

Public Debt and Economic Performance*

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Abstract

This paper provides an overview of what economists know or what they think they know about the effects of government deficits and debt on economic performance. It starts by introducing the government's budget constraint and proceeds to address the possible justifications for the issuance of public debt. Public deficits and the accumulation of public debt are matters of concern for both financial reasons and economic reasons. The paper addresses first the issues of solvency and sustainability and the meaning, in this context, of excessive public debt. The paper focuses then on the different views on the macroeconomic impact of issuing public debt. It addresses both the Keynesian view of financial crowding out as well as the Ricardian view of deficit neutrality. Having considered these two extreme views on the effects of deficit financing, the paper then addresses some challenges to the use of public deficits as an accurate measure of public sector imbalances. It considers the views that the current measures of the deficits underestimate the true dimension of the problem, the view that current measures overestimate the problems, and the more radical view that the public deficit, as currently measured, is a meaningless economic indicator. Finally, the paper addresses the potential costs of budgetary restraint. It does so in the context of the current budget surpluses in the US as well as the budgetary rules in effect in the EMU.

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JEL Classification: E6; H6.

1. Introduction

Beginning in the early 1980s, it became a common practice for governments throughout the OECD to finance their excess of public spending over tax revenues with public debt. Consequently, in those countries, sovereign indebtedness, the accumulation of these budget deficits over the years, soared to unprecedented heights. Then, as the rest of the world followed suit and contributed to the global shortage of funds, real interest rates on the international capital market were driven up.

In countries where the ratio of public debt to GDP was the highest, the government's hands were effectively tied, as the interest burden absorbed the lion's share of the budget, and just maintaining the level of indebtedness resulted in budget deficits. Having a significant amount of outstanding government debt to roll over also meant that public finances were continually vulnerable to the risk of higher interest rates. For those countries whose sovereign debt was denominated in foreign currency, there was also the risk of depreciation.

At the same time, when compared with the achievements of the 1960s, macroeconomic performance after the early 1980s was significantly below par on most if not all accounts. In fact, the media and economists alike often blamed the record levels of government debt world-over for just about every poor economic indicator. More specifically, budget deficits have been blamed for low economic growth (despite high real interest rates, saving has been channeled into Treasuries instead of into capital accumulation), for growing macroeconomic instability (particularly through high inflation rates), and for running down the stock of national wealth (through large and persistent current account deficits foreigners claim a larger fraction of the GDP).

In this paper we survey the main economic issues pertaining to the deficit financing of government spending. We do not attempt to survey the voluminous economics literature on the economics of public debt. Rather, we aim at providing an overview of what economists know or what they think they know about the effects of government deficits and public debt on economic performance. In doing so we strive to present the different views in a relatively agnostic manner. In addition, to keep the focus of the paper on the effects of government deficits and debt on economic performance, we deliberately chose to leave

virtually untouched several topics related to the general issue of fiscal outcomes. For instance we do not go into the debate of the effects of monetizing public deficits, a strategy now much less used in more industrialized countries. Also, we refer only in a cursory manner to the debate on the long-term effects of taxes and different types of public spending. Finally, we only vaguely touch on the political economy aspects of budgetary rules and fiscal outcomes.

This paper is organized as follows. We start by introducing the government's budget constraint and then we proceed to address the possible justifications for the issuance of public debt. Resorting to public debt is ultimately a choice of how to finance public spending. We mention political economy reasons as well as economic reasons, tax smoothing, financial market imperfections, and the golden rule of public finance, as possible justifications for issuing public debt.

We then focus on the effects of choosing public debt to finance public spending. Public deficits and the accumulation of public debt are matters of concern for both financial and economic reasons. First, we consider the financial issues of the short-term solvency of the public sector and the long-term sustainability of current government policies. Second, we consider the question of the macroeconomic impact of issuing public debt, namely the possible effects in terms of national savings and domestic investment. We address both the Keynesian view of financial crowding out and the Ricardian view of deficit neutrality as well as some possible reservations on both views.

Regardless of the potential effects of public deficits, there are different strands of the economics literature which challenge the use of public deficits as an accurate measure of public sector imbalances. We consider the view that the current measures of the public deficits underestimate the true dimension of the problems, the view that current measures overestimate the problems, and the view that the public deficit as usually defined is a meaningless economic indicator.

Finally, we address the potential costs of budgetary restraint. We do so in the context of the current budget surpluses in the US as well as the budgetary rules in effect in the EMU. The paper concludes with some final reflections on the topic of public deficits and economic performance.

2. Financing public spending

2.1. The public budget constraint

To focus the discussion, let us start with the presentation of the government's budget constraint. This budget constraint simply specifies that total spending by the government has to be financed in some way. In particular, current consumption or the costs of running the government, G_t , plus public investment, PI_t , plus social transfers, Tr_t , plus interest payments on outstanding debt, $r_t B_t$, have to be financed with tax revenues from different sources, T_t , plus the issuance of new debt, dB_t/dt . We will ignore the printing of money to finance public spending. Formally,

$$dB_t/dt = G_t + PI_t + Tr_t - T_t + r_t B_t. \quad (1)$$

Defining all of the variables in terms of ratios to GNP and writing these ratios in lower case letters, the budget constraint can be re-written as

$$db_t/dt = g_t + pi_t + tr_t - t_t + (r_t - x_t)b_t = d_t - (r_t - x_t)b_t, \quad (2)$$

where d_t is the primary deficit to GNP ratio and x_t is the GNP growth rate.

A casual look at the government's budget constraint allows us to make some important conceptual points:

A) The desired level of public spending should be the primary focus in determining fiscal outcomes.

In the policy debate, arguments over the level of taxation and the elimination of public deficits often dominate the discussion. The issue of the appropriate level of public spending inevitably takes the back seat. It would not be difficult to argue, however, that any level of taxation may be perceived as too high

if spending is beyond what is socially desired. The critical question then is to determine what types of goods and services a society agrees the public sector should provide and accordingly, the overall level of public spending. The question of how to finance public spending should be subsidiary to the question of how much and what the public sector should be doing.

B) The public spending mix is important for economic performance.

Different types of public spending can be justified differently. Running the government and the system of law and order is not any more or less legitimate than spending in social programs or in public infrastructure. Still, one would expect these different types of spending to have different effects on private sector performance.

C) The level of taxation and the tax mix are important for economic performance.

It is part of the conventional wisdom in economics that the distortionary effects of taxes increase more than proportionally than the tax rates. Therefore, the level of taxation is important for economic performance. Furthermore, different taxes affect different economic margins and have potentially different effects on long term growth. Therefore, the tax mix is equally relevant for private sector performance.

D) Public debt is not the only way to finance public spending.

Of course one could consider the possibility of monetizing the public deficit. More importantly, however, public debt is used to finance spending in excess of current tax revenues. So taxation is actually the most pervasive way of financing public spending. The problems induced by the tax financing of public spending also have to be considered if one wants to achieve a comprehensive analysis of the economic impact of fiscal outcomes. The point is that, while the issuance of public debt to finance public spending has serious potential problems, so do alternative forms of financing.

2.2. Justifications for the use of debt to finance public spending

From the discussion above it is clear that public deficits exist because tax revenues are not sufficient to finance all desired spending. Then, we need to determine why the government would choose issuing debt

instead of just raising taxes. There are different justifications for doing so. We consider first some political economy reasons and then some more standard economic justifications.

2.2.1. Political economy reasons for the use of debt financing of public spending

Both raising taxes and public borrowing are means of transferring resources from the private sector to the public sector. However, while taxes are compulsory transfers, public borrowing is of a voluntary nature. Accordingly, taxes are perceived as intrusions by the government, while offerings of public debt are not. Therefore, raising taxes may be a politically and socially disruptive way of generating revenues for the government.

The fact that the choice between tax financing and debt financing of public spending is not neutral manifests itself in different forms. Given a specific public project, it is more likely that people would vote against it, if it were to be financed through taxes rather than through the debt. Also, people would vote to be under-taxed due to the public good nature of public spending and the free rider problem. Furthermore, debt financing tends to have a lower political cost. This is because voters have fiscal illusion. They overestimate current benefits and underestimate future tax burdens. Therefore, politicians may run excessive deficits to increase the probability of re-election knowing that, because of fiscal illusion, the voters will not punish them.

2.2.2. The tax-smoothing paradigm

Under the tax-smoothing paradigm taxes should be relatively constant over time. This is because the distortionary effects of taxes increase more than proportionally with the tax rates. Therefore, for the same present discounted value, a smooth stream of tax revenues is less distortionary than a stream generated by alternating high and low tax rates. Furthermore, higher taxes often lead to greater tax evasion and avoidance. Accordingly, the ability to raise tax revenues diminishes as tax rates increase. In this regard, budget deficits and surpluses should serve as a buffer to both public-spending shocks (such as wars or catastrophes) and tax revenue shocks (such as recessions).

2.2.3. The incomplete markets argument

Government bonds provide an important benchmark in the financial markets. This is because government bonds are the only securities with a guarantee of repayment. Implicitly, public debt has the national economy as collateral and is backed by the unique powers of the national government to tax its citizens and to print money. The risk-free nature of this asset is critical for investors like trust funds (social security, for example) and core savings of individuals, corporations, pension funds, etc. Furthermore, these risk free assets are an important component of most diversified portfolios.

2.2.4. The golden rule of public financing

According to the pay per use principle, if some of the benefits of public spending accrue to future generations then these future generations should also bear the corresponding costs. Therefore, public borrowing backed by the power of the government to tax future generations is perfectly appropriate to finance public capital projects (for example, office buildings, highways, military installations) as well as human capital formation (as is the case of education and training programs). This is the golden rule of public finance - public borrowing should not exceed public capital spending.

In following the golden rule of public financing, the public sector would use the same criteria for borrowing as do corporations and families in the private sector. Furthermore, as with the private sector, by ensuring that the borrowing is only for capital formation purposes, this rule also ensures that the net worth of the public sector, that is, assets minus debt, is asymptotically positive.

3. On the financial implications of public borrowing

From the discussion in the previous section it follows that there may be good economic reasons to run a budget deficits and to finance these with public borrowing. The existence of an accumulated public debt, however, is often perceived as a burden on the national economy and it may certainly generate concerns over the short-term financial solvency of the public sector or the long-term sustainability of current policies.

3.1. On the burden of the public debt

In the eyes of the general public, public debt imposes a burden on the national economy that assumes two different forms. First, the existence of public debt imposes on the government the burden of paying interest on the outstanding debt. Second, the existence of an outstanding debt suggests that the principal needs to be re-paid at some point in time. Economists take issue with both concerns without dismissing the possibility that excessive indebtedness may, indeed, induce serious problems.

Consider, first, the need for the government to make interest payments on the outstanding public debt. Obviously, one would want to avoid a situation in which the government has to borrow just to pay interest, i.e., it needs to borrow although it runs a primary surplus. Short of that, however, interest paid to residents is still within the grasp of the tax authority, that is, these payments are in some way internalized. This means that the concern may only arise if a good part of the public debt is foreign held.

Furthermore, interest payments are only a burden to some residents. Some taxpayers are net recipients. Indeed, the conventional wisdom is that interest payments on the public debt are a net benefit for the upper income groups and a net cost for the other income groups. This is because the middle and low-income groups own little public debt. To the extent that there is an uneven pattern of ownership of public debt there may be concerns associated with the distributional impact of interest payments on public debt.

Consider, second, the issue of the need for the government to repay the public debt. In general, the public sector has the ability to refinance its debt, that is, to issue bonds to pay some of the current outstanding debt that has been issued in the form of short and medium term bonds. Furthermore, as long as the domestic economy continues to grow there is no reason why, within certain bounds, the public debt cannot increase indefinitely. This leads to a pattern that is similar to what happens in the private sector. As individual agents, for example, re-finance their home mortgages, on aggregate more people will buy houses and the mortgage debt in the economy will also grow.

3.2. On the issue of short-term financial solvency of the government

The issue of financial solvency relates directly to the question of whether or not the government is able to pay its current bills, in particular, if it can borrow enough to pay for the spending in excess to the

collected tax revenues. It is conceivable that, if the government has accumulated a debt that is deemed by its creditors to be too high, the answer is no. In a less extreme case, high levels of public indebtedness increase the exposure of the public sector. The public sector becomes more vulnerable to unexpected shortfalls of revenue due to economic slowdowns and to unexpected increases in public spending due to increasing interest rates, for example.

The problem with solvency defined in this manner is that it raises the possibility that the government may have to resort to printing money to pay its bills. This would likely generate dangerous inflationary pressures. Also, even if more money is not printed, according to the fiscal theory of the price level, an excessive public debt will lead to inflationary pressures. In either case, inflation deteriorates both the real values of outstanding debt and of the interest payments on such debt. In this sense inflation greatly penalizes creditors. Financial markets tend to promptly internalize this risk in the form of higher nominal interest rates.

From the perspective of short-term financial solvency, an excessive level of public debt is one that either induces monetization of the current public deficit or raises the spectrum of possible monetization in the near future. In both cases the cost of excessive public debt is macroeconomic instability and policy uncertainty, which are, ultimately, obstacles for long-term growth.

It should be pointed out that, the notion of excessive public indebtedness is a relative concept. It is relative to what the public sector has to offer as collateral for its debt. Therefore, what matters is not the absolute level of public indebtedness but the level of the public debt as a fraction of the GNP. The GNP as a measure of the overall size of the national economy, provides a measure of the tax base the government has access to.

3.3. On the issue of long-term sustainability of current fiscal policies

A more general issue is the meaning of excessive public indebtedness from the standpoint of the long-term sustainability of the current taxation and spending policies. Having borrowed in the past, the government might be able to roll over the existing public debt indefinitely, and even increase indefinitely its indebtedness. The critical question is whether there are limits to this increased indebtedness. This

question leads to the investigation of whether or not, given current fiscal policies, the government is heading towards excessive debt accumulation, as represented by a rapidly growing public debt to GNP ratio. In such a case the government would have to increase taxes, reduce spending, monetize the deficit, or maybe even repudiate the debt.

Starting from the government budget constraint as in (2) and assuming, for the sake of simplicity, that r and x are constant over time, then one can obtain

$$b_t = b_0 \exp[(r - x)t] + \int_{0 < s < t} d_s \exp[(r - x)(t - s)] ds \quad (3)$$

or

$$b_t \exp\{-(r - x)t\} = b_0 + \int_{0 < s < t} d_s \exp[-(r - x)(t - s)] ds. \quad (4)$$

This expression has a very intuitive interpretation. It states that the present discounted value at time zero of the public debt to GNP ratio at time t is equal to the initial public debt to GNP ratio plus the present discounted value of the accumulated primary deficits.

Long-term sustainability of current policies is defined as the requirement that the ratio of public debt to GNP ratio returns to its initial level after temporary deviations. In the context of (4), the idea of long-term sustainability relates to the two terms in the right-hand side: first the evolution of current spending, transfers, and tax rules as in the primary deficit; second, the public debt to GNP ratio inherited from the past. Indeed, considering (4) leads to two equivalent definitions of long-term sustainability:

The current fiscal policies are sustainable in the long-term ...

1) ... if the present discounted value of debt tends to zero in infinity, i.e.,

$$\lim_{n \rightarrow \infty} b_n \exp[-(r - x)n] = 0 \quad (5)$$

or

2) ... if the present discounted value of primary deficits is the negative of the initial public debt to GNP ratio, b_0

$$-b_0 = \int_{s>0} d_s \exp[-(r-x)s] ds. \quad (6)$$

The immediate implication of these sustainability conditions is that if the public sector starts with a positive public debt to GNP ratio then the government is required to run primary surpluses to keep the public debt to GNP ratio constant at its initial level.

There is an important corollary of these sustainability conditions in terms of how fast the public debt can increase without entering an explosive path. If it is assumed that the condition of dynamic efficiency is satisfied, that is that the interest rate is greater than the GNP growth rate, or $r > x$, then the public debt to GNP ratio cannot grow faster than $r - x$. Alternatively, the public debt cannot grow faster than the interest rate r .

From an operational perspective one could identify the existence of long-term sustainability problems by comparing the sustainable tax rate versus the current tax rate. The sustainable tax rate is such that a constant target public debt to GNP ratio would be achieved over a given horizon. A positive difference between the sustainable and the current tax rates indicates a sustainability problem, whereby the current fiscal policies are not sustainable in the long-term. For the target public debt to GNP ratio to be achieved public spending has to be cut or current taxes have to be increased.

4. On the economic impact of public borrowing

The most central debate surrounding the existence of public debt is whether or not public deficits affect economic performance. In this debate there are two paradigms. The standard Keynesian view suggests that public borrowing has very negative effects on the macroeconomic performance while the Ricardian view suggests that public indebtedness is neutral in its effects on macroeconomic performance.

4.1. Public deficits and national saving

To understand the potential impact of the public deficits we need to understand how the public sector imbalances fit into the economy from a national accounting perspective.

In general, for a given economy, savings from all sources equal investment in all applications. This includes public savings, which are negative when the government runs public deficits. In a closed economy context, the national accounting identity means that national savings, that is private plus public savings, must equal domestic investment or

$$S_{priv} + S_{pub} = I. \tag{7}$$

In an open economy context, we need to consider savings and investment with foreign origin and destination. In this case the national account identity recognizes that the difference between national savings and domestic investment is net exports, NX , or its counterpart in terms of net capital flows, i.e., net foreign direct investment, FDI , or

$$S_{priv} + S_{pub} = I + NX = I + FDI. \tag{8}$$

An alternative interpretation of (8) is that national plus foreign savings are the sources of financing of both domestic investment and foreign direct investment abroad.

From these national accounting identities it becomes clear that the general concern with public deficits, that is with negative public savings, fits into the general concern with low national savings. Indeed, it is conceivable that public deficits may lead to low domestic savings. In turn, low national savings lead to low domestic investment and/or to a reduction in the net foreign direct investment position. The negative economic impact of low domestic investment follows trivially. Also, a declining net foreign investment

position, i.e., a trade deficit, means growing dependence on foreign capital. In the limit, the domestic economy may become a net importer of capital. The capital imports represent the sale of government and of domestic business interests to foreigners. This may lead to loss of domestic sovereignty due to foreign ownership of assets and to currency instability. All of this suggests a possible three-way link among low national savings, public deficits, and trade deficits.

Clearly, the debate on the economic effects of public deficits revolves around the perceived impact of public deficits on private consumption behavior and ultimately on private savings, in particular, household savings. Indeed, if public deficits reduce national savings directly through lower public savings, but this reduction is completely offset by an increase in private savings then there is no reason why investment patterns, domestic or foreign, should change. On the other hand, if the reduction in public savings is only partially offset by an increase in private savings then investment patterns may be expected to change.

There are several important corollaries of this discussion. First, if national savings are low there is potentially a problem even if savings are high for some specific agents. Therefore, if national savings are low and public deficits are not high then something else is causing the problem. Second, if national savings are low, reducing public deficit could help generate higher national savings regardless of how benign the public deficits may be or how low public deficits may already be. Finally, what matters is how public deficits may translate into lower total domestic investment. If foreign savings are used to make up the difference, the long-term growth fundamentals may not be affected. Furthermore, if public deficits are used exclusively to finance public investment it may very well be that total domestic investment will not be reduced by the public deficits regardless of one's view of what happens to private investment.

4.2. The Keynesian view: public deficits crowd out private investment

The main point of the Keynesian view is that government borrowing takes savings away from private investment, and this hinders long-term growth. In the Keynesian view, private consumers are myopic agents, who suffer from fiscal illusion, or are liquidity constrained. Therefore, they have a high marginal propensity to consume, c , out of current disposable (after-tax) income.

If the government cuts taxes or increases spending and thereby runs a budget deficit, then private

disposable income increases. Since current private consumption is a function of current disposable income, private consumption goes up by a fraction c of the disposable income. With increased disposable income, private savings increase as well. Private savings, however, increase by only a fraction $(1 - c)$ of the disposable income. Therefore, national saving is reduced. This is because for each dollar reduction in public savings (budget deficit) private savings only increases by a fraction $(1 - c)$ of a dollar.

In a closed economy framework, the reduction in public savings represented by the public deficit, increases demand for private funds and given fixed supply of funds increases interest rates. Higher interest rates lead to higher private savings although, as we have seen, not enough to compensate reduced public savings. Since it has the power to tax and print money, the government is able to pay the higher interest rate dictated by the market. Therefore, higher interest rates crowd out mostly private sector borrowing, not public borrowing. Public deficits lead to lower national savings and ultimately, a reduction in private investment. In the long term, the economy will have a lower capital stock and lower labor productivity. Long-term growth will thus be negatively affected.

From this it follows that the standard financial crowding out story has very clear empirical implications. Public deficits should be positively correlated with interest rates and negatively correlated with private investment and growth.

In an open economy framework, with perfect capital markets, all countries face the same interest rate and each economy, if small, only has a negligible effect on the world interest rate. In this case, a deficit-financed tax cut still leads to a shortfall of national savings to finance private investment spending. Now, however, this shortfall may be, at least partially, compensated by increased borrowing from abroad at the given interest rate. That is, the increased demand for funds by the government increases the foreign inflow of funds and induces a negative net foreign investment position in the domestic economy.

This is also the basis of the twin-deficits view according to which public budget deficits cause trade deficits. The budget deficit means that the country lives beyond its means, which translates into the fact that the country buys more from abroad than it exports and is borrowing the money from abroad to do so. Budget deficits and trade deficits are just the two sides of the same coin.

In an open economy framework the empirical association between public deficits, higher interest rates

and lower investment is not as strong as in the closed economy case. Instead of crowding out investment, in an open economy, public deficits crowd out net exports. As a result, GDP could remain the same, but GNP would not, as claims by foreigners would increase and the countrys net foreign assets would be reduced. Therefore, in an open economy context there should instead be a strong association between public deficits and trade deficits.

This is not to say that there should be no relationship in an open economy context between public deficits and interest rates. If, indeed, running budget deficits becomes widespread, then there will be a global shortage of funds, real interest rates will rise, and private investment will be crowded out. Alternatively, if the public debt to GNP ratio becomes too high for a given country, the idiosyncratic country-specific risk premium may increase to induce a higher domestic interest rate and financial crowding out.

4.3. On the scope of the financial crowding out argument

The basis for the financial crowding out argument is that the budget deficits absorb savings that are then no longer available for private investment purposes. There is, however, a critical question that is seldom asked. This is whether or not financial crowding out, should it happen, is in itself a sufficient reason to consider running public deficits as bad economic policy. A positive answer to this question is typically assumed. Underlying such a positive answer, however, is the implicit view that private spending should always take precedent over public spending.

The view that private spending should take precedent over public spending is not unreasonable. First, one should consider the marginal benefits of both public and private investment spending to conclude that private investment spending has higher marginal returns and is better for growth. In this case, the financial crowding out argument is sufficient to render running a public deficit a bad economic policy. Alternatively, one could consider the crowding out argument at the margin, that is, for private investment after the necessary public projects have been undertaken. The standard financial crowding out argument, however, is rarely this sophisticated on any of the two accounts.

Ultimately, the strength of the crowding out argument depends on one's view on the question of the

relative priority of public versus private spending, in a market-oriented economy. In this sense it is not an unreasonable view in a capitalistic society to consider the public sector as the first claimant, within reason, of national savings. This is because there is no market way of combining public and private sector spending, and having the government as the last claimant on national savings, would endanger the provision of even basic public goods like defense, law and order, etc. In this case the financial crowding out argument is not strong at all, even if crowding out exists.

As a corollary, the argument of financial crowding out should be confined to situations in which public deficits are used to finance current consumption, cases in which public investment is clearly less productive than private investment, and for public spending projects beyond the basic current and public investment spending needs.

There is an open economy counterpart to this philosophical point. Is a trade imbalance, if one is induced by the budget deficits, necessarily a drain on long-term growth? The answer is not necessarily. If total investment in capital goods, domestically produced and imported, exceeds the amount borrowed from abroad, then the trade deficits are not a hindrance to growth. In this case, the domestic economy is still increasing its wealth while running trade deficits, as would any private agent, for example, a private corporation, under similar circumstances.

In this sense, the standard view of the negative effect of public deficits on economic performance still applies when there is a threat to the domestic currency due to excessive imports of capital and where foreign ownership of domestic assets might have reached excessive levels.

4.4. The Ricardian equivalence view: deficits do not matter

The main point of the Ricardian equivalence view is that the size of public budget deficit does not matter as long as solvency is not an issue. This view was brought to the limelight by the seminal work of Robert Barro (see, for example, Barro, 1974, 1979, 1989, and 1998). This view is structured on several logical steps as to the government budget constraint and the determinants of private consumption behavior.

The first step comes from the realization that the government budget constraint as in (3) implies that the present discounted value of tax revenues cannot change unless the present discounted value of

spending changes as well. Therefore, a deficit-financed tax cut now, implies higher taxes in the future in such a way that the present discount value of tax revenues remains the same. Public deficits change only the *timing* of taxes but not their present discounted value.

The second step relates to the determinants of intertemporal private consumption behavior. Like in the standard neoclassical framework, farsighted individuals plan their lifetime consumption as the solution of an intertemporal optimization problem in a finite horizon framework. Unlike the standard neoclassical view, however, Ricardian individuals have complete intergenerational altruism. This means that they care equally about their own well being and the well being of their progeny, and take into full consideration both their own after-tax resources and the after-tax resources of their progeny.

With perfect intergenerational altruism, the finite horizon faced by the individuals effectively becomes an infinite planning horizon. The dynastic individual completely internalizes in his consumption decisions the preferences and constraints of his progeny. Private consumption is determined by the net wealth position of this dynastic family. Net wealth is defined as the difference between the present discounted value of income and the present discounted value of taxes across the different generations. For each generation private consumption and bequests are determined simultaneously.

When the government considers financing a certain amount of public spending it could consider raising taxes or running a deficit, i.e., issuing public bonds. Given a fixed amount of spending, budget deficits today imply that taxes will have to be levied in the future to satisfy the government intertemporal budget constraint. Therefore, government bonds are a claim on the future income of individuals, possibly future generations. In this sense, government bonds are not net wealth. They represent future taxes, which are imposed as a negative transfer from parents to children. Ricardian households make sure that this negative transfer is fully compensated by increased bequests.

Since the choice of the government between taxes now and deficits does not affect the net wealth position of the dynasty, or of the individual for that matter, private consumption is not affected by the issuance of public debt. If private consumption is not affected, then private savings increase and, through increased bequests, fully compensate for the lower public savings. It follows that, national savings remains unchanged when the government runs public deficits.

In the context of a closed economy, since national savings do not change investment and interest rates do not change either. Therefore, the Ricardian equivalence view postulates no empirical correlation between public deficits, interest rates and investment. In turn, in an open economy framework, since national savings do not change then there is also no change in the current account position. Therefore, the Ricardian equivalence view finds no basis for the twin-deficits hypothesis and thus postulates no empirical correlation between public deficits and current account deficits.

The Ricardian equivalence view on the impact of public deficits can be summarized in a very simple manner. Given the level of government spending, taxes and public deficits have equivalent effects on the economy. Public deficits are irrelevant for interest rates, domestic investment, and the current account position. Of course, how much it is spend by the government does matter. Greater government spending means greater taxes now or in the future and translates immediately, through the individual intertemporal budget constraint, into lower private consumption and lower private savings/bequests. How this additional spending is financed, if it is through increased taxes now or through increased taxes in the future, however, does not matter for the macroeconomic performance of the economy.

4.5. Departures from Ricardian Equivalence

The Ricardian equivalence view has been criticized as relying on rather questionable assumptions and, in general, as requiring a great deal of information and rationality on the part of households. There are different areas of concern that represent departures from assumptions leading to the Ricardian equivalence paradigm. Any of these departures would lead to the failure of the Ricardian debt neutrality proposition. Let us consider some of these areas of concern.

4.5.1. Tax distortions and the tax smoothing argument

During wars and recessions, which would otherwise require temporarily higher taxes, deficits are desirable for the sake of tax smoothing. Deficits can thus avoid the excessive distortions introduced by the temporarily higher tax rates. Therefore, if taxes are distortionary, then the timing of taxes does matter. In this context it is interesting to note that Ricardo was later said to be non-Ricardian after having defended

that wars should be financed with property taxes and not through public debt, so as to increase the costs of an armed conflict.

4.5.2. The finiteness of life and imperfection in intergenerational transfers

Intergenerational transfers are important but they are not necessarily linked to public budget deficits. Bequests may be accidental given that the time of death is uncertain, or they may be strategic, i.e., they are an instrument parents use to induce certain forms of behavior from their children. Furthermore, if there is uncertainty as to the path of future spending, transfers, or interest rates, then individuals will not know how much to leave as bequests.

These considerations imply that the paradigm of complete intergenerational altruism is too extreme. A finite planning horizon with limited intergenerational altruism would appear to be a more realistic framework. In this context, farsighted individuals plan their lifetime consumption as the solution to an intertemporal optimization program and consumption at any given time is a function of lifetime after-tax resources. With limited intergenerational altruism, public deficits shift the tax burden to future generations. Public deficits have an effect on aggregate demand because there is a possibility that the individual will not pay the increase in taxes needed to satisfy the governments intertemporal budget constraint. In this case, public deficits are not neutral.

4.5.3. The incomplete markets argument

In real life, financial markets are far from perfect not all agents can borrow, or can borrow at the same rate. Households with poor collateral are liquidity constrained. Thus, their consumption is oversensitive to changes in current disposable income. Furthermore, assuming that governments are more effective at collecting payments from high-risk individuals, governments borrow at a lower rate and thus provide credit for them. It may be of interest to note that, without denying the conceptual relevance of these criticisms, the proponents of the Ricardian equivalence view them as secondary in terms of their empirical relevance. Therefore, despite these criticisms Ricardian equivalence remains, in their view, as a good first

order approximation to the effects of public debt. Ultimately, the impact of government's fiscal policies is best summarized by the present value of government expenditures.

5. Challenges to the conventional definition of public deficits

The previous discussion on the effects of public deficits on economic performance is predicated on accepting the conventional definition of public deficits as a meaningful economic indicator. Different currents of thought in the economics profession, however, have challenged this view. We consider here these challenges to the conventional definition of public deficits.

5.1. The “deficit is worse than you think” view

According to this view, the public deficits as traditionally measured are just the tip of the iceberg. This is because there are hidden or implicit deficits that will present a burden on future economic performance. These hidden deficits are a problem even if the public budget, as conventionally measured, is balanced. We consider now two of the most commonly referred to hidden deficits.

5.1.1. *Social Security's hidden deficit*

Public social security systems are typically based primarily on pay-as-you-go financing mechanisms. Under these mechanisms, current retirement, disability, or survivors' benefits, are financed by earmarked payroll taxes on the current generation of workers. If there is a current social security surplus, this surplus is invested in a trust fund.

This situation very often masks the existence of a hidden deficit. This is so, first, for the prosaic reason that social security surpluses are often used to offset the remaining public sector deficit. This is possible because most countries do not separate between the general public budget and the social security budget. They consider the social security budget as part of the overall public budget. This means that a social security surplus may actually disguise a much more serious public deficit problem. Furthermore, counting current surpluses against the general public deficit is a bad idea since these surpluses should be

earmarked to finance future social security benefits in excess of future earmarked payroll taxes. Having a social security trust fund that consists mostly in investments in public debt does not bode well for the future financial sustainability of the social security system. It also makes the magnitude of the public debt situation much worse than it seems due to the existence of unfunded future social security commitments.

In a less prosaic vein, the current demographic evolution is generating a rapidly aging population and creating serious concerns over the long-term solvency of the pay-as-you-go social security systems. This is because the number of retired people grows faster than the population in working age and the average pension of the retired people tends to increase. If so, there is a concern that, in the future, the revenues generated by the current generation of workers will be insufficient to pay for the benefits due to the non-working population. There is therefore an implicit social security debt due to the future imbalance between social security revenues and financial commitments.

5.1.2. *The infrastructure hidden deficit*

It is often the case that public investment spending is not keeping pace with GNP. This is true about infrastructure spending in transportation, communication, and urban infrastructures, as well as investment in education and in human capital formation. These are forms of investment, which are widely perceived as critical components of the domestic growth fundamentals. The slack in these public investment activities can have, therefore, a crippling effect in the long-term growth prospects of an economy.

This slacking in public investment spending may be due, among other reasons, to the fact that when there is a need for fiscal restraint it is politically easier to curtail public investment than to cut current public spending. Indeed, while the benefits of public investment are usually slow in coming, the negative impact of cutting current spending is immediate. The situation is compounded by the fact that a sizeable share of public spending is often paid out as salaries to public sector employees.

Postponing public investment projects with long-term payoffs, however, is a hidden form of borrowing from the future. Therefore, there may be a public investment deficit side by side with the explicit deficit. That is, the public sector is spending too much while not spending enough on critical things. This hidden deficit may assume the form of foregone new public investment and the related congestion costs on the

existing infrastructure as well as lack of repair and therefore, the excessive deterioration of the existing infrastructure. Also, the infrastructure deficit may assume the form of insufficient public investment in new forms of infrastructures like high-speed trains or the information superhighway.

5.2. The “there is no deficit” view

A view originally proposed by Robert Eisner (see, for example, Eisner 1986 and 1994) takes the debate in the opposite direction. In this view, if one measures it accurately, there is no public deficit or at least the public deficits are actually much smaller than the official measure suggests. This means that the measured deficit is actually a statistical illusion that overstates the real public deficit. This view rests on two lines of argument.

5.2.1. Inflation artificially raises the measure of the deficits

Consider, for example, a given level of public debt, which induces certain interest payments. Higher inflation leads to higher nominal interest payments and, *ceteris paribus*, to higher measured public deficits. Furthermore, if all components of the public deficit increase by a certain percentage, as in an inflationary environment, the deficit itself will also increase by the same proportion. Still everything is the same in real terms in that the government consumes the same amounts of goods and services as before.

Furthermore, although the deficits as conventionally measured are higher, there is the same private consumption as before. This is because agents who own government bonds do not have money illusion and realize that revenues due to higher nominal interest rates are offset by an “inflation tax”, i.e., by a lower real value of the public bonds due to inflation. Therefore, we have a higher deficit with the same public and private consumption in real terms and therefore the same national savings. In this case even under the standard Keynesian paradigm, public deficits are neutral.

The neutrality of public deficits as conventionally measured is due to a mis-measurement of the real deficit. The inflation-adjusted measure of the deficit actually has not changed. Therefore, according to this view, one should adopt an inflation-adjusted measure of the public deficit and should account for the effects of inflation on the real value of outstanding public debt.

5.2.2. The government should have separate current and capital accounts

Clearly part of public spending is in the form of public investment not public consumption. It is spending in roads, communications, and other long-lived assets. That is, it is capital expenditure not current expenditure. Private sector accounting does not charge the entire cost of investment in a single year, namely the year in which the asset is acquired. Costs are spread over the productive life of the asset. In each year private sector accounting would only consider interest payments as well as the assets true economic depreciation as part of the operating budget. This means that the private sector does not count investment spending against the operating budget.

In the public sector, however, there is no separation between current and capital accounts. So government sometimes runs a deficit when under private sector accounting rules it would not. Public deficit should only exist if government does not generate enough tax revenues to pay for operating expenses. That is, the public sector should have a separate account for capital or growth-related spending.

Of course having a separate capital account is not an easy matter for the public sector. First, government is a non-profit organization and there is, therefore, no need to keep separate operating and capital cost accounts to show profit on current activities. Second, the definition of operating costs is not trivial. Public assets and services are typically not priced at market values. Third, it is difficult to determine which assets promote long-term growth and should, therefore, be included in the capital account.

5.3. The “deficit means nothing” view – intergenerational accounting

The most radical departure from the conventional measures of the public deficit has been proposed in the seminal work of Lawrence Kotlikoff (see, for example, Kotlikoff, 1992, and Auerbach, Gokhale and Kotlikoff, 1991 and 1994)). It starts with the same type of insights as provided in Eisner’s work but takes the argument much further. The central claim is that budget deficits as they are currently measured are not a meaningful economic concept. Public deficits as they are measured are at best meaningless and most likely misleading. This rejection of the conventional measures of the public budget is based on two lines of argument.

5.3.1. Public accounts should be based on economic accrual instead of a cash flow basis

A cash-flow approach is acceptable only if households are myopic or cash constrained. Evidence, however, is that neither assumption is empirically valid. First, the evidence is that consumers are not completely myopic. In fact, consumers rely on estimates of future taxes and transfers that may be imprecise but are not completely and systematically off. Also, the proportion of cash-constrained consumers in more advanced economies is very small. Finally, under the current stage of globalization and integration of the international capital markets one would not expect public deficits to have meaningful effects on interest rates. This means that a cash-flow approach leads to the misrepresentation of the economic impact of deficits on current behavior, of long-term sustainability and of the intergenerational incidence of fiscal policies.

5.3.2. The public account relies on arbitrary labels of different transactions

Public accounting relies on arbitrary labels. It treats cash flows like taxes and transfers differently from cash flows as loans and repayments. The first are included in full in the public account, and therefore, in the measure of the public deficit. The second are not included. Only the interest is accounted for, not the principal. If, for example, social security taxes were to be called loans and treated as such, we would end up with a much greater measure of public debt for the same economic reality.

The proponents of this view suggest that the current public accounting framework should be replaced with a generational accounting framework. To start with, the public sector should use economic accrual with future cash flows evaluated at their present value and investment expenditures in a capital accounting framework. Under such a setting, labeling and economic measurement problems would be solved. This is because loans at the market interest rate would be netted out and other transactions would generate accrual adjustments regardless of the specific labels used.

These procedural changes, however, are not enough. They still ignore who pays the taxes and who receives the transfers. Generational accounting divides people into age cohorts and calculates for each cohort its lifetime net tax payments. It, therefore, gives information well beyond the measures of deficit under economic accrual and with capital accounting. It measures who among different age groups pays

taxes and who receives public benefits. It also allows for a much more detailed analysis of the impact of fiscal policy on the current consumer's perceived wealth and her consumption pattern, on the distributional impact of fiscal policy across different generations as well as a more accurate view on the issue of sustainability of public policies.

The generational accounting view implicitly rejects the Ricardian equivalence assumptions of perfect bequest motives and intergenerational altruism. Consequently, the proponents of generational accounting view consider that people would not fully adjust their private transfers to offset public transfers. So, for two tax regimes with the same present discounted value, taxing the current generation now or taxing future generations makes a difference. While the budgetary impact may be the same there are significant differences in the efficiency and distribution effects of running public deficits.

6. The challenges of running balanced budgets and surpluses

If deficits are bad or at best neutral, as argued in much of the previous sections, it should follow that balanced budgets or budget surpluses are good or at least neutral. Interestingly, the current budgetary experiences around the world show difficulties on how to deal with budget surpluses, as in the United States, and with balanced budgets, as in the Euro Area countries. In these cases the debate has taken some unexpected turns.

6.1. Budget surpluses in the US

As recent events in the US suggest, deciding on how best to spend budget surpluses raises new interesting issues (see, for example, Alesina, 2000, Auerbach and Gale, 1999, and Dwyer and Hafer, 1998). In the face of projections of hefty budget surpluses into the next ten years it seems that the options for using the budget surplus are almost unlimited. From different quarters there have been suggestions that the surplus should be used to reduce taxes, to increase public spending, to pay off the public debt, to invest in saving social security and Medicare, and to invest in the stock market, or a combination of the above.

A certain consensus in matters of principle, if not in the important implementation details, is that saving social security and Medicare should be the greatest priorities. This would build up a stock of

assets in their trust funds to prepare for the fiscal burden of an aging population. But even after doing so, there might still be a substantial projected budgetary surplus. The two leading contenders for the remainder of the projected surplus are to pay down the public debt and to cut taxes.

The idea of paying down the public debt is not without controversy. At a general conceptual level, it can be argued that the stock of public debt should not be completely eliminated. This is because private financial markets need a risk free asset as a benchmark security and because it is appropriate to finance public investment out of public borrowing. There is, however, a very significant practical problem in paying down the public debt. Given the projected surpluses it would be possible to pay the public debt within ten years. A good part of the outstanding public debt, however, has a greater maturity. Retiring this debt would require the willingness of the government to pay a higher market price for the debt to induce the debt holders to sell it and would likely be a source of instability in the bond markets.

The paying down of the public debt would also have potentially significant distributional effects. Because most of the public debt is directly or indirectly owned by the higher income groups the repayment of the debt in such a short period would imply a massive redistribution of resources from the lower to the higher income groups.

The complete repayment of the debt does not seem plausible or desirable. Furthermore, it would be unlikely that a new role for the government as an investor or surpluses in the stock market would be plausible or desirable either. Accordingly, it would seem that a more or less generous tax cut is necessary. In fact, even the most ardent proponents of fiscal restraint, like Chairman Greenspan, have supported a limited tax cut exactly on these grounds.

The proponents of a major across the board tax cut bank on the expected efficiency effects of such cut. They expect that tax cuts will boost consumption spending, savings and labor supply. The opponents question the effectiveness of such measures given the evidence of low responsiveness of savings and labor supply to tax incentives. Also, to the extent that the economy is close to full employment such a boost could have negative effects on inflation. Clearly, the current economic situation in the US does not suggest that this would be an immediate concern. In fact, the tax cut may even be beneficial given the current economic woes. The tax cuts, however, are to be implemented over a long time period and the effects of

tax cuts take a fair amount of time to appear. The short-term cyclical effects of these tax cuts would thus likely be minimal.

Probably the sharpest disagreement over the tax cuts, however, comes from its perceived distributional effects. According to the Bush plan the largest percentage of tax cuts goes to the highest income groups. The top 1% of the income distribution will receive 30

In the debate on what to do with the projected budget surplus, the fact that we are dealing with budget projections and not budget realizations cannot be ignored. Indeed, the track record of public budget projections is not good (see for example Auerbach and Gale, 1999). Furthermore, unexpected business cycle effects may destroy the accuracy of the best budget projections. Finally, a good part of the projected budget surpluses come from the social security account. We know, however, that most of the social security problems are projected to occur after this ten-year period. So a longer projection horizon could lead to a radically different perception of the current budgetary situation.

Clearly, one would not want to start paying down the public debt or to legislate massive tax cuts just to start piling up new debt soon thereafter because of the occurrence of unexpected revenue shortfalls. Furthermore, given the nature of the political process, tax cuts are virtually irreversible. This has led to the debate on setting up triggers that would halt or postpone tax cuts and repayment of the debt should, for whatever reason, the budget surpluses fail to materialize. The counter-argument is that triggers reduce the expected value of tax cuts and therefore reduces the economic incentives and benefits associated with such cuts.

6.2. Social security reform in the EMU countries

As part of the Stability and Growth Pact in the Economic and Monetary Union, the countries in the Euro Area have committed themselves to the goal of achieving and maintaining balanced budgets. Given the current level of monetary integration and the centralization of monetary policies at the level of the European Central Bank, and given the wide disparity of track records of the different countries in terms of fiscal responsibility, the requirement of a strong commitment to balanced budgets is understandable. At the same time it also has the potential for being very costly for some countries.

Consider, first, the case of social security reform. In many EMU countries the expected demographic evolution represents a financial time bomb. This is because of the pay-as-you-go nature of the social security financing system. This system relies on the contribution of current workers to pay the benefits of current retired workers. Population aging means that a progressively smaller cohort of worker will be paying for the benefits of an ever-increasing cohort of retired workers, hence the financial worries.

Under the current budgetary rules and with the social security budget as part of the overall public budget the need for social security reform is rendered more urgent. It is not just that the social security systems may become financially insolvent in the future. Under these rules, keeping the social security commitments to the future retired workers may have an enormous opportunity cost in terms of the spending cuts or the tax hikes necessary to finance these commitments. Even small deficits to temporarily finance a social security shortfall are not, *a priori*, possible.

Social security reform, in particular in a situation of budgetary restraint, is not an easy matter. It would require the politically painful steps of reducing benefits, increasing contributions or a combination of both. Increasing contributions is potentially highly distortionary due to the use of labor taxes. More importantly, due to the situation of fiscal restraint, the public sector is already striving to increase the levels of effective taxation, if not through explicitly increasing tax rates at least through fighting tax evasion and tax avoidance. So, increased social security contributions would have to compete with the general need for increased tax revenues for general budgetary purposes. This means that the current budgetary rules make standard social security reform more difficult to implement.

Interestingly, a more fundamental strategy of social security reform based on a move toward capitalization is rendered more difficult under the current budgetary rules as well. This is because such a change would have to explicitly recognize in some form the unfunded claims of the generations of workers involved in the transition to the capitalization system. Indeed, a move toward capitalization is inconceivable without in some way making explicit what is otherwise a hidden social security debt.

6.3. The EU structural transfers programs for EMU countries

The same commitment to budgetary discipline in the form of balanced public budgets places also significant constraints on the growth policies of the less developed EMU countries.

In their current form, the EU structural transfers programs have been in place since the late 1980s. Their objective is to help the less advanced EU countries develop their domestic long-term growth fundamentals. Due to incipient or highly distorted credit markets private investment may be lacking. In turn, a small tax base may induce low public investment, both in infrastructures and in human capital formation.

In an attempt to be consistent with overall market incentives, the design of the structural transfers programs considers two fundamental principles. First, the recipient economies have to contribute with domestic funds, both private and public, to the financing of investment projects where EU funds are used. This is the complementarity rule. Second, the new EU co-financed projects have to be above and beyond the projects that the domestic agents would undertake in the absence of EU transfers. This is the principle of additionality.

As appropriate as these two principles may be, their strict implementation may prove disastrous in a situation in which the domestic governments have committed themselves to balanced public budgets. The strict observance of complementarity when additionality is to be taken seriously imposes an enormous burden on the domestic public budget. The domestic authorities are having more often than not great difficulty balancing the budget even without these extra public investment programs.

Because complementarity is difficult if not impossible to evade, the odds are that additionality will be the victim of domestic budgetary restraint. This means that the domestic governments will, at best, strive to use the funds from the structural transfers programs to finance public investment projects that would be undertaken anyway. This in turn will diminish the long-term positive impact on growth of these transfer programs. There is therefore, a critical trade off between the short-term need for budgetary restraint and the need to further the long-term growth fundamental. The wild card in this trade off is the principle of additionality.

7. Some concluding reflections

The old conventional wisdom in the political debate is that the left is more inclined toward public spending and less concerned with deficits while the right is more prone to deficit restraint even at the cost of lesser public spending. The economics debate however, is far more complex. Indeed, one aspect of the debate that should be clear from the discussion in this paper is that the traditional frontiers in the political front have been greatly blurred in the economics debate.

On the right some say that, indeed, the deficits are a problem and public spending should be curtailed. Nevertheless others say that, following the Ricardian equivalence view, public deficits are not a problem. Public spending should be cut anyway not because deficits are a problem but because the overall size of the government should be reduced. This way tax revenues can also be scaled down.

In its most extreme variation, this leads to the supply-side view on the effects of tax cuts based on the idea of a Laffer curve. Tax cuts could generate deficits in the short-term. However, one would expect the reduction in tax rates, particularly on the wealthy, to spur economic activity and to thereby increase the tax base by so much that tax revenues would increase in the longer term and surpluses would follow the initial deficits. Even if one were to accept the financial crowding out paradigm, a growing economy would generate enough increased private savings to offset reducing in public savings. Therefore, in the long term, private investment would actually increase as a response to public deficits.

On the left some say public deficits are a problem due to financial crowding out. Accordingly, taxes should be increased, preferably on the wealthy, since reducing public spending is socially unacceptable. Others, however, view the public deficits as statistical illusions and therefore, not a major source of worries. Interestingly enough, this liberal view comes to the same conclusion as the conservative Ricardian equivalence view, although through different arguments. The conservative view argues that the deficits are harmless regardless of what they may be. This liberal view argues that public deficits are harmless in many cases because they really don't exist or are overstated. Accordingly, spending programs, especially on public infrastructure and human capital formation, should proceed in an aggressive manner, regardless of what the conventional measure of the deficit is, and this would improve the long-term growth prospects of the economy.

Indeed, the left has its own version of the Laffer curve and of the supply side economics. The work of D. Aschauer as interpreted by W. Reich and others (see for example, Aschauer 1989a, 1989b, 1990, Hulten and Schwab, 1993, and Reich, 1991) suggests that public investment in infrastructures has a very high marginal product. The marginal product is so high that spending in public infrastructures would pay for itself in the form of additional tax revenues in just a little more than a half of the economic life of the public asset. This being the case, spending in public infrastructures generates substantially more revenue than it costs and actually generates funds that can be used for other purposes.

Given this level of cross argumentation in the economics debate over the effects of public deficits on economic performance it would seem appropriate to try to identify issues on which most economists would agree. The closest we think it is possible to get to this goal is to try to identify issues most economists would agree are important while disagreeing sharply in their views on such issues.

A society has to decide on the appropriate role of the public sector. The choice of the socially desirable level of public spending should be the primary focus of the debate. The composition of public spending is, in itself, potentially very important. Some public spending is growth inducing, other spending is motivated by distributional considerations, while still other spending is justified by the basic need of maintaining law and order. The financing of public spending is potentially very important as well. Most economists would agree that the monetization of the public deficit has a negative impact on the economy. Furthermore, most would agree that the choice between taxation and deficit financing is not irrelevant. Deficits may negatively affect economic performance. Taxation itself has potentially serious distortionary effects. Finally, the forms of taxation chosen to finance public spending are potentially very important. Different forms of taxation have different effects at different margins. Some taxes are more benign from a long-term growth perspective while other are more innocuous from a welfare perspective. As a corollary, a sound fiscal policy analysis needs to look not just at public deficits but also at the level and composition of expenditures and taxes as well as tax rates.

As a matter of policy orientation, fiscal restraint is advisable in the presence of low national savings. Given the strong association between national savings and long-term growth, low national savings is a matter of concern regardless of the nature of the effects of public deficits. If public deficits are not the cause of low savings another cause has to be identified. Furthermore, if low national saving is a matter of

concern then reducing the public will certainly help. If there is a need for fiscal restraint, then the question of how to effectively reduce the public deficit is critical. It seems that the conventional prescriptions are the most likely to work. A combination of increasing taxes and decreasing spending is necessary. As argued before, since not all taxes and not all forms of spending have the same impact in the economy it is imperative to choose the changes carefully.

While public deficits may induce serious problems, running budget surpluses or imposing balanced budget conditions for a lengthy period of time create its own problems. Budgetary restraint should be applied in a particularly careful manner for less advanced economies to avoid curtailing much-needed public investment projects.

Finally, financing current spending through taxation and financing public investment by borrowing while measuring deficits as the balance of the operating budget and keeping a separate capital account for the public sector are conceptually appealing ideas which are, nevertheless, rather difficult to implement.

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