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Fiscal sustainability: the origin, development and nature of an ongoing 200-year old debate

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Berichte aus dem Weltwirtschaftlichen Colloquium der Universität Bremen

Nr. 98

Hrsg. von
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Universität Bremen

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Berichte aus dem Weltwirtschaftlichen Colloquium der Universität Bremen, Nr. 98, März 2005, ISSN 0948-3829

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Abstract

Since the late 1980s and early 1990s, fiscal sustainability surfaced as an increasingly important issue because of the substantial increase in the public debt/GDP ratio in many countries. However, even though the term 'fiscal sustainability' is of relatively recent vintage (the latter quarter of the 20th century), the concerns that lie at its heart, namely the solvency of government and the impact of that solvency (or lack thereof) on the rest of the economy, are not, stretching back several centuries. This paper shows how a two hundred year old debate about these concerns, cloaked in different guises and starting with Adam Smith's critique of Melon, continues to this day. The paper also considers the views of, among other, Ricardo, Malthus, Mill, Keynes, Lerner, Domar, Hansen, Blanchard and Ball and Mankiw. The discussion seeks answers to the following questions: What is fiscal sustainability all about? How sustainable are fiscal policies internationally? How did the debate on fiscal sustainability and government solvency evolve? How does fiscal sustainability relate to older debates on government dissaving and the longstanding concern about the size of public debt? In answering these questions the paper indicates that rival interpretations did and still coexist and that the debate is by far not over.

Key words

Fiscal sustainability (Sustainable fiscal policy), Public debt, Dissaving, Keynes, Adam Smith, Ricardo, Functional Finance.

Table of Contents

Tables

Figures

1 INTRODUCTION

Since the late 1980s and early 1990s, fiscal sustainability has drawn increased attention (see Table 1 below). This may be attributed to the substantial increase in the public debt/GDP ratio in many countries. Blejer and Cheasty (1993:9) state that the debt crisis highlighted the importance of long-run government solvency. In addition, there was a shift from Keynesian to classical orientated economic thinking and its conservative fiscal stance. As a result, many modern mainstream economists currently favour balanced budgets and even budget surpluses. International organisations such as the International Monetary Fund (IMF 1995; 1996) and international credit agencies (Adelzadeh 1999) support this view.

However, even though the term 'fiscal sustainability' is of relatively recent vintage (the latter quarter of the 20th century), the concerns that lie at its heart, namely the solvency of government and the impact of that solvency (or lack thereof) on the rest of the economy, are not, stretching back several centuries. This paper shows how a two hundred year old debate about these concerns, cloaked in different guises and starting with Adam Smith's critique of Melon, continues to this day. The paper also considers the views of, among other, Ricardo, Malthus, Mill, Keynes, Lerner, Domar, Hansen, Blanchard, Ball and Mankiw, Galbraith and Darity and Arestis and Sawyer. The discussion seeks answers to the following questions: What is fiscal sustainability all about? How does fiscal sustainability relate to older debates on government dissaving and the longstanding concern about the size of public debt? How sustainable are fiscal policies internationally? How did the debate on fiscal sustainability and government solvency evolve? In answering these questions the paper indicates that rival interpretations coexisted and, indeed, still coexist so that the debate is by far not over. Moreover, the paper argues that the debate is not just a two-sided debate. Rather, it developed into a range of distinguishable views, some closely related and others not. Some economists might deplore an absence of consensus formation in economic debates, fearing that such a situation endangers the scientific credentials of the discipline. Such a fear does not imply that no debate should take place, but rather that debates should be settled at some point in time, leaving economists free to explore other unresolved issues. Instead, as this paper indicates, some debates continue and indeed, yield a proliferation of views, with no consensus in sight. However, the idea that scientific debates should necessarily be resolved in the formation of a consensus might not be a good description of what economists do. Indeed, this paper argues that in the case of the debate about fiscal sustainability a better description of this debate is one that portrays the development of the debate as an evolutionary development and -proliferation of views. Some of these views are at times dominant, some are strong and some weak.

Table 1 Countries that received attention with regard to the fiscal sustainability issue

Country or group of countries	Author
OECD countries	Leibfritz *et al.* 1994; Lane 1993; Corsetti and Roubini 1991
G7 countries	Ball and Mankiw 1995
Emerging market countries	Callen *et al.* 2003
USA	Bohn 1998; Ball *et al.* 1998; Congress of the US 1996; Tanner and Liu 1994; Quintos, 1995; Cebula and Rhodd 1993; Hakkio and Rush 1991; Joines 1991; Heilbroner and Bernstein 1989; Kremers 1989; Miller 1983
Europe	Vanhorebeek and Van Rompuy 1995; Caporale 1993; Blanchard *et al.* 1985
Belgium	Vuchelen and Rademakers 1995, 1996; Vuchelen 1985, 1993; De Grauwe 1993, 1994; Dornbusch and Draghi 1990; Heyndels and Vuchelen 1986; 1988; Lejeune and Vuchelen 1985
The Low Countries	Moerman and Vuchelen 1985
Spain	Gonzalez-Paramo *et al.* 1992
Sweden	Lachman 1994
France	Cordier and Enfrun 1992
Italy	Gaiotti and Salvemini 1992; Giavazzi and Spaventa 1988; Dornbusch and Draghi 1990; Masera 1987
Greece and Ireland	Gagales 1991; Dornbusch and Draghi 1990
India	Parker and Kastner 1993
Tanzania, Zimbabwe, Namibia, Kenya, Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius and others	Gordon 1997; Osoro 1997; Taiwo 1994
South Africa	Heyns 1993a, 1993b; ABSA 1996; Roux 1993; Van der Merwe 1994; Schoeman 1994; Cronje 1995, 1998; Fourie and Burger 1999; 2000

The structure of this paper comprises the following sections: Section 1 presents a brief overview of the theory of fiscal sustainability. As such, it provides the reader with a background to understand the historical development of the debate. In addition to presenting the technical framework used to analyse fiscal sustainability, the section also considers the link between fiscal sustainability and government dissaving. This helps the reader to understand the relation between the debate on fiscal sustainability and the closely related debate on crowding-out. Section 2 of the paper considers the sustainability of fiscal policies internationally over the last two and a half decades, while section 3 presents the historical overview of the debate starting with the early views of, among others, Adam Smith. Section 4 draws out some recurring themes from this historical overview, while section 5 concludes.

2 WHAT IS FISCAL SUSTAINABILITY ALL ABOUT?

Fiscal sustainability resurfaced as an issue during the 1980s and 1990s. To understand the significance of the issue, one needs to know what the debate is about, how it is related to other closely related debates and why it resurfaced precisely when it did. To facilitate this understanding section 1.1 presents in very brief terms the basic technical relations involved. Section 1.2 then shows how the issue of fiscal sustainability is related to the debate on government dissaving. The link between these two debates is very close since both concern the levels of government income and expenditure, albeit in the one case the issue is current income and expenditure, while in the other it concerns non-interest income and expenditure. The next section (section 2) presents some empirical evidence to explain the resurgence of interest during the last two decades.

2.1 Debt and deficits

In what came to be a leading contribution to the field of fiscal sustainability, Blanchard (1993:309) states that the key issue is whether or not the current course of fiscal policy can be sustained without public debt exploding or imploding. If debt tends to explode, government will have to increase taxes, reduce expenditure, monetise or even repudiate debt. Thus, the central issue is the tendency of public debt over time. If it is stable and neither explodes nor implodes, fiscal policy is sustainable. To Easterly and Schmidt-Hebbel (1991:37; 1994:68–70) public debt is also the central question on fiscal sustainability. However, their concern is 'sustainable deficit levels' rather than 'fiscal sustainability'. A sustainable deficit level is one that is consistent with a stable debt/GDP ratio.

According to Zee (1988:666) sustainability is a positive (as opposed to a normative) concept into which, unfortunately, normative considerations were injected. Zee argues that sustainability as a positive concept merely means stability. From this point of view he defines fiscal sustainability: 'A sustainable level of public debt is therefore one that allows the economy, in the absence of unanticipated exogenous shocks, to converge on a steady state.' It is not sustainable beyond this level of public debt. (For a related view, see Smyth and Hsing (1995) who consider what level of debt/GDP will maximise economic growth.) In contrast to Blanchard and Easterly and Schmidt-Hebbel, the central issue to Zee is the convergence to a steady state of the economy. Thus, Zee's definition is broader than that of Blanchard and Easterly and Schmidt-Hebbel. However, what is notable about his point of view is that public debt also must not exceed its sustainable level. Thus, in general fiscal sustainability is closely associated with the level and the change in the level of public debt, and in particular the change in public debt relative to output (income). Zee argues further that a continuous increase in public debt is not synonymous with an unsustainable fiscal policy, but merely the symptom of an unsustainable fiscal policy. The cause lies in the expenditure and revenue structure of government. The symptom together with the cause constitutes an unsustainable fiscal policy. The symptoms have *severe* and *accumulating* consequences for the economy so that the expenditure and revenue structure of the government *cannot* be sustained. Hence, the unsustainability of fiscal policy.

Equation 1 provides a formal statement of the conditions for fiscal sustainability (Roux 1993:327; Hemming and Miranda 1991:70–72).[2]

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + B_{gt}/Y_t + R_{gt}/Y_t \qquad (1)$$

D_g	=	Total public debt
Y	=	Nominal GDP
B_g	=	The nominal primary balance of the public sector (+ deficit; – surplus), i.e. the gap between *non-interest* expenditure and total revenue
r_g	=	The real interest rate applicable to the public sector
g	=	The real economic growth rate
R_g	=	A residual factor applicable to the public sector. It also catches the effect of debt monetisation (Fanizza and Mourmouras 1994:10–11).

The relationship between *r* and *g* in equation 1 indicates whether or not government can run a primary deficit:

- If $r > g$, the relationship will be positive, indicating upward pressure on the debt/GDP ratio. This is the typical case in the G7 countries since the early 1980s (Eltis 1998:129; see also Wray 1997:548–54). Government will need to run a primary surplus (a negative *B* in equation 2.1) to prevent an increase in the debt/GDP ratio;
- If $r < g$, the relationship will be negative, indicating downward pressure on the debt/GDP ratio. Government can run a primary deficit (a positive *B* in equation 1) within the limits set by equation 1 without putting upward pressure on the debt/GDP ratio.

*Un*sustainability is indicated as a position where the real interest rate, r_{gt}, exceeds the real economic growth rate, g_t, *and* where the primary balance, B_t, is persistently either in a deficit, or in a surplus not large enough to cover the excess of the real interest rate over the real growth rate. This simply means that the growth in tax collections cannot keep up with the growth of the interest cost. As a result, government has to borrow increasingly to pay for interest cost (Congdon 1987:78; 1989:28).

To establish sustainability, government should run a primary surplus sufficient to cover the excess caused by the real interest rate over the real growth rate. Fanizza and Mourmouras (1994:11–12) call this a sustainable primary surplus. The size of the primary surplus required to stabilise the debt/GDP ratio is (Congdon 1989:218; Bank for International Settlement 1992:27; Gonzalez-Paramo *et al*. 1992:275; Blanchard *et al.* 1985:7):

$$-B_{gt}/Y_t = (r_{gt} - g_t)D_{gt-1}/Y_t \qquad (2.1)$$

[2] Equation 2.1 is for the non-inflationary case. For the inflationary case it would be DDgt/Yt º [(rgt – gt)/(1 + gt)]Dgt–1/Yt–1 + Bgt/Yt + Rgt/Yt (difference in bold) where r and g are real and all others nominal. For conciseness only the non-inflationary case is shown.

or equivalently:

$$B_{gt}/Y_t = (g_t - r_{gt})D_{gt-1}/Y_t \qquad (2.2)$$

Equations 2.1 and 2.2 can be used to make some general illustrative calculations. For a debt/GDP ratio of approximately 60%, which is the norm for the Euro group of countries, each 1 percentage point gap between *r* and *g* implies a required primary budget surplus of 0.6% of GDP. In the G7 case, in the early 1990s, this would translate to an average required primary budget surplus of approximately 1.2% of GDP to achieve fiscal sustainability, given the prevailing *(r – g)* gap of just over 2%. The higher the existing debt ratio, the larger the primary surplus required per 1 percentage point *(r – g)* gap. (Also see Appendix 1 where equations 1, 2.1 and 2.2 are put through their paces with some illustrative numbers so as to provide the reader with an intuitive feeling of the logic behind the equations).

The requirement to run a primary surplus does not imply that government should at all times run a sufficiently sized primary surplus to prevent an increase in the debt/GDP ratio. Government can alternate periods in which the primary surplus is too small to prevent an increase in the ratio, with periods in which the actual primary surplus exceeds the required ratio. However, government should on average run a sufficiently sized primary surplus to maintain a stable debt/GDP ratio. Thus, government can vary the size of the primary surplus over the course of the business cycle or another period of its choice. The point is that policymakers should plan to run a sufficiently sized primary surplus *on average*. Government can also allow the debt/GDP ratio to increase temporarily in the expectation of higher economic growth in future that will reduce the ratio (since GDP is the denominator of the ratio). For instance, government may expect a higher growth rate if it made an investment that increases private sector productivity, or it might expect a stimulating fiscal policy to cause an increase in the level and growth rate of income in the near future through income multiplier and investment accelerator effects. A higher economic growth may allow the collection of more taxes without the need to increase the tax rate. A future decrease in the debt/GDP ratio and the *(r – g)* gap means that the required size of the primary surplus in future will also decrease.

In addition to the calculation of the sustainable primary balance, one can also calculate the sustainable conventional surplus or deficit. The sustainable conventional balance, F in equation 3 below (defined as the sustainable difference between total government revenue and expenditure), is derived from equation 2.1 and equals the growth rate multiplied by the debt ratio:

$$\begin{aligned} F_t/Y_t &= (r - g)D_{t-1}/Y_t - rD_{t-1}/Y_t \\ &= -g.D_{t-1}/Y_t \end{aligned} \qquad (3)$$

In the typical Euroland case the maximum deficit that governments could run without putting upward pressure on the debt/GDP ratio would be: 2*0.6 = 1.2% of GDP. The significance of this measure lies in the fact that most of the public debate (in so far as there is one) is

conducted in terms of the conventional deficit. For instance, in the European Union countries agreed to stick to a 3% conventional deficit. However, because equation 3 ignores the relationship between the real interest rate and the real growth rate, the conventional deficit is too crude a measure to use when analysing the sustainability of fiscal policy.

2.2 Dissaving as the cause of fiscal unsustainability: old wine in new bottles?

The link between fiscal sustainability and government dissaving is not always clear. In order to understand what according to modern mainstream theory causes fiscal unsustainability, one needs to look beyond the direct theory on fiscal sustainability. Therefore, this section shows that in terms of modern mainstream theory, an unsustainable fiscal policy is the result of government dissaving, just as the crowding out of investment is. Underlying the notion of fiscal sustainability is the idea that government should not continuously dissave as it causes a continuous increase in the debt/GDP ratio, an increase in interest rates and a reduction in investment (Buiter and Kletzer 1992:290; Friedman 1992:301–2; Cebula 1987:7–58). (See Posner [1987] who makes the same point using a modern mainstream interpretation of Domar. For a slightly alternative view, see Cavaco Silva [1986:78–9] who argues that deficits crowd out portfolio investment, but not investment demand [real investment]).

In the eyes of a modern mainstream economist, a government that dissaves cannot sustain its current levels of expenditure and receipts. Before the Keynesian revolution it was considered a canon of prudent fiscal policy to run a balanced budget (cf. the Treasury View and the views of classical economists such as Smith and Ricardo, mentioned below). In particular, it was held that government should not borrow to finance current expenditure.

Despite the simple assertion that a government that dissaves cannot sustain its current levels of expenditure and receipts, the link between fiscal sustainability and government dissaving is complex (Hemming and Mackenzie 1991). To facilitate the exposition equation 1 is recalled (assume that the residual, R, is zero):

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + B_{gt}/Y_t \qquad (1)$$

Note that the expenditure included in the primary balance in equation 1 consists of both non-interest current expenditure and capital expenditure. Thus, equation 1 can be rewritten as:

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + C_{gt}/Y_t + I_{gt}/Y_t \qquad (4)$$

C = The non-interest current balance
I = Investment by government

In equation 4 the current deficit (including interest expenditure) equals:

$r_{gt}D_{gt-1}/Y_t + C_{gt}/Y_t =$ *current deficit as percentage of GDP*

Suppose government decides to let its capital, *K*, expand at the same rate as GDP. This assumption is in line with neoclassical growth theory, e.g. the Solow model, which states that the capital/income ratio remains constant unless economic agents accept a change in the marginal product of capital (the interest rate). If agents do not want a change in the total capital/income ratio, then government too must keep its share of capital/income constant (unless a declining share of government in the capital/income ratio is offset by an increase in that of the private sector, something which cannot continue indefinitely). The result is equation 5:

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + C_{gt}/Y_t + gK_{gt-1}/Y_t \qquad (5)$$

$gK_g =$ I_g so that the capital of government grows at the economic growth rate

Once capital expenditure and interest cost are determined, the only variable that could adjust to ensure that government runs a sustainable primary surplus, is the non-interest current balance (*C* in equation 5). Thus, to prevent an increase in the debt/GDP ratio, government should run a non-interest current surplus equal to the required primary surplus (where a surplus has a positive value) plus capital expenditure. Hence, equation 6:

$$-C_{gt}/Y_t = -(B_{gt} - gK_{gt})/Y_t = (r_{gt} - g_t)D_{gt-1}/Y_t + gK_{gt-1}/Y_t \qquad (6)$$

The sustainable non-interest current balance represents the amount with which revenue has to exceed non-interest current expenditure to ensure that there is no increase in the debt/GDP ratio *and* that the total capital/GDP ratio of government remains constant.

If in the past government borrowed only to finance investment, then $D = K$. If it also borrows to finance investment in the current period, then the change in the debt/GDP ratio equals the current balance/GDP ratio. This requires capital expenditure to generate a return in the form of higher tax revenue without the need to increase tax rates. Otherwise, the capital expenditure is no different from current expenditure. However, Buiter *et al.* (1993:87–8) argue that: '…returns on investment projects (even socially desirable ones) need not accrue as cash appropriated by government.' Barring the problem that Buiter *et al.* mention, equation 5 then reduces to equation 7, which, with $D = K$, reduces further to equation 8:

$$\Delta D_{gt}/Y_t \equiv r_{gt}D_{gt-1}/Y_t + C_{gt}/Y_t - g_tD_{gt-1}/Y_t + gK_{gt-1}/Y_t \qquad (7)$$
$$\equiv r_{gt}D_{gt-1}/Y_t + C_{gt}/Y_t \qquad (8)$$

Thus, should government dissave, so that $r_{gt}D_{gt-1}/Y_t + C_{gt}/Y_t > 0$, there will be an increase in the debt/GDP ratio, given that the capital/GDP ratio of government remains constant. To prevent dissaving and an increase in the debt/GDP ratio, government should run a non-interest current surplus equal to its interest cost. This is the case both when $r > g$ and $r < g$.

Note further that debt can increase with $g_t D_{gt-1}$ without putting any upward pressure on the debt/GDP ratio. Recall from above that the sustainable size of the conventional deficit is $g_t D_{gt-1}/Y_t$. Thus, the conventional deficit must be used to finance government investment. Therefore, with $D = K$, the reduction in the debt/GDP ratio brought about by $-g_t D_{gt-1}/Y_t$ in equation 7 will then equal the increase brought about by $g_t K_{gt-1}/Y_t$. Otherwise, the debt/GDP ratio increases or the capital/GDP ratio decreases. (To obtain a better intuitive feeling for the logic behind these equations, the reader is referred to Appendix 2.)

If government dissaved in the past, so that $D > K$, then the non-interest current surplus must exceed the surplus that government would run in the absence of past dissaving. The amount of this excess must be equal to the interest rate multiplied by the debt incurred to finance current expenditure. Thus, government must reduce non-interest expenditure or increase tax rates so that the interest on this debt is paid from tax income. Government will pay the interest for as long as it has not repaid the debt. The value of the government bonds issued to finance current expenditure will then be equal to the discounted value of all future non-interest current balances. Thus, fiscal policy will be sustainable and equation 8 becomes equation 9 for the case where debt/GDP is not allowed to change so as to maintain the net worth of government.

$$\boldsymbol{D_{gt-1}/Y_t} = -C_{gt}/r_{gt} Y_t \qquad (9)$$

Thus, it can be concluded from the above that underlying the notion of fiscal sustainability in modern mainstream theory is the idea that government should not continuously dissave as this causes the debt/GDP ratio to increase continuously. Modern mainstream theory argues further that if there is a need for government to dissave from time to time, government needs to alternate periods of dissaving with periods of saving to ensure stability in the debt/GDP ratio over time. It also means that if government decides to borrow to finance current expenditure, it should pay the interest from tax revenue to prevent any further increase in the debt/GDP ratio. Therefore, the modern mainstream view on fiscal sustainability is merely a more nuanced version of the old classical view and Treasury View. According to this view, government should in general not dissave, as '[i]t is widely accepted that fiscal deficits are bad …' (Blanchard *et al.* 1985:5). The conditions under which government is allowed to dissave are very limited and include for instance times when consumption is not optimal (a case of dynamic inefficiency) and cases where government can improve the welfare of liquidity constrained individuals (Inman 1990:81).

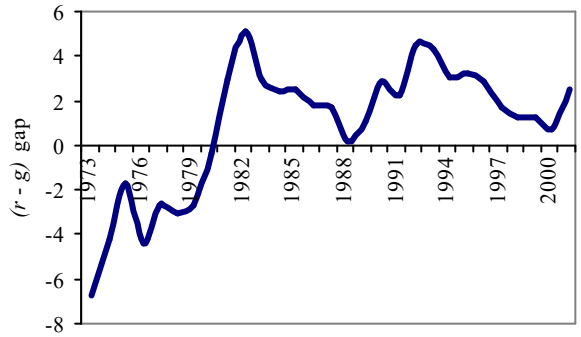
3 HOW SUSTAINABLE ARE FISCAL POLICIES INTERNATIONALLY?

In equation 1 three variables seem relevant in terms of modern mainstream theory. These are the real interest rate, the real economic growth rate and the public debt/GDP ratio. In particular, the difference between the real interest rate and the real economic growth rate determines whether government must run a primary surplus or deficit. If the *(r – g)* differential is positive government needs to run a primary surplus and *vice versa* if the differential is

negative. The differential together with the debt/GDP ratio (usually its initial value or its value in a previous period) determines the primary balance government needs to run to prevent a change in the debt/GDP ratio. This section examines the movement internationally in the differential and the debt/GDP ratio since 1980.

What is the nature of the differential between interest rates and GDP growth rates in practice? Have there been any significant changes? It seems to be agreed that the world entered a high-interest-low-growth era in the 1980s and 1990s, as opposed to the low-interest-high-inflation era of the 1970s. In the G7 group, the unweighted average real growth rate for 1976–80 was 3.4%, in contrast with an unweighted average real government bond interest rate level of 0.3% (IMF 2002). For 1981–85 the relationship switched, with the average growth rate equalling 1.8% and the government bond rate equalling 4.6%.

Figure 1 The interest rate – growth rate gap for the G7 countries



Source: Tanzi and Fanizza (1995) and IMF International Financial Statistics (various issues)

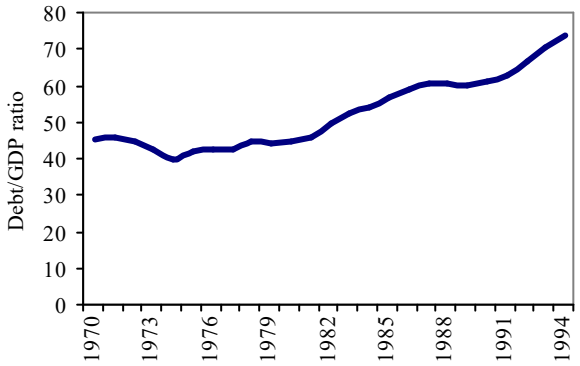
This switched relationship continued for the remainder of the 1980s and all of the 1990s (for 1986–90, 1991–95 and 1996–2000 respectively the average growth rate was 3.6%, 1.9% and 2.3%, while the average government bond rate was 4.7%, 4.9% and 3.4%). Masson and Mussa (1995:13,15–18) argue that the lower growth rates accompanied by increasing unemployment, particularly in Europe, contributed to the increase in deficits as revenue declined and benefit programmes for the unemployed expanded. Two matters are apparent:

1. The post–1980 phase can be characterised as a high real interest rate era that persisted into the 1990s. Masson and Mussa (1995:15–18) argue that anticipated inflation exceeded actual inflation (because of persistent inflationary expectations), causing the actual real interest rate to be higher than the expected real interest rate. Phelps and Zoega (1998:788) confirm the significant increase in the average level of real interest rates in the world since approximately 1981/82 (see also OECD 1993). Easterly and Schmidt-Hebbel (1994:29) argue that the increasing liberalisation of interest rates since the mid-1970s caused deficits to become more sensitive to real interest rates.
2. Real growth rates for the major industrial countries have declined, and real GDP growth rates have been significantly *below* real interest rates since the 1980s: $r > g$ by an aver-

age of 2% for G7 countries (see Figure 1, which shows a positive *(r – g)* gap since 1980). For 1981–85, 1986–90, 1991–95 and 1996–2000 respectively the average *(r – g)* gap was 2.7%, 1.1%, 3% and 1.1% (IMF 2002). This is in direct contrast to the 1970s – an era of widespread and sustained high *inflation* – when *g* exceeded *r* by some margin (*i.e.* a negative *(r – g)* gap). For instance, for 1976–80 the *(r – g)* gap was –3.1%.

One, not unexpected, consequence of this evolving pattern has been that increasing debt and fiscal sustainability have become a real problem in many countries. Growth in tax revenues has been sluggish and debt servicing has taken up an increasing share of current expenditure, crowding out other expenditure and/or creating large budget deficits. Figure 2 shows the significant increase in the debt/GDP ratio in G7 countries since the early 1980s to the mid-1990s. This coincided with the inversion of the relationship between the real interest rate and the real growth rate.

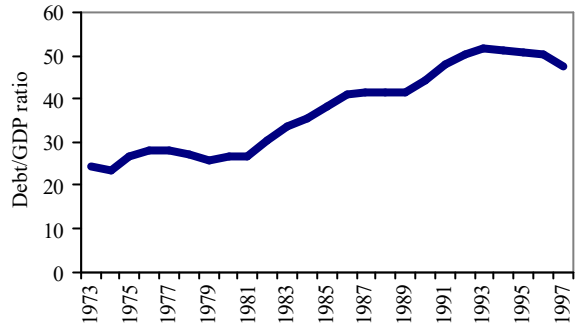
Figure 2 Gross public debt/GDP of G7 countries



Source: Tanzi and Fanizza (1995).

A common pattern seems to emerge: high global real interest rates manifested in most countries since the early 1980s, which in most cases were accompanied by declines in growth rates to well below the real interest rate. In addition, this pattern in interest rates and growth rates coincided with rising public debt/GDP ratios. Since the mid-1990s the public debt/GDP ratios in some of the major industrialised countries stabilised, as can be seen for the US in Figure 3.

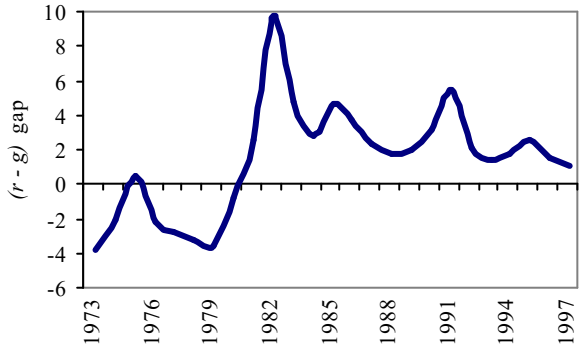
Figure 3 The US public debt/GDP ratio



Source: IMF, International Financial Statistics (various issues)

Figure 4 shows that the stabilisation of the US debt/GDP ratio coincided with a decrease in the US *(r – g)* gap. Some of the other G7 countries also managed to stabilise their debt/GDP ratio. For instance, France and Germany stabilised it at approximately 60%, while Italy managed a decrease from 120% to below 110%.

Figure 4 The (r – g) gap in the US



Source: IMF, International Financial Statistics (various issues)

Developing countries with significant foreign debt have experienced additional problems. These stem from the same phenomenon: the combination of low growth (limited ability to repay foreign-denominated public debt given low tax revenues) and high global interest rates (high debt servicing obligations in the budget), resulting in rising foreign debt (Gibson 1996:286). The debt service ratio (debt service/exports) of LDCs also increased from 15.9% in 1973 to 23% in 1986. Thereafter it decreased to 15.8% in 1994, not because of an increase in exports, but because of the restructuring process of foreign debt, some defaults and an unwillingness on the part of the international financial community to grant further loans to LDCs (Eng *et al.* 1998:14–15). Cebula and Rhodd (1993) argue that the high interest rate level in the US caused the third world to pay high interest rates on their foreign debt, which increased the probability of debt crises.

As far as African countries are concerned, Gordon (1997:6–8,13) notes that in future some countries may expect lower growth rates than those they currently experience. The growth rates of countries such as Namibia, Botswana, Kenya and Zimbabwe are inflated because of continuous large increases in government employment. Since this practice is unsustainable, expected future growth is lower. Gordon (1997:13) notes that this is especially important in determining whether or not fiscal policy in African countries is sustainable, i.e. sustainability should not be measured on mere forward projections of the currently inflated growth rates.

Far Eastern countries are notable exceptions to these movements in the gap between the real interest rate and the real economic growth rate. The monetary policies of many of these countries resulted in low and even negative real interest rates. These countries also experienced phenomenal real economic growth rates, sometimes exceeding 10%. As a result the real economic growth rate exceeded the real interest rate. After the financial crisis of 1997/98, many economists argued that the crisis was the result of loose monetary and credit policy (cf. Bisignano 1999), which resulted in excessive credit creation and real interest rates that were too low – even below the real economic growth rate. To some economists this assessment of the crisis and its causes is sufficient reason why countries should not repeat these policies. In their opinion the crisis demonstrates the modern mainstream viewpoint that it is futile to attempt to manipulate the growth rate and interest rate level over the long-run.

However, it is notable that the fiscal policies of the Far Eastern countries were very prudent, even though they could afford to run primary deficits. Most of these countries ran budget surpluses and from 1986–98 the debt/GDP ratios of countries such as Malaysia, Thailand, Singapore and Indonesia declined, in some cases even dramatically. It still remains a question whether or not these contractionary fiscal policies impacted negatively on these economies and ultimately contributed to the crisis that unfolded in that part of the world in the late 1990s.

4 THE EVOLUTION OF THE THEORY OF FISCAL SUSTAINABILITY

This section focuses on the evolution of the debate internationally over the past two to two and a half centuries. Whereas the discussion in the previous section showed how increased attention to fiscal sustainability during the last two decades stem from the significant increase in public debt/GDP ratios, the discussion in this section shows that throughout history periods of heightened attention in economic theory to the solvency of government coincided with periods in which the public debt was high or increasing at a high rate. The section also indicates that rival interpretations did and still coexist, giving policy-makers a choice of theory to guide them in their policy decisions. This is so despite the fact that some interpretations are very dominant at times as for instance the Keynesian interpretation during the mid-20th century and the modern mainstream one after that. Despite this dominance alternative views do exist and have existed for a long time. As such this section attempts to draw out recurrent themes that despite their long being debated, continue to stir controversy and debate.

The international evolution of the debate on fiscal sustainability is divided into three periods. The first period covers the early, pre-Keynesian views, the second period covers the views in the 1930s and 1940s, when Keynesian theory was on the advance and the third period covers the modern mainstream views on fiscal sustainability.

4.1 Early views

Although the term 'fiscal sustainability' is of recent vintage (latter quarter of the twentieth century), concern over the effects of public debt and in particular an ever-increasing debt burden, is not new. Adam Smith (1994 [1776]:1009–11), quoting Pliny, reports how the Romans reduced the amount of copper in the As (the denomination of their coin). This inflated the money supply, making it easier to repay debts incurred in the Punic wars. Mundell (1993:12) relates how from the thirteenth century onwards the city-state of Venice, in its successive wars with Genoa, amassed large debts. As Venice did not repay the accumulated debts in full in peacetime, the amount of debt grew over time. The Venetians called this debt *Monte vecchio* meaning 'old mountain', which refers to the mountain of debt – an indication of the size of the debt burden. In Great Britain the history of public debt goes back to the 1688 revolution (Kaounides and Wood 1992:xiv). Mundell (1993:12) reports that in Hume's time (eighteenth century) British public debt was three times the national income. By the time of the American Revolution (1776) interest on public debt in Britain absorbed 70% of tax revenue. A rising public debt was also one of the causes of the French Revolution (1789) (Schama 1989:60–71).

As public debt was mostly incurred in the course of war, it is not surprising that classical economists such as Hume, Smith, Ricardo and Mill perceived it as something negative. According to Hume (as quoted in Kaounides and Wood (1992:xvii)) '…either the nation must destroy public credit, or public credit will destroy the nation.' Kaounides and Wood (1992:xvi) as well as Rowley (1986:49) argue that the views of classical economists on public debt are rooted in a deep suspicion regarding the size of government and the threat of inflation or bankruptcy implicit in a large public debt. Although big governments do not necessarily incur large debts, whereas small governments may, classical economists believe that big governments are more prone to incur large debts (Rowley 1986:57). According to classical economists, governments are partisan, corrupt and inefficient (Rowley 1986:58). Kings and despots still ruled many of these governments. It is therefore not surprising that classical economists who emphasise individualism feared the danger of a large government.

Adam Smith (1994 [1776]:1004) opines that, should governments use taxes rather than debt to finance war, this would shorten the duration of wars and cause governments to think twice before initiating hostilities. Smith (1994 [1776]:1002–3) argues that the creation of public debt prevents the formation of new capital. This may be seen as one of the earliest warnings of the occurrence of crowding out, even though the term as such did not exist at the time. In addition, he rejects the Mercantilist notion of Melon, that the payment of interest on domestically held debt represents no burden as it is a case of '…the right hand which pays the left.' (1994 [1776]:1005). He bases his rejection on a distinction between the owners of land and capital stock and bondholders. Interest represents a transfer from the former to the

latter. Thus, it is a disincentive to owners of land and capital stock, which may cause them to accumulate less capital or to emigrate (1994 [1776]:1005–6).

To Ricardo (1973 [1817]:162–3) the burden of public debt is that it reduces the accumulation of capital at the time when debt is incurred. This is again the crowding out argument. Because aggregate income is not affected, interest payments and the repayment of domestic debt does not represent a burden. However, he does note (1973 [1817]:163) that the increase in taxes caused by a high debt may cause those who have to pay the taxes to emigrate in an attempt to avoid paying taxes. Modern mainstream economists are in tune with Ricardo (1973 [1817]:164) when he argues that to diminish debt requires '…the excess of the public revenue over the public expenditure.'

Mill is no friend of public debt either. However, his view is more qualified than that of Hume, Smith or Ricardo. Given the right circumstances, he recognises a need for public debt (1886:527). These include first, foreign loans that absorb excess foreign saving. Secondly, if government borrowing generates saving that would not take place in the absence of public debt. This implies a supply-induced demand, where the supply of government securities creates a demand for them. Therefore, this action does not affect the saving that finances capital. Other possibilities include the absorption of saving that would have been invested in unproductive capital or used to finance foreign capital. The former takes place when there is an over-accumulation of capital. Thus, the absorption of these saving will not cause unemployment (1886:527–8). However, beyond these cases, public debt represents a burden as it absorbs saving that could otherwise have been used productively. In this case the creation of public debt causes the interest rate to increase (1886:527), resulting in less capital accumulation.

The only dissenting voice among classical economists was that of Malthus. In what may be considered a precursor of the work of Keynes, Malthus (1836:322–7;365) described how over-saving causes a *general* excess supply of goods and thus, a *general* shortage of demand. Malthus (1836:322) takes issue with Ricardo who argues that an excess supply in one market means an excess demand in another, so that in the aggregate supply still needs to equal demand. The shortage of demand, or 'effectual demand'[3] as Malthus (1836:326) called it, introduces a role for public debt and especially for the interest on debt. According to Malthus (1836:409), the interest on debt, presumably paid for by taxes, '…contribute[s] powerfully to distribution and demand;… ; they ensure the effective consumption which is necessary to give the proper stimulus to production;…'. Hence, he argues (1836:411) against the unqualified notion that '…the sudden diminution of a national debt and the removal of taxation must necessarily tend to increase national wealth, and provide employment for the labouring classes.' Notwithstanding this view, Malthus (1836:412) warns against an excessive public debt. The reasons include first, the necessity to levy a tax to pay interest on debt and which may interfere with production and secondly, the negative sentiment created by debt. Thirdly, there is the danger that inflation may erode the interest income of bondholders and

[3] Clarke (1988:266–7) argues that Keynes borrowed the term 'effective demand' from Malthus and considered the work of Malthus to contain the germ of his own theory on effective demand. In another brilliant insight, which foreshadows the income multiplier, Malthus (1836:326 footnote) argues that 'Parsimony, or the conversion of revenue into capital, may take place without diminution of consumption, if the revenue increases first.'

lastly, the danger that deflation may render it impossible for taxpayers to pay enough taxes to service debt. Hence, Malthus (1836:412) argues that it is '…desirable gradually to diminish the debt, and more especially to discourage the growth of it in future, even though it were allowed that its past effects had been favourable to wealth, and that the advantageous distribution of produce which it had occasioned, had, under actual circumstances, more than counterbalanced the obstructions which it might have given to commerce.'

4.2 Keynes and the changing view on public debt – the 1930s and 1940s

The classical view on public debt achieved its most theoretically refined state just prior to the Keynesian revolution. In what became known as the Treasury View set out in its 1929 memorandum, the British Treasury formulated the rationale for the balanced budget norm (Clarke 1988). The Treasury did this in the face of growing criticism of its inactivity regarding the growing unemployment problem in Great Britain. However, with the onset of the great depression, governments found in Keynesian theory a rationale to run budget deficits. With governments running deficits in several successive periods, it is no surprise that the issue of growth in public debt resurfaced.

In addition to this development, public debt/GDP ratios incurred by those countries that participated in WWII increased substantially. Thus, the advent of Keynesian economics and the large public debt/GDP ratios caused by the war set the scene for the emergence of new views on deficits, debt and fiscal sustainability. Some of the views include those of Lerner (1948; 1951; 1961), Kalecki (1944), Hansen (1947), Schumacher (1944) and Domar (1944). These early views were very much embedded in Keynesian theory.

Kalecki (1944:40) argues that an increase in public debt always finances itself, because it stimulates national income, which, in turn, causes saving to increase. This line of argument is based on the standard Keynesian income multiplier effect. Schumacher (1944:115) argues that the deficit only absorbs saving that would not be absorbed otherwise. This is in line with the early Keynesian view (which originates in Keynes' *Treatise* 1930a) that an excess of saving will not cause a decrease in the interest rate to stimulate investment. The excess saving will merely remain idle as long as investment remains below a full-employment level. As such, a budget deficit can absorb the idle saving. In addition, the increase in public debt need not cause the interest rate to increase if the central bank sufficiently expands the money supply (Kalecki 1944:41–2). Note the similarity between this view and that of Malthus mentioned above.

Lerner's (1948; 1951; 1961) argument is similar to that of Kalecki and Schumacher. In what he coined the 'functional finance' view (1951:122–138, 270–288), he argues for the use of deficit finance to pursue full-employment. As long as output is below full-employment there is no reason to expect inflation as a result of deficit finance (1951:279–83) and government could rely on the income multiplier to move the economy to full-employment (1951:250–57). He further argues (1951:276–8) that a deficit financed by money creation will be more expansionary than one financed through domestic borrowing. Borrowing entails the extraction of liquidity from the economy where after it can be spent, whereas money creation entails the creation of additional liquidity. Hence his

statement (1951:278): '… borrowing … postpones the day when deficits are no longer necessary.'

Neither is Lerner (1951:272–4) concerned about the size of the domestic public debt. The repayment of domestic public debt is like repaying debt to oneself. Thus, because individuals will not be worse off, no concern is warranted if domestic public debt is high. Lerner shares this view with Ricardo and Mercantilists such as Melon, who hold that the repayment of debt and interest is like the right hand paying the left. Neither was Lerner the last to consider this issue. In a more modern vein, Heilbroner and Bernstein (1989:51, 132) agree with Lerner. Langdana (1990:98) also expresses a view similar to that of Lerner. However, Peacock (1986) notes that the focus should be on how the size and structure of the debt affects the growth, allocation and distribution of resources. Such a view is closely associated with the view that debt *does* carry a burden.

In a point particularly relevant to a discussion of fiscal sustainability, Lerner (1951:274–5) argues that a 'functional finance' policy naturally limits any increase in the public debt. As soon as the economy reaches full-employment, there is no need for further fiscal stimulus. Thus, no additional borrowing needs to take place.

At that time Hansen also contributed to the discussion. Hansen's statement (Domar 1944:799) that public debt should be considered in relation to national income laid the foundation for the modern sustainability theory. Hansen (1947: 276–9) took Lerner to task regarding his view that, as a nation owes its domestic debt to itself, the amount is not important (Lerner 1948: 367–9; 1951:272–4; 1961; 380–85). He points out that Lerner himself qualified this view when he considers the tax rate necessary to pay the interest on the debt. Tax rates need not increase if income increases sufficiently to yield enough taxes to pay the interest. However, if income does not increase sufficiently, tax rates must increase. This introduces the question of the size of the income multiplier. Hansen allows for the possibility that the multiplier may be too small for tax rates to remain unchanged. He is less optimistic than Lerner regarding the ability of government to stimulate economic growth with deficit spending.

In addition, in a paragraph that anticipates the modern debate on fiscal sustainability, Hansen (1947:277) states 'Federal expenditure in the postwar in the United States will certainly be so high that if *taxes do not exceed the interest payments on the debt*…, we should experience inflation.' [my emphasis]. When taxes do not exceed interest payments, government finances interest with new debt. Hansen thus reacts to Lerner who held that '…interest does not have to be raised out of current taxes.' Hansen argues that the statement by Lerner becomes invalid if debt finance causes inflation instead of a higher output. Thus, Hansen sees a limit to the ability of government to stimulate the economy. In modern terms one could argue that Hansen is in favour of a primary surplus because deficits fail to stimulate output and cause inflation. (The term 'primary surplus' did not exist at that time.) Hansen also prefers low interest rates. This eases the task facing government when it has to manage and reduce a large public debt (Hansen 1947:148–51).

By far the most sophisticated analysis of fiscal sustainability during that time was by Domar (1944). Domar is the father of the formal mathematical treatment of fiscal sustainability that is still in use today. Although Kalecki, Hansen and Lerner had an intuitive understanding of the issue, Domar clearly demonstrates the technical relationship between the various vari-

ables that determine fiscal sustainability (1944:816). Contrary to what Hansen proposed, Domar (1944) did not call for a reduction of public debt through expenditure cutbacks or increases in the tax rate. Instead, he proposed larger budget deficits, which in his view should stimulate the economy.

According to Domar, a higher deficit generates a higher economic growth, which in turn, generates enough tax revenue to annually service the debt (Domar 1944: 802–3). If the tax generated through the higher deficit did not sufficiently service it in total, the problem '…does not lie with the deficit financing as such, but in its failure to raise the national income.' (Domar 1944: 806). Domar clearly placed his trust in the effect government deficits will have on economic growth through the Keynesian income multiplier (Domar 1944:801; 819). He agrees with Lerner on this issue. Thus, government had to 'grow the economy out of its public debt burden'. He demonstrated that, given a large enough income multiplier, the deficit used to stimulate the economy would not cause an increase in the public debt/GDP ratio. A prerequisite for this is that the fiscal stimulus must raise the real economic growth rate above the real interest rate.

Domar relies on the Keynesian income multiplier to show that the interest on public debt need not impose an increasing burden on taxpayers in the form of a higher tax rate. He does not agree with Hansen that government should run a surplus to reduce debt when faced by too small an income multiplier. The size of the income multiplier itself should rather be addressed. This is especially evident in the last paragraph of his article (1944:823): '…, the public debt and its burden loom in the eyes of many economists and laymen as the greatest obstacle to all good things on earth. The remedy suggested is always the reduction of the absolute size of the debt or the prevention of its further growth. If all people and organizations who work and study, write articles and make speeches, worry and spend sleepless nights – all because of fear of debt – could forget about it for a while and spend even half of their efforts trying to find ways of achieving a growing national income, their contribution to the benefit and welfare of humanity – and the solution to the debt problem – would be immeasurable.' For a more recent expression of the same idea, see Heilbroner and Bernstein (1989:53) and Arestis and Sawyer (2003).

A few differences between Hansen and Domar may be noted. Hansen considers the impact deficits may have on inflation, whereas Domar assumes a constant price level (1944:802). According to the Keynesian view, an economy needs a fiscal stimulus only when there is unemployment. This is most clearly expressed in Lerner's functional finance view. In the presence of unemployment fiscal deficits can cause inflation only if bottlenecks exist that dampen the size of the multiplier. Thus, unlike Hansen, Domar was optimistic about the ability of an economy to overcome bottlenecks.

The contributions by Domar and Lerner in particular, and the earlier contribution by Malthus, indicate that with different sets of assumptions on economic behaviour, different views on fiscal sustainability can exist. This is especially relevant in view of modern mainstream attempts to portray the modern mainstream version of sustainability theory as a positive theory with no normative elements (cf. Zee 1988), thereby establishing it as the only theory of fiscal sustainability.

4.3 The modern mainstream view: the return of classical morals

Following the developments of the 1940s, less attention was paid to the theory on fiscal sustainability during the ensuing three decades. This lack of attention may be attributed to the strong economic performance of many countries. In addition, the Domar view seemed vindicated. During this period the real interest rate did not exceed the real economic growth rate (Eltis 1998:131). Governments could run deficits without a concomitant increase in public debt/GDP ratios. The strong economic performance in the form of high economic growth rates also allowed many governments to reduce public debt/GDP ratios (Masson and Mussa 1995:4b).

However, as section 2 above demonstrated, this all changed during the 1980s. According to the above data, public debt/GDP ratios surged globally during this period. Consequently, attention was again focused on the sustainability of fiscal policy. This is evident from the attention fiscal sustainability received in many countries (Bank for International Settlements 1992; Bohn 1998; Ball *et al.* 1998; Kremers 1989; De Grauwe 1994:48–62; also see table 1 above). This resulted in a multitude of new developments regarding the theory of fiscal policy. However, modern theory displayed marked changes from that of the 1940s.

Whereas Domar considered it normal for the real interest rate to be lower than the real economic growth rate, modern theory assumes that it is normal and 'prudent policy' for the real interest rate to exceed the real economic growth rate. It represents prudent policy both because, according to the modern mainstream view, a higher interest rate is more likely to prevent inflation, and because an economy is dynamically efficient according to the Diamond model when the real interest rate exceeds the real growth rate (cf. Diamond 1965). For instance, Sargent and Wallace (1981:6) in their seminal article entitled 'Some unpleasant monetarist arithmetic' assume that '…the real rate of interest exceeds the growth rate of the economy. We have made that assumption because it seems to be maintained by many of those who argue for a low rate of growth of money no matter how big the current deficit is.' It is obvious in Eltis (1998:131) that the view held by Sargent and Wallace is widespread among modern mainstream economists. Eltis (1998:131) states that Domar's assumption of a constant and especially low interest rate represents an aberration from the real world. Abel *et al.* (1989) share this view with Eltis. The implication of this for fiscal sustainability is that if it is normal for the real interest rate to exceed the real growth rate, it means that it is also considered normal for government to run a primary surplus.

There are further differences between Domar and modern mainstream views that form the basis of the modern fiscal sustainability theory. The Domar model assumes a fixed, and (compared to today's standards) low interest rate (1944:800), that itself is *unaffected* by the size of the deficit. However, due to the advent of modern mainstream theory and its subsequent influence on the behaviour of lenders in credit markets, the size of the budget deficit and public debt *does* feature in the pricing of loans. For instance, it influences the international credit rating of a country. A large deficit and public debt are seen as factors that reduce the credit rating of a country. This, in turn, increases the interest rate that a country pays on international credit markets.

Modern mainstream economists agree with Hansen – who proposed a budget surplus to prevent inflation since the income multiplier will be too small – and reject Domar and Lerner – who held that government could grow the economy out of the burden of public debt by relying on the income multiplier. For instance, Posner (1987:403) rejects the Lerner view that internal debt represents no burden on future generations. He sees the increase in future tax rates to stabilise the debt/GDP ratio, as a burden. Tax rates need to increase only in the absence of the multiplier. Thus, he agrees with Hansen.

If, according to modern mainstream economists, a government cannot grow the economy out of its public debt burden, what policy decisions should it enact to ensure a sustainable fiscal policy? Fiscal policy is unsustainable if the debt/GDP ratio increases at an accelerating rate (from, say, 50% to 51% in 2000 and then from 51% to 54% in 2001, etc.). The cause of unsustainability lies in the difference between the *levels* (and not the composition) of expenditure and revenue. Thus, according to Blanchard (1993:309), Buti (1990:14–15), Delarosière (1986:25), Chouraqui *et al.* (1986:16) and Miller (1983:11), the direct cure for an unsustainable increase in debt is either to reduce non-interest expenditure or to increase taxes. As a policy prescription it traces its origins to Ricardo (see above). Hopkin and Reddaway (1994:307), like Blanchard, stress the necessity to adjust expenditure and taxes and argue that monetary policy must ensure a reduction in interest rates to accompany the process. Hallet and McAdam (1996) also note the importance of adjustments in expenditure and taxes, but argue that tax reform is a further prerequisite to prevent a reduction in GDP, the denominator of the debt/GDP ratio.

A further development in the modern mainstream view expressed by Horne (1991:1–2) is to differentiate between fiscal sustainability and government solvency. A policy that government currently pursues may not be sustainable if it causes an increase in the debt/GDP ratio. However, as government may reverse the policy in future, an unsustainable fiscal policy does not necessarily imply that government is insolvent. Only if government is unable to reverse an unsustainable policy, is it insolvent. In addition, if public debt and interest payments are co-integrated with GDP, it may constitute evidence in support of government solvency (Kremers 1989:221–5). However, it may be noted that if the behaviour of government ensured solvency in the past, it does not guarantee such behaviour in the future. Another way of statistically testing government behaviour is to determine whether the primary balance is mean reverting and, in particular, whether the primary surplus is an increasing function to the size of the public debt/GDP ratio (Bohn 1998). However, this is again an indication that policy was solvent in the past. Thus, to determine whether or not government is currently solvent even though the public debt/GDP ratio is increasing, requires from an analyst to determine whether or not government will be able to reverse its policy through an adjustment in expenditure and taxes.

However, Galbraith and Darity (1994:342) propose another angle to determine whether or not the fiscal policy pursued by government is sustainable. This is based on their interpretation of Blanchard. The question is not whether or not government will someday reverse a policy that currently causes the debt/GDP ratio to increase, but rather whether or not the real burden of interest is greater than the 'largest feasible primary surplus'. This implies that the maximum sustainable debt is determined by the ratio of the largest feasible primary surplus to the real interest rate. This approach also allows considera-

tions of political sustainability. If there is a limit to the extent to which expenditure can be reduced or taxation increased, there also is a limit to the size of the largest feasible primary surplus. This places a limit on the maximum feasible size of public debt. Galbraith and Darity (1994:342–3) use this angle to argue that the interest payments that the US government had to make in the late 1980s and early 1990s to service its public debt were still falling far short of the 'largest feasible primary surplus', i.e. analysts, commentators and the public did not have to be so concerned with the public debt/GDP ratio that existed then. With this argument Galbraith and Darity (1994:341–3) wanted to calm concerns about the state of US public finance in the aftermath of the large Reagan deficits. Indeed, they warned against mere deficit cuts, arguing in familiar Keynesian fashion that '…deficits do tend to stimulate economic growth.' They also reject crowding out by stating that '…it appears that deficits do not displace private investment; rather … they tend to raise profitability and, therefore, to stimulate rather than restrict private investment.' Galbraith and Darity (1994:345) also argue for the use of deficits to stimulate the economy when there is less than full employment. Therefore, Galbraith and Darity provide a view falling in the tradition of Malthus, Keynes and Domar.

Arestis and Sawyer (2003) also fall in this tradition. They agree with Galbraith and Darity that deficits do not necessarily crowd out investment. They also argue for a stabilization policy aimed at raising the real growth rate above the real interest rate when the economy finds itself in a recession. In addition, they reject the view that fiscal policy should not be used to stabilize the economy and that, instead, monetary policy should be used because fiscal policy suffers from long internal policy lags.

The link between fiscal unsustainability and government dissaving also makes its appearance in the modern debate, particularly since the increase in the debt/GDP ratios in many countries since the early 1980s coincided with increases in the interest rate level. Given that the fiscal sustainability equation (equation 1) links the interest rate and the debt/GDP ratio, modern theorists focused their attention on the causal link between the interest rate and the debt/GDP ratio. Various explanations have been given for this causal link.

One prominent line of explanation identifies high levels of public deficits, or public debt, as a primary factor: 'Economic studies based on non-Keynesian theory have found a close positive correlation, with reference to the 1980s and 1990s, between the public deficits or debts and the real – more often short-term – interest rates in the industrial countries. The prevailing interpretation has been that the deficits on current account of the public sector … and the public debts – implying a larger offer of bonds and an increased demand for loanable funds – would cause a mechanical upward pressure on interest rates ('crowding out')' (Ciocca and Nardozzi 1996: 109). Cebula and Rhodd (1993:443), Friedman (1992:301; 1988:174) and Cebula (1987:56) express a similar view. Anyanwu (1998:34) found that for African countries there is a statistically significant relationship between budget deficits and interest rates (deposit rates).

One question within this approach is whether it is high debt or large deficits that cause high interest rates. Currently the stronger consensus seems to be that debt, rather than deficits, is the culprit (cf. Tanzi and Fanizza 1995; Tanzi and Lutz 1993). Easterly and Schmidt-Hebbel (1994:51) found that in countries with a low debt/GDP ratio, such as Chile and Morocco, an increase of 1 percentage point in the deficit/GDP ratio increases the real interest rate by only

0.1 to 0.2 percentage points. However, in countries with high debt/GDP ratios, such as Colombia, Pakistan and Zimbabwe, an increase of 1 percentage point in the deficit causes the real interest rate to increase by as much as 1.1 to 2.7 percentage points. They also argue that high debt/GDP levels reduce the substitutability between public and private debt, so that government must offer a higher interest rate to attract buyers of government securities.

In contrast, a theory based on Ricardian equivalence would predict *no effect* of deficits at all: consumers realise that higher deficits imply higher future taxes and therefore raise their own saving to exactly offset higher public deficits. 'The implications of pure Ricardian equivalence is that total saving, and hence interest rates, are not affected by government deficits.' (Ford and Laxton 1995: 1) In this vein, Evans (1985) found no significant impact of debt and deficits on interest rates.

Countering this, Ford and Laxton (1995:1) argue that, given the presence of a high degree of integration between the capital markets of industrial countries, '…an increase in the level of world government debt would raise the world real interest rate and, all else equal, the interest rates in individual countries.' Tanzi and Lutz (1993:247) express a similar view. They find that '… the rise in government debt since the late 1970s has had a substantial effect on real interest rates in these industrial countries, contrary to the Ricardian hypothesis. Between 1978 and 1993 the OECD wide net debt-GDP ratio rose from 21.2% to 39.7%, an increase of 18.5 percentage points. Based on our parameter estimates, this has boosted real interest rates by 250 to 450 basis points' (Ford and Laxton 1995:2). This would explain most of the increase in rates observed during this period. Sutherland (1997:160) argues that consumption decreases (and thus, saving increases) only at high levels of debt as a result of increases in debt.

An alternative, Keynesian interpretation proposed by Ciocca and Nardozzi (1996:108–9) points to high rates as an uncertainty and policy risk premium. Thus, for the period 1979–83 Ciocca and Nardozzi (1996:54) ascribe higher interest rate levels to a '… shift in the Federal Reserve's policy stance [that] meant uncertainty as to the higher level of interest rates needed to curb inflation in the new monetary policy regime.' Later in the 1980s there was another cause for the uncertainty (Ciocca and Nardozzi 1996:109–10): 'As well as creating uncertainty and concern *per se*, the precarious, if not worsening, situation of public finance invests the financial markets with the fear that the monetary policy is not supported by the budgetary policy and is thus neither safe nor credible. The negative repercussion of an upsurge in interest rates are manifested through an increased demand for money rather than through the increased offer of government bonds.'

Smithin (1994) propounds a reverse causality: that high real interest rates are the main *cause* (rather than the consequence) of large deficits. He uses a post-Keynesian approach that views the money supply as endogenous and interest rates as being determined by the central bank. He also offers empirical evidence that, in the period since 1980, the interest rate increases frequently *preceded* budget deficit increases: 'The direction of causality suggested here therefore runs from concern over inflation in the wake of the inflationary decade of the 1970s, through very high real rates of interest as a result of the attempts of key central banks to deal with this problem via monetary policy, and on to large measured budget defi-

cits emerging both directly, as a result of higher financing costs, and indirectly because of the monetary policy induced recessions' (1994:164).

The modern mainstream view is a continuation of the classical view held by Smith, Ricardo and Mill. The views of Malthus, Keynes, Lerner and Domar challenged the classical view and form the foundation for an alternative view to the modern mainstream view of today held by Galbraith and Darity and Arestis and Sawyer. Although modern mainstream literature on fiscal sustainability may devote little attention to them, authors such as Heilbroner and Bernstein (1989), Galbraith and Darity (1994) and Arestis and Sawyer (2003) use this foundation to challenge the modern mainstream view.

5 RECURRING THEMES THAT EMERGE FROM THE 200-YEAR OLD DEBATE

The above discussion provides an overview and definition of what constitutes a sustainable fiscal policy. The historical overview demonstrates that different views on what constitutes a sustainable fiscal policy coexisted in the past and still coexist today. This section highlights and draws out some of the recurring themes that emerge from the 200-year old debate and that characterise the nature of the debate.

The first theme concerns the importance of the level of particularly domestic debt and the effect on the rest of the economy of its repayment or the payment of interest. According to the view expounded by the Mercantilists, Lerner, Heilbroner and Bernstein and surprisingly from the classical side, Ricardo, the level of domestic public debt is not that important as its repayment represents nothing more than the right hand paying the left. This does not mean that economists such as Lerner, Heilbroner and Bernstein argue for an unbounded increase in public debt. Rather, they see debt naturally limited by the stabilisation needs of the economy. Once the economy is stabilised there is no further need for the expansion of the public debt burden.

This contrasts with the view of Smith and modern economists such as Peacock, that the level of (domestic) public debt is important because it influences the allocation of resources, i.e. 'which hand holds what' influences important economic variables such as saving and capital accumulation. This view originated with the view of Adam Smith who held that the payment of interest on loans represents a transfer from the holders of land and capital goods to bondholders, the latter not being very productive members of society. The contemporary debate translates this concern of Smith into the effect of interest payments on income distribution (cf. Vitaliano and Mazeya 1989), which, assuming that different income groups safe at different rates, means that interest payments may influence saving via its effect on income distribution. However, to obtain a complete picture of the impact of government on income distribution, the effect of interest payments on income distribution will have to be considered alongside the incidents of direct and indirect taxation, as well as the effect of government expenditure and -transfers on different income groups.

A variation on this theme and stated in a more positive light, is the view of Malthus who argued that public debt of a sufficient size can generate interest income that could augment 'effectual demand', particularly if those who receive the interest income spends it. As such Malthus, who put forward an under-consumptionist view to explain the lack of 'effectual demand', saw the interest payments on public debt as a useful policy tool.

A second theme is more recent in origin, stemming from Keynes and those thinking along similar lines. It concerns the ability of government to stimulate the economy and especially economic growth to ensure full employment. There are three lines of thought on this second theme so that debate is not a clear-cut two-sided issue. Supporters of the first line place their trust in the size of the income multiplier to enable government through a deficit policy to raise the real economic growth rate so that it could exceed the real interest rate. This negative *(r – g)* gap would justify the primary deficit that initially was needed to spur the growth rate and allows government to run further primary deficits in future. However, supporters of this line of thought are classified into two groups. The first group holds that government can and should stimulate and maintain the real economic growth rate above the real interest rate over a prolonged period of time, usually longer than a business cycle, thereby creating a *long-run* negative *(r – g)* gap. (In addition to a larger deficit, government, according to proponents of this view, may also reduce the real interest rate.) This long-run negative *(r – g)* gap will enable government to run a primary deficit at any given moment during the business cycle, even when the cycle is at its peak. The view of Domar falls within this group.

The second group focuses more on the *cyclical* ability of government to raise the real growth rate above the real interest rate. Thus, when the economy enters a slump so that the real economic growth rate falls below the real interest rate, government should run a larger primary deficit and thereby stimulate the real economic growth rate to such an extent that it exceeds the real interest rate. Arestis and Sawyer seem favourable to this option. Again, the validity of this view depends on the size of the income multiplier. However, what is required from the multiplier is not as demanding as is the case with the first group. It should merely lift the real growth rate temporarily above the real interest rate (while the latter could be reduced by the central bank).

Supporters of another, second line of thought do not put their trust in the size of the income multiplier to attain a negative *(r – g)* gap. In addition, not only do they doubt the ability of government to create a negative *(r – g)* gap, but they also, particularly those following the modern mainstream view, argue that it is not prudent policy for the real interest rate to be lower than the real economic growth rate. They also contest the ability of government to maintain the economic growth rate at such a high level for a prolonged period of time. Thus, to supporters of this line this means that government should not attempt to influence the growth rate and should steer clear of an anti-cyclical policy, particularly if such a policy also involves problems such as long internal policy lags and the development of a deficit bias on the part of government.

However, there are those, in a third line of thought, who also doubt the size of the income multiplier and hence, the ability of government to stimulate the economic growth rate, but who nevertheless believe that government can vary the deficit to support employment and output levels. This is merely the view that if there is a positive *(r – g)* gap and should the economy fall into a slump, government can run a larger primary deficit so as to prop up cor-

porate profits, employment and economic growth (even thought the growth rate remains below the interest rate) and provide companies with a window of time to reorganise and improve their balance sheets. Since these economists hold that the *(r – g)* gap may remain positive despite a stimulating fiscal policy, their view means that a (primary) deficit policy to support the economy will result in an increasing public debt/GDP ratio. Thus, government will have to alternate periods where it runs a primary deficit that causes the public debt/GDP ratio to increase with periods where it runs a primary surplus to reduce the public debt/GDP ratio. This implies the use of stabilisation policy even though the policy places no trust in the multiplier *per se*. In addition, this policy merely proposes that the government runs a sufficiently sized primary surplus *on average*, presumably over the course of the business cycle.

A third theme emerging from the 200-year old debate concerns the importance of government dissaving. To various degrees and with an increasing level of sophistication, economist such as Smith, Mill and several modern economists argue that government dissaving causes crowding out. By linking the government dissaving to fiscal *un*sustainability, it can be shown (section 1.2 above) that government dissaving also means that fiscal policy is unsustainable. However, also on this theme economists such as Galbraith and Darity (1994) and Arestis and Sawyer (2003) argue that government expenditure might not crowd out, but rather crowd in investment. As in the case of the second theme, the dissaving might be justified through the possible positive effects of the higher (crowded in) investment and government expenditure on economic growth and the level of GDP. A higher growth rate causes, *ceteris paribus,* the *(r – g)* gap to decrease, or even to turn negative, so that the required primary surplus decreases or itself turns negative. In addition, a higher GDP level means a decrease in the public debt/GDP and primary balance/GDP ratios, simply because GDP constitutes the denominator in these ratios.

6 CONCLUSION: THE ORIGIN, DEVELOPMENT AND NATURE OF THE DEBATE

The above overview of the origin and historical development of the debate shows that the nature of the debate about fiscal sustainability is more than an ongoing positing of views by two monolithic and unchanging sides. Indeed, there is a range of views, some more closely related than others and some representing some 'cross-breeding' of views. As such the debate about fiscal sustainability resembles more an evolutionary development and -proliferation of views, with, at times, some views dominant, some stronger and some weaker.

In addition, developments in the debate on several occasions resulted from real world experience. For instance both in the 1940s and 1980-90s renewed theoretical and empirical interest in issues relating to government solvency originated from what some construed to be exceedingly high levels of government debt. In general, the level of concern about issues such as the level of public debt and dissaving is influenced by and positively correlated with the actual movements of public debt over time. As such, the debate reacts to its environment and also influences its environment. Whether this reaction and influence is for the better is precisely the question under debate.

The paper also demonstrates that fiscal sustainability is a complex, multifaceted issue. Concern about these facets gives rise to recurrent themes that sometimes cause heated debate. Even though many of the questions are settled in the minds of many of the individual participants to the debate, the overall settling of the debate seems elusive given the level of conviction with which proponents of the different views convey their message. Thus, we may expect the continuation of the debate, watching for new themes to emerge and others to recur, particularly in periods when public debt, according to some participants to the debate, seems to get out of hand.

BIBLIOGRAPHY

Abel, A.B., Mankiw, N.G., Summers, L.H. & Zeckhauser, R.J. 1989. Assessing dynamic efficiency: Theory and evidence. *Review of Economic Studies* 56: 1–20.

Arestis, P and Sawyer, M. 2003. Reinventing fiscal policy. *Working paper* No. 381. Annendale-on-Hudson, New York: Jerome Levy Economics Institute of Bard College. www.levy.org [2003].

Anyanwu, J.C. 1998. *Do large fiscal deficits produce high interest rates in Anglophone West African countries? – 1987:3–1995:4*. Paper presented at the AERC research workshop in Nairobi, Kenya.

Ball, L., Elmendorf, D.W. & Mankiw, N.G. 1998. The deficit gamble. *Journal of Money, Credit and Banking* 30(4): 699–720.

Ball, L. & Mankiw, N.G. 1995. What do budget deficits do? *NBER Working Paper* No. 5263. Cambridge (Mass.): National Bureau of Economic Research.

Bisignano, J. 1999. Precarious credit equilibria: Reflections on the Asian financial crises. *BIS Working Paper* No. 64. Paris: Bank of International Settlements.

Blanchard, O. 1993. Suggestions for a new set of fiscal indicators. In Verbon, H.A.A. & Van Winden, F.A.A.M. (eds). 1993. *The political economy of government debt*: 307–25.

Blejer, M.I. & Cheasty, A. 1991. The measurement of fiscal deficits: Analytical and methodological issues. *Journal of Economic Literature* 29: 1644–78.

_____ & _____ (eds). 1993. *How to measure the fiscal deficit: Analytical and methodological issues.* Washington D.C: International Monetary Fund.

Bohn, H. 1998. The behaviour of U.S. public debt and deficits. *Quarterly Journal of Economics* 113(3): 949–62.

Boskin, M.J., Flemming, J.S. & Gorini, S. (eds). 1987. *Private saving and public debt.* Oxford: Basil Blackwell.

Buiter, W., Corsetti, G. & Roubini, N. 1993. Excessive deficits: sense and nonsense in the Treaty of Maastricht. *Economic Policy* 18: 58–100.

Buiter, W.H. & Kletzer, K.M. 1992. Who's afraid of public debt? *American Economic Review* 82(2): 290–94.

Buti, M. 1990. Monetary and fiscal rules for public debt sustainability. *Economic Papers, Internal Paper* No. 84. [*s.l.*]: Commission of the European Communities, Director-General for Economic and Financial Affairs.

Callen, T, Terrones, M, Debrun, X, Daniel, J and Allard, C. 2003. Public debt in emerging markets: Is it too high? In International Monetary Fund. 2003. *World Econmic Outlook – September 2003*. Washington D.C., International Monetary Fund: 113–152.

Cebula, R.J. 1987. *The deficit problem in perspective.* Massachusetts: Lexington Books.

Cebula, R.J. & Rhodd, R.G. 1993. A note on budget deficits, debt service payments, and interest rates. *Quarterly Review of Economics and Finance* 33(4): 439–45.

Chu, K. & Hemming, R. 1991. *Public expenditure handbook.* Washington D.C.: International Monetary Fund.

Ciocca, G. & Nardozzi, P. 1996. *The high price of money.* Oxford: Clarendon Press.

Clarke, P. 1988. *The Keynesian revolution in the making: 1924–1936.* Oxford: Clarendon Press.

Congdon, T. 1987. The link between budget deficits and inflation: some contrasts between developed and developing countries. In Boskin, M.J., Flemming, J.S. & Gorini, S. (eds) 1987. *Private saving and public debt*: 72–91.

_____. 1989. *The debt threat: The danger of high real interest rates for the world economy.* Oxford: Basil Blackwell.

Congress of the United States (Congressional Budget Office). 1996. *The economic and budget outlook: Fiscal years 1997–2006.* A report to the Senate and House Committees on the budget. Washington D.C.: Congressional Budget Office.

Corseti, G. & Roubini, N. 1991. Fiscal deficits, public debt and government solvency: evidence from OECD countries. *NBER Working Paper* No. 3658. Cambridge (Mass.): National Bureau of Economic Research.

Cronje, A. 1995. Deficit financing and the public debt in South Africa. *Discussion Paper Series, Discussion Paper* No. 2, The Budget Project. Cape Town: University of Cape Town, School of Economics.

_____. 1998. Deficit financing and the public debt in South Africa: some unpleasant fiscal arithmetic. In Abedian, I. & Biggs, M. (eds). 1998. *Economic globalization and fiscal policy*: 250–75.

De Grauwe, P. 1993. De sterke Frank en de staatsschuld. *Leuvense Economische Standpunten 1993/73.* Leuven: Centrum voor Economische Studien.

_____. 1994. *Onze schuld.* Tielt: Uitgeverij Lannoo.

Delarosière, J. 1986. The growth of public debt and the need for fiscal discipline. In Herber, B.P. 1986. *Public finance and public debt*: 15–28.

Diamond, P.A. 1965. National debt in a neo-classical growth model. *American Economic Review* 55: 1126–50.

Domar, E.D. 1944. The 'burden of the debt' and the national debt. *American Economic Review* (4): 798–827.

Dornbusch, R. & Draghi, M. 1990. *Public debt management: Theory and history.* Cambridge: Cambridge University Press.

Easterly, W., Rodriquez, C.A. & Schmidt-Hebbel, K. 1994. *Public sector deficits and macroeconomic performance.* Oxford: Oxford University Press.

Easterly, W. & Schmidt-Hebbel, K. 1991. The macroeconomics of public sector deficits: A synthesis. *Working Paper* WPS 775. Washington, D.C.: International Monetary Fund.

_____ & _____. 1994. *Fiscal adjustment and macroeconomic performance: A synthesis.* In Easterly, W., Rodriquez, C.A. & Schmidt-Hebbel, K. 1994. *Public sector deficits and macro-economic performance*: 15–78.

Eltis, W. 1998. Debt, deficits and default. In Maloney, J. (ed.). 1998. *Debt and deficits: An historical perspective*: 116–32.

Eng, M.V, Lees, F.A & Mauer, L.J. 1998. *Global finance.* Reading: Addison Wesley.

Evans, P. 1985. Do large deficits produce high interest rates? *American Economic Review* 75(1): 68–87.

Fanizza, D. & Mourmouras, A. 1994. *Fiscal indicators.* Seminar on Fiscal Policy Management in Economies in Transition (Lecture No. 16) - 7–18 November. Washington D.C.: Fiscal Affairs Department and IMF Institute, International Monetary Fund.

Ford, R. & Laxton, D. 1995. World public debt and real interest rates. *IMF Working Paper* WP/95/30. Washington D.C.: International Monetary fund.

Fourie, F.C.v.N. & Burger, P. 1999. *Is fiscal sustainability possible? High interest rates, low growth and the general balance effect.* Paper presented at the 55th IIPF Congress, Moscow, 23–26 August.

_____ & _____. 2000. Is fiscal sustainability attainable? High interest rates, low growth and the general balance effect. *South African Journal of Economics* 68(2): 212–45.

Friedman, B.M. 1988. *Day of Reckoning.* New York: Random House.

_____. 1992. Learning from the Reagan deficits. *American Economic Review* 82(2): 299–304.

Gagales, A.M. 1991. Evaluating the sustainability of fiscal deficits. *Greek Economic Review* 13(2): 215–50.

Gaiotti, E. & Salvemini, G. 1992. Budgetary policy problems in Italy and their implications for monetary policy. In Bank for International Settlements. 1992. *Current issues in fiscal policy and their implications for the conduct of monetary policy*: 119–54.

Galbraith, J.K. & Darity, W. 1994. *Macroeconomics.* Boston: Houghton Mifflin Company.

_____ & _____. 1994. A guide to the deficit. In Galbraith, J.K. & Darity, W. 1994. *Macroeconomics*: 333–45.

Giavazzi, F. & Spaventa, L. 1988. *High public debt: The Italian experience.* Cambridge: Cambridge University Press.

Gonzalez-Paramo, J.M., Rolàn, J.M. & Sebastian, M. 1992. Issues on fiscal policy in Spain. In Bank for International Settlements. 1992. *Current issues in fiscal policy and their implications for the conduct of monetary policy*: 189–220.

Gordon, J. 1997. The effect of increasing government employment on growth: Some evidence from Africa. *IMF Working Paper* WP/97/33*,* Washington D.C.: International Monetary Fund.

Hakkio, C.S. & Rush, M. 1991. Is the budget deficit 'too large'? *Economic Inquiry* 29: 429–45.

Hallet, A.H. & McAdam, P. 1996. Fiscal deficit reductions in line with the Maastricht criteria for monetary union: An empirical analysis. *Discussion Paper* No. 1351*.* London: Centre for Economic Policy Research.

Hansen, A.H. 1947. *Economic policy and full employment.* New York: McGraw-Hill.

Heilbroner, R. & Bernstein, P. 1989. *The debt and the deficit.* New York: Norton & Company.

Hemming, R. & MacKenzie, G.A. 1991. Public expenditure and sustainable fiscal policy. In Chu, K. & Hemming, R. 1991. *Public expenditure handbook*: 7–13.

Hemming, R. & Miranda, K. 1991. Interest payments. In Chu, K. & Hemming, R. 1991. *Public expenditure handbook*: 68–74.

Heyndels, B. & Vuchelen, J. 1986. Een aktualisering van de overheidsschuldstatistieken. *Documentatieblad* (6): 53–86.

_____ & _____. 1988. Een verdere aktualisering van de overheidsschuldstatistieken. *Documentatieblad* (7–8): 41–84.

Heyns, J. vd S. 1991. Begrotingsnorme in Suid-Afrika: Retoriek, werklikheid en integriteit. *South African Journal of Economics* 59(4): 384–404.

_____. 1993a. *Aspects of the relation between government saving and the growth of public debt in South Africa.* Paper presented at the biennial conference of the Economic Society of South Africa held in Pretoria – 11 October 1993.

_____. 1993b. Aspects of the relation between government saving and the growth of public debt in South Africa. *SAJEMS* 11: 58–73.

_____. 1993c. Die staatskuld: Stabiliteit an evolusie. *Tydskrif vir Studies in Ekonomie en Ekonometrie* 17(1): 71–85.

_____. 1994. *Aspects of the assignment of macro-fiscal policy in terms of South Africa's interim constitution.* Paper presented at the EBM conference held in Johannesburg, 28 November 1994.

Hopkin, B. & Reddaway, B. 1994. The meaning and treatment of an 'unsustainable' budget deficit. *Banco Nazionale del Lavoro Quarterly Review* 190: 295–308.

Horne, J. 1991. Indicators of fiscal sustainability. *IMF Working Paper* WP/91/5*,* Washington D.C.: International Monetary Fund.

Inman, R.P. 1990. Public debt and fiscal politics: how to decide? *American Economic Review* 80(2): 81–5.

International Monetary Fund. 1995. *Guidelines for fiscal adjustment.* Fiscal Affairs Department, Pamphlet Series, no. 49. Washington D.C.: International Monetary Fund.

_____. 1996. *Confronting budget deficits.* Economic series 3. Washington D.C.: International Monetary Fund.

_____. (various issues). *International Financial Statistics.* Washington D.C.: International Monetary Fund.

_____. 2002. *International Financial Statistics Yearbook.* Washington D.C.: International Monetary Fund.

Joines, D.H. 1991. How large a federal budget deficit can we sustain? *Contemporary Policy Issues* 9(3): 1–11.

Kalecki, M. 1944. Three ways to full employment. In The Oxford University Institute of Statistics. 1944. *The economics of full employment*: 39–58.

Kaounides, L.C. & Wood, G.E. (eds). 1992. Debt and deficits. Volume I. In *The international library of macroeconomic and financial history series* Volume I: X–XLII.

Keynes, J.M. 1930a. *A treatise on money.* London: Macmillan.

Kremers, J.J.M. 1989. U.S. federal indebtedness and the conduct of fiscal policy. *Journal of Monetary Economics* 23: 219–38.

Langdana, F.K. 1990. *Sustaining budget deficits in open economies.* London: Routledge.

Leibfritz, W., Roseveare, D. & Van den Noord, P. 1994. Fiscal policy, government debt and economic performance. *OECD Working Paper* No. 144*.* Paris: Organisation of Economic Cooperation and Development.

Lejeune, G. & Vuchelen, J. 1985. De begrotingsvoorspellingen van de rentenlasten op de overheidsschuld. *Documentatieblad* (12): 31–44.

Lerner, A. 1948. The burden of the national debt. In Metzler, L.A. *et al*. 1948. *Income, employment and public policy: essays in honor of Alvin H. Hansen*: 255–61. Reprinted in Houghton, R.W. (ed.). 1973. *Public Finance.* 2nd edn: 367–72.

_____. 1951. *Economics and employment.* New York: McGraw-Hill.

_____. 1961. The burden of public debt. *Review of Economics and Statistics* 43: 139–41. Reprinted in Houghton, R.W. (ed.). 1973. *Public Finance*: 380–85.

Malthus, T.R. 1836. *Principles of political economy.* 2nd edn. London: William Pickering.

Masera, R.S. 1987. Four arguments for fiscal recovery in Italy. In Boskin, M.J., Flemming, J.S. & Gorini, S. (eds) 1987. *Private saving and public debt*: 171–207.

Masson, R.P. & Mussa, M. 1995. Long-term tendencies in budget deficits and debt. *IMF Working Paper* WP/95/128. Washington D.C.: International Monetary Fund.

Miller, P.J. 1983. Budget deficit mythology. *Federal Reserve Bank of Minneapolis Quarterly Review* Vol 7: 1–11.

Moerman, W.L. & Vuchelen, J. 1985. Staatsschuld in de Lage Landen. *Rotterdamse Monetaire Studies* (20): 1–62.

Mundell, R.A. 1993. Debt and deficits in alternative macroeconomic models. In Baldassarri, M., Mundell, R.A. & McCallum, J. (eds). 1993. *Debt, deficits and economic performance*: 5–130.

OECD. 1993. Are real interest rates high? *Economic Outlook* – June (53): 23–30.

Osoro, N.E. 1997. Public spending, taxation and deficits. *Research Paper 62*. Nairobi: African Economic Research Consortium: 1–31.

Oxford University Institute of Statistics, The. 1944. *The economics of full employment.* Oxford: Blackwell.

Parker, K. & Kastner, S. 1993. A framework for assessing fiscal sustainability and external viability, with an application to India. *IMF Working Paper* WP/93/78*.* Washington D.C.: International Monetary Fund.

Peacock, A. 1986. Is there a public debt "problem" in developed countries? In Herber, B.P. 1986. *Public finance and public debt*: 29–42.

Phelps, E.S & Zoega, G. 1998. Natural-rate theory and OECD unemployment. *Economic Journal* 108: 782–801.

Posner, M.V. 1987. A survey of the debate. In Boskin, M.J., Flemming, J.S. & Gorini, S. (eds) 1987. *Private saving and public debt*: 395–414.

Quintos, C.E. 1995. Sustainability of the deficit process with structural shifts. *Journal of Business and Economic Statistics* 13(4): 409–17.

Ricardo, D. 1973 (1817). *The principles of political economy and taxation.* London: J.M. Dent & Sons.

Roux, A. 1993. The public debt: A medium-term perspective. *The South African Journal of Economics* 61(4): 324–33.

Rowley, C.K. 1986. Classical political economy and the debt issue. In Buchanan, J.M., Rowley, C.K. & Tollison, R.D. 1986. *Deficits*: 49–74.

Schama, S. 1989. *Citizens: A chronicle of the French Revolution.* London: Penguin Books.

Schoeman, N.J. 1994. *Public debt and the economy.* Paper presented at the EBM Conference at RAU – 28–29 November 1994.

Schumacher, E.F. 1944. Public finance – its relation to full employment. In The Oxford University Institute of Statistics. 1944. *The economics of full employment*: 85–125.

Smith, A. 1994 (1776). *An inquiry into the nature and causes of the wealth of nations.* New York: The Modern Library.

Smithin, J. 1994. Cause and effect in the relationship between budget deficits and the rate of interest. *Economies et Sociétés* Série MP9: 151–69.

Smyth, D.J. & Hsing, Y. 1995. In search of an optimal debt ratio for economic growth. *Contemporary Economic Policy* 13: 51–9.

Sutherland, A. 1997. Fiscal crises and aggregate demand: Can high public debt reverse the effects of fiscal policy? *Journal of Public Economics* 65: 147–62.

Taiwo, I.O. 1994. An empirical test of the sustainability of fiscal deficits. *Indian Journal of Economics* 74(295): 495–504.

Tanner, E. & Liu, P. 1994. Is the budget deficit 'too large'?: Some further evidence. *Economic Inquiry* 32: 511–18.

Tanzi, V. & Fanizza, D. 1995. Fiscal deficits and public debt in industrial countries 1970–1994. *IMF Working Paper* WP/95/49. Washington D.C.: International Monetary Fund.

Tanzi, V. & Lutz, M. 1993. Interest rates and government debt: Are the linkages global rather than national? In Verbon, H.A.A. & Van Winden, F.A.A.M. (eds.). 1993. *The political economy of government debt*: 233–54.

Vanhorebeek, F. & Van Rompuy, P. 1995. Solvency and sustainability of fiscal policies in the EU. *De Economist* 143(4): 457–73.

Vitaliano, D.F. & Mazeya, Y.E. 1989. Public debt and the size distribution of income. In Davidson, P. & Kregel, J. 1989. *Macroeconomic problems and policies of income distribution*: 56–77.

Vuchelen, J. 1985. De evolutie van de staatsschuld in vreemde valuta's. *Documentatieblad* (7–8): 21–45.

_____. 1993. *De staatsschuld*. Leuven: Davidsfonds.

Vuchelen, J. & Rademakers, K. 1995. De belastingbetaler en de afbouw van de overheidsschuld. *CEMS-Paper 302*, Brussel: Centrum voor Ekonometrie en Management Science – Vrije Universiteit Brussel.

_____ & _____. 1996. De inkomensverdeling en mogelijke fiscale 'oplossingen' voor de overheidsschuld. *Documentatieblad, Ministerie van Financien*, Januari – Februari: 151–76.

Wray, L.R. 1997. Deficits, inflation and monetary policy. *Journal of Post Keynesian Economics* 19(4): 543–70.

Zee, H.H. 1988. The sustainability and optimality of government debt. *Staff Papers* 35(4): 658–85.

APPENDIX 1

Should government want to prevent an increase in the debt/GDP ratio, equations 1, 2.1 and 2.2 demonstrate the necessity for government to run a primary surplus when $r > g$. When $r < g$ they describe the ability of government to run a primary deficit without a concomitant increase in the debt/GDP ratio. Assume that in period *t–1* public debt equals 50, GDP equals 100 and economic growth in period *t* equals 5%. Four scenarios are presented. In scenario 1 the interest rate equals 8% and government runs a primary surplus large enough to prevent an increase in the debt/GDP ratio. In the second scenario the interest rate also equals 8%, while government runs a primary deficit. In the third and fourth scenarios the real interest rate equals 2%. In the third scenario government runs a primary deficit, whereas in the fourth scenario it runs a primary surplus.

Scenario 1

In this case government runs a primary *surplus* of 1.5.

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + B_{gt}/Y_t$$
$$= (0.08 - 0.05)50/105 - 1.5/105$$
$$= 0$$

In this case the primary surplus is large enough to prevent an increase in the debt/GDP ratio. To reduce the ratio, government must run a primary surplus that is larger than the one needed to prevent an increase in the ratio. Note also that the primary surplus required to prevent an increase in the debt/GDP ratio equals 1.5/105, which equals 0.01429 or approximately 1.4% of GDP.

Scenario 2

In scenario 2 government runs a primary *deficit* of 1.5.

$$\Delta D_{gt}/Y_t = (0.08 - 0.05)50/105 + 1.5/105$$
$$= 0.029$$

The primary deficit causes the debt ratio to increase from 0.5 in period *t–1* to 0.529 in period *t* (0.5 + 0.029 = 0.529). Thus, when the real interest rate exceeds the real growth rate and government runs a primary deficit, the debt/GDP ratio increases. However, as scenario 3 demonstrates, this is not the case when the real interest rate falls short of the growth rate.

Scenario 3

In scenario 3 government also runs a primary *deficit* of 1.5.

$$\Delta D_{gt}/Y_t = (0.02 - 0.05)50/105 + 1.5/105$$
$$= 0$$

Scenario 4

Should government run a primary *surplus* when the real interest rate falls short of the real growth rate, the debt/GDP ratio decreases.

$$\Delta D_{gt}/Y_t = (0.02 - 0.05)50/105 - 1.5/105$$
$$= -0.029$$

Thus, the debt/GDP ratio decreases from 0.5 in period *t–1* to 0.471 in period *t* (0.5 – 0.029 = 0.471).

APPENDIX 2

The above can be illuminated by means of an example. Assume that the real interest rate equals 8%, the growth rate 5%, debt and GDP in period *t–1* equals 50 and 100 respectively. The primary surplus equals 1.5. Government used debt-finance in the past only to finance capital and thus, the public capital stock equals 50. Should government grow the public capital stock at a rate equal to the growth rate, government investment equals 2.5 (that is: 0.05(50)). With a primary surplus of 1.5 and government investment of 2.5, the non-interest current *surplus* equals 4 (1.5 + 2.5). Thus, equation 5 is:

$$\Delta D_{gt}/Y_t \equiv (r_{gt} - g_t)D_{gt-1}/Y_t + C_{gt}/Y_t + gK_{gt-1}/Y_t$$
$$= (0.08 - 0.05)50/105 - 4/105 + 2.5/105$$
$$= 0$$

In this case government is not dissaving as 0.08(50)/105 – 4/105 (which is $r_{gt}D_{gt-1}/Y_t + C_{gt}/Y_t$ = current deficit as percentage of GDP) equals zero. However, if the non-interest current surplus was smaller government is dissaving. For example, if the non-interest current surplus equals 3.5, the current deficit equals 0.08(50)/105 – 3.5/105 = 0.5/105. The debt/GDP ratio will increase with the same amount as the current deficit/GDP ratio.

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