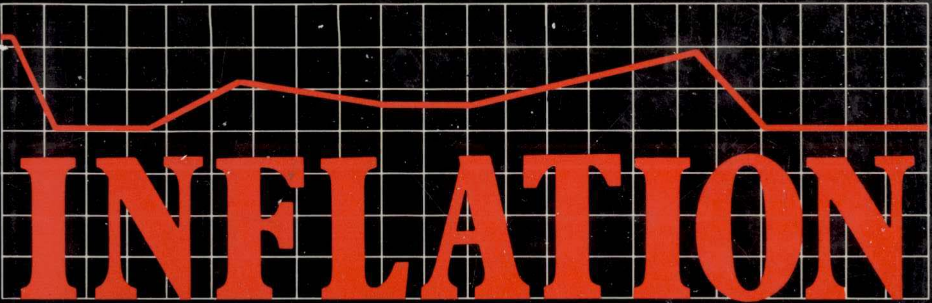
MONEY



INFLATION & UNEMPLOYMENT

THE ROLE OF MONEY IN THE ECONOMY

DAVID GOWLAND

Money, Inflation and Unemployment:

The Role of Money in the Economy

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Wheatsheaf Books
Distributed by Harvester Press

First published in Great Britain in 1985 by
WHEATSHEAF BOOKS LIMITED
A MEMBER OF THE HARVESTER PRESS GROUP
Publisher: John Spiers
Director of Publications: Edward Elgar
16 Ship Street, Brighton, Sussex

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British Library Cataloguing in Publication Data
Gowland, David
Money, inflation and unemployment: the role of money in the economy.
1. Money
I. Title
332.4′01 HG221

ISBN 0-7108-0762-7
ISBN 0-7108-0757-0 Pbk

Library of Congress Cataloging in Publication Data
Gowland, David.
Money, inflation, and unemployment.
1. Money. 2. Unemployment—Effect of inflation on. I. Title.
HG221.G694 1985 332.4 84-24373
ISBN 0-389-20553-2

Typeset in 11 point Times by
Mathematical Composition Setters Limited
Salisbury, Wiltshire, UK
Printed in Great Britain by Chanctonbury Press Ltd.

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1 Introduction

1.1 NECESSITY OF MONETARY THEORY: MONEY, INCOME AND CAUSALITY

Everyone would agree that one of the most crucial tasks faced by economists is to explain the determination of income; that is, the level of prices and output, and so of employment. Economists have disagreed for centuries about the relative importance of 'monetary' and 'real' forces in the determination of income. Some have argued that the money supply is largely responsible for determining prices and output, whereas others have argued that it is largely irrelevant; positions encapsulated by Samuelson in the propositions that 'money matters' and 'money does not matter'.

In the 1960s this controversy became widely publicised as 'the Monetarist-Keynesian debate'. Both these groups were represented as holding the extreme positions: '*only* money matters' and 'money does not matter *at all*'. In the late 1970s the use of the term 'Monetarist' became less clear-cut, but this debate is still of crucial importance to both economic theory and policy. In particular, it is the vital part of the controversy concerning the desirability of monetary targets, that is that control of the money supply should be the major target of macroeconomic policy with the objective of achieving some quantitative target for the size of the money supply. A belief in monetary targets is not only the most basic tenet of the monetarist creed but that which distinguishes monetarism from other schools of thought. Through setting such targets, monetarists argue, governments can best seek to influence the level of prices, output and employment. It is the purpose of this book to explore this debate and so illuminate the processes whereby money might influence income, how money is created and how it may be controlled. In other words, to provide an introduction to monetary theory.

It is important to stress some key features of the monetarist/Keynesian debate. First, the debate is largely about empirical questions and so can only be understood within some theoretical framework. Various theoretical frameworks are presented in this book. They are complements to each other, each helping to illuminate a particular facet of the debate, rather than alternatives. Second, the debate has done more than anything else to give economists their reputation for being quarrelsome creatures who, 'put end to end, would not reach a conclusion'. It is therefore important to stress just how much is common ground in this debate and how easy it is to take a moderate position; that money matters, but is not the only thing which matters. To simplify the issues, the debate is presented in textbooks (including this one) in simple black and white terms, but it should be remembered that the text book monetarist and Keynesian are creatures of pedagogic utility rather than of real-world existence. All can agree that the debate is largely about empirical magnitudes within a theoretical framework.

A critic might ask why it is necessary to bother with monetary theory; cannot an elementary statistical analysis resolve the issue? It is easy to show that money and income are very closely correlated, so surely this is sufficient to prove monetarism without the need to theorise. This appeal to Occam's razor is attractive but, regrettably, unacceptable. First of all, it is necessary to point out that spurious correlation may exist; that is, two variables may be related statistically when the two have no real relationship at all. Examples are legion; two very famous ones being the birth rate in Sweden with the number of storks in Lapland, and the crime rate with membership of the Church of England. No one would conclude that any causality is involved. In 1977 a Cambridge biologist wrote to *The Times* to point out that the correlation between inflation and (lagged) money supply was 0.7; enough to convince any biologist, he wrote. Two economists responded by pointing out that the correlation was even higher between inflation and the incidence of dysentery in Scotland.[1] Hendry (1980) made a similar point, relating rainfall and prices. In fact, it is very easy to find spurious correlations involving inflation: any series which was high in 1974–75 and 1980 and low in 1977–78 and 1982 (or vice versa) will do admirably; the performance of Australian fast bowlers for example.

The imaginary critic might well, legitimately, intervene at this point and say that he is well aware of the existence of spurious correlation and that he doubts if anyone believes that the money–income link is spurious. This is true, but money and income (like any other two variables) may be economically linked in any of four ways:

1. Money causes income. This is the monetarist proposition.
2. Income causes money. This is the Keynesian proposition.
3. Each causes, and is caused by, the other. This two-way causality requires a more complex model but is, *a priori*, the most plausible.
4. Both variables are caused by another. This proposition is frequently put forward by Keynesians. In one of the most famous and bitter of all monetarist–Keynesian debates (Friedman, 1970a; Kaldor, 1970) this was the essence of Kaldor's position; that income and money were both determined by the budget deficit.

Thus, an economically meaningful relationship between money and income could exist in a variety of different forms, each of which bears a different interpretation, Keynesian, monetarist or neither. The critic has a final argument left before accepting the view that the debate can only be understood within the relevant theoretical framework. This is to argue that surely if changes in money occur before changes in income, this would be sufficient to show that money caused income (or vice versa). Unfortunately, this, the famous doctrine *post hoc, ergo propter hoc*, is invalid. Temporal precedence does not establish causality. To explain this it is necessary to rely on the seeming paradox that an event today may have been caused by something which has not yet occurred. A good example is that the purchase of wedding rings precedes weddings, but one would regard the purchase of a wedding ring as being caused by a marriage, not as the cause of it. The equivalent of monetarism in this context is the view that people purchase wedding rings for reasons which are obscure and irrelevant. Carrying the ring around leads to an irresistible desire to get married. Goodhart made a similar point in his influential article (1970) concerning tickets for boxing matches. In many, probably most, cases temporal precedence does coincide with causality, but not always. In the case of money and income some Keynesians argue that a similar relationship, called the finance demand for money (see p. 48), exists. A simple example of this concerns an individual who, learning of a forthcoming inheritance, decides to buy a new car. He orders it and withdraws £5,000 from a building society to pay for it. He lodges this in a bank account. The car arrives and he pays for it by cheque. An observer would note that the increase in this individual's money balance preceded this purchase. Nevertheless, it would not be true to say he bought the car because his money balances rose. Rather, his decision to purchase the car led him to make the necessary arrangements, one of which was to increase his money balances. Hence this is a perfect example of the Keynesian proposition that a change in money precedes one in expenditure or output but that the change in money is, nevertheless, caused by the change in other factors, normally income.

The precise relationship between money and income can only be determined within the context of an economic model. Only in this way can it, for example, be determined whether money is merely an indicator, as Keynesians avow, or can be or should be a proximate target, as monetarists claim. An indicator merely registers the changes in another variable, whereas to change a proximate target is both sufficient and necessary to change the goal variable, here income. The distinction between proximate targets and indicators can be elucidated with the aid of an analogy. Thermostats and thermometers frequently look alike but are crucially different within a heating system. A thermometer is a good indicator

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of temperature, but the heat of a room cannot be altered by direct manipulation of the thermometer (e.g. by plunging it into ice or heating the bulb with a lighter). Such, Keynesians believe, is the relationship between money and income. A thermostat, on the other hand, is a proximate target since manipulation of its dial is both necessary and sufficient to change the room temperature. So monetarists believe money is akin to a thermostat in its relationship to income. A number of important points are true both in the analogy and the real world. The response of the room temperature to manipulation of the thermostat may not be fast and may vary from day to day. Similarly, the impact of monetary policy will only be felt after a 'long and variable lag', to quote the most famous of all monetarists, Friedman (1970b).[2] Moreover, the thermometer is more closely related to the room temperature than the thermostat. Similarly, Keynesian theory actually implies a closer relationship of money to income than monetarism. An attempt to use an indicator as if it were a proximate target not merely fails to change the goal variable but renders it useless as an indicator; putting a thermometer in ice not only leaves the room temperature unchanged but also means that the thermometer ceases to register it accurately. The economic equivalent is often referred to as 'Goodhart's Law': to try to control a definition of money will distort its relationship to income (Goodhart, 1984). Finally, it is perfectly reasonable to control the room temperature by adjusting the thermostat without even the haziest idea of how the central heating system works, or even knowing whether it is gas or oil fired. A guest in a hotel room is frequently in this position. A similar monetarist proposition was that it does not matter how money affects income; it is simply sufficient to know that it does. This view which originated in the eighteenth century with Hume (see Rotwein, 1972), was often called 'black box monetarism'—the economy was considered a black box, the inner workings of which were unknown. By the 1970s nearly all monetarists had accepted the alternative view that it is necessary to say how and why changes in monetary aggregates influence income. To answer this is to explain the means by which developments in financial markets are transmitted to real ones, so it is usually the *transmission mechanism* of monetary policy. An important monetarist–Keynesian debate has concerned the nature of the transmission mechanism. Keynesians have usually denied the possibility of a direct transmission mechanism, as exemplified by the quantity theory. Instead they postulate an *indirect* transmission mechanism, whereby monetary forces matter but only through their effect on intermediate variables such as interest rates. The structure of such a model is that (a) there is a change in the money stock, which (b) leads to a change in the intermediate variable, which, as a consequence (c), leads to a change in income. The crucial importance of this to the monetarist–Keynesian debate is that the logical response to such a structure is to 'target' the intermediate variable, and not the money supply. The authorities decide on an optimal level of the intermediate variable (as part of their overall stabilisation policy), and the money supply is allowed to adjust to whatever level is necessary to achieve this. The monetarist direct transmission mechanism, on the other hand, implies that the money supply should be the target variable. The classic example of such a model incorporating an indirect transmission mechanism is the elementary IS-LM model (see Ch. 4). Interestingly, the view here called 'Keynesian' describes Keynes' view of the workings of monetary policy—not always true of 'Keynesian' models.[3]

The debate about the role of money is frequently said to be a debate about its exogenity. An exogenous variable is an independent variable determined outside the system, in contrast to an endogenous variable which is determined within the system and so is dependent upon the values of the other variables in the system. The relevance of this distinction to the debate about the direction of causality between money and income is obvious. Nevertheless, the crux of the debate is is not whether money is exogenous but, rather, with respect to which variables is money endogenous? Money is not an entity caused by nothing but causing other variables, like Aristotle's unmoved movers. Every economist believes that the size of the money supply can be explained by some variable or variables (see p. 197). The important issue is whether these variables include income or variables determined by income. The monetarist needs to show that money is determined independently of income. If it is, given that there is an economically meaningful relationship between money and income, money must determine income. All of the other three possible relationships are ruled out. The monetarist also needs to show that the government can control the money supply. Without this, the monetarists' policy prescription is empty. The rest of this book provides an analysis of monetary theory, through which these important questions can be answered: does money determine income and, if so, how and to what extent?

1.2 THE MONETARY SECTOR

The main characteristic which distinguishes a modern from a primitive economy is that a modern economy is a monetary one. Transactions either involve the use of money or are expressed in monetary units, as when credit is extended. Individuals rarely exchange their labour directly for goods. Instead, they work for wages specified in a monetary unit and use their pay to purchase goods, the price of which is also expressed in terms of the monetary unit. Similarly, goods are usually not exchanged directly for other goods but are sold in exchange for money. This all-pervasive use of money is the major institutional datum of developed Western economies. These economies are not barter economies, nor have they large subsistence agricultural sectors.

So crucial is this brute fact—as Clower (1965) put it in a seminal article, 'Money buys goods and goods buy money, but goods do not buy goods'—that at first sight it is surprising that it is ignored in most economics. Conventional microeconomics, even general equilibrium theory, implicitly assumes a barter economy.[4] So does the elementary (Keynesian) national income model, based on planned injections being equal to planned withdrawals. Strictly, these models and those using them do not so much assume that economies are barter ones but that they can be analysed as if they were barter ones; that is, that the existence and use of money has no effect on the goods and labour-market equilibrium. This assumption is sometimes called the 'classical veil' or 'classical dichotomy'. An alternative interpretation of 'orthodox' analysis, whether microeconomic or Keynesian, is that it ignores altogether the problem of how exchange takes place. Perhaps Clower (1971) best encapsulates both views: the problem is ignored by assuming that barter will take place.

It is the task of monetary economics to explore the implications of relaxing this assumption. In this respect economics follows the classic scientific methodology; the general equilibrium and Keynesian models are built resting upon an assumption. Economists then test the effects of relaxing it. This has been the starting point for all monetary economics since Aristotle.[5] Different economists reach very different conclusions about the implications to be derived from the existence of a monetary economy. Nevertheless, the analysis of these implications is the starting point of monetarism, on the one hand, and 'post Keynesianism' on the other (see Dow and Earl, 1982; Eichner 1979; Sawyer, 1982). These two doctrines present radically different policy prescriptions, but the divergence seems much less once the common starting point is recognised.

Moreover, some implications are clear. Monetary economics cannot ignore the nature of monetary history in the way that other branches of economics can. Crucially, monetary economics has to be a policy-orientated subject. As the doyen of monetary economists, Hicks, (1967) put it:

> Monetary theory is less abstract than most economic theory; it cannot avoid a relation to reality, which in other economic theory is something missing. It belongs to monetary history, in a way that economic theory does not always belong to economic history. Indeed, it does so in two ways which need to be distinguished. It is noticeable, on the one hand, that a large part of the best work on money is topical. It has been prompted by particular episodes, by particular experiences of the writer's own time. All theorising is simplifying, cutting out the unimportant and leaving what is thought to be important in the hope that by simplifying we may increase understanding. Sometimes what is sought is a general understanding; but with monetary theory it is more often a particular understanding: an understanding directed towards a particular problem, normally a problem of the time at which the work in question is written. So monetary theories arise out of monetary disturbances ... Topicality is one way in which

> monetary theory is conditioned but there is another also ... money itself has been evolving.

All economists tackle monetary economics by constructing a model of the monetary or financial sector. This is usually a conventional economic model in that it is based upon an equilibrium condition, usually that the supply of money should equal the demand for money. The standard approach is then to seek to link this model to the real or goods sector. Most models use the rate of interest as the link; they operate in such a way that any shock in either sector changes the rate of interest, and this change throws the other sector into disequilibrium and so transmits the shock. It is possible to calculate the new equilibrium which will emerge once this interactive process has ended. The rate of interest is a suitable transmission mechanism because it is both a financial phenomenon and a real one; it is the inverse of the price of financial assets and equal in equilibrium to the rate of return on capital and the time preference rate. There are alternative links, as in the flow-of-funds approach, where quantities are the link rather than price. Nevertheless, most economists use the rate of interest as the link. This is the reason why so much attention has been paid by economists to the rate of interest, since it is representative of all the other links between the two sectors in addition to its intrinsic importance. This is the basis of most theories of the determination of the rate of interest. Any such theory necessarily analyses how the two sectors interact to determine the rate of interest in a model which also incorporates government influences.

It is not easy to determine exactly what money does in an economy and still less to explain why this peculiar institution has arisen. Some functions are clear. Money can act as a medium of exchange and as a means of payment; such functions are closely related but distinct (Goodhart, 1975). Money acts as a *numeraire*, that is, it is the unit in which all other prices are expressed. However, money performs other functions. Most decentralisation is only possible because of the existence of money; non-monetary economies, like those of the Aztecs and Incas, are highly authoritarian. A trivial example of this is a gift voucher. Because it is expressed in a monetary unit, the recipient can choose what to buy rather than the donor making the decision. Similarly, decision making can be delegated within a family or from higher to lower units within a government or firm. Money is also the main method of conveying information; a willingness to buy or supply goods or labour is expressed through money and so conveys information about preferences and opportunity costs. This, the pure theory of money, is a fascinating subject. Nevertheless, it will hereafter be ignored in this book for three reasons. It is complex, inconclusive and, most important, irrelevant to policy. Possibly the inconclusive and complex nature of the literature has arisen through seeking a generality which, as Hicks argued (p. 8 above), is unnecessary and sometimes counter-productive.

The definition of money is more immediately relevant to monetary policy. The classic definition of money is that it is 'any asset generally acceptable in payment for a debt'. This is still the best definition, although it does not fully capture the subjective nature of any definition of money. This definition does, however, imply that the most appropriate definition of money may vary from place to place and time to time. Money is any asset which its holder regards as money; so that, like beauty, 'moneyness' lies in the eye of the beholder. For monetarists, 'moneyness' is often defined in terms of its effect on behaviour; money is anything which burns a hole in your pocket. Another useful definition is that money is a perfectly liquid asset. Liquidity is a very useful concept in its own right, being a measure of how easily an asset can be turned into goods, or how easily it can be converted into purchasing power. There are three aspects to this: speed, cost and certainty. The speed element is straightforward: the longer it takes to convert an asset into purchasing power, the less liquid it is. Sometimes conversion to purchasing power involves a cost, either a fixed penalty or a brokerage fee (or other transaction costs both psychological and real). To convert a house, for example, involves a number of costs, some predictable (e.g. solicitors' fees), others less so (e.g. advertising). Cost and time are often interrelated. Many building societies, for example, offer investments where a penalty is charged for instant withdrawal but not if notice is

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