

Endogenous Money and Interest Rate Targeting: Implications for Fiscal Policy

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This paper presents a critique of the traditional textbook representation of fiscal policy. In particular, the conclusion that fiscal deficits are likely to be associated with higher interest rates is disputed, as is the associated inference that fiscal policy is relatively ineffective in the case of an open economy with flexible exchange rates and a high degree of international capital mobility. These conclusions are shown to depend critically on representations of money and government finance that bear little resemblance to those found in modern capitalist economies, where money supply is determined endogenously and central banks target short term cash rates as monetary policy instruments. The traditional textbook models are reconfigured to incorporate these features, so as to suggest more fruitful approaches to thinking about the formulation and effectiveness of fiscal policy beyond the confines of the textbook models.

Field of Research: Macroeconomic Policy

1. Introduction

Generations of students have worked through macroeconomic models that lead them to conclude that fiscal policy, in an open economy setting with floating exchange rates and a high degree of international capital mobility, is relatively ineffective in terms of its real effects on the economy. Expansionary fiscal policy is routinely correlated with higher interest rates, an appreciating exchange rate, and a deterioration of the current account balance. Government spending is subject to the well known 'budget constraint', where its capacity to spend is constrained by its ability to raise taxes and borrow from the central bank and non-bank public.

This paper presents a critique of the traditional textbook representation of fiscal policy that has had such a powerful effect on contemporary thinking on the role and effectiveness of fiscal policy. These traditional conclusions are shown to depend critically on representations of money and government finance that bear little resemblance to those found in modern economies with developed financial systems where the money supply is determined endogenously and central banks target short term cash rates as monetary policy instruments. The traditional textbook models are

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reconfigured to incorporate these features, in place of the antiquated assumptions of an exogenously determined money supply with monetary aggregates representing the monetary policy target. These modifications are shown to significantly change the conclusions derived in the standard textbook analysis, and in turn suggest more fruitful approaches to thinking about the formulation and effectiveness of fiscal policy beyond the confines of the traditional textbook models.

The remainder of this paper is organised as follows. An outline of the ‘standard’ textbook macroeconomic modelling, is presented in the following section. A simple reconfiguration of the standard models to allow for endogenous money and interest rate targeting is presented in Section 3. In Section 4, the conclusions derived from the reconfigured models are related to conclusions derived from the ‘New Neoclassical Synthesis [NNS] model, an approach which it is argued captures more accurately the way mainstream macroeconomists think about policy formulation in practice. The inferences derived from the reconfigured theoretical models then open the way for a more informed discussion of the role and effectiveness of fiscal policy in Section 5.

2. Fiscal Policy and Traditional Macroeconomic Theory

The traditional textbook (‘Mundell-Fleming’) representation of an open economy (with flexible exchange rates) in the ‘short-run’ can be summarised in terms of the following relationships¹:

$$\begin{aligned}
 Y &= C + I + G + X - Z \\
 C &= C_0 + cY_d \\
 I &= I_0 - b_i \\
 G &= G_0 \\
 X &= X_0 - xR \\
 Z &= Z_0 + zY + wR \\
 Y_d &= Y - (T_0 + tY) \\
 M &= M_0 \\
 P &= P_0 \\
 L &= L_0 + kY - h_i \\
 BP &= CA + K = 0 \\
 CA &= X_0 - (Z_0 + zY + vR) \quad (\text{where } v = w - x)^2 \\
 K &= K_0 + f(i - i_f)
 \end{aligned}$$

where Y = output, C = consumption, I = investment, G = government expenditure, X = exports, R = real exchange rate (ratio of domestic to foreign prices, expressed in foreign currency), Z = imports, Y_d = disposable income, T = government taxation less transfer payments, M = *nominal* money supply, P = general price level, L = demand for money, i = domestic interest rates, BP = balance of payments, CA = current account, K = net capital inflow, i_f = foreign interest rates. All variables are measured in real terms unless specified (i.e. it is a fixed price model). The $_0$ subscript denotes an exogenous variable and b , c , k , h , t , x , z , w , v , and f are fixed valued parameters³.

Consider now the effects of expansionary fiscal policy on equilibrium values in this type of model. Assume initially a 'closed' economy. An increase in government spending ($\uparrow G$), 'financed' by an open market sale of government securities to the non-bank public, leads to an increase in equilibrium output via the 'multiplier effect' ($\Delta Y = \Delta G_0 / (1-c+ct+z)$). However, the increase in equilibrium output leads to an increased demand for money ($\uparrow L = k\Delta Y$) and subsequently to higher equilibrium interest rates so as to ensure the demand for money is equal to the fixed supply of money (M_0/P_0). The initial increase in real output is therefore partially offset by the dampening effect on output arising from higher interest rates. The extent to which 'crowding out' occurs depends on the income and interest rate sensitivities of the demand for real money balances (k and h respectively), and importantly, it occurs because higher interest rates are required to restore equilibrium between the increased demand for money (L) and constant supply of money (M_0/P_0).

It is easy to demonstrate that in an open economy setting, the 'crowding-out' of fiscal policy is more pronounced. Given the existence of highly mobile international capital flows (reflected in the value of the parameter f), the higher domestic interest rates flowing from the expansionary fiscal policy are assumed to lead to increased net capital inflow because of the widened interest rate differentials ($i - i_f$). The increased net capital inflow is assumed to lead to an increase in demand for domestic currency, leading to an *appreciation* of the real exchange rate ($\uparrow R$). The textbook analysis further assumes that the exchange rate appreciation leads to a reduction in net exports (i.e. $v < 0$), and subsequently, a reduction in real output. In the extreme case of perfect capital mobility, this process would continue until interest differentials ($i - i_f$) are eliminated, which will occur where the equilibrium value of output (and demand for money) and interest rates return to their initial values. In this context, often depicted diagrammatically in the textbooks, fiscal policy has no 'real' effects' on the economy, being completely 'crowded-out'⁴. In a more general sense, the effectiveness of fiscal policy is determined by the magnitudes of key elasticities, as captured by the values of parameters in the equations listed above, such as c , b , k , h , f and v . A more thorough investigation would also require a consideration of the stability of the relationships defined above, as determined by the behaviour of autonomous variables such as I_0 , L_0 and K_0 in particular.

The traditional textbook conclusions regarding fiscal policy can therefore be summarised as follows. Expansionary fiscal policy is likely to be associated with higher domestic interest rates, an appreciating exchange rate and deteriorating current account balance. In the context of flexible exchange rates and a high degree of international capital mobility, fiscal policy is relatively impotent in terms of its real effects, with monetary policy the more preferred alternative.

3. Fiscal Policy with Endogenous Money

The conclusions detailed above are fundamentally contingent on the assumption of an exogenously determined monetary aggregate. By increasing the demand for a *given* stock of money, expansionary fiscal policy inevitably gave rise to higher equilibrium domestic interest rates. However, the assumption of an exogenously determined monetary aggregate, controllable by the central bank, is an assumption that cannot be defended.

The textbook representation of the money supply process is almost always introduced in the context of the so-called deposit multiplier model, linking monetary aggregates with the money base (or stock of 'high powered' money). This *definitional* relationship can be summarised as follows:

$$\Delta M = mm \Delta B$$

where M is the nominated monetary aggregate, mm is the 'credit creation' multiplier and B is the monetary base (or 'high powered money')⁵. Central banks are depicted as engineering changes in the monetary aggregate by varying the monetary base, a process facilitated by a constant or predictable credit creation multiplier (mm).

The textbook exposition rarely acknowledges that the money supply-monetary base identity can equally be used to describe an endogenous money supply determination process, where the demand for bank borrowing, and not central bank changes in the monetary base, is the prime determinant of changes in monetary aggregates. The absence of central bank control of the monetary aggregate could potentially arise for a number of reasons. Firstly, the monetary base may not be controllable by the monetary authority, although controllability of the monetary base in a flexible exchange rate regime may not be a major point of contention. More significantly, the multiplier (mm) itself may not be constant or predictable, but may instead reflect the decisions made by borrowers and lenders as they react to perceptions of changing economic circumstances.

Following from this scenario, the monetary authorities may not perceive monetary policy in terms of discretionary changes in the monetary base; as such changes would not have a predictable effect on the monetary aggregate being targeted. Rather than targeting monetary aggregates, the central bank may instead target interest rates. In a deregulated financial system where central banks are not able to directly control retail lending rates, central banks instead target a very short-term rate of interest that determines the cost of liquidity for the banking sector. A targeted discount or cash rate is defended in what could be termed the 'inter-bank cash market' through market operations (involving government securities and/or associated derivatives such as repurchase agreements or currency swaps) between the central and the private sector banks. These transactions directly affect the cash reserves, or settlement accounts, of the market participants, and subsequently the prevailing cash rate. Movements in the cash rate in turn promote changes in other 'wholesale' short-term interest rates, which consequently impact on retail rates, sometimes with significant time lags. The cash rate therefore acts as the benchmark rate in a financial system where a spectrum of retail rates are observed, reflecting differences in perceived risk & liquidity and, in the case of long-term rates, partly incorporating market expectations about future real interest rate movements⁶. The eventual effects on monetary aggregates of this process is indeterminate, and of no consequence to the monetary authorities in the context of the implementation of monetary policy.

Under these circumstances, the money supply is more correctly defined to be an endogenous variable, with the rate of interest no longer simply a market determined variable that passively equates money demand with a given stock of money. As the following statement from the Reserve Bank of Australia [RBA] clearly indicates, the

endogenous interpretation of money formation, accompanied by interest rate targeting, provides a much more accurate account than is to be found in the traditional textbook model:

The Reserve Bank has no prescribed target for the level of settlement balances [Cash], supplying whatever amount is needed to keep the cash rate near the target (RBA 2003: 4).

By extending an approach adopted by Aspromourgos (1999), it is possible to reconstruct the textbook model to reflect an endogenously determined money supply in which the monetary authorities target the short-term ('inter-bank') cash rate. The only change that has to be made to the model outlined in the previous section is the deletion of the exogenous money supply assumption; $M = M_0$, adding in its place the principle that the money supply reacts passively to changes in money demand at a given set of market interest rates (captured by the target cash rate). Given that the Reserve Bank manipulates the monetary base to ensure sufficient liquidity exists to defend the target rate, changes in money demand (driven, for example by changes in the equilibrium level of real output) will not lead to changes in 'equilibrium' interest rates⁷. Given the unchanged interest rates international capital flows remain unchanged, and exchange rates will not appreciate as in the exogenous money scenario.

Quite clearly, in the context of endogenous money and interest rate targeting, fiscal policy can no longer be presumed to be relatively ineffective, despite the existence of flexible exchange rates and a high degree of international capital mobility. Expansionary fiscal policy does not lead to higher interest rates unless the interest rate target itself is increased as part of a discretionary monetary policy action. There is no reason why the exchange should appreciate, and there is no reason why the current account should deteriorate given the predicted exchange rate depreciation and the usual textbook assumptions about exchange rate adjustments (i.e. $v > 0$ in the model outlined above).

If the traditional textbook framework is to be used to derive conclusions relating to the implementation and effectiveness of macroeconomic policy, then the models have to be redrafted to capture the realities of money and interest rate determination⁸. Discussion in this section has indicated that the required redraft is surprisingly straightforward. However the resultant amendments to policy implications are significant, particularly with respect to the operation of fiscal policy.

4. Fiscal Policy and the 'New Neo-Classical Synthesis' Model

Recently, there have been calls within 'mainstream economics' for changes to be made to the macroeconomic models presented to students in 'principles' courses. Fundamentally, the 'monetary' equilibrium conditions that generate the 'LM' component of the standard equilibrium models are, somewhat belatedly, recognised as being inconsistent with 'the modern economy'. In place of the IS/LM/BP framework, a new set of equilibrium models have been formulated, by John B. Taylor (1999,2000) and David Romer (2000) for example, that are meant to confront the realities of interest rate targeting monetary policy and, at the same time, capture a 'consensus' said to have emerged within 'mainstream' macroeconomics during recent times. It is conceivable that these models may form the basis of

macroeconomic principles courses in the not too distant future, so an evaluation of the role accorded to fiscal policy in what could be termed the 'New Neoclassical Synthesis' [NNS] models, appears warranted⁹.

The 'consensus' that Taylor (2000: 90) believes 'modern macroeconomics' is founded on is worth noting. The 'long run real growth trend' or 'potential GDP' can be 'understood' using the Solow type growth model 'extended to make "technology" explicitly endogenous'. There is no 'long-run trade off' between inflation and unemployment, implying that monetary policy is neutral in the 'long-run'. However, in the 'short-run', due largely to price and wage 'stickiness', an inflation-unemployment trade-off is likely to be present and money is non-neutral. Expectations regarding inflation and future policy decisions are endogenous, and 'quantitatively significant'. The final area of consensus related to monetary policy decisions:

monetary-policy decisions are best seen as rules, or reaction functions, in which the short-term nominal interest rate (the instrument of policy) is adjusted in reaction to economic events (Taylor 2000: 90)

The role and effectiveness of fiscal policy in the above description of the NNS macroeconomics is not obvious (at least, not in the 'short-run'). Therefore, further investigation of the model is required, with discussion focused on the 'short-run' properties of the model, as is the case with the traditional textbook model.

As outlined by Taylor (2000), a simple generic NNS model, suitable for textbook exposition purposes, can be formulated from the following three key relationships:

$$y = -ar + u \quad \text{['IS' relationship]}$$

$$r = b\pi + v \quad \text{[monetary policy reaction function]}$$

$$\pi = \pi_{-1} + cy_{-1} + w \quad \text{[Phillips Curve relationship]}$$

where y is real GDP *measured relative to potential GDP* 'that comes from the Solow growth model', r is the *real* interest rate, u is 'a shift term' capturing demand shocks, π is the inflation rate, v and w are undefined shift variables.

The first two equations can then be combined to form the 'aggregate demand' [AD] function:

$$y = -ab\pi - av + u$$

Within this model, discretionary fiscal policy is simply classified as a 'demand shock', and as such would directly affect real GDP in the 'short-run' though its effect on the 'shift' variable (u) in the first of the three equations listed above. Most significantly, the model implies that, in the absence of discretionary changes in monetary policy (beyond those defined in the monetary policy reaction function), interest rates and the general price level will *not* increase as a consequence of expansionary fiscal policy, provided real GDP is below the predetermined level of potential real GDP (i.e. $y < 0$). In other words, as long as the economy is operating below the supply determined level of full capacity output; fiscal policy can impact on real GDP without any direct effects on interest rates or the rate of inflation. Therefore, the traditional textbook conclusions relating to the 'crowding-out' of fiscal policy are not to be found in the NNS model, at least not in the 'short-run'.

Unlike fiscal policy, the NNS model outlined above does suggest that the effectiveness of monetary policy may be constrained by a 'crowding-out' scenario. For monetary policy to be effective in achieving its goal of price stability, as represented in the policy reaction function, higher real interest rates must be able to impact directly on aggregate demand so as to move the economy towards the level of real output consistent with the inflation target (the level of which is not obvious in Taylor's exposition of the NNS model). However, in terms of the algebraic version of the model outlined above, the capacity of interest rates to impact on demand depends upon the value of the 'a' coefficient in the equations presented above, along with the stability of this relationship as dictated by the predictability or otherwise of the 'shift variable' (u). In other words, the monetary policy transmission depends upon the strength and predictability of the relationship between investment (and other?) expenditure and real interest rates. No such qualification is placed on the effectiveness of fiscal policy, provided that real output does not exceed full capacity output, and there is nothing in the model to suggest that this would not be the normal state of affairs in the 'short-run'.

The issue as to why (interest rate targeting) monetary policy should be preferred to fiscal policy as the (short run) macroeconomic policy instrument in the NNS model is worth considering further. Taylor's (2000: 92) justification for the reaction function is worth noting:

Central banks must decide how much to raise interest rates in response to inflation, taking the likely impact on unemployment or real GDP into account as well. In policy research other terms such as real GDP are generally included in the policy rule, but at the Principles level it is much easier to keep the reaction to one variable .

However, this is a rather unnecessary and unwarranted 'simplification', the inclusion of 'other terms such as real GDP' scarcely complicates the analysis, and, as the reaction function stands, it would advocate to 'principles students' that the primary macroeconomic responsibility of the central bank in the 'modern economy' is to control inflation, as opposed to targeting real output and employment. The textbook writer could avoid such a presumption by simply redefining the reaction function to read something like the following¹⁰:

$$r = b\pi + dy + v$$

In this form, the textbook model would then resemble more closely the interest rate determination equations found in the NNS model literature, and in particular would correspond with the so-called 'Taylor rule', which can be represented as follows:

$$r = b(\pi - \pi^T) + d(u - u^N) + r^N$$

where $(\pi - \pi^T)$ represents the extent to which inflation departs from its target, $(u - u^N)$ captures divergences between realised and 'optimal' capacity utilisation (u), and r^N is defined as 'the implicit real interest rate' (representing a natural real rate of interest, in 'Wicksellian' terms)¹¹.

Irrespective of the version of the Taylor rule used, the central bank's reaction function would now explicitly acknowledge the need to balance often-conflicting macroeconomic policy choices, at least in the 'short-run' context.

In relation to the choice of macroeconomic policy instruments, there is nothing in the model that would counter the inference that variations in the structural fiscal budget balance would have a much more direct and powerful effect on the policy targets than its monetary policy alternative. Therefore, there would be some justification for representing the macroeconomic policy reaction function as follows:

$$BB^* = b\pi + dy + v$$

where BB^* represents the structural fiscal budget balance.

It could be argued that an obvious advantage of monetary policy is that it may be considered more flexible, in the sense that adjustments to nominal interest rates are easier to implement than changes in fiscal budgets. This would then suggest that monetary policy should be used as an accommodating macroeconomic policy instrument, used to 'fine-tune' the macro economy along the pathway defined by the stance of fiscal policy.

It has been argued therefore that there is nothing in the NNS model that would challenge the inference that fiscal policy should be the preferred instrument when macroeconomic variables are being targeted. Moreover, provided expansionary fiscal policy is not applied in circumstances where the economy is at, or close to, full capacity, there is no reason to expect the policy to result in higher interest rates, an appreciation exchange rate, or increased levels of inflation.

5. Fiscal Policy 'Reconsidered'

Not only does the traditional textbook analysis conclude that fiscal policy is relatively ineffective in an open economy with flexible exchange rates; it also argues that its implementation is subject to a 'budget constraint'. This constraint may be summarised as follows:

$$(G - T) + iDg = \Delta Dg + \Delta B$$

where Dg represent the stock of (interest bearing) government debt held by the private sector. Government spending is therefore depicted as being constrained by the government's revenue base (T) and the willingness of the private sector to purchase government securities (Dg). The option of the government 'monetising' deficit spending by 'selling' securities to the central bank is also noted; a financing option usually categorized as 'printing money' in the exogenous money context (presumably because the net result is an increase in the monetary base).

However, again, the traditional textbooks account of the so-called 'budget constraint' sheds little light on government finance in a world in which governments spend by crediting the private sector bank's settlement accounts (reserves) held at the central bank. Rather, an argument is outlined in this section that is consistent with the following conclusion succinctly stated by Mitchell and Mosler (2002: 257):

... the orthodox treatment of the accounting relation termed the government budget constraint as an *ex ante* financial constraint is in error. We show that government spending is only constrained by what real goods and services are offered in return for it. There is no financing requirement. Debt issuance is seen as part of a reserve maintenance operation by the RBA consistent with their monetary policy cash rate targets¹².

The logic behind this conclusion is not difficult to accept provided textbook generated preconceptions of an exogenously determined money supply can be cast aside. Consider an increase in government spending not financed through tax revenue or by the 'open market' sale of government securities to the private sector. The financial implications of this fiscal policy action in a world of endogenous money with interest rate targeting are relatively straightforward. The immediate effect of the government spending is to add to the settlement accounts ('cash reserves') of the private sector banks in which the government cheques are deposited. This in turn increases (net) liquidity in the inter-bank cash market, assuming that the central bank did not implement offsetting market operations (buying and selling its own or government short-term securities, or associated derivatives such as re-purchase agreements). Under these circumstances the actual cash rate would tend to *decrease*. This in turn would lead to *downward* pressures on retail interest rates, a conclusion that would appear rather inconceivable to the readers of the standard textbook analysis outlined in Section 2 above. However, it is not a conclusion that the Reserve Bank of Australia [RBA] finds difficult to accept:

In a world where the Reserve Bank was undertaking no open market operations, the amount of cash that underpins the [Cash] market (exchange settlement funds, or what the academics call 'high powered money') would depend on the Governments fiscal balance, and it is not hard to see that this would be likely to result in monetary instability. Any government deficits not financed by an exactly coincident issue of debt to the public...would mean a rise in cash and a fall in interest rates. Similarly, a surplus not exactly matched by debt retirement would lead to shrinkage of the amount of cash and an escalation of interest rates (RBA 2001: 15-16).

Alternatively, as was the case outlined in Section Three above, the central bank could choose to defend the target cash rate in line with its pre-determined monetary policy stance. The central bank would have to *reduce* liquidity in the inter-bank cash market by 'issuing' securities to the private sector banks (i.e. debiting their settlement accounts and adding short term securities to their portfolios). It needs to be emphasised that these market operations would offset the tendency for the actual cash rate to *fall below the target rate*, an outcome that would put *downward pressure* on market interest rates. The eventual outcome on broad monetary aggregates of this process is dependent entirely on how potential lenders and borrowers react to the policy changes. It should also be noted that the central bank operations being outlined relate to transaction with participants in the inter-bank cash market, and differ substantially in both their nature and outcomes to the open market purchase and sale of government securities involving the non-bank public.

It can be seen therefore that the 'monetary' implications arising from government deficit spending revolves around central bank transaction in the 'official' short term cash market associated with the achievement and maintenance of a target cash rate. If successful, these operations would 'sterilise' the effects on retail lending rates arising from changes in government spending; in this case to offset the tendency for *downward* pressure on short-term rates following an increase in government expenditure. As has been emphasised, the increased government spending needs to be offset by the sale of central bank securities to participants in the market where the cash rate is being determined. The suggestion that these participants may decline to take up the central bank security issue would seem implausible, given the existence of cash ('reserves') in the form of required settlement accounts and the institutions' preference for interest earning risk free government securities over non income generating cash reserves. Budget deficits do not compromise the operation of monetary policy, provided that agreement exists between governments and their 'independent' monetary authority partners on the appropriate *stance* of macroeconomic policy. In the event that retail market interest rates were to increase independently from cash rates, perhaps as a result of 'negative' perceptions of government deficit spending, central banks could simply withdraw from operations in the inter-bank cash market (aimed at offsetting the tendency for the cash rate to *fall*).

The conclusion reached above is that government deficit spending in itself does not imply higher interest rates, a conclusion that runs counter to most standard textbook renditions of fiscal policy. However, this does not imply that expansionary fiscal policy may not lead to higher market interest rates, under some circumstances. For example, if the central is using the cash rate as an instrument to maintain an inflationary target, then the cash rate would increase if the expansionary fiscal policy was judged to fuel demand pressures in the economy that would have likely inflationary consequences. Secondly, the role of inflationary expectations on the formation of market interest rates needs to be considered carefully, as this may lead to market rates changing independently from the cash rate. Indeed, both in terms of the orthodox textbook model and the alternative interpretation suggested in this paper, the role of expectations in market interest rate determination is a factor that potentially disturbs the intended operation of both monetary and fiscal policies. A more formal representation of alternative models of fiscal policy operations would therefore need to explicitly incorporate the role of expectations.

Subject to the qualifications raised above, it can be seen therefore that the ability of governments to finance the provision of goods and services is not 'constrained' by the capacity to obtain revenue from the private sector, or the willingness of the non-bank public to hold government debt instruments. Balanced budgets do not represent 'sound budget management' and the acclaim accorded to government's achieving budget surpluses arises from a fundamental misunderstanding of the fiscal policy environment.

It should be emphasised however that the fiscal policy financing issue is distinct from debate over the appropriate stance of fiscal policy. The absence of the financial constraints imposed by textbook renditions does not imply that fiscal budget deficits are necessarily a component of the optimal macroeconomic policy package. The point is that option of expansionary fiscal policy is not to be discarded on the grounds of 'financial constraints'. Similarly, the argument that fiscal policy is not necessarily

rendered ineffective because of the various consequences claimed to occur because of higher short-term interest rates does not imply that fiscal policy will necessarily achieve the targeting macroeconomic outcome.

It has to be emphasised again that while short term interest rates are the targets of monetary policy, it is the longer term rates that impact most directly on private sector spending decisions. If budget deficits widened the spread between short and longer-term rates, perhaps as a result of inflationary expectations (correctly formulated or otherwise), then the possibility of crowding out may need to be further considered. However, as Neville's (2000: 160-1) careful examination of the empirical studies suggests, there is little evidence of a relationship between budget deficits and interest rates in this context.

It is important also to recall that, within the 'modified' textbook model outlined in Section 3, the effectiveness of both fiscal and monetary policies was dependent to a significant degree on the assumed exchange rate adjustments, and subsequent trade and international capital flow responses. Conclusions derived from empirical studies suggest that, at least in the Australian context, the textbook assumptions are overly simplistic and require significant qualification in the theoretical models. The effectiveness of fiscal policy is also questioned in much of the recent macroeconomic theorising associated with what could be termed the 'Lucasian revolution', where many of the economic relationships discussed in this paper tend to become submerged in the rather murky world founded on 'rigorous' inter-temporal optimising micro-foundations allied with rational expectations¹³. However, these pessimistic deductions are themselves often associated with depictions of fiscal and monetary policy implementation than are not dissimilar in substance to those found in the traditional textbook models.

Finally, caution needs to be exercised in evaluating the appropriateness and effectiveness of alternative policy strategies in the context of theorising based on equilibrium models. As John Hicks (1983: 61-62), the original architect of the IS/LM model subsequently cautioned, 'When one turns to questions of policy, the use of equilibrium models is still more suspect'.

5. Conclusion

Traditional textbook accounts of the implementation and transmission of fiscal policy present misleading conclusions that have clouded debate on key policy alternatives. In a world where the money supply is determined largely endogenously, and in which monetary authorities target interest rates rather than monetary aggregates, the standard textbook conclusions relating to the relative ineffectiveness of fiscal policy in an open economy are misleading.

Similarly, the conclusion that budget deficits and higher interest rates are synonymous, a claim so often to be found in budget speeches that exhort the achievement of balancing fiscal budgets, is flawed. The notion that government spending is bounded by its capacity to collect revenue or borrow from the private sector must likewise be challenged. These widely held contentions are not based on the firm economic foundations that commentators and policy makers assert.

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Notes

¹ Variants of the standard textbook model can be found in the widely used editions of Blanchard (2003), Dornbusch, Fisher and Startz (2001), Mankiw (2000) and Salvatore (2001).

² Note the absence of net income (and transfers) paid overseas from this expression. This reflects the inappropriate omission of the term in most textbook models.

³ The L_0 and K_0 constants are normally absent from the mathematical formulations of the model, however autonomous changes in liquidity preference and in international capital flows often play a role in the subsequent diagrammatic representations of the standard model.

⁴ This conclusion corresponds to the 'twin deficits' proposition, more commonly derived rather naively from national income and saving identities.

⁵ The 'credit creation' (or deposit) multiplier (mm) is normally shown as being equal to $(1 + cu) / (cu + rr)$; where cu = public's currency/deposits ratio; rr = financial institutions' reserves/deposit ratio (with the chosen monetary aggregate defining deposits).

⁶ The relationship between official short term and retail rates is an important question that requires more attention. Biefang, Mariscal and Howells (2002) provide a recent study of these relationships in

the UK context. In particular, it is possible that an increase in the spread between short term market rates and longer term rates (of more significant to investment decisions) may occur

⁷ It is possible to argue that, even in the context of endogenous money, increased demand for money may lead to higher average market lending rates at an unchanged (target) cash rate. For example, higher lending volumes may be associated with higher default risk and/or may require higher rates to induce the associated portfolio adjustments accompanying increased lending. Chick and Dow (2002) provide a detailed restatement of what could be termed the liquidity preference perspective on endogenous money. This argument could perhaps be qualified in a manner similar to the 'credit rationing' type arguments, stemming initially from the work of Stiglitz and Weiss (1981) that suggest higher lending rates may not be optimal responses to increased demand for funds, a point further discussed by Piegay (2000) and Wolfson (2003).

⁸ The notion of endogenous money supply determination is now noted in some introductory texts such as Sloman and Norris (1999: 442-4) (under the heading 'The creation of credit: The Real World'), while other intermediate texts such as Rogers and Neal (1994: ch. 6) provide a framework in which interest rate targeting monetary policy may usefully be discussed. However, these 'modifications' are not to be found in the more traditional IS/LM/BP analysis of fiscal policy that follows in these texts.

⁹ More formal representations and critiques of the NNS model, together with the implied role of monetary and fiscal policy, can be found in Arestis and Sawyer (2003), Hart (2005) and Kriesler and Lavoie (2004)..

¹⁰ The associated AD function would become: $y = (-ab\pi - av + u) / (1 + ad)$, recalling that 'y' is real GDP measured relative to potential GDP.

¹¹ See Taylor (1999), and Kriesler and Lavoie (2004) for a commentary on other possible variations of the 'Taylor rule' type approach.

¹² A similar conclusion is argued by Bell and Wray (2003) in the context of the relationship between the Fed and Treasury in the US.

¹³ An excellent discussion of the 'Lucasian Revolution' can be found in Snowdon and Vane (1996) and in Goodhart's (2004) special address to the 2004 European History of Economic Thought annual conference.