initial condition has increased by two folds from 1987 to 1997. From 2000 and 2002, as the striker population declined slightly (Figure 47), the average previous incarceration time per prisoner wMI continues to rise slightly because some of the first and second strikers recidivate and are reconvicted. Therefore, the average previous incarceration time served by the recidivists also increases. After 2012, some offenses are recategorized from felonies to misdemeanors. Misdemenaors are less severe offenses and thus the offenders convicted for misdemeanors usually receive jail sentence with relatively shorter sentence length. When these people recidivate and are convicted to prison sentence, they enter the prison with shorter previous incarceration time served. So the average previous incarceration time served per prisoner wMI and per recidivist level off.
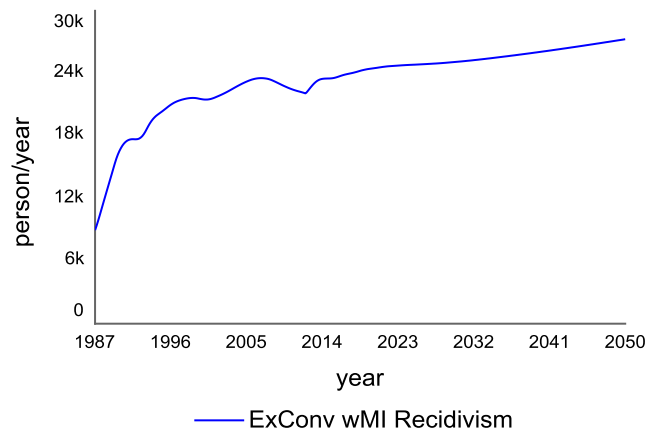
Figure 155 Recidivism of Ex-convicts wMI (including prison and county parolees, and prison and jail ex-convicts)

As mentioned in Section 5.2.3, the fraction of recidivists with MI influences the fraction of prison sentence convicts wMI positively (Figure 152). The recidivism of ex-convicts with MI increases linearly and steeply from 1987 to 1990 (Figure 155). Then the recidivism of ex-convicts wMI increases at a decreasing rate until mid-2000s. From then on until the Realignment, ex-convicts wMI recidivism remain stable at around 20,000 prisoners per year. So the average prison time served continues to rise as recidivism and previous incarceration time served by the prisoners wMI increase. The reinforcing relationship between average prison year served per prisoner wMI and the average previous incarceration time served per prisoner wMI continue to gain force through recidivism. Hence, average prison year served per prisoner wMI and average previous incarceration time per prisoner wMI continue to rise.

Despite the linearly increasing correctional budget for all community services, the budget allocated to the community services for parolees wMI decreases over time because community service resources are channeled to the community services for parolees wo MI (Figure 156). Only after Realignment, the capacities for community services for parolees wMI and parolees wo MI start to allocate additional funds to the communities from 2012 to 2017. The purpose of these additional funds are: (1) to facilitate the local correctional capacity to receive the offenders diverted from prison and parolees diverted from CDCR's supervision to encourage the communities to cater and (2) to boost up community services in order to prevent recidivism that leads to prison conviction.

179
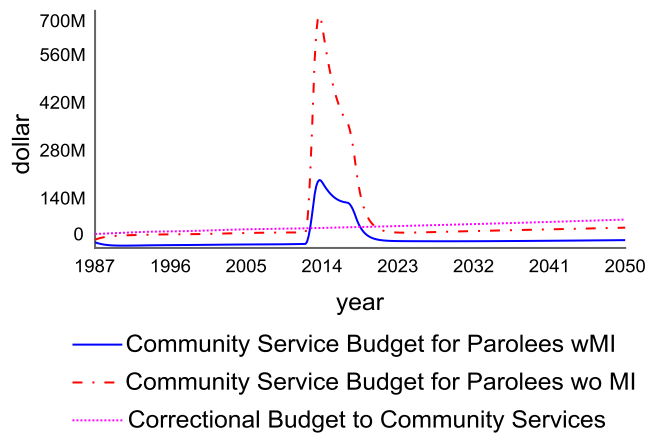
Figure 156 Stocks of Community Service Budget for Parolees with Mental Illness and Parolees without Mental Illness, and Correctional Budget to Both Community Services

The high recidivism among ex-convicts wMI symbolizes the "shifting the burden to the intervener" phenomenon. This phenomenon arises from the interaction between two balancing processes which aim to correct the same problem. In this case, the problem is the stock of parolees wMI. The desired outcome is facilitate the parolees wMI to reenter the community as soon as possible by increasing the outflow from the stock. Hence, the burden is on the community to provide adequate services to the parolees wMI in order to assist them to become financially independent through employment (B7 loop in Figure 157). When more parolees wMI are employed, they are adopting normal lives like other law-abiding individuals. Thus, the likelihood of the employed parolees wMI reoffend or violate parole condition will be reduced. However, due to the lack of funding to adjust community services for parolees wMI, the community services for parolees wMI fails to cope with the increasing demand. The long community service capacity adjustment leads to higher community service utilization. As parolees wMI receive inadequate reentry support, the number of employed parolees wMI is lower than it would otherwise have been (B8 in Figure 157). So more parolees wMI flow out through the recidivism and parole violation RTP on the left side of the stock instead of flowing out through the right side of the stock. When parolees move on to the adjacent stock to the right, they become less vulnerable to the risk of reincarceration.
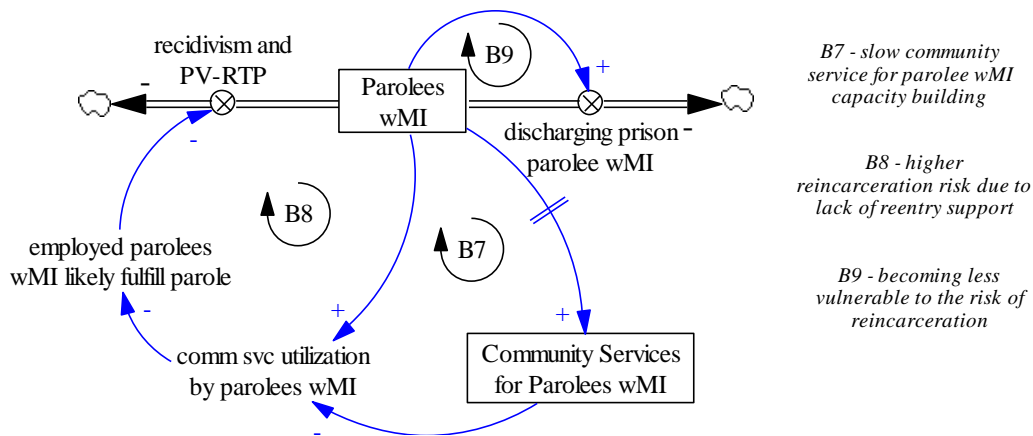
Figure 157 Causal Loop Diagram (CLD) for Shifting the Burden to the Intervener Phenomenon between the Local Government and CDCR

Before Realignment, the burden is shifted to CDCR to handle parolees wMI. In essence, loop B8 dominates prior to Realignment. After Realignment, state government attempts to re-shift the burden to the local government by dispersing additional funds to help boost up community services. Such decision aims to relocate the dominance to B7. By emphasizing the dominance of loop B7, parolees wMI remain in the Parolees wMI stock in order to be discharged from parole. As they move on to the next stock, i.e. Hi Risk ExConv wMI, the fraction of recidivism is drastically reduce as there are fewer parolees left in the stock to recidivate or return to prison due to parole violation. At the population level, if they refrain from reoffending, they will gradually move out of the "Unrecovered Population with Criminal History" to the "Recovered Population with Criminal History".

After Realignment, average prison time served per prisoner wMI increases until 2018. From then on until the end of the simulation, the average prison time served per prisoner wMI decreases insignficantly. This is because that prisoners wMI are much less likely to be released to county parole supervision. 20% of the prisoners wo MI are released to county parole supervision compared to only 10% of prisoners wMI are placed under county parole supervision after Realignment. On average, county parolees serve 50% shorter parole compared to prison parolees who are supervised by California Department of Corrections and Rehabilitation (CDCR). Ideally, shorter parole duration renders lower loss in social capital. With higher social capital (Figure 158), the county parolees rely less on community services and the community service cost per county parolee with MI is also lower (Figure 159). More capacity are available when there are fewer users and lower cost per parolee. Before the Realignment, community service utilization by parolees wMI is increasing and has been high (Figure 160). The trend decreases considerably after Realignment and gradually levels off to about ten by the end of the simulation. As the community service utilization by parolees wMI is lower, each of them receive more assistance to reenter the society. With more adequate assistance from community, a larger number of parolees wMI are able to find accommodation and jobs. Hence, the employment

181

ratio for parolees wMI is also increasing gradually after Realignment from about 0.1 to 0.5 between 2012 and 2050 (Figure 160). Higher social capital combines with higher employment ratio leads to lower recidivism among the ex-convicts wMI.
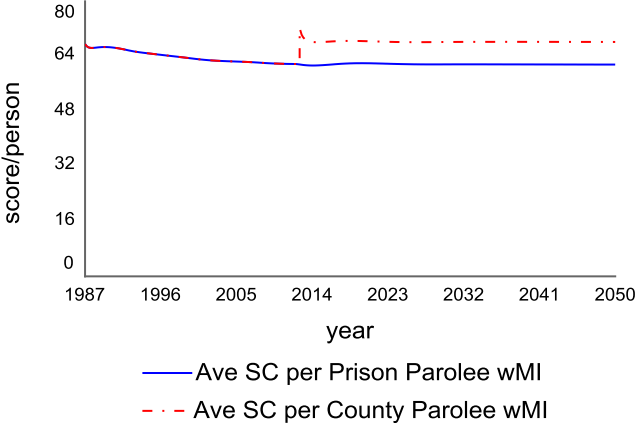
Figure 158 Comparison of Average Social Capital per Prison Parolee wMI and County Parolee wMI
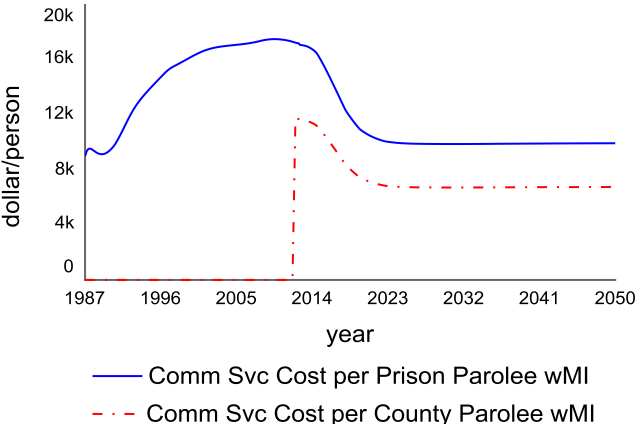
Figure 159 Comparison of Average Community Service Cost per Prison Parolee wMI and County Parolee wMI
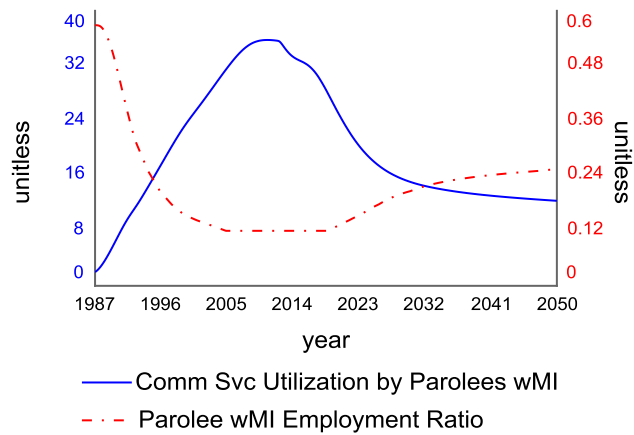
Figure 160 Community Service Utilization by All Parolees wMI and The Employment Ratio for All Parolees wMI

Higher social capital also plays a role as informal social control. The social networks surround parolees wMI either serve as role models for or monitor the parolees. Before Realignment, the fraction of prison parolees wMI violate condition is rising while the average SC per prison parolee wMI is declining from 66 to 60 score per person (Figure 161). The fraction of prison parolees wMI violate condition is particularly high right before and after the Realignment. This period also marks the lowest average SC per prison parolee wMI. In the post Realignment era, average SC per prison parolee wMI continues to rise at a decreasing rate until it reaches around 70 as the fraction of prison parolees wMI reduce from 0.33 at its peak to 0.27.
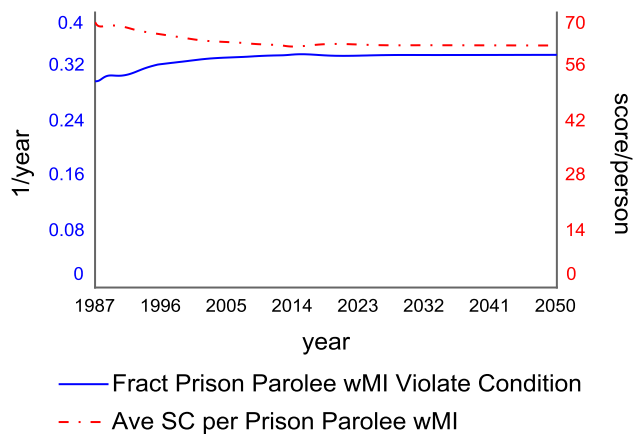
Figure 161 Fraction of Prison Parolee wMI Violate Parole Condition

From 2030 onwards, prison time served by prisoners wMI remains stable as recidivism by ex-convicts wMI starts to resume climbing due to the accumulation of ex-convicts (Figure 162 a –d)). As the stocks of ex-convicts increase, so are the reoffending rates when the fraction of ex-convicts reoffend remain constant.

(a)

(b)

(c)

(d)
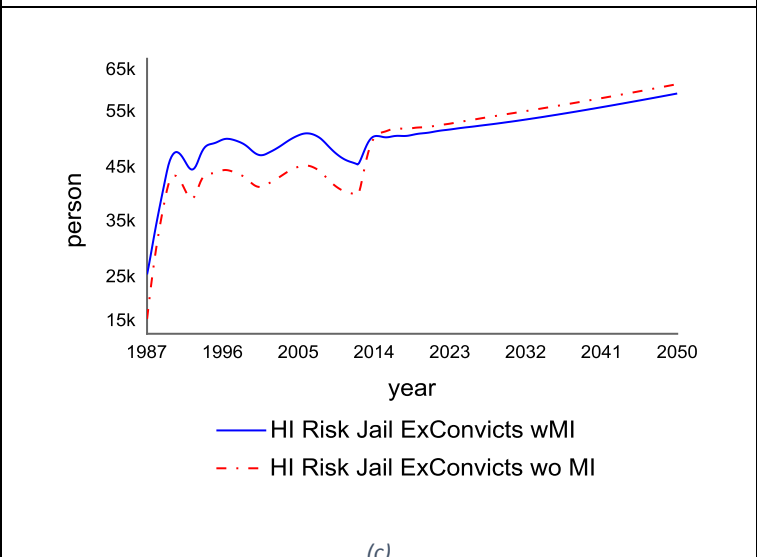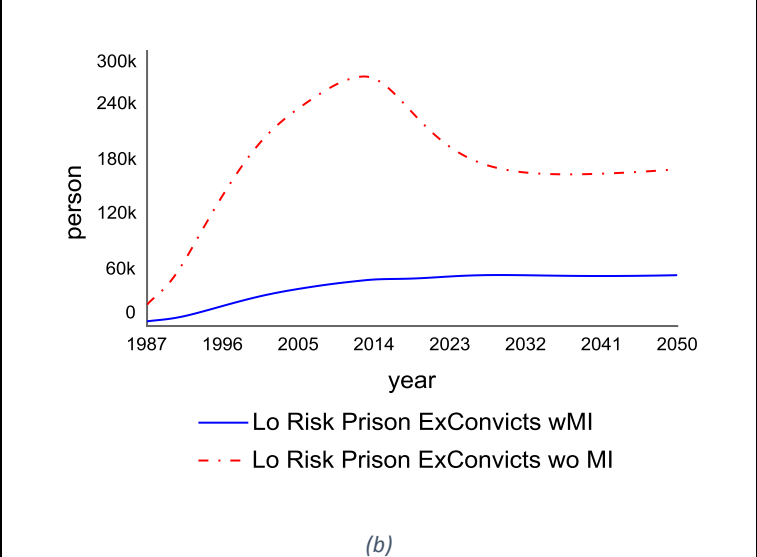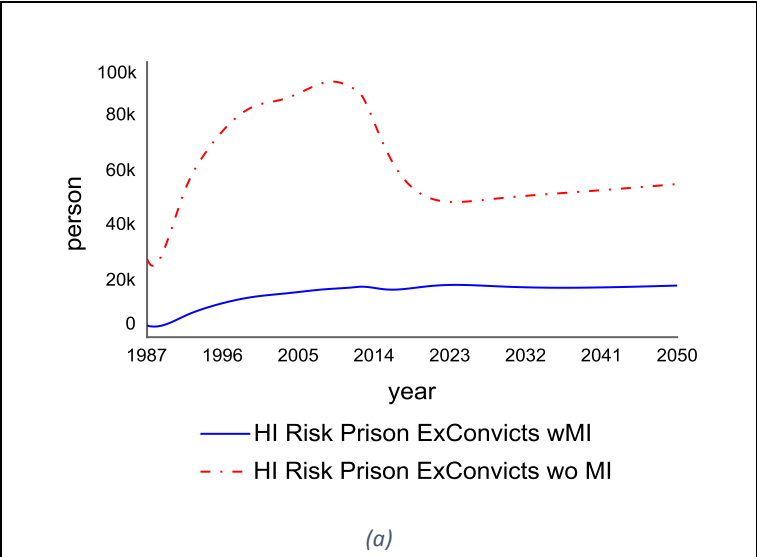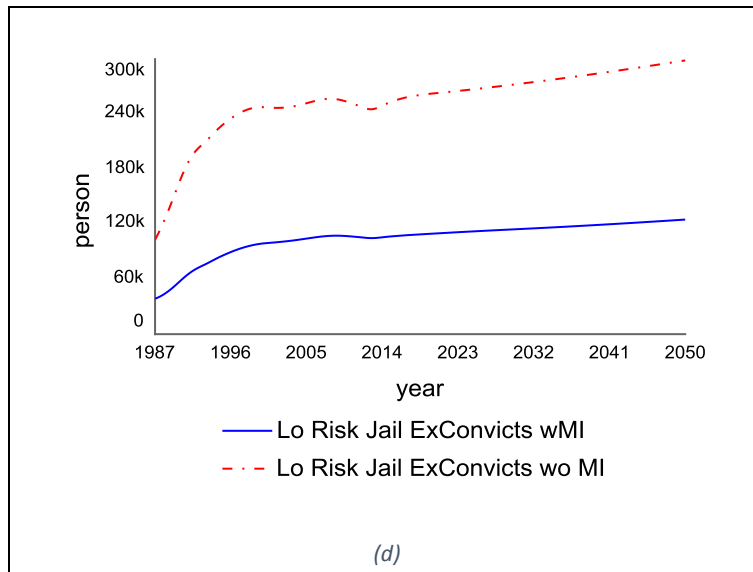
Figure 162 (a) – (d) Stocks of Prison and Jail Ex-Convicts with High Risk and Low Risk, with Mental Illness and without Mental Illness

5.2.2.5 Recidivism of Prisoners and Jail Offenders with Mental Illness

The fourth factor for the increasing concentration of prisoners wMI is the recommitment by ex-convicts wMI (Figure 163). These ex-convicts consist of individuals with previous prison or jail sentence convictions.

From 1987 to 1990, the fraction of reoffending ex-convicts wMI doubles from 0.0055 to 0.011 exponentially. Then, the fraction of reoffending ex-convicts wMI increases linearly to 0.017 in the next ten years. Subsequently, the fraction declines slightly, but it resumes climbing to about 0.02 in 2014. After which, the fraction of reoffending ex-convicts wMI starts to decline until it gradually levels off at 0.017 after Realignment.
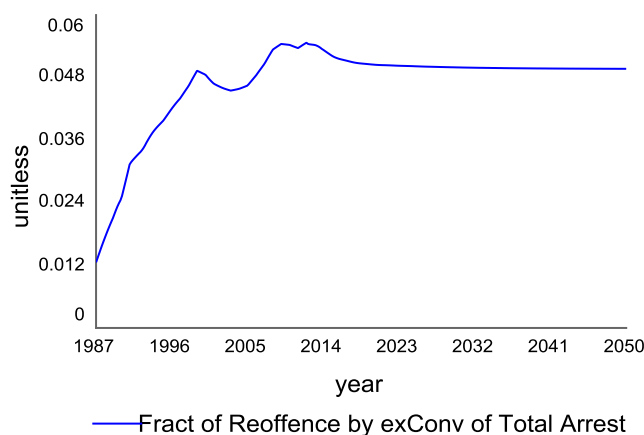
Figure 163 Fraction of Reoffending Ex-convicts wMI of Total Arrestees

185

As explained in the previous section, higher social capital of ex-convicts wMI and employment ratio contribute to the lower and stable recidivism after Realignment.

5.2.2.6   Mental Illness Development in Prison

The last factor that drives up MI prevalence in prison is the development of MI among prisoners wo MI. The number of prisoners develop MI increases gradually between 1987 and 1997 predominantly caused by the increase in prisoners wo MI (Figure 164). The actual number of prisoners developing MI may be higher. However, due to the lack of mental health care (MHC) capacity, these prisoners are not screened or diagnosed despite experiencing declining mental functions (Figure 165).
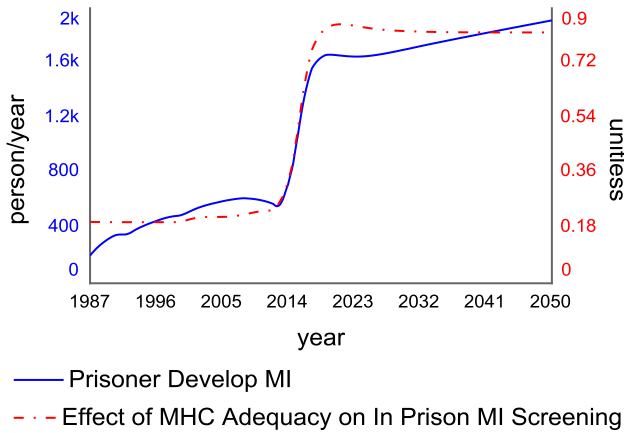
Figure 164 Number of Prisoners Develop Mental Illness and Effect of Mental Health Care Adequacy on In Prison MI Screening
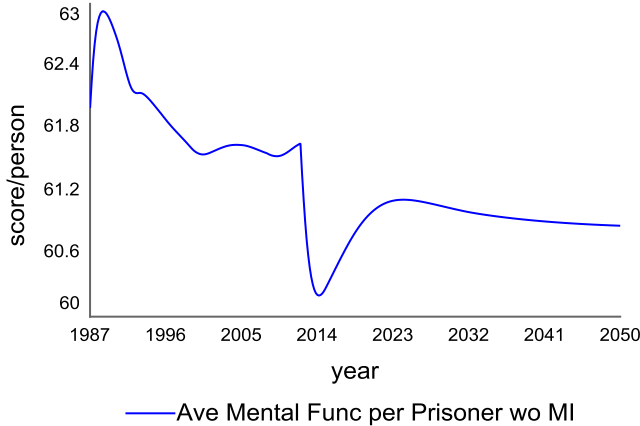
Figure 165 Average Mental Functios per Prisoner with Mental Illness

Note: The y-axis keeps zeros invisible to show the details of the changes in the parameter.

After that, as prison mental health capacity (MHC) starts to increase, more resources are available for screening and diagnosing MI (Figure 166). Consequently, larger fraction of prisoners who develop MI during custody are identified. Therefore, the flow of "prisoner develop MI" increases considerably between 2014 and 2020 when prison MHC adequacy peaks. Thus, the higher average mental functions per prisoners wo MI resulted from those who are with higher mental functions staying in the stock of Prisoners wo MI.
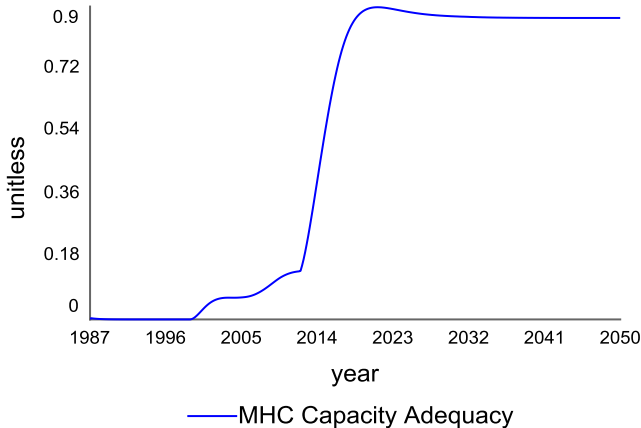
Figure 166 Prison Mental Health Care Capacity Adequacy

Between 1987 and 1997, prison MHC is almost nonexistent (Figure 166). MHC capacity only starts to increase after 1997. After which, MHC capacity is increasing gradually until 2002. As the prison population remain high and the prison is operating severely over its design capacity from 1997 to the Realignment, MHC capacity adequacy stays below the ideal level, i.e. around 0.25 throughout these 14 years. Only after the introduction of Realignment and the prison population is drastically reduced does the MHC capacity adequacy hikes and approaches full adequacy.

5.2.3 Analysis of the Impact of the Realignment Policy

The preceding section demonstrates the simulated behavior of before and after Realignment as the base case scenario. In this section, we assess the impact of the Realignment policy on the criminal justice system. By initializing the model in equilibrium and followed by activating the Realignment policy, we can trace the rippling effect of this policy.

5.2.3.1 *Impact on the Criminal Justice System and the Composition of Population with Criminal History*

The model is initialized in equilibrium from 1987 to 2012. Then the Realignment policy is introduced in the simulation from 2012 by activating the following parameters.

Realignment			
Prison sentence conviction reduction post realignment	Individuals with Criminal History	Table function (2007-2015)	
MHC screening capacity building start time switch	Prison HC Resource Allocation	Constant (from 2012)	1
Delay in medical screening capacity building	Prison HC Resource Allocation	Constant (from 2012)	1
Acuity-based budget policy	Prison HC Resource Allocation	Constant	1
New budget adjustment time policy	Prison HC Resource Allocation	Constant	1
New budget adjustment time	Prison HC Resource Allocation	Constant	1
New capacity adjustment time	Prison HC Resource Allocation	Constant	1
Time to perceive CD needs	Prison HC Resource Allocation	Constant	1
Time to perceive MHC needs	Prison HC Resource Allocation	Constant	1
County realignment fund stops at 2017	Community Services	Table function (2013-2017)	-

We begin our analysis at the population level followed by detail analysis of the impact on the population wMI. The total population remains unchanged. Nevertheless, the composition of the Innocent Pop, Pop Initial Contact with Criminal Justice System, Unrecovered Pop with Criminal History, and Recovered Pop with Criminal History stocks change when Realignment is activated from 2012 onwards (Figure 158). The Innocent Pop stock increases about 8% (Table 3). While the total population is constant, two-third of the increase in the innocent population is attributed to the reduction in the unrecovered population and recovered population with criminal history. The Unrecovered Pop with Criminal History stock reduces 439,608 persons or 49% while the Recovered Pop with Criminal History

reduces 922,780 persons or 9.8%. As the number of first-time offender is determined by the size of the innocent population and fraction of innocent population being arrested, a constant fraction of innocent population arrested combined with an increasing innocent population indicates that the arrest rate will increase eventually. In the long run, the Unrecovered Pop with Criminal History will still increase again as shown in Figure 167.
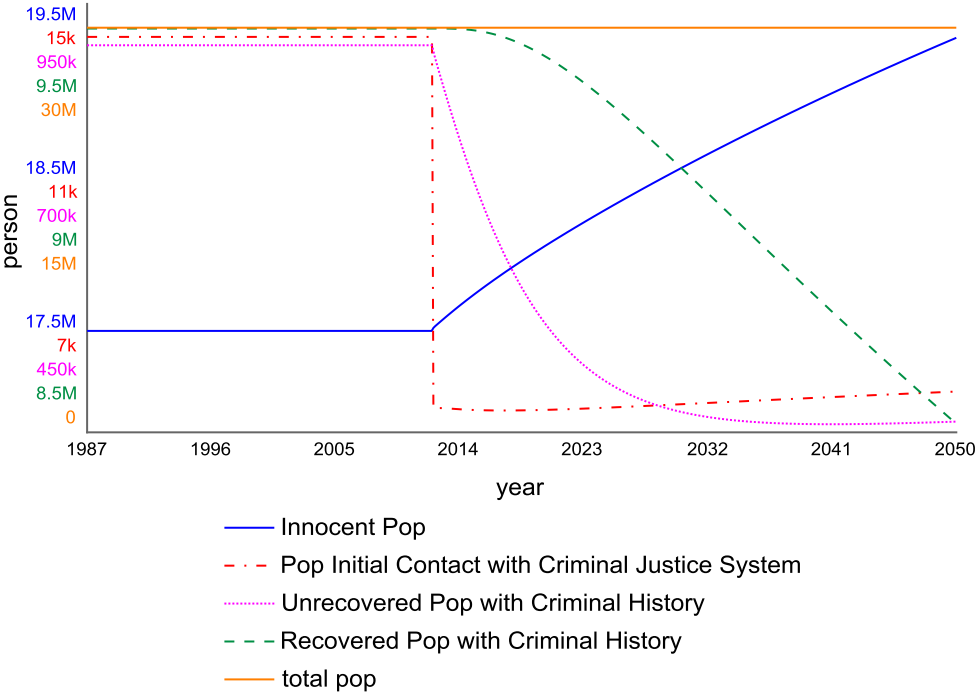
Figure 167 Stocks of Innocent Population, Population with Initial Contact with Criminal Justice System, Recovered Population with Criminal History, Unrecovered Population with Criminal History, and Total Population after the Introduction of Realignment in 2012

Note: This figure consists of multiscale to show the details of the changes in some stocks.

Stock	Value Year 2012	Value in Year 2050	Net Change in Value	% Change
Total Pop	28,332,117	28,332,117	0	-
Innocent Pop	17,973,351	19,342,540	1,369,009	7.6%
Pop Initial Contact with Criminal Justice System	14,384	7,763	-6,621	-46.0%
Unrecovered Pop with Criminal History	901,713	462,105	- 439,608	- 49.0%
Recovered Pop with Criminal History	9,442,489	8,519,709	-922,780	-9.8%

Table 3 Change in Stock Values After the Introduction of Realignment in 2012

Note: The unit for the stocks is "person"

The MI prevalence ratio in prison hikes and peaks in 2019 at 0.33 (Figure 168). Then, MI prevalence ratio declines insignificantly until 2026. After that, the ratio picks up and increases slowly until the end of the simulation. Since the number of prisoners wo MI declines faster than the prisoners wMI after 2012, the MI prevalence ratio significantly. As the decline in the stocks of prisoners wMI and prisoners wo MI slows down, MI prevalence ratio is relatively stable until 2035 when the stock of prisoners wMI starts to increase again. From then on, the MI prevalence ratio in prison also starts to pick up again.
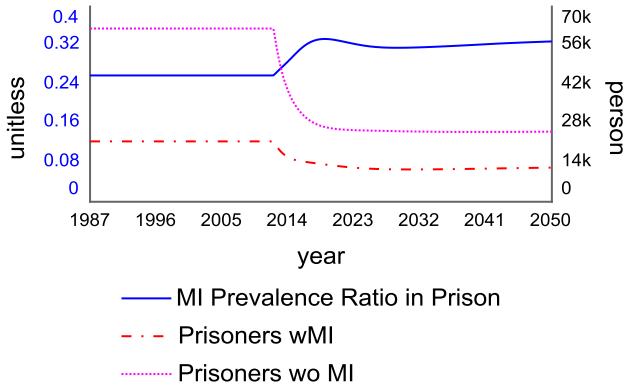
Figure 168 MI Prevalence Ration in Prison, Prisoners with and without Mental Illness Stocks after the Introduction of Realignment in 2012

The considerable reduction in prisoners wo MI is mainly caused by the decrease in prison conviction after Realignment. The total conviction rate reduces by 45% (Figure 169). Some of the convicted offenders who would be granted prison sentences are redirected to jail sentences or split sentences. Therefore, the prison sentence conviction rate decreases 27%. Other types of punishment also see a decrease. This is because of the decrease in recidivism among all the ex-convicts.
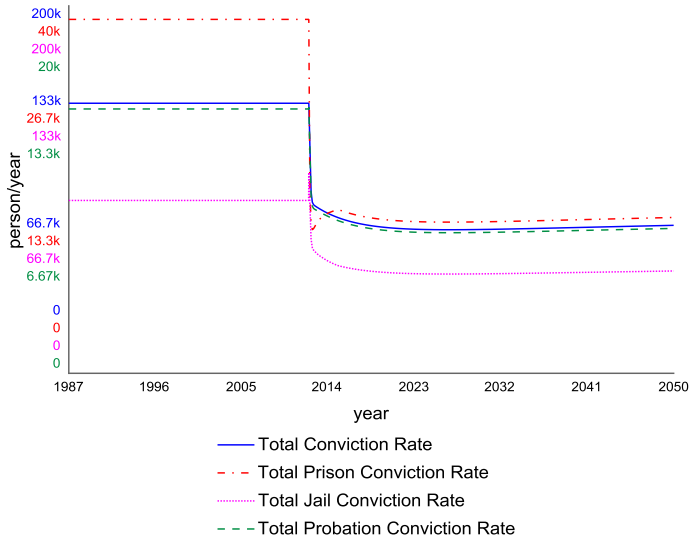
Figure 169 Total Conviction Rate, Total Prison Conviction Rate, Total Jail Conviction Rate, and Total Conviction to Probation Rates after the Realignment in 2012

190

The changes in the conviction rates for various types of punishment leads to the changes in the stocks of prisoners, convicted jail offenders, probationers, and parolees (Table 4). The values of total prisoners, total convicted jail offenders, and total parolees refer to sum of prisoners, convicted jail offenders, and parolees with MI and without MI. Here we differentiate "convicted jail offenders" from the total jail population because jail also houses the unconvicted suspects and pre-sentenced offenders. Our focus is the resulted change in the convicted jail offenders after Realignment.

Stock	Value Year 2012	Value in Year 2050	Net Change in Value	% Change
Total Prisoners	84,715	37,790	- 46,925	- 55.0%
Total Convicted Jail Offenders	26,085	15,500	-10,585	- 41.0%
Probationers	208,862	121,057	-87,806	- 42.0%
Total Parolees	61,543	25,224	-36,319	- 59.0%

Table 4 Changes in the Stock of Total Prisoners, Total Convicted Jail Offenders, Probationers, Total Parolees, and Total Desisted Population

Table 4 shows that the total corrections population reduces after Realignment. Total prisoners reduces about 47,000 person or 55% while the total convicted jail offenders reduces 11,000 person or 41%. Those groups under community supervision, namely the probationers and parolees, decline 42% and 60% respectively.

Despite the decreasing trend in the overall unrecovered population with criminal history, the Prisoners wMI stock resumes growth. One of the reasons is the deterioration of mental functions of the prisoners. The average mental functions per prisoner wMI reduces because of higher prison capacity utilization and inadequate MHC provision. Figure 170 shows that MHC capacity still lags behind the needs. After 2012, MHC capacity starts to build up. As MHC capacity continues to rise, MHC adequacy still falls below one. This means some of the prisoners fail to receive appropriate care. At the same time, prison capacity utilization drops below one after 2012. But it climbs back up after 2035 and exceeds one from then onwards. An over capacitated environment causes overall stress level of prisoners to increase. The mental functions per prisoner wMI drops after 2012 (Figure 171). Even though the mental functions per prisoner wMI climbs back up as the MHC capacity increases, the ratio fails to reach the previous level due to the increasing stress level associated with the increasing prison capacity utilization (Figure 170).
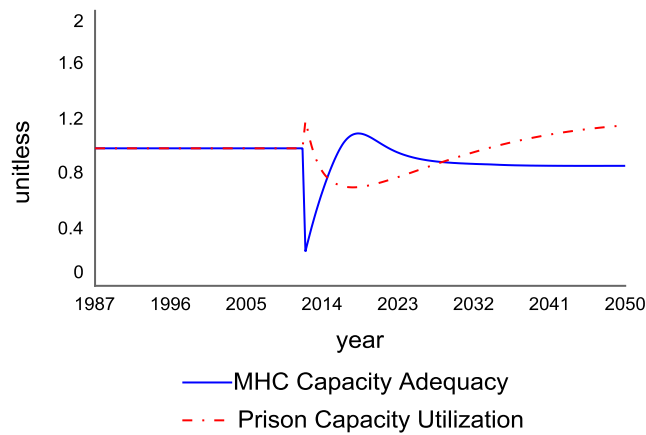
Figure 170 MHC Capacity Adequacy and Prison Capacity Utilization after the Introduction of Realignment in 2012

The mental functions per prisoner wo MI does not reduce as significantly as that of the prisoners wMI because the mental states of the prisoners wo MI is primarily affected by the density of the prison. When the mental functions per prisoners wo MI drops below 62 score per person, the fraction of prisoners wo MI develop MI increases. Therefore, a larger number of prisoners those with lower mental functions are transferred to the Prisoners wMI stock.
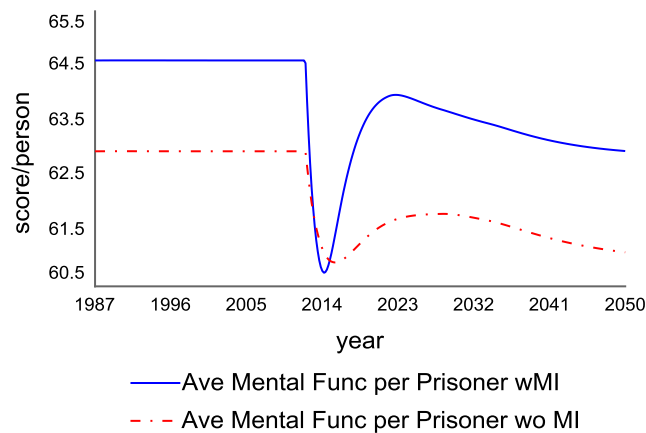
Figure 171 Average Mental Function per Prisoner with Mental Illness and Average Mental Function per Prisoner wo MI after the Introduction of Realignment in 2012

Note: The y-axes of Figure 161 and 162 keep zeros invisible to show the details of the changes in the behavior of the stocks.

Given the MHC capacity adequacy is lower than before 2012, the recovery time from MI increases (Figure 172). This means that more prisoners wMI remain in the stock instead of moving into the Prisoners wo MI stock.
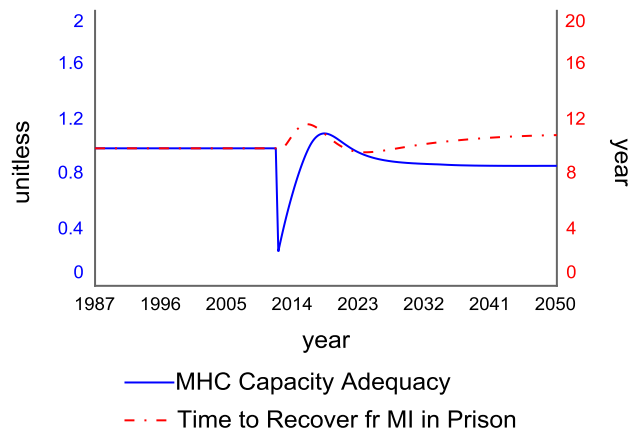
Figure 172 Prison Mental Health Care Adequacy and Time to Recover from Mental Illness in Prison after the Introduction of Realignment in 2012

The cause for MHC capacity inadequacy lies in the resource allocation and capacity planning process. Even though the acuity-based resource planning approach is adopted after Realignment, the indicated MHC budget fails to take the delay in capacity and budget adjustment into consideration (Figure 173). Hence, the resources requested and capacity constantly lag behind the actual needs for MHC. The delay in MHC capacity adjustment decreases from three years to the desired MHC capacity adjustment time, which is one year. The prison health care budget adjustment time is one year. Altogether, the delay in adjusting MHC capacity is four years before Realignment and decreases to two years in 2030, 18 years after Realignment.
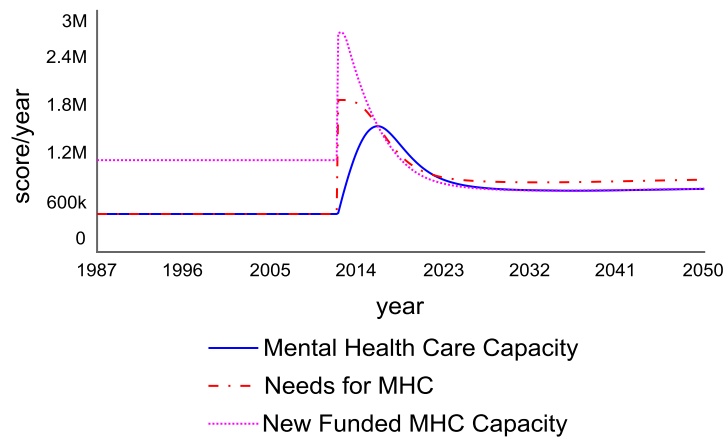
Figure 173 Mental Health Care Capacity, Needs for MHC, and New Funded MHC Capacity after the Introduction of Realignment in 2012

The insufficient MHC in prison translates into higher community service cost per parolees wMI upon their release. Right after 2012, the community service cost per prison parolee and county parolee wMI hike, but both of the average costs decline and level off after 2030 (Figure 174). On the other hand,

193

the community service cost per prison parolee and county parolee wo MI present a milder increase (Figure 175). The county parolees cost less than prison parolees because those who are eligible for county parole are prison convicts who serve less severe felonies or the 3Nons (non-violent, non-sexual offenders, and non-serious). Due to the less severity in their offences, they are less likely to have long previous incarceration time, more like to have higher mental functions and social capitals than the prison parolees. Consequently, the county parolees require relatively fewer community services.
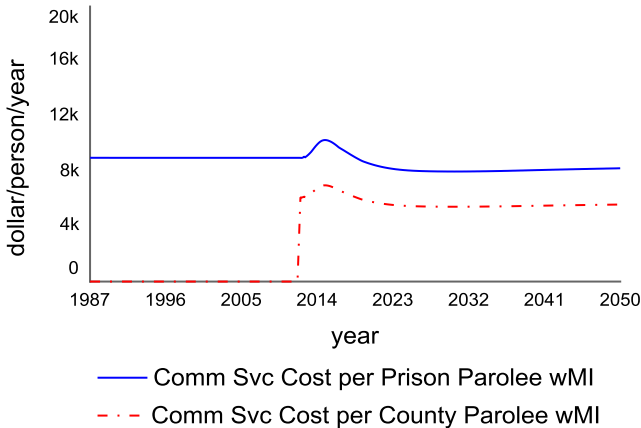
Figure 174 Comparison of Community Cost per Prison Parolee and County Parolee with Mental Illness after the Introduction of Realignment in 2012
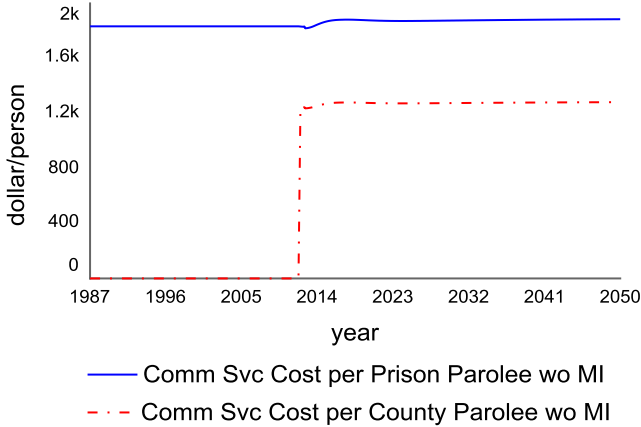
Figure 175 Comparison of Community Cost per Prison Parolee and County Parolee without Mental Illness after the Introduction of Realignment in 2012

Under the Realignment policy, the State government appropriates additional short-term funding to the local governments in order to boost up community services and jail capacity to accommodate the diverted convicted offenders and parolees. Various amount of county Realignment funds are channeled to the local governments between 2012 and 2017 (Figure 176). At the time of this study is

conducted, it is unclear whether the local governments will receive continuous funding from 2018 onwards. The decision rules that form the basis for the county Realignment fund for 2018, if there is any, is also unclear. In this analysis, the simulation is ran with the county Realignment fund stops after 2017. We will examine the impact of a continuous stream of county Realignment fund after 2017 in the next section.

One of the objectives to increase community support to the parolees wMI is to reduce recidivism. Hence, a large fraction of the county Realignment fund and correctional community budget are allocated to develop community mental health care.
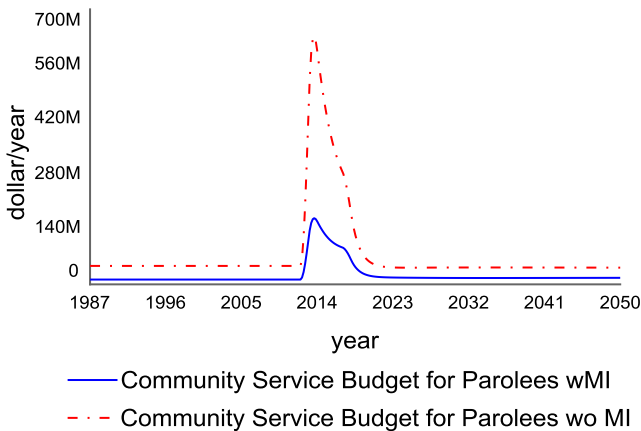
Figure 176 Comparison of Community Service Budget for Parolees wMI and Parolees without MI after the Introduction of Realignment in 2012

Note: The y-axis keeps zero invisible to show the details of the changes in the behavior of the stocks.

With increased funding, the community service utilization for parolees wMI decrease from 9 to 1 between 2012 and 2016 (Figure 177). The increased community service availability for parolees wMI leads to a 55% increase in parolee wMI employment ratio. But the employment ratio for parolees wMI show a declining sign after it peaks in 2020. The reduction in community service utilization by parolees wo MI also leads to a slight increase in the employment ratio for parolees wo MI increases from 0.58 to 0.60 between 2014 and 2050 (Figure 178). Note that the desired employment ratios for both groups of parolees are 0.6.
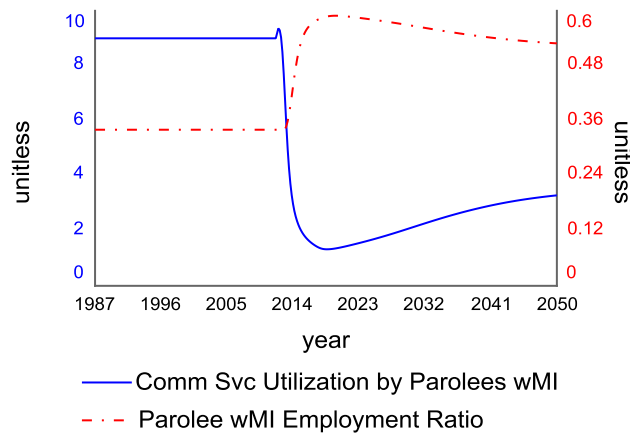
Figure 177 Community Service Utilization by Parolees with Mental Illness and Parolee with Mental Illness Employment Ratio after the Introduction of Realignment in 2012
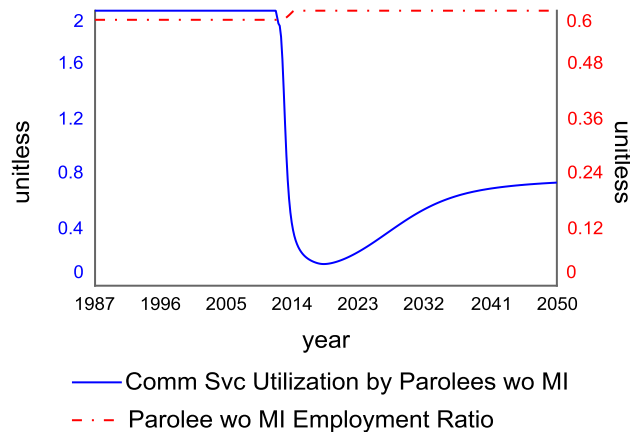
Figure 178 Community Service Utilization by Parolees without Mental Illness and Parolee without Mental Illness Employment Ratio after the Introduction of Realignment in 2012

The increase in number of parolees employed is attributable to two benefits. First, employment reduces the probability of recidivism and parole violation. Second, employment facilitates the accumulation of social capital, which in turns serve as an informal social control to keep parolees from violating their parole conditions. Consequently, the parolee recidivism and parole violation RTP rates are lower than it would otherwise have been (Figure 179). However, lower recidivism and RTP among the parolees lead to a larger number of high risk and low risk ex-convicts. As the fractions of these ex-convicts who recidivate and progress toward desistance are constant, both of the flows associated with recidivism and desistance will also increase in numbers. Because the number of ex-convicts become desisted ex-convicts, the fraction of unrecovered population with criminal history decreases (Figure 180).
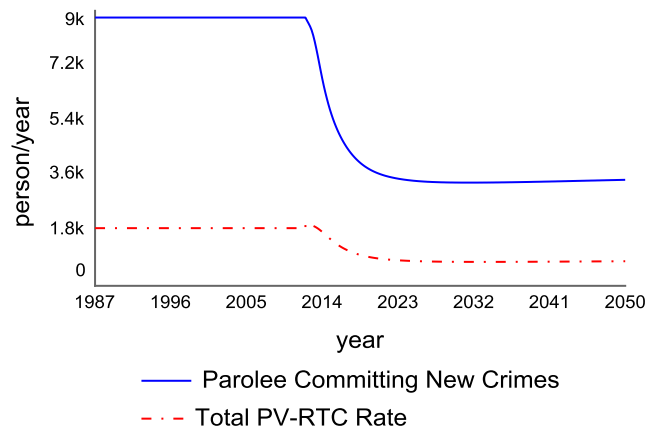
Figure 179 Total Number of Parolees Recidivate by Committing New Crimes and Total Number of Parolees Return to Prison due to Parole Violation after the Introduction of Realignment in 2012
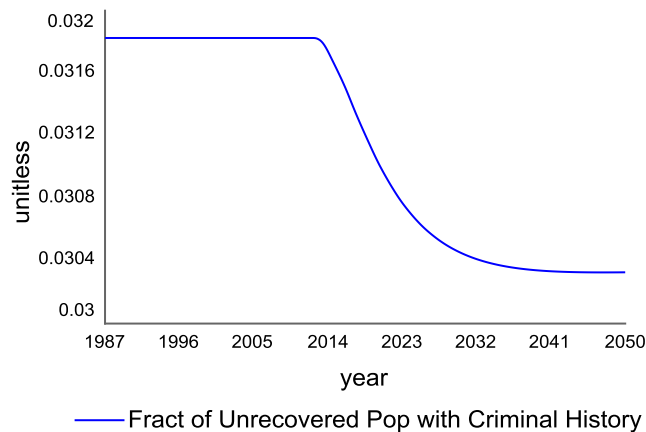
Figure 180 Fraction of Unrecovered Population with Criminal History after the Introduction of Realignment in 2012

Note: The y-axes of Figure 174 and 175 keep zeros invisible to show the details of the changes in the behavior of the parameters.

5.2.3.2   *Restrictive Condition for a Successful Realignment Policy*

The previous analysis reveals that the MI prevalence ratio in prison increases after the Realignment. The ratio remains relatively stable, albeit slight oscillation, from 2012 onwards. At the population level, the Unrecovered Pop with Criminal History stock reduces with two-third of the reduction transferred to the Recovered Pop with Criminal History stock and one-third remains in the Innocent Pop stock. On one hand, the Realignment policy does not reduce the MI prevalence in prison. But with the policy, the MI prevalence ratio is stabilized. On the other hand, the Realignment policy seems to be effective in keeping individuals out of the criminal justice system by deterring individuals from entering the Unrecovered Pop with Criminal History stock and ensuring those who are in the Unrecovered Pop with

197

Criminal History proceed to desistance. However, to achieve such results, certain conditions have to be established.

This section explores the required condition to achieve a stable MI prevalence ratio in prison and a lower fraction of unrecovered population with criminal history.

Constant or Decreasing Fraction of Innocent Population Being Arrested

In this section, we simulate a scenario with a STEP[84] increase in the "arrest rate" in the "Individuals with Criminal History" module by 17%. Hence, the constant "fract innocent pop arrested" increases from 0.06 to 0.07 from year 2012 onwards.

In this scenario, the Innocent Pop stock decreases exponentially because more of the individuals in this stock are arrested. This leads to an exponential decay behavior in the Unrecovered Pop with Criminal History stock (Figure 181). The Unrecovered Pop with Criminal History stock increases at a decreasing rate.
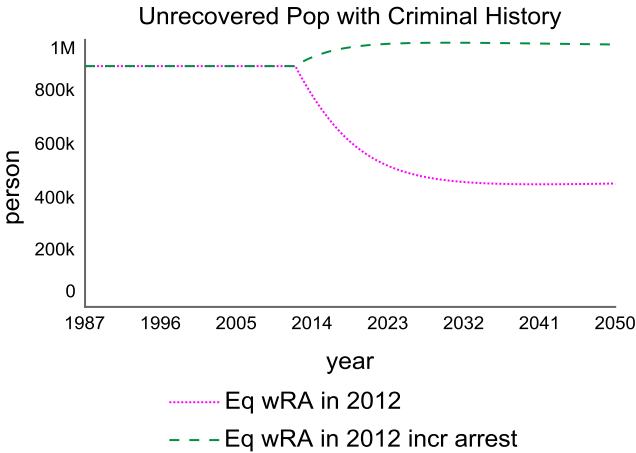
Figure 181 Comparison of the Behaviors of the Unrecovered Population with Criminal History Stock under the Realignment and Realignment with Increased Fraction of Innocent Population Arrested Scenario

Note: The y-axis keep zero invisible to show the detailed changes in the behavior of the stock.

Consequently, a larger fraction of the population have criminal history (Figure 182). This is because that more individuals from the Innocent Pop stock are arrested and convicted. Therefore, the Unrecovered Pop with Criminal History increases. As these individuals progress toward desistance, a higher numbers of individuals in the Recovered Pop with Criminal History is seen.

---

[84] STEP is a built-in function in Stella Architect. The function aims to generate an instantaneous exogenous change throughout the simulation.

Fract of Pop with Criminal History
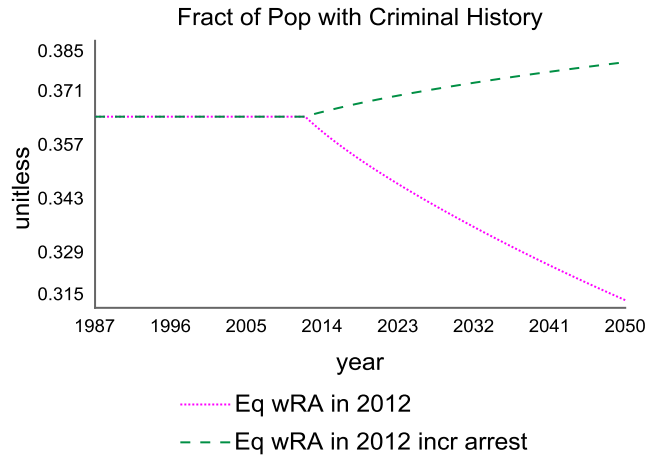
Figure 182 Comparison of the Behaviors of the Fraction of Population with Criminal History under the Realignment and Realignment with Increased Fraction of Innocent Population Arrested Scenario

Note: The y-axis keep zero invisible to show the detailed changes in the behavior of the stock.

The MI prevalence ratio in prison only encounters insignificant change but otherwise remains more stable (Figure 183).

MI Prevalence Ratio in Prison
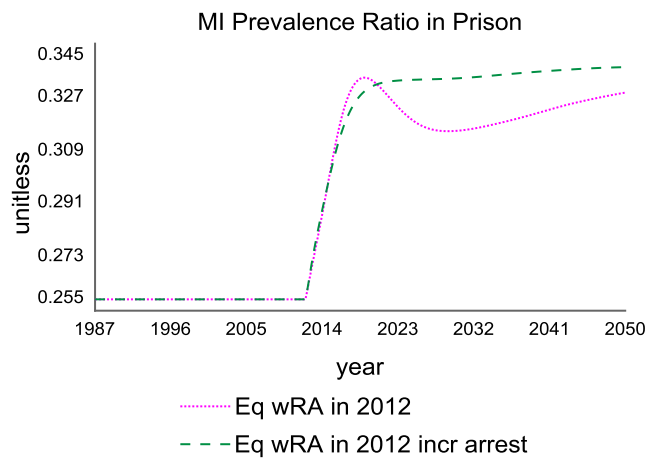
Figure 183 Comparison of the Behaviors of the MI Prevalence Ratio in Prison under the Realignment and Realignment with Increased Fraction of Innocent Population Arrested Scenario

Note: The y-axis keeps zero invisible to show the detailed changes in the behavior of the stock.

5.2.3.2.2   No Budget Constraint for Total Prison Health Care Budget

In this scenario, the State government reduces the total budget allocation to prison HC by 20% from 2012. This test yields insignificant changes in the composition of criminal background at the population level. However, the consequences at the institutional[85] level are visible.

---

[85] Institution here refers to the formal entities created by the governments.

199

MI Prevalence Ratio in Prison
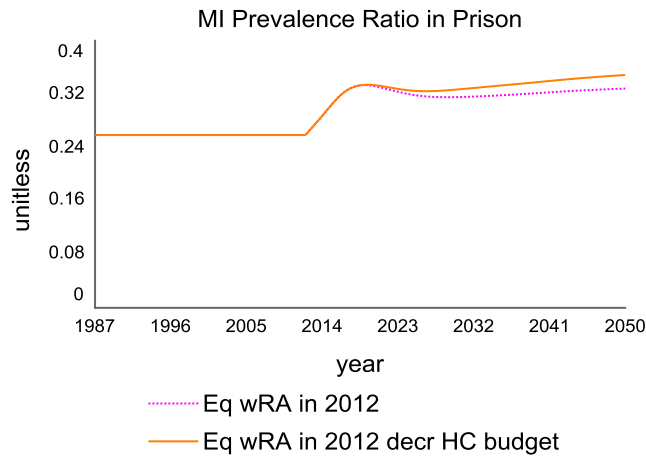
Figure 184 Comparison of Mental Illness Prevalence in Prison under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

When the budget for prison HC is capped at 80% of the requested budget, the MI prevalence ratio increases (Figure 184) because of increase of prisoners wMI (Figure 185).
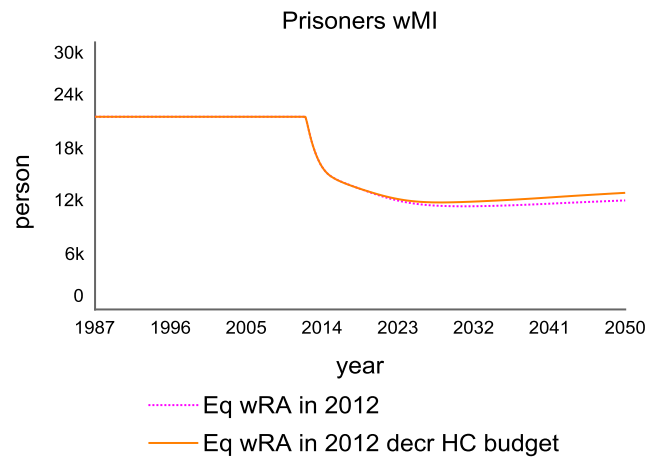
Prisoners wMI

Figure 185 Comparison of the Stock of Prisoners with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

MHC capacity adequacy decreases due to insufficient funding (Figure 186). A 20% reduction of the total HC budget leads to a 23% decline in MH capacity adequacy in the end of the simulation.

200

MHC Capacity Adequacy
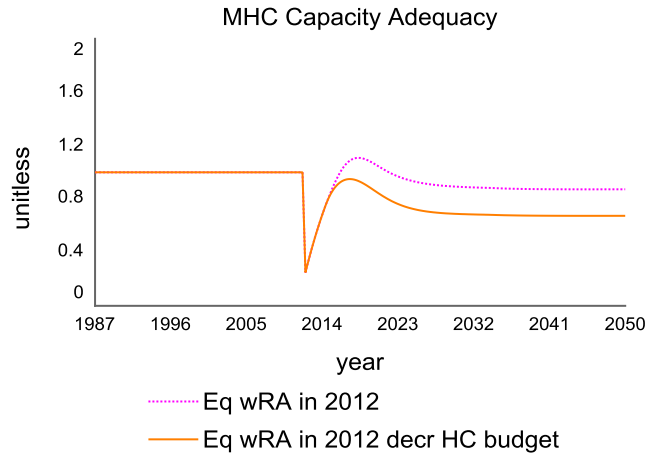
Figure 186 Comparison of Prison Mental Health Care Adequacy under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

As the prisoners wMI are released to the prison parole wMI or county parole wMI stocks, they leave with lower mental functions that it would have otherwise been (Figure 187 and 188).

Ave Mental Func of All Parolees wMI
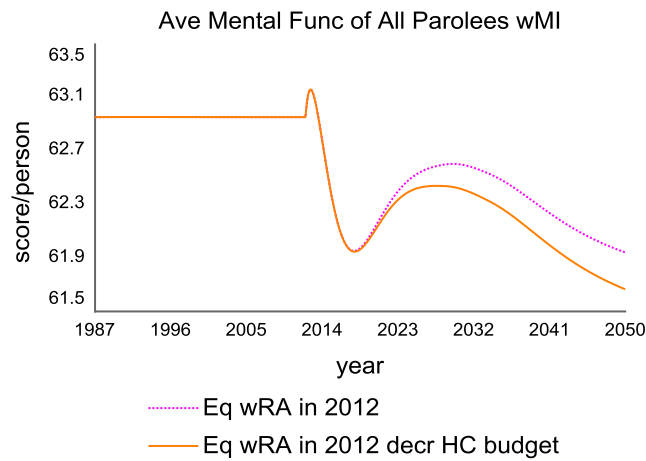
Figure 187 Comparison of Average Mental Functions per Prison Parolee with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

Ave Mental Func per Prisoner wo MI
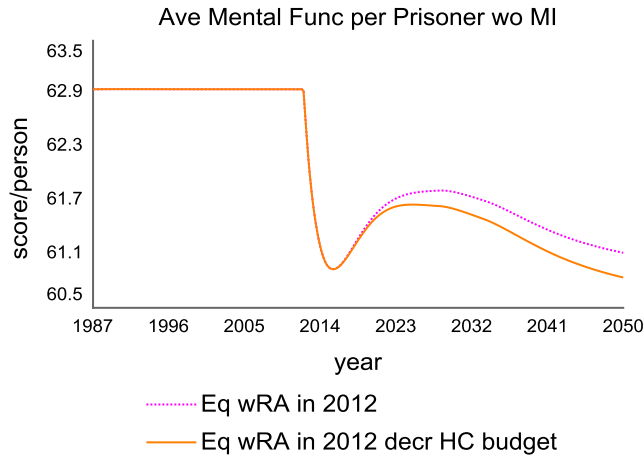
Figure 188 Comparison of Average Mental Functions per County Parolee with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

Note: The y-axes of Figure 187 and 188 keep zeros invisible to show the detailed changes in the behavior of the parameters.

The worsening of mental functions of prisoners and parolees have two implications: higher treatment cost and community service cost. The cost for treating MI in prison hike 87% (Figure 189). Without budget constraint, the MHC cost per Mental Function improvement increases exponentially, but only reaches $567 per mental function improved. With budget constraint, the cost increase exponentially to $1,000 per mental function improved. An interesting behavior occurs in the Total Prison HC Budget stock.

MHC Cost per Mental Function Improvement
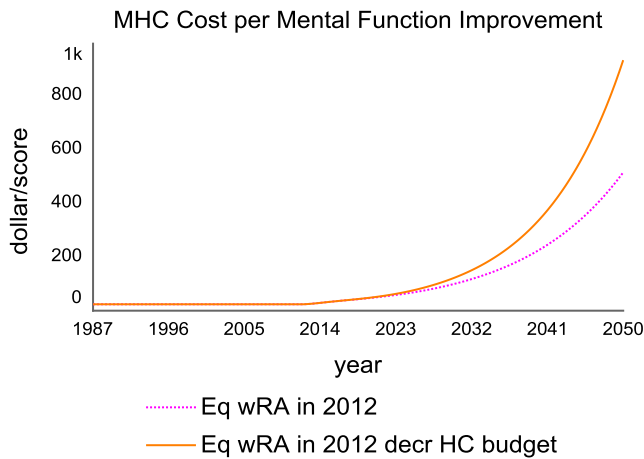
Figure 189 Comparison of Prison Mental Health Care Cost per Mental Function Improvement under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario
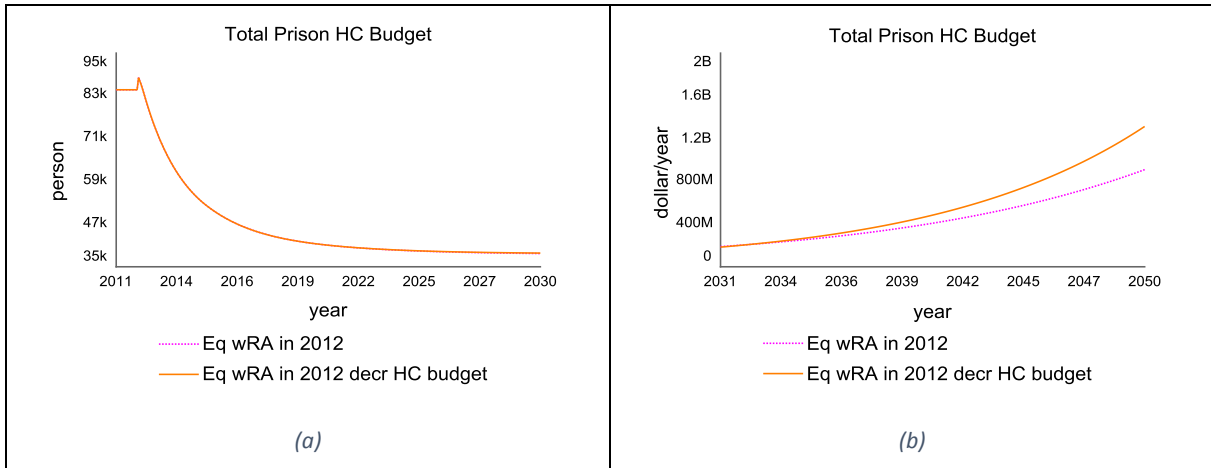
Figure 190 Comparison of Average Mental Functions per County Parolee with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario; (a) for the period from 2011 to 2030; (b) for the period from 2031 to 2050

Note: The y-axes keep zero invisible to show the detailed changes in the behavior of the stock.

With a cap of 20% from 2012, the total prison HC budget remain unchanged between 2012 and 2030 (Figure 190a). Without noticing the worsening of prisoners' mental functions, the authority may perceive this cost-reduction policy attractive for the short- and middle-term. However, the turning point emerges in 2030 when the total prison HC budget exceeds then that in scenario without budget constraints (Figure 190b). As the number of prisoners wMI in the scenarios with budget constraints only increases about 4,000 person at the end of the simulation (Figure 185), the primary cause for the turning point in 2030 is the significant increase of treatment cost for MI. At this stage, the consequence of worsening of the mental states of the prisoners transferred to the community when the prisoners are released eventually.

The community services for parolees wMI utilization is higher than it would otherwise be because of the lower average mental functions per parolees wMI (Figure 191). Hence, the needs for community services are higher. The average mental function per parolees wo MI only decreases slightly/

Ave Mental Func of All Parolees wMI
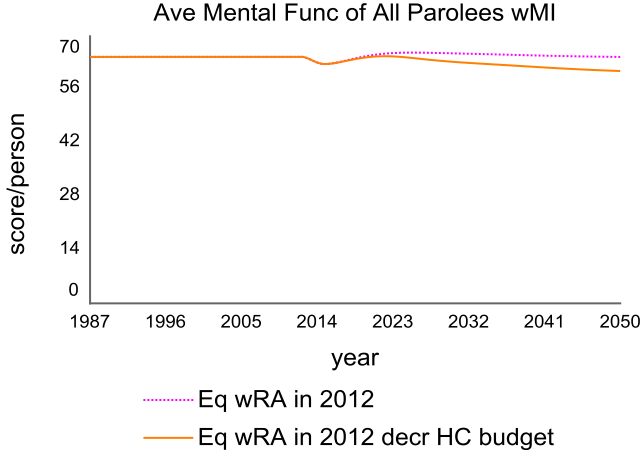
Figure 191 Comparison of Average Mental Functions per County Parolee with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

Another reason for the higher community service utilization by parolees wMI is the increasing costs for serving these parolees (Figure 192). The similar increase in community service cost per county parolee wMI is expected because the community service cost per county parolee wMi is a fraction of the cost of prison parolee wMI.

Comm Svc Cost per Prison Parolee wMI
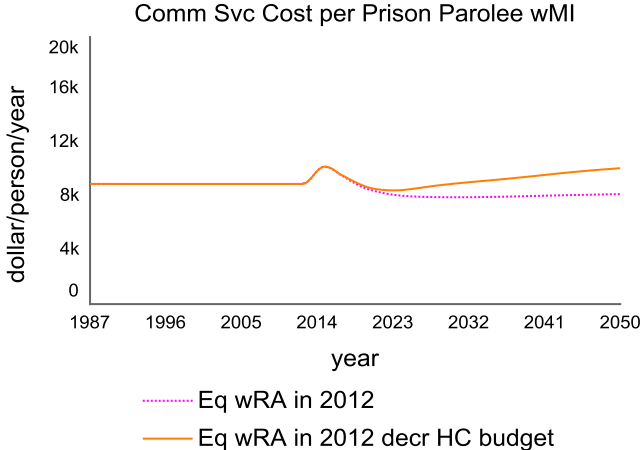
Figure 192 Comparison of Community Service Cost per Parolee with Mental Illness under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

As these parolees wMI receive inadequate support to facilitate their reentry to the community lives, the employment ratio among this group is 13% than it would otherwise have been (Figure 193).
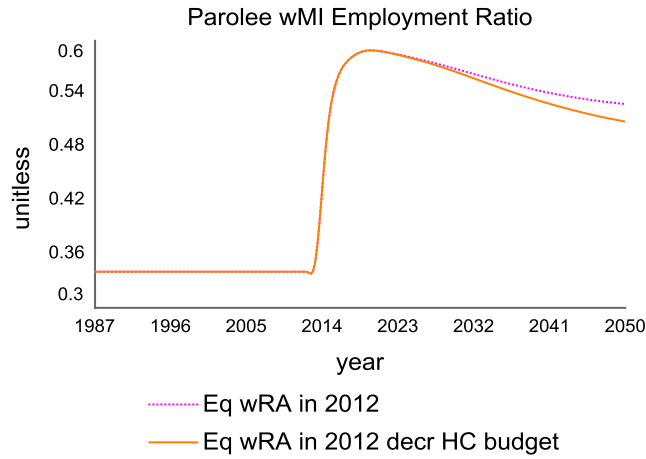
Figure 193 Comparison of Parolee with Mental Illness Employment Ratio under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

Consequently, the more parolees wMI and parolees wMI violated conditions reoffend and are sent back to jail (Figure 194 and 195).
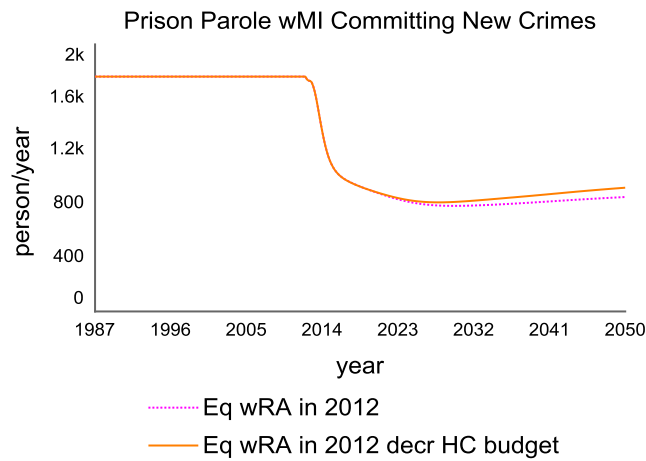
Figure 194 Comparison of Parolee with Mental Illness Committing New Crimes under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

Prison Parolee wMI Violated Condition Committing New Crimes
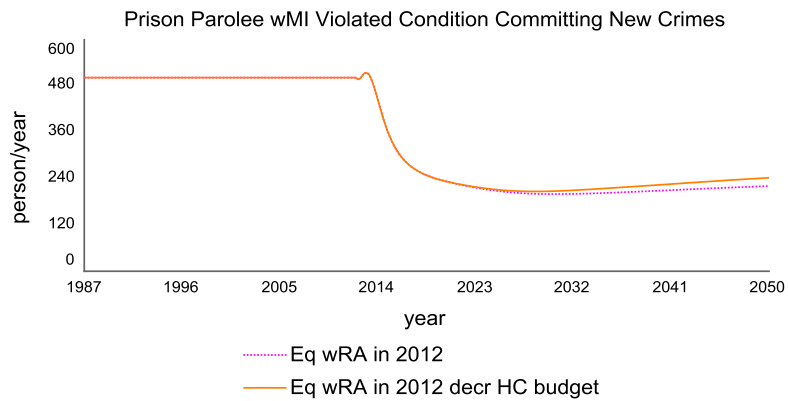
Figure 195 Comparison of Parolee with Mental Illness Violated Condition Committing New Crimes under the Realignment and Realignment with Prison Health Care Budget Constraint Scenario

This analysis shows the rippling effect arises from the reduction of prison HC budget and how the effects spill over to the community and feeds back to prison.

5.2.3.2.3   No Budget Constraint for Community Services

In this scenario, the Correctional Community Service Budget is reduced by 50% from 2012 onwards. The community service utilization by parolees wMI climbs up again from the lowest level in 2019 from 1.33 to 6 at the end of the simulation (Figure 196). The utilization ratio almost double compared to the scenario where community services budget is not reduced. The community utilization by parolees wo MI also double in this scenario (Figure 197). This results in a lower employment ratio among the parolees wMI. Two of the consequences of lower employment ratio are lower social capital and higher recidivism.   Lower social capital attributes to higher reliance on community services and higher community service cost per parolee.   Higher recidivism influences several attributes of the unrecovered population with criminal history. These impacts involves longer previous incarceration time, lower mental functions, younger, and lower social capital (SC).

Comm Svc Utilization by Parolees wMI
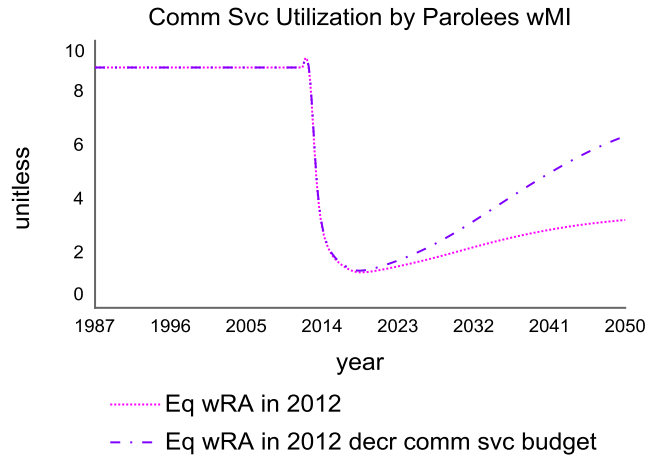
Figure 196 Comparison of Community Service Utilization by Parolee with Mental Illness under the Realignment and Realignment with Community Service Budget Constraint Scenario

Comm Svc Utilization by Parolee wo MI
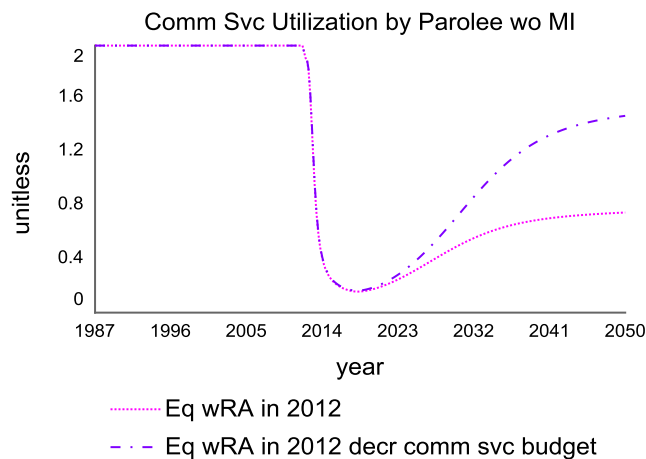
Figure 197 Comparison of Community Service Utilization by Parolee without Mental Illness under the Realignment and Realignment with Community Service Budget Constraint Scenario

The total incarceration time per parolees increases slightly by 0.09% while the total previous incarceration time per prisoner wMI and wo MI increase 0.4% and 0.5% respectively. Longer incarceration time leads to increase in ages of the individuals with criminal history. As some of the older ex-convicts recidivate, the overall age in the population with criminal history, including the unrecovered and recovered population with criminal history, will rise. This can be seen in the average age of arrestees. The average arrestee's age increases 0.004%. Arrestees consists of first-time and reoffending suspects. Given that the average age of the first-time suspects is as a constant with a value of 28, the increase in the average age of arrestees is caused by the increase in age of the recidivists. An increase in the average age of prisoners implies higher needs for chronic care in the prison.

Employment and social capital have a positive reinforcing relationship. When a lower fraction of parolees work, their social capitals suffer.

Parolee wMI Employment Ratio
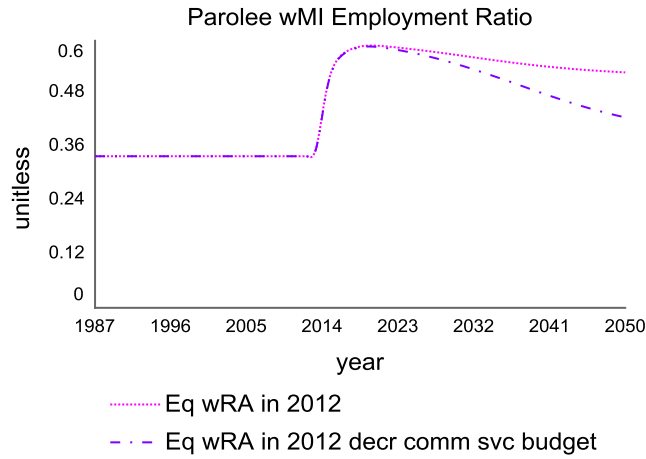
Figure 198 Comparison of Parolees with Mental Illness Employment Ratio under the Realignment and Realignment with Community Service Budget Constraint Scenario

Parolee wo MI Employment Ratio
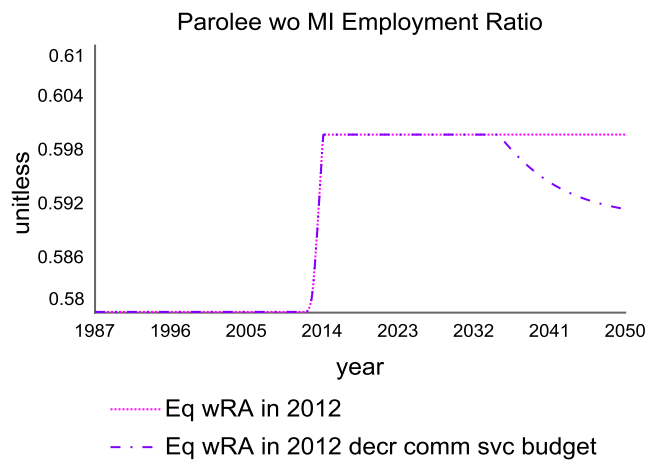
Figure 199 Comparison of Parolees without Mental Illness Employment Ratio under the Realignment and Realignment with Community Service Budget Constraint Scenario

The average SC per prison parolees wMI and prison parolees wo MI decreases 0.08% and 0.07% respectively. This reduction leads to higher reliance on community services and cost of community service per parolee. As SC also functions as an informal social control, a reduction in SC also leads to higher recidivism and RTP rate due to parole violation.

5.2.3.2.4   Retain Pressure on Community Services Claim for County Realignment Fund

In this scenario, the County Realignment Fund is extended from 2018 until the end of the simulation. In the base case, annual County Realignment Fund is appropriated for the years between 2013 and 2017. This test aims to assess the impact on the system when the County Realignment Fund is allocated continuously until 2020.

Comm Svc Utilization by Parolees wMI
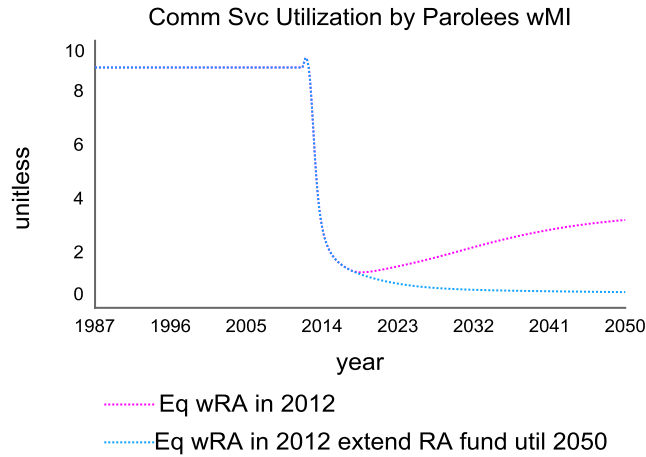
Figure 200 Comparison of Community Service Utilization by Parolees with Mental Illness under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario

Comm Svc Utilization by Parolee wo MI
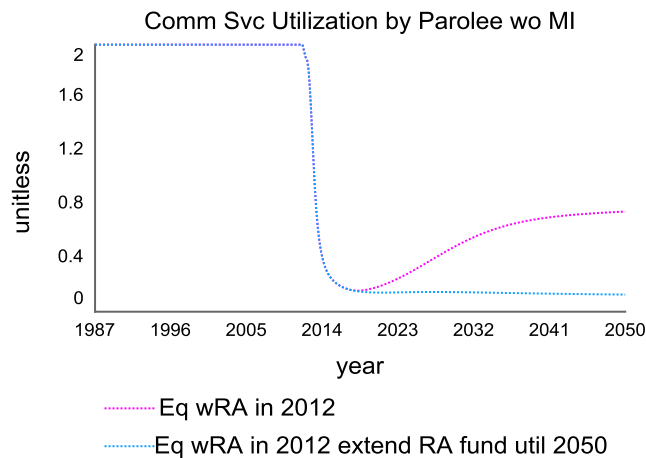
Figure 201 Comparison of Community Service Utilization by Parolees without Mental Illness under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario

With a steady stream of County Realignment Fund, the community services capacity for parolees wMI and parolees without MI continue growing. Therefore, the utilization ratio for both types of services continue to decline to below one (Figure 200 and 201). This characterizes an excess in both types of community service capacity.

The employment ratio for parolees wMI continues to grow and approach 0.6, which is the desired employment ratio (Figure 202). For parolees without MI, the employment ratio reaches 0.6 in 2014 (Figure 203). Having higher employment ratio leads to lower recidivism and RTP rate due to parole violation. The total parolee recidivism and RTP due to parole violation are reduced by about 2% and 1% respectively.

Parolee wMI Employment Ratio

Eq wRA in 2012
Eq wRA in 2012 extend RA fund util 2050
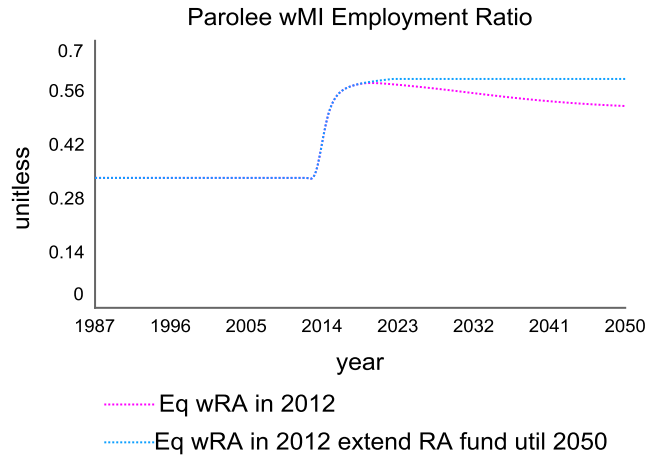
Figure 202 Comparison of the Employment Ratio of Parolees with Mental Illness under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario

In this scenario, the County Realignment Fund is prioritized to the community services capacity for parolees wo MI because the community service capacity for parolees wo MI still increase even though the employment ratio for parolees wo MI has already reached the desired level. This scenario demonstrate an inefficient capacity planning due to the excess in community service capacities for both groups of parolees.

Parolee wo MI Employment Ratio

Eq wRA in 2012
Eq wRA in 2012 extend RA fund util 2050
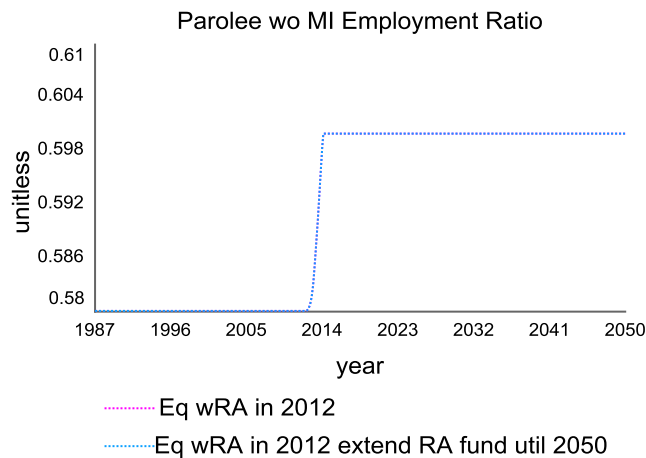
Figure 203 Comparison of the Employment Ratio of Parolees without Mental Illness under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario

Note: The y-axis keep zero invisible to show the detailed changes in the behavior of the ratio.

As the State government grants full autonomy to the local governments to decide how they spend the County Realignment Fund between the two broad groups of activities, namely the local law enforcement and community services, the fund flows to the activities that experience the most pressure on capacity. This model uses the jail module as a proxy local law enforcement activity group.

Figure 196 and 197 shows the strength of claims between the local law enforcement and community service activities. The higher the strength means the higher fraction of County Realignment Fund flows to that particular group of activities. As the pressure of jail utilization exceeds the pressure of community services after 2012, the local law enforcement activities receive higher fraction of the County Realignment Fund than the community services (Figure 204). Although jail utilization has lowered to below one, as long as it is higher than the total community services utilization, the local law enforcement activities still receive higher fraction of the County Realignment Fund (Figure 205). As long as the relative strength of local enforcement claim remains higher, the relatively strength of community service claim will be lower (Figure 206).
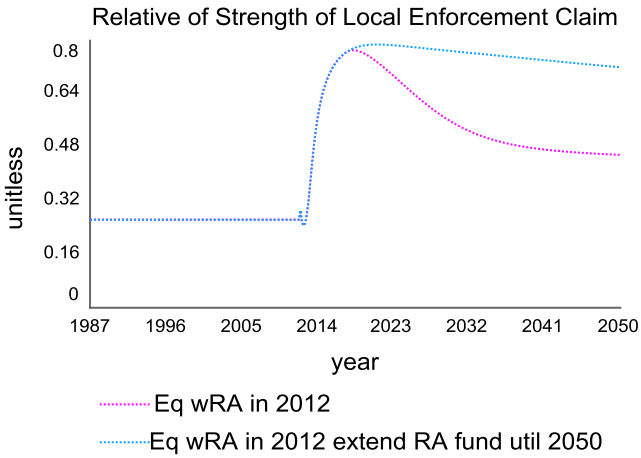
Figure 204 Comparison of the Relative of Strength of Local Enforcement Claim under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario
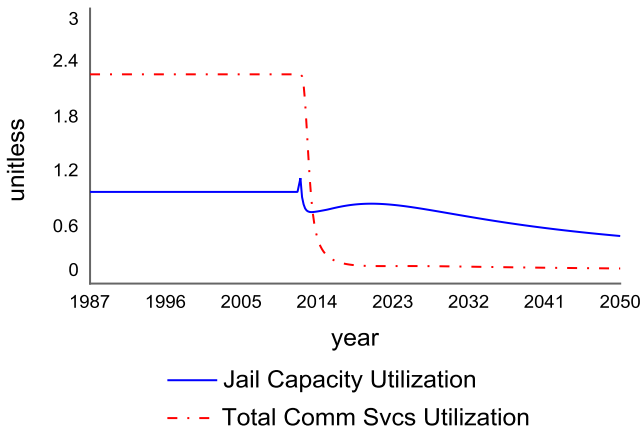
Figure 205 Jail Capacity Utilization and Total Community Services Utilization under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario
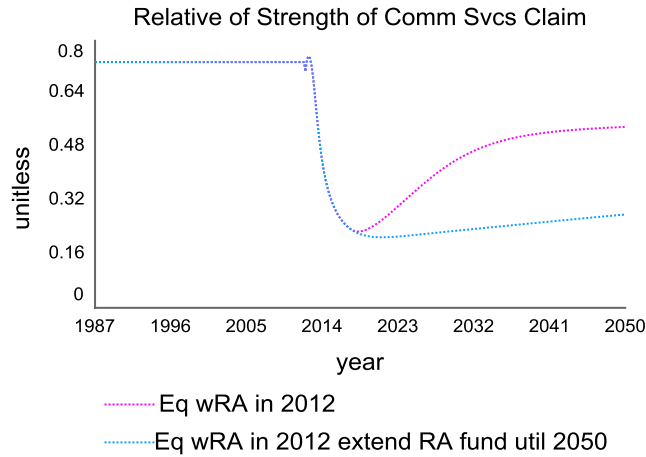
Figure 206 Comparison of the Relative of Strength of Community Services Claim under the Realignment and Realignment with Continuous County Realignment Fund until 2050 Scenario

With continuous County Realignment Fund, the community services claim presents a linear growth after 2018 because the community service capacities are underutilized. Hence the capacity pressure is low. In the scenario where the County Realignment Fund is ceased after 2017, the community service utilization ratios resume increasing (Figure 177 and 178 in Section 5.2.3.1). Thus, the community services claim will regain force and the fraction of County Realignment Fund to community services starts to grow again.

5.3   Chapter Summary

In this chapter, various validation tests conducted are explained. The second half of the chapter analyzes the simulation outcomes from the model. First, we analyze the base case, which is the real world behavior, in order to trace the cause of the increasing concentration of mentally ill prisoners. Subsequently, we assess the impact of the Realignment policy on the system after initialized the model in equilibrium with a constant total population. Finally, we conduct scenario analysis to reveal the conditions required for a sustainable Realignment policy.

The following list presents the influences excluded from the model:

- The effect of different types on punishment on re-offences
- The effect on recidivism and types of crimes, i.e. felony and misdemeanor, after Realignment
- The impact of prosecution practices after Realignment
- The effect on recidivism by the ex-convicts with three strikes
- The intergenerational effect of incarceration
- The changing crime commitment pattern of the population at large

The policy for reducing arrest rate for the first-time offenders falls outside the boundary of our study because the model omits the intergenerational effect from incarceration. Hence, the fraction of innocent population being arrested remains constant. Our study focuses on getting individuals out of the unrecovered population with criminal history, especially those individuals with MI. Therefore, our study aims to understand the causes of high concentration of mentally ill prisoners and the impact of the development of non-mentally ill individuals who are already in the unrecovered population with criminal history. To do that, we also trace the pathways to move the individuals in the unrecovered population to the recovered population with criminal history.

Within the boundary of our model, we find that modifying the types of punishment and parole supervision offenders receive produce a significant impact on the composition of population with criminal history. However, the changing composition of the population with criminal history also produces changes in the characteristics, such as age, mental functions, incarceration history, and social capital, of the population with criminal history. These changes may create negative consequences and fail to help individuals with criminal history to leave the criminal justice system.

Institutional-level services are required to rectify the negative consequences result from the changing population characteristics. These services include the prison health care and community service provisions. These services do not change the composition of the population with criminal history drastically, but they function to change the fundamental characteristics of the individuals in the population with criminal history by preventing them from recidivating. By slowing the recidivism, these individuals proceed to the recovered population.

6 Policy Implications

The analysis in the preceding chapter shows that the increasing number of mentally ill prisoners being incarcerated in the prison is caused by the structure of the system. The development of the accumulation of prisoners wMI is not only relative to the prisoners wo MI, but it is also relative to the criminal justice system as a whole and community. Introducing a policy with a narrow and local focus will not reduce the prisoner wMI population. The Realignment policy, with the focus of diverting the inflow of first-time or reoffending prisoners is a drastic intervention to the system at the population level. Even so, the sustainability of the policy is contingent upon efficient planning at the institutional level. Therefore, we constantly and consistently relate to the developments of the non-mentally ill prisoners, total prisoners, jail offender population, community services, and the attributes of the individuals in or have been in the criminal justice system when we analyze the development of mentally ill prisoners population. We look at the accumulation of prisoners wMI as a public health problem by investigating how determinants, such as individual characteristics, income, social support networks, previous incarceration history, and health services availability, influence the profiles of the prisoners wMI. The changing profiles of this group of individuals affect the resource planning at the institutional level, which in turn contributes to changing the determinants of these individuals.

6.1 Local versus System-wide Goals

Prior to the Realignment, California correctional system was more punitive than rehabilitative. The implicit goal of the correctional system was to punish the offenders. Consequently, little attention is paid to rehabilitative activities either in the prison or out in the community. The community encountered relatively lower pressure to increase community service capacity because the pressure fell on the shoulder of correctional system. Whenever individuals committed or recommitted crimes, violated parole or probation conditions, the correctional system stepped up the measure to arrest and confine these offenders. At a higher level, the legislative system even passed more stringent penal codes to punish offenders and recidivists. Hence, more and more resources were allocated to the correctional system. This is characterized as a "shifting the burden to the intervener" phenomenon. The consequence of this burden-shifting was an under-developed community service capacity to assist the ex-convicts' reentry to the community. The correctional, legislative, and community service subsystems worked towards their goals respectively. For the correctional system, the goal is to punish offenders. For the legislative system, the goal is to create or modify laws to prevent criminal activities, punish offenders and deter future criminal activities. For community service system, the goal is to provide community services within the allocated funds. This study aims to understand how these goals and the structure of the system influence the logistics of the mentally ill offenders. With this

understanding, we attempt to define a system-wide goal that emphasizes rehabilitation by increasing pressure on the community services and prison mental health care.

6.2   Diverting Inflow of Prisoners with Mental Illness

Our analysis shows that Realignment leads to a significant reduction in prison population. However, the reduction primarily occurs in prisoners wo MI population. On the contrary, the prisoners wMI population increases. This is because the increase in the fraction of incoming prisoners wMI resulted from the increasing medical screening capacity at the reception centers. The increase in the fraction of incoming prisoners wMI due to more effective screening may not be an adverse outcome as long as these prisoners receive adequate mental health care (MHC) in the prison. However, the stress associated with the harsh prison environment might offset the improvement gained from MHC. Therefore, diverting some of the incoming prisoners with moderate to severe MI to other types of setting that enables them to serve their sentences and receive adequate treatment may be a more efficient and effective approach in the long run. It may be more efficient because a better treatment outcome might be achieved in a less stressful environment that focuses on recovery. Eventually when these offenders recover from MI, they are able to reenter the society and lead normal lives instead of recycling between the community and correctional system. If the incoming prisoners wMI are not diverted, the MI prevalence in prison is expected to remain high even after Realignment. When these prisoners remain in the prison, the prison MHC budget is also expected to be high. It may be more costly to treat these prisoners. Because prison is not a rehabilitative environment, the effectiveness of treatment may be lower than it would otherwise have been. Therefore, the allocated resources to MHC may be inefficiently used.

6.3   Developing Efficient Prison Health Care Planning

Before the Realignment, MHC in prison was almost inexistent. This was an outcome of inefficient capacity planning. The authority estimated the prison health care budget based on projection of the annual prison population growth. Once the fund was allocated, it was prioritized to the areas with the most urgent needs, i.e. the infectious disease treatment capacity. Then the remaining fund was allocated to the areas that demonstrated higher needs. Between chronic care and MHC, chronic care had a stronger justification for funding than MHC given the symptoms of the patients are more visible than MHC. Also, chronic disease are related to aging. Therefore, with visible symptoms and age, chronic care received a larger fund than MHC. When there was remaining fund, it would be appropriated to MHC.

Under the receivership, the Receiver introduced acuity-based approach in capacity planning. With acuity-based estimation, the budgets for each type of care are estimated based on cost and severity. Then the sum of the budgets from all three types of treatment capacity is submitted to the State government for budget adjustment. When the budget is approved in the next fiscal year, the prison health care budget is then allocated based on the fraction of each treatment capacity claims in the previous year. As such, goals are fixed for each types of treatment capacity instead of taking a priority-based approach. Therefore, MHC receives adequate funding to adjust and maintain its capacity to provide treatment for prisoners in need.

It is imperative that MHC retains the fraction of allocated fund constantly. When these prisoners are treated, their mental functions retain or increase. Some of them may even recover with an acceptable level of mental functions to lead productive lives. When these prisoners are released to serve parole with acceptable level of mental functions, they rely less on community services and their per capita community service cost will be lower. On one hand, this will reduce the required community service capacity; on the other hand, when these paroles are employed, their social capital increases rapidly. Social capital, which consists of social support networks, serve as an informal social control by establishing acceptable role model for the parolees. With higher social capital, these parolees learn acceptable social behaviors that render them less likely to reoffend or violate parole condition. If the prison health care budget is constrained, the benefits of having improved mental functions, increased employability, and stronger social networks may be undermined. Hence, instead of desistance and obeying parole conditions, the parolees with lower mental functions return to prison and continue recycling in and out of the system.

6.4   Retaining Pressure on Community Service Capacity Planning

Emphasizing adequate community service capacity will shift the burden back to the owner of the problem: the community. The responsibility of the correctional system is to punish those who have violated the laws whereas the responsibility of the community is to facilitate the parolees' reentry and guide them to law-abiding lifestyles. Retaining the pressure on the community and promoting efficient capacity planning reinstate the community's responsibility in rehabilitating the individuals with criminal history. By re-shifting the burden back to the owner, it will re-orient the system to be more rehabilitative than punitive. From the public health perspective, the decision for crime commitment goes beyond an individual's ill intention. The decision for crime commitment is also influenced by other determinants, such as individual characteristics, income, social support, incarceration history, and health services. In the case of mentally ill offenders, individual characteristics include mental functions and previous incarceration history. Longer incarceration history implies further

deterioration of social capital. Combined with lower mental functions, these characteristics affects the success of their reentry. Adequate community services, including housing assistance, job search, and community mental health care, will help the mentally ill parolees to reintegrate into the society. Thus, to prevent these parolees from returning to the correctional system, the community needs to reshape the environment that will facilitate change in the determinants of the parolees wMI.

Given the importance of the role of community services, budget should be prioritize to build up and maintain community service capacity. Similar to prison health care capacity planning, the local governments need to improve the community correctional budget adjustment process. Instead of requesting new budget based on a projected growth of the population in the counties, the need-based budget adjustment process leads capacity planning that is more efficient. The need-based community service budget adjustment requires estimated budgets for the community service capacities for parolees wMI and parolees wo MI separately. This is because that these two groups of users require different services and thus the per capital community service costs are different. The goal for the desired capacities is to reach a full employment among the parolees. Therefore, the new budget requested for each group of parolees is to close the gap between the number of employed parolees and the desired number of employed parolees. Hence, product of the number of parolees who are yet to be employed and the community service cost per parolee becomes the desired budget for the community services.

It is crucial that budget for community services is sufficient to meet the needs the parolees. Otherwise, the parolees wMI return to prison with lower mental functions and social capital when they reoffend. Recidivism increases incarceration time served. As the vicious cycle continues, the prospect of desistance among the recidivists dwindles.

6.5 Providing Community Services to High Risk Jail Ex-convicts

The recidivism pattern of jail ex-convicts has long been understudied. As these offenders only serve relatively short time behind bars and they are not required to serve parole, they are left in the society on their own after serving jail time. Some of the jail offenders who serve split sentences work with probationer officers. But the mechanism to connect the jail offenders or probationers who are in need of community services is currently lacking. As some of these ex-convicts recidivate, they might eventually end up in prison. Thus, if resources are only invested to deal with prisoners and parolees from prison without considering the jail ex-convicts, the prison MHC will always deal with incoming prisoners with more severe MI. In the short-term, the local governments may be relieved from the responsibility of providing community services to the offenders wMI convicted to prison sentence.

However, these offenders wMI will be released to the community eventually. If they are placed under CDCR parole supervision, they will still be directed to community services.

Therefore, providing community services to the high risk jail ex-convicts who are newly released from jail prevents the ex-convicts from moving vertically in the criminal justice system, i.e. from the jail to prison population aging chain. On the contrary, sufficient community services increase the probability of the jail ex-convicts to progress through the jail population aging chain horizontally to the right and into the desisted population.

References

Administrative Office of the Courts. (2011). *Task Force for Criminal Justice Collaboration on Mental Health Issues: Final Report*

--Recommendations for Changing the Paradigm for Persons With Mental Illness in the Criminal Justice System. Retrieved from San Francisco, CA, USA:

Akers, T. A., et al. (2009). "Epidemiological Criminology": Coming Full Circle. *American Journal of Public Health, 99*(3), 397-402. doi:10.2105/AJPH.2008.139808

Albert, M., et al. (1998). Social networks and mental health service utilisation--a literature review. *Int J Soc Psychiatry, 44*(4), 248-266. doi:10.1177/002076409804400402

American Bar Association. (2017). Criminal Justice Section Standards - Pretrial Release. Retrieved from http://www.americanbar.org/publications/criminal_justice_section_archive/crimjust_standards_pretrialrelease_blk.html

Aon Hewitt. (2016). *2016 Global Medical Trend Rates*. Retrieved from U.K.: http://www.aon.com/attachments/human-capital-consulting/2016_Med_Report_US_WEB.pdf

Auerhahn, K. (2004). California's Incarcerated Drug Offender Population, Yesterday, Today, and Tomorrow: Evaluating the War on Drugs and Proposition 36. *Journal of Drug Issues, 34*(1), 95-120. doi:10.1177/002204260403400105

Auerhahn, K. (2008a). Dynamic Systems Simulation Analysis: A planning Tool for the New Century. *Journal of Criminal Justice, 36*(4), 293-300. doi:http://dx.doi.org/10.1016/j.jcrimjus.2008.06.007

Auerhahn, K. (2008b). Using simulation modeling to evaluate sentencing reform in California: choosing the future. *Journal of Experimental Criminology, 4*(3), 241-266. doi:10.1007/s11292-008-9056-2

Austin, J., et al. (2000). *Three Strikes and You're Out: The Implementation and Impart of Strike Laws*. Retrieved from

Baillargeon, J., et al. (2010). Risk of Reincarceration Among Prisoners with Co-occurring Severe Mental Illness and Substance Use Disorders. *Administration and Policy in Mental Health and Mental Health Services Research, 37*(4), 367-374. doi:10.1007/s10488-009-0252-9

Ball, W. D. (2007). Mentally Ill Prisoners in the California Department of Corrections and Rehabilitation. *Santa Clara University School of Law*, 44.

Barlas, Y. (1996). Formal aspects of model validity and validation in system dynamics. *System Dynamics Review, 12*(3), 183-210. doi:10.1002/(SICI)1099-1727(199623)12:3<183::AID-SDR103>3.0.CO;2-4

Berben, L., et al. (2012). An Ecological Perspective on Medication Adherence. *Western Journal of Nursing Research, 34*(5), 635-653. doi:doi:10.1177/0193945911434518

Bird, M., et al. (2014). *Do Local Realignment Policies Affect Recidivism in California*. Retrieved from

Bird, M., et al. (2016). Realignment and Recidivism. *The ANNALS of the American Academy of Political and Social Science, 664*(1), 176-195. doi:doi:10.1177/0002716215603319

Board of Corrections. (1987-1994). *Jail Profile Data Summary*. Retrieved from

Board of Corrections. (2004-2015). *Jail Profile Data Summary*. Retrieved from

Bourdieu, P. (1986). **The Forms of Capital**. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 46-58). Westport, Conn.: Greenwood Press.

BSCC. (1987-2015). *Jail Profile Survey (Fourth Quarter)*. Retrieved from Sacramento, CA, U.S.:

Bureau of Justices Statistics. (1986-2006). *Felony Sentences in State Courts*. Retrieved from Washington, D.C., U.S.:

California Budget Project. (2013). *A Mixed Picture: State Corrections Spending After the 2011 Realignment*. Retrieved from Sacramento, CA, U.S.: http://calbudgetcenter.org/wp-content/uploads/130625_A_Mixed_Picture_Corrections.pdf

California Correctional Health Care Services. (2017). *Chapter 1.1 Medical Services*. Retrieved from http://www.cphcs.ca.gov/imspp.aspx

California Courts. (2017). How Criminal Cases Work. Retrieved from http://www.courts.ca.gov/1069.htm

California Department of Justice (1975-2005). *Adult Felony Arrest Disposition 1975-2005*. Retrieved from

California Department of Justice (1996-2015). *Crime & Delinquency in California*. Retrieved from

CDCR. (1987-2010). *Prisoners and Parolees*. Retrieved from

CDCR. (1987 - 2010). *California Prisoners and Parolees* Retrieved from

CDCR. (1988). *California Prisoners and Parolees 1987*. Retrieved from

CDCR. (1998 - 2012). *Time Served on Prison Sentence : Felons First Release To Parole by Offense* Retrieved from Sacramento, CA, USA:

CDCR. (2009). *Mental Health Services Delivery System Program Guide*. CDCR.

CDCR. (2011 - 2013). *Prison Census Data*. Retrieved from

CDCR. (2012). *Prison Population Report for December 31, 2012*. Retrieved from

CDCR. (2013). *2011 Public Safety Realignment*. Retrieved from http://www.cdcr.ca.gov/realignment/docs/Realignment-Fact-Sheet.pdf

CDCR. (2014). *Characteristics of Felon New Admissions and Parole Violators Returned with a New Term 2013*. Retrieved from

Cohen, T. H., et al. (2007). *Pretrial Release of Felony Defendants in State Courts*. Retrieved from Washington, D.C., U.S.: https://www.bjs.gov/content/pub/pdf/prfdsc.pdf

Coleman v. Wilson, No. CIC s-90-0520 LKK JFM P (The Eastern District of California 1994).

Corrections Independent Review Panel. (2004). *Reforming Corrections: Report of the Corrections Independent Review Panel*. Retrieved from

Council of State Governments. (2002). *Criminal Justice/Mental Health Consensus Project*. Retrieved from Lexington, KY, U.S.:

Couzens, J. R., et al. (2016). *Felony Sentencing After Realignment*. Retrieved from http://www.courts.ca.gov/partners/documents/felony_sentencing.pdf

CPOC. (2012). *Public Safety Realignment--What is it?* Retrieved from www.cpoc.org/assets/Realignment/cpocbrief11.pdf

CPOC. (2013). *Assessing Risks and Needs of Realigned Populations*. Retrieved from

CURB. (2015). *CURB Decarceration Report Card 2015*. Retrieved from http://curbprisonspending.org/wp-content/uploads/2015/11/CURB-Decarceration-Report.pdf

Davidson, L., et al. (2007). Recovery from versus recovery in serious mental illness: One strategy for lessening confusion plaguing recovery. *Journal of Mental Health, 16*(4), 459-470. doi:10.1080/09638230701482394

Davis, A. N. (2012). *The Effect of Realignment on Mentally Ill Offenders*. Retrieved from http://law.stanford.edu/wp-content/uploads/sites/default/files/child-page/183091/doc/slspublic/Davis_AB109_And_Mentally_Ill_Offenders.pdf

Davis, L., et al. (2009). *Understanding the Public Health Implications of Prisoner Reentry in California: Phase I Report*. Retrieved from Santa Monica, CA, U.S.:

Denney, A. S., et al. (2014). Beyond Basic Needs: Social Support and Structure for Successful Offender Reentry. *Journal of Qualitative Criminal Justice & Criminology, 2*(1), 39-67.

Denny, A. S., et al. (2014). Beyond Basic Needs: Social Support and Structure for Successful Offender Reentry. *Journal of Qualitative Criminal Justice & Criminology, 2*(1), 39-67.

Ditton, P. M. (1999). *Mental Health and Treatment of Inmates and Probationers* (NCJ 174463). Retrieved from

Drucker, E. (2013). *A Plague of Prisons: The Epidemiology of Mass Incarceration in America* (2 ed.). London: The New Press.

Drucker, E. (2015). Prisons: From Punishment to Public Health. In R. Detels, M. Gulliford, Q. A. Karim, & C. C. Tan (Eds.), *Oxford Textbook of Global Public Health* (6 ed. ed.). Oxford, UK: Oxford University Press.

Durose, M. R., et al. (2014). *Recidivism of Prisoners Released in 30 States in 2005: Patterns from 2005 to 2010*. Retrieved from https://www.bjs.gov/content/pub/pdf/rprts05p0510.pdf

Forrester, J. W. (1975). Counterintuitive Behavior of Social Systems *Collected Papers of Jay W. Forrester* (pp. 211-244). Cambridge, MA, U.S.: Wright-Allen Press, Inc.

Freeman, R. B. (1991). Crime and the Employment of Disadvantaged Youths. *National Bureau of Economic Research Working Paper Series, No. 3875*. doi:10.3386/w3875

Grattet, R., et al. (2008). *Parole Violations and Revocations in California*. Retrieved from https://www.ncjrs.gov/pdffiles1/nij/grants/224521.pdf

Greenberg, G. A., et al. (2008). Jail Incarceration, Homelessness, and Mental Health: A National Study. *Psychiatric Services, 59*(2), 170-177. doi:10.1176/ps.2008.59.2.170

Halpern, D. (2001). Moral Values, Social Trust and Inequality: Can Values Explain Crime? *The British Journal of Criminology, 41*(2), 236-251.

Hines, J. (1996). *Molecules of Structure: Building Blocks for System Dynamics Models*.

Human Rights Watch. (2003). *Ill-Equiped: U.S. Prisons and Offenders with Mental Illness*. Retrieved from London, U.K.: https://www.hrw.org/reports/2003/usa1003/usa1003.pdf

James, D. J., et al. (2006). *Mental Health Problems of Prison and Jail Inmates*. Retrieved from https://www.bjs.gov/content/pub/pdf/mhppji.pdf

Jeffers, J. R., et al. (1971). On the demand versus need for medical services and the concept of "shortage". *American Journal of Public Health, 61*(1), 46-63.

Jeffrey, C. R. (1959). An Integrated Theory of Crime and Criminal Behavior. *Journal of Criminal Law and Criminology, 49*(6), 533-552.

Johnson, P. A. (1977). Senate Bill 42 - The End of the Indeterminate Sentence. *17*(1), 133-162.

Kelso, J. C. (2008). *Achieving a Constitutional Level of Medical Care in California's Prisons*. Retrieved from Sacramento, CA, U.S.: http://www.lhc.ca.gov/studies/193/it/KelsoReceiverPlan.pdf

Kifer, M., et al. (2003). The Goals of Corrections: Perspectives from the Line. *Criminal Justice Review, 28*(1), 47-69. doi:doi:10.1177/073401680302800104

Kim, D. H. (1992). Guidelines for Drawing Causal Loop Diagrams. *The Systems Thinker, 3*(1), 5-6.

Kinsella, C. (2004). *Corrections Health Care Costs*. Retrieved from Lexington, KY, U.S.: https://www.prisonpolicy.org/scans/csg/Corrections+Health+Care+Costs+1-21-04.pdf

Krisberg, B., et al. (2011). *Realignment: A Bold New Era in California Corrections*. Retrieved from Berkeley, CA, U.S.:

Kurlychek, M. C., et al. (2012). Long-term Crime Desistance and Recidivism Patterns-Evidence from the Essex County Convicted Felon Study. *Criminology, 50*(1), 71-103. doi:10.1111/j.1745-9125.2011.00259.x

Lamb, H. R., et al. Mentally Ill Persons in the Criminal Justice System: Some Perspectives. *Psychiatric Quarterly, 75*(2), 107-126. doi:10.1023/B:PSAQ.0000019753.63627.2c

Lamb, R. H., et al. (1998). Persons With Severe Mental Illness in Jails and Prisons: A Review. *Psychiatric Services, 49*(4), 483-492. doi:doi:10.1176/ps.49.4.483

LAO. (1994). *The State of California's Probation System*. Retrieved from

LAO. (1995). *Accommodating Prison Population Growth*. Retrieved from California: http://www.lao.ca.gov/1995/010695_three_strikes/sc010695a.html

LAO. (1996). *The Impact of "The Three Strikes and You're Out" Law on California's Justice System*. Retrieved from

LAO. (1997). *The "Three Strikes and You're Out" Law: An Update*. Retrieved from

LAO. (1999a). *Analysis of the 1999-00 Budget Bill-Criminal Justice Departmental Issues 1*. Retrieved from http://www.alo.ca.gov/analysis_1999/crim_justice/crim_justice_depts1_anl99.html

LAO. (1999b). *The "Three Strikes and You're Out" Law's Impact on State Prisons: An Update*. Retrieved from

LAO. (2000a). *Analysis of the 2000-01 Budget Bill-Linking Mentally Ill Offenders To Community Care*. Retrieved from http://www.lao.ca.gov/Publications/Detail/684

LAO. (2000b). *Analysis of the 2000-01 Budget Bill: Linking Mentally Ill Offenders To Community Care*. Retrieved from
http://www.lao.ca.gov/analysis_2000/crim_justice/cj_2_cc_mentally_ill_anl00.htm#_1_1:
http://www.lao.ca.gov/analysis_2000/crim_justice/cj_2_cc_mentally_ill_anl00.htm#_1_1

LAO. (2013). *California's Criminal Justice System-A Primier*. Retrieved from

Laub, J. H., et al. (2001). Understanding Desistance from Crime. *Crime and Justice, 28*, 1-69.

Lawrence, S. (2014). *Court-Ordered Population Caps in California County Jails*. Retrieved from CA, USA:

Lin, J., et al. (2014). *Follow the Money: How California Counties Are Spending Their Public Safety Realignment Funds*. Retrieved from http://ssrn.com/abstract=2395527

Little Hoover Commission. (2000). *Being There: Making a Commitment to Mental Health*. Retrieved from

Lofstrom, M., et al. (2013). *Impact of Realignment on County Jail Populations*. Retrieved from

Loftstrom, M., et al. (2012). *Evaluating the Effects of California's Corrections Realignment on Public Safety*. Retrieved from http://www.ppic.org/content/pubs/report/R_812MLR.pdf

Loftstrom, M., et al. (2013). *Impact of Realignment on County Jail Population*. Retrieved from San Francisco, CA, U.S.:

LSPC. (2010). *California's Older Prisoner Crisis: Facts and Figures*. Retrieved from

Lurigio, A. J., et al. (2004). The Effects of Serious Mental Illness on Offender Reentry. *Federal Probation, 68*(2), 45-52.

Martin, B., et al. (2014). *Key Factors in California's Jail Construction Needs*. Retrieved from http://www.ppic.org/content/pubs/report/R_514BMR.pdf

Maxwell, J. A. (2013). **Conceptual Framework: What Do You Think Is Going On?** *Qualitative Research Design* (3 ed., pp. 39-72). London, U.K.: SAGE Publication Inc.

Meadows, D. (1999). *Leverage Points: Places to Intervene in a System*. Donellameadows.org. Donellameadows.org. Retrieved from http://www.donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/

Mittelmark, M. B. (2012). *Chapter 2: From Associations to Processes* B. Wold & O. Samdal (Eds.), *An Ecological Perspective on Health Promotion Systems, Settings and Social Processes* (pp. 11-16). Retrieved from
file:///F:/OneDrive/About%20Writing%20Papers/Framework/02_Research%20Design/From%20Associations%20to%20Processes.pdf doi:10.2174/97816080534141120101

Nelson, M., et al. (2011a). *The First Month Out: Post-Incarceration Experiences in New York City*. Retrieved from California, USA: http://www.jstor.org/stable/10.1525/fsr.2011.24.1.72

Nelson, M., et al. (2011b). The First Month Out: Post-Incarceration Experiences in New York City. *Federal Sentencing Reporter, 24*(1), 72-75.

Nieto, M. (1996). *The Changing Role of Probation in California's Criminal Justice System*. Retrieved from Sacramento, CA, U.S.: https://www.library.ca.gov/crb/96/06/96006.pdf

Nieto, M. (1998). *Health Care in California State Prisons*. Retrieved from Sacramento, CA, USA: https://www.library.ca.gov/crb/98/09/98009.pdf

Nieto, M. (1999). *Mentally Ill Offenders in California's Criminal Justice System* (CRB-99-02). Retrieved from Sacramento, CA, USA: https://www.library.ca.gov/crb/99/02/99002.pdf

Novac, S. (2006). *Justice and Injustice : Homelessness, Crime, Victimization, and the Criminal Justice System* Toronto: Centre for Urban and Community Studies, University of Toronto.

O'hara, A. (2007). Housing for people with mental illness: Update of a report to the President's New Freedom Commission. *Psychiatric Services, 58*(7), 907-913.

OECD. (2001). *The Well-being of Nations: The Role of Human and Social Capital*. Retrieved from Paris, France: http://www.oecd.org/site/worldforum/33703702.pdf

Office of the Attorney General. (2015). *Crime in California*. Retrieved from
https://oag.ca.gov/sites/all/files/agweb/pdfs/cjsc/publications/candd/cd15/cd15.pdf

Petersilia, J. (2000). *Challenges of Prisoner Reentry and Parole in California*. Brief Series. California
Policy Research Center. Retrieved from http://rbtaylor.net/50_read_paroleincalif.html

Petersilia, J. (2001). Prisoner Reentry: Public Safety and Reintegration Challenges. *The Prison Journal, 81*(3), 360-375. doi:doi:10.1177/0032885501081003004

Petersilia, J. (2006). *Understanding California Corrections*. Retrieved from
https://www.google.no/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ve
d=0ahUKEwjOlNiMlLXOAhXpBZoKHQdRB34QFggbMAA&url=https%3A%2F%2Flaw.stanford.e
du%2Fpublications%2Funderstanding-california-
corrections%2F&usg=AFQjCNF1qv9ltklZBGAiKoosIFG8uq8CRQ&sig2=mWJ2XWojXyKMYefGss
QD0w

Petersilia, J., et al. (1993). Intensive Probation and Parole. *Crime and Justice, 17*, 281-335.

PEW. (2014). *State Prison Health Care Spending*. Retrieved from
http://www.pewtrusts.org/~/media/assets/2014/07/stateprisonhealthcarespendingreport.p
df

Plata v. Schwarzenegger, No. 3:01-cv-01351-TEH (N.D. Cal.) (The Eastern California District Court &
The Northern California District Court 2009).

Potter, R. H., et al. (2012). *Epidemiological Criminology*. Somerset, UNITED STATES: John Wiley &
Sons, Incorporated.

Prison Law Office. (2013). *The Parole Rights Handbook*. Retrieved from San Quentin, CA, USA:
http://prisonlaw.com/wp-content/uploads/2015/09/ParoleeManualAug2013.pdf

Prison Law Office. (2016). *California's Prison Crowding Reduction Plans and Credit Laws*. Retrieved
from San Quentin, CA, U.S.:

Putnam, R. (1995). Bowling Alone: America's Declining Social Capital. *Journal of Democracy*, 65-78.

Putnam, R. (2001). Social Capital: Measurement and Consequences. *Canadian Journal of Policy
Research, 2*(1), 41-51.

Roebuck, B. (2008). *Homelessness, Victimization and Crime: Knowledge and Actional
Recommendations*. Retrieved from Ottawa, Canada:
https://www.publicsafety.gc.ca/lbrr/archives/cnmcs-plcng/cn35305-eng.pdf

SAMHSA. (2012). SAMHSA's Working Definition of Recovery. In S. A. a. M. H. S. Administration (Ed.),
Substance Abuse and Mental Health Services Administration (Vol. PEP12-RECDEF).

Sarteschi, C. M. (2013). Mentally Ill Offenders Involved With the U.S. Criminal Justice System: A
Synthesis. *Sage Open, 3*(3). doi:10.1177/2158244013497029

Senge, P. M. (1994). *The Fifth Discipline: The Art & Practice of The Learning Organization*. London,
United Kingdom: Currency Doubleday.

Shield, S. (2003). *Address Gaps in Post-Release Services for Offenders With Mental Illness: One
Community's Response*. Retrieved from Kingston, NJ, USA:
http://www.cjcj.org/uploads/cjcj/documents/sonja_shield.pdf

Siegler, V. (2014). *Measuring Social Capital*. Retrieved from U.K.:
http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/dc
p171766_371693.pdf

Specter, D. (1994). Cruel and Unusual Punishment of the Mentally Ill in California's Prisons: A Case
Study of a Class Action Suit. *Social Justice, 21*(3 (57)), 109-116.

Stanford Justice Advocacy Project. (2015). *Proposition 47 Progress Report: Year One Implementation*.
Retrieved from Palo Alto, CA, U.S.:

Sterman, J. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*: McGraw
Hill.

Suzanne, M. M., et al. (2014). Treatment Practices, Outcomes, and Costs of Multidrug-Resistant and
Extensively Drug-Resistant Tuberculosis, United States, 2005–2007. *Emerging Infectious
Disease journal, 20*(5), 812. doi:10.3201/eid2005.131037

The Sentencing Project. (2002). *Mentally Ill Offenders in the Criminal Justice System: An Analysis and Prescription*. Retrieved from Washington, D.C. , USA:

Three-Judge Court: Opinion and Order, Three-Judge Court, (2009) (RALPH COLEMAN, et al. v. ARNOLD SCHWARZENEGGER

MARCIANO PLATTA, et al. v. ARNOLD SCHWARZENEGGER).

Torrey, E. F., et al. (2010). *More Mentally Ill Persons are in Jails and Prisons Than Hospitals: A Survey of the States*. Retrieved from
www.treatmentadvocacycenter.org/storage/.../final_jails_v_hospitals_study.pdf

Travis, J. (2001). But They All Come Back: Rethinking Prisoners Reentry *Corrections Management Quarterly* (Vol. 5, pp. 23-33).

Travis, J., et al. (2001). Reentry Reconsidered: A New Look at an Old Question. *Crime & Delinquency, 47*(3), 291-313.

Travis, J., et al. (2001). *From Prison to Home: The Dimensions and Consequences of Prisoner Reentry*. Retrieved from Washington D.C., USA:
http://research.urban.org/UploadedPDF/from_prison_to_home.pdf

Trestman, R. L., et al. (2007). Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. *J Am Acad Psychiatry Law, 35*(4), 490-500.

Turner, S., et al. (2015). *Public Safety Realignment in Twelve California Counties*. Retrieved from
http://www.rand.org/content/dam/rand/pubs/research_reports/RR800/RR872/RAND_RR872.pdf

U.S. Department of Justice-Bureau of Justice Statistics. (2016). *Survey of Inmates in State and Federal Correctional Facilities, 2004*. Retrieved from: http://doi.org/10.3886/ICPSR04572.v2

U.S. Department of Justice. (1992-2006). *Felony Sentences in State Courts*. Retrieved from Washington D.C.: https://www.bjs.gov/index.cfm?ty=pbse&sid=28

Volker, B., et al. (2016). Changes in the social networks of prisoners: A comparison of their networks before and after imprisonment. *Social Networks, 47*, 47-58. doi:https://doi.org/10.1016/j.socnet.2016.04.004

Walker, A., et al. (2014). Parole Reentry and Social Capital: The Centrality of Homelessness. *Journal of Poverty, 18*(3), 315-334. doi:10.1080/10875549.2014.923962

Ward, B. W., et al. (2014). Multiple Chronic Conditions Among US Adults: A 2012 Update. *Preventing Chronic Disease, 11*, E62. doi:10.5888/pcd11.130389

Watts, A. L. (2014). *Probation In-depth: The Length of Probation Sentences*. Retrieved from Minneapolis, MN, U.S.: https://robinainstitute.umn.edu/file/416/download?token=Cy5rlrn1

Williams, B., et al. (**2014**). *The Older Prisoner and Complex Chronic Medical Care* Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0005/249188/Prisons-and-Health.pdf

Williams, F. P., et al. (2000). Predicting Parole Absconders. *The Prison Journal, 80*(1), 24-38. doi:10.1177/0032885500080001002

Appendix A - Causal Loop Diagram (Major Loops)

Reinforcing Loops:

R1 – Prison Overcrowding Effect on MI Development

R2 – Previous Incarceration Time Served Increases the Next Sentence Length

R3 – Previous Incarceration Time Served Increases Recidivism

Balancing Loops:

B1 – Community Services Affects Parolees' Recidivism

B2 – Community Services Affects Parole Violation Rate

B3 – Prison Mental Health Care Affects Parolees' Recidivism

B4 – Social Capital Influences the Needs for Social Supports

– Calculation for the Prevalence Data (1992) Obtained from Scarlett Carp Report

		SMI	MMI	SMI	MMI
Prevalence in 1992		0.1107	0.0947	0.1521	0.0903
Male Inmates	102749	11374	9730		
Female Inmates	5973			908	539
Total					22552
Ave Prevalence Ratio					0.207

In this report, SMI and MMI refer to severe mental impairments and moderate mental impairments respectively.

Appendix C – Timeline of Diagnostic and Statistical Manual of Mental Disorders Criteria (DSM) Development

DSM-I (1952)

- Homosexuality was included until 1974
- 106 mental disorders

DSM-II (1968)

- Many challenges of MI definitions
- 182 mental disorders

DSM-II (7th printing) (1974)

- Homosexuality was replaced by "sexual orientation disturbance"

DSM-III (1980)

- Abandoned psychodynamic/physiologic view in favor of a regulatory/legislative model
- Attempted to make the nomenclature consistent w/ ICD (International Statistical Classification of Diseases & Related Health Problem)
- 256 diagnostic criteria
- "may led to the medication of 20-30% of population who may not have had any serious mental problem"

DSM-III-R (1987)

- A revision of DSM III
- Categories were renamed & reorganized, significant changes in criteria were made
- 6 categories were deleted
- 292 diagnoses

DSM-IV (1994)

- 297 disorders
- Major change: inclusion of a clinical significance criterion to almost half of all the categories, which required that symptoms caused "clinically significant distress/impairment in social, occupational, or other important areas of function"

DSM-IV-TR (2000)

- A text revision of DSM-IV
- Text sections give extra information on each diagnosis
- Characterizes a mental disorder as "clinically significant behavioral/psychological syndrome/pattern that occurs in an individual [which] is associated with present distress…or disability…or with a significant increased risk of suffering"
- "no definition adequately specifies precise boundaries for the concept of mental disorder…different situations call for different definitions"
- "there's no assumption that each category of mental disorder is a completely discrete entity with absolute boundaries dividing it for other mental disorders or from no mental disorder"

DSM-5 (2013)

- Extensively revised diagnoses
- 1st major revision of the manual in 20 years
- Deletion of the subtypes of schizophrenia (paranoid, disorganized, catatonic, undifferentiated, residual)
- Deletion of the subsets of autistic spectrum disorder (Asperger's Syndrome, classic autism, Rett Syndrome, Childhood Disintegrative Disorder, persuasive developmental disorder not otherwise specified)
- Intensity (mild, moderate, severe) were added to the diagnosis of autistic spectrum disorder

What is the sequence of events in the criminal justice system?

Note: This chart gives a simplified view of caseflow through the criminal justice system. Procedures vary among jurisdictions. The weights of the lines are not intended to show actual size of caseloads.

Source: Adapted from *The challenge of crime in a free society*. President's Commission on Law Enforcement and Administration of Justice, 1967. This revision, a result of the Symposium on the 30th Anniversary of the President's Commission, was prepared by the Bureau of Justice Statistics in 1997.

Source: Bureau of Justice Statistics, https://www.bjs.gov/content/justsys

Appendix E - Calculations to Estimate the Prevalence of Infectious Disease in Prison

Estimation of the Prevalence of HIV/AIDS in Prison	
Prison Population in 1998	159563 persons
HIV/AIDS Prisoners	5,000 – 8,000 persons
Fraction of HIV/AIDS Prisoners (using the average of 5,000 to 8,0000)	0.04

Estimation of the Prevalence of Hepatitis C in Prison

Estimation with an SD model	Estimated Prevalence of Hepatitis C in Prison Over Time
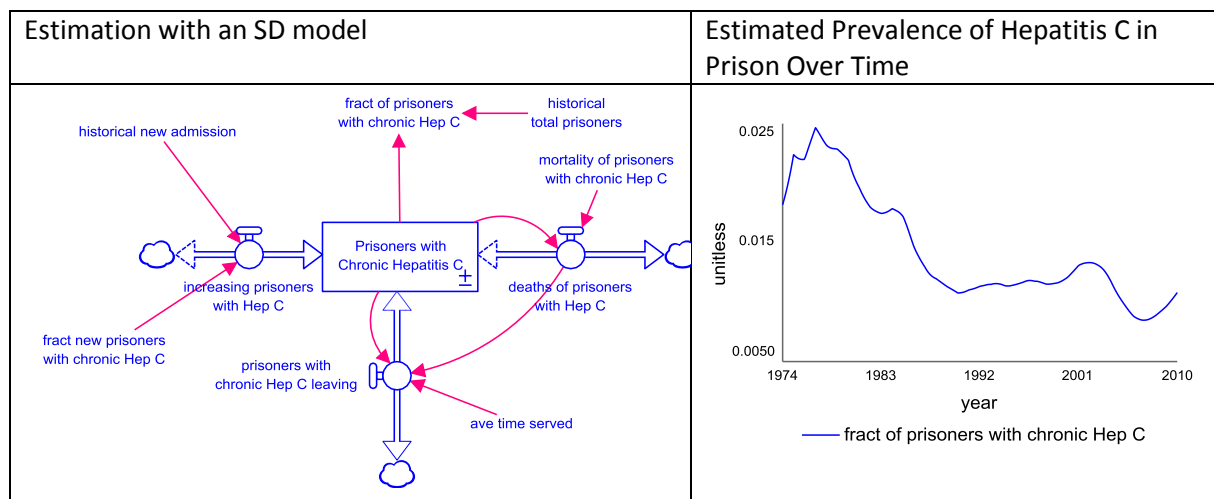
Equations:
Top-Level Model:
Prisoners_with_Chronic_Hepatitis_C(t) = Prisoners_with_Chronic_Hepatitis_C(t - dt) + (increasing_prisoners_with_Hep_C - deaths_of_prisoners_with_Hep_C - prisoners_with_chronic_Hep_C_leaving) * dt
INIT Prisoners_with_Chronic_Hepatitis_C = 22486*0.02
INFLOWS:
increasing_prisoners_with_Hep_C = historical_new_admission * fract_new_prisoners_with_chronic_Hep_C
OUTFLOWS:
deaths_of_prisoners_with_Hep_C = Prisoners_with_Chronic_Hepatitis_C * mortality_of_prisoners_with_chronic_Hep_C
prisoners_with_chronic_Hep_C_leaving = (Prisoners_with_Chronic_Hepatitis_C - deaths_of_prisoners_with_Hep_C *DT)/ ave_time_served
ave_time_served = GRAPH(TIME)
(1974.00, 2.83), (1975.00, 2.83), (1976.00, 2.83), (1977.00, 2.5), (1978.00, 2.17), (1979.00, 2.08), (1980.00, 2.0), (1981.00, 2.0), (1982.00, 1.83), (1983.00, 1.83), (1984.00, 1.92), (1985.00, 1.83), (1986.00, 1.58), (1987.00, 1.42), (1988.00, 1.5), (1989.00, 1.42), (1990.00, 1.33), (1991.00, 1.33), (1992.00, 1.33), (1993.00, 1.33), (1994.00, 1.33), (1995.00, 1.5), (1996.00, 1.58), (1997.00, 1.58), (1998.00, 1.43), (1999.00, 1.43), (2000.00, 1.55), (2001.00, 1.65), (2002.00, 1.61), (2003.00, 1.56), (2004.00, 1.3), (2005.00, 1.28), (2006.00, 1.22), (2007.00, 1.24), (2008.00, 1.28), (2009.00, 1.3), (2010.00, 1.38)
fract_new_prisoners_with_chronic_Hep_C = 0.03
fract_of_prisoners_with_chronic_Hep_C = Prisoners_with_Chronic_Hepatitis_C / historical_total_prisoners
historical_new_admission = GRAPH(TIME)
(1974.00, 5359.0), (1975.16666667, 5765.0), (1976.33333333, 6910.0), (1977.50, 7558.0), (1978.66666667, 9325.0), (1979.83333333, 9874.0), (1981.00, 11347.0), (1982.16666667, 13932.0), (1983.33333333, 15932.0), (1984.50, 18391.0), (1985.66666667, 17602.0), (1986.83333333, 20543.0), (1988.00, 23588.0), (1989.16666667, 26515.0), (1990.33333333,

29579.0), (1991.50, 34226.0), (1992.66666667, 39272.0), (1993.83333333, 38252.0), (1995.00, 40158.0), (1996.16666667, 43149.0), (1997.33333333, 41580.0), (1998.50, 45459.0), (1999.66666667, 46487.0), (2000.83333333, 46823.0), (2002.00, 46589.0), (2003.16666667, 42936.0), (2004.33333333, 40276.0), (2005.50, 37932.0), (2006.66666667, 38662.0), (2007.83333333, 43422.0), (2009.00, 46798.0), (2010.16666667, 48609.0), (2011.33333333, 48639.0), (2012.50, 46987.0), (2013.66666667, 46380.0), (2014.83333333, 45016.0), (2016.00, 41521.0)

historical_total_prisoners = GRAPH(TIME)

(1974.00, 24741.0), (1975.00, 20028.0), (1976.00, 21008.0), (1977.00, 19623.0), (1978.00, 21325.0), (1979.00, 22632.0), (1980.00, 24569.0), (1981.00, 29202.0), (1982.00, 34640.0), (1983.00, 39373.0), (1984.00, 43328.0), (1985.00, 50111.0), (1986.00, 59484.0), (1987.00, 66975.0), (1988.00, 76171.0), (1989.00, 87297.0), (1990.00, 97309.0), (1991.00, 101808.0), (1992.00, 109496.0), (1993.00, 119951.0), (1994.00, 125605.0), (1995.00, 135133.0), (1996.00, 145565.0), (1997.00, 155276.0), (1998.00, 159563.0), (1999.00, 160687.0), (2000.00, 160655.0), (2001.00, 157142.0), (2002.00, 159695.0), (2003.00, 161785.0), (2004.00, 163939.0), (2005.00, 168035.0), (2006.00, 172528.0), (2007.00, 171444.0), (2008.00, 171085.0), (2009.00, 168830.0), (2010.00, 162821.0), (2011.00, 147578.0), (2012.00, 132935.0), (2013.00, 134339.0), (2014.00, 135484.0), (2015.00, 128900.0), (2016.00, 117319.0)

mortality_of_prisoners_with_chronic_Hep_C = 0.02

{ The model has 10 (10) variables (array expansion in parens).

In 1 Modules with 0 Sectors.

Stocks: 1 (1) Flows: 3 (3) Converters: 6 (6)

Constants: 2 (2) Equations: 7 (7) Graphicals: 3 (3)

}

Appendix F - Calculation of Treatment Cost per Mental Function Improved

This is a calculation to estimate the treatment cost for mental illness by severity.

<u>Mental Functions Discrepancy</u>

Number of prisoners in 1987 – 66,975 person

Average GAF score per prisoner – 57 score/person

Desired GAP score per prisoner – 100 score/person

MI Prevalence in 1987 – 0.14

Mental Functions of Prisoners wMI – 66, 975 * 0.14 * 57 = 247,990 score

Desired Mental Functions of Prisoners wMI - 66, 975 * 0.14 * 100 = 937,650 score

Discrepancy in Mental Functions of Prisoners wMI – 937,650 score – 247,990 score = 689,660 score

<u>Treatment Cost of the MI Prisoners</u>

Costs are adapted from "Corrections Criminal Justice and the Mental Illness Observations about Costs in California" (Izumi, Schiller & Hayward, 1996))

CCCM costs $880/person * 10,595 prisoners wMI (1996-97) = $9,323,600

EOP costs $9,600/person * 1,896 prisoners wMI (1996-97) = $18,201,600

$9,323,600 + $18,201,600 = $27,525,200

Consumer Price Index base year in 2009 – 59.935

Adjusted Cost of treatment of Prisoners wMI in 1987 - $27,525,200 / *59.935 / 100 = $ 16,497,228

MHC cost per discrepancy - $ 16,497,228 / 689, 660 score = $23.92 /score

Appendix G - California Parole Population Caseloads and Supervision Requirements

LEVEL OF SUPERVISION	SELECTED PAROLE CONTACT AND TESTING REQUIREMENTS
High Control Parolees who were convicted of violent felonies in Penal Code 667.5(c), must register as sex offenders, are validated gang members, or high-notoriety cases.	▪ 2 face-to-face contacts per month (one must be at residence) ▪ First home visit within 6 days of release ▪ 1 drug test per month, if required ▪ 2 collaterals per quarter
High Service Refers to parolees who have special service needs (severe addiction problems) or behavioral patterns (severe mental illness).	▪ 2 face-to-face contacts per month (one must be at residence) ▪ 1 drug test per month, if required (Civil addicts may have weekly testing) ▪ 2 collaterals per quarter
Control Service Require active supervision. Refers to parolees who do not meet the criteria for High Control or High Services	▪ 1 face-to-face in residence every other month ▪ 2 drug tests per quarter ▪ 1 collateral every 90 days ▪ Most CS cases drop to MS automatically at 180 days
High Risk Caseloads *Second Striker* Parolees with at least two prior convictions for serious or violent offenses. Ideal ratio of 40:1.	▪ 2 face-to-face per month; 4 per quarter in home ▪ 1 drug tests per month ▪ 2 collaterals per month
High Risk Sex Offender Defined by the CA Dept of Justice, uses criteria set forth under PC 290(n)(1), PC 667.5 and 667.6. Ideal ratio of 40:1.	▪ 2 face-to-face per month; 4 per quarter in home ▪ 1 drug test per month ▪ 2 collaterals per month ▪ Quarterly meeting with person who knows parolee well.
Minimum Service (MS) This classification refers to parolees who are on monthly mail-in, and these are counted as 'contacts.' These individuals need to make only two to three face to face or collateral contacts with their parole officer each year	▪ 1 home visit within 30 days of being assigned to MS ▪ 1 face-to-face or collateral every 4 months ▪ 1 monthly report turned in by 5th of every month. ▪ Face-to-face contact 30 days prior to discharge ▪ Drug testing waived

Adapted from "Parole Violations and Revocations in California" (Grattet et al., 2008) (pp. 51)

Appendix H - Definitions and Scope of CDCR Medical Services

Services Delivered and/or Coordinated by the Primary Care Team and Associated Standards in IMSP&P	
Service Type	**Applicable Standards**
Initial and Ongoing Health Risk Assessment	• Reception Health Care (IMSP&P Volume 4, Chapter 2) • Health Care Transfer Process (IMSP&P Volume 4, Chapter 3) • Comprehensive Accommodation (IMSP&P Volume 4, Chapter 23) • Medical Classification System (IMSP&P Volume 4, Chapter 29) • Care Team and Patient Panel (IMSP&P Volume 4, Chapter 1.2) • Scheduling and Access to Care (IMSP&P Volume 4, Chapter 1.3) • Population and Care Management Services (IMSP&P Volume 4, Chapter 1.4)
Preventive Services	• Public Health and Infection Control (IMSP&P Volume 10) • Patient Health Care Education (IMSP&P Volume 4, Chapter 6.1) • Patient Care During Pregnancy and Childbirth (IMSP&P Volume 4, Chapter 24) • Inmate Dental Services Program Policies and Procedures
Diagnosis and Treatment of Acute and Chronic Illness	• Scheduling and Access to Care (IMSP&P Volume 4, Chapter 1.3) • Medication Management (IMSP&P Volume 4, Chapter 11) • Clinical Guidelines (IMSP&P Volume 3, Chapter 5) • Gender Dysphoria Management (IMSP&P Volume 4, Chapter 26) • Hepatitis C Management (IMSP&P Volume 4, Chapter 31) • Nursing Services/Protocols (IMSP&P Volume 5) • Inmate Dental Services Program Policies and Procedures • Mental Health Services Delivery System Program Guide
Allied Health Services	• Diagnostic Services (IMSP&P Volume 4, Chapter 10) • Medical Imaging Services and Radiology (IMSP&P Volume 4, Chapter 30) • Outpatient Dietary Intervention (IMSP&P Volume 4, Chapter 20) • Durable Medical Equipment and Medical Supply (IMSP&P Volume 4, Chapter 32) • Pharmacy Services (IMSP&P Volume 9)
Emergency Response	• Emergency Medical Response System (IMSP&P Volume 4, Chapter 12)
Specialty Referrals and Follow-Up	• Outpatient-Specialty Services (IMSP&P Volume 4 Chapter 8) • Utilization Management Program (IMSP&P Volume 4 Chapter 34) • Physician Orders for Life-Sustaining Treatment (IMSP&P Volume 1, Chapter 18)
End-of-Life Planning and Treatment	• Palliative Care and Treatment (IMSP&P Volume 4, Chapter 21) • Advance Directive for Health Care (IMSP&P Volume 1, Chapter 17) • Physician Orders for Life Sustaining Treatment (IMSP&P Volume 1, Chapter 18)
Referrals to Higher Levels of Care and Follow-Up	• Health Care Transfer Process (IMSP&P Volume 4, Chapter 3) • Outpatient Housing Unit (IMSP&P Volume 4, Chapter 14) • Correctional Treatment Center (IMSP&P Volume 4, Chapter 15)
Handoffs Between Providers in Different Health Settings / Between Care Teams	• Health Care Transfer Process (IMSP&P Volume 4, Chapter 3)

Adapted from California Correctional Health Care Services (2017) (Attachment A)

Appendix I Test Results

Equilibrium Test

Stocks of Community Service Budget

- Community Service Budget for Parolees wMI
- Community Service Budget for Parolees wo MI
- Correctional Budget to Community Services

Stocks of Community Service Capacity

- Community Service Capacity for Parolees wMI
- Community Service Capacity for Parolees wo MI

Average Age of Prisoners and Prison Parolees

- Ave Age per Prisoner wMI
- Ave Age per Prisoner wo MI
- Ave Age per Prison Parolee wMI
- Ave Age per Prison Parolee wo MI

Average Mental Functions of Prisoners and Parolees

- Ave Mental Func per Prisoner wMI
- Ave Mental Func per Prisoner wo MI
- Ave Mental Func per Prison Parolee wMI
- Ave Mental Func per Prison Parolee wo MI

Total Incar Time Served by Prisoners and Jail Offenders

- Total Incar Time per Prisoner wMI
- Total Incar Time per Prisoner wo MI
- Total Incar Time per Jail Offender wMI
- Total Incar Time per Jail Offender wo MI

Stocks of Social Capital of Prisoners and Paroles

- SC Prisoners wMI
- SC Prisoners wo MI
- SC Prison Parolees wMI
- SC Prison Parolees wo MI

Extreme Condition Test 1 – Zero Population Growth

In this test, the population growth rate is changed to zero in from 2012.
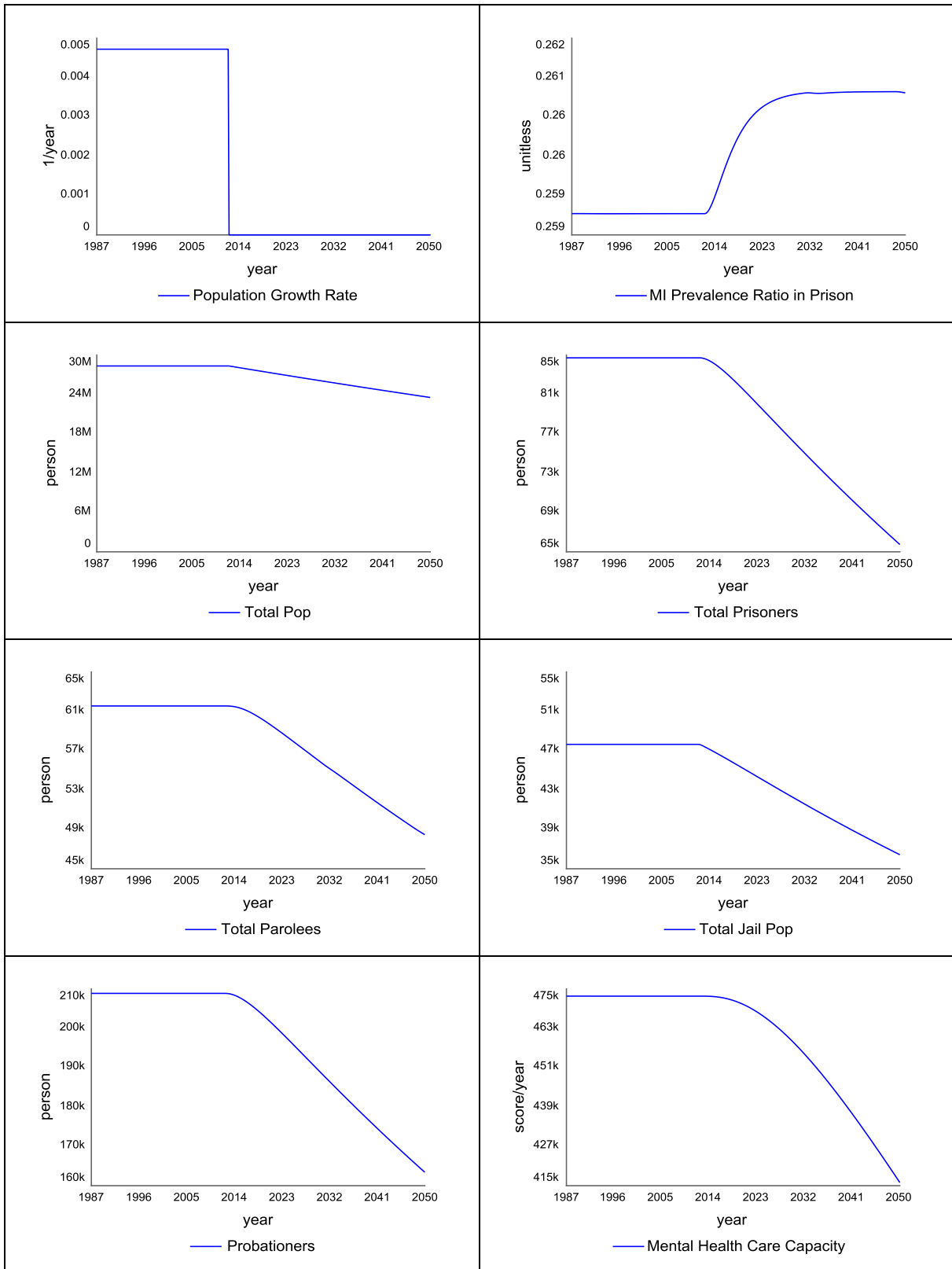
Extreme Condition Test 2 – 100% Population Growth
In this test, the population growth rate is doubled from 0.0047 to 0.096 from 2012.
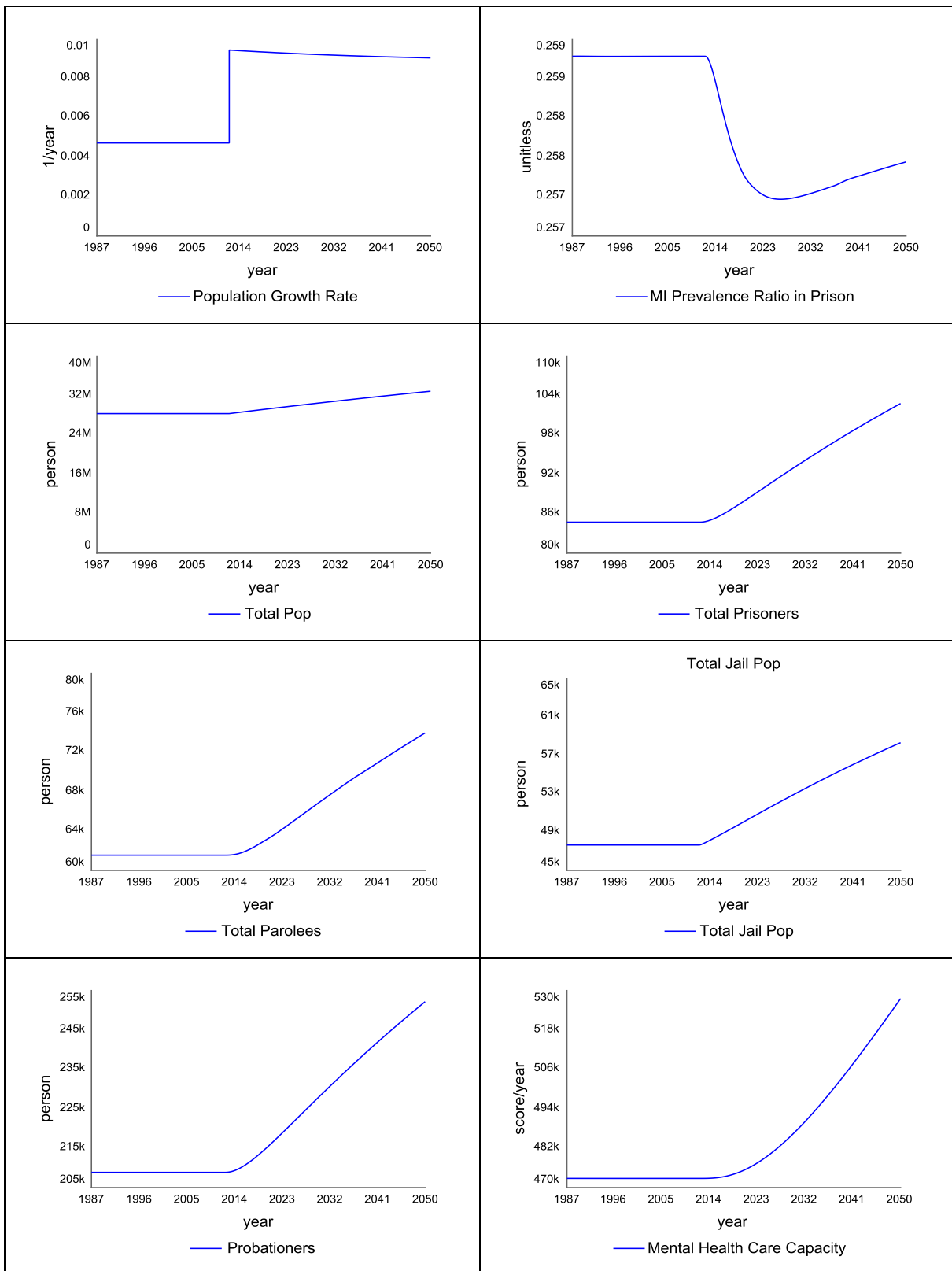
Extreme Condition Test 3 – Zero Fraction of Defendants with Prison Conviction

In this test, the fraction of defendants being convicted to prison sentence is reduced to zero from 2012.
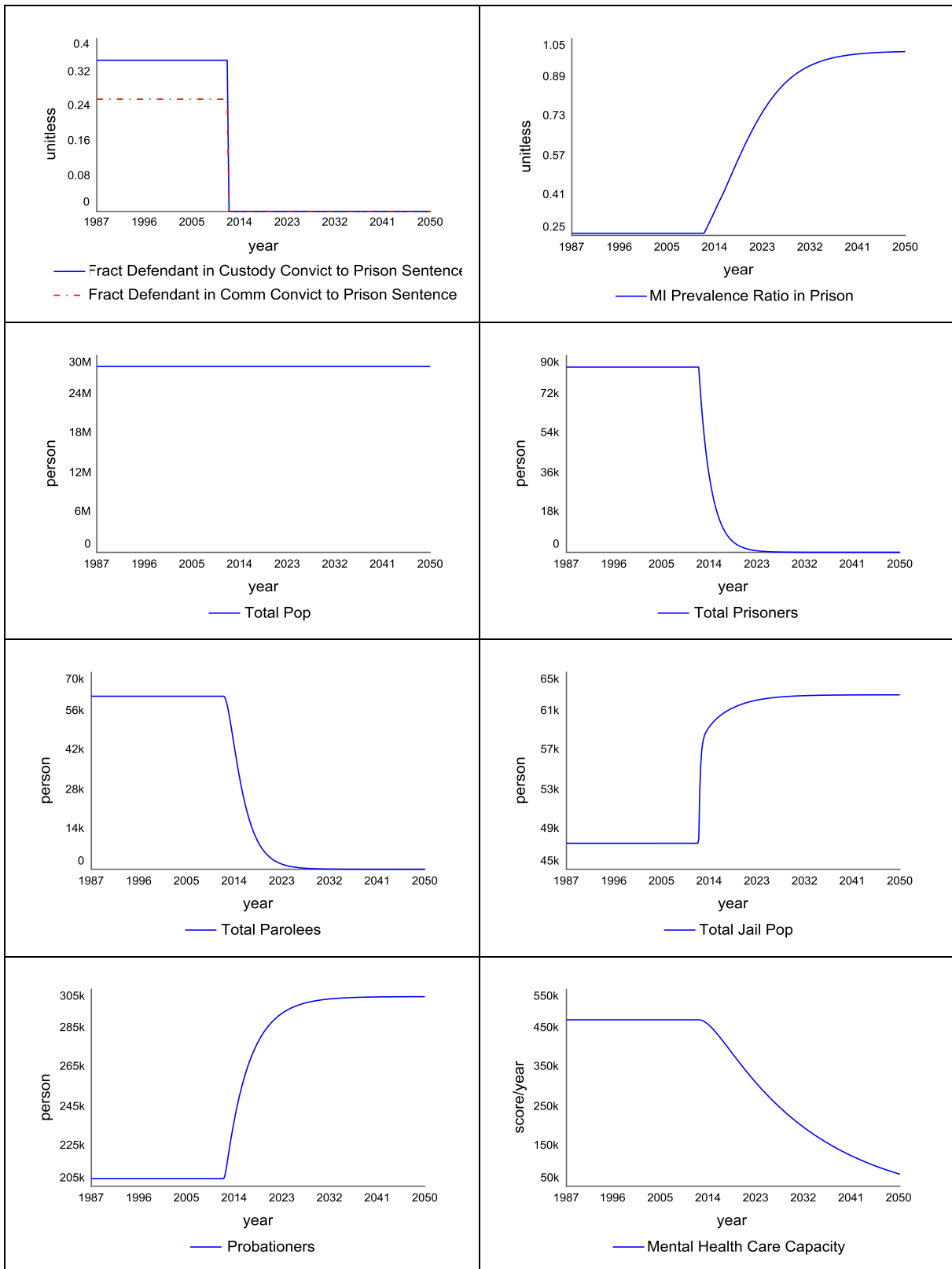
Extreme Condition Test 4 – Zero Fraction of Defendants with Probation Conviction

In this test, the fraction of defendants being convicted to jail sentence is reduced to zero from 2012.
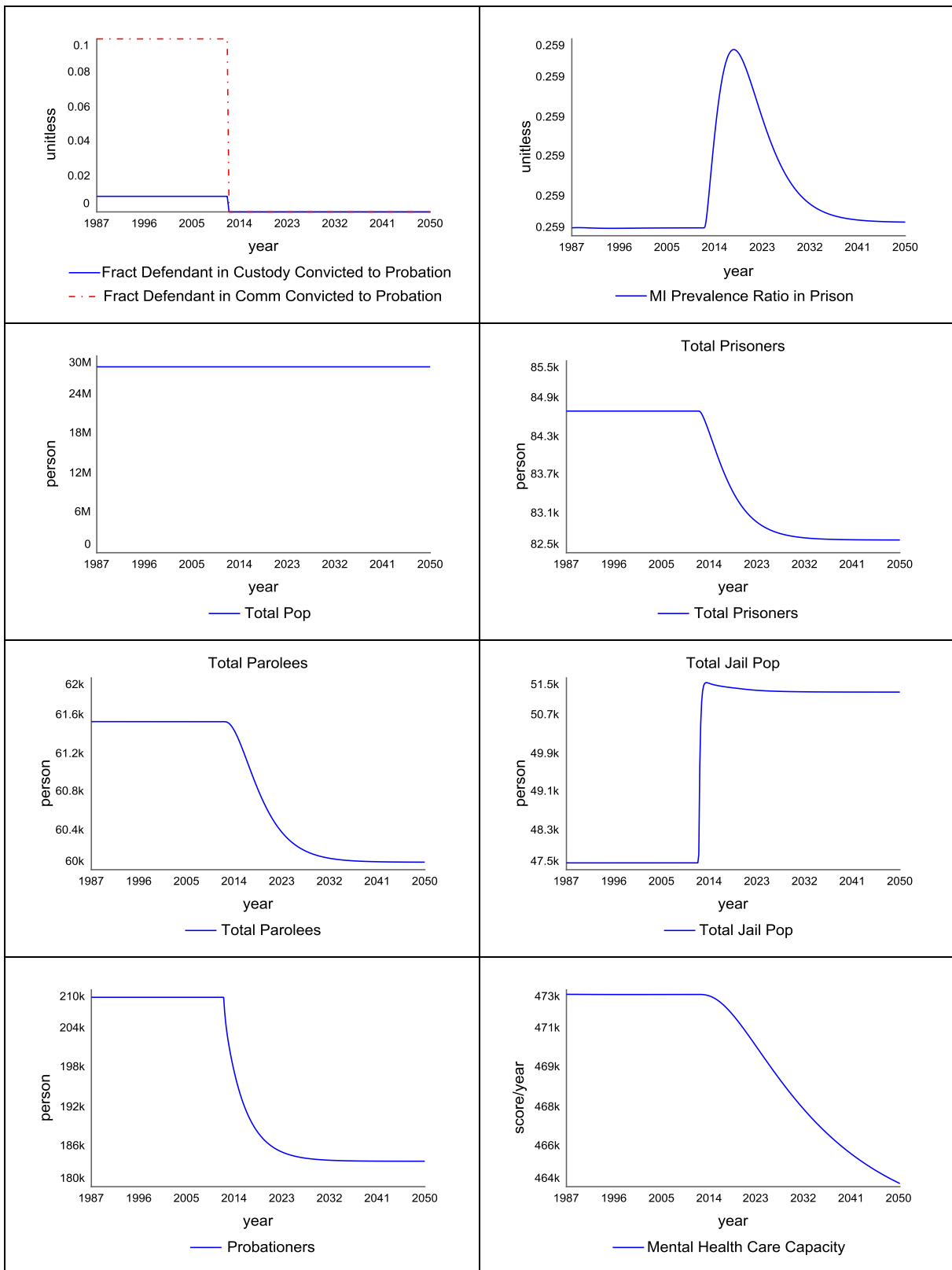
Extreme Condition Test 5 – Increase Initial Age at First Commitment to the Expected Life Expectancy of Prisoners

In this test, the initial age at first commitment increases from 28 to 75 from 2012.
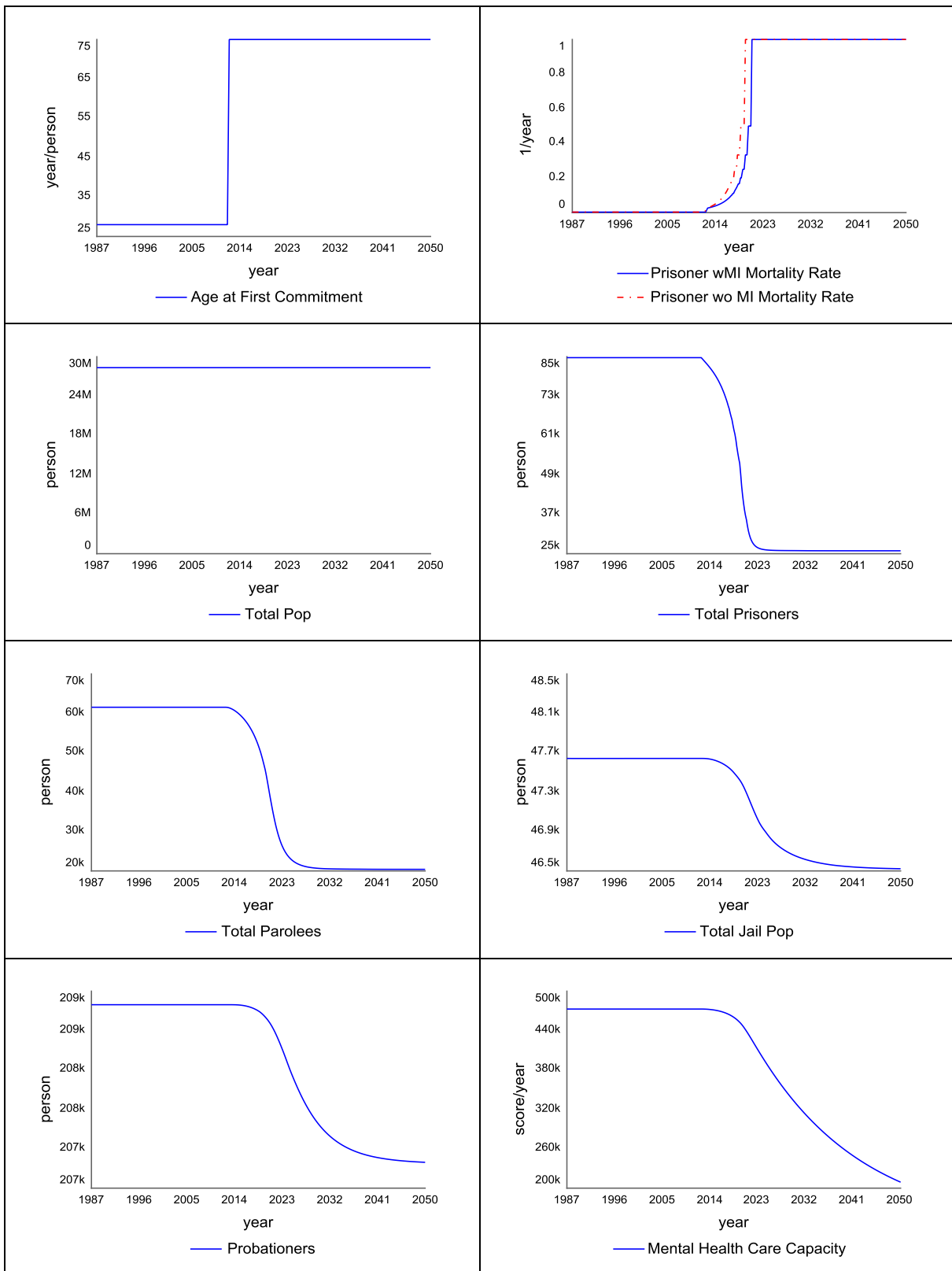
Extreme Condition Test 6 – Increase Average Mental Functions per New Arrestee to 100

In this test, the average mental functions per new arrestee increases from 65 score/person to 100 score/person from 2012.
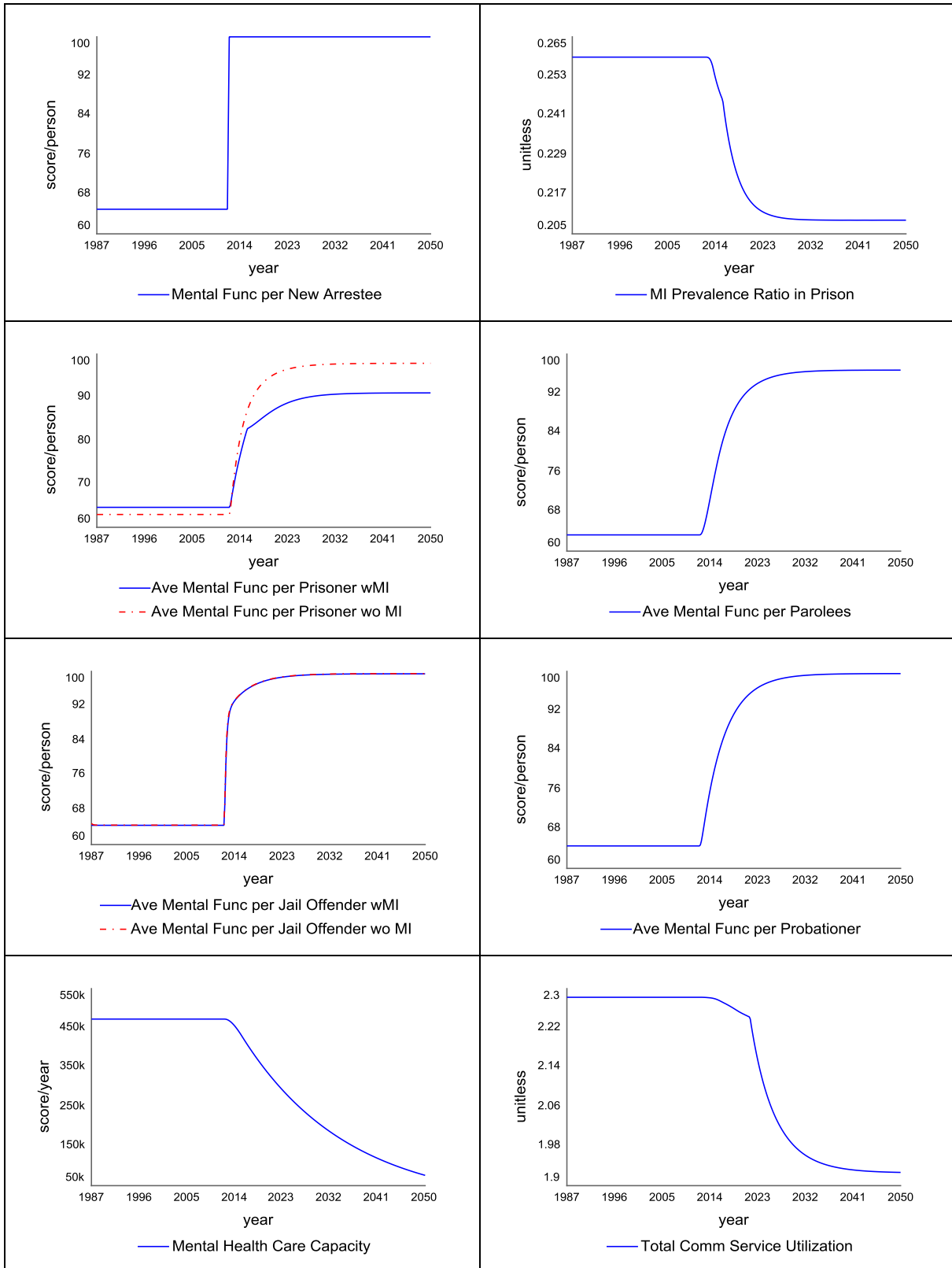
Extreme Condition Test 7 – Increase Social Capital per New Arrestee to 100

In this test, the average mental functions per new arrestee increases from 65 score/person to 100 score/person from 2012.
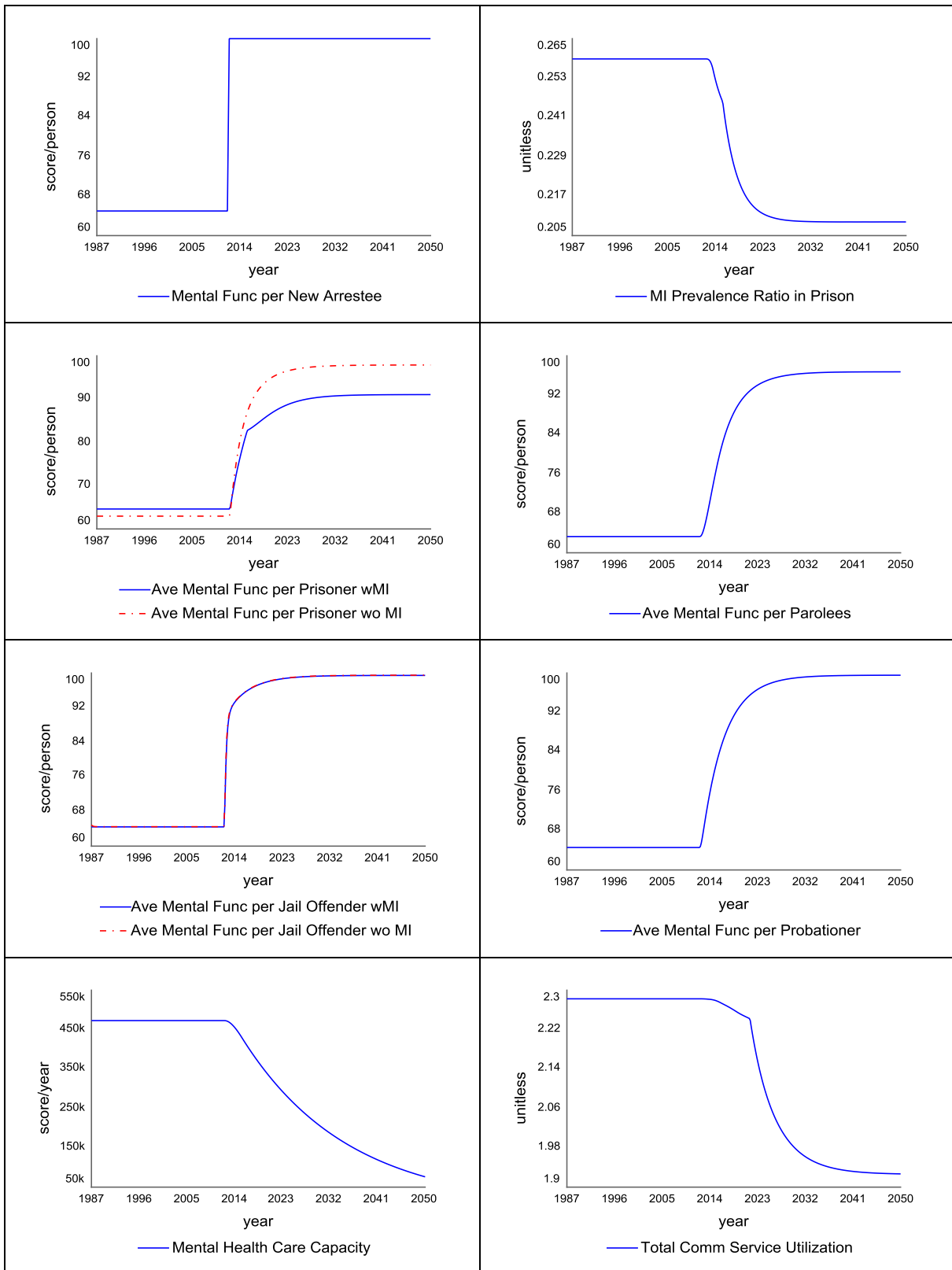
Extreme Condition Test 8 – Reduce Prison Health Care Budget by 50%

In this test, the prison health care budget decreases by 50% from 2012.
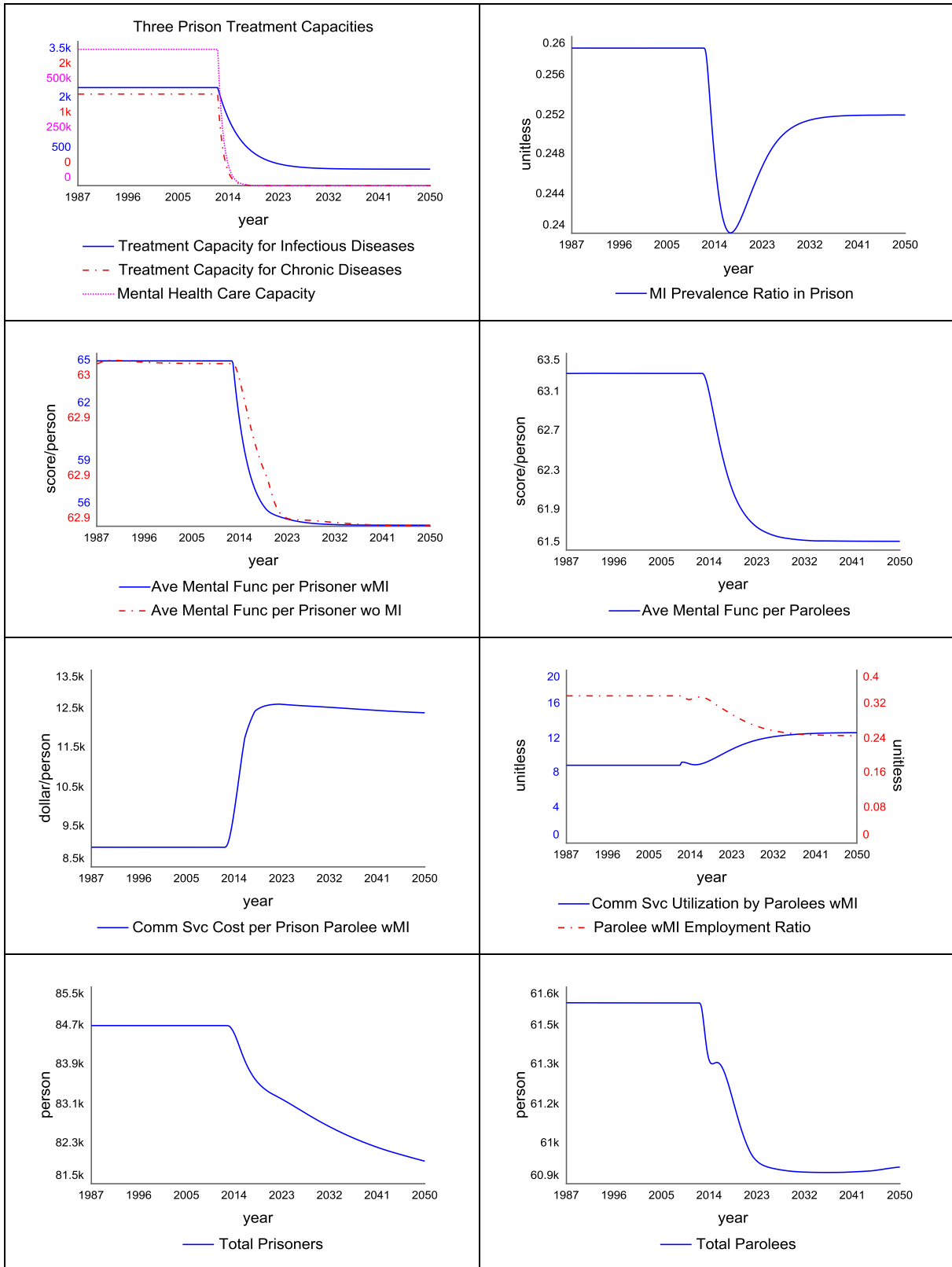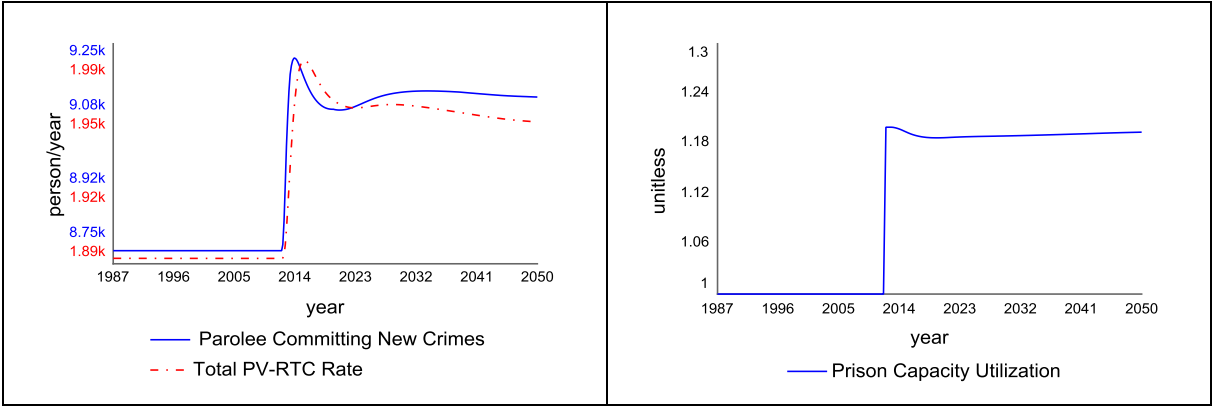
Extreme Condition Test 9 – Decrease Correctional Community Service Budget by 50%

In this test, the correctional community service budget decreases by 50% from 2012.

Stocks of Community Service Capacity

Community Service Capacity for Parolee
Community Service Capacity for Parolee

MI Prevalence Ratio in Prison

Comm Svc Utilization by Parolees wMI
Parolee wMI Employment Ratio

Comm Svc Utilization by Parolees wo MI
Parolee wo MI Employment Ratio

Ave Mental Func per Parolees

Prison Capacity Utilization

MHC Capacity Adequacy

Jail Capacity Utilization

Appendix J –Model Documentation

Population Module

Innocent_Pop(t) = Innocent_Pop(t - dt) + (chg_in_pop + being_released_before_charges + being_released_unconvict_after_charges - innocent_pop_deaths - being_affected) * dt

INIT Innocent_Pop = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 17973530.6528 ELSE 27000000

UNITS: person

INFLOWS:

chg_in_pop = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN INIT (total_pop) * gg ELSE (1-Individuals_with_Criminal_History.hold_total_pop_constant_swtich) * (total_pop * historical_pop_growth_rate) + Individuals_with_Criminal_History.hold_total_pop_constant_swtich * INIT (total_pop) * gg

UNITS: person/year

being_released_before_charges = Individuals_with_Criminal_History.release_by_law_enforcement

UNITS: person/year

being_released_unconvict_after_charges = total_complaints_dismissed_after_charges

UNITS: person/year

OUTFLOWS:

innocent_pop_deaths = Innocent_Pop * mortality_rate

UNITS: person/year

being_affected = Individuals_with_Criminal_History.arrest_rate

UNITS: person/year

Pop_Initial_Contact_with_Criminal_Justice_System(t) = Pop_Initial_Contact_with_Criminal_Justice_System(t - dt) + (being_affected + parolee_committing_new_crimes + recidivism - getting_involved_in_the_correctional_system - being_released_before_charges) * dt

INIT Pop_Initial_Contact_with_Criminal_Justice_System = Individuals_with_Criminal_History.Arrestees

UNITS: person

INFLOWS:

being_affected = Individuals_with_Criminal_History.arrest_rate

UNITS: person/year

parolee_committing_new_crimes = total_parolees_committing_new_crimes

    UNITS: person/year

  recidivism = exConv_wo_parolees_recidivism

    UNITS: person/year

OUTFLOWS:

  getting_involved_in_the_correctional_system = total_being_involved_in_the_correctional_system

    UNITS: person/year

  being_released_before_charges = Individuals_with_Criminal_History.release_by_law_enforcement

    UNITS: person/year

Recovered_Pop_with_Criminal_History(t) = Recovered_Pop_with_Criminal_History(t - dt) + (becoming_desisted - recovered_pop_deaths) * dt

  INIT Recovered_Pop_with_Criminal_History = total_desisted_pop

  UNITS: person

  INFLOWS:

  becoming_desisted = total_unrecovered_pop_becoming_desisted

    UNITS: person/year

  OUTFLOWS:

  recovered_pop_deaths = total_recovered_pop_deaths

    UNITS: person/year

Unrecovered_Pop_with_Criminal_History(t) = Unrecovered_Pop_with_Criminal_History(t - dt) + (getting_involved_in_the_correctional_system - becoming_desisted - unrecovered_pop_deaths - parolee_committing_new_crimes - recidivism - being_released_unconvict_after_charges) * dt

  INIT Unrecovered_Pop_with_Criminal_History = total_affected

  UNITS: person

  INFLOWS:

  getting_involved_in_the_correctional_system = total_being_involved_in_the_correctional_system

    UNITS: person/year

  OUTFLOWS:

  becoming_desisted = total_unrecovered_pop_becoming_desisted

    UNITS: person/year

unrecovered_pop_deaths = total_deaths_of_affected_pop

    UNITS: person/year

parolee_committing_new_crimes = total_parolees_committing_new_crimes

    UNITS: person/year

recidivism = exConv_wo_parolees_recidivism

    UNITS: person/year

being_released_unconvict_after_charges = total_complaints_dismissed_after_charges

    UNITS: person/year

exConv_wo_parolees_recidivism =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism +
Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism +
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism +
Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism +
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism +
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism +
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism +
Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism

   UNITS: person/year

fract_of_pop_with_criminal_history = (Unrecovered_Pop_with_Criminal_History +
Recovered_Pop_with_Criminal_History) / total_pop

   UNITS: unitless

fract_of_unrecovered_pop_with_criminal_history = Unrecovered_Pop_with_Criminal_History /
total_pop

   UNITS: unitless

gg =
(Innocent_Pop*mortality_rate+total_deaths_of_affected_pop+total_recovered_pop_deaths)/(Innoc
ent_Pop+Unrecovered_Pop_with_Criminal_History+Recovered_Pop_with_Criminal_History+Pop_Init
ial_Contact_with_Criminal_Justice_System)

   UNITS: 1/year

historical_pop_growth_rate = GRAPH(TIME)

(1987.00, 0.0246), (1988.03703704, 0.0244), (1989.07407407, 0.0264), (1990.11111111, 0.0212),
(1991.14814815, 0.0235), (1992.18518519, 0.0174), (1993.22222222, 0.01488), (1994.25925926,
0.01358), (1995.2962963, 0.01304), (1996.33333333, 0.0139), (1997.37037037, 0.01586),
(1998.40740741, 0.01683), (1999.44444444, 0.01813), (2000.48148148, 0.01998), (2001.51851852,
0.0203), (2002.55555556, 0.02041), (2003.59259259, 0.01998), (2004.62962963, 0.01651),
(2005.66666667, 0.0138), (2006.7037037, 0.01184), (2007.74074074, 0.01065), (2008.77777778,
0.00978), (2009.81481481, 0.00978), (2010.85185185, 0.01033), (2011.88888889, 0.012),
(2012.92592593, 0.0096), (2013.96296296, 0.0097), (2015.00, 0.0097)

UNITS: 1/year

historical_pop_growth_rate_2 = GRAPH(TIME)

(1987.00, 0.0246), (1988.03703704, 0.0244), (1989.07407407, 0.0264), (1990.11111111, 0.0212), (1991.14814815, 0.0235), (1992.18518519, 0.0174), (1993.22222222, 0.0105), (1994.25925926, 0.0067), (1995.2962963, 0.006), (1996.33333333, 0.0079), (1997.37037037, 0.0153), (1998.40740741, 0.0126), (1999.44444444, 0.0169), (2000.48148148, 0.0136), (2001.51851852, 0.0189), (2002.55555556, 0.0123), (2003.59259259, 0.0129), (2004.62962963, 0.0103), (2005.66666667, 0.0065), (2006.7037037, 0.0073), (2007.74074074, 0.0084), (2008.77777778, 0.0083), (2009.81481481, 0.006), (2010.85185185, 0.0048), (2011.88888889, 0.012), (2012.92592593, 0.0096), (2013.96296296, 0.0097), (2015.00, 0.0097)

UNITS: 1/year

mortality_rate = 0.008*0 + 0.003

UNITS: 1/year

pop_growth_rate_for_equilibrium = (1-
Individuals_with_Criminal_History.fix_pop_growth_rate_for_eq_switch) *
((Innocent_Pop*mortality_rate+ Individuals_with_Criminal_History.arrest_rate-
Individuals_with_Criminal_History.release_by_law_enforcement-
total_complaints_dismissed_after_charges)/total_pop) +
Individuals_with_Criminal_History.fix_pop_growth_rate_for_eq_switch * test_pop_growth_rate

UNITS: 1/year

ref_CA_pop = GRAPH(TIME)

(1987.00, 27717000.0), (1988.03703704, 28393000.0), (1989.07407407, 29142000.0), (1990.11111111, 29760021.0), (1991.14814815, 30458613.0), (1992.18518519, 30987384.0), (1993.22222222, 31314189.0), (1994.25925926, 31523690.0), (1995.2962963, 31711849.0), (1996.33333333, 31962949.0), (1997.37037037, 32452789.0), (1998.40740741, 32862965.0), (1999.44444444, 33418578.0), (2000.48148148, 33871653.0), (2001.51851852, 34512742.0), (2002.55555556, 34938290.0), (2003.59259259, 35388928.0), (2004.62962963, 35752765.0), (2005.66666667, 35985582.0), (2006.7037037, 36246822.0), (2007.74074074, 36552529.0), (2008.77777778, 36856222.0), (2009.81481481, 37077204.0), (2010.85185185, 37253956.0), (2011.88888889, 37701901.0), (2012.92592593, 38062780.0), (2013.96296296, 38431393.0), (2015.00, 38802500.0)

UNITS: person

test_pop_growth_rate = 0.00482274308102

UNITS: 1/year

total_affected = Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI +
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Prisoners_wo_MI +
Individuals_with_Criminal_History.Prisoners_wMI +

Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Jail_Offenders_wo_MI +
Individuals_with_Criminal_History.Jail_Offenders_wMI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed +
Individuals_with_Criminal_History.Probationers
+Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.Suspects_in_Custody +
Individuals_with_Criminal_History.Pretrial_Suspects_in_Community +
Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed +
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI +
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI +
Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI +
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI +
Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed +
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI

   UNITS: person

total_being_involved_in_the_correctional_system =
Individuals_with_Criminal_History.pretrial_release +
Individuals_with_Criminal_History.being_held_in_custody

   UNITS: person/year

total_complaints_dismissed_after_charges =
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial
+ Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial
+ Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial +
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial

   UNITS: person/year

total_deaths_of_affected_pop = Individuals_with_Criminal_History.prisoner_wo_MI_deaths +
Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_deaths +
Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI +
Individuals_with_Criminal_History.prisoner_wMI_deaths +
Individuals_with_Criminal_History.hi_risk_prison_exConv_deaths_wMI +
Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI +

Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths +
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_deaths +
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths +
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths

    UNITS: person/year

total_desisted_pop = Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI

    UNITS: person

total_parolees_committing_new_crimes =
Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes +
Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes +
Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes +
Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes +
Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes +
Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes +
Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crimes +
Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes

    UNITS: person/year

total_pop = Innocent_Pop + Unrecovered_Pop_with_Criminal_History +
Recovered_Pop_with_Criminal_History + Pop_Initial_Contact_with_Criminal_Justice_System

    UNITS: person

"total_PV-RTC_rate" = Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail +
Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail +
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison +
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison

    UNITS: person/year

total_recovered_pop_deaths =
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wo_MI +
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wMI +
Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wo_MI +
Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wMI

    UNITS: person/year

total_unrecovered_pop_becoming_desisted =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI +
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI +

Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted +
Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted

UNITS: person/year

{ The model has 131 (131) variables (array expansion in parens).

In this module and 0 additional modules with 0 sectors.

Stocks: 4 (4) Flows: 11 (11) Converters: 116 (116)

Constants: 2 (2) Equations: 125 (125) Graphicals: 3 (3)

There are also 406 expanded macro variables.

}

Accumulative_Reprisoned_Parole_Violators_wMI(t) =
Accumulative_Reprisoned_Parole_Violators_wMI(t - dt) +
(accum_reprisoned_prison_parole_violator_wMI -
clearing_accum_reprisoned_parole_violator_wMI_stock) * dt

INIT Accumulative_Reprisoned_Parole_Violators_wMI = 0

UNITS: person

INFLOWS:

accum_reprisoned_prison_parole_violator_wMI = prison_parolee_wMI_returning_to_prison

UNITS: person/year

OUTFLOWS:

clearing_accum_reprisoned_parole_violator_wMI_stock =
PULSE(Accumulative_Reprisoned_Parole_Violators_wMI,
time_to_clear_the_accum_reprisoned_parole_violator_stock, 1)

UNITS: person/year

Accumulative_Reprisoned_Parole_Violators_wo_MI(t) =
Accumulative_Reprisoned_Parole_Violators_wo_MI(t - dt) +
(accum_reprisoned_prison_parole_violator_wo_MI -
clearing_accum_reprisoned_parole_violator_wo_MI_stock) * dt

INIT Accumulative_Reprisoned_Parole_Violators_wo_MI = 0

UNITS: person

INFLOWS:

accum_reprisoned_prison_parole_violator_wo_MI =
prison_parolee_wo_MI_returning_to_prison

UNITS: person/year

OUTFLOWS:

clearing_accum_reprisoned_parole_violator_wo_MI_stock =
PULSE(Accumulative_Reprisoned_Parole_Violators_wo_MI,
time_to_clear_the_accum_reprisoned_parole_violator_stock, 1)

UNITS: person/year

Arrestees(t) = Arrestees(t - dt) + (arrest_rate + hi_risk_prison_exConv_wMI_recidivism +
prison_parolee_wMI_committing_new_crimes + county_parolee_wMI_committing_new_crimes +
hi_risk_jail_exConv_wMI_recidivism + lo_risk_jail_exConv_wMI_recidivism +
county_parolee_wo_MI_committing_new_crimes + hi_risk_jail_exConv_wo_MI_recidivism +
lo_risk_jail_exConv_wo_MI_recidivism + lo_risk_prison_exConv_wMI_recidivism +
lo_risk_prison_exConv_wo_MI_recidivism + hi_risk_prison_exConv_wo_MI_recidivism +

prison_parolee_wo_MI_committing_new_crimes +
prison_parolee_wo_MI_violated_condition_committing_new_crimes +
county_parolee_wMI_violated_condition_committing_new_crimes +
prison_parolee_wMI_violated_condition_committing_new_crimes +
county_parolee_wo_MI_violated_condition_committing_new_crimes - pretrial_release -
release_by_law_enforcement - being_held_in_custody) * dt

INIT Arrestees = IF equilibrium_switch= 1 THEN 14383.7214383   ELSE 1635731*0.2*0+
21800*1*0.98 + 28528*0.05*0

UNITS: person

INFLOWS:

arrest_rate = IF equilibrium_switch = 1   THEN (1 - hold_arrest_fract_constant) * (INIT
(Population.Innocent_Pop) * INIT(fract_innocent_pop_arrested)) +   hold_arrest_fract_constant * (
(Population.Innocent_Pop) * (INIT(fract_innocent_pop_arrested) + increase_arrest_rate))   ELSE   (
1 - hold_arrest_fract_constant) * (Population.Innocent_Pop * fract_innocent_pop_arrested) +
hold_arrest_fract_constant * ((Population.Innocent_Pop) * (INIT(fract_innocent_pop_arrested) +
increase_arrest_rate))

UNITS: person/year

hi_risk_prison_exConv_wMI_recidivism = HI_Risk_Prison_ExConvicts_wMI *
hi_risk_prison_exConv_wMI_recidivism_rate

UNITS: person/year

prison_parolee_wMI_committing_new_crimes = (Prison_Parolees_wMI -
Community_Services.employed_prison_parolees_wMI_likely_fulfill_parole) *
fract_prison_parolee_reoffend_wMI *
Social_Capital.effect_of_SC_on_prison_parolee_wMI_recidivism

UNITS: person/year

county_parolee_wMI_committing_new_crimes = realignment_policy * ((County_Parolees_wMI -
Community_Services.employed_county_parolees_wMI_likely_fulfill_parole) *
fract_county_parolee_wMI_reoffend *
Social_Capital.effect_of_SC_on_county_parolee_wMI_recidivism)

UNITS: person/year

hi_risk_jail_exConv_wMI_recidivism = HI_Risk_Jail_ExConvicts_wMI *
hi_risk_jail_exConv_wMI_recidivism_rate

UNITS: person/year

lo_risk_jail_exConv_wMI_recidivism = Lo_Risk_Jail_ExConvicts_wMI *
lo_risk_jail_exConv_wMI_recidivism_rate

UNITS: person/year

county_parolee_wo_MI_committing_new_crimes = realignment_policy *
(County_Parolees_wo_MI -
Community_Services.employed_county_parolees_wo_MI_likely_fulfill_parole) *

fract_county_parolee_reoffend_wo_MI *
Social_Capital.effect_of_SC_on_county_parolee_wo_MI_recidivism

UNITS: person/year

hi_risk_jail_exConv_wo_MI_recidivism = HI_Risk_Jail_ExConvicts_wo_MI *
hi_risk_jail_exConv_wo_MI_recidivism_rate

UNITS: person/year

lo_risk_jail_exConv_wo_MI_recidivism = Lo_Risk_Jail_ExConvicts_wo_MI *
lo_risk_jail_exConv_wo_MI_recidivism_rate

UNITS: person/year

lo_risk_prison_exConv_wMI_recidivism = Lo_Risk_Prison_ExConvicts_wMI *
lo_risk_prison_exConv_wMI_recidivism_rate

UNITS: person/year

lo_risk_prison_exConv_wo_MI_recidivism = Lo_Risk_Prison_ExConvicts_wo_MI *
lo_risk_exConv_wo_MI_recidivism_rate

UNITS: person/year

hi_risk_prison_exConv_wo_MI_recidivism = HI_Risk_Prison_ExConvicts_wo_MI *
hi_risk_exConv_wo_MI_recidivism_rate

UNITS: person/year

prison_parolee_wo_MI_committing_new_crimes = (Prison_Parolees_wo_MI -
Community_Services.employed_prison_parolees_wo_MI_likely_fulfill_parole)*
fract_prison_parolee_reoffend_wo_MI *
Social_Capital.effect_of_SC_on_prison_parolee_wo_MI_recidivism

UNITS: person/year

prison_parolee_wo_MI_violated_condition_committing_new_crimes =
(Prison_Parolees_wo_MI_Violated_Condition-
Community_Services.employed_prison_parolees_wo_MI_violated_condition_likely_fulfill_parole) *
fract_prison_parolee_reoffend_wo_MI *
Social_Capital.effect_of_SC_on_prison_parolee_wo_MI_recidivism

UNITS: person/year

county_parolee_wMI_violated_condition_committing_new_crimes = realignment_policy * (
(County_Parolee_wMI_Violated_Condition -
Community_Services.employed_county_parolees_wMI_violated_condition_likely_fulfill_parole) *
fract_county_parolee_wMI_reoffend *
Social_Capital.effect_of_SC_on_county_parolee_wMI_recidivism)

UNITS: person/year

prison_parolee_wMI_violated_condition_committing_new_crimes =
(Prison_Parolees_wMI_Violated_Condition -
Community_Services.employed_prison_parolees_wMI_violated_condition_likely_fulfill_parole) *

fract_prison_parolee_reoffend_wMI *
Social_Capital.effect_of_SC_on_prison_parolee_wMI_recidivism

     UNITS: person/year

     county_parolee_wo_MI_violated_condition_committing_new_crimes = realignment_policy *
((County_Parolee_wo_MI_Violated_Condition -
Community_Services.employed_county_parolees_wo_MI_violated_condition_likely_fulfill_parole) *
fract_county_parolee_reoffend_wo_MI *
Social_Capital.effect_of_SC_on_county_parolee_wo_MI_recidivism)

     UNITS: person/year

  OUTFLOWS:

    pretrial_release = Arrestees / time_for_arraignment * fract_on_bails

     UNITS: person/year

    release_by_law_enforcement = Arrestees / time_for_arraignment *
fract_release_by_law_enforcement

     UNITS: person/year

    being_held_in_custody = Arrestees / time_for_arraignment * fract_being_held_in_custody

     UNITS: person/year

County_Parolee_wMI_Violated_Condition(t) = County_Parolee_wMI_Violated_Condition(t - dt) +
(county_parolee_wMI_violating_condition - discharging_county_parolee_wMI_violated_condition -
county_parolee_wMI_returning_to_jail -
county_parolee_wMI_violated_condition_committing_new_crimes) * dt

  INIT County_Parolee_wMI_Violated_Condition = IF equilibrium_switch = 1 THEN 0.000248*0+1
ELSE 0.001

  UNITS: person

  INFLOWS:

    county_parolee_wMI_violating_condition = (County_Parolees_wMI -
Community_Services.employed_county_parolees_wMI_likely_fulfill_parole) *
fract_county_parolee_wMI_violate_condition

     UNITS: person/year

  OUTFLOWS:

    discharging_county_parolee_wMI_violated_condition = realignment_policy *
(County_Parolee_wMI_Violated_Condition / county_parole_duration)

     UNITS: person/year

    county_parolee_wMI_returning_to_jail = County_Parolee_wMI_Violated_Condition *
county_parolee_wMI_RTP_rate

     UNITS: person/year

county_parolee_wMI_violated_condition_committing_new_crimes = realignment_policy * (
(County_Parolee_wMI_Violated_Condition -
Community_Services.employed_county_parolees_wMI_violated_condition_likely_fulfill_parole) *
fract_county_parolee_wMI_reoffend *
Social_Capital.effect_of_SC_on_county_parolee_wMI_recidivism)

UNITS: person/year

County_Parolee_wo_MI_Violated_Condition(t) = County_Parolee_wo_MI_Violated_Condition(t - dt)
+ (county_parolee_wo_MI_violating_condition - county_parolee_wo_MI_returning_to_jail -
discharging_county_parolee_wo_MI_violated_condition -
county_parolee_wo_MI_violated_condition_committing_new_crimes) * dt

INIT County_Parolee_wo_MI_Violated_Condition = IF equilibrium_switch = 1   THEN 0.000352
ELSE 0.001

UNITS: person

INFLOWS:

county_parolee_wo_MI_violating_condition = (County_Parolees_wo_MI -
Community_Services.employed_county_parolees_wo_MI_likely_fulfill_parole) *
fract_county_parolee_wo_MI_violate_condition

UNITS: person/year

OUTFLOWS:

county_parolee_wo_MI_returning_to_jail = County_Parolee_wo_MI_Violated_Condition *
county_parolee_wo_MI_RTJ_rate

UNITS: person/year

discharging_county_parolee_wo_MI_violated_condition = realignment_policy *
(County_Parolee_wo_MI_Violated_Condition / county_parole_duration)

UNITS: person/year

county_parolee_wo_MI_violated_condition_committing_new_crimes = realignment_policy *
((County_Parolee_wo_MI_Violated_Condition -
Community_Services.employed_county_parolees_wo_MI_violated_condition_likely_fulfill_parole) *
fract_county_parolee_reoffend_wo_MI *
Social_Capital.effect_of_SC_on_county_parolee_wo_MI_recidivism)

UNITS: person/year

County_Parolees_wMI(t) = County_Parolees_wMI(t - dt) +
(releasing_prisoner_wMI_to_parole_after_realignment - discharging_county_parolee_wMI -
county_parolee_wMI_committing_new_crimes - county_parolee_wMI_violating_condition) * dt

INIT County_Parolees_wMI = 0.0000036*0+0.0001

UNITS: person

INFLOWS:

releasing_prisoner_wMI_to_parole_after_realignment = (1 - realignment_policy) * ((Prisoners_wMI/ ave_prison_time_served_wMI) * zero_fract_parolee_realigned_wMI) + realignment_policy * ((Prisoners_wMI/ ave_prison_time_served_wMI) * fract_parolee_realigned_wMI)

UNITS: person/year

OUTFLOWS:

discharging_county_parolee_wMI = realignment_policy * (County_Parolees_wMI / county_parole_duration)

UNITS: person/year

county_parolee_wMI_committing_new_crimes = realignment_policy * ((County_Parolees_wMI - Community_Services.employed_county_parolees_wMI_likely_fulfill_parole) * fract_county_parolee_wMI_reoffend * Social_Capital.effect_of_SC_on_county_parolee_wMI_recidivism)

UNITS: person/year

county_parolee_wMI_violating_condition = (County_Parolees_wMI - Community_Services.employed_county_parolees_wMI_likely_fulfill_parole) * fract_county_parolee_wMI_violate_condition

UNITS: person/year

County_Parolees_wo_MI(t) = County_Parolees_wo_MI(t - dt) + (releasing_prisoner_wo_MI_to_parole_after_realignment - discharging_county_parolee_wo_MI - county_parolee_wo_MI_committing_new_crimes - county_parolee_wo_MI_violating_condition) * dt

INIT County_Parolees_wo_MI = 0.00000359

UNITS: person

INFLOWS:

releasing_prisoner_wo_MI_to_parole_after_realignment = realignment_policy * (Prisoners_wo_MI / ave_prison_time_served_wo_MI * fract_parolee_realigned_wo_MI)

UNITS: person/year

OUTFLOWS:

discharging_county_parolee_wo_MI = realignment_policy * (County_Parolees_wo_MI / county_parole_duration)

UNITS: person/year

county_parolee_wo_MI_committing_new_crimes = realignment_policy * (County_Parolees_wo_MI - Community_Services.employed_county_parolees_wo_MI_likely_fulfill_parole) * fract_county_parolee_reoffend_wo_MI * Social_Capital.effect_of_SC_on_county_parolee_wo_MI_recidivism

UNITS: person/year

county_parolee_wo_MI_violating_condition = (County_Parolees_wo_MI - Community_Services.employed_county_parolees_wo_MI_likely_fulfill_parole) * fract_county_parolee_wo_MI_violate_condition

UNITS: person/year

Defendants_in_Comm_Being_Trialed(t) = Defendants_in_Comm_Being_Trialed(t - dt) + (suspect_in_comm_waiting_for_trial + violating_probation - defendents_in_comm_waiting_for_sentence - complaints_against_suspects_in_comm_dismissed_after_trial) * dt

INIT Defendants_in_Comm_Being_Trialed = IF equilibrium_switch = 1 THEN 1866.12619696 ELSE 241968*0.3*0+ 869*0 + 2430

UNITS: person

INFLOWS:

suspect_in_comm_waiting_for_trial = Suspects_in_Comm_with_Cases_Filed / wait_time_for_trial_suspect_in_comm * fract_defendant_in_comm_wait_for_trial

UNITS: person/year

violating_probation = Probationers * fract_probation_violator_sent_to_jail_for_hearing

UNITS: person/year

OUTFLOWS:

defendents_in_comm_waiting_for_sentence = Defendants_in_Comm_Being_Trialed / hearing_duration_for_defedants_in_comm

UNITS: person/year

complaints_against_suspects_in_comm_dismissed_after_trial = Defendants_in_Comm_Being_Trialed * fract_complaints_on_defendant_in_comm_dismissed_after_trial

UNITS: person/year

Defendants_in_Custody_Being_Trialed(t) = Defendants_in_Custody_Being_Trialed(t - dt) + (suspect_in_custody_waiting_for_trial - defendents_in_custody_waiting_for_sentence - complaints_against_suspects_in_custody_dismissed_after_trial) * dt

INIT Defendants_in_Custody_Being_Trialed = IF equilibrium_switch = 1 THEN 7.27921125418
ELSE 28528 * 0.2*0{} + 12.9

UNITS: person

INFLOWS:

suspect_in_custody_waiting_for_trial = Suspects_in_Custody_with_Cases_Filed / wait_time_for_trial_suspect_in_custody* fract_defendant_in_custody_wait_for_trial

UNITS: person/year

OUTFLOWS:

defendents_in_custody_waiting_for_sentence = Defendants_in_Custody_Being_Trialed / hearing_duration_for_defedants_in_custody

UNITS: person/year

complaints_against_suspects_in_custody_dismissed_after_trial = Defendants_in_Custody_Being_Trialed * fract_complaints_on_defendant_in_custody_dismissed_after_trial

UNITS: person/year

Desisted_Jail_ExConvicts_wMI(t) = Desisted_Jail_ExConvicts_wMI(t - dt) + (jail_exConv_wMI_becoming_desisted - desisted_jail_exConv_deaths_wMI) * dt

INIT Desisted_Jail_ExConvicts_wMI = IF equilibrium_switch = 1 THEN (Lo_Risk_Jail_ExConvicts_wMI/(time_for_jail_exConv_wMI_to_cease_criminal_behavior*exConv_mortality_rate)) ELSE 100000*0 + 27969

UNITS: person

INFLOWS:

jail_exConv_wMI_becoming_desisted = Lo_Risk_Jail_ExConvicts_wMI / time_for_jail_exConv_wMI_to_cease_criminal_behavior

UNITS: person/year

OUTFLOWS:

desisted_jail_exConv_deaths_wMI = Desisted_Jail_ExConvicts_wMI * exConv_mortality_rate

UNITS: person/year

Desisted_Jail_ExConvicts_wo_MI(t) = Desisted_Jail_ExConvicts_wo_MI(t - dt) + (jail_exConv_wo_MI_becoming_desisted - desisted_jail_exConv_deaths_wo_MI) * dt

INIT Desisted_Jail_ExConvicts_wo_MI = IF equilibrium_switch = 1 THEN (Lo_Risk_Jail_ExConvicts_wo_MI/(time_for_jail_exConv_wo_MI_to_cease_criminal_behavior*exConv_mortality_rate)) ELSE 100000*0 + 32833

UNITS: person

INFLOWS:

jail_exConv_wo_MI_becoming_desisted = Lo_Risk_Jail_ExConvicts_wo_MI / time_for_jail_exConv_wo_MI_to_cease_criminal_behavior

UNITS: person/year

OUTFLOWS:

desisted_jail_exConv_deaths_wo_MI = Desisted_Jail_ExConvicts_wo_MI * exConv_mortality_rate

UNITS: person/year

Desisted_Prison_ExConvicts_wMI(t) = Desisted_Prison_ExConvicts_wMI(t - dt) + (prison_exConv_becoming_desisted_wMI - desisted_prison_exConv_deaths_wMI) * dt

   INIT Desisted_Prison_ExConvicts_wMI = IF equilibrium_switch=1 THEN Lo_Risk_Prison_ExConvicts_wMI/(time_for_prison_exConv_wMI_to_cease_criminal_behavior*exConv_mortality_rate) ELSE 100000*0 + 9376

   UNITS: person

   INFLOWS:

     prison_exConv_becoming_desisted_wMI = Lo_Risk_Prison_ExConvicts_wMI / time_for_prison_exConv_wMI_to_cease_criminal_behavior

       UNITS: person/year

   OUTFLOWS:

     desisted_prison_exConv_deaths_wMI = Desisted_Prison_ExConvicts_wMI * exConv_mortality_rate

       UNITS: person/year

Desisted_Prison_ExConvicts_wo_MI(t) = Desisted_Prison_ExConvicts_wo_MI(t - dt) + (prison_exConv_becoming_desisted_wo_MI - desisted_prison_exConv_deaths_wo_MI) * dt

   INIT Desisted_Prison_ExConvicts_wo_MI = IF equilibrium_switch=1 THEN 552302.349755 * 0 + Lo_Risk_Prison_ExConvicts_wo_MI/(time_for_prison_exConv_wo_MI_to_cease_criminal_behavior*exConv_mortality_rate) ELSE 100000*0 + 57599

   UNITS: person

   INFLOWS:

     prison_exConv_becoming_desisted_wo_MI = Lo_Risk_Prison_ExConvicts_wo_MI / time_for_prison_exConv_wo_MI_to_cease_criminal_behavior

       UNITS: person/year

   OUTFLOWS:

     desisted_prison_exConv_deaths_wo_MI = Desisted_Prison_ExConvicts_wo_MI * exConv_mortality_rate

       UNITS: person/year

HI_Risk_Jail_ExConvicts_wMI(t) = HI_Risk_Jail_ExConvicts_wMI(t - dt) + (discharging_county_parolee_wMI + releasing_jail_offenders_directly_wMI + discharging_county_parolee_wMI_violated_condition + rerelease_reprisoned_county_parolee_wMI_to_county_parole - becoming_lo_risk_jail_exConv_wMI - hi_risk_jail_exConv_wMI_deaths - hi_risk_jail_exConv_wMI_recidivism) * dt

   INIT HI_Risk_Jail_ExConvicts_wMI = IF equilibrium_switch = 1 THEN 29600.2749495 ELSE 25796

   UNITS: person

   INFLOWS:

discharging_county_parolee_wMI = realignment_policy * (County_Parolees_wMI / county_parole_duration)

UNITS: person/year

releasing_jail_offenders_directly_wMI = Jail_Offenders_wMI / ave_jail_time_served_at_current_release_wMI * fract_jail_offenders_release_directly

UNITS: person/year

discharging_county_parolee_wMI_violated_condition = realignment_policy * (County_Parolee_wMI_Violated_Condition / county_parole_duration)

UNITS: person/year

rerelease_reprisoned_county_parolee_wMI_to_county_parole = realignment_policy * (Reprisoned_County_Parole_Violators_wMI / county_parole_reprison_time)

UNITS: person/year

OUTFLOWS:

becoming_lo_risk_jail_exConv_wMI = HI_Risk_Jail_ExConvicts_wMI / time_for_jail_exConv_wMI_to_become_lo_risk

UNITS: person/year

hi_risk_jail_exConv_wMI_deaths = HI_Risk_Jail_ExConvicts_wMI * exConv_mortality_rate

UNITS: person/year

hi_risk_jail_exConv_wMI_recidivism = HI_Risk_Jail_ExConvicts_wMI * hi_risk_jail_exConv_wMI_recidivism_rate

UNITS: person/year

HI_Risk_Jail_ExConvicts_wo_MI(t) = HI_Risk_Jail_ExConvicts_wo_MI(t - dt) + (discharging_county_parolee_wo_MI + releasing_jail_offenders_directly_wo_MI + discharging_county_parolee_wo_MI_violated_condition + rerelease_reprisoned_county_parolee_wo_MI_to_county_parole - becoming_lo_risk_jail_exConv_wo_MI - hi_risk_jail_exConv_wo_MI_recidivism - hi_risk_jail_exConv_wo_MI_deaths) * dt

INIT HI_Risk_Jail_ExConvicts_wo_MI = IF equilibrium_switch = 1 THEN 26140.5662499 ELSE 30282*0+ 17698.1276049

UNITS: person

INFLOWS:

discharging_county_parolee_wo_MI = realignment_policy * (County_Parolees_wo_MI / county_parole_duration)

UNITS: person/year

releasing_jail_offenders_directly_wo_MI = Jail_Offenders_wo_MI / ave_jail_time_served_at_current_release_wo_MI* fract_jail_offenders_release_directly

UNITS: person/year

discharging_county_parolee_wo_MI_violated_condition = realignment_policy * (County_Parolee_wo_MI_Violated_Condition / county_parole_duration)

UNITS: person/year

rerelease_reprisoned_county_parolee_wo_MI_to_county_parole = Reprisoned_County_Parole_Violators_wo_MI / county_parole_reprison_time

UNITS: person/year

OUTFLOWS:

becoming_lo_risk_jail_exConv_wo_MI = HI_Risk_Jail_ExConvicts_wo_MI / time_for_jail_exConv_wo_MI_to_become_lo_risk

UNITS: person/year

hi_risk_jail_exConv_wo_MI_recidivism = HI_Risk_Jail_ExConvicts_wo_MI * hi_risk_jail_exConv_wo_MI_recidivism_rate

UNITS: person/year

hi_risk_jail_exConv_wo_MI_deaths = HI_Risk_Jail_ExConvicts_wo_MI * exConv_mortality_rate

UNITS: person/year

HI_Risk_Prison_ExConvicts_wMI(t) = HI_Risk_Prison_ExConvicts_wMI(t - dt) + (discharging_prison_parolee_wMI + discharging_prison_parolee_wMI_violated_condition + discharging_reparoled_prison_parolee_wMI - becoming_lo_risk_prison_exConv_wMI - hi_risk_prison_exConv_deaths_wMI - hi_risk_prison_exConv_wMI_recidivism) * dt

INIT HI_Risk_Prison_ExConvicts_wMI = IF equilibrium_switch=1 THEN 9274.65261123
                                                        ELSE 233025 * 1.8 * 0 {419445} + 4255*0 + 4195

UNITS: person

INFLOWS:

discharging_prison_parolee_wMI = Prison_Parolees_wMI /prisoner_parole_duration_wMI

UNITS: person/year

discharging_prison_parolee_wMI_violated_condition = Prison_Parolees_wMI_Violated_Condition / prisoner_parole_duration_wMI

UNITS: person/year

discharging_reparoled_prison_parolee_wMI = Reparoled_Prison_Parolees_wMI / prisoner_parole_duration_wMI

UNITS: person/year

OUTFLOWS:

becoming_lo_risk_prison_exConv_wMI = HI_Risk_Prison_ExConvicts_wMI / time_for_prison_exConv_wMI_to_become_lo_risk

UNITS: person/year

hi_risk_prison_exConv_deaths_wMI = HI_Risk_Prison_ExConvicts_wMI * exConv_mortality_rate

UNITS: person/year

hi_risk_prison_exConv_wMI_recidivism = HI_Risk_Prison_ExConvicts_wMI * hi_risk_prison_exConv_wMI_recidivism_rate

UNITS: person/year

HI_Risk_Prison_ExConvicts_wo_MI(t) = HI_Risk_Prison_ExConvicts_wo_MI(t - dt) + (discharging_prison_parolee_wo_MI + discharging_prison_parolee_wo_MI_violated_condition + discharging_reparoled_prison_parolee_wo_MI - becoming_lo_risk_prison_exConv_wo_MI - hi_risk_prison_exConv_wo_MI_deaths - hi_risk_prison_exConv_wo_MI_recidivism) * dt

INIT HI_Risk_Prison_ExConvicts_wo_MI = IF equilibrium_switch=1 THEN 44558.9185484
ELSE 233025 * 1.8 * 0   {419445} + 28420

UNITS: person

INFLOWS:

discharging_prison_parolee_wo_MI = Prison_Parolees_wo_MI / prisoner_parole_duration_wo_MI

UNITS: person/year

discharging_prison_parolee_wo_MI_violated_condition = Prison_Parolees_wo_MI_Violated_Condition / prisoner_parole_duration_wo_MI

UNITS: person/year

discharging_reparoled_prison_parolee_wo_MI = Reparoled_Prison_Parolees_wo_MI / prisoner_parole_duration_wo_MI

UNITS: person/year

OUTFLOWS:

becoming_lo_risk_prison_exConv_wo_MI = HI_Risk_Prison_ExConvicts_wo_MI / time_for_prison_exConv_wo_MI_to_become_lo_risk

UNITS: person/year

hi_risk_prison_exConv_wo_MI_deaths = HI_Risk_Prison_ExConvicts_wo_MI * exConv_mortality_rate

UNITS: person/year

hi_risk_prison_exConv_wo_MI_recidivism = HI_Risk_Prison_ExConvicts_wo_MI * hi_risk_exConv_wo_MI_recidivism_rate

UNITS: person/year

Jail_Offenders_wMI(t) = Jail_Offenders_wMI(t - dt) + (jail_offender_devMI + convicting_defendant_in_custody_to_jail_wMI + convicting_defendant_in_comm_to_jail_wMI - releasing_jail_offenders_directly_wMI - continue_serving_thru_probation_wMI) * dt

INIT Jail_Offenders_wMI = IF equilibrium_switch = 1 THEN 12732.7653035
                ELSE 14846*0 + 13180.8366982

UNITS: person

INFLOWS:

jail_offender_devMI = realignment_policy * (Jail_Offenders_wo_MI * fract_jail_offenders_devMI)

UNITS: person/year

convicting_defendant_in_custody_to_jail_wMI = defendant_in_custody_being_sentenced * fract_defendant_in_custody_convicted_to_jail * fract_jail_offender_wMI

UNITS: person/year

convicting_defendant_in_comm_to_jail_wMI = defendant_in_comm_being_sentenced * fract_fract_defendant_in_comm_convict_to_jail_sentence * fract_jail_offender_wMI

UNITS: person/year

OUTFLOWS:

releasing_jail_offenders_directly_wMI = Jail_Offenders_wMI / ave_jail_time_served_at_current_release_wMI * fract_jail_offenders_release_directly

UNITS: person/year

continue_serving_thru_probation_wMI = Jail_Offenders_wMI / ave_jail_time_served_at_current_release_wMI * fract_jail_offender_serving_split_sentence

UNITS: person/year

Jail_Offenders_wo_MI(t) = Jail_Offenders_wo_MI(t - dt) + (convicting_defendant_in_custody_to_jail_wo_MI + convicting_defendant_in_comm_to_jail_wo_MI - jail_offender_devMI - continue_serving_thru_probation_wo_MI - releasing_jail_offenders_directly_wo_MI) * dt

INIT Jail_Offenders_wo_MI = IF equilibrium_switch = 1 THEN 13351.8025639
                                ELSE 17428 * 0 + 15473.1577039

UNITS: person

INFLOWS:

convicting_defendant_in_custody_to_jail_wo_MI = defendant_in_custody_being_sentenced * fract_defendant_in_custody_convicted_to_jail * fract_jail_offender_wo_MI

UNITS: person/year

convicting_defendant_in_comm_to_jail_wo_MI = defendant_in_comm_being_sentenced * fract_fract_defendant_in_comm_convict_to_jail_sentence * fract_jail_offender_wo_MI

UNITS: person/year

OUTFLOWS:

jail_offender_devMI = realignment_policy * (Jail_Offenders_wo_MI * fract_jail_offenders_devMI)

UNITS: person/year

continue_serving_thru_probation_wo_MI = Jail_Offenders_wo_MI / ave_jail_time_served_at_current_release_wo_MI * fract_jail_offender_serving_split_sentence

UNITS: person/year

releasing_jail_offenders_directly_wo_MI = Jail_Offenders_wo_MI / ave_jail_time_served_at_current_release_wo_MI* fract_jail_offenders_release_directly

UNITS: person/year

Lo_Risk_Jail_ExConvicts_wMI(t) = Lo_Risk_Jail_ExConvicts_wMI(t - dt) + (becoming_lo_risk_jail_exConv_wMI - jail_exConv_wMI_becoming_desisted - lo_risk_jail_exConv_wMI_recidivism - lo_risk_jail_exConv_wMI_deaths) * dt

INIT Lo_Risk_Jail_ExConvicts_wMI = IF equilibrium_switch = 1 THEN 64700.0545345 ELSE 38694

UNITS: person

INFLOWS:

becoming_lo_risk_jail_exConv_wMI = HI_Risk_Jail_ExConvicts_wMI / time_for_jail_exConv_wMI_to_become_lo_risk

UNITS: person/year

OUTFLOWS:

jail_exConv_wMI_becoming_desisted = Lo_Risk_Jail_ExConvicts_wMI / time_for_jail_exConv_wMI_to_cease_criminal_behavior

UNITS: person/year

lo_risk_jail_exConv_wMI_recidivism = Lo_Risk_Jail_ExConvicts_wMI * lo_risk_jail_exConv_wMI_recidivism_rate

UNITS: person/year

lo_risk_jail_exConv_wMI_deaths = Lo_Risk_Jail_ExConvicts_wMI * exConv_mortality_rate

UNITS: person/year

Lo_Risk_Jail_ExConvicts_wo_MI(t) = Lo_Risk_Jail_ExConvicts_wo_MI(t - dt) + (becoming_lo_risk_jail_exConv_wo_MI + discharging_fr_probation - jail_exConv_wo_MI_becoming_desisted - lo_risk_jail_exConv_wo_MI_deaths - lo_risk_jail_exConv_wo_MI_recidivism) * dt

INIT Lo_Risk_Jail_ExConvicts_wo_MI = IF equilibrium_switch = 1 THEN 151979.319343
                    ELSE 45424*0+102998

UNITS: person

INFLOWS:

becoming_lo_risk_jail_exConv_wo_MI = HI_Risk_Jail_ExConvicts_wo_MI / time_for_jail_exConv_wo_MI_to_become_lo_risk

UNITS: person/year

discharging_fr_probation = Probationers/ave_probation_duration

UNITS: person/year

OUTFLOWS:

jail_exConv_wo_MI_becoming_desisted = Lo_Risk_Jail_ExConvicts_wo_MI / time_for_jail_exConv_wo_MI_to_cease_criminal_behavior

UNITS: person/year

lo_risk_jail_exConv_wo_MI_deaths = Lo_Risk_Jail_ExConvicts_wo_MI * exConv_mortality_rate

UNITS: person/year

lo_risk_jail_exConv_wo_MI_recidivism = Lo_Risk_Jail_ExConvicts_wo_MI * lo_risk_jail_exConv_wo_MI_recidivism_rate

UNITS: person/year

Lo_Risk_Prison_ExConvicts_wMI(t) = Lo_Risk_Prison_ExConvicts_wMI(t - dt) + (becoming_lo_risk_prison_exConv_wMI - prison_exConv_becoming_desisted_wMI - lo_risk_prison_exConv_deaths_wMI - lo_risk_prison_exConv_wMI_recidivism) * dt

INIT Lo_Risk_Prison_ExConvicts_wMI = IF equilibrium_switch = 1   THEN 27959.7623938
ELSE 650000*0.8 *0 {520000} + 3785*0+5109

UNITS: person

INFLOWS:

becoming_lo_risk_prison_exConv_wMI = HI_Risk_Prison_ExConvicts_wMI / time_for_prison_exConv_wMI_to_become_lo_risk

UNITS: person/year

OUTFLOWS:

prison_exConv_becoming_desisted_wMI = Lo_Risk_Prison_ExConvicts_wMI / time_for_prison_exConv_wMI_to_cease_criminal_behavior

UNITS: person/year

lo_risk_prison_exConv_deaths_wMI = Lo_Risk_Prison_ExConvicts_wMI * exConv_mortality_rate

UNITS: person/year

lo_risk_prison_exConv_wMI_recidivism = Lo_Risk_Prison_ExConvicts_wMI * lo_risk_prison_exConv_wMI_recidivism_rate

UNITS: person/year

Lo_Risk_Prison_ExConvicts_wo_MI(t) = Lo_Risk_Prison_ExConvicts_wo_MI(t - dt) + (becoming_lo_risk_prison_exConv_wo_MI - lo_risk_prison_exConv_wo_MI_recidivism - lo_risk_prison_exConv_deaths_wo_MI - prison_exConv_becoming_desisted_wo_MI) * dt

   INIT Lo_Risk_Prison_ExConvicts_wo_MI = IF equilibrium_switch = 1 THEN 140248.394712 ELSE 650000*0.8 * 0 {520000} + 23252

   UNITS: person

   INFLOWS:

     becoming_lo_risk_prison_exConv_wo_MI = HI_Risk_Prison_ExConvicts_wo_MI / time_for_prison_exConv_wo_MI_to_become_lo_risk

      UNITS: person/year

   OUTFLOWS:

     lo_risk_prison_exConv_wo_MI_recidivism = Lo_Risk_Prison_ExConvicts_wo_MI * lo_risk_exConv_wo_MI_recidivism_rate

      UNITS: person/year

     lo_risk_prison_exConv_deaths_wo_MI = Lo_Risk_Prison_ExConvicts_wo_MI * exConv_mortality_rate

      UNITS: person/year

     prison_exConv_becoming_desisted_wo_MI = Lo_Risk_Prison_ExConvicts_wo_MI / time_for_prison_exConv_wo_MI_to_cease_criminal_behavior

      UNITS: person/year

New_Prisoners_at_Reception_Center_for_Medical_Screening(t) = New_Prisoners_at_Reception_Center_for_Medical_Screening(t - dt) + (admitting_to_reception_center - fulfilling_medical_screening_requirement) * dt

   INIT New_Prisoners_at_Reception_Center_for_Medical_Screening = IF equilibrium_switch = 1 THEN 38528.1464578 ELSE 23588*0+26515 * 0 + 41600*0 + 23588

   UNITS: person

   INFLOWS:

     admitting_to_reception_center = IF equilibrium_switch = 1 THEN (1-MHC_screening_capacity_building_start_time_switch) * INIT (total_new_prison_admission)+ MHC_screening_capacity_building_start_time_switch * total_new_prison_admission ELSE total_new_prison_admission

      UNITS: person/year

   OUTFLOWS:

     fulfilling_medical_screening_requirement = New_Prisoners_at_Reception_Center_for_Medical_Screening / ave_time_stay_in_reception_center

      UNITS: person/year

PreSentencing_Defendants_fr_Comm_in_Custody(t) =
PreSentencing_Defendants_fr_Comm_in_Custody(t - dt) +
(defendents_in_comm_waiting_for_sentence + defendants_in_comm_conviction_wo_trial -
defendant_in_comm_being_sentenced) * dt

INIT PreSentencing_Defendants_fr_Comm_in_Custody = IF equilibrium_switch=1 THEN
4327.22331715   ELSE 28528 * 0.15*0
+ 8977*0 + 4483*0+5400*0+4500*1*0.5*0+6290

UNITS: person

INFLOWS:

defendents_in_comm_waiting_for_sentence = Defendants_in_Comm_Being_Trialed /
hearing_duration_for_defedants_in_comm

UNITS: person/year

defendants_in_comm_conviction_wo_trial = Suspects_in_Comm_with_Cases_Filed /
wait_time_for_trial_suspect_in_comm * fract_defendant_in_comm_convicted_wo_trial

UNITS: person/year

OUTFLOWS:

defendant_in_comm_being_sentenced = PreSentencing_Defendants_fr_Comm_in_Custody /
ave_time_to_determine_sentence_for_defendant_in_comm

UNITS: person/year

PreSentencing_Defendants_in_Custody(t) = PreSentencing_Defendants_in_Custody(t - dt) +
(defendents_in_custody_waiting_for_sentence + defendants_in_cusotdy_conviction_wo_trial -
defendant_in_custody_being_sentenced) * dt

INIT PreSentencing_Defendants_in_Custody = IF equilibrium_switch = 1 THEN 2535.61851093
ELSE 28528 * 0.4*0 + 13646*0+ 7404*0+8600*0+ 1020*0 + 7100*0.5

UNITS: person

INFLOWS:

defendents_in_custody_waiting_for_sentence = Defendants_in_Custody_Being_Trialed /
hearing_duration_for_defedants_in_custody

UNITS: person/year

defendants_in_cusotdy_conviction_wo_trial = Suspects_in_Custody_with_Cases_Filed /
wait_time_for_trial_suspect_in_custody * fract_defendant_in_custody_convicted_wo_trial

UNITS: person/year

OUTFLOWS:

defendant_in_custody_being_sentenced = PreSentencing_Defendants_in_Custody /
ave_time_to_determine_sentence_for_defendant_in_custody

UNITS: person/year

Pretrial_Suspects_in_Community(t) = Pretrial_Suspects_in_Community(t - dt) + (pretrial_release - filing_case_for_suspect_in_comm) * dt

INIT Pretrial_Suspects_in_Community = IF equilibrium_switch = 1 THEN 3501.20089804
ELSE 241968*0.7*0+ 4400*0+5200*1

UNITS: person

INFLOWS:

pretrial_release = Arrestees / time_for_arraignment * fract_on_bails

UNITS: person/year

OUTFLOWS:

filing_case_for_suspect_in_comm = Pretrial_Suspects_in_Community
/time_to_file_case_for_suspect_in_comm

UNITS: person/year

Prison_Parolees_wMI(t) = Prison_Parolees_wMI(t - dt) +
(releasing_prisoner_wMI_before_realignment - discharging_prison_parolee_wMI -
prison_parolee_wMI_committing_new_crimes - prison_parolee_wMI_violating_condition) * dt

INIT Prison_Parolees_wMI = IF equilibrium_switch = 1 THEN 8877.65846317 ELSE 39183 * 0.2 *1
* 0.3{7837}+ 7268*0

UNITS: person

INFLOWS:

releasing_prisoner_wMI_before_realignment = IF realignment_policy = 1 THEN Prisoners_wMI
/ ave_prison_time_served_wMI * fract_parolee_not_realigned_wMI ELSE Prisoners_wMI /
ave_prison_time_served_wMI

UNITS: person/year

OUTFLOWS:

discharging_prison_parolee_wMI = Prison_Parolees_wMI /prisoner_parole_duration_wMI

UNITS: person/year

prison_parolee_wMI_committing_new_crimes = (Prison_Parolees_wMI -
Community_Services.employed_prison_parolees_wMI_likely_fulfill_parole) *
fract_prison_parolee_reoffend_wMI *
Social_Capital.effect_of_SC_on_prison_parolee_wMI_recidivism

UNITS: person/year

prison_parolee_wMI_violating_condition = (Prison_Parolees_wMI -
Community_Services.employed_prison_parolees_wMI_likely_fulfill_parole) *
fract_prison_parolee_wMI_violate_condition

UNITS: person/year

271

Prison_Parolees_wMI_Violated_Condition(t) = Prison_Parolees_wMI_Violated_Condition(t - dt) + (prison_parolee_wMI_violating_condition - prison_parolee_wMI_returning_to_prison - discharging_prison_parolee_wMI_violated_condition - prison_parolee_wMI_violated_condition_committing_new_crimes) * dt

   INIT Prison_Parolees_wMI_Violated_Condition = IF equilibrium_switch = 1 THEN 2430.86705664 ELSE 1348.13843645*0 + 39183 * 0.2 *1 * 0.7*0+1970*0+650

   UNITS: person

   INFLOWS:

     prison_parolee_wMI_violating_condition = (Prison_Parolees_wMI - Community_Services.employed_prison_parolees_wMI_likely_fulfill_parole) * fract_prison_parolee_wMI_violate_condition

      UNITS: person/year

   OUTFLOWS:

     prison_parolee_wMI_returning_to_prison = Prison_Parolees_wMI_Violated_Condition * prison_parolee_wMI_RTP_rate

      UNITS: person/year

     discharging_prison_parolee_wMI_violated_condition = Prison_Parolees_wMI_Violated_Condition / prisoner_parole_duration_wMI

      UNITS: person/year

     prison_parolee_wMI_violated_condition_committing_new_crimes = (Prison_Parolees_wMI_Violated_Condition - Community_Services.employed_prison_parolees_wMI_violated_condition_likely_fulfill_parole) * fract_prison_parolee_reoffend_wMI * Social_Capital.effect_of_SC_on_prison_parolee_wMI_recidivism

      UNITS: person/year

Prison_Parolees_wo_MI(t) = Prison_Parolees_wo_MI(t - dt) + (releasing_prisoner_wo_MI_before_realignment - discharging_prison_parolee_wo_MI - prison_parolee_wo_MI_committing_new_crimes - prison_parolee_wo_MI_violating_condition) * dt

   INIT Prison_Parolees_wo_MI = IF equilibrium_switch = 1 THEN 38800.3391152 ELSE 39183 * 0.8 * 1 * 0.35{31346}+ 57832*0+59709*0

   UNITS: person

   INFLOWS:

     releasing_prisoner_wo_MI_before_realignment = IF realignment_policy = 1 THEN Prisoners_wo_MI /ave_prison_time_served_wo_MI * fract_parolee_not_realigned_wo_MI ELSE Prisoners_wo_MI /ave_prison_time_served_wo_MI

      UNITS: person/year

OUTFLOWS:

discharging_prison_parolee_wo_MI = Prison_Parolees_wo_MI / prisoner_parole_duration_wo_MI

UNITS: person/year

prison_parolee_wo_MI_committing_new_crimes = (Prison_Parolees_wo_MI - Community_Services.employed_prison_parolees_wo_MI_likely_fulfill_parole)* fract_prison_parolee_reoffend_wo_MI * Social_Capital.effect_of_SC_on_prison_parolee_wo_MI_recidivism

UNITS: person/year

prison_parolee_wo_MI_violating_condition = (Prison_Parolees_wo_MI - Community_Services.employed_prison_parolees_wo_MI_likely_fulfill_parole)* fract_prison_parolee_wo_MI_violate_condition

UNITS: person/year

Prison_Parolees_wo_MI_Violated_Condition(t) = Prison_Parolees_wo_MI_Violated_Condition(t - dt) + (prison_parolee_wo_MI_violating_condition - discharging_prison_parolee_wo_MI_violated_condition - prison_parolee_wo_MI_returning_to_prison - prison_parolee_wo_MI_violated_condition_committing_new_crimes) * dt

INIT Prison_Parolees_wo_MI_Violated_Condition = IF equilibrium_switch = 1 THEN 7379.5850102 ELSE 10431.7582323 * 0 + 39183 * 0.8 * 1 * 0.65*0+13500*0+3500

UNITS: person

INFLOWS:

prison_parolee_wo_MI_violating_condition = (Prison_Parolees_wo_MI - Community_Services.employed_prison_parolees_wo_MI_likely_fulfill_parole)* fract_prison_parolee_wo_MI_violate_condition

UNITS: person/year

OUTFLOWS:

discharging_prison_parolee_wo_MI_violated_condition = Prison_Parolees_wo_MI_Violated_Condition / prisoner_parole_duration_wo_MI

UNITS: person/year

prison_parolee_wo_MI_returning_to_prison = Prison_Parolees_wo_MI_Violated_Condition * prison_parolee_wo_MI_RTP_rate

UNITS: person/year

prison_parolee_wo_MI_violated_condition_committing_new_crimes = (Prison_Parolees_wo_MI_Violated_Condition- Community_Services.employed_prison_parolees_wo_MI_violated_condition_likely_fulfill_parole) * fract_prison_parolee_reoffend_wo_MI * Social_Capital.effect_of_SC_on_prison_parolee_wo_MI_recidivism

UNITS: person/year

Prisoners_wMI(t) = Prisoners_wMI(t - dt) + (convicting_defendant_in_custody_to_prison_wMI + convicting_defendant_in_comm_to_prison_wMI + prisoner_develop_MI - prisoner_wMI_deaths - releasing_prisoner_wMI_before_realignment - releasing_prisoner_wMI_to_parole_after_realignment - prisoner_wMI_recovering) * dt

INIT Prisoners_wMI = IF equilibrium_switch=1 THEN 21646.7471313
            ELSE (66975 - 9705 {reprisoned})* 0.14

UNITS: person

INFLOWS:

convicting_defendant_in_custody_to_prison_wMI = (defendant_in_custody_being_sentenced * fract_defendant_in_custody_convict_to_prison_sentence * fract_incoming_prison_convict_wMI) * divert_prisoners_wMI

UNITS: person/year

convicting_defendant_in_comm_to_prison_wMI = (defendant_in_comm_being_sentenced * fract_defendant_in_comm_convict_to_prison_sentence * fract_incoming_prison_convict_wMI) * divert_prisoners_wMI

UNITS: person/year

prisoner_develop_MI = Prisoners_wo_MI * fract_prisoners_devMI

UNITS: person/year

OUTFLOWS:

prisoner_wMI_deaths = Prisoners_wMI * Age_Profiles.prisoner_wMI_mortality_rate

UNITS: person/year

releasing_prisoner_wMI_before_realignment = IF realignment_policy = 1 THEN Prisoners_wMI / ave_prison_time_served_wMI * fract_parolee_not_realigned_wMI ELSE Prisoners_wMI / ave_prison_time_served_wMI

UNITS: person/year

releasing_prisoner_wMI_to_parole_after_realignment = (1 - realignment_policy) * ((Prisoners_wMI/ ave_prison_time_served_wMI) * zero_fract_parolee_realigned_wMI) + realignment_policy * ((Prisoners_wMI/ ave_prison_time_served_wMI) * fract_parolee_realigned_wMI)

UNITS: person/year

prisoner_wMI_recovering = IF realignment_policy = 1 THEN Prisoners_wMI / Time_to_Recover_fr_MI_in_Prison ELSE 0

UNITS: person/year

Prisoners_wo_MI(t) = Prisoners_wo_MI(t - dt) + (prisoner_wMI_recovering + convicting_defendant_in_comm_to_prison_wo_MI + convicting_defendant_in_custody_to_prison_wo_MI - prisoner_wo_MI_deaths -

releasing_prisoner_wo_MI_to_parole_after_realignment - prisoner_develop_MI -
releasing_prisoner_wo_MI_before_realignment) * dt

INIT Prisoners_wo_MI = IF equilibrium_switch=1 THEN 62124.6140592
        ELSE (66975 - 9705 {reprisoned}) * 0.86*0+50357

UNITS: person

INFLOWS:

prisoner_wMI_recovering = IF realignment_policy = 1 THEN Prisoners_wMI /
Time_to_Recover_fr_MI_in_Prison ELSE 0

    UNITS: person/year

convicting_defendant_in_comm_to_prison_wo_MI = defendant_in_comm_being_sentenced *
fract_defendant_in_comm_convict_to_prison_sentence * fract_prison_convict_wo_MI

    UNITS: person/year

convicting_defendant_in_custody_to_prison_wo_MI = defendant_in_custody_being_sentenced
* fract_defendant_in_custody_convict_to_prison_sentence * fract_prison_convict_wo_MI

    UNITS: person/year

OUTFLOWS:

prisoner_wo_MI_deaths = Prisoners_wo_MI * Age_Profiles.prisoner_wo_MI_mortality_rate

    UNITS: person/year

releasing_prisoner_wo_MI_to_parole_after_realignment = realignment_policy *
(Prisoners_wo_MI / ave_prison_time_served_wo_MI * fract_parolee_realigned_wo_MI)

    UNITS: person/year

prisoner_develop_MI = Prisoners_wo_MI * fract_prisoners_devMI

    UNITS: person/year

releasing_prisoner_wo_MI_before_realignment = IF realignment_policy = 1 THEN
Prisoners_wo_MI /ave_prison_time_served_wo_MI * fract_parolee_not_realigned_wo_MI ELSE
Prisoners_wo_MI /ave_prison_time_served_wo_MI

    UNITS: person/year

Probationers(t) = Probationers(t - dt) + (continue_serving_thru_probation_wo_MI +
continue_serving_thru_probation_wMI + convicting_defendant_in_custody_to_probation +
convicting_defendant_in_comm_to_probation - discharging_fr_probation - violating_probation) * dt

INIT Probationers = IF equilibrium_switch = 1 THEN 208862.514148 ELSE 242529

UNITS: person

INFLOWS:

continue_serving_thru_probation_wo_MI = Jail_Offenders_wo_MI /
ave_jail_time_served_at_current_release_wo_MI * fract_jail_offender_serving_split_sentence

UNITS: person/year

continue_serving_thru_probation_wMI = Jail_Offenders_wMI / ave_jail_time_served_at_current_release_wMI * fract_jail_offender_serving_split_sentence

UNITS: person/year

convicting_defendant_in_custody_to_probation = defendant_in_custody_being_sentenced * fract_defendant_in_custody_convicted_to_probation

UNITS: person/year

convicting_defendant_in_comm_to_probation = defendant_in_comm_being_sentenced * fract_defendant_in_comm_convicted_to_probation

UNITS: person/year

OUTFLOWS:

discharging_fr_probation = Probationers/ave_probation_duration

UNITS: person/year

violating_probation = Probationers * fract_probation_violator_sent_to_jail_for_hearing

UNITS: person/year

Reparoled_Prison_Parolees_wMI(t) = Reparoled_Prison_Parolees_wMI(t - dt) + (rerelease_to_prison_parole_wMI - discharging_reparoled_prison_parolee_wMI) * dt

INIT Reparoled_Prison_Parolees_wMI = IF equilibrium_switch = 1   THEN (Reprisoned_Prison_Parole_Violators_wMI*prisoner_parole_duration_wMI)/reprison_time_served ELSE 714

UNITS: person

INFLOWS:

rerelease_to_prison_parole_wMI = Reprisoned_Prison_Parole_Violators_wMI / reprison_time_served

UNITS: person/year

OUTFLOWS:

discharging_reparoled_prison_parolee_wMI = Reparoled_Prison_Parolees_wMI / prisoner_parole_duration_wMI

UNITS: person/year

Reparoled_Prison_Parolees_wo_MI(t) = Reparoled_Prison_Parolees_wo_MI(t - dt) + (rerelease_to_prison_parole_wo_MI - discharging_reparoled_prison_parolee_wo_MI) * dt

INIT Reparoled_Prison_Parolees_wo_MI = IF equilibrium_switch = 1 THEN Reprisoned_Prison_Parole_Violators_wo_MI* prisoner_parole_duration_wo_MI/reprison_time_served ELSE 1000

UNITS: person

INFLOWS:

rerelease_to_prison_parole_wo_MI = Reprisoned_Prison_Parole_Violators_wo_MI / reprison_time_served

UNITS: person/year

OUTFLOWS:

discharging_reparoled_prison_parolee_wo_MI = Reparoled_Prison_Parolees_wo_MI / prisoner_parole_duration_wo_MI

UNITS: person/year

Reprisoned_County_Parole_Violators_wMI(t) = Reprisoned_County_Parole_Violators_wMI(t - dt) + (county_parolee_wMI_returning_to_jail - rerelease_reprisoned_county_parolee_wMI_to_county_parole) * dt

INIT Reprisoned_County_Parole_Violators_wMI = IF equilibrium_switch = 1 THEN 0.00000637 ELSE 0.001

UNITS: person

INFLOWS:

county_parolee_wMI_returning_to_jail = County_Parolee_wMI_Violated_Condition * county_parolee_wMI_RTP_rate

UNITS: person/year

OUTFLOWS:

rerelease_reprisoned_county_parolee_wMI_to_county_parole = realignment_policy * (Reprisoned_County_Parole_Violators_wMI / county_parole_reprison_time)

UNITS: person/year

Reprisoned_County_Parole_Violators_wo_MI(t) = Reprisoned_County_Parole_Violators_wo_MI(t - dt) + (county_parolee_wo_MI_returning_to_jail - rerelease_reprisoned_county_parolee_wo_MI_to_county_parole) * dt

INIT Reprisoned_County_Parole_Violators_wo_MI = IF equilibrium_switch = 1 THEN 0.000000623*0+ 1 ELSE 0.001

UNITS: person

INFLOWS:

county_parolee_wo_MI_returning_to_jail = County_Parolee_wo_MI_Violated_Condition * county_parolee_wo_MI_RTJ_rate

UNITS: person/year

OUTFLOWS:

rerelease_reprisoned_county_parolee_wo_MI_to_county_parole = Reprisoned_County_Parole_Violators_wo_MI / county_parole_reprison_time

UNITS: person/year

Reprisoned_Prison_Parole_Violators_wMI(t) = Reprisoned_Prison_Parole_Violators_wMI(t - dt) + (prison_parolee_wMI_returning_to_prison - rerelease_to_prison_parole_wMI) * dt

INIT Reprisoned_Prison_Parole_Violators_wMI = IF equilibrium_switch=1 THEN Prison_Parolees_wMI_Violated_Condition*prison_parolee_wMI_RTP_rate*reprison_time_served ELSE 9705*0.14*0+50.9828*0+118

UNITS: person

INFLOWS:

prison_parolee_wMI_returning_to_prison = Prison_Parolees_wMI_Violated_Condition * prison_parolee_wMI_RTP_rate

UNITS: person/year

OUTFLOWS:

rerelease_to_prison_parole_wMI = Reprisoned_Prison_Parole_Violators_wMI / reprison_time_served

UNITS: person/year

Reprisoned_Prison_Parole_Violators_wo_MI(t) = Reprisoned_Prison_Parole_Violators_wo_MI(t - dt) + (prison_parolee_wo_MI_returning_to_prison - rerelease_to_prison_parole_wo_MI) * dt

INIT Reprisoned_Prison_Parole_Violators_wo_MI = IF equilibrium_switch = 1 THEN 988.822346413 * 0 + (Prison_Parolees_wo_MI_Violated_Condition*prison_parolee_wo_MI_RTP_rate*reprison_time_served) * 1 ELSE 9705*0.86*0+3040*0+600

UNITS: person

INFLOWS:

prison_parolee_wo_MI_returning_to_prison = Prison_Parolees_wo_MI_Violated_Condition * prison_parolee_wo_MI_RTP_rate

UNITS: person/year

OUTFLOWS:

rerelease_to_prison_parole_wo_MI = Reprisoned_Prison_Parole_Violators_wo_MI / reprison_time_served

UNITS: person/year

Suspects_in_Comm_with_Cases_Filed(t) = Suspects_in_Comm_with_Cases_Filed(t - dt) + (filing_case_for_suspect_in_comm - complaints_against_suspects_in_comm_dismissed_before_trial - suspect_in_comm_waiting_for_trial - defendants_in_comm_conviction_wo_trial) * dt

INIT Suspects_in_Comm_with_Cases_Filed = IF equilibrium_switch = 1 THEN 13504.6320353
ELSE 241968*0.3*0+
88239.6567879*0+ 22200*0+128641*0+43000*0+21000

UNITS: person

INFLOWS:

filing_case_for_suspect_in_comm = Pretrial_Suspects_in_Community /time_to_file_case_for_suspect_in_comm

UNITS: person/year

OUTFLOWS:

complaints_against_suspects_in_comm_dismissed_before_trial = Suspects_in_Comm_with_Cases_Filed / wait_time_for_trial_suspect_in_comm * fract_complaints_on_defendant_in_comm_dismissed_after_filling

UNITS: person/year

suspect_in_comm_waiting_for_trial = Suspects_in_Comm_with_Cases_Filed / wait_time_for_trial_suspect_in_comm * fract_defendant_in_comm_wait_for_trial

UNITS: person/year

defendants_in_comm_conviction_wo_trial = Suspects_in_Comm_with_Cases_Filed / wait_time_for_trial_suspect_in_comm * fract_defendant_in_comm_convicted_wo_trial

UNITS: person/year

Suspects_in_Custody(t) = Suspects_in_Custody(t - dt) + (being_held_in_custody - filing_case_for_suspect_in_custody) * dt

INIT Suspects_in_Custody = IF equilibrium_switch = 1 THEN 151.567138443
ELSE 28528 * 0.05*0{}+ 459*0+2351*0+562*0+261

UNITS: person

INFLOWS:

being_held_in_custody = Arrestees / time_for_arraignment * fract_being_held_in_custody

UNITS: person/year

OUTFLOWS:

filing_case_for_suspect_in_custody = Suspects_in_Custody / time_to_file_case_for_suspect_in_custody

UNITS: person/year

Suspects_in_Custody_with_Cases_Filed(t) = Suspects_in_Custody_with_Cases_Filed(t - dt) + (filing_case_for_suspect_in_custody - suspect_in_custody_waiting_for_trial - defendants_in_cusotdy_conviction_wo_trial - complaints_against_suspects_in_custody_dismissed_before_trial) * dt

INIT Suspects_in_Custody_with_Cases_Filed = IF equilibrium_switch = 1 THEN 151.567138443 ELSE 28528 * 0.1*0{}+ 458*0+2347*0+555*0+256

UNITS: person

INFLOWS:

filing_case_for_suspect_in_custody = Suspects_in_Custody / time_to_file_case_for_suspect_in_custody

UNITS: person/year

OUTFLOWS:

suspect_in_custody_waiting_for_trial = Suspects_in_Custody_with_Cases_Filed / wait_time_for_trial_suspect_in_custody* fract_defendant_in_custody_wait_for_trial

UNITS: person/year

defendants_in_cusotdy_conviction_wo_trial = Suspects_in_Custody_with_Cases_Filed / wait_time_for_trial_suspect_in_custody * fract_defendant_in_custody_convicted_wo_trial

UNITS: person/year

complaints_against_suspects_in_custody_dismissed_before_trial = Suspects_in_Custody_with_Cases_Filed / wait_time_for_trial_suspect_in_custody * fract_complaints_on_defendant_in_custody_dismissed_after_filling

UNITS: person/year

Time_to_Recover_fr_MI_in_Prison(t) = Time_to_Recover_fr_MI_in_Prison(t - dt) + (chg_in_time_to_recover_fr_wMi_in_prison) * dt

INIT Time_to_Recover_fr_MI_in_Prison = ref_time_to_recover_fr_MI_in_prison

UNITS: year

INFLOWS:

chg_in_time_to_recover_fr_wMi_in_prison = (new_time_to_recover_fr_wMI_in_prison - Time_to_Recover_fr_MI_in_Prison) / time_to_adj_MI_recovery_time_in_prison

UNITS: unitless

ADP_of_Reception_Center = New_Prisoners_at_Reception_Center_for_Medical_Screening / year_to_day_conversion

UNITS: person/day

ave_jail_time_served_at_current_release_wMI = IF equilibrium_switch = 1 THEN effects_of_incarceration_year_switch * (ref_ave_jail_time_served_at_current_release_wMI * Jail_Capacity.effect_of_jail_utilization_on_jail_time * Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wMI) + (1 - effects_of_incarceration_year_switch) * (ref_ave_jail_time_served_at_current_release_wMI * Jail_Capacity.effect_of_jail_utilization_on_jail_time) ELSE SMTH3(ref_ave_jail_time_served_at_current_release_wMI * Jail_Capacity.effect_of_jail_utilization_on_jail_time * Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wMI, ref_ave_jail_time_served_at_current_release_wMI * Jail_Capacity.effect_of_jail_utilization_on_jail_time * Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wMI,

ref_ave_jail_time_served_at_current_release_wMI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time *
Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wMI)

   UNITS: year

ave_jail_time_served_at_current_release_wo_MI = IF equilibrium_switch = 1 THEN
effects_of_incarceration_year_switch * (ref_ave_jail_time_served_at_current_release_wo_MI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time *
Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wo_MI) + (1 -
effects_of_incarceration_year_switch) * (ref_ave_jail_time_served_at_current_release_wo_MI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time) ELSE
SMTH3(ref_ave_jail_time_served_at_current_release_wo_MI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time *
Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wo_MI,
ref_ave_jail_time_served_at_current_release_wo_MI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time *
Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wo_MI,
ref_ave_jail_time_served_at_current_release_wo_MI *
Jail_Capacity.effect_of_jail_utilization_on_jail_time *
Incarceration_Year_Served.effect_of_incar_time_on_jail_time_served_wo_MI)

   UNITS: year

ave_prison_time_served_wMI = IF equilibrium_switch = 1 THEN
effects_of_incarceration_year_switch * (ref_ave_prison_time_served_wMI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wMI) + (1 -
effects_of_incarceration_year_switch) * ref_ave_prison_time_served_wMI   ELSE
(SMTH3(ref_ave_prison_time_served_wMI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wMI ,
ref_ave_prison_time_served_wMI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wMI ,
ref_ave_prison_time_served_wMI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wMI))

   UNITS: year

ave_prison_time_served_wo_MI = IF equilibrium_switch = 1 THEN
effects_of_incarceration_year_switch * (ref_ave_prison_time_served_wo_MI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wo_MI) + (1-
effects_of_incarceration_year_switch) * ref_ave_prison_time_served_wo_MI ELSE SMTH3(
ref_ave_prison_time_served_wo_MI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wo_MI,
ref_ave_prison_time_served_wo_MI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wo_MI,
ref_ave_prison_time_served_wo_MI *
Incarceration_Year_Served.effect_of_incar_time_on_prison_time_served_wo_MI)

   UNITS: year

ave_probation_duration = 3.83 * 0+ 6 * 1 + 4.5 * 0 + 5.5*0

UNITS: year

ave_time_stay_in_reception_center = 1

UNITS: year

ave_time_to_determine_sentence_for_defendant_in_comm = 2/365 {0.005}+9/365*1+60/365*0 + 30/365 * 0

UNITS: year

ave_time_to_determine_sentence_for_defendant_in_custody = 90/365 {0.25} + 180/365*1

UNITS: year

change_in_probation_conviction = GRAPH(TIME)

(1987.00, 1.002), (1988.00, 1.008), (1989.00, 1.0161), (1990.00, 1.0241), (1991.00, 1.0321), (1992.00, 1.0341), (1993.00, 1.0361), (1994.00, 1.03735), (1995.00, 1.03795), (1996.00, 1.03795), (1997.00, 1.0382), (1998.00, 1.0382), (1999.00, 1.0382), (2000.00, 1.0382), (2001.00, 1.0382), (2002.00, 1.0382), (2003.00, 1.0382), (2004.00, 1.0382), (2005.00, 1.0382), (2006.00, 1.0361), (2007.00, 1.0301), (2008.00, 1.0221), (2009.00, 1.01807), (2010.00, 1.01446), (2011.00, 1.01084), (2012.00, 1.00622), (2013.00, 1.00281), (2014.00, 1.001), (2015.00, 1)

UNITS: unitless

county_parole_duration = 1.66 * 0 + 1

UNITS: year

county_parole_reprison_time = 0.5

UNITS: year

county_parolee_wMI_RTP_rate = effects_of_incarceration_year_switch * (ref_county_parolee_wMI_RTP_rate * Incarceration_Year_Served.effect_of_incar_time_per_county_parolee_wMI_on_RTP) + (1-effects_of_incarceration_year_switch) * ref_county_parolee_wMI_RTP_rate

UNITS: 1/year

county_parolee_wo_MI_RTJ_rate = effects_of_incarceration_year_switch * (ref_county_parolee_wo_MI_RTJ_rate * Incarceration_Year_Served.effect_of_incar_time_per_county_parolee_wo_MI_on_RTP) + effects_of_incarceration_year_switch * ref_county_parolee_wo_MI_RTJ_rate

UNITS: 1/year

delay_in_medical_screening_capacity_buillding = STEP(1, 1987) * 0 + STEP(1, 1990) * 0 + STEP(1, 2008) * 0 + STEP(1, 2012) * 0

UNITS: unitless

delete_Converter_30 = fract_release_by_law_enforcement + fract_being_held_in_custody +fract_on_bails

UNITS: unitless

delete_Converter_33 = "fraction_of_reoffending_ex-convicts_wMI_of_total_arrestees"/init_fract_of_reoffence_by_exConv_wMI_in_total_arrest

   UNITS: unitless

divert_prisoners_wMI = 1 - STEP(0.1, 1990) * 0 - STEP(0.1, 2012) * 0

   UNITS: unitless

effect_of_jail_time_on_recidivism = 1 - STEP(1, 2012) * 0

   UNITS: unitless

effect_of_relative_jail_time_on_jail_exConv_wMI_recidivism = GRAPH(SMTH3 (relative_jail_time_served_by_offenders_wMI, 1, relative_jail_time_served_by_offenders_wMI))

(0.5000, 1.997), (0.5500, 1.965), (0.6000, 1.916), (0.6500, 1.816), (0.7000, 1.681), (0.7500, 1.439), (0.8000, 1.265), (0.8500, 1.161), (0.9000, 1.087), (0.9500, 1.039), (1.0000, 1.000)

   UNITS: unitless

effect_of_relative_jail_time_on_jail_exConv_wo_MI_recidivism = GRAPH(SMTH3 (relative_jail_time_served_by_offenders_wo_MI, 1, relative_jail_time_served_by_offenders_wo_MI))

(0.5000, 1.997), (0.5500, 1.965), (0.6000, 1.916), (0.6500, 1.816), (0.7000, 1.681), (0.7500, 1.439), (0.8000, 1.265), (0.8500, 1.161), (0.9000, 1.087), (0.9500, 1.039), (1.0000, 1.000)

   UNITS: unitless

effect_of_reoffence_by_exConv_wMI_on_ave_SC_per_convicted_offender = GRAPH("fraction_of_reoffending_ex-convicts_wMI_of_total_arrestees" / init_fract_of_reoffence_by_exConv_wMI_in_total_arrest)

(1.000, 1.0000), (1.300, 0.9991), (1.600, 0.9909), (1.900, 0.9808), (2.200, 0.9635), (2.500, 0.9288), (2.800, 0.8831), (3.100, 0.8457), (3.400, 0.8183), (3.700, 0.8082), (4.000, 0.8000)

   UNITS: unitless

effect_of_reoffence_by_exCov_wMI_on_fract_prison_convicts_wMI = GRAPH(SMTH3(relative_mental_func_of_recidivists, 1, relative_mental_func_of_recidivists))

(0.9000, 1.2000), (0.9150, 1.1904), (0.9300, 1.1807), (0.9450, 1.1687), (0.9600, 1.1518), (0.9750, 1.1277), (0.9900, 1.0952), (1.0050, 1.0494), (1.0200, 1.0000), (1.0350, 0.9506), (1.0500, 0.9024)

   UNITS: unitless

effect_of_war_on_drugs_policy_on_charge_dismissal = GRAPH(TIME)

(1987.000, 1.0000), (1988.14285714, 1.0096), (1989.28571429, 1.0225), (1990.42857143, 1.0386), (1991.57142857, 1.0546), (1992.71428571, 1.0000), (1993.85714286, 1.0000), (1995.000, 1.0000)

   UNITS: unitless

effect_of_war_on_drugs_policy_on_law_enforcement_release = GRAPH(TIME)

(1987.000, 1.0000), (1988.000, 1.0146), (1989.000, 1.0511), (1990.000, 1.0822), (1991.000, 1.0000)

UNITS: unitless

effect_of_war_on_drugs_policy_on_parole_violation_RTP = GRAPH(TIME)

(1987.000, 2.000), (1988.000, 1.85714285714), (1989.000, 1.71428571429), (1990.000, 1.57142857143), (1991.000, 1.42857142857), (1992.000, 1.28571428571), (1993.000, 1.14285714286), (1994.000, 1.000)

UNITS: unitless

effects_of_incarceration_year_switch = STEP(1, 1987) * 1 - STEP(1, 1990) * 0

UNITS: unitless

equilibrium_switch = STEP (1, 1987) * 1 - STEP(1, 2012) * 0

UNITS: unitless

exConv_mortality_rate = 0.008

UNITS: 1/year

exConv_wMI_recidivism = prison_parolee_wMI_committing_new_crimes + hi_risk_prison_exConv_wMI_recidivism + lo_risk_prison_exConv_wMI_recidivism + hi_risk_jail_exConv_wMI_recidivism + lo_risk_jail_exConv_wMI_recidivism + county_parolee_wo_MI_committing_new_crimes

UNITS: person/year

exConv_wo_MI_recidivism = prison_parolee_wo_MI_committing_new_crimes + hi_risk_prison_exConv_wo_MI_recidivism + lo_risk_prison_exConv_wo_MI_recidivism + hi_risk_jail_exConv_wo_MI_recidivism + lo_risk_jail_exConv_wo_MI_recidivism + county_parolee_wMI_committing_new_crimes

UNITS: person/year

fix_pop_growth_rate_for_eq_switch = STEP(1, 1987) * 0 + STEP(1, 1990) * 0 + STEP(1, 2012) * 0

UNITS: unitless

fract_being_held_in_custody = effects_of_incarceration_year_switch * (ref_fract_being_held_in_custody * Incarceration_Year_Served.effect_of_incar_time_on_fract_suspect_held_in_custody) + (1-effects_of_incarceration_year_switch) * ref_fract_being_held_in_custody

UNITS: unitless

fract_complaints_on_defendant_in_comm_dismissed_after_filling = IF equilibrium_switch = 1 THEN effects_of_incarceration_year_switch * (ref_fract_complaints_on_defendant_in_comm_dismissed_after_filling * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment) + (1 - effects_of_incarceration_year_switch) * ref_fract_complaints_on_defendant_in_comm_dismissed_after_filling ELSE ref_fract_complaints_on_defendant_in_comm_dismissed_after_filling * effect_of_war_on_drugs_policy_on_charge_dismissal * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment

UNITS: unitless

fract_complaints_on_defendant_in_comm_dismissed_after_trial = IF equilibrium_switch = 1 THEN effects_of_incarceration_year_switch * (ref_fract_complaints_on_defendant_in_comm_dismissed_after_trial * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment) + (1 - effects_of_incarceration_year_switch) * (ref_fract_complaints_on_defendant_in_comm_dismissed_after_trial)   ELSE ref_fract_complaints_on_defendant_in_comm_dismissed_after_trial * effect_of_war_on_drugs_policy_on_charge_dismissal * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment

UNITS: 1/year

fract_complaints_on_defendant_in_custody_dismissed_after_filling = IF equilibrium_switch =1 THEN effects_of_incarceration_year_switch * (ref_fract_complaints_on_defendant_in_custody_dismissed_after_filling * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment) + (1 - effects_of_incarceration_year_switch) * ref_fract_complaints_on_defendant_in_custody_dismissed_after_filling   ELSE ref_fract_complaints_on_defendant_in_custody_dismissed_after_filling * effect_of_war_on_drugs_policy_on_charge_dismissal * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment

UNITS: unitless

fract_complaints_on_defendant_in_custody_dismissed_after_trial = IF equilibrium_switch = 1 THEN effects_of_incarceration_year_switch * (ref_fract_complaints_on_defendant_in_custody_dismissed_after_trial * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment) + (1-effects_of_incarceration_year_switch) * ref_fract_complaints_on_defendant_in_custody_dismissed_after_trial ELSE ref_fract_complaints_on_defendant_in_custody_dismissed_after_trial * effect_of_war_on_drugs_policy_on_charge_dismissal * Incarceration_Year_Served.effect_of_incar_time_on_complaints_dismissed_after_arraignment

UNITS: 1/year

fract_county_parolee_reoffend_wo_MI = 0.15

UNITS: 1/year

fract_county_parolee_wMI_reoffend = 0.15

UNITS: 1/year

fract_county_parolee_wMI_violate_condition = ref_fract_county_parolee_wMI_violate_condition * Social_Capital.effect_of_SC_on_county_parole_violation_wMI

UNITS: 1/year

fract_county_parolee_wo_MI_violate_condition = ref_fract_county_parolee_wo_MI_violate_condition * Social_Capital.effect_of_SC_on_county_parole_violation_wo_MI

UNITS: 1/year

fract_defendant_in_comm_convict_to_prison_sentence = IF realignment_policy = 1   THEN (1 - prison_sentence_conviction_reduction_in_1990_switch) * effects_of_incarceration_year_switch * (MIN ((ref_fract_defendant_in_comm_convict_to_prison_sentence * prison_sentence_coviction_reduction_post_realignment * Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction), 1)) + (1 - prison_sentence_conviction_reduction_in_1990_switch) * (1-effects_of_incarceration_year_switch) * ref_fract_defendant_in_comm_convict_to_prison_sentence * prison_sentence_coviction_reduction_post_realignment + prison_sentence_conviction_reduction_in_1990_switch * effects_of_incarceration_year_switch * (MIN ((ref_fract_defendant_in_comm_convict_to_prison_sentence * prison_sentence_coviction_reduction_in_1990 * Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction), 1)) + prison_sentence_conviction_reduction_in_1990_switch * (1-effects_of_incarceration_year_switch) * ref_fract_defendant_in_comm_convict_to_prison_sentence * prison_sentence_coviction_reduction_in_1990 ELSE MIN (ref_fract_defendant_in_comm_convict_to_prison_sentence * Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction, 1)

UNITS: unitless

fract_defendant_in_comm_convicted_to_probation = IF equilibrium_switch = 1 THEN ref_fract_defendant_in_comm_convicted_to_probation ELSE ref_fract_defendant_in_comm_convicted_to_probation * change_in_probation_conviction

UNITS: unitless

fract_defendant_in_comm_convicted_wo_trial = 1 - fract_defendant_in_comm_wait_for_trial - fract_complaints_on_defendant_in_comm_dismissed_after_filling

UNITS: unitless

fract_defendant_in_comm_wait_for_trial = ref_fract_defendant_in_comm_wait_for_trial

UNITS: unitless

fract_defendant_in_custody_convict_to_prison_sentence = IF realignment_policy = 1   THEN (1 - prison_sentence_conviction_reduction_in_1990_switch) * effects_of_incarceration_year_switch * (MIN ((ref_fract_defendant_in_custody_convict_to_prison_sentence * prison_sentence_coviction_reduction_post_realignment * Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction), 1)) + (1 - prison_sentence_conviction_reduction_in_1990_switch) * (1- effects_of_incarceration_year_switch) * ref_fract_defendant_in_custody_convict_to_prison_sentence * prison_sentence_coviction_reduction_post_realignment + prison_sentence_conviction_reduction_in_1990_switch * effects_of_incarceration_year_switch * (MIN ((ref_fract_defendant_in_custody_convict_to_prison_sentence * prison_sentence_coviction_reduction_in_1990 * Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction), 1)) + prison_sentence_conviction_reduction_in_1990_switch * (1- effects_of_incarceration_year_switch) * ref_fract_defendant_in_custody_convict_to_prison_sentence * prison_sentence_coviction_reduction_in_1990 ELSE MIN

(ref_fract_defendant_in_custody_convict_to_prison_sentence *
Incarceration_Year_Served.effect_of_incar_time_on_fract_prison_sentence_conviction, 1)

   UNITS: unitless

fract_defendant_in_custody_convicted_to_jail = MAX (1 -
(fract_defendant_in_custody_convicted_to_probation +
fract_defendant_in_custody_convict_to_prison_sentence), 0)

   UNITS: unitless

fract_defendant_in_custody_convicted_to_probation = IF equilibrium_switch = 1 THEN
ref_fract_defendant_in_custody_convicted_to_probation   ELSE
ref_fract_defendant_in_custody_convicted_to_probation * change_in_probation_conviction

   UNITS: unitless

fract_defendant_in_custody_convicted_wo_trial = 1 -
fract_complaints_on_defendant_in_custody_dismissed_after_filling -
fract_defendant_in_custody_wait_for_trial

   UNITS: unitless

fract_defendant_in_custody_wait_for_trial = ref_fract_defendant_in_custody_wait_for_trial

   UNITS: unitless

fract_fract_defendant_in_comm_convict_to_jail_sentence = MAX (1 -
(fract_defendant_in_comm_convict_to_prison_sentence +
fract_defendant_in_comm_convicted_to_probation), 0)

   UNITS: unitless

fract_incoming_prison_convict_wMI = ref_fract_prison_convict_wMI *
effect_of_reoffence_by_exCov_wMI_on_fract_prison_convicts_wMI *
Prison_HC_Resource_Allocation.effect_of_medical_screeening_time_adequacy_on_MI_screening_effectiveness

   UNITS: unitless

fract_innocent_pop_arrested = GRAPH(TIME)

(1987.00, 0.05956), (1988.00, 0.06084), (1989.00, 0.06165), (1990.00, 0.06068), (1991.00, 0.0504),
(1992.00, 0.04783), (1993.00, 0.04622), (1994.00, 0.04542), (1995.00, 0.04462), (1996.00, 0.04317),
(1997.00, 0.04173), (1998.00, 0.03961), (1999.00, 0.03691), (2000.00, 0.03691), (2001.00, 0.03795),
(2002.00, 0.03851), (2003.00, 0.039), (2004.00, 0.03884), (2005.00, 0.03851), (2006.00, 0.03707),
(2007.00, 0.0353), (2008.00, 0.03305), (2009.00, 0.03177), (2010.00, 0.03125), (2011.00, 0.03104),
(2012.00, 0.02986), (2013.00, 0.02986), (2014.00, 0.02986), (2015.00, 0.02986)

   UNITS: 1/year

fract_jail_offender_serving_split_sentence = ref_fract_jail_offender_serving_split_sentence

   UNITS: unitless

fract_jail_offender_wMI = 0.46

UNITS: unitless

fract_jail_offender_wo_MI = 1 - fract_jail_offender_wMI

UNITS: unitless

fract_jail_offenders_devMI = ref_fract_jail_offenders_devMI *
Mental_Profiles.effect_of_mental_func_per_jail_offender_wo_MI_on_devMI

UNITS: 1/year

fract_jail_offenders_release_directly = 1-ref_fract_jail_offender_serving_split_sentence

UNITS: unitless

fract_of_reoffence_by_exConv_of_total_arrest = (exConv_wMI_recidivism +
exConv_wo_MI_recidivism) / (arrest_rate + exConv_wMI_recidivism + exConv_wo_MI_recidivism)

UNITS: unitless

fract_on_bails = MAX ((1-fract_release_by_law_enforcement-fract_being_held_in_custody), 0)

UNITS: unitless

fract_parolee_not_realigned_wMI = 1 - fract_parolee_realigned_wMI

UNITS: unitless

fract_parolee_not_realigned_wo_MI = 1 - fract_parolee_realigned_wo_MI

UNITS: unitless

fract_parolee_realigned_wMI = 0.18 * 0.5

UNITS: unitless

fract_parolee_realigned_wo_MI = 0.2

UNITS: unitless

fract_prison_convict_wo_MI = 1 - fract_incoming_prison_convict_wMI

UNITS: unitless

fract_prison_parolee_reoffend_wMI = ref_fract_prison_parolee_reoffend_wMI

UNITS: 1/year

fract_prison_parolee_reoffend_wo_MI = ref_fract_prison_parolee_reoffend_wo_MI

UNITS: 1/year

fract_prison_parolee_wMI_violate_condition = ref_fract_prison_parolee_wMI_violate_condition *
Social_Capital.effect_of_SC_on_prison_parole_violation_wMI

UNITS: 1/year

fract_prison_parolee_wo_MI_violate_condition =
ref_fract_prison_parolee_wo_MI_violate_condition *
Social_Capital.effect_of_SC_on_prison_parole_violation_wo_MI

UNITS: 1/year

fract_prisoners_devMI = IF equilibrium_switch = 1 THEN   (1 - prisoners_devMI_switch) *
zero_fract_develop_MI + prisoners_devMI_switch * (ref_fract_prisoners_devMI *
Mental_Profiles.effect_of_mental_func_per_prisoner_wo_MI_on_devMI *
Prison_HC_Resource_Allocation.effect_of_MHC_adequacy_on_in_prison_MI_screening) ELSE
ref_fract_prisoners_devMI *
Mental_Profiles.effect_of_mental_func_per_prisoner_wo_MI_on_devMI *
Prison_HC_Resource_Allocation.effect_of_MHC_adequacy_on_in_prison_MI_screening

   UNITS: 1/year

fract_probation_violator_sent_to_jail_for_hearing = 0.05+0.1

   UNITS: 1/year

fract_release_by_law_enforcement = IF equilibrium_switch = 1 THEN
effects_of_incarceration_year_switch * ((ref_fract_release_by_law_enforcement *
Incarceration_Year_Served.effect_of_incar_time_on_law_enforcement_release)) + (1 -
effects_of_incarceration_year_switch) * (ref_fract_release_by_law_enforcement)   ELSE
ref_fract_release_by_law_enforcement *
Incarceration_Year_Served.effect_of_incar_time_on_law_enforcement_release *
effect_of_war_on_drugs_policy_on_charge_dismissal

   UNITS: unitless

"fraction_of_reoffending_ex-convicts_wMI_of_total_arrestees" = exConv_wMI_recidivism /
(arrest_rate + exConv_wMI_recidivism + exConv_wo_MI_recidivism)

   UNITS: unitless

hearing_duration_for_defedants_in_comm = 14/365 {0.04} + 14/365*0

   UNITS: year

hearing_duration_for_defedants_in_custody = 50/365 * 1 {0.16} + 75/365*0

   UNITS: year

hi_risk_exConv_wo_MI_recidivism_rate = ref_hi_risk_exConv_wo_MI_recidivism_rate

   UNITS: 1/year

hi_risk_jail_exConv_wMI_recidivism_rate = (1- effect_of_jail_time_on_recidivism) *
ref_hi_risk_jail_exConv_wMI_recidivism_rate + effect_of_jail_time_on_recidivism *
(ref_hi_risk_jail_exConv_wMI_recidivism_rate *
effect_of_relative_jail_time_on_jail_exConv_wMI_recidivism)

   UNITS: 1/year

hi_risk_jail_exConv_wo_MI_recidivism_rate = (1 - effect_of_jail_time_on_recidivism) *
ref_hi_risk_jail_exConv_wo_MI_recidivism_rate + effect_of_jail_time_on_recidivism *
(ref_hi_risk_jail_exConv_wo_MI_recidivism_rate *
effect_of_relative_jail_time_on_jail_exConv_wo_MI_recidivism)

   UNITS: 1/year

hi_risk_prison_exConv_wMI_recidivism_rate = ref_hi_risk_prison_exConv_wMI_recidivism_rate

UNITS: 1/year

hold_arrest_fract_constant = STEP(1, 2012) * 0

UNITS: unitless

hold_correctional_community_service_budget_constant = STEP(1, 2012) * 0

UNITS: unitless

hold_total_pop_constant_swtich = STEP(1, 2012) * 0

UNITS: unitless

increase_arrest_rate = 0 + STEP(0.1, 1990) * 0 + STEP(0.01, 2012) * 0 - RAMP(0.015, 2012) * 0

UNITS: 1/year

init_ave_jail_time_served_at_current_release_wMI =
INIT(ave_jail_time_served_at_current_release_wMI)

UNITS: year

init_ave_jail_time_served_at_current_release_wo_MI =
INIT(ave_jail_time_served_at_current_release_wo_MI)

UNITS: year

init_fract_of_reoffence_by_exConv_wMI_in_total_arrest = INIT("fraction_of_reoffending_ex-
convicts_wMI_of_total_arrestees")

UNITS: unitless

init_MI_prev = 0.008

UNITS: unitless

init_prisoners = IF equilibrium_switch=1 THEN 344981.10642   ELSE 66531

UNITS: person

jail_capacity_steady_state_error = STEP(1, 2012) * 0

UNITS: unitless

lo_risk_exConv_wo_MI_recidivism_rate = ref_lo_risk_exConv_wo_MI_recidivism_rate

UNITS: 1/year

lo_risk_jail_exConv_wMI_recidivism_rate = ref_lo_risk_jail_exConv_wMI_recidivism_rate

UNITS: 1/year

lo_risk_jail_exConv_wo_MI_recidivism_rate = ref_lo_risk_jail_exConv_wo_MI_recidivism_rate

UNITS: 1/year

lo_risk_prison_exConv_wMI_recidivism_rate = ref_lo_risk_prison_exConv_wMI_recidivism_rate

UNITS: 1/year

MHC_screening_capacity_building_start_time_switch = STEP(1, 1987) * 0 + STEP(1, 1990) * 0 + STEP(1, 2008) * 0 + STEP(1, 2012) * 0

UNITS: unitless

MI_prevalence_ratio_in_prison = (Prisoners_wMI + Reprisoned_Prison_Parole_Violators_wMI) / (Prisoners_wo_MI + Prisoners_wMI + Reprisoned_Prison_Parole_Violators_wo_MI + Reprisoned_Prison_Parole_Violators_wMI)

UNITS: unitless

new_time_to_recover_fr_wMI_in_prison = (1-realignment_policy) * ref_time_to_recover_fr_MI_in_prison + realignment_policy * (Mental_Profiles.effect_of_mental_func_per_prisoner_wMI_on_recovery_time * ref_time_to_recover_fr_MI_in_prison * Prison_HC_Resource_Allocation.effect_of_MHC_adequacy_on_recovery_time_after_realignment)

UNITS: year

nm_time_for_prison_exConv_wMI_to_become_lo_risk = 2

UNITS: year

nm_time_for_prison_exConv_wo_MI_to_become_lo_risk = 2

UNITS: year

policy_comm_svc_budget_distribution = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

UNITS: unitless

policy_include_adjustment_delay_in_HC_budget_adjustment = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

UNITS: unitless

prison_capacity_steady_state_error = STEP(1, 2012) * 0

UNITS: unitless

prison_parolee_wMI_recidivism_rate = (prison_parolee_wMI_violated_condition_committing_new_crimes + prison_parolee_wMI_committing_new_crimes) / (Prison_Parolees_wMI_Violated_Condition + Prison_Parolees_wMI)

UNITS: 1/year

prison_parolee_wMI_RTP_rate = IF equilibrium_switch=1 THEN effects_of_incarceration_year_switch * (ref_prison_parolee_wMI_RTP_rate * Incarceration_Year_Served.effect_of_incar_time_per_prison_parolee_wMI_on_RTP) + (1 - effects_of_incarceration_year_switch) * ref_prison_parolee_wMI_RTP_rate ELSE ref_prison_parolee_wMI_RTP_rate * Incarceration_Year_Served.effect_of_incar_time_per_prison_parolee_wMI_on_RTP * effect_of_war_on_drugs_policy_on_parole_violation_RTP

UNITS: 1/year

prison_parolee_wo_MI_RTP_rate = IF equilibrium_switch = 1 THEN
effects_of_incarceration_year_switch * (ref_prison_parolee_wo_MI_RTP_rate *
Incarceration_Year_Served.effect_of_incar_time_per_prison_parolee_wo_MI_on_RTP) + (1 -
effects_of_incarceration_year_switch) * ref_prison_parolee_wo_MI_RTP_rate ELSE
ref_prison_parolee_wo_MI_RTP_rate * effect_of_war_on_drugs_policy_on_parole_violation_RTP

UNITS: 1/year

prison_pop_growth_rate_switch = STEP(1, 1987) * 0 + STEP(1 , 1990) * 0 + STEP(1, 2012) * 0

UNITS: unitless

prison_sentence_conviction_reduction_in_1990_switch = STEP(1, 1990) * 0

UNITS: unitless

prison_sentence_coviction_reduction_in_1990 = GRAPH(TIME)

(1987.00, 1.0000), (1988.00, 1.0000), (1989.00, 1.0000), (1990.00, 0.9578), (1991.00, 0.8783),
(1992.00, 0.7230), (1993.00, 0.6584), (1994.00, 0.6000), (1995.00, 0.7081), (1996.00, 0.7652),
(1997.00, 0.8037), (1998.00, 1.0000), (1999.00, 1.0000), (2000.00, 1.0000), (2001.00, 1.0000),
(2002.00, 1.0000), (2003.00, 1.0000), (2004.00, 1.0000), (2005.00, 1.0000), (2006.00, 1.0000),
(2007.00, 1.0000), (2008.00, 1.0000), (2009.00, 1.0000), (2010.00, 1.0000), (2011.00, 1.0000),
(2012.00, 1.0000), (2013.00, 1.0000), (2014.00, 1.0000), (2015.00, 1.0000)

UNITS: unitless

prison_sentence_coviction_reduction_post_realignment = GRAPH(TIME)

(1987.00, 1.0000), (1988.00, 1.0000), (1989.00, 1.0000), (1990.00, 1.0000), (1991.00, 1.0000),
(1992.00, 1.0000), (1993.00, 1.0000), (1994.00, 1.0000), (1995.00, 1.0000), (1996.00, 1.0000),
(1997.00, 1.0000), (1998.00, 1.0000), (1999.00, 1.0000), (2000.00, 1.0000), (2001.00, 1.0000),
(2002.00, 1.0000), (2003.00, 1.0000), (2004.00, 1.0000), (2005.00, 1.0000), (2006.00, 1.0000),
(2007.00, 1.0000), (2008.00, 0.9578), (2009.00, 0.8783), (2010.00, 0.7230), (2011.00, 0.6584),
(2012.00, 0.6000), (2013.00, 0.7081), (2014.00, 0.7652), (2015.00, 0.8037)

UNITS: unitless

prisoner_parole_duration_wMI = 2.5 - STEP(2, 1990) * 0

UNITS: year

prisoner_parole_duration_wo_MI = 2 - STEP(1, 1990) * 0

UNITS: year

prisoners_devMI_switch = STEP(1, 1987) * 1 + STEP(1 , 1990) * 0 + PULSE(1, 1990, 100) * 0

UNITS: unitless

realignment_fund_extends_until_2050 = STEP(1, 2012) * 0 - STEP(1, 2050) * 0

UNITS: unitless

realignment_fund_in_1990 = STEP(1, 1990)* 0

UNITS: unitless

realignment_fund_in_2012_switch = STEP(1, 2012) * 0

UNITS: unitless

realignment_policy = STEP (1, 1990) * 0 + STEP (1, 2012) * 0

UNITS: unitless

recidivism_rate = total_exConv_recidivism / total_exConv

UNITS: 1/year

reduce_acuity_based_budget = 1 - STEP(0.2, 2012) * 0

UNITS: unitless

reduce_community_budget = 1 - STEP(0.5, 2012) * 0

UNITS: unitless

ref_arrest_rate = GRAPH(TIME)

(1987.00, 1635731.0), (1987.89285714, 1673864.0), (1988.78571429, 1730927.0), (1989.67857143, 1736828.0), (1990.57142857, 1546002.0), (1991.46428571, 1471058.0), (1992.35714286, 1412431.0), (1993.25, 1394894.0), (1994.14285714, 1394732.0), (1995.03571429, 1348340.0), (1995.92857143, 1343861.0), (1996.82142857, 1301765.0), (1997.71428571, 1238334.0), (1998.60714286, 1181803.0), (1999.50, 1180194.0), (2000.39285714, 1196599.0), (2001.28571429, 1247763.0), (2002.17857143, 1280937.0), (2003.07142857, 1289431.0), (2003.96428571, 1306515.0), (2004.85714286, 1315044.0), (2005.75, 1314561.0), (2006.64285714, 1262156.0), (2007.53571429, 1208558.0), (2008.42857143, 1117633.0), (2009.32142857, 1117776.0), (2010.21428571, 1108599.0), (2011.10714286, 1126022.0), (2012.00, 1086889.0)

UNITS: person/year

ref_ave_jail_time_served_at_current_release_wMI = 0.25

UNITS: year

ref_ave_jail_time_served_at_current_release_wo_MI = 0.25-0.05 + 0.05

UNITS: year

ref_ave_prison_time_served_wMI = 2.5

UNITS: year

ref_ave_prison_time_served_wo_MI = 2 -0.3

UNITS: year

ref_CA_pop = GRAPH(TIME)

(1987.00, 27717000.0), (1988.03703704, 28393000.0), (1989.07407407, 29142000.0), (1990.11111111, 29760021.0), (1991.14814815, 30458613.0), (1992.18518519, 30987384.0), (1993.22222222, 31314189.0), (1994.25925926, 31523690.0), (1995.2962963, 31711849.0), (1996.33333333, 31962949.0), (1997.37037037, 32452789.0), (1998.40740741, 32862965.0),

(1999.44444444, 33418578.0), (2000.48148148, 33871653.0), (2001.51851852, 34512742.0), (2002.55555556, 34938290.0), (2003.59259259, 35388928.0), (2004.62962963, 35752765.0), (2005.66666667, 35985582.0), (2006.7037037, 36246822.0), (2007.74074074, 36552529.0), (2008.77777778, 36856222.0), (2009.81481481, 37077204.0), (2010.85185185, 37253956.0), (2011.88888889, 37701901.0), (2012.92592593, 38062780.0), (2013.96296296, 38431393.0), (2015.00, 38802500.0)

UNITS: person

ref_complaint_dimissed_after_arraignment = GRAPH(TIME)

(1987.00, 116896.0), (1987.89285714, 112319.0), (1988.78571429, 107524.0), (1989.67857143, 89391.0), (1990.57142857, 107980.0), (1991.46428571, 84691.0), (1992.35714286, 104133.0), (1993.25, 109612.0), (1994.14285714, 106815.0), (1995.03571429, 104309.0), (1995.92857143, 104960.0), (1996.82142857, 96509.0), (1997.71428571, 85837.0), (1998.60714286, 81426.0), (1999.50, 88365.0), (2000.39285714, 92048.0), (2001.28571429, 99049.0), (2002.17857143, 102050.0), (2003.07142857, 92786.0), (2003.96428571, 98069.0), (2004.85714286, 101633.0), (2005.75, 97530.0), (2006.64285714, 98211.0), (2007.53571429, 96827.0), (2008.42857143, 96410.0), (2009.32142857, 93052.0), (2010.21428571, 92113.0), (2011.10714286, 98094.0), (2012.00, 80178.0)

UNITS: person/year

ref_complaint_dimissed_before_arraignment = GRAPH(TIME)

(1987.00, 1365235.0), (1987.89285714, 1407874.0), (1988.78571429, 1455776.0), (1989.67857143, 1478094.0), (1990.57142857, 1242295.0), (1991.46428571, 1186248.0), (1992.35714286, 1066962.0), (1993.25, 1052573.0), (1994.14285714, 1049607.0), (1995.03571429, 1020172.0), (1995.92857143, 1017093.0), (1996.82142857, 987282.0), (1997.71428571, 959619.0), (1998.60714286, 914291.0), (1999.50, 908202.0), (2000.39285714, 909100.0), (2001.28571429, 931386.0), (2002.17857143, 935522.0), (2003.07142857, 969844.0), (2003.96428571, 986697.0), (2004.85714286, 982397.0), (2005.75, 989320.0), (2006.64285714, 955986.0), (2007.53571429, 909911.0), (2008.42857143, 825402.0), (2009.32142857, 822311.0), (2010.21428571, 803096.0), (2011.10714286, 810240.0), (2012.00, 844429.0)

UNITS: person/year

ref_convicted_jail_inmates = GRAPH(TIME)

(1987.00, 32274.0), (1987.89285714, 32376.0), (1988.78571429, 33271.0), (1989.67857143, 33215.0), (1990.57142857, 32859.0), (1991.46428571, 32743.0), (1992.35714286, 31677.0), (1993.25, 30142.0), (1994.14285714, 28801.0), (1995.03571429, 29468.0), (1995.92857143, 32347.0), (1996.82142857, 33841.0), (1997.71428571, 31802.0), (1998.60714286, 30109.0), (1999.50, 28637.0), (2000.39285714, 28180.0), (2001.28571429, 26235.0), (2002.17857143, 26262.0), (2003.07142857, 26454.0), (2003.96428571, 26519.0), (2004.85714286, 26556.0), (2005.75, 26165.0), (2006.64285714, 26277.0), (2007.53571429, 21386.0), (2008.42857143, 21303.0), (2009.32142857, 28844.0), (2010.21428571, 30522.0), (2011.10714286, 30746.0), (2012.00, 30746.0)

UNITS: person

ref_conviction_rate = GRAPH(TIME)

(1987.00, 153600.0), (1988.00, 153671.0), (1989.00, 167627.0), (1990.00, 169343.0), (1991.00, 195727.0), (1992.00, 200119.0), (1993.00, 241336.0), (1994.00, 235709.0), (1995.00, 238310.0), (1996.00, 223859.0), (1997.00, 221808.0), (1998.00, 192814.0), (1999.00, 192878.0), (2000.00, 186086.0), (2001.00, 183627.0), (2002.00, 195451.0), (2003.00, 195451.0), (2004.00, 243365.0), (2005.00, 226801.0), (2006.00, 221749.0), (2007.00, 231014.0), (2008.00, 227711.0), (2009.00, 207959.0), (2010.00, 201820.0), (2011.00, 195821.0), (2012.00, 202413.0)

   UNITS: person/year

ref_conviction_to_jail = GRAPH(TIME)

(1987.00, 105375.0), (1988.00, 105424.0), (1989.00, 114998.0), (1990.00, 116175.0), (1991.00, 134276.0), (1992.00, 137289.0), (1993.00, 165565.0), (1994.00, 168807.0), (1995.00, 168905.0), (1996.00, 154297.0), (1997.00, 152823.0), (1998.00, 149467.0), (1999.00, 131458.0), (2000.00, 130095.0), (2001.00, 126258.0), (2002.00, 127933.0), (2003.00, 140738.0), (2004.00, 154738.0), (2005.00, 141623.0), (2006.00, 138664.0), (2007.00, 143650.0), (2008.00, 137907.0), (2009.00, 128050.0), (2010.00, 125406.0), (2011.00, 123153.0), (2012.00, 136568.0)

   UNITS: person/year

ref_conviction_to_prison = GRAPH(TIME)

(1987.00, 33016.0), (1987.89285714, 33031.0), (1988.78571429, 36031.0), (1989.67857143, 36399.0), (1990.57142857, 42071.0), (1991.46428571, 43015.0), (1992.35714286, 51874.0), (1993.25, 44277.0), (1994.14285714, 46285.0), (1995.03571429, 48248.0), (1995.92857143, 47730.0), (1996.82142857, 41115.0), (1997.71428571, 42464.0), (1998.60714286, 36529.0), (1999.50, 33020.0), (2000.39285714, 32412.0), (2001.28571429, 37097.0), (2002.17857143, 43743.0), (2003.07142857, 42405.0), (2003.96428571, 39730.0), (2004.85714286, 42723.0), (2005.75, 43931.0), (2006.64285714, 42427.0), (2007.53571429, 41824.0), (2008.42857143, 37962.0), (2009.32142857, 29727.0), (2010.21428571, 31962.0), (2011.10714286, 32212.0), (2012.00, 27711.0)

   UNITS: person/year

ref_conviction_to_probation = GRAPH(TIME)

(1987.00, 15209.0), (1987.89285714, 15216.0), (1988.78571429, 16598.0), (1989.67857143, 16768.0), (1990.57142857, 19381.0), (1991.46428571, 19816.0), (1992.35714286, 23897.0), (1993.25, 22625.0), (1994.14285714, 23120.0), (1995.03571429, 21278.0), (1995.92857143, 19003.0), (1996.82142857, 18885.0), (1997.71428571, 15788.0), (1998.60714286, 16874.0), (1999.50, 21503.0), (2000.39285714, 31499.0), (2001.28571429, 33471.0), (2002.17857143, 35579.0), (2003.07142857, 34128.0), (2003.96428571, 33636.0), (2004.85714286, 34487.0), (2005.75, 35684.0), (2006.64285714, 30082.0), (2007.53571429, 27605.0), (2008.42857143, 27654.0), (2009.32142857, 29518.0), (2010.21428571, 32998.0), (2011.10714286, 31812.0), (2012.00, 15616.0)

   UNITS: person/year

ref_county_parolee_wMI_RTP_rate = 0.05

   UNITS: 1/year

ref_county_parolee_wo_MI_RTJ_rate = 0.01

UNITS: 1/year

ref_disposition_rate = GRAPH(TIME)

(1987.00, 270496.0), (1988.00, 265990.0), (1989.00, 275151.0), (1990.00, 258734.0), (1991.00, 303707.0), (1992.00, 284810.0), (1993.00, 345469.0), (1994.00, 342321.0), (1995.00, 345125.0), (1996.00, 328168.0), (1997.00, 326768.0), (1998.00, 314483.0), (1999.00, 278715.0), (2000.00, 267512.0), (2001.00, 271992.0), (2002.00, 287499.0), (2003.00, 316377.0), (2004.00, 345415.0), (2005.00, 319587.0), (2006.00, 319818.0), (2007.00, 332647.0), (2008.00, 325241.0), (2009.00, 306170.0), (2010.00, 298647.0), (2011.00, 292231.0), (2012.00, 295465.0), (2013.00, 305503.0), (2014.00, 315782.0), (2015.00, 242460.0)

UNITS: person/year

ref_exConv = 0

UNITS: person

ref_fract_being_held_in_custody = 0.005

UNITS: unitless

ref_fract_complaints_on_defendant_in_comm_dismissed_after_filling = 0.36 + 0.02

UNITS: unitless

ref_fract_complaints_on_defendant_in_comm_dismissed_after_trial = 0.5

UNITS: 1/year

ref_fract_complaints_on_defendant_in_custody_dismissed_after_filling = 0.36 + 0.02

UNITS: unitless

ref_fract_complaints_on_defendant_in_custody_dismissed_after_trial = 0.25+0.05

UNITS: 1/year

ref_fract_county_parolee_wMI_violate_condition = 0.7

UNITS: 1/year

ref_fract_county_parolee_wo_MI_violate_condition = 0.7

UNITS: 1/year

ref_fract_defendant_in_comm_convict_to_prison_sentence = 0.26 + STEP(-0.026, 1990) * 0

UNITS: unitless

ref_fract_defendant_in_comm_convicted_to_probation = 0.1 + STEP(0.2, 1990) * 0

UNITS: unitless

ref_fract_defendant_in_comm_wait_for_trial = 0.1 + RAMP(0.01, 1987) * 0

UNITS: unitless

ref_fract_defendant_in_custody_convict_to_prison_sentence = 0.35 + STEP(-0.035, 1990) * 0

UNITS: unitless

ref_fract_defendant_in_custody_convicted_to_probation = 0.009 + STEP(0.021, 1990) * 0

   UNITS: unitless

ref_fract_defendant_in_custody_wait_for_trial = 0.01 - RAMP(0.005, 1987) * 0

   UNITS: unitless

ref_fract_jail_offender_serving_split_sentence = 0.58-0.03

   UNITS: unitless

ref_fract_jail_offenders_devMI = 0.01

   UNITS: 1/year

ref_fract_prison_convict_wMI = 0.26 * 0 + 0.32

   UNITS: unitless

ref_fract_prison_parolee_reoffend_wMI = 0.3*0+0.25*0+0.2

   UNITS: 1/year

ref_fract_prison_parolee_reoffend_wo_MI = 0.25*0 + 0.2

   UNITS: 1/year

ref_fract_prison_parolee_wMI_violate_condition = 0.5-0.2

   UNITS: 1/year

ref_fract_prison_parolee_wo_MI_violate_condition = 0.5-0.25

   UNITS: 1/year

ref_fract_prisoners_devMI = 0.02 + STEP(0.98, 1990) * 0

   UNITS: 1/year

ref_fract_release_by_law_enforcement = 0.82+0.01

   UNITS: unitless

ref_hi_risk_exConv_wo_MI_recidivism_rate = 0.07 + test_hi_risk_recidivism - 0.03

   UNITS: 1/year

ref_hi_risk_jail_exConv_wMI_recidivism_rate = 0.25

   UNITS: 1/year

ref_hi_risk_jail_exConv_wo_MI_recidivism_rate = 0.2

   UNITS: 1/year

ref_hi_risk_prison_exConv_wMI_recidivism_rate = 0.08 - 0.04

   UNITS: 1/year

ref_jail_ADP = GRAPH(TIME)

(1987.00, 60802.0), (1988.00, 64335.0), (1989.00, 68535.0), (1990.00, 70845.0), (1991.00, 68923.0), (1992.00, 70853.0), (1993.00, 67576.0), (1994.00, 69233.0), (1995.00, 70938.0), (1996.00, 72007.0), (1997.00, 76938.0), (1998.00, 79143.0), (1999.00, 76311.0), (2000.00, 75044.0), (2001.00, 73824.0), (2002.00, 75156.0), (2003.00, 75340.0), (2004.00, 76939.0), (2005.00, 79639.0), (2006.00, 81104.0), (2007.00, 83184.0), (2008.00, 82397.0), (2009.00, 80866.0), (2010.00, 73445.0), (2011.00, 71011.0), (2012.00, 77818.0), (2013.00, 81818.0), (2014.00, 81551.0), (2015.00, 73891.0)

   UNITS: person

ref_jail_inmate = GRAPH(TIME)

(1987.00, 289495.0), (1988.00, 343569.0), (1989.00, 393303.0), (1990.00, 403019.0), (1991.00, 424129.0), (1992.00, 399600.0), (1993.00, 375071.0), (1994.00, 350542.0), (1995.00, 326014.0), (1996.00, 301485.0), (1997.00, 276956.0), (1998.00, 252427.0), (1999.00, 227898.0), (2000.00, 203369.0), (2001.00, 178840.0), (2002.00, 154312.0), (2003.00, 129783.0), (2004.00, 105254.0), (2005.00, 80725.0), (2006.00, 81612.0), (2007.00, 82662.0), (2008.00, 82397.0), (2009.00, 78416.0), (2010.00, 72306.0), (2011.00, 72132.0), (2012.00, 80136.0), (2013.00, 82248.0), (2014.00, 77673.0), (2015.00, 73891.0)

   UNITS: person

ref_jail_inmates_calculated = GRAPH(TIME)

(1987.00, 60802.0), (1987.89285714, 64335.0), (1988.78571429, 68535.0), (1989.67857143, 70845.0), (1990.57142857, 68923.0), (1991.46428571, 70853.0), (1992.35714286, 67576.0), (1993.25, 69233.0), (1994.14285714, 70938.0), (1995.03571429, 72007.0), (1995.92857143, 76938.0), (1996.82142857, 79143.0), (1997.71428571, 76311.0), (1998.60714286, 75044.0), (1999.50, 73824.0), (2000.39285714, 75156.0), (2001.28571429, 75340.0), (2002.17857143, 76939.0), (2003.07142857, 79639.0), (2003.96428571, 81104.0), (2004.85714286, 83184.0), (2005.75, 82397.0), (2006.64285714, 80866.0), (2007.53571429, 73445.0), (2008.42857143, 71011.0), (2009.32142857, 77818.0), (2010.21428571, 81818.0), (2011.10714286, 81551.0), (2012.00, 73891.0)

   UNITS: person

ref_lo_risk_exConv_wo_MI_recidivism_rate = 0.008

   UNITS: 1/year

ref_lo_risk_jail_exConv_wMI_recidivism_rate = 0.05

   UNITS: 1/year

ref_lo_risk_jail_exConv_wo_MI_recidivism_rate = 0.05

   UNITS: 1/year

ref_lo_risk_prison_exConv_wMI_recidivism_rate = 0.015

   UNITS: 1/year

ref_MI_prev = GRAPH(TIME)

(1987.00, 0.14), (1989.33333333, 0.21), (1991.66666667, 0.09), (1994.00, 0.105), (1996.33333333, 0.145), (1998.66666667, 0.19), (2001.00, 0.201), (2003.33333333, 0.22), (2005.66666667, 0.263), (2008.00, 0.251), (2010.33333333, 0.251), (2012.66666667, 0.247), (2015.00, 0.285)

   UNITS: unitless

ref_new_prison_admission = GRAPH(TIME)

(1987.00, 26515), (1988.00, 29579), (1989.00, 34226), (1990.00, 39272), (1991.00, 38252), (1992.00, 40158), (1993.00, 43149), (1994.00, 41580), (1995.00, 45459), (1996.00, 46487), (1997.00, 46823), (1998.00, 46589), (1999.00, 42936), (2000.00, 40276), (2001.00, 37932), (2002.00, 38662), (2003.00, 43422), (2004.00, 46798), (2005.00, 48609), (2006.00, 48639), (2007.00, 46987), (2008.00, 46386), (2009.00, 45006), (2010.00, 41550), (2011.00, 54306), (2012.00, 67062), (2013.00, 79818), (2014.00, 92574), (2015.00, 105330)

   UNITS: person

ref_parolees = GRAPH(TIME)

(1987.00, 39183.0), (1988.2173913, 47284.0), (1989.43478261, 55383.0), (1990.65217391, 65420.0), (1991.86956522, 77120.0), (1993.08695652, 80815.0), (1994.30434783, 79504.0), (1995.52173913, 83778.0), (1996.73913043, 90450.0), (1997.95652174, 95631.0), (1999.17391304, 100926.0), (2000.39130435, 107645.0), (2001.60869565, 113720.0), (2002.82608696, 117377.0), (2004.04347826, 117675.0), (2005.26086957, 112992.0), (2006.47826087, 114255.0), (2007.69565217, 113994.0), (2008.91304348, 115184.0), (2010.13043478, 122381.0), (2011.34782609, 126906.0), (2012.56521739, 123778.0), (2013.7826087, 109026.0), (2015.00, 91701.0)

   UNITS: person

ref_prison_admission = GRAPH(TIME)

(1987.00, 32905.0), (1988.00, 37989.0), (1989.00, 45266.0), (1990.00, 53342.0), (1991.00, 54262.0), (1992.00, 58097.0), (1993.00, 62299.0), (1994.00, 58589.0), (1995.00, 62913.0), (1996.00, 64012.0), (1997.00, 64485.0), (1998.00, 63972.0), (1999.00, 60030.0), (2000.00, 56287.0), (2001.00, 52464.0), (2002.00, 53027.0), (2003.00, 59116.0), (2004.00, 64640.0), (2005.00, 68376.0), (2006.00, 69408.0), (2007.00, 67795.0), (2008.00, 66336.0), (2009.00, 63633.0), (2010.00, 58743.0), (2011.00, 68569.0), (2012.00, 74759.0)

   UNITS: person/year

ref_prison_parolee_wMI_RTP_rate = 0.23

   UNITS: 1/year

ref_prison_parolee_wo_MI_RTP_rate = 0.18 + 0.28*0

   UNITS: 1/year

ref_prison_recidivism = GRAPH(TIME)

(1987.00, 6390.0), (1988.00, 8410.0), (1989.00, 11040.0), (1990.00, 14070.0), (1991.00, 16010.0), (1992.00, 17939.0), (1993.00, 19150.0), (1994.00, 17009.0), (1995.00, 17454.0), (1996.00, 17435.0), (1997.00, 17495.0), (1998.00, 17294.0), (1999.00, 17071.0), (2000.00, 16011.0), (2001.00, 14528.0), (2002.00, 14328.0), (2003.00, 15716.0), (2004.00, 17823.0), (2005.00, 19721.0), (2006.00, 20750.0),

(2007.00, 20791.0), (2008.00, 19950.0), (2009.00, 18627.0), (2010.00, 17193.0), (2011.00, 57266.0), (2012.00, 57266.0)

UNITS: person/year

ref_prison_time_served = GRAPH(TIME)

(1987.00, 1.42), (1988.00, 1.5), (1989.00, 1.42), (1990.00, 1.33), (1991.00, 1.33), (1992.00, 1.33), (1993.00, 1.33), (1994.00, 1.4), (1995.00, 1.65), (1996.00, 1.82), (1997.00, 1.9), (1998.00, 1.93), (1999.00, 1.96), (2000.00, 2.03), (2001.00, 2.09), (2002.00, 2.21), (2003.00, 2.18), (2004.00, 2.07), (2005.00, 2.01), (2006.00, 1.97), (2007.00, 1.99), (2008.00, 2.08), (2009.00, 2.15), (2010.00, 2.24), (2011.00, 2.51), (2012.00, 4.62)

UNITS: year

ref_prisoners = GRAPH(TIME)

(1987.00, 66975.0), (1988.00, 76171.0), (1989.00, 87297.0), (1990.00, 97309.0), (1991.00, 101808.0), (1992.00, 109496.0), (1993.00, 119951.0), (1994.00, 125605.0), (1995.00, 135133.0), (1996.00, 145565.0), (1997.00, 155276.0), (1998.00, 159563.0), (1999.00, 160687.0), (2000.00, 160655.0), (2001.00, 157142.0), (2002.00, 159695.0), (2003.00, 161785.0), (2004.00, 163939.0), (2005.00, 168035.0), (2006.00, 172528.0), (2007.00, 171444.0), (2008.00, 171085.0), (2009.00, 168830.0), (2010.00, 162821.0), (2011.00, 147578.0), (2012.00, 132935.0), (2013.00, 134339.0), (2014.00, 135484.0), (2015.00, 128900.0)

UNITS: person

ref_probationers = GRAPH(TIME)

(1987.00, 242529.0), (1988.00, 265643.0), (1989.00, 285018.0), (1990.00, 305700.0), (1991.00, 315421.0), (1992.00, 302754.0), (1993.00, 280749.0), (1994.00, 285105.0), (1995.00, 286986.0), (1996.00, 289503.0), (1997.00, 302236.0), (1998.00, 330945.0), (1999.00, 338785.0), (2000.00, 333288.0), (2001.00, 328540.0), (2002.00, 336740.0), (2003.00, 352449.0), (2004.00, 341227.0), (2005.00, 344442.0), (2006.00, 346495.0), (2007.00, 347199.0), (2008.00, 341584.0), (2009.00, 331270.0), (2010.00, 311692.0), (2011.00, 297917.0), (2012.00, 294993.0), (2013.00, 296964.0), (2014.00, 285681.0), (2015.00, 263531.0)

UNITS: person

"ref_PV-RTC_stock" = GRAPH(TIME)

(1987.00, 9705.0), (1987.89285714, 11590.0), (1988.78571429, 12946.0), (1989.67857143, 13113.0), (1990.57142857, 12019.0), (1991.46428571, 11285.0), (1992.35714286, 12563.0), (1993.25, 16820.0), (1994.14285714, 19333.0), (1995.03571429, 22266.0), (1995.92857143, 26754.0), (1996.82142857, 31187.0), (1997.71428571, 26435.0), (1998.60714286, 26802.0), (1999.50, 25797.0), (2000.39285714, 26364.0), (2001.28571429, 23239.0), (2002.17857143, 19004.0), (2003.07142857, 18546.0), (2003.96428571, 20222.0), (2004.85714286, 19254.0), (2005.75, 18610.0), (2006.64285714, 15703.0), (2007.53571429, 13160.0), (2008.42857143, 5119.0), (2009.32142857, 163.0), (2010.21428571, 131.0), (2011.10714286, 79.0), (2012.00, 27.0)

UNITS: person/year

ref_release_wo_trial = GRAPH(TIME)

(1987.00, 1482131.0), (1987.89285714, 1520193.0), (1988.78571429, 1563300.0), (1989.67857143, 1567485.0), (1990.57142857, 1350275.0), (1991.46428571, 1270939.0), (1992.35714286, 1171095.0), (1993.25, 1159185.0), (1994.14285714, 1156422.0), (1995.03571429, 1124481.0), (1995.92857143, 1122053.0), (1996.82142857, 1108951.0), (1997.71428571, 1045456.0), (1998.60714286, 995717.0), (1999.50, 996567.0), (2000.39285714, 1001148.0), (2001.28571429, 1052312.0), (2002.17857143, 1037572.0), (2003.07142857, 1062630.0), (2003.96428571, 1084766.0), (2004.85714286, 1084030.0), (2005.75, 1086850.0), (2006.64285714, 1054197.0), (2007.53571429, 1006738.0), (2008.42857143, 921812.0), (2009.32142857, 915363.0), (2010.21428571, 895209.0), (2011.10714286, 908334.0), (2012.00, 924607.0)

UNITS: person/year

ref_suspects_in_custody = GRAPH(TIME)

(1987.00, 28528.0), (1987.89285714, 31959.0), (1988.78571429, 35264.0), (1989.67857143, 37630.0), (1990.57142857, 36064.0), (1991.46428571, 38110.0), (1992.35714286, 35899.0), (1993.25, 39122.0), (1994.14285714, 42137.0), (1995.03571429, 42539.0), (1995.92857143, 44593.0), (1996.82142857, 45303.0), (1997.71428571, 44509.0), (1998.60714286, 44940.0), (1999.50, 45187.0), (2000.39285714, 46975.0), (2001.28571429, 49105.0), (2002.17857143, 50677.0), (2003.07142857, 53186.0), (2003.96428571, 54585.0), (2004.85714286, 56628.0), (2005.75, 56232.0), (2006.64285714, 54589.0), (2007.53571429, 52059.0), (2008.42857143, 49708.0), (2009.32142857, 49705.0), (2010.21428571, 51296.0), (2011.10714286, 50860.0), (2012.00, 50860.0)

UNITS: person

ref_time_for_jail_exConv_wMI_to_become_lo_risk = 2.5

UNITS: year

ref_time_for_jail_exConv_wMI_to_cease_criminal_behavior = 8

UNITS: year

ref_time_for_jail_exConv_wo_MI_to_become_lo_risk = 1.5

UNITS: year

ref_time_for_jail_exConv_wo_MI_to_cease_criminal_behavior = 3.5

UNITS: year

ref_time_for_prison_exConv_wMI_to_cease_criminal_behavior = 7

UNITS: year

ref_time_for_prison_exConv_wo_MI_to_cease_criminal_behavior = 7

UNITS: year

ref_time_to_recover_fr_MI_in_prison = 10

UNITS: year

relative_fract_of_reoffense_by_exConv_wMI_of_total_arrest = (1 - rounding_switch) * ("fraction_of_reoffending_ex-convicts_wMI_of_total_arrestees" /

init_fract_of_reoffence_by_exConv_wMI_in_total_arrest) + rounding_switch * ROUND
("fraction_of_reoffending_ex-convicts_wMI_of_total_arrestees" /
init_fract_of_reoffence_by_exConv_wMI_in_total_arrest)

   UNITS: unitless

relative_jail_time_served_by_offenders_wMI = ave_jail_time_served_at_current_release_wMI /
init_ave_jail_time_served_at_current_release_wMI

   UNITS: unitless

relative_jail_time_served_by_offenders_wo_MI = ave_jail_time_served_at_current_release_wo_MI
/ init_ave_jail_time_served_at_current_release_wo_MI

   UNITS: unitless

relative_mental_func_of_recidivists = (1 - rounding_switch) *
(Mental_Profiles.ave_mental_func_per_recidivist /
Mental_Profiles.init_mental_func_per_prisoner_wo_MI) + rounding_switch *
(ROUND(Mental_Profiles.ave_mental_func_per_recidivist) /
Mental_Profiles.init_mental_func_per_prisoner_wo_MI)

   UNITS: unitless

reprison_time_served = 0.5 + STEP(0.5, 1990)*0

   UNITS: year

rounding_switch = STEP(1, 1987) * 1 - STEP(1, 1990) * 0 - STEP(1, 2012) * 1

   UNITS: unitless

test_ave_jail_years = STEP(-0.25, 1994) * 0

   UNITS: year

test_clearing_records = STEP(0.05, 2012) * 0

   UNITS: unitless

test_fract_assign_to_probation = STEP(0.1, 2011) * 0

   UNITS: 1/year

test_fraction_pretrial_detainee_released = STEP(0.1, 2012) * 0

   UNITS: 1/year

test_hi_risk_recidivism = STEP(0.1, 1994) * 0

   UNITS: 1/year

test_jail_conviction_time = STEP(-0.25, 1994) * 0 + STEP(1, 2011) * 0

   UNITS: year

test_jail_time_on_recidivism_switch = STEP(1, 2012) * 1

   UNITS: unitless

test_lo_risk_recidivism = STEP(0.01, 1994) * 0

   UNITS: 1/year

test_parolee_returning_to_jail = STEP(1, 2011) * 0

   UNITS: unitless

test_prison_conviction = STEP(-0.01, 2012) * 0

   UNITS: 1/year

test_prison_conviction_time = STEP(-1, 1994) * 0 + STEP(1, 2011) * 0

   UNITS: year

test_sentence_length_wMI = STEP(2, 1994) * 0

   UNITS: year

test_sentence_length_wo_MI = STEP(2, 1994) * 0

   UNITS: year

time_for_arraignment = 0.013 {w/in 48 hours workdays, so use 5 days here}

   UNITS: year

time_for_jail_exConv_wMI_to_become_lo_risk = ref_time_for_jail_exConv_wMI_to_become_lo_risk

   UNITS: year

time_for_jail_exConv_wMI_to_cease_criminal_behavior =
ref_time_for_jail_exConv_wMI_to_cease_criminal_behavior

   UNITS: year

time_for_jail_exConv_wo_MI_to_become_lo_risk =
ref_time_for_jail_exConv_wo_MI_to_become_lo_risk

   UNITS: year

time_for_jail_exConv_wo_MI_to_cease_criminal_behavior =
ref_time_for_jail_exConv_wo_MI_to_cease_criminal_behavior

   UNITS: year

time_for_prison_exConv_wMI_to_become_lo_risk =
nm_time_for_prison_exConv_wMI_to_become_lo_risk

   UNITS: year

time_for_prison_exConv_wMI_to_cease_criminal_behavior =
ref_time_for_prison_exConv_wMI_to_cease_criminal_behavior

   UNITS: year

time_for_prison_exConv_wo_MI_to_become_lo_risk =
nm_time_for_prison_exConv_wo_MI_to_become_lo_risk

UNITS: year

time_for_prison_exConv_wo_MI_to_cease_criminal_behavior =
ref_time_for_prison_exConv_wo_MI_to_cease_criminal_behavior

UNITS: year

time_to_adj_MI_recovery_time_in_prison = 5

UNITS: year

time_to_clear_the_accum_reprisoned_parole_violator_stock = 1

UNITS: year

time_to_file_case_for_suspect_in_comm = 7/365 {0.02} + STEP (13/365, 1990) * 0 - STEP (3/365,
1990) * 0 + RAMP(1/365, 1987) * 0

UNITS: year

time_to_file_case_for_suspect_in_custody = 13/365 {0.036}-3/365 * 1

UNITS: year

total_arrest_rate = arrest_rate + prison_parolee_wo_MI_committing_new_crimes +
prison_parolee_wMI_committing_new_crimes + hi_risk_prison_exConv_wo_MI_recidivism +
hi_risk_prison_exConv_wMI_recidivism + lo_risk_prison_exConv_wo_MI_recidivism +
lo_risk_prison_exConv_wMI_recidivism + hi_risk_jail_exConv_wo_MI_recidivism +
hi_risk_jail_exConv_wMI_recidivism + lo_risk_jail_exConv_wo_MI_recidivism +
lo_risk_jail_exConv_wMI_recidivism

UNITS: person/year

total_complaints_dismissed_after_arraignment =
complaints_against_suspects_in_custody_dismissed_before_trial+
complaints_against_suspects_in_comm_dismissed_before_trial +
complaints_against_suspects_in_custody_dismissed_after_trial +
complaints_against_suspects_in_comm_dismissed_after_trial

UNITS: person/year

total_convicted_jail_offenders = Jail_Offenders_wMI + Jail_Offenders_wo_MI

UNITS: person

total_conviction_rate = convicting_defendant_in_custody_to_probation +
convicting_defendant_in_comm_to_probation + convicting_defendant_in_custody_to_jail_wo_MI +
convicting_defendant_in_custody_to_jail_wMI + convicting_defendant_in_custody_to_prison_wMI
+ convicting_defendant_in_custody_to_prison_wo_MI +
convicting_defendant_in_comm_to_prison_wo_MI +
convicting_defendant_in_comm_to_prison_wMI + convicting_defendant_in_comm_to_jail_wo_MI +
convicting_defendant_in_comm_to_jail_wMI

UNITS: person/year

total_conviction_rate_2 = defendant_in_custody_being_sentenced +
defendant_in_comm_being_sentenced

   UNITS: person/year

total_county_parolee_wo_MI = County_Parolees_wo_MI +
County_Parolee_wo_MI_Violated_Condition

   UNITS: person

total_county_parolees = County_Parolees_wMI + County_Parolees_wo_MI +
County_Parolee_wo_MI_Violated_Condition + County_Parolee_wMI_Violated_Condition

   UNITS: person

total_county_parolees_wMI = County_Parolees_wMI + County_Parolee_wMI_Violated_Condition

   UNITS: person

total_desisted_exConv_wMI = Desisted_Prison_ExConvicts_wMI + Desisted_Jail_ExConvicts_wMI

   UNITS: person

total_desisted_exConv_wo_MI = Desisted_Prison_ExConvicts_wo_MI +
Desisted_Jail_ExConvicts_wo_MI

   UNITS: person

total_disposition_rate = defendant_in_custody_being_sentenced +
complaints_against_suspects_in_custody_dismissed_after_trial +
defendants_in_cusotdy_conviction_wo_trial +
complaints_against_suspects_in_custody_dismissed_before_trial +
defendant_in_comm_being_sentenced +
complaints_against_suspects_in_comm_dismissed_after_trial +
defendants_in_comm_conviction_wo_trial +
complaints_against_suspects_in_comm_dismissed_before_trial

   UNITS: person/year

total_exConv = total_exConv_wMI + total_exConv_wo_MI

   UNITS: person

total_exConv_recidivism = exConv_wo_MI_recidivism + exConv_wMI_recidivism

   UNITS: person/year

total_exConv_wMI = HI_Risk_Prison_ExConvicts_wMI + Lo_Risk_Prison_ExConvicts_wMI +
HI_Risk_Jail_ExConvicts_wMI + Lo_Risk_Jail_ExConvicts_wMI + total_parolees_wMI

   UNITS: person

total_exConv_wo_MI = HI_Risk_Prison_ExConvicts_wo_MI + Lo_Risk_Prison_ExConvicts_wo_MI +
HI_Risk_Jail_ExConvicts_wo_MI + Lo_Risk_Jail_ExConvicts_wo_MI + total_parolees_wo_MI

   UNITS: person

total_exConv_wo_parolees = HI_Risk_Prison_ExConvicts_wo_MI + Lo_Risk_Prison_ExConvicts_wo_MI + HI_Risk_Prison_ExConvicts_wMI + Lo_Risk_Prison_ExConvicts_wMI + HI_Risk_Jail_ExConvicts_wo_MI + Lo_Risk_Jail_ExConvicts_wo_MI + HI_Risk_Jail_ExConvicts_wMI + Lo_Risk_Jail_ExConvicts_wMI

   UNITS: person

total_hi_risk_exConv_recidivism = hi_risk_prison_exConv_wMI_recidivism + hi_risk_jail_exConv_wo_MI_recidivism + hi_risk_prison_exConv_wo_MI_recidivism + hi_risk_jail_exConv_wMI_recidivism

   UNITS: person/year

total_jail_conviction_rate = convicting_defendant_in_custody_to_jail_wo_MI + convicting_defendant_in_custody_to_jail_wMI + convicting_defendant_in_comm_to_jail_wo_MI + convicting_defendant_in_comm_to_jail_wMI

   UNITS: person/year

total_jail_pop = Arrestees + Suspects_in_Custody + Suspects_in_Custody_with_Cases_Filed + Defendants_in_Custody_Being_Trialed + PreSentencing_Defendants_in_Custody + Jail_Offenders_wMI + Jail_Offenders_wo_MI + Reprisoned_County_Parole_Violators_wMI + Reprisoned_County_Parole_Violators_wo_MI + PreSentencing_Defendants_fr_Comm_in_Custody

   UNITS: person

total_jail_recidivism = hi_risk_jail_exConv_wMI_recidivism + lo_risk_jail_exConv_wMI_recidivism + hi_risk_jail_exConv_wo_MI_recidivism + lo_risk_jail_exConv_wo_MI_recidivism

   UNITS: person/year

total_law_enforcement_release = release_by_law_enforcement

   UNITS: person/year

total_lo_risk_exConv_recidivism = lo_risk_prison_exConv_wo_MI_recidivism + lo_risk_prison_exConv_wMI_recidivism + lo_risk_jail_exConv_wo_MI_recidivism + lo_risk_jail_exConv_wMI_recidivism

   UNITS: person/year

total_new_prison_admission = convicting_defendant_in_custody_to_prison_wo_MI + convicting_defendant_in_comm_to_prison_wo_MI + convicting_defendant_in_custody_to_prison_wMI + convicting_defendant_in_comm_to_prison_wMI

   UNITS: person/year

total_parolee_recidivism = prison_parolee_wMI_committing_new_crimes + prison_parolee_wo_MI_committing_new_crimes + prison_parolee_wMI_violated_condition_committing_new_crimes + prison_parolee_wo_MI_violated_condition_committing_new_crimes + county_parolee_wMI_committing_new_crimes + county_parolee_wo_MI_committing_new_crimes + county_parolee_wMI_violated_condition_committing_new_crimes + county_parolee_wo_MI_violated_condition_committing_new_crimes

UNITS: person/year

total_parolees = Prison_Parolees_wMI + Prison_Parolees_wo_MI + County_Parolees_wMI + County_Parolees_wo_MI + Prison_Parolees_wo_MI_Violated_Condition + Prison_Parolees_wMI_Violated_Condition + County_Parolee_wo_MI_Violated_Condition + County_Parolee_wMI_Violated_Condition + Reparoled_Prison_Parolees_wMI + Reparoled_Prison_Parolees_wo_MI

UNITS: person

total_parolees_wMI = total_prison_parolees_wMI + total_county_parolees_wMI

UNITS: person

total_parolees_wMI_discharges = discharging_prison_parolee_wo_MI + discharging_prison_parolee_wMI + discharging_prison_parolee_wo_MI_violated_condition + discharging_prison_parolee_wMI_violated_condition

UNITS: person/year

total_parolees_wo_MI = Prison_Parolees_wo_MI + Prison_Parolees_wo_MI_Violated_Condition + County_Parolees_wo_MI + County_Parolee_wo_MI_Violated_Condition + Reparoled_Prison_Parolees_wo_MI

UNITS: person

total_preSentencing_defendants = PreSentencing_Defendants_in_Custody + PreSentencing_Defendants_fr_Comm_in_Custody

UNITS: people

total_prison_conviction_rate = convicting_defendant_in_custody_to_prison_wo_MI + convicting_defendant_in_custody_to_prison_wMI + convicting_defendant_in_comm_to_prison_wo_MI + convicting_defendant_in_comm_to_prison_wMI

UNITS: person/year

total_prison_parolee_wo_MI = Prison_Parolees_wo_MI + Prison_Parolees_wo_MI_Violated_Condition + Reparoled_Prison_Parolees_wo_MI

UNITS: person

total_prison_parolees = Prison_Parolees_wMI + Prison_Parolees_wo_MI + Prison_Parolees_wMI_Violated_Condition + Prison_Parolees_wo_MI_Violated_Condition + Reparoled_Prison_Parolees_wMI + Reparoled_Prison_Parolees_wo_MI

UNITS: person

total_prison_parolees_wMI = Prison_Parolees_wMI + Prison_Parolees_wMI_Violated_Condition + Reparoled_Prison_Parolees_wMI

UNITS: person

total_prison_recidivism = prison_parolee_wMI_committing_new_crimes + prison_parolee_wo_MI_committing_new_crimes + hi_risk_prison_exConv_wo_MI_recidivism +

hi_risk_prison_exConv_wMI_recidivism + lo_risk_prison_exConv_wMI_recidivism + lo_risk_prison_exConv_wo_MI_recidivism + county_parolee_wMI_committing_new_crimes + county_parolee_wo_MI_committing_new_crimes

   UNITS: person/year

total_prisoner_outflows = releasing_prisoner_wo_MI_before_realignment+ rerelease_to_prison_parole_wMI+ rerelease_to_prison_parole_wo_MI+ releasing_prisoner_wMI_before_realignment+ releasing_prisoner_wo_MI_to_parole_after_realignment+ releasing_prisoner_wMI_to_parole_after_realignment

   UNITS: person/year

total_prisoners = Prisoners_wo_MI + Prisoners_wMI + Reprisoned_Prison_Parole_Violators_wo_MI + Reprisoned_Prison_Parole_Violators_wMI

   UNITS: person

total_probation_conviction_rate = convicting_defendant_in_custody_to_probation + convicting_defendant_in_comm_to_probation

   UNITS: person/year

"total_PV-RTC_stock" = Reprisoned_Prison_Parole_Violators_wMI + Reprisoned_Prison_Parole_Violators_wo_MI

   UNITS: person

total_reprisoned_parole_violators = Accumulative_Reprisoned_Parole_Violators_wo_MI + Accumulative_Reprisoned_Parole_Violators_wMI

   UNITS: person

total_suspect_in_custody_being_trialed = Defendants_in_Custody_Being_Trialed + PreSentencing_Defendants_in_Custody + Suspects_in_Custody_with_Cases_Filed

   UNITS: person

total_suspects_in_comm_being_trialed = PreSentencing_Defendants_fr_Comm_in_Custody + Defendants_in_Comm_Being_Trialed + Suspects_in_Comm_with_Cases_Filed

   UNITS: person

total_suspects_in_custody = Arrestees + Suspects_in_Custody + Defendants_in_Custody_Being_Trialed + PreSentencing_Defendants_in_Custody + Suspects_in_Custody_with_Cases_Filed + PreSentencing_Defendants_fr_Comm_in_Custody

   UNITS: person

wait_time_for_trial_suspect_in_comm = 27/365

   UNITS: year

wait_time_for_trial_suspect_in_custody = 10/365 {0.03}

   UNITS: year

year_to_day_conversion = 365

    UNITS: day

zero_fract_develop_MI = 0

    UNITS: 1/year

zero_fract_parolee_realigned_wMI = 0

    UNITS: unitless

{ The model has 480 (480) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 44 (44) Flows: 108 (108) Converters: 328 (328)

 Constants: 109 (109) Equations: 327 (327) Graphicals: 65 (65)

 There are also 406 expanded macro variables.

 }

Age Profiles Module

Total_Age_of_Arrestees(t) = Total_Age_of_Arrestees(t - dt) +
(transferring_age_thru_hi_risk_jail_exConv_wo_MI_recidivism +
transferring_age_thru_lo_risk_jail_exConv_wMI_recidivism +
transferringage_thru_hi_risk_prison_exConv_wMI_recidivism +
transferring_age_thru_lo_risk_jail_exConv_recidivism +
transferring_age_thru_hi_risk_jail_exConv_wMI_recidivism +
transferring_age_thru_prison_parolee_wMI_recidivism + adding_age_thru_arresting +
transferring_age_thru_lo_risk_prison_exConv_recidivism +
transferring_age_thru_hi_risk_prison_exConv_wo_MI_recidivism +
transferring_age_thru_prison_parolee_wo_MI_recidivism +
transferring_age_thru_county_parolee_wo_MI_recidivism +
transferring_age_thru_county_parolee_wMI_recidivism +
transferring_age_thru_prison_parolee_wo_MI_violated_condition_recidivism +
transferring_age_thru_prison_parolee_wMI_violated_condition_recidivism +
transferring_age_thru_county_parolee_wMI_violated_condition_recidivism +
transferring_age_thru_lo_risk_prison_exConv_wMI_recidivism +
transferring_age_thru_county_parolee_wo_MI_violated_condition_recidivism -
transferring_age_thru_release_suspect_to_comm - losing_age_thru_release_by_law_enforcement -
transferring_age_thru_holding_suspect_in_custody) * dt

INIT Total_Age_of_Arrestees = IF Individuals_with_Criminal_History.equilibrium_switch= 1 THEN
405643.830411 ELSE Individuals_with_Criminal_History.Arrestees * init_age_per_arrestee

UNITS: year

INFLOWS:

transferring_age_thru_hi_risk_jail_exConv_wo_MI_recidivism =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_age_per_hi_risk_jail_exConv_wo_MI

UNITS: unitless

transferring_age_thru_lo_risk_jail_exConv_wMI_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism *
ave_age_per_lo_risk_jail_exConv_wMI

UNITS: unitless

transferringage_thru_hi_risk_prison_exConv_wMI_recidivism =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_age_per_hi_risk_prison_exCon_wMI

UNITS: unitless

transferring_age_thru_lo_risk_jail_exConv_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism *
ave_age_per_lo_risk_jail_exConv_wo_MI

UNITS: unitless

transferring_age_thru_hi_risk_jail_exConv_wMI_recidivism = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism * ave_age_per_hi_risk_jail_exConv_wMI

UNITS: unitless

transferring_age_thru_prison_parolee_wMI_recidivism = Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes * ave_age_per_prison_parolee_wMI

UNITS: unitless

adding_age_thru_arresting = Individuals_with_Criminal_History.arrest_rate * age_at_first_commitment

UNITS: unitless

transferring_age_thru_lo_risk_prison_exConv_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism * ave_age_per_lo_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_hi_risk_prison_exConv_wo_MI_recidivism = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_age_per_hi_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_prison_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_age_per_prison_parolee_wo_MI

UNITS: unitless

transferring_age_thru_county_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes * ave_age_per_county_parolee_wo_MI

UNITS: unitless

transferring_age_thru_county_parolee_wMI_recidivism = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes * ave_age_per_county_parolee_wMI)

UNITS: unitless

transferring_age_thru_prison_parolee_wo_MI_violated_condition_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes * ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

transferring_age_thru_prison_parolee_wMI_violated_condition_recidivism =
Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crime
s * ave_age_per_prison_parolee_wMI_violated_condition

   UNITS: unitless

transferring_age_thru_county_parolee_wMI_violated_condition_recidivism =
Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crime
s * ave_age_per_county_parolee_wMI_violated_condition

   UNITS: unitless

transferring_age_thru_lo_risk_prison_exConv_wMI_recidivism =
Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism *
ave_age_per_lo_risk_prison_exCon_wMI

   UNITS: unitless

transferring_age_thru_county_parolee_wo_MI_violated_condition_recidivism =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_cr
imes * ave_age_per_county_parolee_wo_MI_violated_condition)

   UNITS: unitless

OUTFLOWS:

transferring_age_thru_release_suspect_to_comm =
Individuals_with_Criminal_History.pretrial_release * ave_age_per_arrestees

   UNITS: unitless

losing_age_thru_release_by_law_enforcement =
Individuals_with_Criminal_History.release_by_law_enforcement * ave_age_per_arrestees

   UNITS: unitless

transferring_age_thru_holding_suspect_in_custody =
Individuals_with_Criminal_History.being_held_in_custody * ave_age_per_arrestees

   UNITS: unitless

Total_Age_of_County_Parolee_wMI_Violated_Condition(t) =
Total_Age_of_County_Parolee_wMI_Violated_Condition(t - dt) +
(transferring_age_thru_county_parolee_wMI_violating_condition +
chg_in_age_in_county_parolee_wMI_violated_condition -
transferring_age_thru_county_parolee_returning_to_jail_wMI -
transferring_age_thru_discharging_county_parolee_wMI_violated_condition -
transferring_age_thru_county_parolee_wMI_violated_condition_recidivism) * dt

   INIT Total_Age_of_County_Parolee_wMI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition*(ave_age_per_county
_parolee_wMI*Individuals_with_Criminal_History.county_parolee_wMI_violating_condition+annual
_age_chg_county_parolee_wMI_violated_condition)) /

(Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail+Individuals_with_Crimin al_History.discharging_county_parolee_wMI_violated_condition+Individuals_with_Criminal_History. county_parolee_wMI_violated_condition_committing_new_crimes) ELSE Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition * init_age_per_county_parolee_wMI_violated_condition

   UNITS: year

   INFLOWS:

     transferring_age_thru_county_parolee_wMI_violating_condition = Individuals_with_Criminal_History.county_parolee_wMI_violating_condition * ave_age_per_county_parolee_wMI

         UNITS: unitless

     chg_in_age_in_county_parolee_wMI_violated_condition = annual_age_chg_county_parolee_wMI_violated_condition

         UNITS: unitless

   OUTFLOWS:

     transferring_age_thru_county_parolee_returning_to_jail_wMI = Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail *ave_age_per_county_parolee_wMI_violated_condition

         UNITS: unitless

     transferring_age_thru_discharging_county_parolee_wMI_violated_condition = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition * ave_age_per_county_parolee_wMI_violated_condition)

         UNITS: unitless

     transferring_age_thru_county_parolee_wMI_violated_condition_recidivism = Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crime s * ave_age_per_county_parolee_wMI_violated_condition

         UNITS: unitless

Total_Age_of_County_Parolee_wo_MI_Violated_Condition(t) = Total_Age_of_County_Parolee_wo_MI_Violated_Condition(t - dt) + (transferring_age_thru_county_parolee_wo_MI_violating_condition + chg_in_age_in_county_parolee_woMI_violated_condition - transferring_age_thru_county_parolee_returning_to_jail_wo_MI - transferring_age_thru_discharging_county_parolee_wo_MI_violated_condition - transferring_age_thru_county_parolee_wo_MI_violated_condition_recidivism) * dt

   INIT Total_Age_of_County_Parolee_wo_MI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_age_per_county_parolee_wo_MI*Individuals_with_Criminal_History.county_parolee_wo_MI_ violating_condition+annual_age_chg_county_parolee_wo_MI_violated_condition)*Individuals_with _Criminal_History.County_Parolee_wo_MI_Violated_Condition) /

(Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail) ELSE
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition *
init_age_per_county_parolee_wo_MI_violated_condition

   UNITS: year

   INFLOWS:

     transferring_age_thru_county_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition *
ave_age_per_county_parolee_wo_MI

        UNITS: unitless

     chg_in_age_in_county_parolee_woMI_violated_condition =
annual_age_chg_county_parolee_wo_MI_violated_condition

        UNITS: unitless

   OUTFLOWS:

     transferring_age_thru_county_parolee_returning_to_jail_wo_MI =
Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail *
ave_age_per_county_parolee_wo_MI_violated_condition

        UNITS: unitless

     transferring_age_thru_discharging_county_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition *
ave_age_per_county_parolee_wo_MI_violated_condition)

        UNITS: unitless

     transferring_age_thru_county_parolee_wo_MI_violated_condition_recidivism =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_cr
imes * ave_age_per_county_parolee_wo_MI_violated_condition)

        UNITS: unitless

Total_Age_of_County_Parolees_wMI(t) = Total_Age_of_County_Parolees_wMI(t - dt) +
(transferring_age_thru_releasing_prisoner_wMI_to_parole_after_realignment -
transferring_age_thru_discharging_county_parolee_wMI -
transferring_age_thru_county_parolee_wMI_recidivism -
transferring_age_thru_county_parolee_wMI_violating_condition) * dt

   INIT Total_Age_of_County_Parolees_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0   ELSE
Individuals_with_Criminal_History.County_Parolees_wMI * init_age_per_county_parolees_wMI

   UNITS: year

   INFLOWS:

transferring_age_thru_releasing_prisoner_wMI_to_parole_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
ave_age_per_prisoner_wMI)

   UNITS: unitless

 OUTFLOWS:

   transferring_age_thru_discharging_county_parolee_wMI =
Individuals_with_Criminal_History.discharging_county_parolee_wMI *
ave_age_per_county_parolee_wMI

   UNITS: unitless

   transferring_age_thru_county_parolee_wMI_recidivism =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes *
ave_age_per_county_parolee_wMI)

   UNITS: unitless

   transferring_age_thru_county_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wMI_violating_condition *
ave_age_per_county_parolee_wMI

   UNITS: unitless

Total_Age_of_County_Parolees_wo_MI(t) = Total_Age_of_County_Parolees_wo_MI(t - dt) +
(transferring_age_thru_releasing_prisoner_wo_MI_to_parole_after_realignment -
transferring_age_thru_discharging_county_parolee_wo_MI -
transferring_age_thru_county_parolee_wo_MI_recidivism -
transferring_age_thru_county_parolee_wo_MI_violating_condition) * dt

   INIT Total_Age_of_County_Parolees_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.001   ELSE
Individuals_with_Criminal_History.County_Parolees_wo_MI * init_age_per_county_parolees_wo_MI

 UNITS: year

 INFLOWS:

   transferring_age_thru_releasing_prisoner_wo_MI_to_parole_after_realignment =
(Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment *
ave_age_per_prisoner_wo_MI)

   UNITS: unitless

 OUTFLOWS:

   transferring_age_thru_discharging_county_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_county_parolee_wo_MI *
ave_age_per_county_parolee_wo_MI

   UNITS: unitless

transferring_age_thru_county_parolee_wo_MI_recidivism =
Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes *
ave_age_per_county_parolee_wo_MI

    UNITS: unitless

    transferring_age_thru_county_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition *
ave_age_per_county_parolee_wo_MI

    UNITS: unitless

Total_Age_of_Defendants_in_Comm_Being_Trialed(t) =
Total_Age_of_Defendants_in_Comm_Being_Trialed(t - dt) +
(transferring_age_thru_suspect_in_comm_being_trial + transferring_age_thru_violating_probation -
transferring_age_thru_complaints_against_suspect_in_comm_dismissed_after_trial -
transferring_age_thru_defendents_in_comm_waiting_for_sentence) * dt

  INIT Total_Age_of_Defendants_in_Comm_Being_Trialed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 58815.2863032 ELSE
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed *
init_age_per_defendant_in_comm_being_trialed

  UNITS: year

  INFLOWS:

    transferring_age_thru_suspect_in_comm_being_trial =
Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial *
ave_age_per_suspect_in_comm_with_case_filed

    UNITS: unitless

    transferring_age_thru_violating_probation =
Individuals_with_Criminal_History.violating_probation * ave_age_per_probationer

    UNITS: unitless

  OUTFLOWS:

    transferring_age_thru_complaints_against_suspect_in_comm_dismissed_after_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial *
ave_age_per_defendant_in_comm_being_trialed

    UNITS: unitless

    transferring_age_thru_defendents_in_comm_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence *
ave_age_per_defendant_in_comm_being_trialed

    UNITS: unitless

Total_Age_of_Defendants_in_Custody_Being_Trialed(t) =
Total_Age_of_Defendants_in_Custody_Being_Trialed(t - dt) +
(transferring_age_thru_suspect_in_custody_being_trial -

transferring_age_thru_complaints_against_suspect_in_custody_dismissed_after_trial - transferring_age_thru_defendents_in_custody_waiting_for_sentence) * dt

INIT Total_Age_of_Defendants_in_Custody_Being_Trialed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 472051.873352 *0+ (Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial*ave_age_per_suspect_in_ custody_with_case_filed*Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed) /(Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence+Individuals_with _Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial)
ELSE Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed * init_age_per_defendant_in_custody_being_trialed

UNITS: year

INFLOWS:

transferring_age_thru_suspect_in_custody_being_trial = Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial * ave_age_per_suspect_in_custody_with_case_filed

UNITS: unitless

OUTFLOWS:

transferring_age_thru_complaints_against_suspect_in_custody_dismissed_after_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial * ave_age_per_defendant_in_custody_being_trialed

UNITS: unitless

transferring_age_thru_defendents_in_custody_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence * ave_age_per_defendant_in_custody_being_trialed

UNITS: unitless

Total_Age_of_Desisted_Jail_ExConvicts_wMI(t) = Total_Age_of_Desisted_Jail_ExConvicts_wMI(t - dt) + (transferring_age_thru_jail_exConv_wMI_being_assimilated + chg_in_age_in_desisted_jail_exConv_wMI - losing_age_thru_desisted_jail_exConv_deaths_wMI) * dt

INIT Total_Age_of_Desisted_Jail_ExConvicts_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (ave_age_per_lo_risk_jail_exConv_wMI*Individuals_with_Criminal_History.jail_exConv_wMI_becom ing_desisted+annual_age_chg_desisted_jail_exConv_wMI)*Individuals_with_Criminal_History.Desist ed_Jail_ExConvicts_wMI/Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wMI ELSE Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI * init_age_per_lo_risk_jail_exConv_wMI

UNITS: year

INFLOWS:

transferring_age_thru_jail_exConv_wMI_being_assimilated = Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted * ave_age_per_lo_risk_jail_exConv_wMI

UNITS: unitless

chg_in_age_in_desisted_jail_exConv_wMI = annual_age_chg_desisted_jail_exConv_wMI

UNITS: unitless

OUTFLOWS:

losing_age_thru_desisted_jail_exConv_deaths_wMI = Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wMI * ave_age_per_desisted_jail_exConv_wMI

UNITS: unitless

Total_Age_of_Desisted_Jail_ExConvicts_wo_MI(t) = Total_Age_of_Desisted_Jail_ExConvicts_wo_MI(t - dt) + (transferring_age_thru_jail_exConv_wo_MI_being_assimilated + chg_in_age_in_desisted_jail_exConv_wo_MI - losing_age_thru_desisted_jail_exConv_deaths_wo_MI) * dt

INIT Total_Age_of_Desisted_Jail_ExConvicts_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_age_per_lo_risk_jail_exConv_wo_MI*Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted+annual_age_chg_desisted_jail_exConv_wo_MI)*Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI)/Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wo_MI ELSE Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI * init_age_per_desisted_jail_exConv_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_jail_exConv_wo_MI_being_assimilated = Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted * ave_age_per_lo_risk_jail_exConv_wo_MI

UNITS: unitless

chg_in_age_in_desisted_jail_exConv_wo_MI = annual_age_chg_desisted_jail_exConv_wo_MI

UNITS: unitless

OUTFLOWS:

losing_age_thru_desisted_jail_exConv_deaths_wo_MI = Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wo_MI * ave_age_per_desisted_jail_exConv_wo_MI

UNITS: unitless

Total_Age_of_Desisted_Prison_ExConvicts_wMI(t) = Total_Age_of_Desisted_Prison_ExConvicts_wMI(t - dt) + (transferring_age_thru_prison_exConv_being_assimilated_wMI +

chg_in_age_in_desisted_prison_exConv_wMI -
losing_age_thru_desisted_prison_exConv_deaths_wMI) * dt

INIT Total_Age_of_Desisted_Prison_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
(ave_age_per_lo_risk_prison_exCon_wMI*Individuals_with_Criminal_History.prison_exConv_becom
ing_desisted_wMI+annual_age_chg_desisted_prison_exConv_wMI)*Individuals_with_Criminal_Histo
ry.Desisted_Prison_ExConvicts_wMI/Individuals_with_Criminal_History.desisted_prison_exConv_dea
ths_wMI ELSE Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI *
init_age_per_desisted_prison_exConv_wMI

UNITS: year

INFLOWS:

transferring_age_thru_prison_exConv_being_assimilated_wMI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI *
ave_age_per_lo_risk_prison_exCon_wMI

UNITS: unitless

chg_in_age_in_desisted_prison_exConv_wMI = annual_age_chg_desisted_prison_exConv_wMI

UNITS: unitless

OUTFLOWS:

losing_age_thru_desisted_prison_exConv_deaths_wMI =
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wMI *
ave_MH_age_desisted_prison_exConv_wMI

UNITS: unitless

Total_Age_of_Desisted_Prison_ExConvicts_wo_MI(t) =
Total_Age_of_Desisted_Prison_ExConvicts_wo_MI(t - dt) +
(transferring_age_thru_prison_exConv_being_assimilated_wo_MI +
chg_in_age_in_desisted_prison_exConv_wo_MI -
losing_MH_cap_thru_desisted_prison_exConv_deaths) * dt

INIT Total_Age_of_Desisted_Prison_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
(ave_age_per_lo_risk_prison_exConv_wo_MI*Individuals_with_Criminal_History.prison_exConv_bec
oming_desisted_wo_MI+annual_age_chg_desisted_prison_exConv_wo_MI)*Individuals_with_Crimi
nal_History.Desisted_Prison_ExConvicts_wo_MI/Individuals_with_Criminal_History.desisted_prison_
exConv_deaths_wo_MI ELSE Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI *
init_age_per_desisted_prison_exConv_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_prison_exConv_being_assimilated_wo_MI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI *
ave_age_per_lo_risk_prison_exConv_wo_MI

UNITS: unitless

chg_in_age_in_desisted_prison_exConv_wo_MI =
annual_age_chg_desisted_prison_exConv_wo_MI

UNITS: unitless

OUTFLOWS:

losing_MH_cap_thru_desisted_prison_exConv_deaths =
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wo_MI *
ave_age_per_desisted_prison_exConv_wo_MI

UNITS: unitless

Total_Age_of_HI_Risk_Jail_ExConvicts_wMI(t) = Total_Age_of_HI_Risk_Jail_ExConvicts_wMI(t - dt) +
(chg_in_age_in_hi_risk_jail_exConv_wMI + transferring_age_thru_discharging_county_parolee_wMI
+ transferring_age_thru_releasing_jail_offender_wMI +
transferring_age_thru_discharging_county_parolee_wMI_violated_condition +
transferring_age_thru_rerelease_exprisoners_to_county_parole_wMI -
transferring_age_thru_becoming_lo_risk_jail_exConv_wMI -
losing_age_thru_hi_risk_jail_exConv_wMI_deaths -
transferring_age_thru_hi_risk_jail_exConv_wMI_recidivism) * dt

INIT Total_Age_of_HI_Risk_Jail_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 984322.324151   ELSE
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI *
init_age_per_hi_risk_jail_exConv_wMI

UNITS: year

INFLOWS:

chg_in_age_in_hi_risk_jail_exConv_wMI = annual_age_chg_hi_risk_jail_exConv_wMI

UNITS: unitless

transferring_age_thru_discharging_county_parolee_wMI =
Individuals_with_Criminal_History.discharging_county_parolee_wMI *
ave_age_per_county_parolee_wMI

UNITS: unitless

transferring_age_thru_releasing_jail_offender_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_age_per_jail_offender_wMI

UNITS: unitless

transferring_age_thru_discharging_county_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition *
ave_age_per_county_parolee_wMI_violated_condition)

UNITS: unitless

transferring_age_thru_rerelease_exprisoners_to_county_parole_wMI = Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole * ave_age_per_reprisoned_county_parolee_wMI

     UNITS: unitless

  OUTFLOWS:

    transferring_age_thru_becoming_lo_risk_jail_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI * ave_age_per_hi_risk_jail_exConv_wMI

     UNITS: unitless

    losing_age_thru_hi_risk_jail_exConv_wMI_deaths = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths * ave_age_per_hi_risk_jail_exConv_wMI

     UNITS: unitless

    transferring_age_thru_hi_risk_jail_exConv_wMI_recidivism = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism * ave_age_per_hi_risk_jail_exConv_wMI

     UNITS: unitless

Total_Age_of_HI_Risk_Jail_ExConvicts_wo_MI(t) = Total_Age_of_HI_Risk_Jail_ExConvicts_wo_MI(t - dt) + (chg_in_age_in_hi_risk_jail_exConv_wo_MI + transferring_age_thru_discharging_county_parolee_wo_MI + transferring_age_thru_releasing_jail_offender_wo_MI + transferring_age_thru_discharging_county_parolee_wo_MI_violated_condition + transferring_age_thru_rerelease_exprisoners_to_county_parole_wo_MI - transferring_age_thru_becoming_lo_risk_jail_exConv_wo_MI - transferring_age_thru_hi_risk_jail_exConv_wo_MI_recidivism - transferring_age_thru_hi_risk_jail_exConv_deaths) * dt

  INIT Total_Age_of_HI_Risk_Jail_ExConvicts_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 802644.350543
                               ELSE
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI * init_age_per_hi_risk_jail_exConv_wo_MI

  UNITS: year

  INFLOWS:

    chg_in_age_in_hi_risk_jail_exConv_wo_MI = annual_age_chg_hi_risk_jail_exConv_wo_MI

     UNITS: unitless

    transferring_age_thru_discharging_county_parolee_wo_MI = Individuals_with_Criminal_History.discharging_county_parolee_wo_MI * ave_age_per_county_parolee_wo_MI

     UNITS: unitless

transferring_age_thru_releasing_jail_offender_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_age_per_jail_offender_wo_MI

   UNITS: unitless

transferring_age_thru_discharging_county_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition *
ave_age_per_county_parolee_wo_MI_violated_condition)

   UNITS: unitless

transferring_age_thru_rerelease_exprisoners_to_county_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_age_per_reprisoned_county_parolee_wo_MI

   UNITS: unitless

OUTFLOWS:

transferring_age_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_age_per_hi_risk_jail_exConv_wo_MI

   UNITS: unitless

transferring_age_thru_hi_risk_jail_exConv_wo_MI_recidivism =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_age_per_hi_risk_jail_exConv_wo_MI

   UNITS: unitless

transferring_age_thru_hi_risk_jail_exConv_deaths =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_deaths *
ave_age_per_hi_risk_jail_exConv_wo_MI

   UNITS: unitless

Total_Age_of_HI_Risk_Prison_ExConvicts_wMI(t) = Total_Age_of_HI_Risk_Prison_ExConvicts_wMI(t
- dt) + (transferring_age_thru_discharging_prison_parolee_wMI +
chg_in_age_in_hi_risk_prisoon_exConv_wMI +
transferring_age_thru_discharging_prison_parolee_wMI_violated_condition +
transferring_age_thru_discharging_reparoled_parolee_wMI_violated_condition -
transferring_age_thru_becoming_lo_risk_prison_exConv_wMI -
losing_age_thru_hi_risk_prison_exConv_wMI_deaths -
transferringage_thru_hi_risk_prison_exConv_wMI_recidivism) * dt

   INIT Total_Age_of_HI_Risk_Prison_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
((Individuals_with_Criminal_History.discharging_prison_parolee_wMI*ave_age_per_prison_parolee
_wMI+ave_age_per_reparoleed_prison_parolee_wMI*Individuals_with_Criminal_History.dischargin
g_reparoled_prison_parolee_wMI+ave_age_per_prison_parolee_wMI_violated_condition*Individual
s_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition+annual_age_chg_hi_r

isk_prison_exConv_wMI)*Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI) / (Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI+Individuals_with_Crimin al_History.hi_risk_prison_exConv_deaths_wMI+Individuals_with_Criminal_History.hi_risk_prison_ex Conv_wMI_recidivism)   ELSE Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI * init_age_per_hi_risk_prison_exConv_wMI

UNITS: year

INFLOWS:

transferring_age_thru_discharging_prison_parolee_wMI = Individuals_with_Criminal_History.discharging_prison_parolee_wMI * ave_age_per_prison_parolee_wMI

UNITS: unitless

chg_in_age_in_hi_risk_prisoon_exConv_wMI = annual_age_chg_hi_risk_prison_exConv_wMI

UNITS: unitless

transferring_age_thru_discharging_prison_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition * ave_age_per_prison_parolee_wMI_violated_condition

UNITS: unitless

transferring_age_thru_discharging_reparoled_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI * ave_age_per_reparoleed_prison_parolee_wMI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_becoming_lo_risk_prison_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI * ave_age_per_hi_risk_prison_exCon_wMI

UNITS: unitless

losing_age_thru_hi_risk_prison_exConv_wMI_deaths = Individuals_with_Criminal_History.hi_risk_prison_exConv_deaths_wMI * ave_age_per_hi_risk_prison_exCon_wMI

UNITS: unitless

transferringage_thru_hi_risk_prison_exConv_wMI_recidivism = Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism * ave_age_per_hi_risk_prison_exCon_wMI

UNITS: unitless

Total_Age_of_HI_Risk_Prison_ExConvicts_wo_MI(t) = Total_Age_of_HI_Risk_Prison_ExConvicts_wo_MI(t - dt) + (transferring_age_thru_discharging_prison_parolee_wo_MI +

chg_in_age_in_hi_risk_prison_exConv_wo_MI +
transferring_age_thru_discharging_prison_parolee_wo_MI_violated_condition +
transferring_age_thru_discharging_reparoled_parolee_wo_MI_violated_condition -
transferring_age_thru_becoming_lo_risk_prison_exConv_wo_MI -
transferring_age_thru_hi_risk_prison_exConv_wo_MI_deaths -
transferring_age_thru_hi_risk_prison_exConv_wo_MI_recidivism) * dt

INIT Total_Age_of_HI_Risk_Prison_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
((ave_age_per_prison_parolee_wo_MI*Individuals_with_Criminal_History.discharging_prison_parol
ee_wo_MI+ave_age_per_reparoleed_prison_parolee_wo_MI*Individuals_with_Criminal_History.dis
charging_reparoled_prison_parolee_wo_MI+ave_age_per_prison_parolee_wo_MI_violated_conditi
on*Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition+annu
al_age_chg_hi_risk_prison_exConv_wo_MI)*Individuals_with_Criminal_History.HI_Risk_Prison_ExCo
nvicts_wo_MI)/
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI+Individuals_with_Crim
inal_History.hi_risk_prison_exConv_wo_MI_deaths+Individuals_with_Criminal_History.hi_risk_priso
n_exConv_wo_MI_recidivism) ELSE
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI *
init_age_per_hi_risk_prison_exConv_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_discharging_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI *
ave_age_per_prison_parolee_wo_MI

UNITS: unitless

chg_in_age_in_hi_risk_prison_exConv_wo_MI =
annual_age_chg_hi_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_discharging_prison_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition *
ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

transferring_age_thru_discharging_reparoled_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI *
ave_age_per_reparoleed_prison_parolee_wo_MI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_becoming_lo_risk_prison_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI *
ave_age_per_hi_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_hi_risk_prison_exConv_wo_MI_deaths = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_deaths * ave_age_per_hi_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_hi_risk_prison_exConv_wo_MI_recidivism = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_age_per_hi_risk_prison_exConv_wo_MI

UNITS: unitless

Total_Age_of_Jail_Offenders_wMI(t) = Total_Age_of_Jail_Offenders_wMI(t - dt) + (transferring_age_thru_convicting_defendant_in_custody_to_jail_wMI + transferring_MH_cap_thru_jail_offender_devMI_after_realignment + chg_in_age_in_jail_offender_wMI + transferring_age_thru_convicting_defendant_in_comm_to_jail_wMI - transferring_age_thru_continue_serving_probation_wMI - transferring_age_thru_releasing_jail_offender_wMI) * dt

INIT Total_Age_of_Jail_Offenders_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_age_per_defendant_in_comm_being_trialed*Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wMI+ave_age_per_defendant_in_custody_being_trialed*Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wMI+annual_age_chg_jail_offender_wMI) * Individuals_with_Criminal_History.Jail_Offenders_wMI) / (Individuals_with_Criminal_History.continue_serving_thru_probation_wMI+Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI) ELSE Individuals_with_Criminal_History.Jail_Offenders_wMI * init_age_per_jail_offender_wMI

UNITS: year

INFLOWS:

transferring_age_thru_convicting_defendant_in_custody_to_jail_wMI = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wMI * ave_age_per_defendant_in_custody_being_trialed

UNITS: unitless

transferring_MH_cap_thru_jail_offender_devMI_after_realignment = (Individuals_with_Criminal_History.jail_offender_devMI * ave_age_per_jail_offender_wo_MI)

UNITS: unitless

chg_in_age_in_jail_offender_wMI = annual_age_chg_jail_offender_wMI

UNITS: unitless

transferring_age_thru_convicting_defendant_in_comm_to_jail_wMI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wMI * ave_age_per_defendant_in_comm_being_trialed

UNITS: unitless

transferring_age_thru_continue_serving_probation_wMI = Individuals_with_Criminal_History.continue_serving_thru_probation_wMI * ave_age_per_jail_offender_wMI

UNITS: unitless

transferring_age_thru_releasing_jail_offender_wMI = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI * ave_age_per_jail_offender_wMI

UNITS: unitless

Total_Age_of_Jail_Offenders_wo_MI(t) = Total_Age_of_Jail_Offenders_wo_MI(t - dt) + (chg_in_age_in_jail_offender_wo_MI + transferring_age_thru_convicting_defendant_in_custody_to_jail_wo_MI + transferring_age_thru_convicting_defendant_in_comm_to_jail_wo_MI - transferring_MH_cap_thru_jail_offender_devMI_after_realignment - transferring_age_thru_continue_serving_probation_wo_MI - transferring_age_thru_releasing_jail_offender_wo_MI) * dt

INIT Total_Age_of_Jail_Offenders_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_age_per_preSentencing_defendant_in_comm*Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI+ave_age_per_preSentencing_defendant_in_custody*Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wo_MI+annual_age_chg_jail_offender_wo_MI)*Individuals_with_Criminal_History.Jail_Offenders_wo_MI) / (Individuals_with_Criminal_History.jail_offender_devMI+Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI+Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI) ELSE Individuals_with_Criminal_History.Jail_Offenders_wo_MI * init_age_per_jail_offender_wo_MI

UNITS: year

chg_in_age_in_jail_offender_wo_MI = annual_age_chg_jail_offender_wo_MI

UNITS: unitless

transferring_age_thru_convicting_defendant_in_custody_to_jail_wo_MI = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wo_MI * ave_age_per_preSentencing_defendant_in_custody

UNITS: unitless

transferring_age_thru_convicting_defendant_in_comm_to_jail_wo_MI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI * ave_age_per_preSentencing_defendant_in_comm

UNITS: unitless

OUTFLOWS:

transferring_MH_cap_thru_jail_offender_devMI_after_realignment =
(Individuals_with_Criminal_History.jail_offender_devMI * ave_age_per_jail_offender_wo_MI)

UNITS: unitless

transferring_age_thru_continue_serving_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_age_per_jail_offender_wo_MI

UNITS: unitless

transferring_age_thru_releasing_jail_offender_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_age_per_jail_offender_wo_MI

UNITS: unitless

Total_Age_of_Lo_Risk_Jail_ExConvicts_wMI(t) = Total_Age_of_Lo_Risk_Jail_ExConvicts_wMI(t - dt) +
(chg_in_age_in_lo_risk_jail_exConv_wMI +
transferring_age_thru_becoming_lo_risk_jail_exConv_wMI -
transferring_age_thru_jail_exConv_wMI_being_assimilated -
losing_MH_cap_thru_lo_risk_jail_exConv_wMI_deaths -
transferring_age_thru_lo_risk_jail_exConv_wMI_recidivism) * dt

INIT Total_Age_of_Lo_Risk_Jail_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(ave_age_per_hi_risk_jail_exConv_wMI*Individuals_with_Criminal_History.becoming_lo_risk_jail_ex
Conv_wMI+annual_age_chg_lo_risk_jail_exConv_wMI)*Individuals_with_Criminal_History.Lo_Risk_J
ail_ExConvicts_wMI/(Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths+Individuals
_with_Criminal_History.jail_exConv_wMI_becoming_desisted+Individuals_with_Criminal_History.lo_
risk_jail_exConv_wMI_recidivism) ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI *
init_age_per_lo_risk_jail_exConv_wMI

UNITS: year

INFLOWS:

chg_in_age_in_lo_risk_jail_exConv_wMI = annual_age_chg_lo_risk_jail_exConv_wMI

UNITS: unitless

transferring_age_thru_becoming_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI *
ave_age_per_hi_risk_jail_exConv_wMI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_jail_exConv_wMI_being_assimilated =
Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted *
ave_age_per_lo_risk_jail_exConv_wMI

UNITS: unitless

losing_MH_cap_thru_lo_risk_jail_exConv_wMI_deaths =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths *
ave_age_per_lo_risk_jail_exConv_wMI

UNITS: unitless

transferring_age_thru_lo_risk_jail_exConv_wMI_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism *
ave_age_per_lo_risk_jail_exConv_wMI

UNITS: unitless

Total_Age_of_Lo_Risk_Jail_ExConvicts_wo_MI(t) = Total_Age_of_Lo_Risk_Jail_ExConvicts_wo_MI(t -
dt) + (transferring_age_thru_discharging_fr_probation + chg_in_age_in_lo_risk_jail_exConv_wo_MI
+ transferring_age_thru_becoming_lo_risk_jail_exConv_wo_MI -
transferring_age_thru_jail_exConv_wo_MI_being_assimilated -
losing_age_thru_lo_risk_jail_exConv_deaths - transferring_age_thru_lo_risk_jail_exConv_recidivism)
* dt

INIT Total_Age_of_Lo_Risk_Jail_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
((ave_age_per_probationer*Individuals_with_Criminal_History.discharging_fr_probation+ave_age_p
er_hi_risk_jail_exConv_wo_MI*Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_w
o_MI+annual_age_chg_lo_risk_jail_exConv_wo_MI)*Individuals_with_Criminal_History.Lo_Risk_Jail_
ExConvicts_wo_MI)/(Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted+Ind
ividuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths+Individuals_with_Criminal_Histo
ry.lo_risk_jail_exConv_wo_MI_recidivism) ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI *
init_age_per_lo_risk_jail_exConv_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation * ave_age_per_probationer

UNITS: unitless

chg_in_age_in_lo_risk_jail_exConv_wo_MI = annual_age_chg_lo_risk_jail_exConv_wo_MI

UNITS: unitless

transferring_age_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_age_per_hi_risk_jail_exConv_wo_MI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_jail_exConv_wo_MI_being_assimilated =
Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted *
ave_age_per_lo_risk_jail_exConv_wo_MI

UNITS: unitless

losing_age_thru_lo_risk_jail_exConv_deaths =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths *
ave_age_per_lo_risk_jail_exConv_wo_MI

UNITS: unitless

transferring_age_thru_lo_risk_jail_exConv_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism *
ave_age_per_lo_risk_jail_exConv_wo_MI

UNITS: unitless

Total_Age_of_Lo_Risk_Prison_ExConvicts_wMI(t) = Total_Age_of_Lo_Risk_Prison_ExConvicts_wMI(t
- dt) + (chg_in_age_in_lo_risk_prison_exConv_wMI +
transferring_age_thru_becoming_lo_risk_prison_exConv_wMI -
transferring_age_thru_prison_exConv_being_assimilated_wMI -
losing_age_thru_lo_risk_prison_exConv_wMI_deaths -
transferring_age_thru_lo_risk_prison_exConv_wMI_recidivism) * dt

INIT Total_Age_of_Lo_Risk_Prison_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1   THEN
((ave_age_per_hi_risk_prison_exCon_wMI*
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI+annual_age_chg_lo_risk_
prison_exConv_wMI)*
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI)/(Individuals_with_Criminal_Hist
ory.lo_risk_prison_exConv_deaths_wMI+Individuals_with_Criminal_History.lo_risk_prison_exConv_
wMI_recidivism+Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI) ELSE
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI *
init_age_per_lo_risk_prison_exConv_wMI

UNITS: year

INFLOWS:

chg_in_age_in_lo_risk_prison_exConv_wMI = annual_age_chg_lo_risk_prison_exConv_wMI

UNITS: unitless

transferring_age_thru_becoming_lo_risk_prison_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI *
ave_age_per_hi_risk_prison_exCon_wMI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_prison_exConv_being_assimilated_wMI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI *
ave_age_per_lo_risk_prison_exCon_wMI

UNITS: unitless

losing_age_thru_lo_risk_prison_exConv_wMI_deaths = Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI * ave_age_per_lo_risk_prison_exCon_wMI

UNITS: unitless

transferring_age_thru_lo_risk_prison_exConv_wMI_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_age_per_lo_risk_prison_exCon_wMI

UNITS: unitless

Total_Age_of_Lo_Risk_Prison_ExConvicts_wo_MI(t) = Total_Age_of_Lo_Risk_Prison_ExConvicts_wo_MI(t - dt) + (transferring_age_thru_becoming_lo_risk_prison_exConv_wo_MI + chg_in_age_in_lo_risk_prison_exConv_wo_MI - transferring_age_thru_lo_risk_prison_exConv_recidivism - transferring_age_thru_lo_risk_prison_exConv_wo_MI_deaths - transferring_age_thru_prison_exConv_being_assimilated_wo_MI) * dt

INIT Total_Age_of_Lo_Risk_Prison_ExConvicts_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_age_per_hi_risk_prison_exConv_wo_MI*Individuals_with_Criminal_History.becoming_lo_risk _prison_exConv_wo_MI+annual_age_chg_lo_risk_prison_exConv_wo_MI)*Individuals_with_Crimina l_History.Lo_Risk_Prison_ExConvicts_wo_MI)/(Individuals_with_Criminal_History.lo_risk_prison_exC onv_deaths_wo_MI+Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism+In dividuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI) ELSE Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI * init_age_per_lo_risk_prison_exConv_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_becoming_lo_risk_prison_exConv_wo_MI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI * ave_age_per_hi_risk_prison_exConv_wo_MI

UNITS: unitless

chg_in_age_in_lo_risk_prison_exConv_wo_MI = annual_age_chg_lo_risk_prison_exConv_wo_MI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_lo_risk_prison_exConv_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism * ave_age_per_lo_risk_prison_exConv_wo_MI

UNITS: unitless

transferring_age_thru_lo_risk_prison_exConv_wo_MI_deaths = Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI * ave_age_per_lo_risk_prison_exConv_wo_MI

    UNITS: unitless

transferring_age_thru_prison_exConv_being_assimilated_wo_MI = Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI * ave_age_per_lo_risk_prison_exConv_wo_MI

    UNITS: unitless

Total_Age_of_PreSentencing_Defendants_in_Comm(t) = Total_Age_of_PreSentencing_Defendants_in_Comm(t - dt) + (transferring_age_thru_defendents_in_comm_waiting_for_sentence + transferring_age_thru_defendants_in_comm_conviction_wo_trial - transferring_age_thru_defendants_in_comm_conviction) * dt

  INIT Total_Age_of_PreSentencing_Defendants_in_Comm = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 126896.235565 ELSE Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody * init_age_per_defendant_in_comm_waiting_for_sentence

  UNITS: year

  INFLOWS:

    transferring_age_thru_defendents_in_comm_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence * ave_age_per_defendant_in_comm_being_trialed

      UNITS: unitless

    transferring_age_thru_defendants_in_comm_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial * ave_age_per_suspect_in_comm_with_case_filed

      UNITS: unitless

  OUTFLOWS:

    transferring_age_thru_defendants_in_comm_conviction = Individuals_with_Criminal_History.defendant_in_comm_being_sentenced * ave_age_per_preSentencing_defendant_in_comm

      UNITS: unitless

Total_Age_of_PreSentencing_Defendants_in_Custody(t) = Total_Age_of_PreSentencing_Defendants_in_Custody(t - dt) + (transferring_age_thru_defendents_in_custody_waiting_for_sentence + transferring_age_thru_defendants_in_cusotdy_conviction_wo_trial - transferring_age_thru_defendants_in_custody_conviction) * dt

  INIT Total_Age_of_PreSentencing_Defendants_in_Custody = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 71508.4764155

ELSE Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody *
init_age_per_defendant_in_custody_waiting_for_sentence

UNITS: year

INFLOWS:

transferring_age_thru_defendents_in_custody_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence *
ave_age_per_defendant_in_custody_being_trialed

UNITS: unitless

transferring_age_thru_defendants_in_cusotdy_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial *
ave_age_per_suspect_in_custody_with_case_filed

UNITS: unitless

OUTFLOWS:

transferring_age_thru_defendants_in_custody_conviction =
Individuals_with_Criminal_History.defendant_in_custody_being_sentenced *
ave_age_per_preSentencing_defendant_in_custody

UNITS: unitless

Total_Age_of_Pretrial_Suspects_in_Community(t) =
Total_Age_of_Pretrial_Suspects_in_Community(t - dt) +
(transferring_age_thru_release_suspect_to_comm -
transferring_age_thru_suspect_in_comm_being_trialed) * dt

INIT Total_Age_of_Pretrial_Suspects_in_Community = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.pretrial_release*ave_age_per_arrestees*Individuals_with_Crimi
nal_History.Pretrial_Suspects_in_Community)/Individuals_with_Criminal_History.filing_case_for_sus
pect_in_comm ELSE Individuals_with_Criminal_History.Pretrial_Suspects_in_Community *
init_age_per_pretrial_suspect_in_comm

UNITS: year

INFLOWS:

transferring_age_thru_release_suspect_to_comm =
Individuals_with_Criminal_History.pretrial_release * ave_age_per_arrestees

UNITS: unitless

OUTFLOWS:

transferring_age_thru_suspect_in_comm_being_trialed =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_age_per_pretrial_suspect_in_comm

UNITS: unitless

Total_Age_of_Prison_Parolee_wMI_Violated_Condition(t) =
Total_Age_of_Prison_Parolee_wMI_Violated_Condition(t - dt) +
(transferring_age_thru_prison_parolee_wMI_violating_condition +
chg_in_age_in_prison_parolee_wMI_violated_condition -
transferring_age_thru_prison_parolee_returning_to_prison_wMI -
transferring_age_thru_discharging_prison_parolee_wMI_violated_condition -
transferring_age_thru_prison_parolee_wMI_violated_condition_recidivism) * dt

   INIT Total_Age_of_Prison_Parolee_wMI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 36888.3832372 * 0 +
(((ave_age_per_prison_parolee_wMI*Individuals_with_Criminal_History.prison_parolee_wMI_violat
ing_condition+annual_age_chg_prison_parolee_wMI_violated_condition)*Individuals_with_Criminal
_History.Prison_Parolees_wMI_Violated_Condition) /
(Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison+Individuals_with_Cri
minal_History.discharging_prison_parolee_wMI_violated_condition+Individuals_with_Criminal_Hist
ory.prison_parolee_wMI_violated_condition_committing_new_crimes)) * 1 ELSE
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition *
init_age_per_prison_parolee_wMI_violated_condition

   UNITS: year

   INFLOWS:

      transferring_age_thru_prison_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition *
ave_age_per_prison_parolee_wMI

         UNITS: unitless

      chg_in_age_in_prison_parolee_wMI_violated_condition =
annual_age_chg_prison_parolee_wMI_violated_condition

         UNITS: unitless

   OUTFLOWS:

      transferring_age_thru_prison_parolee_returning_to_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_age_per_prison_parolee_wMI_violated_condition

         UNITS: unitless

      transferring_age_thru_discharging_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition *
ave_age_per_prison_parolee_wMI_violated_condition

         UNITS: unitless

      transferring_age_thru_prison_parolee_wMI_violated_condition_recidivism =
Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crime
s * ave_age_per_prison_parolee_wMI_violated_condition

         UNITS: unitless

Total_Age_of_Prison_Parolee_wo_MI_Violated_Condition(t) =
Total_Age_of_Prison_Parolee_wo_MI_Violated_Condition(t - dt) +
(transferring_age_thru_prison_parolee_wo_MI_violating_condition +
chg_in_age_in_prison_parolee_wo_MI_violated_condition -
transferring_age_thru_prison_parolee_returning_to_prison_wo_MI -
transferring_age_thru_discharging_prison_parolee_wo_MI_violated_condition -
transferring_age_thru_prison_parolee_wo_MI_violated_condition_recidivism) * dt

INIT Total_Age_of_Prison_Parolee_wo_MI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 298652.019082 * 0 +
(((ave_age_per_prison_parolee_wo_MI*Individuals_with_Criminal_History.prison_parolee_wo_MI_
violating_condition+annual_age_chg_prison_parolee_wo_MI_violated_condition) *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition) /
(Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison+Individuals_with_C
riminal_History.discharging_prison_parolee_wo_MI_violated_condition+Individuals_with_Criminal_
History.prison_parolee_wo_MI_violated_condition_committing_new_crimes)) * 1 ELSE
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition *
init_age_per_prison_parolee_wo_MI_violated_condition

UNITS: year

INFLOWS:

transferring_age_thru_prison_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition *
ave_age_per_prison_parolee_wo_MI

UNITS: unitless

chg_in_age_in_prison_parolee_wo_MI_violated_condition =
annual_age_chg_prison_parolee_wo_MI_violated_condition

UNITS: unitless

OUTFLOWS:

transferring_age_thru_prison_parolee_returning_to_prison_wo_MI =
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison *
ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

transferring_age_thru_discharging_prison_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition *
ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

transferring_age_thru_prison_parolee_wo_MI_violated_condition_recidivism =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_cri
mes * ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

Total_Age_of_Prison_Parolees_wo_MI(t) = Total_Age_of_Prison_Parolees_wo_MI(t - dt) + (transferring_age_thru_releasing_prisoner_wo_MI + chg_in_age_in_prison_parolee_wo_MI - transferring_age_thru_discharging_prison_parolee_wo_MI - transferring_age_thru_prison_parolee_wo_MI_recidivism - transferring_age_thru_prison_parolee_wo_MI_violating_condition) * dt

   INIT Total_Age_of_Prison_Parolees_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1260008.36108
ELSE
Individuals_with_Criminal_History.Prison_Parolees_wo_MI * init_age_per_prison_parolee_wo_MI

   UNITS: year

   INFLOWS:

     transferring_age_thru_releasing_prisoner_wo_MI = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment * ave_age_per_prisoner_wo_MI

      UNITS: unitless

     chg_in_age_in_prison_parolee_wo_MI = annual_age_chg_prison_parolee_wo_MI

      UNITS: unitless

  OUTFLOWS:

     transferring_age_thru_discharging_prison_parolee_wo_MI = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI * ave_age_per_prison_parolee_wo_MI

      UNITS: unitless

     transferring_age_thru_prison_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_age_per_prison_parolee_wo_MI

      UNITS: unitless

     transferring_age_thru_prison_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition * ave_age_per_prison_parolee_wo_MI

      UNITS: unitless

Total_Age_of_Prisoners_wMI(t) = Total_Age_of_Prisoners_wMI(t - dt) + (transferring_age_thru_convicting_defendant_in_custody_to_prison_wMI + transferring_age_thru_prisoner_develop_MI + chg_in_age_in_prisoner_wMI + transferring_age_thru_convicting_defendant_in_comm_to_prison_wMI - losing_age_thru_prisoner_wMI_deaths - transferring_age_thru_releasing_prisoner_wMI_before_realignment - transferring_age_thru_recovering_fr_MI - transferring_age_thru_releasing_prisoner_wMI_to_parole_after_realignment) * dt

INIT Total_Age_of_Prisoners_wMI = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN 703305.523301 ELSE Individuals_with_Criminal_History.Prisoners_wMI * init_age_per_prisoner_wMI

UNITS: year

INFLOWS:

transferring_age_thru_convicting_defendant_in_custody_to_prison_wMI = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wMI * ave_age_per_preSentencing_defendant_in_custody

UNITS: unitless

transferring_age_thru_prisoner_develop_MI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_age_per_prisoner_wo_MI

UNITS: unitless

chg_in_age_in_prisoner_wMI = annual_age_chg_prisoners_wMI

UNITS: unitless

transferring_age_thru_convicting_defendant_in_comm_to_prison_wMI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wMI * ave_age_per_preSentencing_defendant_in_comm

UNITS: unitless

OUTFLOWS:

losing_age_thru_prisoner_wMI_deaths = Individuals_with_Criminal_History.prisoner_wMI_deaths * ave_age_per_prisoner_wMI

UNITS: unitless

transferring_age_thru_releasing_prisoner_wMI_before_realignment = (Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment * ave_age_per_prisoner_wMI)

UNITS: unitless

transferring_age_thru_recovering_fr_MI = Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_age_per_prisoner_wMI

UNITS: unitless

transferring_age_thru_releasing_prisoner_wMI_to_parole_after_realignment = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment * ave_age_per_prisoner_wMI)

UNITS: unitless

Total_Age_of_Prisoners_wo_MI(t) = Total_Age_of_Prisoners_wo_MI(t - dt) + (transferring_age_thru_convicting_defendant_in_custody_to_prison_wo_MI + chg_in_age_in_prisoner_wo_MI + transferring_age_thru_recovering_fr_MI +

transferring_age_thru_convicting_defendant_in_comm_to_prison_wo_MI - transferring_age_thru_releasing_prisoner_wo_MI - losing_age_thru_prisoner_wo_MI_deaths - transferring_age_thru_prisoner_develop_MI - transferring_age_thru_releasing_prisoner_wo_MI_to_parole_after_realignment) * dt

INIT Total_Age_of_Prisoners_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN 1939529.73014 ELSE Individuals_with_Criminal_History.Prisoners_wo_MI * init_age_per_prisoner_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_convicting_defendant_in_custody_to_prison_wo_MI = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wo_MI * ave_age_per_preSentencing_defendant_in_custody

UNITS: unitless

chg_in_age_in_prisoner_wo_MI = annual_age_chg_prisoners_wo_MI

UNITS: unitless

transferring_age_thru_recovering_fr_MI = Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_age_per_prisoner_wMI

UNITS: unitless

transferring_age_thru_convicting_defendant_in_comm_to_prison_wo_MI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wo_MI * ave_age_per_preSentencing_defendant_in_comm

UNITS: unitless

OUTFLOWS:

transferring_age_thru_releasing_prisoner_wo_MI = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment * ave_age_per_prisoner_wo_MI

UNITS: unitless

losing_age_thru_prisoner_wo_MI_deaths = Individuals_with_Criminal_History.prisoner_wo_MI_deaths * ave_age_per_prisoner_wo_MI

UNITS: unitless

transferring_age_thru_prisoner_develop_MI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_age_per_prisoner_wo_MI

UNITS: unitless

transferring_age_thru_releasing_prisoner_wo_MI_to_parole_after_realignment = (Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * ave_age_per_prisoner_wo_MI)

UNITS: unitless

Total_Age_of_Probationers(t) = Total_Age_of_Probationers(t - dt) + (transferring_age_thru_continue_serving_probation_wMI + transferring_age_thru_continue_serving_probation_wo_MI + transferring_age_thru_convicting_suspect_in_custody_to_probation + transferring_age_thru_convicting_suspect_in_comm_to_probation + chg_in_age_in_probationer - transferring_age_thru_discharging_fr_probation - transferring_age_thru_violating_probation) * dt

INIT Total_Age_of_Probationers = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 6986336.98715 ELSE Individuals_with_Criminal_History.Probationers * init_age_per_probationer

UNITS: year

INFLOWS:

transferring_age_thru_continue_serving_probation_wMI = Individuals_with_Criminal_History.continue_serving_thru_probation_wMI * ave_age_per_jail_offender_wMI

UNITS: unitless

transferring_age_thru_continue_serving_probation_wo_MI = Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI * ave_age_per_jail_offender_wo_MI

UNITS: unitless

transferring_age_thru_convicting_suspect_in_custody_to_probation = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_probation * ave_age_per_preSentencing_defendant_in_custody

UNITS: unitless

transferring_age_thru_convicting_suspect_in_comm_to_probation = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_probation * ave_age_per_preSentencing_defendant_in_comm

UNITS: unitless

chg_in_age_in_probationer = annual_age_chg_probationer

UNITS: unitless

OUTFLOWS:

transferring_age_thru_discharging_fr_probation = Individuals_with_Criminal_History.discharging_fr_probation * ave_age_per_probationer

UNITS: unitless

transferring_age_thru_violating_probation = Individuals_with_Criminal_History.violating_probation * ave_age_per_probationer

UNITS: unitless

Total_Age_of_Reparoled_Prison_Parole_wMI(t) = Total_Age_of_Reparoled_Prison_Parole_wMI(t - dt) + (transferring_age_thru_rerelease_prison_parole_wMI - transferring_age_thru_discharging_reparoled_parolee_wMI_violated_condition) * dt

   INIT Total_Age_of_Reparoled_Prison_Parole_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 48773.7564957 ELSE Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI * init_age_per_reparoled_prison_parole_violator_wo_MI

  UNITS: year

  INFLOWS:

     transferring_age_thru_rerelease_prison_parole_wMI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI * ave_age_per_reprisoned_prison_parole_violator_wMI

       UNITS: unitless

  OUTFLOWS:

     transferring_age_thru_discharging_reparoled_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI * ave_age_per_reparoleed_prison_parolee_wMI

       UNITS: unitless

Total_Age_of_Reparoled_Prison_Parole_wo_MI(t) = Total_Age_of_Reparoled_Prison_Parole_wo_MI(t - dt) + (transferring_age_thru_rerelease_prison_parole_wo_MI - transferring_age_thru_discharging_reparoled_parolee_wo_MI_violated_condition) * dt

   INIT Total_Age_of_Reparoled_Prison_Parole_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 89490.2062392 ELSE Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI * init_age_per_reparoled_prison_parole_violator_wo_MI

  UNITS: year

  INFLOWS:

     transferring_age_thru_rerelease_prison_parole_wo_MI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI * ave_age_per_reprisoned_prison_parole_violator_wo_MI

       UNITS: unitless

  OUTFLOWS:

     transferring_age_thru_discharging_reparoled_parolee_wo_MI_violated_condition = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI * ave_age_per_reparoleed_prison_parolee_wo_MI

       UNITS: unitless

Total_Age_of_Reprisoned_County_Parole_Violator_wMI(t) =
Total_Age_of_Reprisoned_County_Parole_Violator_wMI(t - dt) +
(transferring_age_thru_county_parolee_returning_to_jail_wMI +
chg_in_age_in_county_parolee_wMI -
transferring_age_thru_rerelease_exprisoners_to_county_parole_wMI) * dt

INIT Total_Age_of_Reprisoned_County_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1 +
((Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail*ave_age_per_county_p
arolee_wMI_violated_condition+annual_age_chg_county_parolee_wMI)*Individuals_with_Criminal_
History.Reprisoned_County_Parole_Violators_wMI/Individuals_with_Criminal_History.rerelease_rep
risoned_county_parolee_wMI_to_county_parole)*0 ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI *
init_age_per_reprisoned_county_parole_violator_wMI

UNITS: year

INFLOWS:

transferring_age_thru_county_parolee_returning_to_jail_wMI =
Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail
*ave_age_per_county_parolee_wMI_violated_condition

UNITS: unitless

chg_in_age_in_county_parolee_wMI = annual_age_chg_county_parolee_wMI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_rerelease_exprisoners_to_county_parole_wMI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole *
ave_age_per_reprisoned_county_parolee_wMI

UNITS: unitless

Total_Age_of_Reprisoned_County_Parole_Violator_wo_MI(t) =
Total_Age_of_Reprisoned_County_Parole_Violator_wo_MI(t - dt) +
(transferring_age_thru_county_parolee_returning_to_jail_wo_MI +
chg_in_age_in_county_parolee_wo_MI -
transferring_age_thru_rerelease_exprisoners_to_county_parole_wo_MI) * dt

INIT Total_Age_of_Reprisoned_County_Parole_Violator_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
((Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail*ave_age_per_county
_parolee_wo_MI_violated_condition+annual_age_chg_county_parolee_wo_MI) *
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI) /
(Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
) ELSE Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI *
init_age_per_reprisoned_county_parole_violator_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_county_parolee_returning_to_jail_wo_MI =
Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail *
ave_age_per_county_parolee_wo_MI_violated_condition

UNITS: unitless

chg_in_age_in_county_parolee_wo_MI = annual_age_chg_county_parolee_wo_MI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_rerelease_exprisoners_to_county_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_age_per_reprisoned_county_parolee_wo_MI

UNITS: unitless

Total_Age_of_Reprisoned_Prison_Parole_Violator_wMI(t) =
Total_Age_of_Reprisoned_Prison_Parole_Violator_wMI(t - dt) +
(transferring_age_thru_prison_parolee_returning_to_prison_wMI -
transferring_age_thru_rerelease_prison_parole_wMI) * dt

INIT Total_Age_of_Reprisoned_Prison_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison*ave_age_per_prison_
parolee_wMI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Viol
ators_wMI)/Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI *
init_age_per_reprisoned_prison_parole_violator_wMI

UNITS: year

INFLOWS:

transferring_age_thru_prison_parolee_returning_to_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_age_per_prison_parolee_wMI_violated_condition

UNITS: unitless

OUTFLOWS:

transferring_age_thru_rerelease_prison_parole_wMI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI *
ave_age_per_reprisoned_prison_parole_violator_wMI

UNITS: unitless

Total_Age_of_Reprisoned_Prison_Parole_Violator_wo_MI(t) =
Total_Age_of_Reprisoned_Prison_Parole_Violator_wo_MI(t - dt) +
(transferring_age_thru_prison_parolee_returning_to_prison_wo_MI -
transferring_age_thru_rerelease_prison_parole_wo_MI) * dt

INIT Total_Age_of_Reprisoned_Prison_Parole_Violator_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison*ave_age_per_priso n_parolee_wo_MI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Parole _Violators_wo_MI)/Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI * init_age_per_reprisoned_prison_parole_violator_wo_MI

UNITS: year

INFLOWS:

transferring_age_thru_prison_parolee_returning_to_prison_wo_MI = Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison * ave_age_per_prison_parolee_wo_MI_violated_condition

UNITS: unitless

OUTFLOWS:

transferring_age_thru_rerelease_prison_parole_wo_MI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI * ave_age_per_reprisoned_prison_parole_violator_wo_MI

UNITS: unitless

Total_Age_of_Suspects_in_Comm_with_Cases_Filed(t) = Total_Age_of_Suspects_in_Comm_with_Cases_Filed(t - dt) + (transferring_age_thru_suspect_in_comm_being_trialed - transferring_age_thru_suspect_in_comm_being_trial - transferring_age_thru_defendants_in_comm_conviction_wo_trial - transferring_age_thru_complaints_against_suspects_in_comm_dismissed_before_trial) * dt

INIT Total_Age_of_Suspects_in_Comm_with_Cases_Filed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 472051.873352*0+ (Individuals_with_Criminal_History.filing_case_for_suspect_in_comm*ave_age_per_pretrial_suspect _in_comm*Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed)/(Individuals_w ith_Criminal_History.defendants_in_comm_conviction_wo_trial+Individuals_with_Criminal_History.s uspect_in_comm_waiting_for_trial+Individuals_with_Criminal_History.complaints_against_suspects _in_comm_dismissed_before_trial)   ELSE Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed * init_age_per_suspect_in_comm_with_cases_filed

UNITS: year

INFLOWS:

transferring_age_thru_suspect_in_comm_being_trialed = Individuals_with_Criminal_History.filing_case_for_suspect_in_comm * ave_age_per_pretrial_suspect_in_comm

UNITS: unitless

OUTFLOWS:

transferring_age_thru_suspect_in_comm_being_trial = Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial * ave_age_per_suspect_in_comm_with_case_filed

UNITS: unitless

transferring_age_thru_defendants_in_comm_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial * ave_age_per_suspect_in_comm_with_case_filed

UNITS: unitless

transferring_age_thru_complaints_against_suspects_in_comm_dismissed_before_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial * ave_age_per_suspect_in_comm_with_case_filed

UNITS: unitless

Total_Age_of_Suspects_in_Custody(t) = Total_Age_of_Suspects_in_Custody(t - dt) + (transferring_age_thru_holding_suspect_in_custody - transferring_age_thru_filing_case_for_suspect_in_custody) * dt

INIT Total_Age_of_Suspects_in_Custody = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.being_held_in_custody*ave_age_per_arrestees* Individuals_with_Criminal_History.Suspects_in_Custody)/Individuals_with_Criminal_History.filing_case_for_suspect_in_custody ELSE Individuals_with_Criminal_History.Suspects_in_Custody * init_age_per_suspect_in_custody

UNITS: year

INFLOWS:

transferring_age_thru_holding_suspect_in_custody = Individuals_with_Criminal_History.being_held_in_custody * ave_age_per_arrestees

UNITS: unitless

OUTFLOWS:

transferring_age_thru_filing_case_for_suspect_in_custody = Individuals_with_Criminal_History.filing_case_for_suspect_in_custody * ave_age_per_suspect_in_custody

UNITS: unitless

Total_Age_of_Suspects_in_Custody_with_Cases_Filed(t) = Total_Age_of_Suspects_in_Custody_with_Cases_Filed(t - dt) + (transferring_age_thru_filing_case_for_suspect_in_custody - transferring_age_thru_suspect_in_custody_being_trial - transferring_age_thru_complaints_against_suspects_in_custody_dismissed_before_trial - transferring_age_thru_defendants_in_cusotdy_conviction_wo_trial) * dt

INIT Total_Age_of_Suspects_in_Custody_with_Cases_Filed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 472051.873352 * 0+ (Individuals_with_Criminal_History.filing_case_for_suspect_in_custody*ave_age_per_suspect_in_cu

stody*Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed)/(Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial+Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial+Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial)   ELSE Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed * init_age_per_suspect_in_custody_with_cases_filed

UNITS: year

INFLOWS:

transferring_age_thru_filing_case_for_suspect_in_custody = Individuals_with_Criminal_History.filing_case_for_suspect_in_custody * ave_age_per_suspect_in_custody

UNITS: unitless

OUTFLOWS:

transferring_age_thru_suspect_in_custody_being_trial = Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial * ave_age_per_suspect_in_custody_with_case_filed

UNITS: unitless

transferring_age_thru_complaints_against_suspects_in_custody_dismissed_before_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial * ave_age_per_suspect_in_custody_with_case_filed

UNITS: unitless

transferring_age_thru_defendants_in_cusotdy_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial * ave_age_per_suspect_in_custody_with_case_filed

UNITS: unitless

Total_Age_Prison_Parolee_wMI(t) = Total_Age_Prison_Parolee_wMI(t - dt) + (transferring_age_thru_releasing_prisoner_wMI_before_realignment + chg_in_age_in_prison_parolee_wMI - transferring_age_thru_prison_parolee_wMI_violating_condition - transferring_age_thru_discharging_prison_parolee_wMI - transferring_age_thru_prison_parolee_wMI_recidivism) * dt

INIT Total_Age_Prison_Parolee_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 299168.585532   ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI * init_age_per_prison_parolee_wMI

UNITS: year

INFLOWS:

transferring_age_thru_releasing_prisoner_wMI_before_realignment = (Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment * ave_age_per_prisoner_wMI)

UNITS: unitless

chg_in_age_in_prison_parolee_wMI = annual_age_chg_prison_parolee_wMI

UNITS: unitless

OUTFLOWS:

transferring_age_thru_prison_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition *
ave_age_per_prison_parolee_wMI

UNITS: unitless

transferring_age_thru_discharging_prison_parolee_wMI =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI *
ave_age_per_prison_parolee_wMI

UNITS: unitless

transferring_age_thru_prison_parolee_wMI_recidivism =
Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes *
ave_age_per_prison_parolee_wMI

UNITS: unitless

age_at_first_commitment = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN INIT
(init_age_at_first_commitment)   ELSE init_age_at_first_commitment

UNITS: year/person

age_chg_per_year = 1

UNITS: year/year/person

annual_age_chg_county_parolee_wMI = Individuals_with_Criminal_History.County_Parolees_wMI *
age_chg_per_year

UNITS: unitless

annual_age_chg_county_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition * age_chg_per_year

UNITS: unitless

annual_age_chg_county_parolee_wo_MI =
Individuals_with_Criminal_History.County_Parolees_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_county_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition * age_chg_per_year

UNITS: unitless

annual_age_chg_desisted_jail_exConv_wMI =
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI * age_chg_per_year

UNITS: unitless

annual_age_chg_desisted_jail_exConv_wo_MI =
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_desisted_prison_exConv_wMI =
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI * age_chg_per_year

UNITS: unitless

annual_age_chg_desisted_prison_exConv_wo_MI =
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_hi_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI * age_chg_per_year

UNITS: unitless

annual_age_chg_hi_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_hi_risk_prison_exConv_wMI =
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI * age_chg_per_year

UNITS: unitless

annual_age_chg_hi_risk_prison_exConv_wo_MI =
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_jail_offender_wMI = Individuals_with_Criminal_History.Jail_Offenders_wMI *
age_chg_per_year

UNITS: unitless

annual_age_chg_jail_offender_wo_MI = Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
age_chg_per_year

UNITS: unitless

annual_age_chg_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI * age_chg_per_year

UNITS: unitless

annual_age_chg_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI * age_chg_per_year

UNITS: unitless

annual_age_chg_lo_risk_prison_exConv_wMI =
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI * age_chg_per_year

   UNITS: unitless

annual_age_chg_lo_risk_prison_exConv_wo_MI =
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI * age_chg_per_year

   UNITS: unitless

annual_age_chg_prison_parolee_wMI = Individuals_with_Criminal_History.Prison_Parolees_wMI *
age_chg_per_year

   UNITS: unitless

annual_age_chg_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition * age_chg_per_year

   UNITS: unitless

annual_age_chg_prison_parolee_wo_MI =
Individuals_with_Criminal_History.Prison_Parolees_wo_MI * age_chg_per_year

   UNITS: unitless

annual_age_chg_prison_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition * age_chg_per_year

   UNITS: unitless

annual_age_chg_prisoners_wMI = Individuals_with_Criminal_History.Prisoners_wMI *
age_chg_per_year

   UNITS: unitless

annual_age_chg_prisoners_wo_MI = Individuals_with_Criminal_History.Prisoners_wo_MI *
age_chg_per_year

   UNITS: unitless

annual_age_chg_probationer = Individuals_with_Criminal_History.Probationers * age_chg_per_year

   UNITS: unitless

annual_age_chg_unconv_detainee = Individuals_with_Criminal_History.Arrestees *
age_chg_per_year

   UNITS: unitless

ave_age_per_arrestees = Total_Age_of_Arrestees / Individuals_with_Criminal_History.Arrestees

   UNITS: year/person

ave_age_per_county_parolee_wMI = Total_Age_of_County_Parolees_wMI /
Individuals_with_Criminal_History.County_Parolees_wMI

   UNITS: year/person

ave_age_per_county_parolee_wMI_violated_condition =
Total_Age_of_County_Parolee_wMI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition

   UNITS: year/person

ave_age_per_county_parolee_wo_MI = Total_Age_of_County_Parolees_wo_MI /
Individuals_with_Criminal_History.County_Parolees_wo_MI

   UNITS: year/person

ave_age_per_county_parolee_wo_MI_violated_condition =
Total_Age_of_County_Parolee_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition

   UNITS: year/person

ave_age_per_defendant_in_comm_being_trialed =
Total_Age_of_Defendants_in_Comm_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed

   UNITS: year/person

ave_age_per_defendant_in_custody_being_trialed =
Total_Age_of_Defendants_in_Custody_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed

   UNITS: year/person

ave_age_per_desisted_jail_exConv_wMI = Total_Age_of_Desisted_Jail_ExConvicts_wMI /
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI

   UNITS: year/person

ave_age_per_desisted_jail_exConv_wo_MI = Total_Age_of_Desisted_Jail_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI

   UNITS: year/person

ave_age_per_desisted_prison_exConv_wo_MI = Total_Age_of_Desisted_Prison_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wo_MI

   UNITS: year/person

ave_age_per_hi_risk_jail_exConv_wMI = Total_Age_of_HI_Risk_Jail_ExConvicts_wMI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI

   UNITS: year/person

ave_age_per_hi_risk_jail_exConv_wo_MI = Total_Age_of_HI_Risk_Jail_ExConvicts_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI

   UNITS: year/person

ave_age_per_hi_risk_prison_exCon_wMI = Total_Age_of_HI_Risk_Prison_ExConvicts_wMI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI

UNITS: year/person

ave_age_per_hi_risk_prison_exConv_wo_MI = Total_Age_of_HI_Risk_Prison_ExConvicts_wo_MI / Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI

UNITS: year/person

ave_age_per_jail_offender_wMI = Total_Age_of_Jail_Offenders_wMI / Individuals_with_Criminal_History.Jail_Offenders_wMI

UNITS: year/person

ave_age_per_jail_offender_wo_MI = Total_Age_of_Jail_Offenders_wo_MI / Individuals_with_Criminal_History.Jail_Offenders_wo_MI

UNITS: year/person

ave_age_per_lo_risk_jail_exConv_wMI = Total_Age_of_Lo_Risk_Jail_ExConvicts_wMI / Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI

UNITS: year/person

ave_age_per_lo_risk_jail_exConv_wo_MI = Total_Age_of_Lo_Risk_Jail_ExConvicts_wo_MI / Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI

UNITS: year/person

ave_age_per_lo_risk_prison_exCon_wMI = Total_Age_of_Lo_Risk_Prison_ExConvicts_wMI / Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI

UNITS: year/person

ave_age_per_lo_risk_prison_exConv_wo_MI = Total_Age_of_Lo_Risk_Prison_ExConvicts_wo_MI / Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI

UNITS: year/person

ave_age_per_preSentencing_defendant_in_comm = Total_Age_of_PreSentencing_Defendants_in_Comm / Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody

UNITS: year/person

ave_age_per_preSentencing_defendant_in_custody = Total_Age_of_PreSentencing_Defendants_in_Custody / Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody

UNITS: year/person

ave_age_per_pretrial_suspect_in_comm = Total_Age_of_Pretrial_Suspects_in_Community / Individuals_with_Criminal_History.Pretrial_Suspects_in_Community

UNITS: year/person

ave_age_per_prison_parolee_wMI = Total_Age_Prison_Parolee_wMI / Individuals_with_Criminal_History.Prison_Parolees_wMI

UNITS: year/person

ave_age_per_prison_parolee_wMI_violated_condition = Total_Age_of_Prison_Parolee_wMI_Violated_Condition / Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition

   UNITS: year/person

ave_age_per_prison_parolee_wo_MI = Total_Age_of_Prison_Parolees_wo_MI / Individuals_with_Criminal_History.Prison_Parolees_wo_MI

   UNITS: year/person

ave_age_per_prison_parolee_wo_MI_violated_condition = Total_Age_of_Prison_Parolee_wo_MI_Violated_Condition / Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition

   UNITS: year/person

ave_age_per_prisoner_wMI = Total_Age_of_Prisoners_wMI / Individuals_with_Criminal_History.Prisoners_wMI

   UNITS: year/person

ave_age_per_prisoner_wo_MI = Total_Age_of_Prisoners_wo_MI / Individuals_with_Criminal_History.Prisoners_wo_MI

   UNITS: year/person

ave_age_per_probationer = Total_Age_of_Probationers / Individuals_with_Criminal_History.Probationers

   UNITS: year/person

ave_age_per_reparoleed_prison_parolee_wMI = Total_Age_of_Reparoled_Prison_Parole_wMI / Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI

   UNITS: year/person

ave_age_per_reparoleed_prison_parolee_wo_MI = Total_Age_of_Reparoled_Prison_Parole_wo_MI / Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI

   UNITS: year/person

ave_age_per_reprisoned_county_parolee_wMI = Total_Age_of_Reprisoned_County_Parole_Violator_wMI / Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI

   UNITS: year/person

ave_age_per_reprisoned_county_parolee_wo_MI = Total_Age_of_Reprisoned_County_Parole_Violator_wo_MI / Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI

   UNITS: year/person

ave_age_per_reprisoned_prison_parole_violator_wMI = Total_Age_of_Reprisoned_Prison_Parole_Violator_wMI / Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI

UNITS: year/person

ave_age_per_reprisoned_prison_parole_violator_wo_MI =
Total_Age_of_Reprisoned_Prison_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI

  UNITS: year/person

ave_age_per_suspect_in_comm_with_case_filed =
Total_Age_of_Suspects_in_Comm_with_Cases_Filed /
Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed

  UNITS: year/person

ave_age_per_suspect_in_custody = Total_Age_of_Suspects_in_Custody /
Individuals_with_Criminal_History.Suspects_in_Custody

  UNITS: year/person

ave_age_per_suspect_in_custody_with_case_filed =
Total_Age_of_Suspects_in_Custody_with_Cases_Filed /
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed

  UNITS: year/person

ave_MH_age_desisted_prison_exConv_wMI = Total_Age_of_Desisted_Prison_ExConvicts_wMI /
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI

  UNITS: year/person

init_age_at_first_commitment = 28

  UNITS: year/person

init_age_per_arrestee = 25 * 0 + 28.1488558657

  UNITS: year/person

init_age_per_county_parolee_wMI_violated_condition = 37.5

  UNITS: year/person

init_age_per_county_parolee_wo_MI_violated_condition = 37

  UNITS: year/person

init_age_per_county_parolees_wMI = 37.5

  UNITS: year/person

init_age_per_county_parolees_wo_MI = 37

  UNITS: year/person

init_age_per_defendant_in_comm_being_trialed = 33 * 0 + 28.1488558657

  UNITS: year/person

init_age_per_defendant_in_comm_waiting_for_sentence = 33 * 0 + 28.1488558657

UNITS: year/person

init_age_per_defendant_in_custody_being_trialed = 33 * 0 + 30.4326964551

UNITS: year/person

init_age_per_defendant_in_custody_waiting_for_sentence = 33 * 0 + 30.4326964551

UNITS: year/person

init_age_per_desisted_jail_exConv_wMI = 39

UNITS: year/person

init_age_per_desisted_jail_exConv_wo_MI = 38.5

UNITS: year/person

init_age_per_desisted_prison_exConv_wMI = 45

UNITS: year/person

init_age_per_desisted_prison_exConv_wo_MI = 42.8

UNITS: year/person

init_age_per_hi_risk_jail_exConv_wMI = 34* 0 + 30.0868696905

UNITS: year/person

init_age_per_hi_risk_jail_exConv_wo_MI = 33.5 * 0 + 29.7104055345

UNITS: year/person

init_age_per_hi_risk_prison_exConv_wMI = 34.5 * 0 + 34.9867305247

UNITS: year/person

init_age_per_hi_risk_prison_exConv_wo_MI = 33.8 * 0 + 34.3744137966

UNITS: year/person

init_age_per_jail_offender_wMI = 29.5 * 0 + 28.5671128516

UNITS: year/person

init_age_per_jail_offender_wo_MI = 29 * 0 + 28.5671128516

UNITS: year/person

init_age_per_lo_risk_jail_exConv_wMI = 35.5 * 0 + 35.5513505648

UNITS: year/person

init_age_per_lo_risk_jail_exConv_wo_MI = 35 * 0 + 34.1701961644

UNITS: year/person

init_age_per_lo_risk_prison_exConv_wMI = 37 * 0 + 40.8395733342

UNITS: year/person

init_age_per_lo_risk_prison_exConv_wo_MI = 35.8 * 0 + 40.5911100666

    UNITS: year/person

init_age_per_pretrial_suspect_in_comm = 33 * 0 + 28.1488558657

    UNITS: year/person

init_age_per_prison_parolee_wMI = 31.5 * 0 + 33.2064558091

    UNITS: year/person

init_age_per_prison_parolee_wMI_violated_condition = 31.5 * 0 +34.5763188228

    UNITS: year/person

init_age_per_prison_parolee_wo_MI = 31 * 0 + 32.5647693529

    UNITS: year/person

init_age_per_prison_parolee_wo_MI_violated_condition = 31 * 0 + 33.9346323666

    UNITS: year/person

init_age_per_prisoner_wMI = 33 * 0 + 30.9607125619

    UNITS: year/person

init_age_per_prisoner_wo_MI = 33 * 0 + 30.3187295177

    UNITS: year/person

init_age_per_probationer = 33 * 0 + 31.7007956908

    UNITS: year/person

init_age_per_reparoled_prison_parole_violator_wMI = 32 * 0 +34.5763188228

    UNITS: year/person

init_age_per_reparoled_prison_parole_violator_wo_MI = 31.5 * 0 + 33.9346323666

    UNITS: year/person

init_age_per_reprisoned_county_parole_violator_wMI = 38

    UNITS: year/person

init_age_per_reprisoned_county_parole_violator_wo_MI = 37.5

    UNITS: year/person

init_age_per_reprisoned_prison_parole_violator_wMI = 32 * 0 +34.5763188228

    UNITS: year/person

init_age_per_reprisoned_prison_parole_violator_wo_MI = 31.5 * 0 + 33.9346323666

    UNITS: year/person

init_age_per_suspect_in_comm_with_cases_filed = 33 * 0 + 28.1488558657

UNITS: year/person

init_age_per_suspect_in_custody = 33 * 0 + 30.4326964551

UNITS: year/person

init_age_per_suspect_in_custody_with_cases_filed = 33 * 0 + 30.4326964551

UNITS: year/person

max_mortality_rate = 1

UNITS: 1/year

min_remaining_years_of_life = 1

UNITS: year/person

prisoner_life_expectancy = 75

UNITS: year/person

prisoner_wMI_mortality_rate = IF remaining_years_of_life_of_prisoners_wMI>0 AND remaining_years_of_life_of_prisoners_wMI <=40 THEN (1-Individuals_with_Criminal_History.rounding_switch) * (year_loss_per_person_per_year/remaining_years_of_life_of_prisoners_wMI) + Individuals_with_Criminal_History.rounding_switch * (year_loss_per_person_per_year/ ROUND (remaining_years_of_life_of_prisoners_wMI)) ELSE IF remaining_years_of_life_of_prisoners_wMI >40 THEN ref_mortality_rate ELSE IF remaining_years_of_life_of_prisoners_wMI = min_remaining_years_of_life THEN max_mortality_rate ELSE ref_mortality_rate

UNITS: 1/year

prisoner_wo_MI_mortality_rate = IF remaining_years_of_life_of_prisoners_wo_MI>0 AND remaining_years_of_life_of_prisoners_wo_MI <=40 THEN (1-Individuals_with_Criminal_History.rounding_switch) * (year_loss_per_person_per_year/remaining_years_of_life_of_prisoners_wo_MI) + Individuals_with_Criminal_History.rounding_switch * (year_loss_per_person_per_year/ ROUND (remaining_years_of_life_of_prisoners_wo_MI)) ELSE IF remaining_years_of_life_of_prisoners_wo_MI >40 THEN ref_mortality_rate ELSE IF remaining_years_of_life_of_prisoners_wo_MI = min_remaining_years_of_life THEN max_mortality_rate ELSE ref_mortality_rate

UNITS: 1/year

ref_mortality_rate = 0.003

UNITS: 1/year

remaining_years_of_life_of_prisoners_wMI = MAX (prisoner_life_expectancy - ave_age_per_prisoner_wMI, min_remaining_years_of_life)

UNITS: year/person

remaining_years_of_life_of_prisoners_wo_MI = MAX (prisoner_life_expectancy - ave_age_per_prisoner_wo_MI, min_remaining_years_of_life)

UNITS: year/person

year_loss_per_person_per_year = 1

UNITS: year/person/year

{ The model has 429 (429) variables (array expansion in parens).

In this module and 0 additional modules with 0 sectors.

Stocks: 40 (40) Flows: 126 (126) Converters: 263 (263)

Constants: 47 (47) Equations: 342 (342) Graphicals: 0 (0)

There are also 406 expanded macro variables.

}

Mental Profiles Module

Mental_Functions_of_Arrestees(t) = Mental_Functions_of_Arrestees(t - dt) +
(adding_mental_func_thru_arresting +
transferring_mental_func_thru_hi_risk_jail_exConv_wo_MI_recidivism +
transferring_mental_func_thru_lo_risk_jail_exConv_wMI_recidivism +
transferring_mental_func_thru_hi_risk_prison_exConv_wMI_recidivism +
transferring_mental_func_thru_lo_risk_jail_exConv_recidivism +
transferring_mental_func_thru_hi_risk_jail_exConv_wMI_recidivism +
transferring_mental_func_thru_prison_parolee_wMI_recidivism +
transferring_mental_func_thru_lo_risk_prison_exConv_recidivism +
transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_recidivism +
transferring_mental_func_thru_county_parolee_wMI_recidivism +
transferring_mental_func_thru_county_parolee_wo_MI_recidivism +
transferring_mental_func_thru_prison_parolee_wMI_violated_condition_recidivism +
transferring_mental_func_thru_prison_parolee_wo_MI_recidivism +
transferring_mental_func_thru_lo_risk_prison_exConv_wMI_recidivism +
transferring_mental_func_thru_prison_parolee_wo_MI_violated_condition_recidivism +
transferring_mental_func_thru_county_parolee_wMI_violated_condition_recidivism +
transferring_mental_func_thru_county_parolee_wo_MI_violated_condition_recidivism -
losing_mental_func_thru_pretrial_release -
transferring_mental_func_thru_holding_suspect_in_custody -
losing_mental_func_thru_release_by_law_enforcement) * dt

   INIT Mental_Functions_of_Arrestees = IF Individuals_with_Criminal_History.equilibrium_switch= 1
THEN 934518.336222 ELSE Individuals_with_Criminal_History.Arrestees *
init_mental_func_per_arrestee

   UNITS: score

   INFLOWS:

     adding_mental_func_thru_arresting = Individuals_with_Criminal_History.arrest_rate *
mental_func_per_new_suspect

       UNITS: score/year

     transferring_mental_func_thru_hi_risk_jail_exConv_wo_MI_recidivism =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_mental_func_per_hi_risk_jail_exConv_wo_MI

       UNITS: score/year

     transferring_mental_func_thru_lo_risk_jail_exConv_wMI_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism *
ave_mental_func_per_lo_risk_jail_exConv_wMI

       UNITS: score/year

     transferring_mental_func_thru_hi_risk_prison_exConv_wMI_recidivism =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_mental_func_per_hi_risk_prison_exCon_wMI

UNITS: score/year

transferring_mental_func_thru_lo_risk_jail_exConv_recidivism = Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism * ave_mental_func_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_jail_exConv_wMI_recidivism = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism * ave_mental_func_per_hi_risk_jail_exConv_wMI

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wMI_recidivism = Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes * ave_mental_func_per_prison_parolee_wMI

UNITS: score/year

transferring_mental_func_thru_lo_risk_prison_exConv_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism * ave_mental_func_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_recidivism = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_mental_func_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_county_parolee_wMI_recidivism = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes * ave_mental_func_per_county_parolee_wMI)

UNITS: score/year

transferring_mental_func_thru_county_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes * ave_mental_func_per_county_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wMI_violated_condition_recidivism = Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_lo_risk_prison_exConv_wMI_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_mental_func_per_lo_risk_prison_exCon_wMI

     UNITS: score/year

transferring_mental_func_thru_prison_parolee_wo_MI_violated_condition_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes * ave_mental_func_per_prison_parolee_wo_MI_violated_condition

     UNITS: score/year

transferring_mental_func_thru_county_parolee_wMI_violated_condition_recidivism = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crimes * ave_mental_func_per_county_parolee_wMI_violated_condition)

     UNITS: score/year

transferring_mental_func_thru_county_parolee_wo_MI_violated_condition_recidivism = Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes * ave_mental_func_per_county_parolee_wo_MI_violated_condition

     UNITS: score/year

OUTFLOWS:

losing_mental_func_thru_pretrial_release = Individuals_with_Criminal_History.pretrial_release * ave_mental_func_per_arrestee

     UNITS: score/year

transferring_mental_func_thru_holding_suspect_in_custody = Individuals_with_Criminal_History.being_held_in_custody * ave_mental_func_per_arrestee

     UNITS: score/year

losing_mental_func_thru_release_by_law_enforcement = Individuals_with_Criminal_History.release_by_law_enforcement * ave_mental_func_per_arrestee

     UNITS: score/year

Mental_Functions_of_County_Parolee_wMI_Violated_Condition(t) = Mental_Functions_of_County_Parolee_wMI_Violated_Condition(t - dt) + (transferring_mental_func_thru_county_parolee_wMI_violating_condition + increasing_mental_func_of_county_parolee_wMIviolated_condition_thru_comm_svcs - transferring_mental_func_thru_discharging_county_parolee_wMI_violated_condition - transferring_mental_func_thru_county_parolee_returning_to_jail_wMI - transferring_mental_func_thru_county_parolee_wMI_violated_condition_recidivism) * dt

INIT Mental_Functions_of_County_Parolee_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 7.03854255345e-039 ELSE Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition * init_mental_func_per_county_parolees_wMI

     UNITS: score

INFLOWS:

transferring_mental_func_thru_county_parolee_wMI_violating_condition = Individuals_with_Criminal_History.county_parolee_wMI_violating_condition * ave_mental_func_per_county_parolee_wMI

UNITS: score/year

increasing_mental_func_of_county_parolee_wMIviolated_condition_thru_comm_svcs = county_parole_violator_wMI_mental_func_chg_thru_comm_svcs

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_county_parolee_wMI_violated_condition = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition * ave_mental_func_per_county_parolee_wMI_violated_condition)

UNITS: score/year

transferring_mental_func_thru_county_parolee_returning_to_jail_wMI = Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail * ave_mental_func_per_county_parolee_wMI_violated_condition

UNITS: score/year

transferring_mental_func_thru_county_parolee_wMI_violated_condition_recidivism = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crimes * ave_mental_func_per_county_parolee_wMI_violated_condition)

UNITS: score/year

Mental_Functions_of_County_Parolee_wo_MI_Violated_Condition(t) = Mental_Functions_of_County_Parolee_wo_MI_Violated_Condition(t - dt) + (transferring_mental_func_thru_county_parolee_wo_MI_violating_condition - transferring_mental_func_thru_discharging_county_parolee_wo_MI_violated_condition - transferring_mental_func_thru_county_parolee_returning_to_jail_wo_MI - transferring_mental_func_thru_county_parolee_wo_MI_violated_condition_recidivism) * dt

INIT Mental_Functions_of_County_Parolee_wo_MI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.001 ELSE Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition * init_mental_func_per_county_parolees_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_county_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition * ave_mental_func_per_county_parolee_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_county_parolee_wo_MI_violated_condition = Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition * ave_mental_func_per_county_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_county_parolee_returning_to_jail_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail * ave_mental_func_per_county_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_county_parolee_wo_MI_violated_condition_recidivism = Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes * ave_mental_func_per_county_parolee_wo_MI_violated_condition

UNITS: score/year

Mental_Functions_of_County_Parolees_wMI(t) = Mental_Functions_of_County_Parolees_wMI(t - dt) + (transferring_mental_func_thru_releasing_prisoner_wMI_to_parole_after_realignment + increasing_mental_func_of_county_parolee_wMI_thru_comm_svcs - transferring_mental_func_thru_discharging_county_parolee_wMI - transferring_mental_func_thru_county_parolee_wMI_recidivism - transferring_mental_func_thru_county_parolee_wMI_violating_condition) * dt

INIT Mental_Functions_of_County_Parolees_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.001 ELSE Individuals_with_Criminal_History.County_Parolees_wMI * init_mental_func_per_county_parolees_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_releasing_prisoner_wMI_to_parole_after_realignment = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment * ave_mental_func_per_prisoner_wMI * multiplier_of_ave_mental_func_of_prisoner_to_county_parole)

UNITS: score/year

increasing_mental_func_of_county_parolee_wMI_thru_comm_svcs = Individuals_with_Criminal_History.realignment_policy * county_parolee_wMI_mental_func_chg_thru_comm_svcs

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_county_parolee_wMI = Individuals_with_Criminal_History.discharging_county_parolee_wMI * ave_mental_func_per_county_parolee_wMI

UNITS: score/year

transferring_mental_func_thru_county_parolee_wMI_recidivism =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes *
ave_mental_func_per_county_parolee_wMI)

UNITS: score/year

transferring_mental_func_thru_county_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wMI_violating_condition *
ave_mental_func_per_county_parolee_wMI

UNITS: score/year

Mental_Functions_of_County_Parolees_wo_MI(t) =
Mental_Functions_of_County_Parolees_wo_MI(t - dt) +
(transferring_mental_func_thru_releasing_prisoner_wo_MI_to_parole_after_realignment -
transferring_mental_func_thru_discharging_county_parolee_wo_MI -
transferring_mental_func_thru_county_parolee_wo_MI_recidivism -
transferring_mental_func_thru_county_parolee_wo_MI_violating_condition) * dt

INIT Mental_Functions_of_County_Parolees_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.001 ELSE
Individuals_with_Criminal_History.County_Parolees_wo_MI *
init_mental_func_per_county_parolees_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_releasing_prisoner_wo_MI_to_parole_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment *
ave_mental_func_per_prisoner_wo_MI *
multiplier_of_ave_mental_func_of_prisoner_to_county_parole)

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_county_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_county_parolee_wo_MI *
ave_mental_func_per_county_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_county_parolee_wo_MI_recidivism =
Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes *
ave_mental_func_per_county_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_county_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition * ave_mental_func_per_county_parolee_wo_MI

   UNITS: score/year

Mental_Functions_of_Defendants_in_Comm_Being_Trialed(t) = Mental_Functions_of_Defendants_in_Comm_Being_Trialed(t - dt) + (transferring_mental_func_thru_suspect_in_comm_being_trial + transferring_mental_func_thru_violating_probation - transferring_mental_func_thru_complaints_against_suspect_in_comm_dismissed_after_trial - transferring_mental_func_thru_defendants_in_comm_waiting_for_sentence) * dt

   INIT Mental_Functions_of_Defendants_in_Comm_Being_Trialed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((Individuals_with_Criminal_History.violating_probation*ave_mental_func_per_probationer+Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial*ave_mental_func_per_suspect_in_comm_with_cases_filed) * Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed) / (Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence+Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial) ELSE Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed * init_mental_func_per_defendants_in_comm_being_trialed

   UNITS: score

   INFLOWS:

      transferring_mental_func_thru_suspect_in_comm_being_trial = Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial * ave_mental_func_per_suspect_in_comm_with_cases_filed

         UNITS: score/year

      transferring_mental_func_thru_violating_probation = Individuals_with_Criminal_History.violating_probation * ave_mental_func_per_probationer

         UNITS: score/year

   OUTFLOWS:

      transferring_mental_func_thru_complaints_against_suspect_in_comm_dismissed_after_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial * ave_mental_func_per_defendant_in_comm_being_trialed

         UNITS: score/year

      transferring_mental_func_thru_defendants_in_comm_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence * ave_mental_func_per_defendant_in_comm_being_trialed

         UNITS: score/year

Mental_Functions_of_Defendants_in_Custody_Being_Trialed(t) = Mental_Functions_of_Defendants_in_Custody_Being_Trialed(t - dt) +

(transferring_mental_func_thru_suspect_in_custody_being_trial -
transferring_mental_func_thru_complaints_against_suspect_in_custody_dismissed_after_trial -
transferring_mental_func_thru_defendants_in_custody_waiting_for_sentence) * dt

    INIT Mental_Functions_of_Defendants_in_Custody_Being_Trialed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 959180.063378*0+
(Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial*ave_mental_func_per_sus
pect_in_custody_with_cases_filed*Individuals_with_Criminal_History.Defendants_in_Custody_Being
_Trialed)/(Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence+Individu
als_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial)   ELSE
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed *
init_mental_func_per_defendants_in_custody_being_trialed

  UNITS: score

  INFLOWS:

    transferring_mental_func_thru_suspect_in_custody_being_trial =
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial *
ave_mental_func_per_suspect_in_custody_with_cases_filed

      UNITS: score/year

  OUTFLOWS:

    transferring_mental_func_thru_complaints_against_suspect_in_custody_dismissed_after_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial *
ave_mental_func_per_defendant_in_custody_being_trialed

      UNITS: score/year

    transferring_mental_func_thru_defendants_in_custody_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence *
ave_mental_func_per_defendant_in_custody_being_trialed

      UNITS: score/year

Mental_Functions_of_Desisted_Jail_ExConvicts_wMI(t) =
Mental_Functions_of_Desisted_Jail_ExConvicts_wMI(t - dt) +
(transferring_mental_func_thru_jail_exConv_wMI_being_assimilated -
losing_mental_func_thru_desisted_jail_exConv_deaths_wMI) * dt

  INIT Mental_Functions_of_Desisted_Jail_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted*ave_mental_func_per_lo_
risk_jail_exConv_wMI*Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI)/Individuals
_with_Criminal_History.desisted_jail_exConv_deaths_wMI ELSE
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI *
init_mental_func_per_desisted_jail_exConv_wMI

  UNITS: score

  INFLOWS:

transferring_mental_func_thru_jail_exConv_wMI_being_assimilated = Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted * ave_mental_func_per_lo_risk_jail_exConv_wMI

   UNITS: score/year

OUTFLOWS:

   losing_mental_func_thru_desisted_jail_exConv_deaths_wMI = Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wMI * ave_mental_func_per_desisted_jail_exConv_wMI

   UNITS: score/year

Mental_Functions_of_Desisted_Jail_ExConvicts_wo_MI(t) = Mental_Functions_of_Desisted_Jail_ExConvicts_wo_MI(t - dt) + (transferring_mental_func_thru_jail_exConv_wo_MI_being_assimilated - losing_mental_func_thru_desisted_jail_exConv_deaths_wo_MI) * dt

   INIT Mental_Functions_of_Desisted_Jail_ExConvicts_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted*ave_mental_func_per_lo_risk_jail_exConv_wo_MI*Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI)/Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wo_MI ELSE Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI * init_mental_func_per_desisted_jail_exConv_wo_MI

   UNITS: score

INFLOWS:

   transferring_mental_func_thru_jail_exConv_wo_MI_being_assimilated = Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted * ave_mental_func_per_lo_risk_jail_exConv_wo_MI

   UNITS: score/year

OUTFLOWS:

   losing_mental_func_thru_desisted_jail_exConv_deaths_wo_MI = Individuals_with_Criminal_History.desisted_jail_exConv_deaths_wo_MI * ave_mental_func_per_desisted_jail_exConv_wo_MI

   UNITS: score/year

Mental_Functions_of_Desisted_Prison_ExConvicts_wMI(t) = Mental_Functions_of_Desisted_Prison_ExConvicts_wMI(t - dt) + (transferring_mental_func_thru_prison_exConv_being_assimilated_wMI - losing_mental_func_thru_desisted_prison_exConv_deaths_wMI) * dt

   INIT Mental_Functions_of_Desisted_Prison_ExConvicts_wMI = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN (Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI*ave_mental_func_per_lo_risk_prison_exCon_wMI*Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI)/Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wMI ELSE

Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI *
init_mental_func_per_desisted_prison_exConv_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_exConv_being_assimilated_wMI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI *
ave_mental_func_per_lo_risk_prison_exCon_wMI

UNITS: score/year

OUTFLOWS:

losing_mental_func_thru_desisted_prison_exConv_deaths_wMI =
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wMI *
ave_mental_func_per_desisted_prison_exConv_wMI

UNITS: score/year

Mental_Functions_of_Desisted_Prison_ExConvicts_wo_MI(t) =
Mental_Functions_of_Desisted_Prison_ExConvicts_wo_MI(t - dt) +
(transferring_mental_func_thru_prison_exConv_being_assimilated_wo_MI -
losing_mental_func_thru_desisted_prison_exConv_deaths) * dt

INIT Mental_Functions_of_Desisted_Prison_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
(Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI*ave_mental_func_p
er_lo_risk_prison_exConv_wo_MI*Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_w
o_MI)/Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wo_MI ELSE
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wo_MI *
init_mental_func_per_desisted_prison_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_exConv_being_assimilated_wo_MI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI *
ave_mental_func_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

OUTFLOWS:

losing_mental_func_thru_desisted_prison_exConv_deaths =
Individuals_with_Criminal_History.desisted_prison_exConv_deaths_wo_MI *
ave_mental_func_per_desisted_prison_exConv_wo_MI

UNITS: score/year

Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI(t) =
Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI(t - dt) +
(transferring_mental_func_thru_discharging_county_parolee_wMI +
transferring_mental_func_thru_releasing_offender_wMI +

transferring_mental_func_thru_discharging_county_parolee_wMI_violated_condition +
transferring_mental_func_thru_rerelease_exPrisoners_wMI_to_county_parole -
losing_mental_func_thru_hi_risk_jail_exConv_wMI_deaths -
transferring_mental_func_thru_hi_risk_jail_exConv_wMI_recidivism -
transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wMI) * dt

  INIT Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1907535.23588
                                                       ELSE
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI *
init_mental_func_per_hi_risk_jail_exConv_wMI

  UNITS: score

  INFLOWS:

    transferring_mental_func_thru_discharging_county_parolee_wMI =
Individuals_with_Criminal_History.discharging_county_parolee_wMI *
ave_mental_func_per_county_parolee_wMI

      UNITS: score/year

    transferring_mental_func_thru_releasing_offender_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_mental_func_per_jail_offenders_wMI

      UNITS: score/year

    transferring_mental_func_thru_discharging_county_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition *
ave_mental_func_per_county_parolee_wMI_violated_condition)

      UNITS: score/year

    transferring_mental_func_thru_rerelease_exPrisoners_wMI_to_county_parole =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole *
ave_mental_func_per_reprisoned_county_parole_violator_wMI

      UNITS: score/year

  OUTFLOWS:

    losing_mental_func_thru_hi_risk_jail_exConv_wMI_deaths =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths *
ave_mental_func_per_hi_risk_jail_exConv_wMI

      UNITS: score/year

    transferring_mental_func_thru_hi_risk_jail_exConv_wMI_recidivism =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism *
ave_mental_func_per_hi_risk_jail_exConv_wMI

      UNITS: score/year

transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI *
ave_mental_func_per_hi_risk_jail_exConv_wMI

UNITS: score/year

Mental_Functions_of_HI_Risk_Jail_ExConvicts_wo_MI(t) =
Mental_Functions_of_HI_Risk_Jail_ExConvicts_wo_MI(t - dt) +
(transferring_mental_func_thru_discharging_county_parolee_wo_MI +
transferring_mental_func_thru_releasing_offender_wo_MI +
transferring_mental_func_thru_discharging_county_parolee_wo_MI_violated_condition +
transferring_mental_func_thru_rerelease_exPrisoners_to_county_parole_wo_MI -
transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wo_MI -
transferring_mental_func_thru_hi_risk_jail_exConv_wo_MI_recidivism -
transferring_mental_func_thru_hi_risk_jail_exConv_deaths) * dt

INIT Mental_Functions_of_HI_Risk_Jail_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1685811.8495 ELSE
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI *
init_mental_func_per_hi_risk_jail_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_discharging_county_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_county_parolee_wo_MI *
ave_mental_func_per_county_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_releasing_offender_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_mental_func_per_jail_offenders_wo_MI

UNITS: score/year

transferring_mental_func_thru_discharging_county_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition *
ave_mental_func_per_county_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_rerelease_exPrisoners_to_county_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_mental_func_per_reprisoned_county_parole_violator_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_mental_func_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_jail_exConv_wo_MI_recidivism = Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism * ave_mental_func_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_jail_exConv_deaths = Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_deaths * ave_mental_func_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI(t) = Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI(t - dt) + (transferring_mental_func_thru_discharging_prison_parolee_wMI + transferring_mental_func_thru_discharging_prison_parolee_wMI_violated_condition + transferring_mental_func_thru_discharging_reparoled_prison_parolee_wMI - transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wMI - losing_mental_func_thru_hi_risk_prison_exConv_wMI_deaths - transferring_mental_func_thru_hi_risk_prison_exConv_wMI_recidivism) * dt

INIT Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN 599207.62785
ELSE
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI * init_mental_func_per_hi_risk_exConv_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_discharging_prison_parolee_wMI = (Individuals_with_Criminal_History.discharging_prison_parolee_wMI * ave_mental_func_per_prison_parolee_wMI)

UNITS: score/year

transferring_mental_func_thru_discharging_prison_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_mental_func_thru_discharging_reparoled_prison_parolee_wMI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI * ave_mental_func_per_reparoled_prison_parolee_wMI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI *
ave_mental_func_per_hi_risk_prison_exCon_wMI

UNITS: score/year

losing_mental_func_thru_hi_risk_prison_exConv_wMI_deaths =
Individuals_with_Criminal_History.hi_risk_prison_exConv_deaths_wMI *
ave_mental_func_per_hi_risk_prison_exCon_wMI

UNITS: score/year

transferring_mental_func_thru_hi_risk_prison_exConv_wMI_recidivism =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_mental_func_per_hi_risk_prison_exCon_wMI

UNITS: score/year

Mental_Functions_of_HI_Risk_Prison_ExConvicts_wo_MI(t) =
Mental_Functions_of_HI_Risk_Prison_ExConvicts_wo_MI(t - dt) +
(transferring_mental_func_thru_discharging_prison_parolee_wo_MI +
transferring_mental_func_thru_discharging_prison_parolee_wo_MI_violated_condition +
transferring_mental_func_thru_discharging_reparoled_prison_parolee_wo_MI -
transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wo_MI -
transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_deaths -
transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_recidivism) * dt

INIT Mental_Functions_of_HI_Risk_Prison_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN
((Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI*ave_mental_func_per_pris
on_parolee_wo_MI+Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_
MI*ave_mental_func_per_reparoled_prison_parolee_wo_MI+Individuals_with_Criminal_History.dis
charging_prison_parolee_wo_MI_violated_condition*ave_mental_func_per_prison_parolee_wo_MI
_violated_condition) * Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI) /
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI+Individuals_with_Crim
inal_History.hi_risk_prison_exConv_wo_MI_deaths+Individuals_with_Criminal_History.hi_risk_priso
n_exConv_wo_MI_recidivism)   ELSE
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI *
init_mental_func_per_hi_risk_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_discharging_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI *
ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_discharging_prison_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition *
ave_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_discharging_reparoled_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI *
ave_mental_func_per_reparoled_prison_parolee_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI *
ave_mental_func_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_deaths =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_deaths *
ave_mental_func_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_hi_risk_prison_exConv_wo_MI_recidivism =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism *
ave_mental_func_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

Mental_Functions_of_Jail_Offenders_wMI(t) = Mental_Functions_of_Jail_Offenders_wMI(t - dt) +
(transferring_mental_func_thru_convicting_defendant_in_custody_to_jail_wMI +
transferring_mental_func_thru_jail_offender_devMI_after_realignment +
transferring_mental_func_thru_convicting_defendant_in_comm_to_jail_wMI -
transferring_mental_func_thru_continue_serving_thru_probation_wMI -
transferring_mental_func_thru_releasing_offender_wMI - mental_func_loss_in_jail_wMI) * dt

INIT Mental_Functions_of_Jail_Offenders_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 820539.623637 ELSE
Individuals_with_Criminal_History.Jail_Offenders_wMI * init_mental_func_per_jail_offenders_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_convicting_defendant_in_custody_to_jail_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wMI *
ave_mental_func_per_preSentencing_defendant_in_custody

UNITS: score/year

transferring_mental_func_thru_jail_offender_devMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.jail_offender_devMI *
ave_mental_func_per_jail_offenders_wo_MI)

UNITS: score/year

transferring_mental_func_thru_convicting_defendant_in_comm_to_jail_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wMI *
ave_mental_func_per_preSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_continue_serving_thru_probation_wMI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wMI *
ave_mental_func_per_jail_offenders_wMI

UNITS: score/year

transferring_mental_func_thru_releasing_offender_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_mental_func_per_jail_offenders_wMI

UNITS: score/year

mental_func_loss_in_jail_wMI = jail_offenders_wMI_mental_func_chg

UNITS: score/year

Mental_Functions_of_Jail_Offenders_wo_MI(t) = Mental_Functions_of_Jail_Offenders_wo_MI(t - dt)
+ (transferring_mental_func_thru_convicting_defendant_in_custody_to_jail_wo_MI +
transferring_mental_func_thru_convicting_defendant_in_comm_to_jail_wo_MI -
transferring_mental_func_thru_jail_offender_devMI_after_realignment -
transferring_mental_func_thru_continue_serving_thru_probation_wo_MI -
transferring_mental_func_thru_releasing_offender_wo_MI - mental_func_loss_in_jail_wo_MI) * dt

INIT Mental_Functions_of_Jail_Offenders_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
((Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI*ave_mental_fu
nc_per_preSentencing_defendant_in_comm+Individuals_with_Criminal_History.convicting_defenda
nt_in_custody_to_jail_wo_MI*ave_mental_func_per_preSentencing_defendant_in_custody) *
Individuals_with_Criminal_History.Jail_Offenders_wo_MI) /
(Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI+Individuals_with_Crim
inal_History.releasing_jail_offenders_directly_wo_MI) ELSE
Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
init_mental_func_per_jail_offender_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_convicting_defendant_in_custody_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wo_MI *
ave_mental_func_per_preSentencing_defendant_in_custody

UNITS: score/year

transferring_mental_func_thru_convicting_defendant_in_comm_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI *
ave_mental_func_per_preSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_jail_offender_devMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.jail_offender_devMI *
ave_mental_func_per_jail_offenders_wo_MI)

UNITS: score/year

transferring_mental_func_thru_continue_serving_thru_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_mental_func_per_jail_offenders_wo_MI

UNITS: score/year

transferring_mental_func_thru_releasing_offender_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_mental_func_per_jail_offenders_wo_MI

UNITS: score/year

mental_func_loss_in_jail_wo_MI = jail_offenders_wo_MI_mental_func_chg

UNITS: score/year

Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wMI(t) =
Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wMI(t - dt) +
(transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wMI -
transferring_mental_func_thru_jail_exConv_wMI_being_assimilated -
transferring_mental_func_thru_lo_risk_jail_exConv_wMI_recidivism -
losing_mental_func_thru_lo_risk_jail_exConv_wMI_deaths) * dt

INIT Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 4169475.92543 ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI *
init_mental_func_per_lo_risk_jail_exConv_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI *
ave_mental_func_per_hi_risk_jail_exConv_wMI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_jail_exConv_wMI_being_assimilated =
Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted *
ave_mental_func_per_lo_risk_jail_exConv_wMI

UNITS: score/year

transferring_mental_func_thru_lo_risk_jail_exConv_wMI_recidivism =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism *
ave_mental_func_per_lo_risk_jail_exConv_wMI

    UNITS: score/year

losing_mental_func_thru_lo_risk_jail_exConv_wMI_deaths =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths *
ave_mental_func_per_lo_risk_jail_exConv_wMI

    UNITS: score/year

Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wo_MI(t) =
Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wo_MI(t - dt) +
(transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wo_MI +
transferring_mental_func_thru_discharging_fr_probation -
transferring_mental_func_thru_jail_exConv_wo_MI_being_assimilated -
losing_mental_func_thru_lo_risk_jail_exConv_deaths -
transferring_mental_func_thru_lo_risk_jail_exConv_recidivism) * dt

INIT Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
((ave_mental_func_per_probationer*Individuals_with_Criminal_History.discharging_fr_probation+In
dividuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI*ave_mental_func_per_hi_ris
k_jail_exConv_wo_MI)*Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI)/(Individu
als_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted+Individuals_with_Criminal_Histo
ry.lo_risk_jail_exConv_wo_MI_deaths+Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_M
I_recidivism) ELSE Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI *
init_mental_func_per_lo_risk_jail_exConv_wo_MI

  UNITS: score

  INFLOWS:

transferring_mental_func_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_mental_func_per_hi_risk_jail_exConv_wo_MI

    UNITS: score/year

transferring_mental_func_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation * ave_mental_func_per_probationer

    UNITS: score/year

  OUTFLOWS:

transferring_mental_func_thru_jail_exConv_wo_MI_being_assimilated =
Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted *
ave_mental_func_per_lo_risk_jail_exConv_wo_MI

    UNITS: score/year

losing_mental_func_thru_lo_risk_jail_exConv_deaths = Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths * ave_mental_func_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_mental_func_thru_lo_risk_jail_exConv_recidivism = Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism * ave_mental_func_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wMI(t) = Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wMI(t - dt) + (transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wMI - transferring_mental_func_thru_prison_exConv_being_assimilated_wMI - losing_mental_func_thru_lo_risk_prison_exConv_wMI_deaths - transferring_mental_func_thru_lo_risk_prison_exConv_wMI_recidivism) * dt

INIT Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1   THEN 1806396.81092 ELSE Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI * init_mental_func_per_lo_risk_exConv_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI * ave_mental_func_per_hi_risk_prison_exCon_wMI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_prison_exConv_being_assimilated_wMI = Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI * ave_mental_func_per_lo_risk_prison_exCon_wMI

UNITS: score/year

losing_mental_func_thru_lo_risk_prison_exConv_wMI_deaths = Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI * ave_mental_func_per_lo_risk_prison_exCon_wMI

UNITS: score/year

transferring_mental_func_thru_lo_risk_prison_exConv_wMI_recidivism = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_mental_func_per_lo_risk_prison_exCon_wMI

UNITS: score/year

Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wo_MI(t) = Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wo_MI(t - dt) +

(transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wo_MI -
transferring_mental_func_thru_lo_risk_prison_exConv_recidivism -
transferring_mental_func_thru_lo_risk_prison_exConv_wo_MI_deaths -
transferring_mental_func_thru_prison_exConv_being_assimilated_wo_MI) * dt

   INIT Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1   THEN
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI*ave_mental_func_per
_hi_risk_prison_exConv_wo_MI*Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_
MI)/(Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI+Individuals_with_Cri
minal_History.lo_risk_prison_exConv_wo_MI_recidivism+Individuals_with_Criminal_History.prison_
exConv_becoming_desisted_wo_MI) ELSE
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI *
init_mental_func_per_lo_risk_exConv_wo_MI

   UNITS: score

   INFLOWS:

      transferring_mental_func_thru_becoming_lo_risk_prison_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI *
ave_mental_func_per_hi_risk_prison_exConv_wo_MI

         UNITS: score/year

   OUTFLOWS:

      transferring_mental_func_thru_lo_risk_prison_exConv_recidivism =
Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism *
ave_mental_func_per_lo_risk_prison_exConv_wo_MI

         UNITS: score/year

      transferring_mental_func_thru_lo_risk_prison_exConv_wo_MI_deaths =
Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI *
ave_mental_func_per_lo_risk_prison_exConv_wo_MI

         UNITS: score/year

      transferring_mental_func_thru_prison_exConv_being_assimilated_wo_MI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI *
ave_mental_func_per_lo_risk_prison_exConv_wo_MI

         UNITS: score/year

Mental_Functions_of_PreSentencing_Defendants_in_Comm(t) =
Mental_Functions_of_PreSentencing_Defendants_in_Comm(t - dt) +
(transferring_mental_func_thru_defendants_in_comm_waiting_for_sentence +
transferring_mental_func_thru_defendants_in_comm_conviction_wo_trial -
transferring_mental_func_thru_defendants_in_comm_conviction) * dt

   INIT Mental_Functions_of_PreSentencing_Defendants_in_Comm = IF
Individuals_with_Criminal_History.equilibrium_switch =1 THEN 280760.507042 ELSE

Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody *
init_mental_func_per_preSentencing_defendants_in_comm

   UNITS: score

   INFLOWS:

      transferring_mental_func_thru_defendants_in_comm_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence *
ave_mental_func_per_defendant_in_comm_being_trialed

         UNITS: score/year

      transferring_mental_func_thru_defendants_in_comm_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial *
ave_mental_func_per_suspect_in_comm_with_cases_filed

         UNITS: score/year

   OUTFLOWS:

      transferring_mental_func_thru_defendants_in_comm_conviction =
Individuals_with_Criminal_History.defendant_in_comm_being_sentenced *
ave_mental_func_per_preSentencing_defendant_in_comm

         UNITS: score/year

Mental_Functions_of_PreSentencing_Defendants_in_Custody(t) =
Mental_Functions_of_PreSentencing_Defendants_in_Custody(t - dt) +
(transferring_mental_func_thru_defendants_in_custody_waiting_for_sentence +
transferring_mental_func_thru_defendants_in_cusotdy_conviction_wo_trial -
transferring_mental_func_thru_defendants_in_custody_conviction) * dt

   INIT Mental_Functions_of_PreSentencing_Defendants_in_Custody = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 164740.536884
                                    ELSE
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody *
init_mental_func_per_preSentencing_defendants_in_custody

   UNITS: score

   INFLOWS:

      transferring_mental_func_thru_defendants_in_custody_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence *
ave_mental_func_per_defendant_in_custody_being_trialed

         UNITS: score/year

      transferring_mental_func_thru_defendants_in_cusotdy_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial *
ave_mental_func_per_suspect_in_custody_with_cases_filed

         UNITS: score/year

   OUTFLOWS:

transferring_mental_func_thru_defendants_in_custody_conviction =
Individuals_with_Criminal_History.defendant_in_custody_being_sentenced *
ave_mental_func_per_preSentencing_defendant_in_custody

   UNITS: score/year

Mental_Functions_of_Prison_Parolee_wMI(t) = Mental_Functions_of_Prison_Parolee_wMI(t - dt) +
(transferring_mental_func_thru_releasing_prisoner_wMI +
increasing_mental_func_of_prison_parolee_wMI_thru_comm_svcs -
transferring_mental_func_thru_discharging_prison_parolee_wMI -
transferring_mental_func_thru_prison_parolee_wMI_recidivism -
transferring_mental_func_thru_prison_parolee_wMI_violating_condition) * dt

   INIT Mental_Functions_of_Prison_Parolee_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 573559.020652
              ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI *
init_mental_func_per_prison_parolee_wMI

   UNITS: score

   INFLOWS:

      transferring_mental_func_thru_releasing_prisoner_wMI =
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment *
ave_mental_func_per_prisoner_wMI

         UNITS: score/year

      increasing_mental_func_of_prison_parolee_wMI_thru_comm_svcs =
prison_parolee_wMI_mental_func_chg_thru_comm_svcs

         UNITS: score/year

   OUTFLOWS:

      transferring_mental_func_thru_discharging_prison_parolee_wMI =
(Individuals_with_Criminal_History.discharging_prison_parolee_wMI *
ave_mental_func_per_prison_parolee_wMI)

         UNITS: score/year

      transferring_mental_func_thru_prison_parolee_wMI_recidivism =
Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes *
ave_mental_func_per_prison_parolee_wMI

         UNITS: score/year

      transferring_mental_func_thru_prison_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition *
ave_mental_func_per_prison_parolee_wMI

         UNITS: score/year

Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition(t) =
Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition(t - dt) +
(transferring_mental_func_thru_prison_parolee_wMI_violating_condition +

increasing_mental_func_of_prison_parolee_wMIviolated_condition_thru_comm_svcs - transferring_mental_func_thru_prison_parolee_returning_to_prison_wMI - transferring_mental_func_thru_discharging_prison_parolee_wMI_violated_condition - transferring_mental_func_thru_prison_parolee_wMI_violated_condition_recidivism) * dt

INIT Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 157051.066351   ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition * init_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_parolee_wMI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition * ave_mental_func_per_prison_parolee_wMI

UNITS: score/year

increasing_mental_func_of_prison_parolee_wMIviolated_condition_thru_comm_svcs = prison_parole_violator_wMI_mental_func_chg_thru_comm_svcs

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_prison_parolee_returning_to_prison_wMI = Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_mental_func_thru_discharging_prison_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wMI_violated_condition_recidivism = Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

Mental_Functions_of_Prison_Parolee_wo_MI(t) = Mental_Functions_of_Prison_Parolee_wo_MI(t - dt) + (transferring_mental_func_thru_releasing_prisoner_wo_MI - transferring_mental_func_thru_discharging_prison_parolee_wo_MI - transferring_mental_func_thru_prison_parolee_wo_MI_recidivism - transferring_mental_func_thru_prison_parolee_wo_MI_violating_condition) * dt

INIT Mental_Functions_of_Prison_Parolee_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 2442684.72868   ELSE Individuals_with_Criminal_History.Prison_Parolees_wo_MI * init_mental_func_per_prison_parolee_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_releasing_prisoner_wo_MI = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment * ave_mental_func_per_prisoner_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_prison_parolee_wo_MI = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI * ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wo_MI_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition * ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

Mental_Functions_of_Prison_Parolee_wo_MI_Violated_Condition(t) = Mental_Functions_of_Prison_Parolee_wo_MI_Violated_Condition(t - dt) + (transferring_mental_func_thru_prison_parolee_wo_MI_violating_condition - transferring_mental_func_thru_prison_parolee_returning_to_prison_wo_MI - transferring_mental_func_thru_discharging_prison_parolee_wo_MI_violated_condition - transferring_mental_func_thru_prison_parolee_wo_MI_violated_condition_recidivism) * dt

INIT Mental_Functions_of_Prison_Parolee_wo_MI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 464583.558275 ELSE Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition * init_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition * ave_mental_func_per_prison_parolee_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_prison_parolee_returning_to_prison_wo_MI = Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison * ave_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_discharging_prison_parolee_wo_MI_violated_condition = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition * ave_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_mental_func_thru_prison_parolee_wo_MI_violated_condition_recidivism = Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes * ave_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

Mental_Functions_of_Prisoners_wMI(t) = Mental_Functions_of_Prisoners_wMI(t - dt) + (transferring_mental_func_thru_convicting_defendant_in_custody_to_prisoner_wMI + transferring_mental_func_thru_prisoner_develop_MI + transferring_mental_func_thru_convicting_defendant_in_comm_to_prisoner_wMI - losing_mental_func_thru_prisoner_wMI_deaths - transferring_mental_func_thru_releasing_prisoner_wMI - transferring_mental_func_thru_releasing_prisoner_wMI_to_parole_after_realignment - mental_func_loss_in_prison_wMI - transferring_mental_func_thru_recovering_fr_MI) * dt

INIT Mental_Functions_of_Prisoners_wMI = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN 1398531.73407
ELSE Individuals_with_Criminal_History.Prisoners_wMI * init_mental_func_per_prisoner_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_convicting_defendant_in_custody_to_prisoner_wMI = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wMI * ave_mental_func_per_preSentencing_defendant_in_custody

UNITS: score/year

transferring_mental_func_thru_prisoner_develop_MI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_mental_func_per_prisoner_wo_MI

UNITS: score/year

transferring_mental_func_thru_convicting_defendant_in_comm_to_prisoner_wMI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wMI * ave_mental_func_per_preSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

losing_mental_func_thru_prisoner_wMI_deaths =
Individuals_with_Criminal_History.prisoner_wMI_deaths * ave_mental_func_per_prisoner_wMI

    UNITS: score/year

    transferring_mental_func_thru_releasing_prisoner_wMI =
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment *
ave_mental_func_per_prisoner_wMI

    UNITS: score/year

    transferring_mental_func_thru_releasing_prisoner_wMI_to_parole_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
ave_mental_func_per_prisoner_wMI *
multiplier_of_ave_mental_func_of_prisoner_to_county_parole)

    UNITS: score/year

    mental_func_loss_in_prison_wMI = prisoner_mental_func_reduction_wMI

    UNITS: score/year

    transferring_mental_func_thru_recovering_fr_MI =
Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_mental_func_per_prisoner_wMI

    UNITS: score/year

Mental_Functions_of_Prisoners_wo_MI(t) = Mental_Functions_of_Prisoners_wo_MI(t - dt) +
(transferring_mental_func_thru_convicting_defendant_in_custody_to_prisoner_wo_MI +
transferring_mental_func_thru_recovering_fr_MI +
transferring_mental_func_thru_convicting_defendant_in_comm_to_prisoner_wo_MI -
transferring_mental_func_thru_releasing_prisoner_wo_MI -
losing_mental_func_thru_prisoner_wo_MI_deaths -
transferring_mental_func_thru_prisoner_develop_MI -
transferring_mental_func_thru_releasing_prisoner_wo_MI_to_parole_after_realignment -
mental_func_loss_in_prison_wo_MI) * dt

    INIT Mental_Functions_of_Prisoners_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN 3911070.09624 ELSE
Individuals_with_Criminal_History.Prisoners_wo_MI * init_mental_func_per_prisoner_wo_MI

  UNITS: score

  INFLOWS:

    transferring_mental_func_thru_convicting_defendant_in_custody_to_prisoner_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wo_MI *
ave_mental_func_per_preSentencing_defendant_in_custody

    UNITS: score/year

    transferring_mental_func_thru_recovering_fr_MI =
Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_mental_func_per_prisoner_wMI

    UNITS: score/year

transferring_mental_func_thru_convicting_defendant_in_comm_to_prisoner_wo_MI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wo_MI * ave_mental_func_per_preSentencing_defendant_in_comm

> UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_releasing_prisoner_wo_MI = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment * ave_mental_func_per_prisoner_wo_MI

> UNITS: score/year

losing_mental_func_thru_prisoner_wo_MI_deaths = Individuals_with_Criminal_History.prisoner_wo_MI_deaths * ave_mental_func_per_prisoner_wo_MI

> UNITS: score/year

transferring_mental_func_thru_prisoner_develop_MI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_mental_func_per_prisoner_wo_MI

> UNITS: score/year

transferring_mental_func_thru_releasing_prisoner_wo_MI_to_parole_after_realignment = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * ave_mental_func_per_prisoner_wo_MI * multiplier_of_ave_mental_func_of_prisoner_to_county_parole)

> UNITS: score/year

mental_func_loss_in_prison_wo_MI = prisoner_mental_func_reduction_wo_MI

> UNITS: score/year

Mental_Functions_of_Probationers(t) = Mental_Functions_of_Probationers(t - dt) + (transferring_mental_func_thru_continue_serving_thru_probation_wMI + transferring_mental_func_thru_continue_serving_thru_probation_wo_MI + transferring_mental_func_thru_convicting_suspect_in_custody_to_probation + transferring_mental_func_thru_convicting_suspect_in_comm_to_probation - transferring_mental_func_thru_discharging_fr_probation - transferring_mental_func_thru_violating_probation) * dt

INIT Mental_Functions_of_Probationers = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 13483883.0017 ELSE Individuals_with_Criminal_History.Probationers * init_mental_func_per_probationer

UNITS: score

INFLOWS:

transferring_mental_func_thru_continue_serving_thru_probation_wMI = Individuals_with_Criminal_History.continue_serving_thru_probation_wMI * ave_mental_func_per_jail_offenders_wMI

UNITS: score/year

transferring_mental_func_thru_continue_serving_thru_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_mental_func_per_jail_offenders_wo_MI

UNITS: score/year

transferring_mental_func_thru_convicting_suspect_in_custody_to_probation =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_probation *
ave_mental_func_per_preSentencing_defendant_in_custody

UNITS: score/year

transferring_mental_func_thru_convicting_suspect_in_comm_to_probation =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_probation *
ave_mental_func_per_preSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation * ave_mental_func_per_probationer

UNITS: score/year

transferring_mental_func_thru_violating_probation =
Individuals_with_Criminal_History.violating_probation * ave_mental_func_per_probationer

UNITS: score/year

Mental_Functions_of_Reparoled_Prison_Parolee_wMI(t) =
Mental_Functions_of_Reparoled_Prison_Parolee_wMI(t - dt) +
(transferring_mental_func_thru_rerelease_prison_parole_wMI -
transferring_mental_func_thru_discharging_reparoled_prison_parolee_wMI) * dt

INIT Mental_Functions_of_Reparoled_Prison_Parolee_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 90304.363152 ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI *
init_mental_func_per_reprisoned_prison_parole_violator_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_rerelease_prison_parole_wMI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI *
ave_mental_func_per_reprisoned_prison_parole_violator_wMI

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_discharging_reparoled_prison_parolee_wMI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI *
ave_mental_func_per_reparoled_prison_parolee_wMI

   UNITS: score/year

Mental_Functions_of_Reparoled_Prison_Parolee_wo_MI(t) =
Mental_Functions_of_Reparoled_Prison_Parolee_wo_MI(t - dt) +
(transferring_mental_func_thru_rerelease_prison_parole_wo_MI -
transferring_mental_func_thru_discharging_reparoled_prison_parolee_wo_MI) * dt

   INIT Mental_Functions_of_Reparoled_Prison_Parolee_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 167250.080979 ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI *
init_mental_func_per_reprisoned_prison_parole_violator_wo_MI

   UNITS: score

   INFLOWS:

   transferring_mental_func_thru_rerelease_prison_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI *
ave_mental_func_per_reprisoned_prison_parole_violator_wo_MI

      UNITS: score/year

   OUTFLOWS:

   transferring_mental_func_thru_discharging_reparoled_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI *
ave_mental_func_per_reparoled_prison_parolee_wo_MI

      UNITS: score/year

Mental_Functions_of_Reprisoned_County_Parole_Violator_wMI(t) =
Mental_Functions_of_Reprisoned_County_Parole_Violator_wMI(t - dt) +
(transferring_mental_func_thru_county_parolee_returning_to_jail_wMI -
transferring_mental_func_thru_rerelease_exPrisoners_wMI_to_county_parole) * dt

   INIT Mental_Functions_of_Reprisoned_County_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI *
init_mental_func_per_reprisoned_county_parole_violator_wMI ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI *
init_mental_func_per_reprisoned_county_parole_violator_wMI

   UNITS: score

   INFLOWS:

   transferring_mental_func_thru_county_parolee_returning_to_jail_wMI =
Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail *
ave_mental_func_per_county_parolee_wMI_violated_condition

      UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_rerelease_exPrisoners_wMI_to_county_parole =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole *
ave_mental_func_per_reprisoned_county_parole_violator_wMI

UNITS: score/year

Mental_Functions_of_Reprisoned_County_Parole_Violator_wo_MI(t) =
Mental_Functions_of_Reprisoned_County_Parole_Violator_wo_MI(t - dt) +
(transferring_mental_func_thru_county_parolee_returning_to_jail_wo_MI -
transferring_mental_func_thru_rerelease_exPrisoners_to_county_parole_wo_MI) * dt

INIT Mental_Functions_of_Reprisoned_County_Parole_Violator_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.001   ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI *
init_mental_func_per_reprisoned_county_parole_violator_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_county_parolee_returning_to_jail_wo_MI =
Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail *
ave_mental_func_per_county_parolee_wo_MI_violated_condition

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_rerelease_exPrisoners_to_county_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_mental_func_per_reprisoned_county_parole_violator_wo_MI

UNITS: score/year

Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wMI(t) =
Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wMI(t - dt) +
(transferring_mental_func_thru_prison_parolee_returning_to_prison_wMI -
transferring_mental_func_thru_rerelease_prison_parole_wMI) * dt

INIT Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison*ave_mental_func_per
_prison_parolee_wMI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Pa
role_Violators_wMI)/Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI *
init_mental_func_per_reprisoned_prison_parole_violator_wMI

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_parolee_returning_to_prison_wMI = Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison * ave_mental_func_per_prison_parolee_wMI_violated_condition

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_rerelease_prison_parole_wMI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI * ave_mental_func_per_reprisoned_prison_parole_violator_wMI

UNITS: score/year

Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wo_MI(t) = Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wo_MI(t - dt) + (transferring_mental_func_thru_prison_parolee_returning_to_prison_wo_MI - transferring_mental_func_thru_rerelease_prison_parole_wo_MI) * dt

INIT Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison*ave_mental_func_per_prison_parolee_wo_MI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI)/Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI * init_mental_func_per_reprisoned_prison_parole_violator_wo_MI

UNITS: score

INFLOWS:

transferring_mental_func_thru_prison_parolee_returning_to_prison_wo_MI = Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison * ave_mental_func_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_rerelease_prison_parole_wo_MI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI * ave_mental_func_per_reprisoned_prison_parole_violator_wo_MI

UNITS: score/year

Mental_Functions_of_Suspects_in_Comm_with_Cases_Filed(t) = Mental_Functions_of_Suspects_in_Comm_with_Cases_Filed(t - dt) + (transferring_mental_func_thru_filing_case_for_suspect_in_comm - transferring_mental_func_thru_suspect_in_comm_being_trial - transferring_mental_func_thru_complaints_against_suspects_in_comm_dismissed_before_trial - transferring_mental_func_thru_defendants_in_comm_conviction_wo_trial) * dt

INIT Mental_Functions_of_Suspects_in_Comm_with_Cases_Filed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.filing_case_for_suspect_in_comm*ave_mental_func_per_pretria

l_suspect_in_comm*Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed)/(Indi
viduals_with_Criminal_History.defendants_in_comm_conviction_wo_trial+Individuals_with_Criminal
_History.suspect_in_comm_waiting_for_trial+Individuals_with_Criminal_History.complaints_against
_suspects_in_comm_dismissed_before_trial) ELSE
Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed *
init_mental_func_per_suspect_in_comm_with_case_filed

  UNITS: score

  INFLOWS:

    transferring_mental_func_thru_filing_case_for_suspect_in_comm =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_mental_func_per_pretrial_suspect_in_comm

      UNITS: score/year

  OUTFLOWS:

    transferring_mental_func_thru_suspect_in_comm_being_trial =
Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial *
ave_mental_func_per_suspect_in_comm_with_cases_filed

      UNITS: score/year

    transferring_mental_func_thru_complaints_against_suspects_in_comm_dismissed_before_trial
= Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial
* ave_mental_func_per_suspect_in_comm_with_cases_filed

      UNITS: score/year

    transferring_mental_func_thru_defendants_in_comm_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial *
ave_mental_func_per_suspect_in_comm_with_cases_filed

      UNITS: score/year

Mental_Functions_of_Suspects_in_Community(t) = Mental_Functions_of_Suspects_in_Community(t
- dt) + (losing_mental_func_thru_pretrial_release -
transferring_mental_func_thru_filing_case_for_suspect_in_comm) * dt

  INIT Mental_Functions_of_Suspects_in_Community = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.pretrial_release*ave_mental_func_per_arrestee*Individuals_wit
h_Criminal_History.Pretrial_Suspects_in_Community)/Individuals_with_Criminal_History.filing_case_
for_suspect_in_comm ELSE Individuals_with_Criminal_History.Pretrial_Suspects_in_Community *
init_mental_func_per_pretrial_suspect_in_comm

  UNITS: score

  INFLOWS:

    losing_mental_func_thru_pretrial_release = Individuals_with_Criminal_History.pretrial_release
* ave_mental_func_per_arrestee

      UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_filing_case_for_suspect_in_comm =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_mental_func_per_pretrial_suspect_in_comm

UNITS: score/year

Mental_Functions_of_Suspects_in_Custody(t) = Mental_Functions_of_Suspects_in_Custody(t - dt) +
(transferring_mental_func_thru_holding_suspect_in_custody -
transferring_mental_func_thru_filing_case_for_suspect_in_custody) * dt

INIT Mental_Functions_of_Suspects_in_Custody = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Individuals_with_Criminal_History.being_held_in_custody*ave_mental_func_per_arrestee*Individua
ls_with_Criminal_History.Suspects_in_Custody/Individuals_with_Criminal_History.filing_case_for_su
spect_in_custody   ELSE Individuals_with_Criminal_History.Suspects_in_Custody *
init_mental_func_per_suspect_in_custody

UNITS: score

INFLOWS:

transferring_mental_func_thru_holding_suspect_in_custody =
Individuals_with_Criminal_History.being_held_in_custody * ave_mental_func_per_arrestee

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_filing_case_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_mental_func_per_suspect_in_custody

UNITS: score/year

Mental_Functions_of_Suspects_in_Custody_with_Cases_Filed(t) =
Mental_Functions_of_Suspects_in_Custody_with_Cases_Filed(t - dt) +
(transferring_mental_func_thru_filing_case_for_suspect_in_custody -
transferring_mental_func_thru_suspect_in_custody_being_trial -
transferring_mental_func_thru_defendants_in_cusotdy_conviction_wo_trial -
transferring_mental_func_thru_complaints_against_suspects_in_custody_dismissed_before_trial) *
dt

INIT Mental_Functions_of_Suspects_in_Custody_with_Cases_Filed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 959180.063378*0+
(Individuals_with_Criminal_History.filing_case_for_suspect_in_custody*ave_mental_func_per_susp
ect_in_custody*Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed)/(Individ
uals_with_Criminal_History.suspect_in_custody_waiting_for_trial+Individuals_with_Criminal_History
.defendants_in_cusotdy_conviction_wo_trial+Individuals_with_Criminal_History.complaints_against
_suspects_in_custody_dismissed_before_trial)   ELSE
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed *
init_mental_func_per_suspect_in_custody_with_case_filed

UNITS: score

INFLOWS:

transferring_mental_func_thru_filing_case_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_mental_func_per_suspect_in_custody

UNITS: score/year

OUTFLOWS:

transferring_mental_func_thru_suspect_in_custody_being_trial =
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial *
ave_mental_func_per_suspect_in_custody_with_cases_filed

UNITS: score/year

transferring_mental_func_thru_defendants_in_cusotdy_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial *
ave_mental_func_per_suspect_in_custody_with_cases_filed

UNITS: score/year

transferring_mental_func_thru_complaints_against_suspects_in_custody_dismissed_before_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial
* ave_mental_func_per_suspect_in_custody_with_cases_filed

UNITS: score/year

ave_mental_func_of_all_parolees_wMI = (ave_mental_func_per_prison_parolee_wMI *
Individuals_with_Criminal_History.Prison_Parolees_wMI +
ave_mental_func_per_prison_parolee_wMI_violated_condition *
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
ave_mental_func_per_county_parolee_wMI *
Individuals_with_Criminal_History.County_Parolees_wMI +
ave_mental_func_per_county_parolee_wMI_violated_condition *
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition +
ave_mental_func_per_reparoled_prison_parolee_wMI *
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI) /
(Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI)

UNITS: score/person

ave_mental_func_of_all_parolees_wo_MI = (ave_mental_func_per_prison_parolee_wo_MI *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
ave_mental_func_per_prison_parolee_wo_MI_violated_condition *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
ave_mental_func_per_county_parolee_wo_MI *

Individuals_with_Criminal_History.County_Parolees_wo_MI +
ave_mental_func_per_county_parolee_wo_MI_violated_condition *
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition +
ave_mental_func_per_reparoled_prison_parolee_wo_MI*
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI) /
(Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI)

   UNITS: score/person

ave_mental_func_per_arrestee = MIN (Mental_Functions_of_Arrestees /
Individuals_with_Criminal_History.Arrestees, 100)

   UNITS: score/person

ave_mental_func_per_county_parolee_wMI = IF TIME <=2012 THEN
ave_mental_func_per_prison_parolee_wMI ELSE MIN (Mental_Functions_of_County_Parolees_wMI
/ Individuals_with_Criminal_History.County_Parolees_wMI, 100)

   UNITS: score/person

ave_mental_func_per_county_parolee_wMI_violated_condition = MIN
(Mental_Functions_of_County_Parolee_wMI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition, 100)

   UNITS: score/person

ave_mental_func_per_county_parolee_wo_MI = IF TIME <=2012 THEN
ave_mental_func_per_prison_parolee_wo_MI ELSE MIN
(Mental_Functions_of_County_Parolees_wo_MI /
Individuals_with_Criminal_History.County_Parolees_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_county_parolee_wo_MI_violated_condition = MIN
(Mental_Functions_of_County_Parolee_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition, 100)

   UNITS: score/person

ave_mental_func_per_defendant_in_comm_being_trialed = MIN
(Mental_Functions_of_Defendants_in_Comm_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed, 100)

   UNITS: score/person

ave_mental_func_per_defendant_in_custody_being_trialed = MIN
(Mental_Functions_of_Defendants_in_Custody_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed, 100)

   UNITS: score/person

ave_mental_func_per_desisted_jail_exConv_wMI = MIN
(Mental_Functions_of_Desisted_Jail_ExConvicts_wMI /
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wMI, 100)

   UNITS: score/person

ave_mental_func_per_desisted_jail_exConv_wo_MI = MIN
(Mental_Functions_of_Desisted_Jail_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Desisted_Jail_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_desisted_prison_exConv_wMI = MIN
(Mental_Functions_of_Desisted_Prison_ExConvicts_wMI /
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wMI, 100)

   UNITS: score/person

ave_mental_func_per_desisted_prison_exConv_wo_MI = MIN
(Mental_Functions_of_Desisted_Prison_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Desisted_Prison_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_hi_risk_exConv = (ave_mental_func_per_hi_risk_prison_exCon_wMI *
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI +
ave_mental_func_per_hi_risk_prison_exConv_wo_MI *
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI +
ave_mental_func_per_hi_risk_jail_exConv_wMI *
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI +
ave_mental_func_per_hi_risk_jail_exConv_wo_MI *
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI) /
(Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI)

   UNITS: score/person

ave_mental_func_per_hi_risk_jail_exConv_wMI = MIN
(Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI, 100)

   UNITS: score/person

ave_mental_func_per_hi_risk_jail_exConv_wo_MI = MIN
(Mental_Functions_of_HI_Risk_Jail_ExConvicts_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_hi_risk_prison_exCon_wMI = MIN
(Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI, 100)

UNITS: score/person

ave_mental_func_per_hi_risk_prison_exConv_wo_MI = MIN
(Mental_Functions_of_HI_Risk_Prison_ExConvicts_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_jail_offenders_wMI = MIN (Mental_Functions_of_Jail_Offenders_wMI /
Individuals_with_Criminal_History.Jail_Offenders_wMI, 100)

UNITS: score/person

ave_mental_func_per_jail_offenders_wo_MI = MIN (Mental_Functions_of_Jail_Offenders_wo_MI /
Individuals_with_Criminal_History.Jail_Offenders_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_lo_risk_exConv = (ave_mental_func_per_lo_risk_prison_exCon_wMI *
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI +
ave_mental_func_per_lo_risk_prison_exConv_wo_MI *
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI +
ave_mental_func_per_lo_risk_jail_exConv_wMI*
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI +
ave_mental_func_per_lo_risk_jail_exConv_wo_MI *
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI) /
(Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI)

UNITS: score/person

ave_mental_func_per_lo_risk_jail_exConv_wMI = MIN
(Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wMI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI, 100)

UNITS: score/person

ave_mental_func_per_lo_risk_jail_exConv_wo_MI = MIN
(Mental_Functions_of_Lo_Risk_Jail_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_lo_risk_prison_exCon_wMI = MIN
(Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wMI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI, 100)

UNITS: score/person

ave_mental_func_per_lo_risk_prison_exConv_wo_MI = MIN
(Mental_Functions_of_Lo_Risk_Prison_ExConvicts_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_new_arrestee = 65

UNITS: score/person

ave_mental_func_per_parolees = (ave_mental_func_per_prison_parolee_wMI *
Individuals_with_Criminal_History.Prison_Parolees_wMI +
ave_mental_func_per_prison_parolee_wMI_violated_condition *
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
ave_mental_func_per_county_parolee_wMI *
Individuals_with_Criminal_History.County_Parolees_wMI +
ave_mental_func_per_county_parolee_wMI_violated_condition *
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition +
ave_mental_func_per_reparoled_prison_parolee_wMI *
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI +
ave_mental_func_per_prison_parolee_wo_MI *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
ave_mental_func_per_prison_parolee_wo_MI_violated_condition *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
ave_mental_func_per_county_parolee_wo_MI *
Individuals_with_Criminal_History.County_Parolees_wo_MI +
ave_mental_func_per_county_parolee_wo_MI_violated_condition *
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition +
ave_mental_func_per_reparoled_prison_parolee_wo_MI *
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI) /
(Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition+Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI)

UNITS: score/person

ave_mental_func_per_preSentencing_defendant_in_comm = MIN
(Mental_Functions_of_PreSentencing_Defendants_in_Comm /
Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody, 100)

UNITS: score/person

ave_mental_func_per_preSentencing_defendant_in_custody = MIN
(Mental_Functions_of_PreSentencing_Defendants_in_Custody /
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody, 100)

UNITS: score/person

ave_mental_func_per_pretrial_suspect_in_comm = MIN (Mental_Functions_of_Suspects_in_Community / Individuals_with_Criminal_History.Pretrial_Suspects_in_Community, 100)

   UNITS: score/person

ave_mental_func_per_prison_parolee_wMI = MIN (Mental_Functions_of_Prison_Parolee_wMI / Individuals_with_Criminal_History.Prison_Parolees_wMI, 100)

   UNITS: score/person

ave_mental_func_per_prison_parolee_wMI_violated_condition = MIN (Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition / Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition, 100)

   UNITS: score/person

ave_mental_func_per_prison_parolee_wo_MI = MIN (Mental_Functions_of_Prison_Parolee_wo_MI / Individuals_with_Criminal_History.Prison_Parolees_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_prison_parolee_wo_MI_violated_condition = MIN (Mental_Functions_of_Prison_Parolee_wo_MI_Violated_Condition / Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition, 100)

   UNITS: score/person

ave_mental_func_per_prisoner_wMI = MIN (Mental_Functions_of_Prisoners_wMI / Individuals_with_Criminal_History.Prisoners_wMI, 100)

   UNITS: score/person

ave_mental_func_per_prisoner_wo_MI = MIN (Mental_Functions_of_Prisoners_wo_MI / Individuals_with_Criminal_History.Prisoners_wo_MI, 100)

   UNITS: score/person

ave_mental_func_per_probationer = MIN (Mental_Functions_of_Probationers / Individuals_with_Criminal_History.Probationers, 100)

   UNITS: score/person

ave_mental_func_per_recidivist = ave_mental_func_per_parolees *relative_strength_of_parolee_recidivism_for_ave_mental_func_calculation + ave_mental_func_per_hi_risk_exConv * relative_strength_of_hi_risk_exConv_recidivism_for_ave_mental_func_calculation + ave_mental_func_per_lo_risk_exConv * relative_strength_of_lo_risk_exConv_recidivism_for_ave_mental_func_calculation

   UNITS: score/person

ave_mental_func_per_reparoled_prison_parolee_wMI = Mental_Functions_of_Reparoled_Prison_Parolee_wMI / Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI

UNITS: score/person

ave_mental_func_per_reparoled_prison_parolee_wo_MI =
Mental_Functions_of_Reparoled_Prison_Parolee_wo_MI /
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI

UNITS: score/person

ave_mental_func_per_reprisoned_county_parole_violator_wMI = MIN
(Mental_Functions_of_Reprisoned_County_Parole_Violator_wMI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI, 100)

UNITS: score/person

ave_mental_func_per_reprisoned_county_parole_violator_wo_MI = MIN
(Mental_Functions_of_Reprisoned_County_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_reprisoned_prison_parole_violator_wMI = MIN
(Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wMI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI, 100)

UNITS: score/person

ave_mental_func_per_reprisoned_prison_parole_violator_wo_MI = MIN
(Mental_Functions_of_Reprisoned_Prison_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI, 100)

UNITS: score/person

ave_mental_func_per_suspect_in_comm_with_cases_filed = MIN
(Mental_Functions_of_Suspects_in_Comm_with_Cases_Filed /
Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed, 100)

UNITS: score/person

ave_mental_func_per_suspect_in_custody = MIN (Mental_Functions_of_Suspects_in_Custody /
Individuals_with_Criminal_History.Suspects_in_Custody, 100)

UNITS: score/person

ave_mental_func_per_suspect_in_custody_with_cases_filed = MIN
(Mental_Functions_of_Suspects_in_Custody_with_Cases_Filed /
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed, 100)

UNITS: score/person

county_parole_violator_wMI_mental_func_chg_thru_comm_svcs =
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition *
parolee_wMI_mental_func_gain_per_year *
Community_Services.effect_of_comm_svc_utilization_on_parolee_wMI_mental_func

UNITS: score/year

county_parolee_wMI_mental_func_chg_thru_comm_svcs =
Individuals_with_Criminal_History.County_Parolees_wMI *
parolee_wMI_mental_func_gain_per_year
*Community_Services.effect_of_comm_svc_utilization_on_parolee_wMI_mental_func

   UNITS: score/year

desired_mental_func_per_recovered_prisoner = init_mental_func_per_prisoner_wo_MI

   UNITS: score/person

effect_of_mental_func_per_jail_offender_wo_MI_on_devMI =
GRAPH(relative_ave_mental_func_of_jail_offender_wo_MI)

(0.8000, 1.3000), (0.8400, 1.2839), (0.8800, 1.2652), (0.9200, 1.2304), (0.9600, 1.1527), (1.0000, 1.0000), (1.0400, 0.9036), (1.0800, 0.8232), (1.1200, 0.7616), (1.1600, 0.7241), (1.2000, 0.7000)

   UNITS: unitless

effect_of_mental_func_per_prison_parolee_and_violator_wMI_on_comm_svc_cost =
GRAPH(relative_ave_mental_func_of_all_parolees_wMI)

(0.8000, 1.5000), (0.8400, 1.4647), (0.8800, 1.4133), (0.9200, 1.3201), (0.9600, 1.1562), (1.0000, 1.0000), (1.0400, 0.8896), (1.0800, 0.8157), (1.1200, 0.7643), (1.1600, 0.7257), (1.2000, 0.7000)

   UNITS: unitless

effect_of_mental_func_per_prison_parolee_and_violator_wo_MI_on_comm_cost =
GRAPH(relative_ave_mental_func_of_all_parolees_wo_MI)

(0.5000, 2.000), (0.5700, 1.948), (0.6400, 1.869), (0.7100, 1.697), (0.7800, 1.332), (0.8500, 1.060), (0.9200, 0.909), (0.9900, 0.8157), (1.0600, 0.7643), (1.1300, 0.7257), (1.2000, 0.700)

   UNITS: unitless

effect_of_mental_func_per_prisoner_wMI_on_recovery_time =
GRAPH(relative_mental_func_of_prisoner_wMI)

(0.8000, 1.2000), (0.8400, 1.1871), (0.8800, 1.1647), (0.9200, 1.1325), (0.9600, 1.0843), (1.0000, 1.0000), (1.0400, 0.9317), (1.0800, 0.8755), (1.1200, 0.8386), (1.1600, 0.8096), (1.2000, 0.8000)

   UNITS: unitless

effect_of_mental_func_per_prisoner_wo_MI_on_devMI = GRAPH(SMTH3
(relative_mental_func_of_prisoner_wo_MI, 1, relative_mental_func_of_prisoner_wo_MI))

(0.9500, 1.3000), (0.9600, 1.2888), (0.9700, 1.2534), (0.9800, 1.1892), (0.9900, 1.0767), (1.0000, 1.0000), (1.0100, 0.9707), (1.0200, 0.9466), (1.0300, 0.9289), (1.0400, 0.9193), (1.0500, 0.9080)

   UNITS: unitless

fract_county_parolee_wMI_mental_func = (Mental_Functions_of_County_Parolees_wMI +
Mental_Functions_of_County_Parolee_wMI_Violated_Condition) /
(Mental_Functions_of_Prison_Parolee_wMI +
Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition +

Mental_Functions_of_County_Parolees_wMI +
Mental_Functions_of_County_Parolee_wMI_Violated_Condition)

UNITS: unitless

fract_county_parolee_wMI_violated_condition_mental_func =
(Mental_Functions_of_County_Parolee_wMI_Violated_Condition) /
(Mental_Functions_of_Prison_Parolee_wMI +
Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition +
Mental_Functions_of_County_Parolees_wMI +
Mental_Functions_of_County_Parolee_wMI_Violated_Condition)

UNITS: unitless

fract_hi_risk_jail_exConv_wMI_mental_func = Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI /
(Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI +
Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI)

UNITS: unitless

fract_hi_risk_prison_exConv_wMI_mental_func =
Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI /
(Mental_Functions_of_Hi_Risk_Prison_ExConvicts_wMI +
Mental_Functions_of_HI_Risk_Jail_ExConvicts_wMI)

UNITS: unitless

fract_prison_parolee_wMI_mental_func = (Mental_Functions_of_Prison_Parolee_wMI) /
(Mental_Functions_of_Prison_Parolee_wMI + Mental_Functions_of_County_Parolees_wMI +
Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition +
Mental_Functions_of_County_Parolee_wMI_Violated_Condition)

UNITS: unitless

fract_prison_parolee_wMI_violated_condition_mental_func =
(Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition) /
(Mental_Functions_of_Prison_Parolee_wMI + Mental_Functions_of_County_Parolees_wMI +
Mental_Functions_of_Prison_Parolee_wMI_Violated_Condition +
Mental_Functions_of_County_Parolee_wMI_Violated_Condition)

UNITS: unitless

fract_recidivism_by_hi_risk_exConv_for_ave_mental_func_calculation =
Individuals_with_Criminal_History.total_hi_risk_exConv_recidivism/total_recidivism_for_ave_mental_func_calculation

UNITS: unitless

fract_recidivism_by_lo_risk_exConv_for_ave_mental_func_calculation =
Individuals_with_Criminal_History.total_lo_risk_exConv_recidivism/total_recidivism_for_ave_mental_func_calculation

UNITS: unitless

fract_recidivism_by_parolees_for_ave_mental_func_calculation =
Individuals_with_Criminal_History.total_parolee_recidivism/total_recidivism_for_ave_mental_func_
calculation

   UNITS: unitless

init_ave_mental_func_of_all_parolees_wMI = INIT(ave_mental_func_of_all_parolees_wMI)

   UNITS: score/person

init_ave_mental_func_of_all_parolees_wo_MI = INIT(ave_mental_func_of_all_parolees_wo_MI)

   UNITS: score/person

init_mental_func_per_arrestee = 65

   UNITS: score/person

init_mental_func_per_county_parolees_wMI = 59

   UNITS: score/person

init_mental_func_per_county_parolees_wo_MI = 63

   UNITS: score/person

init_mental_func_per_defendants_in_comm_being_trialed = 65

   UNITS: score/person

init_mental_func_per_defendants_in_custody_being_trialed = 65

   UNITS: score/person

init_mental_func_per_desisted_jail_exConv_wMI = 68

   UNITS: score/person

init_mental_func_per_desisted_jail_exConv_wo_MI = 70

   UNITS: score/person

init_mental_func_per_desisted_prison_exConv_wMI = 67

   UNITS: score/person

init_mental_func_per_desisted_prison_exConv_wo_MI = 70

   UNITS: score/person

init_mental_func_per_hi_risk_exConv_wMI = 61

   UNITS: score/person

init_mental_func_per_hi_risk_exConv_wo_MI = 64

   UNITS: score/person

init_mental_func_per_hi_risk_jail_exConv_wMI = 62

   UNITS: score/person

init_mental_func_per_hi_risk_jail_exConv_wo_MI = 65

    UNITS: score/person

init_mental_func_per_jail_offender_wo_MI = 63

    UNITS: score/person

init_mental_func_per_jail_offenders_wMI = 60

    UNITS: score/person

init_mental_func_per_lo_risk_exConv_wMI = 65

    UNITS: score/person

init_mental_func_per_lo_risk_exConv_wo_MI = 67

    UNITS: score/person

init_mental_func_per_lo_risk_jail_exConv_wMI = 65

    UNITS: score/person

init_mental_func_per_lo_risk_jail_exConv_wo_MI = 67

    UNITS: score/person

init_mental_func_per_parole_violator_wMI = 59

    UNITS: score/person

init_mental_func_per_parole_violator_wo_MI = 63

    UNITS: score/person

init_mental_func_per_preSentencing_defendants_in_comm = 65

    UNITS: score/person

init_mental_func_per_preSentencing_defendants_in_custody = 65 * 0 + 66

    UNITS: score/person

init_mental_func_per_pretrial_suspect_in_comm = 65

    UNITS: score/person

init_mental_func_per_prison_parolee_wMI = 59

    UNITS: score/person

init_mental_func_per_prison_parolee_wMI_violated_condition = 59

    UNITS: score/person

init_mental_func_per_prison_parolee_wo_MI = 63

    UNITS: score/person

init_mental_func_per_prison_parolee_wo_MI_violated_condition = 63

UNITS: score/person

init_mental_func_per_prisoner_wMI = 57

UNITS: score/person

init_mental_func_per_prisoner_wo_MI = 62

UNITS: score/person

init_mental_func_per_probationer = 70

UNITS: score/person

init_mental_func_per_reprisoned_county_parole_violator_wMI = 58

UNITS: score/person

init_mental_func_per_reprisoned_county_parole_violator_wo_MI = 62

UNITS: score/person

init_mental_func_per_reprisoned_prison_parole_violator_wMI = 58

UNITS: score/person

init_mental_func_per_reprisoned_prison_parole_violator_wo_MI = 62

UNITS: score/person

init_mental_func_per_suspect_in_comm_with_case_filed = 65

UNITS: score/person

init_mental_func_per_suspect_in_custody = 65

UNITS: score/person

init_mental_func_per_suspect_in_custody_with_case_filed = 65

UNITS: score/person

jail_mental_func_chg_per_year = 1.5

UNITS: score/year/person

jail_offenders_wMI_mental_func_chg = Individuals_with_Criminal_History.Jail_Offenders_wMI *
jail_mental_func_chg_per_year * Jail_Capacity.effect_of_jail_utilization_on_mental_func

UNITS: score/year

jail_offenders_wo_MI_mental_func_chg = Individuals_with_Criminal_History.Jail_Offenders_wo_MI
* jail_mental_func_chg_per_year * Jail_Capacity.effect_of_jail_utilization_on_mental_func

UNITS: score/year

mental_func_per_new_suspect = ave_mental_func_per_new_arrestee - STEP(30, 1990) * 0

UNITS: score/person

multiplier_of_ave_mental_func_of_prisoner_to_county_parole = 1.1

UNITS: unitless

parolee_wMI_mental_func_gain_per_year = 1

  UNITS: score/year/person

prison_parole_violator_wMI_mental_func_chg_thru_comm_svcs =
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition *
parolee_wMI_mental_func_gain_per_year *
Community_Services.effect_of_comm_svc_utilization_on_parolee_wMI_mental_func

  UNITS: score/year

prison_parolee_wMI_mental_func_chg_thru_comm_svcs =
Individuals_with_Criminal_History.Prison_Parolees_wMI *
parolee_wMI_mental_func_gain_per_year
*Community_Services.effect_of_comm_svc_utilization_on_parolee_wMI_mental_func

  UNITS: score/year

prisoner_mental_func_reduction_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1
THEN Individuals_with_Criminal_History.Prisoners_wMI *
prisoner_wMI_mental_func_loss_per_year *
Prison_Capacity.effect_of_prison_utilization_on_mental_func_change_in_prison *
Prison_HC_Resource_Allocation.effect_of_MHC_adequacy_on_mental_func_of_prisoners_wMI
ELSE Individuals_with_Criminal_History.Prisoners_wMI * prisoner_wMI_mental_func_loss_per_year
* Prison_Capacity.effect_of_prison_utilization_on_mental_func_change_in_prison *
Prison_HC_Resource_Allocation.effect_of_MHC_adequacy_on_mental_func_of_prisoners_wMI

  UNITS: score/year

prisoner_mental_func_reduction_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch
= 1 THEN Individuals_with_Criminal_History.Prisoners_wo_MI *
prisoner_wo_MI_mental_func_loss_per_year *
Prison_Capacity.effect_of_prison_utilization_on_mental_func_change_in_prison ELSE
Individuals_with_Criminal_History.Prisoners_wo_MI * prisoner_wo_MI_mental_func_loss_per_year
* Prison_Capacity.effect_of_prison_utilization_on_mental_func_change_in_prison

  UNITS: score/year

prisoner_wMI_mental_func_loss_per_year = 2

  UNITS: score/year/person

prisoner_wo_MI_mental_func_loss_per_year = 2-1

  UNITS: score/year/person

relative_ave_mental_func_of_all_parolees_wMI = ave_mental_func_of_all_parolees_wMI /
init_ave_mental_func_of_all_parolees_wMI

  UNITS: unitless

relative_ave_mental_func_of_all_parolees_wo_MI = (1 -
Individuals_with_Criminal_History.rounding_switch) * (ave_mental_func_of_all_parolees_wo_MI /
init_ave_mental_func_of_all_parolees_wo_MI) +

401

Individuals_with_Criminal_History.rounding_switch *
ROUND(ave_mental_func_of_all_parolees_wo_MI / init_ave_mental_func_of_all_parolees_wo_MI)

    UNITS: unitless

relative_ave_mental_func_of_jail_offender_wo_MI = ave_mental_func_per_jail_offenders_wo_MI /
init_mental_func_per_jail_offender_wo_MI

    UNITS: unitless

relative_mental_func_of_prisoner_wMI = ave_mental_func_per_prisoner_wMI /
desired_mental_func_per_recovered_prisoner

    UNITS: unitless

relative_mental_func_of_prisoner_wo_MI = ave_mental_func_per_prisoner_wo_MI /
init_mental_func_per_prisoner_wo_MI

    UNITS: unitless

relative_strength_of_hi_risk_exConv_recidivism_for_ave_mental_func_calculation =
weighted_strength_of_hi_risk_exConv_recidivism_for_ave_mental_func_calculation /
total_recidivism_strength_for_ave_mental_func_calculation

    UNITS: unitless

relative_strength_of_lo_risk_exConv_recidivism_for_ave_mental_func_calculation =
weighted_strength_of_lo_risk_exConv_recidivism_for_ave_mental_func_calculation /
total_recidivism_strength_for_ave_mental_func_calculation

    UNITS: unitless

relative_strength_of_parolee_recidivism_for_ave_mental_func_calculation =
weighted_strength_of_parolee_recidivism_for_ave_mental_func_calculation /
total_recidivism_strength_for_ave_mental_func_calculation

    UNITS: unitless

total_recidivism_for_ave_mental_func_calculation =
Individuals_with_Criminal_History.total_parolee_recidivism+
Individuals_with_Criminal_History.total_hi_risk_exConv_recidivism+
Individuals_with_Criminal_History.total_lo_risk_exConv_recidivism

    UNITS: person/year

total_recidivism_strength_for_ave_mental_func_calculation =
weighted_strength_of_parolee_recidivism_for_ave_mental_func_calculation+
weighted_strength_of_hi_risk_exConv_recidivism_for_ave_mental_func_calculation+
weighted_strength_of_lo_risk_exConv_recidivism_for_ave_mental_func_calculation

    UNITS: unitless

weight_for_hi_risk_recidivism_for_ave_mental_func_calculation = 0.15

    UNITS: unitless

weight_for_lo_risk_recidivism_for_ave_mental_func_calculation = 0.05

UNITS: unitless

weight_for_parolee_recidivism_for_ave_mental_func_calculation = 0.8

UNITS: unitless

weighted_strength_of_hi_risk_exConv_recidivism_for_ave_mental_func_calculation = fract_recidivism_by_hi_risk_exConv_for_ave_mental_func_calculation * weight_for_hi_risk_recidivism_for_ave_mental_func_calculation

UNITS: unitless

weighted_strength_of_lo_risk_exConv_recidivism_for_ave_mental_func_calculation = fract_recidivism_by_lo_risk_exConv_for_ave_mental_func_calculation * weight_for_lo_risk_recidivism_for_ave_mental_func_calculation

UNITS: unitless

weighted_strength_of_parolee_recidivism_for_ave_mental_func_calculation = fract_recidivism_by_parolees_for_ave_mental_func_calculation * weight_for_parolee_recidivism_for_ave_mental_func_calculation

UNITS: unitless

{ The model has 435 (435) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 40 (40) Flows: 109 (109) Converters: 286 (286)

 Constants: 47 (47) Equations: 348 (348) Graphicals: 9 (9)

 There are also 406 expanded macro variables.

 }

Incarceration Year Served Module

Current_Jail_Time_Served_wMI(t) = Current_Jail_Time_Served_wMI(t - dt) + (additions_to_current_jail_sentence_time_served_wMI + total_current_jail_time_served_transferred_thru_jail_offender_devMI - total_current_jail_time_served_transferred_thru_continue_serving_probation_wMI - total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wMI) * dt

   INIT Current_Jail_Time_Served_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 121312.44037*0 + (((Individuals_with_Criminal_History.Jail_Offenders_wMI*prison_year_gained_per_year- Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI*Individuals_with_Criminal _History.ave_jail_time_served_at_current_release_wMI)*Individuals_with_Criminal_History.Jail_Off enders_wMI)/Individuals_with_Criminal_History.continue_serving_thru_probation_wMI) * 1 ELSE Individuals_with_Criminal_History.Jail_Offenders_wMI * init_current_jail_time_served_served_per_jail_offender_wMI

   UNITS: person-year

   INFLOWS:

      additions_to_current_jail_sentence_time_served_wMI = Individuals_with_Criminal_History.Jail_Offenders_wMI * prison_year_gained_per_year

         UNITS: people

      total_current_jail_time_served_transferred_thru_jail_offender_devMI = Individuals_with_Criminal_History.jail_offender_devMI * ave_current_jail_time_served_wMI

         UNITS: people

   OUTFLOWS:

      total_current_jail_time_served_transferred_thru_continue_serving_probation_wMI = Individuals_with_Criminal_History.continue_serving_thru_probation_wMI * ave_current_jail_time_served_wMI

         UNITS: people

      total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wMI = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI * ave_current_sentence_length_served_per_jail_offender_wMI

         UNITS: people

Current_Jail_Time_Served_wo_MI(t) = Current_Jail_Time_Served_wo_MI(t - dt) + (additions_to_current_jail_sentence_time_served_wo_MI - total_current_jail_time_served_transferred_thru_jail_offender_devMI - total_current_jail_time_served_transferred_thru_continue_serving_probation_wo_MI - total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wo_MI) * dt

   INIT Current_Jail_Time_Served_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 3508.60723031   ELSE 68740.471507 * 0 +

Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
init_current_jail_time_served_served_per_jail_offender_wo_MI

UNITS: person-year

INFLOWS:

additions_to_current_jail_sentence_time_served_wo_MI =
Individuals_with_Criminal_History.Jail_Offenders_wo_MI * prison_year_gained_per_year

UNITS: people

OUTFLOWS:

total_current_jail_time_served_transferred_thru_jail_offender_devMI =
Individuals_with_Criminal_History.jail_offender_devMI * ave_current_jail_time_served_wMI

UNITS: people

total_current_jail_time_served_transferred_thru_continue_serving_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_current_jail_time_served_wo_MI

UNITS: people

total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_current_sentence_length_served_per_jail_offender_wo_MI

UNITS: people

Current_Prison_Time_Served_wMI(t) = Current_Prison_Time_Served_wMI(t - dt) +
(additions_to_current_prison_time_served_wMI +
current_prison_time_served_transferred_thru_devMI -
current_prison_time_released_wMI_before_realignment -
total_current_prison_time_served_lost_thru_deaths_wMI -
current_prison_time_served_transferred_out_wMI_after_realignment -
current_prison_time_served_transferred_thru_recovering) * dt

INIT Current_Prison_Time_Served_wMI = IF Individuals_with_Criminal_History.equilibrium_switch
= 1 THEN
((Individuals_with_Criminal_History.Prisoners_wMI*prison_year_gained_per_year+Individuals_with
_Criminal_History.prisoner_develop_MI*ave_current_prison_time_served_wo_MI-
Individuals_with_Criminal_History.ave_prison_time_served_wMI*Individuals_with_Criminal_History
.releasing_prisoner_wMI_before_realignment) * Individuals_with_Criminal_History.Prisoners_wMI) /
(Individuals_with_Criminal_History.prisoner_wMI_deaths) ELSE
Individuals_with_Criminal_History.Prisoners_wMI *
init_current_prison_time_served_served_per_prisoner_wMI

UNITS: person-year

INFLOWS:

additions_to_current_prison_time_served_wMI =
Individuals_with_Criminal_History.Prisoners_wMI * prison_year_gained_per_year

UNITS: people

current_prison_time_served_transferred_thru_devMI =
Individuals_with_Criminal_History.prisoner_develop_MI * ave_current_prison_time_served_wo_MI

UNITS: people

OUTFLOWS:

current_prison_time_released_wMI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wMI

UNITS: people

total_current_prison_time_served_lost_thru_deaths_wMI =
Individuals_with_Criminal_History.prisoner_wMI_deaths * ave_current_prison_time_served_wMI

UNITS: people

current_prison_time_served_transferred_out_wMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wMI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

current_prison_time_served_transferred_thru_recovering =
Individuals_with_Criminal_History.prisoner_wMI_recovering *
ave_current_prison_time_served_wMI

UNITS: people

Current_Prison_Time_Served_wo_MI(t) = Current_Prison_Time_Served_wo_MI(t - dt) +
(additions_to_current_prison_time_served_wo_MI +
current_prison_time_served_transferred_thru_recovering -
current_prison_time_released_wo_MI_before_realignment -
current_prison_time_served_transferred_out_wo_MI_after_realignment -
total_current_prison_time_served_lost_thru_deaths_wo_MI -
current_prison_time_served_transferred_thru_devMI) * dt

INIT Current_Prison_Time_Served_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(((Individuals_with_Criminal_History.Prisoners_wo_MI*prison_year_gained_per_year-
Individuals_with_Criminal_History.ave_prison_time_served_wo_MI*Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment)*Individuals_with_Criminal_History.Prisoners_wo_MI)/(Individuals_with_Criminal_History.prisoner_wo_MI_deaths+Individuals_with_Criminal_History.prisoner_develop_MI))   ELSE
Individuals_with_Criminal_History.Prisoners_wo_MI *
init_current_prison_time_served_served_per_prisoner_wo_MI

UNITS: person-year

INFLOWS:

additions_to_current_prison_time_served_wo_MI =
Individuals_with_Criminal_History.Prisoners_wo_MI * prison_year_gained_per_year

UNITS: people

current_prison_time_served_transferred_thru_recovering =
Individuals_with_Criminal_History.prisoner_wMI_recovering *
ave_current_prison_time_served_wMI

UNITS: people

OUTFLOWS:

current_prison_time_released_wo_MI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wo_MI

UNITS: people

current_prison_time_served_transferred_out_wo_MI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wo_MI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

total_current_prison_time_served_lost_thru_deaths_wo_MI =
Individuals_with_Criminal_History.prisoner_wo_MI_deaths *
ave_current_prison_time_served_wo_MI

UNITS: people

current_prison_time_served_transferred_thru_devMI =
Individuals_with_Criminal_History.prisoner_develop_MI * ave_current_prison_time_served_wo_MI

UNITS: people

Previous_Incarceration_Time_Served_by_Jail_Offender_wo_MI(t) =
Previous_Incarceration_Time_Served_by_Jail_Offender_wo_MI(t - dt) +
(transferring_previous_incar_time_by_defendant_in_custody_to_jail_wo_MI +
transferring_previous_incar_time_by_defendant_comm_to_jail_wo_MI -
total_previuos_incarceration_time_served_transferred_thru_jail_offender_devMI -
total_previous_incarceration_time_served_transferred_thru_continue_serving_probation_wo_MI -
total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wo_M
I) * dt

INIT Previous_Incarceration_Time_Served_by_Jail_Offender_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1218.64151428 ELSE
Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
init_previous_incarceration_time_served_per_jail_offender_wo_MI

UNITS: person-year

INFLOWS:

transferring_previous_incar_time_by_defendant_in_custody_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wo_MI *
ave_previous_incar_time_per_preSentencing_defendant_in_custody

    UNITS: people

transferring_previous_incar_time_by_defendant_comm_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI *
ave_previous_incar_time_per_preSentencing_defendant_in_comm

    UNITS: people

OUTFLOWS:

total_previuos_incarceration_time_served_transferred_thru_jail_offender_devMI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.jail_offender_devMI *
ave_previous_incar_time_served_per_jail_offender_wo_MI)

    UNITS: people

total_previous_incarceration_time_served_transferred_thru_continue_serving_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_previous_incar_time_served_per_jail_offender_wo_MI

    UNITS: people

total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wo_M
I = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_previous_incar_time_served_per_jail_offender_wo_MI

    UNITS: people

Previous_Incarceration_Time_Served_by_Jail_Offenders_wMI(t) =
Previous_Incarceration_Time_Served_by_Jail_Offenders_wMI(t - dt) +
(total_previuos_incarceration_time_served_transferred_thru_jail_offender_devMI +
transferring_previous_incar_time_by_defendant_in_custody_to_jail_wMI +
transferring_previous_incar_time_by_defendant_in_comm_to_jail_wMI -
total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wMI -
total_previous_jail_time_served_transferred_thru_continue_serving_probation_wMI) * dt

INIT Previous_Incarceration_Time_Served_by_Jail_Offenders_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch =1 THEN 1162.14094061
                              ELSE Individuals_with_Criminal_History.Jail_Offenders_wMI *
init_previous_incarceration_time_served_per_jail_offender_wMI

UNITS: person-year

INFLOWS:

total_previuos_incarceration_time_served_transferred_thru_jail_offender_devMI =
Individuals_with_Criminal_History.realignment_policy *

(Individuals_with_Criminal_History.jail_offender_devMI *
ave_previous_incar_time_served_per_jail_offender_wo_MI)

   UNITS: people

   transferring_previous_incar_time_by_defendant_in_custody_to_jail_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wMI *
ave_previous_incar_time_per_preSentencing_defendant_in_custody

   UNITS: people

   transferring_previous_incar_time_by_defendant_in_comm_to_jail_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wMI *
ave_previous_incar_time_per_preSentencing_defendant_in_comm

   UNITS: people

  OUTFLOWS:

total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_previous_incar_time_per_served_jail_offender_wMI

   UNITS: people

   total_previous_jail_time_served_transferred_thru_continue_serving_probation_wMI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wMI *
ave_previous_incar_time_per_served_jail_offender_wMI

   UNITS: people

Previous_Incarceration_Time_Served_by_Prisoners_wMI(t) =
Previous_Incarceration_Time_Served_by_Prisoners_wMI(t - dt) +
(previous_time_served_transferred_thru_devMI +
transferring_previous_incar_time_by_defendant_in_comm_to_prison_wMI +
transferring_previous_incar_time_by_defendant_in_custody_to_prison_wMI -
total_previous_time_served_transferred_out_wMI -
total_previous_prison_time_served_lost_thru_deaths_wMI -
previous_time_served_transferred_out_wMI_after_realignment -
previous_time_served_transferred_thru_recovering) * dt

  INIT Previous_Incarceration_Time_Served_by_Prisoners_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1965.82922006
                              ELSE Individuals_with_Criminal_History.Prisoners_wMI *
init_previous_incarceration_time_served_per_prisoner_wMI

  UNITS: person-year

  INFLOWS:

   previous_time_served_transferred_thru_devMI =
Individuals_with_Criminal_History.prisoner_develop_MI *
ave_previous_incar_time_per_prisoner_wo_MI

UNITS: people

transferring_previous_incar_time_by_defendant_in_comm_to_prison_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wMI *
ave_previous_incar_time_per_preSentencing_defendant_in_comm

UNITS: people

transferring_previous_incar_time_by_defendant_in_custody_to_prison_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wMI *
ave_previous_incar_time_per_preSentencing_defendant_in_custody

UNITS: people

OUTFLOWS:

total_previous_time_served_transferred_out_wMI =
ave_previous_incar_time_served_per_prisoner_wMI *
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment

UNITS: people

total_previous_prison_time_served_lost_thru_deaths_wMI =
Individuals_with_Criminal_History.prisoner_wMI_deaths *
ave_previous_incar_time_served_per_prisoner_wMI

UNITS: people

previous_time_served_transferred_out_wMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
ave_previous_incar_time_served_per_prisoner_wMI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

previous_time_served_transferred_thru_recovering =
Individuals_with_Criminal_History.prisoner_wMI_recovering *
ave_previous_incar_time_served_per_prisoner_wMI

UNITS: people

Previous_Incarceration_Time_Served_by_Prisoners_wo_MI(t) =
Previous_Incarceration_Time_Served_by_Prisoners_wo_MI(t - dt) +
(transferring_previous_incar_time_by_defendant_in_custody_to_prison_wo_MI +
transferring_previous_incar_time_by_defendant_in_comm_to_prison_wo_MI +
previous_time_served_transferred_thru_recovering -
previous_time_served_transferred_out_wo_MI -
total_previous_prison_time_served_lost_thru_deaths_wo_MI -
previous_time_served_transferred_out_wo_MI_after_realignment -
previous_time_served_transferred_thru_devMI) * dt

INIT Previous_Incarceration_Time_Served_by_Prisoners_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN 5641.78908092 ELSE

Individuals_with_Criminal_History.Prisoners_wo_MI *
init_previous_incarceration_time_served_per_prisoner_wo_MI

   UNITS: person-year

   INFLOWS:

     transferring_previous_incar_time_by_defendant_in_custody_to_prison_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wo_MI *
ave_previous_incar_time_per_preSentencing_defendant_in_custody

       UNITS: people

     transferring_previous_incar_time_by_defendant_in_comm_to_prison_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wo_MI *
ave_previous_incar_time_per_preSentencing_defendant_in_comm

       UNITS: people

     previous_time_served_transferred_thru_recovering =
Individuals_with_Criminal_History.prisoner_wMI_recovering *
ave_previous_incar_time_served_per_prisoner_wMI

       UNITS: people

   OUTFLOWS:

     previous_time_served_transferred_out_wo_MI =
ave_previous_incar_time_per_prisoner_wo_MI *
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment

       UNITS: people

     total_previous_prison_time_served_lost_thru_deaths_wo_MI =
Individuals_with_Criminal_History.prisoner_wo_MI_deaths *
ave_previous_incar_time_per_prisoner_wo_MI

       UNITS: people

     previous_time_served_transferred_out_wo_MI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment *
ave_previous_incar_time_per_prisoner_wo_MI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

       UNITS: people

     previous_time_served_transferred_thru_devMI =
Individuals_with_Criminal_History.prisoner_develop_MI *
ave_previous_incar_time_per_prisoner_wo_MI

       UNITS: people

Total_Incar_Time_Served_by_County_Parolees_wMI(t) =
Total_Incar_Time_Served_by_County_Parolees_wMI(t - dt) +
(current_prison_time_served_transferred_out_wMI_after_realignment +

previous_time_served_transferred_out_wMI_after_realignment -
transferring_incarceration_time_thru_discharging_county_parolee_wMI -
total_prison_time_served_by_county_parolee_wo_MI_transferred_thru_committing_new_crimes -
transferring_total_prison_time_served_thru_county_parolee_wMI_violating_condition) * dt

INIT Total_Incar_Time_Served_by_County_Parolees_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE
Individuals_with_Criminal_History.County_Parolees_wMI *
init_previous_incarceration_time_served_per_county_parolees_wMI

UNITS: person-year

INFLOWS:

current_prison_time_served_transferred_out_wMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wMI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

previous_time_served_transferred_out_wMI_after_realignment =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment *
ave_previous_incar_time_served_per_prisoner_wMI *
multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

OUTFLOWS:

transferring_incarceration_time_thru_discharging_county_parolee_wMI =
Individuals_with_Criminal_History.discharging_county_parolee_wMI *
ave_incar_time_per_county_parolee_wMI

UNITS: people

total_prison_time_served_by_county_parolee_wo_MI_transferred_thru_committing_new_crimes =
Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes *
ave_incar_time_per_county_parolee_wMI

UNITS: people

transferring_total_prison_time_served_thru_county_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wMI_violating_condition *
ave_incar_time_per_county_parolee_wMI

UNITS: people

Total_Incar_Time_Served_by_Reprisoned_County_Parole_Violators_wMI(t) =
Total_Incar_Time_Served_by_Reprisoned_County_Parole_Violators_wMI(t - dt) +
(transferring_incarceration_time_thru_county_parolee_returning_to_jail_wMI -
transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wMI) * dt

INIT Total_Incar_Time_Served_by_Reprisoned_County_Parole_Violators_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1 + ((Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail*ave_incar_time_served _per_county_parolee_wMI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Coun ty_Parole_Violators_wMI)/Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee _wMI_to_county_parole) * 0   ELSE Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI * init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wMI

UNITS: person-year

INFLOWS:

transferring_incarceration_time_thru_county_parolee_returning_to_jail_wMI = Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail * ave_incar_time_served_per_county_parolee_wMI_violated_condition

UNITS: people

OUTFLOWS:

transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wMI = Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole * ave_incar_time_served_per_reprisoned_county_parole_violator_wMI

UNITS: people

Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition(t) = Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition(t - dt) + (transferring_total_prison_time_served_thru_county_parolee_wMI_violating_condition - transferring_total_prison_time_served_thru_discharging_county_parolee_wMI_violated_condition - transferring_incarceration_time_thru_county_parolee_returning_to_jail_wMI - total_prison_time_served_by_county_parolee_wMI_violated_condition_transferred_thru_committi ng_new_crimes) * dt

INIT Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN (Individuals_with_Criminal_History.county_parolee_wMI_violating_condition*ave_incar_time_per_c ounty_parolee_wMI*Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition)/(Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail+Individuals_with_Crimina l_History.discharging_county_parolee_wMI_violated_condition+Individuals_with_Criminal_History.c ounty_parolee_wMI_violated_condition_committing_new_crimes) ELSE Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI * init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wMI

UNITS: person-year

INFLOWS:

transferring_total_prison_time_served_thru_county_parolee_wMI_violating_condition = Individuals_with_Criminal_History.county_parolee_wMI_violating_condition * ave_incar_time_per_county_parolee_wMI

UNITS: people

OUTFLOWS:

transferring_total_prison_time_served_thru_discharging_county_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition *
ave_incar_time_served_per_county_parolee_wMI_violated_condition

   UNITS: people

   transferring_incarceration_time_thru_county_parolee_returning_to_jail_wMI =
Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail *
ave_incar_time_served_per_county_parolee_wMI_violated_condition

   UNITS: people

total_prison_time_served_by_county_parolee_wMI_violated_condition_transferred_thru_committi
ng_new_crimes =
Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crime
s * ave_incar_time_served_per_county_parolee_wMI_violated_condition

   UNITS: people

Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition(t) =
Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition(t - dt) +
(transferring_total_prison_time_served_thru_county_parolee_wo_MI_violating_condition -
transferring_incarceration_time_thru_county_parolee_returning_to_jail_wo_MI -
transferring_total_prison_time_served_thru_discharging_county_parolee_wo_MI_violated_conditio
n -
total_prison_time_served_by_county_parolee_wo_MI_violated_condition_transferred_thru_commi
tting_new_crimes) * dt

   INIT Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch =1 THEN
(Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition*ave_incar_time_ser
ved_per_county_parolee_wo_MI*Individuals_with_Criminal_History.County_Parolee_wo_MI_Violat
ed_Condition)/(Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail+Individ
uals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition+Individuals_wit
h_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes) ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI *
init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wo_MI

   UNITS: person-year

   INFLOWS:

   transferring_total_prison_time_served_thru_county_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition *
ave_incar_time_served_per_county_parolee_wo_MI

   UNITS: people

   OUTFLOWS:

transferring_incarceration_time_thru_county_parolee_returning_to_jail_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail * ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

UNITS: people

transferring_total_prison_time_served_thru_discharging_county_parolee_wo_MI_violated_conditio n = Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition * ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

UNITS: people

total_prison_time_served_by_county_parolee_wo_MI_violated_condition_transferred_thru_commi tting_new_crimes = Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_cri mes * ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

UNITS: people

Total_Incarceration_Time_Served_by_County_Parolees_wo_MI(t) = Total_Incarceration_Time_Served_by_County_Parolees_wo_MI(t - dt) + (current_prison_time_served_transferred_out_wo_MI_after_realignment + previous_time_served_transferred_out_wo_MI_after_realignment - transferring_incarceration_time_thru_discharging_county_parolee_wo_MI - total_prison_time_served_by_county_parolee_wMI_transferred_thru_committing_new_crimes - transferring_total_prison_time_served_thru_county_parolee_wo_MI_violating_condition) * dt

   INIT Total_Incarceration_Time_Served_by_County_Parolees_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE Individuals_with_Criminal_History.County_Parolees_wo_MI * init_previous_incarceration_time_served_per_county_parolee_wo_MI

   UNITS: person-year

   INFLOWS:

     current_prison_time_served_transferred_out_wo_MI_after_realignment = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * Individuals_with_Criminal_History.ave_prison_time_served_wo_MI * multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

     previous_time_served_transferred_out_wo_MI_after_realignment = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * ave_previous_incar_time_per_prisoner_wo_MI * multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole)

UNITS: people

OUTFLOWS:

transferring_incarceration_time_thru_discharging_county_parolee_wo_MI = Individuals_with_Criminal_History.discharging_county_parolee_wo_MI * ave_incar_time_served_per_county_parolee_wo_MI

UNITS: people

total_prison_time_served_by_county_parolee_wMI_transferred_thru_committing_new_crimes = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes * ave_incar_time_served_per_county_parolee_wo_MI)

UNITS: people

transferring_total_prison_time_served_thru_county_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition * ave_incar_time_served_per_county_parolee_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI(t) = Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI(t - dt) + (transferring_incarceration_time_thru_discharging_county_parolee_wMI + total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wMI + total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wMI + transferring_total_prison_time_served_thru_discharging_county_parolee_wMI_violated_condition + transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wMI - total_jail_time_served_lost_thru_hi_risk_exConv_deaths_wMI - total_incarceration_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI - total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI) * dt

INIT Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 11409.48518 ELSE Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI * init_previous_incarceration_time_served_per_hi_risk_jail_exConv_wMI

UNITS: person-year

INFLOWS:

transferring_incarceration_time_thru_discharging_county_parolee_wMI = Individuals_with_Criminal_History.discharging_county_parolee_wMI * ave_incar_time_per_county_parolee_wMI

UNITS: people

total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wMI = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI * ave_previous_incar_time_per_served_jail_offender_wMI

UNITS: people

total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wMI = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI * ave_current_sentence_length_served_per_jail_offender_wMI

UNITS: people

transferring_total_prison_time_served_thru_discharging_county_parolee_wMI_violated_condition = Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition * ave_incar_time_served_per_county_parolee_wMI_violated_condition

UNITS: people

transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wMI = Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole * ave_incar_time_served_per_reprisoned_county_parole_violator_wMI

UNITS: people

OUTFLOWS:

total_jail_time_served_lost_thru_hi_risk_exConv_deaths_wMI = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths * ave_incar_time_served_per_hi_risk_jail_exConv_wMI

UNITS: people

total_incarceration_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI * ave_incar_time_served_per_hi_risk_jail_exConv_wMI

UNITS: people

total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism * ave_incar_time_served_per_hi_risk_jail_exConv_wMI

UNITS: people

Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI(t) = Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI(t - dt) + (transferring_incarceration_time_thru_discharging_county_parolee_wo_MI + total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wo_MI + total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wo_MI + transferring_total_prison_time_served_thru_discharging_county_parolee_wo_MI_violated_condition + transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wo_MI - total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI - total_jail_time_served_lost_thru_hi_risk_exConv_deaths_wo_MI - total_jail_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI) * dt

INIT Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 9255.15170038
ELSE

417

Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI *
init_previous_incarceration_time_served_per_hi_risk_jail_exConv_wo_MI

   UNITS: person-year

   INFLOWS:

     transferring_incarceration_time_thru_discharging_county_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_county_parolee_wo_MI *
ave_incar_time_served_per_county_parolee_wo_MI

      UNITS: people

total_previous_incarceration_time_served_transferred_thru_releasing_jail_offender_directly_wo_M
I = Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_previous_incar_time_served_per_jail_offender_wo_MI

      UNITS: people

     total_current_jail_time_served_transferred_thru_releasing_jail_offender_directly_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_current_sentence_length_served_per_jail_offender_wo_MI

      UNITS: people

transferring_total_prison_time_served_thru_discharging_county_parolee_wo_MI_violated_conditio
n = Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition *
ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

      UNITS: people

     transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_incar_time_served_by_reprisoned_county_parole_violator_wo_MI

      UNITS: people

   OUTFLOWS:

     total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI

      UNITS: people

     total_jail_time_served_lost_thru_hi_risk_exConv_deaths_wo_MI =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_deaths *
ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI

      UNITS: people

     total_jail_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI(t) =
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI(t - dt) +
(total_prison_time_served_transferred_out_thru_discharge_wMI +
transferring_total_prison_time_served_thru_discharging_prison_parolee_wMI_violated_condition +
transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wMI -
total_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI -
new_prison_time_served_lost_thru_hi_risk_exConv_deaths_wMI -
total_prison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI) * dt

   INIT Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 28181.6261908 ELSE
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI *
init_previous_incarceration_time_served_per_hi_risk_prison_exConv_wMI

   UNITS: person-year

   INFLOWS:

      total_prison_time_served_transferred_out_thru_discharge_wMI =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI *
ave_incar_time_per_prison_parolee_wMI

         UNITS: people

transferring_total_prison_time_served_thru_discharging_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition *
ave_incarceration_time_per_prison_parolee_wMI_violated_condition

         UNITS: people

      transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wMI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI *
ave_incar_time_per_reparoled_prison_parolee_wMI

         UNITS: people

   OUTFLOWS:

      total_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_incar_time_per_hi_risk_prison_exConv_wMI

         UNITS: people

      new_prison_time_served_lost_thru_hi_risk_exConv_deaths_wMI =
Individuals_with_Criminal_History.hi_risk_prison_exConv_deaths_wMI *
ave_incar_time_per_hi_risk_prison_exConv_wMI

         UNITS: people

total_prison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI * ave_incar_time_per_hi_risk_prison_exConv_wMI

      UNITS: people

Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI(t) = Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI(t - dt) + (total_prison_time_served_transferred_out_thru_discharge_wo_MI + transferring_total_prison_time_served_thru_discharging_prison_parolee_wo_MI_violated_conditio n + transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wo_MI - new_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI - new_prison_time_served_lost_thru_hi_risk_exConv_deaths_wo_MI - total_pison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI) * dt

   INIT Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 93525.1925778 ELSE Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI * init_previous_incarceration_time_served_per_hi_risk_prison_exConv_wo_MI

  UNITS: person-year

  INFLOWS:

    total_prison_time_served_transferred_out_thru_discharge_wo_MI = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI * ave_incar_time_served_per_prison_parolee_wo_MI

      UNITS: people

transferring_total_prison_time_served_thru_discharging_prison_parolee_wo_MI_violated_conditio n = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition * ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

      UNITS: people

    transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wo_MI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI * ave_incar_time_per_reparoled_prison_parolee_wo_MI

      UNITS: people

  OUTFLOWS:

    new_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI

      UNITS: people

    new_prison_time_served_lost_thru_hi_risk_exConv_deaths_wo_MI = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_deaths * ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI

UNITS: people

total_pison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI * ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI(t) = Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI(t - dt) + (total_incarceration_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI - total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI - total_incarceration_time_served_transferred_out_thru_becoming_desisted_exConv_wMI - total_jail_time_served_lost_thru_lo_risk_exConv_deaths_wMI) * dt

INIT Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 24938.7654207 ELSE Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI * init_previous_incarceration_time_served_per_lo_risk_jail_exConv_wMI

UNITS: person-year

INFLOWS:

total_incarceration_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI * ave_incar_time_served_per_hi_risk_jail_exConv_wMI

UNITS: people

OUTFLOWS:

total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism * ave_incar_time_served_by_lo_risk_jail_exConv_wMI

UNITS: people

total_incarceration_time_served_transferred_out_thru_becoming_desisted_exConv_wMI = Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted * ave_incar_time_served_by_lo_risk_jail_exConv_wMI

UNITS: people

total_jail_time_served_lost_thru_lo_risk_exConv_deaths_wMI = Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths * ave_incar_time_served_by_lo_risk_jail_exConv_wMI

UNITS: people

Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI(t) = Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI(t - dt) + (total_jail_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI + total_previous_incarceration_time_transferred_thru_discharging_fr_probation - total_jail_time_served_transferred_out_thru_becoming_desisted_exConv_wo_MI -

total_jail_time_served_lost_thru_lo_risk_exConv_deaths_wo_MI -
total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI) * dt

INIT Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 49190.6959349   ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI *
init_previous_incarceration_time_served_per_lo_risk_jail_exConv_wo_MI

UNITS: person-year

INFLOWS:

total_jail_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI

UNITS: people

total_previous_incarceration_time_transferred_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation *
ave_previous_incar_time_served_by_probationer

UNITS: people

OUTFLOWS:

total_jail_time_served_transferred_out_thru_becoming_desisted_exConv_wo_MI =
Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted *
ave_incar_time_served_by_lo_risk_jail_exConv_wo_MI

UNITS: people

total_jail_time_served_lost_thru_lo_risk_exConv_deaths_wo_MI =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths *
ave_incar_time_served_by_lo_risk_jail_exConv_wo_MI

UNITS: people

total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism *
ave_incar_time_served_by_lo_risk_jail_exConv_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI(t) =
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI(t - dt) +
(total_prison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI -
total_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI -
new_prison_time_served_lost_thru_lo_risk_exConv_deaths_wMI -
total_prison_time_served_transferred_out_thru_becoming_desisted_exConv_wMI) * dt

INIT Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI*ave_incar_time_per_hi_
risk_prison_exConv_wMI*Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI)/(Indiv

iduals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI+Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism+Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI) ELSE Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI * init_previous_incarceration_time_served_per_lo_risk_prison_exConv_wMI

   UNITS: person-year

   INFLOWS:

      total_prison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wMI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI * ave_incar_time_per_hi_risk_prison_exConv_wMI

         UNITS: people

   OUTFLOWS:

      total_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_incar_time_per_lo_risk_prison_exConv_wMI

         UNITS: people

      new_prison_time_served_lost_thru_lo_risk_exConv_deaths_wMI = Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI * ave_incar_time_per_lo_risk_prison_exConv_wMI

         UNITS: people

      total_prison_time_served_transferred_out_thru_becoming_desisted_exConv_wMI = Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI * ave_incar_time_per_lo_risk_prison_exConv_wMI

         UNITS: people

Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI(t) = Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI(t - dt) + (total_pison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI - new_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI - total_prison_time_served_transferred_out_thru_becoming_desisted_exConv_wo_MI - new_prison_time_served_lost_thru_lo_risk_exConv_deaths_wo_MI) * dt

   INIT Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI*ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI*Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI)/(Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI+Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism+Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI) ELSE Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI * init_previous_incarceration_time_served_per_lo_risk_prison_exConv_wo_MI

   UNITS: person-year

   INFLOWS:

total_pison_time_served_transferred_out_thru_becoming_lo_risk_exConv_wo_MI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI * ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI

UNITS: people

OUTFLOWS:

new_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI = Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism * ave_incarceration_time_per_lo_risk_prison_exConv_wo_MI

UNITS: people

total_prison_time_served_transferred_out_thru_becoming_desisted_exConv_wo_MI = Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI * ave_incarceration_time_per_lo_risk_prison_exConv_wo_MI

UNITS: people

new_prison_time_served_lost_thru_lo_risk_exConv_deaths_wo_MI = Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI * ave_incarceration_time_per_lo_risk_prison_exConv_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition(t) = Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition(t - dt) + (transferring_total_prison_time_served_thru_prison_parolee_wMI_violating_condition - total_prison_time_served_transferred_out_thru_returning_prison_wMI - transferring_total_prison_time_served_thru_discharging_prison_parolee_wMI_violated_condition - total_prison_time_served_by_prison_parolee_wMI_violated_condition_transferred_thru_committing_new_crimes) * dt

INIT Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN (Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition*ave_incar_time_per_prison_parolee_wMI*Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition)/(Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison+Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition+Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes) ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition * init_previous_incarceration_time_served_per_prison_parole_violator_wMI

UNITS: person-year

INFLOWS:

transferring_total_prison_time_served_thru_prison_parolee_wMI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition * ave_incar_time_per_prison_parolee_wMI

UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_returning_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_incarceration_time_per_prison_parolee_wMI_violated_condition

UNITS: people

transferring_total_prison_time_served_thru_discharging_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition *
ave_incarceration_time_per_prison_parolee_wMI_violated_condition

UNITS: people

total_prison_time_served_by_prison_parolee_wMI_violated_condition_transferred_thru_committin
g_new_crimes =
Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crime
s * ave_incarceration_time_per_prison_parolee_wMI_violated_condition

UNITS: people

Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition(t) =
Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition(t - dt) +
(transferring_total_prison_time_served_thru_prison_parolee_wo_MI_violating_condition -
total_prison_time_served_transferred_out_thru_returning_prison_wo_MI -
transferring_total_prison_time_served_thru_discharging_prison_parolee_wo_MI_violated_conditio
n -
total_prison_time_served_by_prison_parolee_wo_MI_violated_condition_transferred_thru_commit
ting_new_crimes) * dt

INIT Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch =1 THEN 15489.0902137
ELSE
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition *
init_previous_incarceration_time_served_per_prison_parole_violator_wo_MI

UNITS: person-year

INFLOWS:

transferring_total_prison_time_served_thru_prison_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition *
ave_incar_time_served_per_prison_parolee_wo_MI

UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_returning_prison_wo_MI =
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison *
ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

UNITS: people

transferring_total_prison_time_served_thru_discharging_prison_parolee_wo_MI_violated_conditio
n = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition *
ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

> UNITS: people

total_prison_time_served_by_prison_parolee_wo_MI_violated_condition_transferred_thru_commit
ting_new_crimes =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_cri
mes * ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

> UNITS: people

Total_Incarceration_Time_Served_by_Prison_Parolees_wMI(t) =
Total_Incarceration_Time_Served_by_Prison_Parolees_wMI(t - dt) +
(total_previous_time_served_transferred_out_wMI +
current_prison_time_released_wMI_before_realignment -
total_prison_time_served_transferred_out_thru_discharge_wMI -
transferring_total_prison_time_served_thru_prison_parolee_wMI_violating_condition -
total_prison_time_served_by_prison_parolee_wMI_transferred_thru_committing_new_crimes) * dt

INIT Total_Incarceration_Time_Served_by_Prison_Parolees_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 26975.3340363 ELSE
Individuals_with_Criminal_History.Prison_Parolees_wMI *
init_previous_incarceration_time_served_per_prison_parolee_wMI

UNITS: person-year

INFLOWS:

total_previous_time_served_transferred_out_wMI =
ave_previous_incar_time_served_per_prisoner_wMI *
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment

> UNITS: people

current_prison_time_released_wMI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wMI

> UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_discharge_wMI =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI *
ave_incar_time_per_prison_parolee_wMI

> UNITS: people

transferring_total_prison_time_served_thru_prison_parolee_wMI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition *
ave_incar_time_per_prison_parolee_wMI

UNITS: people

total_prison_time_served_by_prison_parolee_wMI_transferred_thru_committing_new_crimes
= Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes *
ave_incar_time_per_prison_parolee_wMI

UNITS: people

Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI(t) =
Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI(t - dt) +
(previous_time_served_transferred_out_wo_MI +
current_prison_time_released_wo_MI_before_realignment -
total_prison_time_served_transferred_out_thru_discharge_wo_MI -
total_prison_time_served_by_prison_parolee_wo_MI_transferred_thru_committing_new_crimes -
transferring_total_prison_time_served_thru_prison_parolee_wo_MI_violating_condition) * dt

INIT Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 81438.4483746
ELSE
Individuals_with_Criminal_History.Prison_Parolees_wo_MI *
init_previous_incarceration_time_served_per_prison_parolee_wo_MI

UNITS: person-year

INFLOWS:

previous_time_served_transferred_out_wo_MI =
ave_previous_incar_time_per_prisoner_wo_MI *
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment

UNITS: people

current_prison_time_released_wo_MI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment *
Individuals_with_Criminal_History.ave_prison_time_served_wo_MI

UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_discharge_wo_MI =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI *
ave_incar_time_served_per_prison_parolee_wo_MI

UNITS: people

total_prison_time_served_by_prison_parolee_wo_MI_transferred_thru_committing_new_crimes =
Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes *
ave_incar_time_served_per_prison_parolee_wo_MI

UNITS: people

transferring_total_prison_time_served_thru_prison_parolee_wo_MI_violating_condition = Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition * ave_incar_time_served_per_prison_parolee_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wMI(t) = Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wMI(t - dt) + (total_prison_time_served_transferred_out_thru_rerelease_wMI - transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wMI) * dt

INIT Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 4247.14854662 ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI * init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wMI

UNITS: person-year

INFLOWS:

total_prison_time_served_transferred_out_thru_rerelease_wMI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI * ave_incar_time_served_time_by_reprisoned_parole_violator_wMI

UNITS: people

OUTFLOWS:

transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wMI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI * ave_incar_time_per_reparoled_prison_parolee_wMI

UNITS: people

Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wo_MI(t) = Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wo_MI(t - dt) + (total_prison_time_served_transferred_out_thru_rerelease_wo_MI - transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wo_MI) * dt

INIT Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN 5576.07247695 ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI * init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wo_MI

UNITS: person-year

INFLOWS:

total_prison_time_served_transferred_out_thru_rerelease_wo_MI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI * ave_incar_time_served_time_by_reprisoned_parole_violator_wo_MI

UNITS: people

OUTFLOWS:

transferring_total_prison_time_served_thru_discharging_reparoled_prison_parolee_wo_MI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI * ave_incar_time_per_reparoled_prison_parolee_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Reprisoned_County_Parole_Violators_wo_MI(t) = Total_Incarceration_Time_Served_by_Reprisoned_County_Parole_Violators_wo_MI(t - dt) + (transferring_incarceration_time_thru_county_parolee_returning_to_jail_wo_MI - transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wo_MI) * dt

INIT Total_Incarceration_Time_Served_by_Reprisoned_County_Parole_Violators_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail*ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition*Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI)/Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole   ELSE Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI * init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wo_MI

UNITS: person-year

INFLOWS:

transferring_incarceration_time_thru_county_parolee_returning_to_jail_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail * ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

UNITS: people

OUTFLOWS:

transferring_incarceration_time_thru_rerelease_exPrisoner_to_county_parole_wo_MI = Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole * ave_incar_time_served_by_reprisoned_county_parole_violator_wo_MI

UNITS: people

Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wMI(t) = Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wMI(t - dt) + (total_prison_time_served_transferred_out_thru_returning_prison_wMI - total_prison_time_served_transferred_out_thru_rerelease_wMI) * dt

INIT Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison*ave_incarceration_time_per_prison_parolee_wMI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI)/Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI * init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wMI

UNITS: person-year

INFLOWS:

total_prison_time_served_transferred_out_thru_returning_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_incarceration_time_per_prison_parolee_wMI_violated_condition

> UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_rerelease_wMI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI *
ave_incar_time_served_time_by_reprisoned_parole_violator_wMI

> UNITS: people

Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wo_MI(t) =
Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wo_MI(t - dt) +
(total_prison_time_served_transferred_out_thru_returning_prison_wo_MI -
total_prison_time_served_transferred_out_thru_rerelease_wo_MI) * dt

INIT Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch =1 THEN 1394.01811924 ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI *
init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wo_MI

UNITS: person-year

INFLOWS:

total_prison_time_served_transferred_out_thru_returning_prison_wo_MI =
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison *
ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

> UNITS: people

OUTFLOWS:

total_prison_time_served_transferred_out_thru_rerelease_wo_MI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI *
ave_incar_time_served_time_by_reprisoned_parole_violator_wo_MI

> UNITS: people

Total_Previous_Incar_Time_Served_by_Arrestees(t) =
Total_Previous_Incar_Time_Served_by_Arrestees(t - dt) +
(total_prison_time_served_by_county_parolee_wo_MI_transferred_thru_committing_new_crimes +
total_prison_time_served_by_county_parolee_wMI_transferred_thru_committing_new_crimes +
new_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI +
total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI +
total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI +
new_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI +
total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI +
total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI +
total_prison_time_served_by_prison_parolee_wMI_transferred_thru_committing_new_crimes +
total_prison_time_served_by_prison_parolee_wo_MI_violated_condition_transferred_thru_commit

ting_new_crimes +
total_prison_time_served_by_prison_parolee_wo_MI_transferred_thru_committing_new_crimes +
total_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI +
total_prison_time_served_by_prison_parolee_wMI_violated_condition_transferred_thru_committin
g_new_crimes + total_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI +
total_prison_time_served_by_county_parolee_wo_MI_violated_condition_transferred_thru_commi
tting_new_crimes +
total_prison_time_served_by_county_parolee_wMI_violated_condition_transferred_thru_committi
ng_new_crimes - losing_total_previous_incarceration_time_thru_release_by_law_enforcement -
transferring_total_previous_time_thru_release_suspect_to_comm -
transferring_total_previous_time_thru_holding_suspect_in_custody) * dt

INIT Total_Previous_Incar_Time_Served_by_Arrestees = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 486.978672562   ELSE
Individuals_with_Criminal_History.Arrestees *
init_previous_incarceration_time_served_per_arrestee

UNITS: person-year

INFLOWS:

total_prison_time_served_by_county_parolee_wo_MI_transferred_thru_committing_new_crimes =
Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes *
ave_incar_time_per_county_parolee_wMI

UNITS: people

total_prison_time_served_by_county_parolee_wMI_transferred_thru_committing_new_crimes
= Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes *
ave_incar_time_served_per_county_parolee_wo_MI)

UNITS: people

new_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI =
Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism *
ave_incarceration_time_per_lo_risk_prison_exConv_wo_MI

UNITS: people

total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI

UNITS: people

total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wo_MI =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism *
ave_incar_time_served_by_lo_risk_jail_exConv_wo_MI

UNITS: people

new_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wo_MI = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI

UNITS: people

total_jail_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism * ave_incar_time_served_per_hi_risk_jail_exConv_wMI

UNITS: people

total_jail_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism * ave_incar_time_served_by_lo_risk_jail_exConv_wMI

UNITS: people

total_prison_time_served_by_prison_parolee_wMI_transferred_thru_committing_new_crimes = Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes * ave_incar_time_per_prison_parolee_wMI

UNITS: people

total_prison_time_served_by_prison_parolee_wo_MI_violated_condition_transferred_thru_committing_new_crimes = Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes * ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition

UNITS: people

total_prison_time_served_by_prison_parolee_wo_MI_transferred_thru_committing_new_crimes = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_incar_time_served_per_prison_parolee_wo_MI

UNITS: people

total_prison_time_served_transferred_out_thru_lo_risk_exConv_recidivism_wMI = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_incar_time_per_lo_risk_prison_exConv_wMI

UNITS: people

total_prison_time_served_by_prison_parolee_wMI_violated_condition_transferred_thru_committing_new_crimes = Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes * ave_incarceration_time_per_prison_parolee_wMI_violated_condition

UNITS: people

total_prison_time_served_transferred_out_thru_hi_risk_exConv_recidivism_wMI =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_incar_time_per_hi_risk_prison_exConv_wMI

UNITS: people

total_prison_time_served_by_county_parolee_wo_MI_violated_condition_transferred_thru_commi
tting_new_crimes =
Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_cri
mes * ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition

UNITS: people

total_prison_time_served_by_county_parolee_wMI_violated_condition_transferred_thru_committi
ng_new_crimes =
Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crime
s * ave_incar_time_served_per_county_parolee_wMI_violated_condition

UNITS: people

OUTFLOWS:

losing_total_previous_incarceration_time_thru_release_by_law_enforcement =
Individuals_with_Criminal_History.release_by_law_enforcement *
ave_previous_incar_time_per_arrestee

UNITS: people

transferring_total_previous_time_thru_release_suspect_to_comm =
Individuals_with_Criminal_History.pretrial_release * ave_previous_incar_time_per_arrestee

UNITS: people

transferring_total_previous_time_thru_holding_suspect_in_custody =
Individuals_with_Criminal_History.being_held_in_custody * ave_previous_incar_time_per_arrestee

UNITS: people

Total_Previous_Incar_Time_Served_by_Defendants_in_Comm_Being_Trialed(t) =
Total_Previous_Incar_Time_Served_by_Defendants_in_Comm_Being_Trialed(t - dt) +
(total_previous_incarceration_time_transferred_thru_conviction_detainee_in_community +
total_previous_time_transferred_thru_probation_violation -
transferring_total_previous_time_thru_complaints_against_suspect_in_comm_dismissed_after_trial
- transferring_previous_incar_time_thru_defendents_in_comm_waiting_for_sentence) * dt

INIT Total_Previous_Incar_Time_Served_by_Defendants_in_Comm_Being_Trialed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
((Individuals_with_Criminal_History.violating_probation*ave_previous_incar_time_served_by_proba
tioner+Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial*ave_previous_incar_t
ime_per_suspect_in_comm_with_case_filed) *
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed) /
(Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence+Individuals_with_C

riminal_History.complaints_against_suspects_in_comm_dismissed_after_trial) ELSE Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed * init_previous_incarceration_time_served_per_defendant_in_comm_being_trialed

UNITS: person-year

INFLOWS:

total_previous_incarceration_time_transferred_thru_conviction_detainee_in_community = Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial * ave_previous_incar_time_per_suspect_in_comm_with_case_filed

UNITS: people

total_previous_time_transferred_thru_probation_violation = Individuals_with_Criminal_History.violating_probation * ave_previous_incar_time_served_by_probationer

UNITS: people

OUTFLOWS:

transferring_total_previous_time_thru_complaints_against_suspect_in_comm_dismissed_after_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial * ave_previous_incar_time_per_defendant_in_comm_being_trialed

UNITS: people

transferring_previous_incar_time_thru_defendents_in_comm_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence * ave_previous_incar_time_per_defendant_in_comm_being_trialed

UNITS: people

Total_Previous_Incar_Time_Served_by_Defendants_in_Custody_Being_Trialed(t) = Total_Previous_Incar_Time_Served_by_Defendants_in_Custody_Being_Trialed(t - dt) + (transferring_total_previous_time_thru_suspect_in_custody_being_trial - transferring_total_previous_time_thru_complaints_against_suspect_in_custody_dismissed_after_trial - transferring_previous_incar_time_thru_defendents_in_custody_waiting_for_sentence) * dt

INIT Total_Previous_Incar_Time_Served_by_Defendants_in_Custody_Being_Trialed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial*ave_previous_incar_time_per_suspect_in_custody_with_case_filed*Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed)/(Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence+Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial) ELSE Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed * init_previous_incarceration_time_served_per_defendant_in_custody_being_trialed

UNITS: person-year

INFLOWS:

transferring_total_previous_time_thru_suspect_in_custody_being_trial = Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial * ave_previous_incar_time_per_suspect_in_custody_with_case_filed

    UNITS: people

  OUTFLOWS:

transferring_total_previous_time_thru_complaints_against_suspect_in_custody_dismissed_after_trial = Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial * ave_previous_incar_time_per_defendant_in_custody_being_trialed

    UNITS: people

  transferring_previous_incar_time_thru_defendents_in_custody_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence * ave_previous_incar_time_per_defendant_in_custody_being_trialed

    UNITS: people

Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Comm(t) = Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Comm(t - dt) + (transferring_previous_incar_time_thru_defendents_in_comm_waiting_for_sentence + transferring_previous_incar_time_thru_defendants_in_comm_conviction_wo_trial - transferring_total_previous_time_thru_defendant_in_comm_conviction) * dt

  INIT Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Comm = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 400.893416576 ELSE Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody * init_previous_incar_time_served_per_preSentencing_defendants_in_comm

  UNITS: person-year

  INFLOWS:

  transferring_previous_incar_time_thru_defendents_in_comm_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence * ave_previous_incar_time_per_defendant_in_comm_being_trialed

    UNITS: people

  transferring_previous_incar_time_thru_defendants_in_comm_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial * ave_previous_incar_time_per_suspect_in_comm_with_case_filed

    UNITS: people

  OUTFLOWS:

  transferring_total_previous_time_thru_defendant_in_comm_conviction = Individuals_with_Criminal_History.defendant_in_comm_being_sentenced * ave_previous_incar_time_per_preSentencing_defendant_in_comm

    UNITS: people

435

Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Custody(t) = Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Custody(t - dt) + (transferring_previous_incar_time_thru_defendents_in_custody_waiting_for_sentence + transferring_previous_incar_time_thru_defendants_in_cusotdy_conviction_wo_trial - transferring_total_previous_time_thru_defendant_in_custody_conviction) * dt

INIT Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Custody = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 85.8464995918
ELSE
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody * init_previous_incar_time_served_per_preSentencing_defendants_in_custody

UNITS: person-year

INFLOWS:

transferring_previous_incar_time_thru_defendents_in_custody_waiting_for_sentence = Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence * ave_previous_incar_time_per_defendant_in_custody_being_trialed

UNITS: people

transferring_previous_incar_time_thru_defendants_in_cusotdy_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial * ave_previous_incar_time_per_suspect_in_custody_with_case_filed

UNITS: people

OUTFLOWS:

transferring_total_previous_time_thru_defendant_in_custody_conviction = Individuals_with_Criminal_History.defendant_in_custody_being_sentenced * ave_previous_incar_time_per_preSentencing_defendant_in_custody

UNITS: people

Total_Previous_Incar_Time_Served_by_Pretrial_Suspects_in_Community(t) = Total_Previous_Incar_Time_Served_by_Pretrial_Suspects_in_Community(t - dt) + (transferring_total_previous_time_thru_release_suspect_to_comm - transferring_previous_incar_time_thru_filing_case_for_suspect_in_comm) * dt

INIT Total_Previous_Incar_Time_Served_by_Pretrial_Suspects_in_Community = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.pretrial_release*ave_previous_incar_time_per_arrestee*Individuals_with_Criminal_History.Pretrial_Suspects_in_Community)/Individuals_with_Criminal_History.filing_case_for_suspect_in_comm ELSE
Individuals_with_Criminal_History.Pretrial_Suspects_in_Community * init_previous_incarceration_time_served_per_pretrial_suspect_in_comm

UNITS: person-year

INFLOWS:

transferring_total_previous_time_thru_release_suspect_to_comm = Individuals_with_Criminal_History.pretrial_release * ave_previous_incar_time_per_arrestee

UNITS: people

OUTFLOWS:

transferring_previous_incar_time_thru_filing_case_for_suspect_in_comm =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_previous_incar_time_per_suspects_in_community

UNITS: people

Total_Previous_Incar_Time_Served_by_Probationers(t) =
Total_Previous_Incar_Time_Served_by_Probationers(t - dt) +
(transferring_previous_incar_time_thru_convicting_suspect_in_custody_to_probation +
total_previous_incarceration_time_served_transferred_thru_continue_serving_probation_wo_MI +
total_current_jail_time_served_transferred_thru_continue_serving_probation_wo_MI +
total_current_jail_time_served_transferred_thru_continue_serving_probation_wMI +
total_previous_jail_time_served_transferred_thru_continue_serving_probation_wMI +
transferring_previous_incar_time_thru_assigning_suspect_in_comm_to_probation -
total_previous_incarceration_time_transferred_thru_discharging_fr_probation -
total_previous_time_transferred_thru_probation_violation) * dt

INIT Total_Previous_Incar_Time_Served_by_Probationers = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(((Individuals_with_Criminal_History.continue_serving_thru_probation_wMI*ave_current_jail_time_
served_wMI+Individuals_with_Criminal_History.continue_serving_thru_probation_wMI*ave_previo
us_incar_time_per_served_jail_offender_wMI+Individuals_with_Criminal_History.continue_serving_
thru_probation_wo_MI*ave_current_jail_time_served_wo_MI+Individuals_with_Criminal_History.c
ontinue_serving_thru_probation_wo_MI*ave_previous_incar_time_served_per_jail_offender_wo_
MI+Individuals_with_Criminal_History.convicting_defendant_in_comm_to_probation*ave_previous
_incar_time_per_preSentencing_defendant_in_comm+Individuals_with_Criminal_History.convicting
_defendant_in_custody_to_probation*ave_previous_incar_time_per_preSentencing_defendant_in_
custody) * Individuals_with_Criminal_History.Probationers) /
(Individuals_with_Criminal_History.violating_probation+Individuals_with_Criminal_History.dischargi
ng_fr_probation)) * 1 + 87235.0056235 * 0 ELSE Individuals_with_Criminal_History.Probationers *
init_previous_incarceration_time_served_per_probationer

UNITS: person-year

INFLOWS:

transferring_previous_incar_time_thru_convicting_suspect_in_custody_to_probation =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_probation *
ave_previous_incar_time_per_preSentencing_defendant_in_custody

UNITS: people

total_previous_incarceration_time_served_transferred_thru_continue_serving_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_previous_incar_time_served_per_jail_offender_wo_MI

UNITS: people

total_current_jail_time_served_transferred_thru_continue_serving_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_current_jail_time_served_wo_MI

UNITS: people

total_current_jail_time_served_transferred_thru_continue_serving_probation_wMI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wMI *
ave_current_jail_time_served_wMI

UNITS: people

total_previous_jail_time_served_transferred_thru_continue_serving_probation_wMI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wMI *
ave_previous_incar_time_per_served_jail_offender_wMI

UNITS: people

transferring_previous_incar_time_thru_assigning_suspect_in_comm_to_probation =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_probation *
ave_previous_incar_time_per_preSentencing_defendant_in_comm

UNITS: people

OUTFLOWS:

total_previous_incarceration_time_transferred_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation *
ave_previous_incar_time_served_by_probationer

UNITS: people

total_previous_time_transferred_thru_probation_violation =
Individuals_with_Criminal_History.violating_probation *
ave_previous_incar_time_served_by_probationer

UNITS: people

Total_Previous_Incar_Time_Served_by_Suspects_in_Comm_with_Cases_Filed(t) =
Total_Previous_Incar_Time_Served_by_Suspects_in_Comm_with_Cases_Filed(t - dt) +
(transferring_previous_incar_time_thru_filing_case_for_suspect_in_comm -
total_previous_incarceration_time_transferred_thru_conviction_detainee_in_community -
transferring_previous_incar_time_thru_defendants_in_comm_conviction_wo_trial -
transferring_previous_incar_time_thru_complaints_against_suspects_in_comm_dismissed_before_t
rial) * dt

INIT Total_Previous_Incar_Time_Served_by_Suspects_in_Comm_with_Cases_Filed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.filing_case_for_suspect_in_comm*ave_previous_incar_time_per
_suspects_in_community*Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed)/
(Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial+Individuals_with_Cri
minal_History.suspect_in_comm_waiting_for_trial+Individuals_with_Criminal_History.complaints_ag
ainst_suspects_in_comm_dismissed_before_trial) ELSE

Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed *
init_previous_incarceration_time_served_per_suspect_in_comm_case_filed

  UNITS: person-year

  INFLOWS:

    transferring_previous_incar_time_thru_filing_case_for_suspect_in_comm =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_previous_incar_time_per_suspects_in_community

      UNITS: people

  OUTFLOWS:

    total_previous_incarceration_time_transferred_thru_conviction_detainee_in_community =
Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial *
ave_previous_incar_time_per_suspect_in_comm_with_case_filed

      UNITS: people

    transferring_previous_incar_time_thru_defendants_in_comm_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial *
ave_previous_incar_time_per_suspect_in_comm_with_case_filed

      UNITS: people

transferring_previous_incar_time_thru_complaints_against_suspects_in_comm_dismissed_before_t
rial =
Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial *
ave_previous_incar_time_per_suspect_in_comm_with_case_filed

      UNITS: people

Total_Previous_Incar_Time_Served_by_Suspects_in_Custody(t) =
Total_Previous_Incar_Time_Served_by_Suspects_in_Custody(t - dt) +
(transferring_total_previous_time_thru_holding_suspect_in_custody -
transferring_previous_incar_time_thru_filing_case_for_suspect_in_custody) * dt

  INIT Total_Previous_Incar_Time_Served_by_Suspects_in_Custody = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Individuals_with_Criminal_History.being_held_in_custody * ave_previous_incar_time_per_arrestee
* Individuals_with_Criminal_History.Suspects_in_Custody/
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody   ELSE
Individuals_with_Criminal_History.Suspects_in_Custody *
init_previous_incarceration_time_served_per_suspect_in_custody

  UNITS: person-year

  INFLOWS:

    transferring_total_previous_time_thru_holding_suspect_in_custody =
Individuals_with_Criminal_History.being_held_in_custody * ave_previous_incar_time_per_arrestee

      UNITS: people

OUTFLOWS:

transferring_previous_incar_time_thru_filing_case_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_previous_incar_time_per_suspect_in_custody

UNITS: people

Total_Previous_Incar_Time_Served_by_Suspects_in_Custody_with_Cases_Filed(t) =
Total_Previous_Incar_Time_Served_by_Suspects_in_Custody_with_Cases_Filed(t - dt) +
(transferring_previous_incar_time_thru_filing_case_for_suspect_in_custody -
transferring_total_previous_time_thru_suspect_in_custody_being_trial -
transferring_previous_incar_time_thru_defendants_in_cusotdy_conviction_wo_trial -
transferring_previous_incar_time_thru_complaints_against_suspects_in_custody_dismissed_before
_trial) * dt

INIT Total_Previous_Incar_Time_Served_by_Suspects_in_Custody_with_Cases_Filed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.filing_case_for_suspect_in_custody*ave_previous_incar_time_p
er_suspect_in_custody*Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed)/(
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial+Individuals_with_Criminal_
History.defendants_in_cusotdy_conviction_wo_trial+Individuals_with_Criminal_History.complaints_
against_suspects_in_custody_dismissed_before_trial)   ELSE
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed *
init_previous_incarceration_time_served_per_suspect_in_custody_case_filed

UNITS: person-year

INFLOWS:

transferring_previous_incar_time_thru_filing_case_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_previous_incar_time_per_suspect_in_custody

UNITS: people

OUTFLOWS:

transferring_total_previous_time_thru_suspect_in_custody_being_trial =
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial *
ave_previous_incar_time_per_suspect_in_custody_with_case_filed

UNITS: people

transferring_previous_incar_time_thru_defendants_in_cusotdy_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial *
ave_previous_incar_time_per_suspect_in_custody_with_case_filed

UNITS: people

transferring_previous_incar_time_thru_complaints_against_suspects_in_custody_dismissed_before
_trial =

Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial
* ave_previous_incar_time_per_suspect_in_custody_with_case_filed

   UNITS: people

ave_current_jail_time_served_wMI = Current_Jail_Time_Served_wMI /
Individuals_with_Criminal_History.Jail_Offenders_wMI

   UNITS: person-year/person

ave_current_jail_time_served_wo_MI = Current_Jail_Time_Served_wo_MI /
Individuals_with_Criminal_History.Jail_Offenders_wo_MI

   UNITS: person-year/person

ave_current_prison_time_served_wMI = Current_Prison_Time_Served_wMI /
Individuals_with_Criminal_History.Prisoners_wMI

   UNITS: person-year/person

ave_current_prison_time_served_wo_MI = Current_Prison_Time_Served_wo_MI /
Individuals_with_Criminal_History.Prisoners_wo_MI

   UNITS: person-year/person

ave_current_sentence_length_served_per_jail_offender_wMI =
Individuals_with_Criminal_History.ave_jail_time_served_at_current_release_wMI

   UNITS: year

ave_current_sentence_length_served_per_jail_offender_wo_MI =
Individuals_with_Criminal_History.ave_jail_time_served_at_current_release_wo_MI

   UNITS: year

ave_incar_time_per_county_parolee_wMI = Total_Incar_Time_Served_by_County_Parolees_wMI /
Individuals_with_Criminal_History.County_Parolees_wMI

   UNITS: person-year/person

ave_incar_time_per_hi_risk_exConv = (
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI +
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI +
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI)/ (
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI +
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI)

   UNITS: person-year/person

ave_incar_time_per_hi_risk_prison_exConv_wMI =
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI

UNITS: person-year/person

ave_incar_time_per_lo_risk_exConv =
(Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI +
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI) /
(Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI +
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI +
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI)

   UNITS: person-year/person

ave_incar_time_per_lo_risk_prison_exConv_wMI =
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI

   UNITS: person-year/person

ave_incar_time_per_prison_parolee = (Total_Incarceration_Time_Served_by_Prison_Parolees_wMI
+ Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition +
Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI +
Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition +
Total_Incar_Time_Served_by_County_Parolees_wMI +
Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition +
Total_Incarceration_Time_Served_by_County_Parolees_wo_MI +
Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition) /
(Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition)

   UNITS: person-year/person

ave_incar_time_per_prison_parolee_wMI =
Total_Incarceration_Time_Served_by_Prison_Parolees_wMI /
Individuals_with_Criminal_History.Prison_Parolees_wMI

   UNITS: person-year/person

ave_incar_time_per_reparoled_prison_parolee_wMI =
Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wMI/
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI

   UNITS: person-year/person

ave_incar_time_per_reparoled_prison_parolee_wo_MI =
Total_Incarceration_Time_Served_by_Reparoled_Prison_Parolees_wo_MI /
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI

   UNITS: person-year/person

ave_incar_time_served_by_hi_risk_jail_exConv_wo_MI =
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI

   UNITS: person-year/person

ave_incar_time_served_by_lo_risk_jail_exConv_wMI =
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI

   UNITS: person-year/person

ave_incar_time_served_by_lo_risk_jail_exConv_wo_MI =
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI

   UNITS: person-year/person

ave_incar_time_served_by_reprisoned_county_parole_violator_wo_MI =
Total_Incarceration_Time_Served_by_Reprisoned_County_Parole_Violators_wo_MI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI

   UNITS: person-year/person

ave_incar_time_served_per_county_parolee_wMI_violated_condition =
Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition

   UNITS: person-year/person

ave_incar_time_served_per_county_parolee_wo_MI =
Total_Incarceration_Time_Served_by_County_Parolees_wo_MI /
Individuals_with_Criminal_History.County_Parolees_wo_MI

   UNITS: person-year/person

ave_incar_time_served_per_exConv_wMI =
(Total_Incarceration_Time_Served_by_Prison_Parolees_wMI +
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wMI +
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wMI +
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI +
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI +
Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition +
Total_Incar_Time_Served_by_County_Parolees_wMI +
Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition) /
Individuals_with_Criminal_History.total_exConv_wMI

   UNITS: person-year/person

ave_incar_time_served_per_exConv_wo_MI =
(Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI+
Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition+
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI+
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI+
Total_Incarceration_Time_Served_by_County_Parolees_wo_MI+
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI+
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition) /
Individuals_with_Criminal_History.total_exConv_wo_MI

    UNITS: person-year/person

ave_incar_time_served_per_hi_risk_jail_exConv_wMI =
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI

    UNITS: person-year/person

ave_incar_time_served_per_prison_parolee_wo_MI =
Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI /
Individuals_with_Criminal_History.Prison_Parolees_wo_MI

    UNITS: person-year/person

ave_incar_time_served_per_reprisoned_county_parole_violator_wMI =
Total_Incar_Time_Served_by_Reprisoned_County_Parole_Violators_wMI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI

    UNITS: person-year/person

ave_incar_time_served_time_by_reprisoned_parole_violator_wMI =
Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wMI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI

    UNITS: person-year/person

ave_incar_time_served_time_by_reprisoned_parole_violator_wo_MI =
Total_Incarceration_Time_Served_by_Reprisoned_Prison_Parole_Violators_wo_MI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI

    UNITS: person-year/person

ave_incarceration_time_per_hi_risk_prison_exConv_wo_MI =
Total_Incarceration_Time_Served_by_Hi_Risk_Prison_ExConv_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI

    UNITS: person-year/person

ave_incarceration_time_per_lo_risk_prison_exConv_wo_MI =
Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI

    UNITS: person-year/person

ave_incarceration_time_per_prison_parolee_wMI_violated_condition =
Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition /
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition

UNITS: person-year/person

ave_incarceration_time_per_prison_parolee_wo_MI_violated_condition =
Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition

UNITS: person-year/person

ave_incarceration_time_served_per_county_parolee_wo_MI_violated_condition =
Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition

UNITS: person-year/person

ave_incarceration_time_served_per_exConv =
(Total_Incarceration_Time_Served_by_Prison_Parolees_wo_MI+Total_Incarceration_Time_Served_b
y_Hi_Risk_Prison_ExConv_wo_MI+Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_w
o_MI+Total_Incarceration_Time_Served_by_Prison_Parolees_wMI+Total_Incarceration_Time_Serve
d_by_Hi_Risk_Prison_ExConv_wMI+Total_Incarceration_Time_Served_by_Lo_Risk_Prison_ExConv_
wMI + Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wo_MI +
Total_Incarceration_Time_Served_by_Hi_Risk_Jail_ExConv_wMI +
Total_Incarceration_Time_Served_by_Lo_Risk_Jail_ExConv_wMI +
Total_Incar_Time_Served_by_County_Parolees_wMI +
Total_Incarceration_Time_Served_by_County_Parolees_wo_MI +
Total_Incarceration_Time_Served_by_Prison_Parolee_wMI_Violated_Condition +
Total_Incarceration_Time_Served_by_County_Parolee_wMI_Violated_Condition +
Total_Incarceration_Time_Served_by_County_Parolee_wo_MI_Violated_Condition +
Total_Incarceration_Time_Served_by_Prison_Parolee_wo_MI_Violated_Condition) /
(Individuals_with_Criminal_History.total_exConv_wo_parolees +
Individuals_with_Criminal_History.total_parolees)

UNITS: person-year/person

ave_previous_incar_time_per_arrestee = Total_Previous_Incar_Time_Served_by_Arrestees /
Individuals_with_Criminal_History.Arrestees

UNITS: person-year/person

ave_previous_incar_time_per_defendant_in_comm_being_trialed =
Total_Previous_Incar_Time_Served_by_Defendants_in_Comm_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed

UNITS: person-year/person

ave_previous_incar_time_per_defendant_in_custody_being_trialed =
Total_Previous_Incar_Time_Served_by_Defendants_in_Custody_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed

UNITS: person-year/person

ave_previous_incar_time_per_preSentencing_defendant_in_comm = Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Comm / Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody

   UNITS: person-year/person

ave_previous_incar_time_per_preSentencing_defendant_in_custody = Total_Previous_Incar_Time_Served_by_PreSentencing_Defendants_in_Custody / Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody

   UNITS: person-year/person

ave_previous_incar_time_per_prisoner_wo_MI = Previous_Incarceration_Time_Served_by_Prisoners_wo_MI / Individuals_with_Criminal_History.Prisoners_wo_MI

   UNITS: person-year/person

ave_previous_incar_time_per_served_jail_offender_wMI = Previous_Incarceration_Time_Served_by_Jail_Offenders_wMI / Individuals_with_Criminal_History.Jail_Offenders_wMI

   UNITS: person-year/person

ave_previous_incar_time_per_suspect_in_comm_with_case_filed = Total_Previous_Incar_Time_Served_by_Suspects_in_Comm_with_Cases_Filed / Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed

   UNITS: person-year/person

ave_previous_incar_time_per_suspect_in_custody = Total_Previous_Incar_Time_Served_by_Suspects_in_Custody / Individuals_with_Criminal_History.Suspects_in_Custody

   UNITS: person-year/person

ave_previous_incar_time_per_suspect_in_custody_with_case_filed = Total_Previous_Incar_Time_Served_by_Suspects_in_Custody_with_Cases_Filed / Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed

   UNITS: person-year/person

ave_previous_incar_time_per_suspects_in_community = Total_Previous_Incar_Time_Served_by_Pretrial_Suspects_in_Community / Individuals_with_Criminal_History.Pretrial_Suspects_in_Community

   UNITS: person-year/person

ave_previous_incar_time_served_by_probationer = Total_Previous_Incar_Time_Served_by_Probationers / Individuals_with_Criminal_History.Probationers

   UNITS: person-year/person

ave_previous_incar_time_served_per_jail_offender_wo_MI =
Previous_Incarceration_Time_Served_by_Jail_Offender_wo_MI /
Individuals_with_Criminal_History.Jail_Offenders_wo_MI

   UNITS: person-year/person

ave_previous_incar_time_served_per_prisoner_wMI =
Previous_Incarceration_Time_Served_by_Prisoners_wMI /
Individuals_with_Criminal_History.Prisoners_wMI

   UNITS: person-year/person

ave_previous_time_served_per_recidivist = ave_incar_time_per_prison_parolee *
relative_strength_of_parolee_recidivism + ave_incar_time_per_hi_risk_exConv *
relative_strength_of_hi_risk_exConv_recidivism + ave_incar_time_per_lo_risk_exConv *
relative_strength_of_lo_risk_exConv_recidivism

   UNITS: person-year/person

effect_of_incar_time_on_complaints_dismissed_after_arraignment =
GRAPH(relative_ave_previous_incar_time_served_per_recidivist)

(1.000, 1.0000), (1.100, 0.9767), (1.200, 0.9508), (1.300, 0.9294), (1.400, 0.9068), (1.500, 0.8828),
(1.600, 0.8583), (1.700, 0.8427), (1.800, 0.8278), (1.900, 0.8149), (2.000, 0.8000)

   UNITS: unitless

effect_of_incar_time_on_fract_prison_sentence_conviction =
GRAPH(relative_ave_previous_incar_time_served_per_recidivist)

(1.000, 1.0000), (1.100, 1.0078), (1.200, 1.0172), (1.300, 1.0316), (1.400, 1.0519), (1.500, 1.0902),
(1.600, 1.1162), (1.700, 1.1348), (1.800, 1.1434), (1.900, 1.1475), (2.000, 1.1500)

   UNITS: unitless

effect_of_incar_time_on_fract_suspect_held_in_custody = GRAPH(SMTH3
(relative_ave_previous_incar_time_served_per_recidivist, 1,
relative_ave_previous_incar_time_served_per_recidivist))

(1.000, 1.000), (1.100, 1.448), (1.200, 1.966), (1.300, 2.828), (1.400, 3.690), (1.500, 5.207), (1.600,
7.483), (1.700, 8.862), (1.800, 9.379), (1.900, 9.724), (2.000, 10.000)

   UNITS: unitless

effect_of_incar_time_on_jail_time_served_wMI = GRAPH(SMTH3
(relative_previous_incar_time_per_jail_offender_wMI, 1,
relative_previous_incar_time_per_jail_offender_wMI))

(1.000, 1.0000), (1.300, 1.0369), (1.600, 1.0731), (1.900, 1.1076), (2.200, 1.1365), (2.500, 1.1590),
(2.800, 1.1735), (3.100, 1.1847), (3.400, 1.1912), (3.700, 1.1968), (4.000, 1.2000)

   UNITS: unitless

effect_of_incar_time_on_jail_time_served_wo_MI =
GRAPH(relative_previous_incar_time_per_jail_offender_wo_MI)

(1.000, 1.0000), (1.300, 1.0044), (1.600, 1.0092), (1.900, 1.0161), (2.200, 1.0229), (2.500, 1.0309), (2.800, 1.0450), (3.100, 1.0663), (3.400, 1.0843), (3.700, 1.0952), (4.000, 1.1000)

UNITS: unitless

effect_of_incar_time_on_law_enforcement_release = GRAPH(relative_ave_previous_incar_time_served_per_recidivist)

(1.000, 1), (1.100, 0.97791), (1.200, 0.96064), (1.300, 0.94859), (1.400, 0.93815), (1.500, 0.92811), (1.600, 0.92008), (1.700, 0.91406), (1.800, 0.90884), (1.900, 0.90361), (2.000, 0.9)

UNITS: unitless

effect_of_incar_time_on_prison_time_served_wMI = GRAPH(SMTH3(relative_ave_previous_incar_time_served_per_prisoner_wMI, Individuals_with_Criminal_History.ref_ave_prison_time_served_wMI, relative_ave_previous_incar_time_served_per_prisoner_wMI))

(1.000, 1.0000), (1.300, 1.0586), (1.600, 1.1020), (1.900, 1.1285), (2.200, 1.1502), (2.500, 1.1655), (2.800, 1.1743), (3.100, 1.1815), (3.400, 1.1896), (3.700, 1.1952), (4.000, 1.2000)

UNITS: unitless

effect_of_incar_time_on_prison_time_served_wo_MI = GRAPH(SMTH3 (relative_ave_previous_incar_time_per_prisoner_wo_MI, Individuals_with_Criminal_History.ref_ave_prison_time_served_wo_MI, relative_ave_previous_incar_time_per_prisoner_wo_MI))

(1.000, 1.0000), (1.300, 1.0394), (1.600, 1.0771), (1.900, 1.1149), (2.200, 1.1398), (2.500, 1.1606), (2.800, 1.1743), (3.100, 1.1847), (3.400, 1.1944), (3.700, 1.1984), (4.000, 1.2000)

UNITS: unitless

effect_of_incar_time_per_county_parolee_wMI_on_RTP = GRAPH(relative_ave_previous_incar_time_per_county_parolee_wMI)

(1.0000, 1.0000), (1.0500, 1.0201), (1.1000, 1.0534), (1.1500, 1.0898), (1.2000, 1.1331), (1.2500, 1.1877), (1.3000, 1.2601), (1.3500, 1.3669), (1.4000, 1.4417), (1.4500, 1.4822), (1.5000, 1.4984)

UNITS: unitless

effect_of_incar_time_per_county_parolee_wo_MI_on_RTP = GRAPH(relative_ave_previous_incar_time_per_county_parolee_wo_MI)

(1.0000, 1.0000), (1.0500, 1.0105), (1.1000, 1.0245), (1.1500, 1.0432), (1.2000, 1.0724), (1.2500, 1.1121), (1.3000, 1.1623), (1.3500, 1.2230), (1.4000, 1.2696), (1.4500, 1.2930), (1.5000, 1.3000)

UNITS: unitless

effect_of_incar_time_per_jail_offender_on_SC_loss_per_jail_offender_wMI = GRAPH(SMTH3 (relative_ave_previous_incar_time_served_per_jail_offender_wMI, 1, relative_ave_previous_incar_time_served_per_jail_offender_wMI))

(1.000, 1.0000), (1.300, 1.0296), (1.600, 1.0607), (1.900, 1.1028), (2.200, 1.1713), (2.500, 1.2632), (2.800, 1.3583), (3.100, 1.4268), (3.400, 1.4688), (3.700, 1.4922), (4.000, 1.5000)

UNITS: unitless

effect_of_incar_time_per_jail_offender_on_SC_loss_per_jail_offender_wo_MI = GRAPH(SMTH3
(relative_ave_previous_incar_time_served_per_jail_offender_wo_MI, 1,
relative_ave_previous_incar_time_served_per_jail_offender_wo_MI))

(1.000, 1.0000), (1.300, 1.0296), (1.600, 1.0607), (1.900, 1.1028), (2.200, 1.1713), (2.500, 1.2632),
(2.800, 1.3583), (3.100, 1.4268), (3.400, 1.4688), (3.700, 1.4922), (4.000, 1.5000)

UNITS: unitless

effect_of_incar_time_per_prison_parolee_wMI_on_RTP =
GRAPH(relative_ave_previous_incar_time_per_prison_parolee_wMI)

(1.0000, 1.0000), (1.0500, 1.0141), (1.1000, 1.0271), (1.1500, 1.0565), (1.2000, 1.1071), (1.2500,
1.1671), (1.3000, 1.2212), (1.3500, 1.2506), (1.4000, 1.2718), (1.4500, 1.2894), (1.5000, 1.2988)

UNITS: unitless

effect_of_incar_time_per_prison_parolee_wo_MI_on_RTP =
GRAPH(relative_ave_previous_incar_time_per_prison_parolee_wo_MI)

(1.0000, 1.0000), (1.0500, 1.0068), (1.1000, 1.0136), (1.1500, 1.0261), (1.2000, 1.0477), (1.2500,
1.0727), (1.3000, 1.1239), (1.3500, 1.1705), (1.4000, 1.2136), (1.4500, 1.2352), (1.5000, 1.2432)

UNITS: unitless

effect_of_incar_time_per_prisoner_on_SC_loss_per_prisoner_wMI =
GRAPH(relative_ave_previous_incar_time_served_per_prisoner_wMI)

(1.000, 1.0000), (1.300, 1.0296), (1.600, 1.0607), (1.900, 1.1028), (2.200, 1.1713), (2.500, 1.2632),
(2.800, 1.3583), (3.100, 1.4268), (3.400, 1.4688), (3.700, 1.4922), (4.000, 1.5000)

UNITS: unitless

effect_of_incar_time_per_prisoner_on_SC_loss_per_prisoner_wo_MI =
GRAPH(relative_ave_previous_incar_time_per_prisoner_wo_MI)

(1.000, 1.0000), (1.300, 1.0296), (1.600, 1.0607), (1.900, 1.1028), (2.200, 1.1713), (2.500, 1.2632),
(2.800, 1.3583), (3.100, 1.4268), (3.400, 1.4688), (3.700, 1.4922), (4.000, 1.5000)

UNITS: unitless

fract_recidivism_by_hi_risk_exConv =
Individuals_with_Criminal_History.total_hi_risk_exConv_recidivism / total_recidivism

UNITS: unitless

fract_recidivism_by_parolees = Individuals_with_Criminal_History.total_parolee_recidivism /
total_recidivism

UNITS: unitless

fract_recidivism_lo_risk_exConv =
Individuals_with_Criminal_History.total_lo_risk_exConv_recidivism / total_recidivism

UNITS: unitless

init_ave_incar_time_served_per_prison_parolee_wMI_at_eq =
INIT(ave_incar_time_per_prison_parolee_wMI)

   UNITS: person-year/person

init_ave_incar_time_served_per_prison_parolee_wo_MI_at_eq =
INIT(ave_incar_time_served_per_prison_parolee_wo_MI)

   UNITS: person-year/person

init_ave_incarceration_time_served_per_exConv =
INIT(ave_incarceration_time_served_per_exConv)

   UNITS: person-year/person

init_ave_previous_time_served_per_recidivist = INIT(ave_previous_time_served_per_recidivist)

   UNITS: person-year/person

init_current_jail_time_served_served_per_jail_offender_wMI = 0.25

   UNITS: person-year/person

init_current_jail_time_served_served_per_jail_offender_wo_MI = 0.25

   UNITS: person-year/person

init_current_prison_time_served_served_per_prisoner_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE 1.8

   UNITS: person-year/person

init_current_prison_time_served_served_per_prisoner_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE 1.4

   UNITS: person-year/person

init_previous_incar_time_served_per_preSentencing_defendants_in_comm =
0.028*0+0.013*0+0.0087 *0 + 0.0217718188998

   UNITS: person-year/person

init_previous_incar_time_served_per_preSentencing_defendants_in_custody =
0.05*0+0.071*0+0.11*0+0.34*0+0.29*0+0.13 *0+0.155418255726

   UNITS: person-year/person

init_previous_incarceration_time_served_per_arrestee = 1*0+0.028*0+   0.0145152283114*0
+ 0.009*0+0.0076*0+0.015 *0 + 0.0217718188998

   UNITS: person-year/person

init_previous_incarceration_time_served_per_convicted_offenders_to_prison = 1.5

   UNITS: person-year/person

init_previous_incarceration_time_served_per_county_parole_violator_wMI = 3.2

   UNITS: person-year/person

init_previous_incarceration_time_served_per_county_parole_violator_wo_MI = 2.8

    UNITS: person-year/person

init_previous_incarceration_time_served_per_county_parolee_wo_MI = 2.8

    UNITS: person-year/person

init_previous_incarceration_time_served_per_county_parolees_wMI = 3.2

    UNITS: person-year/person

init_previous_incarceration_time_served_per_defendant_in_comm_being_trialed = 0.028*0+0.013*0+0.0087 *0 + 0.0217718188998

    UNITS: person-year/person

init_previous_incarceration_time_served_per_defendant_in_custody_being_trialed = 0.04*0+0.066*0+0.094 *0+0.155418255726

    UNITS: person-year/person

init_previous_incarceration_time_served_per_desisted_jail_exConv_wMI = 0.8 * 0 + 0.281622560959

    UNITS: person-year/person

init_previous_incarceration_time_served_per_desisted_jail_exConv_wo_MI = 0.8 * 0 + 0.241117535893

    UNITS: person-year/person

init_previous_incarceration_time_served_per_desisted_prison_exConv_wMI = 3.2 * 0 + 2.43468289005

    UNITS: person-year/person

init_previous_incarceration_time_served_per_desisted_prison_exConv_wo_MI = 1.45

    UNITS: person-year/person

init_previous_incarceration_time_served_per_hi_risk_jail_exConv_wMI = 0.8*0+0.41 * 0 + 0.281622560959

    UNITS: person-year/person

init_previous_incarceration_time_served_per_hi_risk_jail_exConv_wo_MI = 0.7 * 0 + 0.38 * 0 + 0.281622560959

    UNITS: person-year/person

init_previous_incarceration_time_served_per_hi_risk_prison_exConv_wMI = 3.2 * 0 + 2.43468289005*0+2.31

    UNITS: person-year/person

init_previous_incarceration_time_served_per_hi_risk_prison_exConv_wo_MI = 1.45 * 0 + 1.2

    UNITS: person-year/person

init_previous_incarceration_time_served_per_jail_offender_wMI = 0.3*0+0.018 * 0 + 0.0316225609586

   UNITS: person-year/person

init_previous_incarceration_time_served_per_jail_offender_wo_MI = 0.2*0+0.018 * 0 + 0.0316225609586

   UNITS: person-year/person

init_previous_incarceration_time_served_per_lo_risk_jail_exConv_wMI = 0.8 * 0+ 0.52 * 0 + 0.281622560959

   UNITS: person-year/person

init_previous_incarceration_time_served_per_lo_risk_jail_exConv_wo_MI = 0.8 * 0 + 0.26 * 0 + 0.241117535893

   UNITS: person-year/person

init_previous_incarceration_time_served_per_lo_risk_prison_exConv_wMI = 3.2 * 0 + 2.43468289005

   UNITS: person-year/person

init_previous_incarceration_time_served_per_lo_risk_prison_exConv_wo_MI = 1.45

   UNITS: person-year/person

init_previous_incarceration_time_served_per_pretrial_suspect_in_comm = 0.028*0+0.013*0+0.009 *0 + 0.0217718188998

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prison_parole_violator_wMI = 3.2*0+2*0+0.5 * 0 + 2.43468289005 * 0 + 0.0346828900489*0+2.08

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prison_parole_violator_wo_MI = 1.45

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prison_parolee_wMI = 3.2*0+2*0+1.8*0+2.2 * 0 + 1.8 * 0 + 0.0346828900489 *0+2.19

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prison_parolee_wo_MI = 1.45

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prisoner_wMI = 1.6*0+0.02 * 0 + 0.0346828900489

   UNITS: person-year/person

init_previous_incarceration_time_served_per_prisoner_wo_MI = 1.4*0+0.7*0+0.26*0+0.028*0+0.02*0+0.017 * 0 + 0.0346828900489

UNITS: person-year/person

init_previous_incarceration_time_served_per_probationer = 0.1*0 + 0.18 * 0 + 0.229622473257

UNITS: person-year/person

init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wMI = 3.7

UNITS: person-year/person

init_previous_incarceration_time_served_per_reprisoned_county_parole_violator_fr_prison_wo_MI = 3.2

UNITS: person-year/person

init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wMI = 3.5 * 0 + 2+1 * 0 + 2.43468289005 * 0 + 0.0346828900489

UNITS: person-year/person

init_previous_incarceration_time_served_per_reprisoned_prison_parole_violator_wo_MI = 1.45

UNITS: person-year/person

init_previous_incarceration_time_served_per_suspect_in_comm_case_filed = 0.028*0+0.013*0+0.0089 *0 + 0.0217718188998

UNITS: person-year/person

init_previous_incarceration_time_served_per_suspect_in_custody = 1*0+0.028*0 + 0.087673963418*0+0.073*0+0.028*0+0.13*0+0.155418255726

UNITS: person-year/person

init_previous_incarceration_time_served_per_suspect_in_custody_case_filed = 1*0+0.03*0+ 0.0879237599376*0+0.070*0+0.11*0+0.028*0+0.155418255726

UNITS: person-year/person

multiplier_of_ave_incar_time_served_by_prisoner_to_county_parole = 0.9

UNITS: unitless

prison_year_gained_per_year = 1

UNITS: unitless

ref_jail_time_served_in_split_sentence_wMI = 1.5

UNITS: year

ref_jail_time_served_in_split_sentence_wo_MI = 1.5

UNITS: year

relative_ave_previous_incar_time_per_county_parolee_wMI = (1-Individuals_with_Criminal_History.rounding_switch) * (ave_incar_time_per_county_parolee_wMI / init_previous_incarceration_time_served_per_county_parolees_wMI) +

Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_incar_time_per_county_parolee_wMI /
init_previous_incarceration_time_served_per_county_parolees_wMI)

    UNITS: unitless

relative_ave_previous_incar_time_per_county_parolee_wo_MI = (1-
Individuals_with_Criminal_History.rounding_switch) *
(ave_incar_time_served_per_county_parolee_wo_MI /
init_previous_incarceration_time_served_per_county_parolee_wo_MI) +
Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_incar_time_served_per_county_parolee_wo_MI /
init_previous_incarceration_time_served_per_county_parolee_wo_MI)

    UNITS: unitless

relative_ave_previous_incar_time_per_prison_parolee_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN (1-
Individuals_with_Criminal_History.rounding_switch) * (ave_incar_time_per_prison_parolee_wMI /
init_ave_incar_time_served_per_prison_parolee_wMI_at_eq) +
Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_incar_time_per_prison_parolee_wMI /
init_ave_incar_time_served_per_prison_parolee_wMI_at_eq) ELSE (1-
Individuals_with_Criminal_History.rounding_switch) * (ave_incar_time_per_prison_parolee_wMI /
init_previous_incarceration_time_served_per_prison_parolee_wMI) +
Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_incar_time_per_prison_parolee_wMI /
init_previous_incarceration_time_served_per_prison_parolee_wMI)

    UNITS: unitless

relative_ave_previous_incar_time_per_prison_parolee_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
ave_incar_time_served_per_prison_parolee_wo_MI/init_ave_incar_time_served_per_prison_parole
e_wo_MI_at_eq ELSE (1-Individuals_with_Criminal_History.rounding_switch) *
(ave_incar_time_served_per_prison_parolee_wo_MI /
init_previous_incarceration_time_served_per_prison_parolee_wo_MI) +
Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_incar_time_served_per_prison_parolee_wo_MI /
init_previous_incarceration_time_served_per_prison_parolee_wo_MI)

    UNITS: unitless

relative_ave_previous_incar_time_per_prisoner_wo_MI = (1-
Individuals_with_Criminal_History.rounding_switch) *
(ave_previous_incar_time_per_prisoner_wo_MI /
init_previous_incarceration_time_served_per_prisoner_wo_MI) +
Individuals_with_Criminal_History.rounding_switch * ROUND
(ave_previous_incar_time_per_prisoner_wo_MI /
init_previous_incarceration_time_served_per_prisoner_wo_MI)

    UNITS: unitless

relative_ave_previous_incar_time_served_per_exConv = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_incarceration_time_served_per_exConv / init_ave_incarceration_time_served_per_exConv) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_incarceration_time_served_per_exConv / init_ave_incarceration_time_served_per_exConv)

UNITS: unitless

relative_ave_previous_incar_time_served_per_jail_offender_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_previous_incar_time_per_served_jail_offender_wMI / init_previous_incarceration_time_served_per_jail_offender_wMI) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_previous_incar_time_per_served_jail_offender_wMI / init_previous_incarceration_time_served_per_jail_offender_wMI)

UNITS: unitless

relative_ave_previous_incar_time_served_per_jail_offender_wo_MI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_previous_incar_time_served_per_jail_offender_wo_MI / init_previous_incarceration_time_served_per_jail_offender_wo_MI) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_previous_incar_time_served_per_jail_offender_wo_MI / init_previous_incarceration_time_served_per_jail_offender_wo_MI)

UNITS: unitless

relative_ave_previous_incar_time_served_per_prisoner_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_previous_incar_time_served_per_prisoner_wMI / init_previous_incarceration_time_served_per_prisoner_wMI) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_previous_incar_time_served_per_prisoner_wMI / init_previous_incarceration_time_served_per_prisoner_wMI)

UNITS: unitless

relative_ave_previous_incar_time_served_per_recidivist = (1- Individuals_with_Criminal_History.rounding_switch) * (ave_previous_time_served_per_recidivist / init_ave_previous_time_served_per_recidivist) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_previous_time_served_per_recidivist / init_ave_previous_time_served_per_recidivist)

UNITS: unitless

relative_previous_incar_time_per_jail_offender_wMI = ave_previous_incar_time_per_served_jail_offender_wMI / init_previous_incarceration_time_served_per_jail_offender_wMI

UNITS: unitless

relative_previous_incar_time_per_jail_offender_wo_MI = ave_previous_incar_time_served_per_jail_offender_wo_MI / init_previous_incarceration_time_served_per_jail_offender_wo_MI

    UNITS: unitless

relative_strength_of_hi_risk_exConv_recidivism = weighted_strength_of_hi_risk_exConv_recidivsm / total_recidivism_strength

    UNITS: unitless

relative_strength_of_lo_risk_exConv_recidivism = weighted_strength_of_lo_risk_exConv_recidivsm / total_recidivism_strength

    UNITS: unitless

relative_strength_of_parolee_recidivism = weighted_strength_of_parolee_recidivsm / total_recidivism_strength

    UNITS: unitless

test_jail_sentence_served_at_current_release_wMI = STEP(2.5, 1994) * 0

    UNITS: year/person

test_prison_year_wMI = STEP(2.5, 1994) * 0

    UNITS: person/year

test_prison_year_wo_MI = STEP(2 , 1994) * 0

    UNITS: year/person

total_incar_time_per_jail_offender_wMI = ave_previous_incar_time_per_served_jail_offender_wMI + ave_current_sentence_length_served_per_jail_offender_wMI

    UNITS: person-year/person

total_incar_time_per_jail_offender_wo_MI = ave_previous_incar_time_served_per_jail_offender_wo_MI + ave_current_sentence_length_served_per_jail_offender_wo_MI

    UNITS: year

total_incar_time_per_prisoner_wMI = ave_previous_incar_time_served_per_prisoner_wMI + Individuals_with_Criminal_History.ave_prison_time_served_wMI

    UNITS: person-year/person

total_incar_time_per_prisoner_wo_MI = ave_previous_incar_time_per_prisoner_wo_MI + Individuals_with_Criminal_History.ave_prison_time_served_wo_MI

    UNITS: person-year/person

total_recidivism = Individuals_with_Criminal_History.total_parolee_recidivism + Individuals_with_Criminal_History.total_hi_risk_exConv_recidivism + Individuals_with_Criminal_History.total_lo_risk_exConv_recidivism

UNITS: person/year

total_recidivism_strength = weighted_strength_of_parolee_recidivsm + weighted_strength_of_hi_risk_exConv_recidivsm + weighted_strength_of_lo_risk_exConv_recidivsm

UNITS: unitless

weight_for_hi_risk_exConv_recidivism = 0.15

UNITS: unitless

weight_for_lo_risk_exConv_recidivism = 0.05

UNITS: unitless

weight_for_parolee_recidivism = 0.8

UNITS: unitless

weighted_strength_of_hi_risk_exConv_recidivsm = fract_recidivism_by_hi_risk_exConv * weight_for_hi_risk_exConv_recidivism

UNITS: unitless

weighted_strength_of_lo_risk_exConv_recidivsm = fract_recidivism_lo_risk_exConv * weight_for_lo_risk_exConv_recidivism

UNITS: unitless

weighted_strength_of_parolee_recidivsm = fract_recidivism_by_parolees * weight_for_parolee_recidivism

UNITS: unitless

{ The model has 450 (450) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 40 (40) Flows: 113 (113) Converters: 297 (297)

 Constants: 51 (51) Equations: 359 (359) Graphicals: 16 (16)

 There are also 406 expanded macro variables.

 }

Social Capital Module

SC_County_Parolees_wMI(t) = SC_County_Parolees_wMI(t - dt) + (county_parolee_gainning_SC + transferring_SC_thru_releasing_parolee_wMI_after_realignment - transferring_SC_thru_county_parolee_violating_condition - transferring_SC_thru_discharing_county_parolee_wMI - transferring_SC_thru_county_parolee_wMI_committing_new_crime - county_parolee_losing_SC) * dt

   INIT SC_County_Parolees_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN Individuals_with_Criminal_History.County_Parolees_wMI * init_SC_per_county_parolee_wMI ELSE Individuals_with_Criminal_History.County_Parolees_wMI * init_SC_per_county_parolee_wMI

   UNITS: score

   INFLOWS:

     county_parolee_gainning_SC = (Individuals_with_Criminal_History.County_Parolees_wMI * annual_parolee_wMI_SC_gain_per_person)

       UNITS: score/year

     transferring_SC_thru_releasing_parolee_wMI_after_realignment = (Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment * ave_SC_per_prisoner_wMI * multiplier_of_ave_SC_per_prisoner_to_county_parole)

       UNITS: score/year

   OUTFLOWS:

     transferring_SC_thru_county_parolee_violating_condition = (Individuals_with_Criminal_History.county_parolee_wMI_violating_condition * ave_SC_per_county_parolee_wMI)

       UNITS: score/year

     transferring_SC_thru_discharing_county_parolee_wMI = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wMI * ave_SC_per_county_parolee_wMI)

       UNITS: score/year

     transferring_SC_thru_county_parolee_wMI_committing_new_crime = (Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes * ave_SC_per_county_parolee_wMI)

       UNITS: score/year

     county_parolee_losing_SC = (Individuals_with_Criminal_History.County_Parolees_wMI * annual_parolee_wMI_SC_loss_per_person)

       UNITS: score/year

SC_County_Parolees_wMI_Violated_Condition(t) = SC_County_Parolees_wMI_Violated_Condition(t - dt) + (transferring_SC_thru_county_parolee_violating_condition - transferring_SC_thru_county_parolee_returning_to_prison_wMI - transferring_SC_thru_discharing_county_parolee_wMI_violated_condition - transferring_SC_thru_county_parolee_wMI_violated_condition_committing_new_crime) * dt

INIT SC_County_Parolees_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI * init_SC_per_reprisoned_county_parolee_violator_wMI ELSE Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI * ave_SC_per_prisoner_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_county_parolee_violating_condition = (Individuals_with_Criminal_History.county_parolee_wMI_violating_condition * ave_SC_per_county_parolee_wMI)

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_county_parolee_returning_to_prison_wMI = (Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail * ave_SC_per_county_parole_violator_wMI)

UNITS: score/year

transferring_SC_thru_discharing_county_parolee_wMI_violated_condition = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition * ave_SC_per_county_parole_violator_wMI)

UNITS: score/year

transferring_SC_thru_county_parolee_wMI_violated_condition_committing_new_crime = (Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crimes * ave_SC_per_county_parole_violator_wMI)

UNITS: score/year

SC_County_Parolees_wo_MI(t) = SC_County_Parolees_wo_MI(t - dt) + (county_parolee_gainning_SC_wo_MI + transferring_SC_thru_releasing_parolee_wo_MI_after_realignment - transferring_SC_thru_county_parolee_violating_condition_wo_MI - transferring_SC_thru_discharging_county_parolee_wo_MI - county_parolee_losing_SC_wo_MI - transferring_SC_thru_county_parolee_wo_MI_committing_new_crime) * dt

INIT SC_County_Parolees_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN Individuals_with_Criminal_History.County_Parolees_wMI * init_SC_per_county_parolee_wMI ELSE Individuals_with_Criminal_History.County_Parolees_wMI * ave_SC_per_prison_parolee_wo_MI

UNITS: score

INFLOWS:

county_parolee_gainning_SC_wo_MI = Individuals_with_Criminal_History.County_Parolees_wo_MI * annual_parolee_wo_MI_SC_gain_per_capita

UNITS: score/year

transferring_SC_thru_releasing_parolee_wo_MI_after_realignment = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * ave_SC_per_prisoner_wo_MI * multiplier_of_ave_SC_per_prisoner_to_county_parole

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_county_parolee_violating_condition_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition * ave_SC_per_county_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_discharging_county_parolee_wo_MI = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wo_MI * ave_SC_per_county_parolee_wo_MI) + (1-Individuals_with_Criminal_History.realignment_policy) * zero_transferring_SC_thru_discharging_county_parolee_wo_MI

UNITS: score/year

county_parolee_losing_SC_wo_MI = Individuals_with_Criminal_History.County_Parolees_wo_MI * annual_parolee_wo_MI_SC_loss_per_capita

UNITS: score/year

transferring_SC_thru_county_parolee_wo_MI_committing_new_crime = Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes * ave_SC_per_county_parolee_wo_MI

UNITS: score/year

SC_County_Parolees_wo_MI_Violated_Condition(t) = SC_County_Parolees_wo_MI_Violated_Condition(t - dt) + (transferring_SC_thru_county_parolee_violating_condition_wo_MI - transferring_SC_thru_county_parolee_returning_to_prison_wo_MI - transferring_SC_thru_discharing_county_parolee_violated_condition_wo_MI - transferring_SC_thru_county_parolee_wo_MI_violated_condition_committing_new_crime) * dt

INIT SC_County_Parolees_wo_MI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI * init_SC_per_reprisoned_county_parolee_violator_wo_MI ELSE

Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI * ave_SC_per_prison_parolee_wo_MI

   UNITS: score

   INFLOWS:

     transferring_SC_thru_county_parolee_violating_condition_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_violating_condition * ave_SC_per_county_parolee_wo_MI

       UNITS: score/year

   OUTFLOWS:

     transferring_SC_thru_county_parolee_returning_to_prison_wo_MI = Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail * ave_SC_per_county_parole_violator_wo_MI

       UNITS: score/year

     transferring_SC_thru_discharing_county_parolee_violated_condition_wo_MI = Individuals_with_Criminal_History.realignment_policy * (Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition * ave_SC_per_county_parole_violator_wo_MI)

       UNITS: score/year

     transferring_SC_thru_county_parolee_wo_MI_violated_condition_committing_new_crime = Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes * ave_SC_per_county_parole_violator_wo_MI

       UNITS: score/year

SC_Hi_Risk_Jail_ExConv_wMI(t) = SC_Hi_Risk_Jail_ExConv_wMI(t - dt) + (transferring_SC_thru_releasing_jail_offenders_directly_wMI + transferring_SC_thru_discharing_county_parolee_wMI_violated_condition + transferring_SC_thru_discharing_county_parolee_wMI + transferring_SC_thru_rerelease_to_county_parole_wMI - transferring_SC_thru_becoming_lo_risk_jail_exConv_wMI - transferring_SC_thru_hi_risk_jail_exConv_wMI_committing_new_crime - transferring_SC_thru_hi_risk_jail_exConv_deaths_wMI) * dt

   INIT SC_Hi_Risk_Jail_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((ave_SC_per_jail_offender_wMI* Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI+ave_SC_per_county_parolee_wMI* Individuals_with_Criminal_History.discharging_county_parolee_wMI+ave_SC_per_county_parole_violator_wMI* Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition) * Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI) / (Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths + +Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI+Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism) ELSE

Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI *
init_SC_per_hi_risk_jail_exConv_wMI

  UNITS: score

  INFLOWS:

    transferring_SC_thru_releasing_jail_offenders_directly_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_SC_per_jail_offender_wMI

      UNITS: score/year

    transferring_SC_thru_discharing_county_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wMI_violated_condition *
ave_SC_per_county_parole_violator_wMI)

      UNITS: score/year

    transferring_SC_thru_discharing_county_parolee_wMI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wMI *
ave_SC_per_county_parolee_wMI)

      UNITS: score/year

    transferring_SC_thru_rerelease_to_county_parole_wMI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole *
ave_SC_per_reprisoneed_county_parole_violator_wMI)

      UNITS: score/year

  OUTFLOWS:

    transferring_SC_thru_becoming_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI *
ave_SC_per_hi_risk_jail_exConv_wMI

      UNITS: score/year

    transferring_SC_thru_hi_risk_jail_exConv_wMI_committing_new_crime =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism *
ave_SC_per_hi_risk_jail_exConv_wMI

      UNITS: score/year

    transferring_SC_thru_hi_risk_jail_exConv_deaths_wMI =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_deaths *
ave_SC_per_hi_risk_jail_exConv_wMI

      UNITS: score/year

SC_Hi_Risk_Jail_ExConv_wo_MI(t) = SC_Hi_Risk_Jail_ExConv_wo_MI(t - dt) +
(transferring_SC_thru_releasing_jail_offenders_directly_wo_MI +

transferring_SC_thru_discharing_county_parolee_violated_condition_wo_MI +
transferring_SC_thru_discharging_county_parolee_wo_MI +
transferring_SC_thru_rerelease_to_county_parole_wo_MI -
transferring_SC_thru_becoming_lo_risk_jail_exConv_wo_MI -
transferring_SC_thru_hi_risk_jail_exConv_wo_MI_committing_new_crime -
transferring_SC_thru_hi_risk_jail_exConv_deaths_wo_MI) * dt

INIT SC_Hi_Risk_Jail_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI*ave_SC_per_jail_offen
der_wo_MI*Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI)/(Individuals_with_C
riminal_History.becoming_lo_risk_jail_exConv_wo_MI+Individuals_with_Criminal_History.hi_risk_jail
_exConv_wo_MI_deaths+Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism)
ELSE Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI *
init_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_releasing_jail_offenders_directly_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_SC_per_jail_offender_wo_MI

UNITS: score/year

transferring_SC_thru_discharing_county_parolee_violated_condition_wo_MI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wo_MI_violated_condition *
ave_SC_per_county_parole_violator_wo_MI)

UNITS: score/year

transferring_SC_thru_discharging_county_parolee_wo_MI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.discharging_county_parolee_wo_MI *
ave_SC_per_county_parolee_wo_MI) + (1-Individuals_with_Criminal_History.realignment_policy) *
zero_transferring_SC_thru_discharging_county_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_rerelease_to_county_parole_wo_MI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_SC_per_county_parolee_wo_MI)

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_hi_risk_jail_exConv_wo_MI_committing_new_crime =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism *
ave_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_hi_risk_jail_exConv_deaths_wo_MI =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_deaths *
ave_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

SC_Hi_Risk_Prison_ExConv_wMI(t) = SC_Hi_Risk_Prison_ExConv_wMI(t - dt) +
(transferring_SC_thru_discharing_prison_parolee_wMI +
transferring_SC_thru_discharing_prison_parolee_wMI_violated_condition +
transferring_SC_thru_discharing_reparoled_prison_parolee_wMI -
transferring_SC_thru_becoming_lo_risk_exConv_wMI -
transferring_SC_thru_hi_risk_exConv_wMI_committing_new_crime -
transferring_SC_thru_hi_risk_exConv_deaths_wMI) * dt

INIT SC_Hi_Risk_Prison_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch =
1 THEN
((ave_SC_per_prison_parolee_wMI*Individuals_with_Criminal_History.discharging_prison_parolee_
wMI+ave_SC_per_reparoled_prison_parolee_wMI*Individuals_with_Criminal_History.discharging_re
paroled_prison_parolee_wMI+ave_SC_per_prison_parolee_wMI_violated_condition*Individuals_wit
h_Criminal_History.discharging_prison_parolee_wMI_violated_condition)*Individuals_with_Criminal
_History.HI_Risk_Prison_ExConvicts_wMI) /
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI+Individuals_with_Crimin
al_History.hi_risk_prison_exConv_deaths_wMI+Individuals_with_Criminal_History.hi_risk_prison_ex
Conv_wMI_recidivism) ELSE Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI *
init_SC_per_hi_risk_prison_exConv_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_discharing_prison_parolee_wMI =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI *
ave_SC_per_prison_parolee_wMI

UNITS: score/year

transferring_SC_thru_discharing_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition *
ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_SC_thru_discharing_reparoled_prison_parolee_wMI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI *
ave_SC_per_reparoled_prison_parolee_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_becoming_lo_risk_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI *
ave_SC_per_hi_risk_prison_exConv_wMI

UNITS: score/year

transferring_SC_thru_hi_risk_exConv_wMI_committing_new_crime =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism *
ave_SC_per_hi_risk_prison_exConv_wMI

UNITS: score/year

transferring_SC_thru_hi_risk_exConv_deaths_wMI =
Individuals_with_Criminal_History.hi_risk_prison_exConv_deaths_wMI *
ave_SC_per_hi_risk_prison_exConv_wMI

UNITS: score/year

SC_Hi_Risk_Prison_ExConv_wo_MI(t) = SC_Hi_Risk_Prison_ExConv_wo_MI(t - dt) +
(transferring_SC_thru_discharing_prison_parolee_wo_MI +
transferring_SC_thru_discharing_prison_parolee_wo_MI_violated_condition +
transferring_SC_thru_discharing_reparoled_prison_parolee_wo_MI -
transferring_SC_thru_becoming_lo_risk_exConv_wo_MI -
transferring_SC_thru_hi_risk_exConv_wo_MI_committing_new_crime -
transferring_SC_thru_hi_risk_exConv_deaths_wo_MI) * dt

INIT SC_Hi_Risk_Prison_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch
= 1 THEN
((ave_SC_per_prison_parolee_wo_MI*Individuals_with_Criminal_History.discharging_prison_parole
e_wo_MI+ave_SC_per_reparoled_prison_parolee_wo_MI*Individuals_with_Criminal_History.dischar
ging_reparoled_prison_parolee_wo_MI+ave_SC_per_prison_parolee_wo_MI_violated_condition*In
dividuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition)*Individual
s_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI) /
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI+Individuals_with_Crim
inal_History.hi_risk_prison_exConv_wo_MI_deaths+Individuals_with_Criminal_History.hi_risk_priso
n_exConv_wo_MI_recidivism) ELSE
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI *
init_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_discharing_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI *
ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_discharing_prison_parolee_wo_MI_violated_condition = Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition * ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_SC_thru_discharing_reparoled_prison_parolee_wo_MI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI * ave_SC_per_reparoled_prison_parolee_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_becoming_lo_risk_exConv_wo_MI = Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI * ave_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_hi_risk_exConv_wo_MI_committing_new_crime = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism * ave_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_hi_risk_exConv_deaths_wo_MI = Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_deaths * ave_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

SC_Jail_Offenders_wMI(t) = SC_Jail_Offenders_wMI(t - dt) + (transferring_SC_thru_convicting_defendant_in_comm_to_jail_wMI + transferring_SC_thru_jail_offender_devMI + transferring_SC_thru_convicting_defendant_in_custody_to_jail_wMI - transferring_SC_thru_releasing_jail_offenders_directly_wMI - transferring_SC_thru_continue_serving_thru_probation_wMI - losing_SC_in_jail_wMI) * dt

INIT SC_Jail_Offenders_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 869172.364688 ELSE Individuals_with_Criminal_History.Jail_Offenders_wMI * init_SC_per_jail_offender_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_convicting_defendant_in_comm_to_jail_wMI = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wMI * ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

transferring_SC_thru_jail_offender_devMI = Individuals_with_Criminal_History.jail_offender_devMI * ave_SC_per_jail_offender_wo_MI

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_custody_to_jail_wMI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wMI *
ave_SC_per_PreSentencing_defendant_in_custody

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_releasing_jail_offenders_directly_wMI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wMI *
ave_SC_per_jail_offender_wMI

UNITS: score/year

transferring_SC_thru_continue_serving_thru_probation_wMI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wMI *
ave_SC_per_jail_offender_wMI

UNITS: score/year

losing_SC_in_jail_wMI =
Individuals_with_Criminal_History.effects_of_incarceration_year_switch *
(Individuals_with_Criminal_History.Jail_Offenders_wMI *
ref_annual_jail_offender_SC_loss_per_person *
Incarceration_Year_Served.effect_of_incar_time_per_jail_offender_on_SC_loss_per_jail_offender_w
MI) + Individuals_with_Criminal_History.effects_of_incarceration_year_switch *
(Individuals_with_Criminal_History.Jail_Offenders_wMI *
ref_annual_jail_offender_SC_loss_per_person)

UNITS: score/year

SC_Jail_Offenders_wo_MI(t) = SC_Jail_Offenders_wo_MI(t - dt) +
(transferring_SC_thru_convicting_defendant_in_comm_to_jail_wo_MI +
transferring_SC_thru_convicting_defendant_in_custody_to_jail_wo_MI -
transferring_SC_thru_releasing_jail_offenders_directly_wo_MI -
continue_serving_thru_probation_wo_MI - transferring_SC_thru_jail_offender_devMI -
losing_SC_in_jail_wo_MI) * dt

INIT SC_Jail_Offenders_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1
THEN 920462.337283 ELSE Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
init_SC_per_jail_offender_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_convicting_defendant_in_comm_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_jail_wo_MI *
ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_custody_to_jail_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_jail_wo_MI *
ave_SC_per_PreSentencing_defendant_in_custody

      UNITS: score/year

  OUTFLOWS:

transferring_SC_thru_releasing_jail_offenders_directly_wo_MI =
Individuals_with_Criminal_History.releasing_jail_offenders_directly_wo_MI *
ave_SC_per_jail_offender_wo_MI

      UNITS: score/year

continue_serving_thru_probation_wo_MI =
Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI *
ave_SC_per_jail_offender_wo_MI

      UNITS: score/year

transferring_SC_thru_jail_offender_devMI =
Individuals_with_Criminal_History.jail_offender_devMI * ave_SC_per_jail_offender_wo_MI

      UNITS: score/year

losing_SC_in_jail_wo_MI = Individuals_with_Criminal_History.Jail_Offenders_wo_MI *
ref_annual_jail_offender_SC_loss_per_person *
Incarceration_Year_Served.effect_of_incar_time_per_jail_offender_on_SC_loss_per_jail_offender_w
o_MI

      UNITS: score/year

SC_Lo_Risk_Jail_ExConv_wMI(t) = SC_Lo_Risk_Jail_ExConv_wMI(t - dt) +
(transferring_SC_thru_becoming_lo_risk_jail_exConv_wMI -
transferring_SC_thru_jail_exConv_becoming_desisted_wMI -
transferring_SC_thru_lo_risk_jail_exConv_wMI_committing_new_crime -
transferring_SC_thru_lo_risk_jail_exConv_deaths_wMI) * dt

   INIT SC_Lo_Risk_Jail_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1
THEN
(Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI*ave_SC_per_hi_risk_jail_exC
onv_wMI*Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI)/(Individuals_with_Crimi
nal_History.lo_risk_jail_exConv_wMI_deaths+Individuals_with_Criminal_History.jail_exConv_wMI_b
ecoming_desisted+Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism) ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI *
init_SC_per_lo_risk_jail_exConv_wMI

  UNITS: score

  INFLOWS:

transferring_SC_thru_becoming_lo_risk_jail_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wMI *
ave_SC_per_hi_risk_jail_exConv_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_jail_exConv_becoming_desisted_wMI =
Individuals_with_Criminal_History.jail_exConv_wMI_becoming_desisted *
ave_SC_per_lo_risk_jail_exConv_wMI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_wMI_committing_new_crime =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism *
ave_SC_per_lo_risk_jail_exConv_wMI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_deaths_wMI =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_deaths *
ave_SC_per_lo_risk_jail_exConv_wMI

UNITS: score/year

SC_Lo_Risk_Jail_ExConv_wo_MI(t) = SC_Lo_Risk_Jail_ExConv_wo_MI(t - dt) +
(transferring_SC_thru_becoming_lo_risk_jail_exConv_wo_MI +
transferring_SC_thru_discharging_fr_probation -
transferring_SC_thru_jail_exConv_becoming_desisted_wo_MI -
transferring_SC_thru_lo_risk_jail_exConv_wo_MI_committing_new_crime -
transferring_SC_thru_lo_risk_jail_exConv_deaths_wo_MI) * dt

INIT SC_Lo_Risk_Jail_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1
THEN
((ave_SC_per_probationer*Individuals_with_Criminal_History.discharging_fr_probation+ave_SC_per
_hi_risk_jail_exConv_wo_MI*Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_
MI)*Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI)/(Individuals_with_Criminal_
History.jail_exConv_wo_MI_becoming_desisted+Individuals_with_Criminal_History.lo_risk_jail_exCo
nv_wo_MI_deaths+Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism) ELSE
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI *
init_SC_per_lo_risk_jail_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_becoming_lo_risk_jail_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_jail_exConv_wo_MI *
ave_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_discharging_fr_probation =
Individuals_with_Criminal_History.discharging_fr_probation * ave_SC_per_probationer

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_jail_exConv_becoming_desisted_wo_MI =
Individuals_with_Criminal_History.jail_exConv_wo_MI_becoming_desisted *
ave_SC_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_wo_MI_committing_new_crime =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism *
ave_SC_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_deaths_wo_MI =
Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_deaths *
ave_SC_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

SC_Lo_Risk_Prison_ExConv_wMI(t) = SC_Lo_Risk_Prison_ExConv_wMI(t - dt) +
(transferring_SC_thru_becoming_lo_risk_exConv_wMI -
transferring_SC_thru_prison_exConv_becoming_desisted_wMI -
transferring_SC_thru_lo_risk_exConv_deaths_wMI -
transferring_SC_thru_lo_risk_exConv_wMI_committing_new_crime) * dt

INIT SC_Lo_Risk_Prison_ExConv_wMI = IF Individuals_with_Criminal_History.equilibrium_switch =
1 THEN
(Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI*ave_SC_per_hi_risk_pris
on_exConv_wMI*Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI)/(Individuals_
with_Criminal_History.lo_risk_prison_exConv_deaths_wMI+Individuals_with_Criminal_History.lo_ris
k_prison_exConv_wMI_recidivism+Individuals_with_Criminal_History.prison_exConv_becoming_des
isted_wMI) ELSE Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI *
init_SC_per_lo_risk_prison_exConv_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_becoming_lo_risk_exConv_wMI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wMI *
ave_SC_per_hi_risk_prison_exConv_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_prison_exConv_becoming_desisted_wMI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wMI *
ave_SC_per_lo_risk_prison_exConv_wMI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_deaths_wMI =
Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wMI *
ave_SC_per_lo_risk_prison_exConv_wMI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_wMI_committing_new_crime =
Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism *
ave_SC_per_lo_risk_prison_exConv_wMI

UNITS: score/year

SC_Lo_Risk_Prison_ExConv_wo_MI(t) = SC_Lo_Risk_Prison_ExConv_wo_MI(t - dt) +
(transferring_SC_thru_becoming_lo_risk_exConv_wo_MI -
transferring_SC_thru_prison_exConv_becoming_desisted_wo_MI -
transferring_SC_thru_lo_risk_exConv_deaths_wo_MI -
transferring_SC_thru_lo_risk_exConv_wo_MI_committing_new_crime) * dt

INIT SC_Lo_Risk_Prison_ExConv_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch
= 1 THEN ((ave_SC_per_hi_risk_prison_exConv_wo_MI*
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI)*
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI) /
(Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI+
Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism+Individuals_with_Crimi
nal_History.prison_exConv_becoming_desisted_wo_MI) ELSE
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI *
init_SC_per_lo_risk_prison_exConv_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_becoming_lo_risk_exConv_wo_MI =
Individuals_with_Criminal_History.becoming_lo_risk_prison_exConv_wo_MI *
ave_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_prison_exConv_becoming_desisted_wo_MI =
Individuals_with_Criminal_History.prison_exConv_becoming_desisted_wo_MI *
ave_SC_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_deaths_wo_MI =
Individuals_with_Criminal_History.lo_risk_prison_exConv_deaths_wo_MI *
ave_SC_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_wo_MI_committing_new_crime =
Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism *
ave_SC_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

SC_of_Arrestees(t) = SC_of_Arrestees(t - dt) +
(transferring_SC_thru_hi_risk_exConv_wo_MI_committing_new_crime +
transferring_SC_thru_prison_parolee_wMI_committing_new_crime +
transferring_SC_thru_county_parolee_wMI_committing_new_crime +
transferring_SC_thru_hi_risk_jail_exConv_wMI_committing_new_crime +
transferring_SC_thru_lo_risk_jail_exConv_wMI_committing_new_crime +
transferring_SC_thru_prison_parolee_wo_MI_committing_new_crime +
transferring_SC_thru_lo_risk_exConv_wMI_committing_new_crime +
transferring_SC_thru_county_parolee_wo_MI_committing_new_crime +
transferring_SC_thru_hi_risk_jail_exConv_wo_MI_committing_new_crime +
transferring_SC_thru_lo_risk_jail_exConv_wo_MI_committing_new_crime +
transferring_SC_thru_lo_risk_exConv_wo_MI_committing_new_crime + adding_SC_thru_arresting +
transferring_SC_thru_prison_parolee_wo_MI_violated_condition_committing_new_crime +
transferring_SC_thru_prison_parolee_wMI_violated_condition_committing_new_crime +
transferring_SC_thru_county_parolee_wo_MI_violated_condition_committing_new_crime +
transferring_SC_thru_county_parolee_wMI_violated_condition_committing_new_crime +
transferring_SC_thru_hi_risk_exConv_wMI_committing_new_crime -
transferring_SC_thru_holding_in_custody - transferring_SC_thru_pretrial_release -
losing_SC_thru_release_by_law_enforcement) * dt

INIT SC_of_Arrestees = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
1005340.5143   ELSE Individuals_with_Criminal_History.Arrestees * init_SC_per_arrestee

UNITS: score

INFLOWS:

transferring_SC_thru_hi_risk_exConv_wo_MI_committing_new_crime =
Individuals_with_Criminal_History.hi_risk_prison_exConv_wo_MI_recidivism *
ave_SC_per_hi_risk_prison_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_prison_parolee_wMI_committing_new_crime =
Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes *
ave_SC_per_prison_parolee_wMI

UNITS: score/year

transferring_SC_thru_county_parolee_wMI_committing_new_crime =
(Individuals_with_Criminal_History.county_parolee_wMI_committing_new_crimes *
ave_SC_per_county_parolee_wMI)

UNITS: score/year

transferring_SC_thru_hi_risk_jail_exConv_wMI_committing_new_crime =
Individuals_with_Criminal_History.hi_risk_jail_exConv_wMI_recidivism *
ave_SC_per_hi_risk_jail_exConv_wMI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_wMI_committing_new_crime = Individuals_with_Criminal_History.lo_risk_jail_exConv_wMI_recidivism * ave_SC_per_lo_risk_jail_exConv_wMI

UNITS: score/year

transferring_SC_thru_prison_parolee_wo_MI_committing_new_crime = Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes * ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_wMI_committing_new_crime = Individuals_with_Criminal_History.lo_risk_prison_exConv_wMI_recidivism * ave_SC_per_lo_risk_prison_exConv_wMI

UNITS: score/year

transferring_SC_thru_county_parolee_wo_MI_committing_new_crime = Individuals_with_Criminal_History.county_parolee_wo_MI_committing_new_crimes * ave_SC_per_county_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_hi_risk_jail_exConv_wo_MI_committing_new_crime = Individuals_with_Criminal_History.hi_risk_jail_exConv_wo_MI_recidivism * ave_SC_per_hi_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_jail_exConv_wo_MI_committing_new_crime = Individuals_with_Criminal_History.lo_risk_jail_exConv_wo_MI_recidivism * ave_SC_per_lo_risk_jail_exConv_wo_MI

UNITS: score/year

transferring_SC_thru_lo_risk_exConv_wo_MI_committing_new_crime = Individuals_with_Criminal_History.lo_risk_prison_exConv_wo_MI_recidivism * ave_SC_per_lo_risk_prison_exConv_wo_MI

UNITS: score/year

adding_SC_thru_arresting = Individuals_with_Criminal_History.arrest_rate * ave_SC_per_new_arrestee

UNITS: score/year

transferring_SC_thru_prison_parolee_wo_MI_violated_condition_committing_new_crime = Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_crimes * ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_SC_thru_prison_parolee_wMI_violated_condition_committing_new_crime = Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crimes * ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_SC_thru_county_parolee_wo_MI_violated_condition_committing_new_crime = Individuals_with_Criminal_History.county_parolee_wo_MI_violated_condition_committing_new_crimes * ave_SC_per_county_parole_violator_wo_MI

UNITS: score/year

transferring_SC_thru_county_parolee_wMI_violated_condition_committing_new_crime = (Individuals_with_Criminal_History.county_parolee_wMI_violated_condition_committing_new_crimes * ave_SC_per_county_parole_violator_wMI)

UNITS: score/year

transferring_SC_thru_hi_risk_exConv_wMI_committing_new_crime = Individuals_with_Criminal_History.hi_risk_prison_exConv_wMI_recidivism * ave_SC_per_hi_risk_prison_exConv_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_holding_in_custody = Individuals_with_Criminal_History.being_held_in_custody * ave_SC_per_arrestee

UNITS: score/year

transferring_SC_thru_pretrial_release = Individuals_with_Criminal_History.pretrial_release * ave_SC_per_arrestee

UNITS: score/year

losing_SC_thru_release_by_law_enforcement = Individuals_with_Criminal_History.release_by_law_enforcement * ave_SC_per_arrestee

UNITS: score/year

SC_of_Defendant_in_Comm_Being_Trialed(t) = SC_of_Defendant_in_Comm_Being_Trialed(t - dt) + (transferring_SC_thru_defendant_in_comm_waiting_for_trial + transferring_SC_thru_violating_probation - transferring_SC_thru_defendant_in_comm_waiting_for_sentence - losing_SC_thru_dismissing_complaint_against_defendant_in_comm_after_trial) * dt

INIT SC_of_Defendant_in_Comm_Being_Trialed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 129206.425571 ELSE Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed * init_SC_per_defendant_in_comm_being_trialed

UNITS: score

INFLOWS:

transferring_SC_thru_defendant_in_comm_waiting_for_trial = Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial * ave_SC_per_suspect_in_comm_with_case_filed

UNITS: score/year

transferring_SC_thru_violating_probation =
Individuals_with_Criminal_History.violating_probation * ave_SC_per_probationer

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_comm_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence *
ave_SC_per_defendant_in_comm_being_trialed

UNITS: score/year

losing_SC_thru_dismissing_complaint_against_defendant_in_comm_after_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_after_trial *
ave_SC_per_defendant_in_comm_being_trialed

UNITS: score/year

SC_of_Defendant_in_Custody_Being_Trialed(t) = SC_of_Defendant_in_Custody_Being_Trialed(t - dt)
+ (transferring_SC_thru_defendant_in_custody_waiting_for_trial -
transferring_SC_thru_defendant_in_custody_waiting_for_sentence -
losing_SC_thru_dismissing_complaint_against_defendant_in_custody_after_trial) * dt

INIT SC_of_Defendant_in_Custody_Being_Trialed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial*ave_SC_per_suspects_in_
custody_with_cases_filed*Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed
)/(Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence+Individuals_wit
h_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial) ELSE
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed *
init_SC_per_defendant_in_custody_being_trialed

UNITS: score

INFLOWS:

transferring_SC_thru_defendant_in_custody_waiting_for_trial =
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial *
ave_SC_per_suspects_in_custody_with_cases_filed

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_custody_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence *
ave_SC_per_defendant_in_custody_being_trialed

UNITS: score/year

losing_SC_thru_dismissing_complaint_against_defendant_in_custody_after_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_after_trial *
ave_SC_per_defendant_in_custody_being_trialed

UNITS: score/year

SC_of_PreSentencing_Defendants_in_Comm(t) = SC_of_PreSentencing_Defendants_in_Comm(t - dt)
+ (transferring_SC_thru_defendant_in_comm_waiting_for_sentence +
transferring_SC_thru_defendant_in_comm_conviction_wo_trial -
transferring_SC_thru_defendant_in_comm_being_sentenced) * dt

INIT SC_of_PreSentencing_Defendants_in_Comm = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 301485.694209 ELSE
Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody *
init_SC_per_PreSentencing_defendants_in_comm

UNITS: score

INFLOWS:

transferring_SC_thru_defendant_in_comm_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_comm_waiting_for_sentence *
ave_SC_per_defendant_in_comm_being_trialed

UNITS: score/year

transferring_SC_thru_defendant_in_comm_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial *
ave_SC_per_suspect_in_comm_with_case_filed

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_comm_being_sentenced =
Individuals_with_Criminal_History.defendant_in_comm_being_sentenced *
ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

SC_of_PreSentencing_Defendants_in_Custody(t) = SC_of_PreSentencing_Defendants_in_Custody(t -
dt) + (transferring_SC_thru_defendant_in_custody_waiting_for_sentence +
transferring_SC_thru_defendant_in_custody_conviction_wo_trial -
transferring_SC_thru_defendant_in_custody_being_sentenced) * dt

INIT SC_of_PreSentencing_Defendants_in_Custody = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 177225.346639
ELSE
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody *
init_SC_per_PreSentencing_defendants_in_custody

UNITS: score

INFLOWS:

transferring_SC_thru_defendant_in_custody_waiting_for_sentence =
Individuals_with_Criminal_History.defendents_in_custody_waiting_for_sentence *
ave_SC_per_defendant_in_custody_being_trialed

UNITS: score/year

transferring_SC_thru_defendant_in_custody_conviction_wo_trial = Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial * ave_SC_per_suspects_in_custody_with_cases_filed

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_custody_being_sentenced = Individuals_with_Criminal_History.defendant_in_custody_being_sentenced * ave_SC_per_PreSentencing_defendant_in_custody

UNITS: score/year

SC_of_Pretrial_Suspects_in_Community(t) = SC_of_Pretrial_Suspects_in_Community(t - dt) + (transferring_SC_thru_pretrial_release - transferring_SC_thru_filing_cases_for_suspect_in_comm) * dt

INIT SC_of_Pretrial_Suspects_in_Community = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.pretrial_release*ave_SC_per_arrestee*Individuals_with_Criminal_History.Pretrial_Suspects_in_Community)/Individuals_with_Criminal_History.filing_case_for_suspect_in_comm ELSE Individuals_with_Criminal_History.Pretrial_Suspects_in_Community * init_SC_per_suspect_in_comm

UNITS: score

INFLOWS:

transferring_SC_thru_pretrial_release = Individuals_with_Criminal_History.pretrial_release * ave_SC_per_arrestee

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_filing_cases_for_suspect_in_comm = Individuals_with_Criminal_History.filing_case_for_suspect_in_comm * ave_SC_per_suspect_in_comm

UNITS: score/year

SC_of_Probationers(t) = SC_of_Probationers(t - dt) + (transferring_SC_thru_convicting_defendant_in_custody_to_probation + transferring_SC_thru_convicting_defendant_in_comm_to_probation + continue_serving_thru_probation_wo_MI + transferring_SC_thru_continue_serving_thru_probation_wMI - transferring_SC_thru_violating_probation - transferring_SC_thru_discharging_fr_probation) * dt

INIT SC_of_Probationers = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 14381267.9581 ELSE Individuals_with_Criminal_History.Probationers * init_SC_per_probationer

UNITS: score

INFLOWS:

transferring_SC_thru_convicting_defendant_in_custody_to_probation = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_probation * ave_SC_per_PreSentencing_defendant_in_custody

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_comm_to_probation = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_probation * ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

continue_serving_thru_probation_wo_MI = Individuals_with_Criminal_History.continue_serving_thru_probation_wo_MI * ave_SC_per_jail_offender_wo_MI

UNITS: score/year

transferring_SC_thru_continue_serving_thru_probation_wMI = Individuals_with_Criminal_History.continue_serving_thru_probation_wMI * ave_SC_per_jail_offender_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_violating_probation = Individuals_with_Criminal_History.violating_probation * ave_SC_per_probationer

UNITS: score/year

transferring_SC_thru_discharging_fr_probation = Individuals_with_Criminal_History.discharging_fr_probation * ave_SC_per_probationer

UNITS: score/year

SC_of_Suspects_in_Comm_with_Cases_Filed(t) = SC_of_Suspects_in_Comm_with_Cases_Filed(t - dt) + (transferring_SC_thru_filing_cases_for_suspect_in_comm - transferring_SC_thru_defendant_in_comm_waiting_for_trial - losing_SC_thru_dismissing_complaint_against_defendant_in_comm_before_trial - transferring_SC_thru_defendant_in_comm_conviction_wo_trial) * dt

INIT SC_of_Suspects_in_Comm_with_Cases_Filed = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (Individuals_with_Criminal_History.filing_case_for_suspect_in_comm*ave_SC_per_suspect_in_comm*Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed)/(Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial+Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial+Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial) ELSE Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed * init_SC_per_suspect_in_comm_with_case_filed

UNITS: score

INFLOWS:

transferring_SC_thru_filing_cases_for_suspect_in_comm =
Individuals_with_Criminal_History.filing_case_for_suspect_in_comm *
ave_SC_per_suspect_in_comm

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_comm_waiting_for_trial =
Individuals_with_Criminal_History.suspect_in_comm_waiting_for_trial *
ave_SC_per_suspect_in_comm_with_case_filed

UNITS: score/year

losing_SC_thru_dismissing_complaint_against_defendant_in_comm_before_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_comm_dismissed_before_trial *
ave_SC_per_suspect_in_comm_with_case_filed

UNITS: score/year

transferring_SC_thru_defendant_in_comm_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_comm_conviction_wo_trial *
ave_SC_per_suspect_in_comm_with_case_filed

UNITS: score/year

SC_of_Suspects_in_Custody(t) = SC_of_Suspects_in_Custody(t - dt) +
(transferring_SC_thru_holding_in_custody -
transferring_SC_thru_filing_cases_for_suspect_in_custody) * dt

INIT SC_of_Suspects_in_Custody = IF Individuals_with_Criminal_History.equilibrium_switch =1
THEN
(Individuals_with_Criminal_History.being_held_in_custody*ave_SC_per_arrestee*Individuals_with_
Criminal_History.Suspects_in_Custody)/Individuals_with_Criminal_History.filing_case_for_suspect_i
n_custody ELSE Individuals_with_Criminal_History.Suspects_in_Custody *
init_SC_per_suspect_in_custody

UNITS: score

INFLOWS:

transferring_SC_thru_holding_in_custody =
Individuals_with_Criminal_History.being_held_in_custody * ave_SC_per_arrestee

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_filing_cases_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_SC_per_suspect_in_custody

UNITS: score/year

SC_of_Suspects_in_Custody_with_Cases_Filed(t) = SC_of_Suspects_in_Custody_with_Cases_Filed(t -
dt) + (transferring_SC_thru_filing_cases_for_suspect_in_custody -

transferring_SC_thru_defendant_in_custody_waiting_for_trial -
losing_SC_thru_dismissing_complaint_against_defendant_in_custody_before_trial -
transferring_SC_thru_defendant_in_custody_conviction_wo_trial) * dt

INIT SC_of_Suspects_in_Custody_with_Cases_Filed = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
(Individuals_with_Criminal_History.filing_case_for_suspect_in_custody*ave_SC_per_suspect_in_cus
tody*Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed)/(Individuals_with_
Criminal_History.suspect_in_custody_waiting_for_trial+Individuals_with_Criminal_History.defendan
ts_in_cusotdy_conviction_wo_trial+Individuals_with_Criminal_History.complaints_against_suspects
_in_custody_dismissed_before_trial) ELSE
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed *
init_SC_per_suspect_in_custody_with_case_filed

UNITS: score

INFLOWS:

transferring_SC_thru_filing_cases_for_suspect_in_custody =
Individuals_with_Criminal_History.filing_case_for_suspect_in_custody *
ave_SC_per_suspect_in_custody

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_defendant_in_custody_waiting_for_trial =
Individuals_with_Criminal_History.suspect_in_custody_waiting_for_trial *
ave_SC_per_suspects_in_custody_with_cases_filed

UNITS: score/year

losing_SC_thru_dismissing_complaint_against_defendant_in_custody_before_trial =
Individuals_with_Criminal_History.complaints_against_suspects_in_custody_dismissed_before_trial
* ave_SC_per_suspects_in_custody_with_cases_filed

UNITS: score/year

transferring_SC_thru_defendant_in_custody_conviction_wo_trial =
Individuals_with_Criminal_History.defendants_in_cusotdy_conviction_wo_trial *
ave_SC_per_suspects_in_custody_with_cases_filed

UNITS: score/year

SC_Prison_Parolees_wMI(t) = SC_Prison_Parolees_wMI(t - dt) +
(transferring_SC_thru_releasing_parolee_before_realignment + prison_parolee_gainning_SC -
transferring_SC_thru_discharing_prison_parolee_wMI -
transferring_SC_thru_prison_parolee_violating_condition -
transferring_SC_thru_prison_parolee_wMI_committing_new_crime - prison_parolee_losing_SC) * dt

INIT SC_Prison_Parolees_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
532634.272575 ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI *
init_SC_per_prison_parolee_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_releasing_parolee_before_realignment = Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment * ave_SC_per_prisoner_wMI

UNITS: score/year

prison_parolee_gainning_SC = Individuals_with_Criminal_History.Prison_Parolees_wMI * annual_parolee_wMI_SC_gain_per_person

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_discharing_prison_parolee_wMI = Individuals_with_Criminal_History.discharging_prison_parolee_wMI * ave_SC_per_prison_parolee_wMI

UNITS: score/year

transferring_SC_thru_prison_parolee_violating_condition = Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition * ave_SC_per_prison_parolee_wMI

UNITS: score/year

transferring_SC_thru_prison_parolee_wMI_committing_new_crime = Individuals_with_Criminal_History.prison_parolee_wMI_committing_new_crimes * ave_SC_per_prison_parolee_wMI

UNITS: score/year

prison_parolee_losing_SC = Individuals_with_Criminal_History.Prison_Parolees_wMI * annual_parolee_wMI_SC_loss_per_person

UNITS: score/year

SC_Prison_Parolees_wMI_Violated_Condition(t) = SC_Prison_Parolees_wMI_Violated_Condition(t - dt) + (transferring_SC_thru_prison_parolee_violating_condition - transferring_SC_thru_prison_parolee_returning_to_prison_wMI - transferring_SC_thru_discharing_prison_parolee_wMI_violated_condition - transferring_SC_thru_prison_parolee_wMI_violated_condition_committing_new_crime) * dt

INIT SC_Prison_Parolees_wMI_Violated_Condition = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 145845.11353 ELSE Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition * init_SC_per_prison_parolee_wMI_violated_condition

UNITS: score

INFLOWS:

transferring_SC_thru_prison_parolee_violating_condition = Individuals_with_Criminal_History.prison_parolee_wMI_violating_condition * ave_SC_per_prison_parolee_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_prison_parolee_returning_to_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_SC_thru_discharing_prison_parolee_wMI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wMI_violated_condition *
ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

transferring_SC_thru_prison_parolee_wMI_violated_condition_committing_new_crime =
Individuals_with_Criminal_History.prison_parolee_wMI_violated_condition_committing_new_crime
s * ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

SC_Prison_Parolees_wo_MI(t) = SC_Prison_Parolees_wo_MI(t - dt) +
(transferring_SC_thru_releasing_parolee_wo_MI_before_realignment +
prison_parolee_wo_MI_gainning_SC - transferring_SC_thru_discharing_prison_parolee_wo_MI -
transferring_SC_thru_prison_parolee_wo_MI_violating_condition -
transferring_SC_thru_prison_parolee_wo_MI_committing_new_crime -
prison_parolee_wo_MI_losing_SC) * dt

INIT SC_Prison_Parolees_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1
THEN 2494125.95187 ELSE Individuals_with_Criminal_History.Prison_Parolees_wo_MI *
init_SC_per_prison_parolee_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_releasing_parolee_wo_MI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment *
ave_SC_per_prisoner_wo_MI

UNITS: score/year

prison_parolee_wo_MI_gainning_SC = Individuals_with_Criminal_History.Prison_Parolees_wMI
* annual_parolee_wo_MI_SC_gain_per_capita

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_discharing_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI *
ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_prison_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition *
ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

transferring_SC_thru_prison_parolee_wo_MI_committing_new_crime =
Individuals_with_Criminal_History.prison_parolee_wo_MI_committing_new_crimes *
ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

prison_parolee_wo_MI_losing_SC = Individuals_with_Criminal_History.Prison_Parolees_wMI *
annual_parolee_wo_MI_SC_loss_per_capita

UNITS: score/year

SC_Prison_Parolees_wo_MI_Violated_Condition(t) =
SC_Prison_Parolees_wo_MI_Violated_Condition(t - dt) +
(transferring_SC_thru_prison_parolee_wo_MI_violating_condition -
transferring_SC_thru_prison_parolee_wo_MI_returning_to_prison -
transferring_SC_thru_discharing_prison_parolee_wo_MI_violated_condition -
transferring_SC_thru_prison_parolee_wo_MI_violated_condition_committing_new_crime) * dt

INIT SC_Prison_Parolees_wo_MI_Violated_Condition = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 474367.361413 ELSE
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition *
init_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score

INFLOWS:

transferring_SC_thru_prison_parolee_wo_MI_violating_condition =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violating_condition *
ave_SC_per_prison_parolee_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_prison_parolee_wo_MI_returning_to_prison =
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison *
ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_SC_thru_discharing_prison_parolee_wo_MI_violated_condition =
Individuals_with_Criminal_History.discharging_prison_parolee_wo_MI_violated_condition *
ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

transferring_SC_thru_prison_parolee_wo_MI_violated_condition_committing_new_crime =
Individuals_with_Criminal_History.prison_parolee_wo_MI_violated_condition_committing_new_cri
mes * ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

SC_Prisoners_wMI(t) = SC_Prisoners_wMI(t - dt) + (transferring_SC_thru_prisoner_devMI + transferring_SC_thru_convicting_defendant_in_custody_to_prison + transferring_SC_thru_convicting_defendant_in_comm_to_prison - transferring_SC_thru_releasing_parolee_before_realignment - transferring_SC_thru_prisoner_wMI_recovering - losing_SC_in_prison - transferring_SC_thru_releasing_parolee_wMI_after_realignment - losing_SC_thru_prisoner_wMI_deaths) * dt

INIT SC_Prisoners_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1313813.98337   ELSE Individuals_with_Criminal_History.Prisoners_wMI * init_SC_per_prisoner_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_prisoner_devMI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_SC_per_prisoner_wo_MI

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_custody_to_prison = Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wMI * ave_SC_per_PreSentencing_defendant_in_custody

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_comm_to_prison = Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wMI * ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_releasing_parolee_before_realignment = Individuals_with_Criminal_History.releasing_prisoner_wMI_before_realignment * ave_SC_per_prisoner_wMI

UNITS: score/year

transferring_SC_thru_prisoner_wMI_recovering = Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_SC_per_prisoner_wMI

UNITS: score/year

losing_SC_in_prison = Individuals_with_Criminal_History.Prisoners_wMI * annual_prisoner_SC_loss_per_prisoner_wMI

UNITS: score/year

transferring_SC_thru_releasing_parolee_wMI_after_realignment = (Individuals_with_Criminal_History.releasing_prisoner_wMI_to_parole_after_realignment * ave_SC_per_prisoner_wMI * multiplier_of_ave_SC_per_prisoner_to_county_parole)

UNITS: score/year

losing_SC_thru_prisoner_wMI_deaths =
Individuals_with_Criminal_History.prisoner_wMI_deaths * ave_SC_per_prisoner_wMI

UNITS: score/year

SC_Prisoners_wo_MI(t) = SC_Prisoners_wo_MI(t - dt) +
(transferring_SC_thru_convicting_defendant_in_custody_to_prison_wo_MI +
transferring_SC_thru_prisoner_wMI_recovering +
transferring_SC_thru_convicting_defendant_in_comm_to_prison_wo_MI -
transferring_SC_thru_releasing_parolee_wo_MI_before_realignment -
losing_SC_thru_prisoner_wo_MI_deaths - losing_SC_in_prison_wo_MI -
transferring_SC_thru_prisoner_devMI -
transferring_SC_thru_releasing_parolee_wo_MI_after_realignment) * dt

INIT SC_Prisoners_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
3992116.95337 ELSE Individuals_with_Criminal_History.Prisoners_wo_MI *
init_SC_per_prisoner_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_convicting_defendant_in_custody_to_prison_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_custody_to_prison_wo_MI *
ave_SC_per_PreSentencing_defendant_in_custody

UNITS: score/year

transferring_SC_thru_prisoner_wMI_recovering =
Individuals_with_Criminal_History.prisoner_wMI_recovering * ave_SC_per_prisoner_wMI

UNITS: score/year

transferring_SC_thru_convicting_defendant_in_comm_to_prison_wo_MI =
Individuals_with_Criminal_History.convicting_defendant_in_comm_to_prison_wo_MI *
ave_SC_per_PreSentencing_defendant_in_comm

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_releasing_parolee_wo_MI_before_realignment =
Individuals_with_Criminal_History.releasing_prisoner_wo_MI_before_realignment *
ave_SC_per_prisoner_wo_MI

UNITS: score/year

losing_SC_thru_prisoner_wo_MI_deaths =
Individuals_with_Criminal_History.prisoner_wo_MI_deaths * ave_SC_per_prisoner_wo_MI

UNITS: score/year

losing_SC_in_prison_wo_MI = Individuals_with_Criminal_History.Prisoners_wo_MI *
annual_prisoner_SC_loss_per_prisoner_wo_MI

UNITS: score/year

transferring_SC_thru_prisoner_devMI = Individuals_with_Criminal_History.prisoner_develop_MI * ave_SC_per_prisoner_wo_MI

UNITS: score/year

transferring_SC_thru_releasing_parolee_wo_MI_after_realignment = Individuals_with_Criminal_History.releasing_prisoner_wo_MI_to_parole_after_realignment * ave_SC_per_prisoner_wo_MI * multiplier_of_ave_SC_per_prisoner_to_county_parole

UNITS: score/year

SC_Repareoled_Prison_Parolee_wMI(t) = SC_Repareoled_Prison_Parolee_wMI(t - dt) + (transferring_SC_thru_rerelease_to_prison_parole_wMI - transferring_SC_thru_discharing_reparoled_prison_parolee_wMI) * dt

INIT SC_Repareoled_Prison_Parolee_wMI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 83860.9402798 ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI * init_SC_per_reprisoned_prison_parolee_violator_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_rerelease_to_prison_parole_wMI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI * ave_SC_per_reprisoneed_prison_parole_violator_wMI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_discharing_reparoled_prison_parolee_wMI = Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wMI * ave_SC_per_reparoled_prison_parolee_wMI

UNITS: score/year

SC_Reparoled_Prison_Parole_Violator_wo_MI(t) = SC_Reparoled_Prison_Parole_Violator_wo_MI(t - dt) + (transferring_SC_thru_rerelease_to_prison_parole_wo_MI - transferring_SC_thru_discharing_reparoled_prison_parolee_wo_MI) * dt

INIT SC_Reparoled_Prison_Parole_Violator_wo_MI = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 170772.250109   ELSE Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI * init_SC_per_reprisoned_prison_parolee_violator_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_rerelease_to_prison_parole_wo_MI = Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI * ave_SC_per_reprisoned_prison_parole_violator_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_discharing_reparoled_prison_parolee_wo_MI =
Individuals_with_Criminal_History.discharging_reparoled_prison_parolee_wo_MI *
ave_SC_per_reparoled_prison_parolee_wo_MI

UNITS: score/year

SC_Reprisoned_County_Parole_Violator_wMI(t) = SC_Reprisoned_County_Parole_Violator_wMI(t -
dt) + (transferring_SC_thru_county_parolee_returning_to_prison_wMI -
transferring_SC_thru_rerelease_to_county_parole_wMI) * dt

INIT SC_Reprisoned_County_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1.96191766496e-039 ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI *
ave_SC_per_prisoner_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_county_parolee_returning_to_prison_wMI =
(Individuals_with_Criminal_History.county_parolee_wMI_returning_to_jail *
ave_SC_per_county_parole_violator_wMI)

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_rerelease_to_county_parole_wMI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wMI_to_county_parole *
ave_SC_per_reprisoneed_county_parole_violator_wMI)

UNITS: score/year

SC_Reprisoned_County_Parole_Violator_wo_MI(t) =
SC_Reprisoned_County_Parole_Violator_wo_MI(t - dt) +
(transferring_SC_thru_county_parolee_returning_to_prison_wo_MI -
transferring_SC_thru_rerelease_to_county_parole_wo_MI) * dt

INIT SC_Reprisoned_County_Parole_Violator_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0.0001   ELSE
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI *
ave_SC_per_prison_parolee_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_county_parolee_returning_to_prison_wo_MI =
Individuals_with_Criminal_History.county_parolee_wo_MI_returning_to_jail *
ave_SC_per_county_parole_violator_wo_MI

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_rerelease_to_county_parole_wo_MI =
Individuals_with_Criminal_History.realignment_policy *
(Individuals_with_Criminal_History.rerelease_reprisoned_county_parolee_wo_MI_to_county_parole
* ave_SC_per_county_parolee_wo_MI)

UNITS: score/year

SC_Reprisoned_Prison_Parole_Violator_wMI(t) = SC_Reprisoned_Prison_Parole_Violator_wMI(t - dt)
+ (transferring_SC_thru_prison_parolee_returning_to_prison_wMI -
transferring_SC_thru_rerelease_to_prison_parole_wMI) * dt

INIT SC_Reprisoned_Prison_Parole_Violator_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison*ave_SC_per_prison_pa
rolee_wMI_violated_condition*Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violat
ors_wMI/Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI *
init_SC_per_reprisoned_prison_parolee_violator_wMI

UNITS: score

INFLOWS:

transferring_SC_thru_prison_parolee_returning_to_prison_wMI =
Individuals_with_Criminal_History.prison_parolee_wMI_returning_to_prison *
ave_SC_per_prison_parolee_wMI_violated_condition

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_rerelease_to_prison_parole_wMI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wMI *
ave_SC_per_reprisoneed_prison_parole_violator_wMI

UNITS: score/year

SC_Reprisoned_Prison_Parole_Violator_wo_MI(t) = SC_Reprisoned_Prison_Parole_Violator_wo_MI(t
- dt) + (transferring_SC_thru_prison_parolee_wo_MI_returning_to_prison -
transferring_SC_thru_rerelease_to_prison_parole_wo_MI) * dt

INIT SC_Reprisoned_Prison_Parole_Violator_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 42693.0625272   ELSE
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI *
init_SC_per_reprisoned_prison_parolee_violator_wo_MI

UNITS: score

INFLOWS:

transferring_SC_thru_prison_parolee_wo_MI_returning_to_prison =
Individuals_with_Criminal_History.prison_parolee_wo_MI_returning_to_prison *
ave_SC_per_prison_parolee_wo_MI_violated_condition

UNITS: score/year

OUTFLOWS:

transferring_SC_thru_rerelease_to_prison_parole_wo_MI =
Individuals_with_Criminal_History.rerelease_to_prison_parole_wo_MI *
ave_SC_per_reprisoned_prison_parole_violator_wo_MI

UNITS: score/year

annual_parolee_wMI_SC_gain_per_person = ref_annual_parolee_SC_gain_per_capita *
Community_Services.effect_of_employment_on_parolee_wMI_SC_gain

UNITS: score/person/year

annual_parolee_wMI_SC_loss_per_person = 2

UNITS: score/person/year

annual_parolee_wo_MI_SC_gain_per_capita = ref_annual_parolee_SC_gain_per_capita *
Community_Services.effect_of_employment_on_parolee_wo_MI_SC_gain

UNITS: score/person/year

annual_parolee_wo_MI_SC_loss_per_capita = 2

UNITS: score/person/year

annual_prisoner_SC_loss_per_prisoner_wMI =
Individuals_with_Criminal_History.effects_of_incarceration_year_switch *
(ref_annual_prisoner_SC_loss_per_person *
Incarceration_Year_Served.effect_of_incar_time_per_prisoner_on_SC_loss_per_prisoner_wMI) + (1
- Individuals_with_Criminal_History.effects_of_incarceration_year_switch) *
ref_annual_prisoner_SC_loss_per_person

UNITS: score/person/year

annual_prisoner_SC_loss_per_prisoner_wo_MI =
Individuals_with_Criminal_History.effects_of_incarceration_year_switch *
(ref_annual_prisoner_SC_loss_per_person *
Incarceration_Year_Served.effect_of_incar_time_per_prisoner_on_SC_loss_per_prisoner_wo_MI) +
(1 - Individuals_with_Criminal_History.effects_of_incarceration_year_switch) *
ref_annual_prisoner_SC_loss_per_person

UNITS: score/person/year

ave_SC_of_all_parolees_wMI = (ave_SC_per_prison_parolee_wMI
*Individuals_with_Criminal_History.Prison_Parolees_wMI +
ave_SC_per_prison_parolee_wMI_violated_condition *
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
ave_SC_per_county_parolee_wMI * Individuals_with_Criminal_History.County_Parolees_wMI +
ave_SC_per_county_parole_violator_wMI *

Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition) /
(Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition)

   UNITS: score/person

ave_SC_of_all_parolees_wo_MI = (ave_SC_per_prison_parolee_wo_MI *
Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
ave_SC_per_prison_parolee_wo_MI_violated_condition
*Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
ave_SC_per_county_parolee_wo_MI * Individuals_with_Criminal_History.County_Parolees_wo_MI +
ave_SC_per_county_parole_violator_wo_MI *
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition) /
(Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition)

   UNITS: score/person

ave_SC_per_arrestee = MIN (SC_of_Arrestees / Individuals_with_Criminal_History.Arrestees, 100)

   UNITS: score/person

ave_SC_per_county_parole_violator_wMI = MIN (SC_County_Parolees_wMI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition, 100)

   UNITS: score/person

ave_SC_per_county_parole_violator_wo_MI = MIN
(SC_County_Parolees_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition, 100)

   UNITS: score/person

ave_SC_per_county_parolee_wMI = IF TIME <=2012.5 THEN 68.4962057945*0 +
ave_SC_per_prison_parolee_wMI ELSE MIN (SC_County_Parolees_wMI /
Individuals_with_Criminal_History.County_Parolees_wMI, 100)

   UNITS: score/person

ave_SC_per_county_parolee_wo_MI = IF TIME<=2012.5 THEN 71.25*0 +
ave_SC_per_prison_parolee_wo_MI ELSE MIN (SC_County_Parolees_wo_MI /
Individuals_with_Criminal_History.County_Parolees_wo_MI, 100)

   UNITS: score/person

ave_SC_per_defendant_in_comm_being_trialed = MIN (SC_of_Defendant_in_Comm_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Comm_Being_Trialed, 100)

   UNITS: score/person

ave_SC_per_defendant_in_custody_being_trialed = MIN
(SC_of_Defendant_in_Custody_Being_Trialed /
Individuals_with_Criminal_History.Defendants_in_Custody_Being_Trialed, 100)

   UNITS: score/person

ave_SC_per_hi_risk_jail_exConv_wMI = MIN (SC_Hi_Risk_Jail_ExConv_wMI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wMI, 100)

   UNITS: score/person

ave_SC_per_hi_risk_jail_exConv_wo_MI = MIN (SC_Hi_Risk_Jail_ExConv_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Jail_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_SC_per_hi_risk_prison_exConv_wMI = MIN (SC_Hi_Risk_Prison_ExConv_wMI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wMI, 100)

   UNITS: score/person

ave_SC_per_hi_risk_prison_exConv_wo_MI = MIN (SC_Hi_Risk_Prison_ExConv_wo_MI /
Individuals_with_Criminal_History.HI_Risk_Prison_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_SC_per_jail_offender_wMI = MIN (SC_Jail_Offenders_wMI /
Individuals_with_Criminal_History.Jail_Offenders_wMI, 100)

   UNITS: score/person

ave_SC_per_jail_offender_wo_MI = MIN (SC_Jail_Offenders_wo_MI /
Individuals_with_Criminal_History.Jail_Offenders_wo_MI, 100)

   UNITS: score/person

ave_SC_per_lo_risk_jail_exConv_wMI = MIN (SC_Lo_Risk_Jail_ExConv_wMI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wMI, 100)

   UNITS: score/person

ave_SC_per_lo_risk_jail_exConv_wo_MI = MIN (SC_Lo_Risk_Jail_ExConv_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Jail_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_SC_per_lo_risk_prison_exConv_wMI = MIN (SC_Lo_Risk_Prison_ExConv_wMI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wMI, 100)

   UNITS: score/person

ave_SC_per_lo_risk_prison_exConv_wo_MI = MIN (SC_Lo_Risk_Prison_ExConv_wo_MI /
Individuals_with_Criminal_History.Lo_Risk_Prison_ExConvicts_wo_MI, 100)

   UNITS: score/person

ave_SC_per_new_arrestee = 70

UNITS: score/person

ave_SC_per_PreSentencing_defendant_in_comm = MIN
(SC_of_PreSentencing_Defendants_in_Comm /
Individuals_with_Criminal_History.PreSentencing_Defendants_fr_Comm_in_Custody, 100)

UNITS: score/person

ave_SC_per_PreSentencing_defendant_in_custody = MIN
(SC_of_PreSentencing_Defendants_in_Custody /
Individuals_with_Criminal_History.PreSentencing_Defendants_in_Custody, 100)

UNITS: score/person

ave_SC_per_prison_parolee_wMI = MIN (SC_Prison_Parolees_wMI /
Individuals_with_Criminal_History.Prison_Parolees_wMI, 100)

UNITS: score/person

ave_SC_per_prison_parolee_wMI_violated_condition = MIN
(SC_Prison_Parolees_wMI_Violated_Condition /
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition, 100)

UNITS: score/person

ave_SC_per_prison_parolee_wo_MI = MIN (SC_Prison_Parolees_wo_MI /
Individuals_with_Criminal_History.Prison_Parolees_wo_MI, 100)

UNITS: score/person

ave_SC_per_prison_parolee_wo_MI_violated_condition = MIN
(SC_Prison_Parolees_wo_MI_Violated_Condition /
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition, 100)

UNITS: score/person

ave_SC_per_prisoner_wMI = MIN (SC_Prisoners_wMI /
Individuals_with_Criminal_History.Prisoners_wMI, 100)

UNITS: score/person

ave_SC_per_prisoner_wo_MI = MIN (SC_Prisoners_wo_MI /
Individuals_with_Criminal_History.Prisoners_wo_MI, 100)

UNITS: score/person

ave_SC_per_probationer = MIN (SC_of_Probationers /
Individuals_with_Criminal_History.Probationers, 100)

UNITS: score/person

ave_SC_per_reparoled_prison_parolee_wMI = MIN (SC_Repareoled_Prison_Parolee_wMI /
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI, 100)

UNITS: score/person

ave_SC_per_reparoled_prison_parolee_wo_MI = MIN
(SC_Reparoled_Prison_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI, 100)

UNITS: score/person

ave_SC_per_reprisoned_prison_parole_violator_wo_MI = MIN
(SC_Reprisoned_Prison_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wo_MI, 100)

UNITS: score/person

ave_SC_per_reprisoneed_county_parole_violator_wMI = MIN
(SC_Reprisoned_County_Parole_Violator_wMI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wMI, 100)

UNITS: score/person

ave_SC_per_reprisoneed_prison_parole_violator_wMI = MIN
(SC_Reprisoned_Prison_Parole_Violator_wMI /
Individuals_with_Criminal_History.Reprisoned_Prison_Parole_Violators_wMI, 100)

UNITS: score/person

ave_SC_per_reprisoneed_prison_parole_violator_wo_MI = MIN
(SC_Reprisoned_County_Parole_Violator_wo_MI /
Individuals_with_Criminal_History.Reprisoned_County_Parole_Violators_wo_MI, 100)

UNITS: score/person

ave_SC_per_suspect_in_comm = MIN (SC_of_Pretrial_Suspects_in_Community /
Individuals_with_Criminal_History.Pretrial_Suspects_in_Community, 100)

UNITS: score/person

ave_SC_per_suspect_in_comm_with_case_filed = MIN (SC_of_Suspects_in_Comm_with_Cases_Filed
/ Individuals_with_Criminal_History.Suspects_in_Comm_with_Cases_Filed, 100)

UNITS: score/person

ave_SC_per_suspect_in_custody = MIN (SC_of_Suspects_in_Custody /
Individuals_with_Criminal_History.Suspects_in_Custody, 100)

UNITS: score/person

ave_SC_per_suspects_in_custody_with_cases_filed = MIN
(SC_of_Suspects_in_Custody_with_Cases_Filed /
Individuals_with_Criminal_History.Suspects_in_Custody_with_Cases_Filed, 100)

UNITS: score/person

effect_of_SC_of_all_parolees_wMI_on_comm_svc_cost =
GRAPH(relative_ave_SC_of_all_parolees_wMI)

(0.8000, 1.5000), (0.8500, 1.4775), (0.9000, 1.4325), (0.9500, 1.2892), (1.0000, 1.0000), (1.0500, 0.9068), (1.1000, 0.8675), (1.1500, 0.8534), (1.2000, 0.8450), (1.2500, 0.8365), (1.3000, 0.8253), (1.3500, 0.8169), (1.4000, 0.8084), (1.4500, 0.8028), (1.5000, 0.8000)

   UNITS: unitless

effect_of_SC_of_all_parolees_wo_MI_on_comm_svcs_cost = GRAPH(relative_ave_SC_of_all_parolees_wo_MI)

(0.8000, 1.5000), (0.8500, 1.3573), (0.9000, 1.1806), (0.9500, 1.0718), (1.0000, 1.0000), (1.0500, 0.9472), (1.1000, 0.9110), (1.1500, 0.8816), (1.2000, 0.8657), (1.2500, 0.8544), (1.3000, 0.8408), (1.3500, 0.8294), (1.4000, 0.8204), (1.4500, 0.8113), (1.5000, 0.8000)

   UNITS: unitless

effect_of_SC_on_county_parole_violation_wMI = GRAPH(SMTH3 (relative_SC_per_county_parolee_wMI, 1, relative_SC_per_county_parolee_wMI))

(0.8000, 1.5000), (0.8400, 1.4786), (0.8800, 1.4423), (0.9200, 1.3532), (0.9600, 1.1828), (1.0000, 1.0000), (1.0400, 0.9180), (1.0800, 0.8655), (1.1200, 0.8341), (1.1600, 0.8131), (1.2000, 0.8000)

   UNITS: unitless

effect_of_SC_on_county_parole_violation_wo_MI = GRAPH(SMTH3 (relative_SC_per_county_parolee_wo_MI, 1, relative_SC_per_county_parolee_wo_MI))

(0.8000, 1.5000), (0.833333333333, 1.4786), (0.866666666667, 1.4553), (0.9000, 1.3854), (0.933333333333, 1.2359), (0.966666666667, 1.1039), (1.0000, 1.0000), (1.03333333333, 0.9621), (1.06666666667, 0.9388), (1.1000, 0.9252), (1.13333333333, 0.9117), (1.16666666667, 0.9039), (1.2000, 0.9039)

   UNITS: unitless

effect_of_SC_on_county_parolee_wMI_recidivism = GRAPH(SMTH3 (relative_SC_per_county_parolee_wMI, 1, relative_SC_per_county_parolee_wMI))

(0.8000, 1.4944), (0.8400, 1.4803), (0.8800, 1.4494), (0.9200, 1.4241), (0.9600, 1.3735), (1.0000, 1.2976), (1.0400, 1.202), (1.0800, 1.0671), (1.1200, 0.9602), (1.1600, 0.9012), (1.2000, 0.8534)

   UNITS: unitless

effect_of_SC_on_county_parolee_wo_MI_recidivism = GRAPH(SMTH3 (relative_SC_per_county_parolee_wo_MI, 1, relative_SC_per_county_parolee_wo_MI))

(0.8000, 1.2952), (0.8400, 1.2759), (0.8800, 1.2494), (0.9200, 1.2133), (0.9600, 1.1699), (1.0000, 1.1169), (1.0400, 1.0446), (1.0800, 0.9554), (1.1200, 0.8711), (1.1600, 0.8036), (1.2000, 0.7506)

   UNITS: unitless

effect_of_SC_on_prison_parole_violation_wMI = GRAPH(SMTH3(relative_SC_per_prison_parolee_wMI, 1, relative_SC_per_prison_parolee_wMI))

(0.8000, 1.2000), (0.8400, 1.1815), (0.8800, 1.1552), (0.9200, 1.1212), (0.9600, 1.0811), (1.0000, 1.0000), (1.0400, 0.9050), (1.0800, 0.8541), (1.1200, 0.8247), (1.1600, 0.8108), (1.2000, 0.8000)

   UNITS: unitless

effect_of_SC_on_prison_parole_violation_wo_MI = GRAPH(SMTH3
(relative_SC_per_prison_parolee_wo_MI, 1, relative_SC_per_prison_parolee_wo_MI))

(0.8000, 1.2000), (0.8400, 1.1861), (0.8800, 1.1707), (0.9200, 1.1459), (0.9600, 1.0888), (1.0000, 1.0000), (1.0400, 0.9174), (1.0800, 0.8710), (1.1200, 0.8340), (1.1600, 0.8154), (1.2000, 0.8000)

    UNITS: unitless

effect_of_SC_on_prison_parolee_wMI_recidivism =
GRAPH(SMTH3(relative_SC_per_prison_parolee_wMI, 1, relative_SC_per_prison_parolee_wMI))

(0.8000, 1.5000), (0.8400, 1.4803), (0.8800, 1.4494), (0.9200, 1.4241), (0.9600, 1.3735), (1.0000, 1.2976), (1.0400, 1.2020), (1.0800, 1.0671), (1.1200, 0.9602), (1.1600, 0.9012), (1.2000, 0.8500)

    UNITS: unitless

effect_of_SC_on_prison_parolee_wo_MI_recidivism =
GRAPH(SMTH3(relative_SC_per_prison_parolee_wo_MI, 1,
relative_SC_per_prison_parolee_wo_MI))

(0.8000, 1.3000), (0.8400, 1.2759), (0.8800, 1.2494), (0.9200, 1.2133), (0.9600, 1.1699), (1.0000, 1.1169), (1.0400, 1.0446), (1.0800, 0.9554), (1.1200, 0.8711), (1.1600, 0.8036), (1.2000, 0.7500)

    UNITS: unitless

init_ave_SC_of_all_parolees_wMI = INIT(ave_SC_of_all_parolees_wMI)

    UNITS: score/person

init_ave_SC_of_all_parolees_wo_MI = INIT(ave_SC_of_all_parolees_wo_MI)

    UNITS: score/person

init_SC_per_arrestee = 70 *0 + 70.6338902527

    UNITS: score/person

init_SC_per_county_parolee_wMI = 62

    UNITS: score/person

init_SC_per_county_parolee_wMI_violated_condition = 62

    UNITS: score/person

init_SC_per_county_parolee_wo_MI = 0.0001

    UNITS: score/person

init_SC_per_county_parolee_wo_MI_violated_condition = 67

    UNITS: score/person

init_SC_per_defendant_in_comm_being_trialed = 70 *0 + 70.6338902527

    UNITS: score/person

init_SC_per_defendant_in_custody_being_trialed = 70 *0 + 70.6338902527

    UNITS: score/person

init_SC_per_hi_risk_jail_exConv_wMI = 68 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_hi_risk_jail_exConv_wo_MI = 68 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_hi_risk_prison_exConv_wMI = 65 * 0 + 67.558514057

UNITS: score/person

init_SC_per_hi_risk_prison_exConv_wo_MI = 67 *0 + 66.735254775

UNITS: score/person

init_SC_per_jail_offender_wMI = 65 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_jail_offender_wo_MI = 65 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_lo_risk_jail_exConv_wMI = 70 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_lo_risk_jail_exConv_wo_MI = 70 * 0 + 70.6338902527

UNITS: score/person

init_SC_per_lo_risk_prison_exConv_wMI = 68 * 0 + 67.558514057

UNITS: score/person

init_SC_per_lo_risk_prison_exConv_wo_MI = 70 *0 + 66.735254775

UNITS: score/person

init_SC_per_PreSentencing_defendants_in_comm = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_PreSentencing_defendants_in_custody = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_prison_parolee_wMI = 62 * 0 + 67.558514057

UNITS: score/person

init_SC_per_prison_parolee_wMI_violated_condition = 62 * 0 + 67.558514057

UNITS: score/person

init_SC_per_prison_parolee_wo_MI = 67 *0 + 66.735254775

UNITS: score/person

init_SC_per_prison_parolee_wo_MI_violated_condition = 67 * 0 + 66.7352547751

UNITS: score/person

init_SC_per_prisoner_wMI = 60 *0 + 64.4512886869

UNITS: score/person

init_SC_per_prisoner_wo_MI = 65 *0 + 66.735254775

UNITS: score/person

init_SC_per_probationer = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_reprisoned_county_parolee_violator_wMI = 62

UNITS: score/person

init_SC_per_reprisoned_county_parolee_violator_wo_MI = 67

UNITS: score/person

init_SC_per_reprisoned_prison_parolee_violator_wMI = 62 * 0 + 67.558514057

UNITS: score/person

init_SC_per_reprisoned_prison_parolee_violator_wo_MI = 67 * 0 + 66.7352547751

UNITS: score/person

init_SC_per_suspect_in_comm = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_suspect_in_comm_with_case_filed = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_suspect_in_custody = 70 *0 + 70.6338902527

UNITS: score/person

init_SC_per_suspect_in_custody_with_case_filed = 70 *0 + 70.6338902527

UNITS: score/person

multiplier_of_ave_SC_per_prisoner_to_county_parole = 1.1

UNITS: unitless

ref_annual_jail_offender_SC_loss_per_person = 2

UNITS: score/person/year

ref_annual_parolee_SC_gain_per_capita = 2

UNITS: score/person/year

ref_annual_prisoner_SC_loss_per_person = 2

UNITS: score/person/year

ref_SC_per_normal_person = 100

   UNITS: score/person

relative_ave_SC_of_all_parolees_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_of_all_parolees_wMI / init_ave_SC_of_all_parolees_wMI) + Individuals_with_Criminal_History.rounding_switch * (ROUND(ave_SC_of_all_parolees_wMI / init_ave_SC_of_all_parolees_wMI))

   UNITS: unitless

relative_ave_SC_of_all_parolees_wo_MI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_of_all_parolees_wo_MI / init_ave_SC_of_all_parolees_wo_MI) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_SC_of_all_parolees_wo_MI / init_ave_SC_of_all_parolees_wo_MI)

   UNITS: unitless

relative_SC_per_county_parolee_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_per_county_parolee_wMI / init_SC_per_county_parolee_wMI) + Individuals_with_Criminal_History.rounding_switch * (ROUND (ave_SC_per_county_parolee_wMI) / init_SC_per_county_parolee_wMI)

   UNITS: unitless

relative_SC_per_county_parolee_wo_MI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_per_county_parolee_wo_MI / init_SC_per_county_parolee_wo_MI) + Individuals_with_Criminal_History.rounding_switch * (ROUND(ave_SC_per_county_parolee_wo_MI) / init_SC_per_county_parolee_wo_MI)

   UNITS: unitless

relative_SC_per_prison_parolee_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_per_prison_parolee_wMI / init_SC_per_prison_parolee_wMI) + Individuals_with_Criminal_History.rounding_switch * (ROUND(ave_SC_per_prison_parolee_wMI / init_SC_per_prison_parolee_wMI))

   UNITS: unitless

relative_SC_per_prison_parolee_wo_MI = (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_SC_per_prison_parolee_wo_MI / init_SC_per_prison_parolee_wo_MI) + Individuals_with_Criminal_History.rounding_switch * (ROUND(ave_SC_per_prison_parolee_wo_MI / init_SC_per_prison_parolee_wo_MI))

   UNITS: unitless

zero_transferring_SC_thru_discharging_county_parolee_wo_MI = 0

   UNITS: score/year

{ The model has 392 (392) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 36 (36) Flows: 109 (109) Converters: 247 (247)

Constants: 43 (43) Equations: 313 (313) Graphicals: 16 (16)

There are also 406 expanded macro variables.

}

Prisoner Health Care Needs

actual_total_mental_functions_in_prison = Mental_Profiles.Mental_Functions_of_Prisoners_wMI + Mental_Profiles.Mental_Functions_of_Prisoners_wo_MI

   UNITS: score

ave_age_in_prison = (Age_Profiles.Total_Age_of_Prisoners_wMI +Age_Profiles.Total_Age_of_Prisoners_wo_MI) / Individuals_with_Criminal_History.total_prisoners

   UNITS: year/person

desired_total_mental_functions_in_prison = Individuals_with_Criminal_History.total_prisoners * nm_mental_functions_per_person

   UNITS: score

effect_of_age_on_fract_of_elderly_prisoners = GRAPH(relative_ave_age_in_prison)

(0.9000, 0.900), (0.9500, 0.957), (1.0000, 1.000), (1.0500, 1.442), (1.1000, 2.155), (1.1500, 3.324), (1.2000, 4.978), (1.2500, 6.000), (1.3000, 6.888), (1.3500, 7.487), (1.4000, 7.743), (1.4500, 7.886), (1.5000, 8.000)

   UNITS: unitless

effect_of_relative_age_on_CD_cost_per_prisoner = GRAPH(relative_ave_age_in_prison)

(1.0000, 1.000), (1.0500, 1.037), (1.1000, 1.110), (1.1500, 1.220), (1.2000, 1.367), (1.2500, 1.531), (1.3000, 1.686), (1.3500, 1.812), (1.4000, 1.918), (1.4500, 1.980), (1.5000, 2.000)

   UNITS: unitless

fract_prisoners_need_CD_tmnt = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN init_fract_prisoners_need_CD_tmnt * effect_of_age_on_fract_of_elderly_prisoners ELSE SMTH3((init_fract_prisoners_need_CD_tmnt * effect_of_age_on_fract_of_elderly_prisoners), 1 , (init_fract_prisoners_need_CD_tmnt * effect_of_age_on_fract_of_elderly_prisoners))

   UNITS: unitless

fract_prisoners_wIDs = ref_fract_prisoners_wID * Prison_Capacity.effect_of_prison_utlization_on_fract_of_prisoners_wID

   UNITS: unitless

init_ave_age_in_prison = INIT(ave_age_in_prison)

   UNITS: year/person

init_fract_prisoners_need_CD_tmnt = 0.03

   UNITS: unitless

nm_mental_functions_per_person = 85

   UNITS: score/person

prisoners_need_CD_tmnt = Individuals_with_Criminal_History.total_prisoners * fract_prisoners_need_CD_tmnt

UNITS: person

prisoners_wIDs = Individuals_with_Criminal_History.total_prisoners * fract_prisoners_wIDs

UNITS: person

ref_fract_prisoners_wID = 0.03

UNITS: unitless

relative_ave_age_in_prison = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (1 - Individuals_with_Criminal_History.rounding_switch) * (ave_age_in_prison/ init_ave_age_in_prison) + Individuals_with_Criminal_History.rounding_switch * ROUND(ave_age_in_prison/ init_ave_age_in_prison) ELSE ave_age_in_prison / init_ave_age_in_prison

UNITS: unitless

total_discrepancy_in_mental_functions_in_prison = desired_total_mental_functions_in_prison - actual_total_mental_functions_in_prison

UNITS: score

{ The model has 27 (27) variables (array expansion in parens).

  In this module and 0 additional modules with 0 sectors.

  Stocks: 0 (0) Flows: 0 (0) Converters: 27 (27)

  Constants: 3 (3) Equations: 24 (24) Graphicals: 3 (3)

  There are also 406 expanded macro variables.

  }

Prison Health Care Resource Allocation Module

Ave_HC_Cost_per_Prisoner(t) = Ave_HC_Cost_per_Prisoner(t - dt) + (chg_in_ave_HC_cost) * dt

  INIT Ave_HC_Cost_per_Prisoner = 1990 {back track 4450 with 6% HC spending inflation}

  UNITS: dollar/person/year

  INFLOWS:

    chg_in_ave_HC_cost = Ave_HC_Cost_per_Prisoner * growth_rate_of_ave_HC_cost

      UNITS: dollar/person/year/year

CD_Tmnt_Cost_per_Prisoner(t) = CD_Tmnt_Cost_per_Prisoner(t - dt) + (chg_in_CD_cost_per_prisoner) * dt

  INIT CD_Tmnt_Cost_per_Prisoner = 1990 {$4450/person/year HC cost in 2000. Back traced 6% HC spending inflation} * 3 {older inmates cost 3x more to treat than the younger ones}

  UNITS: dollar/person

  INFLOWS:

    chg_in_CD_cost_per_prisoner = CD_Tmnt_Cost_per_Prisoner * growth_rate_of_ave_HC_cost * Prisoner_Health_Care_Needs.effect_of_relative_age_on_CD_cost_per_prisoner

      UNITS: dollar/person/year

ID_Tmnt_Cost_per_Prisoner(t) = ID_Tmnt_Cost_per_Prisoner(t - dt) + (chg_in_ID_cost_per_prisoner) * dt

  INIT ID_Tmnt_Cost_per_Prisoner = 20000

  UNITS: dollar/person

  INFLOWS:

    chg_in_ID_cost_per_prisoner = ID_Tmnt_Cost_per_Prisoner * growth_rate_of_ave_HC_cost * effect_of_ID_tmnt_capacity_on_cost_per_prisoner

      UNITS: dollar/person/year

Medical_Screening_Adjustment_Time(t) = Medical_Screening_Adjustment_Time(t - dt) + (chg_in_medical_screening_adj_time) * dt

  INIT Medical_Screening_Adjustment_Time = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN init_medical_screening_adj_time ELSE (1 - Individuals_with_Criminal_History.MHC_screening_capacity_building_start_time_switch) * (init_medical_screening_adj_time) + Individuals_with_Criminal_History.MHC_screening_capacity_building_start_time_switch* desired_adj_time_for_medical_screening_adj_time

  UNITS: year

  INFLOWS:

chg_in_medical_screening_adj_time = gap_in_medical_screening_adj_time / time_to_adjust_medical_screening_adj_time

UNITS: unitless

Mental_Health_Care_Capacity(t) = Mental_Health_Care_Capacity(t - dt) + (chg_in_capacity_for_MHC) * dt

INIT Mental_Health_Care_Capacity = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN perceived_needs_for_MHC ELSE 0.1

UNITS: score/year

INFLOWS:

chg_in_capacity_for_MHC = gap_in_MHC_capacity / time_to_adjust_MHC_Capacity

UNITS: score/year/year

MHC_Cost_per_Mental_Function_Improvement(t) = MHC_Cost_per_Mental_Function_Improvement(t - dt) + (chg_in_MHC_cost_per_improvement) * dt

INIT MHC_Cost_per_Mental_Function_Improvement = 24

UNITS: dollar/score

INFLOWS:

chg_in_MHC_cost_per_improvement = MHC_Cost_per_Mental_Function_Improvement * growth_rate_of_ave_HC_cost * effect_of_MHC_adequacy_on_cost_per_mental_func

UNITS: dollar/score/year

New_CD_Capacity_Adjustment_Time(t) = New_CD_Capacity_Adjustment_Time(t - dt) + (updating_new_CD_capacity_adj_time) * dt

INIT New_CD_Capacity_Adjustment_Time = adj_time_for_funded_CD_capacity

UNITS: year

INFLOWS:

updating_new_CD_capacity_adj_time = (1 - acuity_based_budget_policy_switch) * 0 + acuity_based_budget_policy_switch * ((desired_new_CD_capacity_adjustment_time - New_CD_Capacity_Adjustment_Time) / time_to_adjust_CD_capacity)

UNITS: unitless

New_ID_Capacity_Adjustment_Time(t) = New_ID_Capacity_Adjustment_Time(t - dt) + (updating_new_ID_capacity_adj_time) * dt

INIT New_ID_Capacity_Adjustment_Time = ref_ID_capacity_adjustment_time

UNITS: year

INFLOWS:

updating_new_ID_capacity_adj_time = (1 - acuity_based_budget_policy_switch) * 0 + acuity_based_budget_policy_switch * ((desired_new_ID_capacity_adjustment_time - New_ID_Capacity_Adjustment_Time) / ref_ID_capacity_adjustment_time)

UNITS: unitless

New_MHC_Capacity_Adjustment_Time(t) = New_MHC_Capacity_Adjustment_Time(t - dt) + (updating_new_MHC_capacity_adj_time) * dt

INIT New_MHC_Capacity_Adjustment_Time = adj_time_for_funded_MHC_capacity

UNITS: year

INFLOWS:

updating_new_MHC_capacity_adj_time = (1 - acuity_based_budget_policy_switch) * 0 + acuity_based_budget_policy_switch * ((desired_new_MHC_capacity_adjustment_time - New_MHC_Capacity_Adjustment_Time) / adj_time_for_funded_MHC_capacity)

UNITS: unitless

New_Time_to_Perceive_MHC_Needs(t) = New_Time_to_Perceive_MHC_Needs(t - dt) + (chg_in_new_perceive_time_in_MHC_needs) * dt

INIT New_Time_to_Perceive_MHC_Needs = 4

UNITS: year

INFLOWS:

chg_in_new_perceive_time_in_MHC_needs = (1 - acuity_based_budget_policy_switch) * 0 + acuity_based_budget_policy_switch * ((desired_perception_delay_in_MHC_needs - New_Time_to_Perceive_MHC_Needs) / ref_perception_delay_in_MHC_needs)

UNITS: unitless

Total_Prison_HC_Budget(t) = Total_Prison_HC_Budget(t - dt) + (chg_in_total_HC_budget) * dt

INIT Total_Prison_HC_Budget = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN indicated_total_HC_budget ELSE 319629222 {714470631 (2000 figure) minus 6% of HC spending inflation every year back to 1987} * 0+139300000 * 0.5

UNITS: dollar/year

INFLOWS:

chg_in_total_HC_budget = gap_in_total_HC_budget / time_to_adjust_total_HC_budget

UNITS: dollar/year/year

Treatment_Capacity_for_Chronic_Diseases(t) = Treatment_Capacity_for_Chronic_Diseases(t - dt) + (chg_in_capacity_for_CD) * dt

INIT Treatment_Capacity_for_Chronic_Diseases = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 1270.72610329 ELSE 0.1

UNITS: person/year

INFLOWS:

chg_in_capacity_for_CD = gap_in_CD_tmnt_capacity / time_to_adjust_CD_capacity

UNITS: person/year/year

Treatment_Capacity_for_Infectious_Diseases(t) = Treatment_Capacity_for_Infectious_Diseases(t - dt) + (chg_in_capacity_for_ID) * dt

INIT Treatment_Capacity_for_Infectious_Diseases = needs_for_ID_tmnt

UNITS: person/year

INFLOWS:

chg_in_capacity_for_ID = gap_in_ID_tmnt_capacity / time_to_adjust_ID_capacity

UNITS: person/year/year

acuity_based_budget_policy_switch = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

UNITS: unitless

acuity_based_indicated_total_HC_budget = new_proposed_budget * (1+expected_fractional_prison_pop_growth_rate_after_Realignment) * Individuals_with_Criminal_History.reduce_acuity_based_budget

UNITS: dollar/year

adj_time_for_CD_capacity_based_on_needs = 4

UNITS: year

adj_time_for_funded_CD_capacity = 2

UNITS: year

adj_time_for_funded_MHC_capacity = 3

UNITS: year

adj_time_for_MHC_capacity_based_on_needs = 20

UNITS: year

adj_time_for_zero_funding = 1

UNITS: year

averaging_time_for_growth_reate_in_needs_for_MHC = 2

UNITS: year

averaging_time_needs_for_CD_tmnt = 2

UNITS: year

averaging_time_of_needs_for_ID_tmnt = 1

UNITS: year

budget_approved_for_CD_tmnt = Total_Prison_HC_Budget * fract_budget_for_CD_tmnt

UNITS: dollar/year

budget_approved_for_ID_tmnt = Total_Prison_HC_Budget * fract_budget_for_ID_tmnt

UNITS: dollar/year

budget_approved_for_MHC = Total_Prison_HC_Budget * fract_budget_for_MHC

UNITS: dollar/year

CD_tmnt_capacity_adequacy = Treatment_Capacity_for_Chronic_Diseases/needs_for_CD_tmnt

UNITS: unitless

desired_adj_time_for_medical_screening_adj_time = 2

UNITS: year

desired_MH_screening_capacity = Individuals_with_Criminal_History.ADP_of_Reception_Center * minimum_medical_screening_time

UNITS: minute/day

desired_new_CD_capacity_adjustment_time = 1

UNITS: year

desired_new_ID_capacity_adjustment_time = 1

UNITS: year

desired_new_MHC_capacity_adjustment_time = 1

UNITS: year

desired_perception_delay_in_MHC_needs = 2

UNITS: year

effect_of_ID_tmnt_capacity_on_cost_per_prisoner = GRAPH(relative_ID_tmnt_capacity)

(0.000, 1.997), (0.100, 1.973), (0.200, 1.935), (0.300, 1.897), (0.400, 1.829), (0.500, 1.726), (0.600, 1.623), (0.700, 1.483), (0.800, 1.315), (0.900, 1.151), (1.000, 1.000)

UNITS: unitless

effect_of_medical_screeening_time_adequacy_on_MI_screening_effectiveness = GRAPH(medical_screening_time_adequacy)

(0.4000, 0.5000), (0.4600, 0.5065), (0.5200, 0.5181), (0.5800, 0.5324), (0.6400, 0.5674), (0.7000, 0.6057), (0.7600, 0.6751), (0.8200, 0.7653), (0.8800, 0.8482), (0.9400, 0.8865), (1.0000, 0.9000)

UNITS: unitless

effect_of_MHC_adequacy_on_cost_per_mental_func = GRAPH(IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN MHC_capacity_adequacy ELSE SMTH3(MHC_capacity_adequacy, 1, MHC_capacity_adequacy))

(0.1000, 2.000), (0.1900, 1.969), (0.2800, 1.927), (0.3700, 1.867), (0.4600, 1.74657142857), (0.5500, 1.62214285714), (0.6400, 1.49771428571), (0.7300, 1.37328571429), (0.8200, 1.24885714286), (0.9100, 1.12442857143), (1.0000, 1.000)

   UNITS: unitless

effect_of_MHC_adequacy_on_in_prison_MI_screening = GRAPH(MHC_capacity_adequacy)

(0.000, 0.2000), (0.100, 0.2272), (0.200, 0.2562), (0.300, 0.2870), (0.400, 0.3306), (0.500, 0.3952), (0.600, 0.5040), (0.700, 0.6354), (0.800, 0.7630), (0.900, 0.8493), (1.000, 0.8972)

   UNITS: unitless

effect_of_MHC_adequacy_on_mental_func_of_prisoners_wMI = GRAPH(MHC_capacity_adequacy)

(0.100, 1.495), (0.200, 1.463), (0.300, 1.416), (0.400, 1.337), (0.500, 1.206), (0.600, 1.012), (0.700, 0.708), (0.800, 0.372), (0.900, 0.136), (1.000, 0.000), (1.100, -0.048), (1.200, -0.069), (1.300, -0.074), (1.400, -0.075), (1.500, -0.100)

   UNITS: unitless

effect_of_MHC_adequacy_on_recovery_time_after_realignment = GRAPH(IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN MHC_capacity_adequacy ELSE SMTH3(MHC_capacity_adequacy, 1, MHC_capacity_adequacy))

(0.000, 1.5000), (0.100, 1.4912), (0.200, 1.4868), (0.300, 1.4758), (0.400, 1.4604), (0.500, 1.4230), (0.600, 1.3701), (0.700, 1.2909), (0.800, 1.2050), (0.900, 1.1038), (1.000, 1.0000), (1.100, 0.8881), (1.200, 0.8264), (1.300, 0.8000)

   UNITS: unitless

expected_fractional_prison_pop_growth_rate_after_Realignment = 0.02

   UNITS: unitless

expected_growth_rate_for_needs_for_CD_tmnt = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN INIT (TREND(Prisoner_Health_Care_Needs.prisoners_need_CD_tmnt, averaging_time_needs_for_CD_tmnt, 0)) ELSE TREND(Prisoner_Health_Care_Needs.prisoners_need_CD_tmnt, averaging_time_needs_for_CD_tmnt, 0)

   UNITS: 1/year

expected_growth_rate_for_needs_for_ID_tmnt = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN   INIT (TREND(Prisoner_Health_Care_Needs.prisoners_wIDs, averaging_time_of_needs_for_ID_tmnt, 0)) ELSE (TREND(Prisoner_Health_Care_Needs.prisoners_wIDs, averaging_time_of_needs_for_ID_tmnt, 0))

   UNITS: 1/year

expected_growth_rate_for_needs_for_MHC = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN INIT (TREND(Prisoner_Health_Care_Needs.total_discrepancy_in_mental_functions_in_prison, averaging_time_for_growth_reate_in_needs_for_MHC, 0)) ELSE

TREND(Prisoner_Health_Care_Needs.total_discrepancy_in_mental_functions_in_prison, averaging_time_for_growth_reate_in_needs_for_MHC, 0)

UNITS: 1/year

expected_needs_for_MHC = perceived_needs_for_MHC * (1 + expected_growth_rate_for_needs_for_MHC)

UNITS: score/year

expected_prison_pop_growth_rate = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN (1-Individuals_with_Criminal_History.prison_pop_growth_rate_switch) * 0 + Individuals_with_Criminal_History.prison_pop_growth_rate_switch * 0.05 ELSE 0.04

UNITS: unitless

expected_total_prisoners = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (1-Individuals_with_Criminal_History.prison_pop_growth_rate_switch) * INIT(Individuals_with_Criminal_History.total_prisoners) * (1 + zero_prison_pop_growth_rate)+ Individuals_with_Criminal_History.prison_pop_growth_rate_switch * (Individuals_with_Criminal_History.total_prisoners * (1 + zero_prison_pop_growth_rate)) ELSE Individuals_with_Criminal_History.total_prisoners * (1 + expected_prison_pop_growth_rate)

UNITS: person

fract_budget_for_CD_tmnt = indicated_costs_for_CD_tmnt / new_proposed_budget

UNITS: unitless

fract_budget_for_ID_tmnt = indicated_costs_for_ID_tmnt / new_proposed_budget

UNITS: unitless

fract_budget_for_MHC = indicated_costs_for_mental_func_improvment_tmnt / new_proposed_budget

UNITS: unitless

funded_CD_tmnt_capacity = MAX ((remaining_HC_funds_for_CD / CD_Tmnt_Cost_per_Prisoner), 0)

UNITS: person/year

funded_ID_tmnt_capacity = Total_Prison_HC_Budget / ID_Tmnt_Cost_per_Prisoner

UNITS: person/year

funded_MHC_capacity = MAX (remaining_HC_funds_for_MHC / MHC_Cost_per_Mental_Function_Improvement, 0)

UNITS: score/year

gap_in_CD_tmnt_capacity = (1-acuity_based_budget_policy_switch) * (MIN (funded_CD_tmnt_capacity, needs_for_CD_tmnt) - Treatment_Capacity_for_Chronic_Diseases) + acuity_based_budget_policy_switch * (MIN (new_funded_CD_tmnt_capacity, needs_for_CD_tmnt) - Treatment_Capacity_for_Chronic_Diseases)

UNITS: person/year

gap_in_ID_tmnt_capacity = (1-acuity_based_budget_policy_switch) * (MIN (funded_ID_tmnt_capacity, needs_for_ID_tmnt) - Treatment_Capacity_for_Infectious_Diseases) + acuity_based_budget_policy_switch * (MIN (new_funded_ID_tmnt_capacity, needs_for_ID_tmnt) - Treatment_Capacity_for_Infectious_Diseases)

   UNITS: person/year

gap_in_medical_screening_adj_time = (1 - Individuals_with_Criminal_History.MHC_screening_capacity_building_start_time_switch) * (Medical_Screening_Adjustment_Time - init_medical_screening_adj_time) + Individuals_with_Criminal_History.MHC_screening_capacity_building_start_time_switch * (desired_adj_time_for_medical_screening_adj_time - Medical_Screening_Adjustment_Time)

   UNITS: year

gap_in_MHC_capacity = (1-acuity_based_budget_policy_switch) * (MIN (funded_MHC_capacity, perceived_needs_for_MHC) - Mental_Health_Care_Capacity) + acuity_based_budget_policy_switch * (MIN (new_funded_MHC_capacity, perceived_needs_for_MHC) - Mental_Health_Care_Capacity)

   UNITS: score/year

gap_in_total_HC_budget = (1-acuity_based_budget_policy_switch) * (indicated_total_HC_budget - Total_Prison_HC_Budget) + acuity_based_budget_policy_switch * (acuity_based_indicated_total_HC_budget - Total_Prison_HC_Budget)

   UNITS: dollar/year

growth_rate_of_ave_HC_cost = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE 0.07

   UNITS: 1/year

ID_tmnt_capacity_adequacy = Treatment_Capacity_for_Infectious_Diseases/needs_for_ID_tmnt

   UNITS: unitless

indicated_costs_for_CD_tmnt = (1 - acuity_based_budget_policy_switch) * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * (needs_for_CD_tmnt *CD_Tmnt_Cost_per_Prisoner) + acuity_based_budget_policy_switch * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * needs_for_CD_tmnt * CD_Tmnt_Cost_per_Prisoner + (1 - acuity_based_budget_policy_switch) * Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (needs_for_CD_tmnt *CD_Tmnt_Cost_per_Prisoner) + acuity_based_budget_policy_switch * Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (needs_for_CD_tmnt * CD_Tmnt_Cost_per_Prisoner * (New_CD_Capacity_Adjustment_Time + time_to_adjust_total_HC_budget))

   UNITS: dollar/year

indicated_costs_for_ID_tmnt = (1 - acuity_based_budget_policy_switch) * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * (needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner) + acuity_based_budget_policy_switch * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * (needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner) + (1 - acuity_based_budget_policy_switch) *

Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner) + acuity_based_budget_policy_switch * Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (needs_for_ID_tmnt * ID_Tmnt_Cost_per_Prisoner* (New_ID_Capacity_Adjustment_Time + time_to_adjust_total_HC_budget))

   UNITS: dollar/year

indicated_costs_for_mental_func_improvment_tmnt = (1 - acuity_based_budget_policy_switch) * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * (expected_needs_for_MHC * MHC_Cost_per_Mental_Function_Improvement) + acuity_based_budget_policy_switch * (1 - Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment) * (expected_needs_for_MHC * MHC_Cost_per_Mental_Function_Improvement) + (1 - acuity_based_budget_policy_switch) * Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (expected_needs_for_MHC * MHC_Cost_per_Mental_Function_Improvement) + acuity_based_budget_policy_switch * Individuals_with_Criminal_History.policy_include_adjustment_delay_in_HC_budget_adjustment * (expected_needs_for_MHC * MHC_Cost_per_Mental_Function_Improvement * (New_MHC_Capacity_Adjustment_Time + time_to_adjust_total_HC_budget))

   UNITS: dollar/year

indicated_total_HC_budget = expected_total_prisoners * Ave_HC_Cost_per_Prisoner

   UNITS: dollar/year

init_medical_screening_adj_time = 20

   UNITS: year

init_medical_screening_time_per_person = 7

   UNITS: minute/person

init_total_medical_screening_time_at_reception_center = init_medical_screening_time_per_person * INIT (Individuals_with_Criminal_History.ADP_of_Reception_Center)

   UNITS: minute/day

medical_screening_time_adequacy = total_medical_screening_time_at_reception_center / desired_MH_screening_capacity

   UNITS: unitless

medical_screening_time_per_prisoner_in_reception_center = total_medical_screening_time_at_reception_center / Individuals_with_Criminal_History.ADP_of_Reception_Center

   UNITS: minute/person

MHC_capacity_adequacy = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN ((1- Individuals_with_Criminal_History.rounding_switch) * (Mental_Health_Care_Capacity / perceived_needs_for_MHC)) + (Individuals_with_Criminal_History.rounding_switch * (ROUND(

(Mental_Health_Care_Capacity) / perceived_needs_for_MHC))) ELSE Mental_Health_Care_Capacity
/ perceived_needs_for_MHC

   UNITS: unitless

minimum_medical_screening_time = 15

   UNITS: minute/person

multiplier_for_needs_for_CD_tmnt_budget = 1.2-0.05

   UNITS: unitless

multiplier_for_needs_for_ID_tmnt = 1.25

   UNITS: unitless

needs_for_CD_tmnt = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Prisoner_Health_Care_Needs.prisoners_need_CD_tmnt / perception_delay_in_CD_tmnt_needs
ELSE SMTH3(Prisoner_Health_Care_Needs.prisoners_need_CD_tmnt *
(1+expected_growth_rate_for_needs_for_CD_tmnt), perception_delay_in_CD_tmnt_needs ,
Prisoner_Health_Care_Needs.prisoners_need_CD_tmnt *
(1+expected_growth_rate_for_needs_for_CD_tmnt))

   UNITS: person/year

needs_for_ID_tmnt = Prisoner_Health_Care_Needs.prisoners_wIDs * (1 +
expected_growth_rate_for_needs_for_ID_tmnt)

   UNITS: person/year

new_budget_adjustment_time_policy_switch = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

   UNITS: unitless

new_capacity_adjustment_time_switch = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

   UNITS: unitless

new_funded_CD_tmnt_capacity = budget_approved_for_CD_tmnt / CD_Tmnt_Cost_per_Prisoner

   UNITS: person/year

new_funded_ID_tmnt_capacity = budget_approved_for_ID_tmnt / ID_Tmnt_Cost_per_Prisoner

   UNITS: person/year

new_funded_MHC_capacity = budget_approved_for_MHC /
MHC_Cost_per_Mental_Function_Improvement

   UNITS: score/year

new_proposed_budget = indicated_costs_for_ID_tmnt + indicated_costs_for_CD_tmnt +
indicated_costs_for_mental_func_improvment_tmnt

   UNITS: dollar/year

perceived_needs_for_MHC = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Prisoner_Health_Care_Needs.total_discrepancy_in_mental_functions_in_prison /

perception_delay_in_needs_for_MHC ELSE
SMTH3(Prisoner_Health_Care_Needs.total_discrepancy_in_mental_functions_in_prison ,
perception_delay_in_needs_for_MHC ,
Prisoner_Health_Care_Needs.total_discrepancy_in_mental_functions_in_prison)

   UNITS: score/year

perception_delay_in_CD_tmnt_needs = 2

   UNITS: year

perception_delay_in_needs_for_MHC = (1 - acuity_based_budget_policy_switch) *
ref_perception_delay_in_MHC_needs + acuity_based_budget_policy_switch *
New_Time_to_Perceive_MHC_Needs

   UNITS: year

ref_ID_capacity_adjustment_time = 4

   UNITS: year

ref_perception_delay_in_MHC_needs = 4

   UNITS: year

relative_ID_tmnt_capacity = Treatment_Capacity_for_Infectious_Diseases / needs_for_ID_tmnt

   UNITS: unitless

remaining_HC_funds_for_CD = Total_Prison_HC_Budget - indicated_costs_for_ID_tmnt

   UNITS: dollar/year

remaining_HC_funds_for_MHC = remaining_HC_funds_for_CD - MIN (indicated_costs_for_CD_tmnt,
needs_for_CD_tmnt * CD_Tmnt_Cost_per_Prisoner)

   UNITS: dollar/year

test_fract_prisoner_wCD = STEP(0.1, 5) * 0

   UNITS: unitless

test_fract_prisoner_wID = STEP(0.1, 5) * 0

   UNITS: unitless

test_fract_prisoner_wMI = STEP(0.1, 5) * 0

   UNITS: unitless

time_to_adjust_CD_capacity = (1-acuity_based_budget_policy_switch) * (IF
funded_CD_tmnt_capacity < needs_for_CD_tmnt AND funded_CD_tmnt_capacity = 0 THEN
adj_time_for_zero_funding   ELSE IF funded_CD_tmnt_capacity < needs_for_CD_tmnt AND
funded_CD_tmnt_capacity <> 0 THEN adj_time_for_funded_CD_capacity ELSE IF
needs_for_CD_tmnt < funded_CD_tmnt_capacity THEN adj_time_for_CD_capacity_based_on_needs
ELSE adj_time_for_funded_CD_capacity) + acuity_based_budget_policy_switch *
New_CD_Capacity_Adjustment_Time

UNITS: year

time_to_adjust_ID_capacity = (1-acuity_based_budget_policy_switch) *
ref_ID_capacity_adjustment_time + acuity_based_budget_policy_switch *
New_ID_Capacity_Adjustment_Time

    UNITS: year

time_to_adjust_medical_screening_adj_time = 10+10

    UNITS: year

time_to_adjust_MHC_Capacity = (1 - acuity_based_budget_policy_switch) * (IF
funded_MHC_capacity < perceived_needs_for_MHC AND funded_MHC_capacity = 0 THEN
adj_time_for_zero_funding   ELSE IF funded_MHC_capacity < perceived_needs_for_MHC AND
funded_MHC_capacity <> 0 THEN adj_time_for_funded_MHC_capacity ELSE IF
perceived_needs_for_MHC < funded_MHC_capacity THEN
adj_time_for_MHC_capacity_based_on_needs ELSE adj_time_for_funded_MHC_capacity) +
acuity_based_budget_policy_switch * New_MHC_Capacity_Adjustment_Time

    UNITS: year

time_to_adjust_total_HC_budget = 2

    UNITS: year

time_to_perceive_CD_needs_policy_switch = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

    UNITS: year

time_to_perceive_MHC_needs_policy_switch = STEP(1, 1990) * 0 + STEP(1, 2012) * 0

    UNITS: unitless

total_medical_screening_time_at_reception_center = (1-
Individuals_with_Criminal_History.delay_in_medical_screening_capacity_buillding) *
init_total_medical_screening_time_at_reception_center +
Individuals_with_Criminal_History.delay_in_medical_screening_capacity_buillding *
(SMTH3(desired_MH_screening_capacity,
Medical_Screening_Adjustment_Time,init_total_medical_screening_time_at_reception_center))

    UNITS: minute/day

total_minutes_per_worker_work_per_year = 109980

    UNITS: minute/person/year

zero_prison_pop_growth_rate = 0

    UNITS: unitless

{ The model has 129 (129) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 13 (13) Flows: 13 (13) Converters: 103 (103)

 Constants: 34 (34) Equations: 82 (82) Graphicals: 7 (7)

There are also 406 expanded macro variables.

}

Prison Capacity

Prison_Capacity(t) = Prison_Capacity(t - dt) + (chg_in_prison_capacity - prison_capacity_obsoleting) * dt

    INIT Prison_Capacity = IF Individuals_with_Criminal_History.equilibrium_switch=1 THEN (Individuals_with_Criminal_History.total_prisoners*ave_prison_lifetime)/(time_to_adjust_prison_capacity+ave_prison_lifetime) ELSE 36465

    UNITS: person

    INFLOWS:

      chg_in_prison_capacity = (1 - Individuals_with_Criminal_History.prison_capacity_steady_state_error) * gap_in_prison_capacity / time_to_adjust_prison_capacity + Individuals_with_Criminal_History.prison_capacity_steady_state_error * ((gap_in_prison_capacity / time_to_adjust_prison_capacity) + prison_capacity_obsoleting)

        UNITS: person/year

    OUTFLOWS:

      prison_capacity_obsoleting = Prison_Capacity / ave_prison_lifetime

        UNITS: person/year

ave_prison_lifetime = 60

    UNITS: year

effect_of_prison_utilization_on_mental_func_change_in_prison = GRAPH(prison_capacity_utilization)

(0.900, 0.900), (1.000, 1.000), (1.100, 1.178), (1.200, 1.346), (1.300, 1.457), (1.400, 1.571), (1.500, 1.660), (1.600, 1.722), (1.700, 1.775), (1.800, 1.810), (1.900, 1.828), (2.000, 1.863), (2.100, 1.894), (2.200, 1.916), (2.300, 1.934), (2.400, 1.947), (2.500, 1.956), (2.600, 1.973), (2.700, 1.978), (2.800, 1.987), (2.900, 1.996), (3.000, 2.000)

    UNITS: unitless

effect_of_prison_utlization_on_fract_of_prisoners_wID = GRAPH(prison_capacity_utilization)

(1.000, 1.000), (1.200, 1.055), (1.400, 1.192), (1.600, 1.411), (1.800, 1.721), (2.000, 2.178), (2.200, 2.461), (2.400, 2.671), (2.600, 2.826), (2.800, 2.918), (3.000, 3.000)

    UNITS: unitless

gap_in_prison_capacity = Individuals_with_Criminal_History.total_prisoners - Prison_Capacity

    UNITS: person

prison_capacity_utilization = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN (1 - Individuals_with_Criminal_History.rounding_switch) * (Individuals_with_Criminal_History.total_prisoners / Prison_Capacity) + Individuals_with_Criminal_History.rounding_switch *

ROUND(Individuals_with_Criminal_History.total_prisoners / Prison_Capacity) ELSE
Individuals_with_Criminal_History.total_prisoners / Prison_Capacity

   UNITS: unitless

ref_design_bed_capacity = GRAPH(TIME)

(1987.00, 36465.0), (1987.86206897, 44124.0), (1988.72413793, 47120.0), (1989.5862069, 51013.0),
(1990.44827586, 54042.0), (1991.31034483, 57986.0), (1992.17241379, 61983.0), (1993.03448276,
66183.0), (1993.89655172, 70717.0), (1994.75862069, 73121.0), (1995.62068966, 75952.0),
(1996.48275862, 79877.0), (1997.34482759, 79873.0), (1998.20689655, 80272.0), (1999.06896552,
80467.0), (1999.93103448, 79957.0), (2000.79310345, 80187.0), (2001.65517241, 80890.0),
(2002.51724138, 81008.0), (2003.37931034, 87370.0), (2004.24137931, 84653.0), (2005.10344828,
84066.0), (2005.96551724, 84241.0), (2006.82758621, 84156.0), (2007.68965517, 84130.0),
(2008.55172414, 84130.0), (2009.4137931, 86054.0), (2010.27586207, 87187.0), (2011.13793103,
87287.0), (2012.00, 88971.0)

   UNITS: person

ref_prison_design_capacity = GRAPH(TIME)

(1987.00, 1.726), (1988.00, 1.58), (1989.00, 1.695), (1990.00, 1.772), (1991.00, 1.775), (1992.00,
1.697), (1993.00, 1.769), (1994.00, 1.798), (1995.00, 1.776), (1996.00, 1.85), (1997.00, 1.931),
(1998.00, 1.887), (1999.00, 1.934), (2000.00, 1.919), (2001.00, 1.909), (2002.00, 1.896), (2003.00,
1.918), (2004.00, 1.952), (2005.00, 1.961), (2006.00, 1.906), (2007.00, 1.964), (2008.00, 1.905),
(2009.00, 1.837), (2010.00, 1.808), (2011.00, 1.643575419), (2012.00, 1.463092833), (2013.00,
1.426987705), (2014.00, 1.42), (2015.00, 1.36), (2016.00, 1.36), (2017.00, 1.36), (2018.00, 1.36),
(2019.00, 1.36), (2020.00, 1.36), (2021.00, 1.36), (2022.00, 1.36), (2023.00, 1.36), (2024.00, 1.36),
(2025.00, 1.36), (2026.00, 1.36), (2027.00, 1.36), (2028.00, 1.36), (2029.00, 1.36), (2030.00, 1.36),
(2031.00, 1.36), (2032.00, 1.36), (2033.00, 1.36), (2034.00, 1.36), (2035.00, 1.36), (2036.00, 1.36),
(2037.00, 1.36), (2038.00, 1.36), (2039.00, 1.36), (2040.00, 1.36), (2041.00, 1.36), (2042.00, 1.36),
(2043.00, 1.36), (2044.00, 1.36), (2045.00, 1.36), (2046.00, 1.36), (2047.00, 1.36), (2048.00, 1.36),
(2049.00, 1.36), (2050.00, 1.36)

   UNITS: unitless

ref_prison_design_capacity_occupancy = GRAPH(TIME)

(1987.00, 1.726), (1988.00, 1.58), (1989.00, 1.695), (1990.00, 1.772), (1991.00, 1.775), (1992.00,
1.697), (1993.00, 1.769), (1994.00, 1.798), (1995.00, 1.776), (1996.00, 1.85), (1997.00, 1.931),
(1998.00, 1.887), (1999.00, 1.934), (2000.00, 1.919), (2001.00, 1.909), (2002.00, 1.896), (2003.00,
1.918), (2004.00, 1.952), (2005.00, 1.961), (2006.00, 1.906), (2007.00, 1.964), (2008.00, 1.905),
(2009.00, 1.837), (2010.00, 1.808), (2011.00, 1.643575419), (2012.00, 1.463092833)

   UNITS: unitless

time_to_adjust_prison_capacity = 10 + RAMP(5, 1988) * 0 + 2

   UNITS: year

{ The model has 16 (16) variables (array expansion in parens).

  In this module and 0 additional modules with 0 sectors.

  Stocks: 1 (1) Flows: 2 (2) Converters: 13 (13)

Constants: 2 (2) Equations: 13 (13) Graphicals: 5 (5)

There are also 406 expanded macro variables.

}

Jail Capacity

Jail_Capacity(t) = Jail_Capacity(t - dt) + (adding_jail_capacity_thru_regular_budget - jail_capacity_obsoleting) * dt

INIT Jail_Capacity = IF Individuals_with_Criminal_History.equilibrium_switch = 1 THEN Individuals_with_Criminal_History.total_jail_pop*ave_jail_lifetime/(time_to_adjust_jail_capacity+ave_jail_lifetime) ELSE   63686.9964021

UNITS: person

INFLOWS:

adding_jail_capacity_thru_regular_budget = (1 - Individuals_with_Criminal_History.jail_capacity_steady_state_error) * (gap_in_jail_capacity / time_to_adjust_jail_capacity) + Individuals_with_Criminal_History.jail_capacity_steady_state_error * ((gap_in_jail_capacity / time_to_adjust_jail_capacity) + jail_capacity_obsoleting)

UNITS: person/year

OUTFLOWS:

jail_capacity_obsoleting = Jail_Capacity / ave_jail_lifetime

UNITS: person/year

Jail_Capacity_fr_Special_Fund_for_Realignment(t) = Jail_Capacity_fr_Special_Fund_for_Realignment(t - dt) + (adding_jail_capacity_thru_preRealignment_new_jail_construction_fund - jail_capacity_thru_preRealignment_fund_obsoleting) * dt

INIT Jail_Capacity_fr_Special_Fund_for_Realignment = 0

UNITS: person

INFLOWS:

adding_jail_capacity_thru_preRealignment_new_jail_construction_fund = gap_in_jail_capacity_thru_preRealignment_fund / time_to_adjust_jail_capacity

UNITS: person/year

OUTFLOWS:

jail_capacity_thru_preRealignment_fund_obsoleting = Jail_Capacity_fr_Special_Fund_for_Realignment / ave_jail_lifetime

UNITS: person/year

PreRealignment_New_Jail_Construction_Fund(t) = PreRealignment_New_Jail_Construction_Fund(t - dt) + (approving_preRealignment_new_jail_construction_fund) * dt

INIT PreRealignment_New_Jail_Construction_Fund = 0

UNITS: dollar

INFLOWS:

approving_preRealignment_new_jail_construction_fund = (1-
Individuals_with_Criminal_History.realignment_policy) *
zero_additional_new_jail_construction_fund +
Individuals_with_Criminal_History.realignment_policy *
(PreRealignment_New_Jail_Construction_Fund_in_2008 +
SB_1022_New_Jail_Construction_Fund_in_2015 +
Community_Services.Realignment_resources_for_local_law_enforcement *
fract_of_Realignment_resources_spent_on_jail_expansion)

UNITS: dollar/year

ave_jail_lifetime = 40

UNITS: year

construction_cost_of_jail_bed = 174000*0+160000*1

UNITS: dollar/person

effect_of_jail_utilization_on_jail_time = GRAPH(SMTH3(jail_capacity_utilization, 1,
jail_capacity_utilization))

(1.0000, 1.0000), (1.0500, 0.9558), (1.1000, 0.8815), (1.1500, 0.7249), (1.2000, 0.6305), (1.2500,
0.5843), (1.3000, 0.5562), (1.3500, 0.5382), (1.4000, 0.5241), (1.4500, 0.5141), (1.5000, 0.5000)

UNITS: unitless

effect_of_jail_utilization_on_mental_func = GRAPH(SMTH3(jail_capacity_utilization, 1,
jail_capacity_utilization))

(1.0000, 1.0000), (1.0200, 1.0036), (1.0400, 1.0122), (1.0600, 1.0281), (1.0800, 1.0504), (1.1000,
1.0777), (1.1200, 1.1173), (1.1400, 1.1561), (1.1600, 1.1820), (1.1800, 1.1942), (1.2000, 1.2000)

UNITS: unitless

fract_of_Realignment_resources_spent_on_jail_expansion = 0.2

UNITS: 1/year

gap_in_jail_capacity = Individuals_with_Criminal_History.total_jail_pop - Jail_Capacity

UNITS: person

gap_in_jail_capacity_thru_preRealignment_fund = ((PreRealignment_New_Jail_Construction_Fund /
construction_cost_of_jail_bed) - Jail_Capacity_fr_Special_Fund_for_Realignment)

UNITS: person

jail_capacity_utilization = IF Individuals_with_Criminal_History.equilibrium_switch =1 THEN (1 -
Individuals_with_Criminal_History.rounding_switch) *
(Individuals_with_Criminal_History.total_jail_pop / total_jail_capacity) +
Individuals_with_Criminal_History.rounding_switch *
ROUND(Individuals_with_Criminal_History.total_jail_pop / total_jail_capacity) ELSE
Individuals_with_Criminal_History.total_jail_pop / total_jail_capacity

UNITS: unitless

PreRealignment_New_Jail_Construction_Fund_in_2008 = IF TIME=2007 THEN 1586000000*1+1200000000*0 ELSE 0

  UNITS: dollar/year

SB_1022_New_Jail_Construction_Fund_in_2015 = IF TIME = 2015 THEN 500000000 ELSE 0

  UNITS: dollar/year

time_to_adjust_jail_capacity = 6

  UNITS: year

total_jail_capacity = Jail_Capacity + Jail_Capacity_fr_Special_Fund_for_Realignment

  UNITS: person

zero_additional_new_jail_construction_fund = 0

  UNITS: dollar/year

{ The model has 30 (30) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 3 (3) Flows: 5 (5) Converters: 22 (22)

 Constants: 5 (5) Equations: 22 (22) Graphicals: 2 (2)

 There are also 406 expanded macro variables.

 }

Community Services Module

Community_Service_Budget_for_Parolees_wMI(t) =
Community_Service_Budget_for_Parolees_wMI(t - dt) + (chg_in_comm_svc_fund_for_parolee_wMI) * dt

   INIT Community_Service_Budget_for_Parolees_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 12214280.2523 ELSE 82106000*0 + 47040000*0+33426000 * 0.5 {many parolees were underserved}

   UNITS: dollar

   INFLOWS:

     chg_in_comm_svc_fund_for_parolee_wMI = gap_in_comm_svc_budget_for_parolee_wMI / time_to_adjust_comm_svc_budget

      UNITS: dollar/year

Community_Service_Budget_for_Parolees_wo_MI(t) =
Community_Service_Budget_for_Parolees_wo_MI(t - dt) + (chg_in_comm_cost_for_parolee_wo_MI) * dt

   INIT Community_Service_Budget_for_Parolees_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 46945582.4199 ELSE 82106000* 0 + 184445100*0+35088228 * 0.7 {many parolees were underserved}

   UNITS: dollar

   INFLOWS:

     chg_in_comm_cost_for_parolee_wo_MI = gap_in_comm_svc_budget_for_parolee_wo_MI / time_to_adjust_comm_svc_budget

      UNITS: dollar/year

Community_Service_Capacity_for_Parolee_wMI(t) =
Community_Service_Capacity_for_Parolee_wMI(t - dt) + (chg_in_comm_svc_capacity_wMI) * dt

   INIT Community_Service_Capacity_for_Parolee_wMI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN 1357.43494662 ELSE
(funded_comm_services_capacity_for_prison_parolees_wMI +
funded_comm_services_capacity_for_county_parolees_wMI)

   UNITS: person

   INFLOWS:

     chg_in_comm_svc_capacity_wMI = gap_in_comm_svcs_for_parolee_wMI / time_to_adjust_comm_svc_capacity_for_parolee_wMI

      UNITS: person/year

Community_Service_Capacity_for_Parolee_wo_MI(t) =
Community_Service_Capacity_for_Parolee_wo_MI(t - dt) + (chg_in_comm_svc_capacity_wo_MI) *
dt

   INIT Community_Service_Capacity_for_Parolee_wo_MI = IF
Individuals_with_Criminal_History.equilibrium_switch=1 THEN 25606.3917979   ELSE
(funded_comm_services_capacity_for_prison_parolees_wo_MI +
funded_comm_services_capacity_for_county_parolees_wo_MI)

   UNITS: person

   INFLOWS:

     chg_in_comm_svc_capacity_wo_MI = gap_in_comm_svcs_for_parolee_wo_MI /
time_to_adjust_comm_svc_capacity_for_parolee_wo_MI

      UNITS: person/year

Correctional_Budget_to_Community_Services(t) = Correctional_Budget_to_Community_Services(t -
dt) + (chg_in_county_correctional_resources) * dt

   INIT Correctional_Budget_to_Community_Services = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN
Community_Service_Budget_for_Parolees_wMI + Community_Service_Budget_for_Parolees_wo_MI
ELSE Community_Service_Budget_for_Parolees_wMI +
Community_Service_Budget_for_Parolees_wo_MI

   UNITS: dollar

   INFLOWS:

     chg_in_county_correctional_resources = IF
Individuals_with_Criminal_History.equilibrium_switch = 1 THEN 0 ELSE (1 -
Individuals_with_Criminal_History.hold_correctional_community_service_budget_constant) * (1-
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution) *
(Correctional_Budget_to_Community_Services * CA_pop_annual_growth_rate) + (1 -
Individuals_with_Criminal_History.hold_correctional_community_service_budget_constant) *
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution * (
(total_indicated_comm_svc_cost_for_parolees - Correctional_Budget_to_Community_Services) /
time_to_adjust_correction_budget_for_comm_svcs) +
Individuals_with_Criminal_History.hold_correctional_community_service_budget_constant *
(Correctional_Budget_to_Community_Services *
zero_correctional_budget_to_community_services_growth_rate)

      UNITS: dollar/year

allocated_budget_for_comm_svcs_for_parolee_wMI = (1-
Individuals_with_Criminal_History.realignment_fund_in_2012_switch) * (1-
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution) *
(Correctional_Budget_to_Community_Services * (1 - STEP(0.9, 2012)) * fract_parolees_wMI) *
Individuals_with_Criminal_History.reduce_community_budget+ (1-
Individuals_with_Criminal_History.realignment_fund_in_2012_switch) *
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution *

(Correctional_Budget_to_Community_Services * fract_comm_svc_budget_for_parolee_wMI) *
Individuals_with_Criminal_History.reduce_community_budget +
Individuals_with_Criminal_History.realignment_fund_in_2012_switch * (1-
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution) *
((Correctional_Budget_to_Community_Services *
Individuals_with_Criminal_History.reduce_community_budget+
Realignment_resources_for_comm_svcs)* fract_parolees_wMI) +
Individuals_with_Criminal_History.realignment_fund_in_2012_switch *
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution *
((Correctional_Budget_to_Community_Services *
Individuals_with_Criminal_History.reduce_community_budget+
Realignment_resources_for_comm_svcs)* fract_comm_svc_budget_for_parolee_wMI)

UNITS: dollar

allocated_budget_for_comm_svcs_for_parolee_wo_MI = (1-
Individuals_with_Criminal_History.realignment_fund_in_2012_switch) * (1-
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution) *
(Correctional_Budget_to_Community_Services * (1 - STEP(0.9, 2012)) * fract_parolees_wo_MI) *
Individuals_with_Criminal_History.reduce_community_budget+ (1-
Individuals_with_Criminal_History.realignment_fund_in_2012_switch) *
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution *
(Correctional_Budget_to_Community_Services * fract_comm_svc_budget_for_parolee_wo_MI) *
Individuals_with_Criminal_History.reduce_community_budget +
Individuals_with_Criminal_History.realignment_fund_in_2012_switch * (1-
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution) *
((Correctional_Budget_to_Community_Services *
Individuals_with_Criminal_History.reduce_community_budget+
Realignment_resources_for_comm_svcs)* fract_parolees_wo_MI) +
Individuals_with_Criminal_History.realignment_fund_in_2012_switch *
Individuals_with_Criminal_History.policy_comm_svc_budget_distribution *
((Correctional_Budget_to_Community_Services *
Individuals_with_Criminal_History.reduce_community_budget+
Realignment_resources_for_comm_svcs) * fract_comm_svc_budget_for_parolee_wo_MI)

UNITS: dollar

CA_pop_annual_growth_rate = GRAPH(TIME)

(1987.00, 0.024619347), (1988.00, 0.024582286), (1989.00, 0.024389364), (1990.00, 0.026379741),
(1991.00, 0.021207227), (1992.00, 0.023474177), (1993.00, 0.017360311), (1994.00, 0.010546389),
(1995.00, 0.00669029), (1996.00, 0.005968813), (1997.00, 0.007918176), (1998.00, 0.015325244),
(1999.00, 0.01263916), (2000.00, 0.016906965), (2001.00, 0.013557579), (2002.00, 0.018927007),
(2003.00, 0.012330171), (2004.00, 0.012898113), (2005.00, 0.010281097), (2006.00, 0.00651186),
(2007.00, 0.007259574), (2008.00, 0.008434036), (2009.00, 0.008308399), (2010.00, 0.005995785),
(2011.00, 0.004767134), (2012.00, 0.012024092), (2013.00, 0.009571905), (2014.00, 0.009684343),
(2015.00, 0.00965635)

UNITS: 1/year

comm_svc_cost_per_county_parolee_wMI = (1-
Individuals_with_Criminal_History.realignment_policy) * init_comm_svcs_cost_per_county_parolee
+ Individuals_with_Criminal_History.realignment_policy *
(comm_svc_cost_per_prison_parolee_wMI * fract_comm_svc_cost_per_county_parolee_wMI)

   UNITS: dollar/person

comm_svc_cost_per_county_parolee_wo_MI = (1-
Individuals_with_Criminal_History.realignment_policy) * init_comm_svcs_cost_per_county_parolee
+ Individuals_with_Criminal_History.realignment_policy *
(comm_svc_cost_per_prison_parolee_wo_MI * fract_comm_svc_cost_per_county_parolee_wMI)

   UNITS: dollar/person

comm_svc_cost_per_prison_parolee_wMI = ref_comm_svc_cost_per_parolee_wMI *
Mental_Profiles.effect_of_mental_func_per_prison_parolee_and_violator_wMI_on_comm_svc_cost
* Social_Capital.effect_of_SC_of_all_parolees_wMI_on_comm_svc_cost

   UNITS: dollar/person

comm_svc_cost_per_prison_parolee_wo_MI = ref_comm_svcs_cost_per_prison_parolee_wo_MI *
Mental_Profiles.effect_of_mental_func_per_prison_parolee_and_violator_wo_MI_on_comm_cost *
Social_Capital.effect_of_SC_of_all_parolees_wo_MI_on_comm_svcs_cost

   UNITS: dollar/person

comm_svc_utilization_by_parolees_wMI = (1 - Individuals_with_Criminal_History.rounding_switch) *
(Individuals_with_Criminal_History.total_parolees_wMI /
Community_Service_Capacity_for_Parolee_wMI) +
Individuals_with_Criminal_History.rounding_switch * (ROUND
((Individuals_with_Criminal_History.total_parolees_wMI/Community_Service_Capacity_for_Parolee
_wMI)))

   UNITS: unitless

comm_svc_utilization_by_parolees_wo_MI = (1 -
Individuals_with_Criminal_History.rounding_switch) *
(Individuals_with_Criminal_History.total_parolees_wo_MI /
Community_Service_Capacity_for_Parolee_wo_MI) +
Individuals_with_Criminal_History.rounding_switch *
(ROUND(Individuals_with_Criminal_History.total_parolees_wo_MI /
Community_Service_Capacity_for_Parolee_wo_MI))

   UNITS: unitless

County_Realignment_Funds_extends_until_2020 = GRAPH(TIME)

(1987.00, 0), (1988.00, 0), (1989.00, 0), (1990.00, 0), (1991.00, 0), (1992.00, 0), (1993.00, 0),
(1994.00, 0), (1995.00, 0), (1996.00, 0), (1997.00, 0), (1998.00, 0), (1999.00, 0), (2000.00, 0),
(2001.00, 0), (2002.00, 0), (2003.00, 0), (2004.00, 0), (2005.00, 0), (2006.00, 0), (2007.00, 0),
(2008.00, 0), (2009.00, 0), (2010.00, 0), (2011.00, 0), (2012.00, 0), (2013.00, 2e+009), (2014.00,
1.1e+009), (2015.00, 1.1e+009), (2016.00, 1.1e+009), (2017.00, 1.1e+009), (2018.00, 1.1e+009),
(2019.00, 1.1e+009), (2020.00, 1.1e+009), (2021.00, 1.1e+009), (2022.00, 1.1e+009), (2023.00,
1.1e+009), (2024.00, 1.1e+009), (2025.00, 1.1e+009), (2026.00, 1.1e+009), (2027.00, 1.1e+009),

(2028.00, 1.1e+009), (2029.00, 1.1e+009), (2030.00, 1.1e+009), (2031.00, 1.1e+009), (2032.00, 1.1e+009), (2033.00, 1.1e+009), (2034.00, 1.1e+009), (2035.00, 1.1e+009), (2036.00, 1.1e+009), (2037.00, 1.1e+009), (2038.00, 1.1e+009), (2039.00, 1.1e+009), (2040.00, 1.1e+009), (2041.00, 1.1e+009), (2042.00, 1.1e+009), (2043.00, 1.1e+009), (2044.00, 1.1e+009), (2045.00, 1.1e+009), (2046.00, 1.1e+009), (2047.00, 1.1e+009), (2048.00, 1.1e+009), (2049.00, 1.1e+009), (2050.00, 1.1e+009), (2051.00, 1.1e+009), (2052.00, 1.1e+009)

UNITS: dollar

County_Realignment_Funds_in_1990 = GRAPH(TIME)

(1987.00, 0), (1988.00, 0), (1989.00, 0), (1990.00, 2e+009), (1991.00, 1.1e+009), (1992.00, 1.1e+009), (1993.00, 1.1e+009), (1994.00, 1.1e+009), (1995.00, 0), (1996.00, 0), (1997.00, 0), (1998.00, 0), (1999.00, 0), (2000.00, 0), (2001.00, 0), (2002.00, 0), (2003.00, 0), (2004.00, 0), (2005.00, 0), (2006.00, 0), (2007.00, 0), (2008.00, 0), (2009.00, 0), (2010.00, 0), (2011.00, 0), (2012.00, 0), (2013.00, 0), (2014.00, 0), (2015.00, 0), (2016.00, 0), (2017.00, 0), (2018.00, 0)

UNITS: dollar

County_Realignment_Funds_stops_at_2017 = GRAPH(TIME)

(1987.00, 0), (1988.00, 0), (1989.00, 0), (1990.00, 0), (1991.00, 0), (1992.00, 0), (1993.00, 0), (1994.00, 0), (1995.00, 0), (1996.00, 0), (1997.00, 0), (1998.00, 0), (1999.00, 0), (2000.00, 0), (2001.00, 0), (2002.00, 0), (2003.00, 0), (2004.00, 0), (2005.00, 0), (2006.00, 0), (2007.00, 0), (2008.00, 0), (2009.00, 0), (2010.00, 0), (2011.00, 0), (2012.00, 0), (2013.00, 2e+009), (2014.00, 1.1e+009), (2015.00, 1.1e+009), (2016.00, 1.1e+009), (2017.00, 1.1e+009), (2018.00, 0)

UNITS: dollar

desired_fract_parolee_work = 0.6

UNITS: unitless

effect_of_comm_svc_utilization_on_parolee_wMI_employability = GRAPH(SMTH3(comm_svc_utilization_by_parolees_wMI, 1, comm_svc_utilization_by_parolees_wMI))

(1.00, 1.0000), (3.90, 0.8482), (6.80, 0.6855), (9.70, 0.5301), (12.60, 0.4185), (15.50, 0.3446), (18.40, 0.2964), (21.30, 0.2610), (24.20, 0.2386), (27.10, 0.2193), (30.00, 0.2000)

UNITS: unitless

effect_of_comm_svc_utilization_on_parolee_wMI_mental_func = GRAPH(SMTH3(comm_svc_utilization_by_parolees_wMI, 1, comm_svc_utilization_by_parolees_wMI))

(1.000, 1.000), (1.700, 0.970), (2.400, 0.932), (3.100, 0.853), (3.800, 0.703), (4.500, 0.462), (5.200, 0.267), (5.900, 0.154), (6.600, 0.083), (7.300, 0.030), (8.000, 0.000)

UNITS: unitless

effect_of_comm_svcs_adequacy_on_parolee_wo_MI_employability = GRAPH(SMTH3 (comm_svc_utilization_by_parolees_wo_MI, 1, comm_svc_utilization_by_parolees_wo_MI))

(1.000, 1.0000), (1.750, 0.9775), (2.500, 0.9454), (3.250, 0.8811), (4.000, 0.8137), (4.750, 0.7333), (5.500, 0.6241), (6.250, 0.5390), (7.000, 0.4546), (7.750, 0.3843), (8.500, 0.3450), (9.250, 0.3197), (10.000, 0.3000)

    UNITS: unitless

effect_of_employment_on_parolee_wMI_SC_gain = GRAPH(SMTH3(parolee_wMI_employment_ratio, 1, parolee_wMI_employment_ratio))

(0.000, 0.500), (0.040, 0.508), (0.080, 0.523), (0.120, 0.539), (0.160, 0.557), (0.200, 0.586), (0.240, 0.612), (0.280, 0.656), (0.320, 0.692), (0.360, 0.731), (0.400, 0.768), (0.440, 0.817), (0.480, 0.864), (0.520, 0.916), (0.560, 1.000), (0.600, 1.160), (0.640, 1.266), (0.680, 1.329), (0.720, 1.373), (0.760, 1.414), (0.800, 1.438), (0.840, 1.456), (0.880, 1.471), (0.920, 1.484), (0.960, 1.490), (1.000, 1.497)

    UNITS: unitless

effect_of_employment_on_parolee_wo_MI_SC_gain = GRAPH(SMTH3(parolees_wo_MI_employment_ratio, 1, parolees_wo_MI_employment_ratio))

(0.000, 0.500), (0.100, 0.509), (0.200, 0.537), (0.300, 0.605), (0.400, 0.715), (0.500, 0.884), (0.600, 1.075), (0.700, 1.272), (0.800, 1.400), (0.900, 1.473), (1.000, 1.495)

    UNITS: unitless

employed_county_parolees_wMI = Individuals_with_Criminal_History.County_Parolees_wMI * fract_parolee_wMI_employed

    UNITS: person

employed_county_parolees_wMI_likely_fulfill_parole = employed_county_parolees_wMI * (1 - probability_of_employed_parolee_fail_parole)

    UNITS: person

employed_county_parolees_wMI_violated_condition = Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition * fract_parolee_wMI_violated_condition_employed

    UNITS: person

employed_county_parolees_wMI_violated_condition_likely_fulfill_parole = employed_county_parolees_wMI_violated_condition * (1 - probability_of_employed_parolee_fail_parole)

    UNITS: person

employed_county_parolees_wo_MI = Individuals_with_Criminal_History.County_Parolees_wo_MI * fract_parolee_wo_MI_employed

    UNITS: person

employed_county_parolees_wo_MI_likely_fulfill_parole = employed_county_parolees_wo_MI * (1 -probability_of_employed_parolee_fail_parole)

    UNITS: person

employed_county_parolees_wo_MI_violated_condition =
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition *
fract_parolee_wo_MI_violated_condition_employed

   UNITS: person

employed_county_parolees_wo_MI_violated_condition_likely_fulfill_parole =
employed_county_parolees_wo_MI_violated_condition * (1 -
probability_of_employed_parolee_fail_parole)

   UNITS: person

employed_prison_parolees_wMI = (Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI) *
fract_parolee_wMI_employed

   UNITS: person

employed_prison_parolees_wMI_likely_fulfill_parole = employed_prison_parolees_wMI * (1 -
probability_of_employed_parolee_fail_parole)

   UNITS: person

employed_prison_parolees_wMI_violated_condition =
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition *
fract_parolee_wMI_violated_condition_employed

   UNITS: person

employed_prison_parolees_wMI_violated_condition_likely_fulfill_parole =
employed_prison_parolees_wMI_violated_condition * (1 -
probability_of_employed_parolee_fail_parole)

   UNITS: person

employed_prison_parolees_wo_MI = (Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI) *
fract_parolee_wo_MI_employed

   UNITS: person

employed_prison_parolees_wo_MI_likely_fulfill_parole = employed_prison_parolees_wo_MI * (1 -
probability_of_employed_parolee_fail_parole)

   UNITS: person

employed_prison_parolees_wo_MI_violated_condition =
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition *
fract_parolee_wo_MI_violated_condition_employed

   UNITS: person

employed_prison_parolees_wo_MI_violated_condition_likely_fulfill_parole =
employed_prison_parolees_wo_MI_violated_condition * (1 -
probability_of_employed_parolee_fail_parole)

UNITS: person

fract_comm_svc_budget_for_parolee_wMI =
SMTH3((indicated_comm_svc_cost_for_prison_parolee_wMI +
indicated_comm_svc_cost_for_county_parolee_wMI) /
total_indicated_comm_svc_cost_for_parolees, time_to_adjust_correction_budget_for_comm_svcs,
(indicated_comm_svc_cost_for_prison_parolee_wMI +
indicated_comm_svc_cost_for_county_parolee_wMI) /
total_indicated_comm_svc_cost_for_parolees)

UNITS: unitless

fract_comm_svc_budget_for_parolee_wo_MI =
SMTH3((indicated_comm_svc_cost_for_prison_parolee_wo_MI +
indicated_comm_svc_cost_for_county_parolee_wo_MI) /
total_indicated_comm_svc_cost_for_parolees, time_to_adjust_correction_budget_for_comm_svcs,
(indicated_comm_svc_cost_for_prison_parolee_wo_MI +
indicated_comm_svc_cost_for_county_parolee_wo_MI) /
total_indicated_comm_svc_cost_for_parolees)

UNITS: unitless

fract_comm_svc_cost_per_county_parolee_wMI = 0.68

UNITS: unitless

fract_county_parolee_wMI = 1 - fract_prison_parolee_wMI

UNITS: unitless

fract_county_parolee_wo_MI = 1 - fract_prison_parolee_wo_MI

UNITS: unitless

fract_parolee_wMI_employed = desired_fract_parolee_work *
effect_of_comm_svc_utilization_on_parolee_wMI_employability

UNITS: unitless

fract_parolee_wMI_violated_condition_employed = desired_fract_parolee_work *
effect_of_comm_svc_utilization_on_parolee_wMI_employability

UNITS: unitless

fract_parolee_wo_MI_employed = desired_fract_parolee_work *
effect_of_comm_svcs_adequacy_on_parolee_wo_MI_employability

UNITS: unitless

fract_parolee_wo_MI_violated_condition_employed = desired_fract_parolee_work *
effect_of_comm_svcs_adequacy_on_parolee_wo_MI_employability

UNITS: unitless

fract_parolees_wMI = (Individuals_with_Criminal_History.total_parolees_wMI /
Individuals_with_Criminal_History.total_parolees)

UNITS: unitless

fract_parolees_wo_MI = 1 - fract_parolees_wMI

UNITS: unitless

fract_prison_parolee_wMI =
(Individuals_with_Criminal_History.Prison_Parolees_wMI+Individuals_with_Criminal_History.Prison_
Parolees_wMI_Violated_Condition+Individuals_with_Criminal_History.Reparoled_Prison_Parolees_
wMI) /
(Individuals_with_Criminal_History.Prison_Parolees_wMI+Individuals_with_Criminal_History.Prison_
Parolees_wMI_Violated_Condition+Individuals_with_Criminal_History.Reparoled_Prison_Parolees_
wMI+Individuals_with_Criminal_History.County_Parolees_wMI+Individuals_with_Criminal_History.C
ounty_Parolee_wMI_Violated_Condition)

UNITS: unitless

fract_prison_parolee_wo_MI =
(Individuals_with_Criminal_History.Prison_Parolees_wo_MI+Individuals_with_Criminal_History.Priso
n_Parolees_wo_MI_Violated_Condition+Individuals_with_Criminal_History.Reparoled_Prison_Parole
es_wo_MI) /
(Individuals_with_Criminal_History.Prison_Parolees_wo_MI+Individuals_with_Criminal_History.Priso
n_Parolees_wo_MI_Violated_Condition+Individuals_with_Criminal_History.Reparoled_Prison_Parole
es_wo_MI+Individuals_with_Criminal_History.County_Parolees_wo_MI+Individuals_with_Criminal_
History.County_Parolee_wo_MI_Violated_Condition)

UNITS: unitless

funded_comm_services_capacity_for_county_parolees_wMI = (1 -
Individuals_with_Criminal_History.realignment_policy) *
funded_comm_services_capacity_for_county_parolees_wMI_preRealignment +
Individuals_with_Criminal_History.realignment_policy *
((Community_Service_Budget_for_Parolees_wMI * fract_county_parolee_wMI) /
comm_svc_cost_per_county_parolee_wMI)

UNITS: person

funded_comm_services_capacity_for_county_parolees_wMI_preRealignment = 0

UNITS: person

funded_comm_services_capacity_for_county_parolees_wo_MI = (1 -
Individuals_with_Criminal_History.realignment_policy) *
funded_comm_services_capacity_for_county_parolees_wo_MI_preRealignment +
Individuals_with_Criminal_History.realignment_policy *
((Community_Service_Budget_for_Parolees_wo_MI * fract_county_parolee_wo_MI) /
(comm_svc_cost_per_county_parolee_wo_MI))

UNITS: person

funded_comm_services_capacity_for_county_parolees_wo_MI_preRealignment = 0

UNITS: person

funded_comm_services_capacity_for_prison_parolees_wMI =
(Community_Service_Budget_for_Parolees_wMI * fract_prison_parolee_wMI)/
comm_svc_cost_per_prison_parolee_wMI

   UNITS: person

funded_comm_services_capacity_for_prison_parolees_wo_MI =
(Community_Service_Budget_for_Parolees_wo_MI * fract_prison_parolee_wo_MI)/
comm_svc_cost_per_prison_parolee_wo_MI

   UNITS: person

gap_in_comm_svc_budget_for_parolee_wMI = allocated_budget_for_comm_svcs_for_parolee_wMI
- Community_Service_Budget_for_Parolees_wMI

   UNITS: dollar

gap_in_comm_svc_budget_for_parolee_wo_MI =
allocated_budget_for_comm_svcs_for_parolee_wo_MI -
Community_Service_Budget_for_Parolees_wo_MI

   UNITS: dollar

gap_in_comm_svcs_for_parolee_wMI =
(funded_comm_services_capacity_for_prison_parolees_wMI +
funded_comm_services_capacity_for_county_parolees_wMI) -
Community_Service_Capacity_for_Parolee_wMI

   UNITS: person

gap_in_comm_svcs_for_parolee_wo_MI =
(funded_comm_services_capacity_for_county_parolees_wo_MI +
funded_comm_services_capacity_for_prison_parolees_wo_MI) -
Community_Service_Capacity_for_Parolee_wo_MI

   UNITS: person

indicated_comm_svc_cost_for_county_parolee_wMI =
(Individuals_with_Criminal_History.County_Parolees_wMI +
Individuals_with_Criminal_History.County_Parolee_wMI_Violated_Condition) *
comm_svc_cost_per_county_parolee_wMI

   UNITS: dollar

indicated_comm_svc_cost_for_county_parolee_wo_MI =
(Individuals_with_Criminal_History.County_Parolees_wo_MI +
Individuals_with_Criminal_History.County_Parolee_wo_MI_Violated_Condition) *
comm_svc_cost_per_county_parolee_wo_MI

   UNITS: dollar

indicated_comm_svc_cost_for_prison_parolee_wMI =
(Individuals_with_Criminal_History.Prison_Parolees_wMI +
Individuals_with_Criminal_History.Prison_Parolees_wMI_Violated_Condition+

Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wMI) *
comm_svc_cost_per_prison_parolee_wMI

   UNITS: dollar

indicated_comm_svc_cost_for_prison_parolee_wo_MI =
(Individuals_with_Criminal_History.Prison_Parolees_wo_MI +
Individuals_with_Criminal_History.Prison_Parolees_wo_MI_Violated_Condition +
Individuals_with_Criminal_History.Reparoled_Prison_Parolees_wo_MI) *
comm_svc_cost_per_prison_parolee_wo_MI

   UNITS: dollar

init_comm_svcs_cost_per_county_parolee = 0.0001

   UNITS: dollar/person

parolee_wMI_employment_ratio = (employed_prison_parolees_wMI +
employed_prison_parolees_wMI_violated_condition + employed_county_parolees_wMI +
employed_county_parolees_wMI_violated_condition) /
Individuals_with_Criminal_History.total_parolees_wMI

   UNITS: unitless

parolees_wo_MI_employment_ratio = (employed_prison_parolees_wo_MI +
employed_prison_parolees_wo_MI_violated_condition + employed_county_parolees_wo_MI +
employed_county_parolees_wo_MI_violated_condition) /
Individuals_with_Criminal_History.total_parolees_wo_MI

   UNITS: unitless

probability_of_employed_parolee_fail_parole = 0.4

   UNITS: unitless

Realignment_resources_for_comm_svcs = (1 -
Individuals_with_Criminal_History.realignment_fund_extends_until_2050) * (1 -
Individuals_with_Criminal_History.realignment_fund_in_1990) *
(County_Realignment_Funds_stops_at_2017 * relative_of_strength_of_comm_svcs_claim) * 1 + (1 -
Individuals_with_Criminal_History.realignment_fund_extends_until_2050) *
Individuals_with_Criminal_History.realignment_fund_in_1990 *
(County_Realignment_Funds_in_1990 * relative_of_strength_of_comm_svcs_claim) +
Individuals_with_Criminal_History.realignment_fund_extends_until_2050 * (1 -
Individuals_with_Criminal_History.realignment_fund_in_1990) *
(County_Realignment_Funds_extends_until_2020 * relative_of_strength_of_comm_svcs_claim)

   UNITS: dollar

Realignment_resources_for_local_law_enforcement = (1-
Individuals_with_Criminal_History.realignment_fund_extends_until_2050) * (1 -
Individuals_with_Criminal_History.realignment_fund_in_1990) *
(County_Realignment_Funds_stops_at_2017 *
relative_of_strength_of_local_law_enforcement_claim) + (1-
Individuals_with_Criminal_History.realignment_fund_extends_until_2050) *

Individuals_with_Criminal_History.realignment_fund_in_1990 *
(County_Realignment_Funds_in_1990 * relative_of_strength_of_local_law_enforcement_claim) +
Individuals_with_Criminal_History.realignment_fund_extends_until_2050 * (1 -
Individuals_with_Criminal_History.realignment_fund_in_1990) *
(County_Realignment_Funds_extends_until_2020 *
relative_of_strength_of_local_law_enforcement_claim)

    UNITS: dollar

ref_comm_svc_cost_per_parolee_wMI = 9000

    UNITS: dollar/person

ref_comm_svcs_cost_per_prison_parolee_wo_MI = 2100*0+2268

    UNITS: dollar/person

relative_of_strength_of_comm_svcs_claim = weighted_strength_of_comm_svcs_claim /
total_claim_strength

    UNITS: unitless

relative_of_strength_of_local_law_enforcement_claim =
weighted_strength_of_local_law_enforcement_claim / total_claim_strength

    UNITS: unitless

strength_of_comm_svcs_claim = total_comm_svcs_utilization

    UNITS: unitless

strength_of_local_law_enforcement_claim = Jail_Capacity.jail_capacity_utilization

    UNITS: unitless

time_to_adjust_comm_svc_budget = 1

    UNITS: year

time_to_adjust_comm_svc_capacity_for_parolee_wMI = 8

    UNITS: year

time_to_adjust_comm_svc_capacity_for_parolee_wo_MI = 5

    UNITS: year

time_to_adjust_correction_budget_for_comm_svcs = 3

    UNITS: year

total_claim_strength = weighted_strength_of_local_law_enforcement_claim +
weighted_strength_of_comm_svcs_claim

    UNITS: unitless

total_comm_svcs_utilization = (Individuals_with_Criminal_History.total_parolees_wo_MI +
Individuals_with_Criminal_History.total_parolees_wMI)/

(Community_Service_Capacity_for_Parolee_wo_MI+Community_Service_Capacity_for_Parolee_wMI
)

    UNITS: unitless

total_indicated_comm_svc_cost_for_parolees = indicated_comm_svc_cost_for_prison_parolee_wMI
+ indicated_comm_svc_cost_for_prison_parolee_wo_MI +
indicated_comm_svc_cost_for_county_parolee_wMI +
indicated_comm_svc_cost_for_county_parolee_wo_MI

    UNITS: dollar

total_parolee_employment_ratio =
(employed_county_parolees_wMI+employed_county_parolees_wMI_violated_condition+employed
_county_parolees_wo_MI_violated_condition+employed_county_parolees_wo_MI +
employed_prison_parolees_wMI_violated_condition+
employed_prison_parolees_wMI+employed_prison_parolees_wo_MI_violated_condition+employed
_prison_parolees_wo_MI) /
(Individuals_with_Criminal_History.total_parolees_wMI+Individuals_with_Criminal_History.total_par
olees_wo_MI)

    UNITS: unitless

weight_for_comm_svcs_claim = 1 - weight_for_local_law_enforcement_claim

    UNITS: unitless

weight_for_local_law_enforcement_claim = 0.45

    UNITS: unitless

weighted_strength_of_comm_svcs_claim = weight_for_comm_svcs_claim *
strength_of_comm_svcs_claim

    UNITS: unitless

weighted_strength_of_local_law_enforcement_claim = weight_for_local_law_enforcement_claim *
strength_of_local_law_enforcement_claim

    UNITS: unitless

zero_correctional_budget_to_community_services_growth_rate = 0

    UNITS: 1/year

{ The model has 123 (123) variables (array expansion in parens).

 In this module and 0 additional modules with 0 sectors.

 Stocks: 5 (5) Flows: 5 (5) Converters: 113 (113)

 Constants: 14 (14) Equations: 104 (104) Graphicals: 13 (13)

 There are also 406 expanded macro variables.

 }