

Interwar Monetary and Business Cycle Theory: Macroeconomics before Keynes

Robert W. Dimand

21.1 INTRODUCTION

According to Francis X. Diebold, “A striking and easily forgotten fact is that, before Keynes and Klein, *there really was no macroeconomics*” (in Adams, 1992, p. 31, Diebold’s emphasis). But the rich and varied traditions of monetary and business cycle theory forming the context for Keynes’s *The General Theory* and the emergence of modern macroeconomics was much more than passing asides of classical and neoclassical value theorists. Economists analyzed the price level, real and nominal interest rates, and fluctuations in output and employment long before John Maynard Keynes’s *The General Theory of Employment, Interest and Money* (1936) transformed the nature and language of their controversies, bringing the two bodies of literature focused on prices and cyclical fluctuations into a discourse centered on determining employment and national income.

The quantity theory of money, which holds that changes in the money supply will, for given demand for real money balances, eventually change prices in the same proportion, is “the oldest surviving theory in economics” (Blaug, 1995), antedating Adam Smith’s classical economics by at least two centuries.

The Salamanca school and Jean Bodin used the quantity theory to explain the sixteenth-century "Price Revolution," the inflation following the silver inflow from the New World (Grice-Hutchinson, 1952; O'Brien, 2000). Douglas Vickers (1959) and Thomas Guggenheim (1989) reveal the contributions of John Locke, Richard Cantillon, and Isaac Gervaise to understanding velocity of circulation and international adjustment, and of John Law to banking. David Hume's 1752 specie-flow analysis of international monetary adjustment through changes in national price levels, with short-run changes in real output, was the high point of pre-classical monetary economics (Humphrey, 1986, pp. 128–33). While Hume linked each country's price level to the country's money stock and stressed relative price effects on trade balances, Adam Smith anticipated the monetary approach to the balance of payments by assuming purchasing power parity (with the world price level determined by world gold supply and world demand for real money balances) and stressing the direct effect on spending (and hence on the balance of payments and thus the money supply) of a country's excess demand or supply of money (Humphrey, 1986, pp. 180–7).

Keynes (1936) reconsidered the debate over a supposed general glut of commodities at the end of the Napoleonic Wars, regretting that David Ricardo's sharper analysis and invocation of Say's (or James Mill's) Law of Markets won out over what Keynes considered Thomas Robert Malthus's deeper insight that insufficient effective demand could cause an excess supply of labor without an excess demand for any good. Thomas Sowell (1972) shows that statements of the Law of Markets by classical economists were more varied and complex, often subtler, and sometimes confused and contradictory, than Keynes recognized. John Stuart Mill, among others, searched for a formulation that would be stronger than the truism now known as Say's Equality (if each market is in equilibrium, then the sum of excess demand over all commodity markets necessarily adds to zero) but weaker than Say's Identity, that excess demand for all commodity markets (that is, all markets except that for money) always sums to zero for any set of prices (which implies that the money market always clears for any prices, leaving absolute prices indeterminate). Jean-Baptiste Say himself endorsed public works to remedy unemployment, and criticized Ricardo for neglecting the hoarding of savings if investment opportunities were lacking (Hutchison, 1980, p. 3n). Ricardo preferred restoring gold convertibility of sterling at the depreciated parity rather than deflation to restore the prewar parity. Robert Link (1959) and Bernard Corry (1962) surveyed the macroeconomics of English classical economists and their critics, while Frank W. Fetter (1965) and Anna Schwartz (1987) elucidated more strictly monetary controversies. Denis O'Brien (1993) is a noteworthy monograph on Thomas Joplin, while Henry Thornton (1965 [1802]) attracts attention for his analysis of central banking and influence on the Bullion Report.

Outside mainstream classical economics, Karl Marx reflected on Quesnay's *Tableau économique* and composed schemes of simple and expanded reproduction, precursors of representations of circular flow and of multi-sector growth models. He rejected Say's Law to consider realization crises (but implicitly assumed it in other parts of *Capital*) and inspired generations of underconsumption

and disproportionality crisis theorists (Howard and King, 1989–92). Also in the 1860s, William Stanley Jevons and Clément Juglar stimulated statistical and theoretical trade cycle studies, a literature extensively sampled in O'Brien (1997) and Hagemann (2001). Jevons's papers on cycles (collected posthumously in Jevons, 1884) did more than his marginal utility analysis to persuade the British Association for the Advancement of Science that economics was sufficiently scientific for Section F to remain. Jevons's view of sunspot cycles as driving trade cycles has been derided, to the neglect of his lasting contributions on seasonality and the application of index numbers to effects of gold discoveries. However, Peart (1996) shows that Jevons's procedure was reasonable for a largely agricultural economy. Meteorologists then believed that sunspots produced cycles in weather, which would affect harvests, and economists might accept the conclusions of meteorologists about meteorology.

As Mitchell (1927, p. 7) observed, "Before the end of the nineteenth century there had accumulated a body of observations and speculations sufficient to justify the writing of histories of the theories of crises." Hutchison (1953, p. 437) cites Eugen von Bergmann's *Die Wirtschaftskrisen: Geschichte der nationalökonomischen Krisentheorien* (Stuttgart, 1895) as "still an outstandingly valuable work covering the nineteenth century and going well back into the eighteenth" and Edward D. Jones's *Economic Crises* (New York, 1900) as "a short survey of the main theories with a useful bibliography." In 1909, the London School of Economics published a 71-page bibliography of unemployment.

21.2 WHO WERE THE LEADING INTERWAR MONETARY AND BUSINESS CYCLE THEORISTS?

Alfred Marshall, Knut Wicksell, and Irving Fisher appear on the cover of David Laidler's *The Golden Age of the Quantity Theory* (1991). Before 1914, these three laid the foundations for interwar developments in monetary theory, just as Jevons and Juglar did for interwar business cycle analysis. Marshall's *Money, Credit and Commerce* was not published until 1923, but incorporated manuscripts dating from the 1870s, while other contributions, collected in his *Official Papers* (1926), were presented to government inquiries before the turn of the century. The Cambridge cash balance approach to the quantity theory ($M = kPY$ in modern notation, relating desired cash balances to nominal income) and the Cambridge analysis of saving and investment followed from Marshall's work (Eshag, 1963; Bridel, 1987). Wicksell's distinction between market rate of interest and natural rate (which would equate desired saving to investment) and his analysis of cumulative inflation or deflation in a credit economy led to the Stockholm school's economic dynamics (Wicksell, 1935 [1915], 1962 [1898]; Jonung, 1991, 1993). The Fisher relation, expected inflation as the difference between real and money interest rates (Fisher, 1896), and the Fisher diagram, showing optimal consumption over two periods with present discounted value of expected lifetime income as the budget constraint (Fisher, 1907), are fundamental for later macroeconomics.

Citation counts of journal articles in English (Deutscher, 1990) confirm Cambridge, Stockholm, and American quantity theorists as leading sources of monetary economics between the wars, while Wesley Mitchell's National Bureau of Economic Research and the Vienna school were prominent in business cycle analysis. Outside the mainstream, some monetary heretics (notably Foster and Catchings) and the *émigré* Polish Marxist Michal Kalecki attracted attention.

21.3 CAMBRIDGE

For Keynes (1936), classical economics did not end with John Stuart Mill. In Keynes's usage, the "classical" economists were all those to whom he attributed acceptance of Say's Law (impossibility of insufficient aggregate demand), including Marshall and Pigou, professors of economics at Cambridge from 1885 to 1908 and 1908 to 1943, respectively. Keynes (1936, appendix to ch. 19) took Pigou (1933) as his target, summarizing it in two classical postulates. Keynes (1936, ch. 2) accepted the first classical postulate, that the real wage equals the marginal product of labor (the economy is on the labor demand curve), but rejected the second, that utility of the real wage equals marginal disutility of labor (the economy is on the labor supply curve). Rather than typifying pre-Keynesian economics, Pigou was unusual in the extent to which he treated supply and demand for labor in real terms, introducing monetary factors late in his book. Even Mark Casson (1983, pp. 16–17, 157), seeing Pigou as pioneer of a "Pre-Keynesian" theory of structural unemployment, allows that Pigou's writing "degenerated into little more than analytical taxonomy in the 1930s . . . There is no standard work epitomizing Pre-Keynesian theory. Pigou was the person best equipped to write such a book, but instead he wrote *The Theory of Unemployment* (1933) – a taxonomy of the subject which makes the reader wonder how anyone could write anything so tedious and abstract in the middle of an economic crisis."

However, Michael Brady (1995) has shown that, accepting the first classical postulate, Keynes's exposition of the employment function (the inverse of the aggregate supply function) in chapters 20 and 21 of *The General Theory* was shaped by the Marshallian elasticity approach of Pigou (1933, part II, chs. 8–10). Those chapters indicate the value of Pigou's contribution and Keynes's proficiency as mathematician and microeconomist. Nahid Aslanbeigui (1992) dissents from Keynes's critique of Pigou (1933), presenting evidence, notably a letter from Pigou to Keynes in May 1937 (Keynes, 1971–89, vol. XIV, p. 54), that Pigou intended a reverse L-shaped labor supply schedule, not an upward-sloping one as attributed to Pigou (1933) by Keynes (1936). As Hawtrey remarked, "And how is any reader of the *Theory of Unemployment* to guess what Pigou has in mind, seeing that there is not a word about it from the beginning of the book to the end?" (Keynes, 1971–89, vol. XIV, p. 55).

Keynes, when young, was an orthodox Cambridge cash-balance theorist. A *Tract on Monetary Reform* (Keynes, 1923) and the articles leading to it analyzed inflation as a tax on the holding of money and government bonds, the resulting reduction of demand for real money balances (by 92 percent during the German

hyperinflation) as a social cost of inflation, the consequent decline in inflation tax revenue beyond a revenue-maximizing inflation rate, and the nominal interest differential between two countries as the forward premium or discount on foreign exchange (Humphrey, 1986, pp. 38–48; Dimand, 1988, pp. 4–20; Flanders, 1989, pp. 160–9). Pigou's articles on the value of money and on the foreign exchanges lacked these standards of later monetarist analysis. Milton Friedman and Thomas Sargent, who have deep reservations about *The General Theory*, both admire Keynes's *Tract*. While Keynes developed covered interest parity, Fisher (1896) had introduced uncovered interest parity (interest rates in two standards differ by the expected rate of appreciation or depreciation). Patinkin (1982) concluded that Keynes and Pigou greatly exaggerated how the Cambridge cash-balance approach was more choice-theoretic and less mechanical than Fisher's $MV = PT$ equation of exchange.

Hicks (1937) interpreted what set Keynes (1936) apart from the "classics," and created the IS–LM diagram that long dominated macroeconomic teaching (on similar models of Champernowne, Reddaway, Harrod, and Meade, and how Hicks's two-good model differed from later one-good textbook IS–LM analysis, see Young, 1987). Samuelson (1946) even asserted that Keynes didn't understand his own theory until Hicks and others transformed it into diagrams and systems of simultaneous equations. Hicks did not share this view, holding that IS–LM captured only one side of Keynes's theory. Notes taken by students (Rymes, 1987) reveal that Keynes presented a four-equation model in his 1933 lectures but chose not to use it in his book. According to Hicks, in classical theory (as represented by Robertson's and Lavington's loanable funds theory of interest), interest equilibrates saving (loanable funds) and investment, while income is given by full employment of resources (a vertical aggregate supply curve at potential output). In the Keynesian liquidity preference theory, the interest rate equates money demand (liquidity preference) to money supply, while the level of income equates investment to saving. For Hicks, these become special cases of a more general theory in which investment, saving, and money demand depend on both national income and the interest rate, with those two endogenous variables simultaneously satisfying both the IS (investment = saving) and LM (liquidity preference = money supply) conditions. In equilibrium, it made no more sense to argue whether interest was determined by the IS curve or the LM curve than to argue whether demand or supply determines a good's price in Marshall's scissors diagram.

Keynes's student, colleague, friend, and rival Dennis Robertson was neglected, like Hawtrey, Hayek, Fisher, and Mitchell, during the high tide of Keynesian dominance, until his work was reexamined by Presley (1979), Laidler (1999, pp. 90–9), and Fletcher (2000). Like Pigou (1927), Robertson (1926) emphasized the influence of expectations on investment, and doubted how well the market coordinates intertemporal allocation. Despite the claims of Klein (1946) and Samuelson (1946), Pigou's and Robertson's policy views resembled Keynes's, as Keynes recognized. Keynes (1936) complimented the LSE deflationist Lionel Robbins (1934) for advocating policy consistent with his theory. As Patinkin (1982) argued, Keynes diverged from Pigou and Robertson in macroeconomic

theory, not policy. Earlier, Robertson (1915) presented a real theory of fluctuations in national income, based on technology shocks and overinvestment, in contrast to the monetary theory of fluctuations of Fisher (with Brown, 1911) and Hawtrey (1913), and considered some fluctuations around trend “appropriate.” Goodhart and Presley (1994) argue that Robertson (1915), together with Schumpeter (1934 [1912]) on bursts of entrepreneurial innovation, prefigured important aspects of real business cycle theory.

Hawtrey stood out from his British contemporaries by opposing counter-cyclical fiscal policy on theoretical grounds (crowding out of private investment by public spending), and influenced the Treasury’s opposition to such policy. Hawtrey (1913, 1919) advanced a monetary theory of fluctuations, and supported the active monetary policy for economic stabilization (Deutscher, 1990). In this, he differed from Robbins or Hayek at the LSE, who also opposed activist fiscal policy. Despite opposing fiscal policy, Hawtrey was among the developers of a finite-valued spending multiplier, with a numerical example with leakage into imports in a 1928 memorandum, another with leakage into saving in 1930, and an algebraic analysis published in Hawtrey (1932), a year after Richard Kahn’s publication of the finite-valued multiplier (Davis, 1980; Dimand, 1988; Deutscher, 1990). A possible reconciliation of Hawtrey’s multiplier contributions with his rejection of fiscal policy is suggested by his later identification of liquidity preference (money demand as a both function of interest and income) as Keynes’s crucial advance. If money demand isn’t interest-sensitive, fiscal policy will be crowded out even though monetary policy is still effective.

Endres and Fleming (1999a,b) examine the International Labour Organization (ILO) in Geneva as an innovative source of economic analysis and policy advice between the wars, including advocacy of deficit-financed public investment as a response to unemployment and depression. They discuss Bellerby (1923, 1925), a Cambridge lecturer in the early 1920s (joining with Keynes in opposing deflation and Britain’s return to the prewar parity) and a leading ILO economist in the late 1920s. Bellerby will surely figure prominently in future accounts of Cambridge monetary economics.

In his University of Melbourne inaugural lecture, Giblin (1930), a graduate of King’s College, Cambridge, derived a finite-valued spending multiplier with leakages into imports alone, so that it was only finite if rest-of-the-world income was exogenous. Copland (1960) and Milmow (2000) consider Giblin as a possible proto-Keynesian.

21.4 STOCKHOLM AND LAUSANNE

The Swedish monetary theorist Knut Wicksell participated in debates on deflation and cycles into the early 1920s (Boianovsky, 1995, 1998). Building upon Wicksell, Erik Lindahl (1939), Erik Lundberg (1937, 1994), Gunnar Myrdal (1939), and Bertil Ohlin (1978 [1933]), among others, contributed to macroeconomic dynamics (Uhr, 1990; Jonung, 1991, 1993). Myrdal was later confident that the Swedes could have produced *The General Theory* without Keynes, but Lundberg

(1996) rejected Schumpeter's claims for Lundberg as a rival to Keynes. Patinkin (1982) claimed the Swedes lacked Keynes's central message, the principle of effective demand (determination of a stable equilibrium level of income). They concentrated instead on price dynamics, not output or employment, although giving policy advice on unemployment. Ohlin was more Keynesian than Keynes in emphasizing income rather than price changes in his 1929 exchange with Keynes over the transfer problem. In 1933 Ohlin summed a geometric series to find the multiplier effect of public works (Wadensjö; in Jonung, 1991, p. 116 – the calculation was deleted from the memorandum before publication because of criticism by Dag Hammarskjöld), but in the *Economic Journal* in 1937 Ohlin rejected the stability of the consumption function and the usefulness of multiplier analysis. The Norwegian econometrician Ragnar Frisch also contributed to business cycle analysis in the 1930s (see Andvig, 1985; see also the Frisch–Tinbergen exchange reprinted in Hendry and Morgan, 1995). Denmark's Jens Warming brought leakages into saving into multiplier analysis in a 1932 comment on Kahn. Scandinavian economists did not invent Keynes's *The General Theory* independently, but they did contribute to macroeconomic dynamics and macroeconometrics.

The Lausanne school of general equilibrium theorists also discussed monetary and employment questions (about Pareto on employment, see Tarascio, 1969). Pascal Bridel (1997) examines problematic attempts by Walras and Pareto to incorporate money in general equilibrium analysis, an unresolved issue that became of wider interest to economists only after World War II, as Walrasian general equilibrium analysis became widespread.

21.5 THE AMERICANS: FISHER, CHICAGO, YOUNG, AND CURRIE

"The story of 20th century macroeconomics begins with Irving Fisher," declares De Long (2000, p. 83). The quantity theory goes back "to David Hume, if not before. But the equation-of-exchange and the transformation of the quantity theory of money into a tool for making quantitative analyses and predictions of the price level, inflation, and interest rates was the creation of Irving Fisher" (De Long, 2000, p. 85). Fisher (1896) stressed expected inflation as the difference between real and money interest (acknowledging J. S. Mill and Marshall), extending this analysis to uncovered interest parity and the expectations theory of term structure. The two-period consumption diagram (Fisher, 1907, p. 407), embodying consumption-smoothing and the present discounted value of expected lifetime disposable income as the budget constraint, is the basis for modern consumption theory. Fisher (1930) offered perhaps the first clear, correct statement of the marginal opportunity cost of holding money, but he did not incorporate this in his studies of velocity of circulation. Fisher's contributions ranged from "money illusion" (to be eradicated by education and by publishing price indexes) through indexed bonds and a price level rule for monetary policy to his "ideal index," but he never synthesized his monetary, capital, and general equilibrium theories. Fisher's reputation suffered from his dramatic mis-prediction of stock prices in 1929. Postwar textbooks caricatured Fisher as upholding a rigid,

constant-velocity, constant-output version of the quantity theory. However, Fisher (with Brown, 1911, ch. 4) stressed output changes during “transition periods” between equilibria, driven by real interest fluctuations as nominal interest adjusted slowly and imperfectly to monetary shocks. Fisher (1926) was even reprinted in 1973 as “I discovered the Phillips curve.” Fisher’s causality from monetary shocks to a distributed lag of price changes to unemployment resembled the “Phillips curve” of later macroeconomics more closely than that of A. W. H. Phillips (whose causality ran from unemployment to wage changes). Hyman Minsky, James Tobin, and others rediscovered Fisher’s debt-deflation theory of how some recessions turn into great depressions (Fisher, 1933). William Barber’s edition (Fisher, 1997) and Loef and Monissen (1999) renewed interest in Fisher.

Don Patinkin (1981) contested Milton Friedman’s claim that his restatement of the quantity theory continued a Chicago oral tradition of money theory and policy (see Tavlas, 1998; see also the Friedman–Patinkin exchange in Gordon, 1974). Patinkin, himself educated at Chicago, argued that Friedman’s view of money demand as a stable function of a handful of variables owed more to Keynes and to non-Chicago quantity theorists than to Chicago oral tradition. Henry Simons endorsed monetary rules rather than discretion but, like the other Chicago economists of the 1930s, had neither written money demand as a function of the interest rate, as Keynes did, nor made use of Fisher’s distinction between real and money interest, both central features of Friedman’s monetarism (Simons, 1948). J. Ronnie Davis (1971) showed that Chicago economists of the early 1930s countenanced deficit-financed public works in the Depression, and that one, Paul Douglas, understood the multiplier before *The General Theory* was published (but, unnoticed by Davis, after the publication of multiplier analysis by Kahn in 1931 and 1933 and Keynes in a 1933 pamphlet, all cited by Douglas – see Dimand, 1988). If, as Patinkin (1981, 1982) argues, Keynes’s innovation was in theory rather than in advocacy of public works or budget deficits, support of fiscal activism by Chicago economists or by some of their German contemporaries (Backhaus, 1997; Klausinger, 1999), however interesting, does not constitute anticipation of Keynes.

Allyn Young, who died in 1929, two years after leaving Harvard for a chair at the LSE, is belatedly recognized as a significant theorist. His 1928 Section F presidential address on “Increasing returns and economic progress” prefigures endogenous growth theory (Currie, 1997; Sandilands, 2000). Beyond his writings (Mehrling and Sandilands, 1999), Young was an important teacher, influencing Frank Knight at Cornell, Edward Chamberlin, Lauchlin Currie and Arthur Marget at Harvard, and Nicholas Kaldor at the LSE. Perry Mehrling (1997) argues for Young’s importance in monetary economics, but Young’s reputation rests on his contribution to growth theory. The promising beginning for modern growth theory suggested by independent publications in 1928 by Young, Cambridge philosopher Frank Ramsey, and Soviet central planner G. F’eldman (all reprinted in Dimand, 2002) was cut short by the deaths of Young and of Ramsey (aged 26) and F’eldman’s disappearance in Stalin’s purges.

Young’s student Currie (1934) anticipated elements of the later Friedman and Schwartz interpretation of the Great Depression as a Great Contraction of the

money stock, although Currie differed from Friedman and Schwartz (1963) over the money supply mechanism (Steindl, 1995; see also Brunner's introduction to the 1968 edition of Currie, 1934). In the later 1930s, Currie introduced Keynesianism ("Curried Keynes") into Washington policy discussions (Sandilands, 1990).

21.6 BUSINESS CYCLE INSTITUTES FROM NBER TO MOSCOW

The statistical approach to business cycles, decomposing time series into trends and cycles of assorted amplitude and length (Kitchin cycles, Juglar cycles, 20-year Kuznets cycles, and 55-year Kondratiev long waves, among others) with little *a priori* economic theory, flourished between the wars, particularly after Wesley Mitchell founded the National Bureau of Economic Research in 1920 (see Mitchell, 1913, 1927, 1951; Sherman, 2001). A Conjuncture Institute directed by Kondratiev opened in Moscow in 1921 (disappearing with its director in Stalin's purges). The Rockefeller Foundation partially funded similar institutes established in Berlin in 1925 and Vienna in 1927 (Craver, 1986; Kondratiev, 1998; Klein, 1999), as well as research on cyclical growth at the already established Kiel Institute of World Economics. Kalecki worked at Warsaw's Business Cycle Institute. There were others from Belgium to Bulgaria. The London and Cambridge Economic Service produced a business barometer in the manner of Warren Persons at Harvard.

Enough superimposed cycles can represent any time series as cyclical. Using an ancestor of spectral analysis called the periodogram, Beveridge decomposed wheat prices into 19 cycles with periods ranging from 2.735 years to 68 years, 11 of them very prominent. Such large numbers of cycles inspired skepticism about this statistical approach to business cycle analysis, as did Slutsky's 1927 demonstration that summation of random shocks could produce a series that looked cyclical (see Slutsky, 1937 [1927]). The relatively atheoretical statistical investigators of business cycles did not come into conflict with more theoretically oriented econometricians in the interwar period. Later, Koopmans (1947), research director of the Cowles Commission, criticized the NBER empiricism of Burns and Mitchell (1946) as "measurement without theory" (the controversy is reprinted in Hendry and Morgan, 1995). The vector autoregression (VAR) or "atheoretical macroeconometrics" associated with Sims (1980) marked a return to the NBER empirical approach to cycles, with modern statistical techniques.

The real business cycle stream of "The New Classical research program walks in the footprints of Joseph Schumpeter's *Business Cycles* (1939), holding that the key to the business cycle is the stochastic character of economic growth" (De Long, 2000, p. 83). Aghion and Howitt (1998) formalize Schumpeterian creative destruction, in which entrepreneurial innovation destroys the value of existing physical and human capital. Like Hayek, Schumpeter opposed policy activism during the Great Depression (Klausinger, 1995), but Schumpeter interpreted the severity of the Depression as the fortuitous coincidence of downturns in several cycles of differing periodicity (exacerbated by New Deal policies that restricted output to support prices).

The banker L. Albert Hahn, who taught part-time at the University of Frankfurt and later at the New School for Social Research (the “University in Exile”) in New York, founded the Frankfurt Society for Research on Business Cycles in 1926. Going beyond Schumpeter (1934 [1912]), Hahn (1920) made strong claims for stimulus to real output by bank credit-creation. Hahn (1949, pp. 6–7) later declared that “all that is wrong and exaggerated in Keynes I said myself much earlier and more clearly” and reprinted critiques of his own 1920 volume by Ellis (1934) and Haberler, arguing that their objections also applied to Keynes (1936). Boudreaux and Selgin (1990) present Hahn as a precursor of both Keynes and monetarism. However, Hahn championed demand stimulus during the German hyperinflation of the 1920s, when Keynes (1923) analyzed the costs of inflation, and then turned to advocacy of hard money during the Great Depression, when Keynes urged demand stimulus to remedy mass unemployment. To say the least, Hahn’s timing in matching his policy proposals to the current situation was unfortunate.

21.7 VIENNA AND THE LONDON SCHOOL OF ECONOMICS

The success of lectures delivered at the LSE by Friedrich Hayek (1931), then director of the Austrian Institute for Business Cycle Research, led to his election to a chair at the LSE at the age of 32, championing of Austrian trade cycle theory by another young LSE professor, Lionel Robbins (1934; and see introductions to Hayek, 1931; von Mises, 1935), and translation of other Austrian works. Austrian monetary overinvestment theory argued that expansionary monetary policy made subsequent depression inevitable by encouraging excessive lengthening of the average period of production (Ellis, 1934). The LSE–Austrian school rejected reasoning in terms of aggregates such as the price level, yet a key Austrian concept, the average period of production, became ensnared in capital theory paradoxes. The LSE–Vienna school was devastated by the loss to Keynesian or eclectic positions of promising young Hayekians studying or teaching at the LSE, with a few, notably Paul Sweezy, moving beyond Keynes to Marx (McCormick, 1992). Milton Friedman (in Gordon, 1974, pp. 162–3) argues that Keynes had more appeal to young economists at the LSE than at Chicago because at the LSE:

the dominant view was that the depression was an inevitable result of the prior boom, that it was deepened by the attempts to prevent prices and wages from falling and firms from going bankrupt . . . that the only sound policy was to let the depression run its course, bring down money costs, and eliminate weak and unsound firms. By contrast with this dismal picture, the news seeping out of Cambridge (England) about Keynes’s interpretation of the depression and the right policy to cure it must have come like a flash of light on a dark night. . . . It was the London School (really Austrian) view that I referred to in my “Restatement” when I spoke of “the atrophied and rigid caricature [of the quantity theory] that is so frequently described by the proponents of the new income-expenditure approach – and with some justice, to judge by much of the literature on policy that was spawned by the quantity theorists.”

O'Driscoll (1977), Steele (1993), and Colonna and Hagemann (1994) renewed serious study of Hayek's analysis of how markets deal with the coordination problem, as Moss (1976) did for von Mises. The emphasis is on Hayek's development of Menger's concept of spontaneous order and his extension of von Mises's critique of the rationality of socialist planning, rather than his formal theorizing. As *The Economist* (March 31, 2001, p. 77) concludes, "Hayek was not much of a technical economist, as Keynes and Mr Friedman in their different ways understood. But he was a social philosopher of rare system and power."

W. H. Hutt (1977 [1939]), an LSE graduate teaching at the University of Cape Town, presented a search-theoretic explanation of unemployment as an alternative to Keynes (1936). An acerbic critic of union power, Hutt drew on both Hayek's Austrian emphasis on market process and discovery of information, and on Beveridge's analysis of unemployment as a frictional problem of market organization, though he dismissed Beveridge (1930) as "a beautifully written descriptive, empirical study with no analytical content" (on Beveridge (1930), see Dimand, 1999). Hutt (1977 [1939]), the culmination of LSE–Austrian theorizing about unemployment in the 1930s, has attracted little study. Leijonhufvud (1969, p. 31n) identified neglect of Hutt (1977 [1939]) on search as "the worst sin of omission" in Leijonhufvud (1968).

21.8 THE OUTSIDERS: MONETARY HERETICS

Monetary heretics, asserting some flaw in the automatic adjustment mechanism of a capitalist monetary economy, raised questions not faced by mainstream economists (not always well-posed questions by any means). During economic upheavals, they received a hearing or a reply from academic economists (King, 1988; Dimand, 1991), with Robertson and Hayek rebutting the underconsumptionism of Foster and Catchings, and Fisher, Hawtrey, and Keynes taking up Silvio Gesell's stamped scrip proposal. Keynes (1936, ch. 23) praised "the proud army of heretics," notably John Hobson, who had paid attention to effective demand in determining aggregate output. Bleaney (1976) surveys underconsumptionism. Nemmers (1956), Backhouse (1990, 1994), and Schneider (1996) study Hobson's macroeconomics.

21.9 KALECKI AND THE MARXIAN TRADITION

Marxian economics was even further from the mainstream than monetary heresies. Joan Robinson (1977), Lawrence Klein, and others credited Michal Kalecki with independently discovering Keynes's General Theory, building upon Marx and Rosa Luxemburg (1951 [1913]). Patinkin (1982) disputed this, holding that the central message of Kalecki's articles from 1932 to 1935 was investment cycles, unlike the General Theory's principle of effective demand, interpreted as IS goods-market equilibrium (both solution of the equilibrium equation $F(Y) = Y$ and demonstration of stability by the adjustment equation $dY/dt = G[F(Y) - Y]$, where $G' > 0$).

Chapple (1991) argues that Kalecki determined output consistently with the principle of effective demand in a 1933 article in Polish (Kalecki, 1990, pp. 165–74) that Patinkin (1982, p. 69n) dismissed in one sentence in a footnote for arbitrarily fixing the profit share. Chapple (1993) shows capitalist spending decisions determining aggregate income in another 1933 Kalecki essay, with a procyclical profit share, unitary marginal propensity to consume out of wages, and zero marginal propensity to consume out of profits. Chapple (1995a) shows that Kalecki's 1934 Polish journal article "Three systems" (Kalecki, 1990, pp. 201–19) had a three-equation model of goods and money markets and aggregate supply. Kalecki did not include "Three systems" among his translated selected articles in 1966 and 1971, or cite it later, or develop its static equilibrium method, preferring dynamic models where investment alters the capital stock. This may exclude "Three systems" from Kalecki's "central message," but the essays studied by Chapple (1991, 1993, 1995a,b) remain of great interest for what Kalecki was able to produce in the early 1930s working in the Marxian tradition (see also Feiwel, 1975; Sebastiani, 1994; King et al., 1999). Kalecki aside, Howard and King (1989–92, vol. II, p. 19) conclude that "Marxist analyses of the Depression proved deficient, and the ultimate reason is similar to that applying in the case of bourgeois economics: they lacked an adequate theory of effective demand."

21.10 CONCLUSION: MACROECONOMICS BEFORE *THE GENERAL THEORY*

Harry Johnson (Johnson and Johnson, 1978) and Laidler (1999) argued that for the Keynesian revolution or monetarist counter-revolution to capture the attention and allegiance of the profession and policy-makers, differences with previous theories had to be over-dramatized, terminology altered, and continuities under-played. This led to a period of neglect of the monetary theory flowing from the work of Marshall, Fisher, and Wicksell, and of business cycle theory following from Juglar and Jevons. This rich and varied body of writings included contributions linked to later developments (Robertson and Schumpeter to real business cycles, Schumpeter and Young to endogenous growth, Mitchell to VARs, and Fisher to much of later monetary macroeconomics). Keynes was steeped in Cambridge tradition, and also exposed to Fisher and Wicksell (but not the Lausanne general equilibrium school). Patinkin's concept of a central message helps to clarify where Keynes stood in relation to his predecessors, and to sort out the problem of multiple discoveries. While Keynes also stressed the uncertainty underlying volatile investment decisions, Keynes's central message, according to Patinkin, was the principle of effective demand, the determination and stability of equilibrium income and employment, displacing the central message of quantity theory about prices (with output affected during transition periods) and the message of business cycle analysis about dynamics. Keynes transformed macroeconomics, but a substantial and valuable body of macroeconomics already existed to be transformed.

Bibliography

- Adams, F. G. (ed.) 1992: *Lawrence Klein's The Keynesian Revolution: 50 Years After*. Philadelphia: Department of Economics, University of Pennsylvania.
- Aghion, P. and Howitt, P. 1998: *Endogenous Growth Theory*. Cambridge, MA: The MIT Press.
- Andvig, J. 1985: *Ragnar Frisch and the Great Depression: A Study in the Interwar History of Macroeconomic Theory and Policy*. Oslo: Norwegian Institute of International Affairs.
- Aslanbeigui, N. 1992: Pigou's inconsistencies or Keynes's misconceptions? *History of Political Economy*, 24(4), 413–33.
- Backhaus, J. 1997: Keynes's German contenders 1932–1944: on the sociology of multiple discoveries in economics. *History of Economic Ideas*, 5(2), 69–84.
- Backhouse, R. 1990: J. A. Hobson as a macroeconomic theorist. In M. Freedman (ed.), *Reappraising J. A. Hobson: Humanism and Welfare*, London: Unwin Hyman, 116–36.
- 1994: Mummery and Hobson's *The Physiology of Industry*. In J. Pheby (ed.), *J. A. Hobson after Fifty Years: Freethinker of the Social Sciences*, London: Macmillan, 78–99.
- Bellerby, J. R. 1923: *Control of Credit as a Remedy for Unemployment*. London: P. S. King.
- 1925: *Monetary Stability*. London: Macmillan.
- Beveridge, W. 1930: *Unemployment, a Problem of Industry (1909 and 1930)*. London: Longmans, Green.
- Blaug, M. 1995: Why is the quantity theory of money the oldest surviving theory in economics? In M. Blaug, W. Eltis, D. O'Brien, D. Patinkin, R. Skidelsky, and G. Wood, *The Quantity Theory of Money From Locke to Keynes and Friedman*, Aldershot, UK: Edward Elgar, 27–49.
- Bleaney, M. 1976: *Underconsumption Theories: A History and Critical Analysis*. New York: International.
- Boianovsky, M. 1995: Wicksell's business cycle. *European Journal for the History of Economic Thought*, 2(2), 375–411.
- 1998: Wicksell on deflation in the early 1920s. *History of Political Economy*, 30(2), 219–76.
- Boudreaux, D. and Selgin, G. 1990: L. Albert Hahn: a precursor of Keynesianism and the monetarist counterrevolution. *History of Political Economy*, 22(2), 261–80.
- Brady, M. 1995: A study of J. M. Keynes' Marshallian–Pigouvian elasticity approach in Chapter 20 and 21 of the GT. *History of Economics Review*, 24, 55–71.
- Bridel, P. 1987: *Cambridge Monetary Thought: The Development of Saving–Investment Analysis from Marshall to Keynes*. London: Macmillan.
- 1997: *Money and General Equilibrium Theory From Walras to Pareto (1870–1923)*. Cheltenham, UK: Edward Elgar.
- Burns, A. F. and Mitchell, W. C. 1946: *Measuring Business Cycles*. New York: National Bureau of Economic Research.
- Casson, M. 1983: *Economics of Unemployment: An Historical Perspective*. Oxford: Martin Robertson.
- Chapple, S. 1991: Did Kalecki get there first? The race for the General Theory. *History of Political Economy*, 23(2), 243–61.
- 1993: Kalecki's theory of the business cycle and the General Theory. *History of Economics Review*, 20, 120–39.
- 1995a: Effective demand in Kalecki's early macroeconomics. *History of Economics Review*, 24, 43–54.
- 1995b: The Kaleckian origins of the Keynesian model. *Oxford Economic Papers*, 47(2), 524–37.

- Colonna, M. and Hagemann, H. (eds.) 1994: *The Economics of F. A. Hayek*, vol. 1: *Money and Business Cycles*. Aldershot, UK: Edward Elgar.
- Copland, D. (ed.) 1960: *Goblin: The Scholar and the Man*. Melbourne: Cheshire.
- Corry, B. 1962: *Money, Saving and Investment in English Economics 1800–1850*. London: Macmillan.
- Craver, E. 1986: Patronage and the direction of research in economics: the Rockefeller Foundation in Europe, 1924–1938, *Minerva*, 24, 205–22.
- Currie, L. 1934: *The Supply and Control of Money in the United States*. Cambridge, MA: Harvard University Press. Reprinted with introduction by K. Brunner, New York: Russell & Russell, 1968.
- 1997: Implications of an endogenous theory of growth in Allyn Young's macroeconomic concept of increasing returns, *History of Political Economy*, 29(3), 414–43.
- Davis, E. G. 1980: The correspondence between R. G. Hawtrey and J. M. Keynes on the *Treatise*: the genesis of output adjustment models. *Canadian Journal of Economics*, 12(4), 716–24.
- Davis, J. R. 1971: *The New Economics and the Old Economists*. Ames: Iowa State University Press.
- De Long, J. B. 2000: The triumph of monetarism? *Journal of Economic Perspectives*, 14(1), 83–94.
- Dimand, R. W. 1990: *R. G. Hawtrey and the Development of Macroeconomics*. London: Macmillan.
- Dimand, R. W. 1988: *The Origins of the Keynesian Revolution*. Aldershot, UK: Edward Elgar.
- 1991: Cranks, heretics and macroeconomics in the 1930s. *History of Economics Review*, 16, 11–30.
- 1999: Beveridge on unemployment and cycles before *The General Theory*. *History of Economic Ideas*, 7(3), 33–51.
- (ed.) 2002: *The Origins of Macroeconomics*, 10 vols. London and New York: Routledge.
- Ellis, H. 1934: *German Monetary Theory 1905–1933*. Cambridge, MA: Harvard University Press.
- Endres, A. and Fleming, G. 1999a: Public investment programmes in the interwar period: the view from Geneva. *European Journal of the History of Economic Thought*, 6(1), 87–109.
- and — 1999b: The ILO and the League of Nations: a distinctive perspective on macroeconomic stabilization policy in the 1920s. In L. Pasinetti and B. Schefold (eds.), *The Impact of Keynes on Economics in the 20th Century*. Cheltenham, UK: Edward Elgar, 202–20.
- Eshag, E. 1963: *From Marshall to Keynes: An Essay on the Monetary Theory of the Cambridge School*. Oxford: Blackwell.
- Feiwel, G. 1975: *The Intellectual Capital of Michal Kalecki*. Knoxville: University of Tennessee Press.
- Fetter, F. W. 1965: *The Development of British Monetary Orthodoxy 1797–1875*. Cambridge, MA: Harvard University Press.
- Fisher, I. 1896: *Appreciation and Interest*. New York: Macmillan, for the American Economic Association.
- 1907: *The Rate of Interest*. New York: Macmillan.
- , with Brown, H. G. 1911: *The Purchasing Power of Money*. New York: Macmillan.
- 1926: A statistical relation between unemployment and price changes. *International Labour Review*, 13(6), 785–92. Reprinted 1973 as: Lost and found: I discovered the Phillips curve. *Journal of Political Economy*, 81(2), 496–502.
- 1930: *The Theory of Interest*. New York: Macmillan.
- 1933: The debt-deflation theory of Great Depressions. *Econometrica*, 1(3), 337–57.
- 1997: *Works of Irving Fisher*, 14 vols, edited by W. J. Barber assisted by R. W. Dimand and K. Foster, consulting editor J. Tobin. London: Pickering & Chatto.

- Flanders, M. J. 1989: *International Monetary Economics 1870–1960: Between the Classical and the New Classical*. Cambridge, UK: Cambridge University Press.
- Fletcher, G. 2000: *Understanding Dennis Robertson: The Man and his Work*. Cheltenham, UK: Edward Elgar.
- Friedman, M. and Schwartz, A. J. 1963: *A Monetary History of the United States 1867–1960*. Princeton, NJ: Princeton University Press for National Bureau of Economic Research.
- Giblin, L. F. 1930: *Australia 1930*. Melbourne: Melbourne University Press. Reprinted in Dimand (2002), op. cit.
- Goodhart, C. and Presley, J. 1994: Real business cycle theory: A restatement of Robertsonian economics? *Economic Notes Monte dei Paschi di Siena*, 23(2), 275–91.
- Gordon, R. J. (ed.) 1974: *Milton Friedman's Monetary Framework: A Debate with his Critics*. Chicago: The University of Chicago Press.
- Grice-Hutchinson, M. 1952: *The School of Salamanca: Readings in Spanish Monetary Theory, 1544–1605*. Oxford: The Clarendon Press.
- Guggenheim, T. 1989: *Preclassical Monetary Theories*. London and New York: Pinter.
- Hagemann, H. (ed.) 2001: *Business Cycle Theory: Selected Texts 1860–1939*, 4 vols. London: Pickering & Chatto.
- Hahn, L. A. 1920: *Volkswirtschaftliche Theorie des Bankkredits*. Tübingen.
- 1949: *The Economics of Illusion*. New York: Squier.
- Hawtrey, R. 1913: *Good and Bad Trade*. London: Constable. Reprinted New York: Kelley, 1970 (with 1962 preface by author).
- 1919: *Currency and Credit*. London: Longman.
- 1932: *The Art of Central Banking*. London: Longman.
- Hayek, F. A. 1931: *Prices and Production*. London: Routledge.
- Hendry, D. and Morgan, M. (eds.) 1995: *Foundations of Econometric Analysis*. Cambridge, UK: Cambridge University Press.
- Hicks, J. R. 1937: Mr Keynes and the classics: a suggested interpretation. *Econometrica*, 5(1), 147–59.
- Howard, M. and King, J. 1989–92: *A History of Marxian Economics*, 2 vols. Princeton, NJ: Princeton University Press.
- Humphrey, T. 1986: *Essays on Inflation*, 5th edn. Richmond, VA: Federal Reserve Bank of Richmond.
- Hutchison, T. W. 1953: *A Review of Economic Doctrines 1870–1929*. Oxford: The Clarendon Press.
- 1980: *The Limitation of General Theories in Macroeconomics*. Washington, DC: American Enterprise Institute.
- Hutt, W. H. 1977 [1939]: *The Theory of Idle Resources*. London: Cape; 2nd edn. Indianapolis: Liberty Fund, 1977.
- Jevons, W. S. 1884: *Investigations in Currency and Finance*, ed. H. S. Foxwell. London: Macmillan.
- Johnson, E. S. and Johnson, H. G. 1978: *The Shadow of Keynes*. Chicago: The University of Chicago Press.
- Jonung, L. (ed.) 1991: *The Stockholm School of Economics Revisited*. Cambridge, UK: Cambridge University Press.
- (ed.) 1993: *Swedish Economic Thought*. London and New York: Routledge.
- Kalecki, M. 1990: *Collected Works of Michal Kalecki, Volume I: Capitalism, Business Cycles and Full Employment*, ed. J. Osiatynski. Oxford: The Clarendon Press.
- Keynes, J. M. 1923: *A Tract on Monetary Reform*. London: Macmillan.
- 1936: *The General Theory of Employment, Interest and Money*. London: Macmillan.

- 1971–89: *Collected Writings*, 30 vols, general eds. D. E. Moggridge and E. A. G. Robinson, volume eds. E. S. Johnson and D. E. Moggridge. London: Macmillan and New York: Cambridge University Press, for the Royal Economic Society.
- King, J. E. 1988: *Economic Exiles*. London: Macmillan.
- et al. 1999: Special issue on Kalecki, *Review of Political Economy*, 11(3), 251–371.
- Klausinger, H. 1995: Schumpeter and Hayek: two views of the Great Depression re-examined. *History of Economic Ideas*, 3, 93–127.
- 1999: German anticipations of the Keynesian revolution? The case of Lautenbach, Neisser and Röpke. *European Journal of the History of Economic Thought*, 6(3), 378–403.
- Klein, J. 1999: The rise of “Non-October” econometrics: Kondratiev and Slutsky at the Moscow Conjecture Institute. *History of Political Economy*, 31(1), 137–68.
- Klein, L. 1946: *The Keynesian Revolution*. New York: Macmillan.
- Kondratiev, N. D. 1998: *The Works of Nikolai D. Kondratiev*, 4 vols, ed. N. Makasheva, W. Samuels, and V. Barnett. London: Pickering & Chatto.
- Koopmans, T. 1947: Measurement without theory. *Review of Economic Statistics*, 29, 161–72.
- Laidler, D. 1991: *The Golden Age of the Quantity Theory*. Princeton, NJ: Princeton University Press.
- 1999: *Fabricating the Keynesian Revolution: Studies of the Inter-War Literature on Money, the Cycle, and Unemployment*. Cambridge, UK: Cambridge University Press.
- Leijonhufvud, A. 1968: *On Keynesian Economics and the Economics of Keynes*. New York: Oxford University Press.
- 1969: *Keynes and the Classics*. London: Institute of Economic Affairs.
- Lindhal, E. 1939: *Studies in the Theory of Money and Capital*. London: George Allen & Unwin.
- Link, R. 1959: *English Theories of Economic Fluctuations 1815–1848*. New York: Columbia University Press.
- Loef, H.-E. and Monissen, H. (eds.) 1999: *The Economics of Irving Fisher*. Cheltenham, UK: Edward Elgar.
- Lundberg, E. 1937: *Studies in the Theory of Economic Expansion*. London: King.
- 1994: *Studies in Economic Instability and Change*, edited with a postscript by R. G. H. Henrikson. Stockholm: SNS Förlag.
- 1996: *The Development of Swedish and Keynesian Macroeconomic Theory and its Impact on Economic Policy*. Cambridge, UK: Cambridge University Press.
- Luxemburg, R. 1951 [1913]: *The Accumulation of Capital*, translated by A. Schwarzchild, with an introduction by J. Robinson. New Haven, CT: Yale University Press, 1951.
- Marshall, A. 1923: *Money, Credit and Commerce*. London: Macmillan.
- 1926: *Official Papers of Alfred Marshall*, ed. J. M. Keynes. London: Macmillan.
- McCormick, B. 1992: *Hayek and the Keynesian Avalanche*. New York: St. Martin's Press.
- Mehrling, P. 1997: *The Money Interest and the Public Interest: American Monetary Thought 1920–1970*. Cambridge, MA: Harvard University Press.
- and Sandilands, R. (eds.) 1999: *Money and Growth: Selected Papers of Allyn Abbott Young*. London and New York: Routledge.
- Milmo, A. 2000: Revisiting Giblin: Australia's first proto-Keynesian economist? *History of Economic Review*, 31, 48–67.
- Mises, L. von 1935: *The Theory of Money and Credit*, trans. H. Batson. London: Cape.
- Mitchell, W. C. 1913: *Business Cycles*. Berkeley, CA: University of California Press. Reprinted New York: Burt Franklin, 1970.
- 1927: *Business Cycles, the Problem and its Setting*. New York: National Bureau for Economic Research.

- 1951: *What Happens During Business Cycles: A Progress Report*. New York: National Bureau of Economic Research.
- Moss, L. (ed.) 1976: *The Economics of Ludwig von Mises*. Kansas City, MO: Sheed & Ward.
- Myrdal, G. 1939: *Monetary Equilibrium*, trans. R. Bryce and N. Stolper. London: W. Hodge.
- Nemmers, E. E. 1956: *Hobson and Underconsumption*. Amsterdam: North-Holland.
- O'Brien, D. 1993: *Thomas Joplin and Classical Macroeconomics*. Oxford: The Clarendon Press.
- (ed.) 1997: *Foundations of Business Cycle Theory*, 3 vols. Cheltenham, UK: Edward Elgar.
- 2000: Bodin's analysis of inflation, *History of Political Economy*, 32(2), 267–92.
- O'Driscoll, G. 1977: *Economics as a Coordination Problem: The Contributions of Friedrich A. Hayek*. Kansas City, MO: Sheed Andrews and McMeel.
- Ohlin, B. 1978 [1933]: On the formulation of monetary theory. *History of Political Economy*, 10(3), 353–88.
- Patinkin, D. 1981: *Essays on and in the Chicago Tradition*. Durham, NC: Duke University Press.
- 1982: *Anticipations of the General Theory? And Other Essays on Keynes*. Chicago: The University of Chicago Press.
- Peart, S. 1996: *The Economics of W. S. Jevons*. London and New York: Routledge.
- Pigou, A. C. 1927: *Industrial Fluctuations*. London: Macmillan.
- 1933: *Theory of Unemployment*. London: Macmillan.
- Presley, J. 1979: *Robertsonian Economics*. London: Macmillan.
- Robbins, L. 1934: *The Great Depression*. London: Macmillan.
- Robertson, D. H. 1915: *A Study of Industrial Fluctuation*. London: King.
- 1926: *Banking Policy and the Price Level*. London: King.
- Robinson, J. 1977: Michal Kalecki on the economics of capitalism, *Oxford Bulletin of Economics and Statistics*, 39(1), 7–17.
- Rymes, T. K. (ed.) 1987: *Keynes's Lectures, 1932–35: Notes of Students*. Ottawa: Department of Economics, Carleton University.
- Samuelson, P. A. 1946: Lord Keynes and the General Theory, *Econometrica*, 14(2), 187–200.
- Sandilands, R. 1990: *The Life and Political Economy of Lauchlin Currie*. Durham, NC: Duke University Press.
- 2000: Perspectives on Allyn Young in theories of endogenous growth. *Journal of the History of Economic Thought*, 22(3), 309–28.
- Schneider, M. 1996: *J. A. Hobson*. London: Macmillan.
- Schumpeter, J. 1934 [1912]: *The Theory of Economic Development*, trans. R. Opie. Cambridge, MA: Harvard University Press.
- 1939: *Business Cycles*, 2 vols. New York: McGraw-Hill.
- Schwartz, A. J. 1987: Banking school, currency school, free banking school. In J. Eatwell, M. Milgate, and P. Newman (eds.), *The New Palgrave: A Dictionary of Economics*, London: Macmillan.
- Sebastiani, M. 1994: *Kalecki and Unemployment Equilibrium*. London: Macmillan.
- Sherman, H. 2001: The business cycle theory of Wesley Mitchell. *Journal of Economic Issues*, 35(1), 85–97.
- Simons, H. 1948: *Economic Policy for a Free Society*. Chicago: The University of Chicago Press.
- Sims, C. 1980: Macroeconomics and reality. *Econometrica*, 48(1), 1–48.
- Slutsky, E. E. 1937 [1927]: The summation of random causes on the source of cyclic process. *Econometrica*, 5, 105–46.
- Sowell, T. 1972: *Say's Law: An Historical Analysis*. Princeton, NJ: Princeton University Press.
- Steele, G. R. 1993: *The Economics of Friedrich Hayek*. London: Macmillan.

- Steindl, F. 1995: *Monetary Interpretations of the Great Depression*. Ann Arbor, MI: University of Michigan Press.
- Tarascio, V. 1969: The monetary and employment theories of Vilfredo Pareto. *History of Political Economy*, 1(1), 101–22.
- Tavlas, G. 1998: Retrospectives: Was the monetarist tradition invented? *Journal of Economic Perspectives*, 12(4), 211–22.
- Thornton, H. 1965 [1802]: *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*, ed. F. Hayek. New York: Kelley.
- Trautwein, H.-M. 1996: Money, equilibrium, and the business cycle: Hayek's Wicksellian dichotomy. *History of Political Economy*, 28(1), 27–55.
- Uhr, C. 1990: Erik Lundberg's economic dynamics. *Journal of the History of Economic Thought*, 12(2), 222–35.
- Vickers, D. 1959: *Studies in the Theory of Money 1690–1776*. New York: Chilton.
- Wicksell, K. 1935 [1915]: *Lectures on Political Economy*, vol. II, trans. E. Claassen. London: Routledge.
- 1962 [1898]: *Interest and Prices*, trans. R. Kahn. London: Macmillan, for the Royal Economic Society, 1936. Reprinted New York: Kelley.
- Young, W. 1987: *Interpreting Mr Keynes: The IS–LM Enigma*. Cambridge, UK: Polity Press.