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KARL BRUNNER ALLAN H. MELTZER

MONEY AND THE ECONOMY
ISSUES IN MONETARY ANALYSIS

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To Rosmarie and Marilyn

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The *Raffaele Mattioli Lectures* were delivered by
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FIRST LECTURE*

A Review of the Issues

1. *Before the General Theory.* – 2. *Classical Policy Discussion.* – 3. *The Keynesian Era.* – 4. *Critique and Counter-Revolution*: i) *The First Stage*; ii) *The Second Stage*; iii) *The Third Stage.* – 5. *The Grand Traverse.* – 6. *Conclusion.*

Beginning with the earliest systematic work on economic theory, men have observed a relation between the stock of money and the price level.[1] Two remarkable features of this early literature are (1) the relation was observed and noted independently in many different places and times, and (2) a common observation was of an inverse relation between the stock called money and the value of a unit of that stock.[2] Often, early writers suggested, or explicitly stated, that the relation was one of proportionality; an increase in money had no effect on the real value of the stock of money. No later than the middle of the eighteenth century, writers went beyond these early statements, distinguishing the initial effect on output from the final effect on prices.[3]

By the mid-eighteenth century, we have two propositions about the relation of money to income that remain through most of the history of systematic economic thinking. Modern versions of these propositions are summarized in statements that have been made in different ways. Money is neutral in the long-run but not in the short-run. Changes in money affect output first, but this effect vanishes once prices adjust fully. The long-run effect of money is on prices, but money changes output and other real variables during the adjustment from one long-run equilibrium to the next.

* September 1987; revised July 1988.

1. Hugo Hegeland, in *The Quantity Theory of Money*, Goteborg: Elanders, 1951, traces the origins of these observations to Confucius, Xenophon and Copernicus among others. Hegeland does not attempt to find the earliest statement.

2. *Id.*, *op. cit.*, chap. 1.

3. Jacob Viner, *Studies in the Theory of International Trade*, 1937, reprinted, New York: Kelley, 1965, pp. 84-85.

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As Viner,[1] Laidler[2] and others have noted, disputes about these propositions and about their empirical relevance were not far behind the initial statements. Issues arose about the proper definition of money, the effect of credit and intermediation, and reverse causation from prices and output to money. These, and other issues, have remained. Professional opinion has shifted to and fro. At times, the prevalent belief has been that money can be defined with sufficient precision to be useful for observation and empirical research. At other times, the prevalent view has held either that the objects used as money shift too often for the concept to be useful empirically, or that the demand for money shifts erratically – that monetary velocity is unstable. Parallel to these shifts there are changes in the interpretation of the relation of money to income – from the belief that money has a causal role in fluctuations to the belief that money is a residual at the end of the causal chain.

1. *Ibid.*

2. David E. W. Laidler, 'English Classical Monetary Economics in the 1870s', unpublished, London, Ontario: University of Western Ontario, 1986.

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1. *Before the General Theory*

By the 1930s, money or the financial system had a central role in most explanations of the "credit" or business cycle. Haberler[1] classifies a number of different explanations as monetary theories. Several explanations have as a common feature that a change in money is the impulse starting the cycle. Wicksell's lecture,[2] though concerned with secular not cyclical change, was an influential example of a monetary impulse that starts by lowering the market rate below the natural rate of interest. Some explanations, that Haberler calls non-monetary, begin with real shocks but are propagated by loans from the financial system at rates below the borrower's expected return to capital. Schumpeter's entrepreneur, Marshall's and Keynes's waves of optimism and pessimism, and numerous other explanations start with a change in the expected return to capital that raises expected profitability above the market rate. The differences that much of this literature emphasized concerned the source of the initial impulse. It could be monetary – a gold inflow (or outflow) or a decision by the central banks to change the market rate relative to the natural rate. It could be real – new invention or innovation, sunspots affecting weather and agricultural production or, as in Cambridge, a change in anticipations. Whatever the source of the initial impulse, the relation between the market rate and the expected return to investment often had a critical role in propagation, although writers did not always use these terms to express the central relationship.

One reason for hesitation in accepting money as a dominant impulse may have come from the gold standard itself. The classical gold standard admits an entirely monetary explanation of the relation of money to income for the world as a whole only if there are new discoveries of gold, changes in costs of gold production or changes in the demand for gold to be used as currency or as reserves. The reason is that autonomous central

1. Gottfried Haberler, *Prosperity and Depression*, 3rd ed., New York: United Nations, 1952.

2. Knut Wicksell, 'The Influence of the Rate of Interest on Prices', *Economic Journal*, June 1907, pp. 213-219.

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bank action is precluded, so monetary changes can only serve as an impulse if there are changes in gold demand or supply. This restriction holds at the world level. For an individual country, gold flows can initiate an expansion or contraction if there are changes, whether nominal or real, abroad. Equally important, gold standard countries did not uniformly follow the rules. Wicksell's hypothesis[1] assumes autonomous central bank behavior.

Irving Fisher,[2] a leading proponent of a monetary explanation of fluctuations in the level of income and output, treats changes in money (gold) as the most common cause of cyclical disturbances, although he recognizes that crop failures, inventions and other real events can be causal factors also.[3] Prices and market interest rates adjust slowly in Fisher's account.[4] The slow adjustment of the price level allows real expenditure to increase in expansions and decline in contractions; the slow adjustment of market interest rates encourages businesses to borrow and invest during expansions but reduces investment and spending during contractions. Fisher assumed that businessmen are debtors, hence the gradual adjustment of interest rates affected profits. He did not explain the gradual adjustment of prices and interest rates in micro-theoretic terms. In this respect, Fisher is representative of many others before and after who rely on the sluggish adjustment of prices or wages but do not provide a micro foundation for the observation.

Gradual adjustment of prices or wages or interest rates typically was treated as a fact, based on observation. Attempts at careful empirical studies of wages, prices or interest rates seemed to confirm the fact. While no single statement can summarize the different positions taken by classical economists, the best of the classical and neo-classical economists understood that lagged adjustment of interest rates, real wages or differences between expected and actual values was essential for a relation

1. *Ibid.*
2. IRVING FISHER, *The Purchasing Power of Money*, rev. ed., New York: Macmillan, 1920.
3. *Id.*, *op. cit.*, p. 70.
4. *Id.*, *op. cit.*, pp. 62-68.

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between money and real variables. Hence, they accepted gradual adjustment as a working hypothesis.[1] For these writers, money is neutral in long-run adjustment. Equilibrium typically means a position on the (dynamic) production frontier, and business cycles (or fluctuations) are departures from equilibrium. The departures that concerned these economists could persist for years. Fisher speaks of a ten-year period for the full credit or business cycle;[2] Keynes speaks of a downward movement lasting three to five years.[3] It is during periods of adjustment that money affects real variables including real output.

The propagation of a monetary business cycle, as described by Fisher,[4] is broadly similar to the propagation of the real business cycle discussed in Keynes' *Treatise*.[5] Keynes, like Fisher, recognizes that both real and nominal disturbances can start a cumulative expansion or contraction, but he emphasized changes in investment[6] while Fisher emphasizes monetary disturbances. Keynes recognized, however, that differences between real and monetary "disequilibrium" (sic) "are not always separated by a sharp line . . . and, after the initial stage has passed, they shade off into one another".[7]

Three of the principal analytic shortcomings found in many of the business cycle theories developed prior to the *General Theory* are (1) an absence of any explanation of the demand for money, or monetary velocity, as part of the theory, (2) a failure to explain changes in output and prices or to separate changes in nominal output into price and output changes and (3) a failure

1. ALFRED MARSHALL is representative of those who believed that wages adjust more slowly than prices, so real wages fall in expansion and rise in contractions. JOHN MAYNARD KEYNES, in 'Relative Movements of Real Wages and Output', *Economic Journal*, 1939, reprinted in *The Collected Writings of John Maynard Keynes*, vol. 7, London: Macmillan, 1973, pp. 394-412, reports that Marshall based his conclusion on a statistical study by Bowley.

2. IRVING FISHER, *op. cit.*, p. 70.

3. JOHN MAYNARD KEYNES, *The General Theory of Employment Interest and Money*, London: Macmillan, 1936, p. 317.

4. IRVING FISHER, *op. cit.*

5. JOHN MAYNARD KEYNES, *A Treatise on Money*, 1930, reprinted in *The Collected Writings of John Maynard Keynes*, vols. 5 and 6, London: Macmillan, 1971.

6. *Ibid.*, pp. 232-233 and 248-262.

7. *Ibid.*, p. 248.

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to distinguish between real and nominal rates of interest. The last is particularly surprising given the substantial development of the theory of real and nominal interest rates by Wicksell, Fisher, Keynes, Robertson and other economists during this period.

Most classical writers recognized that velocity is not constant. In their discussions, velocity changes cyclically with confidence – anticipations – and secularly with payments, technology and other variables. Typically, these links are not developed as part of the explanation of cycles. Similarly, real expenditure change depended on a lag of prices or wages, or a slow and gradual adjustment of actual values, but the reasons for slow adjustment are missing or obscure. As we know from recent discussions, dynamic theories relating actual and anticipated values within a general equilibrium system did not become part of mainstream economics until the development of rational expectations models in the 1970s.

Business cycle theorists in the 1920s and before devoted considerable attention to the causes or impulses initiating business cycles. Nineteenth century experience, not surprisingly, focused attention on harvests, innovations such as railroads and the development of new industries and new productive techniques, and on gold discoveries and gold movements. A variety of real and monetary impulses were offered as causes, or principal causes. The modern analogue of these earlier studies is the recent attempt to show that all business cycles are started either by real or by monetary shocks. The earlier work did not successfully isolate a single cause or set of causes and was not conclusive. Recent work, using new tools and techniques, has been no more successful.

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2. *Classical Policy Discussion*

In the years after World War II, economic policy discussion relied increasingly on forecasts of short-term changes obtained with the aid of a multi-equation, econometric model of the economy. Much policy discussion concentrated on actions to be taken. Often these actions were a mix of fiscal, monetary and other policies to increase output and employment, reduce inflation or achieve other short-term objectives.

In contrast, classical policy discussion was mainly about rules. Discretionary action, if admissible, took the form of adjustments within the framework of a rule. The most common rule was some form of gold standard, so discussion by economists was most often about the gold standard. Experience with a paper standard during the Napoleonic wars did much to convince economists of that period about the disadvantages of a paper standard and the advantages of some type of gold standard.[1] Many neo-classical economists, including Jevons, Marshall, Fisher, Graham and Wicksell commented on the variability of economic activity and prices under the gold standard and proposed alternatives. None favored a paper standard or a system of freely fluctuating exchange rates. None favored discretionary policy action unrestrained by a monetary rule. Typically, the aim of the neo-classicals' proposals for reform was to reduce the variability arising under a commodity standard based on a single commodity – gold. There were two problems. First, gold discoveries, changes in costs of production and changes in the demand for gold changed the relative price of gold. Under a gold standard adjustment to these events introduced changes in prices and output. Second, gold flows required countries to expand and contract. Productive opportunities that gave rise to expansion

1. The discussion in this section is based on JACOB VINER, *Studies in the Theory of International Trade*, 1937, reprinted New York: Kelley, 1956, and the extensive, very useful summary of the arguments and alternatives to the gold standard in MICHAEL DAVID BORDO, 'The Gold Standard: The Traditional Approach', in MICHAEL DAVID BORDO and ANNA JACOBSON SCHWARTZ, eds., *A Retrospective on the Classical Gold Standard*, 1821-1931, Chicago: University of Chicago Press for the National Bureau of Economic Research, 1984, pp. 23-113.

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