



IMF Working Paper

An Assessment of Fiscal Rules in the United Kingdom

Michael Kell

IMF Working Paper

Fiscal Affairs Department

An Assessment of Fiscal Rules in the United Kingdom

Prepared by Michael Kell¹

Authorized for distribution by Richard Hemming

July 2001

Abstract

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

The paper assesses the United Kingdom's golden rule and debt rule against "ideal characteristics" of fiscal rules. It concludes that they are clearly defined; transparent in institutional arrangements and measurement; adequate to ensure sustainability; and strike a good balance between flexibility and enforceability. The rules could be strengthened by clarifying the benchmark embodied in the debt rule and the modalities of the "value for money" criterion for investment. Overall, the fiscal framework establishes the necessary preconditions for a credible fiscal policy, but the credibility of the rules could be undermined by the large gap between them and actual medium-term fiscal plans.

JEL Classification Numbers: E61, E62, H62, H63

Keywords: Fiscal rules, fiscal sustainability, intergenerational equity, transparency

Author's E-Mail Address: mkell@imf.org

¹ The author would like to thank Nigel Chalk, Andrew Dilnot, Richard Disney, Julio Escolano, Robert Ford, Robert Hagemann, Richard Hemming, Michael Keen, Andrew Kilpatrick, Stephen Miners, and Steve Symansky for helpful comments.

Contents	Page
I. Introduction	3
II. Assessing Fiscal Rules	4
A. The U.K. Government's Rationale for its Fiscal Rules	4
B. Different Methods of Assessing Fiscal Rules	6
III. Assessment Against Ideal Rule Characteristics	8
A. Well-Defined.....	8
B. Transparency	10
Transparency in institutional arrangements	10
Transparency in measurement and presentation	11
Transparency in forecasting.....	12
Transparency in analysis.....	13
Overall transparency	15
C. Adequate with Respect to the Specified Goal	15
Sound public finances	15
Intergenerational fairness.....	17
Removes bias against capital spending.....	21
Overall assessment against objectives	23
D. Simplicity, Flexibility, and Enforceability.....	23
E. Consistency.....	26
F. Supported by Efficient Policy Actions	28
IV. Summary and Conclusions	29
Boxes	
1. The Literature on Fiscal Rules.....	7
2. Optimal Debt.....	14
3. The Arithmetic of U.K. Fiscal Rules	19

I. INTRODUCTION

In its first Budget, in July 1997, the new U.K. government introduced two fiscal rules:

- the **golden rule**:² “over the economic cycle, the government will borrow only to invest and not to pay for current spending”; and
- the **sustainable investment rule**: “public sector net debt as a proportion of GDP will be held over the economic cycle at a stable and prudent level.”³

The rules are a central part of the government’s fiscal policy framework, as set out in the *Code for Fiscal Stability* (H.M. Treasury, 1998a). This “sets out the requirements for an open, transparent, and accountable approach to managing the public finances, and which will ensure that fiscal policy is set in the United Kingdom’s long-term interests.” Besides the two fiscal rules, there are two other key elements to the government’s fiscal framework: announced fiscal plans for the medium term, which at present fall well within the limits set by the two rules, and a series of measures to enhance the fiscal and economic accountability of H.M. Treasury and the spending departments.

The overall fiscal framework, and the complementary changes to the monetary policy framework also introduced by the new government, have been generally well received; see, for example, OECD (1998), IMF (2000a), and IMF (2001). The fiscal rules, however, have been subject to criticisms relating to a lack of clarity and enforceability, a failure to ensure sustainability and intergenerational fairness, the risk that they will undermine fiscal discipline by creating an incentive to reclassify expenditure, and insufficient constraint on a discretionary loosening of policy.⁴ This paper examines these and other criticisms, and provides an assessment of the rules in the context of the wider fiscal framework.

The paper proceeds as follows. Section II discusses the U.K. government’s rationale for its fiscal rules against the background of academic literature on fiscal rules, and examines some aspects of fiscal performance under previous regime in the United Kingdom; it then briefly discusses the different possible approaches to evaluating the fiscal rules. Section III assesses

² The concept of the fiscal golden rule (though not the terminology) dates back at least to Musgrave (1939). Phelps (1961) first coined the term “golden rule” in the context of optimal growth theory. It states that “the steady-growth state that gives the maximum path of consumption is the one along which the competitive rate of interest, which is the social rate of return to investment and to saving, is equal to the natural rate of growth” (Phelps, 1987). The fiscal and growth golden rules are conceptually distinct, though some attempts have been made to link them (see, e.g., Musgrave and Musgrave, 1984).

³ Both definitions taken from H.M. Treasury (2000a).

⁴ See, for example, Buiter (2001), Young (1999), IMF (2000a), and OECD (2000).

the two rules against a benchmark of “ideal characteristics” of fiscal rules, as set out in Kopits and Symansky (1998). Section IV concludes.

II. ASSESSING FISCAL RULES

A. The U.K. Government’s Rationale for its Fiscal Rules

The rationale for introducing the golden rule and the sustainable investment rule runs along the following lines (H.M. Treasury, 1998b).

- Under the previous policy regime, fiscal outturns have:
 - been imprudent in that current spending systematically exceeded current receipts, and the actual fiscal stance consistently turned out much looser than planned;
 - resulted in public investment falling to low levels by historical and international standards;
 - lacked transparency.
- The new fiscal framework should therefore improve transparency and accountability; focus on long-term planning; make a clear distinction between current and capital spending; and be prudent in allowing for uncertainties. In this context, the golden rule (a) promotes intergenerational fairness by ensuring that today’s taxpayers pay for today’s current spending while public investment, which will benefit future generations, is paid for in part by future taxpayers; and (b) maintains an adequate level of public sector investment.
- But the golden rule needs to be supplemented by the sustainable investment rule, which ensures the sustainability of public finances, and maintains the government’s ability to buffer the economy against major shocks.⁵

The first issue which needs to be addressed is the validity of the above criticisms of fiscal outcomes under previous regimes in the United Kingdom. The government highlights two pieces of evidence to support the argument that fiscal policy has been imprudent: that fiscal outturns were consistently more lax than announced plans during the late 1980s and the early 1990s, and that current spending has exceeded current receipts in every economic cycle since the mid-1970s, and by more than 1.5 percent of GDP over the most recent complete

⁵ The government also emphasizes that the golden rule will be accompanied by cautious assumptions in adjusting for the effects of the cycle. Because the fiscal rules apply over the economic cycle, the government has committed itself to publish cyclically adjusted measures of fiscal aggregates. It is argued that this will guard against the risk of justifying a lax fiscal stance by using overoptimistic assumptions about trend growth, etc. This is discussed further in Section III.

cycle, 1985/6–1996/7 (H.M. Treasury, 1998b). A further example often used to illustrate the imprudence of fiscal policy during the last cycle is the substantial fiscal loosening during 1988, at a point when the economy was in the midst of a boom. Pain, Weale, and Young (1997) estimate that in 1995 the U.K. primary deficit was around 3 percent of GDP higher than behavior over the period 1951–85 would have implied, suggesting a significant loosening of fiscal policy even allowing for the state of the cycle. On the other hand, it is worth noting that United Kingdom fared better in terms of the evolution of net public sector debt than any other G-7 country except Japan in the period 1980–1997 (OECD, 1998). Furthermore, several studies concluded that in terms of the long-run sustainability of the fiscal position the United Kingdom in the mid-1990s was stronger than in the other G-7 countries—see, for example, Chand and Jaeger (1996), and Chalk and Hemming (2000). These points notwithstanding, there was clearly room to improve on the prudence of fiscal policy under the pre-1997 regime.

To support the claim that public investment has fallen to low levels, the government points to the decline in general government gross investment (since this measure removes the distortions to net investment figures caused by privatization) since the 1960s, and OECD figures showing that, as a share of GDP, general government gross investment in the United Kingdom has consistently been the lowest in the G-7. However, figures for gross public sector capital formation in 16 OECD countries over the period 1994–98 in Ligthart (2000) show the United Kingdom was not out of line with many Western European countries. Indeed, as the government acknowledges, there are difficulties in drawing firm conclusions from time-series and cross-country evidence (H.M. Treasury, 1998b). Nonetheless, there is certainly a good *prima facie* case to be made that public investment in the United Kingdom in the 1980s and the 1990s was low.

The extent to which this is a problem, however, is not clear. The U.K. government argues that growth has suffered as a result of inadequate levels of investment (H.M. Treasury, 1998c). The few studies that have looked at this issue for the United Kingdom have reached differing conclusions. Lynde and Richmond (1993) find that during the 1980s the contribution of public capital to productivity growth in the manufacturing sector was negligible, and that a higher rate of infrastructure investment in line with levels in the 1960s and 1970s would have increased productivity significantly. Demetriades and Mamuneas (2000), in a study of 12 OECD countries, find significant under-investment in public capital in the United Kingdom in the 1970s and the 1980s. On the other hand, Evans and Karras (1994), using panel data from seven industrialized countries including the United Kingdom, find no statistically significant evidence that government capital is highly productive and underprovided in those countries. Further empirical work to help determine the degree of under investment in public capital would strengthen the government's case.

The previous fiscal regime lacked transparency in at least two important respects. First, although medium-term fiscal objectives were articulated in successive budgets under the preceding governments, the precise specification of these objectives changed frequently, making it difficult to discern the principles underlying fiscal policy (Young, 1998). Second, the failure to publish cyclically-adjusted measures of the budget balance probably

contributed to the inappropriately lax fiscal stance in the late 1980s. The improvements in transparency resulting from the two fiscal rules and supporting policies are discussed in Section III.⁶

B. Different Methods of Assessing Fiscal Rules

Having established the sub-optimality of fiscal performance under the pre-1997 regime in the United Kingdom, the next question is how best to assess whether U.K. fiscal rules, within the context of the wider fiscal framework, will result in superior fiscal outcomes.

The existing theoretical and empirical literature on fiscal rules, summarized in Box 1, is of limited value in addressing this question. The theoretical case for fiscal rules is in general ambiguous; moreover, existing analyses tend to focus on simple (and rigid) balanced budget rules which will have very different properties to the U.K. rules. While the notion of a deficit bias resulting from political “distortions” is consistent with the U.K. experience under the previous fiscal regime, examining this in a rigorous but realistic theoretical framework would be very difficult.⁷ The theoretical literature does however highlight the trade-offs between simplicity and enforceability on the one hand, and flexibility in responding to shocks on the other hand; this is discussed further in Section III.

The empirical literature on fiscal rules is also not conclusive. As emphasized by Poterba (1996), the existing evidence is insufficiently refined to permit detailed policy prescriptions, which in any event may be heavily dependent on country-specific institutional and other features, and therefore difficult to apply generally. That said, two lessons emphasized in Kopits and Symansky (1998) are relevant to the U.K. case: first, some fiscal rules have resulted in decreased transparency; and second, experience with fiscal rules around the world suggests that it is preferable to prepare well in advance for the adoption of fiscal rules by committing to a discretionary fiscal adjustment path to establish or restore fiscal discipline—which describes U.K. experience in the mid-1990s—rather than introducing fiscal rules immediately following a financial crisis.

⁶ The case for fiscal transparency is widely agreed; see, for example, the Interim Committee Declaration of April 1998 in IMF (1998), and Kopits and Craig (1998). Fiscal transparency strengthens accountability and increases the political risk associated with maintaining unsustainable policies. It can therefore enhance credibility—to some extent substituting for the absence of a track record of policy achievements—reflected in lower borrowing costs and stronger support for sound macroeconomic policies by a well-informed electorate; see Martijn and Samiei (1999).

⁷ In particular, the simplifying assumptions that would be involved in a theoretical analysis of U.K. fiscal rules would be easily criticized; Buiter (2001) highlights the “inherent difficulty of putting together an interesting economic system and a recognizable political governance structure.” For an overview of the different approaches to, and difficulties in, modeling the behavior of political decision makers, see van Velthoven, Verbon, and van Winden (1993).

Box 1. The Literature on Fiscal Rules

There are two main types of **theoretical** argument for fiscal rules. The first emphasizes the negative externalities or spillover effects within a federation or currency area. A fiscal rule restraining the deficits of lower level governments can prevent externalities of lax fiscal policy in one jurisdiction from being transmitted, through higher interest rates for example, to other jurisdictions and the higher level authority. (See Kopits and Symansky, 1998, and Corsetti and Roubini, 1993.) The second type of argument—which is more relevant to the United Kingdom, where subnational governments have very little budgetary autonomy—emphasizes “political” distortions, which cause a deficit bias. Several variants are found in the literature: early explanations from the “public choice” school (e.g., Buchanan and Wagner, 1977) explained a bias towards fiscal deficits in democracies in terms of myopia on the part of the electorate; more recent explanations of suboptimal fiscal outcomes have moved away from this unsatisfactory assumption and focused instead on the degree political cohesion (Roubini and Sachs, 1989, and Alesina and Drazen, 1991); the use of deficit spending and debt accumulation as a strategic tool to tie the hands of future governments with different policy objectives (Alesina and Tabellini, 1990); and the use of preelection deficits as a signaling device (Rogoff and Sibert, 1989). Whatever the source of the deficit bias, its existence suggests there is scope for binding fiscal rules to be welfare-enhancing by addressing the time inconsistency of discretionary policy. The main cost of fiscal rules emphasized in the theoretical literature is that they prevent the use of fiscal policy for the stabilization of output (in models where output depends on aggregate demand) or for tax smoothing (in neoclassical models where real/productivity shocks are the source of fluctuations). These welfare costs must be weighed against the welfare gains from offsetting the deficit bias. Some studies have derived “optimal” fiscal rules, such as a balanced budget with an escape clause (Corsetti and Roubini, 1993). But this kind of result, or more generally a ranking of the outcomes under discretion versus those under various rules, requires explicit and typically oversimplified assumptions about the type and distribution of shocks, the extent of the political biases, the nature of rigidities in the economy and so on.

The **empirical** evidence on fiscal rules is also inconclusive. Poterba (1996) argues that this is not surprising, given the limited variation in budget rules over time in particular countries; the wide heterogeneity of budget rules and institutions across countries, and the difficulties in capturing these features in quantitative measures; and the possibility that fiscal rules and fiscal outcomes may both be driven by some common and difficult to measure variable such as voter preferences on fiscal conservatism. Nonetheless, he concludes that the empirical evidence—from U.S. federal experience with deficit limitation laws, from the range of budget rules across the United States, and from a few cross-country studies of the correlation between budget institutions and fiscal outcomes—generally support the view that “tightly-drawn” anti-deficit rules can reduce deficits and promote more rapid adjustment of taxes and spending to unexpected fiscal shortfalls. But Poterba also concludes that the existing evidence is not sufficiently refined to provide clear advice on how detailed changes in budget rules might affect policy outcomes. The assessment of the existing evidence in Kopits and Symansky (1998) is less supportive of fiscal rules. They conclude that “for the most part...economic performance under fiscal rules has been mixed.” On the one hand, attempts to comply with fiscal rules at a national level in the advanced economies has contributed to a decline in inflation and interest rates, mitigated the crowding out of private investment and alleviated external imbalances. The evidence from the United States suggests that strict ex post budget balance rules are correlated with lower deficits, and such limits do not seem to adversely affect output variability, though these findings are of limited relevance for national fiscal rules. On the other hand, compliance with fiscal rules has led to distortions in the composition of government expenditures, particularly against public investment, or to tax increases. In some instances, fiscal rules have reduced the degree of fiscal transparency by encouraging the accumulation of payment arrears, the use of creative accounting practices, and the recourse to one-off measures such as financing from privatization receipts.

An ex post empirical study of the effects of U.K. fiscal rules would clearly be difficult. In addition to the fact that they have been implemented only recently, there are a number of other obstacles to empirical analysis of fiscal rules. One ex ante empirical approach which would be more appropriate for the U.K. situation is to simulate the effects of fiscal rules on key variables using a macroeconomic model.⁸ As an alternative, this paper assesses U.K. fiscal rules against a number of “ideal rule characteristics.”

III. ASSESSMENT AGAINST IDEAL RULE CHARACTERISTICS

Kopits and Symansky (1998) specify eight criteria by which to judge fiscal rules. Fiscal rules should be well-defined; highly transparent; adequate with respect to the specified goal(s); consistent with other macroeconomic policies; simple in the eyes of the public; flexible enough to accommodate cyclical fluctuations and exogenous shocks; enforceable in the given environment; and supported by efficient policies, including structural reforms, rather than one-off measures.

A. Well-Defined

A fiscal rule should be well-defined as to the indicator to be constrained, institutional coverage and specific escape clauses, in order to avoid ambiguities and ineffective enforcement.” [Kopits and Symansky, page 18]

The key fiscal indicator for assessing performance against the golden rule is the average current budget balance over the cycle (H.M. Treasury, 1999c). The current budget balance is defined as the difference between tax receipts and current public expenditure, including depreciation. Kopits and Symansky (1998) argue that, in general, it is preferable for rules relating to fiscal flows to be defined in terms of the overall balance, rather than the current balance, since investment expenditure suffers from conceptual and measurement problems. In particular, a standard criticism of the golden rule is that the key distinction between current and capital expenditure is open to interpretation, with the risk that some current expenditures will be classified as investment to make any level of current spending consistent with the golden rule. The U.K. government acknowledges this risk and uses national accounting conventions to define investment,⁹ on the grounds that this is transparent and

⁸ Kopits and Symansky (1998) use stochastic simulations of MULTIMOD, the IMF’s macroeconometric world model, to examine the effects of a range of fiscal rules for each G-7 country. None of their regimes exactly match the United Kingdom’s two rules, but their simulation of the effects of a debt target that allows the operation of automatic stabilizers is closest. This suggests that, under such a fiscal rule, U.K. output would have been more volatile over the period 1974–95 than it actually was, but most other macroeconomic variables would have been more stable.

⁹ From September 1998, the U.K. national accounts became consistent with the new European System of Accounts 1995 (ESA95) and now record most transactions, including taxes (although not corporation tax), on an accruals basis.

should limit any definitional slippage. By tying its hands in this way, the government has taken steps to enhance confidence in its commitment to a transparent definition of current and capital spending, although ultimately the government's credibility on this issue will depend on its track record.

The key fiscal indicator for assessing performance against the sustainable investment rule is clearly defined as public sector net debt (gross debt less liquid financial assets), as a proportion of GDP; the "prudent level" is currently defined as not exceeding 40 percent of GDP (H.M. Treasury, 1999b).¹⁰

The application of both rules "over the cycle" raises some issues of interpretation. For instance, a relatively strict interpretation of applying the golden rule over the cycle would require the cyclically adjusted current balance to be zero each year. However, nonzero cyclically adjusted current balances are deemed to be consistent with the rules, on the assumption that these will be offset by subsequent surpluses or deficits.¹¹ Similarly, the sustainable investment rule—public sector net debt will be held over the cycle at a stable and prudent level of 40 percent—could be interpreted in different ways. Is the benchmark a debt-to-GDP ratio that averages less than 40 percent over the cycle, analogous to the golden rule? Or is the intention that the debt ratio will be less than 40 percent at the end of the cycle? Either of these interpretations would imply that breaching the 40 percent mark during the cycle would be consistent with meeting the rule. Alternatively, is there a strict ceiling of 40 percent which will not be exceeded at any point in the cycle? H.M. Treasury 1998c states that "the Government believes that, other things equal, it is desirable that net public debt be reduced to below 40 percent of GDP over the economic cycle" which suggests that it is the debt level at the end of the cycle that is critical, but the precise interpretation of the rule could be made clearer.¹²

Concerning **institutional coverage**, both rules are clearly defined as applying to the public sector, rather than general government (as in the case of deficits relevant to the Maastricht

¹⁰ The rationale for this target is discussed below.

¹¹ A related issue is whether the target is current account balance, or current account balance as a minimum. H.M. Treasury (1998a) emphasizes that "over the economic cycle current spending [will be] met by current receipts," suggesting that the government will aim for current balances over the cycle summing to zero. But other documents, such as H.M. Treasury (1999c) and H.M. Treasury (2000a), state that "the golden rule will be met when the average current budget over the economic cycle is in balance *or surplus*." The authorities explain that given the difficulties in forecasting the public finances accurately, it is unlikely that exact balance will be achieved over the cycle. Therefore a degree of caution has been built into the fiscal projections, reflecting the asymmetric cost function associated with underachieving against the golden rule. This implies that, ex post, there will be a small current surplus on average.

¹² There are further issues relating to the application of the rules over the cycle, such as the trade-off between a flexible rule and an enforceable rule, which will be discussed below.

Treaty) or other narrower measures. The government argues that “since the taxpayer would foot the bill for the debts of public corporations, this should be recognized in the fiscal framework ... [Secondly,] looking at the public sector as a whole does not create incentives to change behavior simply to exploit differences in the control regime” (H.M. Treasury, 1998b).

Finally, concerning **escape clauses**, the conditions under which the government may change, and/or depart temporarily from, its fiscal policy objectives and rules are clearly set out.¹³

B. Transparency

“An essential characteristic of a durable fiscal rule is transparency in government operations, including accounting, forecasting and institutional arrangements.” [Kopits and Symansky, page 18]

The U.K. fiscal rules are clearly based on an explicit mandate to improve and maintain transparency. One of the five principles underpinning the Code for Fiscal Stability is “transparency in the setting of fiscal policy objectives, the implementation of fiscal policy and in the publication of public accounts.” Moreover, the U.K. government frequently emphasizes the importance of transparency: for example, H.M. Treasury (1999a) states that “transparency is an integral and pervasive feature of the new [fiscal] framework, so ensuring that parliament and the public can scrutinize the economic and fiscal plans.”

Transparency in institutional arrangements

Institutional arrangements for the fiscal policy framework, including the fiscal rules, require the government to:

- “state and explain its fiscal policy objectives and the rules by which it intends to operate fiscal policy over the life of the parliament; to conduct fiscal (and debt management) policy in accordance with those principles; to disclose and quantify where possible all decisions which may have a material impact on the economic and fiscal outlook” (H.M. Treasury 1998c);
- justify any changes in the fiscal objectives and rules; an amended Code can only be issued with parliamentary approval under affirmative resolution procedures;

¹³ “The Government may change its fiscal policy objectives and operating rules, provided that: (a) any new fiscal policy objectives and operating rules also accord with the principles stated in paragraph 3 [of the Code—namely, transparency, stability, responsibility, fairness and efficiency]; and (b) the reasons for departing from the previous objectives and operating rules are stated. The Government may depart from its fiscal policy objectives and operating rules temporarily, provided that it specifies: (a) the reasons for departing from the previous fiscal policy objectives and operating rules; (b) the approach and period of time that the government intends to take to return to the previous fiscal policy objectives and operating rules; and (c) the fiscal policy objectives and operating rules that shall apply over this period.” (H.M. Treasury, 1998a.)

- publish a number of reports: (a) at least three months prior to each budget, a *Pre-Budget Report* setting out (inter alia) economic and fiscal projections, an analysis of the impact of the cycle, illustrative projections for key fiscal aggregates at least 10 years ahead to shed light on intergenerational concerns; (b) at the time of the budget, a *Financial Statement and Budget Report* setting out (inter alia) projections, explanations of significant policy measures, and an explanation of how the budget is consistent with the fiscal policy objectives and any European commitments; and (c) an *Economic and Fiscal Strategy Report* outlining the government's long-term goals and strategy for the future;
- invite the National Audit Office to audit changes in the key assumptions and conventions underpinning the fiscal projections;
- refer all reports issued in accordance with the Code to parliament (specifically, to the Treasury Committee); and
- ensure the public has full access to the reports.¹⁴

One point to emphasize is that the fiscal rules themselves are not specified in the *Code for Fiscal Stability*. This is important in the context of transparency, because it clarifies the distinction between the *Code*—which should set out fundamental principles relevant for the long term and in many possible states of nature—and the rules, whose desirability and features are more contingent.¹⁵

Transparency in measurement and presentation

The key indicator for judging performance against the golden rule, the current budget balance, raises some measurement issues. The difficulties in distinguishing current from capital spending, and the steps taken by the government to address those problems, were discussed above. In addition, there are the well known problems in measuring the depreciation of the public sector capital stock (see Blejer and Cheasty, 1991). Estimates of depreciation are produced by the U.K. Office of National Statistics, derived from a model that uses assumptions about asset lives and a rolling estimate of the public sector's stock of capital assets derived from capital expenditure data. It is worth noting that since

¹⁴ Furthermore, in the 1999 budget, the government announced that it would propose an amendment to the Code for Fiscal Stability requiring a leaflet to be sent to every household informing them of tax and spending decisions. The government is still considering "the most effective way to take this forward" (H.M. Treasury, 2000a).

¹⁵ The U.K. government argues: "The ongoing process of strengthening the fiscal framework might, in time, require that the fiscal rules themselves are supplemented. For example, once conceptual and data problems are tackled, it is possible that balance sheet considerations might play a more substantial role in the fiscal framework" (H.M. Treasury, 1998a).

November 1999 the U.K. government has produced estimates of the current budget balance on a monthly basis.

Another important, and more general, point concerning transparency in measurement is to note that the *Code for Fiscal Stability* commits the government to apply best-practice accounting methods, and to produce accounts for the whole public sector. The government has now introduced “Resource Accounting and Budgeting”—an accruals-based system close to private sector Generally Accepted Accounting Principles—for central government departments and agencies, and is working towards producing fully consolidated “Whole of Government Accounts” by 2005–06. These reforms will provide better quality and more transparent data for the planning of fiscal policy, and should facilitate improved efficiency in public spending.

Adjusting various fiscal aggregates for the economic cycle is central to judging performance against the rules. This is notoriously difficult,¹⁶ but the U.K. authorities have gone to some lengths to explain the derivation of their cyclically adjusted fiscal aggregates (see H.M. Treasury, 1999d), and cyclically-adjusted measures of key fiscal aggregates are included in the budget documentation.

On the debit side, the authorities have recently been criticized for not being sufficiently clear about changes in the fiscal stance from year to year. In particular, the Parliamentary Treasury Committee in its report on the 2000 Budget recommended that the authorities provide more information on the absolute change in the cyclically adjusted fiscal stance, in addition to the information published on the change relative to the previous budget’s projections (House of Commons, 2000).

Transparency in forecasting

The *Code for Fiscal Stability* requires the pre-budget report and the financial statement and budget report, both of which must include (short-term) economic and fiscal projections, to disclose certain specified information as a minimum. This includes key assumptions underlying the forecasts. In addition, the economic and fiscal strategy report is required to present an analysis of the impact of the cycle on the main fiscal aggregates and to present illustrative projections, “based on a range of plausible assumptions,” for a period of at least 10 years ahead. The government’s intention is to inform debate on the intergenerational impact and sustainability of the government’s fiscal policy.

¹⁶ As Eichengreen (1998) puts it: “the one thing economists know about cyclical adjustments is that we do not know how to do them.”

Transparency in analysis

Concerning the golden rule, there are analytical issues concerning the stated objectives of sustainable public finances, intergenerational fairness, and equal treatment of current and capital spending. These are discussed in the next section.

The analytical basis for the sustainable investment rule is explained in H.M. Treasury (1998a). It starts from the proposition that fiscal policy should be prudent, that is “sustainable even in the face of adverse shocks.” Debt also “helps to spread the cost of public investment fairly across generations.” The optimal level of debt therefore has to “balance the need to undertake worthwhile public investment and fund it in a fair way, against the requirement that debt remains prudent.” The government emphasizes that the level of public debt which is prudent will vary between countries and over time (not least because the type and distribution of shocks may change). At present, the government argues, the marginal benefits of public investment are likely to be relatively high (due to under investment over recent years) which tilts the balance towards increasing (debt financed) investment rather than substantially reducing public debt from the level it inherited (i.e., around 42 percent of GDP). Hence the “stable and prudent” target for public debt is currently defined as below 40 percent of GDP over the cycle.

This prompts a number of questions. Two of these—whether the government’s definition of sustainability is a sensible one, and whether a stable debt ratio of below 40 percent over the cycle is consistent with sustainability—are taken up in Section III. Here we briefly address a third question: how does the analytical basis of the sustainable investment rule measure up against “optimal” debt policy?

As Box 2 indicates, economic theory does not provide much in the way of simple, unambiguous prescriptions about the optimal level of debt. But it does suggest a range of factors which are important for debt policy, and it is clear that the government’s analysis is consistent with some ideas from the literature. That said, the government’s emphasis on a stable level of debt over the cycle is difficult to reconcile with the theories outlined in Box 2. A stable debt ratio can be optimal under certain assumptions (neoclassical agents, no market imperfections, and a Pareto criterion). But it seems unlikely that the sustainable investment rule can be defended on those grounds. Indeed, most theoretical models of optimal fiscal policy, whether based on Keynesian or market-clearing assumptions, imply movements in the debt ratio in response to shocks which are not related to the business cycle—the obvious example being wars. Recall, however, that the *Code for Fiscal Stability* does allow for departures from the two fiscal rules, provided the reasons are explained; H.M. Treasury (1998c) also notes that “over time, as economies develop, the level of public debt that is prudent for an individual country will change.” An alternative justification for aiming for a stable level of debt over the cycle—though not explicitly stated by the U.K. government—may be in terms of credibility. As van Velthoven, Verbon, and van Winden (1993) note, “even if the government is earnestly trying to pursue an optimal policy, it is at the mercy of agents’ expectations whether this policy is sustainable and credible.” A target value for the debt-to-GDP ratio which is stable may make monitoring easier and hence improve

2. Optimal Debt

Optimal debt policy will depend, in the first instance, on how debt affects the economy. But there is little consensus on this.

- According to the strict **Barro-Ricardian view** (i.e., households are rational with infinite planning horizons, capital markets are perfect, taxes are lump sum, and so on), switching between debt and taxation has no effects. The government should aim to keep the tax rate constant at its permanent value, determined by the permanent level of government spending, to minimize the intertemporal deadweight loss. Debt should be issued to finance temporary increases in spending, such as that related to wars, and retired during “normal” times. But this tax-smoothing model (Barro, 1979) says nothing about the optimal level of debt. Moreover, the inherited level of debt is of little relevance: what matters is how far current spending levels deviate from the permanent level. But determining the latter is not straightforward, since it rests (inter alia) on assumptions about future preferences about the public sector.
- The **neo-classical view** rests on similar assumptions, except that households have finite planning horizons. This implies that a switch from tax to debt finance has positive net wealth effects for existing households, but at the cost of lower wealth among future generations; this is reinforced by the fact that national saving will fall when debt is issued, leading to a fall in investment and hence future consumption. Assuming dynamic inefficiency (i.e., growth rates permanently higher than interest rates, with a corresponding over accumulation of capital) is ruled out, a reduction in debt would increase welfare according to the neoclassical view. But because some generations gain at the expense of others, the government has to weigh the utilities of different generations in a social welfare function to decide on optimal changes in the level of debt; by the same logic, the only Pareto-optimal debt policy is one of a constant debt ratio.
- According to the traditional **Keynesian view**, where consumers are liquidity constrained and resources can be underemployed in equilibrium, an increase in debt can be welfare-enhancing, both for the current generation, due to higher consumption, and for future generations, due to higher investment. More recent Keynesian models have acknowledged the limitations to these types of effects, and even predict contractions in output following a rise in debt in certain circumstances (e.g. Sutherland, 1997). Nonetheless, in the presence of market failures, certain types of debt-financed expenditure, on education or infrastructure, for example, could be welfare-enhancing. However, there is no prescription for the optimal level of debt.

Different economic theories thus indicate a range of factors which impact on optimal debt. These include (but are not limited to): the relationship between growth and interest rates, demographic trends, the distortionary effects of different taxes, the parameters of the government’s intertemporal social welfare function (in particular, the degree of aversion to risk and inequality across generations), the type and extent of market failures, the degree to which consumers are forward-looking, the size and distribution of shocks, and whether government expenditure is either permanent/structural or temporary (for further discussion, see Boadway and Wildasin, 1993). But theory does not indicate which of these factors are most important; it also seems highly unlikely that a model could reflect these considerations and still be tractable, let alone provide simple policy prescriptions.

credibility.¹⁷ This ties in with the rules versus discretion debate which was briefly discussed in Section II.

Overall transparency

Taking the different components of transparency together, U.K. fiscal rules score highly, particularly in respect of their institutional arrangements. However, there is room to improve the clarity of the constraint implied by the sustainable investment rule, and to make clearer in budget documentation the absolute changes in the fiscal stance from year to year.

C. Adequate with Respect to the Specified Goal

“Fiscal rules should be adequate with respect to the specified proximate goal[s].” [Kopits and Symansky, page 18]

The primary objective of the U.K. government’s macroeconomic framework, covering monetary and fiscal policy, is to promote economic stability, which is defined as “the maintenance of high and stable levels of growth and employment, so that everyone can share in high living standards and greater job opportunities” (H.M. Treasury, 1999a). In addition, the fiscal framework “also supports some other government objectives, including the more efficient use of resources in the public sector and (thus) raising productivity in the economy.” Against this background, H.M. Treasury (1999a) indicates three specific (medium-term) objectives for the two fiscal rules: delivering sound public finances; promoting intergenerational fairness; and removing any bias against capital spending. These goals will be considered in this section. In addition, H.M. Treasury (1999c) and (2000a) state that fiscal policy has the short-term objective of supporting monetary policy, where possible, through the operation of the automatic stabilizers and discretionary changes in the fiscal stance; this will be considered in Section E below.

Sound public finances

By “sound” public finances, the U.K. government means that net public debt, as a proportion of GDP, will be held at a prudent and stable level over the cycle. There seem to be two main components to the government’s definition of prudent: that policy should be adjusted for the economic cycle, with a margin for uncertainty; and sustainable in the face of adverse shocks.

Concerning the first element, the government emphasizes the importance of being cautious in setting fiscal policy, balancing the risks of underperforming against the fiscal rules against those of setting an overly tight fiscal stance. In implementing this, a deliberately cautious assumption about the economy’s trend rate of growth is made; this and other key

¹⁷ It is also worth noting that most operational measures of fiscal sustainability take a stable debt ratio as their benchmark (see Blanchard, 1990, and Chalk and Hemming, 2000).

assumptions and conventions underlying the forecasts of the public finances are examined by the National Audit Office in published reports (see H.M. Treasury 1999b and 1999c). Concerning the second element, a sustainable fiscal policy is defined as one whereby “on the basis of reasonable assumptions, the government can maintain its current spending and taxation policies indefinitely while continuing to meet its debt interest obligations.” (H.M. Treasury, 1998c.)

Most definitions of fiscal sustainability focus on the government solvency constraint (or intertemporal budget constraint). This requires that the government run future primary surpluses equal in present value terms to the outstanding stock of public debt. According to this definition, even a rising debt ratio could be sustainable (if the output growth rate exceeds the interest rate, for example). Equally, a constant debt ratio of, say, 10 percent of GDP need not imply solvency *ex ante*, depending on the expected path of interest rates, growth rates, and future fiscal policies.¹⁸ The solvency interpretation of fiscal sustainability assumes the projected paths of the primary balance, interest rates and economic growth are independent of one another; a broader definition of fiscal sustainability involves determining whether the government can continue to pursue its current policies, allowing for the influence of fiscal policy on private sector savings and investment behavior (see Horne, 1991). The U.K. government’s definition of sustainability is closer to this more demanding definition than to the solvency interpretation.

Is a stable debt ratio around 40 percent consistent with that definition of sustainability? Not necessarily, since sustainability depends on expectations about future policies, assumptions about private sector behavioral responses, and so on. But a debt ratio of 40 percent is low by the standards of other industrialized countries; and there is no indication that financial markets are concerned about the sustainability of fiscal policy in the United Kingdom. More concretely, long-term fiscal projections suggest that the public finances are sustainable in the context of the two fiscal rules.¹⁹ In particular, given fairly cautious assumptions about taxation, transfer payments, public investment, and demographic influences on current spending, there is scope for real growth in current consumption of around 2.5 percent per year (over the next 30 years) consistent with the two fiscal rules (with net debt stabilizing slightly below 40 percent of GDP by 2029–30). However, such projections are subject to much uncertainty and are very sensitive to assumptions about growth rates, future policies, and so on.²⁰

¹⁸ Note that the solvency condition is always satisfied *ex post*, through debt repudiation, monetization, the revision of fiscal plans, and so on.

¹⁹ See H.M. Treasury (2000a).

²⁰ For example, Cardarelli, Sefton, and Kotlikoff (2000) approach the issue of fiscal sustainability by estimating a set of generational accounts for the United Kingdom. They conclude that, even assuming very tight fiscal restraint (e.g., continuing to index pension benefits to prices rather than wages), there is an intertemporal (and generational) imbalance: that is, lifetime net tax payments of future generations will have to be higher than
(continued...)

What is the role of the golden rule in delivering sound public finances? It is clearly established that the golden rule by itself is neither necessary nor sufficient for a stable debt-to-GDP ratio (see Buiter, 2001). The golden rule puts no limit on the amount of government capital spending, and debt-financed public investment is only consistent with sustainable public finances if the returns to such investment²¹ cover the cost of financing. However, governments can and should invest knowing that the financial returns will never cover costs, as long as the nonfinancial returns are sufficiently high.²² To address this issue, the U.K. fiscal framework includes a constraint on the level of debt, embodied in the sustainable investment rule. Thus, although the golden rule says the government *can* borrow to finance any level of investment, the amount of such borrowing will be constrained to ensure a stable and prudent debt-to-GDP ratio. Box 3 examines this aspect of the two rules in more detail.

Intergenerational fairness

First, it is important to be clear what is meant by intergenerational fairness or equity. Intergenerational fairness can be defined in various ways. Generational accounting, as first suggested by Auerbach, Gokhale, and Kotlikoff (1991), gives rise to relatively precise (albeit limited and conceptually debatable) definitions, such as comparing the effective lifetime tax rates of newborn and future generations.²³ The consistency between the golden rule and generational accounting is discussed further below. An alternative definition is given in Robinson (1998): “from the golden rule perspective ... intergenerational equity requires ... that the costs associated with ... expenditure should be spread over time in accordance with the distribution over time of the benefits that they generate.” Buiter (2001) gives a broader definition of intergenerational fairness which emphasizes the lifetime consumption of all public and private goods and services by current and future generations.

Second, it is necessary to determine exactly what concept of intergenerational fairness the U.K. government is using, and what is claimed for the golden rule with respect to that definition. This, however, is not clear, since different government documents say slightly different things. The *Code for Fiscal Stability* says: “The golden rule ... means that the costs and benefits of public expenditure are shared fairly between generations.” This definition of intergenerational equity seems to be closest to that of Robinson (1998) and Musgrave (1988).

those of current generations to satisfy the government’s intertemporal budget constraint. The report does, however, note that this imbalance is quite modest compared to other industrial countries

²¹ Buiter (2001) distinguishes between direct cash returns and indirect returns, which could result if the public investment expands or augments the tax base.

²² Buiter (2001) gives examples of public sector projects for which it would be inefficient to charge user fees, because the projects are subject to increasing returns to scale, or because the consumption of the services generated are nonrival or nonexcludable.

²³ Auerbach (1994) and Haveman (1994) provide useful overviews of the generational accounting literature; see also IMF (1996).

H.M. Treasury (1998b) says, “the golden rule *promotes* fairness between generations,” while H.M. Treasury (1999e) makes the more cautious claim that “the golden rule... *is consistent with* achieving fairness between generations.” On the other hand, H.M. Treasury (1999b) says “the golden rule ... *ensures fairness between generations.*”²⁴

The argument that the golden rule ensures intergenerational equity is set out in Musgrave and Musgrave (1989). The starting point is the “benefit principle” of equity, according to which an equitable tax system is one under which the taxes paid by each individual should be in proportion to the benefits they receive from public spending.²⁵ Next, it is assumed that capital spending results in benefits extending beyond the current period. Intergenerational equity then requires future generations to pay for part of public investment, in line with the benefits they receive from that investment. To achieve this, it is necessary to divide the budget into current and capital expenditures, and to finance the former through taxation and the latter through debt, in turn assuming that tax finance only reduces consumption and debt finance only reduces saving and hence investment. Finally, it is assumed that the amortization of debt payments, through taxes on future generations, is synchronized with the flow of benefits from the investment.

When put in these terms, however, it is apparent that the proposition that the golden rule ensures intergenerational equity is subject to many problems of both a theoretical and practical nature.

- The proposition hinges on a wide range of assumptions concerning the behavioral response to taxation and amortization payments, the bequest motive, the determinants of growth, etc. To take just one counter example, if consumers behave in accordance with Ricardian equivalence, they would respond in the same way to debt and tax finance, and the golden rule becomes irrelevant to intergenerational equity. Buiter (2001) makes the more general point that it is the general equilibrium effects of fiscal policy that matter for intergenerational fairness; without knowing the ultimate incidence of benefits of government investment and of taxation, which in turn depend on behavioral and other assumptions, how can you be certain that any fiscal policy results in intergenerational equity?

²⁴ Italics added for emphasis.

²⁵ The other main equity principle relates to “ability to pay.” This separates tax policy from expenditure policy and requires that each taxpayer contribute that part of the total tax bill in accordance with their ability to bear taxes. See Musgrave and Musgrave (1989) for further details.

Box 3. The Arithmetic of U.K. Fiscal Rules

This box looks in more detail at the arithmetic and internal consistency of the United Kingdom's two fiscal rules. Following Buiter (2001), the debt-GDP ratio evolves as

$$\dot{b} = g^I + g^C + ib - \tau - (\pi + n)b \quad (1)$$

where b is the debt stock; g^I is gross government investment; g^C is government consumption; i is the nominal interest rate; τ is revenue, net of transfers and including any cash returns on public sector capital; π is the inflation rate; and n is the trend growth of real output. All variables are expressed as a percentage of nominal GDP, dots over a variable signify rates of change, and bars over variables indicate steady state. Alternatively, defining d as the public sector deficit (including interest expenditure) as a share of GDP,

$$\dot{b} = d - (\pi + n)b \quad (2)$$

The golden rule constrains the deficit not to exceed net investment, so that

$$d \leq g^I - \delta k^G \quad (3)$$

where δ is the depreciation rate on public sector capital and k^G is the ratio of the public sector capital stock to GDP. If the golden rule holds as an equality, and the debt stock is constant, then

$$g^I - \delta k^G = (\pi + n)b \quad (4)$$

Therefore to hold the debt ratio constant at 40 percent, and assuming trend inflation of 2.5 percent and trend real growth of 2.5 percent, the golden rule implies a deficit of 2 percent a year. Alternatively, if the deficit averaged 0.6 percent over the long term (the outturn in the United Kingdom in FY 1997/98), the debt ratio would stabilize at 12 percent.

It is worth emphasizing that nothing in the golden rule constrains the *level* of net investment. Thus, only if the trend level of debt-financed net investment (as a percentage of GDP) happens to equal the product of the targeted 40 percent debt ratio and the trend growth rate of nominal GDP will the golden rule be consistent with the sustainable investment rule.

To consider the implications of the two rules for gross government investment, note that,

$$\dot{k}^G = g^I - (\delta + n)k^G \quad (5)$$

Hence if government borrowing equals net investment (i.e., equation (3) holds as an equality), and combining equations (4) and (5), then in steady state

$$\bar{b} = \frac{g^I \left(\frac{\bar{n}}{(\bar{n} + \bar{\delta})} \right)}{(\bar{\pi} + \bar{n})} \quad (6)$$

With $\bar{n} = \bar{\pi} = 2.5$ percent, and now assuming that the annual depreciation rate of public sector capital is 5 percent, a stable debt ratio of 40 percent implies gross public sector investment of 6 percent a year.

- Buiter (2001) makes a related but separate theoretical point. The intergenerational fairness of a particular element of government spending and financing cannot be considered in isolation: “a public sector investment project that appears to be intergenerationally unfair in isolation may enhance the intergenerational fairness of the budget as a whole because it compensates for other intergenerational unfairness elsewhere.” This is analogous to the argument that the progressivity of a tax-benefit system can only be assessed as a whole, and considering the progressivity of a particular tax or benefit in isolation can be misleading. Musgrave (1988) raises the related point that the distribution of benefits from investment and the costs of taxation can differ between individuals and groups within particular generations, which is relevant to intergenerational equity and can affect behavioral responses.
- If intergenerational equity was based on the ability to pay principle rather than the benefit principle, and if, for example, per capita incomes were expected to rise over time, it may be appropriate for the present generation to impose a burden on future generations. In such a world, the golden rule would result in insufficient debt-financed current expenditure to ensure intergenerational equity.
- Turning to more practical problems, the time profile of future benefits of government spending is subject to great uncertainty. This makes it extremely difficult as a practical matter to synchronize the amortization of the debt (and tax payments on future generations) with the time profile of benefits from government investment.
- Related to this are the possible inconsistencies between the National Accounts definition of current and capital spending and the duration of economic benefits resulting from government expenditure. To ensure intergenerational equity, *all* government spending which results in benefits extending beyond the “current” period should be allocated to future generations and taxed accordingly. But this could include certain expenditures classified (according to national accounts definitions) as current—such as certain types of education or defense expenditure—which provide benefits beyond the current period.²⁶ Thus the golden rule, as specified by the United Kingdom, could result in suboptimal current expenditure and intergenerational inequity.

It should be clear, therefore, that the claim that the golden rule *ensures* intergenerational equity can be rejected. On the other hand, while the linkages between the golden rule and intergenerational equity are complex, the golden rule is consistent with intergenerational equity. But this is a weak claim: almost any policy could be shown to be consistent with intergenerational equity under specific assumptions. There is more to the claim that the golden rule *promotes* intergenerational fairness. By emphasizing the distinction between

²⁶ By the same token, any “capital” expenditure which only conferred benefits in the current period ought to be financed from current period taxation to ensure intergenerational equity.

current spending (which, broadly speaking, is fully consumed by current taxpayers) and capital spending (which confers benefits on future generations), the golden rule does draw attention to the intergenerational consequences of fiscal policy. In a similar vein, some advocates of the golden rule, such as Musgrave and Musgrave (1989), argue that the golden rule is more likely to be consistent with intergenerational equity than a balanced budget rule, which requires current generations of taxpayers to fund full cost of all government investment.

Thus while the impact of the golden rule on intergenerational fairness is not straightforward, it does at a minimum raise the profile of the intergenerational equity aspects of fiscal policy. In this context, it is worth noting that the U.K. government has commissioned the first exercise in compiling generational accounts for the United Kingdom (see Cardarelli, Sefton, and Kotlikoff, 2000).²⁷

Removes bias against capital spending

H.M. Treasury (1999e) states that “the golden rule, supported by the new regime for planning and controlling spending ... removes any bias against capital spending by providing for separate current and capital budgets. Now both types of spending are treated equally on a value for money basis.” Furthermore, “following the golden rule over the cycle means that current receipts must cover costs of current spending. So if spending cuts were required, these would need to be found from within current spending” (H.M. Treasury, 1998b).

It is widely recognized that when fiscal consolidation or restraint is required, capital expenditure is typically cut before current expenditure. This was certainly the case in the United Kingdom in the 1980s and the early 1990s when the focus of fiscal consolidation was on controlling a cash measure of the public sector-borrowing requirement. Under the golden rule, by contrast, current receipts must meet the cost of current spending; hence, for example, shortfalls in revenue would primarily impact on current spending before capital spending. Thus the golden rule should act to correct the bias against capital spending under the previous U.K. fiscal regime, particularly as it is supported by clear and credible distinctions between current and capital spending.

A few additional points are worth noting. First, it should be emphasized that the golden rule is about how investment is financed (i.e., by the issuance of debt rather than by taxation), and implies nothing about the optimal amount of investment.²⁸ The U.K. authorities do recognize

²⁷ As mentioned above, the study concludes that current fiscal policy implies a generational imbalance, even assuming considerable fiscal restraint, though this imbalance is quite modest compared to other industrial countries.

²⁸ Buiter (2001) puts the point as follows: “If the tax bases are temporarily buoyant (the government’s current income exceeds its permanent income), it may make sense to finance investment out of current revenues ... the optimal borrowing strategy can only be determined by considering the totality of the government’s spending program and revenue raising capacity, now and in the future.”

this important point, at least implicitly, by emphasizing that a “value for money” criterion is to be applied equally to current and capital spending. This seems to be consistent with the standard economic approach to public investment appraisal, whereby an estimate is made of the net present value of the social benefits and costs (including the deadweight costs associated with any distortionary taxes that may have to be levied in the future if the cash returns on the investment are insufficient to cover the costs—see Buiter, 2001). But it is also widely accepted that such rules are difficult to apply (see, e.g., Gramlich, 1994, and Little and Mirrlees, 1990). Given this, it is particularly important that the details of how a “value for money” criterion will be implemented are clearly set out. But this is not yet the case in the United Kingdom. While each government department is now required to publish a Departmental Investment Strategy, to show “how investment decisions are taken on a robust basis so the benefits of extra investment are maximized” (H.M. Treasury, 1999b), the first Departmental Investment Strategies, published in March 1999, contained very little information relevant to this issue, other than in some cases referring to the government’s existing (and nonmandatory) guidelines on investment appraisal.²⁹

Second, the microeconomic objectives of a “value for money” criterion for public investment could, in some circumstances, come into conflict with the fiscal sustainability objective. If, for example, the debt ceiling was at risk of being breached, the sustainable investment rule would override the golden rule and could result in the same bias against capital spending that existed previously.³⁰ In this trade-off between microeconomic objectives for public investment and macroeconomic and sustainability aspects of fiscal policy is, of course, unavoidable, and is acknowledged by the authorities in their explanation of the sustainable investment rule (H.M. Treasury, 1998a).

Third, it is worth briefly considering what the arithmetic of the two fiscal rules implies for level of public investment. Box 3 indicates that if the golden rule holds as an equality, and assuming trend growth and inflation of 2.5 percent each and depreciation of 5 percent, then a constant debt ratio of 40 percent implies annual gross public investment of 6 percent of GDP. This compares to an estimated outturn for gross investment of 2.8 percent of GDP in 2000–01, while the government projects this ratio to rise to 3.6 percent of GDP by 2003–04 (H.M. Treasury, 2001). Gross investment of 6 percent of GDP a year is also high by international standards (see H.M. Treasury, 1998b, and Ligthart, 2000). In terms of stocks, the assumptions in Box 3 imply a steady state ratio of public capital to GDP of 80 percent; this compares to a recent official estimate of the public sector capital stock in the United Kingdom of around 60 percent of GDP in 1998 (West and Clifton-Fearnside, 1999). If it is further assumed that production is Cobb-Douglas, and the public capital share is 15 percent,³¹

²⁹ See H.M. Treasury (1997).

³⁰ However, even in these circumstances, a bias against capital spending is not inevitable: the government would still have the choice of increasing the current budget surplus to finance additional investment.

³¹ Ligthart (2000) surveys 26 empirical studies of the output effects of public capital in OECD countries (of which the majority cover the United States, and none covers the United Kingdom). She finds that estimates of
(continued...)

the pretax return on public investment is around 19 percent. This looks high, particularly compared to the nominal interest rate paid on government bonds, but would be lower with a lower assumption about the public capital share in output.

Overall assessment against objectives

In summary: first, the sustainable investment rule is adequate for the first objective of ensuring sound public finances; this is supported by long-term fiscal projections by the authorities, based on reasonable assumptions, showing current policies to be sustainable. Second, the golden rule does not ensure intergenerational fairness, though it does promote awareness of the intergenerational equity aspects of fiscal policy. Third, the golden rule, supplemented by other policy measures, reduces the bias against capital spending that existed under the previous fiscal regime. The constraint imposed by the sustainable investment rule could create a bias against capital spending, but this potential conflict between microeconomic and macroeconomic objectives is unavoidable.

D. Simplicity, Flexibility, and Enforceability

“Fiscal rules should be characterized by simplicity to enhance their appeal to the legislature and to the public Rules must be flexible to accommodate exogenous shocks beyond the control of the authorities A fiscal rule should [also] be enforceable.” [Kopits and Symansky, page 19]

Kopits and Symansky have separate criteria relating to simplicity, flexibility, and enforceability. However, these characteristics are likely to be closely related: generally speaking, the simpler a rule is, the less flexible it will be; conversely, the more flexible the rule, the more complex it is likely to be and, other things equal, the less enforceable. So the three criteria will be considered together in this section.

The fact that both rules are applied over the cycle introduces important flexibility. For instance, compared to a rule which required a balanced actual budget each year, the U.K. rules reduce the risk of procyclical fiscal policy. Moreover, by specifying that the golden rule apply on average over the cycle, the government is free to use discretionary counter-cyclical fiscal policy that could result in current surpluses or deficits in any given year, provided this is consistent with current balance over the cycle as a whole. If, by contrast, the United Kingdom committed explicitly to run a cyclically adjusted balance (or better) on the current budget *each year*, the fiscal policy response to exogenous shocks would be limited to the

output elasticity of public capital vary considerably across countries, but lie in the range 0.2–0.3 with a 95 percent level of confidence. On the other hand, these estimates are generally reckoned to be biased upwards (see Gramlich, 1994, and Evans and Karras, 1994), so a lower figure of 0.15 is assumed here.

operation of automatic stabilizers and discretionary changes in (debt-financed) capital expenditure.³²

But this flexibility clearly comes at the cost of reduced simplicity. Consider the following example: suppose the authorities have been planning and justifying fiscal policy on the assumption that the cycle has five more years to run. It then becomes apparent that the recovery phase of the cycle is stronger than expected and that the economy will return to trend in two years' time. Furthermore, suppose that on current policies, this will mean that the golden rule will not be satisfied over the cycle *ex post*, even if it was generally expected to be met *ex ante*. What would the government do in this situation? It could suddenly tighten fiscal policy to increase the chances of meeting the objective of current balance over the cycle, but at the risk of destabilizing the economy; or the government could put more emphasis on demand management, at the risk of failing to satisfy its fiscal rules. Either way, explaining and justifying fiscal policy in such circumstances would not be simple.³³

The trade-off between flexibility and enforceability is less straightforward. On the one hand, applying the rules over the cycle makes it more difficult for the government to be held accountable for its fiscal performance in any given year. The government has attempted to preempt this criticism by announcing the regular publication of cyclically adjusted measures of the deficit, including projections for the structural position; moreover, the government has committed to clearly explain the basis of such adjustments and to have them audited by the National Audit Office. But the formulation of the golden rule in terms of a balanced current budget over the cycle means that even if noncontroversial cyclically adjusted measures could be produced, they would not provide an "acid test" in any given year: as mentioned above, the government could attempt to justify a cyclically adjusted deficit on the current budget in a given year (or years) in terms of output stabilization, together with the promise of offsetting surpluses later in the cycle. Compliance with U.K. rules as currently specified can only be determined with certainty at the end of a full economic cycle.³⁴ In this regard, it is worth noting that the most recent U.K. cycle lasted 11 years,³⁵ compared to the maximum parliamentary life span of five years.

³² The implicit assumption of the authorities, and shared by the author of this paper, is that the flexibility to use discretionary counter-cyclical fiscal policy is advantageous; some, of course, would refute this.

³³ It should be noted that such a set of circumstances would pose difficulties for any fiscal policy regime; moreover, the use of deliberately cautious assumptions should reduce the chances of overly profligate fiscal policies in the early stages of the cycle.

³⁴ "The key indicator to judge whether the government is on track to meet the golden rule is the average surplus on the current budget over the whole cycle." (H.M Treasury, 1999c)

³⁵ H.M. Treasury (1999a).

But there are other factors relevant to the enforceability of fiscal rules—in particular, the degree of transparency, penalties for noncompliance, independent monitoring of compliance with the rule, and accounting and procedural standards.

- As discussed above, the **institutional arrangements** underpinning the two fiscal rules are very transparent; the clarity of the Code for Fiscal Stability with respect to accountability, both to parliament and the general public, is important in this respect. In addition, the government has gone to some lengths to publicize and explain its approach to the general public and to financial markets, through extensive budget-related documentation and background papers.
- Transparency in **measurement** has also been discussed above, where the steps taken by the government to overcome some of the measurement problems inherent in the golden rule, and the introduction of new accounting practices and fiscal aggregates, which make it easier to assess performance against the two fiscal rules, were noted.
- Concerning **sanctions for noncompliance**, the Code for Fiscal Stability contains nothing like the fines imposed under the European Union Stability and Growth Pact. In the case of the United Kingdom's own fiscal rules it is not clear which body could take on the enforcement role. Other possible sanction mechanisms might be to explicitly link the salary of officials and politicians to fiscal outturns, or for the government to issue an instrument which paid off if the rules were violated. Instead, the government argues that it faces significant reputational sanctions, and has indeed deliberately increased the cost of those sanctions by investing considerable political capital in the fiscal rules. This constraint is reinforced by the presence of an independent monthly authority.

Thus the steps taken by the U.K. government to enhance the transparency of its fiscal policy should relax the trade-off between flexibility and enforceability, and increase the degree of enforceability possible with a given degree of flexibility. This is because the greater the degree of transparency, the better placed are outside agents to make a reasonable assessment of fiscal policy, allowing for the uncertainties and competing objectives facing the government. In this context it is worth emphasizing that financial markets and the Bank of England may be more relevant to enforceability than parliament or the electorate, since they can provide more immediate and targeted sanctions on underperformance (by increasing interest rates or depreciating the exchange rate, for instance); markets and the central bank should also be better placed than the general public or parliament to judge compliance with fiscal rules, including forward-looking assessments of policy.

That said, the simplicity, enforceability, and flexibility of U.K. rules as they apply in practice will become more apparent over time. Since the introduction of the rules in 1997, enforceability has not been a practical issue because actual fiscal plans are well within the rules' upper limits; the conflict between flexibility and enforceability is likely to become more pressing during a recession.

In the meantime, the large gap that has emerged between actual fiscal plans—with public sector net debt at 32 percent of GDP in FY 2000/01 and forecast to fall to 30 percent of GDP by FY 2005/06—and the 40 percent ceiling given by the sustainable investment rule raises another issue. IMF (2000a) argues that “the present rules are well short of binding and would permit a considerably looser policy stance than is embodied in present budget plans, In tandem with the cyclical averaging built into the strategy, this means that the ‘constrained discretion’ that the exercise is intended to instill is not very constraining and leaves considerable scope for future initiatives.” Of course, there is always a judgment to be made about the best combination of flexibility and self-imposed constraint; and as argued above a commitment to transparency should enhance the level credibility associated with a given degree of flexibility. Nonetheless, the fiscal consolidation achieved in recent years does raise the question of whether a 40 percent ceiling for the debt-to-GDP ratio is sufficiently binding.

E. Consistency

“Fiscal rules should be consistent internally, as well as with other macroeconomic policies and rules.” [Kopits and Symansky, page 19]

The internal consistency of the two rules has already been touched upon (Section C and Box 3). The main point is that the golden rule is not necessarily consistent with a stable debt ratio, but as defined in the U.K. fiscal framework will be constrained to be consistent with the sustainable investment rule.

Secondly, there are issues concerning the consistency of the two rules with other aspects of fiscal policy.

- The government’s actual medium-term fiscal projections are more restrictive than would be permitted by the two rules. This has led to criticisms that the role of the golden rule is unclear; alternatively, to the extent that the golden rule is justified with reference to the importance of intergenerational equity and eliminating the bias against capital spending, the apparent desirability of actual plans that deviate from the golden rule is left in some doubt. The authorities have argued that the relative tightness of the of its medium-term projections reflects better than expected outcomes and a margin for uncertainty. Moreover, the flexibility built into the rules means that “an excess surplus” can be balanced over the cycle to support monetary policy.
- The golden rule is potentially inconsistent with the Stability and Growth Pact (SGP) of the Euro area countries, which requires a medium-term budget close to balance or in surplus. Indeed, the European Commission concluded that the medium-term fiscal projections in the 2001 Budget—for a deficit of around 1 percent of GDP for the period 2003–04 to 2005–06—was not “close to balance” and hence inconsistent with

the SCIP.³⁶ Furthermore, the government has committed itself to explain any apparent divergence with the SGP.³⁷

- Third, as mentioned above, the U.K. government has recently begun to consider a generational accounting framework to consider the sustainability and intergenerational equity of its policies. It is worth noting that the generational accounting methodology only includes government transfers, and excludes the benefits derived from all other government expenditure and from the publicly owned capital stock. This contrasts with the golden rule, which is directly concerned with the costs and benefits of capital spending. Thus the golden rule and the generational accounts recently compiled address the issues of sustainability and intergenerational fairness from different perspectives.

Finally, there is the issue of consistency with monetary policy. The government has emphasized that, consistent with the primary objective of ensuring sound public finances, fiscal policy will support monetary policy in smoothing the path of the economy in the face of variations in demand, through the operation of the automatic stabilizers and discretionary changes in the fiscal stance (H.M. Treasury, 1999b and 1999c). As evidence of this commitment, the government points to the substantial fiscal tightening during 1997–98, which acted in concert with monetary policy when the economy was above trend. The government also argues that the introduction of the fiscal rules has increased the credibility of fiscal policy, thereby increasing the scope and effectiveness of fiscal policy to smooth short-run variations in activity (H.M. Treasury 1999c). But, as noted above, the rules themselves currently provide little constraint to discretionary policy. In the absence of a track record, it seems likely that the measures taken by the government to improve the transparency of fiscal policy are more important than the fiscal rules in improving credibility, and in making it easier for the monetary authorities and the private sector to predict the future course of fiscal policy. A related point made by Young (1999) is that the government's focus on the two fiscal rules could mean fiscal policy is insufficiently active to achieve the best monetary fiscal mix. In the current conjuncture, he argues that although fiscal policy is sufficiently tight to meet the two rules, it should be tightened further to permit a reduction in interest rates and a lower real exchange rate over the medium term. Similar concerns have been voiced about the increases in spending announced in the 2000 budget, putting too large a burden for macroeconomic stabilization on monetary policy (IMF, 2000b).

³⁶ European Commission, 2001

³⁷ The Code for Fiscal Stability commits the government to provide an explanation of how its policies will “restore the path of the public finances to a position consistent with ... the terms of the Stability and Growth Pact.”

F. Supported by Efficient Policy Actions

“Most rules cannot last for long unless they are supported by efficient policy actions...[that is,] more fundamental reforms to ensure continued adherence to the rule in the future.” [Kopits and Symansky, page 19]

The U.K. government has announced a series of “structural” fiscal reforms as part of the changes to the overall fiscal framework, including:

- current and capital expenditures are now planned and managed separately, consistent with the distinction in the fiscal rules;
- discretionary spending is to be controlled by three-year departmental expenditure limits (DELs), set in cash terms.³⁸ In contrast to the previous regime, funds not spent in one year can be carried over to the next, which should reduce the waste associated with efforts to exhaust budgets at the end of each financial year;
- the government is now publishing measurable targets for public services in the form of Public Service Agreements. Performance against those targets will be scrutinized by a cabinet committee supported by a panel of experts from business, consultancy, and audit;
- each spending department will publish a departmental investment strategy which “will show how capital is managed effectively and how investment decisions are taken so as to maximize the benefits of extra investment”; and
- as already mentioned, the government is in the process of implementing a new initiative, “Resource Accounting and Budgeting,” which will put the planning, controlling, and accounting for all public spending on a full accruals basis, in accordance with best-practice private-sector accounting measures, adapted for the public sector.

Most of these measures have yet to be fully implemented; in particular, as discussed in Section C above, the departmental investment strategies need to be fleshed out with more detail. It is also worth noting that the DELs for 2000–01 and 2001–02 were revised upwards in the March 2000 budget, even though the DELs are designed as “firm” cash limits to be revised following comprehensive spending reviews. Nonetheless, in general terms, these structural reforms have the potential to strengthen the underpinnings of the fiscal rules.

³⁸ Remaining spending—mostly social security expenditure—is reviewed annually.

IV. SUMMARY AND CONCLUSIONS

This paper generally supports the U.K. government's arguments that the previous fiscal regime was flawed, in that it lacked transparency and frequently resulted in a looser fiscal stance than announced. The emphasis in the new fiscal framework on transparency, accountability, and cautious forecasting assumptions has addressed, and should continue to address, these shortcomings. But the claim that the previous fiscal regime resulted in sub-optimal public investment—and the complementary issues of determining and implementing the right level of investment—could be substantiated by further analysis.

The focus of the paper has been to assess the extent to which the two fiscal rules introduced in 1997, and supporting policy reforms, should result in improved fiscal performance. The preferred approach has been to compare the rules against the ideal characteristics of fiscal rules set out in Kopits and Symansky (1998). In several respects, U.K. fiscal rules measure up strongly against ideal characteristics. They are well-defined in terms of the indicator to be constrained, institutional coverage and escape clauses; transparent in institutional arrangements, measurement, and forecasting; adequate to ensure sustainability under reasonable assumptions; and strike a good balance between flexibility and enforceability, in large part due to the government's commitment to transparency.

Of the various criticisms leveled at the U.K. fiscal rules, some reflect unavoidable trade-offs. So, for example, the rules could be made simpler, and with enhanced enforceability, by being formulated as a commitment to balance the overall, noncyclically adjusted budget each year. But this would be at the cost of significantly reduced flexibility and could conflict with other objectives, such as the desire to remove a bias against capital expenditure. Another example is the split between current and capital spending: definitions closer to the relevant economic concept (related to the duration of economic benefits from public spending) could be used rather than established national accounts definitions, but at the risk of being perceived as "creative accounting" techniques and hence reducing the credibility of the rules.

Other shortcomings do not involve such trade-offs, and could be addressed by the authorities. Three areas in particular could be clarified: first, what exactly is the benchmark implied by the sustainable investment rule; secondly, what does the golden rule imply about intergenerational equity; and thirdly, what are the modalities of "value for money" criterion to be applied to capital spending. In addition, the potential inconsistencies between the fiscal rules and obligations under the Stability and Growth Pact may have to be addressed more squarely at some point.

Overall, the fiscal framework succeeds in setting out the necessary preconditions for a credible fiscal policy. While the rules are well designed, and in principle a central part of the fiscal framework, their contribution to the credibility of fiscal policy is currently limited by the large gap between actual medium-term fiscal plans and the two rules. This undermines the desirability of current plans as judged by the intergenerational fairness objective embodied in the golden rule, though this needs to be weighed against the need for prudence in the projected stance of fiscal policy, particularly given the United Kingdom's recent

history of underestimating the cyclical component of growth during an upswing. A more serious concern is the wide scope for discretionary loosening which would be consistent with the debt ceiling of the sustainable investment rule, even under the most stringent interpretation of the rule. This could reduce the credibility gains which ought to be imparted by such a rule, though the improvements in transparency embodied in the fiscal framework should be an offsetting influence on credibility.

References

- Alesina, Alberto, and Allan Drazen, 1991, "Why are Stabilizations Delayed?" *American Economic Review*, Vol. 81 (December), pp. 1170–88.
- Alesina, Alberto, and Guido Tabellini, 1990, "Positive Theory of Fiscal Deficits and Government Debt," *Review of Economic Studies*, Vol. 57 (July), pp. 403–14.
- Auerbach Alan J., Jagadeesh Gokhale, and Laurence J. Kotlikoff, 1991, "Generational Accounts: A Meaningful Alternative to Deficit Accounting" in *Tax Policy and the Economy*, ed. by Lawrence H. Summers and David. Bradford (Cambridge, Massachusetts: National Bureau of Economic Research and MIT Press Journals).
- , 1994, "Generational Accounting: A Meaningful Way to Evaluate Fiscal Policy," *Journal of Economic Perspectives*, Vol. 8 (Winter), pp. 73–94.
- Blanchard, Olivier Jean, 1990, "Suggestions for a New Set of Fiscal Indicators," Organization for Economic Cooperation and Development Working Paper No. 79 (Paris: OECD).
- Blejer, Mario I., and Adrienne Cheasty, 1991, "The Measurement of Fiscal Deficits: Analytical and Methodological Issues," *Journal of Economic Literature*, Vol. 29 (December), pp. 1644–78.
- Boadway, Robin, and David E. Wildasin, 1993, "Long Term Debt Strategy: A Survey," in *The Political Economy of Government Debt*, ed. by Harrie A.A. Verbon, and Frans A.A.M. van Winden (Amsterdam: New York: North-Holland).
- Buchanan, James M., and Richard E. Wagner, 1977, *Democracy in Deficit: The Political Legacy of Lord Keynes* (New York: Academic Press).
- Buiter, Willem H., 2001, "Notes on 'A Code for Fiscal Stability'," *Oxford Economic Papers*, Vol. 53, Issue 1 (January), pp. 1–19.
- Cardarelli, Roberto, James Sefton, and Laurence J. Kotlikoff, 2000, "Generational Accounting in the United Kingdom," *The Economic Journal*, Vol. 110, No. 467 (November), pp. 547–574.
- Chalk, Nigel, and Richard Hemming, 2000, "Assessing Fiscal Sustainability in Theory and Practice," IMF Working Paper 00/81 (Washington: International Monetary Fund).
- Chand, Sheetal K., and Albert Jaeger, 1996, *Aging Populations and Public Pension Schemes*, IMF Occasional Paper No. 147 (Washington: International Monetary Fund).

- Corsetti, Giancarlo, and Nouriel Roubini, 1993, "The Design of Optimal Fiscal Rules for Europe After 1992," in *Adjustment and Growth in the European Monetary Union*, ed. by Francisco Torres and Francesco Giavazzi (Cambridge; New York: Cambridge University Press).
- Demetriades, Panicos, and Theofanis Mamuneas, 2000, "Intertemporal Output and Employment Effects of Public Infrastructure Capital: Evidence from 12 OECD Economies," *Economic Journal*, Vol. 110 (July), pp. 687–712.
- Eichengreen, Barry, 1998, "Comment on 'The Political Economy of Fiscal Adjustments,'" *Brookings Papers on Economic Activity: 1*, Brookings Institution, pp. 255–62.
- European Commission, 2001, "Commission Recommendation for the 2001 Broad Guidelines of the Economic Policies of the Member States of the Community," (Brussels: Commission of the European Community).
- Evans, Paul, and Georgios Karras, 1994, "Is Government Capital Productive? Evidence from a Panel of Seven Countries," *Journal of Macroeconomics*, Vol. 16 (Spring), pp. 271–79.
- Feldstein, Martin, 1985, "Debt and Taxes in the Theory of Public Finance," *Journal of Public Economics*, Vol. 28 (November), pp. 233–45.
- Gramlich, Edward M., 1994, "Infrastructure Investment: A Review Essay," *Journal of Economic Literature*, Vol. 32 (September), pp. 1176–96.
- Haveman, Robert, 1994, "Should Generational Accounts Replace Public Budgets and Deficits?" *Journal of Economic Perspectives*, Vol. 8 (Winter), pp. 95–111.
- H.M. Treasury, 1997, "Economic Appraisal in Central Government: A Technical Guide for Government Departments" (London: H.M. Treasury, 2nd ed.).
- , 1998a, "A Code for Fiscal Stability."
- , 1998b, "Fiscal Policy: Current and Capital Spending."
- , 1998c, "The Economic and Fiscal Strategy Report 1998."
- , 1999a, "The Economic and Fiscal Strategy Report 1999."
- , 1999b, "The Pre-Budget Report November 1999."
- , 1999c, "Analysing U.K. Fiscal Policy."

- , 1999d, “Fiscal Policy: Public Finances and the Cycle.”
- , 1999e, “The Financial Statement and Budget Report 1999.”
- , 2000a, “The Economic and Fiscal Strategy Report 2000.”
- , 2000b, “The Financial Statement and Budget Report 2000.”
- , 2001, “The Financial Statement and Budget Report 2001.”
- Horne, Jocelyn, 1991, “Indicators of Fiscal Sustainability,” IMF Working Paper 91/5 (Washington: International Monetary Fund).
- House of Commons, 2000, “The 2000 Budget,” *House of Commons Treasury Select Committee Fifth Report, Session 1999–2000* (London).
- International Monetary Fund, 1996, *World Economic Outlook, May 1996: A Survey by the Staff of the International Monetary Fund*, World Economic and Financial Surveys (Washington).
- , 1998, *IMF Survey*, Vol. 27, April 27 (Washington).
- , 2000a, *United Kingdom—Staff Report for the 1999 Article IV Consultation* (Washington).
- , 2000b, *World Economic Outlook, May 2000: A Survey by the Staff of the International Monetary Fund*, World Economic and Financial Surveys (Washington).
- , 2001, *United Kingdom—Staff Report for the 2000 Article IV Consultation* (Washington).
- Kopits, George, and Jon Craig, 1998, *Transparency in Government Operations*, IMF Occasional Paper No. 158 (Washington: International Monetary Fund).
- Kopits, George, and Steven Symansky, 1998, *Fiscal Policy Rules*, IMF Occasional Paper No. 162 (Washington: International Monetary Fund).
- Ligthart, Jenny E., 2000, “Public Capital and Output Growth in Portugal: An Empirical Analysis,” IMF Working Paper 00/11 (Washington: International Monetary Fund).
- Little, Ian Malcolm David, and James A. Mirrlees, 1990, “Project Appraisal and Planning Twenty Years On,” paper prepared for the World Bank Development Conference, Washington, April.

- Lynde, Catherine, and J. Richmond, 1993, "Public Capital and Long-run Costs in U.K. Manufacturing," *Economic Journal*, Vol. 103 (July), pp. 880–93.
- Martijn Jan Kees, and Hossein Samiei, 1999, "Central Bank Independence and the Conduct of Monetary Policy in the United Kingdom," IMF Working Paper 99/170 (Washington: International Monetary Fund).
- Musgrave, Richard Abel, 1939, "The Nature of Budgetary Balance and the Case for the Capital Budget," *American Economic Review*, Vol. 29, pp. 260–71.
- , 1988, "Public Debt and Intergenerational Equity," in *The Economics of Public Debt*: ed. by Kenneth J. Arrow and Michael J. Boskin (New York: St. Martin's Press).
- , and Peggy B. Musgrave, 1984, *Public Finance in Theory and Practice* (New York: McGraw Hill, Inc., 4th ed.).
- , 1989, *Public Finance in Theory and Practice* (New York: McGraw Hill, 5th ed.).
- OECD, 1998, OECD Economic Surveys: United Kingdom (Paris: OECD).
- , 2000, OECD Economic Surveys: United Kingdom (Paris: OECD).
- Pain, Nigel, Martin Weale, and Garry Young, 1997, "Britain's Fiscal Problems," *Economic Journal*, Vol. 107 (July), pp. 1142–56.
- Persson, Torsten, and Guido Enrico Tabellini, 1990, *Macroeconomic Policy, Credibility and Politics* (Chur, Switzerland: Harwood Academic Publishers).
- Phelps, Edmund, 1961, "The Golden Rule of Accumulation: A Fable for Growthmen," *American Economic Review*, Vol. 51 (September), pp. 638–43.
- , 1987, "Golden Rule" *The New Palgrave: A Dictionary of Economics*, (London: Macmillan Press) pp. 536–37.
- Poterba, James M., 1996, "Do Budget Rules Work?" National Bureau of Economic Research Working Paper 5550 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Robinson, Marc, 1998, "Measuring Compliance with the Golden Rule," *Fiscal Studies*, Vol. 19 (November), pp. 447–62.
- Rogoff, Kenneth, and Anne Sibert, 1988, "Elections and Macroeconomic Policy Cycles" *Review of Economic Studies*, Vol. 55 (January), pp. 1–16.

- Roubini, Nouriel, and Jeffrey D. Sachs, 1989, "Political and Economic Determinants of Budget Deficits in the Industrial Democracies," *European Economic Review*, Vol. 33 (May), pp. 903–38.
- Sutherland, Alan, 1997, "Fiscal Crises and Aggregate Demand: Can High Public Debt Reverse the Effects of Fiscal Policy?" *Journal of Public Economics*, Vol. 65 (August) pp. 147–62.
- Van Velthoven, Ben, Harrie Verbon, and Frans van Winden, 1993, "The Political Economy of Government Debt: A Survey" in *The Political Economy of Government Debt*, ed. by Harrie A. A. Verbon and Frans A. A.M. van Winden (Amsterdam, New York: North-Holland).
- West, Paul, and Alex Clifton-Fearnside, 1999, "Improving the Non-Financial Balance Sheets and Capital Stocks Estimates," *Economic Trends* (a publication of the Government Statistical Service, United Kingdom), No. 552 (November), pp. 53–67.
- Young, Garry, 1999, "Fiscal Report," *National Institute Economic Review*, No. 169 (July), pp. 31–37.