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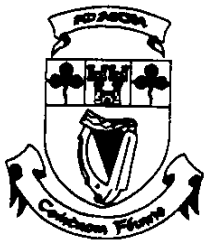

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Current-Account Targeting and the Equilibrium Approach to Fiscal Policy*

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Abstract
Internal and external balance are the twin goals of traditional Keynesian macroeconomic policy. New Classical economists question whether either of these are related to welfare, since employment fluctuations may be Pareto-efficient, while the current-account balance is perceived as the outcome of saving and investment decisions by intertemporally-optimising agents. The present paper shows, however, that the current-account effects and welfare effects of various types of fiscal policy are directly related within the New Classical model, so that the response of the current account can be used to elicit information about the optimality or otherwise of government spending. The equilibrium approach therefore provides a microfoundation for "external balance" as an intermediate target for fiscal spending.

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1. Introduction

"Internal and external balance" are the twin goals of Keynesian macroeconomic policy. Over the last decade, however, the idea that either of these vaguely-defined states should necessarily be regarded as desirable has come under sustained attack from various strands of the equilibrium approach to macroeconomics.

Real business cycle theory argues that macroeconomic fluctuations may be the Pareto-efficient response to systemic shocks, while the equilibrium approach to fiscal policy suggests that the expansionary effects of government spending arise precisely because the policies themselves are welfare-reducing; the need to finance them generates negative wealth effects which expand labour supply; Barro (1989a). Macroeconomic policy, it is concluded, should not therefore be targeted on output or employment. The current view on the balance of payments suggests one should be equally sceptical about policies targeted on the avoidance of "excessive growth" in foreign debt, since the current account is perceived as the outcome of saving and investment decisions by intertemporally-optimising agents; Stockman (1988).

The present paper argues however that the equilibrium approach provides a microfoundation for treating external balance as an intermediate target for fiscal policy, a Keynesian-sounding conclusion with echoes of the Mundell (1967) assignment rule. The logic of the argument is that the current account effects

of fiscal policy convey information about the optimality or otherwise of various types of government spending, and therefore aid the authorities in making decisions about the future course of fiscal policy.

The analysis proceeds by looking separately at the three types of government spending considered in the literature[1]: government provision of consumption goods such as parks, libraries and hospitals, which substitute (to some extent) for private consumption in the utility function; government provision of inputs into private production, such as a legal and national defence system and police and fire services - these enter the production function directly[2]; and public investment in roads, transport and communications infrastructure - these substitute to some extent for private investment but may also have positive externality effects.

It is already known from the work of Barro (1989a) and others that a temporary contraction in government spending on consumption goods (in equilibrium models) improves the current account if and only if spending is above its optimal level. When the implications for investment of the wealth-effect on labour supply are taken into account, as in Aiyagari, Christiano and Eichenbaum (1990) and Barry (1992), however, the same result arises for permanent contractions.

The processes generating these results are explored for the cases of publicly-provided productive services and

infrastructural spending also. The latter has recently been studied empirically by Barro (1989b) and Aschauer (1989a,b) and the current-account implications of their respective positions on the externality effects of infrastructure prove interesting.

The paper is organised as follows. The model is set up in the next section, where the roles of the various types of government spending are discussed. The optimal level of expenditure in each area is then analysed and the relationship between the current-account and welfare effects of contractionary policies revealed. The main implications of the paper are summarised in the concluding section.

1. The Model

The argument is presented in the context of a two-period model of a small open economy that operates as a perfect competitor in world product and capital markets. Time periods are subscripted 1 and 2.

Individuals maximise the following log-linear utility function

(1) $$U = [\alpha \ln C_1 + (1-\alpha) \ln (1-L_1)] + B[\alpha \ln C_2 + (1-\alpha) \ln (1-L_2)]$$

which depends on leisure, $1-L_i$, and effective consumption, C_i; $i=1,2$. The maximum amount of leisure is set at unity, L represents hours worked, and B is the discount factor.

Effective consumption in period i consists of consumption goods purchased by the private sector, c_i, plus a (variable) proportion of government consumption G_{Ci} which substitutes for private consumption:

(2) $$C_i = c_i + \beta(G_{Ci})$$

This formulation warrants some comment. Barro (1981) and others in this area typically assume that the proportion of government consumption that substitutes for private consumption is fixed, and less than or equal to unity. Since government purchases goods from private-sector producers and then distributes them, this precludes any optimising role for government in the economy. The present paper does not follow this tradition. It is instead assumed here that there is some public-good element to the items in question: up to a point distribution may be effected more efficiently by the public authorities. This generalises the Barro analysis to allow for either over- or under-provision by government.

The conventional two-period budget constraint, if capital must be installed one period in advance of use and does not depreciate (implying that K_1 is fixed and I_2 is zero), is

$$c_1 + Rc_2 = F(K_1, L_1) + RF(K_1+I_p, L_2) - I_p - T$$

where R is the constant interest factor (i.e. one divided by one plus the fixed foreign interest rate), T is the present discounted value of lump-sum taxes, and I_p is first-period private investment.

Taking equation (2) and the other forms of government expenditure to be analysed into account, this becomes

$$(3)\quad C_1 + RC_2 = F(K_1, L_1; G_{S1}) + R\phi(I_g)F(K_1+I_p+\Theta(I_g), L_2; G_{S2}) - I_p - T + \beta(G_{C1}) + R\beta(G_{C2}) \equiv A_0$$

A_0 is a measure of discounted wealth, I_g is government investment and $\phi(I_g)$ is a function which in one experiment is allowed to influence productivity in the second period (if government investment has spillover effects on private sector productivity). The extent to which public investment substitutes for private investment depends on the function $\Theta()$ which plays the same role as $\beta()$ does for consumption. G_S is government provision of productive services. The functions $\beta()$, $\phi()$ and $\Theta()$, through which government spending enters the model - other than through the production function and through taxation, which is non-distortionary, - are assumed to have the usual concavity properties of a positive first and a negative second derivative.

The public sector also faces a budget constraint, which requires

$$(4)\quad G_{C1}+G_{S1}+I_g + R(G_{C2}+G_{S2}) = T$$

The private sector maximises (1) subject to (3). From these equations it is clear that Ricardian Equivalence holds, and the timing of taxes to finance government spending need not concern us further.

The first-order conditions for the solution of the

maximisation problem are

(5) $$C_2 = C_1 B/R$$

(6) $$C_1 = F_{L1}(1-L_1)\alpha/(1-\alpha)$$

(7) $$C_2 = \phi(I_g)F_{L2}(1-L_2)\alpha/(1-\alpha)$$

and

(8) $$\phi(I_g)RF_{K2} = 1$$

where F_{Li} and F_{Ki} represent the first derivatives of the production function in period i (i.e. the marginal products, when multiplied as appropriate by $\phi(I_g)$); these depend on labour supply, on government productive services (in one experiment), and, for the second period, on effective investment $I_p+\Theta(I_g)$.

These conditions are standard; equations (5) and (8) are the intertemporal efficiency conditions for effective consumption and investment, while (6) and (7) are the intratemporal efficiency conditions relating effective consumption and leisure.

Using the intertemporal budget constraint we can write effective consumption and (expenditure on) leisure as

(9) $$C_1 = [1/(1+B)]A_0$$

(10) $$C_2 = [B/R(1+B)]A_0$$

(11) $$F_{L1}(1-L_1) = [(1-\alpha)/\alpha(1+B)]A_0$$

(12) $$\phi(I_g)F_{L2}(1-L_2) = [B(1-\alpha)/\alpha R(1+B)]A_0$$

The model can be solved easily in the following way. Equation

(11) shows L_1 as a function only of A_0 and exogenous variables. It can therefore be substituted into the definition of A_0 in (3), and equations (3), (8) and (12) then solve for A_0, L_2 and I_p.

The determinant of this system is Ω^{-1} =

$-\phi(2)^2 F_{L2}F_{KK}\{[(1-\alpha)/\alpha][B/(1+B)] + 1 + F_{L1}D\} \quad > 0$

where $D = [(1-\alpha)/\alpha(1+B)]/[F_{L1}-F_{LL}(1-L_1)] > 0$

The impact of exogenous variables on the current account of the balance of payments can be computed from these three variables. To see this note that the intertemporal budget constraint implies that the discounted sum of the trade surpluses in each period must equal zero:

$$BT_1 + R.BT_2 = 0$$

Since the second-period trade surplus is

$$BT_2 = \phi(2)F(2) - c_2 - G_2$$

where $\phi(2)F(2)$ and G_2 are output and total government spending in the second period respectively, this implies, using (2) and (10), that:

(13)
$$BT_1 = R[\{B/R(1+B)\}A_0 + G_2 - \beta(G_{C2}) - \phi(2)F(K_1+I_p+\Theta(I_g), L_2; G_{S2})]$$

We are now in a position to analyse the impact of various government expenditure policies on the macroeconomy.

3. Public Consumption

The optimal level of public consumption is found by maximising

(1) subject to (3) and (4) with respect to G_{C1} and G_{C2}. This yields the optimal level of government spending in each period as

(14) $$\beta'(G_{C1})=1 \text{ and } \beta'(G_{C2})=1$$

where a "prime" indicates a first derivative. This condition is easily recognisable as one requiring that the marginal benefit and marginal cost (i.e. the tax cost, which is unity) of public spending be equated.

Consider first of all a temporary reduction in public consumption. Only if public consumption had been above its optimal level, i.e. if $\beta'<1$, would intertemporal wealth rise, inducing a fall in first- and second-period labour supply [equations (11) and (12)]. Only if second-period labour supply falls will investment fall, because of the reduction in the expected future marginal product of capital [equation (8)]. Only in this case then will A_0 rise and both L_2 and I_p fall, thus stimulating an improvement in the current account, as apparent from (13) above.

$$\text{Sign } dBT_1/dG_{C1} = \text{Sign } (\beta'-1)$$

If a temporary contraction in government consumption improves the current account, it proves, according to the equilibrium approach, that government consumption was above its optimal level, and the contraction is therefore welfare-enhancing[3].

The same reasoning applies to permanent contractions in government consumption[4]. If investment were ignored consumption smoothing would ensure that the trade balance were

unaffected by permanent expenditure changes, but if these changes have wealth effects that elicit a labour-supply response then investment is affected through equation (8) and the current account surplus moves in the opposite direction to the change in investment.

For permanent changes, denoted dG_c (where $dG_{c1}=dG_{c2}$), we have

$$dBT_1/dG_c = R\Omega(\beta'-1)\phi(2)^2\{F_{L2}F_{KK}[(1-\alpha)/\alpha(1+B)][(1-L_1)F_{LL}]/[F_{L1}-F_{LL}(1-L_1)] + F_{K2}F_{KL}[(1-\alpha)/\alpha]\}$$

For such changes it is also the case then that

$$\text{Sign } dBT_1/dG_c \ (= \text{Sign } dA_0/dG_c = -\text{Sign } dL_2/dG_c = -\text{ Sign } dI_p/dG_c) = \text{Sign } (\beta'-1)$$

The multipliers for government consumption are:

$$dA_0 = -\Omega\phi(2)^2F_{KK}F_{L2}(\beta'-1)[dG_{c1}+RdG_{c2}]$$

$$dL_2 = \Omega\phi(2)F_{KK}[(1-\alpha)/\alpha][B/R(1+B)](\beta'-1)[dG_{c1}+RdG_{c2}]$$

$$dI_p = -\Omega\phi(2)F_{KL}[(1-\alpha)/\alpha][B/R(1+B)](\beta'-1)[dG_{c1}+RdG_{c2}]$$

4. Publicly-Provided Productive Services

The next type of public expenditure to be considered is the provision of public services. Rather than affecting consumption directly, these operate through the production function.

The optimal level of public services is again found by maximising (1) subject to (3) and (4), with respect now to G_{s1}

and G_{S2}. This yields the optimal level as

$$F_{GS1} = 1;\ F_{GS2} = 1$$

Consider firstly the impact of a temporary reduction in government spending on these services, $dG_{S1} < 0$. The multipliers in this case are:

$$dA_0/dG_{S1} = -\Omega\phi(2)^2 F_{KK} F_{L2}[F_{GS1} + F_{L1}E - 1]$$
$$dL_2/dG_{S1} = \Omega\phi(2) F_{KK}[(1-\alpha)/\alpha][B/R(1+B)][F_{GS1} + F_{L1}E - 1]$$
$$dI_p/dG_{S1} = -\Omega\phi(2) F_{KL}[(1-\alpha)/\alpha][B/R(1+B)]\ [F_{GS1} + F_{L1}E - 1]$$
$$\text{where } E \equiv [(1-L_1)F_{LGS1}]/[F_{L1}-(1-L_1)F_{LL}]$$

The E term is of interest here. If government services raise the marginal product of labour then E is positive. In this case when government spending is at its optimal level a reduction in G_{S1} reduces A_0, raises L_2, raises private investment, and therefore, by equation (13), worsens the trade balance. Changes in publicly-provided services, even starting from the optimal position, affect the economy in a more complex way than changes in public consumption, because of their impact on the marginal products of labour and capital, and thus on the opportunity cost of leisure and the incentive to invest.

The effects can be understood as follows. Starting from the optimum level a temporary reduction in productive services reduces the first-period marginal product of labour, i.e. the first-period relative price of leisure. This leads to a fall

in A_0, which is intertemporal wealth measured in terms of consumer goods, and this wealth effect, operating through (12), raises second-period labour supply and thus investment.

The impact on the trade-balance is therefore unambiguously to create a deficit, as inspection of (13) reveals. In plain language, first-period output falls relative to second-period output (which in fact rises), and intertemporal substitution balances these effects through the economy running a trade deficit. This is the case if we start off at an optimum; the further above the optimum level of government spending we start from, however, the less the reduction in current relative to future income, so that a point arises, finally, at which the trade balance effects are reversed.

The conclusion, then, for temporary contractions in public productive services is that a contraction improves the trade balance only if government expenditure is some distance above the optimum. Again, then, we conclude that if government cutbacks have the expected effect on the current account the equilibrium approach implies that spending must have been above the optimal level, and the cutbacks must be welfare-enhancing.

Now consider the case where government services are themselves productive but leave the marginal products of other factors constant, as assumed for example by Aschauer (1988). In this case E=0 and exactly as in the case of government consumption

a contraction raises or lowers the trade surplus depending on whether government spending was above or below its optimum level. This again works through the wealth effect. If spending is excessive then a temporary contraction raises income today relative to the future, stimulating increased saving alongside the reduction in investment that occurs because future as well as present labour supply is reduced.

Turning now to the impact of a permanent change in government spending on productive services, it is clear that the effects will be extremely complicated if public services affect the marginal productivity of private factors. The direction of the wealth effects on labour supply and on investment are transparent, as before, but there is now an extra factor impinging on second-period labour supply; i.e. the possibility that government services affect labour productivity and thus wages. Private investment will be further affected if the productivity of private capital is responsive to government productive services. Since, as (13) indicates, the trade balance is affected by all of these factors, it comes as no surprise that the trade balance effect is ambiguous in this general case. We leave further discussion of this case until we come to consider government infrastructural spending, since this is arguably what is meant when permanent (or long-lasting) changes in the components of government spending impact directly on private-sector productivity[5].

It turns out that for the case where government services are

directly productive but leave the marginal productivity of private factors unchanged - again as frequently assumed in the literature on the equilibrium approach - the impact on the trade balance is unambiguous.

The multipliers in this case are:

$$dA_0/dG_S = -\Omega\phi(2)^2 F_{KK} F_{L2} [F_{GS}(1 + R\phi(2)) - (1+R)]$$

$$dL_2/dG_S = \Omega\phi(2) F_{KK} [(1-\alpha)/\alpha] [B/R(1+B)] [F_{GS}(1 + R\phi(2)) - (1+R)]$$

$$dI_p/dG_S = -\Omega\phi(2) F_{KL} [(1-\alpha)/\alpha] [B/R(1+B)] [F_{GS}(1 + R\phi(2)) - (1+R)]$$

$$dBT_1/dG_S = R\Omega\phi(2)^2 \{F_{K2} F_{KL} [(1-\alpha)/\alpha] + F_{L2} F_{KK} [\{(1-\alpha)(1-L_1) F_{LL}\}/ \{\alpha(1+B)\}\{F_{L1} - (1-L_1) F_{LL}\}]\} [F_{GS} - 1]$$

Once again it is clear that a fiscal contraction improves the trade surplus only if we start from a position of excessive government spending; if government spending were initially at too low a level, the impact of fiscal policy would be perverse. The mechanism at work here is the standard New Classical one of wealth effects driving labour supply, combined with its logical corollary in the small-open-economy case that labour-supply effects must influence investment[6].

5. Public Investment and Infrastructural Spending

There has been a good deal of research and debate recently into the question of whether public investment is productive [Aschauer (1989a)], over whether it generates spillover effects or simply substitutes for private sector investment [Aschauer (1989b), Barro (1989b)], and particularly for the

US, whether current levels of public spending are adequate [Friedman (1988), Aschauer (1989a,b), Tatom (1991)]. In this section the question of how these issues impinge on the welfare effects of current-account targeting is considered.

In principle, public investment can enter the present model in two ways - through its substitutability with private investment, as expressed in the $\Theta()$ function, and through its possible effect on private sector productivity, as captured by the $\phi()$ function. It is useful to distinguish at this stage between two views which have been expressed on the importance or otherwise of these channels. Barro (1989b) in a study of the determinants of growth rates across countries concludes that "once the total investment ratio (i.e. relative to income) is held constant, there is no separate effect on growth from the breakdown of total investment between private and public components". His results suggest that the $\phi()$ channel, or externality effect, is inoperative and that governments optimise over the $\Theta()$ function. This I will term "the Barro view".

In contrast, Aschauer (1989b) finds that while there is an almost one-for-one crowding out effect of public capital on private capital when the separate influence of public capital on the return to private capital is controlled for, public (non-military) capital exerts a significant positive effect on the rate-of-return to private capital and in the long-run crowds in private capital spending. I term the position that

both the $\phi()$ and $\Theta()$ channels operate "the Aschauer view".

The general result for the balance-of-trade effect of increased public investment is

$$dBT_1/dI_g = R\Omega\phi(2)^2 \text{ times:}$$

$$[1/(1+B)]$$

$$[-F_{KK}F_{L2} + \{(1-\alpha)/\alpha\}\{F_{K2}F_{KL} - F_{L2}F_{KK}\}][R\phi(2)F_{K2}\Theta' + RF(2)\phi' - 1]$$

$$+ \phi'[F_{K2}^2(1-L_2)F_{LL} - F_{K2}F_{KL}F_{L2}(1-L_2)][1+F_{L1}D]$$

$$+ \phi'[F(2)F_{KK}F_{L2} - F_{K2}^2F_{L2}][1+F_{L1}D+\{(1-\alpha)B/\alpha(1+B)\}]$$

$$+ \phi'[F_{L2}^2F_{KK}(1-L_2) - F_{L2}F_{K2}(1-L_2)F_{KL}][1+F_{L1}D-\{R/(1+B)\}]$$

Consider firstly the Barro case where the externality effect is unimportant, i.e. where $\phi(I_g) = 1$ (and $\phi'(I_g) = 0$). This means that the last three terms in the expression above disappear. The optimal policy setting in this case is

$$\phi(2)RF_{K2}\Theta'(I_g) = 1$$

which in combination with (8) implies $\Theta'(I_g) = 1$.

This optimal setting is such of course that public expenditure crowds out private expenditure one-for-one. A marginal increase in public spending therefore displaces private investment, with no impact on wealth or labour supply, and therefore by (13) it leaves the trade balance unchanged. If public investment is above the optimum, however, a reduction requires less than a one-for-one increase in private investment to compensate, and wealth therefore rises; this in turn reduces future labour supply which diminishes the

incentive to increase private sector investment. Therefore A_0 rises, the second-period capital stock and labour-supply both fall, the economy saves more to smooth consumption, and the current account therefore improves.

The "conventional effect" once again only arises when government spending is excessive, and would be reversed if public investment were below the optimum[7].

Now let $\phi()$ also depend positively on I_g - the Aschauer (1989b) case where public investment can both crowd out private investment **and** increase its rate of return. The result now is that if government spending is optimal,

i.e. for $$R[F(2)\phi'(I_g)+\phi(I_g)F_{K2}\Theta'(I_g)] = 1$$

a marginal reduction **improves** the trade balance. Why? It reduces the second-period marginal product of labour which impacts on labour supply and reduces the private sector incentive to invest, or, in intertemporal language, a decline in infrastructure reduces future relative to current output, and the economy smooths consumption by running a current account surplus.

If infrastructural spending were initially at an above-optimal level, this trade balance effect would be magnified, because the contraction would generate a positive wealth effect which would reduce future labour supply still further and generate less private investment.

For infrastructural spending with important spillover effects, then, we can conclude that cutbacks will improve the current account even if government spending is optimal or somewhat below optimal. The current account is not an appropriate intermediate target for public capital spending if infrastructural externality effects are important. For "hardline" New Classicals who believe externalities are not important, though, even public-capital targeting of the current account is warranted.

6. Conclusions

The purpose of the paper has been to explore the relationship between the welfare effects and the current account effects of fiscal contraction within the New Classical model.

The main finding is that in most cases - i.e. for temporary and permanent contractions in public consumption spending, and for temporary and, under certain circumstances, permanent changes in the public provision of productive services - there is a positive relationship between the two. A temporary contraction in government provision of consumption goods, for example, starting from a position where government spending is above its optimal level, leads to a less than one-for-one rise in consumer spending and so generates a current-account surplus. If government spending were below its optimal level on the other hand (i.e. a unit of government spending yields greater utility than a unit of private consumer spending)

consumption-smoothing would lead to an increase in aggregate spending today (since private-sector income is only temporarily low), and a consequent worsening of the trade balance.

When the implications for investment of the wealth-effect on labour supply are taken into account, the same result arises for permanent cutbacks in government consumption. A contraction from above the optimal level raises discounted wealth and so reduces current and future labour supply. This in turn reduces the expected marginal product of capital, investment declines and the trade balance improves[8].

The New Classical model implies then that the current account can function as an intermediate target for fiscal policy in a way that "internal balance" cannot. Stated bluntly, its implication is that fiscal spending should be contracted until its effects on the current account shrink to zero.

Note, however, that this discussion of the current account as an intermediate target for a particular policy instrument is substantially different from the Keynesian treatment of the current account deficit as being a problem in and of itself, but one to which the fiscal instrument should be assigned. In the present model only that component of a current account deficit that is due to the "macro distortion" of excessive government spending represents a problem; the first-best policy, as usual, is to remove the distortion. In the present

case however, this precisely **means** fiscal spending should be contracted. The impact on the current account conveys useful information about the extent to which fiscal spending is distortionary, and it is in this sense that it can serve as an intermediate target[9].

Whether this also justifies cutting infrastructural spending to improve the current account depends on whether one accepts the conclusions drawn by Barro (1989b) or by Aschauer (1989a,b) from their empirical analyses. If public investment acts simply as a substitute for private investment, which is how Barro (1989b) interprets his findings, then fiscal targeting of the current account - in the sense in which the term is used here - is again warranted. The same conclusion cannot be drawn however if infrastructural spending has spillover effects for the private sector, for which a strong case is made by Aschauer (1989a,b). In this situation, even if infrastructural spending were at its optimum or at too low a level, a contraction would still improve the current account. This caveat is of particular importance since public capital spending frequently bears the brunt of fiscal contractions[10].

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Footnotes

1. Barro (1981) provides an extensive discussion of these. See also Grossman and Lucas (1974), Aschauer and Greenwood (1985), Kimbrough (1985), Aschauer (1988) and Barro (1989).

2. It is sometimes asserted, e.g. by Barro (1981) and Kimbrough (1985), that regulatory activities (which have a negative marginal product) should be included in this category. This seems incorrect for these models however, since such activities typically occur when markets are imperfect, while this class of models assumes perfect markets.

3. The empirical findings of Kormendi (1983), Aschauer (1985) and Ahmed (1986) suggest that this is often the case.

4. It is frequently asserted that permanent expenditure changes do not affect the trade balance; see e.g. Aschauer and Greenwood (1985), Kimbrough (1985), Ahmed (1986,1987) and Barro (1989a). In Barry (1992) I show that this is not correct if labour supply is variable and production takes place under constant returns to scale. In deriving their results Barro (1989a) drops the former assumption, and Aschauer and Greenwood (1985) the latter.

5. Permanent changes in the level of publicly-provided productive services involve infrastructural spending that is not adequately captured by simply setting $G_{S1} = G_{S2}$ in the present model. If infrastructural spending is not cut, the private sector is unlikely to consider a cut in current spending announced as permanent to be credible.

6. The flavour of this result for productive public services is similar to that of Grossman and Lucas (1974) who study how the initial level of government services relative to the optimum affects the direction of the inflationary impact of fiscal changes. In their terminology if government spending is too high then a further increase raises demand relative to supply. In the intertemporal context of the present model, we can say that the reduction in intertemporal wealth, by stimulating investment and raising future output, prevents consumption today falling to an extent sufficient to counteract the trade-balance effects of increased government spending.

7. The second component of "the Barro view" then, that governments optimise over $\Theta()$, can potentially be tested by analysing the impact of contractions in public investment on the current account.

8. It is clear that investment must move in this direction when the interest rate is determined abroad, but the result also applies to a closed economy, as Aiyagari, Christiano and Eichenbaum (1990) and Barry (1992) show.

9. The evidence does suggest that fiscal contraction usually improves the current account. Ahmed (1986) studies the issue from a New Classical perspective, distinguishing between temporary and permanent changes in government spending by hypothesising that temporary shocks are related to wartime expenditure. Such temporary expansions are found to worsen the trade balance, while his results on the impact of permanent expansions are ambiguous, leading either to a worsening of the trade balance or else leaving it unchanged.

10. Consider the two severe European fiscal contractions studied by Giavazzi and Pagano (1990), for example - Denmark (1983-86) and Ireland (1987-89). Danish public consumption actually grew during the period, at an average rate of 0.9%, while public investment fell 1.1% p.a. For Ireland the fall in public consumption during the stabilisation period was 3.7% p.a. while the fall in public investment averaged 13.3%.