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International PhD in Model Based Public Planning, Policy Design and Management.

**DESIGNING DYNAMIC PERFORMANCE MANAGEMENT
SYSTEMS TO IMPROVE THE COMPETITIVENESS, ECONOMIC
AND SOCIAL CAPITAL OF ITALY**

An institutional and holistic sustainable development perspective

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THESIS OF

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DOTTORATO



*To my Father
and to all people that are still able to invest in men
for the improvement of the society*

...migliaia, milioni di individui lavorano, producono e risparmiano nonostante tutto quello che noi possiamo inventare per molestarli, incepparli, scoraggiarli.

È la vocazione naturale che li spinge; non soltanto la sete di denaro. Il gusto, l'orgoglio di vedere la propria azienda prosperare, acquistare credito, ispirare fiducia a clientele sempre più vaste, ampliare gli impianti, abbellire le sedi, costituiscono una molla di progresso altrettanto potente che il guadagno. Se così non fosse, non si spiegherebbe come ci siano imprenditori che nella propria azienda prodigano tutte le loro energie e investono tutti i loro capitali per ritrarre spesso utili di gran lunga più modesti di quelli che potrebbero sicuramente e comodamente con altri impieghi.

Luigi Einaudi

Secondo presidente della Repubblica Italiana

...thousands, millions of people work, produce and save despite all that can be invented to obstruct, bother and discourage them.

It is a natural vocation that drives them, not only the thirst for money.

The pleasure, the pride of seeing its own company prospering, becoming trustworthy, inspiring confidence in ever wider clientele, expanding plants, enriching their workplaces, are a spring in progress as powerful as profit.

Otherwise, there would not be any reason why there are entrepreneurs who dedicate all their energies in their company and invest all their money to generate profits often far more modest than those they could definitely and easily get through other investments.

Luigi Einaudi

Second President of the Italian Republic

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INTRODUCTION

In most of the countries a prevalent juridical and bureaucratic perspective in administrating public organizations has prevented to consider them as performance oriented organizations, based on a mission and subjected to an efficient and effective relationship between resources employed and results delivered. Nevertheless, as suggested by the Italian culture of business management, all the business features are also traceable in State organization (Bruni 1999, Sorci 2002).

The current financial crisis asks for a greater awareness of public organizations' mission since such organizations operate the transformation of public money acquired by taxes in another type of "capital", consisting in the level of services, organization, legal framework, that fosters the human and economic development of a Country. Hernando De Soto was the first one to examine quantitatively such transformation process and to identify in the capital produced by public organizations the multiplier of the economic capital of both families and enterprises. As a consequence, the quantity and density of the "capital" produced by public organizations influence the development perspectives of the economic potential of a country (De Soto 2000). This economist was also the first to elaborate a theoretical framework to explain the roots of the differences in the degree of development among States. He can be considered the inspirer of this study, although the present work try to innovate the current knowledge by focusing on economic incentives of capital production performed by public organizations. Such incentives are addressed to the benefit of both the functioning of public organizations and private enterprises.

The capital production process needs to respect economic and financial constraints as well as to work with a sufficient amount of financial resources. Both conditions are complied not only through efficiency in the consumption of resources but also through effectiveness in acquiring them. If on the one hand the current financial crisis obliges to respect a difficult trade-off between development and finance shortage through efficiency, on the other hand the globalization pushes

for a step further: being effective in acquiring new financial resources at an international level.

Governments, in most of the Countries, seem to ignore that global competition concerns not only private organizations, but also the public ones. A higher or lower reliance and affordability in legal framework, an abundance or scarcity of incentives, taxes and facilities concern private organization more than policy makers currently believe, and this explains the reason why in certain areas of the world there is a higher concentration of economic players than in other ones. Furthermore, while public organizations operate in a fixed location, private ones move according to the competitive advantages offered by being localized in a given nation. Public institutions collect for their functioning what the private ones pay in taxes. Competition of the private ones strictly depends on the level of facilities provided by the public ones. Both types of organizations are reciprocally necessary for the achievement of their missions and both are strictly necessary for the wealth of a nation.

First of all, this study, based on the Italian experience, aims to enlighten the key critical items of the Italian State's programming cycle and, in general, of those focused exclusively on the inputs, i.e. financial resources to collect. Such programming cycles have led during the current financial crisis to naive economic recovery strategies of the type "tax increase and cut public services and investments". Oppositely to such strategies, this study designs a new State's programming paradigm based on the development of the Country's strategic assets, such new programming cycle may occur along three phases: 1) The State identifies the strategic assets for the Country's economic development and focuses its strategies on them; 2) Policy makers implement policies (performance drivers) in order to achieve the development of such strategic assets; 3) Improvement and enrichment of the society are given by the "cash flows" (end results) arising from investments in strategic assets. Indeed, such end results are expended to consolidate State's financial accounts and invested once again (by reiteration of the process) in strategic resources, thus producing even more appreciable end results.

The study will also analyse a new way for State organization to get over the crisis based on a brand new strategic approach of collaborating with private firms for “co-creating” their global competitive advantage. This presupposes for public organizations, firstly for the State, to promote their relationships with the territory in the perspective of performance management and to foster the tool of policy evaluation, either *ex ante* or *ex post*. This topic will be illustrated in Chapters 3 and 4 where, via a System dynamics model, it will be demonstrated how the improvement of legal and organizational framework lead to a higher competitiveness of private firms and consequently to an increase in financial resources for State organization. The model quantifies such result for the State by linking it to taxation of larger firms’ profits and less expenditures for unemployment benefits and equalization grants.

Furthermore, the present study also addresses the question on how to overcome the current gap in information of policy makers, due to the lack of analysis of how the complex of organizational and the legal frameworks influences the cost structure of firms producing in the country. So far this issue has been analyzed by international and national institutions but their surveys are rather focused on qualitative and quantitative evaluations of variables concerning the organizational and legal frameworks of each country. Such surveys, in fact, do not aim to estimate relative costs supported by firms and their effects in terms of firms’ global competition and States’ development.

For these purposes, a System dynamic model has been built and tested since this methodology, more than other management tools, requires *ex ante* a specification of objectives, hypothesis, relationships, means and a scrutiny of results, and implementation issues of a policy. The System dynamics methodology tries to identify and test policies for dynamic problems, i.e. problems arising from the mutual interaction and circular causality among variables. Nowadays, System dynamics covers large breadth of applications (social, managerial and economic systems) and bases itself on a multidisciplinary approach.

Two reasons make indispensable the use of simulation models, first of all those of System dynamics. Firstly, the solution of problem arising by interactions of tens

of variables and by circular causality relationships among them. This contrasts with the current mental model reasoning in terms of “instantaneous relationships” (A causes B). System dynamics models keep into account at the same time interactions of all variables and their causal relationships. Secondly, simulation models reduce drastically the time and resources employed for public planning and control. Oppositely to long and costly processes, these models enable not only the fast definition/redefinition of the strategies to pursue, but also quick decisions based on an objective and trustful information.

The present study starts by introducing, through evidences given by reports and statistics, the issue of the Italian legal and organizational framework and its consequences for the Country’s economy in the last two decades.

In Chapter 2, the Italian State’s programming cycle and its related key critical items are described both theoretically and practically.

In Chapter 3, a case study reveals the figures in the game, both for State and enterprises, within a sustainable State-territory strategizing. The case study shows the impact, in terms of costs for a production enterprise, of the following factors: a) Interest rates for financing investments and deposit advances; b) Delays in obtaining authorizations and cashing accounts receivables from public administrations; c) Shipping costs depending on availability of infrastructures (motorways, ports, airports); d) Cost of utilities; e) Cost for work unit and social security tax; f) Jurisdictional delay in settling commercial disputes; g) Tax and administrative compliance; h) Taxes on profits; i) Real estate tax.

When the State commitment to improve the competitiveness of its territory is low, the poor strategizing of State causes more costs for firms and foreign investors, which lead to lower earnings and, eventually, lower tax income for the State. In an open and free market, as the one of the Europe Union, additional costs expose Italian firms to the danger of failure under the aggressive competition of foreign companies, and the Italian State to the danger of delocalization of Italian enterprises with the related consequences in terms of State’s tax base erosion and additional expenditures for equalization benefits.

Model thus simulates the behaviour of key performance indicators of enterprises as well as the financial loss for the Italian State on a ten-yearly horizon.

Certainly, policies of type “tax increase and cut public services and investments”, insisting blindly on consolidating public finances, result into undermining the present and future contributing capacity of enterprises and citizens, and reliability of receipts forecasts in future public budgets. Oppositely, investing in strategic assets such as a good organizational and legal framework allows citizens and enterprises to develop their undisclosed potential, to produce more, to avoid delocalization and to increase attractiveness of foreign investors.

In Chapter 4, the issue of sustainable financial policies in State organization is further developed and extended towards the direction traced by the theories of “Holistic development” and “Social Capital”. An application of the first theory has proved that State policies, when are designed according to a collaborative approach with the other institutions of State’s territory, produce the achievement of appreciable financial results not only for the recipients of State organization (i.e. enterprises and families) but also for the State itself.

The model results illustrated in this chapter report, with respect to the previous results and at a constant tax leverage, a considerable improvement of key performance indicators of enterprises as well as an additional tax income and less expenditures for the Italian State, thus demonstrating the positive effects of an increase in competitiveness on both enterprises and State performances.

An holistic development strategy has also a positive reflection over the socio-economic and environmental context in which public strategies take place. Good management, services and transparency foster in individuals their social commitment, honesty, and a solid trust towards public institutions and therefore the development of the social capital into the society. Such capital benefits the society as a whole in terms of lower transaction costs, fewer opportunistic behavior and speed of information among institutions. By reducing costs for enterprises social capital thus represents a key factor of the global competitiveness of Italy.

CHAPTER 1

FROM THE “GLASS BELL” TO THE PROBLEM AWARENESS

1.1 A problem of managerial culture or of State organization’s vision and strategy?

In dealing with the low growth of Italian economy over the last two decades some economists have been identifying the causes of such phenomenon into the “soft capitalistic” culture of internal economic players. This hypothesis seems very naive and simplistic. Surely the culture plays an important role in mental models or specific preferences but the issue needs a differentiation. Indeed, there are factors constituting the a deep-rooted and not modifiable identity of the country and factors determined by economic and juridical constraints (De Soto, 2001).

Over the last two decades the Italian average annual growth rates lagged well below the EU average (see Figure 1).

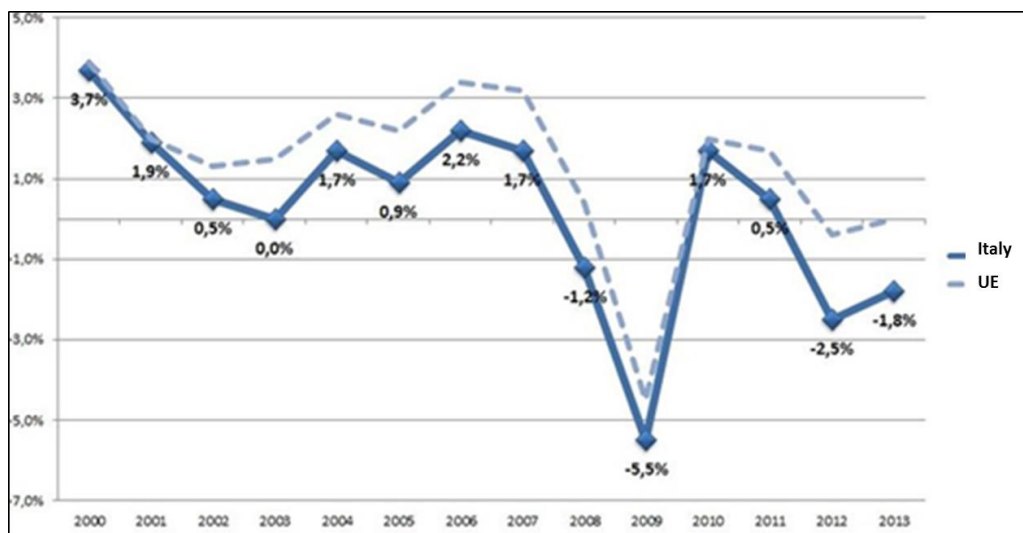


Figure 1: The Italy’s GDP growth from 2000 to 2012 (including forecast 2013) compared with the EU’s GDP growth (source: OECD).

Looking back to 1995, anyway, we can see that Italy's GDP per capita was very close to the one of big EU economies (see Figure 2).

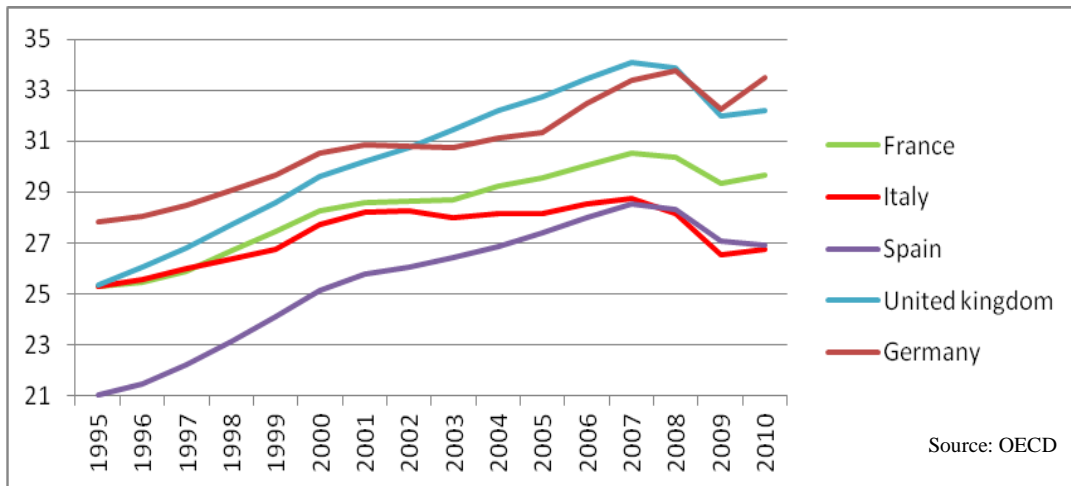


Figure 2: Comparison of GDP per capita in Italy, France, Spain, UK and Germany from 1995 to 2010 (in thousands of Euro)

Which are the reasons of this recession specifically for Italy, despite the great opportunities disclosed by the European integration process through the Schengen Agreement (from 1995) and the following adoption (1998-2002) of the common currency? Is the weak growth reported by the Italian economy a result of a cultural leivity in doing business or it has to be linked to other reasons?

In order to try to identify the most important and problematic areas underlying the Italian economy's low growth rate, it's necessary to analyze and measure its competitiveness.

Firstly, the competitiveness of a country could be defined as the effort to reach a country's economic development compatible with the level of social evolution of the country itself (Porter,1990; Zanetti, 2006). Competitiveness is measured with respect to similar competitors since the comparison of countries with different social evolution and development degree is unworthy.

With another meaning, the competitiveness could be defined as the "set of institutions, policies, and factors that determine the level of productivity of a country" (Schwab 2012). Adopting such definition, then, we can obtain an

appreciable overview of the competitiveness level of the Italian economy through the Global Competitiveness Index (GCI) developed by Xavier Sala-i-Martin and Elsa V. Artadi (2004). The GCI has been using since 2004 by the World Economic Forum to assess the ability of countries to provide high levels of prosperity to their citizens. This in turn depends on how productively a country uses available resources. Therefore, the Global Competitiveness Index measures the complex of institutions, policies, and factors (so called “pillars”) that set the current and medium-term levels of economic prosperity of the countries analyzed.

Each “pillar” of competitiveness include a group of micro and macroeconomic variables. The assessment of such variables is provided by means of quantitative and qualitative methods by partner institutes settled in each analyzed country. The “12 pillars” of competitiveness whose performance qualifies the degree of economic development of each of 142 countries analyzed are:

- a) Institutions;
- b) Infrastructure;
- c) Macroeconomic environment;
- d) Health and primary education;
- e) Higher education and training;
- f) Goods’ market efficiency;
- g) Labor market efficiency;
- h) Financial market development;
- i) Technological readiness;
- j) Market size;
- k) Business sophistication;
- l) Innovation.

Even though several components of GCI are based on subjective estimations they offer useful insights to inquire into the roots of loss in competitiveness among the Italian economic players, private and public.

All pillars and their indicators have been taken into account in the following analysis, except “Health and primary education” and “Higher education and training” pillars, because, based on the assumptions of the model described in Chapter 3, the latter do not affect the operational costs of enterprises.

Results are reported in Figure 3: the first column reports the absolute values reached by Italy for each item, the second one shows the GCI rank among the countries analyzed (Schwab 2012).

Table 1: Breakdown of the Global Competitiveness Index of Italy

1st pillar: Institutions		7.02 Flexibility of wage determination 3.2.. 134
1.01 Property rights 4.271	1.07 Favoritism in decisions of gov. officials 2.4 ... 119	7.04 Hiring and firing practices 3.0 .. 126
1.08 Wastefulness of government spending 2.5 ... 114	1.09 Burden of government regulation 2.1 ... 140	8th pillar: Financial market development
1.10 Efficiency of legal framw. in settling disputes 2.6.... 133	1.11 Efficiency of legal framw. in challenging regs. 2.7.... 125	8.01 Availability of financial services..... 4.6..... 67
1.12 Transparency of government policymaking.. 3.2 135	1.19 Efficacy of corporate boards 4.0..... 120	8.02 Affordability of financial services 3.5... 13
1.21 Strength of investor protection, 0–10 (best)... 5.7.....47		8.04 Ease of access to loans 2.2... 112
2nd pillar: Infrastructure		10th pillar: Market size
2.01 Quality of overall infrastructure 4.079	2.02 Quality of roads.....4.2.....59	10.01 Domestic market size index, 1–7 (best)*.. 5.5..... 10
2.03 Quality of railroad infrastructure..... 3.5. 43	2.04 Quality of port infrastructure..... 3.9..... 81	10.02 Foreign market size index, 1–7 (best)* 5.9..... 15
3rd pillar: Macroeconomic environment		11th pillar: Business sophistication
3.04 Interest rate spread, %*.....7.0..... 92	3.05 General government debt, % GDP*.....119.0 .. 138	11.01 Local supplier quantity 5.6 11
6th pillar: Goods market efficiency		11.02 Local supplier quality..... 5.2 28
6.04 Extent and effect of taxation..... 2.2 ... 139	6.05 Total tax rate, % profits*..... 68.6..... 132	11.03 State of cluster development..... 5.4 2
6.13 Burden of customs procedures 4.079		11.04 Nature of competitive advantage..... 5.9 7
7th pillar: Labor market efficiency		11.05 Value chain breadth 5.3 11
7.01 Cooperation in labor-employer relations..... 3.8... 118		11.07 Production process sophistication 4.8 28
		12th pillar: Innovation
		12.01 Capacity for innovation..... 4.0 ... 26
		12.03 Company spending on R&D..... 3.6 ... 34
		12.04 University-industry collaboration in R&D..... 3.5 ...79
		12.05 Gov't procurement of advc tech products..... 3.0 . 114
		12.07 Utility patents granted/million pop.* 29.9 .. 25

Source: World Economic Forum (WEF) 2012.

The situation portrayed in Table 1 shows two different aspects of the Italian global competitiveness or, in other words, opposite behaviours among public and private institutions. On the one side, Table 1 shows evidence of a certain sluggishness of public management (tax, administrative, market and legal framework) to the instances of economic operators, criticality that results in higher costs sustained by market players in carrying on their activity within the national boundaries. On the other side, it shows many different items where Italian entrepreneurs have reached a solid competitive advantage. Such advantage stems, first of all, from the breadth of value chain, from the nature of competitive advantage and, as a distinguishing landmark of Italian economic fabric, from the state of cluster development.

Based on a yearly survey included in the Global Competitiveness Report (Schwab 2012) the most problematic factors of doing business in Italy are listed below:

- 1) Inefficient Government bureaucracy: 19.0%;
- 2) Tax rates: 16.1%;
- 3) Access to financing: 13.6%;
- 4) Restrictive labour regulation: 10.7%;
- 5) Inadequate supply of infrastructure: 10.1%;
- 6) Tax regulations: 9.3%;
- 7) Corruption: 6.9%;
- 8) Policy (not political) instability: 6.8%.

All these burdens, as weighted up by national market players, represent the 92.5% of most problematic barriers of doing business in Italy and erode company's profitability. It's interesting to note that factors like "crime and theft" and "inadequately educated workforce" gained a respective percentage of 1.8% and 1.2%: in other way round, these factors are substantially irrelevant.

Table 2: Manufacturing costs' indicators for Italy, Germany and France from 1990 to 2002 (1993=100)

	Germany	France	Italy	Spain
1990	94,9	100,0	118,5	114,9
1991	94,6	97,3	118,5	114,4
1992	98,4	100,2	116,3	112,5
1993	100,0	100,0	100,0	100,0
1994	98,6	98,9	97,3	95,6
1995	101,9	100,9	92,3	97,7
1996	96,6	99,6	101,5	98,9
1997	91,1	94,2	101,0	93,9
1998	93,2	95,6	102,9	94,6
1999	90,7	93,8	101,3	94,0
2000	83,5	88,3	97,1	90,3
2001	85,8	88,9	98,3	91,3
2002	87,0	90,6	100,5	93,5
			Source: Bank of Italy 2005	

Another important factor to take into account in the analysis of Italian global competitiveness is the behaviour of the production cost indicator.

The root of this change are doubtless traceable in the dynamics of production costs over the last two decades. Table 2 reports the manufacturing costs' indicators for Italy, Germany and France

and Spain from 1990 to 2005.

The period taken into account is of crucial importance in order to understand the dynamics of manufacturing costs recorded in Italy. In 1992-1993 a devaluation of national currency Lira occurred, the last before 1998, when were set fixed conversion rates among the European currencies before the adoption of Euro in 2002. As result, the manufacturing costs decreased reaching their minimum for an interlude of two years. In the subsequent eight years they reached the same level of 1993 while they have shrunk in the same period in France and Germany,

Table 3: Manufacturing costs' indicators comparison between Italy and UE from 2002 to 2012 (2005=100)

General index of production prices of industrial products (base 2005)					
Period	Euro zone		Italy		
	Index	Δ %	Index	Δ %	
2002	96,1	-	92,1	-	
2003	96,2	+ 0,1	93,6	+ 1,6	
2004	97,6	+ 1,4	96,1	+ 2,7	
2005	100,0	+ 2,5	100,0	+ 4,0	
2006	101,8	+ 1,8	105,2	+ 5,2	
2007	104,7	+ 2,8	108,7	+ 3,3	
2008	108,3	+ 3,4	115,1	+ 5,9	
2009	106,1	- 2,0	108,9	- 5,4	
2010	109,1	+ 2,8	112,2	+ 3,0	
2011	113,5	+ 4,0	117,8	+ 5,0	
2012					
	I-trim.	114,4		120,1	
	II-trim.	115,0		120,7	
	III-trim.	114,7		121,5	

respectively of 9.4% and 13%. After the adoption of Euro, without the sole lever of issuing money to reduce production costs, these last have showed a higher growth compared to the average recorded, in the same period, in the whole Euro zone.

Based on the above data, it's easy to explain

why the Italian production system moved toward a non-price competitiveness model where differentiation, quality, innovation, design, customization, pre and post sales customer care are the hallmarks; while the price competitiveness production system has almost disappeared.

Manufacturing costs dynamics of countries belonging to the European Union are of crucial importance in order to understand in- and outflows of manufacturing firms as well as localization of extra-European FDIs among countries within Union's boundaries.

Manufacturing costs include the cost of labor. It is worth noting that, although this cost is 35% lower than Germany's one, and in general the lowest among the

western European countries (except Spain), Italy has always recorded a higher increase of manufacturing costs compared to its competitors.

Table 4: Average gross annual earning of a full time employees from 2008 to 2010. Source: Eurostat

	2008	2009	2010
Belgium (2)	40 698	42 149	43 423
Bulgaria	3 590	4 085	4 396
Czech Republic (3)	10 930	10 596	11 312
Denmark	55 001	56 044	58 840
Germany	41 400	41 100	42 400
Estonia (2)	10 045	9 492	9 712
Ireland	45 893	45 207	.
Greece	25 915	29 160	.
Spain	25 208	26 316	.
France	.	35 530	.
Italy (3)	26 845	27 419	28 230
Cyprus (2)	.	24 775	25 251
Latvia	8 676	8 728	8 596
Lithuania (3)	7 398	6 895	6 735
Luxembourg (2)(4)	47 034	48 174	49 316
Hungary	10 237	9 603	10 100
Malta	.	20 811	21 446
Netherlands	43 146	44 412	45 215
Austria (2)	39 875	40 457	41 123
Poland (3)	9 868	8 399	9 435
Portugal	.	17 129	17 352
Romania	.	5 450	5 891
Slovenia (5)	15 997	16 262	17 168
Slovakia	9 707	10 387	10 777
Finland	37 946	39 052	40 122
Sweden	37 597	34 746	40 008
United Kingdom	42 327	38 047	39 626
Norway (2)	52 632	51 343	.
Switzerland (5)	.	.	56 509
Croatia (5)	11 979	11 969	.

(1) Enterprises with ten or more employees; NACE Rev. 2 Sections B to N.

(2) All enterprises.

(3) All enterprises; full-time units (FTU).

(4) Break in series, 2009.

(5) Enterprises with ten or more employees; full-time units (FTU).

Source: Eurostat (online data code: earn_gr_nace2)

Whether the work unit's cost is not responsible for the constant increase of manufacturing costs, but rather represents a key competitive factor of Italian economy, explications of low global competitiveness phenomenon ought to be traced outside.

Following two figures report statistics concerning the burden of "Government's regulations" and "Total tax rate", as reported in Table 1, Italy's performances are respectively 140th and 132nd in a rank of 142 countries. Figures 3 and 4 confirm that the causes of Italy's low global competitiveness could be traced effectively outside the enterprise's perimeter.

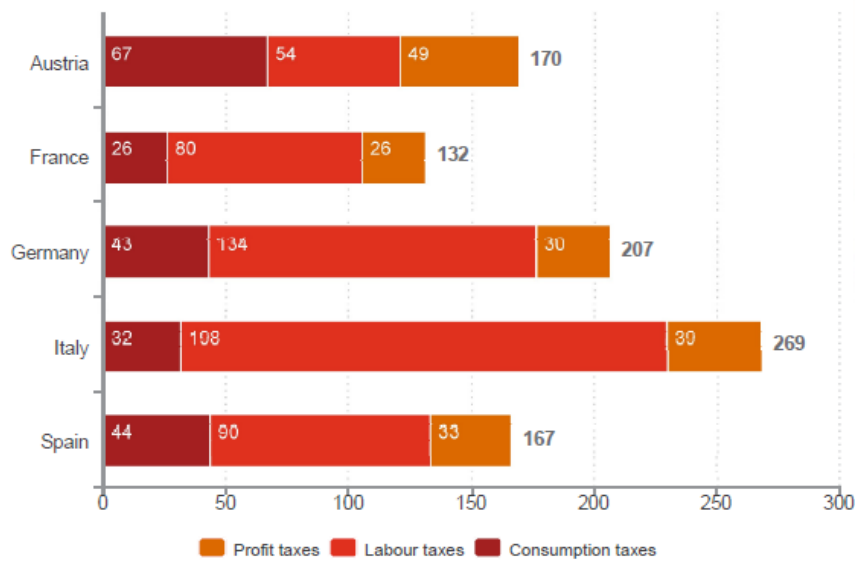


Figure 3: Time to comply with Government's tax regulations (in hours) in Italy and its main European competitors in 2011

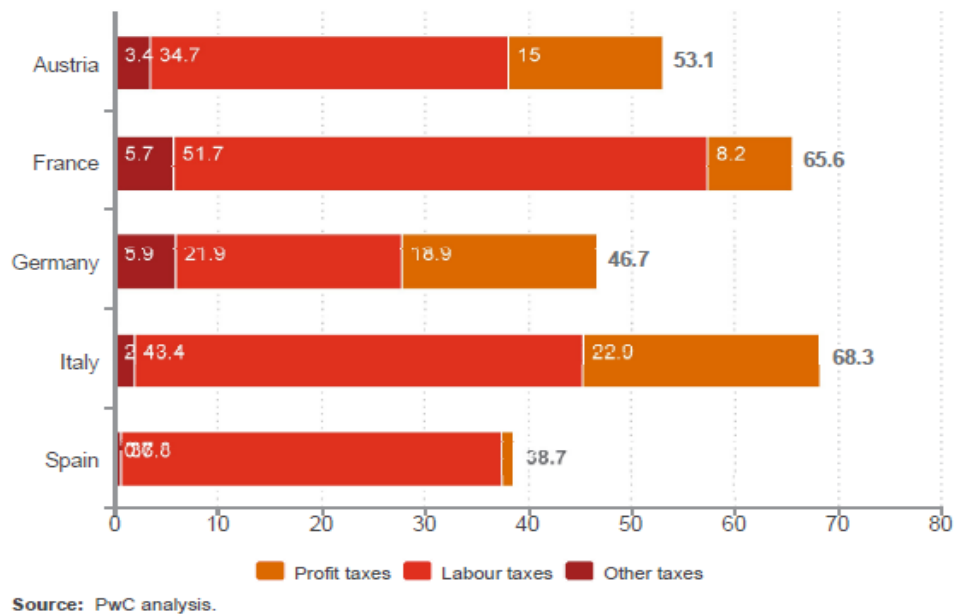


Figure 4: Total tax rates for enterprises in Italy and in its main European competitors in 2011

This preliminary analysis conducted about the decrease in competitiveness of Italy over the last two decades portrays the following evidences: the actions of Italian governments in the first decade (1992-2002) have been blindly oriented

towards creating a short term competitive advantage in reducing manufacturing costs through inflation. After 2002, without leverage of issuing money, the Italian State was still incapable to invest in the productivity and global competitiveness of Italy. It should have been highly necessary to deal with the causes of an excessive inefficiency of public institutions, legal framework and infrastructures in order to create a long term competitive advantage for firms. Nowadays, this exigency may not be absolutely deferred. In the open market represented by the whole European Union the competition occurs also among States in providing the best economic environment and less costs for market players. The State is a public organization that ought to be managed in a business like perspective, with a sustainable and effective financial policy and a strategy that enables it to create a long lasting value.

Today Italy is in transition towards this kind of organizational model. As illustrated in Figure 5 the spread in public general administrative expenses, between Italy and its European competitors decreased from 1995 to 2008. Comparing Italy with the best European competitor, United Kingdom, the spread has decreased from 830 b.p. (+243% of UK value) to 430 b.p. (+191% of UK value). But still today Italy's public general administrative expenses remain the highest among the west European countries.

As mentioned in the introduction and further deepened in the present overview,

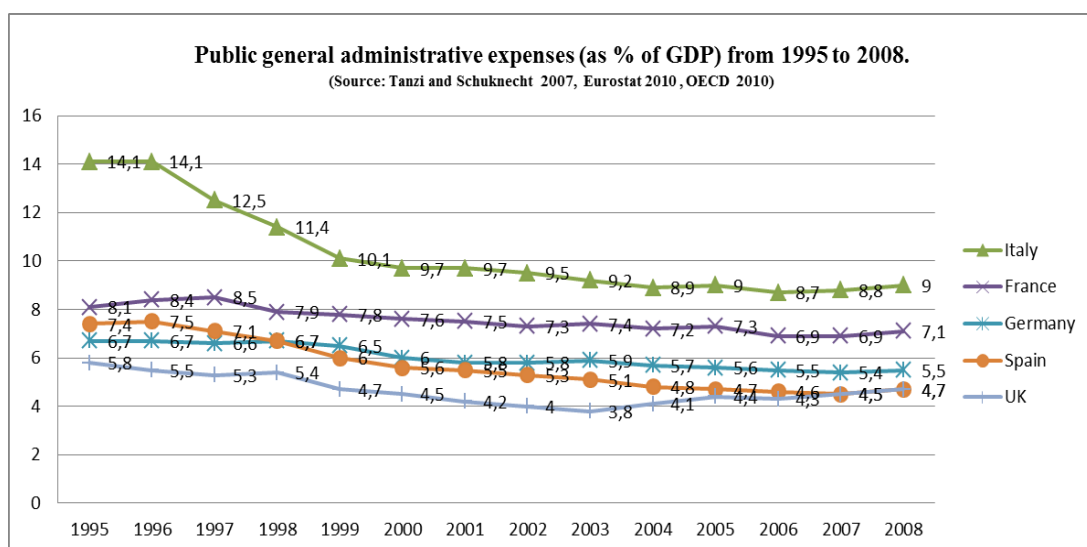


Figure 5: Public general administrative expenses (in % of GDP) in Italy and its main European competitors

performance dynamics of public and private organizations are strictly connected. A negative spread of 430 b.p. in the amount of public general administrative expenses allows United Kingdom to lower tax pressure and to invest more in research (both calculated in percentage to GDP), essential factors increasing the global competitiveness, and thus attractiveness of the country.

In deficiency of a reliable long term strategy reside dominantly the threats of delocalization, high mortality of national firms and absence of foreign direct investments in the country. For the State organization this represents a large loss in fiscal receipts and more expenditure for equalization grants. At this point the only leverage available will be to increase taxation further and further, but this would lead to lesser and lesser presence of market players. At the end of several iteration of this process, who will pay the taxes?

1.2. A shift of game's rules in State organization's strategizing

Sixty year ago the economic and political integration process to create the European Union was just beginning. Below we list the main steps relevant to the present work:

- **1951** Treaty of Paris establishes the European Coal and Steel Community
- **1957** Treaties of Rome establish the European Economic Community
- **1962** Launch of the Common Agricultural Policy
- **1968** Completion of the customs union allowing the free movement of goods
- **1979** Launch of the European Monetary System
- **1985** Schengen agreement settling free circulation of people in the EU
- **1986** The Single European Act launches the single-market program and extends Community competence in the fields of environmental policy, economic and social cohesion, research and technology policy, and social policy
- **1989** Extension of Commission responsibility for competition policy

- **1992** The Treaty on European Union sets the EU on the road to economic and monetary union
- **1999** Launch of a common monetary policy and a single currency (the Euro)
- **2002** The Adoption of euro
- **2004** EU leaders agree on and later sign the Constitutional Treaty
- **2005** The directive 2005/36/EC directive establishes a system for the recognition of professional qualifications, in order to liberalize the provision of services within EU

The aforementioned scheme shows three phases.

The EU integration process first aimed to create a free movement of goods (1968) and people (1985) within the EU boundaries; then to settle common rules in the field of environment, social cohesion, technology, recognition of professional qualifications, competition, necessary to build the legal and administrative common framework within the European Union; finally to adopting a common currency and the Constitutional Treaty.

The end of economic and legal barriers in Europe resulted in a competition shift from a national scale to an international one. In Italy, great expansion opportunities were faced in a completely different ways by the private companies and State organization.

In Italy, SMEs, which constitute the 99,9% of the total enterprises of the country (European Commission 2010), have put great efforts in adapting their activity to the new global competition and reached the second highest level of cluster development in the world (Schwab 2012). The cluster is as a sectoral and geographical concentration of connected businesses, suppliers, and associates in a specific field that increase the efficiency and productivity through a “competitive collaboration” (Pezzani, 2011) of all the actors in different phases: (a) along the value chain of a product (vertical); (b) the production of similar products (horizontal). The cluster is the most important key success factor for Italian economy. Its roots are traceable in the adaptation capacity of Italian SMEs to the global contest of competitiveness. The cluster enables Italian enterprises to gain, although their small proportions, not only typical benefits of large-scale

enterprises, such as the costs reduction for R&D, delivery and production, but also the advantages of product differentiation and faster adaptation to the market needs, that large-scale enterprises cannot attend.

In the same period of time, unfortunately the Italian public management did not adapt itself to the new world economic scenario. A prevalent juridical and bureaucratic perspective in managing public organizations has prevented them to be not only efficient in respecting their economic and financial constraints but also effective in “co-creating” with private enterprises a global competitive advantage of Italian economic system as a whole. The Italian political sluggishness in investing resources in facilities and in creating a more efficient organizational and legal framework, increased, on the one side, the mortality rate of the companies, and, on the other, their relocation abroad in “more lenient” States in order to seek an additional competitive advantage. By doing this, Italy has faced poorer and poorer budget balances.

In other words, the strategizing scenario of Italian policy makers, is still focused within the national boundaries and not at least on a European level. The main features of such strategic formulation of Italian policy makers could be synthesized by the following statements:

- a) Taxation does not affect enterprises’ product price and investments and consequently their global competitiveness;
- b) The level of infrastructures and the public legal and administrative context do not influence the production costs and the financial solidity of enterprises.
- c) Enterprises will not relocate to seek abroad a competitive advantage;
- d) The tax pressure is justified by the State’s financial needs;
- e) Focus on public organizations’ budget balances, not on the percentage of public revenues spent for public services.
- f) Lack of strategic and operative benchmarking with other countries;
- g) Lack of policies’ sensitive analysis in order to set the optimal point of tax yield according to firms’ fiscal capacity and competitiveness.



Figure 6: Actual vs desired spatial horizon of Italian public strategizing

This view of thinking should move to a vision where, starting from the source of public organizations finances, the policymaker co-strategizes with enterprises and citizens in order to provide them the best localization's advantages. The present research addresses to test the effectiveness of such strategic approach, and to show how the majority of adopted anti-crisis' policies have been unsustainable both for State and enterprises, since they have been focused on financial stability of State institutions and not on increasing wealth of private ones, which would in turn assure them the financial stability in the long term.

The validity of such approach in public strategizing will be tested in Chapter 3 through the provision of the case study based on the System dynamics methodology, a new management tool which tries to identify and test policies for dynamic problems. Such problems are known to arise from the mutual interaction and circular causality among variables, concerning a particular issue. This methodology has been considered useful according to the relevant number of variables and their causal relationships that should be included in public strategizing.

1.3 The phenomenon of “strategic asset-seeking” relocation

The relocation represents the highest stage of internationalization of production and commercial activities. From the point of view of the individual country, this can be both active and passive if it involves respectively an exit or an entry in the

number of firms operating in a country. The internationalization is realized through different modalities, which can be divided into three broad categories: a) international trade, b) cooperation agreements, c) foreign direct investment (Beber 1996).

International trade is the exchange of goods and services through the national borders, and is usually the first method adopted by the businesses that start to face the global market, as it implies a low degree of involvement and risk on the part of companies. In the international trade are included exports and imports and trade of goods and services. It is estimated that over three-quarters of the international trade is undertaken by multinational enterprises and over a third is based on intra-companies trade (Ietto-Gillies, 2005) .

The second category consists of non-equity or cooperative agreements that do not involve investment in shares of companies. Such forms of internationalization may act in different ways (Ietto-Gillies, 2005): a) licensing b) franchise; c) alliances, d) subcontracting.

The foreign direct investments (FDI) are the most direct form of internationalization, as they lead an enterprise's direct investment to participate in the capital of foreign companies, possibly with one or more partners (mergers or acquisitions of equity stakes and joint ventures). They thus represent the most challenging and articulated modes of entry into foreign markets, as they require a significant investment of resources and a long-term commitment. The IDE are distinguished in the literature in two categories: greenfield investments, when consisting in the opening of a new economic unit, and brownfield investments, when the growth in capacity involves a certain amount of fixed capital that already exists.

FDI, depending on the reasons for which it is undertaken, may have a very different impact on the economy of the country of origin and destination of the investment. Such reasons can be grouped into the following four categories (Horstmann and Markusen 1996, Markusen et al. 1996): 1) Resources seeking investments, that provide a privileged access to essential production inputs; 2) Capital costs savings, that aim to rationalize the structure of production locating the

activities of the value chain in the countries in which is possible to achieve a cost advantage; 3) Market seeking investments, aimed to ensure direct supervision of markets to high potential of development in which the firm can take advantage over local businesses; 4) Investments strategic asset-seeking, motivated by the need to gain access to assets of complementary strategic importance.

The firms carrying out “resources seeking” and “costs saving” investments deconstruct their value chain through the relocation of activities. Such activities are generally work-intensive and necessitate mainly low-skilled jobs, otherwise they require a significant procurement of resources in markets where they are available at convenient conditions.

Companies undertaking “market seeking” investments usually create decentralized commercial structures in target countries and, if those countries are far apart, also establish their production activity. Moreover, these investments are typical of the service companies because of territoriality and proximity features of the specific services provided.

Instead, companies that invest to access “asset of strategic importance” are those that according to Bortolussi, Secretary of CGIA Mestre, relocate for the following reasons: taxes, bureaucracy, high social security, logistical and infrastructural deficits, inefficiency of public administration, lack and high cost of credit to businesses, and cost of energy. Often these insurmountable obstacles have led many entrepreneurs to move to neighbouring countries where enterprises can access to such assets of complementary strategic importance (CGIA Mestre 2013).

The effects of these relocations not belonging to the categories of “resource seeking” and “market seeking”, and “cost savings” are those analyzed in this study. Such relocation is carried out mainly within the western countries of the European Union, facilitated by the free exchange of goods, from a wide and fast circulation of information, from the proximity, and economic and political stability of the addressed countries.

It is no coincidence that in 2011, out of a total of 27,191 companies relocated, 41.4% of them have relocated in Western Europe (ICE 2013)¹.

The country that is most attractive for Italian entrepreneurs is France: are 2,562 the Italian companies which have transferred a portion of its production chain in this country. "An element of strong appeal – as referred by Bortolussi - is the certainty of law. In France, for example, the payment terms are more precise and more rapid than what happens to us. French justice system works and who does not pay will be pursued and sanctioned. Not to mention that the response times of local authorities are squeezed, contrary to what happens in Italy, where the only certainty is the delays that accompany almost every public practice".

After France, among the top six world's countries that have attracted the interests of Italian companies are the United States (2,408 companies), Germany (2,099 firms), Romania (1,992 production units), Spain (1,925 companies) and United Kingdom (1,856 companies). China is in seventh place, with 1,103 Italian enterprises that have chosen to continue their productive activities in the Far East. Foreign companies participated by Italian firms, employ abroad 1,557,038 peoples and develop a total turnover of 583,762 million of euro (ICE 2013).

The Regions most hit by the "escape" of their companies abroad are localized in the North. In Lombardy the number of companies relocated abroad is 9,647; in Veneto and Emilia Romagna respectively 3,679 and 3,554; 2,806 in Piedmont. These Regions comprise over the 72% of the total number of enterprises that have left Italy, thus confirming the proximity of country's borders as a landmark of the "asset seeking" delocalization.

Nearly one out of two (48.3% of total) operates in the wholesale business, their assets mainly comprise commercial branches of Italian manufacturing enterprises. Such enterprises are followed by those of manufacturing industry (28.6% of the total) and logistics (6.2% of the total).

An interesting study conducted by the Italian Centre for Social Responsibility (ICSR 2008), and portrayed in Figure 10, shows for big and medium enterprises²

¹ Source: Istituto per il Commercio Estero (ICE). Analysis has been conducted over productive activities abroad with a minimum turnover of € 2.5 million and work force of 10 units.

with more than 50 employees their degree of internationalization according to the scheme provided at the beginning of the present paragraph.

Although the most recent data are not available, this analysis gives an appreciable and clear image of the internationalization behaviour of Italian enterprises. Almost 30% of the total big enterprises and 11% of the total of medium ones above 50 employees operate globally along the three levels of internationalization mentioned above: international trade, non-equity or corporate agreement, FDI's (golden yellow marked). Since most of the services companies are characterized by the need for proximity to their clients, their internationalization degree is lower than that recorded for manufacturing companies.

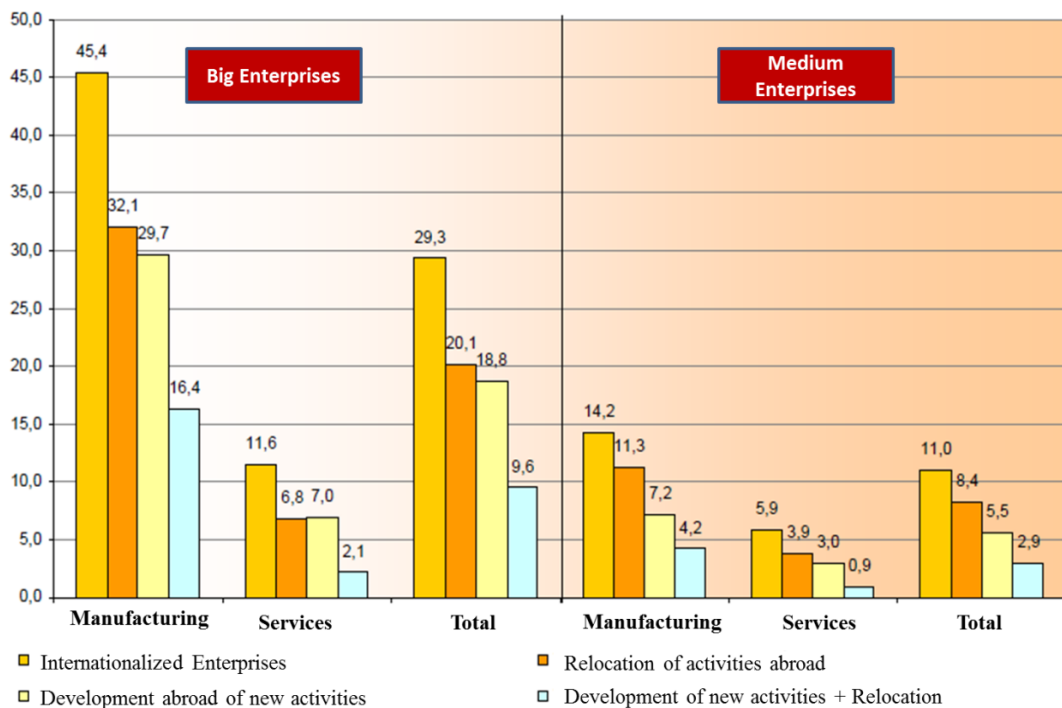


Figure 7: Internationalization degree of Italian big and medium enterprises (>50 employees) in 2007

Concerning the specific case of manufacturing companies, the figure above shows a critical issue that should be kept into consideration by public policy

² According to Article 2 of the Annex of Recommendation 2003/361/EC the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro. Big enterprises are those exceeding these thresholds.

makers in a State Global Competitive Strategy (SGCS): 32.1% of big manufacturing companies and 11.3% of the medium ones have relocated their production activity abroad (orange marked). With almost the same percentage they have developed their new activities abroad (yellow marked). Moreover, 16,4% of big manufacturing companies and 4,2% of the medium ones have pursued both strategies of delocalization of their production activities and development of new ones abroad.

The opportunity of internationalization and the connected issue of relocation of production activities have concerned the Italian legislation since 1990. Its interventions have been designed to address two specific needs, apparently contradictory: on the one hand, to promote the internationalization of Italian firms while, on the other hand, to avoid the employment crisis caused by a massive relocation (Giusti, 2008). Such policies have been implemented in different times. In the first decade, the legislator's intentions were to simply incentivize the internationalization of Italian enterprises.

Law n. 100/1990 established the Italian Society for Joint Ventures Abroad (SIMEST in the Italian acronym) to promote and ensure sustainable investments abroad, and to participate, whether necessary, capital (up to 25 per cent for up to 8 years) in manufacturing companies established abroad by Italian resident companies. SIMEST also facilitates market penetration that often precedes a FDI, through export credits, and promotes participation in international tenders for the award of contracts, besides to act for the support of "Made in Italy".

Under Law 57/2001, the participation in enterprises established abroad has been further promoted by increasing incentives for internationalization of enterprises, especially small and medium ones. Law 56/2005 has set up several "one-stop shops" in the countries partners of Italy for relevant commercial and industrial interests. These represent multi-purpose public offices to ensure and extend support to Italian companies operating in those places through advice and guidance of the public, even in the form of legal protection of businesses and their rights of industrial and intellectual property.

Afterwards, over the last decade, in order to avoid the delocalization's effects in terms of unemployment, the Italian legislator seems oriented to establish certain conditions to contain the phenomenon and incentivize the so called "back shoring". Under this new logic Law 80/2005 was issued. It establishes that all the benefits described so far are valid under the condition of permanence within the national territory of the marketing and research and development departments as well as of a substantial part of production activities. Such law, according to the new logic of "back shoring", provides incentives to Italian firms that have invested abroad and have the intention to reinvest in Italy: such companies will enjoy the same benefits and incentives that the law reserves to foreign companies that invest or delocalize in Italy.

Recently, the planning of incentives to limit delocalization, and to foster the development of new activities, is undertaken, in Italy, by Regions according to the framework established by EU and the Italian Government. The most relevant action has been the establishment of Urban Free Zones (ZFU). These have been enabled by the Finance Act 2008 (Law 244/2007, Art. 2) and the financial coverage is provided both from State and Regions. These areas, located in the south of Italy, will give to new investors a tax exemption in a period variable from 5 to 14 years (PMI 2013).

Although over the past two decades the legislator intervention increased incentives to contain the phenomenon of delocalization and to foster the so called "back shoring", delocalization seems likely to be contained more by the current crisis than by the legislator's interventions, as showed to the next figure.

From 2000 to 2011 Italian FDI in the world have increased of +10,714 units (+65% with an average yearly growth of 5.9%), their work force units employed abroad of +404,673 (+35%), and their sales of +362,902 (+164%) million euro (ICE 2013). Figure 11 shows their pattern from 2001 to 2010. In 2011, Italian FDI in the world have increased of just 0,1% units (ICE 2013).

If 41.4% of the Italian FDI are carried out in West Europe, in Countries having a similar economy sophistication and cost structure as Italy, this means that

enterprises are more concerned about the complementary strategic assets offered by a country and not simply by financial aid, as provided by the Italian legislator.

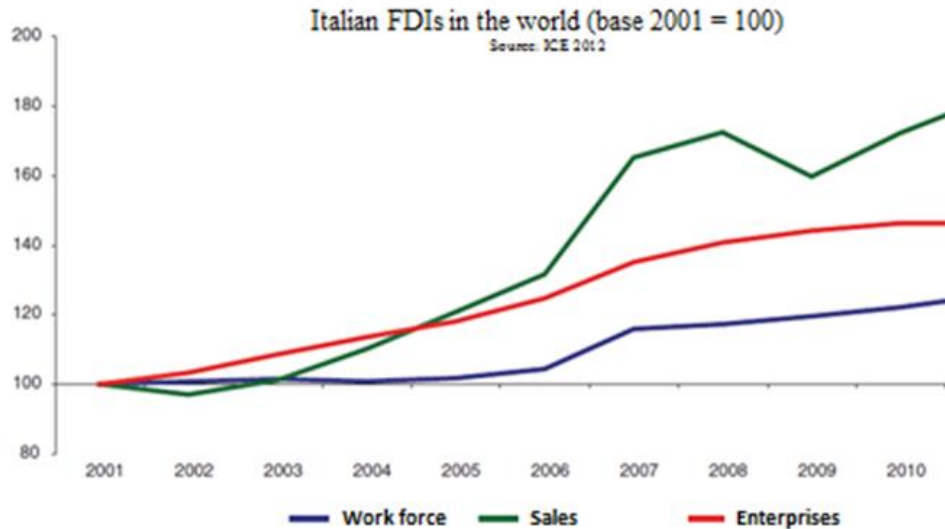


Figure 8: Dynamics of Italian FDIs in the World from 2000 to 2010

An adequate response to enterprises' delocalization requires a change of State strategizing, more oriented to the long term, trying to create a solid competitive advantage through structural interventions and not palliative measures, and by means of a strong and fruitful relationship with the territory in which public organizations operate. The "holistic development" approach, introduced in Chapter 4, explains how State strategies should target the development of the territory as a whole. As in the territory operate other economic entities (enterprises and families), each one pursuing its strategy, the strategy of the State must be compared and harmonized with such entities in order to create the conditions for a common success.

CHAPTER 2

THE ITALIAN STATE'S PLANNING AND CONTROL AND THE ISSUE OF PUBLIC POLICIES' EVALUATION

2.1. The Italian State's programming cycle and the coordination among different levels of public governance

The Italian State's programming cycle has been recently innovated in order to facilitate the harmonization of public planning among the different level of public governance. Such novelties have been introduced by Law 196/2009, introducing a new programming cycle and budget schemes for State organization, and by the Law 39/2011, adapting the programming cycle to the new European Community's rules for the coordination of the economic and budgetary policies, i.e. the European economic governance.

The programming cycle starts with the Document of Economy and Finance (DEF)³. Expanding the previous information framework provided by Law 468/78, its content includes, now for a three-yearly planning horizon:

- a) the targets of economic policy;
- b) the estimates of economy and public finance;
- c) the estimates under the current legislation of the income statement, the cash balance and debt of public administrations;
- d) the objectives regarding the State's balance and debt expressed as a percentage of GDP.

The DEF illustrates the maneuvers necessary to achieve for each of the three years of planning its objectives and indicates any bills related to public finance measures to present to Parliament before the month of February. It also includes the estimate of the financial resources needed to confirm, for the programming

³ As named by the law 39/2011. Previously called Decision of Public Finance by law 196/2009.

period, the commitments and actions of economic policy included in the budget for the major areas of expenditure.

The programming cycle introduced by Law 196/2009 was amended later by Law 39/2012 in order to coordinate it with the programming cycle carried out by the European Union - the so-called European semester⁴ - and ensure coordination with all levels of government (EU, State, Regions, Provinces).

While the previous Italian programming cycle started on 15th of July of each year the new one, integrating the planning cycle of UE, begins in the month of January according to the following scheme:

- In January, the Commission prepares the analysis of Annual growth in which provides surveys on macroeconomic outlook, and elaborates strategic proposals for the European economy;

- In March, the Commission prepares a report on the basis of which the European Council sets the main objectives of economic policy for the European Union and the Euro area, and the possible reform strategies for each State in order to achieve these objectives;

- In April, the UE member States, taking into account the information provided, notify the Commission of their Medium-term Objectives (MTO) and main actions of reform they intend to undertake with the upgrade of the Stability Pact (SP) and the National Reform Program (NRP). This update occurs, in the case of Italy, on the basis of the Document of Economy and Finance (DEF) that has replaced the Decision of Public Finance and is programmed each year not anymore in September but in the month of April;

- In the months of June and July, the European Council and the Council of Finance Ministers, on the basis of evaluation of the stability programs, provide specific information for each country. The Council, if considers necessary to

⁴ The European Semester was introduced by the ECOFIN Council of 7 September 2010 with the objective of defining a new procedure aimed to a preventive coordination of the economic policies and the budgets of the Member States. In order to ensure consistency between the financial structural policies and objectives of public finance of each country, the new procedure provides that the policy objectives of public finance, economy, and budget of each country are transmitted for its evaluation, to the Commission prior to their implementation at the State member level.

amend the medium-term objectives and measures set for their accomplishment, invites the Member State to revise the program presented;

- In September, every Member State, taking into account the recommendations and the Council's and Commission's decisions, that update in the case of Italy the DEF presented in April, prepares the budget and the economic policy measures;

- By the 15th of October are presented to the Italian Parliament the Measures of Public Finance (Manovra di Finanza Pubblica).

Are no longer programming tools according to the Article 7 of Law 39/2011, but are still part of the iterative budget cycle of State, the State's General Statement (Rendiconto Generale dello Stato) and the Bill of Adjustment (Disegno di legge di Assestamento), both presented yearly by 30th of June.

2.2. Contents of the Measures of Public Finance

The Measures of Public Finance includes the Bill of Stability and the Bill of State's Budget⁵.

Once approved and converted into law, the Stability law contains measures necessary to realize, for the three-yearly of planning horizon, the policy's objectives set in the DEF. The law reports (Ministero dell'Economia e delle Finanze 2010):

- a) the maximum level of the net financial balance and the recourse to the market;
- b) the change in tax rates (except the provisions of Law 42/2009 on tributes of local government);
- c) the total amount allocated to the renewal of public contracts;
- d) the financial coverage of laws involving charges higher than expected;

⁵ The latter is converted into law on 31 December.

e) other adjustments purely quantitative;

f) any rules necessary to ensure the implementation of the Internal Stability Pact as well as those aimed to implement the Convergence Pact (Article 18 of Law 42 /2009) in order to coordinate in corrective actions among the different levels of government (State, Regions, Provinces, etc.)

The Stability law is accompanied by a Technical-illustrative Annex that shows the reconciliation between the Bill of the State's Budget and the income statement of public administrations, the contents of the maneuver and its effects on the public finances and the main areas of intervention. This annex also gives estimates of the public administrations' income statement, and their cash account integrated with the effects of Measures of Public Finance for the three-yearly planning horizon.

The update of the Stability program through the Stability law includes a framework on the mid-term perspectives of Italian economic policy with an indication of the guidelines for its implementation. During the year, any upgrades of the budget's objectives or corrective actions, taken as a result of major deviations of public finance from objectives, must be highlighted through a special up-to-date note of DEF. The objective is to strengthen the role of planning and provide more certainty to the amount of resources made available to public administrations with the budget.

The State's budget structure and contents were completely redefined by Law 196/2009. The new budget scheme makes operative the functional classification of expenses for *missions* and *programs* introduced from 2008. Such classification is harmonized with the COFOG⁶ one, initially developed by United Nation and then adopted by OECD as a standard for classifying the purposes of government activities. For each program is indicated the related COFOG classification to enable comparison of functional expenses among States through benchmarking analysis.

The *mission* and *programs* classification makes more transparent and effective the link between the address role of Parliament, which now decides only the

⁶ The Classification of the functions of government, abbreviated as COFOG, has three levels of detail: divisions, groups, and classes. Divisions describe the broad objectives of government, while groups and classes both define the means by which these broad objectives are achieved (Fiori 2008).

amount of budget at the level of program, and the role of public administrations responsible for the budget's allocations and program fulfillment. The realization of each program is entrusted to a single responsible administrative unit which coordinates its activities with other units when necessary for the program's achievement (Ministero dell'Economia e delle Finanze 2010).

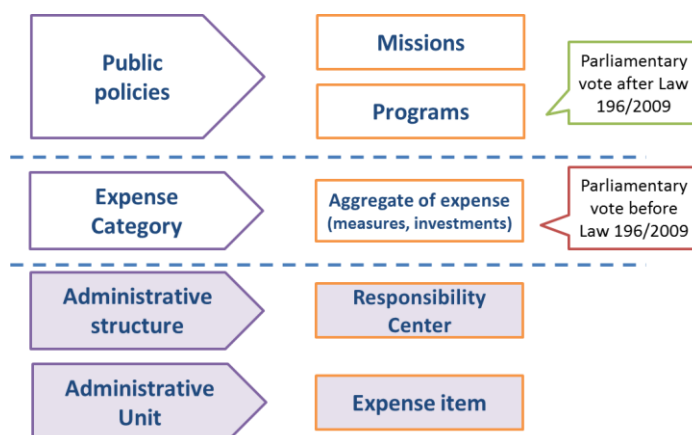


Figure 9: The new budget structure (expenses) provided by Law 196/2009

By the side of receipts, the new classification includes four different levels of data aggregation. The first level contains a breakdown for receipt item: a) tax revenues, b) additional tax income, c) revenue arising from disposals and amortization of assets and collection of debt, and d) receipts from new debt acquisition. At the second level was introduced the distinction between recurring revenue and non-recurring revenues. This is particularly relevant not only for the evaluation of compliance with the Stability and Growth Pact operated by the European bodies, but also for the public accounts forecasts (in particular structural debt) effected by the Italian Government. The third level shows receipts according to the type of entry. At the fourth level, the tax revenues are distinguished in "revenue from ordinary management" and "revenue deriving from assessment and control activities", i.e. from those activities aimed to combat tax evasion.

The informative content of State's budget is enriched by the provision of data sheet for each program and of explanatory notes. The first one illustrates the laws that fund the program with indication of the corresponding triennial budget

appropriations. The program data sheet is updated every six months so as to highlight the changes made during the year to program's initial estimates. The Explanatory notes report for expenditures:

- a) the plan of objectives related to each program and the related performance indicators;
- b) the contents of each program and the criteria used for the formulation of forecasts.

The variance analysis of budget is done with the presentation of the State's General Statement to the Houses (30th of June). Such document is accompanied by statements on the performance of each Ministry, which display the results and the degree of achievement of targets relating to each program assigned and the resources used, justifying any deviations from the budget's initial forecasts.

The new budget scheme is set according to an accounting structure that tends to highlight the main functions of the State and the strategic objectives pursued by public spending. It also ensures more flexibility by possibility to reshape, through the Bill of State's Budget, the costs within a program or between programs within the same mission, in respect of the amount of public finances fixed for the mission (Ministero dell'Economia e delle Finanze 2010).

The new scheme of documents included in the programming cycles is characterized by a wider involvement of the government's decentralized levels in the definition of the budgetary targets and in the planning documents. Furthermore, it is more evident the link between European targets, budgetary policies, and the contribution required for their achievement and implementation at different levels of government.

Finally, the extension of planning horizon enabled by the mid-term orientation of State's programming cycle gives the right importance to structural reforms whose the Country needs. Budgetary forecast are revised every year during the planning cycle in order to take into account any events influencing the budgetary forecasts and objectives' accomplishment.

2.3. Main criticalities of Italian State's programming cycle

The new programming cycle enabled by Law 196/2009 has undoubtedly improved the Italian State's planning and control. Such enhancement has concerned the specification of mid-term objectives, the involvement of different levels of governance in public planning, wider informative contents, and the settlement of responsibility's center for each approved program.

The improvement process is still in progress. Decree 91/2011 fixed guidelines for the harmonization among accounting schemes of different level of public administration. Law 31/2011 fixed new terms for the reformation of expense procedures concerning the capital funding for public works, and of expenses' analysis and control. Furthermore, new terms concern the revision of budget and balance sheet structure, i.e. *missions* and *programs*, and the introduction of a cash basis balance sheet whose adoption should be extended to all public administrations.

Notwithstanding the strengths of new budget and balance sheet schemes, and the efforts in order to complete the programming cycle's reformation, the planning of Italian State is still affected by five orders of criticalities whose a brief overview will be provided hereafter.

2.3.1. The lack of evaluation of the policy adopted for the program realization

As regards the first criticality, an analysis has been performed directly on the informative contents included in the State's budget. The budget, thus, shows a list of financial indicators such as the incidence of missions' cost out of the total budget costs, of programs' cost out of the total costs of the concerned Ministry. For each program, and consequently for each cost responsibility unit (since each program is assigned to a single unit) is also indicated the cost of personnel, other operating costs, the extraordinary expenses and the assets' depreciation. Each

program also indicates in percentage the costs to be sustained by the Ministry and the ones allotted to peripheral Ministry's structures.

The realization of the program is calculated on the basis of cost sustained out of total allocated by the budget. In many cases specific performance indicators are set by policies adopted for each program. The evaluation of performances is effected by a department within each Ministry called Organismo Interno di Valutazione (O.I.V.)⁷.

The first criticality of Italian State's programming cycle, thus, not arise from a lack of analysis performed on each program. The current evaluation activity on both expenses percentage and performance indicators can be assessed discrete. The problem arises upstream. Indicators are set by policies, but who assess whether the policy has created a benefit or a harm for the entities concerned? A real example will help to clarify the concept. The policy underlying the program "Prevention and prosecution of fraud and violations of fiscal obligations" is to stalk enterprises with continuous inspections, requests of taxes based on inductive assessment⁸, proliferation of administrative and fiscal obligations⁹ since the performance indicator aims to collect as much possible tax income for the Tax agency. Such indicator is consistent with the policies adopted. On the other hand, such policy produces a significant harm for the society and for State's finances on the long term since foster in the society fear, disincentives to invest, frustration (in Italy paying taxes one day after the due date results in penalties while a public organization pays suppliers with average delays of 193 and 269 days in healthcare against an EU's average of 45 days, Confartigianato 2012). Such feelings foster lesser and lesser presence of enterprises in the State's territory and consequently may lead to a tax base erosion for the Italian State. As observed over the current crisis, the austerity measures adopted by the Italian State, as the settlement of some taxes, have often recorded for the State a far lower tax income with respect to forecasts, and in many cases a financial loss (see example in Chapter 2.4). This

⁷ This was introduced by the article 14 of Legislative Decree 150/2009.

⁸ This was introduced by the Decree 600/1973.

⁹ Italy detains the largest time to comply with tax and administrative obligations among the West European countries (PWC analysis). For further information, see Figure 3.

highlights that good performance indicators are not necessarily coincident with a good policy adopted.

2.3.2. The lack of evaluation of the complex of policies in force on the specific sectors

The second criticality of the State's programming cycle is strictly related to the issue of public policies' evaluation but acts differently from with respect to the previous one. While this last concerns the single policy designed for the program and shows that performance indicators are something different from policy performance, the second criticality is related to the complex of policies and laws in force on an economy's sector.

A high proliferation of laws issued without coordination at all level of public governance, continuous public agencies' clarifications for solving antinomies (since often new laws are issued without preordaining the complex of previous ones) highlight the lack of evaluation of the complex of rules in force on a specific sector. Natural consequences of such deficiency are the law uncertainty and the huge burden of Government regulations representing a great threat for the global competitiveness of firms localized in Italy. In 2012 the World Economic Forum has ranked Italy 140th and 125th out of 142 respectively for "Burden of Government regulations" and "Efficiency of legal framework" indicators (Schwab 2012).

An intervention to develop an economy's sector should presuppose a systematic appreciation of the results induced by a complex of policies in force on such sector at local, regional, national or European level. Such appreciation should be carried out not only before (*ex-ante*), but also during (*in itinere*), and after the completion of the planned activities for the intervention (*ex-post*). Dallara (2005) notes that an important step of the evaluation process is represented by the analysis of consistency among the constituents of a plan. To this end the author has recommended that the consistent operation of actions and strategic objectives with

the external environment must be made prior to the assessment of policies to be adopted.

Evaluating policies has two main basic functions (or expected effects): the “policy learning” and the accountability (Dente 2006). The first consists in a help provided to policy makers through an "enlightenment" (Weiss 1998). In the context of a public policy, the enlightenment leads to: a) modify or correct the prior intervention defined in the agenda, or decided, or implemented; b) adopt a new intervention, or correction, or completion as evolution of the previous one; c) abandon the type of intervention adopted to define one alternative.

The second type of expected effect is the accountability of the system of policy making. A policy maker "accountable" is intended to be more aware of its actions and, by dissipating uncertainty about policy's performance, more accountable on the results of its action. This implies that policy makers are held to account for facts and to take better into account the criteria of adequacy, feasibility, opportunity, consistency, adaptability, utility, equity as well as the criteria typically economic such as efficiency and effectiveness (Lippi 2008).

The evaluation of policies is particularly important when considered in light of complexity and uncertainty that makes incalculable government actions. The governance of public policies denotes a state where the responsibility of those who decide and those who implement is widespread, and therefore problematic, since in the uncertainty and fluidity of the relationships among stakeholders becomes even more confusing the chain of responsibility (Belligni 2005). Thus, the evaluation could represent a necessary way when the decision-making and implementation systems are characterized by deconstruction of authority and coordination mechanisms scarcely calculable.

2.3.3. Policy's spatial horizon still focused within national boundaries

The third criticality concerns the spatial horizon of State's programming cycle. Policy's assumptions as well as results forecasted in policy design are often biased by a wrong horizon of analysis. This often occurs mainly for the reasons below:

- a) Public policies are issued regardless a benchmark analysis of policies (and incentives created by them) adopted in other Countries;
- b) Absence of policy learning from successful/failed policies adopted abroad;
- c) Focus on policy's targets and not to incentives that policy creates to the concerned institutions in order to accomplish policy's targets;
- d) Policies designed without a context analysis aimed to identify key critical factors responsible for policy effectiveness such as a free market, international agreements, legal constraints, etc.

In Chapter 1, through evidences given by international reports and statistical analysis, has been enlightened an example of how Italian State should analyze the impact of policies underlying the legal and organizational framework at an international level and in terms of incentives/disincentives created to the concerned institutions. Such example has illustrated that enterprises' performances, their mobility, State's tax income, welfare and competitiveness of Italy are strictly connected.

Therefore, the horizon of the Italian State's programming cycle should not be focused within the State's boundaries and the impact of policies should be evaluated *ex ante* and *ex post* adopting at least an European analysis horizon.

2.3.4. Vision oriented to inputs and not to the development of State's strategic assets

The fourth criticality of Italian State's programming cycle arises directly from the cycle's configuration itself. The budget forecasts State's financial accounts for the three-yearly planning horizon and, being updated to take into account midyear adjustments with respect to expectations, quantifies any deficit to be covered over the programming period. As mentioned above in the contents of Stability Law *sub b)* and *d)* Government decides the settlement of new taxes to cover financial deficits arising by budget adjustments. This law provision arises not few problems

of fairness, methodological consistency of the programming process, and policy makers' accountability for the following reasons:

a) State's structural deficit need to be covered by as much structural measures: either by cutting public general administrative expenditures or by investing on stocks strategic resources (explained below) that will endow State with larger income on the long term.

b) Enterprise and families become "cash cows" when State's financial accounts requires it. In addition, the implementation of the Stability law provision is rarely counteracted by benefits that the above institutions receive when State records a surplus in its financial accounts, since State prefers to consolidate its debt;

c) The law provision does not make policy makers accountable for planning and implementing structural measures, for the consolidation of State's financial accounts, as well as for the consequences of their policies. In Italy, a temporary fiscal provision issued to cover a transitory deficit in State's financial accounts becomes often definitive¹⁰.

d) The law provision arises the problem of certainty of law: ever changing laws and tax rates depending by short-term financial needs of State modify continuously the operational conditions of market players' and their costs for compliance. These factors discourage new economic activities and foster enterprises' mobility abroad, thus reducing State's tax income forecasts.

e) The programming cycle is centered on State and on inputs for its institutional activities, i.e. financial resources. Outputs are not included and other society's institutions (enterprises and families) are independent variables from public policies adopted, not strategic assets to develop.

The main effects of Stability law's provision to increase taxes when needed are represented in the figure below showing the interaction between State's programming cycle and strategies of enterprises and families. Red arrows indicate

¹⁰ A nice example of such "temporary" fiscal measures is the following: still today the fuel price per litre includes an excise duty of 1 euro cent for the war in Abyssinia of 1935 (Finanzautile 2011).

the “contributes” requested by State from other society’s institutions to its financial accounts. Such “contributes” reduce the amount of resources available for the growth strategies of these institutions. Green arrows symbolize the State’s commitment to benefit other society institutions from its financial programming cycle.

Despite undoubted improvement of the programming cycle’s tools, the planning vision is still rather focused on input represented by financial resource that State needs for its institutional purposes.

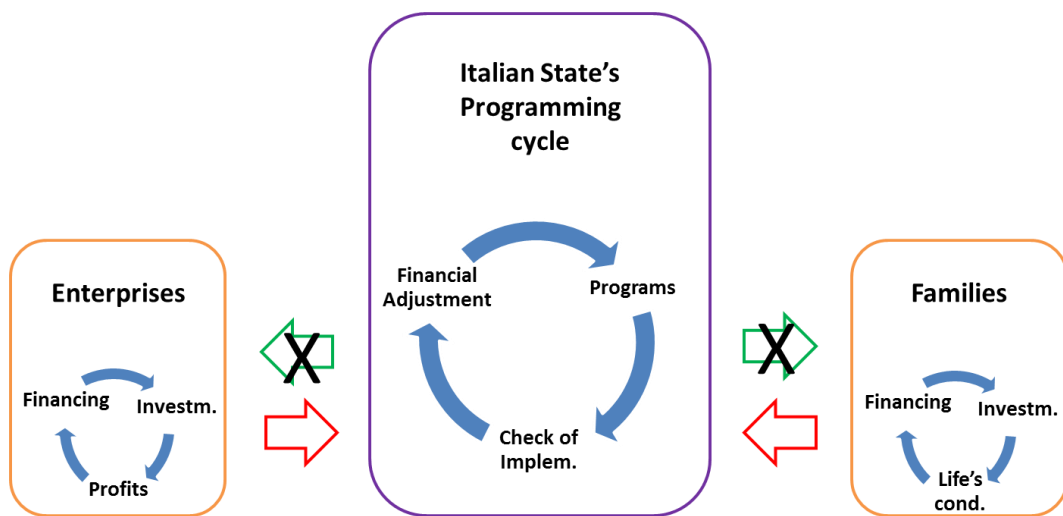


Figure 10: Interaction among State’s programming cycle and strategies of enterprises and families

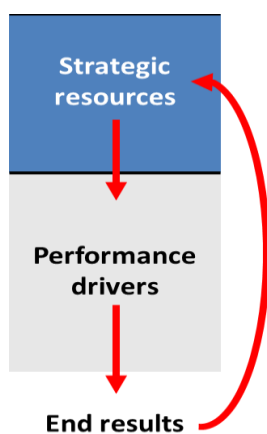


Figure 11: A new programming cycle’s paradigm for the Italian State

Oppositely, a new paradigm of State programming cycle, oriented to outputs and to Country’s strategic assets to develop, may be featured according to the following steps:

a) State focuses on strategic resources’ assets responsible for the country’s economic development and additional financial resources for State. The underlying strategic horizon is evidently the long term since is related to assets and not to financial resources e.g. tax income.

b) Policy makers implement policies in order to develop such strategic assets (performance drivers);

c) Improvement and enrichment of society are given by “cash flows” (end results) of investments in strategic assets. Financial results are implemented to consolidate State’s financial accounts and invested once again in strategic resources by reiteration of the process, thus producing even more appreciable end results.

The programming cycle paradigm will be further developed in Chapter 4 where it will be used as the base to design policies according to a “holistic development” approach.

2.3.5. Ways by which budget allocation’s decisions are taken (issue common to most democracies).

The last criticality concerns how decisions are taken in public institutions. The shape of such process may affect considerably not only the quality of policies implemented but also their budget allocation, and therefore their effectiveness.

In the literature on public decisional processes, although the scientific debate is still fruitful and has not come to definitive conclusions, can be distinguished the three basic models explained below:

a) the "rational" model and its variant "rational limited"

This model sees at the center the rational decision maker that draws support from the disciplines of economics and management. Through systematic analysis he examines all possible alternatives and is able to calculate costs and benefits for each of the consequences. Then such decision maker chooses the alternative that has the most favorable cost-benefit ratio through an optimizing calculation (Mussari 2011). The model’s variant "rational limited", proposed by Simon (1977), takes into account the human cognitive limitations in setting goals, knowledge of facts and in evaluating all possible alternatives. The choice made in this variant of the rational model is of type “satisfactory”, not optimizing.

b) the incremental model

This model, designed by Lindblom, is based on a “polycentric approach” to decisional processes, typical of public programming choices where converge several interest groups. The decision-making process does not move from the objectives to be achieved with a public policy, but from existing policies that have resulted into an agreement (Mussari 2011). The decision covers, therefore, only incremental changes and adjustments with respect to an existing policy and descends from subsequent limited comparisons. The number of alternatives considered is reduced and the analysis is never exhaustive. The incremental adjustments concern not only the choice of policies but also the definition of the goals that are always recalculated according to the means available to solve them.

Compared to the rational model, the focus is only on the short-term and on the more significant consequences of the decisions. The influence of the rigor of rational procedure on the decision is not relevant since the decision is made on an agreement on alternatives readily available and the best choice is the one on which it can be founded a deal.

c) the mixed model (mixed scanning).

This model, proposed by Etzioni (1967), distinguishes the decisions to be made in two categories: fundamental and non-fundamental. The first requires a decisional model of “rational” type. While the second, to be taken within the framework defined by the first, may be taken through an “incremental” approach. This model obviously leaves unsolved the problem of how to determine whether a decision is critical or not (Mussari 2011).

From an immediate comparison of public decisional processes, it can be stated undoubtedly that the reference model of Italy, as well as the most of democracies, is the “incremental” one. Although the model’s “polycentric” approach represents its main strength, especially in a pluralistic society where converge different and often conflicting interest groups, this presents significant shortcomings. As pointed out by Yehezkel Dror (1964), this is a model that leads to decide on issues not fundamental. Promoting changes in short-term and adjustments, this model reinforces the inertia and the path dependence from past policies and, being keeper

of the established order, this blocks innovation in redefining country's strategic policies. Furthermore, the "incremental" decision model is affected by the distortion, even in the context of goals definition, created by the fact of giving more power to those better organized in terms of political and media popularity, leaving out those who are scarcely or nothing represented.

2.4. A recent example of State policy's failure in Italy

The car overtax, named "Superbollo" was introduced by the Italian State in July 2011 with the aim of producing new financial resources to cover part of its midyear financial deficit. The new tax consists in an extra amount of 10 euro to pay for each kW of vehicle power exceeding the threshold of 225 kW¹¹, with a retroactive effect on the entire existing fleet. From January 1st 2012, the overtax was increased to 20 euro per kW and extended to vehicles with power exceeding 185 kW.

The associations ANFIA (Italian car manufacturers), ANIASA (car rentals), Assilea (car leasing), Federauto (car dealers), UNASCA (agencies), UNRAE (foreign manufacturers) has indicated that according to Government's forecasts the fiscal provision would have brought every year to Italian State an additional tax income of 168 million euro (UNRAE 2013). But it did not happen.

The cause of this damage to the Tax Agency: a series of unforeseen and counterproductive phenomena, triggered by the measure, in particular:

- a) Collapse of new registrations of cars with power exceeding 185 kW: -35 % in 2012 against a -19.8% recorded by the car market as a whole (Anfia 2013) ;
- b) Proliferation, in northern Italy, of cars with a "false leasing", i.e. cars with a German number plate (or Czech one) rented from commercial entities and used by Italian customers. This has resulted in a failure to pay VAT, car

¹¹ The "Superbollo" was introduced by the article 23 of Decree 98/2011.

tax, car overtax, IPT (provincial tax on car registration), fines, provincial overtax on car insurance, and the impossibility of impounding cars registered abroad, the difficulties of carry out roadside checks and to establish responsibility in case of accidents.

c) The boom of plate radiation for export purpose for both new and used cars, then circulating in Italy with a foreign plate, which do not produce anymore tax income for the Italian State. Export data shows in 2012 volumes more than doubled for cars exceeding 185 kW, +115% from about 13,000 units in 2011 to nearly 29,000 in 2012 (ANFIA, 2013).

d) The collapse of the changes of ownership related to cars exceeding 185 kW (and the related tax income for State), a 37% reduction in 2012 compared to the volumes of 2011 (Unrae, 2013).

Even in its first year of implementation, in 2012, the car overtax determined a total loss of about 140 million of euro, broken down as follows: a) -93 million euro of VAT revenue; b) -13 million euro of car overtax for State; c) -19.8 million euro of car tax for Regions; d) -5.2 million euro of car registration tax; e) approximately -9 million euro of overtax on car insurance (UNRAE 2013). According to the author such total loss is even higher in light of the loss of tax income for the State, resulting from lower tax income on profits of car manufacturers, dealerships and after-sales services (repair shops, etc.).

Therefore, the overtax introduced, in addition to adversely affect both the market of new and used cars, has been producing adverse effects for the Treasury, not only in terms of overtax income forecasted, but also in terms of tax income loss. This been originating from lower earnings of the automotive sector's enterprises, a loss in tax on plate registration, car tax, and other taxes resulting from the reduction in vehicle registrations and in existing fleet.

Although the data of this policy do not need to be commented, an analysis on the process of its formation and implementation can help the reader to understand better how the programming cycle's criticalities described in this chapter act in determining the failure of public policies.

First of all, there is no an *ex-ante* evaluation of the fiscal provision, in terms of effects regarding not only the single measure *per se*, but also the sector concerned. Evidently, this law does not take into account the totality of the policies already adopted by the State towards the automotive sector. Surely the effects would have been very different if that provision had concerned a sector not affected by a critical burden of regulations and taxes. Such sector was already affected by a fuel cost among the highest in Europe, where taxes represent 59% and 55% of the price of the final product, respectively for gasoline and diesel (AdnKronos 2013). Other taxes are related to all along car life: car tax (paid yearly), the exorbitant taxes on car insurances, on plate registration and ownership transfers. This is combined with a low deductibility of expenses for vehicles, currently at 20% out of the costs sustained.

An *ex ante* evaluation which does not take into account the reactions of citizens and businesses to the new law provision enacted, makes it hard to believe the sustainability of forecasts made at the time of programming. Moreover, in this case is still missing an *ex post* evaluation of the law provision's effects. The impact of the policy adopted was not analyzed by an independent body of State, or by the Ministry of Economic Development. The initiative of policy's evaluation has been taken by the trading and manufacturers associations mentioned above that have showed for the Italian State a financial loss of 308 and 140 million euro with respect to Government's forecast and tax income before the introduction of the overtax.

The policy does not show even a strategic horizon that goes beyond the national boundaries. The fact that this policy has been implemented in Italy, regardless of his membership in the European Union and, therefore, of the policies adopted in other countries, confirms the hypothesis discussed in the paragraphs 1.2 and 2.3.3 concerning the State's policy horizon.

This fact brings us to the theme of the fourth criticality of State's programming cycle: the exclusive focus on inputs. The introduction of the car overtax is justified by a midyear financial deficit of State and does not create incentives for the development of the sector on which State may gain more in the long term. Nor is it

focused on Country's stock of strategic resources, among which the luxury cars' sector excels for its oldest tradition and its best know how worldwide.

Not being focused on Country's strategic assets and without an *ex-post* analysis of the policy's feedback, the State may be likely concentrated in the next programming cycle to introduce additional tax to cover not only the past deficit of financial resources but also that of new loss generated by the tax provision adopted. Thus, for the case analyzed the financial deficit to cover will be not anymore 168 million but 308 million euro.

The last key critical item deals with the public decisional process. Such process, as mentioned above, is of type "incremental". The decision covers only incremental changes and adjustments with respect to the existing policy. Compared to the rational model, the focus is only on the short term and on more significant immediate consequences of the decisions, the rigor of rational logics is of little importance in influencing the decision. The decision is made on an agreement on alternatives readily available as the settlement of a tax.

The failure of the policy in question, as well as many others, is thus linked to the five criticalities described in this chapter and highlights two main gaps of the programming cycle of the Italian State. The first concerns the lack of a rigorous policy evaluation, while the second the informative basis necessary to design the policy itself.

In order to fill such gaps the next chapter introduces the System dynamics methodology as a tool to design and test sustainable State's policies. This methodology has been firstly applied to illustrate the figures in the game in a poor public strategizing, both for the Italian State and for enterprises (Chapter 3). Secondly such methodology has been applied in order to design a sustainable recovery strategy for the Italian economy and State finances. The results from such policy implementation are illustrated in Chapter 4.

CHAPTER 3

THE MODEL

3.1. Beyond the public policies' criticalities: enhancing the performance management systems through computer aided simulation models. The System dynamics methodology

Why using simulation models in public policies? The reason is simple: testing *ex ante* their results and their implementation in order to reduce the risk to fail and to harm society. A simulation model requires a specification of objectives, hypothesis, relationships, means, a scrutiny of results and implementation issues of a policy. If well done, simulation models allow to create objective and transparent informative basis on which to set up the decisional processes.

Whether the previous benefits are also achievable by using the common planning tools, two reasons make indispensable the use of simulation models, first of System dynamics ones:

- a) Solution of complex and dynamics problems: problem can arise by interactions of tens of variables and by circular causality relationships among them. This contrasts with the current mental model reasoning in terms of “instantaneous relationships” (A causes B). System dynamics models keep into account at the same time interactions of all variables and their causal relationships.
- b) As showed in Figure 12, simulation models reduce drastically the time and resources employed in order to plan and control and design sustainable policies. Oppositely to long and costly processes, the simulations and the test *ex ante* of policies through the use of System dynamics models enable not only the fast definition/redefinition of the

strategies to pursue but also a speed decision making based on an objective and trustful information.

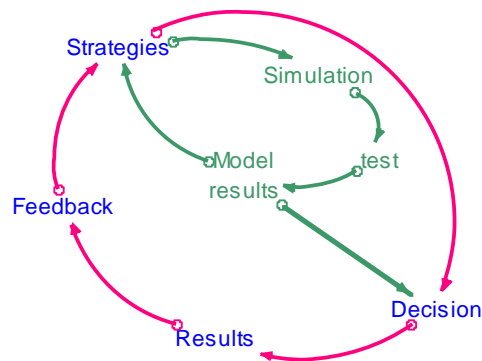


Figure 12: Time and resources saving in planning and control enabled by System dynamics models

The System dynamics methodology, by which has been tested the effectiveness of the following “**co-strategy**” approach in public strategizing, is a new management tool trying to identify and test policies for dynamic problems. Such problems are known to arise from the mutual interaction and circular causality among variables, concerning a particular issue. Nowadays, System dynamics covers large breadth of applications (social, managerial and economic systems) and is based on a multidisciplinary approach.

According to Sterman (2001), the main steps along which the present issue is developed can be synthesized as follows:

- a) Definition of the dynamic problem: this consists in portraying the behaviour of the concerned variable as recorded in a selected time period, e.g. the national enterprises’ delocalization occurred over the last decade.
- b) Construction of the dynamic hypothesis: these concern the variables responsible for the problematic behaviour and for the causal relationships among them (specified by equations). This is the step of model building and its output is represented by the construction of a behavioral model capable of reproducing, by itself, the dynamic problem of concern.

- c) Model analysis: this ensures that the model produces realistic and predictable behaviour of the analyzed variable, since only a reliable model we have confidence with can be used for managing the issue and testing the effectiveness of future policies.
- d) Policy design and implementation: policies are designed and tested in order to modify the dynamics producing the problematic behaviour of the specific variable analyzed. Each policy has to be tested and verified in terms of achievability and fairness and, if it involves any modification in the model structure, it has to be tested as mentioned to the previous step for model analysis.

3.2 The Dynamic problem

Heaven is just few kilometers across the border. The prospects are attractive, a paradise just two hours and a half from home: 7 days for a building permit, 80 days for an industrial plant, a more lenient Tax agency, and lower employer's social security contributions. Flexibility of work, that allows dismissing with a notice period of six weeks, and a State that finances up to 25% of investments, and lower taxes for investments in R&D. This is the case of Austria, placed at the boundary of the most industrialized region of Italy. Austria is part of the European Union and the Schengen agreement allows, from 1995, the free circulation of people, goods, and enterprises within the European Union. So far 1,100 Italian companies have invested 26 billion euro in Austria and Italy represents the second foreign investor in the country after Germany.

Over the last two decades delocalization has acquired a global extension. If in the common sense such phenomenon is linked to cost economies, during the current crisis the list of companies going abroad in search of a simplification of labor requirements, better infrastructures and of a more efficient bureaucracy has become longer and longer.

A lower competitive advantage of Italy and consequently its lower attractiveness for foreign investors, affects directly the dynamic of FDIs' inflows, as illustrated in Figure 13.

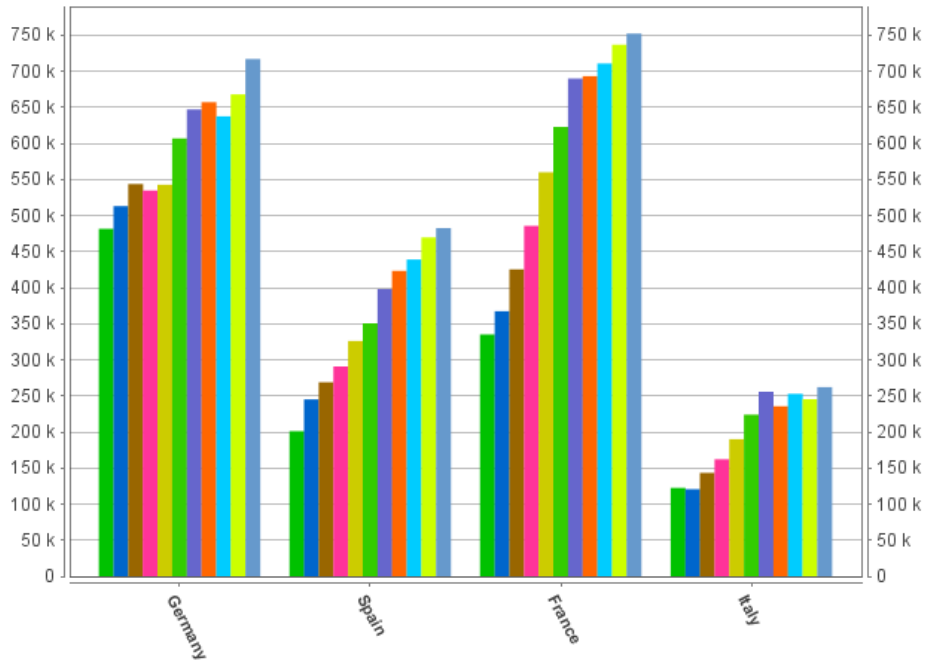


Figure 13: FDIs inflow in Germany, Spain, France and Italy from 2000 to 2010. Elaboration on data Eurostat

The FDIs inflows represent a litmus paper of the economic attractiveness of the country. The figure above shows the pattern of inward FDI for Italy and its neighboring industrial countries Germany, Spain, and France, from 2000 to 2010. France, despite its population size similar to Italy experiences the 300% more inward FDI than Italy, and the 4% more than Germany whose population is 20 million more than France. Roots of the phenomenon can be traced mainly in the strong and effective administrative and legal framework of French institutions, good infrastructural assets, and in the incredibly low cost of electricity.

Figure 14 shows dynamics of inward and outward FDIs flows related to Italy from 1986 to 2004. It can be easily argued that until 1992 the Italian economy has been appealing in the world economic scenario. From that time the Italian State has showed rather a indolence to endow the country of strategic assets to face up the

new global competitive scenario. Thus enterprises and FDI have acted consequently by moving out from the Country.

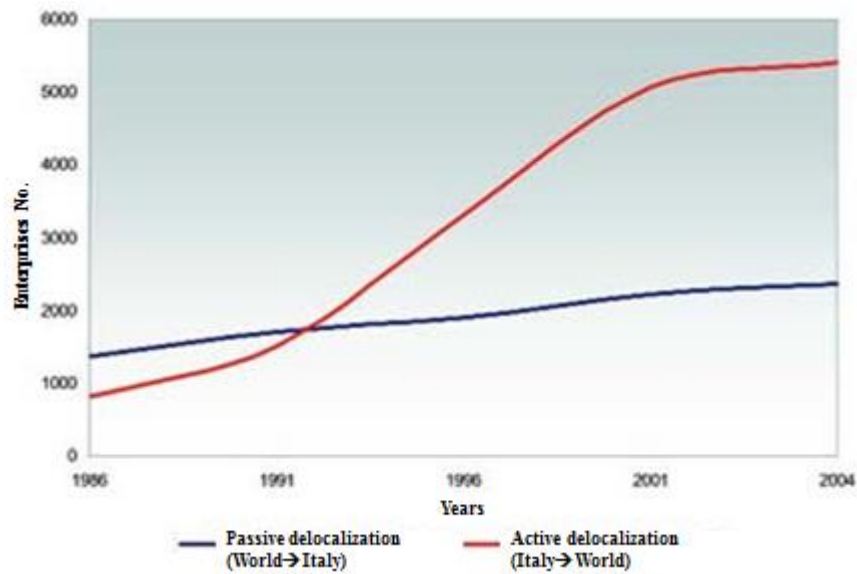


Figure 14: Evolution of active and passive delocalization in manufacturing from 1986 to 2004. Elaboration on data Istat.

As a consequence of lesser and lesser FDI inward and a strong delocalization, for a minor competitive advantage of being localized in the country, the State organization is compulsorily squeezed, in lack of a sufficient tax income, between a welfare cut-off and a tax increase. The figure below shows dynamics of tax pressure in Italy from 2001 to 2012 (Istat 2013).

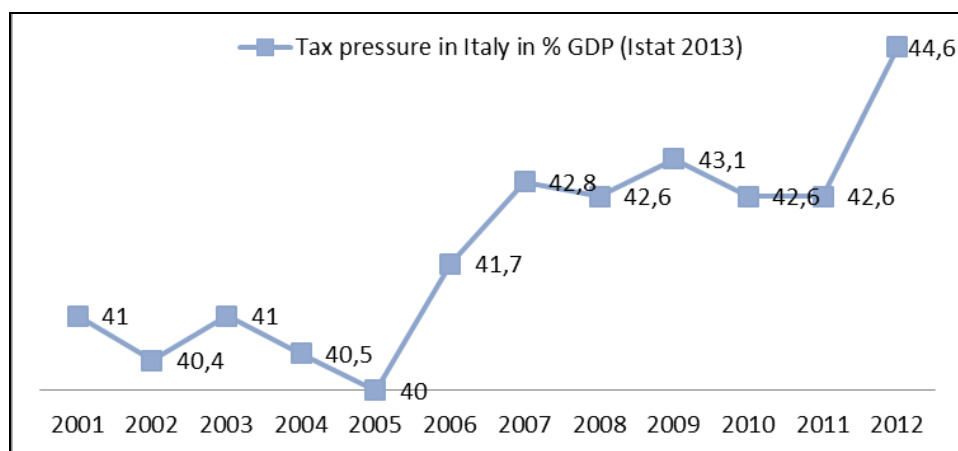


Figure 15: Tax pressure in Italy in % of GDP. Source: Istat 2013

Italian policy makers seem to ignore the long term consequences of the delocalization phenomenon representing the dynamic problem analyzed in the present study. The consequences are displayed by Figure 16 that illustrates the mobility of enterprises, goods, and FDI in the case of an inefficient organizational and legal framework compared to that other countries.

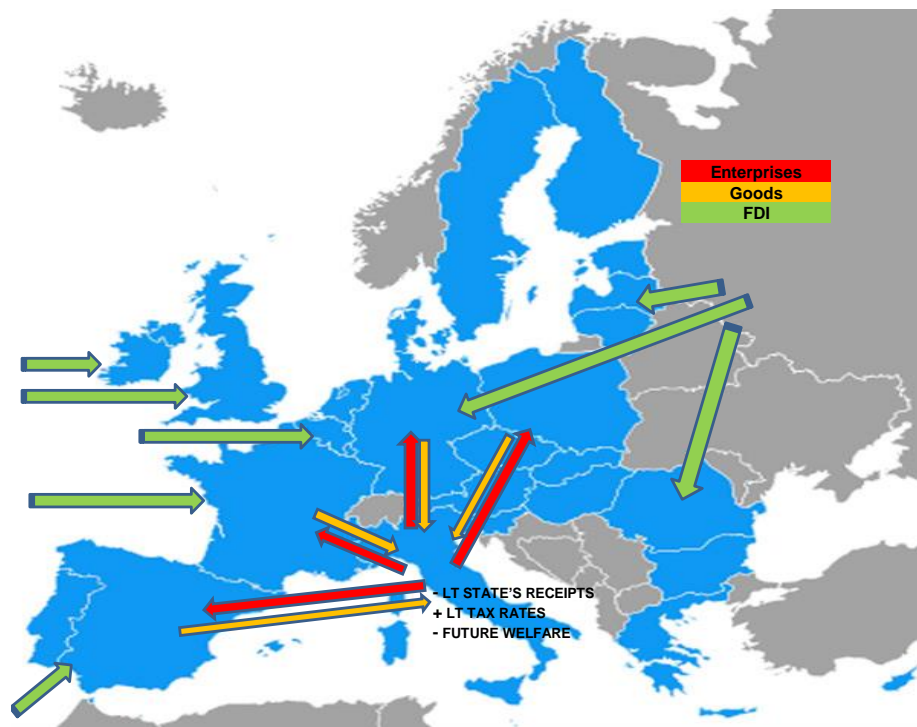


Figure 16: Mobility of enterprises, goods and foreign investments according to the localization's advantages

In an open economic space, market players allocate their activity according to the competitive advantage offered by the localization area. In the case analyzed, if lesser will be the advantage of operating in Italy, because of higher production costs, lesser will be receipts, public investments for State organization and more tax rates in the long term for private institutions, thus eroding the development degree achieved in the past. The issue will be further developed in the following chapter in which dynamic hypothesis will be identified in order to explain the causal relationships below the dynamic problem.

3.3. The Dynamic hypothesis

Explaining the dynamics of enterprises' financial flows and their relationships with public finances could be a very difficult task, while the construction of a System dynamics model could better improve the comprehension of them. As suggested by the economic doctrine, the starting point of the following speculative process will be the recipients of the State organization's activity (Simon 1947, Gulick et al. 1937), i.e. the enterprises in the case analyzed. The strategizing process of State should start with an analysis of how human needs are currently satisfied according to its mission. Such analysis is necessary to obtain at least the basic level of information defined by the "5W1H" methodology, i.e. who-when-where-why-what-how (Kipling 2004, Dereli and Durmusoglu 2010). This methodology defines questions whose answers are considered basic in information gathering in order to be able to design a policy consciously.

The model thus starts with a focus on enterprises' activity in order to explain how the Italian State's organizational and legal framework affects their activity, their localization strategies and the financial performance of the Italian State. The next Causal Loops Diagram (CLD) will show the enterprise's business cycle in order to focus on dysfunctions that should be solved by public policies.

3.3.1. The Causal Loop Diagram (CLD)

The business cycle is composed by three chronological phases: finance gathering, investment, and income generated by the business cycle. Such process is

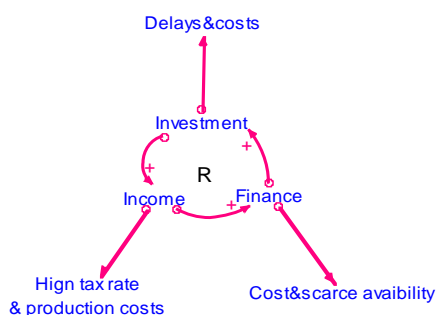


Figure 17: Phases of business cycle

iterative and the reinforcing loop explains how more are the initial finances, then more will be the investments and consequently profits. Eventually, more profits increase finances of enterprise for a new cycle. Depending on the activity's localization, this iterative process could generate more or less resources according

as the level of externalities (and their relative costs) generated by factors such as inefficient capital market, delays in obtaining authorizations, ever changing laws, higher taxes and logistic costs.

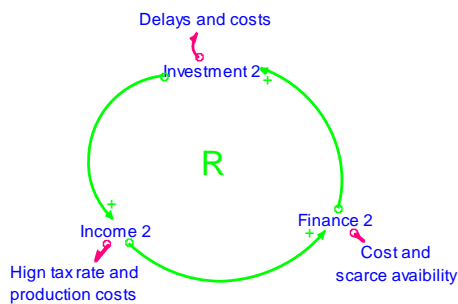


Figure 18: Business cycle with low externalities

When such externalities are low, the process produces more and more financial resources at every cycle and, how showed in Figure 18, more are the flows managed by the firm, then more will be its patrimonial consistence.

At this point the business cycle's CLD could be extended by taking into consideration the following factors: a) establishment of a common market; b) no economic and legal barriers to mobility of enterprises, goods and people within it; c) State's tax income; d) State's fiscal and investments policies.

Including the above mentioned factors, the following CLD in Figure 19 now includes not anymore one but four reinforcing loops, which are responsible for the behaviour of enterprise's mobility and, consequently, for diminution of State's tax income overtime.

- a) Reinforcing loop R1: lower profitability of enterprises located in Italy leads to lower investments, thus increasing the incapability to match the market demand instances, thus reducing even more enterprise profitability;
- b) Reinforcing loop R2: lower profitability of enterprises located in Italy decreases the dividends distributed to shareholders who decide to relocate the activity in another country, this decision reduces State receipts, thus increasing tax rates in order to "save the budget" and therefore reducing even more the profits for investors;
- c) Reinforcing loop R3: similar to the previous one, it concerns the decision of transferring the activity abroad because of incapability to satisfy the market demand in terms of requested quality/price (which depends on the level of investments). This, eventually, would decrease State's tax income and increase tax rates, thus reduce profits.

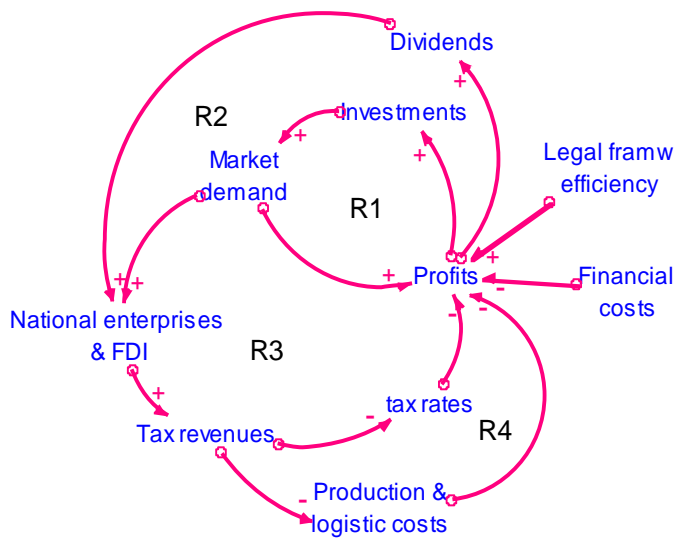


Figure 19: Causal Loop Diagram of enterprises' mobility and State's tax income

d) Reinforcing loop R4: a decrease in Italy's enterprise stock leads to a decrease of State's tax income; the State in order to "save the budget" invests less in infrastructure, thus increasing production and logistic costs, and decreasing profits for enterprises.

Since the localization strategy is planned upon comparative costs-benefits analysis, the profits variable should not be considered in its absolute value but in comparison with its value obtainable by enterprises in foreign countries.

3.3.2. The Stock and Flow Diagram (SFD)

In the above paragraph have been highlighted the enterprises' reasons beneath their localization strategy, and the way these locate their activity according to benefits obtainable in the localization area. In reality, in a globalized market, operators study continuously opportunities for making their products more competitive. Factors like technology, tax, and production costs related to the activity's localization play important roles in defining the enterprise's competitive strategy.

Decisions of staying or of moving abroad are taken based on simulation of differential benefits obtaining in term of a more competitive product; this expression is not strictly referred to low production costs but includes meanings like quality, possibility of differentiation, logistic costs, etc.

The following model, portraying a small production enterprise operating in Italy which explores the possibility to localize its activity abroad, provides a clear

and useful explanation of dynamics described in the previous chapter. The great value added of the following SFD, compared to other simulations, is the iterative process of the enterprise's business cycle. Whether, as in most of the countries, it is quite uncommon to stumble upon public policy makers acquainted with short term consequences of their policies, this become exceptional when one focuses on long term results of them. This is possible only with the awareness of their cause-effects relationships on the iterative business cycle, which enterprises know very well. Public remains rather focused on instant relationships among variables as exemplified by Figure 20.

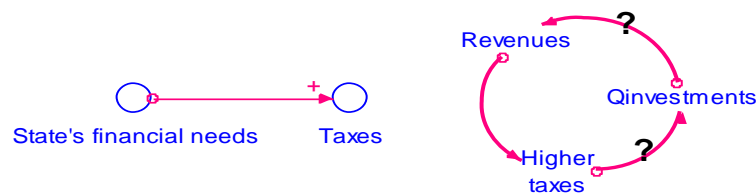


Figure 20: Public and private approach in policy design

The aim of the model provided is to benefit public policy makers with knowledge of such iterative process, fundamental of any sustainable economic strategy, since a “less hospitable” environment for enterprises could result in delocalization of them and thus less future State's tax income.

As mentioned in the introduction, the model portrays the activity of a small enterprise operating in Italy in order to focus on main dysfunctions that such enterprise faces up:

- a) High interest rates for financing investments and deposit advances;
- b) Delays in obtaining authorizations and cashing accounts receivables from Public administration;
- c) Logistic costs: availability of infrastructures (railways, motorways, ports, airports);
- d) Utilities costs;
- e) Costs for work unit and social security tax;
- f) Jurisdictional delay in settling commercial disputes;

- g) Tax and administrative compliance;
- h) Taxes on profits;
- i) Real estate taxes.

The enterprise produces a top quality food, with the average unit cost of 3,3 euro, while the average price unit is 4 euro. The enterprise invests each year in new equipment and R&D in order to obtain good results in terms of quality, product differentiation, product price and reputation.

The model is composed by three sections simulating: the enterprise's activity in Italy, the comparative analysis of benefits and its decision to move abroad, and the tax income performance of the Italian State.

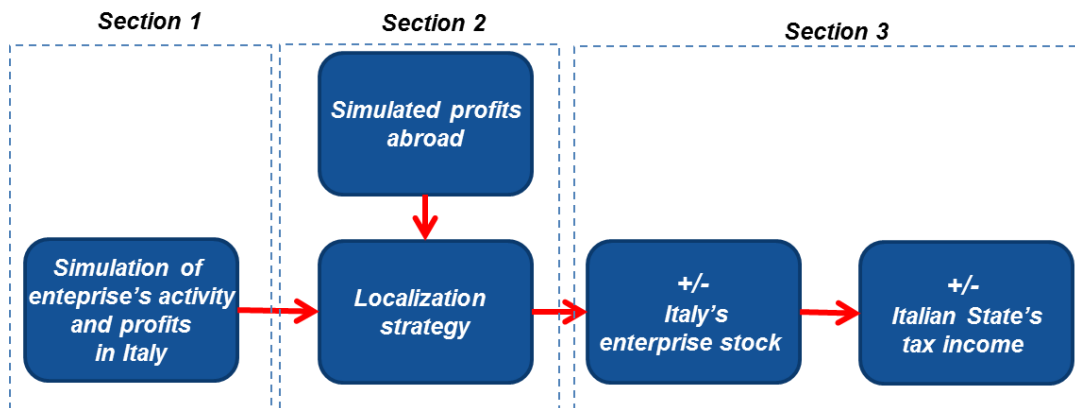


Figure 21: Logical representation of model sections

Section 1: simulation of a small production enterprise operating in Italy

In order to simplify as much as possible the description of the model, the enterprise activity simulated has been split into four sectors: a) Goods production & distribution; b) Financial dynamics; c) Income statement & profits' utilization; d) Investments and their outputs in terms of efficiency and product quality.

a) Goods production & distribution

The following model's sector includes all variables and dynamics involved in the enterprise's production process. The enterprise fulfills by shipment the products requested by the market (an average of 38,462 per week); the production is fashioned according to the product quantity desired in inventory (100,000 units).

Raw material is ordered according to the desired quantity of the same inventory (150,000). Electricity consumption is fixed to 77 MWh per week at the price of 192 €/MWh. The productivity of total workforce (production, logistic, maintenance, administrative) has been set to 1,154 products per week, its unit's cost per month to 1,800 euro plus 705 euro of social security tax.

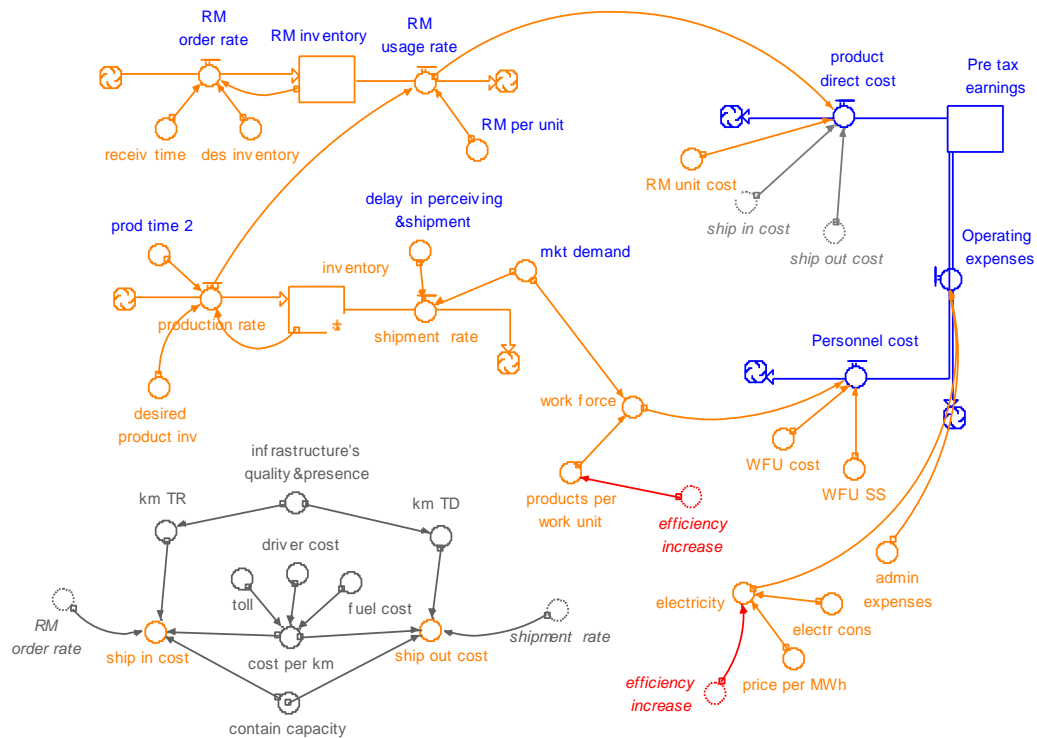


Figure 22: Sector of Goods production & distribution

Shipment costs for ordering raw materials and shipping final products have been set considering a cost per km of 0.626 euro (including tolls, driver and fuel costs in Italy). The average transportation has been set as 241 km for raw material and 1,228 for the final product (because of exportation). The average container filling is 4,200 products.

Total administrative expenses have been set to 350,000 euro per year (6,731 per week).

b) Financial dynamics

Enterprise's invoiced sales are cashed at different times, depending on terms and conditions established with the customers, on delays in cashing from public organizations, and on difficulty to cash credits through commercial disputes. The 30% of sales is cashed immediately. The balance collection proceeds along three ways: the 40% is cashed within 8 weeks, the 45% is cashed through six months banks' anticipations, the 15% of turnover proceeds along, in the worst case, a commercial case for its collection.

The last two ways are extremely costly in term of interest (anticipation) and time (1210 days the average duration of a commercial case in Italy¹²).

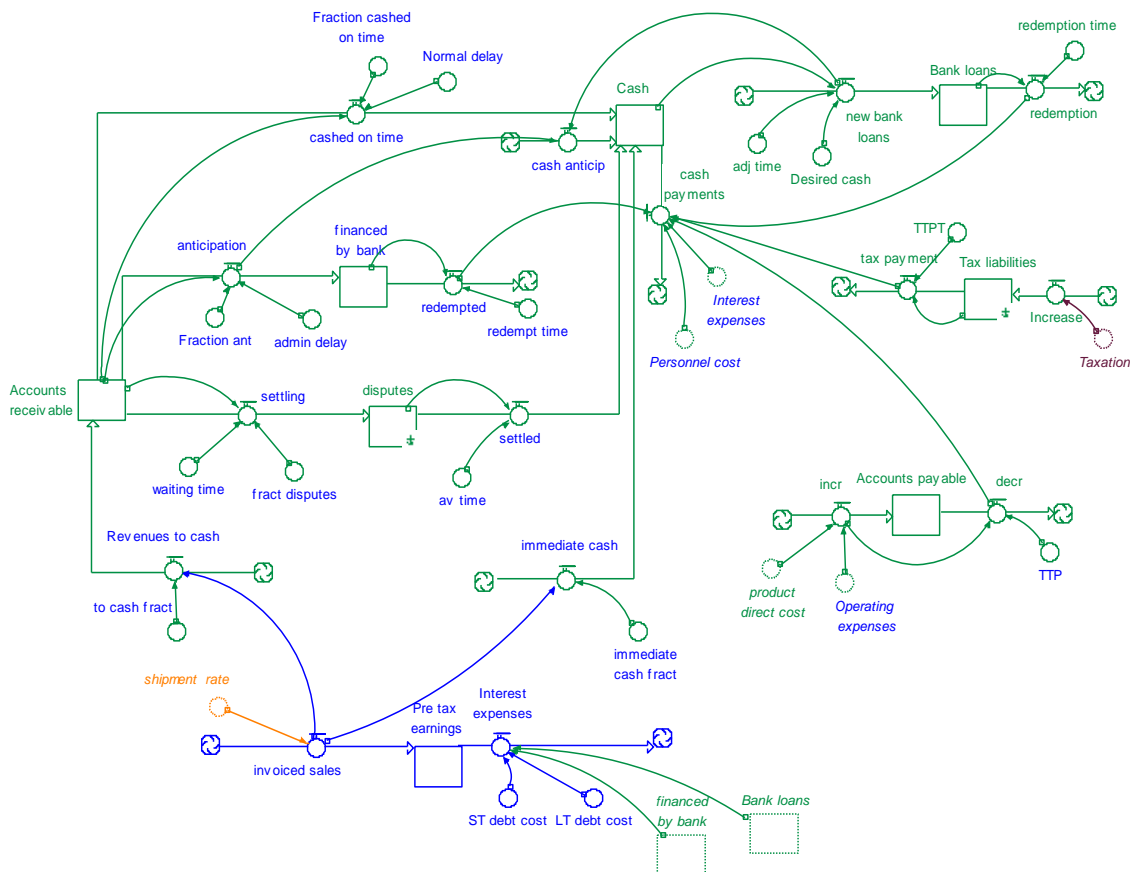


Figure 23: Sector of Financial dynamics

While the sales' encashment increases cash, this last is reduced by payments, at their redemption time, of product and personnel cost, tax liabilities, interest

¹²Source: ADNKronos 2012.

expenses, redemption of bank loans and anticipated invoices. In addition, the model includes the dynamics of bank loans' subscription when the cash stock decrease under the desired minimum amount (100,000 euro). Bank loans and anticipations affect the enterprise's profitability through the interest expenses paid on both types of financing.

c) Income statement & profits' utilization

The following model's sector reproduces, through a System dynamics approach, the net profit calculation in accordance with the current laws concerning the income statement formulation. The stock titled "pretax earnings" is increased by only Invoiced sales inflow and it decreases by means of product direct costs, personnel costs, operating expenses and interest outflows.

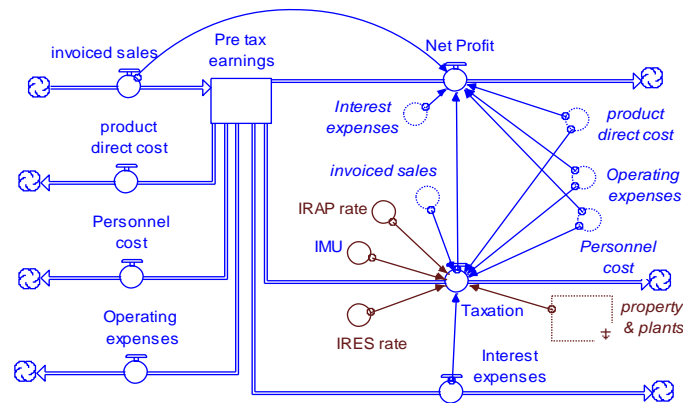


Figure 24: Sector of Income statement

The taxation outflow originates from subtracting all costs and expenses of the enterprise. In Italy, taxation, particularly onerous, includes mainly three types of taxes:

- a) IRES¹³, tax rate on company's profits, nowadays worth 27,5% of pretax earnings;
- b) IRAP¹⁴, a tax rate of 3,9% on a taxable basis made up of pretax earnings, personnel cost, and a part of interest expenses;
- c) IMU, the tax rate on real estate oscillating between 0.7% and 1% of the such assets' market value.

¹³Imposta di Reddito delle Società.

¹⁴Imposta di Reddito sulle Attività Produttive.

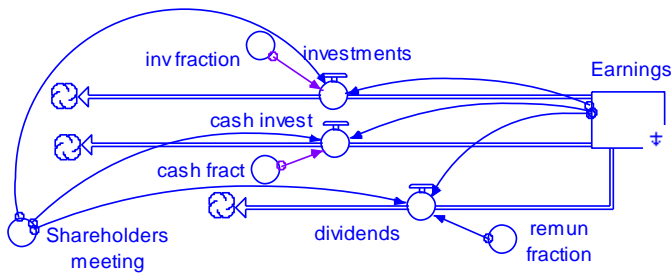


Figure 25: Sector of profits' utilization

As showed by Figure 25, profits are accumulated in the stock “retained earnings” and, after passing the budget (in Italy by 30th of April), the shareholders’ meeting approves the destination of

earnings. In the model, a 40% of them are distributed as dividends, a 50% are allocated for investment and the remaining 10% for increasing the stock of cash.

d) Investments and their output of efficiency and product quality

The dynamics of investments in tangible and intangible assets have been included in the model since they represent the link between present results and future performance perspectives, based on the asset’s quantity and quality. Such link, often missing in the strategizing process of a State organization, allows the present model to reproduce the iterative process showed in the above Causal Loop Diagram, with extraordinary correspondence to the reality.

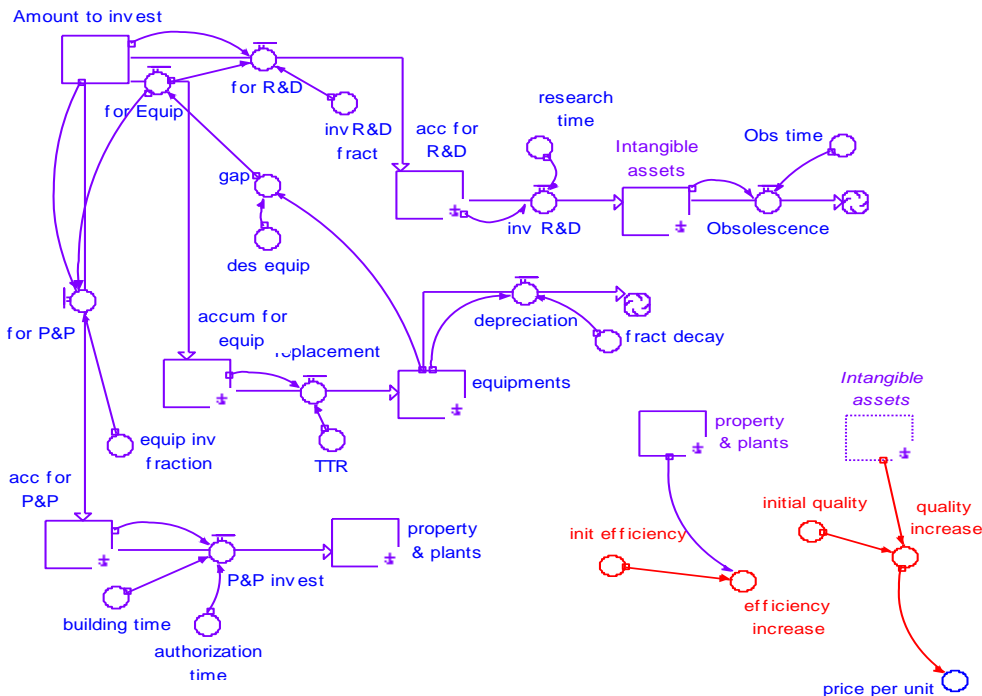


Figure 26: Sector of investments and their output of efficiency and product quality

Earnings allocated for the investments, in the measure of 50% as approved by the shareholders' meeting, are collected and divided to effect three types of investments: a) replacement of equipment according to their depreciation of 10% per year; b) 85% of the remaining sum is invested in R&D; c) the rest in plants' efficiency.

Except for equipment's replacement, investment activity is affected by delays. In the model these have been set to 52 weeks for R&D and 3 years for plants because of the average time elapsed in Italy to obtain all authorizations to build/modify an industrial plant.

The outputs of investment's activity have been synthesized by two variables:

- a) Quality increase: for intangible assets, it affects the price premium that customers recognize to a more qualitative product;
- b) Efficiency increase: this concerns investments in plants or their improvement and it influences variables such as workforce productivity and utilities' cost.

Section 2: The comparative analysis of localization benefits and the decision to move abroad

As mentioned before, enterprises constantly do comparative localization costs analysis in order to make their products more competitive in terms of cost and quality, and to obtain more benefits in terms of dividends and investments.

Such analyses are done by simulations of possible additional benefits that enterprises could reach by being localized abroad. In order to reproduce this benefits, in this section the activity abroad of the Italian enterprise has been simulated by keeping into account the same parameters described above, i.e. by considering raw material consumption, technology and workforce productivity as set in section 1 of the model. So the present model's section has the same structure of that described in Section 1. Thus, in the comparative simulation enterprise takes into consideration only the dysfunctional factors mentioned in this chapter, whose Table 4 reports both the values for Italy and for the foreign countries benchmarked

by the enterprise (Austria and Germany because of their proximity to Italy and their appreciable State's efficiency).

Table 5: List of parameters that enterprise includes in its differential analysis

Variables' list	units	ITALY	EU (A/D)
Interest rates on long term loans	%	6,24	3,49
Interest rate deposit advances	%	4,86	2,56
Time to obtain authorization	days	730	80
Time to cash from public organization	days	193-269	45
Infrastructure quality and availability	0-1	0,9	1
Tolls per km	eur	0,136	0
Fuel cost (per liter)	eur	1,76	1,50
Cost of power per MWh	eur	192	125
Salary per work unit (per month)	eur	1800	2100
Social security per work unit (per month)	days	705	462
Av. time to settle commercial disputes	days	1210	273
Time of tax and bureaucracy compliance	days	119	70
Tax on profits	%	32*	25
Real state tax	% EV	0,01	0,005**

* It includes IRAP rate ** Extimation

According to the simulation's results obtained through the values of variables included in the previous list (that not pretends to be exhaustive) the entrepreneur takes into consideration the opportunity to delocalize abroad. He deepens its comparative analysis for a short or long period of time depending not only on amount of differential benefits that he could achieve by delocalization, but also on his social commitments and personal reasons. Such reasons have been included in the following model's section in Figure 27 through provision of the variable "PS1/PS2" that synthesizes the pressure determined by such reasons on the entrepreneur's mind. The economic incentive to delocalize is counteracted by the entrepreneur's social commitment and personal reasons (family etc.). When the economic incentives to delocalize are low, the entrepreneur decides to remain in Italy since its social commitment and personal reasons have a dominant effect. Otherwise, when the economic incentives to delocalize are high, these will have a dominant effect in the entrepreneur's mind and he will eventually delocalize. The model simulates by setting to 15% this critical threshold in terms of additional profits. If the economic incentive to delocalize overcomes such threshold the entrepreneur will eventually delocalize.

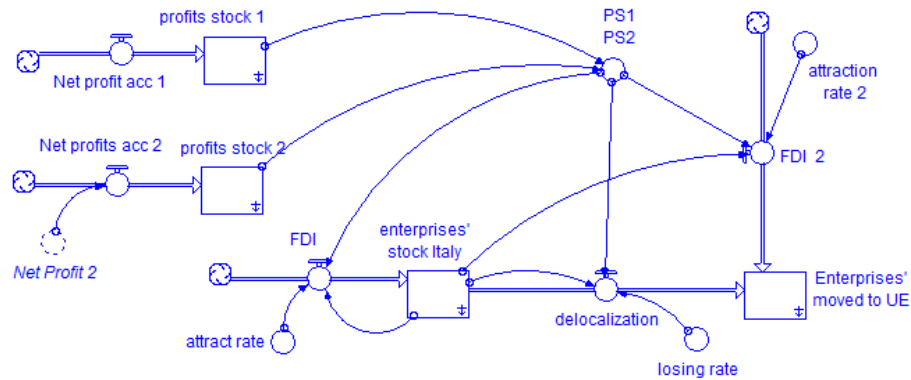


Figure 27: Entrepreneur's and FDI's decisional model of localization

Dynamics of FDI work in an easier fashion. After a deep *what-if* analysis of the social-economic environment and the benefits offered by States of a concerned area, FDI move in the State offering a higher marginal benefit. In the model FDI increase either the stock of Italy's enterprises or that of enterprises moved to UE. Attraction and losing rates define the rapidity of movement according to such marginal benefits. Stock of Italy's enterprises has been set to the initial value of 223,494. This is the number of enterprises with more than 19 employees in 2012 (ISTAT 2013). The model does not include, because not of concern, the dynamics of Italian enterprises' birth rate.

Section 3: tax income performance of the Italian State

Third section of the model includes the impact of the enterprises' localization strategy on State finances. The left side of the section provides an useful comparison of fiscal policy effectiveness between the Italian and the foreign State at constant stock of enterprises. Instead, the right side, including dynamics of enterprises' delocalization and FDI flows, quantifies Italy's tax income losses with the current legal and organizational framework and fiscal policies.

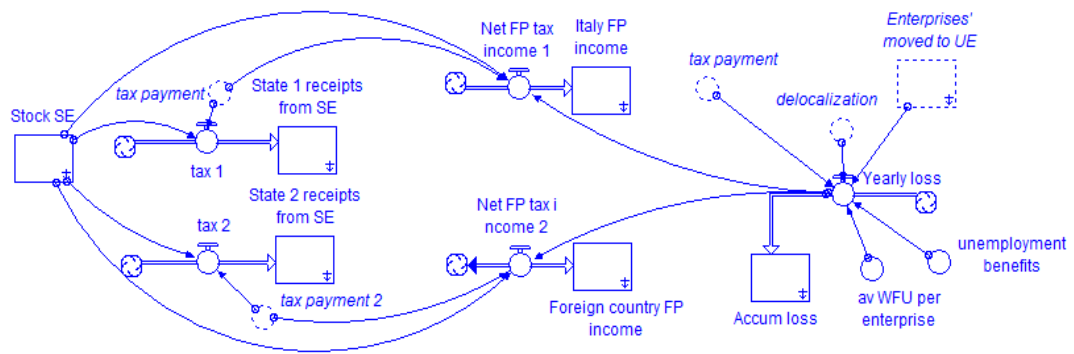


Figure 28: Italy's fiscal policy effectiveness & tax income losses

This is the focus point of the model putting in evidence the absolute necessity for the Italian State to adopt a new strategizing approach in order to implement sustainable financial and development policies. So far, the change in the strategic scenario, caused by the EU economic and political integration, has not been seriously taken into account. By blindly pursuing this way State will lose competitiveness, finances and welfare.

3.4. Model analysis

The model provided in this paper needs to produce real and predictable behavior. In order to ensure it, model analysis has to be done since only a reliable model we have confidence with can be used for making policy makers aware of how to manage sustainably country finances in period of crisis.

Model analysis consists mainly on seven tests (Serman 2000), as mentioned below:

- 1) Unit consistency test: a model which has inconsistent units is usually not only trustless but also worthless (Serman 2000);
- 2) "Face validity" test: model has to reflect how things work in reality;
- 3) Equilibrium shock test: it identifies and fixes incorrect equations (Ford 2010);

- 4) Extreme conditions test: by setting parameters to extremes conditions, it seeks to identify and fix wrong or incomplete equations;
- 5) Reference mode comparison test: this checks the correspondence of simulated variable's behaviour to the one recorded in reality for a determinate period of time;
- 6) Parameter sensitivity test: it evaluates model response to parameters' variation;
- 7) Structure-behavior test: it shows how each feedback loop operates creating endogenous variation of model's stocks.

All of mentioned tests have been carried out for the model provided. In the present chapter will be described only the structure-behaviour test, since in the author's opinion it provides a better comprehension of how model works and simulates the behaviour of variables involved in the issue analyzed. Test results will be described below according to the scheme outlined in the dynamic hypothesis chapter. In order to provide also a comparison between the "localization in Italy" scenario and the "localization abroad" one, the majority of test results will be exposed through graphs including two curves illustrating the simulation's results for each scenario.

a) Goods production & distribution

Figure 29 shows the dynamics of raw material inventory and how orders of them are placed by the enterprise according to its desired inventory (150,000). When inventory goes below the desired level, orders are placed and are delivered to the enterprise by three weeks (equal to the distance between the blue line minimum and the red line maximum).

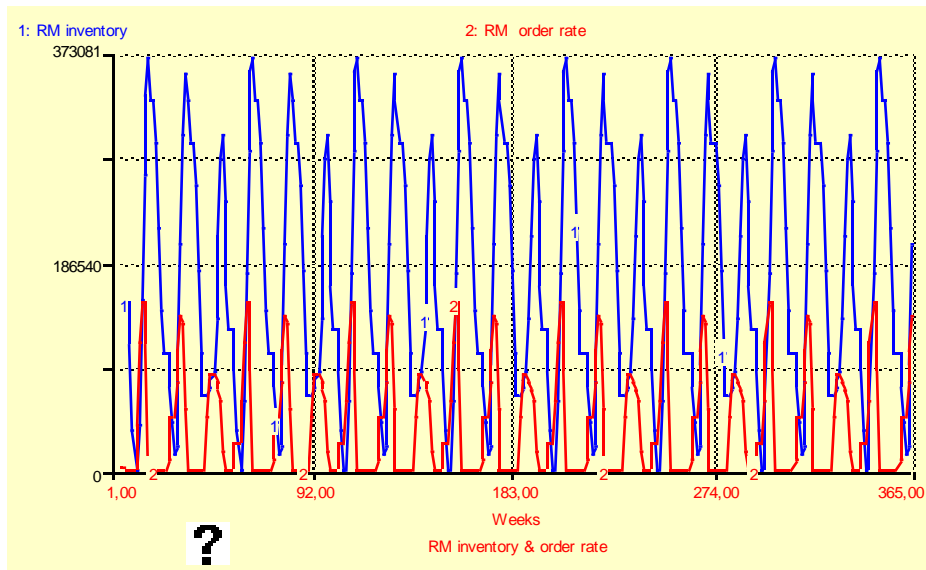


Figure 29

Figure 30 shows, with equal conditions of quantities delivered and a small difference in delivering distances (lesser in the delocalization scenario), a comparison between the shipment costs sustained by operating in Italy (blue curve) and in case of delocalization (red one).

Shipment of raw material is carried out according to orders placed (Figure 33), while shipment of final products is constant because steady is the products' hypothesized demand per week.

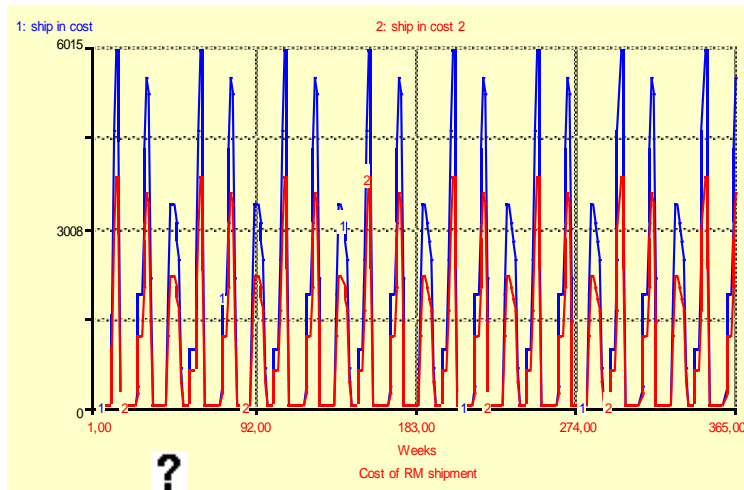


Figure 30

These different features of shipment determine two costs' curves associated the first with a pulse shape, while constant the second one. In the delocalization scenario, shipment costs less.

In Figure 31, cost of personnel is compared to the same number of employees and unit productivity in both scenarios. Although in Italy (pink curve) personnel costs include a higher social security contribution, the total personnel cost is lower

than western European countries (green curve) since the wages are at least 15-20% lower.

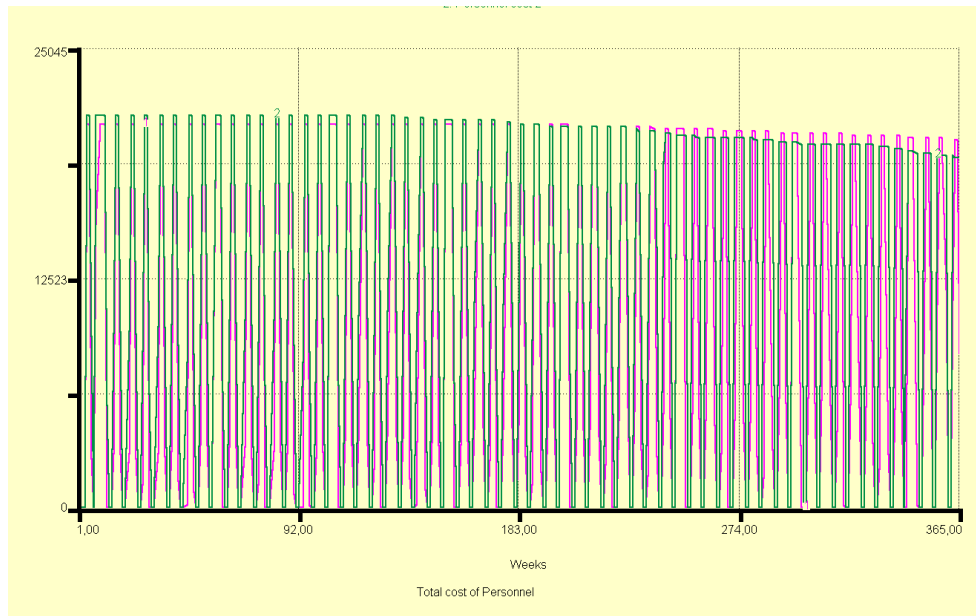


Figure 31

Costs of personnel decrease according to an increase in its productivity given by the output of investments in plants' efficiency as showed in paragraph d) of the Stock and Flow Diagram (SFD). In the delocalization scenario the enterprise invests more and increases faster the personnel productivity. This explains how personnel costs decrease faster in the delocalization scenario and, at the end of the period simulated, these are lower with respect to Italy.

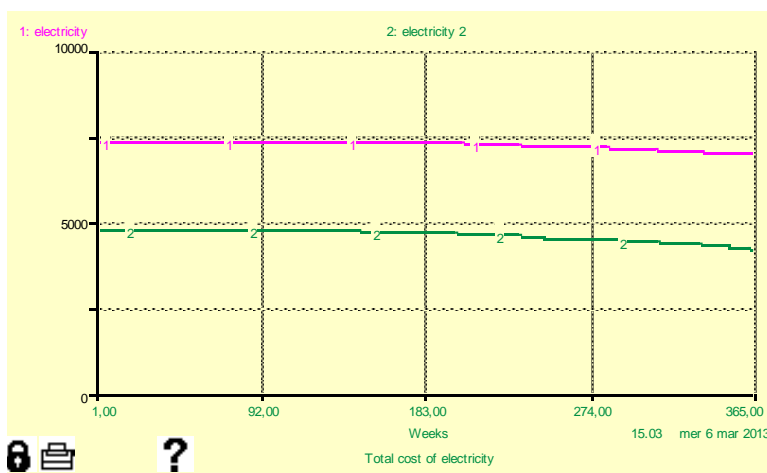


Figure 32

In Figure 32, electricity costs are analysed. Keeping constant the power consumption, in Italy (pink curve) electricity costs more than in the delocalization scenario (green curve). As described for the

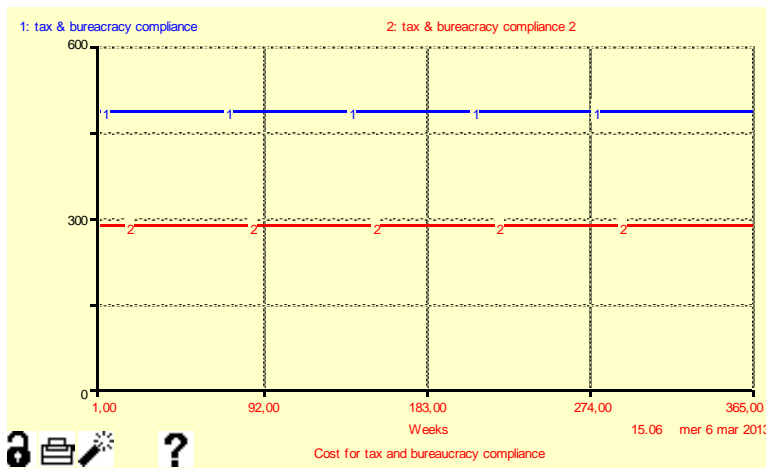


Figure 33

personnel costs, the electricity costs decrease according to the output of investments in plants' efficiency

Figure 33 shows the comparison between the costs related to tax and

bureaucracy compliance in Italy (blue curve) and in delocalization scenario (red curve). In Italy, proliferation of laws, fiscal duties, and a scarce orientation to the customer service of public agencies lead to an increase of this cost voice for enterprises.

b) Financial dynamics

In this paragraph, enterprise's financial dynamics will be described. In particular, the analysis has been conducted on delays and costs related to the encashment of accounts receivable since they affects directly the abundance of liquidity or its absence.

Figure 34 shows the comparison of accounts receivable behavior in both scenarios analyzed. Accounts receivable is a stock, it increases by invoiced sales and decrease by its encashment.

With constant sales units and product price, in Italy's scenario (blue curve) the stock is larger since enterprises experience longer delay in cashing beyond the normal delay accorded to customers.

The graphs illustrated in Figure 35 and Figure 36 give evidence of the consequences of the two most problematic encashment delays concerning respectively the encashment from public organizations and the duration of disputes undertaken to recover credits.

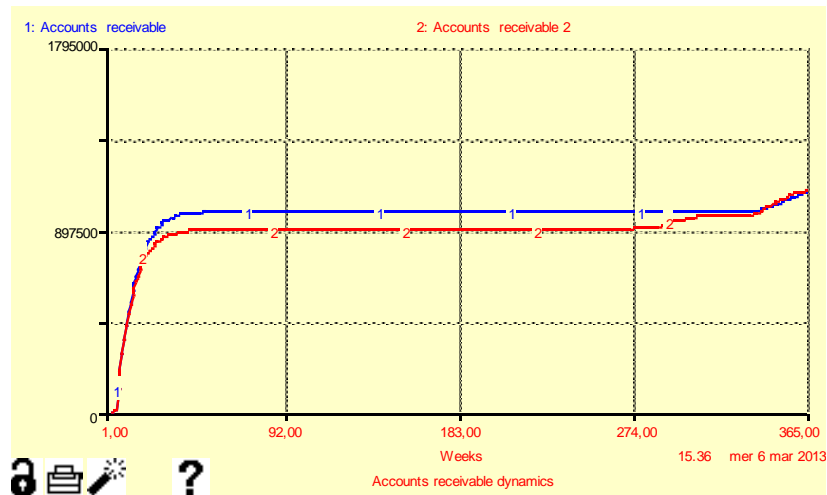


Figure 34

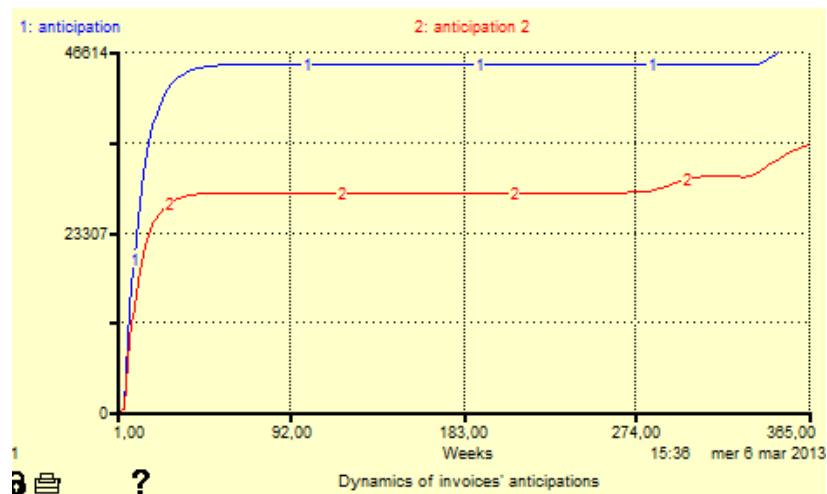


Figure 35

Figure 35 shows dynamics of invoices bank anticipation. This praxis is quite common in Italy, since the average delay in cashing from public organization often overcomes the threshold of 250 days (Confartigianato 2012). This explains how the stock's value in the Italy's scenario (blue curve) is almost the double of delocalization one (red curve).

Instead, Figure 36 illustrates dynamics of credits to be recovered through disputes in judicial institutions. In the model, they are represented by a stock where inflow consists in the amounts of credit to recover through disputes, while its

outflow in the amount of credits recovered through disputes settled. Setting in the model the same percentage of bad debts (15% of total accounts receivable), Italy scenario (blue curve) presents a larger stock compared to the one of delocalization (red curve). This essentially depends on the unsustainable delay of Italian justice in settling commercial disputes: 1210 days the average duration against an average of 273 days in the delocalization scenario (ADNKronos 2012).

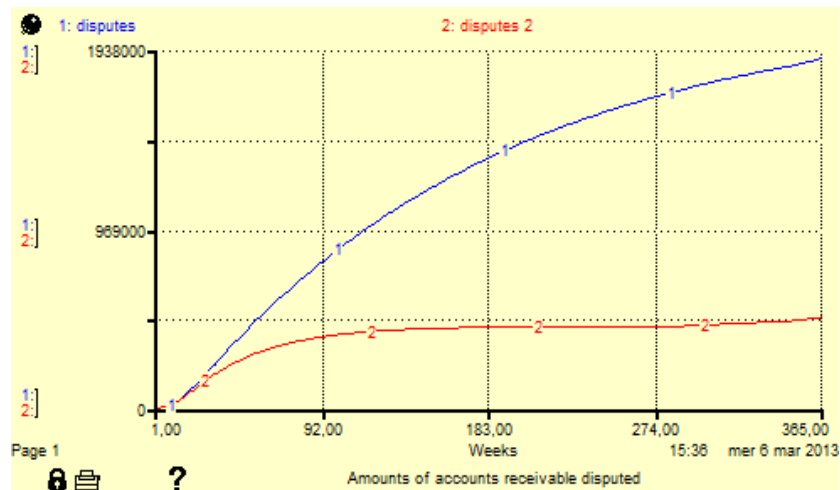


Figure 36

Longer encashment delays not only affect the enterprise's financial equilibrium, i.e. its liquidity level, but also the economic one by mean of interests paid on loans to increase its liquidity. This means that such higher delays increase the amount of loans that enterprise acquires to increase its liquidity level when needed, and its related interest expenses as well. The following two figures illustrate dynamics of cash and bank loans in the Italy's scenario (Figure 37) and in delocalization one (Figure 38). In both scenarios initial bank loans stock has been set to the value of 5 million euro.

When cash (or bank accounts) goes below the desired amount (fixed in the model to 100,000 euro), the enterprise acquires new bank loans (in the model has been included a contractual/negotiation delay of 4 weeks). Redemption of loans is done according to their amortization plan and enterprise's available liquidity. Model shows that bank loans increase when cash decreases under the desired threshold and decrease only when cash is over it.

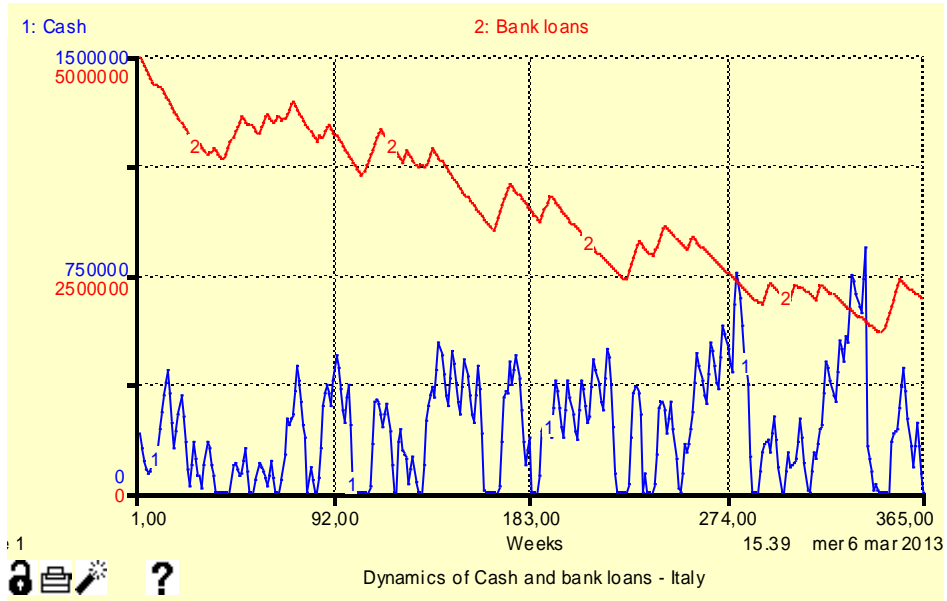


Figure 37

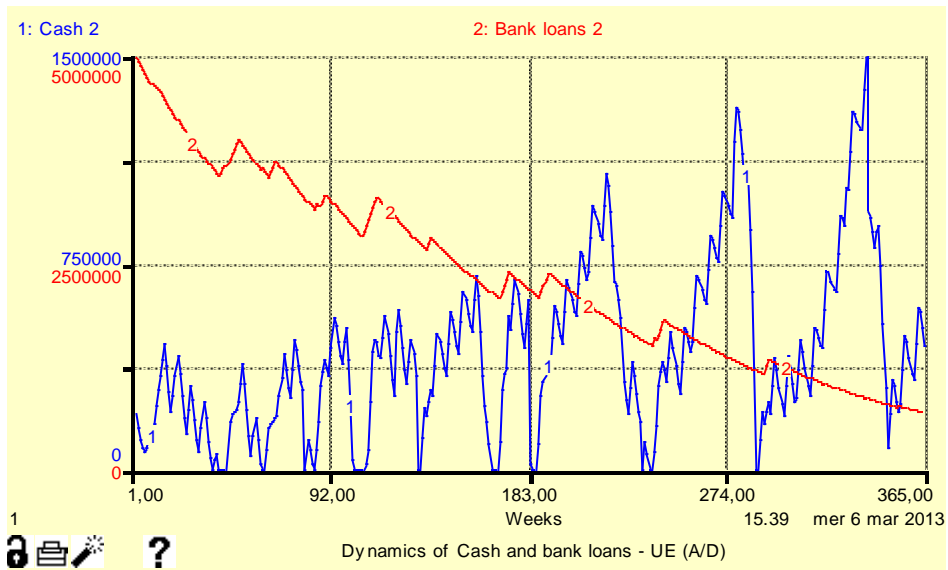


Figure 38

The comparison of scenarios portrayed in the Figures 37 and 38 depicts a crude reality: in the Italy’s scenarios the enterprise presents a more vulnerable financial equilibrium. This presents poorer cash cycles and, after a period of seven years, it has paid back only the 55% of its initial loans against the 80% in the delocalization scenario.

c) Income statement & profits' utilization

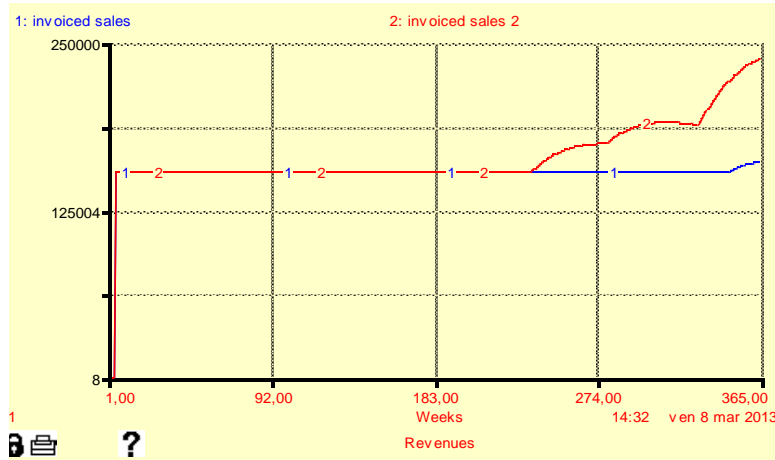


Figure 39

Figure 39 illustrates the comparison between revenues, expressed in euro, in Italy (blue curve) and in delocalization scenario (red curve). Sales units have been set constant in both

of them. Similarly to what mentioned above for the output of investments in plants' efficiency, unit price increase according to quality obtained from investments in R&D.

Figure 40 provides an interesting analysis on the weekly interest expenses sustained by the enterprise operating in Italy (blue curve) and in the delocalization scenario (red curve).

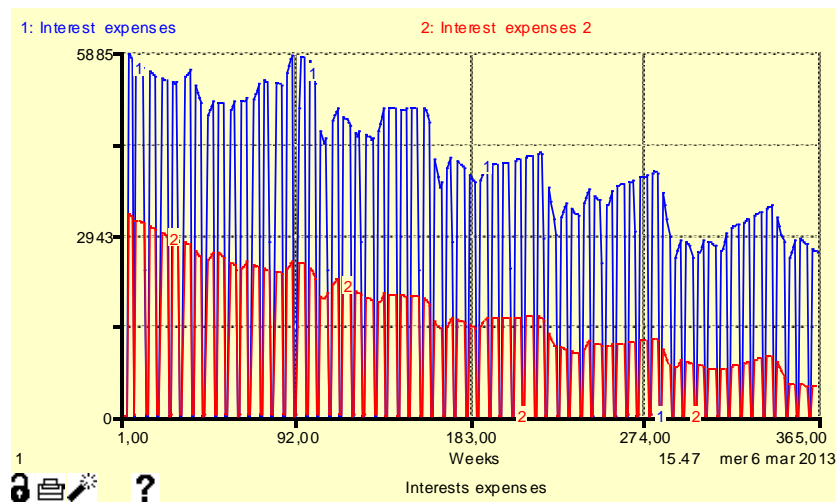


Figure 40

The remarkable difference in amounts depends essentially on two factors: a) higher interest rates paid on loans in Italy; b) larger amount of loans stock where interests are calculated and paid, this is due mainly to high delays in cashing debt from public organization and through judicial institutions.

Last critical point to mention in the analysis of the income statement is the level of taxation. The comparison in Figure 41 shows that in Italy (pink curve) the enterprise pays more taxes than abroad (green curve). Only with a remarkable increase of revenues, reached in the sixth year the enterprise abroad will pay more than one operating in Italy.

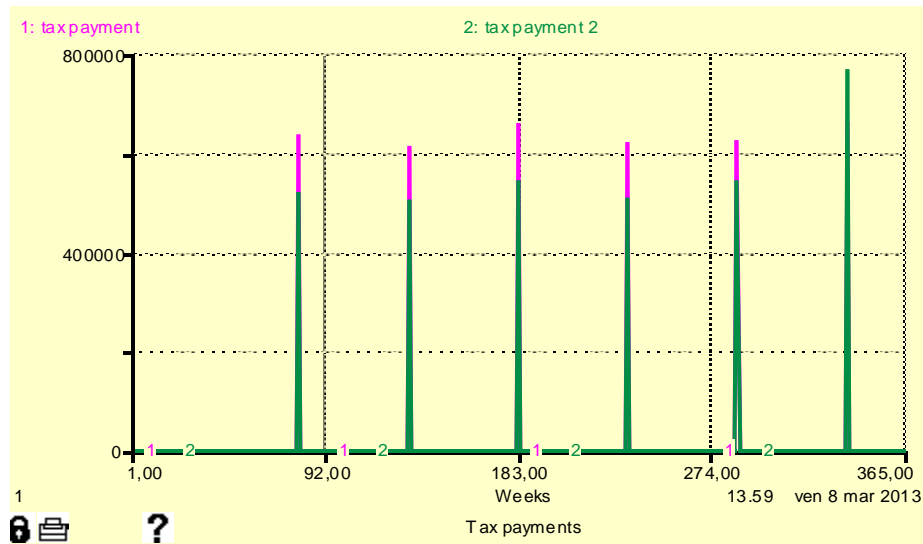


Figure 41

The System dynamics model, based on the “stock and flow” relationships, contemplates the accumulation of net profits during the year. This representation is, however, more coherent with the reality: net profits are produced overtime and not when, at the end of the year, the enterprise proceeds to their calculation. Earnings stock decreases when the shareholders’ meeting approves the balance sheet and the earnings destination.

Figure 42 thus provides a comparison between the stocks of earnings that enterprise produces in Italy (blue curve) and delocalizing abroad (red curve).

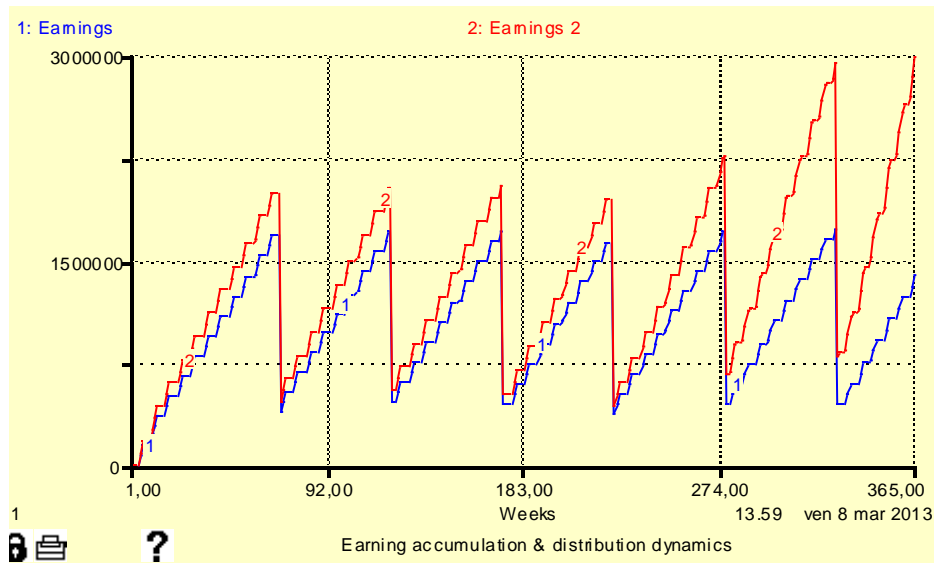


Figure 42

d) Investments and their output of efficiency and product quality

This model's sector reproduces dynamics of earning distribution after shareholders' meeting. In the model, 40% of such earnings are distributed as dividends (blue curve) and 60% are destined to investments (red curve) in order to replace equipment, to invest in efficiency and in product quality.

Figures 43 and 44 enlighten a remarkable difference on earnings distributed and invested in Italy (Figure 43) and in the delocalization scenario (Figure 44).

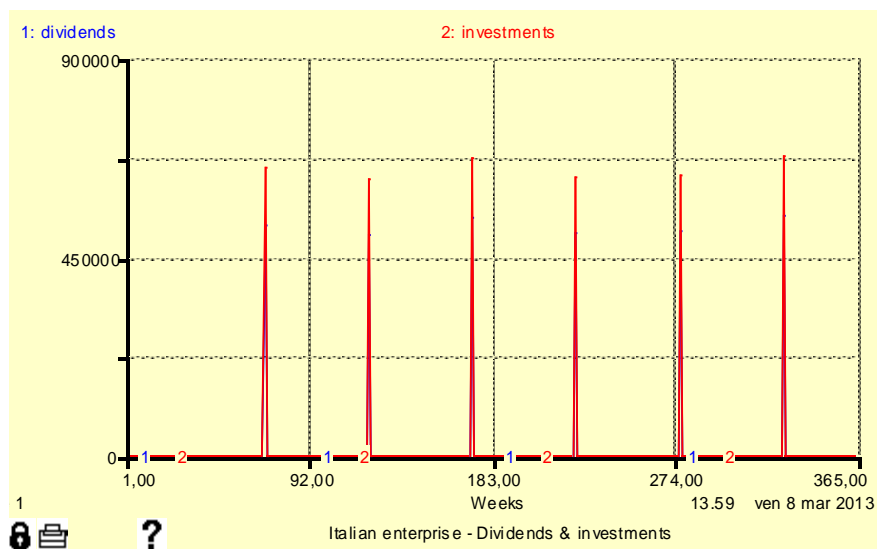


Figure 43

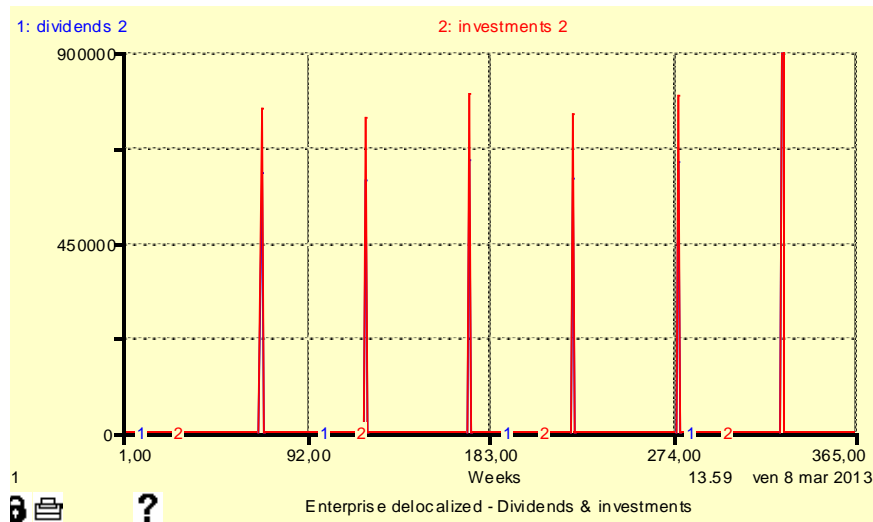


Figure 44

Figure 45 illustrates stock of resources invested in R&D, whose inflow is represented by earnings destined to investment in intangibles, and outflow by their amount spent according to investments' plan (enduring 52 weeks in both scenarios). In Italy's scenario (blue curve) are invested fewer resources than in delocalization one (red curve).

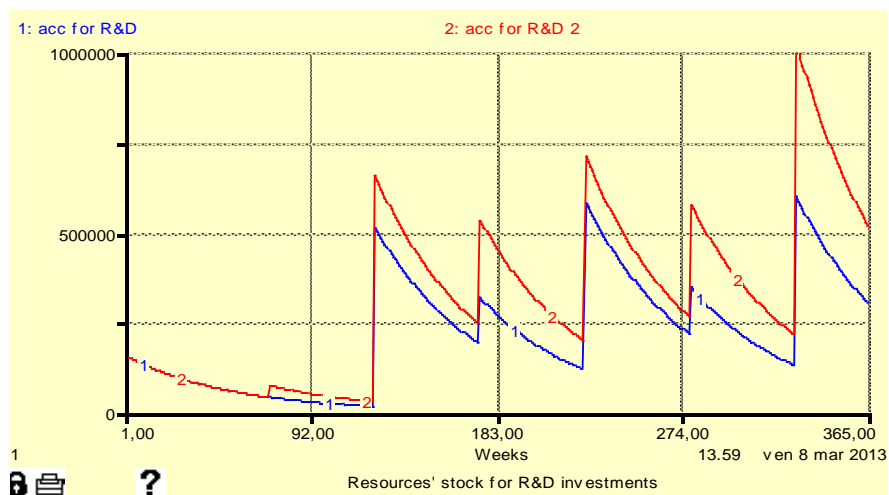


Figure 45

Stock of resources destined to investments in property and plants, in Figure 46, works in the same way as seen for R&D, with the only difference that this kind of investment is carried out with distinct delays between the two scenarios analyzed. In Italy (blue curve) the enterprise faces lower amounts invested and huge delays in obtaining all authorizations. This last issue has taken into consideration by the

model through a lower inclination of blue curve. It means that, even though there are sufficient resources to invest, investments are hindered by long delays of public agencies and need more time to be completed.

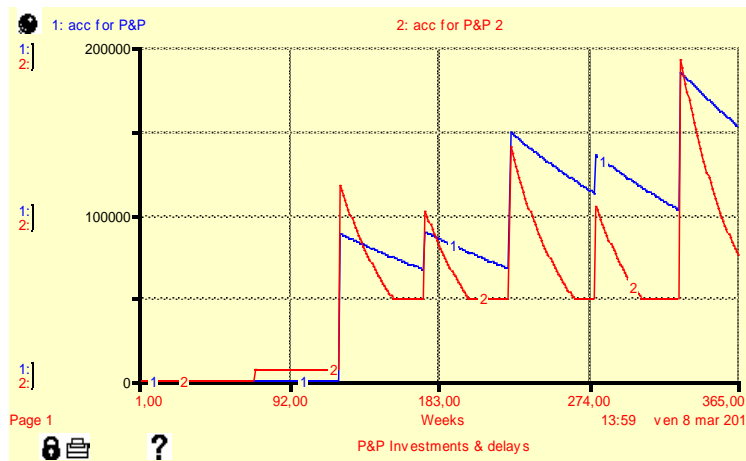


Figure 46

Investment activity's outcomes are included in the model. These represent the link between present performance and future perspectives of the enterprise's success.

Figures 47 and 48 show respectively the outcomes of efficiency and quality increase simulated by the model. Higher investments allow the delocalized enterprise (red curve) to obtain more outcomes compared to one operating in Italy (blue curve).

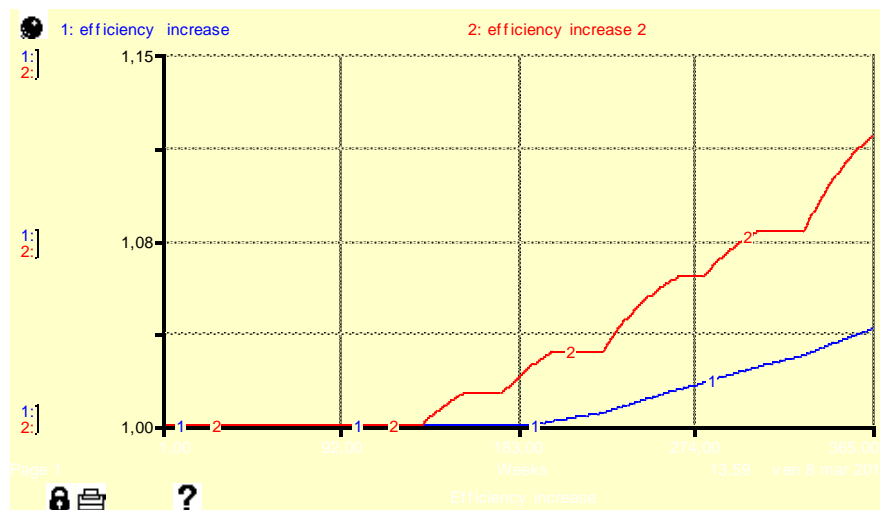


Figure 47

In the model efficiency and quality outcomes have influence respectively on the production costs and product appreciation by the market. While effects of the first one have been already analyzed in the description of production sector in terms of

more productivity and lower cost for utilities, those of the second one have been included in the model through the provision of the “product price” variable.

In reality a higher quality also increases market demand, but in the model such relationship has not been included since it requires inclusion of further dynamics such as production capacity and scale economies not concerning the key issue analyzed in the present study. Figure 49 shows the unit price dynamics in the Italy’s scenario (blue curve) and in delocalization one (red curve).

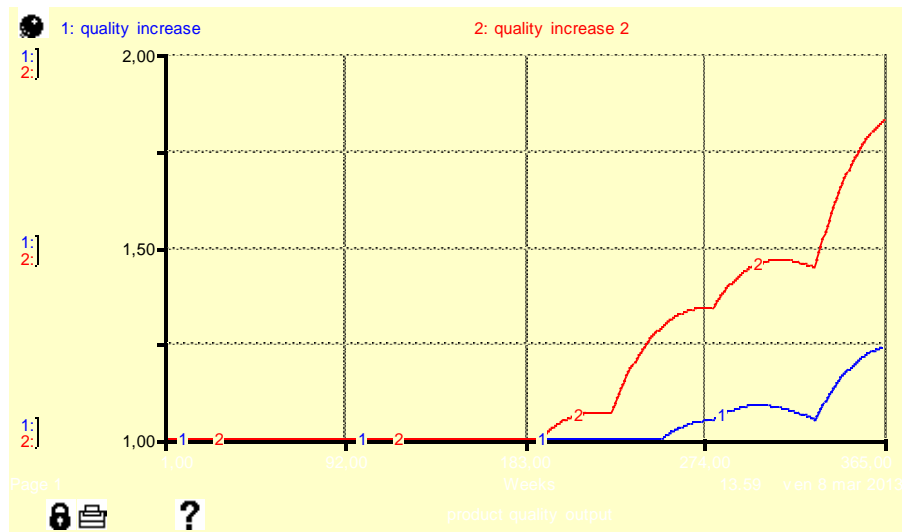


Figure 48

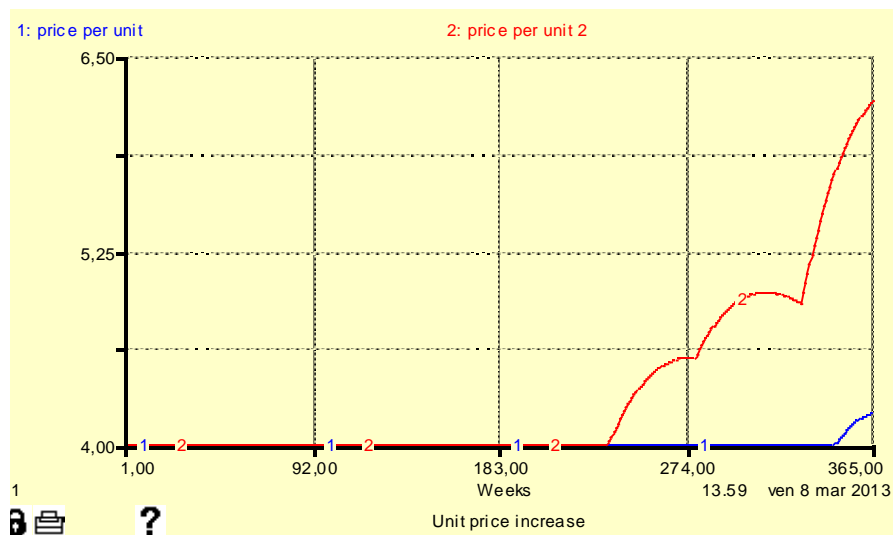


Figure 49

e) The enterprise's decisional model

In the previous paragraphs have been described how inefficiency's factors connected to the values of parameters listed in Table 4 affect the enterprise's profitability not only in the short term, but also in the long run. This is due to the fact that enterprise, being an institution that operates overtime in order to satisfy efficiently and effectively human needs, seeks to achieve such mission through its investments activity (Sorci 2002). An enterprise that invests less, will not operate according to its mission and at the end will lose customers and profits. This explains the reason why enterprises are oriented in seeking a long term competitive advantage, and why consequently public policies fail when are issued for consolidating State's finances and do not take into consideration their effects on the iterative dynamics of enterprises' activity.

The model includes the enterprise's decision to delocalize abroad in order to seek some competitive margin in the supply of products. As mentioned above, enterprises do simulations to know whether they can satisfy, with the current localization, market requirements, and face up global competition. Simulation of profits' stock, which the enterprise could produce in Italy (blue curve) and abroad (red curve), during their simulation period, is illustrated by Figure 50.



Figure 50

Additional profits for the enterprise mean higher investments, and shareholders' remuneration. Such opportunity acts in the entrepreneur's mind as an incentive to delocalize. In the model, when profits in the delocalization scenario are at least 15% higher than those the enterprise produces in Italy, such opportunity will have a dominant effect on entrepreneur's social commitment and personal reasons pushing him to delocalization. Such dynamics has been described in Figure 51. The "PS1/PS2" ratio variable indicates the entrepreneur's profits comparison (Profits in Italy/profits abroad).

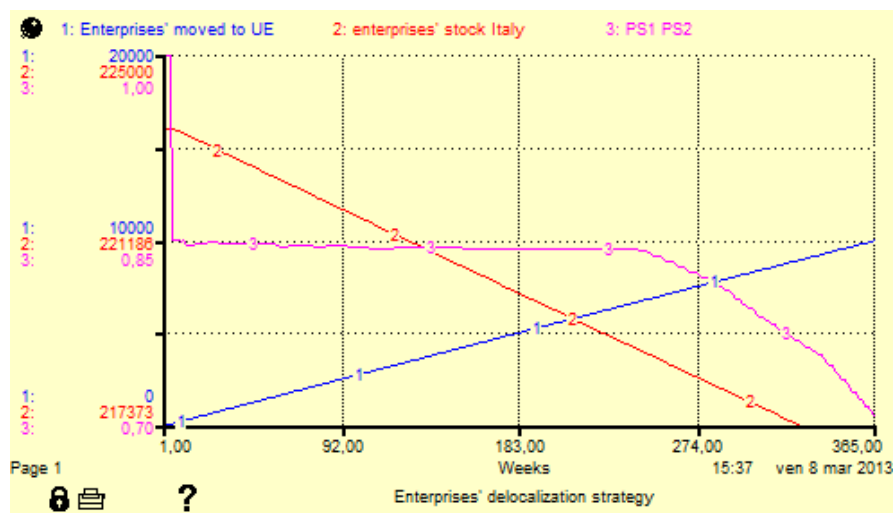


Figure 51

3.5. The Italian State's net tax income performance

Last model's section concerns the impact of the enterprises' localization strategy on State finances. In order to provide a better comprehension between local focused policy horizon and a wider one, Figure 52 illustrates tax policy performances of the Italian and foreign States. This comparative test has been performed on the same enterprises' stock (223,494 enterprises) and in hypothesis of absence of mobility. The graph shows receipt's stock accumulated by the Italian and the foreign State during a period of seven years.

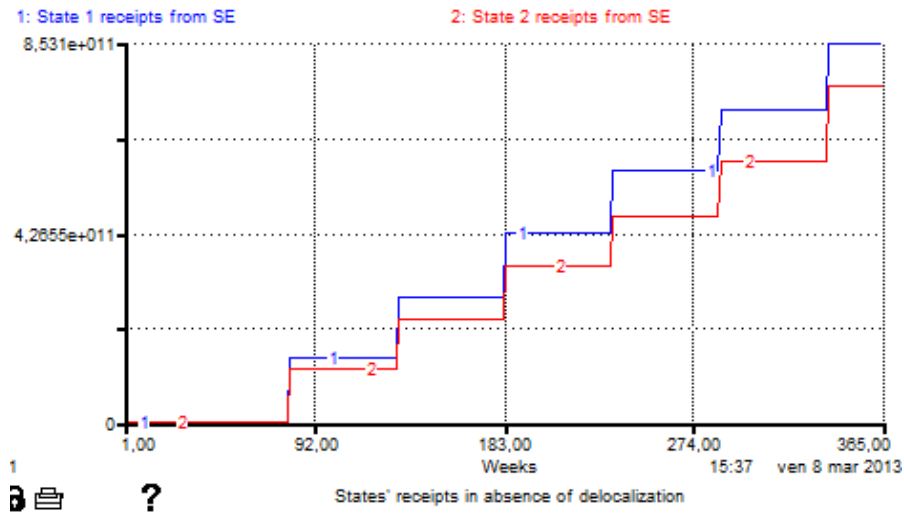


Figure 52

The Italian State performance (blue curve) seems to be more effective for State's finances. At the end of the period the Italian States catches additional receipts for almost 100 billion euro. However, has it been adopted a correct strategic horizon? Is such policy sustainable?

Figure 53 shows how, adopting a wider strategic horizon (beyond the geographic boundaries), and focusing correctly on enterprises activity, the current Italian fiscal policy is unsustainable. Because of delocalization the State's yearly loss, given by absence of tax income and more unemployment benefits multiplied by the number of delocalized enterprises, grows more and more.

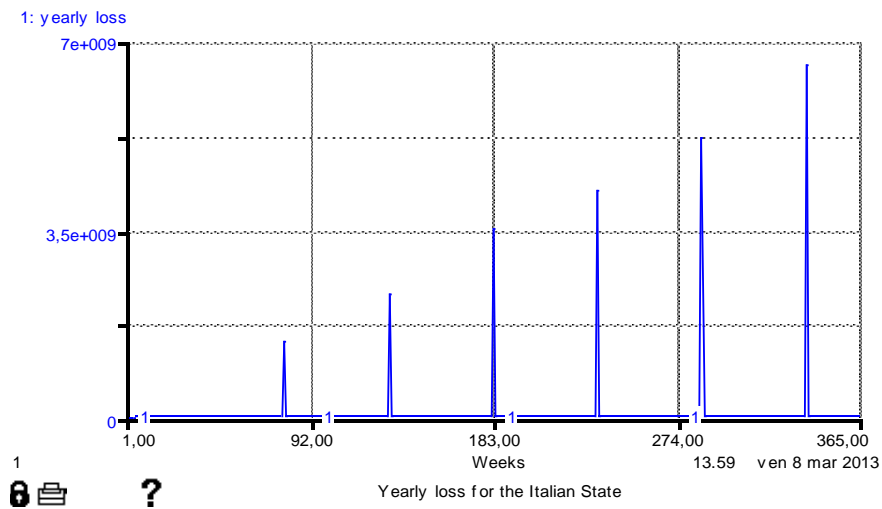


Figure 53

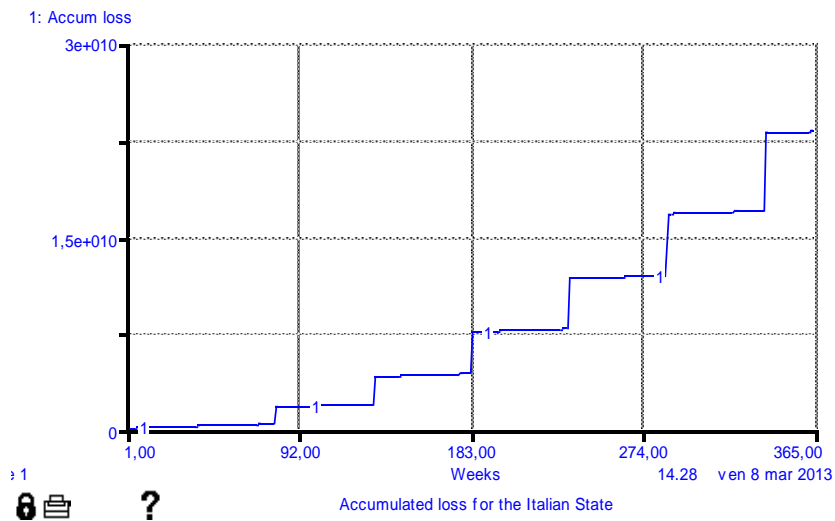


Figure 54

Figure 54 illustrates the accumulation of such loss in State’s tax income. This stock increases more and more according to a higher and higher yearly loss.

Figure 55 allows to assess the sustainability of the “tax increase and cut public services and investments” policies adopted by several world’s countries, among which the Italian State. Since sustainability is a value that has to be assessed on the long term, the simulation’s horizon has been extended from 7 to 10 years and the long term performances of fiscal policies of the Italian and foreign States have been compared. Starting at week 1 from the same enterprises’ stock, the graph below shows the State’s receipts accumulation from both fiscal policies.

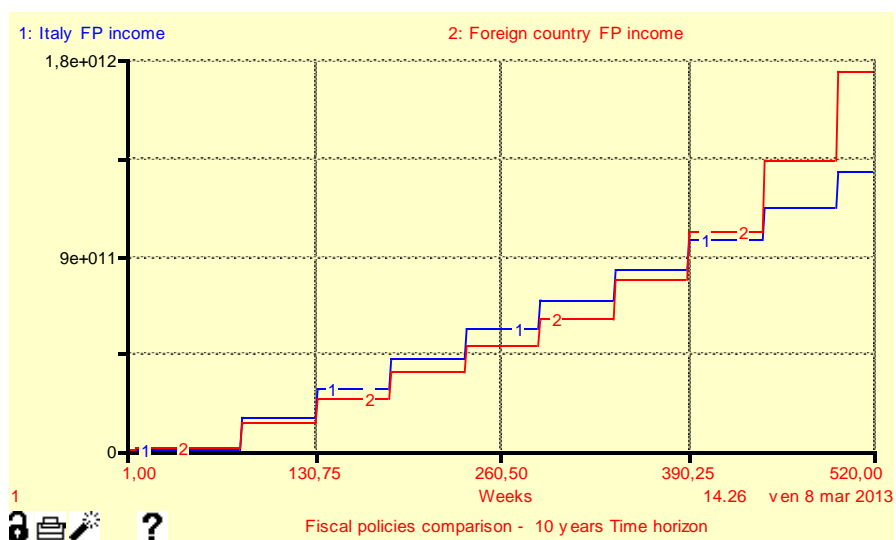


Figure 55

The Italian State tax income (blue curve) is in the short term higher than the foreign State, then is overcome by the last one. At the end of 10th year, the foreign State has cashed 462 billion euro more than the Italian State.

3.6. Insights from model's results

Model's quantitative results, obtained in a stock of 223,494 enterprises¹⁵ and below the hypothesis of an average workforce of 30 units per delocalized enterprise, report on a ten-yearly horizon a financial damage for the Italian State of about 462 billion of Euro, the 29.5% of national GDP, and the 23.2% of public debt in 2012 (Istat 2013).

The model includes dynamically enterprises activity and demonstrates that the wealth of private institutions cannot anymore be considered as an independent variable in public strategizing.

The “enterprises centered” research focus is completely new in the research scenario of public financial policies. Model quantitative results has outlined the necessity for public policy makers to adopt a wider horizon in strategizing, beyond the national boundaries and focusing on enterprises' global competitiveness.

Oppositely to the austerity policies aimed exclusively to consolidate State's financial accounts, results obtained by model's simulation make clear that **the success of public policies passes undoubtedly by the valorization of collaboration with private firms for “co-creating” their global competitive advantage, and that of the country in which they operate.**

Therefore, in absence of such collaboration, long-term orientation in strategizing and a wider policy's horizon, the Italian State risks to create unconsciously a huge harm to the whole society.

¹⁵ This is the stock of enterprises with more than 19 employees in 2012 (ISTAT 2013).

CHAPTER 4

BEYOND THE STATE ORGANIZATION FINANCIAL STRATEGY: THE CONCEPT OF HOLISTIC DEVELOPMENT FOR A SUSTAINABLE STATE – TERRITORY STRATEGIZING AND SOCIAL CAPITAL DEVELOPMENT

4.1. Introducing the concept of holistic development in “Azienda Italia”

The analysis implemented so far in the present study has enlightened how the ineffectiveness of the public policies results from the gaps concerning both the methodology and the informative basis necessary to design public policies. In order to fill such gaps it has been introduced the System dynamics methodology as a tool to design and test sustainable State’s policies.

The innovative standpoint of the model illustrated in Chapter 3 is the “market players centered” focus, because, in reality, the financial resources available for the State organization are a dependent variable of the welfare of economic players, and not independent as it is commonly intended in public strategizing. The model gives an evidence of the success of strategies targeted to the welfare of all stakeholders involved, by avoiding the benefits obtained by some stakeholders to detriment of the others.

Such evidence introduces the concept of the “holistic development” strategy requiring that valid interests of each stakeholder need to be weighted in the strategies that State organization designs and implements in its territory. The Italian State is the sole entity that could be endowed of such authority. As it happens in private firms, the State organization should elaborate (according to its mission) specific strategies targeted to different internal divisions, strategic areas, and stakeholders. This requires to rethink the role of the Italian State and its relationships within the territory, not anymore as an entity that operates separated

from the reality in which is involved, but as the administrator of a specific enterprise: the Azienda Italia.

In the Italian economic jargon the term “azienda” has been defined by Zappa (1957) as “an economic institution set to last overtime, that, for the satisfaction of human needs, orders and carries out in continuous coordination the production, the procurement and the consumption of wealth”. With respect to the term “enterprise”, mainly concerning the complex of assets and the pursuit of profit, the Italian meaning of “azienda” extends its focus beyond by including first of all the social function of an enterprise: the satisfaction of human needs.

On the basis of the above mentioned considerations, the issue of the sustainable financial strategy of the Italian State is susceptible to be further extended by considering its consequences for the whole society. Thus this chapter introduces the concept of “holistic development” of organizations. This has been initially developed by the Business Management school of the University of Palermo, which has always been focused on organizations’ values as key factors of organizations’ success.

The concept of “integral development” is based on the assumption that a single action pursuit by an entity, either an individual or an organization, produces four types of effects, or in other words it could be analyzed in its four dimensions (Sorci 2007, Wojtyła 1982):

- the action itself: it includes the immediate scope, the achievement of an objective result;
- the intentional or reflective one: it includes the action’s capacity to improve or worsen the person or the entity that puts it into effect;
- the relational one: the action’s capacity to improve or worsen the person or the entity who receives it;
- the socio-environmental one: the action’s effects on the society and the economic environment.

Applying this concept to the above mentioned “Azienda Italia”, it could be argued that its holistic development occurs if State organization designs policies to obtain results along the following four dimensions:

- a) the achievement of a good financial result;
- b) the internal dimension that such result has in terms of growth in values, knowledge, economic growth, professionalism, work efficiency and cohesion;
- c) the external reflection over the recipients, for which the State organization must generate value;
- d) the positive reflection over the socio-economic and environmental context in which public strategies take place. Such dimension of the results is mainly responsible of the social capital development in the society. Good management, services and transparency foster in individuals their social commitments, honesty and solid relationships with people.

The “holistic development” excludes the maximization of a single success’ dimension (e.g. profits, surplus in national accounts or public debt reduction) preferring an appreciable degree of achievement of all of them.

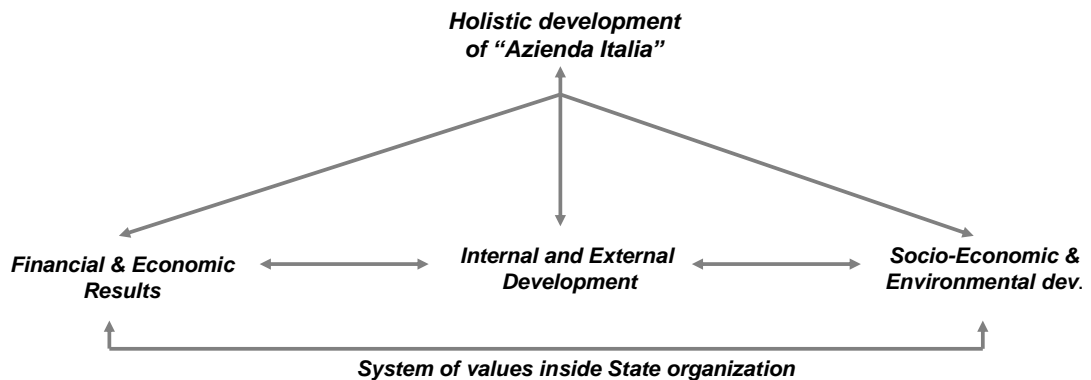


Figure 56: The four dimensions and determinants of the holistic development

The “holistic development” implies necessarily to broaden courageously the planning in public organization from the short term to the long term.

This has more implications for public policy makers than it seems. In the short term, public policies are determined by immediate needs of the State organization and, rightly or wrongly, they do not imply strong responsibility for the actions

undertaken (everything could be justified by the constraints of the moment). Oppositely, in the long term, the public planning and control imply a commitment versus the society and make policy makers responsible for the achievement of planned goals.

The holistic development does not concern only the State organization development, but also influences positively the whole society. This creates a virtuous circle where the State organization creates the “necessary conditions” for the development of all the institutions playing a role in building the global competitiveness of a country: a) public organizations; b) enterprises; c) families. At once, as illustrated by the following figures, such institutions will provide the State organization of additional inputs necessary for its activity: a) additional financial resources generated by either an increase in tax income or lower public expenditures for unemployment benefits (see Figures 57 and 63); b) higher educated human resources in the public organizations’ management.

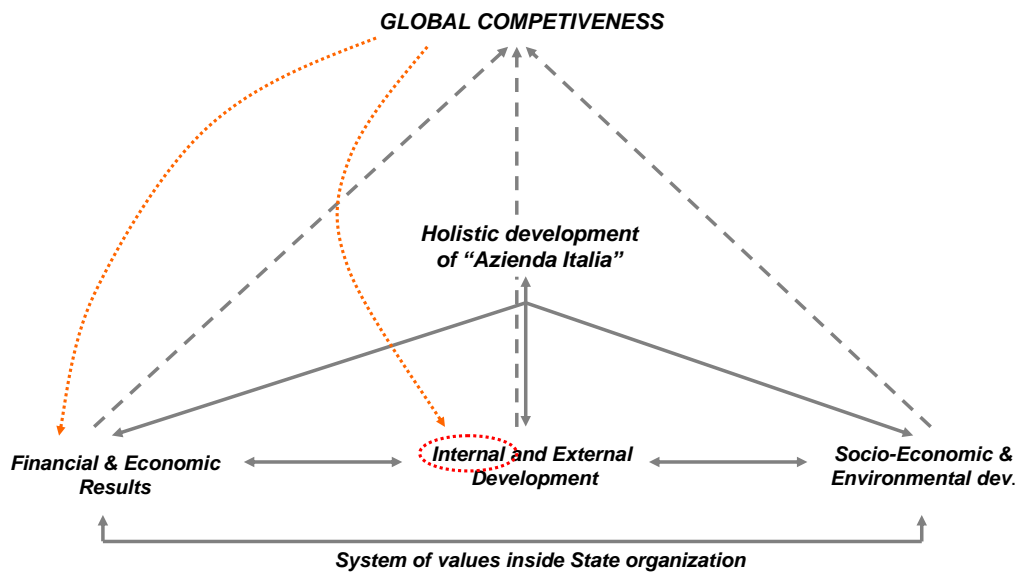


Figure 57: Causal relationships between global competitiveness and holistic development of “Azienda Italia”

The “necessary conditions” for the development of all the institutions are clearly observable in the model showed in the previous chapter, where a simulation of long-term financial performance of the Italian State has demonstrated the direct

effects of Italy's legal and organizational framework on performance of both enterprises and public organizations.

The theory of the "holistic development" pushes for a step further in the conceptualization of the State organization as leader of the Country's competitive success. These are not just words but it is something that, even if not yet fully theorized, is well understood by several States. If the environment influences the activity of organizations in terms of input, requirements and social commitments requested (Porter 1990), it is also true vice-versa through organizations' output, progress and vision. This demonstrates that State organization should contribute actively to the society development and not consider enterprises and citizens as independent variables vis-à-vis strategy achievements.

The "holistic development" approach, including the "external" and "social" dimensions of the State organization's performance, requires to test before policy implementation whether public strategies affect positively performance of other society's institutions (enterprises and families). Thus in this paragraph the analysis of consequences of public policies on enterprises (in Chapter 3) is extended to the society as a whole.

For this purpose, the analysis follows by framing in a joint scheme the performance cycle of each type of institution according to the framework illustrated by Figure 11 (new paradigm for the State's programming cycle). Each of the mentioned institutions has a determined stock of strategic resources that seeks to develop according to the end results of actions implemented for this purpose (performance drivers). The sum of all the strategic resources of institutions is comparable to the sum of country's tangible and intangible assets, the sources of wealth of a country in the long term.

Enterprises seek to develop their strategic resources by investing their profits, whose drivers are represented by technology adopted, human resources quality, taxes, legal and organizational framework in which they operate.

Financial resources available for welfare and investments are the strategic resources of public organizations. They could be increased by financial results in term of tax income and savings in public expenditures, whose drivers are

respectively tax pressure leverage on the one hand, and efficiency and effectiveness in resources' management on the other hand.

Families' strategic resource is represented by education, which is higher in the upper class families thanks to higher expenses dedicated to it. Education is the driver of a satisfactory remuneration and consequently of better living conditions.

It can be easily argued from the figure below (Figure 58) that a stress in public organizations' performance drivers (e.g.: tax pressure, inefficiency and ineffectiveness in resource management) affects directly the performance drivers of other institutions (red curves). This influence reduces end results of enterprises and families, consequently depleting their strategic resources in the long term and causing the country's impoverishment as follows:

A) Higher taxes and an inefficient legal and organizational framework, as demonstrated by the model in Chapter 3, reduce profits of enterprises, their assets' endowment (caused by lower and lower investments) and eventually their presence within the national boundaries. Higher taxes also reduce, especially in time of crisis, families' budget allocated to culture and education.

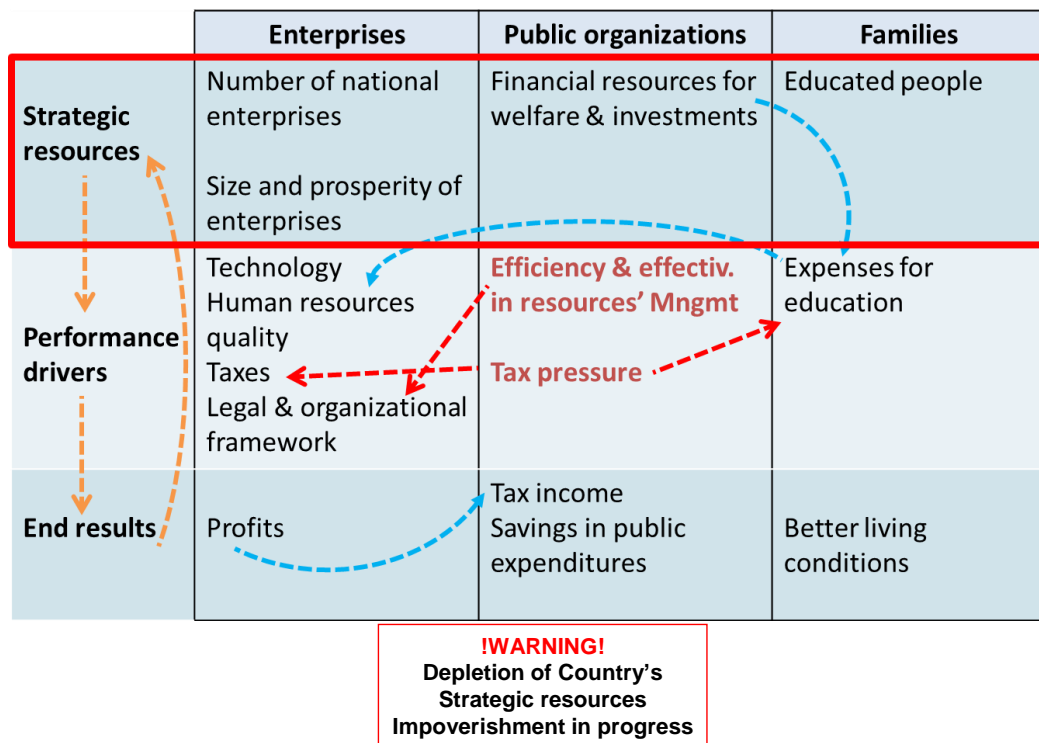


Figure 58: Scheme of strategies undertaken by society's institutions, their relationships, and consequences in terms of development/depletion of Country's strategic resources.

B) These direct effects on performance drivers of other institutions create, at once, indirect effects due to causal relationships of second order (blue curves). Lower profits subjected to taxation reduce the financial resources available for public organizations to finance welfare and investments. These effects impact, as experienced in Italy during the last two decades, the taxation and the public budget for culture, education, infrastructures and facilities, key performance drivers of families and enterprises. A higher taxation as well as lower levels of education, infrastructures and facilities then influence the quality of human resources and the State's legal organizational framework, key performance drivers of enterprises. Lower profits of enterprises foster their fragility and mobility abroad. The result of this domino effect reduces even more financial resources for public organizations and education expenses of families. At the end of a period of ten years, the strategic resources of enterprises, public organizations and families, assets of Country, may have been unknowingly depleted and the country may have lost the sources of its global competitiveness.

The theory of the “holistic development” and its focus on the “internal”, “external” and “social” long term performance is targeted to the sustainable growth of organizations. As argued by Bianchi, such growth may be assessed under three perspectives: a) the internal one that “emerges from consistency between different subsystems, sectors and departmental/functional areas of the organization” (Bianchi 2012); b) the external one that derives from the three relevant success' dimensions of organizations: financial, competitive and social (Coda 2010); c) the temporal one that includes consistency between long-term and short-term strategies.

The three dimensions of a sustainable growth may be analyzed together by framing them into a tridimensional graph. The following figure (Figure 59) thus shows how the organization's growth should be assessed in terms of sustainability. The sustainability of growth increases more and more when, at the same time, this occurs along the three following perspectives:

- a) External: the focus of organization's strategy evolves from the economic/financial performance to the valorization and/or building of sources of competitive advantages, then to social commitment;
- b) Internal: the organization strategy evolves from the performance a single department/functional area to the harmonious development of all of them within the strategic business areas;
- c) Temporal: from a focus on short-term strategies to the development of the key-variables responsible of the organization's success in the long-term.

As mentioned above, such perspectives should be considered together, and the sustainable growth of all of them occurs according to the path marked out by the red half-line in Figure 59.

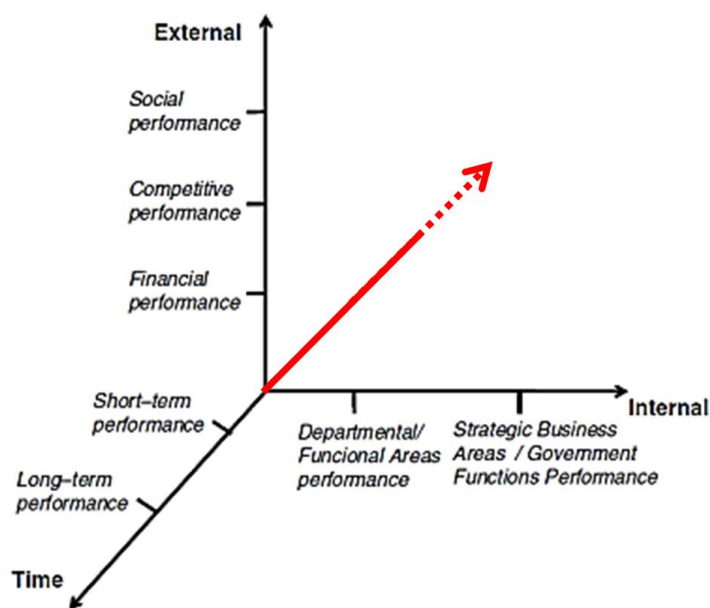


Figure 59: The perspectives for assessing sustainable growth. Source: Bianchi 2012 (re-adaptation)

The sustainable growth is thus a concept that changes overtime. A start-up organization cares more about its survival, thus its concept of sustainable growth is rather narrowed to the short-term: the financial performance and the development of functional areas strictly connected with the production of product/services. A consolidated organization should be more concerned about the long-term

performances, towards a harmonious development of the organization as a whole, a solid competitive advantage and a constant attention to its social commitment.

4.2 Quantitative results from the implementation of a holistic development strategy

This section of the chapter is devoted to the quantitative results deriving from the application of the “holistic development” theory to the design of a territory’s performance management system in order to improve the competitiveness of Italy as well as the economic and financial performance of both enterprises and Italian State. The holistic development is not a fine theory permeated with values difficult to implement in public policy, but it acts in a way much more effective than it could be considered.

For this purpose, once again the model is invoked in order to give objectivity and certainty to the figures in the game within an accurate public policies’ design.

The following table (Table 6) shows the parameters of some policies that the Italian State could be ready to implement in order to improve the Country’s legal and organizational framework. As mentioned above, policies designed according to a holistic development approach create a virtuous circle where good performances of State and other institutions of society are strictly connected and even influence each other. The policies recommended, thus, consist in:

- a) increasing competition in the capital markets and utilities;
- b) increasing efficiency of payments due by public organizations, as well as ensuring brief times and transparency in obtaining authorizations from public authorities;
- c) guaranteeing short times for the settlement of commercial disputes, and simplification of enterprises’ tax and administrative compliance.
- d) improving the functioning and the endowment of infrastructures to benefit enterprises productivity.

The model simulation specifically excludes a change in the current tax leverage in order not to sacrifice in the short term the amount of tax income which the State needs for its institutional purposes (although a reduction of too high general administrative expenses may allow lower tax rates).

Table 6 lists the policy adopted and their parameters according to the scheme provided in Table 5. This last concerned the legal and organizational framework's parameters used to simulate not only the activity and localization strategy of Italian enterprises but also financial performance of the Italian State. The new one (Table 6) integrates Table 5 with two additional columns indicating those policies adopted and consequently the new parameters concerning the legal and organizational framework. These last have been set to the average level of Italy's neighboring European countries (Austria and Germany).

Table 6: Specification of policies adopted and their parameters

Variables' list	Units	ITALY	EU (A/D)	Policy switch	Policy's param.
Interest rates on long term loans	%	6,24	3,49	Yes	3,49
Interest rate on deposit advances	%	4,86	2,56	Yes	2,56
Time to obtain authorization	days	730	80	Yes	80
Av. time to cash from public organiz.	days	193-269*	45	Yes	45
Infrastructure quality and availability	0-1	0,9	1	Yes	1
Tolls per km	eur	0,136	0	No	
Fuel cost (per liter)	eur	1,76	1,50	No	
Cost of power per MWh	eur	192	125	Yes	125
Salary per work unit (per month)	eur	1800	2100	No	
Monthly social security per work unit	eur	705	462	No	
Av. time to settle commercial disputes	days	1210	273	Yes	273
Time of tax and bureaucracy compliance	days	119	70	Yes	70
Tax on profits	%	32**	25	No	
Real state tax	% EV	0,01	0,005***	No	

* In Public healthcare

** It includes IRAP rate

*** Estimation

In the following figures (60 to 63) are thus illustrated policy's results according to the "holistic development" approach now implemented in the Italian State. According to the analysis framework illustrated in Figure 58, it has been verified that results of the policies adopted produce positive effects to all of the type of institutions concerned by public policies: State, enterprises, and families. To this end, among tens of model's variable, it has been decided to illustrate the most representative ones to describe the welfare of all institutions above: "profits stock"

and “delocalization” for enterprises, “unemployment” for families, and “tax income” for State. Results are showed over a ten-yearly horizon.

Figure 60 shows Italian enterprises’ cumulated profits. In the holistic development scenario (red curve) each enterprise records more profits. Profits stock at the end of the period analyzed is 28% higher than in absence of this.

Figure 61 illustrates the dynamics of Italian delocalized enterprises and extra-European FDI’s inflow in Italy. In absence of a holistic development strategy (blue curve), both phenomena occur since national manufacturers delocalize and FDI prefer other European countries. In the other scenario (red curve), national manufactures are initially retained in Italy until profit’s difference vis-à-vis other countries is not significant.

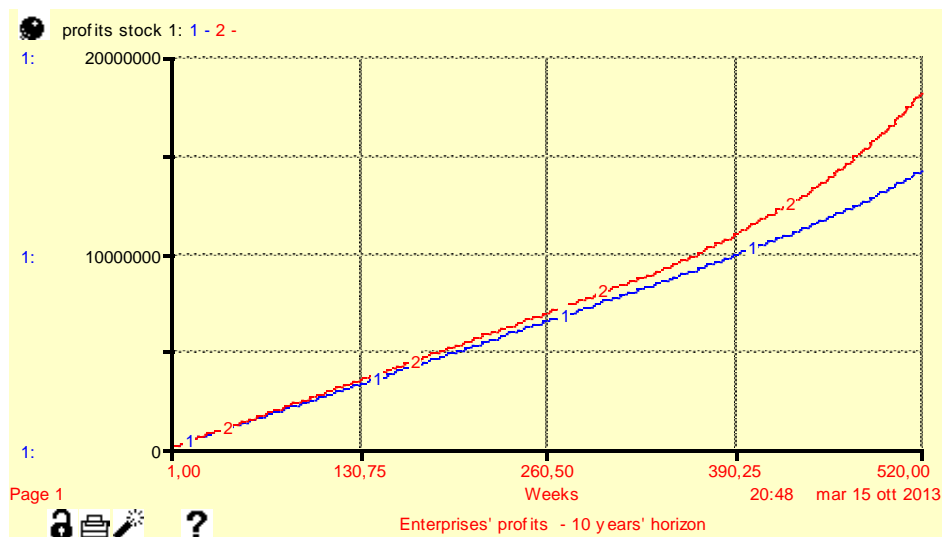


Figure 60

During the first six years of the analyzed period (10 years), the model records only the loss of FDI’s inflow from extra-European countries caused by higher costs in Italy: although the simulated administrative and legal framework efficiency is the same of other European countries (equal production costs), Italy still has higher taxes. At the end of year 10 the simulation reports 5,222 enterprises retained from delocalization.

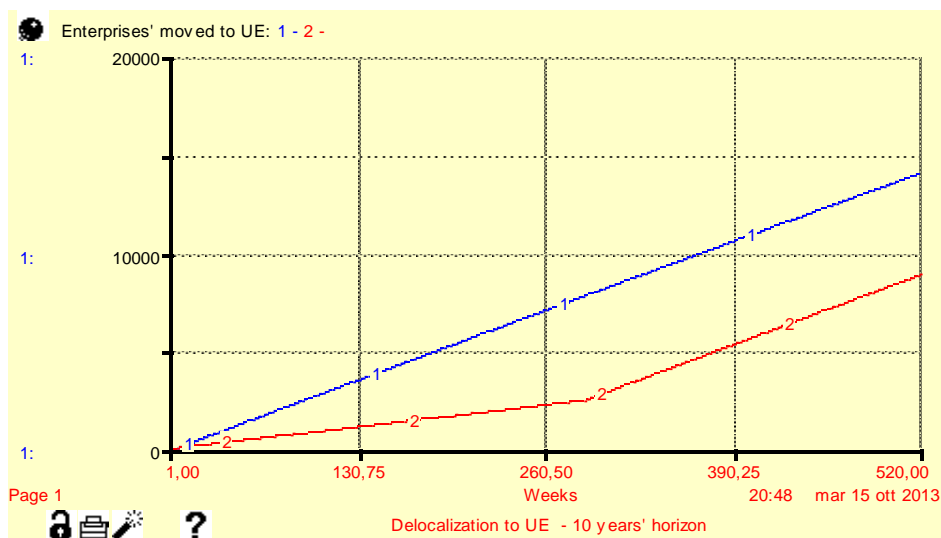


Figure 61

In figure 62 is illustrated the dynamic of unemployment connected to delocalization and loss of FDI's inflow from extra-European countries. In the holistic development strategy (red curve), the unemployment originated by both phenomena is 37.1% lower than in absence of such strategy.

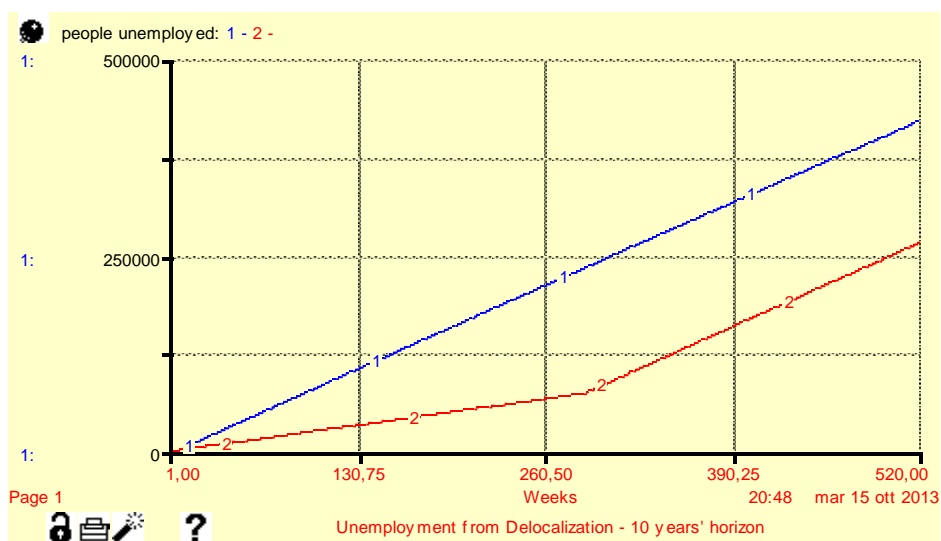


Figure 62

Figure 63 shows policy's results in term of tax income for Italian State. In the holistic development scenario (red curve) the Italian State, records an additional 21.3% cumulated tax income (net of unemployment benefits) compared to the absence of such strategy, i.e. 274.1 billion euro, at constant fiscal leverage.

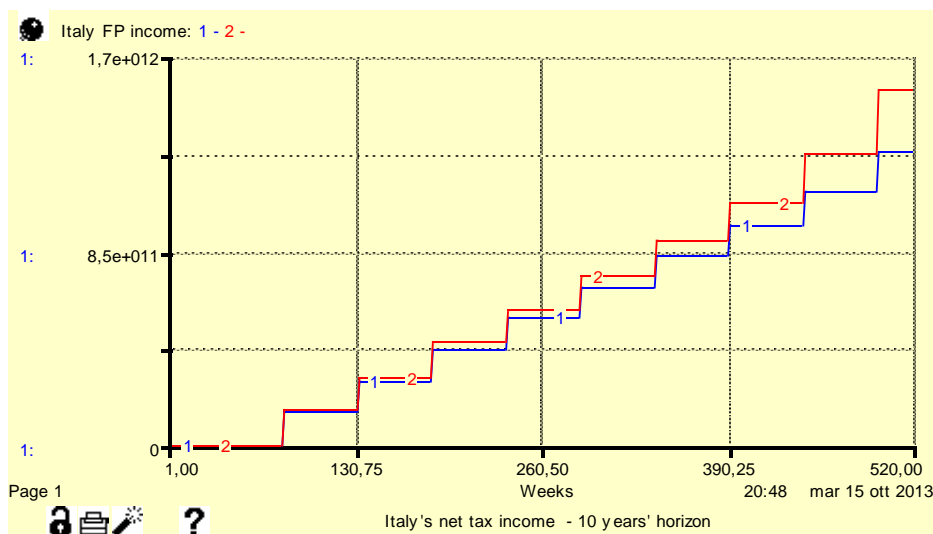


Figure 63

Such result for the Italian State arises by an higher retention of enterprises and less expenditures for unemployment benefits as well as by taxation of larger profits of enterprises producing in Italy.

Model's results following the implementation of the holistic development strategy prove the validity of such approach and its essentiality in public strategizing. As described above, this approach excludes in public strategizing any maximization of one success' dimension of State organization (financial results), preferring an appreciable achievement degree of all of them (financial, internal, external and social results).

In a holistic development strategy the State focuses on strategic assets for the country's economic development. The underlying strategic horizon is evidently the long term since is related to assets and not to financial resources (e.g. tax income). Policy makers implement policies in order to activate, through investments in strategic assets, the performance drivers responsible for the development of strategic assets stocks. Improvement and enrichment of society are given by "cash flows" (end results) arising from such investments in strategic assets. Financial results are either expended to consolidate State's financial accounts or invested once again, by reiteration of the process, in strategic resources, thus producing even more appreciable end results.

4.3 The effects of “holistic development” strategies on Social capital growth to the benefit of Italy’s global competitiveness

The concept of “holistic development” has a paramount importance in understanding the relevance of interactions between strategies and activities of institutions in an economic system. The quantity and quality of such interactions, combined with the values and the trust existing in the society, may provide a plausible quantification of the so-called social capital.

The term *capital* “it is usually identified with tangible, durable and alienable objects, such as buildings and machines, whose accumulation can be estimated and whose worth can be assessed” (Solow 2000).

At an international institutional level, social capital is defined as “networks, together with rules, shared views and values facilitating cooperation within and between groups” (OECD). In a similar manner the World Bank defines it as “the institutions, relationships and norms that shape the quality and quantity of a society's social interactions.”

In literature, among the most influential contributions, three main contemporary authors need to be absolutely mentioned: Bourdieu, Coleman, and Putnam.

Bourdieu is responsible for bringing the concept and term social capital to present-day discussions (Claridge, 2004). Although his level of analysis is rather focused on individuals, the author is the first to introduce the social capital’s feature of “network belonging”. He defines Social Capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition or in other words, to membership in a group which provides each of its members with the backing of the collectivity-owned capital, a credential which entitles them to credit, in the various senses of the word” (Bourdieu 1986).

Only few years later, the analysis’ level of social capital started to be extended not only to a single entity, but also to a variety of different institutions having in

common the feature of “social structure” in which the actions of their components are in some way facilitated (Coleman 1988). Main Coleman’s contribution in the field of Social capital research could be synthesized as follow:

- a) Coleman, compared to Bourdieu, extended the analysis’ level from individuals to other entities, including non-elite groups (Schuller et al. 2000);
- b) He also started to analyze empirically relationships among such entities and to formulate assessment’s indicators (Schuller et al. 2000);
- c) He also investigated on the productive nature of capital (as a society’s strategic asset) and its influences on other type of capital such as human and cultural capital (Teachman et al. 1997).

It was Robert Putnam to widen further the analysis’ level of Social capital studies and popularize the concept of social capital through the study of civic engagement in Italy (Boggs 2001). The author in “In Making Democracy Work” (Putnam et al. 1993) extended further the analysis to a wider level represented by communities and Regions and analyzed the differences, in terms of social capital presence, among Regions in the north and south of Italy. The civic engagement was chosen by the author as social capital’s measure. Such indicator is recalled in subsequent Putnam’s works focused on the decline in civic engagement in the United States. In “Bowling Alone”¹⁶ Putnam identified a general secular decline in levels of social capital as indicated by membership in voluntary organizations (Putnam 1995, Putnam 2000).

Putnam gave the following definition of Social Capital: “it refers to features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions” (Putnam et al. 1993).

Like Coleman, Putnam was extensively involved in empirical research and formulation of indicators. Specifically, he elaborated one of the most widely applied Social capital’s measures: the index of *civic engagement*. Such index

¹⁶ Bowling, to which the title refers, is an activity used to be highly associational and it is portrayed by the author as example of source of social interaction, a component of social capital, as enlightened in Putnam’s definition of Social Capital.

includes, according to Putnam’s Social capital definition, four indicators: trust in people and institutions, norms of reciprocity, networks and membership in voluntary associations (Adam and Roncevic 2003).

The contributions of the literature therefore distinguish two fundamental elements that foster the social capital development: the network and the trust. It follows that wider is the network and more solid the trust, the more will be the benefit in terms of an increase of social capital for the society as a whole.

Figure 64 shows a first reading scheme to assess the social capital’s development following the implementation of the “holistic development” approach in public policies. To this end Pezzani (2011) distinguishes four types of institutions operating in society: public organizations, enterprises, families and non-profit institutions. These institutions are connected among them by economic, financial and social relationships. The strength of the relationships between public organization, families and enterprises depends on reciprocal trust.

State’s policies design that do not consider the risk of harming other society’s institutions, as well as an inefficient organizational and legal framework, undoubtedly reduce (as showed in Figure 64) the reciprocal trust among institutions (bidirectional curves). Such kind of policies not only foster in enterprises a feeling of disappointment towards public institutions, but also in turn produce an even lower social commitment of enterprises and their steadfastness on which the State can rely. Eventually, an impoverishment of networks and trust, sources of Social capital, determines the depletion of such strategic asset for the development of the Italian State.

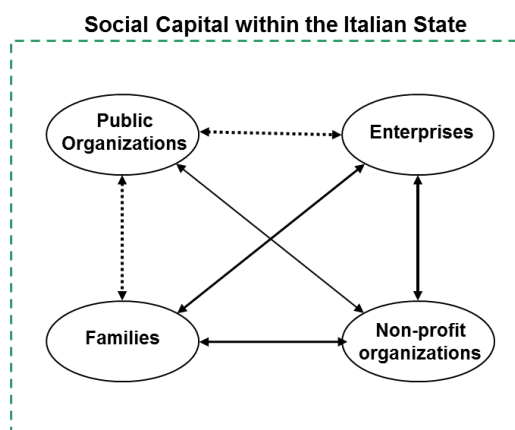


Figure 64: Representation of the network and trust among society’s institutions

Social capital contributes to improve the competitiveness and development of a territory more effectively than one might think. Lyon (2005) has represented the concept by using a simple extension of the standard production function:

$$Y_{it} = F(K_{it}, L_{it}, S_i, A_{it})$$

where Y, K, L, S , and A are, respectively, value added, capital, labor, social capital, and a productivity measure. All variables except S are subscripted by both i and t to indicate that they vary with region i and time t ; social capital alone is assumed not to change over time and varies only by region (Lyon 2005). In the study of Lyon social capital thus becomes an essential production's factor.

How can networks, trust, and reciprocity norms contribute to productivity? As showed by Figure 65, this happens by reducing transaction costs between parties (belonging to the same or different kind of institutions) who do not know each other. Furthermore, norms of reciprocity help to contain the free riding behavior (Lyon 2005) of some institutions to the detriment of others.

In synthesis, replying the same scheme of analysis traced for the development of strategic resources (see Figures 11 and 58), with some adjustments, one can undoubtedly state that social capital represents a strategic asset for the development of a territory and an indispensable factor of global competitiveness.

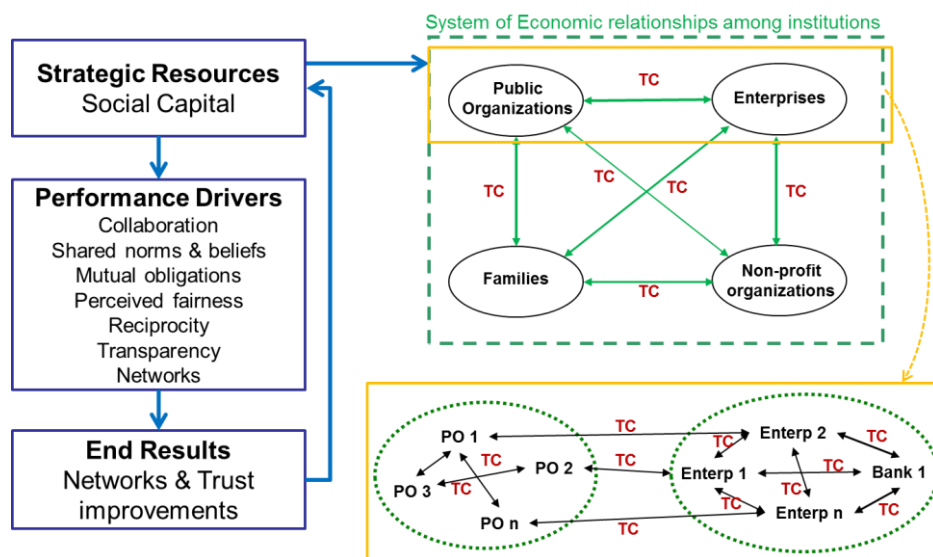


Figure 65: Social capital contribution in terms of productivity and competitiveness

As illustrated by Figure 65, this strategic asset is increased through improvements in networks and trust (end results) whose drivers are given by: a) network investments; b) collaboration between institutions; c) shared norms & beliefs; d) mutual obligations; e) perceived fairness of policies; f) reciprocity; g) transparency.

In conclusion, since a holistic development strategy reconciles all sizes of business success and creates benefits for all institutions involved in the territory, it consequently promotes collaboration, shared norms and beliefs, mutual obligations, perceived fairness, reciprocity, transparency and network among institutions of society, all drivers responsible for the development of social capital. It benefits society as a whole in terms of lower transaction costs, fewer opportunistic behavior and speed of information. Ultimately, these factors affect directly production costs and consequently the competitiveness of private and public organizations.

CONCLUSIONS & IMPLICATIONS FOR FURTHER RESEARCH

The logical and analytic framework of the present study has been set according to the main purposes (or expected effects) of evaluation process: the “policy learning” and the accountability (Dente 2006) described in Chapter 2. The first objective is certainly represented by a conscious vision of the reality, the so called “enlightenment” (Weiss 1998). In the first chapter the “enlightenment” has been pulled out through a maieutic approach bringing attention to the problem of poor global competitiveness of Italy with the support of statistical evidences. Such analysis have been combined in order to prove the unsustainability, both for the State and for the companies, of an approach in public strategizing that, while maximizing the short-term interest of State’s finances, at the same time destroys the strategic assets, which are the bases on which the State obtains the finances to carry on its institutional activities. If on the one hand the tools to understand the reality currently exist, on the other hand the analysis are often not combined for specific purposes. Thus the “enlightenment” is prevented by a lack of political willingness as well as the intellectual honesty to use such analysis to recognize the real results of the public policies implemented.

In the second chapter, the analysis has also identified the five major critical areas of Italian State’s programming cycle and provided a real case (whose policy makers seem unaware) of failure of policies adopted regardless such criticalities. Although the State’s programming cycle has been improved considerably along the last triennium, it is still affected by the following critical areas:

- a) The lack of evaluation of the policy adopted for the program accomplishment;
- b) The lack of evaluation of the complex of policies in force on specific sectors;

- c) Policy's spatial horizon still focused within national boundaries;
- d) Vision oriented to inputs and not to the development of State's strategic assets;
- e) Ways by which budget allocation's decisions are taken, although such issue is common to the majority of democracies.

In order to fill the gaps concerning both the methodology and the informative basis necessary to design public policies, the System dynamics models have been introduced to supplement the current models of performance management. As demonstrated in Chapter 3, the use of simulation models, and in particular those of system dynamics, may improve considerably the effectiveness of public policies by testing *ex ante* their results and their implementation in order to reduce the risk to fail and to harm the society. Furthermore, the State's programming cycle could benefit from an *ex ante* specification of objectives, hypotheses, relationships, means, scrutiny of results and policy's implementation issues: all the elements that a simulation model always requires. When well implemented, simulation models allow to create objective and transparent informative bases and consequently to set up the decisional processes.

The use of System dynamics models (compared to other simulation models), enables also a solution of complex and dynamic problems (i.e. problems arising from interactions of tens of variables and circular causal relationships among them) since System dynamics models take into account at the same time interactions of all variables and their causal relationships. Such models also reduce drastically the time and resources employed to plan, control and design a sustainable policy. Simulations, tests, and results of policies obtained *ex ante* enable not only a fast definition/redefinition of the strategies to pursue, but also a quick decisional process based on objective and trustful information.

In the case study provided in Chapter 3, the System dynamics model has simulated the long term performance of an enterprise operating in Italy, its localization strategy, as well as the financial performance of Italian State obtained on national enterprises stock. It enlightens how the current austerity measures, focused exclusively on consolidating public finances on the short term and not on

developing Country's strategic assets, will undermine already in the medium-term the economic development as well as the sources of receipts for the Italian State.

Model's quantitative results (referred to a stock of 223,494 Italian enterprises and assuming an average workforce of 30 units per enterprise and fiscal leverage's stability) show, in a time horizon of 10 years, a financial damage for the Italian State of about 462 billion of Euro, 29.5% of national GDP, 23.2% of public debt in 2012 (Istat 2013).

The model, by dynamically including enterprises' activity in the public strategizing, demonstrates that the wealth of private institutions cannot anymore be considered as independent variable in public strategizing. Consequently, the success of public policies passes undoubtedly by the valorization of collaboration with private firms for "co-creating" their global competitive advantage and that of the country in which they operate. To this end the present study has theorized, and tested through a System dynamics model, the effectiveness of a new paradigm for the Italian State's programming cycle. Such model is featured by the following elements:

- 1) The State focuses on strategic resources' assets for the Country's economic development and additional financial resource for State. The underlying strategic horizon is evidently long term oriented since it is related to assets and not to revenues (e.g. tax income);
- 2) Policy makers implement policies in order to achieve the development of such strategic assets (performance drivers);
- 3) Improvement and enrichment of the society are given by the "cash flows" (end results) arising from investments in strategic assets. Financial results are expended to consolidate State's financial accounts and invested once again (by reiteration of the process) in strategic resources, thus producing even more appreciable end results.

The new State's programming paradigm not only enhances the role of the State in the territory's development, but also strengthens its relationships with the territory. State is not anymore an entity that operates separated from the reality in which is involved, but becomes the sole institution that may elaborate a "holistic

development” strategy for its territory as a whole, and weight different stakeholders’ interests for the appreciable development of all of them.

The holistic development of the State occurs when strategies and objectives are respectively set and reached along the following four dimensions:

- a) the achievement of a good economic and financial result;
- b) the internal dimension that such result have in terms of growth in values, knowledge, economic growth, professionalism, work efficiency and cohesion;
- c) the external reflection over the recipients (i.e. enterprises and families), for which the State organization must be resource-generating value;
- d) the positive reflection over the socio-economic and environmental context in which public strategies take place. Such results’ dimension is mainly responsible for the social capital development in the society. Good management, services, and transparency foster in individuals their social commitments, honesty and a solid trust towards public institutions.

The “holistic development” approach excludes any maximization of one success’ dimension of organizations (such as of profits, tax income or surplus in national accounts) preferring an appreciable degree of achievement of all of them.

Thus the “holistic development” approach does not concern solely the State’s development, but its benefits influence positively the whole society since its action is addressed to create the success’ drivers of other society’s institutions. This creates a virtuous circle where State organization creates the “necessary conditions” for the development of all the institutions involved in building the global competitiveness of a country: a) public organizations; b) enterprises; c) families. At once, those institutions will provide the State organization with the drivers needed for achieving its objectives through its institutional activities. Such drivers are composed by: a) additional financial resources; b) higher educated human resources in the public organizations’ management.

The holistic development is not a fine theory permeated with values difficult to implement in public policy, but acts in a way much more effective than it could be considered. In the system dynamics model simulating performance of both enterprises and State, the holistic development approach is worth (at constant fiscal leverage and over a period of 10 years): a) +28% enterprises' profits; b) 5,222 enterprises retained from delocalization; c) -37% of unemployment caused by delocalization; d) +274.1 billion of Euro of State's tax income (17.5% of Italian GDP in 2012, Istat 2013).

A holistic development's approach in public strategizing, since it reconciles all the dimensions of business success and creates benefits for all institutions involved in the territory, fosters considerably the development of the social capital. The holistic development activates the drivers responsible for the development of such society's strategic asset, thereby leading to a reinforcement of the network and trust's links between the institutions. Both factors benefit the society as a whole in terms of lower transaction costs, fewer opportunistic behavior and speed of information. So the social capital should be considered as a production factor as well as capital, labor, and productivity (Lyon 2005). Its greater or lesser presence affects production costs and it can significantly determine the competitiveness of private and public organizations, as well as the one of the Italian State at an international level.

Ultimately, the limitations of my study are addressed as implicit recommendations for future research.

First and foremost, the study is limited to those market situation featured by absence of duties as well as restrictions on the movement of people and goods. In relation to the European common market, the study highlights a competition between States in providing the best operating conditions to businesses as well as lower taxes. If on one hand this facilitates competition between the States, on the other one this does not allow the setting of a common policy among the member States and may result into a "fratricidal economic war" that surely was not the intention of the European Union's founders.

Further researches may extend the model boundaries by including those market situations featured by the presence of constraints and duties. Therefore, such a model may be useful to support the States in designing long-term competitive strategies and in strategic decisions as the settlement of duties, incentives to national firms, etc.

Secondly, the study provides an analysis framework for evaluating the effects of “holistic development” policies on social capital growth. Subsequent researches may relate to the expansion of the System dynamics model provided in order to simulate the variation in social capital stock resulting from public policies implementation. The quantification of social capital variation has always been a considerable problem for scholars since it is essentially composed by qualitative variables. This problem could be overcome by anchoring the variation of the social capital in the society to some quantitative variables of the model, such as the firms’ relocation rate, unemployment originated from such relocation, cuts of welfare caused by lower tax income, as well as other variables to add to the specific purpose.

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APPENDIX A – List of model's equations

1. $Accounts_payable(t) = Accounts_payable(t - dt) + (incr - decr) * dt$
2. INIT $Accounts_payable = 0$
3. INFLOWS:
4. $incr = Operating_expenses + product_direct_cost$
5. OUTFLOWS:
6. $decr = DELAY(incr, TTP)$
7. $Accounts_payable_2(t) = Accounts_payable_2(t - dt) + (incr_2 - decr_2) * dt$
8. INIT $Accounts_payable_2 = 0$
9. INFLOWS:
10. $incr_2 = Operating_expenses_2 + product_direct_cost_2$
11. OUTFLOWS:
12. $decr_2 = DELAY(incr_2, TTP_2)$
13. $Accounts_receivable(t) = Accounts_receivable(t - dt) + (Revenues_to_cash - cashed_on_time - settling - anticipation) * dt$
14. INIT $Accounts_receivable = 0$
15. INFLOWS:
16. $Revenues_to_cash = invoiced_sales * to_cash_fract$
17. OUTFLOWS:
18. $cashed_on_time = Accounts_receivable * Fraction_cashed_on_time / Normal_delay$
19. $settling = Accounts_receivable * fract_disputes / waiting_time$
20. $anticipation = Accounts_receivable * Fraction_ant / admin_delay$
21. $Accounts_receivable_2(t) = Accounts_receivable_2(t - dt) + (Revenues_to_cash_2 - cashed_on_time_2 - settling_2 - anticipation_2) * dt$
22. INIT $Accounts_receivable_2 = 0$
23. INFLOWS:
24. $Revenues_to_cash_2 = invoiced_sales_2 * to_cash_fract_2$
25. OUTFLOWS:
26. $cashed_on_time_2 = Accounts_receivable_2 * Fraction_cashed_on_time_2 / Normal_delay_2$
27. $settling_2 = Accounts_receivable_2 * fraction_disputes_2 / waiting_time_2$
28. $anticipation_2 = Accounts_receivable_2 * Fraction_ant_2 / admin_delay_2$
29. $accum_for_equip(t) = accum_for_equip(t - dt) + (for_Equip - replacement) * dt$
30. INIT $accum_for_equip = 0$
31. INFLOWS:
32. $for_Equip = gap$
33. OUTFLOWS:
34. $replacement = accum_for_equip / TTR$
35. $Accum_loss(t) = Accum_loss(t - dt) + (yearly_loss) * dt$
36. INIT $Accum_loss = 0$
37. INFLOWS:
38. $yearly_loss = Enterprises' moved_to_UE * tax_payment + de localization * av_WFOU_per_enterprise * equal_grants$
39. $acc_for_equip_2(t) = acc_for_equip_2(t - dt) + (for_Equip_2 - replacement_2) * dt$
40. INIT $acc_for_equip_2 = 0$
41. INFLOWS:
42. $for_Equip_2 = gap_2$
43. OUTFLOWS:
44. $replacement_2 = acc_for_equip_2 / TTR_2$
45. $acc_for_P\&P(t) = acc_for_P\&P(t - dt) + (for_P\&P - P\&P_invest) * dt$
46. INIT $acc_for_P\&P = 0$
47. INFLOWS:
48. $for_P\&P = (Amount_to_invest_for_Equip) * equip_inv_fraction$
49. OUTFLOWS:
50. $P\&P_invest = IF (acc_for_P\&P > 50000) THEN (acc_for_P\&P / (authorization_time + building_time)) ELSE 0$
51. $acc_for_P\&P_2(t) = acc_for_P\&P_2(t - dt) + (for_P\&P_2 - P\&P_invest_2) * dt$
52. INIT $acc_for_P\&P_2 = 0$
53. INFLOWS:
54. $for_P\&P_2 = (Amount_to_invest_2 - for_Equip_2) * equip_inv_fraction_2$
55. OUTFLOWS:
56. $P\&P_invest_2 = IF (acc_for_P\&P_2 > 50000) THEN (acc_for_P\&P_2 / (authorization_time_2 + building_time_2)) ELSE 0$
57. $acc_for_R\&D(t) = acc_for_R\&D(t - dt) + (for_R\&D - inv_R\&D) * dt$
58. INIT $acc_for_R\&D = 150000$
59. INFLOWS:
60. $for_R\&D = (Amount_to_invest_for_Equip) * invR\&D_fract$
61. OUTFLOWS:
62. $inv_R\&D = acc_for_R\&D / research_time$
63. $acc_for_R\&D_2(t) = acc_for_R\&D_2(t - dt) + (for_R\&D_2 - inv_R\&D_2) * dt$
64. INIT $acc_for_R\&D_2 = 150000$
65. INFLOWS:
66. $for_R\&D_2 = (Amount_to_invest_2 - for_Equip_2) * invR\&Dfract_2$
67. OUTFLOWS:
68. $inv_R\&D_2 = acc_for_R\&D_2 / research_time_2$

69. $\text{Amount_to_invest}(t) = \text{Amount_to_invest}(t - dt) + (\text{investments} - \text{for_R\&D} - \text{for_P\&P} - \text{for_Equip}) * dt$

70. INIT $\text{Amount_to_invest} = 0$

71. INFLOWS:

72. $\text{investments} = \text{DELAY}(\text{IF}(\text{decisional_time}=0) \text{ THEN } (\text{Earnings} * \text{inv_fraction}) \text{ ELSE } 0, 16)$

73. OUTFLOWS:

74. $\text{for_R\&D} = (\text{Amount_to_invest} - \text{for_Equip}) * \text{invR\&D_frac}$

75. $\text{for_P\&P} = (\text{Amount_to_invest} - \text{for_Equip}) * \text{equip_inv_fraction}$

76. $\text{for_Equip} = \text{gap}$

77. $\text{Amount_to_invest_2}(t) = \text{Amount_to_invest_2}(t - dt) + (\text{investments_2} - \text{for_R\&D_2} - \text{for_P\&P_2} - \text{for_Equip_2}) * dt$

78. INIT $\text{Amount_to_invest_2} = 0$

79. INFLOWS:

80. $\text{investments_2} = \text{DELAY}(\text{IF}(\text{decisional_time_2}=0) \text{ THEN } (\text{Earnings_2} * \text{inv_fraction_2}) \text{ ELSE } 0, 16)$

81. OUTFLOWS:

82. $\text{for_R\&D_2} = (\text{Amount_to_invest_2} - \text{for_Equip_2}) * \text{invR\&Dfrac_2}$

83. $\text{for_P\&P_2} = (\text{Amount_to_invest_2} - \text{for_Equip_2}) * \text{equip_inv_fraction_2}$

84. $\text{for_Equip_2} = \text{gap_2}$

85. $\text{Bank_loans}(t) = \text{Bank_loans}(t - dt) + (\text{new_bank_loans} - \text{redemption}) * dt$

86. INIT $\text{Bank_loans} = 5000000$

87. INFLOWS:

88. $\text{new_bank_loans} = \text{DELaY}(\text{MAX}(\text{Desired_cash} - \text{Cash}, 0), \text{adj_time}, \text{adj_time})$

89. OUTFLOWS:

90. $\text{redemption} = \text{Bank_loans} / \text{redemption_time}$

91. $\text{Bank_loans_2}(t) = \text{Bank_loans_2}(t - dt) + (\text{new_bank_loans_2} - \text{redemption_2}) * dt$

92. INIT $\text{Bank_loans_2} = 5000000$

93. INFLOWS:

94. $\text{new_bank_loans_2} = \text{DELaY}(\text{MAX}(\text{Desired_cash_2} - \text{Cash_2}, 0), \text{adj_time_2}, \text{adj_time_2})$

95. OUTFLOWS:

96. $\text{redemption_2} = \text{Bank_loans_2} / \text{redemption_time_2}$

97. $\text{Cash}(t) = \text{Cash}(t - dt) + (\text{settled} + \text{immediate_cash} + \text{cash_anticip} + \text{cash_invest} + \text{cached_on_time} - \text{cash_payments}) * dt$

98. INIT $\text{Cash} = 200000$

99. INFLOWS:

100. $\text{settled} = \text{disputes} / \text{av_time}$

101. $\text{immediate_cash} = \text{invoiced_sales} * \text{immediate_cash_frac}$

102. $\text{cash_anticip} = \text{anticipation} + \text{new_bank_loans}$

103. $\text{cash_invest} = \text{DELAY}(\text{IF}(\text{decisional_time}=0) \text{ THEN } (\text{Earnings} * \text{cash_frac}) \text{ ELSE } 0, 16)$

104. $\text{cached_on_time} = \text{Accounts_receivable} * \text{Fraction_cached_on_time} / \text{Normal_delay}$

105. OUTFLOWS:

106. $\text{cash_payments} = \text{decr} + \text{tax_payment} + \text{redempted} + \text{redemption} + \text{Interest_expenses} + \text{Personnel_cost}$

107. $\text{Cash_2}(t) = \text{Cash_2}(t - dt) + (\text{settled_2} + \text{immediate_cash_2} + \text{cash_anticip_2} + \text{cash_invest_2} + \text{cached_on_time_2} - \text{cash_payments_2}) * dt$

108. INIT $\text{Cash_2} = 200000$

109. INFLOWS:

110. $\text{settled_2} = \text{disputes_2} / \text{av_time_2}$

111. $\text{immediate_cash_2} = \text{invoiced_sales_2} * \text{immediate_cash_frac_2}$

112. $\text{cash_anticip_2} = \text{anticipation_2} + \text{new_bank_loans_2}$

113. $\text{cash_invest_2} = \text{DELAY}(\text{IF}(\text{decisional_time_2}=0) \text{ THEN } (\text{Earnings_2} * \text{cash_frac_2}) \text{ ELSE } 0, 16)$

114. $\text{cached_on_time_2} = \text{Accounts_receivable_2} * \text{Fraction_cached_on_time_2} / \text{Normal_delay_2}$

115. OUTFLOWS:

116. $\text{cash_payments_2} = \text{decr_2} + \text{tax_payment_2} + \text{redempted_2} + \text{redemption_2} + \text{Interest_expenses_2} + \text{Personnel_cost_2}$

117. $\text{disputes}(t) = \text{disputes}(t - dt) + (\text{settling} - \text{settled}) * dt$

118. INIT $\text{disputes} = 0$

119. INFLOWS:

120. $\text{settling} = \text{Accounts_receivable} * \text{frac_disputes} / \text{waiting_time}$

121. OUTFLOWS:

122. $\text{settled} = \text{disputes} / \text{av_time}$

123. $\text{disputes_2}(t) = \text{disputes_2}(t - dt) + (\text{settling_2} - \text{settled_2}) * dt$

124. INIT $\text{disputes_2} = 0$

125. INFLOWS:

126. $\text{settling_2} = \text{Accounts_receivable_2} * \text{fraction_disputes_2} / \text{waiting_time_2}$

127. OUTFLOWS:

128. $\text{settled_2} = \text{disputes_2} / \text{av_time_2}$

129. $\text{Earnings}(t) = \text{Earnings}(t - dt) + (\text{Net_Profit} - \text{investments} - \text{dividends} - \text{cash_invest}) * dt$

130. INIT $\text{Earnings} = 0$

131. INFLOWS:

132. $\text{Net_Profit} = (\text{invoiced_sales} - \text{Interest_expenses} - \text{Taxation} - \text{Operating_expenses} - \text{Personnel_cost} - \text{product_direct_cost})$

133. OUTFLOWS:

134. $\text{investments} = \text{DELAY}(\text{IF}(\text{decisional_time}=0) \text{ THEN } (\text{Earnings} * \text{inv_fraction}) \text{ ELSE } 0, 16)$

135. $\text{dividends} = \text{DELAY}(\text{IF}(\text{decisional_time}=0) \text{ THEN } (\text{Earnings} * \text{remun_fraction}) \text{ ELSE } 0, 16)$

136. $\text{cash_invest} = \text{DELAY}(\text{IF}(\text{decisional_time}=0) \text{ THEN } (\text{Earnings} * \text{cash_frac}) \text{ ELSE } 0, 16)$

137. $\text{Earnings_2}(t) = \text{Earnings_2}(t - dt) + (\text{Net_Profit_2} - \text{investments_2} - \text{dividends_2} - \text{cash_invest_2}) * dt$

138. INIT Earnings_2 = 0
139. INFLOWS:
140. Net_Profit_2 = (invoiced_sales_2-
Interest_expenses_2-Taxation_2-
Operating_expenses_2-Personnel_cost_2-
product_direct_cost_2)
141. OUTFLOWS:
142. investments_2 =
DELAY(IF(decisional_time_2=0) THEN
(Earnings_2*inv_fraction_2) ELSE 0,16)
143. dividends_2 =
DELAY(IF(decisional_time_2=0) THEN
(Earnings_2*remun_fraction_2) ELSE 0,16)
144. cash_invest_2 =
DELAY(IF(decisional_time_2=0) THEN
(Earnings_2*cash_fract_2) ELSE 0,16)
145. Enterprises'_moved_to_UE(t) =
Enterprises'_moved_to_UE(t - dt) +
(delocalization + FDI_2) * dt
146. INIT Enterprises'_moved_to_UE = 0
147. INFLOWS:
148. delocalization = IF (PS1_PS2<0.86) THEN
(enterprises'_stock_Italy*losing_rate) ELSE
0
149. FDI_2 = IF (PS1_PS2<1) THEN
(enterprises'_stock_Italy*attraction_rate_2)
ELSE 0
150. enterprises'_stock_Italy(t) =
enterprises'_stock_Italy(t - dt) + (FDI -
delocalization) * dt
151. INIT enterprises'_stock_Italy = 223494
152. INFLOWS:
153. FDI = IF (PS1_PS2>1) THEN
(enterprises'_stock_Italy*attract_rate) ELSE
0
154. OUTFLOWS:
155. delocalization = IF (PS1_PS2<0.86) THEN
(enterprises'_stock_Italy*losing_rate) ELSE
0
156. equipments(t) = equipments(t - dt) +
(replacement - depreciation) * dt
157. INIT equipments = 3000000
158. INFLOWS:
159. replacement = accum_for_equip/TTR
160. OUTFLOWS:
161. depreciation = equipments*fract_decay
162. equipment_2(t) = equipment_2(t - dt) +
(replacement_2 - depreciation_2) * dt
163. INIT equipment_2 = 3000000
164. INFLOWS:
165. replacement_2 = acc_for_equip_2/TTR_2
166. OUTFLOWS:
167. depreciation_2 = equipment_2*fract_decay_2
168. financed_by_bank_2(t) =
financed_by_bank_2(t - dt) + (anticipation_2
- redeemed_2) * dt
169. INIT financed_by_bank_2 = 0
170. INFLOWS:
171. anticipation_2 =
Accounts_receivable_2*Fraction_ant_2/ad
min_delay_2
172. OUTFLOWS:
173. redeemed_2 =
DELAY(financed_by_bank_2,redempt_time
_2)
174. financed_by_bank(t) = financed_by_bank(t
- dt) + (anticipation - redeemed) * dt
175. INIT financed_by_bank = 0
176. INFLOWS:
177. anticipation =
Accounts_receivable*Fraction_ant/admin_d
elay
178. OUTFLOWS:
179. redeemed =
DELAY(financed_by_bank,redempt_time)
180. Foreign_country_FP_income(t) =
Foreign_country_FP_income(t - dt) +
(Net_FP_tax_income_2) * dt
181. INIT Foreign_country_FP_income = 0
182. INFLOWS:
183. Net_FP_tax_income_2 =
tax_payment_2*Stock_SE+yearly_loss
184. Intangible_assets(t) = Intangible_assets(t - dt)
+ (inv_R&D - Obsolescence) * dt
185. INIT Intangible_assets = 500000
186. INFLOWS:
187. inv_R&D = acc_for_R&D/research_time
188. OUTFLOWS:
189. Obsolescence = Intangible_assets/Obs_time
190. Intangible_assets_2(t) = Intangible_assets_2(t
- dt) + (inv_R&D_2 - Obsolescence_2) * dt
191. INIT Intangible_assets_2 = 500000
192. INFLOWS:
193. inv_R&D_2 =
acc_for_R&D_2/research_time_2
194. OUTFLOWS:
195. Obsolescence_2 =
Intangible_assets_2/Obs_time_2
196. inventory(t) = inventory(t - dt) +
(production_rate - shipment_rate) * dt
197. INIT inventory = 100000
198. INFLOWS:
199. production_rate =
DELAY((desired_product_inv-
inventory),prod_time_2,prod_time_2)
200. OUTFLOWS:
201. shipment_rate =
DELAY(mkt_demand,delay_in_perceiving_
&shipment,delay_in_perceiving_
&shipment)
202. inventory_2(t) = inventory_2(t - dt) +
(production_rate_2 - shipment_rate_2) * dt
203. INIT inventory_2 = 100000
204. INFLOWS:
205. production_rate_2 =
DELAY((desired_product_inv_2-
inventory_2),prod_time_3,prod_time_3)
206. OUTFLOWS:
207. shipment_rate_2 =
DELAY(mkt_demand_2,delay_in_perceiving_
&shipment_2,delay_in_perceiving_
&shipment_2)
208. Italy_FP_income(t) = Italy_FP_income(t - dt)
+ (Net_FP_tax_income_1) * dt
209. INIT Italy_FP_income = 0
210. INFLOWS:

211. Net_FP_tax_income_1 =
tax_payment*Stock_SE-yearly_loss

212. Pre_tax_earnings_2(t) =
Pre_tax_earnings_2(t - dt) +
(invoiced_sales_2 - Interest__expenses_2 -
Taxation_2 - product_direct_cost_2 -
Operating__expenses_2 - Personnel_cost_2 -
Net_Profit_2) * dt

213. INIT Pre_tax_earnings_2 = 0

214. INFLOWS:

215. invoiced_sales_2 =
shipment__rate_2*MIN(price_per_unit_2,7.5
)

216. OUTFLOWS:

217. Interest__expenses_2 =
Bank_loans_2*LT_debt_cost_2+financed_by
__bank_2*ST_debt_cost_2

218. Taxation_2 = (invoiced_sales_2-
Interest__expenses_2-
Operating__expenses_2-Personnel_cost_2-
product_direct_cost_2)*IRES_rate_2+propert
y__&__plants_2*IMU_2/52

219. product_direct_cost_2 =
RM__usage_rate_2*RM_unit_cost_2+ship_i
n_cost_2+ship_out_cost_2

220. Operating__expenses_2 =
admin_expenses_2+electricity_2+tax_&_bur
eacracy_compliance_2

221. Personnel_cost_2 =
work_force_2*(WFU_cost_2+WFU_SS_2)

222. Net_Profit_2 = (invoiced_sales_2-
Interest__expenses_2-Taxation_2-
Operating__expenses_2-Personnel_cost_2-
product_direct_cost_2)

223. Pre_tax_earnings(t) = Pre_tax_earnings(t -
dt) + (invoiced_sales - Interest__expenses -
Taxation - product_direct_cost -
Operating__expenses - Personnel_cost -
Net_Profit) * dt

224. INIT Pre_tax__earnings = 0

225. INFLOWS:

226. invoiced_sales =
shipment__rate*MIN(price_per_unit,7.5)

227. OUTFLOWS:

228. Interest__expenses =
Bank_loans*LT_debt_cost+financed__by_ba
nk*ST_debt_cost

229. Taxation = (invoiced_sales-
Interest__expenses-Operating__expenses-
Personnel_cost-
product_direct_cost)*IRES_rate+(invoiced_
sales-Operating__expenses-
product_direct_cost-
0.50*Interest__expenses)*IRAP_rate+(propert
y__&__plants*IMU/52)

230. product_direct_cost =
RM__usage_rate*RM_unit_cost+ship_in_co
st+ship_out_cost

231. Operating__expenses =
admin__expenses+electricity+tax_&_bureacr
acy_compliance

232. Personnel_cost =
work_force*(WFU_cost+WFU_SS)

233. Net_Profit = (invoiced_sales-
Interest__expenses-Taxation-
Operating__expenses-Personnel_cost-
product_direct_cost)

234. profits_stock_1(t) = profits_stock_1(t - dt) +
(Net_profit_acc_1) * dt

235. INIT profits_stock_1 = 1

236. INFLOWS:

237. Net_profit_acc_1 = Net_Profit

238. profits_stock_2(t) = profits_stock_2(t - dt) +
(Net_profits_acc_2) * dt

239. INIT profits_stock_2 = 1

240. INFLOWS:

241. Net_profits_acc_2 = Net_Profit_2

242. property__&__plants_2(t) =
property__&__plants_2(t - dt) +
(P&P_invest_2) * dt

243. INIT property__&__plants_2 = 3000000

244. INFLOWS:

245. P&P_invest_2 = IF (acc_for_P&P_2>50000)
THEN
(acc_for_P&P_2/(authorization_time_2+buil
ding_time_2)) ELSE 0

246. property__&__plants(t) =
property__&__plants(t - dt) + (P&P_invest) *
dt

247. INIT property__&__plants = 3000000

248. INFLOWS:

249. P&P_invest = IF (acc_for_P&P>50000)
THEN
(acc_for_P&P/(authorization_time+building
time)) ELSE 0

250. RM_inventory(t) = RM_inventory(t - dt) +
(RM__order_rate - RM__usage_rate) * dt

251. INIT RM_inventory = 150000

252. INFLOWS:

253. RM__order_rate = DELAY((des_inventory-
RM_inventory),receiv_time,receiv_time)

254. OUTFLOWS:

255. RM__usage_rate =
production_rate*RM_per_unit

256. RM_inventory_2(t) = RM_inventory_2(t - dt)
+ (RM__order_rate_2 - RM__usage_rate_2)
* dt

257. INIT RM_inventory_2 = 150000

258. INFLOWS:

259. RM__order_rate_2 =
DELAY((desir_inventory_2-
RM_inventory_2),receiv_time_2,receiv_time
_2)

260. OUTFLOWS:

261. RM__usage_rate_2 =
production_rate_2*RM_per_unit_2

262. State_1_receipts_from_SE(t) =
State_1_receipts_from_SE(t - dt) + (tax_1) *
dt

263. INIT State_1_receipts_from_SE = 0

264. INFLOWS:

265. tax_1 = tax_payment*Stock_SE

266. State_2_receipts_from_SE(t) =
State_2_receipts_from_SE(t - dt) + (tax_2) *
dt

267. INIT State_2_receipts_from_SE = 0

268. INFLOWS:

269. tax_2 = tax_payment_2*Stock_SE
270. Stock_SE(t) = Stock_SE(t - dt)
271. INIT Stock_SE = 223494
272. Tax_liabilities(t) = Tax_liabilities(t - dt) +
(Increase - tax_payment) * dt
273. INIT Tax_liabilities = 0
274. INFLOWS:
275. Increase = Taxation
276. OUTFLOWS:
277. tax_payment = DELAY(IF(TTPT=0) THEN
Tax_liabilities ELSE 0,26)
278. Tax_liabilities_2(t) = Tax_liabilities_2(t - dt)
+ (Increase_2 - tax_payment_2) * dt
279. INIT Tax_liabilities_2 = 0
280. INFLOWS:
281. Increase_2 = Taxation_2
282. OUTFLOWS:
283. tax_payment_2 = DELAY(IF(TTPT_2=0)
THEN Tax_liabilities_2 ELSE 0,26)
284. adj_time = 4
285. adj_time_2 = 4
286. admin_delay = 8+2
287. admin_delay_2 = 8
288. admin_expenses_2 = 350000/52
289. admin__expenses = 350000/52
290. attraction__rate_2 = 0.002/52
291. attract_rate = 0.003/52
292. authorization_time = 156
293. authorization_time_2 = 11.5
294. av_time = 173
295. av_time_2 = 39
296. av_WFU_per_enterprise = 30
297. building_time = 26
298. building_time_2 = 26
299. cash_fract = 0.1
300. cash_fract_2 = 0.1
301. contain_capacity = 4200
302. contain_capacity_2 = 4200
303. cost_per_km = driver_cost+fuel_cost+toll
304. cost_per_km_2 =
driver_cost_2+fuel_cost_2+toll_2
305. decisional_time = MOD(TIME,52)
306. decisional__time_2 = MOD(TIME,52)
307. delay_in_perceiving_&shipment = 2
308. delay_in_perceiving_&shipment_2 = 2
309. Desired_cash = 100000
310. Desired_cash_2 = 100000
311. desired_product_inv = 100000
312. desired_product_inv_2 = 100000
313. desired__equipment_2 = 3000000
314. desir_inventory_2 = 150000
315. des equip = 3000000
316. des_inventory = 150000
317. driver_cost = 0.20
318. driver_cost_2 = 0.20
319. efficiency_increase_2 =
MAX(property_&__plants_2/initial_efficienci
y_2*0.99,1)
320. efficiency__increase =
MAX(property__&__plants/init_efficiency*0.
99,1)
321. electricity =
electr_cons/efficiency__increase*price_per_
MWh
322. electricity_2 =
electr_cons_2/efficiency_increase_2*price_p
er_MWh_2
323. electr_cons = 2000/52
324. electr_cons_2 = 2000/52
325. equal_grants = 1000*6+900*2
326. equip_inv_fraction = 0.15
327. equip_inv_fraction_2 = 0.15
328. Fraction_ant = 0.45
329. Fraction_ant_2 = 0.25
330. Fraction_cashed_on_time = 0.4
331. Fraction_cashed_on_time_2 = 0.6
332. fraction_disputes_2 = 0.15
333. fract_decay = 0.1/52
334. fract_decay_2 = 0.1/52
335. fract_disputes = 0.15
336. fuel_cost = 0.293
337. fuel_cost_2 = +1.50/6
338. gap = des equip-equipments
339. gap_2 = desired__equipment_2-equipment_2
340. immediate_cash_fract = 0.3
341. immediate_cash_fract_2 = 0.3
342. IMU = 0.01
343. IMU_2 = 0.005
344. infrastructure's__quality&presence = 0.9
345. infrastructure's__quality&presence_2 = 1
346. initial_efficiency_2 = 3000000
347. initial_quality = 500000
348. initial_quality_2 = 500000
349. init_efficiency = 3000000
350. invR&Dfract_2 = 0.85
351. invR&D_fract = 0.85
352. inv_fraction = 0.5
353. inv_fraction_2 = 0.5
354. IRAP_rate = 0.039
355. IRES_rate = 0.275
356. IRES_rate_2 = 0.25
357. km_TD =
(987+241)/2/infrastructure's__quality&prese
nce
358. km_TD_2 =
(987+241)/2/infrastructure's__quality&prese
nce_2
359. km_TR =
241/infrastructure's__quality&presence
360. km_TR_2 =
241/infrastructure's__quality&presence_2
361. losing_rate = 0.0045/52
362. LT_debt_cost = 6.24/100/52
363. LT_debt_cost_2 = 3.49/100/52
364. mkt_demand = 2000000/52
365. mkt_demand_2 = 2000000/52
366. Normal_delay = 8
367. Normal_delay_2 = 8
368. Obs_time = 3.5*52
369. Obs_time_2 = 3.5*52
370. price_per_MWh = 192
371. price_per_MWh_2 = 125
372. price_per_unit =
MAX(4*quality_increase*0.85,4*1)
373. price_per_unit_2 =
MAX(4*quality_increase_2*0.85,4*1)

374. $\text{products_per_work_unit} = \text{MAX}(60000/52*\text{efficiency_increase}, 60000/52*1)$
375. $\text{products_per_work_unit_2} = \text{MAX}(60000/52*\text{efficiency_increase_2}, 60000/52*1)$
376. $\text{prod_time_2} = 1$
377. $\text{prod_time_3} = 1$
378. $\text{PS1_PS2} = \text{profits_stock_1}/\text{profits_stock_2}$
379. $\text{quality_increase} = \text{MAX}(\text{Intangible_assets}/\text{initial_quality}*0.70, 1)$
380. $\text{quality_increase_2} = \text{MAX}(\text{Intangible_assets_2}/\text{initial_quality_2}*0.7, 1)$
381. $\text{receiv_time} = 3$
382. $\text{receiv_time_2} = 3$
383. $\text{redemption_time} = 104$
384. $\text{redemption_time_2} = 104$
385. $\text{redempt_time} = 26$
386. $\text{redempt_time_2} = 26$
387. $\text{remun_fraction} = 0.4$
388. $\text{remun_fraction_2} = 0.4$
389. $\text{research_time} = 52$
390. $\text{research_time_2} = 52$
391. $\text{RM_per_unit} = 1$
392. $\text{RM_per_unit_2} = 1$
393. $\text{RM_unit_cost} = 3.3$
394. $\text{RM_unit_cost_2} = 3.3$
395. $\text{ship_in_cost} = (\text{RM_order_rate}/\text{contain_capacity})*(\text{cost_per_km}*km_TR)$
396. $\text{ship_in_cost_2} = (\text{RM_order_rate_2}/\text{contain_capacity_2})*(\text{cost_per_km_2}*km_TR_2)$
397. $\text{ship_out_cost} = (\text{shipment_rate}/\text{contain_capacity})*(\text{cost_per_km}*km_TD)$
398. $\text{ship_out_cost_2} = (\text{shipment_rate_2}/\text{contain_capacity_2})*(\text{cost_per_km_2}*km_TD_2)$
399. $\text{ST_debt_cost} = 4.86/100/52$
400. $\text{ST_debt_cost_2} = 2.56/100/52$
401. $\text{tax_}\&\text{_bureacracy_compliance} = \text{weekly_cost}*weeks$
402. $\text{tax_}\&\text{_bureacracy_compliance_2} = \text{weekly_cost_2}*weeks_2$
403. $\text{toll} = 0.136$
404. $\text{toll_2} = 0$
405. $\text{to_cash_fract} = 0.7$
406. $\text{to_cash_fract_2} = 0.7$
407. $\text{TTP} = 9$
408. $\text{TTPT} = \text{MOD}(\text{TIME}, 52)$
409. $\text{TTPT_2} = \text{MOD}(\text{TIME}, 52)$
410. $\text{TTP_2} = 9$
411. $\text{TTR} = 12$
412. $\text{TTR_2} = 12$
413. $\text{waiting_time} = 12$
414. $\text{waiting_time_2} = 12$
415. $\text{weekly_cost} = 1500$
416. $\text{weekly_cost_2} = 1500$
417. $\text{weeks} = 17/52$
418. $\text{weeks_2} = 10/52$
419. $\text{WfU_cost} = 1800/4$
420. $\text{WfU_cost_2} = 2100/4$
421. $\text{WfU_SS} = 705/4$
422. $\text{WfU_SS_2} = 462/4$
423. $\text{work_force} = \text{mkt_demand}/\text{products_per_work_unit}$
424. $\text{work_force_2} = \text{mkt_demand_2}/\text{products_per_work_unit_2}$

APPENDIX B - The model

