Crises and Cycles in Economic Dictionaries and Encyclopaedias

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22 Wesley Mitchell, Arthur Burns and Trygve Haavelmo on business cycles

The two *Encyclopaedia of the social sciences* (1930–1935 and 1968)

Pier Francesco Asso and Luca Fiorito

> *Encyclopaedia of the social sciences*, edited by E. R. A. Seligman and Alvin Johnson, Macmillan, 1930–1935, 15 vols.
>
> *International encyclopaedia of the social sciences*, edited by David Sills (London and New York: Macmillan Free Press), 1968, 17 vols, over 9,000 pp.

22.1 THE *ENCYCLOPAEDIA OF THE SOCIAL SCIENCES*, 1930–1935

The publication of a 15-volume, comprehensive and monumental *Encyclopaedia of the social sciences* (*ESS*) between 1930 and 1935 was a major editorial enterprise which marked the rise and strengthening of American leadership in the social sciences (Gemelli, 1999; Lentini, 1999; Asso and Fiorito, 2002).

There were several reasons why, a few years after the end of the First World War, the seven leading American professional associations (the American Economic Association, the American Historical Association, the American Political Science Association, the American Sociological Association, the American Statistical Association, the American Anthropological Association and the American Psychological Association) decided to launch a project for a new *Encyclopaedia of the social sciences*.

First, scientific interest in the growth and possible interactions among the social sciences had increased substantially, in terms of research projects, opportunities for higher education, as well as general implications for the labour market. After the war, newly founded universities, research institutes and public or private foundations had placed a firm commitment for the sponsoring of scientific activities or curricula in the social sciences. Just to name the most important ones, the New

School for Social Research (1919), the National Bureau for Economic Research (1920), the Institute of Economics (later incorporated into the Brookings Institution) (1922) and the Social Sciences Research Council (1924) had boosted postgraduate research projects in the fields of the social sciences and strengthened the case for major reference works.

Second, public policy and awareness increased the general demand for the social sciences. In fact, appeal for a more systematic approach to the leading social sciences grew significantly also as a consequence of their successful association with wartime activities when governmental organizations made increasing use of social scientists for their advice and implementation. In the post-war environment, it was widely felt that the rational control of economic and social problems needed neutral techniques of intervention, reliance on a wide range of statistical sources and a usable form of objective knowledge. All these rendered indispensable a thorough systematization of the social sciences in the expectation that important applications and cross-fertilization should follow. A major reference work was also useful for a growing breed of non-academic scholars who began to populate governmental departments or corporate offices, showing an increasing desire for more widespread and systematic knowledge in the social sciences. Many recognized the importance of strengthening the connections between empirical research and social reform.

Third, a temporary systematization of all social sciences was also meant to support America's struggle to detach itself from British intellectual hegemony and fight just another campaign for a stronger national identity. *ESS* promoters felt that America's culture needed a new symbol of academic emancipation and ascendancy that would serve to unshackle US professional elites from European traditions. Inspired by the values of democratic pragmatism, an *Encyclopaedia of the social sciences* would increase the final utility of knowledge and promote a real interdisciplinary approach with the inclusion of human sciences, such as history or art. In particular, the challenge to established European orthodoxy in economics inevitably required stronger forms of contamination within and between the specialized disciplines. Beneficial influence from pragmatist philosophy, behaviourist psychology or the new anthropological school of Franz Boas had often been claimed by the leading American economists since the turn of the century and a comprehensive *Encyclopaedia* could provide much help in this direction.

This design soon received widespread support, both intellectual and financial. A committee of the seven professional associations was organized at the New School for Social Research and, in 1924, selected Columbia economist Edwin R. A. Seligman as the general editor in chief of the *Encyclopaedia*. Another economist, a former student of John Bates Clark and the New School Director, Alvin Johnson, was appointed as Seligman's assistant editor. The two economists – 'Mr Outside' and 'Mr Inside' – took responsibilities for all matters and successfully managed the whole organization. Record financial contributions were raised by Seligman in a very short time and offered by private foundations (Rockefeller Foundation, Carnegie, and the Russell Sage Foundation), by merchant banks and credit institutions (J. P. Morgan, Warburg) but also came from individual philanthropists.

The 1929 economic crash caused merely a temporary slowdown in the schedule of publication, which was tightly respected by Macmillan.

Seligman and Johnson carefully designed and supervised the main features of the *Encyclopaedia of the social sciences*. First, *ESS* had to preserve a deeply universal vocation, both in the selection of the entries and in the association of authors. Thematically, the *Encyclopaedia* had a strong international bent, and a lot of space was devoted to issues related to processes of integration, inclusion and cross-contamination. Moreover, most entries followed a comparative approach and analysed the influence of national contexts on different social phenomena, making considerable use of history and historical sources. Finally, in terms of authors, the *Encyclopaedia* involved a vast number of non-American authors, with, at the forefront, the leading figures of European emigration; in particular, the German economists (Emil Lederer, Gerhard Colm, Hans Neisser, Moritz Bonn and many others) had a prominent part in this accomplishment and were responsible for relevant entries in economic theory and policy.

Second, *ESS* followed a distinctive pluralistic approach, giving emphasis to different schools of thought and promoting the search for a constructive dialogue among the social sciences, stressing comparisons and the need for creating networks among social scientists and policy makers. Pluralism also meant that innovative categories or social phenomena that had only recently risen to the attention of social scientists were given pride of place. In this light, long entries were devoted to ABSENTEE OWNERSHIP, OVERHEAD COSTS, INSTITUTION and ECONOMIC INCENTIVES.

Third, according to Seligman and Johnson, most entries had to maintain a descriptive nature and were meant to fully cover the historical background of social phenomena rather than their definite theoretical systematization. As a matter of fact, most comprehensive essays abstained from providing a thorough theoretical survey of different phenomena, instead favouring a more policy-oriented approach, with particular reference to their social implications and impact.

Fourth, *ESS* gave prominent space to biographical essays, which included not only the leading figures in the different social sciences, but also minor or relatively unknown characters. In fact, *ESS* published more than 5,000 biographical essays grouped around countries and thematically. Again, also from this standpoint, it seems clear that one of the purposes was to limit the prominence of British culture: if one looks at economics, for example, the number of biographies devoted to British economists was exactly equal to that of German economists (87) and just slightly greater than that of French (68) or even Italian (50) economists.

If in the 1920s, as Joseph Dorfman put it, social sciences had become ‘a veritable slogan’ within the American university system, Seligman’s *Encyclopaedia* soon became the standard reference source in the different fields of the social sciences at all levels (Dorfman, 1947–1959, IV, p. 194). The list of contributors represented the widest possible variations in outlook and comprised the world’s leading minds in the social sciences.

22.2 WESLEY C. MITCHELL ON BUSINESS CYCLES

Wesley Clair Mitchell is the author of the entry on BUSINESS CYCLES for the *ESS*. He had close personal connections with the two editors of the *Encyclopaedia*. He had been a personal friend and colleague of Seligman at Columbia University since 1912, while in 1918, together with Johnson, he took an active part in the foundation of the New School for Social Research, where he taught for two years before returning to Columbia until the end of his career. In 1927, when Seligman first set out the *ESS* project, Mitchell was among the most influential and representative economists in the US. His seminal 1913 volume *Business cycles* had helped him to gain renown in the profession as a specialist in economic fluctuations, but the range of Mitchell's original contributions included monetary history and theory, the construction of statistical indicators, economic psychology, methodology and the history of economic thought. In 1924 Mitchell had served as president of the American Economic Association, and in his famous (and controversial) address on the 'Quantitative analysis in economic theory' he had claimed that empirical investigations should not be viewed as subordinate to theoretical work, nor even as complementary. Instead, he argued,

> [i]n collecting and analyzing such experimental data as they can obtain, the quantitative workers will find their finest, but most exacting opportunities for developing statistical techniques—opportunities even finer than are offered by the recurrent phenomena of business cycles. It is conceivable that the tentative experimenting of the present may develop into the most absorbing activity of economists in the future.
>
> (Mitchell, 1925, p. 9)

Mitchell's own philosophy and research activities since the early 1920s were closely associated with the National Bureau of Economic Research (NBER) – the research institute he contributed to founding in 1920 in order 'to encourage, in the broadest and most liberal manner, investigation, research and discovery, and the application of knowledge to the well-being of mankind; and in particular to conduct, or assist in the making of, exact and impartial investigations in the field of economic, social, and industrial science'.[1] From 1920 until 1946 Mitchell served as research director of the NBER. It was his work on business cycles, in its broad conception of a pattern of change in the whole economy, that provided the central theme for all the NBER's activities at least until the late 1940s, as it was Mitchell's inspiration that attracted to it a group of young scholars who combined an inclination for theoretical analysis with a zeal for testable evidence. It was under the auspices of the NBER that Mitchell had published in 1927 – the same year he was invited by Seligman and Johnson to participate in the *ESS* project (Cadmore, 1935) – *Business cycles: the problem and its setting*, the book that established him as the American authority in the field.

Apart from the main entry on BUSINESS CYCLES by Mitchell – which constitutes the primary focus of this section – the *ESS* deals with the general topic of business

fluctuations in a cluster of more or less directly related entries which included BOOM by Max S. Handman, BUBBLES, SPECULATIVE by Willard L. Thorp, CONJUNCTURE by Simon Kuznets, and CRISES by Jean Lescure. Lescure was a French economist who had gained repute in the US and who corresponded regularly with both Mitchell and Seligman; Handman was an institutionalist like Mitchell, while both Kuznets and Thorp were affiliated to the National Bureau of Economic Research and had worked under Mitchell's supervision during the late 1920s. As far as the content and style of these 'minor' entries are concerned, they were all rather concise and mainly descriptive in character. Theoretical analysis is quite superficial and limited to passing references to underconsumptionists or to the psychological explanations of crises. Following the general philosophy of the whole *Encyclopaedia*, Lescure offers a brief historical reconstruction of the succession of crises and observes that

> whereas in antiquity and even as late as the eighteenth century the type of crisis most prevalent and most dreaded was that due to a shortage of goods brought about by natural and extra-economic factors, such as crop failure and political disturbances, for the last century and a half crises have been fundamentally due to superabundance or overproduction caused by forces which seem to inhere in modern economic organization.
>
> (CRISES, p. 596)

For Thorp, the bubble remains

> fundamentally a psychological phenomenon. It is based on the principle of projection. The speculator is aware of past advances in prices. He purchases with no intent other than resale at a higher price, seldom considering the economic forces in the situation. He sees only the anticipated profit. The character of his position, emotional rather than rational, makes him extremely susceptible to rumour, and assures a severe crisis when the reaction sets in.
>
> (BUBBLES, SPECULATIVE, p. 27)

It is worth pointing out that Mitchell, Thorp and Kuznets all emphasized that the two opening decades of the twentieth century had made it evident that a relentless campaign of cycle measurements was in preparation. The NBER, to which these authors were affiliated, was certainly part of this movement. The new amount of statistical material available to researchers, however, made the task of defining a business cycle even more complicated. The investigator, Mitchell argued, had to develop a sharper and more operational concept of the cyclical components for each time series under examination, but also to devise the general synthesis resulting from these single cyclical movements. 'These are problems', as Mitchell put it, 'on which investigators are actively working, spurred on by critics who hold that "the so-called business cycle is a myth"' (BUSINESS CYCLES, p. 93). Mitchell's words emblematically reveal that at the beginning of the 1930s business cycle research was still a contended epistemological terrain. Interestingly, this is confirmed by the space devoted in several entries to the discussion and definition

of the various terms indicating economic instability. Handman observed that 'booms are a part, not always indispensable, of the cyclical ebb and flow of economic activity' (BOOM, p. 638); Thorp distinguished between booms and cycles, arguing that there is 'some tendency to exaggerate the part played by the speculative element in the business cycle' (BUBBLES, SPECULATIVE, p. 27); Kuznets noted that while the term 'conjuncture' is commonly used in German-speaking countries, Scandinavia and Russia, 'in American and English literature the term cycle is uniformly preferred with the result that the emphasis is placed not on the congeries of conditions displaying variability but on the character of the external manifestations of this variability' (CONJUNCTURE, p. 204). Finally, Lescure, revealing his own preference for the term 'crises', affirmed: 'certain economists have thereby thought themselves justified in speaking of cycles. But this term labors under the disadvantage of exaggerating the regularity of the phenomenon under consideration' (CRISES, p. 595).

Therefore, not surprisingly, Mitchell himself began his entry with a working definition of business cycles. According to the Columbia economist,

> Business cycles are a type of fluctuation characteristic of economic activities organized in the form of 'business economy' or 'high capitalism,' to use the German term. They have a wavelike pattern—each cycle includes a phase of revival, expansion, recession, and contraction. These successive changes in activity spread more or less promptly over a large part, seldom over all, of the economic processes of a country. The cycles are recurrent, but not periodic. Their average duration varies in communities at different stages of economic development from about three to about six or seven years
>
> (p. 92)

This working definition suggests, among other things, that each cycle can be divided into four distinct stages: revival, expansion, recession and contraction. Turning points are called peaks – the period immediately preceding a decline in real activity, or recessions – and troughs – the period immediately preceding an upturn, or expansion. Accordingly, reference dates can be appointed, preferably to the month, to bound 'reference cycles', which become business cycles upon further confirmation of their boundaries. Only troughs and peaks can be dated, inasmuch as 'the most important practical and the most difficult theoretical problems' lie in the reversals of cyclical swings.

Thus, the identification of 'specific cycles' becomes entirely a matter of detecting waves in each seasonally adjusted series and of setting dates to the troughs and peaks. Some series, Mitchell observed, lack satisfactory waves, but in most there are clear-cut fluctuations of approximately the same length as business cycles and of adequately similar amplitude. For some series, however, the number of specific cycles may deviate from the number of reference cycles: series may skip a reference cycle or may run through extra specific cycles. And, more importantly, the conformity of specific cycles to reference cycles is uneven, with leads and lags at reference dates recording considerable dispersion.

Mitchell's definition of business cycles was deliberately 'objective' and mostly methodological in character, in line with the scientific empiricism professed at the National Bureau of Economic Research. The intent, as it appears from the section of the entry on 'Leading explanations of business cycles', was to observe strict neutrality towards competing doctrines about the cycle mechanism. Mitchell's explicit caveat leaves no doubt in this connection: 'The various explanations sketchily presented here, and the numerous other explanations which might be cited, are not to be thought of as contradicting each other' (p. 100). In fact,

> This inclusive use of what were originally offered as independent explanations is especially congenial to statistical workers. The task of a theory of business cycles, seen from their angle, consists in finding out what cyclical fluctuations are characteristic of different processes, searching for explanations of the idiosyncrasies revealed and tracing the connections among different processes. In seeking to trace these various connections they need and can consistently make use of working hypotheses concerning the numerous processes which are parts of the whole. So far as their effort succeeds it weaves the elements into a common pattern. The end result aimed at is not eclectic patchwork but a systematic account of all the relevant phenomena.
>
> (p. 100)

Mitchell divided business cycles theories into three classes. In the first class Mitchell included those 'physical' explanations that emphasize exogenous factors, such as William S. Jevons's 'sunspot theory' or Henry L. Moore's thesis based on the planet Venus's movements. The second class refers to the so-called 'psychological' explanations of the cycle, and includes those authors who have felt that fluctuations in business are due to abnormal alternations between optimism and pessimism. In this connection, Mitchell mentions John Mills's essay 'On credit cycles and the origins of commercial crises', and briefly discusses Pigou's theory in which irrational waves of optimism and pessimism among entrepreneurs are conceived as playing a crucial role in the intensification of the rise and fall of business conditions. The third class – to which Mitchell devotes the longest discussion – refers to those 'institutional explanations' that 'trace business cycles to the workings of various economic processes: banking, saving and investing, producing and consuming, disbursing and using incomes; profit seeking and economic innovations' (p. 98). The list of theories mentioned and briefly assessed in this class is long and heterogeneous and includes Hawtrey's credit cycle theory, John A. Hobson's 'savings theory', Aftalion's version of the accelerator principle, Spiethoff's theory of over-investment, the 'income theory' of Catchings and Foster, Veblen and Lescure's explanations 'organized around the theme of profit', and Schumpeter's 'innovation theory'.[2]

Mitchell dedicated the final four sections of the entry – each dealing with a specific phase of the cycle (expansion, recession, contraction, revival) – to expose his theoretical approach, which is in its essence the same as he had presented in his 1913 monograph. Mitchell linked the major changes in business activity to the

potential outlook for profits: 'profits are the focus of economic activity in a business economy' (p. 102). Prospective profits depend on sales experience and expectations and on the price–cost relation, which is itself a function of the rate of employment and capacity utilization. In the late stages of expansions, costs tend to rise faster than product prices, provoking a squeeze of profit margins and depressing expectations. As a consequence, new investment commitments are curtailed well before sales begin to flatten. At the same time, income receipts and consumption expenditures decline (falling C/Y and falling W/Y), inventories pile up, and production cuts take place all over the economy, particularly in capital and durable-goods industries. Pessimistic expectations spread and are confirmed and worsened when output and employment suffer a decline. In the contraction that follows, similarly, price–cost margins and profits first deteriorate and then improve, excess stocks and other imbalances are gradually liquidated, and new investment orders, sales and output eventually revive. Thus, crises are an intrinsic phase of the business cycle and are generally determined by important shocks to economic fundamentals.

From a theoretical point of view, Mitchell viewed the cycle as an endogenous process that involves the interaction – intuitively sketched – of the multiplier and accelerator mechanisms (Sherman, 2001). Mitchell's description of the expansion and contraction phases indicates that the American economist had in mind some form of cumulative process generated by a functional relation between production, purchasing power and consumption. In addition, as Mitchell insisted, for these causal relations to produce cyclical movements in real variables, it is also necessary that wages and prices adjust with some sufficient lags rather than being highly flexible. However, apart from these theoretical insights, the actual working of the process is not described in analytical terms, while the multiplier mechanism is only adumbrated. In this connection, Arthur Burns observed in 1952:

> I venture the prophecy that if Mitchell's homey work [. . .] were translated into the picturesque vocabulary of 'propensities,' 'multipliers,' 'acceleration coefficients' and the like, it would create a sensation in the theoretical world, especially if the translator were mindful enough to shift passages here and there from the indicative to the conditional mood.
>
> (Burns, 1952, p. 26)

22.3 THE *INTERNATIONAL ENCYCLOPAEDIA OF THE SOCIAL SCIENCES*

Published in 1968 in a 17-volume set, the *International encyclopaedia of the social sciences* (*IESS*) was a completely new reference work designed to supplant, rather than revise or update, its predecessor, the *ESS*. In fact, after a decade-long gestation and discussion, the *IESS* was conceived not as a variant of a successful model which needed to be widened and revived but as a completely different enterprise: a distinctive product of the current generation of social scientists not only from an

organizational point of view, but also from a pedagogical and epistemological viewpoint. While this new project started in the early 1950s, no article was reprinted from the earlier encyclopaedia and very few names contributed to both enterprises, the most outstanding being Talcott Parsons, Selig Perlman, Oskar Morgenstern and Lewis Mumford.

Unlike *ESS*, the *International encyclopaedia* received no financial backing from patrons or private sponsors, and was conceived as a purely commercial enterprise, managed by a consortium of leading publishers: Crowell-Collier, Macmillan and the Free Press. With regard to its organization, *IESS* followed a more decentralized approach with one general editor, the Columbia sociologist David Lawrence Sills, seven associate editors and several special editors. From an academic viewpoint, *IESS* had the strongest connections with Chicago and Columbia.

The work of almost 2,000 contributors, the scope of *IESS* was outlined by the recommendations of a study group at the University of Chicago, sponsored by the Ford Foundation. Headed by former Chicago economist Jacob Viner, in 1955 the study group prepared a long report recommending that the new *ESS* be both narrower and broader in scope than the old *ESS*. On the one hand, all entries should be shorter and consider purely descriptive or comparative matters. On the other, it was urged that it should include significantly more materials on methods, empirical regularities and theoretical achievements. The Ford Foundation proposal was left dormant until 1960, when the well-known press magnate Jeremiah Kaplan arranged to merge his publishing firm, the Free Press of Glencoe, with the Crower-Collier Publishing Company and the Macmillan Company, and provided essential financial support.

The main difference between *EES* and *IESS* was the weight attributed to the single disciplinary areas and the general methodology followed by the authors. From the first perspective, Sills restricted the hard core of the social sciences to psychology, economics, sociology, politics and anthropology, while minor importance was attached to such areas as history, geography, philosophy of science, demography and archaeology. In terms of new subjects, studies in human biology, linguistics and those devoted to the interrelations between the social sciences and various other disciplines received greater attention. Conversely, Seligman's relativistic approach was completely abandoned, and the role of history and fact relevance was heavily downgraded. In terms of method, contributors were advised that the major emphasis of their articles should be put on the analytical aspects of their topics, and that historical, descriptive and institutional materials should be included primarily to illustrate concepts, theories or methodological innovations.

Therefore, scientific formalism and the search for the true paradigms prevailed, with a widespread shift towards mathematical methods and the methodological unification of all social sciences. Also, biographical essays lost much of the space assigned to them in *ESS* and were limited in number to a few hundred. Business considerations prevailed in the final choice: biographies were considered of low scientific value and were mostly devoted to the great figures of the really important areas (psychology, economics, sociology). Moreover, it seemed likely that the readership of many of these biographies would be very small and it seemed unlikely

that contributors could write interesting and useful articles about many minor figures. It should be noted, however, that in 1979 a biographical supplement was published, with 215 articles in 820 pages on social scientists either born before 1908 or deceased by the time of printing.

Consequently, *IESS* showed a strong bent towards specialization, scientific rigour and the identification of the prevailing scientific consensus within each field or topic. Formalism and quantification were the inspiring values underlying *IESS* and an effort was made to achieve a greater consolidation of the scientific paradigm under the name of American universalism. Codification of knowledge also hadpractical implications since policy strategies should be a derivation of its technical soundness and quantitative basis. *IESS* was thus characterized by a strong anti-historical perspective and a marked preference for the behavioural sciences and psychology.

22.4 ARTHUR BURNS ON BUSINESS CYCLES

Compared to the *ESS*, the *IESS* treatment of business cycles presents aspects of both novelty and continuity. The entry is divided into two parts. One, BUSINESS CYCLES – MATHEMATICAL MODELS, written by the Norwegian econometrician Trygve Haavelmo, introduces the most significant element of novelty; this will be discussed in more detail in Section 22.5 below. By contrast, the most significant element of continuity is represented by the part written by Arthur Burns, author of the section on BUSINESS CYCLES – GENERAL. Like Mitchell, Burns was closely affiliated to the NBER, where he remained for more than two decades, first serving as director of research from 1945 until 1953, when he was appointed to the Council of Economic Advisers by President Eisenhower, and then returning as president from 1957 to 1967.[3] In 1946, together with Mitchell, Burns had co-authored the controversial NBER monograph *Measuring business cycles*.

Also in terms of its content, Burns's entry presents striking similarities to Mitchell's BUSINESS CYCLES. Burns begins with a general discussion of the peculiar nature of cycles. Business cycles, he argued, can be clearly distinguished from other fluctuations in that they are as a rule larger, longer and more widely diffused. They determine changes in the economy over spans of several years, in contrast to seasonal or other variations, which generally take place over spans of less than a year. Equally importantly, cycles reflect, and interact with, long-term growth trends which dominate development and growth across decades.

Moreover, and again similar to Mitchell's general structure of the entry, Burns's methodological discussion centres around two key features of business cycles. The first is the subdivision of cycles into distinct phases. Observed fluctuations vary greatly in amplitude and scope as well as in duration, yet they show a common pattern of recurring stages: 'the recurring sequence of changes that constitutes a business cycle – expansion, downturn, contraction and upturn – is not periodic. In other words, the phases of business cycles repeat themselves, but their duration varies considerably and so too does their intensity and scope' (p. 227).

The second prominent element is the emphasis on the co-movement among individual economic variables: business expansions and contractions consist of patterns of recurrent, serially correlated and cross-correlated movements in many economic (but also social and institutional) features. Indeed, the co-movement among series, taking into account possible leads and lags in timing, was one of the distinguishing marks of the NBER method. In their volume *Measuring business cycles*, Burns and Mitchell had considered the historical concordance of hundreds of series, including those measuring commodities, incomes, prices, interest rates, banking transactions and transportation services. The clusters of turning points in these individual series were then used to determine the monthly dates of the turning points in the overall business cycle. Also in the *IESS* entry, Burns emphasized the importance of this method.

Compared to Mitchell's, Burns's survey of business cycles theories is more succinct, with scant references to the history of the subject. Burns offers no taxonomy of the existing approaches, limiting himself to passing comments on the contributions of Clément Juglar, Mikhail Tugan-Baranovsky, Knut Wicksell, Albert Aftalion, Joseph A. Schumpeter, Wesley C. Mitchell and John Maynard Keynes. Not surprisingly, he stresses the recent contributions of 'economic statisticians', with specific mention given to the work of Warren M. Persons, Simon Kuznets and Jan Tinbergen. They had made 'significant advances [. . .] in describing with some precision the major features of business cycles and also in understanding the processes whereby they are generated' (p. 230).

In referring to these alternative approaches, Burns acknowledged the existence of notable disagreements among theories, particularly with regard to the relative importance of monetary and real factors. Most of these writers, however, considered business cycles to be caused and conditioned by a number of factors and circumstances, and this led Burns to observe that 'more frequently than not, the various theories differed mainly in their point of emphasis and therefore served to supplement one another' (p. 229). On similar grounds, Burns promptly dismissed the intellectual relevance of any modern revision of the old *Methodenstreit* on the primacy of theoretical over empirical investigations and vice versa: 'The variety of approaches sometimes leads to methodological controversies. But no serious student of business cycles any longer questions that empirical research must be guided by an analytical framework or that speculative theorizing must be tested by an appeal to experience' (p. 230). This sentence may be read as a late response to the famous 'Measurement without theory' controversy triggered by Tjalling Koopmans, who in his 1947 review of *Measuring business cycles* had accused Burns and Mitchell of trying to analyse business cycles without having any sound theoretical background which explained how the several variables involved in the cycle actually behaved.[4]

The final sections of Burns's entry are dedicated to the discussion of each single phase of the business cycle – another interesting parallel with the *ESS* entry. The overall description of the cycle runs along Mitchellian lines. Unit costs of labour and production tend to rise relative to output prices before and after the downturn, and they tend to fall before and after the upturn, reflecting changes in capacity

utilization and productivity; as a result, profits show large fluctuations which explain the cyclical movements in investment, output and employment. Compared to Mitchell's explanation, however, Burns places more emphasis on the role of interest rates in determining the pace of investments, stressing that interest rates rise faster than finished commodity prices in expansion while falling faster during depressions. Accordingly, he concluded that rapidly rising financial costs are a factor, lowering profits in the final stages of the expansion and even in the earliest stages of contraction, especially in those sectors, such as the building industry, where interest charges represent a large fraction of total costs. With regard to the influence of interest rates on investment, Burns conceded – in a Keynesian fashion – that 'in deciding to invest in a particular project, a business firm may have given heed to recent increases in costs'. However, investment decisions must be followed by another kind of decision, namely, 'whether to get the project under way now or later' (p. 238). Therefore, increases in financial costs can cause a delay in the actual implementation of investment and therefore contribute to the starting of a recession. Burns concluded his entry with a detailed analysis of those factors which, in his view, had recently contributed to a substantial increase in economic and financial stability.

As in his previous description of the stages, Burns gave relevance to the role of monetary factors and, most particularly, of monetary policy. Perhaps under the influence of the post-war records of financial stability and of the 1951 agreement between the Treasury and the Fed, Burns noticed that the practice of central banking had advanced significantly in smoothing cycles and speculation on asset prices. It was a fact that 'fluctuations of short-term interest rates in the United States became narrower' (p. 243). This accomplishment was now deeply entrenched in market expectations and was reflected in a drastic (and valuable) reduction in the spread between the federal funds rate and long-term interest rates. He also observed that, in the booming post-war years, decisions of monetary authorities were swiftly transmitted to financial markets, and the lag of long-term interest rates 'during recoveries and recession became shorter and of late has virtually vanished' (p. 243).

Second, cyclical stability was increased by the anti-cyclical mix of Keynesian policies and the building up of modern safeguarding schemes on behalf of the general welfare of workers and their families. Increased state intervention and the widespread resort to programmes of social security were powerful built-in stabilizers and an important legacy of the post-1930s institutional reforms. Also, the world of big private corporations seemed to have learnt past lessons in some way, acting anti-cyclically rather than 'pro-cyclically' as they did in the 1920s. One key factor of this changing behaviour – as Burns put it – was their increasing pursuit of stable dividend policies, setting aside in good years and rewarding capital in bad years: 'As a result of these and related developments, the movement of personal income is no longer closely linked to the fluctuations of production' (p. 243). The stability of the financial markets was also enhanced by structural reforms which greatly increased the guarantees on behalf of savings, positively influencing expectations. Among them Burns cited the new regulations of domestic stock exchanges, the development of the long-term amortized mortgages and, 'most important of all, the insurance of bank deposits' (p. 244).

The third stabilizing factor occurred in the labour market, which in the post-war boom gradually saw a general increase of occupations in the new industries and, most significantly, in the tertiary sector. These structural changes significantly increased the fraction of stable activities with regard to the more irregular occupations. While the first two factors were related to crisis-induced policy reforms, Burns recognized the importance of the structural and irreversible nature of these changes in the US labour market: 'Manufacturing, mining, construction, and freight transportation are the cyclically volatile industries, but their relative importance as providers of jobs has been gradually declining in recent decades' (p. 243).

However, all these institutional reforms, together with the deeper theoretical and factual understanding of the requirements of business cycle policy, would not mark the end of business cycles nor of unexpected shocks. Here, Burns implicitly disagreed with some leading contemporary theorists who, by the mid-1960s, had foreseen the inevitable decline of business cycle research.[5] Quite to the contrary, according to Burns, a lot of effort ought now to be put into *ex ante* prevention rather than *ex post* moderation. Moreover, as he anticipated, future cyclical movements would not necessarily coincide with recessions but merely with fluctuations in aggregate economic activity: business cycles would be supplanted by 'growth cycles', which involved a general reduction of the rate of growth and bring about the alternation of high-rate phases and low-rate phases. However, it would be overly optimistic to believe that

> the forces that tend to generate cyclical movements have vanished in western Europe or Japan any more than in the Unites States. . . . Hence, the wise course for economists is to continue basic research on the nature and cause of business cycles, to remain watchful of developments that seem likely to bring on a slump in activity, and to extend the search for acceptable pathways to prosperity without inflation.
>
> (p. 144).

22.5 HAAVELMO'S ENTRY ON BUSINESS CYCLES

Trygve Haavelmo's entry on Business cycles – Mathematical models represents the ideal counter to Burns's approach, in terms of both style and content. In his famous 'The probability approach in econometrics' (1944), Haavelmo had provided the probabilistic framework required to justify the application of inferential procedures due to Ronald Fisher, Jerzy Neyman, Egon Pearson and Abraham Wald in econometric models. In sketching an account of Haavelmo's fundamental contributions and their impact on quantitative economic research, Mary Morgan points to the 'probabilistic revolution' he brought about in the discipline, one that had a great impact on the activities of the Cowles Commission at the University of Chicago in the 1940s.[6] Morgan portrays the research programme of the Cowles Commission as one that involved the 'aim [. . .] to continue in the tradition of Tinbergen's pioneering work on business cycles but to improve on

his work by implementing the working practices of the "Probability Approach" [of Haavelmo]' (Morgan, 1990, p. 251). More importantly for our discussion, Haavelmo's 'probabilistic approach' was also among the main inspiring sources of the already mentioned debate sparked by the appearance of Tjalling Koopmans's 1947 'measurement without theory' review of Arthur Burns and Wesley Mitchell's 1946 volume *Measuring business cycles* for the National Bureau of Economic Research. The controversy brought new vigour to the apparently endless tension between theorists and empiricists. It is not a coincidence, therefore, that many scattered passages of Haavelmo's entry were devoted to the primacy of mathematical theorizing and econometric testing over other alternative, and allegedly less rigorous, approaches. Two examples will illustrate the case:

> A mathematical model of business cycles is not necessarily a special kind of business cycle theory as far as economic content is concerned. The mathematical formulation is an instrument for organizing our factual knowledge and our hypotheses. For this purpose, mathematical tools may be not only useful, but indispensable. Use of these tools may produce fruitful theories that could not have been discovered by verbal reasoning, and a precise mathematical formulation may serve to verify or reject previous theories set forth in a loose, verbal form and to clear the way for more systematic empirical studies.
> (BUSINESS CYCLES – MATHEMATICAL MODELS, p. 245)

And again:

> The reason why the mathematical approach is superior to verbal analysis is obvious. By verbal reasoning it is simple enough to enumerate the various economic forces involved in a process of development, but it is often difficult, if not impossible, to determine the direction of the motion resulting from the relative strengths of the various forces.
> (pp. 246–247)

Apart from this epistemological discussion, which roughly corresponds to half of his entry, Haavelmo presents a succinct taxonomy of mathematical theories of business cycles. First, he distinguished between those models that treat the cycle as a consequence of endogenous (closed models) as against exogenous disturbances (open models). Second, he considered whether the cyclical behaviour is produced because 'the driving force is itself cyclical' ('forced oscillation') or because 'of the particular way in which the economic system responds to the stimulating forces' ('free oscillations').

On the grounds of these qualifications Haavelmo discusses at some length two specific examples of mathematical models of business fluctuations. The first is the typical cobweb theorem in which the 'disturbing' impulse consists of random exogenous shocks and the propagation takes place through the reactions of agents with imperfect foresight. Haavelmo considered not only the case in which the cobweb converges towards an equilibrium, but also the case in which it diverges,

and the case in which there is a tendency for continuous oscillation of the same magnitude. The second model has an endogenous character describing 'investment cycles'. The closing of a model, based on the traditional Keynesian consumption function, is warranted by the acceleration principle and by some *ad hoc* assumptions concerning the rate of capital depreciation (supposed constant) and the relationship between the desired stock of capital and total net output. This model adopts distributed lags in consumption and investment functions, and suspends the accelerator during a steep downswing, the ensuing result being that the slump is both cushioned and prolonged as the capital in excess of the desired stock depreciates, but slowly down to the levels required by the low production at the floor.

As a final note, it is worth pointing out that in Havvelmo's entry the monetary, financial and psychological aspects of the cycle appear to be largely neglected. Accordingly, Haavelmo makes no mention of models where fluctuations in monetary growth attributed to erratic or misguided policies were made primarily responsible for disturbing the basically stable working of a market economy and creating 'business cycles'.[7] Almost all references date back to the 1930s and to the post-war years and are mostly related to the classic contributions of figures such as Allen, Frisch, Goodwin, Hicks, Kalecki, Klein, Metzler, Samuelson and Tinbergen. There is no trace of reference to works from the 1960s and to the most recent literature on general equilibrium.

NOTES

1 National Bureau, Charter and By-Laws, 29 December 1919. Quoted in Burns, 1952, p. 31.
2 The lengthy discussion of Veblen's business cycles theory is revealing both of the latter's influence on Mitchell and of the general institutionalist tone of the entry as well as of the encyclopaedia as a whole. Mitchell interprets Veblen's business cycle as resulting from decreasing profit margins. When purchases increase in some particular industry, prices will increase, inducing firms to launch new investments, which lead, in turn, to increased demand and higher prices. Increased capacity and the higher value of collaterals serve as justifications for enhanced capitalization and further extension of credit. Since prices of finished goods rise faster than costs of production, profit margins increase markedly. Ultimately, however, even though public utilities prices and raw material prices may not increase and a cheapening of the process of production may occur, the total expenses of production overtake the prospective selling price of output. This implies a general reduction of profit margins. When this happens, real rates of return no longer sustain anticipated rates of return on which asset capitalization was based, provoking a financial crisis: 'Credit ratings are revised downwards; financial obligations are gradually cleared off or readjusted; unit costs are reduced faster than selling prices; and a bulk of enterprises gradually get into a position where their prospects of profits begin to grow brighter – thus laying the basis for a new revival and period of expansion' (pp. 99–100).
3 See Rutherford, 2005 for a full biographic account of Burns.
4 See Morgan, 1990 for an excellent reconstruction of the 'Measurement without theory controversy'.
5 See, among others, Haberler, 1962 ; McKinley *et al.*, 1964; Bronfenbrenner, 1969. Burns himself (1960) took part in this debate.
6 According to Morgan, 'the more important practical result of Haavelmo's paper was that probability theory provided a framework for testing economic theories' (1990,

p. 256), and 'by laying out a framework in which decisions could be made about which theories are supported by data and which are not, Haavelmo provided an adequate experimental method for economics' (p. 258).

7 The classic reference is Friedman and Schwartz, 1963.

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