# A Post-War History of the Rules *vs* Discretion Debate

## Introduction

This paper attempts to review the post-war history of the rules *vs* discretion debate. The focus in the paper is principally on theoretical developments which came to have a bearing on the debate. The central figure in this debate was, without doubt, M. Friedman; much of the huge literature centres around first raised by Friedman. Inevitably then special attention will be paid to his contributions.[1]

## 1. The simplistic Keynesian framevork for stabilisation

The early post-war short run Keynesian framework was as follows:

(1) Up to full employment nominal wages were "rigid". In the simple Keynesian textbook case so were prices; however in more sophisticated Keynesian analysis the domestic price level would rise as full employment was approached so as to produce a fall in real wages. The problem of inflation (which was thought to come principally from excess demand) surfaced only after full employment was reached.

(2) The private sector was very unstable; investment in particular was volatile and subject to "animal spirits". Early Keynesians (such as Hansen) also believed that capitalist economies would be exposed to secular stagnation, *i.e.* there would be insufficient investment to absorb long run savings.

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[1] A separate complementary paper (ARGY, 1988) takes a closer look at the kinds of simple monetary and fiscal rules which have been proposed.

(3) An adverse demand shock could place the economy below its full employment level, where, in principle, it could remain for an indefinite period. With rigid wages there was no automatic mechanism by which full employment could be restored.[2]

(1) to (3) provided the analytical base for stabilisation policy. In the face of some involuntary unemployment governments would increase aggregate demand, increase the price level, reduce real wages and thus restore full employment. Government intervention would also be needed to avert potential secular stagnation.

The choice between monetary and fiscal policies as instruments to achieve stabilisation objectives depended on the structural coefficients of the Keynesian system. The steeper (flatter) the IS schedule and the flatter (steeper) the LM schedule the stronger the case for the use of fiscal (monetary) policy. In "simplistic" Keynesianism LM would be represented as relatively flat (high interest elasticity of money demand) while the IS would be represented as relatively steep (low interest sensitivity of investment) thus favouring the active use of fiscal rather than monetary policy.

## 2. The Phillips-Curve analysis

During the late 1950s and early 1960s the Phillips-Curve (PC) dominated much of the macroeconomic thinking. The PC identified a negative relationship between the rate of growth of wages or inflation and the rate of unemployment. (Phillips, 1958; Samuelson and Solow, 1960; Lipsey, 1960; Spitaeller, 1971). This meant now that governments could not take the view that inflation could be disregarded until full employment was reached; nor was there a clearly defined point which could be taken to represent full employment.

The identification of a PC was also widely interpreted to mean that governments could now choose a particular combination of inflation and unemployment. In reality, however, in the Bretton Woods system which prevailed in those years the design of macro policy was more

[2] Keynesians, however, also contended that because of the presence of a "liquidity trap" downward flexible wages would not necessarily restore full employment; but PATINKIN (1965) showed that in the presence of a real balance effect this argument was incorrect.



complicated. On the one hand, because the United States was able to finance its deficits by creating official dollar liabilities against itself (and hence did not have a balance of payments constraint) it was relatively free to choose its inflation-unemployment combination. On the other hand, other countries were subject to more severe constraints in designing their macro policies.

Consider a country which chose a combination which gave it a rate of inflation above that of say the rest of the world. It would then have to do one (or a combination) of three things: (a) devalue on a regular basis; (b) expose itself to intermittent external crises and be forced to adopt stop-go type policies; (c) try and improve its PC trade-off by the adoption of an appropriate incomes policy and/or manpower labour market policies. Failing (c) and given the IMF constraints on exchange rate adjustments the country would sooner or later have to conform to the world rate of inflation and hence accept the corresponding unemployment rate.

By contrast a country which chose an inflation rate below world levels, given again the constraints on exchange rate adjustments, would be threatened with imported inflation.

Given these kinds of constraints, the existence of a potential Phillips curve trade off was also viewed as supportive of a flexible rate regime (Johnson, 1972; Argy, 1981). Different countries it was acknowledged had different preferences with respect to unemployment and inflation. Moreover, for a variety of reasons the position of countries' Phillips curves tended to be different. Flexible rates allowed countries to choose their own combinations of inflation and unemployment.

In the fixed exchange rate world of the 1950s and up to the late 1960s the balance of payments loomed as an important constraint on policy. Thus governments became concerned over external as well as internal balance. Monetary policy came to be seen in those years as the appropriate instrument for external balance and fiscal policy for employment. Mundell (1962) provided the analytical rationale for this assignment. Tinbergen (1952) had a decade earlier provided the theoretical basis for multi targets and multi instruments.

To sum up, then, macro policy could be seen as being conducted with three principal objectives in mind: high employment, low inflation and balance in the overseas accounts. The three instruments corresponding to these objectives were respectively fiscal, incomes and monetary

policies.[3] Stabilisation policy was still feasible but it now had to be put in a wider content and subject to a number of constraints.

## 3. Friedman's attack on activism

At the same time that the Keynesians were arguing the case for an activist policy Friedman, beginning in the early 1950s, launched a vigorous attack on such policies. Friedman's criticisms, which were multipronged, were based on political as well as economic considerations.

On the political front, Friedman took the view that governments do not necessarily act in the public interest and hence would be likely to adopt politically advantageous short run policies which were against the longer run public interest.

On the economic front, Friedman asserted that there were limitations in our "ability to predict both the behavior of the system in the absence of action and the effect of action". As well there were long lags in the effects of (monetary) policy: these were "the lag between the need for action and the recognition of this need, the lag between the recognition of the need for action and the taking of action and the lag between the action and its effects" (Friedman, 1953). These (monetary policy) lags were not only long but also variable (Friedman, 1969). Later and in the same spirit, Friedman also began to assert that fiscal policy was likely to crowd out an equivalent amount of private spending and thus ultimately prove ineffective (Friedman, 1970).

Finally he also contended that (a) with relatively stable monetary and fiscal policies in place the private sector will also be relatively stable; (b) in the face of private sector shocks the economy was, in any event, inherently resilient, absorbing these shocks with only minimal disruption.

At a more conceptual level, Friedman tried to show that for government policies to be countercyclical the correlation coefficient between government actions and income (free of the effects of policies) would not only have to be negative but significantly negative.

[3] Monetary policy was also represented then as having as an aim to encourage capital formation and growth by keeping interest rates relatively low (SMITH, 1957 and SCHLESINGER, 1961).



Suppose we have

$$y_t = x_t + g_t$$

where y is the actual level of activity, x is the level of activity without the effects of policy and g is the addition to or the subtraction from the level of activity due to the effects of policy.

Taking variances of the above we have

$$\sigma_y^2 = \sigma_g^2 + \sigma_x^2 + 2\,\varrho_{xg}\,\sigma_x\,\sigma_g$$

where $\varrho$ stands for the correlation coefficient between x and g.

To demonstrate Friedman's case against discretion let us suppose for simplicity that $\sigma_x = \sigma_g$, *i.e.* the standard deviation of these two series is the same. We can then rewrite the second equation as

$$\frac{\sigma_y^2}{\sigma_x^2} = 2\,(1 + \varrho_{xg}).$$

The objective of stabilisation policy is to have $\sigma_y^2 < \sigma_x^2$, *i.e.* the variance of activity after policy should be less than the variance of activity without policy. So we require that

$$\frac{\sigma_y^2}{\sigma_x^2} < 1.$$

We can rewrite the last equation as

$$\varrho_{xg} < -\frac{1}{2}.$$

The correlation coefficient has to be (negative) larger than 0.5 for policy to be stabilising. As an example, if

$$\frac{\sigma_y^2}{\sigma_x^2} = 0.7$$

(*i.e.* some 30% of the initial variance of income is removed) we require that $\varrho_{xg} = -0.65$.

Not content with simply making a presumptive case against discretion Friedman also tried to demonstrate that policy had in fact tended to be destabilising (Bordo-Schwartz, 1983; Friedman-Schwartz, 1963).

For all these reasons then (theoretical, empirical and political) Friedman concluded that policy would be likely to be destabilising rather than stabilising. His own prescription (Friedman, 1959) was to legislate to have money grow at a fixed rate — his famous constant money growth rule (CMGR). (See Argy, 1988.)

## 4. The Rules *vs* Discretion Debate - 1960s and early 1970s

Friedman's case against discretion directly or indirectly provoked a huge literature during the 1960s and early 1970s. This literature was at two levels: theoretical and empirical. The theoretical literature concerned itself with Friedman's theoretical case against discretion; on the other hand the empirical literature attempted to evaluate whether or not policy had or had not been stabilising.

The more important theoretical contributions came from Baumol (1961), who followed on the heels of Phillips (1957), Tucker (1966), Brainard (1967), Eisner (1969), Fischer-Cooper (1973) and Blinder-Solow (1973). A discussion and summary of the issues raised in this debate here appear in Moore (1972), Okun (1972), Modigliani (1977), Turnovsky (1977), Gordon (1978), Tobin (1980) and Bryant (1980).

Phillips (1957) was one of the first to address the kinds of issues raised by Friedman. Phillips, using differential equations, evaluated the effectiveness of stabilisation policy in the context of a simple multiplier accelerator type model. He distinguished three types of discretionary policies: first, a "proportional" policy, where governments react to the gap between (recent) actual and full-employment output; second, a "derivative" policy where governments react to the preceding change in output; third, an "integral" policy where governments react to the sum of past deviations in output from its full employment level. His principal contribution was to show that the effectiveness of depended on (a) the dynamics of the system, (b) the type of policy adopted, (c) the lags in policy adjustment.

Baumol (1961), using difference equations took up this theme and reached similar conclusions. Allowing policy to respond with some lag and given the multiplier accelerator framework one ends up with a typical second-order difference equation, which may or may not be stable (Turnovsky, 1977, 318-28).



Tucker (1966) addressed Friedman's point that monetary policy lags were long and hence policy was likely to be destabilising. Tucker showed that long lags in the product market did not necessarily translate into long lags in the effects of monetary policy. Suppose there is a long lag in the response of investment to an interest rate change and suppose too that the demand for money with respect to the interest rate is inelastic in the short run and much more elastic in the long run. Then a drop in the money supply will generate very strong increases in the interest rate, countering the weak initial effects on expenditure; later the interest rate drops back neutralising, in part at least, the delayed effects on expenditure.

Interesting as Tucker's point was, it did not really address Friedman's question of whether monetary policy was or was not stabilising. Tucker implicitly assumed that if monetary policy lags were shorter policy would be more likely to be stabilising. But as Howrey (1969) noted, if monetary policy is used to counter distrurbances then the lags in the product and money markets will also determine the lags in the effects of such disturbances. If these disturbances have long lags it is appropriate for monetary policy to have long lags too (Moore, 1972).

Brainard (1967), in an important contribution, addressed himself to Friedman's contention that uncertainty about future developments as well as uncertainty about the size of the policy multiplier made discretionary policy hazardous to undertake.

Suppose we have the following reduced form equation $Y = ax + u$ where y stands for output, x is the policy instrument, a is the policy multiplier and u is a disturbance to output.

Friedman had based his case against discretion on the uncertainty surrounding both a and u, so we want to evaluate the policy implications of these two types of uncertainties.

For policy purposes some expectation will be formed about the mean value of both a and u; at the same time there will be some error surrounding the expected mean value. For a this error (potential variation) will be larger the greater the deviation of x from its normal-historical level.

The following can readily be derived[4]

$$x_o - \frac{\bar{a}\,(y_f - \bar{u}) - \varrho\,\sigma_a\sigma_u}{\bar{a}^2 + \sigma_a^2}$$

[4] For the technical derivation see TURNOVSKY, 1977, 310-11.

where $x_o$ represents the optimal setting of policy and $\varrho$ is the correlation coefficient between the two standard deviations.

With complete certainty we have $\sigma_a = \sigma_u = 0$ and the result is the standard multiplier $\frac{(y_f - \bar{u})}{a}$. If $\sigma_a = 0$ (there is no multiplier uncertainty) the result is unchanged. If there is no uncertainty about u, so $\sigma_u = 0$ the result is

$$x_o = \frac{y_f - \bar{u}}{\bar{a} + \frac{\sigma_a^2}{\bar{a}}}.$$

It is readily seen that the optimal setting of policy is now less than previously; by how much less depends on the ratio of the standard deviation of a to the mean of a. This ratio increases the more "vigorous" the policy.

The important result here is that multiplier uncertainty, but not so disturbance uncertainty, creates a case for more modest use of activist policy. At the same time this same argument offers a case for the use of more than one instrument even to achieve a single target.

The last conclusion can be further reinforced when account is taken of the fact that there are also costs associated with policy changes. These could be administrative, resource-allocation costs (notably in the case of fiscal policy), or they could be the result of side effects (*e.g.* interest rate fluctuations flowing from the active use of monetary policy) (see Okun, 1972). These costs also impose some constraint on activist policies.

Fischer-Cooper (1973) also made an important contribution to the debate over whether long monetary lags were likely to be destabilising to policy.

It turns out, not surprisingly, that there is always some optimal feedback policy which will perform better than a simple money growth rule. A simple rule is, therefore, never a first-best policy. However this in itself is not very helpful or very surprising. Suppose 'k' represents the multiple of the optimal discretionary policy. Then they were able to demonstrate that within the range $0 < k < 2$ the variance of income under an activist policy is less than the variance of income under a rule. When $k = 0$ we have of course the rule. Thus from this analysis it appears that, provided policy is modest and not too aggressive, activism is superior to a rule. At the same time it also turns out that the longer



the expenditure lag the stronger is the optimal monetary policy needed. The stronger the optimal policy the greater the range over which discretionary monetary policy outperforms a rule. Paradoxically, then, the longer the lag the greater the scope for stabilising monetary policy.

To sum up, then, much of the theoretical analysis in the end proved inconclusive. Everything depended on how dynamics were represented and how policy reacted.

It turned out to be almost as difficult to evaluate Friedman's claim that actual policy had, in the main, been destabilising. There were at first many relatively crude attempts made to test this contention. (For a summary see Argy, 1971, and Modigliani, 1977.) Of the many approaches used, the most satisfactory method of evaluating the historical performance was to carry out simulations of alternative monetary policies using an econometric model. In this context work by Cooper-Fischer (1972), Craine-Havenner-Berry (1978) and Taylor (1980) was important.

Cooper-Fischer (1972) compare the historical performance of alternative monetary rules, using the FRB MIT-Penn (FMP) Econometric Model. The criteria they used to evaluate the rules was the minimisation of the standard deviation of inflation and unemployment. They concluded, in their words

> "a monetary rule using derivative controls — a systematic policy of 'leaning against the wind' — would have reduced the variability of the rates of inflation and unemployment over the period 56 (1) to 68 (10) as compared with a constant growth rate rule" (p. 394).

Craine-Havenner-Berry (1978) use the MPS Model to arrive at an optimal feedback monetary rule based on the best available forecasts of the exogenous variables in the model (which number 136). They compare the historical performance of this rule with a number of other rules, including, amongst others, Cooper-Fischer's, Friedman's CMGR and actual policy. The criteria they apply are more complicated than Cooper-Fischer. They penalise unemployment rates in excess of 4.8%, inflation rates in excess of 2.5%, changes in the Treasury Bill rate of more than 150 basis points and deviations in $M_1$ from a 5.1% growth path.

To their surprise, the optimal feedback rule performed relatively badly being outperformed by both the CMGR and actual policy. They conclude

> "Normally feedback policies can be expected to give better results than fixed rules... however given uncertainty about the structure of the economy and future events there is no guarantee that performances will be improved as the two feedback policies demonstrate" (p 775/6).

J.B. Taylor (1980) uses a small econometric model of the United States economy to arrive at a general monetary rule which now takes the form

$$m - m_{-1} = h_1 y_{-1} + h_2 (y_{-1} - y_{-2}) + h_3 (m_{-1} - p_{-1}) + h_4 c_{-1} + h_5 e_{-1}$$

where m is the log of money, y is the log of output, p is the log of prices, c is the inflation rate and e is a shock to inflation.

Using performance criteria similar to Cooper-Fischer, Taylor concludes as follows

> "The efficient rule is unlike the monetarist rule in its countercyclical reaction to the state of the economy ($h_1$ and $h_2$ are far from the zero values of the monetarist rule) but surprisingly similar to the monetarist rule in not accommodating inflation ($h_3$, $h_4$ and $h_5$ are relatively close to zero). It is in this sense that a nonaccommodative countercyclical policy would work well and might be close to efficient. It would work better than a monetarist rule which is non-accommodative but which is also non countercyclical" (p. 148).

At a more casual level Meltzer (1987) has recently compared the macro experience of the United States and Japan between 1975 and 1985. He notes that there was a notable change in macropolicy regime in Japan after 1975; in particular, money growth became more stable and predictable. In the United States on the other hand monetary policy was activist and much less stable. He finds that there was a relative improvement in the forecasting accuracy of key macro variables in Japan, which he attributes to the change in regime.

Much of the literature reviewed above was concerned with evaluating Friedman's claims about monetary policy. Friedman, however, as already indicated, also claimed that bond-financed fiscal policy would be likely to be ineffective, at least after a short time lapse. Precisely how fiscal expansion would crowd out the private sector remained just a little vague in Friedman's writings (Friedman, 1970); he did, however, offer several suggestions many of which were developed in the subsequent literature.

To begin he claimed that the IS schedule would tend to be relatively flat while the LM schedule would tend to be relatively steep. These are the conditions in which initial fiscal effects will tend to be weak. He also claimed that subsequent developments would weaken



still further the real effects. There would be some reduction in private sector investment, reducing potential output in the future. There were also hints of direct substitutability between government and private expenditure.

At the same time continuing deficit financing (bond creation) would, by increasing money demand shift the LM schedule to the left; there would not, however, be a significant offsetting wealth effect on expenditure (shifting the IS to the right) because the effect of additional bond holdings would be largely offset by an increase in expected future tax liabilities.

Blinder-Solow (1973) in a widely-cited paper take as their starting point the last points made by Friedman. They, however, assume that there is a wealth effect (from bond financing) which operates both on consumption and on money demand.

In the presence of these wealth effects the IS schedule will now shift further to the right while the LM schedule will shift to the left so the net effect on activity from these shifts will be ambiguous (the so-called second round effects). If the shift in LM dominates (the Friedman case) then any real gain in activity in the first round will start reversing itself. The problem here is that OTBE the economy will deflate indefinitely because with economic activity falling the need for deficit (bond) financing increases, pushing the LM schedule still further to the left.

On the other hand if the IS shift dominates the effect on activity will be reinforced. Thus the Friedman-monetarist case is unstable while the other case reinforces fiscal effects. Blinder-Solow themselves thought that the second case would be likely to dominate, so the economy would be stable with fiscal policy effectiveness rehabilitated. In the long run the change in wealth (and hence in this model the deficit) must be zero so output must so increase as to restore balance to the budget.[5]

These contentions provoked a huge literature. It centred on the limitations of the Blinder-Solow model and on the conditions needed for stability (Infante-Stein, 1976; Tobin-Buiter, 1974). The underlying model was also in due course extended to the open economy (Turnovsky, 1976).

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[5] If Gr stands for government expenditure, t stands for the tax rate, Yr stands for income, we have in the long run

$$Gr - tYr = 0$$

$$\text{so } \frac{\Delta Yr}{\Delta Gr} = \frac{1}{t}$$

Yet another attack on the effectiveness of fiscal policy flowed from one of Friedman's own contributions: the permanent income hypothesis for consumption. Eisner (1969) showed that an income tax cut, say, which was thought to be temporary would produce very little increase in consumption and hence would be relatively ineffective.

## 5. The vertical Phillips Curve

Although Friedman's early analysis implied the existence of a natural rate of unemployment (NRU) it was not in fact till the late 1960s that Friedman (1968) together with Phelps (1968) developed and highlighted the theory of the vertical Phillips Curve (PC) and its associated NRU.

It this framework, a sharp distinction is made between the short run and the long run PC. In the long run the PC is vertical at the economy's NRU. In the short run, however, there is a negative trade-off between inflation and unemployment. So whatever the macro disturbance, policy or otherwise, the economy returns ultimately to its NRU after straying for some time from it.

Why the short run trade off? Several alternative explanations for this have been advanced (Cherry, Clawson and Dean, 1981/82). Nearly all rely on some form of "misperception" on the part of workers and/or producers. To illustrate we focus on Friedman's explanation.

Suppose there is a once over monetary expansion. Producers, faced with an increase in aggregate demand, bid for labour, pushing up wages in the process. At the same time prices are allowed to rise by more than the increase in wages; the fall in real wages to producers induces these to increase their level of production. Workers observe that nominal wages have increased; in calculating their expected real wages in employment, however, they deflate wages not by the current price level, which is assumed unknown to them, but by the past inflation. From the perspective of workers, therefore, real wages have risen not fallen, so the supply of labour will increase to accommodate the increased demand for labour. There is thus an asymmetry between workers' perception of the real wage, which is in error, and producers' perception, which is well informed. As workers gradually adjust their inflationary expectations in the light of rising prices the real effects will be



eroded. Ultimately the economy returns to its original point on the vertical PC.[6]

In the general framework represented by the expectations augmented Phillips curve it is well known that the unemployment rate (U) can only fall below the NRU (UN) if the expected inflation rate ($E_{-1}\dot{P}d$) is below the actual inflation rate ($\dot{P}d$). So

$$(\dot{P}d - E_{-1}\dot{P}d) = b\,(UN - U).$$

If, to simplify, we assume that $E_{-1}\dot{P}d = \dot{P}d_{-1}$ we also have the accelerationist hypothesis which says that, to keep the rate of unemployment below the NRU the rate of inflation would need to continually accelerate.

There were at least four macro policy implications flowing from this development. First, macro policy must ultimately be ineffective; moreover, any disturbances to which the economy is exposed will also be self-correcting. Second, if governments misjudged the true NRU, or if the NRU was very variable, there was a real risk that policy would push the economy into an ever-accelerating rate of inflation (or rate of deflation), so policy would, so to speak, be "walking a tight-rope".

Third, unemployment in much of the analyses was based on misperceptions; it was also "voluntary" (as in Friedman's example above where the labour market is always in equilibrium). Such unemployment was not as serious or as urgently in need of attention as was involuntary unemployment. Hence the need for counteractive policies is lessened.

Fourth, we saw earlier that the existence of a potential trade-off provided some support for the adoption of a flexible exchange rate regime. If, however, there is no trade-off the case for flexible rates is weakened in some degree. Countries can no longer choose an optimum mix; they can only choose their own inflation rates.

How seriously should one take each of these implications? First, much depended on how rapidly the economy returned to its NRU. If expectations were formed adaptively or long term contracts were in force or wages were institutionally tied to past inflation, wage and price adjustment would be very sluggish and hence the economy could take a long time to return to equilibrium, allowing considerable room for some potential counteractive policy in response to non-policy disturbances. All evidence in fact points to very sluggish adjustment (Modigliani, 1977; Tobin, 1980).

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[6] The path of adjustment may be cyclical (ARGY, 1981, Chapter 12).

In this context if we were to rearrange the above equation to solve for the unemployment rate we would have

$$U = UN - \frac{1}{b}(E_{-1}\dot{P}d - \dot{P}d).$$

Few economists would be comfortable explaining the sharp increase in unemployment in the last 13-14 years in terms of misperceptions, as represented by bracketed expression. If we were to take this framework seriously we would have to say that the "bulk" of the increase is attributable to an increase in UN (see Adams *et al.*, 1986). More recent theorising also suggests reasons why UN itself might respond to any change in U (hysteresis)[7] (see Blinder, 1987; Blanchard and Summers, 1986).

Second, the accelerationist case against targeting unemployment was much more serious and indeed raised new policy concerns. Third, the hypothesis that unemployment was voluntary, was in conflict with all evidence as well as casual observation (Modigliani, 1977). Fourth, whilst weakening somewhat the case for flexible rates a case can nevertheless still be made within this conceptual framework. There is still some advantage in being able to choose your own inflation rate. There are costs as well as benefits in bringing down inflation and governments may well form different judgments about these costs and benefits. Some governments may wish to live with inflation while others may wish to pursue vigorous anti-inflation policies.

In the years that followed several papers attempted to examine the effects of a discretionary policy in the context of a model of an expectations augmented PC. Using quantity theory type equations, combined with an equation representing an expectations augmented PC, these also allowed policy to respond to, say, the gap between output and potential output. It was then possible to compare the variance of output and inflation for a rule and for a discretionary policy. The models tended to be very simple and the results very difficult to summarise. Their principal conclusion is again that some discretionary policy can potentially improve on the performance of a rule (see Ferguson-Gupta, 1979; Keller-Revier, 1981).

[7] Hysteresis may be due to: (a) a reduction in physical capital associated with an adverse demand shock; the reduction in physical capital in turn reduces the amount of labour that can be employed; (b) the erosion of human capital which comes from being unemployed; (c) the fact that the unemployed become outsiders and are no longer a party to wage determination, in which now only insiders become involved.



## 6. The Rational Expectations revolution and the New Classical School

There are four ideas associated with Rational Expectations which have implications for the rules *vs* discretion debate. The first is the claim that only unanticipated policies have real effects. The second is the tax discounting hypothesis (the equivalence of debt and taxes). The third is the idea that consumers rationally evaluate the utility of government consumption expenditure (or for that matter government investment). The fourth is the case for rules based on "time inconsistency".

### a) *Only unanticipated policy has real effects*

From about the mid 1970s rational expectations became all the vogue, replacing now the previously widely made assumption that expectations were formed adaptively (Sargent-Wallace, 1976; for a survey see Begg, 1982; Carter-Maddock, 1984). The major implications of this development was the demonstration that in certain conditions fully anticipated macro policy had no real effects. In so far, therefore, as governments consistently tried to counteract "shocks" to the economy the public will come to anticipate such policy reactions and this would serve to nullify their effects.

A "typical" new classical (closed economy) model would take the following form

$$(1) \quad yrd = \alpha_1 mo - \alpha_1 pd + \alpha_3 gr + \alpha_3 u_1$$

$$(2) \quad yrs = \bar{y} + \alpha_2(pd - E_{-1}pd) + \alpha_5(yr_{-1} - \bar{y}) + u_2$$

$$(3) \quad yrd = yrs$$

$$(4) \quad mo = \overline{mo} - \alpha_4(yr_{-1} - \bar{y}) + u_3$$

$$(5) \quad gr = \overline{gr} - \alpha_6(yr_{-1} - \bar{y}) + u_4$$

Notation (in logs)

| | | |
|---|---|---|
| mo | = | volume of money |
| yrd | = | real demand for goods |
| yrs | = | supply of output |
| pd | = | domestic prices |
| gr | = | real government expenditure |
| $\bar{y}$ | = | full employment output |
| $E_{-1}pd$ | = | expected price in period t formed in $t_{-1}$ |

(1) is the aggregate demand equation.[8] (2) is the aggregate supply equation. (See McCallum, 1980; Gordon, 1981 for its rationale.) For our purposes it is best to interpret the expected price variable as a proxy for wages which are contracted in the "preceding" period. $u_1$ and $u_2$ are simply disturbance terms to aggregate demand and supply. They have a mean of zero. (3) is the equilibrium condition in the goods market. (4) and (5) are alternate monetary and fiscal policy stabilisation rules. When the previous period's level of output exceeds (falls short of) full capacity output monetary and fiscal policies are tightened (eased).

Workers set their wages for next period on the basis of information about next period's expected price level formed this period; prices, however, are flexible. At the same time the authorities stabilise today on the strength of information about output in the previous period. In other words stabilisation policy is undertaken with a lag and this lag is the same as that operative to wage determination (*e.g.* when the level of output today is known the authorities plan their next period's policy).

Expectations about prices in Equation 2 are assumed to be rationally based on all currently available information, which is fully exploited. If this model were the correct one this amounts to saying that model structure (*i.e.*, price formation in the model) becomes the basis for the price forecast.

From (2) it is easily seen that, in equilibrium, where yrs = yrd = $yr_{-1}$, $u_2 = 0$, and pd = $E_{-1}$pd, we have yr = $\bar{y}$. Therefore output cannot change in the longer run. With output fixed neither monetary nor fiscal policy can have any longer run potency.

What we are concerned with here is the conditions under which this long run result might hold in the short run. In what conditions then would we have short run neutrality?

A first step is to use (1)-(3), eliminate yr, to obtain after rearranging

$$(6)\qquad \mathrm{pd} = \frac{\alpha_1}{\alpha_1+\alpha_2}\,\mathrm{mo} + \frac{\alpha_3}{\alpha_1+\alpha_2}\,(\mathrm{gr}+u_1) + \frac{\alpha_2}{\alpha_1+\alpha_2}E_{-1}\,\mathrm{pd} + \frac{\alpha_5}{\alpha_1+\alpha_2}\,\mathrm{yr}_{-1} - \frac{1}{\alpha_1+\alpha_2}\,u_2 - \frac{1-\alpha_5}{\alpha_1+\alpha_2}\,\bar{y}.$$

[8] Since all variables are in logs, (mo − pd) expresses the volume of money in real terms. It is assumed that the same multiplier, $\alpha_3$, applies to real government expenditure gr and to the (exogenous) disturbance to aggregate demand, $u_1$.



This is the solution for prices in the model. If expectations are rationally formed and if (6) is the correct model of price formation then it will also be the basis for price expectations, so we can write (6) as

$$(7)\qquad E_{-1}\,\mathrm{pd} = \frac{\alpha_1}{\alpha_1+\alpha_2}\,E_{-1}\,\mathrm{mo} + \frac{\alpha_3}{\alpha_1+\alpha_2}\,E_{-1}\,\mathrm{gr} + \frac{\alpha_2}{\alpha_1+\alpha_2}\,E_{-1}\,\mathrm{pd} - \frac{\alpha_5}{\alpha_1+\alpha_2}\,\mathrm{yr}_{-1} - \frac{1-\alpha_5}{\alpha_1+\alpha_2}\,\bar{y}.$$

Since the mean of the disturbance terms $u_1$, $u_2$ is zero the expected value of the disturbance term is also zero, so they drop out of (7). Also in the previous period when expectations are formed the level of output ($yr_{-1}$) is assumed to be known.

(7) allows us to solve for $E_{-1}$ pd

$$(8)\qquad E_{-1}\,\mathrm{pd} = E_{-1}\,\mathrm{mo} + \frac{\alpha_3}{\alpha_1}\,E_{-1}\,\mathrm{gr} - \frac{\alpha_5}{\alpha_1}\,\mathrm{yr}_{-1} - \frac{1-\alpha_5}{\alpha_1}\,\bar{y}.$$

(8) can now be substituted into (6) to obtain

$$(9)\qquad \mathrm{pd} = \frac{\alpha_1}{\alpha_1+\alpha_2}\,\mathrm{mo} + \frac{\alpha_3}{\alpha_1+\alpha_2}\,(\mathrm{gr}+u_1) + \frac{\alpha_2}{\alpha_1+\alpha_2}E_{-1}\,\mathrm{mo} + \frac{\alpha_2\alpha_3}{\alpha_1(\alpha_1+\alpha_2)}E_{-1}\,\mathrm{gr} - \frac{\alpha_5}{\alpha_1}\,\mathrm{yr}_{-1} - \frac{1}{\alpha_1+\alpha_2}\,u_2 - \frac{1-\alpha_5}{\alpha_1}\,\bar{y}.$$

A solution for output is now obtained by substituting (9) and (8) into (2)

$$(10)\qquad \mathrm{yr} = \frac{\alpha_1\alpha_2}{\alpha_1+\alpha_2}\,(\mathrm{mo}-E_{-1}\,\mathrm{mo}) - \frac{\alpha_2\alpha_3}{\alpha_1+\alpha_2}\,(\mathrm{gr}-E_{-1}\,\mathrm{gr}) + \frac{\alpha_1}{\alpha_1+\alpha_2}\,u_2 + \frac{\alpha_2\alpha_3}{\alpha_1+\alpha_2}\,u_1 + \alpha_5\,\mathrm{yr}_{-1} + (1-\alpha_5)\,\bar{y}.$$

The solution for prices is shown in (9).

(10) and (9) demonstrate the following. A fully anticipated change in monetary or fiscal policy has no real effect, even in the short run, while the price effects can be read off from (9) (these are the same as the long run results). However, an unanticipated change in policy will have real effects at the same time as some, albeit weaker, price effects.

It is one thing to establish that fully anticipated policies will be impotent, it is another to establish that macro policies to stabilise the economy will themselves be anticipated. Will they be?

The contention of the New Classical School is that if anticipations are rationally formed, macro policy stabilisation rules will also be anticipated. Therefore macro policy stabilisation will ultimately fail.

To understand the result we can concentrate on monetary policy and from (4) replace $E_{-1}$ mo with

$$(11) \qquad E_{-1}\,mo = \overline{mo} - \alpha_4\, yr_{-1} - \alpha_4\, \bar{y}.$$

We then have, subtracting (11) from (4),

$$(12) \qquad mo - E_{-1}\,mo = u_3.$$

The error in forecasting monetary policy is a random term $u_3$. Since $\alpha_4$, the stabilisation term, drops out of the result stabilisation policy is ineffective.

Why is this? Consider an expenditure disturbance, $u_1$, in period t. By definition it is unanticipated. The authorities can do nothing to counter it in period t. Wages in t are also predetermined. It is seen from (10) and (9) that both output and prices will increase.

The authorities observe the current increase in output. Because, importantly, there is a persistent effect into the next period the authorities can in principle alter their monetary policy so as to counter this lagged effect in the next period. Suppose for a moment this change in monetary policy is unanticipated.

In principle provided monetary policy does not overreact it can be stabilising. An optimal monetary policy in these circumstances is one which will neutralise the secondary effect.

So far the story is straightforward enough. The contribution of the New Classical economists is to argue as follows. The private sector, notably the "workers" in this case, will also observe the increase in current output. They will also, with time and effort, have figured out the monetary policy rule as in (4). They will therefore reason that in the next period monetary policy will be tighter. From (8) they will conclude that prices will be proportionately lower; they will thus set their contract wages proportionately less. With the real wage rate unchanged in the



next period output cannot be reduced to offset the persistence effect. So monetary stabilisation policy will fail. It will fail to stabilise output but it will also destabilise prices (from (9)). Hence stabilisation policy should not be used; instead a simple monetary growth rule ought to be adopted.

There is now a vast literature concerned with criticising some of the assumptions of the model. There is also now a large empirical literature concerned with testing the new classical propositions.

Consider first the assumption that expectations are formed rationally. These are two aspects of this. They may not know the structure of the model. They may not know the policy rule.

There is disagreement amongst economists about the appropriate model. Is it sensible to suppose that there is in fact an agreed model on which expectations are based and, moreover, that the true values of the underlying coefficients are known? Even if there is a known structural model some of the underlying coefficients will change in value over time, necessitating a gradual, time consuming, learning process to master the new structure.

It is also difficult to believe that the private sector would know a monetary policy rule of the type represented by (4). Changes in governments produce changes in policy reaction functions; the coefficients are bound to change over time. Even if a simple policy rule is sustained over many years it will take time for the public to know this rule; in the meantime policy will be effective.

For these reasons we can conclude that the assumption that expectations are rationally formed in the sense above is not very realistic.

Suppose that expectations are rationally formed but suppose here too that the key assumption, that the stabilisation policy lag is no shorter than that operative to say wage (or price) determination does not hold. Suppose that monetary policy is a sufficiently flexible instrument so it can actually squeeze in, so to speak, between the private sector decision making period. To be more precise, suppose monetary policy reacts almost instantly so $\alpha_4\, yr$ replaces $\alpha_4\, yr_{-1}$ in (4). Then it is obvious that the "rigidity" in wage determination allows the authorities to respond to an exogenous disturbance before wages have had time to react.

Instead of taking the existing model and allowing the authorities to respond more quickly we could alternatively, but with exactly the same result, have allowed wage and price adjustment to be stickier, extending over more than one period. A typical example of this in the

literature, is the multi-period wage contract (see Fischer, 1977; Taylor, 1980). Say some workers at least have committed their wage setting for at least two years; say, too, that there is a disturbance in the first year, so output increases. The authorities respond the next period but although this is predictable wages have been predetermined, so the wage setting in the next period cannot take this development on board.

Another assumption in the model is that governments do not have access to privileged information. Governments may have privileged (or superior) information allowing them to act in a stabilising capacity without being "found out".

It is evident that once more realistic assumptions are made there will be some scope for stabilisation policy. The strongest case will emerge if prices and wages are in reality very sticky, as in Keynesian economics.

One can sum up the contribution of the New Classical school as follows. Provided wages/prices are flexible enough and provided they respond to expectations which are rationally formed the distinction between anticipated and unanticipated policy is a very important one. This is not to say that the former is impotent; it simply means that it is weaker than the latter. There is indeed now evidence that fully anticipated policies are effective (Gordon, 1982; Mishkin, 1982).

### b) *Tax discounting*

The development of the tax discounting hypothesis (Barro, 1974) was seen as yet another attack, now on the effectiveness of fiscal policy.

The tax discounting hypothesis asserts that the macro effects of tax or debt finance are equivalent. Suppose the tax rate is cut and debt issued in its place. This creates an expectation that the deficit will have to be serviced in the future by higher taxes; these expected higher taxes discounted to the present will be equal to the current tax relief. The tax relief will thus be saved to meet future taxes.

Under certain conditions, this result holds independently of how long lived the bond is expected to be, so long as the present generation took full account (in their bequests) of the welfare of the next generation. To illustrate, suppose the debt is expected to be repaid in the next generation; savings will increase now, the next generation will inherit a larger bequest, on which interest would be earned to service the debt; at the same time the tax to repay the debt would be met out of the larger bequest without any change then in consumption.



More formally we may simplify as follows:

$$C = \alpha_1 (Yr - T - DEF)$$

where C is real consumption, $(Yr - T)$ is real disposable income, and DEF is the budget deficit defined as

$$DEF = Gr - T$$

where Gr is government expenditure.

Substituting the second equation into the first it is easily seen that taxes will be neutral with respect to real consumption. Thus taxes and debt will be equivalent.

The theoretical limitations in the hypothesis have now been widely noted (Tobin, 1980; Brunner, 1986; Perasso, 1987).[9] Most economists would probably agree with a recent comment by Solow on this doctrine

> "Everyone knows by now it is possible to invent a world in which bond-financed tax reduction automatically evokes incremental private saving to offset the Government's dissaving... But I have the impression that hardly anyone takes that story seriously... our world is just not enough like that world".[10]

Notwithstanding the inherent implausibility of the doctrine Seater (1985) claims in a recent review of the empirical literature that "the hypothesis is supported by virtually all the direct empirical tests of it".[11] Consider, for example, a typical simple equation of the form (all in real terms)

$$C = \alpha_1 (YD) - \alpha_2 (DEF) + \alpha_3 C_{-1}$$

where YD is disposable income and DEF is again the deficit (the increase in bonds).

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[9] Four kinds of criticisms could be made. First, and most important, that it does not realistically represent the behavior of the repesentative taxpayer/consumer. Second, that if markets were not perfect there would be real effects. Third, once we move away from lump sum taxes, other forms of taxes, which have distortionary effects, will affect real behavior. Fourth, there may be an asymmetry between the behavior of the real sector and the monetary sector.

[10] Quoted in J.J. SEATER (1985).

[11] The apparent conflict between the inherent implausibility of the doctrine and the apparent empirical support may be "resolved" by arguing that the wide adverse publicity being given these days to large public deficits may have encouraged people, in a vague way, to take such future taxes into account.

A weak form of the doctrine would argue that $\alpha_2$ should be significant and negative. The strong form argues that $\alpha_1 = \alpha_2$.[12] Seater should be interpreted as saying that there is empirical support for the weak version but only some marginal support for the strong version.

c) *Rational evaluation of government consumption expenditure*

Most analyses of the effects of changes in government consumption totally ignore any benefits that may flow from such expenditure. The implicit assumption is that they have a value of zero (Kormendi, 1983; Clements, 1979). Taking rational account of the perceived benefits of government consumption expenditure can weaken the macro effectiveness of fiscal expansion.

To illustrate this important point we focus on private consumption expenditure, now taking account not only of tax discounting but also of perceived benefits flowing from government consumption expenditure.

$$(13) \qquad CTr = a(Yr - T - DEF + \pi Gr)$$

$$(14) \qquad CTr = Cr + \pi Gr$$

$$(15) \qquad Cr = a(Yr - T - DEF) - \pi(1 - a)Gr.$$

(13) says that total real consumption (CTr) is a function of real disposable income (Yr − T) adjusted for the budget deficit, as above, plus now some publicly financed consumption (Gr), where $\pi$ represents the valuation placed on government consumption (which can vary between zero and unity). (14) says that total real consumption is also the sum of privately financed consumption (Cr) and publicly financed consumption. (15) is derived by combining (13) and (14).

To figure out the effects of an increase in government expenditure we substitute (15) into an equation for gross national product assumed to be the sum only of real private consumption and government consumption. We then have

$$(16) \qquad Yr = a(Yr - T - DEF) - \pi(1 - a)Gr + Gr.$$

If tax discounting is complete as assumed in (16), the real effects of government expenditure will be independent of how it is financed (*i.e.*, by taxes or debt), as previously. Consider now the case where an

[12] KOCHIN (1974) estimates an equation similar to (3) and finds a coefficient of 0.224 for $\alpha_2$. He also estimates (3) in first difference form. The coefficient drops to 0.1. Refined versions of such equations are estimated in the subsequent literature.



increase in government expenditure is tax financed, so $\Delta T = \Delta G$ and say DEF = 0. We then have

$$(17) \qquad \frac{\Delta Yr}{\Delta Gr} = 1 - \pi.$$

If valuation is zero we have the textbook unit balanced budget multiplier. At the other extreme, if $\pi \rightarrow 1$ the multiplier becomes zero.

d) *The time-inconsistency problem*

A more recent case for following a rule is based on the contention that a rule (or a precommitment to a firm policy) represents a means of overcoming the "time inconsistency problem" (Kydland-Prescott, 1977; Barro-Gordon, 1983; Taylor, 1985; Cukierman, 1986; McKibbin 1987; Rogoff, 1987).

The time inconsistency problem can be illustrated by the following widely discussed example. The central bank announces for a given year a low money growth, low inflation target. Workers faced with this announcement have to decide what their wages policy should be for the year (say the annual contract). They have two options but there are four potential outcomes. Workers can opt for a low wage policy consistent with the announced money growth and associated expected inflation or they can opt for a high wage policy inconsistent with the announced money growth path and implicit inflation. In turn the monetary authorities can (a) stick with the original game plan (b) modify their game plan in the light of actual wage settlements.

Suppose workers opt for a low wage policy. If the authorities implement the original game plan real wages and the unemployment rate will be unchanged (outcome 1). If they adopted a more inflationary money growth policy real wages and unemployment would both fall (outcome 2).

Suppose workers opted for a high wage policy. If the authorities stuck to their original game plan real wages and unemployment would both rise (outcome 3). If the authorities lifted money growth and inflation real wages and the unemployment rate would be stabilised (outcome 4).

The next step is to assume that the authorities are willing to trade a higher inflation against a lower unemployment rate. Given this prefer-

ence a low wage policy will be associated with high inflation (outcome 2 is preferred to outcome 1) while a high wage policy will be associated with high inflation and a stable unemployment rate (outcome 4 is preferred to outcome 3).

The announced plan is time inconsistent in the sense that in the course of the year a different game plan will be optimal to the central bank.

Workers may make careful calculations of the possible outcomes; they may not opt for a low wage policy, anticipating they will be cheated (surprised) by more inflation and lower policy real wages. They may, therefore, opt for a high wage policy, anticipating that the monetary authorities will be accommodating and so real wages and unemployment will be preserved. Thus in the end instead of an outcome where unemployment is maintained and inflation is low we have an outcome where unemployment is maintained but inflation is higher. The economy is unambiguously worse off.

Some brief comments are in order. It is not clear that the authorities these days will trade off some more inflation against less unemployment. The analysis assumes that governments lack credibility (have a poor reputation) otherwise workers would not expect to be cheated if they adopted low wage contracts. Sooner or later, too, the authorities will be able to see the long term vulnerability of their policies. The authorities will realise that, with low wage settlements, if they continually tried to cheat workers the policy would be bound to fail ultimately. If governments discounted to the present the costs of future accelerated inflation the net benefits of reducing current unemployment would be reduced. Thus the authorities may well come to see advantages in adopting a firmer game plan.

We may conclude as follows. If governments were left alone to implement discretionary policies there is a real risk that some inflation will ultimately be generated without any reduction in unemployment. This risk is reduced if governments are seriously concerned about their reputations or discount the costs of future inflation.

If these considerations do not rein inflation two potential ways of avoiding these risks would be (a) to impose a money growth rule (*à la* Friedman) *i.e.*, avoid discretion (b) to give central banks independent authority to conduct monetary policy.



## 7. Monetary-fiscal policy, the open economy and flexible exchange rates

Since the late 1950s developed economies have become increasingly integrated financially. Since 1973, too, governments have had to operate in an environment where exchange rates have been largely determined by market forces and also where wages are largely indexed to prices.

How have these developments affected the way in which monetary and fiscal policies work and hence their potential usability for stabilisation purposes?

When exchange rates are fixed and capital mobility is very high it is now well known that any attempt to implement an independent monetary policy is bound ultimately to fail. This is so because any open market purchase (sale) will provoke outflows (inflows) of capital which in turn will erode the initial effects on the cash base; at the same time the monetary authorities will find it difficult, if not impossible, to sterilise the effects of capital flows on the cash base (Argy, 1981).

Mundell-Fleming (MF) in their seminal contributions (Fleming, 1962; Mundell, 1963) demonstrated that when exchange rates were flexible and capital mobility very high monetary policy came into its own again, with powerful effects on economic activity. In their analysis MF assumed wages and prices were fixed. The reasoning was simple: monetary expansion led to lower interest rates which in turn led to some increase in activity; on both counts the balance of payments would be in deficit; this in turn would lead to a large devaluation which would strongly reinforce the effects on activity.

Since the Mundell-Fleming contributions several limitations in the analysis have been noted which constrain in many ways the use of monetary policy for stabilisation, even under flexible rates. To begin, monetary expansion may force the exchange rate initially to overshoot its long run equilibrium level (Dornbusch, 1976); also the associated devaluation may have rapid and significant price effects, which are undesired and which serve too to dampen the real effects; moreover, if a depreciation has perverse effects on the current account monetary expansion may lead to a fall in output and to more inflation (Dornbusch and Krugman, 1976). Finally, in the longer run if wages are fully indexed monetary expansion will have no real effects, prices will rise and the currency will devalue in proportion (Argy and Salop, 1979;

Sachs, 1980). To take it even further, in a world where these effects are actually anticipated the outcomes may be realised fairly quickly.

In the MF analysis of fiscal policy under flexible rates and high capital mobility (again with fixed wages and prices) fiscal policy led to an appreciation of the currency (because the interest rate effect on capital flows dominates over the adverse current account effect). This in turn weakened substantially the effects on activity. At the limit when capital mobility was perfect fiscal expansion turned out to be impotent.

When wages and prices are flexible the analysis turns out to be more complicated. In one potential scenario the appreciation will lead to lower wages and prices which in turn will serve to increase economic activity; higher output plus a real appreciation will produce a current account deficit which will be offset by continuing inflows of capital. Thus in this scenario there will be some increase in real activity and inflation will actually fall.

Another scenario underlines the potential unsustainability of this result. First in a more realistic world of imperfect asset substitution such capital inflows cannot be sustained indefinitely. Second with initial inflows there will be larger interest payments to be met in the future; thus the trade balance will need to improve sufficiently to offset this. For these reasons ultimately the current account will need to return to its original level and this will require a devaluation, rising prices and weak, if any, output effects. Indeed if this scenario is anticipated it may occur even in the short run.[13]

What all this means is that in a flexible rate world the effects of both monetary and fiscal policy, but particularly the latter, have become even more uncertain. At this point it is worth recalling Brainard's result that when the effects of policies are uncertain caution should be exercised.

## 8. Comments and conclusions from the historical review

1. We observe a clear sequence in the analytical treatment of stabilisation policies. The early work in the 1950s and 1960s was

[13] 'J' curves and wealth effects complicate further the analysis of the time path following fiscal expansion.



dominated by Friedman's contentions. The models used then to evaluate stabilisation policies tended to be Keynesian closed-economy models. By the early 1970s this literature had run its course. During the 1970s some of the models used for the analysis of stabilisation policies become more monetarist oriented drawing on some combination of a quantity theory and an expectations augmented Phillips curve. From about the mid 1970s the question of the effectiveness of stabilisation policies has been dominated by the ideas of the New Classical School.

2. From about the late 1950s, too, models of open economies were developed which began to explore the relative effectiveness of monetary and fiscal policies under different exchange rate regimes. These were progressively refined to take account of flexible wages, prices, wealth — portfolio balance effects, etc. The greater the refinement undertaken the more uncertain were the effects of such policies, particularly under flexible rates.

3. In the 1950s, 1960s and very early 1970s the principal policy concerns were unemployment and external balance. In general, inflation and budget deficits were not overriding policy concerns. The literature, as we saw, on stabilisation largely reflected these policy preoccupations.

However, from the early 1970s, a number of shocks and developments in the world economy transformed the policy environment: the growing interdependence of the developed world, the money growth explosion in 1972-73, the proliferation of wage indexation arrangements, the collapse of the Bretton Woods system from early 1973 and the two oil price shocks, first in 1973-74 and then in 1979-80. The new policy concerns which surfaced were stagflation, large budget and current account deficits, real wage gaps and volatile real exchange rates. In this new policy environment it was not clear how the available monetary-fiscal-wages policies could be used to achieve these multiple policy objectives.

4. Most developed economies from about 1973 on tried to use their money growth policies to achieve their inflation objectives. To a lesser extent monetary policy has also been directed at exchange rate stabilisation. These two objectives have on occasions been in conflict with one another (Argy-Nevile, 1985 — Introduction).

Whereas in the 1950s and 1960s fiscal policy was largely directed at unemployment the role of fiscal policy in the 1970s and 1980s became

schizophrenic. Following the first oil price shock many developed economies used fiscal policy to counter the growing unemployment. Subsequently, however, and particularly after the second oil price shock fiscal policy was used to reinforce a restrictive monetary policy, to reduce budget deficits and at least in the case of the United States to achieve supply side objectives. In most countries fiscal policy was actually tightened in the face of growing unemployment.

The refusal to use fiscal policy in a single country to counter unemployment flowed from several considerations: uncertainty attaching to how fiscal policy actually impacts on the real economy, fears of reigniting inflation, the assumed nature of the unemployment (widely thought to be due to excesssive real wages), concern over both budget and current account deficits.

5. In the last decade there has been a noticeable shift towards the use of monetary and fiscal policy to achieve medium run objectives. Governments are now less preoccupied countering short run developments, if this risks worsening the longer-run prospects of the economy.

In this context, then it becomes extremely important to ask how, if a short-run activist policy is renounced, monetary and fiscal rules might be implemented which will help achieve the medium run objectives. Argy (1988) addresses these issues.

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