

Arestis, Philip; Sawyer, Malcolm

**Research Report**

## Can monetary policy affect the real economy? The dubious effectiveness of interest rate policy

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# Public Policy Brief

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## CAN MONETARY POLICY AFFECT THE REAL ECONOMY?

The Dubious Effectiveness  
of Interest Rate Policy

PHILIP ARETIS AND MALCOLM SAWYER

**No. 71, 2003**

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Editor: Greg Hannsgen

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# Contents

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|  |    |
|--|----|
| Preface<br><i>Dimitri B. Papadimitriou</i> .....   | 5  |
| Can Monetary Policy Affect the Real Economy?<br><i>Philip Arestis and Malcolm Sawyer</i> ..... | 7  |
| About the Authors .....  | 21 |

# Preface

The recent work of Institute Professor Philip Arestis and Senior Scholar Malcolm Sawyer has documented that central bankers and many economists, having abandoned the “activist” policies favored by followers of John Maynard Keynes and the monetarism of Milton Friedman, have in recent years developed a new view of the role of monetary policy. This view is already having a significant effect on central banks’ policy choices, and, in turn, on living standards and employment opportunities throughout the world.

The new monetary philosophy retains many of the tenets of more traditional theories of money. It draws from monetarism a strong emphasis on the importance of inflation control and a skepticism about policymakers’ ability to permanently increase output by adopting easy-money policies. It also adopts the long-standing Keynesian view that the size of the total stock of money is not in itself an important driving force behind either inflation or unemployment. Perhaps most important, it takes a dim view of democratic input to the policymaking process.

Precisely because the new view has been so influential, it deserves a thorough review by lawmakers, citizens, economists, and the press. In this public policy brief Arestis and Sawyer evaluate one of the new premises subscribed to by most central bankers: that monetary policy can be effectively used to control inflation without any permanent sacrifice in the form of reduced income or job opportunities.

After describing the new view, Arestis and Sawyer first consider the various avenues through which monetary policy could possibly exert its effects on the economy; then, they evaluate the empirical evidence on these effects. Their findings cast doubt on several aspects of the new view.

First, economists have developed a plethora of theories about the impact of monetary policy changes, but theory cannot establish which of these “transmission mechanisms” are actually important, or, indeed, if any of them matters very much at all. Second, empirical evidence shows that tight money accomplishes little in terms of reducing inflation. Third, by curtailing demand for goods and services and stunting capital formation, the policies now favored by central bankers reduce economic output and employment in both the short and the long run.

At a time when many of the world’s economies are showing signs of weakness, Arestis and Sawyer’s contribution merits a wide airing. By challenging the widely accepted precepts of the new consensus, the authors help clear the way for an alternative approach to monetary policy that would generate more economic growth and ensure price stability.

Dimitri B. Papadimitriou, *President*  
January 2003

# Can Monetary Policy Affect the Real Economy?

At a time when economies around the globe are experiencing currency crises, financial turmoil, or deep recessions, many of the world's central banks are performing an experiment in monetary policy. The failures of monetarism in the 1970s and 1980s appear to have convinced most central bankers of the futility and riskiness of setting targets for the money supply. But even as unemployment rates rise in places such as Japan and Germany, and governments such as Argentina's struggle to meet debt payments, central banks have not turned their attention to the goals of high growth and full employment. Instead, they focus on inflation targets, which they hope to reach by appointing independent specialists who set short-term interest rates. They have relegated fiscal policy and elected officials to the sidelines and assumed the mantle of economic policymaking.

The new approach to monetary policy raises two issues. The first is the theoretical underpinning of this mode of monetary policy. The second is concerned with the channels through which changes in the rate of interest may affect the ultimate goal(s) of policy. This brief examines both issues. Indeed, these aspects are of enormous importance and relevance to current monetary developments. At a recent conference at the Federal Reserve Bank of New York, on financial innovation and monetary transmission, the speakers readily acknowledged that this change in the conduct of monetary policy, along with financial innovation and the evolving behavior of firms, has altered the channels through which monetary policy affects the economy.<sup>1</sup>

This brief begins with an analysis of the main theoretical underpinnings of the "new" monetary policy,<sup>2</sup> which enables us to identify the essentials of what has been called the "new consensus" in macroeconomics (for example, McCallum 2001; Meyer 2001; Arestis and Sawyer 2002a, 2002b). In a

subsequent section we discuss the channels of influence of interest rate changes. This section includes both theory and empirical evidence. A final section summarizes and concludes.

## **The “New” Monetary Policy**

We begin by attempting to put together the main theoretical characteristics that underpin this approach to monetary policy, which leads us to examine briefly their implications for macroeconomic analysis. We suggest that this analysis demonstrates that a new “consensus” in mainstream macroeconomics has emerged.

Although this supposedly fresh approach to monetary policy has many facets, it is possible to summarize some of the key notions in a simple model, or representation of the economy (McCallum 2001; Meyer 2001; Arestis and Sawyer 2002a, 2002b). However, it should be noted that the model masks the many channels through which monetary policy is seen to operate; we examine these channels in the next section. The model has a number of characteristics:

- The stock of money has no role in the model, since it is assumed to be an effect, rather than a cause, of other economic variables.
- The model includes a policy rule that implies that the interest rate set by the central bank depends upon how far the inflation rate departs from the central bank’s inflation target and output from its trend value.
- Prices and wages are presumed to adjust slowly in response to the level of aggregate demand. Aggregate demand is influenced by the rate of interest.
- Money is “neutral” in that long-run values of real (that is, adjusted for inflation) variables, such as output and employment, are independent of the money supply. However, inflation *is* determined by monetary policy through the impact that the rate of interest has on aggregate demand.



The most interesting aspect of this model for the purposes of this paper is the mechanism whereby the central bank is thought to target inflation. Policymakers attempt to achieve a certain inflation goal by using their control over interest rates to restrain the total demand for goods and services in the economy.

The consensus neglects the possibility that interest rates are a cost to business that may be passed along to their customers. This simple model refers to a single interest rate, and the interdependence of the central bank interest rate and long-term interest rates is an issue. Long rates, rather than short, are relevant for long-term investments such as factories and homes. Furthermore, and as one of the former chairmen of the Board of Governors of the Federal Reserve System has recently argued, monetary policy now “relies upon direct influence on the short-term interest rate and a much more fluid market situation that allows policy to be transmitted through the markets by some mysterious or maybe not so mysterious process” (Volcker 2002, p. 9). It is this process we turn to next.

## **Channels of Monetary Policy**

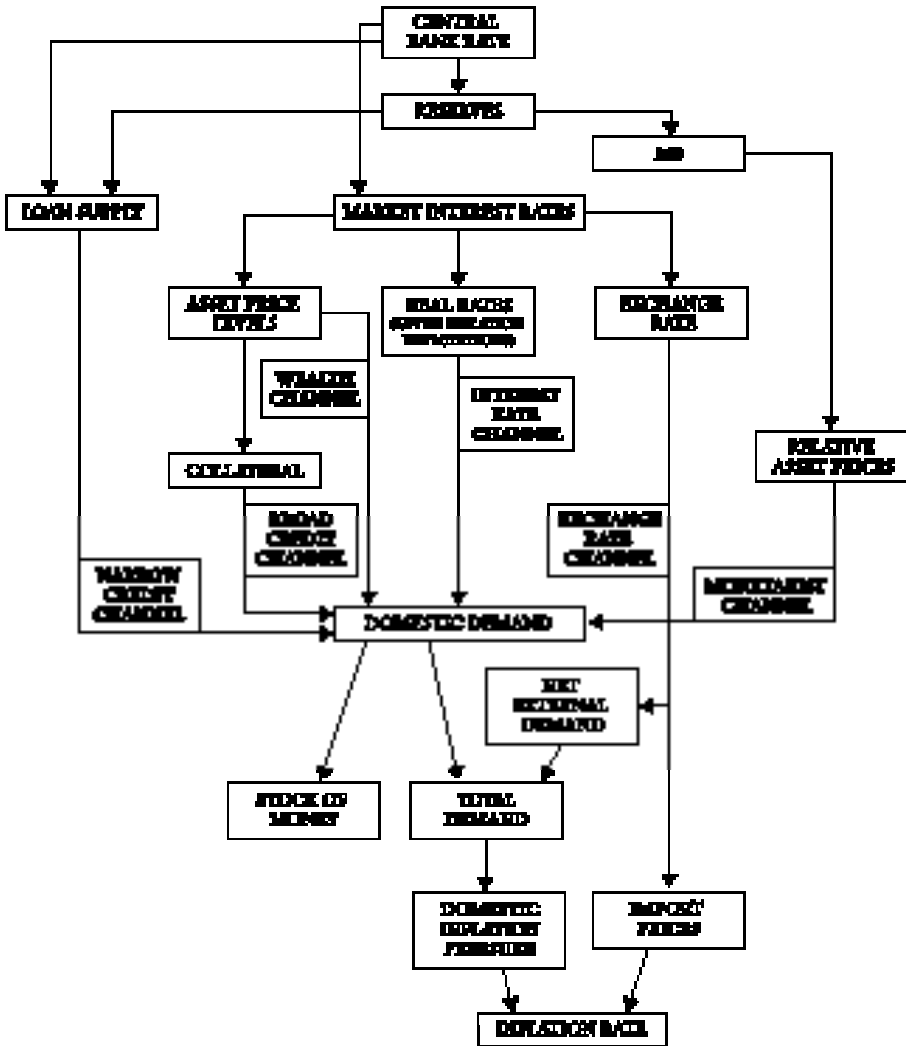
Like all approaches to monetary policy, the new view is based on theories about how policy affects the economy. Perhaps surprisingly, economists have considered many avenues through which policy could possibly influence GDP and inflation; all are somewhat plausible, but it is possible that all, some, or none of these routes are important.

## **Theoretical Underpinnings**

When asked to describe how the central bank might generate inflation, a noneconomist might say something about “too many dollars chasing too few goods.” Few economists now believe this simplistic monetarist explanation; rather, they envisage a complex mechanism whereby interest rates influence demand, which in turn influences inflation. Currently, six possible channels of monetary policy are regarded by at least some economists as plausible (Mishkin 1995, Bank of England 1999, Kuttner and Mosser 2002). The channels traditionally identified by economists are the interest rate channel, the wealth effect channel, the exchange rate channel, and what has been termed the monetarist channel (but which is different from

the direct impact of the stock of money on prices). Two further channels have been identified more recently: the narrow credit channel (sometimes referred to as the balance sheet channel), and the broad credit channel. Figure 1 portrays schematically these six channels.<sup>3</sup>

**Figure 1. Monetary Policy Transmission**



Sources: Based on Kuttner and Mosser (2002, p. 16) and Bank of England (1999, p. 1), with significant modifications

The narrow and broad credit channels rest on insights from the economics of imperfect information. These insights are based mostly on the readily understandable idea that in the real world lenders do not have complete information about the riskiness of potential loans and investments. This means that businesses cannot always obtain loans, even to fund legitimate projects. Their ability to borrow, or at least the interest rate at which they can borrow, may depend on the collateral they can offer or the cash flow available to make interest payments. Another implication of information economics is that bank credit plays a unique and important role in the economy, because banks are able to gather information about borrowers that would not be available to the general public, or even to the financial markets. This informational advantage allows banks to provide credit to firms that would be spurned by other lenders.

The narrow credit channel, also termed the bank lending channel (Hall 2001), concentrates on this role of banks as lenders (Roosa 1951, Bernanke and Blinder 1988). Banks rely heavily on checking accounts to fund loans, and they are required to hold reserves in proportion to their deposits. When there is a rise or fall in total reserves as a result of changes in monetary policy, banks' ability to extend loans is increased or reduced. Given that a significant number of firms and households depend on bank lending, many borrowers ultimately would fail to find alternative sources of finance, and spending would fall, reducing both output and inflation.

This narrow credit channel relates to the effect of monetary policy on the *ability* of banks to make loans. The *broad* credit channel involves monetary policy's effects on their *willingness* to lend. This latter channel, sometimes labeled as the balance sheet channel (Hall 2001), is based on the fact that the balance sheets and cash flow of borrowers can affect the supply of finance, and, ultimately, the total amount of spending in the economy (Bernanke and Gertler 1989, 1999; Bernanke et al. 1999). Monetary policy is important in this regard because it has an effect on the financial condition of potential borrowers. A policy-induced increase (decrease) in the rate of interest raises (lowers) the proportion of a given investment that must be financed from external funds. This increases (decreases) the required interest rate, since banks will lend to more heavily indebted firms only in return for a premium return. Also, the prices of some forms of collateral, such as bonds, move in the opposite direction to interest rates. The impact on investment and consumption can be significant.

Changes in asset prices are also important in the case of the wealth effect channel. When the central bank raises interest rates, some consumers' portfolios decline in value. This reduction in net wealth has an impact on people's purchases of consumer goods.

The interest rate channel and the monetarist channel can be taken together. The interest rate channel works because consumers and business people are likely to make more purchases when the costs of financing them are lower. This channel may also include "availability" effects. Financial institutions may decide not to adjust their interest rates in response to a change in the central bank interest rate, but rather to apply some form of credit rationing (Stiglitz and Weiss 1981). To the extent that monetary policy operates through this channel, it makes sense for the central bank to guide the economy by manipulating the interest rate, rather than striving to set the rate of growth of the money supply.

The closely related monetarist channel, on the other hand, works through changes in the prices of financial and nonfinancial assets. Interest rate changes do not play a special role, other than as one of many relative price changes. Since the effect of monetary policy is on *inflation-adjusted* rates of return, it is pointless to consider the unadjusted rate of interest as representative of the thrust of monetary policy. Monetary policy should, thus, set the money supply and allow interest rates to adjust freely. It is relative asset prices that can have an impact on aggregate demand. This line of argument differs from the jejune monetarist idea that if someone finds a dollar bill on the ground, he or she will likely spend it.

The sixth channel of the impact of monetary policy is the exchange rate channel. It links monetary policy with inflation via two routes. Both depend on the theory that high domestic interest rates attract foreign investors. Suppose we are considering the effect of an interest rate increase on the U.S. economy. Foreign investors who wish to take advantage of high American interest rates must convert their home currencies to dollars before investing in American assets. These purchases of dollars have a tendency to increase the value of U.S. currency in international markets, in other words, to cause the dollar to appreciate. The appreciation cools inflation in two ways. First, it reduces the price in dollars of foreign goods. Second, it raises the prices of American goods on foreign markets, causing a reduction in export demand. As export demand falls, inflationary pressure in the markets for U.S. goods and services eases.<sup>4</sup>

It is important to be able to assess quantitatively the effects of monetary policy, and this is undertaken in the next section. Before we do so, though, it is helpful and pertinent to make a number of relevant observations. The first is that the channels of monetary transmission are not mutually exclusive, in that the overall response of the economy to changes in monetary policy incorporates the combined effects of all the channels. This concurrent operation entails an important challenge, namely, that it becomes very difficult to assess the strength of the individual channels and their contribution to the overall impact of monetary policy on the inflation rate.

A further and related problem is that of isolating the change in the strength and importance of the channels of monetary transmission through time. Additional problems are that these changes are evolutionary and many occur concurrently. The most serious difficulty in this context is the fact that these changes and any of their effects on the transmission mechanism take relatively long periods of time to become evident.

An additional and serious challenge is that the economy affects monetary policy just as much as monetary policy affects the economy. Central banks normally relax policy in the wake of weaknesses in the economy and tighten policy when there are strengths in the economy. This response of policy to economic conditions is another serious impediment to any attempt to identify and isolate the different channels through which the effects of monetary policy are transmitted to the economic system. It is paramount to bear in mind these observations in the attempt to assess the quantitative effects of monetary policy. Kuttner and Mosser (2002) discuss these issues at length and conclude that in the case of the U.S. economy “there have indeed been significant changes in the linkages between the basic instrument of monetary policy . . . and macroeconomic outcomes,” and that “these changes do not necessarily imply a change in the efficacy of policy” (p. 19). This may also be relevant to other economies.

### **Quantitative Effects of Monetary Policy**

The claim that monetary policy is an effective and powerful tool for macroeconomic management depends on a long list of assumptions. One is that variations in the rate of interest have substantial effects on consumer spending and the pace of businesses’ purchases of new machinery, factories, and other capital goods, and thereby on the rate of inflation. In

this section we seek to summarize the results of some recent simulations undertaken by others based on macroeconomic models. In doing so we are able to draw on relevant work undertaken for the eurozone, and for the United Kingdom.

Economists have used two methods for gauging the impact of monetary policy on the economy. The first technique measures the effect of a random change to the short-term interest rate, which is controlled by the monetary authorities. These random changes might arise from unpredictable factors, such as the outcome of political maneuvering between different central bank officials.

Economists estimate the size of these random shocks to the interest rate and use statistical techniques to measure how they affect variables such as GDP or its components. Presumably, the response to a deliberate change in policy would be the same as the effect of a shock.

Using this method to isolate the effects of monetary policy in the eurozone, Angeloni et al. (2002) argue that there are “sizeable and plausible monetary policy effects on output and prices . . . An unexpected increase in the short-term interest rate temporarily reduces output, with the peak effects occurring after roughly one year. Prices respond more slowly, hardly moving during the first year and then falling gradually over the next few years” (p. 21). The authors estimate the effect of a shock of about 30 basis points on prices to be zero in year one and  $-0.07$  percent in year three with a decline in output in year one of 0.15 percent and 0.05 percent in year three.<sup>5</sup>

Another method used by economists is to construct models of the entire economy based on their estimates of various relationships between economic variables. For example, economists might use data to measure how much consumers increase their spending when their disposable income rises by a given amount. This estimate, along with many others, is used to construct a series of equations designed to mimic the behavior of the actual economy. Economists can then use this model to predict the effects of a policy change.

Using a macroeconomic model, Angeloni et al. (2002, Table 2) find that after a 1-percentage-point hike in the rate of interest has been maintained

for two years, prices are 0.3 to 0.4 percent lower than they would have been in the absence of the increase. Hence, the rate of inflation over those three years is around 0.1 percent per annum lower than it would have been otherwise (details given in Arestis and Sawyer 2002b, Table 1). Economists at the Bank of England, in a similar exercise, estimated the impact of increasing the interest rate by one percentage point for a period of one year. Again, the estimated effect on inflation is small. Perhaps more importantly, they estimated that the hike would result in a cumulative reduction in GDP of about 1.5 percent after four years. Ultimately, there would be a human cost in terms of increased unemployment and lost income.

Which sectors of the economy would be affected? Various studies have determined that the impact of a tightened policy would fall primarily on firms' purchases of capital goods rather than on consumption expenditures. For example, Van Els et al. (2001) find that "though central bank's actions induce relatively small and transitory movements in open market interest rates; nevertheless they have large and persistent effects on the purchase of long-lived assets, such as housing or production equipment" (p. 10). A reduction in capital spending is harmful to the economy, because new equipment and factories enhance productivity (the average output produced by each worker per hour).

Van Els and others also look behind the results to find the mechanism through which monetary policy exerts its effects. They find that during the first two years after policy is tightened, the most important mechanism is the exchange rate channel described earlier. (Once two years have passed, the interest rate channel plays the greatest role in terms of the impact of policy on inflation.) This finding suggests a limited role for monetary policy. Theory indicates that the exchange rate effect lasts only as long as a tight money policy continues; a permanent change in the rate of depreciation or appreciation would require a permanent increase in the interest rate. (The paper presents empirical evidence that confirms this theoretical principle.)

The authors find substantial differences between countries of the euro-zone, a finding that is relevant for the operation of a single monetary policy. They conclude that "at one extreme there are countries, like Germany, Benelux, and Finland, where a policy tightening is effective in curbing inflationary pressures at mild costs in terms of output losses, while there are other EMU countries, in particular Greece and Portugal, where the

increase in interest rates engenders a marked contraction in economic activity and only a modest restraint on price developments. The remaining countries are located in between, though somewhat closer to the core region” (p. 48). Thus, in order to quell inflation in one country, the European Central Bank (ECB) might have to bring about a recession somewhere else in the eurozone.

The ECB’s own summary of these studies confirms the observation that the effects of monetary policy are small (ECB 2002). However, it appears to draw the wrong inferences from its results. The ECB concludes that “the impact of monetary policy is neutral in the long run, i.e., a permanent change in the money supply (associated here with a temporary change, in the opposite direction, in the central bank instrument, the policy-controlled interest rate) has no significant long-run effect on real GDP, but does lead to a permanent change in the price level” (p. 45). The same study also concludes that monetary policy has temporary effects on output. Both sets of results are consistent with the “new” consensus.

We find these conclusions somewhat misleading, though, in the following ways: (1) changes in the money supply in most econometric models arise from changes in the demand, rather than from the decisions of policymakers, and the money supply does not have a causal impact on the price level (see Arestis and Sawyer 2002b for more details); (2) the ECB assumes that the interest rate cut is reversed after two years, which would account for the fact that there is no permanent change in GDP; (3) any effects of interest rate changes on investment and thereby on future productive capacity appears to be ignored; and (4) the ECB’s results show a lower price *level*, but the corresponding effect on the inflation rate is minuscule. Because the policy intervention is assumed to last only two years, any disinflationary effect would be just as temporary as the change in output.

The conclusions we draw from this brief survey of some empirical evidence are along the following lines. First (at least within the context of the macroeconomic models), there are constraints to a permanent change in the rate of interest. One constraint is that when interest rates are high, the currency may have a tendency to appreciate continually. However, we remain skeptical of the empirical validity of the link between interest rates and exchange rates.



Second, monetary policy works primarily by generating substantial changes in the rate of investment. There is an immediate cost in the form of lost economic growth. Interest rate variations can also have long-lasting effects, in that the effects on investment will lead to changes in the size of the capital stock. Third, the effects of interest rate changes on the rate of inflation are rather modest.

## **Summary and Conclusions**

This brief began by suggesting that a “new” approach to monetary policy has emerged over the past decade or so. We have summarized the theoretical framework within which this agenda is analyzed. Central bankers have largely dispensed with any role for the stock of money in influencing economic variables and with any policy prescription to target the supply of money. Now, monetary policy is identified with interest rate policy, with little or no reference to the stock of money (on any measure of money).<sup>6</sup> It has generally been the case that setting an inflation target is the main (and often the only) objective of monetary policy. Indeed, monetary policy can be seen as aggregate demand policy in that the interest rate set by the central bank is seen to influence aggregate demand, which, in turn, is thought to influence the rate of inflation. The theory does not provide guidance about what to do when there are supply-side inflationary threats, such as oil price increases.

The main features of the “new” approach have been discussed, and it has been suggested that some of these can be captured in a simple macroeconomic model. However, that simple model needs to be complemented by a discussion of the many channels through which monetary policy is seen to operate. It is a long and uncertain chain of events from an adjustment in the interest rate controlled by the central bank to a desired change in the rate of inflation. In light of the relationship between the exchange rate and the interest rate posited by economic theory, there are constraints on the degree to which the domestic interest rate can be set to address the levels of aggregate demand and inflation without destabilizing the currency.

In view of the central place given to monetary policy in macroeconomic policies and the length of the chain from central bank interest rate to rate of inflation, it is important to consider the empirical estimates of the effects of monetary policy. In the last section we have summarized results

drawn from the eurozone and the United Kingdom, and have suggested that these empirical results point to a relatively weak effect of interest rate changes on inflation. We have also suggested that on the basis of the evidence adduced in this paper, monetary policy can have long-run effects on real magnitudes. This particular result does not sit comfortably with what is now the received theory of monetary policy.

## **Notes**

1. The proceedings of the conference have been published in Federal Reserve Bank of New York (2002).
2. We use the term “new” monetary policy to indicate a focus on inflation, along with an emphasis on inflation targeting rather than money supply targeting (the approach that had been in place before inflation targeting was introduced).
3. The construction of Figure 1 has been strongly influenced by comparable figures in Bank of England (1999, p. 1) and in Kuttner and Mosser (2002, p. 16).
4. We should note, in the context of the exchange rate channel, that exchange rate movements have proved difficult to model in a satisfactory way. The theory briefly mentioned in the text (interest rate parity) indicates a close relationship between interest rate differentials and expected exchange rate movements that would severely limit variations in interest rates. However, the model does not seem to work empirically. In fact, it is safe to say that exchange rate variations have proved notoriously difficult to model, regardless of the theoretical framework adopted.
5. The VAR estimates are taken from Peersman and Smets (2001). Their Graph 1 indicates that the upper 90 percent confidence interval on prices is at or above zero (compared with the base case), i.e., prices may not decline at all.
6. It could also be added that there is no attempt to control other variables such as credit availability.

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Philip Arestis is Institute Professor of Economics at The Levy Economics Institute. He has been working with Senior Scholar Malcolm Sawyer on issues related to the European Monetary Union and the “third way.” In his recent publications, Professor Arestis has addressed, among other topics, financial issues in economic growth, inflation targeting, the 1520–1640 “Great Inflation,” and the financial crises in Southeast Asia. His recent work has appeared in the *Cambridge Journal of Economics*, *Eastern Economic Journal*, *International Review of Applied Economics*, *Journal of Money, Credit, and Banking*, *Journal of Post-Keynesian Economics*, and *Manchester School*.

Malcolm Sawyer is professor of economics at the University of Leeds and Senior Scholar at The Levy Economics Institute. He has undertaken research in the area of industrial economics and macroeconomics, and is recognized as an expert on the economic thought of Michal Kalecki, the late Polish economist. He has been working with Institute Professor Philip Arestis on issues related to the European Monetary Union and the “third way.” He has recently written articles on industrial policy, the nature and role of money, and the economic doctrine of a “nonaccelerating inflation rate of unemployment.” His work has been published in such journals as the *Cambridge Journal of Economics*, *Economic Journal*, *Metroeconomica*, *New Political Economy*, and *European Journal of the History of Economic Thought*.

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