WHAT KEYNESIAN REVOLUTION?

A RECONSIDERATION SEVENTY YEARS AFTER *THE GENERAL THEORY*

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Abstract: The nature of the "Keynesian revolution" and the relation of Keynes's contribution to those of his contemporaries continues to concern historians of economics (e.g. Mark Blaug, "Second Thoughts on the Keynesian Revolution," *HOPE* 1991). David Laidler, in *Fabricating the Keynesian Revolution* (1999) and his chapter in *The Cambridge Companion to Keynes* (2006), argues that Keynesian macroeconomics did not represent a radical change in economic thinking, but, rather, an extremely selective synthesis of themes that permeated twenty years of interwar monetary economics, much of which was overshadowed in textbook versions of the "Keynesian revolution." This essay evaluates the Laidler thesis and attempts, placing Keynes in the context of his contemporary economics to elucidate the work of synthesis by Keynes and his early interpreters, considering whether the theory of the determination of national income as a whole was a radical change in economic thinking that went beyond synthesis.

IT'S THAT MAN AGAIN: THE CONTINUING FASCINATION OF KEYNES

Economists and non-economists are more inclined to read about John Maynard Keynes than about other eminent dead economists, and such terms as New Classical, New Keynesian, and Post Keynesian indicate that the issues that divided Keynes from those he labeled as classical still inspire research, however distant and hazy may be the historical awareness of such recent mainstream writers as Mankiw 1992. Widely-read biographies by Don Moggridge and Robert Skidelsky reveal both a fascinating life and a public career of historical significance from the critique of the Versailles peace treaty to the Bretton Woods negotiations, and a more specialized literature considers Keynes's views on philosophy and probability (and will undoubtedly be revived when Rod O'Donnell's long-awaited supplement to Keynes's *Collected Writings* finally appears), but most of all the continuing attention to Keynes focuses on his repute as the man who revolutionized economics.

Even before the concept of a "Keynesian revolution" appeared as the title of Klein (1947), Keynes himself suggested in his famous 1935 letter to George Bernard Shaw in which he declared himself on the verge of publishing a book that would over the next decade or so revolutionize how economists thought about the economy, knocking out the Ricardian foundations of orthodox economics (and in Keynes's mind, also of Marxian economics). But commentators continue to grapple with the nature of that revolution. Francis X. Diebold proclaimed that "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). In contrast, David Laidler's *Fabricating the Keynesian Revolution* (1999) stresses the rich heritage of monetary economics and business cycle theory, and

argues that Keynesian macroeconomics, as embodied in the IS-LM framework, emerged from a process of evolution rather than revolution during two decades of intellectual development in which Keynes was a major figure, but by no means the only important contributor, and with Keynes's contributions being not only *The General Theory* but also the quantity theoretic *Tract* on the inflation tax, covered interest parity, and the social cost of inflation. In this view, Keynes (1936) did not mark a radical break with previous economic thinking, but rather a highly selective synthesis of themes that had permeated economics since the First World War and before.

I consider Diebold's sweeping assertion untenable, supportable only by a quibbling claim that monetary economics and business cycle theory do not count as macroeconomics until the term macroeconomics was coined (or else I would not have given the title *The Origins of Macroeconomics* to a ten-volume anthology of material extending back half a century before *The General Theory*). Laidler's contrasting view, buttressed by careful and wide-ranging scholarship, raises the question of why, beyond accidents of political circumstance, Keynes's *General Theory* received, and receives, so much attention. An answer is given by Laidler himself, in his chapter on "Keynes and the birth of modern macroeconomics" in *The Cambridge Companion to John Maynard Keynes* (Backhouse and Bateman 2006, p. 48): "The *General Theory* was by no means the first work to argue that: (a) the co-ordination of saving and investment at full employment by the rate of interest might break down because of the working of the monetary system; and that (b) this breakdown would probably result in unemployment. Earlier work, however, had failed to explain just how (b) in fact followed from (a)." Laidler then cites Keynes's own *Treatise on Money* as an example of such earlier work,

but the statement is equally applicable to the writings of his contemporaries and predecessors in monetary and business cycle analysis. Laidler next refers to Keynes's use of the spending multiplier as how he derived (b) from (a). However, Keynes's account of how deficiency of aggregate demand can cause unemployment to arise and persist in a monetary economy involved much more than the spending multiplier (or, moving from changes to levels, the goods market equilibrium condition), and provided a new analytical focus crucial to transforming the rich and variegated heritage of business cycle analysis and the quantity theory of money into modern macroeconomics, even though (as Laidler 2004 emphasizes) recent mainstream macroeconomics (post-modern macroeconomics?) has narrowed its focus to exclude much of Keynes's message. Laidler (1999) is subtitled *Studies of the Inter-War Literature on Money, the Cycle, and Unemployment*. The literature on money and on the cycle is indeed treated fully and with great insight. Pre-Keynesian British writing on unemployment is discussed in Laidler's Chapter 7, but more peripherally to his main story. Writing on money and on the cycle was already unmistakably macroeconomic before Keynes, but the literature on unemployment was what would later be termed microeconomic and partial equilibrium, analyzing unemployment as a problem of one market, that for labour.

A BENCHMARK FOR INTERPRETING KEYNES: SAMUELSON IN 1946

In his 1946 *Econometrica* memorial article on Keynes, Paul Samuelson held that "until the appearance of the mathematical models of Meade, Lange, Hicks, and Harrod, there is reason to believe that Keynes himself did not truly understand his own analysis" (in Lekachman 1964, p. 316). The sorting-out of the differences between Keynes and

classics, and the introduction of the formal modeling of the macro-economy in small, aggregated systems of simultaneous equations, was thus situated by Samuelson in the October 1936 Econometric Society session in Oxford in which Harrod, Hicks, and Meade presented their systems of equations for Keynesian economics (see Lekachman 1964, Young 1987), accompanied in the case of Hicks (1937) with diagrams that shaped the trained intuition of the profession (especially after Alvin Hansen replaced Hicks's diagrams for capital goods and consumer goods with a diagram for goods market and money equilibrium in a one-good economy). According to Samuelson, "except for his discussion of index numbers in Volume I of the *Treatise* and for a few remarks concerning 'user cost,' which are novel at best only in terminology and emphasis, [Keynes] seems to have left no mark on pure theory" (in Lekachman 1964, p. 326). Reflecting in 1963 on subsequent developments, Samuelson credited A. C. Pigou and Gottfried Haberler, and following them Oskar Lange, Don Patinkin, and Franco Modigliani, with "the demonstration that within a Keynesian system full employment can in all probability be fully restored" through the real balance effect of driving down money wage rates and prices, increasing the real value of outside money, hence of net wealth, stimulating consumption even in a liquidity trap (in Lekachman 1964, pp. 332-33). Unsuccessful as a challenge within pure theory to Pigou's Marshallian orthodoxy, and with Keynes's theoretical contribution reduced in this stylized history to an arbitrary but empirically plausible assumption that money wages are sticky downwards (perhaps because of irrational money illusion on the part of workers), Keynesianism (as formalized by Samuelson's generation, more attuned to model-building than was Keynes) was nonetheless a breakthrough in policy. Like his first doctoral student Lawrence Klein (*The*

Keynesian Revolution, 1947, pp. 45-46, 53), Samuelson mocked Ralph Hawtrey's Macmillan Committee testimony for arguing that government spending would crowd out private spending, except to the extent that it was financed by the creation of new money, which would have been just as expansionary without the government spending (in Lekackman 1964, p. 330n). Samuelson's 1946 verdict on Keynes was promptly reprinted in Harris (1947), and echoed both in Samuelson's best-selling introductory textbook and in Klein's dissertation (which had a second edition in 1966, and was the subject of a conference volume, Adams 1992). Samuelson's eloquent and long-influential 1946 interpretation, from which I have (quite unfairly to Samuelson) selectively cited only judgments that later proved problematic, provides a convenient straw man as a backdrop for changing readings of Keynes.

KEYNES AND IS-LM

The IS-LM formalization of Keynes's *General Theory*, presented in small systems of equations in journal articles by Champernowne, Reddaway, Ellis, Harrod, Hicks, and Meade in 1936 and 1937 and in the Hicks-Hansen diagram (see Young 1987), shaped the trained intuition of the economics profession for decades more strongly than did direct contact with Keynes's own writings, and continues (together with its open-economy extension by Mundell and Fleming) to have a leading role in the teaching of intermediate undergraduate macroeconomics and in short-term policy analysis even after the monetarist and New Classical challenges to Keynesianism (Young and Zilberfarb 2000). Just as price theory (thereafter microeconomics) had Marshall's scissors diagram of supply and demand, so the emerging sub-discipline of macroeconomics found in IS-LM a

common reference point for argument and analysis, augmented by use of IS-LM to derive the AD curve on the Aggregate Demand/Aggregate Supply diagram and of the 45-degree "Keynesian cross diagram" for derivation of the IS goods market equilibrium curve (see Axel Leijonhufvud's "Life Among the Econ," in Leijonhufvud 1981, on the totem of the Macro and the totem of the Micro). One of the uses of the IS-LM framework was to stifle the great debate between Keynesian liquidity preference and Robertsonian loanable funds theories of the interest rate. To ask whether the interest rate is determined by equality of money supply and money demand (liquidity preference) or by equality of saving and investment (loanable funds) is to ask whether it is set by the LM curve or the IS curve, which, as Marshall said of whether supply or demand determines price, is like asking which blade of the scissors cut the paper.

But *The General Theory* has only one diagram (suggested by Harrod) and its few equations are not gathered into a system of simultaneous equations. Paul Samuelson claimed that Keynes did not understand his own theory until his saw it translated into the language of IS-LM. To the contrary, Keynes's closest associates among the younger Cambridge economists, Joan Robinson (1975) and Richard Kahn (1984), vehemently denied that IS-LM was anything more than a travesty of Keynes's message, offering a tidy, mechanical determination of equilibrium levels of income and interest that obscured Keynes's emphasis on fundamental uncertainty, lack of knowledge of the future, and volatile private investment (an emphasis particularly notable in Keynes 1937, responding to reviews in the *Quarterly Journal of Economics*). Robinson and Kahn saw Keynes's theory as describing an economy moving through historical time, not a set of simultaneous equations for a static equilibrium.

However, the first two published presentations of small, aggregate models equivalent to IS-LM in articles published in June 1936 by David Champernowne and W. Brian Reddaway (both reprinted in Lekachman 1964, with subsequent reflections by the authors) were written by Cambridge students who had attended Keynes's lectures, tutorial supervisions, and Political Economy Club. T. K. Rymes's compilation and synthesis of notes taken by students attending Keynes's lectures (Rymes 1987, 1989) revealed that the first representation of Keynes's theory in the form of a general equilibrium model of four simultaneous equations was made by John Maynard Keynes himself on December 4, 1933, in the concluding lecture of his series of eight lectures on "The Monetary Theory of Production" (see Dimand 1988, 2007). Champernowne and Reddaway attended the lectures. The student notes on Keynes's lectures are particularly interesting, because, after resigning from a salaried lectureship upon his return from the wartime and postwar Treasury in 1919, Keynes lectured only on the subject of whichever he was writing at the time. The exceptional nature of Keynes's lectures is shown by the continued attendance of some listeners year after year: we have notes taken by Lorie Tarshis for four successive years, 1932 to 1935, and by Robert Bryce for three years, 1932 to 1934 (see also Tarshis 1987).

In his concluding lecture in the Michaelmas Term of 1933, Keynes summarized his theory as:

$M = A(W, \rho)$	money supply = liquidity preference (money demand)
$C = \varphi_1(W, Y)$	consumption function
$I = \varphi_2(W, \rho)$	investment function
$Y = C + I = \varphi_1(W, Y) + \varphi_2(W, \rho)$	aggregate demand

where rho (ρ) is the interest rate and W is the "state of the news." The level of national income (Y) did not appear along with the interest rate as an argument in the liquidity preference function until Lorie Tarshis's notes on Keynes's lecture on November 25, 1935.

The IS-LM representation of Keynes, which became the trained intuition of generations of macroeconomists, thus originated in Keynes's own lectures, and first reached print in articles on Keynes by two of his students, Champernowne and Reddaway, who had attended his lectures in 1933 and subsequent years. This disposes of the claim by Paul Samuelson (1946) that "until the appearance of the mathematical models of Meade, Lange, Hicks, and Harrod, there is reason to believe that Keynes himself did not truly understand his own analysis" and also of the argument of Joan Robinson (1975) and Richard Kahn (1984) that Keynes would never have countenanced representing his theory as a system of simultaneous equations. Axel Leijonhufvud (1968) viewed IS-LM as the core of the "Keynesian economics" that missed the point of "the economics of Keynes", because it concealed from view the crucial importance of expectations, information, and barriers to interest rate adjustment. It is thus striking that the four-equation model of Keynes's December 1933 lecture differs from the subsequent IS-LM model by having "the state of the news" (W), treated as an exogenous variable (like the animal spirits underlying long period expectations in *The General Theory*) as an explicit argument in the liquidity preference, consumption, and investment functions. Keynes did not publish his system of equations himself: as a good Marshallian, he followed Marshall's celebrated advice to use mathematics as an aid to thought, translate the mathematical analysis into English, illustrate with examples relevant to actual life,

and then burn the mathematics. He did, however, assure his readers that "if we have all the facts before us, we shall have enough simultaneous equations to give us a determinate result" (1936, p. 299).

DID PIGOU WIN OUT IN THEORY?

The verdict of Don Patinkin (1965) was that Keynes's King's College colleague A. C. Pigou won the theoretical debate with Keynes: if money wages were flexible, market forces would automatically restore full employment after a negative demand shock. Both Pigou and Patinkin denied that this theoretical conclusion had any relevance for practical policy, and defended Keynesian management of aggregate demand in a real world in which money wages are sticky downwards. Pigou (1943) argued that lower money wages and a lower price level would increase aggregate expenditure even in a liquidity trap. Even if a liquidity trap prevented an increase in the real money supply from lowering the interest rate and stimulating investment, a lower price level would, by increasing the purchasing power represented by the money supply, increase real wealth and thereby increase consumption. Gottfried Haberler (1941) made a similar argument in the third edition of his *Prosperity and Depression*, but this attracted little notice: the *Economic Journal* published Kahn's hostile review of the first edition, Haberler's reply, a note by Keynes denied Haberler's claim that Kahn had misinterpreted Keynes, and a short unsigned review by Keynes of the second edition, but no review of the wartime third edition. Michal Kalecki, in a 1944 comment on Pigou, pointed out that the Pigou (or Pigou-Haberler-Scotivsky) real balance effect only applied to outside money (cash plus non-interest-bearing reserve deposits held by the banks at the central bank), not to inside

money, bank deposits backed by liabilities of other agents. In editorial correspondence about Kalecki's *Economic Journal* comment on Pigou, Keynes argued that the real balance effect also does not apply to government bonds, whose market value is the present discounted value of interest and dividends that will have to be paid by taxpayers in the future (Dimand 1988), but this anticipation of Barro's Ricardian debt neutrality was not published. But granting that the monetary base (outside money) is much smaller than the sum of all money and government bonds, a real balance effect remained, and the economics discipline agreed with Patinkin (1965) that, as a matter of pure theory, a sufficient reduction in money wages and prices could restore full employment after any demand shock. Keynes's *General Theory* was reduced to a theoretically trivial, albeit practically important, assumption of rigid wages.

But this controversy concerned the effect of a lower price level (comparing two equilibria that differ only by one having a lower price level and money wage rate), not a falling price level, even if economists spoke loosely of changes in response to a demand shock. The neutrality of a change in the real value of inside debts was also taken for granted. The literature ignored two crucial contributions, neither published in an obscure place: Chapter 19 of Keynes's *General Theory*, on "Changes in Money-Wages," and Irving Fisher's "Debt-Deflation Theory of Great Depressions," published in 1933 in the first volume of *Econometrica* by the founding president of the Econometric Society (reprinted in Fisher 1997, Volume 10). The appendix to Keynes's Chapter 19, attacking Pigou's *Theory of Unemployment* (1933), was much noticed; not so the message of the chapter itself. Keynes (1936, Chapter 19) argued that deflation reduces effective demand, by creating expectation of further deflation which increases liquidity preference (money

demand), offsetting the effect of lower prices in increasing the real quantity of money. His analysis, he claimed, was not dependent on taking money wages as given (or at least rigid downward), the simplifying assumption made in his first eighteen chapters. Fisher, writing from bitter personal experience, stressed that an unanticipated deflation redistributes real wealth from borrowers to creditors, and sets off a scramble for liquidity by those with debts fixed in nominal terms (including banks) that pushes prices (including asset prices) down even further. The possibility of costly illiquidity and bankruptcy introduces an asymmetry between inflation and deflation when there are outstanding debts denominated in money: deflation increases perceived lender's risk and borrower's risk, raising the risk-adjusted cost of capital. According to Fisher, the deflation that began in 1929 led to a great depression while the rapid deflation of 1920-21 did not because the volume of outstanding nominal debt was much higher in 1929.

In a simple model with adaptive expectations, an expectations-augmented Phillips curve, and aggregate demand depending on both the price level and the expected rate of change of prices, James Tobin (1975) posed the issue as whether aggregate demand increases when the economy is operating below potential output. A lower price level would increase aggregate demand, through the Pigou real balance effect on consumption and through the Keynes effect of a larger real quantity of money shifting the LM curve down, reducing the interest rate, which stimulates investment. But, following Keynes (1936, Chapter 19), expected deflation increases liquidity preference by reducing the opportunity cost of holding real money balances, shifting the LM curve up (if nominal interest is on the vertical axis). If the nominal interest rate cannot fall because of a liquidity trap at or slightly above zero, faster deflation pushes real interest up point for

point, swamping a real balance effect that acts only on the small amount of outside money. Tobin (1980, 1993) and Hyman Minsky (1975) added the Fisher effect of deflation, causing a scramble for liquidity and redistributing wealth to lenders from borrowers who became borrowers because they have higher propensities to spend, as strengthening the contractionary effect of deflation. The more flexible money wages and prices are, and so the faster the deflation resulting from a negative demand shock, the more likely is the economy to move further away from potential output in the wake of a really large negative demand shock, even if the system is self-adjusting for smaller shocks (Tobin 1975, 1980, 1993, see also Tobin "writing as J. M. Keynes" in Harcourt and Riach 1997). The issue of self-adjustment or stability becomes an empirical one of the size of the coefficients on the price level and expected deflation in the aggregate demand function, and the responsiveness of speed of adjustment of prices to the size of the output gap, as well as a question of how dependent Tobin's result was on the specifics of his model (e.g. adaptive expectations versus rational expectations). Regardless of the progress of these investigations, it is clear that it can no longer be maintained that Pigou (1943) won out over Keynes (1936) on the battleground of theory. Pigou's real balance effect did not reduce Keynes's *General Theory* to the practically relevant but theoretically banal case of a fixed money wage.

Robert Clower (1967, 1984) and Axel Leijonhufvud (1968, 1981) argued, contrary to Samuelson and Patinkin, that Keynes's rejection of what he labeled Say's Law of Markets (in aggregate, supply creates its own demand, so aggregate demand deficiency cannot cause a general glut) be taken seriously as an innovation in economic theory by Keynes, regardless of its accuracy as an account of the version of Say's Law held by any

individual classical economists such as John Stuart Mill. Walras's Law (so named by Oskar Lange, six years after Keynes's *General Theory*) holds that the value of aggregate demand for the whole economy summed across all markets (including money) must add to zero for any price vector (not just equilibrium prices), because budget constraints (plus local non-satiation) keep the sum over all markets of the value of each individual's excess demands to zero. Clower and Leijonhufvud pointed out that, if the labour market does not clear, the amount of labour that a quantity-constrained household cannot sell, multiplied by the wage rate at which it cannot sell that labour, should not be counted as part of that household's budget constraint for determining its effective demand for goods. The "reappraisal of Keynesian economics" initiated by Clower and Leijonhufvud in the late 1960s attracted considerable attention at first (see Hines 1971), but was not absorbed into the mainstream of macroeconomics (see Leijonhufvud 1999). Their reformulation of Keynes's rejection of Say's Law implied that if all firms expanded hiring (for instance, because of pump-priming government spending), households might spend the resulting wages in ways that justified the expansion of output, moving the economy to a new, Pareto-superior equilibrium, even if it would not have been in the interest of any one firm to expand alone. This was intuitively appealing to Keynesians, but not easy to model persuasively. Similarly, Adam Smith's attribution of the gains from trade to increasing returns to scale (the division of labour is limited by the extent of the market), the subject of the first three chapters of *The Wealth of Nations*, was well known but did not influence international trade theory until the 1980s, when means were found to make increasing returns tractable in formal modeling. The game-theoretic concept of strategic complementarity (Cooper 1998) may provide a comparable resurgence of interest in

modeling coordination problems (in contrast to New Classical models that exclude the possibility of coordination problems by assuming the existence of a representative agent).

A REVOLUTION IN POLICY?

The belief that Keynes's *General Theory* contributed no more to pure theory than an arbitrary assumption of sticky wages was accompanied by a myth of Keynes as a lone advocate of expansionary fiscal and monetary policy in response to the Great Depression. Mark Blaug (1991, 178) points out that "there was a pre-Keynesian orthodoxy on policy matters in Britain – free trade, the gold standard, balanced budgets, debt redemptions, and structural reforms – but it was a creed of bankers, businessmen, civil servants, and politicians, not of academic economists." A few economists, notably Lionel Robbins (1934), Friedrich Hayek (1931), and their LSE colleagues, shared that orthodoxy (see also Mises 1935), and, when serving with Robbins on the Committee of Economists, Keynes ironically complimented Robbins on being one of the few classical economists whose policy prescriptions were consistent with his theoretical position. Keynes sharply criticized Pigou's *Theory of Unemployment*, which emphasized the demand for and supply of labour in terms of real wages, abstracting from bargaining in money terms, but he also made clear, when responding when Kahn sent Keynes a copy of a popular, policy-oriented book by Pigou in 1937, that he saw little difference between himself and "The Prof" on matters of practical policy: "why do they insist on maintaining theories from which their own practical conclusions cannot follow? It is a sort of Society for the Preservation of Ancient Monuments" (Keynes 1971-89, Vol. XIV, 259). Terrence Hutchison (1977, 1978) showed that later British Keynesians erred in depicting Pigou as

anti-Keynesian in his policy recommendations and in attributing to Keynes a determination to push for demand expansion to reduce unemployment to very low rates.

The identification of Keynes's revolution as one in policy has led to all too many reported sightings of precursors of Keynes, whenever someone is found to have proposed public works as a response to unemployment – a criterion which, as Hutchison shows, would make Jean-Baptiste Say himself an early Keynesian. Advocacy of public works did not necessarily imply a Keynesian understanding of aggregate demand, let alone Abba Lerner's "functional finance": Rexford Tugwell proposed an anti-Depression public works program to be financed by cutting other government spending. Herbert Hoover, while Secretary of Commerce, endorsed a plan for a reserve of public works projects to be kept for hard times, but did not put such public works programs into effect when he was President during the Depression (even halting work on the half-finished Commerce Department building), because they would have increased the budget deficit. L. Albert Hahn (1949) claimed that everything that was mistaken and exaggerated in *The General Theory* was stated earlier and more clearly in his own works. Since Hahn was an outspoken proponent of the real stimulus obtainable from easy money in the early days of the German hyperinflation (when Keynes was analyzing the social costs of inflation in his *Tract on Monetary Reform*), and then took an equally strong hard-money, balanced budget line during the Great Depression, Hahn's claim to have anticipated Keynes may be doubted, and his attempts to match policy advice with economic events were, to say the least, unfortunate.

The idea that an initial round of spending, such as a public works project, leads to secondary rounds of spending goes back at least to a speech by Pericles, as recorded by

Plutarch, and was noted by Walter Bagehot in *Lombard Street* in 1873 and by Alfred and Mary Marshall in their *Economics of Industry* in 1879. What was new was the derivation between 1928 and 1933 of a spending multiplier that would have a finite value because of leakages from successive rounds of spending, explaining why spending a shilling would not produce an unbounded expansion. Ralph Hawtrey in an unpublished 1928 Treasury memorandum (see excerpt in Dimand 1988) and L. F. Giblin in a published 1930 inaugural lecture in Melbourne derived a finite multiplier with leakage only into imports, which would still yield an unbounded multiplier for the world economy as a whole. In the *Economic Journal* in 1931, Keynes's younger Cambridge associate Richard Kahn provided the first published derivation of a finite-valued multiplier with leakages into imports, reduced unemployment benefits ("the dole"), and increased unspent corporate profits (Kahn labeled the equality of injections and leakages "Mr. Meade's relation"), with the Danish economist Jens Warming extending the leakages to personal saving in a comment on Kahn the next year. Keynes's 1933 pamphlet *The Means to Prosperity* used Kahn's multiplier analysis, for changes in income where Kahn had worked in terms of changes in employment (see Hawtrey, Giblin, Kahn, Warming, Meade, and Keynes reprinted in Dimand 2002b, Vol. 2).

J. Ronnie Davis (1971), and Gordon Tullock in his introduction to that volume, made much of the supposed independent discovery of the income-expenditure theory (the multiplier process) in the United States by Paul H. Douglas and John Maurice Clark before the publication of *The General Theory*. Mark Blaug (1991, 178n) rebuked Keynes for ignoring Douglas (1934) and Clark, finding the failure to cite Clark, a "co-discoverer of the multiplier," "particularly striking." But there is nothing in Douglas (1934) or in

Clark's 1935 writings that goes beyond Keynes's 1933 pamphlet *The Means to Prosperity*, which was cited by both Douglas and Clark. Indeed, Clark's 1935 article (reprinted in Dimand 2002b, Vol. 2) referred to the multiplier as "the Kahn-Keynes theory," and contrasted it with his own analysis, which emphasized changes in velocity of circulation. Attempts by Joseph Dorfman and Luca Fiorito to read a derivation of a finite multiplier into a 1931 book by Clark have been shown to depend on not quoting the passage in question (Dimand 2002a).

A FABRICATED REVOLUTION?

The working title for David Laidler's *Fabricating the Keynesian Revolution* (1999) was "*The Synthetic Revolution*. The word 'synthetic' is ambiguous. It first of all suggests that the Keynesian revolution was largely a matter of synthesizing earlier ideas into a manageable framework, which I think is true; and it also suggests that the notion that there had been a great revolution in 1936, in the sense that a previous orthodoxy was destroyed, was a manufactured idea. So those two senses of synthetic capture the ambiguity of my attitude to Keynes's accomplishments" (Laidler interviewed by Christof Rühl 1998). The first sense brings out an important aspect of *The General Theory*, the crucial function of synthesis that is easily overlooking when attention is paid to the origin of the multiplier or another specific concept. As Joseph Schumpeter (1954) stressed, many of the ideas in *The Wealth of Nations* can be traced to David Hume, Richard Cantillon, A. R. J. Turgot, Francis Hutcheson, or other 18th century writers, but Adam Smith created that a synthesis that proved to be a manageable and enormously influential framework. In evaluating Keynes's work of synthesis, it should be recalled that even the

IS-LM system of simultaneous equations, first published by Champernowne and Reddaway, originated in Keynes's lectures. That is another parallel with Smith: the discovery in the 1890s of notes taken by students attending Smith's lectures in the 1760s revealed the extent of Smith's originality and priority relative to the Physiocrats and, concerning the four-stages theory of historical development, Adam Ferguson.

More than many of his followers, Keynes recognized that, like Newton, if he saw further, it was because he stood on the shoulders of giants. In the 1937 *Economic Journal* exchanges with Hawtrey, Robertson, and Ohlin over alternative theories of the rate of interest, Keynes emphasized that he did not consider Hawtrey or Robertson as classical economists: "On the contrary, they strayed from the fold sooner than I did. I regard Mr. Hawtrey as my grandparent and Mr. Robertson as my parent in the paths of errancy, and I have been greatly influenced by them. I might also meet Professor Ohlin's complaint by adopting Wicksell as my great-grandparent, if I had known his works in more detail at an earlier stage in my own thought and also if I did not have the feeling that Wicksell was *trying* to be 'classical'. As it is, so far as I am concerned, I find, looking back, that it was Professor Irving Fisher who was the great-grandparent who first influenced me strongly towards regarding money as a 'real' factor" (Keynes 1971-80, Volume 14, pp. 202-203n). In his *Banking Policy and the Price Level* (1926), Robertson stated that his discussions with Keynes while writing the book were so extensive that he could not be sure which of them had originated any idea in the book. The connection with Wicksell's natural and market rates of interest is more prominent in the "fundamental equations" of Keynes's *Treatise on Money* than in *The General Theory*, and, when writing a paper for a *Festschrift* for Irving Fisher in 1937 (reprinted in Keynes 1971-89, Volume 14, pp. 101-

108), Keynes was no doubt inclined by the occasion to exaggerate the resemblance between his marginal efficiency of capital and Fisher's rate of return over costs (contrast Keynes on Fisher in the lecture notes edited by Rymes 1987, 1989). Later textbook Keynesianism dismissed Robertson, Hawtrey, and Fisher as anti-Keynesian classical quantity theorists believing in an implicitly vertical aggregate supply curve, not as the parent, grandparent, and great-grandparent of Keynes's *General Theory*. Nonetheless, Keynes was conscious of drawing on a rich heritage of monetary theory, and, although in *The General Theory* he paid more attention to such outsiders as Hobson, Gesell, and the mercantilists, over the following year (until his first heart attack) he paid tribute to that heritage in the *Economic Journal* exchange, in the *Festschrift* paper for Fisher, and in his statement in his rough notes for his 1937 lectures that, compared to Ohlin's Marshall Lectures, "I'm more classical than the Swedes, for I am still discussing the conditions of short-period equilibrium" (Keynes 1971-89, Vol. 14, p. 183).

In his 1971 Ely Lecture on "The Keynesian Revolution and the Monetarist Counter-Revolution" (in Johnson and Johnson 1978), a work that influenced Laidler (1999), Harry Johnson listed among the factors responsible for the success of both Keynesian revolution and monetarist counter-revolution, "the production of an apparently new theory that nevertheless absorbed all that was valid in the existing theory while so far as possible giving these valid concepts confusing new names" and "a degree of difficulty of understanding just sufficient to deter the old and to challenge and reward the young, and hence to reopen the avenues of professional opportunity for the ambitious." Another criterion for success was "the advancement of a new and important empirical relationship, suitable for estimation by the budding econometrician … since intelligent

and gifted young men and women will persevere until they succeed in finding statistical validation of an allegedly important theoretical relationship, and will then interpret their results as evidence in favour of the theory that originally suggested the relationship, their efforts will inevitably be extremely favourable to the theory in question." Laidler (2004) notes that Johnson's analysis can also be applied to understand the success of New Classical macroeconomics and also of Johnson's own monetary approach to the balance of payments. However, Johnson's first criterion for success of a theoretical revolution was "a central attack, on theoretically persuasive grounds, on the central proposition of the orthodoxy of the time. In the case of the Keynesian revolution, that proposition was the automatic tendency of the economy to full employment" (Johnson and Johnson 1978, 194). Johnson accepted that, in attacking that classical proposition, Keynes did genuinely set himself apart from the prevailing theoretical orthodoxy.

THE FOUR BUILDING BLOCKS OF KEYNES'S THEORY

I have argued previously (Dimand 1988) that Keynes's synthesis in *The General Theory* had four building blocks, and that, beyond the process of synthesis, Keynes made crucial contributions to each of these four building blocks, although he was by no means the only person to do so. First, the goods market equilibrium condition, with the level of income, not just the interest rate, bringing saving and investment into equality, with the multiplier as the corollary for changes in spending and income. Second, the money market equilibrium condition, with money demand (liquidity preference) a function of national income and the interest rate. Third, the volatility of private investment, reflecting shifting long-period expectations about a fundamentally uncertain future. Fourth, Keynes

analyzed why the labour market does not clear (including Chapter 19 of why flexible money wages may not clear the labour market). Taken together, Keynes's synthesis yielded a theory of the role of aggregate demand in determining the level of employment and real output in a monetary economy, not just prices and nominal income.

In *A Treatise on Money* (1930), Keynes followed Wicksell (1898) is treating the interest rate as the variable equating desired investment and saving. As long as the monetary authority and banking system set the market rate of interest at something other than the natural rate of interest, a cumulative inflation or deflation would continue. In Keynes's 1930 parable of a thrift campaign in a closed economy producing and consuming only bananas, planned saving would exceed investment by the amount of windfall losses, causing investment to be reduced, increasing the gap between planned saving and investment. The only limit to the ensuing deflation would be when all production ceased and the whole population starved to death, a corner solution that Don Patinkin's secretary famously rendered as a "coroner solution" – unless, as Keynes remarked in a throwaway line, the contraction of income reduced saving. Patinkin (1982) identified the working out of the implications of that insight, the goods market equilibrium condition ("the principle of effective demand") with the level of income as the equilibrating variable equating saving to desired investment (and setting undesired investment, unintended inventory changes, to zero), as the "central message" to the economics profession of Keynes's *General Theory*. Hawtrey, Giblin, Kahn, Meade, and Warming all contributed, between 1928 and 1933, to working out the multiplier relationship between a change in autonomous spending (exports, investment, or government spending) and the resulting change in equilibrium income, and all five were

in contact with Keynes during those years (although Giblin's inaugural lecture may not have come to Keynes's attention, despite their correspondence when Giblin was reviewing Keynes's *The Means to Prosperity* for the *Economic Record*). Keynes synthesized these contributions, but here too he added something original, writing the goods market equilibrium condition for levels of spending and income where the multiplier discussions had dealt only with changes. Patinkin (1982) distinguished Keynes's principle of effective demand from Michal Kalecki's contrasting emphasis on mathematical models of the dynamics of business cycles (including Kalecki 1935, published in English in *Econometrica*). However, Simon Chapple (1991, p. 260) notes that one paper published by Kalecki in Polish in 1933 (translated in Kalecki 1967, pp. 16-25) did "show how changes in exports, the budget deficit, and investment, in a loose two-period framework, cause a rise in profits and production to equilibrate savings and investment." Patinkin (1982, p. 69n) dismissed that paper by Kalecki in a single sentence in a longer footnote as not being part of Kalecki's central message because it appeared in a semi-popular magazine on economics.

In contrast to Patinkin, Sir Ralph Hawtrey, discussing Keynes's aggregate supply analysis in the 1950s, identified the liquidity preference function as Keynes's crucial innovation (see Deutscher 1990). Keynes, in *The General Theory*, was the first to write money demand explicitly as a function of income and the interest rate. Irving Fisher had, in *The Theory of Interest* in 1930 (Fisher 1997, Volume 9, 216), given what would now be considered a correct statement of the marginal opportunity cost of holding money, but had not stated the money demand function. Fisher had mentioned in passing the rate of interest as an influence on the velocity of circulation in 1896 in an article on the meaning

of capital (Fisher 1997, Vol. 1), but not when systematically cataloguing determinants of velocity in *The Purchasing Power of Money* in 1911 (Fisher 1997, Vol. 4), even though just four years before he had written a book entitled *The Rate of Interest*. Passing mentions in verbal discussions, also common in Cambridge monetary theory before *The General Theory*, are no substitute for including a variable in a formal analysis. It is significant that Hawtrey should regard including the interest rate in the money demand function as something new and important contributed by Keynes. Hawtrey was one of the shapers of the "Treasury view" that public works spending would only crowd out private investment (see Hawtrey's 1925 article reprinted in Dimand 2002b, Vol. 2), and so he has been interpreted, notably by Samuelson (1946) and Klein (1947), as implicitly believing in a classical vertical aggregate supply curve. This, however, would make nonsense of Hawtrey's emphatic belief in the effectiveness of monetary policy. Furthermore, Hawtrey helped develop the finite-valued spending multiplier, providing a numerical example with leakage into imports alone in a 1928 Treasury memorandum, a numerical example with leakage into saving in a 1930 Macmillan Committee working paper commenting on Keynes's *Treatise*, and an algebraic version in 1932 (Hawtrey 1932, Dimand 1988, Deutscher 1990, Eric Davis 1990). But if including the interest rate as an argument in the money demand function was news to Hawtrey in 1936, then he would have been perfectly consistent, taking money demand as completely interest-inelastic, to consider monetary policy effective and fiscal policy completely ineffective in stimulating aggregate demand and output, even while fully understanding the multiplier process through which an increase in investment, due to monetary expansion, increases the equilibrium level of national income by a finite amount. Don Patinkin (1981), Harry

Johnson (see his 1971 Ely Lecture in Johnson and Johnson 1978), and David Laidler (1999) have caused considerable offense in Chicago by emphasizing how much Milton Friedman's money demand function owes to Keynes's liquidity preference, not just to Chicago oral tradition. The money market equilibrium condition of Keynes's lectures and *General Theory*, with the monetary authority setting the quantity of money, has been largely supplanted in recent years by a recent to the Wicksellian tradition of Keynes's *Treatise on Money*, in which the monetary authority and the banking system set the interest rate, not the quantity of money (Wicksell 1898, Keynes, 1930, Moore 1988, Taylor 1993, Woodford 2003).

Post Keynesians such as Paul Davidson (1991) stress the third component of Keynes's theory, the role of fundamental uncertainty in making liquidity preference and private investment volatile, as did Keynes in his 1937 reply to reviews in the *Quarterly Journal of Economics* (in Keynes 1971-89, Vol. XIV). It is noteworthy that Keynes's simultaneous equations summary of his theory in his December 1933 lecture differed from the subsequent IS-LM framework of Harrod, Hicks, Meade, Hansen, and Modigliani by Keynes's explicit inclusion of the "state of the news" as an argument in the investment, consumption, and liquidity preference functions. Again, Keynes was not the only person thinking along such lines: Frank Knight (1921) also distinguished measurable risk from unmeasurable uncertainty, but used the distinction for a very different purpose. Knight was concerned with the existence of entrepreneurial profit, Keynes with macroeconomic instability due to fluctuating expectations and investment. Pigou's *Industrial Fluctuations* (1927) attributed the trade cycles to investment swings due to waves of optimism and pessimism similar to Keynes's "animal spirits." Keynes's

exogeneity of long-period expectations proved particularly troubling to mainstream macroeconomists, with New Classical economists opting for the radically different hypothesis of rational expectations. Bayesians (and Coddington 1983) question the distinction between risk and uncertainty, positing a subjective probability distribution over what the true probability distribution may be, with "any other outcome" as a residual classification that sidesteps the problem of not being to able to list all possible outcomes.

The fourth component of Keynes's theory, the rejection of automatic readjustment to full employment, was singled out by Harry Johnson as crucial to the Keynesian revolution. Chapter 2 of *The General Theory* presented a model that accepted the "first classical postulate" that the economy is on the labour demand curve with the real wage equal to the marginal product of labour, but rejecting the "second classical postulate" that the economy is on the labour supply curve, with the utility of the wage equal to the marginal disutility of labour, the two "classical postulates" being Keynes's summary of Pigou (1933). If the money wage is sticky downward (because workers care about relative wages, and not all money wages would be changed at the same time, given staggered contracts), changes in the price level move the economy along the labour demand curve, with employment inversely related to the real wage. Keynes's Chapter 2 concern with relative wages and overlapping contracts as sources of downward wage stickiness was revived by John Taylor (1980). Given that workers care about relative wages, and that not all contracts are renegotiated at the same time, no money illusion is needed for workers to resist cuts in their money wages (when other workers with unexpired contracts for similar jobs continue to receive unchanged wages), yet acquiesce in a rise in the price level that reduces the real wages of all workers at the same time.

Already by 1939, Lorie Tarshis and John Dunlop had presented evidence that forced Keynes to accept that the cyclical pattern of real and money wages was an open question (see Tarshis, Dunlop, Keynes, Ruggles, and Tsiang in Dimand 2002b, Vol. 8). Subsequent data on real wages fails to show either the clear counter-cyclical pattern predicted by Keynes's Chapter 2 and by Robert Lucas's monetary misperceptions version of New Classical economics, or the clear pro-cyclical pattern predicted by real business cycle theory. But *The General Theory* also included Chapter 19 (discussed above) on why even flexibility of money wages might fail to ensure restoration of full employment after a negative demand shock.

Sir William Beveridge's *Unemployment: A Problem of Industry, 1909 and 1930* (1930) treated unemployment as a microeconomic problem of frictional, seasonal, and structural unemployment (see Darity 1981-82, Dimand 1999a, 1999b), a view reiterated by Beveridge in a series of three *Economica* articles in 1936-37 (reprinted in Dimand 2002b, Vol. 8). Mark Casson (1983) claimed to find a sophisticated Pre-Keynesian structural analysis of unemployment in the writings of Edwin Cannan, Sir Henry Clay, and A. C. Pigou, but this argument depended on looking at a book review by Cannan to the exclusion of Cannan's 1932 Royal Economic Society presidential address on "The Demand for Labour" (in Dimand 2002b, Vol. 8) and on excluding Pigou's *Theory of Unemployment* from Pigou's relevant writings (see Dimand 1988 on Casson). Such interwar British monetary theorists as Hawtrey, Lavington, and Robertson contributed much to the ideas synthesized in *The General Theory*, as Laidler (1999) shows, but the leading British authorities on unemployment as a labour market problem, such as

Beveridge (1930), Cannan, Clay, and Pigou (1933), were far removed from Keynes's Chapter 19 analysis of the failure of the automatic adjustment mechanism.

These four elements together comprised Keynes's synthesis, rather than any one of them alone being Keynes's "central message" to economists. On each of these four aspects of his framework, Keynes added something of his own to the important work of others, but his crucial contribution was the synthesis of these four elements into a persuasive and influential framework. Others, notably J. R. Hicks (1935, 1937, 1939), took part in the work of synthesis, without capturing all of Keynes's system (Keynes's fundamental uncertainty is much less visible in Hicks's presentation of IS-LM), but notes taken by students attending Keynes's lectures establish his priority and his influence on early articles by Champernowne and Reddaway.

CONCLUSION

The roots of modern macroeconomics are much more varied than just *The General Theory* (see Dimand 2003, Hoover 2003). The Swedish school of Dag Hammarskjold, Karin Kock, Erik Lindahl (1939), Erik Lundberg (1937, 1994, 1996), Gunnar Myrdal (1939), and Bertil Ohlin built their macrodynamics on Wicksellian foundations (see Jonung 1991, 1993), while Michal Kalecki's intellectual debts were to Marx and Rosa Luxemburg. Keynes himself acknowledged Hawtrey, Fisher, and Wicksell as his intellectual ancestors. He encouraged the work of Colin Clark, Erwin Rothbarth, James Meade, and Richard Stone on national income and product accounts, but the at least equally important parallel development of national accounts by Simon Kuznets at NBER was independent of Keynes, and had its roots in the empiricism of Wesley Mitchell. The

postwar macro-econometric modeling of Lawrence Klein owed much to Klein's reading of Keynes and to the IS-LM framework, but also to the pioneering econometrics of Ragnar Frisch, Jan Tinbergen, and Trygve Haavelmo. Had there been no Keynes, there would still have been national accounts from Kuznets and macro-econometrics from Frisch, Tinbergen, Haavelmo, and Koopmans (see Tinbergen, Frisch, Haavelmo, Koopmans, and Klein in Dimand 2002b, Vol. 7). Keynes responded very skeptically to Tinbergen's *Statistical Testing of Business-Cycle Theories* (1939), as did Frisch and Milton Friedman, but accepted the presidency of the Econometric Society. Already by 1939, Keynes acknowledged empirical and theoretical doubts raised by Dunlop, Tarshis, and Kalecki about the cyclical pattern of real and money wages implied by Chapter 2 of *The General Theory*.

Nonetheless, Keynes's *General Theory*, both through Keynes's individual contributions and through his work of synthesis, was crucial to the emergence of modern macroeconomics. Keynes, and not just such interpreters of Keynes as Hicks and Hansen, gave economists a usable macroeconomic framework, with roles for the goods market and money market equilibrium conditions, for expectations, uncertainty, and volatile investment, and for an analysis of why the labour market may not clear and nominal shocks can have real consequences. All four components were fundamental to the framework. To single out any one of the four as Keynes's "central message" obscures the powerful synthesis that they jointly comprise. Keynes provided macroeconomics with a focus on the determination of the equilibrium levels of income and employment that differed both from the focus of business cycle theory on dynamic movements and of the focus of monetary theory on prices, albeit with considerable attention to short-run non-

neutrality. Much had been written on unemployment, for instance Fisher (1926) correlating unemployment with a distributed lag of past price level changes (reprinted in 1973 as "I Discovered the Phillips Curve"), but neither Fisher nor his contemporaries went beyond such empirical correlations to offer any macroeconomic theory of the level of employment, unemployment, or output. Pigou's *Theory of Unemployment* (1933) was a microeconomic theory of supply and demand in one market, with unemployment simply meaning that the wage was too, as in Edwin Cannan's 1932 presidential address to the Royal Economic Society (in Dimand 2002b, Vol. 8) – with the difference that Cannan, unlike Pigou, accepted the conclusion that wage cutting would cure unemployment.

Yes, Virginia – and yes, Chicago – there was a Keynesian Revolution in macroeconomics theory. Many contributed to the emergence of modern macroeconomics from its rich heritage of business cycle analysis and monetary theory, but Keynes's *General Theory* altered the focus and the basic analytical framework of the field. The "Keynesian Revolution" was a synthesis, but not a fabrication.

References

F. Gerard Adams, ed. (1992) *Lawrence Klein's The Keynesian Revolution 50 Years After*. Philadelphia, PA: Department of Economics, University of Pennsylvania.

Roger E. Backhouse and Bradley W. Bateman, eds. (2006) *The Cambridge Companion to John Maynard Keynes*. Cambridge, UK: Cambridge University Press.

W. H. Beveridge (1930) *Unemployment: A Problem of Industry (1909 and 1930)*.

London: Longmans, Green.

Mark Blaug (1991) "Second Thoughts on the Keynesian Revolution," *History of Political Economy* 23, Summer, 171-192.

Mark Casson (1983) *Economics of Unemployment: An Historical Perspective*. Oxford: Martin Robertson.

Simon Chapple (1991) "Did Kalecki Get There First? The Race for the General Theory," *History of Political Economy* 23, Summer, 243-61.

John Maurice Clark (1935) "Cumulative Effects of Changes in Aggregate Spending as Illustrated by Public Works," *American Economic Review* 25, March, 14-20.

Robert W. Clower, ed. (1967) *Monetary Theory*. Harmondsworth, UK: Penguin.

Robert W. Clower (1984) *Money and Markets*, ed. Donald Walker. Cambridge, UK: Cambridge University Press.

Alan Coddington (1983) *Keynesian Economics: The Search for First Principles*. London: George Allen & Unwin.

Russell Cooper (1998) *Coordination Games*. Cambridge, UK: Cambridge University Press.

William Darity, Jr. (1981-82) "Beveridge and the New Search Unemployment," *Journal of Post Keynesian Economics* 4, Winter, 171-180.

Paul Davidson (1991) "Is Probability Theory Relevant for Uncertainty? A Post Keynesian Perspective," *Journal of Economic Perspectives* 5, Winter, 129-143.

Eric G. Davis (1990), "The Correspondence between R. G. Hawtrey and J. M. Keynes on the *Treatise*: The Genesis of Output Adjustment Models," *Canadian Journal of Economics* 12, 716-24.

J. Ronnie Davis (1971) *The New Economics and the Old Economists*. Ames, IA: Iowa State University Press.

Patrick Deutscher (1990) *R. G. Hawtrey and the Development of Macroeconomics*. London: Macmillan.

Robert W. Dimand (1988) *The Origins of the Keynesian Revolution*. Aldershot, UK: Edward Elgar Publishing, and Stanford, CA: Stanford University Press.

Robert W. Dimand (1999a) "Beveridge on Unemployment and Cycles Before *The General Theory*," *History of Economic Ideas* 7, Fall, 33-51.

Robert W. Dimand (1999b) "The Beveridge Retort: Beveridge's Response to the Keynesian Challenge," in Luigi L. Pasinetti and Bertram Schefold, eds., *The Impact of Keynes in the 20th Century*, Cheltenham, UK, and Lyme, NH: Edward Elgar Publishing, 221-239.

Robert W. Dimand (2002a) "John Maurice Clark's Contribution to the Genesis of the Multiplier: A Response to Luca Fiorito," *History of Economic Ideas* 10, 29-36.

Robert W. Dimand, ed. (2002b) *The Origins of Macroeconomics*, 10 volumes. London and New York: Routledge.

Robert W. Dimand (2003) "Interwar Monetary and Business Cycle Theory," in Samuels, Biddle, and Davis (2003), 325-342.

Robert W. Dimand (forthcoming 2007) "Keynes, IS-LM, and the Marshallian Tradition," *History of Political Economy*, 39, Spring.

Paul H. Douglas (1934) *Controlling Depressions*. New York: W. W. Norton.

Irving Fisher (1997) *The Works of Irving Fisher*, 14 volumes, ed. William J. Barber assisted by Robert W. Dimand and Kevin Foster, consulting ed. James Tobin. London:

Pickering & Chatto.

Gottfried Haberler (1941) *Prosperity and Depression*, 3rd ed. Geneva: League of Nations.

L. Albert Hahn (1949) *The Economics of Illusion*. New York: Squier Publishing.

Geoffrey C. Harcourt and Peter A. Riach, eds. (1997) *A "Second Edition" of The General Theory*, 2 volumes. London and New York: Routledge.

R. G. Hawtrey (1932) *The Art of Central Banking*. London: Longman.

Friedrich A. von Hayek (1931) *Prices and Production*. London: Routledge (2nd ed. 1935).

Henry Hazlitt, ed. (1977) *The Critics of Keynesian Economics*, 2nd ed. New Rochelle, NY: Arlington House.

J. R. Hicks (1935) "A Suggestion for Simplifying the Theory of Money," *Economica* n.s. 2, February, 1-19.

J. R. Hicks (1937) "Mr. Keynes and the Classics: A Suggested Interpretation," *Econometrica* 5, April, 147-59.

J. R. Hicks (1939) *Value and Capital*. Oxford: Clarendon Press (2nd ed. 1946).

A. G. Hines (1971) *On the Reappraisal of Keynesian Economics*. Oxford, UK: Martin Robertson.

Kevin D. Hoover (2003) "A History of Postwar Monetary Economics and Macroeconomics," in Samuels, Biddle, and Davis (2003), 410-427.

T. W. Hutchison (1977) *Keynes v. the 'Keynesians' …? An Essay in the Thinking of J. M. Keynes and the Accuracy of Its Interpretation by His Followers*. London: Institute of Economic Affairs.

T. W. Hutchison (1978) *On Revolutions and Progress in Economic Knowledge*. Cambridge, UK: Cambridge University Press.

W. H. Hutt (1939) *The Theory of Idle Resources*. London: Jonathan Cape; 2nd ed. Indianapolis: Liberty Fund, 1977.

Elizabeth S. Johnson and Harry G. Johnson (1978) *The Shadow of Keynes*. Chicago: University of Chicago Press.

Lars Jonung, ed. (1991) *The Stockholm School of Economics Revisited*. Cambridge, UK: Cambridge University Press.

Lars Jonung, ed. (1993) *Swedish Economic Thought*. London and New York: Routledge.

Richard F. Kahn (1984) *The Making of Keynes's General Theory*. Cambridge, UK: Cambridge University Press.

Michal Kalecki (1935) "A Macrodynamic Theory of Business Cycles," *Econometrica* 3, July, 327-344.

Michal Kalecki (1967) *Studies in the Theory of Business Cycles 1933-1939*. Oxford: Basil Blackwell (reprinted in Dimand 2002b, Vol. 5).

John Maynard Keynes (1923) *A Tract on Monetary Reform*. London: Macmillan.

John Maynard Keynes (1930) *A Treatise on Money*, 2 volumes. London: Macmillan.

John Maynard Keynes (1933) *The Means to Prosperity*. New York: Harcourt Brace.

John Maynard Keynes (1936) *The General Theory of Employment, Interest and Money*. London: Macmillan.

John Maynard Keynes (1971-89) *The Collected Writings of John Maynard Keynes*, 30 volumes, general editors D. E. Moggridge and E. A. G. Robinson, volume editors Elizabeth S. Johnson and D. E. Moggridge. London: Macmillan, and New York: Cambridge University Press, for the Royal Economic Society.

Lawrence R. Klein (1947) *The Keynesian Revolution*. New York: Macmillan.

Frank H. Knight (1921) *Risk, Uncertainty and Profit*. Boston: Houghton Mifflin.

David Laidler and Christof Rühl (1998) "Perspectives on Modern Macroeconomic Theory and its History: An Interview with David Laidler," *Review of Political Economy* 10:1, 27-56.

David Laidler (1999) *Fabricating the Keynesian Revolution: Studies of the Inter-War Literature on Money, the Cycle, and Unemployment*. Cambridge, UK: Cambridge University Press.

David Laidler (2004) *Macroeconomics in Retrospect: The Selected Essays of David Laidler*. Cheltenham, UK, and Northampton, MA: Edward Elgar Publishing.

Axel Leijonhufvud (1968) *On Keynesian Economics and the Economics of Keynes*. New York: Oxford University Press.

Axel Leijonhufvud (1981) *Information and Coordination: Essays in Macroeconomic Theory*. New York: Oxford University Press.

Axel Leijonhufvud (1998) "Mr. Keynes and the Moderns," *European Journal of the History of Economic Thought* 5, Spring, 169-188.

Robert Lekachman, ed. (1964) *Keynes' General Theory: Reports of Three Decades*. New York: St. Martin's.

Erik Lindhal (1939) *Studies in the Theory of Money and Capital*. London: George Allen & Unwin.

Erik Lundberg (1937) *Studies in the Theory of Economic Expansion*. London: P. S. King.

Erik Lundberg (1994) *Studies in Economic Instability and Change*, ed. R. G. H. Henrikson. Stockholm: SNS Forlag.

Erik Lundberg (1996) *The Development of Swedish and Keynesian Macroeconomic*

Theory and its Impact on Economic Policy. Cambridge, UK: Cambridge University Press.

N. Gregory Mankiw (1992) "The Reincarnation of Keynesian Economics," *European Economic Review* 36, 559-565.

Hyman P. Minsky (1975), *John Maynard Keynes*. New York: Columbia University Press.

Ludwig von Mises (1935) *The Theory of Money and Credit*, trans. H. Batson. London: Jonathan Cape.

Wesley C. Mitchell (1927) *Business Cycles: The Problem and Its Setting*. New York: National Bureau of Economic Research.

Basil Moore (1988) *Horizontalists and Verticalists: The Macroeconomics of Credit Money*. Cambridge, UK: Cambridge University Press.

Gunnar Myrdal (1939) *Monetary Equilibrium*, trans. R. B. Bryce and N. Stolper. London: W. Hodge.

Don Patinkin (1965) *Money, Interest and Prices*, 2nd ed. New York: Harper & Row.

Don Patinkin (1981) *Essays on and in the Chicago Tradition*. Durham, NC: Duke University Press.

Don Patinkin (1982) *Anticipations of the General Theory? And Other Essays on Keynes*. Chicago: University of Chicago Press.

A. C. Pigou (1927) *Industrial Fluctuations*. London: Macmillan.

A. C. Pigou (1933) *Theory of Unemployment*. London: Macmillan.

A. C. Pigou (1943) "The Classical Stationary State," *Economic Journal* 53, December, 343-351.

Dennis H. Robertson (1926) *Banking Policy and the Price Level*. London: P. S. King.

Joan Robinson (1975) "What Has Become of the Keynesian Revolution?" in Milo Keynes, eds., *Essays on John Maynard Keynes*, Cambridge, UK: Cambridge University Press.

Lionel Robbins (1934) *The Great Depression*. London: Macmillan.

Thomas K. Rymes, ed. (1987) *Keynes's Lectures, 1932-35: Notes of Students*. Ottawa, ON: Department of Economics, Carleton University.

Thomas K. Rymes, ed. (1989) *Keynes's Lectures, 1932-35: Notes of a Representative Student*. London: Macmillan, and Ann Arbor: University of Michigan Press.

Warren J. Samuels, Jeff E. Biddle, and John B. Davis, eds. (2003) *A Companion to the History of Economic Thought*. Malden, MA, and Oxford: Blackwell Publishing.

Paul A. Samuelson (1946) "The General Theory," *Econometrica* 14, July, as reprinted in Lekachman (1964), 315-331.

Joseph A. Schumpeter (1954) *History of Economic Analysis*. New York: Oxford University Press.

Brian Snowdon and Howard R. Vane (2005) *Modern Macroeconomics: Its Origins, Development, and Current State*, with chapters by Paul Davidson and Roger Garrison. Cheltenham, UK, and Northampton, MA: Edward Elgar Publishing.

Lorie Tarshis (1987) "Keynesian Revolution," in John Eatwell, Murray Milgate, and Peter Newman, eds., *The New Palgrave: A Dictionary of Economics*, London: Stockton Press (Macmillan).

John B. Taylor (1980) "Aggregate Dynamics and Staggered Contracts," *Journal of Political Economy* 88, February, 1-24.

John B. Taylor (1993) *Macroeconomic Policy in a World Economy*. New York: Norton.

Mabel F. Timlin (1942) *Keynesian Economics*. Toronto: University of Toronto Press. Reprinted with introduction by Lorie Tarshis and biographical note by A. E. Safarian, Toronto: McClelland & Stewart, Carleton Library, 1977.

Jan Tinbergen (1939) *Statistical Testing of Business-Cycle Theories*, 2 volumes. Geneva: League of Nations; reprinted in 1 volume, New York: Agathon Press, 1968.

James Tobin (1975) "Keynesian Models of Recession and Depression," *American Economic Review: AEA Papers and Proceedings*, 65, May, 195-202.

James Tobin (1980) *Asset Accumulation and Economic Activity*. Oxford: Basil Blackwell, and Chicago: University of Chicago Press.

James Tobin (1993) "Price Flexibility and Output Stability: An Old Keynesian View," *Journal of Economic Perspectives* 7, Winter, 45-65.

Knut Wicksell (1898) *Interest and Prices*, trans. R. F. Kahn with an introduction by Bertil Ohlin. London: Macmillan for the Royal Economic Society, 1936.

Michael Woodford (2003) *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton, NJ: Princeton University Press.

Warren Young (1987) *Interpreting Mr. Keynes: The IS-LM Enigma*. Cambridge, UK: Polity Press, and Boulder, CO: Westview Press.