

Inflation Targeting and Central Bank Independence: We Are All Keynesians Now! Or Are We?

Philip Arestis and Malcolm Sawyer

University of Cambridge, Levy Economics Institute, University of Leeds

Abstract

A number of countries have adopted Inflation Targeting (IT) since the early 1990s in an attempt to reduce inflation to low levels. A number of its ingredients can be found in Keynes, especially that of central bank independence. Is it then the case that we are all Keynesians now? Looking more closely into the IT, however, we suggest that it is a major policy prescription closely associated with the New Consensus Macroeconomics (NCM). The latter's main theoretical ingredients appear to be very different from Keynes's ideas on central banking and its policy objectives. Regrettably, we may not be all Keynesians after all, or not yet!

JEL Classification: E31, E52

Key Words: central bank independence, Keynesian economics, new consensus macroeconomics, inflation targeting, monetary policy

Email address for correspondence:

Philip Arestis: pa267@cam.ac.uk

Malcolm Sawyer: mcs@lubs.leeds.ac.uk

Inflation Targeting and Central Bank Independence: We Are All Keynesians Now! Or Are We?

1. Introduction

We have argued in a series of papers (see, for example, Arestis and Sawyer, 2005a, 2005b) that a number of countries have adopted a new consensus monetary policy, essentially Inflation Targeting (IT), since the early 1990s in an attempt to reduce inflation to low levels. Since then, IT has been praised by most literature as a superior framework of monetary policy (Bernanke et al., 1999). In the contributions mentioned above, we have used the term IT to include the following: (i) the setting by government (normally) of a numerical target range for the rate of (price) inflation; (ii) the use of monetary policy as the key policy instrument to achieve the target, with monetary policy taking the form of interest rate adjustments; (iii) the operation of monetary policy in the hands of an ‘independent’ Central Bank; and (iv) the only objective of monetary policy concerns the rate of inflation.

We have also suggested in the same contributions that IT is a major policy prescription closely associated with the New Consensus Macroeconomics (NCM). However, it may be not far from the truth to suggest that some of the main ingredients of the IT framework can be found in Keynes. For example, Bibow (2002) argues persuasively that at least one of the key elements of IT, that of central bank independence, emanates from Keynes (1932). Is it the case then that we are now all Keynesians when it comes to monetary policy? This question is the focus of this paper.

In section 2 we look into Keynes’s (1932) notions of central bank and related aspects. Section 3 elucidates the main elements of the new consensus macroeconomics out of which we get the new consensus monetary policy and IT. Section 4 investigates monetary rules at a greater depth. Section 5 discusses the main differences between Keynes’s views on monetary policy and those of the new monetary policy consensus. Section 6 summarises and concludes.

2. Keynes on Central Bank Independence and Monetary Policy

Central bank independence is not a notion that was suggested for the first time by Kidland and Prescott (1977). Keynes (1913, 1914) initially put forward the idea of central bank independence (see, also, Bibow, 2002). Discussing the role of the central bank and its relation to the government, Keynes was clearly suggesting central bank ‘independence’, with the execution of banking business undertaken by experts: “Banking business must be outside the regular Government machine, ignorant of ‘proper channels’, and free of the official hierarchy where action cannot be taken until reference has been made to higher authority” (Keynes, 1914, p. 160).¹ In the 1920s Keynes’s views on central bank independence actually became increasingly accepted, especially so following the inflationary aftermath of World War I. As Kisch and Elkin (1928) put it, “Since the war the tide has strongly against granting the state power to interfere with the functioning of a Central Bank. The Brussels Conference Resolution of 1920 in favour of the creation of independent Central Banks crystallized the general feeling” (p.17; see, also Sayers, 1938, chapter 4).

¹ In terms of “the custody of the gold standard reserve and the ultimate responsibility for the maintenance of exchange”, Keynes’s view was that it “must remain, in the most direct manner, with the Secretary of State, he should use the Bank as his agent” (Keynes, 1914, p. 191). Later in the 1920s, Keynes (1926) qualified on this belief. He argued that “if the central bank was, whilst administratively an independent entity, nevertheless in a sense a full organ of Government, then I should be inclined to centralise the whole thing and to put the whole matter in the hands of the bank” (p. 511).

It was, nonetheless, in the early 1930s when Keynes discussed the possibility of central bank independence in the case of the Bank of England. Indeed, Keynes's (1932) proposal "is an original contribution to the issue of central bank independence that is relevant to modern discussions. Not least, his proposal is of interest for its resemblance to the United Kingdom's new monetary arrangements introduced in May 1997 and enacted in the Bank of England Act of 1998" (Bibow, 2002, p. 751). Actually, in late summer 1932 a policy pamphlet was published by the UK Labour Party (1932), and Keynes (1932) reviewed the pamphlet in a two-part article for the *New Statesman and Nation* on 17 and 24 September of that year. Although Keynes endorsed the Labour Party resolution that related to the nationalisation of the Bank of England (but not the Big Five commercial banks, which was left in abeyance by the Labour Party in any case on that occasion),² he was critical of the pamphlet's stance on the issue of the Bank of England that it "should be brought under public ownership and control; and that the Governor of the Bank should be appointed by the Government and be subject to the general direction of the Minister of Cabinet rank, who should in turn be responsible to the House of Commons for banking policy; the day-to-day business of the Bank being carried on by the Governor and his subordinates" (Keynes, 1932, p. 130). Public ownership was not a problem for Keynes: "The Bank should be expressly recognized as a national institution from which private profits and private interest are entirely excluded. The directorate should be selected on public grounds and should not stand for the interest of the City any more than for other national interests" (op. cit., p. 131). He argued very strongly for a Bank of England whose "independence and ... prestige are assets" (p. 132). In so doing, though, and in its day-to-day policy, the Bank should ensure that "its statistics, its technique and its immediate aims and objects should be as public as possible, and should be deliberately exposed to outside criticism" (p. 131). Some of these attributes can, of course, be easily translated in to-day's parlance of 'independence', 'credibility', 'openness', 'transparency', 'accountability', and 'flexibility' in the conduct of monetary policy. But it is notable that Keynes talks of the exclusion of private profits and private interests, and the representation of public interests ('selected on public grounds') and the exclusion of the interests of the City and other private interests. This suggests involvement of a broad range of people in the determination of Central Bank policy rather than policy being dictated by financial interests or by the pursuit of a single goal such as low inflation. In contrast, current proposals for 'independent' Central Banks stress the role of experts, bankers and economists in the setting of interest rate policy in the context of the single objective of monetary policy being control of inflation.

Keynes had been very consistent in the period between his first book in 1913 and the time of Keynes (1932), in terms of the relationship between the government and the independent central bank. He did not approve of the idea of a minister being accountable to Parliament on the difficult matter of monetary policy. His preference was clear, as this is evident from the argument that the government should lay down the "main lines of policy", and "The management of the Bank should be ultimately subject to the Government of the day and the higher appointments should require the approval of the Chancellor of the Exchequer" (p. 131), and "the principles of the currency system, e.g. whether or not the standard should be gold, or whether stability of wholesale prices or of the cost of living or of some other index, is to be its norm, should be determined by Parliament" (p. 131). However, "The less direct the democratic control and the more remote the opportunities for parliamentary interference with banking policy the better it will be" (p. 131). The rationale being that the Bank of

² There were only five clearing banks in the UK at that time, which were operating under a cartel.

England in its conduct of monetary policy it is in a difficult position in that it is “in the practice of a very difficult technique, of which Parliament will understand less than nothing. A planned economy will be impracticable unless there is the utmost decentralization in the handling of expert control” (p. 131). Consequently, for Keynes central bank independence is an efficient way of conducting monetary policy, but ultimately democratic control over it should be retained.³ But it is definitely the case that democratic control over monetary policy should not be direct; the operations of the independent central bank are for Keynes essentially technocratic and as such should be unquestionably under expert control.

Similarly, Keynes welcomed another principle of the Labour Party policy pamphlet: the setting up of a *National Investment Board* (NIB) that should work in close collaboration with the ‘publicly owned’ bank of England. Here again, this resolution did not go far enough for Keynes. He argued that such a Board should have two clear objectives: “the quantitative, rather than ... the qualitative, control of new investment, partly with securing the right aggregate of new investment, and partly with securing that the amount of *foreign* lending should be appropriate to the circumstances” (p. 134). In terms of the quantitative control of investment, Keynes suggested that “what is needed is a co-ordinated policy to determine the rate of aggregate investment by public and semi-public bodies, in which case we could safely leave industry to raise what funds it needs as and when it chooses” (p. 135-136). As for the foreign lending dimension of the proposal, Keynes envisaged an instrument of “controlling the value of sterling” and that “it is this which should be the main preoccupation of the proposed National Investment Board” (p. 136). Consequently, the task of the NIB is the maintenance of equilibrium between the total flow of new investment and total resources available for investment at a price level that avoids both inflation and deflation. This should “maintain the level of investment at a high enough rate to ensure the optimum level of employment” (p. 137). It should also be the task of NIB to ensure an appropriate division of the aggregate new lending between foreign and domestic borrowers “which is appropriate to the foreign exchange level best suited to the stability of domestic prices” (p. 136). Interestingly enough, “the desired equilibrium is most unlikely to come about of itself; and failing it, nothing can prevent an instability of the price level” (p. 137).

The NIB, therefore, should aim to pool the funds accruing for investment and then ensuring that adequate demand for them prevails. The latter can be achieved “partly by making them available at a rate of interest which would attract a sufficient demand and partly by stimulating the undertaking of particular investment propositions” (p. 137). This, though, should be undertaken in close collaboration with the independent central bank. Central bank independence for Keynes is, then, rather different from that alluded to by the new consensus in monetary policy, as we demonstrate in section 3. The focus of the latter is on price stability. The focus of Keynes’s notion of independence is on real activity without ignoring price stability.

3. New Consensus Monetary Policy

The new consensus monetary policy emanates from the new consensus macroeconomics. The latter is distinguished by its emphasis on a number of factors: the supply-side determined equilibrium level of unemployment (the ‘natural rate’ or the non-accelerating inflation rate of unemployment, the NAIRU); its neglect of aggregate or effective demand and fiscal policy;

³ Keynes’s views as expounded in the text stand in sharp contrast to Friedman’s (1992), where the latter argues that “money is much too serious a matter to be left to the central bankers” (p. 261; see, also, Bibow, 2002, p. 776).

and the elevation of monetary policy at the expense of fiscal policy. NCM can be described succinctly in the following three equations (see, for example, McCallum, 2001; Arestis and Sawyer, 2004):

$$\begin{aligned} (1) \quad Y_t^g &= a_0 + a_1 Y_{t-1}^g + a_2 E_t(Y_{t+1}^g) - a_3 [R_t - E_t(p_{t+1})] + s_1 \\ (2) \quad p_t &= b_1 Y_t^g + b_2 p_{t-1} + b_3 E_t(p_{t+1}) + s_2 \\ (3) \quad R_t &= (1 - c_3)[RR^* + E_t(p_{t+1}) + c_1 Y_{t-1}^g + c_2 (p_{t-1} - p^T)] + c_3 R_{t-1} + s_3 \end{aligned}$$

with $b_2 + b_3 = 1$, where Y^g is the output gap, R is nominal rate of interest, p is rate of inflation, p^T is inflation rate target, RR^* is the ‘equilibrium’ real rate of interest, that is the rate of interest consistent with zero output gap which implies from equation (2), a constant rate of inflation, s_i (with $i = 1, 2, 3$) represents stochastic shocks, and E_t refers to expectations held at time t . Equation (1) is the aggregate demand equation with the current output gap determined by past and expected future output gap and the real rate of interest. Equation (2) is a Phillips curve with inflation based on current output gap and past and future inflation. Equation (3) is a monetary-policy rule (defined by, for example, Svensson, 2003, p. 448, amongst others, as a ‘prescribed guide for monetary-policy conduct’), which can be regarded as a replacement for the old LM-curve. In this equation, the nominal interest rate is based on expected inflation, output gap, deviation of inflation from target (or ‘inflation gap’), and the ‘equilibrium’ real rate of interest. The lagged interest rate represents interest rate ‘smoothing’ undertaken by the monetary authorities, which is thought as improving performance by introducing ‘history dependence’ (see, for example, Rotemberg and Woodford, 1997; Woodford, 1999). Variations on this theme are used. For example, interest rate ‘smoothing’ in equation (3) is often ignored, as is the lagged output gap variable in equation (1) so that the focus is on the influence of expected future output gap in this equation. There are three equations and three unknowns: output, interest rate and inflation.⁴

In Arestis and Sawyer (2005a, 2005b) we investigated the main ingredients of NCM, and here we merely summarise them.

(i) IT is a monetary policy framework whereby public announcement of official inflation targets, or target ranges, is undertaken along with explicit acknowledgement that price stability, meaning low and stable inflation, is monetary policy’s primary long-term objective (King, 2002b).

(ii) The objectives of the IT framework are achieved through the principle of ‘constrained discretion’ (Bernanke and Mishkin, 1997, p. 104), rather than ‘unfettered discretion’ (King, 1997b). ‘Constrained discretion’ is actually viewed as ‘middle ground’ between ‘rules’ and ‘discretion’. It is “an approach that allows monetary policymakers considerable leeway in responding to economic shocks, financial disturbances, and other unforeseen developments. Importantly, however, this discretion of policy makers is constrained by a strong commitment to keeping inflation low and stable” (Bernanke, 2003a, p. 2).

⁴ It is also possible to add a fourth equation to (1) - (3) reported in the text. This would relate the stock of money to ‘demand for money variables’ such as income, prices and the rate of interest, which would reinforce the endogenous money nature of this approach with the stock of money being demand determined. Clearly, though, such an equation would be superfluous in that the stock of money thereby determined is akin to a residual and does not feed back to affect other variables in the model. We have explored this issue and others related to whether the stock of money retains any causal significance at some length in Arestis and Sawyer (2003).

(iii) Monetary policy is taken as the main instrument of macroeconomic policy, while fiscal policy is no longer viewed as a powerful macroeconomic instrument (in any case it is hostage to the slow and uncertain legislative process). Monetary policy has, thus, been upgraded and fiscal policy has been downgraded.

(iv) Monetary policy can be used to meet the objective of low rates of inflation (which are always desirable in this view, since low, and stable, rates of inflation are conducive to healthy growth rates). However, monetary policy should not be operated by politicians but by experts (whether banks, economists or others) in the form of an ‘independent’ central bank.

(v) The level of economic activity fluctuates around a supply-side equilibrium. In the model outlined above this equilibrium corresponds to $Y^g = 0$ (and inflation is equal to target rate, and real interest rate is equal to RR^*). This can be alternatively expressed in terms of the non-accelerating inflation rate of unemployment (the NAIRU) such that unemployment below (above) the NAIRU would lead to higher (lower) rates of inflation. The NAIRU is a supply-side phenomenon closely related to the workings of the labour market.

(vi) The essence of Say’s Law holds, namely that the level of effective demand does not play an independent role in the (long run) determination of the level of economic activity, and adjusts to underpin the supply-side determined level of economic activity (which itself corresponds to the NAIRU).

The ideas on inflation targeting are reflected in equations (1) to (3). The interest rate is adjusted in response to departures of the inflation rate from its target (equation 3), and it is assumed that a higher interest rate dampens down demand (equation 1) which feeds back via equation (2) to inflation. It stipulates that the nominal rate of interest is the sum of the real interest rate and expected inflation. As such, it incorporates a symmetric approach to inflation targeting. Inflation above the target dictates higher interest rates to contain inflation, whereas inflation below the target requires lower interest rates to stimulate the economy and increase inflation. Equation (3) contains a stochastic shock element, implying that monetary policy operates with random shocks; this is not always the case in the literature, where in some cases this element is not incorporated in equation (3) – see, for example, McCallum, 2001). In view of the importance of equation (3) we investigate its nature more closely in section 4.

4. Monetary Rules

Monetary rules of the type depicted in equation (3) can be distinguished into ad hoc policy rules and rules based on explicit optimization. The best-known example of the ad hoc type (assuming no interest rate smoothing, and no stochastic shocks for simplicity) can be shown as in equation (3)’:

$$(3)' \quad R_t = RR^* + d_1 Y_t^g + d_2 (p_{t-1} - p^T)$$

where the symbols are as above, but noting that $d_2 = c_2 + 1$. This is the original monetary-policy rule, with the exception p^T , which stands in that version for the desired inflation rate (Taylor, 1993). The relationship that captures US monetary policy in terms of the nominal rate of interest was thought to be:

$$(3.1)' \quad R_t = 0.04 + 0.50Y_t^g + 1.5(p_t - 0.02) = 0.02 + p_t + 0.5Y_t^g + 0.5(p_t - 0.02)$$

where the symbols are as above, with the exception of Y^e , which was expressed in that formulation as the ratio of output gap to GDP, and with the assumption that the desired rate of inflation has been 2 per cent. This equation suggests an equilibrium real rate (RR*) of 2 per cent (cf. Taylor, 1993).

Clarida, Gali and Gertler (1998) argue that (3.1)' is applicable to other countries with similar coefficients. d_2 is required to be greater than one, the 'Taylor Principle', for unique equilibrium in sticky-price models (Taylor, 1999; Woodford, 2001). For a recent critique and further elaboration, as well as for a discussion of rules of monetary policy and a suggestion for describing IT as a 'forecast-targeting rule', or 'forecast targeting' (with the Reserve Bank of New Zealand being cited as an example of this procedure), see Svensson (2003). This is essentially what Blinder (1998) describes as 'dynamic programming' and 'proper dynamic optimization'. Equations of the type depicted in (3)' are called Taylor rules, since Taylor (1993), who argued that a simple equation of this form, captured surprisingly well the behaviour of the US federal-funds rate and the Federal Reserve System (Fed) monetary policy. The nominal rate is increased more than one-to-one with respect to any increase in inflation. This policy reaction ensures that the real rate of interest will act to lower inflation. Given inflation, the real rate of interest is also increased as a result of output-gap positive changes. Taylor rules, therefore, require monetary policy to act automatically to inflation and output. We may note that a Taylor rule does not resort to dynamic optimization; it is a rule-of-thumb, based on historical data to formulate benchmark policy (Taylor, 1999). Another example of ad hoc policy rules is the inflation-forecast-based (IFB) rules (Batini and Haldane (1999):

$$(3)'' \quad R_t = RR^* + p^T + \sum_{\tau} \theta_{\tau} \rho_{t+\tau,t}$$

where the monetary policy instrument (typically the short-term rate of interest under the control of the central bank) responds to deviations of expected, rather than actual, inflation from target, thereby bypassing the policy lags that are present when inflation is sticky. The nominal rate of interest depends on a distributed lead of τ -period-ahead inflation forecasts made at time t , $p_{t+\tau,t}$. In both cases just considered, we have instrument rules, which express the monetary policy instrument as a simple and usually linear function of deviation from their target levels of a few key macroeconomic variables (essentially inflation and the output gap), either as outcome-based rules (equation 3') or forecast-based rules (equation 3'').

These Taylor-type rules have been criticized (for example, Svensson, 2003) in terms of the possibility of instability: if the rise in the nominal rate of interest in response to a rise in expected inflation is not high enough, then the real rate of interest falls raising demand which fails to check inflation. Mutatis mutandis, an excessive rise in the nominal rate of interest in response to a rise in expected inflation would also cause instability.⁵ However, instability can be avoided if monetary authorities respond rather aggressively, that is with a coefficient above unity to expected inflation. This result has been demonstrated in the closed-economy case (Clarida, Gertler and Galí, 2000) as well as in the small open-economy case (De Fiore and Liu, 2002). Further ways to alleviate the instability include (Batini and Pearlman, 2002): gradual response by the monetary authority, that is high interest rate smoothing; the monetary

⁵ In fact, Sargent and Wallace (1975) had already argued that in an equation of the (3.1)' type, the price level is indeterminate. They, thus, suggested that a simple rule of fixing the rate of interest at some level is preferable. In an uncertain world, however, this is not plausible (Beindseil, 2004; Goodhart, 2001).

authority responds to averages of expected inflation, instead of expected one-period inflation; the monetary authority augments the instrument rule by also responding to the output gap.

Rules based on optimization invariably rely on setting the monetary policy instrument as a solution to an optimization problem defined by an explicit loss function, describing the costs of the specific goal variables deviating from their target levels, and a structural model of the economy. In other words, minimization of the loss function subject to the constraints imposed by the economy's structure (summarized in the structural model utilized) produces a model-specific optimal interest rate reaction function. This determines the optimal rate of interest as a function of state variables. An inflation-targeting framework would employ a loss function of the general form (see, for example Svensson, 1999; Walsh, 2002; Woodford, 2004):

$$(3)''' E_t \sum_{\tau=0}^{\infty} \delta^{\tau} [(p_{t+\tau} - p^T)^2 + \lambda(Y^g)_{t+\tau}^2]$$

where the parameter δ is a discount factor that satisfies $0 < \delta < 1$, and the parameter $\lambda > 0$ is the weight on output fluctuations, relative to inflation deviations. This would be 'flexible inflation targeting', in that the loss function contains both deviations of inflation and output gap from their targets. If the monetary authority focuses on inflation only, and thus only deviations of inflation from its target would appear in equation (3)''', the case of 'strict inflation targeting' emerges. It follows that 'flexible' IT relies heavily on the value of λ . Consequently, we have in either case target rules, whereby the appropriate setting for the monetary policy instrument is defined as the solution to a constrained optimizing problem facing the central bank. The first-order condition under such an exercise is given by (3)'''':

$$(3)'''' E_t[p_{t+1} - p^T] = (\lambda/b_1)E_t[(Y^g)_{t+1}]$$

where b_1 is the coefficient on the output gap in (2) above. (3)'''' expresses a linear trade-off between the deviation of inflation from its target and the output gap, and states that the expected marginal benefit of reducing inflation from its target should be equal to the expected marginal cost of inflation reduction. A larger λ , or smaller b_1 , implies higher cost in reducing inflation, which may very well imply that the monetary authority is prepared to tolerate larger deviations of inflation from its target, by appropriately manipulating the monetary instrument dictated by the optimization procedure.

In general terms, the optimal rule derived from (3)''' would not be given by the instrument rule as in either (3)' or (3)'', although this is not impossible (Kuttner, 2004a). In fact, there is a degree of complementarity between instrument and target rule, in that a target rule defines inevitably an instrument rule. At the same time, it is always possible to define a loss function and specify an economic model that would produce a specific instrument rule as a solution to an optimization exercise (Issing, 2004).

As suggested elsewhere (Arestis and Sawyer, 2005a, 2005b), NCM is based on the New Keynesian economics approach, but goes beyond it. Equation (2) with its assumption that in the long run the Phillips curve is vertical, and equation (3) as elaborated above, is a further distinguishing feature. Furthermore, the absence of an LM relationship entails two important implications. The first is that money is treated as a 'residual' in the sense that the stock of money has no causal significance within the approach (e.g. changes in stock of money do not cause inflation) and the rate of interest is treated as set by the Central Bank and is not market determined. King (2002b) has noted that "as price stability has become recognised as the

central objective of central banks, the attention actually paid to money stock by central banks has declined”. Surprisingly perhaps, “as central banks became more and more focused on achieving price stability, less and less attention was paid to movements in money. Indeed, the decline of interest in money appeared to go hand in hand with success in maintaining low and stable inflation” (p. 162). The second implication is that since the stock of money is a residual, it is endogenously created, though the terminology of endogeneity is not generally used. There is, however, an important difference between this way of treating money and the more Keynesian notion of endogenous money. The current approach sees money as a residual with no further role for it. The Keynesian notion of endogenous money entails a fully articulated theory with clear policy implications where money and credit have important roles to play in their interaction with real variables (see, for example, Fontana and Palacio Vera, 2002, especially p. 559).

The form that interest rate policy may take is three-fold. The simplest is a ‘weak form’ of IT, meaning that the central bank has a desired inflation rate (p^T), which need not be announced, and the reaction function may also include the output gap. A ‘semi-strong form’ of IT, which is concomitant to pursuing an optimal monetary policy that minimizes a loss function like (3)’’ above, but without any precommitment (Svensson, 1999). A ‘strong-form’ IT, which is the same as the ‘semi-strong form’ IT but under precommitment; for example reduce inflation today but run negative output gaps in the future (King, 1997a).

There are five distinct attributes of IT central banks (Truman, 2003; Kuttner 2004b): (i) stated commitment to price stability as the principal goal of monetary policy; the price stability goal may be accompanied by output stabilization so long as price stability is not violated; (ii) explicit numerical target for inflation is published; this could be a point target or a range; (iii) a time horizon for reaching the inflation target after deviation is published; (iv) formulation of a mechanism for transparency with respect to monetary policy formulation; IT central banks publish inflation reports that might include not only an outlook for inflation, but also output and other macroeconomic variables, along with an assessment of economic conditions; (v) some accountability mechanism: if the inflation target is not met, there should be specific steps in place the central bank should take; this may include publishing an explanation, or submitting a letter to the government explaining the reasons for missing the target and how to return to target. Given these attributes, two types of IT central banks can be identified: the explicit type, and the implicit type. The explicit type has all the distinct attributes just identified, while the implicit IT central banks internalize the price stability objective without adopting all the ingredients of outright inflation targeting.

In order to clarify this distinction further, we may give examples of monetary policy regimes. We do so by drawing on Meyer (2004, Table 1, p. 152). In Table 1 we give relevant examples. Australia has an explicit numerical inflation target and a dual mandate, under which “monetary policy is directed at promoting both full employment and price stability, with no priority expressed, and with the central bank responsible for balancing these objectives in the short run” (Meyer, op. cit., p. 151). The UK has an explicit numerical inflation target and a hierarchical mandate, under which central banks are restricted in pursuing other objectives unless price stability has been achieved” (Meyer, op. cit., p. 151). The US has a dual mandate and may have an implicit inflation target. There are many other countries like the UK, nineteen of them throughout the world (see Table 1). Interestingly enough, Svensson (2004) argues that the dual/hierarchical distinction is not useful. For while the inflation target is a choice variable, “the output target is not subject to choice; it is

only “subject to estimation” (p.161). There is, thus, Svensson (op. cit.) suggests, only a hierarchical mandate for long-run inflation.

5. Comparing Keynes’s and IT’s monetary policy

In Arestis and Sawyer (2005a, 2005b) we argue that there are a number of critical issues that underpin the IT framework. The adoption of a nominal anchor, the separation of real and monetary forces, and the causes of inflation are the relevant critical aspects. We suggest in this contribution that Keynes’s (1932) ideas are rather different from those of the IT. We may briefly summarize these aspects and compare and contrast them in the two frameworks under scrutiny.

5.1 The Nominal Anchor

The first criticism is that adoption of a nominal anchor, such as an inflation target, does not leave much room for manoeuvre for output stabilisation. Proponents of IT would argue that output stabilization is possible in the short run, but not in the long run since output returns to its equilibrium level. It is true, though, that there are supporters of IT who argue quite conspicuously that monetary policy should concentrate on both output and price fluctuations. Bernanke (2003b) follows Meyer (2001) in drawing the distinction between a hierarchical mandate, in which all objectives are subordinate to price stability, and dual mandate, where the economic activity and price stability objectives are adhered to equally. Both Bernanke (op. cit.) and Meyer (op. cit.) support the dual mandate; indeed, Bernanke suggests that “Formally, the dual mandate can be represented by a central bank loss function that includes both inflation and unemployment (or the output gap) symmetrically” (p. 10; see, also, King, 2002a, Mishkin, 2000, Svensson, 1997, 1999, 2003). Bernanke (2003a) has actually argued that “In practice this approach has allowed central banks to achieve better outcomes in terms of *both* inflation and unemployment, confounding the traditional view that policymakers must necessarily trade off between the important social goals of price stability and high employment” (p. 2). However, price stability is the overriding goal in the view of the IT proponents. When Mishkin (2000) refers to the experience of the USA Federal Reserve System, he argues the “lack of a clear mandate for price stability can lead to the time-inconsistency problem in which political pressure is put on the Fed to engage in expansionary policy to pursue short-run goals” (p. 8).

It is clear from the analysis in section 2 above that this is not a problem in the Keynes (1932) view. The objective of monetary policy in Keynes (op. cit.) is essentially both output and stability of prices. There is no dual and hierarchical mandate in Keynes’s analysis. The overriding goals of monetary policy are output and price stability, unlike the IT view of monetary policy.

5.2 The Separation of Real and Monetary Factors

The second is the separation of real and monetary factors in the economy, with the assignment of monetary policy to the nominal side of the economy, and specifically to inflation, and supply-side policies address the real side of the economy (and often, though not an intrinsic part of IT, labour market policies to address problems of unemployment). King (1997a), now the Governor of the Bank of England, argues that “if one believes that, in the long-run, there is no trade-off between inflation and output then there is no point in using monetary policy to target output. [You only have to adhere to] the view that printing

money cannot raise long-run productivity growth, in order to believe that inflation rather than output is the only sensible objective of monetary policy in the long-run” (p. 6). In this framework the supply-side of the economy is represented in terms of an unchanging supply-side equilibrium. For example, the ‘natural rate of unemployment’ or the NAIRU is used to summarise the supply-side equilibrium, and the estimates provided of the ‘natural rate’ or the NAIRU are presented as a single (and hence implicitly unchanging) number. In the three equations above, the supply-side equilibrium is represented as a zero output gap. A less extreme view would be that the supply-side equilibrium may change over time but not in response to the demand side of the economy. Changes in labour market institutions and laws, for example, would be predicted to lead to changes in the supply-side equilibrium. In the context of IT, the significant aspect is that interest rates through their effect on the level of aggregate demand have no lasting impact on the supply side of the economy. They can only affect aggregate demand in the short run, but no impact is recognised in the long run.

This separation is of course completely absent in the Keynes (1932) view. Changes in interest rates in this view can affect both the real and nominal variables in the economy, including the exchange rate. Indeed, if monetary policy cannot have the desirable effect on the real variables in the economy, such policies should be supplemented by more direct policies like for example the NIB as discussed in section 2.

5.3 The Causes of Inflation

The third issue refers to the causes of inflation. The ‘new consensus’ focuses on the role of monetary policy (in the form of interest rates) to control demand inflation, as is evident from equation (2). The significance of the IT on this score is that it strongly suggests that inflation can be tamed through interest rate policy (using demand deflation). In addition, there is an equilibrium rate (or ‘natural rate’), which is feasible, and can balance aggregate demand and aggregate supply and lead to a zero gap between actual and capacity output. Control of cost inflation does not come under the remit of monetary policy. The position taken by IT on cost inflation is that it should either be accommodated, or that supply shocks come and go – and on average are zero and do not affect the rate of inflation (see, for example, Clarida, Galí and Gertler, 1999). In fact, for the Bank of Japan if supply-side factors were affecting price levels, inflation targeting was inappropriate (Ito, 2004).

In the context of the working of monetary policy, this view of inflation, namely that it is caused by demand factors raises two issues. The first is the question of how effective monetary policy is in influencing aggregate demand and thereby inflation. If inflation is a ‘demand phenomenon’, and not a cost phenomenon, as reflected in the Phillips curve of equation (2), then the question arises as to whether monetary policy is the most effective (or least ineffective) way of influencing aggregate demand. This touches on the relevant empirical evidence, and we have attempted to tackle this issue in Arestis and Sawyer (2004), where we conclude that it does not support the IT contentions. The strength of interest rate changes is studied through reporting the results dynamic simulations in the case of three macroeconomic models currently used in official economic policy making. These are the macroeconomic models of the European Central Bank, the Bank of England and the USA Federal Reserve System. The conclusions we draw from this exercise 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. We would see the effect of interest rate on the exchange rate (when interest rate parity is assumed) as being a significant element in this (in that an interest differential between the domestic interest rate and foreign interest rate leads to

a continual change in the exchange rate). Second, and this is clear in the case of the euro area models, when interest rates have an effect on aggregate demand this comes through from substantial changes in the rate of investment. This means that interest rate variations can 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. A 1 percentage point change in interest rates is predicted to lead to a cumulative fall in the price level of 0.41 per cent in one case and 0.76 per cent in the other, after five years. The rate of inflation declines by a maximum of 0.21 percentage points.⁶

The second issue relates to the question of whether the possibility of sustained cost-push and other non-demand related inflation could be as lightly dismissed, as the ‘new consensus’ appears to do. The version of the Phillips curve which appears as equation (2), is a (heavily) reduced form that does not explicitly consider wages, material costs and imported prices. A sustained money wage push makes no appearance in equation (2) and it would appear that there is no explicit representation of such pressures. An increase in, for example, wage aspirations on the part of workers or pressure for higher profit margins are not incorporated, though it could be argued that they would be reflected in the stochastic term.

The relevance of the demand and cost effects discussed under this heading assume a very different role in Keynes (1932). This theoretical framework can easily account for both demand and cost factors. Indeed, monetary policy is thought to have long-run effects, essentially via investment. The idea of a vertical Phillips curve is completely absent from this theoretical framework. Inflationary pressures emanate essentially from exchange rate movements and the independent central bank should be vigilant to ameliorate its impact. It would be interesting to note in this context the conclusion reached by the UK Lords Select Committee on Economic Affairs (House of Lords, 2004a, 2004b) on this issue. The Committee refers to its “predecessor Committee” that “commented on the prominent role played in the United Kingdom by the exchange rate in the transmission of interest rates to inflation. They found that, according to the Bank of England economic model, in the first year 80% of the effect of an increase in interest rates is via an appreciation of the exchange rate” (House of Commons, 2004a, p. 26). Such conclusion sits very comfortably within Keynes’s (1932) thinking as explored in section 2.

5.4 The Determination of the Equilibrium Rate of Interest

This relates to the determination of the equilibrium rate of interest in the NCM (the RR^* in equation 3). Keynes in effect accepted the notion of an equilibrium natural rate of interest in the *Treatise on Money* (1930) but not in the *General Theory* (1936). This would imply that Keynes thought in the *Treatise on Money* that potentially the Central Bank could target the unique natural/equilibrium rate, but in the *General Theory* there was no unique natural rate. The NCM adheres to the unique natural rate, which is unaffected by changes in fiscal policy or by changes in optimism/pessimism. We may begin with the following quote from Keynes (1930): “Following Wicksell, it will be convenient to call the rate of interest which would

⁶ An important implication of the strong impact of changes in the rate of interest on investment is the argument advanced mainly by the Bank of Japan that to the extent economic agents believe in inflation targets, then long-term interest rates would increase, well before economic activity is sufficiently stimulated, thereby causing significant damage to the economy (see Ito, 2004, for a summary of the views expressed by the Bank of Japan’s monetary policy board members). The ex-Governor of the Bank of Japan reinforces this view when he argues that “if we tried to contain inflation after it had gained momentum, we would need very strong monetary tightening, which might result in a substantial deterioration of economic activity and a steep climb in unemployment” (Hayami, 2000).

cause the second term of our fundamental equation to be zero the *natural rate* of interest, and the rate which actually prevails the *market rate* of interest. Thus the natural rate of interest is the rate at which saving and the value of investment are exactly balanced, so that the price level of output as a whole (II) exactly corresponds to the money rate of the efficiency earnings of the factors of production. Every departure of the market rate from the natural rate tends, on the other hand, to set up a disturbance of the price level by causing the second term of the second fundamental equation to depart from zero. We have, therefore, something with which the ordinary quantity equation does not furnish us, namely, a simple and direct explanation why a rise in the bank rate tends, in so far as it modifies the effective rates of interest, to depress price levels” (p. 139).

This argument may be contrasted with the position taken by Keynes in the *General Theory*, where Keynes (1936) explicitly rejects the idea of a unique natural rate of interest, and in effect argues that there is a natural rate of interest corresponding to each level of effective demand, which would bring savings and investment into balance. Keynes (1936) is very explicit: “In my *Treatise on Money* I defined what purported to be a unique rate of interest, which I called the natural rate of interest - namely, the rate of interest which, in the terminology of my *Treatise*, preserved equality between the rate of saving (as there defined) and the rate of investment I had, however, overlooked the fact that in any given society there is, on this definition, a *different* natural rate of interest for each hypothetical level of employment. And, similarly, for every rate of interest there is a level of employment for which the rate is the ‘natural’ rate, in the sense that the system will be in equilibrium with that rate of interest and that level of employment. Thus it was a mistake to speak of the natural rate of interest or to suggest that the above definition would yield a unique value for the rate of interest irrespective of the level of employment. I had not then understood that, in certain conditions, the system could be in equilibrium with less than full employment” (pp. 242-243). It is also the case that a shift in the state of confidence and expectations leading to a shift in the investment schedule would lead to a shift in the natural rate of interest. Keynes (1936) goes on to argue that “If there is any such rate of interest, which is unique and significant, it must be the rate which we might term the *neutral* rate of interest, namely, the natural rate in the above sense which is consistent with full employment, given the other parameters of the system; though this rate might be better described, perhaps, as the *optimum* rate The above gives us, once again, the answer to the question as to what tacit assumption is required to make sense of the classical theory of the rate of interest. This theory assumes either that the actual rate of interest is always equal to the neutral rate of interest in the sense in which we have just defined the latter, or alternatively that the actual rate of interest is always equal to the rate of interest which will maintain employment at some specified constant level. If the traditional theory is thus interpreted, there is little or nothing in its practical conclusions to which we need take exception. The classical theory assumes that the banking authority or natural forces cause the market-rate of interest to satisfy one or other of the above conditions” (pp. 243-44).

6. Summary and conclusions

We have summarized in this contribution certain ideas of central bank independence and monetary policy that emanate from Keynes (1932). We have also located the theoretical foundations of IT and identified a number of its key issues. We have compared the two theoretical models and have found them as having very little in common. This is particularly interesting in view of the resemblance of Keynes’s (1932) ideas to the United Kingdom’s new monetary arrangements enacted in the Bank of England Act of 1998. The latter contains a number of Keynes’s characteristics: independent central bank, accountable to the

Parliament, with the Chancellor of the Exchequer providing the objective, but with the Bank of England choosing the instrument to achieve this objective. This is all very similar to Keynes's ideas. But in terms of the explicit and hierarchical specific objective, price stability, as well as the relationship between the policy instrument, interest rate, and the target, rate of inflation, there are significant differences between the two views. Not that inflation targeting cannot be accommodated in the views of Keynes on central banking. But it would have to be a completely different way of doing so, and it would involve the exchange rate.⁷ We have attempted to clarify these kinds of differences between Keynes's and IT's views. These are significant differences. In this respect we are not all Keynesians yet!

References

Arestis, P. and Sawyer, M. (2004), "Can Monetary Policy Affect the Real Economy?", *European Review of Economics and Finance*, 3(2), 9-32

Arestis, P. and Sawyer, M. (2005a), "Inflation Targeting: A Critical Appraisal", *Greek Economic Review*, (Forthcoming).

Arestis, P. and Sawyer, M. (2005b), "New Consensus Monetary Policy: An Appraisal", in P. Arestis, M. Baddeley and J. McCombie (eds.), *The 'New' Monetary Policy: Implications and Relevance*, Aldershot: Edward Elgar, Forthcoming.

Ball, L. and Sheridan, N. (2003), "Does Inflation Targeting Matter?", *NBER Working Paper Series*, No. 9577, National Bureau of Economic Research: Cambridge, MA.

Batini, N. and Haldane, A. (1999), "Forward-Looking Rules for Monetary Policy", in J.B. Taylor (ed.), *Monetary Policy Rules*, 157-192, Chicago: University of Chicago Press.

Batini, N. and Pearlman, J. (2002), "Too Much Too Soon: Instability and Indeterminacy with Forward-Looking Rules", *Bank of England External MPC Discussion Paper No. 8*, London: Bank of England.

Bernanke, B.S. (2003a), "'Constrained Discretion' and Monetary Policy", Remarks Before the *Money Marketeers of New York University*, 3 February, New York.

⁷ Interestingly enough, the Reserve Bank of New Zealand, the initiator of inflation targeting in the early 1990s, is moving to a new era where concern with the exchange rate becomes important. Orr (2004), the Deputy Governor of the Reserve Bank of New Zealand, has recently stated in a speech that "We recommended having the capacity to intervene in the foreign exchange market to affect the level of the exchange rate in certain circumstances. That is, we would contemplate intervening if the exchange rate is exceptionally and unjustifiably high or low, and we think an opportunity exists that would ensure such intervention was effective" (p. 1-2). However, "Such an intervention strategy would be consistent with the Bank's primary objective of achieving and maintaining price stability. Hence, foreign exchange intervention can be viewed as another instrument for the Bank, consistent with achieving our monetary policy objectives, albeit a very secondary instrument to our most powerful one of the Official Cash Rate" (pp. 2-3). This modification of the IT strategy of the Reserve Bank of New Zealand has been dictated by the results of "considerable analysis over the years. This includes analysing experiences internationally, and academic and empirical literature" (p. 3). Importantly this intervention will be based on discretion in that "There is no mechanical rule underlying this new objective – such decisions are made in context" (p. 2). In the same speech, the terms 'exceptionally high or low' and 'unjustifiably high or low' exchange rates are defined. Exceptionally high or low means "when the exchange rate is nearing its cyclical extremes", and unjustifiably high or low means "when the exchange rate has moved well in excess of any relevant economic fundamentals" (p. 2).

- Bernanke, B.S. (2003b), “A Perspective on Inflation Targeting”, Remarks at the *Annual Washington Policy Conference of the National Association of Business Economists*, 25 March, Washington DC.
- Bernanke, B.S., Laubach, T., Mishkin, F.S. and Posen, A. (1999), *Inflation Targeting: Lessons from the International Experience*, Princeton: Princeton University Press.
- Bernanke, B. and Mishkin, F.S. (1997), “Inflation Targeting: A New Framework for Monetary Policy?”, *Journal of Economic Perspectives*, 11(2), 97-116.
- Bibow, J. (2002), “Keynes on Central Banking and the Structure of Monetary Policy”, *History of Political Economy*, 34(4), 749-787.
- Bindsell, U. (2004), *Monetary Policy Implementation: Theory, Past and Present*, Oxford: Oxford University Press.
- Blinder, A.S. (1998), *Central Banking in Theory and Practice*, Cambridge, Massachusetts: MIT Press.
- Clarida, R., Gali, J. and Gertler, M. (1998), “Monetary Policy Rules in Practice: Some International Evidence”, *European Economic Review*, 42(1), 1033-1067.
- Clarida, R., Gali, J. and Gertler, M. (2000), “Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory”, *Quarterly Journal of Economics*, 115(1), 147-180.
- De Fiore, F. and Liu, Z. (2002), “Openness and Equilibrium Determinacy Under Interest Rate Rules”, *European Central Bank Working Paper No. 173*, Frankfurt: European Central Bank.
- Fontana, G. and Palacio-Vera, A. (2002), “Monetary Policy Rules: What are we Learning?”, *Journal of Post Keynesian Economics*, 24(4), 547-568.
- Friedman, M. (1992), *Money Mischief Episodes in Monetary History*, San Diego: Harcourt Brace.
- Goodhart, C.A.E. (2001), “The Endogeneity of Money”, in P. Arestis, M. Desai and S. Dow (eds.), *Money, Macroeconomics and Keynes*, London: Routledge.
- Hayami, M. (2000), “Price Stability and Monetary Policy”, Speech to the *Research Institute of Japan*, 21 March, Tokyo. The speech is available on the Internet: <http://www.boj.or.jp/en/press/00/ko0003b.htm>.
- House of Lords (2004a), *Monetary and Fiscal Policy: Present Successes and Future Problems*, Volume 1: Report, House of Lords Select Committee on Economic Affairs, 3rd Report, London: HMSO.
- House of Lords (2004b), *Monetary and Fiscal Policy: Present Successes and Future Problems*, Volume 2: Evidence, House of Lords Select Committee on Economic Affairs, 3rd Report, London: HMSO.

Issing, O. (2004), "Panel Discussion: Inflation Targeting: A View from the ECB", *Federal Reserve Bank of St. Louis Review*, 86(4), 169-179.

Ito, T. (2004), "Inflation Targeting and Japan: Why Has the Bank of Japan not Adopted Inflation Targeting?", *NBER Working Paper Series No. 10818*, National Bureau of Economic Research: Massachusetts, Cambridge.

Keynes, J.M. (1913), *Indian Currency and Finance*. Reprinted under the same title as Vol. I of *The Collected Writings of John Maynard Keynes*, 1982. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

Keynes, J.M. (1914), *Memorandum on Proposals for the Establishment of a State Bank in India*. Reprinted in Vol. XV of *The Collected Writings of John Maynard Keynes*, 1982, under the title *Activities 1906-1914, India and Cambridge*. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

Keynes, J.M. (1926), *The Royal Commission on Indian Currency and Finance - Minutes of Evidence*. Reprinted in Vol. XIX of *The Collected Writings of John Maynard Keynes*, 1982, under the title *Activities 1922-1929, The Return to Gold and Industrial Policy, Part II*. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

Keynes, J.M. (1930), "The Conditions of Equilibrium", Chapter II. Reprinted in Vol. V of *The Collected Writings of John Maynard Keynes*, 1982, under the title *A Treatise on Money: The Pure Theory of Money*. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

Keynes, J.M. (1932), "The Monetary Policy of the Labour Party", *The New Statesman and Nation*, 17 and 24 September. Reprinted in Vol. XXI of *The Collected Writings of John Maynard Keynes*, 1982, under the title *Activities 1931-1939: World Crises and Policies in Britain and America*. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

Keynes, J.M. (1936), "The Essential Properties of Interest and Money", Chapter 17. Reprinted in Vol. VII of *The Collected Writings of John Maynard Keynes*, 1982, under the title *The General Theory*. Published for the Royal Economic Society by Macmillan and Cambridge University Press: London and Basingstoke.

King, M. (1997a), "Changes in UK Monetary Policy: Rules and Discretion in Practice", *Journal of Monetary Economics*, 39, 81-87.

King, M. (1997b), "The Inflation Target Five Years On", Lecture delivered at the London School of Economics, 29 October, 1997.

King, M. (2002a), "No Money, No Inflation – The Role of Money in the Economy", *Bank of England Quarterly Bulletin*, 42(2), 162-177. Reprinted in P. Mizen (ed.), *Central Banking, Monetary Theory and Practice: Essays in Honour of Charles Goodhart*, Volume One, Edward Elgar Publishing: Cheltenham (2003).

- King, M. (2002b), "The Inflation Target Ten Years On", *Bank of England Quarterly Bulletin*, Summer, 42(4), 459-474.
- Kisch, C.H. and Elkin, W.A. (1928), *Central Banks: A Study of the Constitutions of Banks of Issue, with an Analysis of Representative Charters*, London: Macmillan.
- Kuttner, K.N. (2004a), "The Role of Policy Rules in Inflation Targeting", *Federal Reserve Bank of St Louis Review*, 86(4), 89-111.
- Kuttner, K.N. (2004b), "A Snapshot of Inflation Targeting in its Adolescence", Given to the International Conference on *The Future of Inflation Targeting*, Reserve Bank of Australia, 9-10 August, 2004.
- Kydland, F. and Prescott, E.C. (1977), "Rules Rather than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economy*, 85(3), 473-492.
- Labour Party (1932), *The Labour Party Policy Report No. 1: Currency, Banking and Finance*. September.
- McCallum, B.T. (2001), "Monetary Policy Analysis in Models Without Money", *Federal Reserve Bank of St. Louis Review*, 83(4), 145-160.
- Meyer, L. (2001), "Inflation Targets and Inflation Targeting", Remarks at the *University of California at San Diego Economics Roundtable*, 17 July, San Diego: California.
- Meyer, L.H. (2004), "Practical Problems and Obstacles to Inflation Targeting", *Federal Reserve Bank of St. Louis Review*, 86(4), 151-160.
- Mishkin, F.S. (1999), "International Experiences with Different Monetary Policy Regimes", *Journal of Monetary Economics*, 43, 579-605.
- Mishkin, F.S. (2000), "What Should Central Banks Do?", *Federal Reserve Bank of St. Louis Review*, 82(6), 1-13.
- Orr A. (2004), "On the Reserve Bank's Exchange Rate Intervention Proposal", *Speech Excerpt of a Presentation to the Meat New Zealand Annual Conference*, Whangarei, New Zealand: The speech is available on the Internet: <http://www.rbnz.govt.nz/speeches/0148372.html>.
- Rotemberg, J.J. and Woodford, M. (1997), "An Optimization-Based Econometric framework for the Evaluation of Monetary Policy", *NBER Macroeconomics Annual 1997*, 297-346, National Bureau of Economic Research: Cambridge, MA.
- Sargent, T.J. and Wallace, N. (1975), "'Rational' Expectations, the Optimal Monetary Instrument and the Optimal Money Supply", *Journal of Political Economy*, 83(2), 241-254.
- Sayers, R.S. (1938), *Modern Banking*, Oxford: Oxford University Press.
- Svensson, L.E.O. (1997), "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets", *European Economic Review*, 41, 1111-1146.

Svensson, L.E.O. (1999), "Inflation Targeting as Monetary Policy Rule", *Journal of Monetary Economics*, 43, 607-654.

Svensson, L.E.O. (2003), "What is Wrong with Taylor Rules? Using Judgement in Monetary Policy through Targeting Rules", *Journal of Economic Literature*, XLI(2), 426-477.

Svensson, L.E.O. (2004), "Commentary on Meyer: Practical Problems and Obstacles to Inflation Targeting", *Federal Reserve Bank of St. Louis Review*, 86(4), 161-164.

Taylor, J.B. (1993), "Discretion Versus Policy Rules in Practice", *Carnegie-Rochester Conference Series on Public Policy*, December, 195-214.

Taylor, J.B. (1999), "A Historical Analysis of Monetary Policy Rules", in J.B. Taylor (ed.), *Monetary Policy Rules*, Chicago: Chicago University Press.

Truman, E.M. (2003), *Inflation Targeting in the World Economy*, Washington, DC: Institute for International Economics.

Walsh, C. (2002), "Teaching Inflation Targeting: An Analysis for Intermediate Macro", *Journal of Economic Education*, Fall, 333-346.

Woodford, M. (1999), "Optimal Monetary Policy Inertia", *NBER Working Paper Series*, No. 7261, National Bureau of Economic Research: Cambridge, MA.

Woodford, M. (2004), "Inflation Targeting and Optimal Monetary Policy", *Federal Reserve Bank of St. Louis Review*, 86(4), 15-42.

TABLE 1: MONETARY POLICY REGIMES

MANDATE	INFLATION TARGET	
	EXPLICIT	IMPLICIT
DUAL	AUSTRALIA	US (?)
HIERARCHICAL	UK ⁺ , ECB	JAPAN (?)

SOURCES: Adopted and adapted from Meyer (2004, Table 1, p. 152) and Kuttner (2004b, Table 2, pp. 34-36).

⁺ There are other countries that may come under the explicit/hierarchical category: Brazil, Canada, Chile, Columbia, Czech Republic, Hungary, Iceland, Israel, Mexico, New Zealand, Norway, Peru, Philippines, Poland, South Africa, South Korea, Switzerland, Sweden, Thailand. Japan may actually have an implicit zero inflation target (see, for example, Ito, 2004). ECB has an inflation target, but does not pursue inflation-target type of policy.