

Session 3

PUBLIC SPENDING AND FISCAL POLICY MANAGEMENT

A FISCAL POLICY FRAMEWORK TO SAFEGUARD PUBLIC INVESTMENT

*Annalisa Fedelino and Richard Hemming**

1. Introduction

There has been, and continues to be, a lively debate concerning whether and how public investment should be safeguarded in the face of limited budgetary resources and competing spending needs. This debate has its roots in one stylized fact and two beliefs. The stylized fact is that fiscal adjustment has forced governments to compress public investment, which consequently has fallen as a share of GDP over the last two decades, especially in Latin America but also in other parts of the world. The two beliefs are: first, that falling public investment has a significant cost in terms of lower growth, unless the private sector steps in to take up the slack; and second, that public investment in infrastructure is more meritorious than other government spending, since it produces assets that generate returns to offset the borrowing that pays for it, and therefore leaves government net worth unchanged.

Based on these beliefs, it is argued that declining public investment is to be partly blamed for the lackluster growth performance of a number of countries; or, following on from this, it appears that higher public investment spending is a precondition for boosting these countries' growth potential over the medium term. To this end, public investment should be freed from the constraints imposed by the "traditional" fiscal policy framework which focuses on liquidity and debt sustainability. This framework is biased against public investment, because it inevitably has a negative effect on liquidity in the short term (given large upfront costs and long pay-off periods) and adverse consequences for debt sustainability if the beneficial growth effects of public investment are not taken into account.

This paper seeks to present a number of perspectives on the public investment debate. More specifically, it discusses proposals to modify the traditional fiscal policy framework by looking at fiscal indicators and targets that may be better suited to safeguarding public investment, and to avoiding procyclical spending behavior resulting from public investment cuts in bad times and current spending increases in good times. But safeguarding public investment goes beyond the appropriate choice of fiscal indicators and targets. It also requires consideration of how to enhance budget flexibility with a view to avoiding undue cuts in public investment in the face of resource shortfalls or additional spending pressures, select and execute sound

* International Monetary Fund.

The views expressed are those of the authors and do not necessarily reflect the views of the IMF or IMF policy.

public investment projects, and create an environment that promotes private participation in infrastructure investment.

The main conclusion is that there is no magic bullet when it comes to safeguarding public investment. Irrespective of the accounting principles applied and the fiscal balances targeted, public investment needs to be financed from public resources, and it contributes to demand pressures just like any other government spending. This means that public investment cannot be looked at in isolation, independently of its impact on the government's borrowing requirements and debt. There may be scope, however, to prioritize and protect infrastructure projects that relieve bottlenecks and otherwise clearly contribute to a country's growth potential, even when the fiscal position provides little room for additional borrowing. The paper offers some suggestions on a fiscal policy framework to help achieve this.

2. Has public investment declined over the last two decades?

Latin American leaders have been most forceful in voicing concerns about declining public investment in their countries. Thus Brazil's President Lula da Silva last year called on the IMF to allow infrastructure spending to be excluded from fiscal targets under IMF-supported programs, while President Vincente Fox of Mexico made a similar proposal in 2003 at the G8 summit in Evian, France. Their calls have been echoed by a number of researchers and observers (for example, Calderón and Servén, 2003, for Latin America, and Blanchard and Giavazzi, 2003, for the euro area).

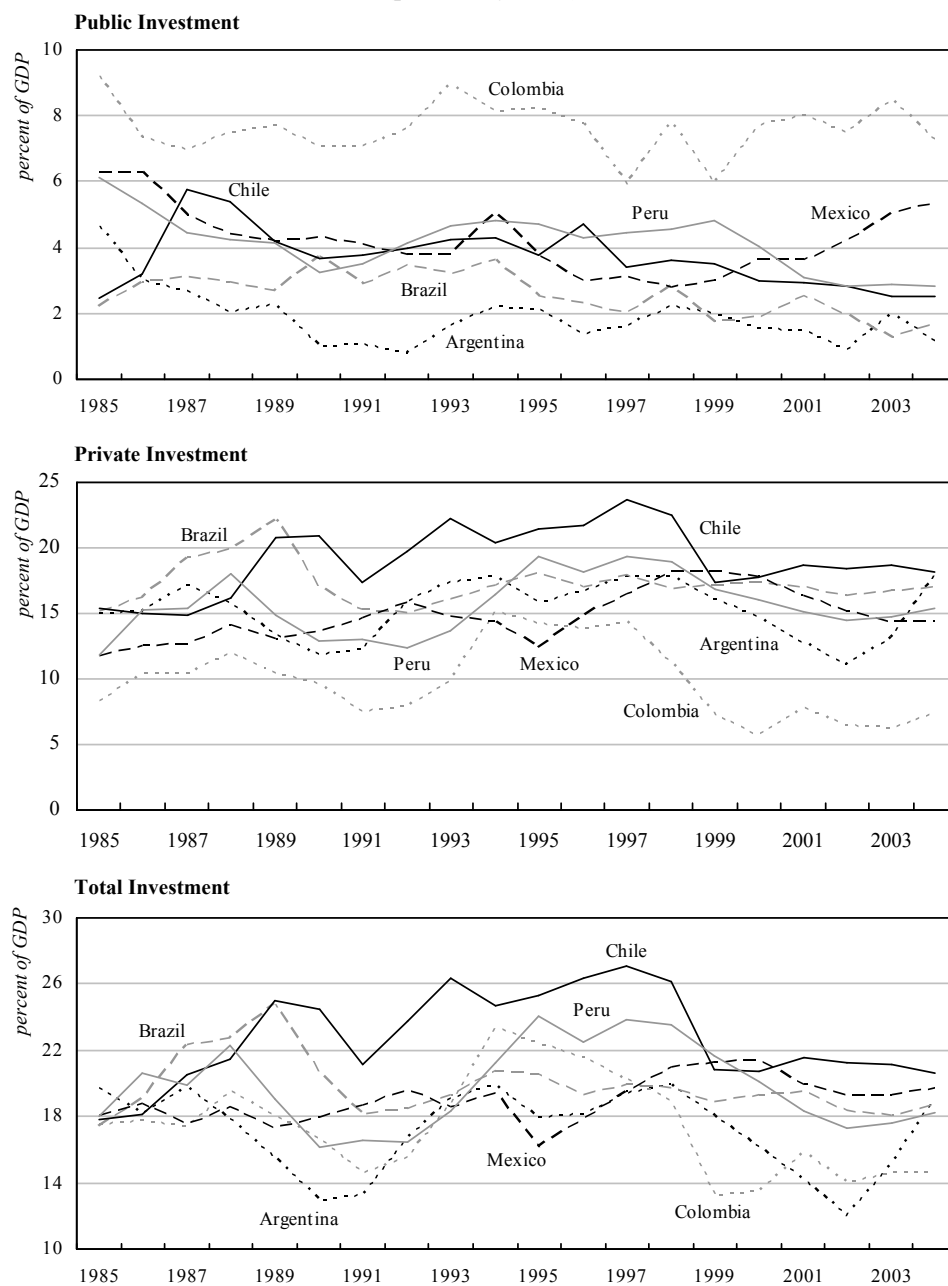
Public investment has indeed declined as a share of GDP in many countries; it has also been very volatile, most notably in Latin America, possibly reflecting the stop-go pattern of investment spending in countries that have gone through periods of fiscal adjustment, and this has probably had important efficiency implications (Figures 1 and 2). As a result of lower public investment and insufficient private sector involvement in infrastructure, significant infrastructure gaps have emerged, hurting economic growth in a number of countries (Calderón and Servén, 2003).

Why has public investment borne the brunt of fiscal adjustment? This may reflect political economy constraints – since public investment benefits mainly future generations, today's politicians have no incentive to protect investment. The situation is different for current spending, which benefits the current generation of voters. It may also be the result of public investment being less rigid than current spending; the heavy weight of entitlement programs, wages, and interest payments means that current spending has a large nondiscretionary component.

Declining public investment is not always and necessarily worrisome, however. Public investment depends, among other things, on the level of development of a country and the role of the government in the economy. Public investment should naturally decline over time as the public capital stock is built up, and this trend will be more pronounced when a general preference for smaller government gets reflected in privatization and other forms of private sector

Figure 1

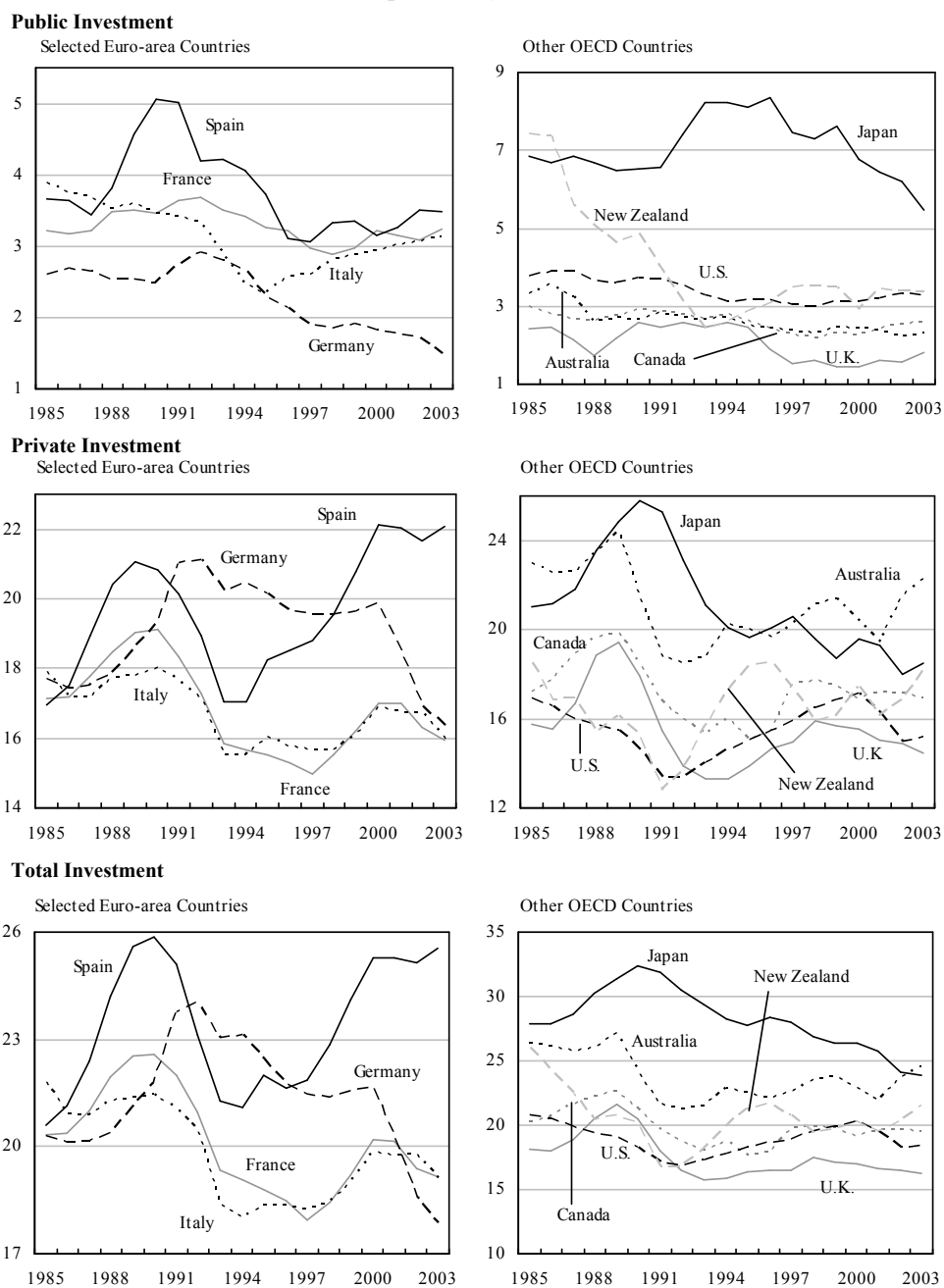
Investment Trends in Selected Latin American Countries, 1985-2004
(percent of GDP)



Source: World Economic Outlook.

Figure 2

Investment Trends in Selected OECD Countries, 1985-2004
(percent of GDP)



Source: OECD.

involvement. In the last few decades, there has also been more scope for the private sector, driven by technological advances that have allowed natural monopolies to be broken up (for example, in electricity generation and telecommunications) and capital market developments that have facilitated better risk management. In addition, to the extent that the investment deflator has fallen relative to the GDP deflator (as in Europe), a falling public investment-to-GDP ratio would not imply a decline in the volume of investment.

3. Does public investment promote growth?

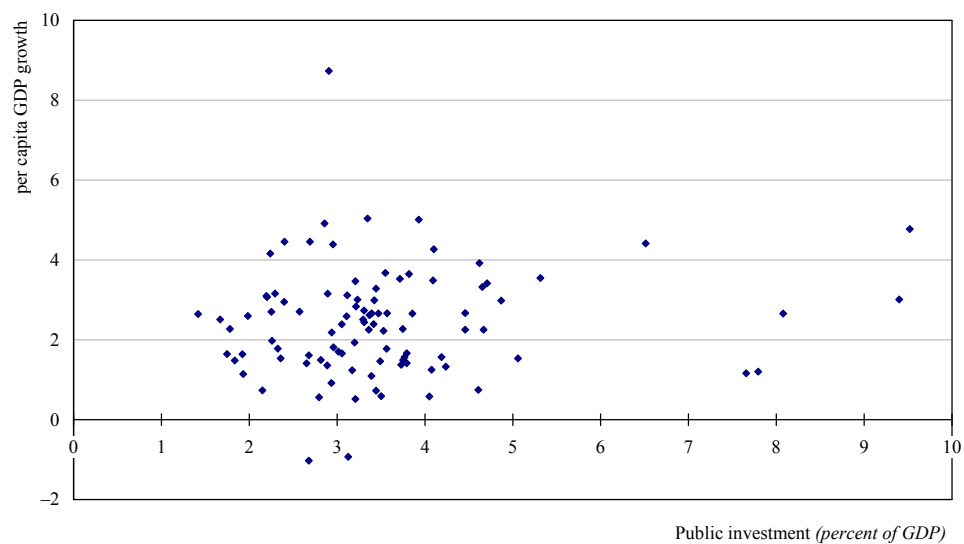
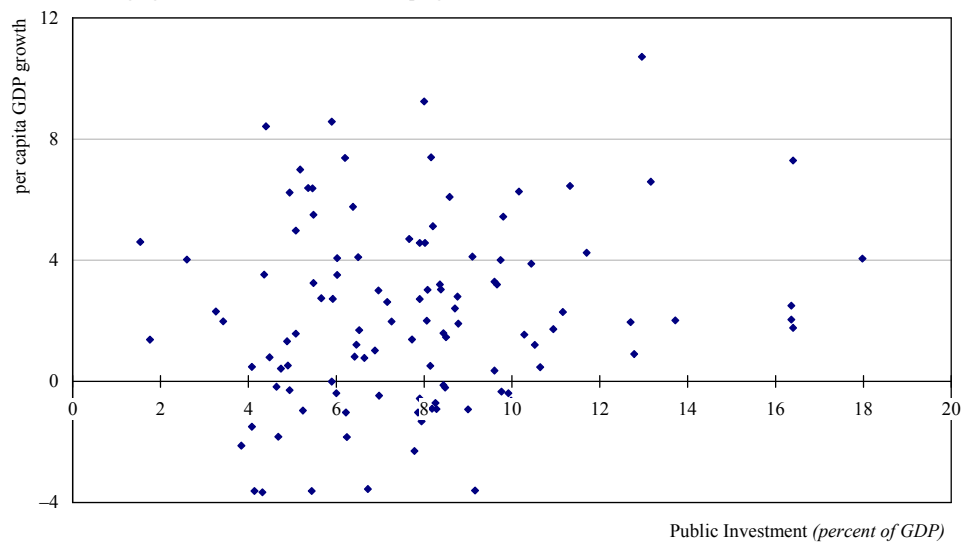
Measurement problems make establishing a robust relationship between public investment and growth challenging. First, public investment is only one of the factors that affect growth over the longer term, and it is difficult to control for the others. Second, a sizable portion of public investment is directed to supporting broad functions of government, including redistribution and the provision of social services, maintaining law and order, and administration, which do not directly boost productive potential. Finally, most infrastructure investment is lumpy in nature, implying that the full impact of investment in roads, telecommunications, and other infrastructure on growth can only be realized with considerable lags, once effective networks have been established.¹

It is therefore not surprising that the empirical evidence on the links between public investment and growth has so far been inconclusive, with studies reporting contrasting results (a review of the literature is provided in the Appendix).² The difficulty of pinning down the relationship between public investment and growth is illustrated in Figure 3, where observations on public investment-to-GDP and per capita GDP growth do not display a clear pattern. Empirical work is also complicated by data comparability problems, since the definition and coverage of public investment varies across countries. Moreover, data on the public capital stock, either in financial terms or physical terms (e.g., miles of power lines and roads, number of telephone connections, etc.), would be better for most analytical purposes, but they are less readily available and used in only a few studies (including those that give the strongest positive results).

¹ There is little evidence on relative rates of return on public and private investment. However, a study for advanced OECD countries shows that the short- to medium-term rates of return on public and private investment in infrastructure are similar, but long-term rates of return for public investment are significantly higher (Demetriades and Mamuneas, 2000).

² Appendix 1 does not cover the literature on whether higher public investment can raise growth rates in the short term. Generally speaking, fiscal multipliers are quite low; as launching new public investment projects or even expanding existing projects involve lags, increases in current spending and tax cuts tend to be a more effective means of boosting aggregate demand in the short term. However, since investment projects can be halted more quickly than they can be started, the costs of cutting public investment in terms of foregone output may be felt quite quickly. Hemming, Kell and Mahfouz (2002) review the literature on fiscal multipliers.

Figure 3

Public Investment and Growth, 1970-2000⁽¹⁾Advanced OECD Countries⁽²⁾Selected Emerging Market Economies and Developing Countries⁽³⁾

(1) Five-year within period averages.

(2) Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Norway, Portugal, Spain, Sweden, United Kingdom and United States.

(3) Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Venezuela; Cote d'Ivoire, Kenya, Madagascar, Malawi; China, India, Indonesia, Korea, Malaysia, Philippines, Thailand, Morocco, Tunisia.

Source: WEO Database, International Finance Corporation, and OECD.

It should also be noted that it is total investment and the national stock of capital that matter most for growth. Hence a related question is whether public and private investment are complements or substitutes; in other words, does public investment crowd in private investment by increasing its productivity, or crowd it out, either directly because the government undertakes projects that the private sector would be willing to take on, or indirectly via pressures on interest rates and the exchange rate. The evidence points to only modest crowding out (Hemming, Kell and Mahfouz, 2002).

4. Is public investment different?

Advocates of protecting public investment argue that it is different from current spending. First, by creating productive assets, public investment pays for itself over the long term, either because it contributes to raising tax revenue as growth responds and/or user fees are levied. Second, while the benefits of current spending fall mainly in the current period, benefits from capital spending extend to future generations; principles of intergenerational equity would then justify spreading the costs of public investment across generations of beneficiaries.³ Finally, while current spending diminishes government net worth, in principle investment generates an asset equivalent to the value of the expenditure; hence net worth remains unchanged. On these counts, public investment is therefore “superior” to current spending, and merits being safeguarded.

However, there is no guarantee that public investment will be productive in the sense that projects yield dividends for the budget that cover the government’s borrowing costs. Moreover, the payoff from private investment, good quality current spending, or cuts in distortionary taxes may be higher. In particular, increasing maintenance spending to help preserve the existing stock of capital may be a better choice than embarking in new projects while the status of existing ones deteriorates. Current spending that adds to human rather than physical capital may also pay for itself over the longer term.

5. How should public investment be safeguarded?

Advocates of higher public investment claim that the traditional approach to fiscal policy, by focusing on the overall budget balance and gross debt, provides no built-in incentive to give priority to public investment over current spending or tax cuts. But as stressed above, there is no guarantee that public investment is especially meritorious or productive. Consequently, attention must be paid to fiscal policy in its entirety, that is to the level and composition of spending, taxation, and financing. Indeed, fiscal constraints are not on public investment *per se*, but on fiscal

³ Strictly speaking, future generations should pay for public investment (through taxation) in proportion to the benefits they receive from it.

imbalances. It should in principle always be possible to rearrange the composition of expenditure or raise additional revenue to meet the budget constraint while allowing for higher public investment.

Independently of whether the traditional approach to fiscal policy provides no incentive to public investment or actually discriminates against it, the question then arises as to whether fiscal policy can be framed and implemented in a way that could help safeguard public investment.

5.1 *Broadening the set of fiscal indicators and targets*

A more flexible and “public investment-friendly” approach to fiscal policy could focus on broadening the usual set of fiscal indicators and targets, but without losing sight of the traditional overall balance and gross debt. Targeting the current balance, which excludes public investment, rather than the overall balance, would allow public investment to be treated differently from current spending; as a corollary, borrowing to finance infrastructure would not be counted against deficit and debt targets. A variant of this approach is the so-called *golden rule*, which requires governments to run a current balance or surplus. A number of countries follow some form of golden rule at the central and subnational levels (e.g., Germany, the United Kingdom, and the United States). A golden rule approach has also been suggested as a possible option for reforming the Stability and Growth Pact (SGP), given the need to step up infrastructure investment in many of the current euro area member countries and in most of the new EU member states.⁴

There are a number of arguments in favor of focusing on and targeting the current fiscal balance:

- such an approach would acknowledge that productive public investment adds to the stock of public (physical) capital. If its financial returns match (or exceed) the cost of borrowing, the net worth of the government is not affected (increases);
- if public investment, through higher growth, contributes to higher tax revenue or user fees are levied, productive public investment can pay for itself over the longer term, at least partially;
- spreading the costs of public investment over time promotes intergenerational equity. By financing public investment through borrowing, rather than through current savings, governments can shift part of the cost of investment to future beneficiaries by having them service the resulting debt;
- a balanced current budget is consistent with a positive steady-state public debt ratio. More specifically, it results in a steady-state ratio of public debt to GDP which is linked to the steady-state ratio of the public capital stock to GDP. In case of an overall balanced budget, the ratio of public debt to GDP is eventually driven to zero – an unlikely desired outcome in theory or practice.

⁴ See Blanchard and Giavazzi (2003), Buiter and Grafe (2002), and Galí and Perotti (2003).

However, framing fiscal policy exclusively around the current balance and adopting it exclusively as a fiscal target would entail a number of risks:

- when financing is constrained, there is little alternative but to focus on and target the overall balance. Indeed, if gross financing requirements (including the rollover of debt coming due) are large, fiscal targets may have to be set according to total, rather than net, financing availability;
- similarly, if demand pressures arise, public investment cannot be excluded when assessing the degree of fiscal adjustment required to bring domestic absorption into line with resource availability;
- even when public investment has the potential to generate additional revenue, a country may fail to collect it, for example due to poor tax administration, or to save it, as when revenue is earmarked for additional spending;
- implicit in the current balance approach is the presumption that public investment is of high quality, as it is supposed to yield adequate returns. But reality can be quite different, especially when screening and monitoring mechanisms for projects are weak. In such cases, public investment is less likely to pay for itself; rather, borrowing undertaken to finance it could undermine debt sustainability;
- targeting the current balance could introduce a bias against productive spending on health and education, or reductions in distortionary taxes;
- delinking borrowing for public investment from overall borrowing or debt limits may also undermine debt sustainability. Even when offset by public assets, gross public debt still matters, both because high debt levels send signals to markets and because heavy debt service limits a government's room for maneuver in the face of adverse shocks. These concerns are exacerbated in emerging market economies facing high borrowing costs, volatile macroeconomic variables (growth, interest rates, and exchange rates) and uneven access to capital markets. Similar concerns apply to advanced OECD and other countries where aging populations will be source of increasing fiscal pressures;
- freeing public investment from fiscal constraints may also crowd out private involvement in infrastructure, even in circumstances where such involvement would be desirable on efficiency grounds (e.g., when there is no obvious market failure);
- separating public investment by adopting an infrastructure or capital budget can fragment the budget, which reduces flexibility;
- focusing on the current fiscal balance may create an incentive for creative accounting, so as to classify current spending as investment and thereby exclude it from fiscal targets.

Rather than replacing the traditional framework based on overall balance and gross debt, there may be scope to modify it by paying more attention to the current balance. This is consistent with the long-established view that there is no one-size-fits-all fiscal indicator that is satisfactory for all purposes; rather a range of fiscal indicators should be used (Tanzi, 1993). More precisely, targeting the overall

fiscal balance and gross debt would remain appropriate where there are concerns about macroeconomic stability and debt sustainability. However, where these are not pressing concerns for fiscal policy, a supplementary target for the current balance can limit the government's ability to utilize any scope it has for additional borrowing to finance tax cuts or increased current spending. And where financing is constrained, setting such a target can highlight the trade-off between public investment, current spending, and taxation, and prompt policies needed to accommodate a higher level of public investment. The Fund's *Government Finance Statistics Manual 2001 (GFSM 2001)* is a fiscal reporting framework that provides a basis for the calculation and analysis of the current balance (the operating balance in the *GFSM 2001* terminology) and net worth.

Finally, a word on structural or cyclically-adjusted fiscal balances. Despite their limitations and computational challenges that make them unsuitable to all countries (Balassone *et al.*, 2005), these indicators may be useful in encouraging a buildup of fiscal cushions in good times that can be used to protect public investment in bad times, and more generally help avoid procyclical spending. This will in turn contribute to reducing the volatility of public investment.

5.2 *Introducing more budgetary flexibility*

To help avoid squeezing public investment in unfavorable cyclical conditions or when other spending pressures emerge, greater flexibility in budget formulation and execution is clearly desirable. This would allow for the creation of budgetary room for an appropriate public investment program, in line with other budget priorities and consistent with a sustainable fiscal stance. This should be complemented, where necessary, by reforms to:

- 1) streamline and prioritize current spending, by modifying earmarking and entitlement programs so that current outlays are easier to contain,
- 2) mobilize revenue,
- 3) eliminate wasteful public investment, and
- 4) identify priority projects.

Implementing medium-term expenditure frameworks would provide a mechanism to better focus on priorities and trade-offs. In view of the bias against cutting current spending in the short term, public investment (along with any other spending program) should be cast in a medium-term expenditure framework to help prioritize projects – in case of adverse shocks, priority projects would then be protected. When appropriately implemented, a medium-term framework would also provide for the protection of the recurrent costs of investment projects.

5.3 Strengthening the institutional framework for public investment

Improvements in the institutional framework for formulating and undertaking public projects, where necessary, would also contribute to safeguarding public investment. This would involve strengthening project evaluation and management capacity to ensure that public investment is both productive and cost effective, by building institutions that do that, or strengthening current institutions (such as project evaluation units in economic ministries); and it would help to promote independent evaluation of projects, which is not affected by political considerations dictated by the government of the day.

5.4 Promoting private sector involvement

Infrastructure investment and the provision of infrastructure-based services can be provided under different market conditions (competitive vs. uncompetitive, with and without prices etc.) and under different arrangements (wholly government or private provision, public-private partnerships, regulated private provision). The market failure test should determine who provides infrastructure and how. At the same time, disincentives to private sector participation should be removed by overhauling inadequate, discriminatory, and unstable regulatory frameworks, liberalizing pricing policies faced by private firms, and more generally placing government at an arm's length from the private sector. The application of sound and transparent procurement laws would complement these efforts.

6. Concluding comments

The issue of promoting/safeguarding public investment is not exclusively one of providing additional financing; nor does it involve adopting either legitimate accounting changes or accounting gimmicks to create room for additional financing for public investment. Ultimately, safeguarding public investment is a matter of fiscal policy choices and prioritization given limited budgetary resources and competing budgetary claims. There is no better solution to safeguarding public investment than to formulate and implement fiscal policy in a flexible, sustainable, and transparent manner. At the same time, however, more work is needed to better inform fiscal policy formulation. In particular, a better understanding of the growth effects of public investment and the government's ability to capture the dividends of higher growth is needed to reconcile increased public investment and debt sustainability.

APPENDIX STUDIES OF PUBLIC INVESTMENT AND GROWTH

Studies on the impact of public investment on longer-term growth do not give clear-cut results. This is despite the substantial research effort that took off following a series of papers by Aschauer, published in 1989, which suggested that falling public investment in the United States helped explain the post-1970 slowdown in U.S. productivity growth, and that there was a positive cross-country correlation between public investment and productivity growth. A number of subsequent studies reached similar conclusions. However, the strength and robustness of such results turn out to be sensitive to the methodology and data employed. This appendix provides further detail on this body of empirical work.

Some of the key studies are summarized in Table 1. These are grouped according to the four main methodologies that have been employed:

- aggregate production functions, which relate output to public capital stocks. Public capital is viewed either as an input in its own right, or as a factor improving the productivity of other factor inputs, such as private capital.
- cost or profit functions, to assess whether public capital lowers business costs (or increases profits).
- research focused on growth rather than the level of output, examining whether public investment – in aggregate, or broken down into components such as infrastructure – helps explain differences in cross-country or cross-regional growth.
- vector autoregressions (VARs), which are well suited to exploiting the time-series properties of public investment, output, and other variables without imposing a causal structure *a priori*.

Considering first the links between public capital and output, other studies – but not all – using Aschauer's general methodology have also found a positive association between these variables, both in the United States and elsewhere. However, pointing to the range of econometric problems arising with such studies, Gramlich (1994) and others have noted that the implied rates of return on public capital in many of these studies appear to be implausibly high.⁵ It is also notable that, while the work of Aschauer and others was motivated in part by the post-1970 slowdown in productivity growth and the role that declining public investment might have played in this, U.S. productivity growth picked up significantly during the Nineties while public investment continued to decline. Most of the studies using cost or profit functions have found that public capital lowers business costs or increases profits, although with relatively weak effects. In an application of this approach to Germany, Conrad and Seitz (1994) find that while public infrastructure

⁵ Although this may be an extreme case, Canning and Bennathan (2000) note that the implied rate of return to investment in telephone networks in an earlier study is over 10,000 per cent a year.

Table 1

The Effect of Public Investment on Output, Productivity, and Growth

Study	Data	Results
1. Production Function Approach		
Aschauer (1989a)	U.S., time series 1949-85	Positive effect of public capital on output
Aschauer (1989b)	G7, panel data, 1966-85	Positive effect of public capital on output
Merriman (1990)	Japan, panel data on 9 regions, 1954-63	Positive effect of public capital on output
Ford and Poret (1991)	11 OECD countries, time series 1960-89	Significant positive effect in Belgium, Canada, and Germany
Bajo-Rubio and Sosvilla-Rivero (1993)	Spain, time series 1964-88	Positive effect of public capital on output
Dalamagas (1995)	Greece, time series 1950-92	Ambiguous effects
Sturm and De Haan (1995)	U.S., time series 1949-85	Positive effect of public capital on output; insignificant effects using time differences
García Milá, McGuire and Porter (1996)	U.S., panel data on 48 states, 1970-83	Insignificant effect of public capital on output
Kavanagh (1997)	Ireland, time series 1958-90	Insignificant effect of public capital on output
Canning and Bennathan (2000)	90 countries, 1960-90	Specific types of infrastructure complement physical and human capital in supporting output per worker
La Ferrara and Marcellino (2000)	Italy, regional panel, 1970-94	Negative effect of public capital on output
Ligthart (2000)	Portugal, time series 1965-95	Positive effect of public capital on output
Calderón and Servén (2003)	101 countries, 1960-97	Positive effect of specific infrastructure components on output per worker
2. Cost or Profit Function Approach		
Berndt and Hansson (1991)	Sweden, time series 1960-88	Reduction in costs. Public capital in excess supply.
Lynde and Richmond (1993a)	U.K., time series 1966-90	Reduction in costs
Lynde and Richmond (1993b)	U.S., time series 1958-89	Increase in output
Conrad and Seitz (1994)	Germany, panel on 3 sectors, 1961-88	Reduction in costs. Public capital in short supply during 1961-79; in excess supply during 1980-88
Dalamagas (1995)	Greece, time series 1950-92	Reduction in costs
Seitz and Licht (1995)	Germany, panel on 11 states, 1971-88	Reduction in costs
Morrison and Schwartz (1996)	U.S., panel on 48 states, 1970-87	Infrastructure has a negative impact on costs
La Ferrara and Marcellino (2000)	Italy, regional panel, 1970-94	Insignificant effect on costs. Public capital in excess supply for Italy as a whole

The Effect of Public Investment on Output, Productivity, and Growth

3. Cross-section Growth Regressions		
Barro (1991)	76 countries, 1960-85	No effect of public investment on per capita GDP growth
Easterly and Rebelo (1993)	100 countries, 1970-88	Insignificant effect of public investment on per capita GDP growth, significant effect of transport and communication spending
Crinfield and Panggabean (1995)	282 U.S. metropolitan areas, 1960-77	Ambiguous or insignificant effects of local and federal public capital on per capita GDP growth
Holtz-Eakin and Schwartz (1995)	48 U.S. states, 1971-86	Insignificant effects of public capital on per capita GDP growth
Devarajan, Swaroop, and Zou (1996)	43 countries, 1970-90	Positive effect of current government spending on growth, negative effect of public capital spending and of infrastructure
Mas, Maudos, Perez, and Uriel (1996)	17 Spanish regions, 1955-91	Not always significant effects of public capital on per capita GDP growth
Khan and Kumar (1997)	95 countries, 1970-90	Positive effect of public investment on per capita growth, though declining over time and with significant regional variation
Vanhoudt, Matha and Smid (2000)	EU countries, 1960-97	Positive effect of public investment on per capita GDP levels, negative on output growth
La Ferrara and Marcellino (2000)	Italian regions, 1970-94 (panel structure)	Positive effect of public infrastructure investment on TFP growth
Clements, Bhattacharya, and Nguyen (2003)	40 low-income countries, 1970-99	Positive effect of public investment on per capita GDP growth
Milbourne, Otto, and Voss (2003)	72 countries, 1960-85	Positive effect of total public investment, and education and infrastructure components, on growth; not significant when endogeneity controlled for
Gupta, Clements, Baldacci, and Mulas-Granados (2004)	39 low-income countries, 1990-2000	Positive effect of government capital expenditure on per capita GDP growth
4. VAR Studies		
Clarida (1993)	U.S., France, Germany, U.K., time series 1964-89	Total factor productivity and public capital are cointegrated, but direction of causality is unclear
Otto and Voss (1996)	Australia, time series 1959-82	No significant relation between public capital and output
Sturm, Jacobs, and Grote (1999)	Netherlands, time series 1853-13	Public infrastructure Granger-causes output
Ligthart (2000)	Portugal, time series 1965-95	Public investment Granger-causes output

Source: Adapted from Table III.1 in European Commission (2003), with some additional references added (e.g., to more recent research) and some country-specific studies deleted (especially where the findings are similar to those of other work referred to in the table).

increases productivity and lowers business costs, there are clear indications of over-investment by the public sector during the Eighties.

In a number of studies focusing on the level and growth of output, empirical support for a positive impact of public capital has been obtained using particular components of investment – notably infrastructure – even where such evidence is lacking in the case of aggregate public investment. For example, Calderón and Servén (2003) find that quantitative measures of electricity generating capacity, road and rail lines, and telephone lines have a positive and significant impact on output per worker. Growth regressions (in the bottom group in the table) also emphasize the role of infrastructure investment. Easterly and Rebelo (1993) find that aggregate public investment does not appear to be a significant determinant of per capita GDP growth (similar to the results of Barro, 1991, and several others), but they do find a strong positive impact arising from public investment in the transportation and communications sectors. Similarly, Milbourne, Otto, and Voss (2003) find that public investment in education, as well as in transport and communications, appears to have a positive and significant effect on growth.

Since empirical analysis can be distorted by reverse causation – higher growth may create the demand for higher public investment, rather than being the result of such investment – VAR studies attempt to establish the direction of causation. However, this has produced mixed results, as have attempts to control for reverse causation in cross-sectional panel studies.⁶ Simultaneity bias can also affect the empirical work, in that a sizable public investment project may lead to a short-run spurt in output, but possibly without an enduring effect on productivity and growth (Gramlich, 1994).

⁶ The Easterly and Rebelo (1993) results referred to above continue to hold when instrumental variable methods are used – although with what the authors describe as some “disturbingly high” coefficient values. The impact of infrastructure capital on output in Calderón and Servén (2003) also remains significant when the possible endogeneity of public capital is controlled for. The Milbourne, Otto and Voss (2003) results cease to be significant when instrumental variable methods are used.

REFERENCES

- Aschauer, D.A. (1989a), "Is Public Expenditure Productive?", *Journal of Monetary Economics*, Vol. 23, March, pp. 177-200.
- (1989b), "Public Investment and Productivity Growth in the Group of Seven", *Economic Perspectives*, Vol. 13, pp. 17-25, September/October.
- Bajo-Rubio, O. and S. Sosvilla-Rivero (1993), "Does Public Capital Affect Private Sector Performance? An Analysis of the Spanish Case, 1964-1988", *Economic Modeling*, Vol. 10, pp. 179-84, July.
- Balassone, F., M. Kumar, E. Ley and G. Ganelli (2005), "Cyclicality of Fiscal Policy and Structural Balances", mimeo, International Monetary Fund, Fiscal Affairs Department.
- Barro, R. (1991), "Economic Growth in a Cross Section of Countries", *Quarterly Journal of Economics*, Vol. 106, pp. 407-43, May.
- Berndt, E.R. and B. Hansson (1991), "Measuring the Contribution of Public Infrastructure Capital in Sweden", NBER, Working Paper, No. 3842, Cambridge (Mass.).
- Blanchard, O.J. and F. Giavazzi (2003), "Improving the SGP through a Proper Accounting of Public Investment", CEPR, Discussion Paper, No. 4220, Cambridge (Mass.), MIT Press.
- Buiter, W.H. and C. Grafe (2002), "Patching Up the Pact: Some Suggestions for Enhancing Fiscal Sustainability in an Enlarged European Union", CEPR, Discussion Paper, No. 3496, London.
- Calderón, C. and Luis Servén (2003), "The Output Cost of Latin America's Infrastructure Gap", in W. Easterly and L. Servén (eds.), *The Limits of Stabilization – Infrastructure, Public Deficits, and Growth in Latin America*, Washington (D.C.), The World Bank.
- Canning, D. and E. Bennathan (2000), "The Social Rate of Return on Infrastructure Investments", The World Bank, Policy Research Working Paper, No. 2390, Washington (D.C.).
- Clarida, R.H. (1993), "International Capital Mobility, Public Investment and Economic Growth", NBER, Working Paper, No. 4506, Cambridge (Mass.).
- Clements, B., R. Bhattacharya and T.Q. Nguyen (2003), "External Debt, Public Investment, and Growth in Low-Income Countries", International Monetary Fund, Working Paper, No. 03/249, Washington (D.C.).
- Conrad, K. and H. Seitz (1994), "The Economic Benefits of Public Infrastructure," *Applied Economics*, Vol. 26, pp. 303-11. April.

- Crinfield, J.B. and M.P.H. Panggabean (1995), "Is Public Infrastructure Productive? A Metropolitan Perspective Using New Capital Stock Estimates", *Regional Science and Urban Economics*, Vol. 25, pp. 607-30, October.
- Dalamagas, B. (1995), "A Reconsideration of Public Sector's Contribution to Growth", *Empirical Economics*, Vol. 20, No. 3, pp. 385-414.
- Demetriades, P. and T. Mamuneas (2000), "Intertemporal Output and Employment Effects of Public Infrastructure Capital: Evidence from 12 OECD Economies", *Economic Journal*, Vol. 110, pp. 687-712, July.
- Devarajan, S., V. Swaroop and H. Zou (1996), "The Composition of Public Expenditure and Economic Growth", *Journal of Monetary Economics*, Vol. 37, pp. 313-44, April.
- Easterly, W. and S. Rebelo (1993), "Fiscal Policy and Economic Growth", *Journal of Monetary Economics*, Vol. 32, pp. 417-58, December.
- European Commission (2003), "Public Finances in EMU, 2003", *European Economy*, Reports and Studies, Brussels.
- Ford, R. and P. Poret (1991), "Infrastructure and Private Sector Productivity", OECD, Economic Studies, Vol. 17, pp. 63-89, Autumn.
- Galí, J. and R. Perotti (2003), "Fiscal Policy and Monetary Integration in Europe", *Economic Policy*, Vol. 18, pp. 533-72, October.
- Garcia-Milá, T., T.J. McGuire and R.H. Porter (1996), "The Effects of Public Capital in State-Level Production Functions Reconsidered", *Review of Economics and Statistics*, Vol. 78, pp. 177-206, February.
- Gramlich, E.M. (1994), "Infrastructure Investment: A Review Essay," *Journal of Economic Literature*, Vol. 32, pp. 1176-96, September.
- Gupta, S., B. Clements, E. Baldacci and C. Mulas-Granados (2002), "Expenditure Composition, Fiscal Adjustment, and Growth in Low-Income Countries", International Monetary Fund, Working Paper, No. 02/77, Washington (D.C.).
- Hemming, R., M. Kell and S. Mahfouz (2002), "The Effectiveness of Fiscal Policy in Stimulating Economic Activity – A Review of the Literature", International Monetary Fund, Working Paper, No. 02/208, Washington (D.C.).
- Holtz-Eakin, D. and A.E. Schwartz (1995), "Infrastructure in a Structural Model of Economic Growth", *Regional Science and Urban Economics*, Vol. 25, pp. 131-51, April.
- Kavanagh, C. (1997), "Public Capital and Private Sector Productivity in Ireland, 1958-90", *Journal of Economic Studies*, Vol. 24, No. 1/2, pp. 72-94.
- Khan, M.S. and M.S. Kumar (1997), "Public and Private Investment and the Growth Process in Developing Countries", *Oxford Bulletin of Economics and Statistics*, Vol. 59, No. 1, pp. 69-88.

- La Ferrara, E. and M. Marcellino (2000), "TFP, Costs, and Public Infrastructure: An Equivocal Relationship", IGIER, Working Paper, No. 176, Milan.
- Ligthart, J.E. (2000), "Public Capital and Output Growth in Portugal: An Empirical Analysis", International Monetary Fund, Working Paper, No. 00/11, Washington (D.C.).
- Lynde, C. and J. Richmond (1993a), "Public Capital and Long-Run Costs in UK Manufacturing", *Economic Journal*, Vol. 103, No. 419, pp. 880-89.
- (1993b), "Public Capital and Total Factor Productivity", *International Economic Review*, Vol. 34, pp. 401-14, May.
- Mas, M., J. Maudos, F. Perez and E. Uriel (1996), "Infrastructures and Productivity in the Spanish Regions", *Regional Studies*, Vol. 30, No. 7, pp. 641-50.
- Merriman, D. (1991), "Public Capital and Regional Output: Another Look at Some Japanese and American Data", *Regional Science and Urban Economics*, Vol. 20, pp. 437-58, February.
- Milbourne, R., G.D. Otto and G.M. Voss (2003), "Public Investment and Economic Growth", *Applied Economics*, Vol. 35, pp. 527-40, March.
- Morrison, C.J. and A.E. Schwartz (1996), "State Infrastructure and Productive Performance", *American Economic Review*, Vol. 86, pp. 1095-11, December.
- Otto, G.D. and G.M. Voss (1996), "Public Capital and Private Production in Australia", *Southern Economic Journal*, Vol. 62, No. 3, pp. 723-38.
- Seitz, H. and G. Licht (1995), "The Impact of Public Infrastructure Capital on Regional Manufacturing Production Cost", *Regional Studies*, Vol. 29, pp. 231-40, June.
- Sturm, J.E., J. Jacobs and P. Groote (1999), "Output Effects of Infrastructure Investment in the Netherlands, 1853-1913", *Journal of Macroeconomics*, Vol. 21, pp. 355-80, April.
- Sturm, J.E. and Jakob De Haan (1995), "Is Public Expenditure Really Productive? New Evidence from the USA and the Netherlands", *Economic Modeling*, Vol. 12, pp. 60-72, January.
- Tanzi, V. (1993), "Fiscal Deficit Measurement: Basic Issues", in M.I. Bléjer and A. Cheasty (eds.), *How To Measure the Fiscal Deficit: Analytical and Methodological Issues*, Washington (D.C.), International Monetary Fund.
- Vanhoudt, P., T. Matha and B. Smid (2000), "How Productive are Capital Investments in Europe?", *European Investment Bank Papers*, Vol. 5, No. 2, pp. 81-106.

HOW DOES THE COMPOSITION OF PUBLIC SPENDING MATTER? A FRAMEWORK RELATING PUBLIC SPENDING TO GROWTH, EQUITY AND POVERTY-REDUCTION OBJECTIVES

*Stefano Paternostro, Anand Rajaram and Erwin R. Tiongson**

1. Introduction

Whereas development objectives in the post-war period were typically cast in terms of economic growth, in recent years, a number of initiatives have emphasized poverty reduction as a primary development policy goal.¹ In 1999, a number of modifications were made to the Heavily Indebted Poor Countries (HIPC) Initiative, to strengthen the links between debt relief, social policies and poverty reduction. In 2000, under the auspices of the United Nations, the international community reached broad agreement on the Millennium Development Goals (MDGs), including explicit targets for poverty reduction. Meanwhile, among developing countries, there has been emphasis on producing country-driven Poverty Reduction Strategy Papers (PRSPs) to provide the policy framework for achieving economic growth and poverty reduction, as well as for coordinating donor efforts. Together, these initiatives have led to increased efforts to identify specific policies and programs for effectively reducing poverty.

Over the last five years donors have required governments to identify and increase the share of “pro-poor” expenditure in the context of the enhanced HIPC Initiative and PRSP implementation. A review of experiences with pro-poor budgeting in countries that have reached the Decision Point of the Enhanced HIPC Initiative suggests that education and health care are consistently classified as “poverty-reducing” (Figure 1). In contrast, the classification of other expenditure components (such as agricultural development and infrastructure) as “poverty-reducing” varies from country to country.

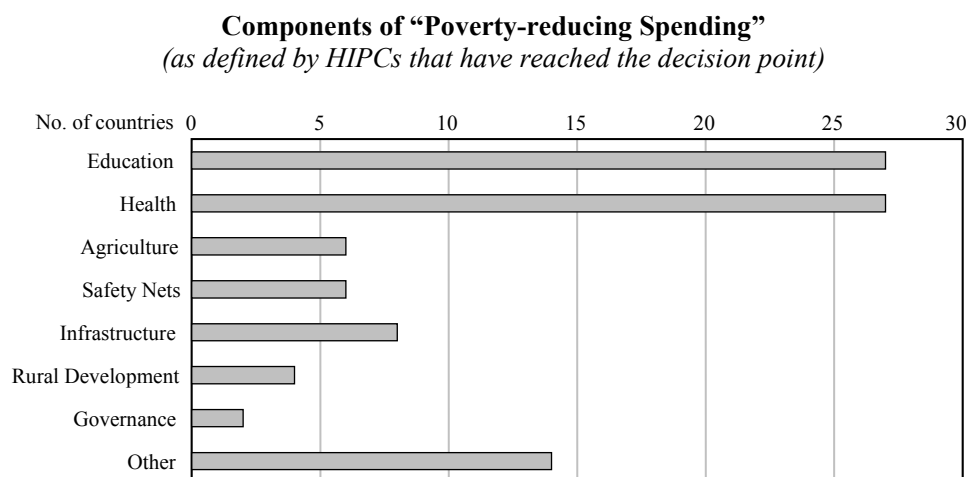
* The World Bank – 1818 H Street, NW – Washington (D.C.) 20433 – U.S.A.

We received valuable comments and suggestions from: Sudharshan Canagarajah, Shanta Devarajan, Lionel Demery, Alan Gelb, Maureen Lewis, Humberto Lopez, Sanjay Pradhan, Sudhir Shetty, Vera Wilhelm, participants at the 2004 PREM Learning Week session, *Pro-poor Expenditures: A Debate* (May 4, 2004) and participants and discussants at the ODI workshop, *Current Issues and Debates in Aid and Public Expenditure Management* (May 13-14, 2004) and at the Banca d’Italia Public Finance Workshop (March 31-April 2, 2005).

The usual disclaimer applies.

¹ Mention should be made of the concept of Human Development that was introduced by Mahbub al Haq and UNDP in the Nineties and was used to make the case that economic growth was the *means* to achieve human development, measured by a composite index based on life expectancy, adult literacy, school enrolment and GDP per capita. In 1994 a “human development 20:20 compact” was proposed to earmark 20 per cent of aid flows and 20 per cent of government budgets to basic social services. This compact may have laid the groundwork for the subsequent HIPC emphasis on public spending on health and education as key to human development and, by association, with poverty reduction (see Human Development Report 1996).

Figure 1

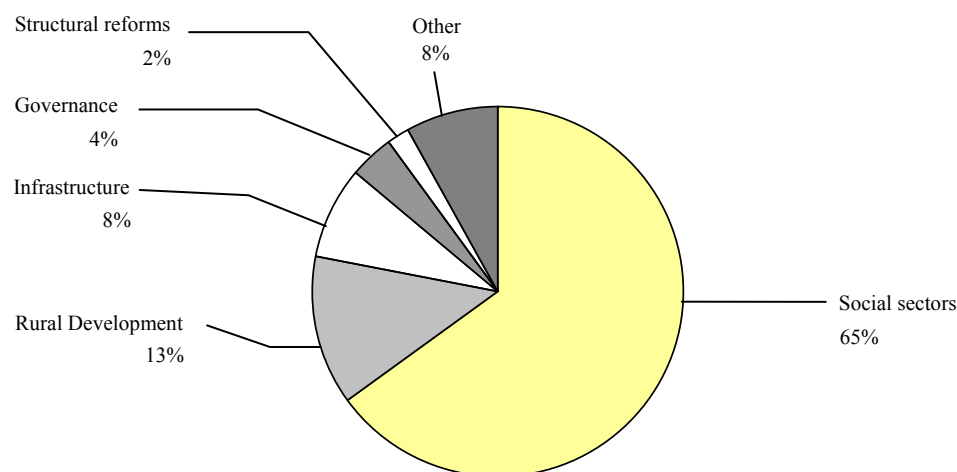


Source: IMF and The World Bank, 2003, *Heavily Indebted Poor Countries (HIPC) Initiative: Status of Implementation*, Table 5.

A recent review of the Enhanced HIPC Initiative conducted by The World Bank’s Operation Evaluation Department (OED) confirms that the Initiative has indeed earmarked debt relief “savings” for poverty reduction, which has in turn been translated into substantial allocations of debt relief resources for social sector expenditures (The World Bank, 2003b). In particular, the increased resources provided by debt relief have been disproportionately targeted for allocation to the social sectors, for a sample of HIPC countries for which data were available (Figure 2). Of the total amount of resources, some 49 per cent were allocated to the education and health sectors (The World Bank, 2003b).

Academic studies, perhaps following this trend, have also used social spending or spending on the education and health sectors as a proxy for pro-poor spending (See Appendix 1). Using this definition, studies have tried to estimate the statistical relationship between aid flows and pro-poor budgets (e.g., Gomanee, Girma, and Morrissey 2003), or to determine whether decentralization leads to higher pro-poor spending (e.g., Schneider 2003), or to simply assess a country’s fiscal stance (e.g., Mooji and Dev 2004).

What accounts for the unusual consensus regarding social sector spending as key to poverty reduction? The OED study suggests that these conditions are a result of the demand by the advocacy NGOs, who have equated poverty reduction with social expenditures. Other proponents argue that the donor bias toward direct spending on the poor should be seen as a countervailing measure to the tendency for

Figure 2**The Projected Allocation fo HIPC Resources**

Source: The World Bank (2003), *The Heavily Indebted Poor Countries (HIPC) Debt Initiative. An OED Review*.

political elites in recipient countries to influence the allocation toward programs which cater to their needs rather than those of the poor.²

There is, however, growing concern regarding the wisdom of relying so heavily on social sector spending to promote poverty reduction. The OED finds that a different balance between social and other sectors, particularly infrastructure and rural development, may be warranted for mobilizing investment to promote growth, a necessary condition for sustainable poverty reduction. Killick (2004) utilizes the OED's findings to argue forcefully that large amounts of aid are being misdirected, promoting a narrow approach to poverty where spending in the social sectors is expanded at the expense of broader developmental priorities such as raising economic growth and addressing structural weaknesses, both of which are key to sustained poverty reduction. In Uganda, it has been argued that roads, agriculture and water and sanitation may yield higher returns for employment and income creation than primary health care and education and that the Poverty Action Fund

² An Overseas Development Institute (ODI) review (Foster and others, 2002) of the experience with pro-poor budgeting in five sub-Saharan African countries observed that the criteria for what constitutes poverty-reducing expenditure have generally focused on direct benefits to the poor. They suggest that the general tendency of equating poverty reduction with social service provision needs to be seen in historical context as a compensation for previous neglect of services to the poor.

has promoted a narrow interpretation of pro-poor programs, skewing budget allocations away from programs that may have allowed greater poverty reduction. (Williamson and Canagarajah, 2003; The World Bank, 2002).

The social sector bias in pro-poor allocations is also present in the PRSP programs which include countries not eligible for HIPC assistance. In a review of the role of PRGF programs in supporting PRSPs, the Independent Evaluation Office (IEO) of the IMF reached similar conclusions.

“Strategies outlined in PRSPs generally constitute an improvement over previous development strategies, in the sense of providing greater poverty focus, a longer-term perspective, and some results-orientation. However, most PRSPs fall short of providing a strategic roadmap for policy making, especially in the area of macroeconomic and related structural policies. *The focus of most PRSPs is on the composition of public expenditures, especially social sector spending, with much less emphasis on other aspects of a broader strategy to encourage poverty-reducing growth [emphasis ours]*”. (IMF, 2004, p. 4)

Predictably, developing countries have reacted to the social sector bias by arguing for public spending on infrastructure which is seen to be a binding constraint to private investment and growth in income and employment. Thus, it is quite likely that the coming decade will see a shift in the bias towards spending on infrastructure which would be on an equally weak analytical foundation. The basis for making judgments on where public spending is most likely to contribute to growth or poverty reduction needs to be more clearly established. The current contest over “fiscal space” for various sectors needs to be decided on an objective economic basis to avoid being seen as a struggle over spoils by competing sectoral interests or as the outcome of the current development fad.

2. Methodological concerns and issues

One of the weaknesses of the pro-poor approach is that it has used facile reasoning to link inputs (public spending) and outcomes (absolute poverty levels). An unintended consequence of this approach is that it has suppressed the essential discussion of the linkages between public spending policy and its direct and indirect effects and short and long term consequences. The effects of a public policy on policy objectives (such as absolute poverty) can only be verified if the transmission channels and the time period for effects to be observed are reasonably well-defined. Absent this, one has to make a leap of faith to link inputs and outcomes. So, from an empirical point of view, the validity of this approach to poverty reduction is difficult to test and to compare and contrast with alternative poverty reduction policies.

A second criticism of the pro-poor expenditure approach is that it obscures the contribution of economic growth-promoting interventions and contributes to a false dichotomy between growth and poverty reduction. The argument could be

made, if one were to be charitable to its proponents, that the pro-poor approach is a “reduced form” of a broader “structural” development policy, subsuming the effects of public policy on related but subsidiary objectives such as growth and equity. But such a reduced form is not helpful if it contributes to the impression that poverty can be reduced “directly” by sidelining or ignoring the effects of policy on growth and equity. The evidence cited above, of spending policy applied to real countries, suggests that both donors and governments have been tempted to think that this is the case.³

The international commitment to the Millennium Development Goals and the debate about the appropriate levels of aid to achieve the goals only reinforce the concern that public spending and outcomes are being linked with misleading simplicity and with little reference to economic theory and development experience. The World Bank’s *2004 World Development Report* provides ample illustration of why the link between public expenditure and its ultimate impact in improving any desired outcome for the poor, such as literacy or health status, is fraught with problems, including problems of diversion of resources to the non-poor, poor quality of services, lack of access, and absenteeism by service providers, all examples of government failure.

One would have to look to both applied welfare economics and the theory of economic growth to derive the necessary guidance on if and how public spending could be used to stimulate growth, improve the distribution of income and reduce poverty. Section 3 of this paper provides a synopsis of existing theoretical and empirical perspectives on the appropriate allocation of government expenditure for poverty reduction for which more extensive discussion is provided in an annex. The review of the literature reveals a surprising paucity of useful guidance on this topic,⁴ which might serve to explain why development agencies have used *ad hoc* and simplistic principles to respond to political pressure in donor countries to link debt relief and aid flows to poverty reduction.

In the absence of clear guidance from economic theory, Section 4 proposes a pragmatic framework, consistent with public economics principles and (to a lesser extent) what is known from growth theory, to guide empirically testable hypotheses regarding the growth and poverty impact of expenditure policy choices. The framework encompasses a government’s development strategy with explicit recognition of its goals for growth, equity and poverty reduction as well as key social indicators. It underlines the importance of public economics principles in identifying the appropriate roles of the public and private sectors, and the recognition of the full scope of public policy instruments – the regulatory framework (broadly defined to include property rights, security and law and order), and tax and expenditure policy – available to achieve policy objectives. The framework allows a

³ A considerable amount of intellectual effort is consequently directed to debating and clarifying issues that would be better spent on real problems. See, for example, Rodrik (2000).

⁴ Perotti (2003) also notes the absence of a coherent model for evaluating the trade-offs between different expenditure programs.

focus on the policy implications of allocating resources among sectors and government programs, with respect to their direct and indirect effects on poverty as well as their immediate and lagged impact. The paper also identifies ways of quantifying the links between variables in the framework using existing tools and reviews selected empirical work where this has been undertaken. Finally, Section 5 discusses the policy implications and suggests some practical operational guidelines for improving the analytical basis for linking public spending to economic growth, equity and poverty reduction.

3. A synopsis of the literature on expenditure allocation

How should a government allocate public spending across various sectors to maximize prospects for achievement of its development (growth and poverty reduction) objectives? What principles and technical tools should guide the allocation of resources? What is current guidance on these questions?

It is important to recognize that, unlike tax policy, where the theory of optimal taxation was developed, there is not a comparable theory of optimal expenditure policy that provides comparably well-defined rules for expenditure allocation. The key ideas of expenditure policy were the concepts of market failure (including the concepts of externalities and public goods) that suggested that only “efficiency enhancing” interventions that corrected for the underprovision of a product or service due to market failure justified public expenditure.⁵

Because of the lack of clear theoretical results, the various guidelines proposed and used by public finance specialists⁶ for considering general issues on expenditure allocation are pragmatic “good analytical practice” adaptations to the current state of knowledge.⁷

In general available guidelines suggest the following:⁸

⁵ See Stiglitz (2000) for the six conditions when markets fail and create a rationale for public intervention. Devarajan *et al.* (1996) observe that “neither economic theory nor empirical evidence provides clear-cut answers to how the composition of expenditure affects economic growth”. It might be added that neither does theory indicate clearly how expenditure affects equity or poverty.

⁶ See, for example, Devarajan *et al.* (2001); Pradhan (1996), IMF (1995) as well as guidelines for International Monetary Fund (IMF), the Asian Development Bank (ADB), and the Organisation for Economic Cooperation and Development (OECD).

⁷ For example, while staff members of international organizations have recently developed practical guidelines for expenditure analysis, the theory of public expenditure has, as is well known, a very long history. Musgrave (1985) traces notable contributions in the development of principles of expenditure allocation, including those of Lindahl (1918) and Pigou (1928) in the application of the theory of marginal utility to government expenditures, Samuelson’s (1954, 1955) path-breaking linkage of externalities and social goods and integration of social goods into principles of efficiency, and the development of cost-benefit analysis in the Sixties. Walker (1930) provides one of the first surveys of the theory of public expenditures.

⁸ A more detailed review of the recent literature appears in Appendix 2. See also Fozzard (2001).

- *General principles.* As indicated above the guidance on expenditure allocation has emphasized the principle of public economics, *i.e.* to identify interventions that address market failures and inefficiencies.⁹ Existing guidelines call for an assessment of the proper role of government, by clarifying private-public roles and evaluating market failure. Whether public expenditure is warranted should be determined by whether it would address a market failure or achieve an equity objective. There is typically an appraisal of the relative efficiency of various tools, government interventions, and expenditure policy options, for achieving particular objectives. This suggests distinguishing between financing a good or service and provision of that good or service.
- *Menu of technical tools.* For evaluating expenditure options, guidelines provide a menu of available technical tools for steering policy choices, including cost-effectiveness analysis, multi-criteria analysis, service delivery surveys, expenditure tracking, and social cost/benefit analysis. To the extent that the guidelines discuss the equity objective it is to refer to established methodologies such as benefit incidence analysis.

What is the consensus on the usefulness of quantitative techniques for guiding resource allocation? Some guidelines are less confident about the value of existing empirical tools (for example, The World Bank, 1993). Some sectors lend themselves more easily to economic cost/benefit analysis. For others, the criteria are less well defined. In theory the allocation of resources across programs should be based on the highest returns. In practice, a full economic analysis will not be possible except for a few sectors. Even within sectors that lend themselves to quantitative analysis, existing data may be inadequate for conducting a proper analysis. In this case, some guidelines suggest alternative resources for evaluating expenditure options, including the existing body of experience on how programs work in a country and experiences in other countries with similar characteristics. In practice, it may be optimistic to think that there exists a body of empirical work that quantifies all the critical parameters necessary for allocation decisions. There is then a large premium on professional judgment, based on expertise by sector and by country.

- *Dynamic effects.* To the extent that there is reference to the impact of public spending on the poor, existing guidelines typically do not distinguish the short versus the long term, nor distinguish the direct versus indirect impact on poverty. Most policy interventions have multiple effects on poverty – which can be distinguished in terms of whether the impacts are immediate or occur with a lag and whether they are direct or indirect (through economic growth). As discussed in Section 1, many of the policy initiatives in the context of PRSPs and HIPC have focused on the direct effects and while spending on health or education would be expected to have a longer-term effect on poverty, the sequence and

⁹ The World Bank's guidelines on public expenditures note that the rationale for public intervention could be either market failure (public goods, externalities) or redistribution. If the former, it suggests obtaining quantitative estimates for the degree of market failure to supplement arguments based on first principles. If the rationale is redistribution, it recommends analysis of the incidence of public expenditures.

time lags have not been adequately explained. An important exception is a framework developed by Ferroni and Kanbur (1992) for public expenditure restructuring taking into account both human resource interactions and multidimensionality of the standard of living. They make a distinction between direct expenditure (expenditure in the primary sector in which one seeks to obtain improvements) and indirect expenditure (income-enhancing expenditure). The analytical results imply that there is a case for a combination of both “direct” and “indirect” spending to maximize the standard of living, subject to further empirical verification.

- *Policy tools and the nature of poverty.* In addition to the dynamic effects of expenditure allocation on poverty, the choice of public intervention must also take account of the nature of the poverty being addressed. For example, with respect to transient poverty (poverty associated with abrupt changes in economic conditions), short-run public programs (public relief, food aid, severance pay) may be appropriate. In the case of chronic poverty, two sets of public interventions are appropriate: the first increases the productivity of the poor; the second provides safety nets. Alternatively, some have suggested an assessment of how the poor can gain from various types of public interventions that affect inputs, distinguishing whether an intervention raises input volumes, improves factor productivity, or alters prices (Lipton and Ravallion, 1995).
- *Broader consideration.* Finally, there are critical, broader considerations for considering alternative government interventions. These include income distributional effects, complementarities between expenditure items, the net impact of the combination of various government tools, and others. Some specialists have presented a more comprehensive framework within which to think about government programs for poverty reduction (Duncan and Pollard, 2002). Within this framework, they have identified the building blocks necessary – such as social order, good governance, and functioning markets – prior to any government investment for poverty reduction.
- *Future challenges.* A recent symposium on public economics with papers by eminent economists suggested some important conclusions.¹⁰ Principally it pointed to the inadequacy of public economics theory and the failure of research to keep pace with the challenges of development policy and in providing the necessary guidance on expenditure allocation to policy makers and development practitioners. The gap between practice and theory, already noted, has widened over the past decade, particularly because the conception of development and the role of government have been significantly modified. One of the symposium contributors, Stiglitz, noted that new thinking was required because of: (a) the recognition that market failures are not special cases but are often pervasive, especially in developing countries, given the problems of incomplete markets and information; (b) the acknowledgement of government failures due to difficulties of collective action, free ridership, credibility of commitment and

¹⁰ April 2002 Symposium, *Journal of Public Economics*, No. 86 (2002), pp. 311-60.

problems of establishing incentives for performance; and (c) an increased focus on process issues as important for desirable outcomes, such as participation by the poor. In his summary, Stiglitz noted:

(A) Alternative conceptions of equity represents one of the more important changes in public policy thinking over the past quarter of century: an evaluation of economic systems not just in terms of final outcomes (e.g. the steady state distribution of income), but in terms of dynamics and process – we evaluate systems in terms of equality of opportunity, in the seeming fairness of the system. Here too, practice may have outpaced theory: there has been only limited progress in welfare economics in developing the conceptual framework and analytic tools. This too remains one of the important challenges for the coming decades.

The agenda posed by Stiglitz is beyond the scope of this paper but the framework discussed in the next section attempts to fill some of the gaps between practice and theory as a step toward that agenda.

4. A framework for analysis of the impact of public spending on growth and poverty reduction

This section presents an analytical framework for relating public policy to growth and poverty, taking account of some of the dynamics of poverty reduction. The framework is based on an explicit consideration of tradeoffs between expenditure policy choices as an aspect of the broader policy choices facing a government as part of its development strategy. This section then reviews examples of policy interventions for poverty reduction and illustrates how these interventions could be evaluated within the proposed framework. It also provides an overview of existing tools for quantifying some of the parameters of the framework.

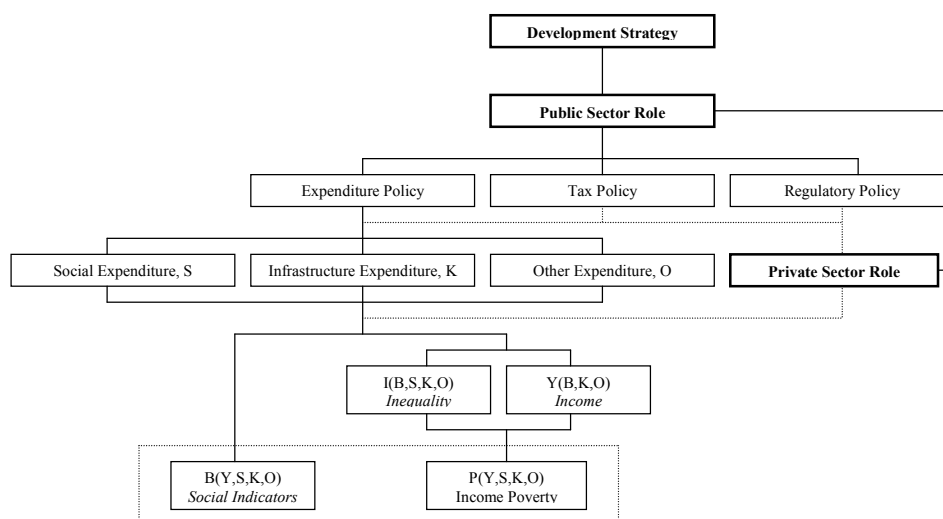
4.1 Public policy, growth, equity and poverty: a framework

The foundation of the framework is the country's development strategy which would define the objectives and policies for growth, equity, poverty reduction and social indicators. For any given objective, the development strategy is a point of reference that is country specific. It represents a country's vision of its strengths and capabilities and its aspirations, as articulated or influenced by its (presumably representative) political leadership. The development strategy would be determined, *inter alia*, by initial endowments including institutional capabilities, the demographic and geographic character of poverty and the identified bottlenecks to growth in a given economy.

The framework is presented in Figure 3 with the development strategy described partly in the form of a decision tree but with key analytical linkages to the objectives of growth, equity and poverty and social indicators heuristically

Figure 3

Public Policy, Growth and Poverty: A Framework



indicated. A fundamental aspect of the development strategy (and an early branch of the tree) is with regard to its definition of the roles of the public and private sectors. Different development strategies might give more or less weight to the public sector and refer to a variety of institutional arrangements and policy instruments through which the strategy is implemented. Innovations such as private toll roads may allow some countries to reduce the role of the government in provision and financing some kinds of infrastructure. Strategies might also differ with regard to the weights assigned to the different policy objectives of income growth, equity, income poverty and social indicators. Thus, this framework is sufficiently general and can accommodate a variety of strategies.

For any given determination of the relative roles of the public and private sectors, the framework identifies three broadly defined public policy instruments that can be used to stimulate the economy toward achievement of the policy objectives. These are explicitly identified in the framework as expenditure policy, tax policy and regulatory policy (including public private partnership (PPP) arrangements). As instruments of public policy these three instruments both define key aspects of the public sector as well as establish the regulatory/incentive environment for the private sector. The chart indicates that public policies affect the objectives both directly through public sector activities as well as through their impact on the private sector.

- The *regulatory policy framework* establishes the rules of the game and the economic environment for the private sector as well as the public sector.

Minimum wage and child labor regulations, to cite two obvious examples, have an impact on the private and public sectors and through them on the earnings of workers, including the poor. Worker safety regulations affect both the public and private sectors.

- *Tax policy* raises the necessary resources for public programs, but *how* these resources are raised matters for growth, equity and poverty reduction. Taxes, for example, may be regressive, may distort private sector incentives, lower aggregate investment and growth, limit households' access to critical basic services, and thus effectively exacerbate poverty.
- *Expenditure policy*, in terms of the level and composition of expenditure specifically, can be used to influence policy objectives. While acknowledging that there are a number of ways to describe a government's expenditure policy options, this paper defines the spending choices broadly as social expenditures, infrastructure expenditure and other expenditure.¹¹ The level and composition of expenditure is presumed to influence income, equity, poverty and social indicators.

There are a number of advantages to having such an explicit framework.

First, as noted, the framework has fairly general application. It is not predicated on an activist, interventionist government – in principle the role of the government might be limited to establishing property rights and ensuring law and order and national defense. Or, depending on the development strategy, it might feature a more active role for the state in terms of the level and scope of public goods and services, regulations, and revenue raising.

Second, in evaluation of a given development strategy, it allows the application of public economics principles to determine if the role of the public sector is consistent with principles of efficiency and equity, *i.e.* to determine whether a market failure or equity rationale exists to justify public sector intervention.

Most government policy, however, is stated in terms of economic growth, employment creation and poverty reduction (rather than efficiency and equity). If development policy is to respond to these objectives, it is necessary to go beyond the public economics framework and to assess the contribution of public policy to economic growth and equity. By attempting this link between public economics and growth theory, this framework proposes an analytically challenging but also a more intuitive and recognizable framework for policy makers. By highlighting the significance of the development strategy in conjunction with the principles of public economics and economic growth, this framework provides a more comprehensive basis for evaluating public policy, including public expenditure composition, in terms of its contribution to the dynamics of growth and poverty. Even in cases

¹¹ Budgets can be described using an economic classification, or a functional classification, or an administrative classification or a program classification. Atkinson *et al.* also apply a classification that is consistent with a public economics approach, dividing up the budget into expenditure associated with pure public goods, merit goods, income transfers and economic services.

where government policy is not justified from a public economics perspective but is seen to be consistent with the development strategy, there is still a need and a basis for an empirical assessment in terms of the effectiveness of such policy in promoting growth and poverty reduction.¹²

Another advantage is that the framework nests the expenditure allocation choice within the wider array of public policy tools at the government's disposal. Acknowledging the alternative policy instruments helps to avoid the tunnel vision that is often present in discussions of public spending wherein the response to a policy objective often is to propose increased spending on related activities. This framework encourages effective choice of policy instruments and acknowledgement of the cross-sectoral effects of public policy. Conceivably, a regulatory policy reform that increases incentives for private road maintenance might have a more beneficial impact on education or health indicators than direct spending on education or health.

Finally, the framework can (and should) be made more detailed and specific to the country context, and used to define and empirically assess specific linkages between public policy and its impact on various policy objectives. Thus it encourages an empirically more rigorous approach to public policy and helps identify linkages to growth and poverty about which there is inadequate knowledge.

4.2 *Public expenditure policy, growth, equity and poverty*

Within the broad framework defined above, this paper focuses on the analysis of expenditure choices and their impact on growth and poverty, building on the expenditure allocation framework of Ferroni and Kanbur (F-K hereafter). F-K cast the problem as an allocation choice between “social” expenditure and “infrastructure” expenditure (physical capital)¹³ with the objective being to maximize the standard of living (W). In reallocating resources between social and infrastructure to maximize W , F-K show that the choice depends on the total welfare effects working through both basic needs and income mechanisms. We adapt the F-K framework but with several important modifications, allowing a choice among social expenditure, infrastructure spending and other spending, introducing

¹² Rodrik (2003) has argued that successful economies have employed pragmatic and non-unique institutional arrangements to achieve “first-order economic principles” – protection of property rights, market-based competition, appropriate incentives, sound money, etc. Thus the appropriate role for the public sector and the composition of public spending is itself an issue of development strategy that must be defined by country circumstances and capabilities and is not uniquely pre-determined. This framework would support a more creative, less doctrinaire but ultimately more empirical basis for policy analysis and advice.

¹³ We recognize the problems introduced by this taxonomy of public spending. We explored other taxonomies but found them even more unsatisfactory. For example, some distinguish between investment in “services” and investment in “growth”. F-K distinguish between social expenditure and “productive” expenditure. There are, of course, clear reasons to expect social spending to be just as productive as the so-called productive expenditures.

inequality (I) as a policy variable, and identifying headcount poverty and selected social indicators as key policy objectives.

- The budget constraint, $R = S + K + O$, indicates that government revenue R can be spent on social (S), infrastructure (K) or other (O) expenditure.¹⁴ The framework suggests that the level and composition of spending have an effect on basic social indicators (B), income (Y), inequality (I) and poverty (P).
- Basic social indicators (B) (e.g., health status, education achievement, etc.), are a function of social, infrastructure and other expenditure (S , K , O) and income (Y).¹⁵ Thus $B = f(S, K, O, Y)$.
- Income Y is a function of B and infrastructure and other expenditure, $Y = f(B, K, O)$.
- Income inequality (I) is assumed to be function of basic needs achievement (B), social expenditure (S), infrastructure expenditure (K) and other expenditure (O).¹⁶ This gives the following: $I = f(B, S, K, O)$.
- Poverty P is a function of S (e.g., transfers), I , and Y , $P = f(Y, S, K, O)$.

The government allocates resources between S , K and O , trading off their direct and indirect impact on Y and I as well their immediate and cumulative impact over time, to reduce the poverty headcount P (implicitly also impacting growth Y and equity I) and improve social indicators B .

It should be noted that improving social indicators and reducing poverty are objectives consistent with the Millennium Development Goals (MDGs). Though we do not refer to MDGs explicitly in the framework, the same expenditure allocation issues underpin the attainment of MDGs. However, this clearly still falls short of a multidimensional treatment of poverty. Integrating the multiple objectives of improving social indicators and reducing income poverty within an HDI-like objective function (*i.e.*, a composite development indicator) facilitates a more explicit evaluation of tradeoffs. However, this introduces new complexities. For example, in considering the tradeoff between social and infrastructure expenditure, a multidimensional framework needs to account for social spending's short-term contribution to the improvement of social indicators as well as its longer-term contribution to growth and poverty reduction. We recognize that this is an under-researched area which deserves further investigation. For simplicity, we restrict the current analysis to the evaluation of tradeoffs in reducing absolute poverty.

¹⁴ Other expenditure would include general administration expenses as well as law and order and security related expenditure.

¹⁵ Some have argued that B is also a function of income inequality (I) as well; thus, $B = f(S, K, O, Y, I)$. In particular, some papers have provided evidence that more equal societies are healthier (Wilkinson, 1992; Kawachi, Kennedy and Wilkinson, 1999). However, Deaton (2003) has been critical of this literature. The main conclusions that follow from our framework hold, regardless of whether or not social indicators are a function of income inequality.

¹⁶ We distinguish between the impact of S and B , to allow for the direct impact of selected social expenditure items (such as transfers) on I that is distinct from the impact of B on I in the medium to long term (e.g., reduction in income inequality via human capital formation among the poor).

4.3 Application of the framework: some examples

Although the overall framework allows an assessment of expenditure, tax and regulatory policy, we focus our attention on the composition of public expenditures to illustrate the implications of this framework, consistent with the focus of this paper. In estimating the impact of an additional unit of social spending (S) or infrastructure spending (K) on poverty (P) or on social indicators (B), we need to take into account its *direct* and *indirect* impact as well as its *contemporaneous* and *lagged* impact. We consider below three typical government interventions and trace their impact on poverty.

4.3.1 Tax-and-transfer scheme

Consider a scheme that taxes only households in the top income quintiles. Assume that the tax revenues are used to provide transfers (S) directly to households in the lowest quintiles. In the short run, the scheme reduces income inequality (I) while keeping average income (Y) constant; and the poverty headcount (P) falls.¹⁷ Over the medium term, income (Y) will change. Depending on the incentives and distortions created, this scheme may either increase Y or reduce Y (though both taxes and government transfers are usually associated with lower growth); the impact on Y in the longer run is an empirical question. The increase in transfers (S) also raises education attainment or promotes better health (B), to the extent that funds are used to finance human capital formation. Improved social indicators may lift earnings potential and worker productivity over the medium to long term, leading to a further fall in the poverty headcount (P). *In sum, a tax-transfer-scheme has both an immediate impact on poverty and a lagged effect on poverty through its impact on incentives, human capital formation and income.*¹⁸

4.3.2 Targeted investment in education from foreign grants

Consider educational expenditures financed by foreign grants. For simplicity, we assume away the potential macroeconomic consequences of sustained high inflows of external resources, such as the “dutch disease”, where the inflow of resources may have adverse effects on growth and poverty reduction via exchange rate appreciation.¹⁹ Suppose the government uses the foreign grant to expand the supply of schooling, targeted to serve the poorest households. Over the medium term, the educational attainment (B) of the poorest households will improve. Over the medium to long term, the increase in B raises their income (Y) and lowers the

¹⁷ Equivalently, if a vector of income quintiles represents income distribution, the scheme increases the income of the lowest quintile, Y_5 , while reducing the income of the top quintile, Y_1 , thus reducing the poverty headcount P .

¹⁸ These statements of effects are meant to be illustrative and not intended to overstate the extent to which policy can determine such outcomes.

¹⁹ See Heller and Gupta (2002) for a review of these macroeconomic issues.

poverty headcount (P). Because educational spending is targeted toward the poorest households, income inequality (I) falls.²⁰ In terms of an initial vector of income quintiles, the scheme increases the income of the lowest quintile, Y_5 , while, *ceteris paribus*, leaving the income of the other quintiles constant, thus reducing income inequality and the poverty headcount (P). *In sum, a targeted investment in education financed by foreign grants has a lagged effect on poverty and education indicators via improved educational attainment among the poor.*

4.3.3 Targeted infrastructure investment

Consider infrastructure investment (K) (e.g., rural roads) in a poor geographic areas. These projects may have an immediate impact on income (Y) and poverty (P). To the extent that employment opportunities are generated specifically among the poor through public works employment, this may lead to lower poverty (P) and lower income inequality (I).²¹ There are also lagged effects on income (Y) via increased factor productivity, lower transactions and transport cost, expanded trade, and higher employment. Higher income may then promote human capital formation (B) through better health and higher education attainment, which, in turn, raises the earnings potential of individuals. In this framework, we do not allow for a direct impact of infrastructure investment (I) on social indicators (B), although the empirical evidence suggests that such an investment (e.g., on water and sanitation) may have important direct effects on health and nutrition (Fay, Leipziger, Wodon and Yepes, 2003). *In sum, infrastructure investment has both immediate and lagged effects on poverty. It has a direct effect on income as well as an indirect effect via human capital formation.*

While illustrating the approach to understanding the poverty impact of spending on any specific S or K sector, these examples also indicate that the framework provides a basis for considering the consequences of alternative spending choices.²² In principle, it offers the possibility of making a more informed choice between spending on S or K on the basis of a comparison of the short and long term and direct and indirect impact on poverty of each policy. However, such a comparison will require empirical estimation of the impact.

²⁰ On the other hand, the expansion of education may be associated with *greater* wage inequality; for example, expanding the supply of primary education may lead to lower returns to primary education for older workers. A recent study by Duflo (2002) of education expansion in Indonesia through a large program of school construction (the Sekolah Dasar INPRES program) initiated in the Seventies finds that an increase in the proportion of primary school graduates in the labor force decreased wages of older cohorts. Duflo observes that in Indonesia's case, physical capital did not adjust to the increases in human capital in the regions where schools were built. She is unable to explain why the stock of physical capital failed to adjust despite the public announcement of the program and its gradual implementation over 10 years.

²¹ There will be wealth effects due to increase in the value of land due, in turn, to better infrastructure. The wealth effects will accrue largely to the landowning groups. This is likely to increase inequality in the distribution of wealth.

²² While the proposed framework uses a broad characterization of "social" and "productive" expenditure, it would work equally well with a more detailed functional classification of expenditure.

4.4 Empirical tools for estimating parameters of the framework

There have been significant advances in quantifying the linkages between expenditure components, on the one hand, and, economic growth, basic needs achievement, or poverty reduction, on the other hand. Some of the leading studies in this literature are cited below. However, the body of empirical evidence for setting strategic policy priorities remains incomplete. The critical gaps in the empirical literature include the following:

- Identifying the correct “production function” for poverty reduction and for improving social indicators (see, for example, Ravallion, 2003).
- Comparisons of the cumulative impact of expenditure components that directly affect growth and poverty reduction with those components that have an indirect effect. Would spending diverted from transfers (which have a direct impact on poverty) to rural education (which has an indirect impact on poverty through basic needs achievement) lead to larger, and more sustained reductions in poverty?
- Comparisons of the immediate and lagged effects of expenditure components. How soon after spending is allocated to primary spending should we expect to see any impact on growth? Are there threshold effects?

To date, there has been no systematic and comprehensive assessment of the allocation of resources across sectors. Nonetheless, there are a number of recent developments in the literature that are worth noting. In particular, a series of recent papers have employed various quantitative techniques (regressions, CGE, marginal benefit incidence analysis) and used various types of data sets (e.g., cross-country, timeseries, micro-data, panel data) to compare marginal returns to spending across sectors. For example, Fan, Huong, and Long (2003) use a system of equations to model the impact of government spending on rural poverty, taking into account the impact of, on the one hand, agricultural research on productivity and, in turn, on poverty, and on the other hand, the impact of education on both productivity and employment, and, in turn, on poverty. The results allow them to compare the marginal returns to various types of government spending.

Such studies (summarized in Table 1) represent a step forward toward a more careful and comprehensive assessment of marginal returns to spending. However, as currently implemented, they also suffer various drawbacks with respect to our objectives. In a number of cases, for example, the specification seems largely *ad hoc* and not drawn from any existing economic theory. In addition, the expenditure components covered by these studies are often a small fraction of all expenditure options available to governments. In many cases, the time period covered is not sufficiently long to make meaningful inferences about short-term and long-term effects of spending. Nevertheless, even if the various approaches are often incomplete, important insights can still be gained into how expenditure policy leads

Table 1

Summary of Selected Empirical Studies: Public Expenditure and Poverty

Country(ies)	Period	Unit of Analysis	Author	Analytical Method	Expenditure Components	Summary of Empirical Findings
Bolivia	1996	Municipalities	Ajwas and Wodon, 2001	Marginal benefit incidence analysis	Education and basic infrastructure services	The marginal benefit incidence is higher for the poor than for the non-poor in education, but lower in the case of access to infrastructure services
China	1970-1997	Province	Fan and Hazell, 2001	Regression analysis (system of equations)	Public investments in rural areas (R&D, roads, irrigation, education, electricity, telephone)	R&D and education have the largest poverty and productivity impact. For all public investments, less-favored areas provide the highest returns
Cross-country (20)	1976-1999	Households	Foster and Szekely, 2001	Regression analysis (various techniques)	Government consumption	Government consumption as a share of GDP has a negligible effect on general means but is associated with income gains for the poorest individuals
Cross-country (92)	1950-1999	Country	Dollar and Kraay, 2002	Regression analysis (system of equations)	Overall government consumption, social spending	Overall government spending negatively related to poverty, but health and education spending are insignificant

Table 1 (continued)

Summary of Selected Empirical Studies: Public Expenditure and Poverty

Country(ies)	Period	Unit of Analysis	Author	Analytical Method	Expenditure Components	Summary of Empirical Findings
Ethiopia	2003-2015	Country	Agenor, Bayaktar and El Aynaoui, 2004	Aggregate macroframework	Infrastructure, health and education	Simulated decrease in consumption spending and reallocation into investment spending (with higher increase in infrastructure relative to education and health) have modest effects on poverty
Ghana	1999	Country	Dabla-Norris and Matovu, 2002	Dynamic CGE	Primary, secondary and tertiary education and public infrastructure	Increasing primary and secondary education has significant macroeconomic and poverty-reduction benefits, even if these come at the expense of infrastructure investment
India	1970-1995	District	Fan and Hazell, 2001	Regression analysis (system of equations)	Public investments in rural areas (HYV, roads, canal irrigation, education, electrification)	Roads have the largest poverty and productivity impact. For all public investments, less-favored areas provide the highest returns

Table 1 (continued)

Summary of Selected Empirical Studies: Public Expenditure and Poverty

Country(ies)	Period	Unit of Analysis	Author	Analytical Method	Expenditure Components	Summary of Empirical Findings
India	1957-1997	States	Jha, Biswal and Biswal, 2001	Regression analysis (panel regression)	Education, health and development expenditure (poverty eradication programs, rural sector development and infrastructure)	Education, health and development expenditure reduce poverty. In particular, expenditure on higher, university, technical, adult and vocational education is more effective, compared to elementary and secondary education
Sub-Saharan Africa	1998-2015	Country	Lofgren and Robinson, 2004	Dynamic CGE	Agriculture, health, education, transport-communications, social security, defense and other	Increased expenditure on agriculture and transportation and communications generate modest economic growth. Increased investment in health leads to more rapid growth and significant poverty reduction
Tanzania	1992	Country	Jung and Thorbecke, 2003	CGE	Education and investment	Well-targeted education expenditure can be effective for poverty alleviation. To maximize benefits, education spending needs to be complemented by sufficient public investment

Summary of Selected Empirical Studies: Public Expenditure and Poverty

Country(ies)	Period	Unit of Analysis	Author	Analytical Method	Expenditure Components	Summary of Empirical Findings
Thailand	1986, 1990, 1994	Households	Warr, 2003	Partial equilibrium analysis	Education, health, agriculture and transportation	Increased spending on education, health and agriculture reduces poverty while higher share of spending on transportation increases poverty
Uganda	1992, 1995, 1999	District	Fan, Zhang and Rao, 2004	Regression analysis (system of equation)	Public investments in rural areas (agricultural research and extension, low-grade and high-grade roads, education and health)	Research has the largest poverty and productivity impact. Impact of low-grade road larger than high-grade road. Spending in poor regions contribute the most to poverty reduction.
Vietnam	1993-2000	Province	Fan, Huong and Long, 2003	Regression analysis (system of equations)	Public investments in rural areas (agricultural research, roads, irrigation, education, electricity, telephone)	Research has the largest poverty and productivity impact
Zambia	1995	Country	Jung and Thorbecke, 2003	CGE	Education and investment	Well-targeted education expenditure can be effective for poverty alleviation. To maximize benefits, education spending needs to be complemented by sufficient public investment

to poverty reduction and on the enabling conditions that allow government interventions to reduce poverty.²³

A more careful evaluation of marginal returns could compare the contemporaneous and lagged marginal impact on growth and poverty reduction of various expenditure components, as well as their relative effectiveness in reaching and benefiting the poor. Ideally, such an exercise would be calculated within a long-run, intergenerational, general equilibrium framework – and would thus provide estimates of the marginal returns to major expenditure items and direct the optimal allocation of limited budgets for poverty reduction, in general, or for meeting explicit goals, such as the Millennium Development Goals, in particular. For example, such an exercise could inform current efforts to simulate financing needs for achieving the MDGs (Bourguignon *et al.*, 2004). However, it may be that such an exercise is inherently fraught with many technical difficulties (not the least of which is the scarcity of good data in many developing countries).²⁴

To conclude the review of the empirical literature, we mention additional strands of work that investigate other dimensions of the public spending and poverty link such as complementarities in public spending and, combined benefit incidence.²⁵

4.4.1 Complementarities

Complementarities between government interventions may come in two general forms: some interventions are enhanced by the presence of other interventions; some interventions are mitigated by the presence of other interventions. First, the benefits of higher expenditure on a particular sector may not be fully realized unless expenditure on other sectors is increased. For example, Fay *et al.* (2003) find that better access to basic infrastructure services (water and sanitation) has an important role in improving child health outcomes. Similarly, van de Walle (1995) suggests that education investment may enhance the marginal impact of irrigation projects (1995). A related point is the necessity of sufficient human capital to realize the benefits of infrastructure investments. For example, the

²³ Appendix 3 provides a brief description of various tools and techniques that can be used for the analysis of public expenditure links with poverty reduction. They can be categorized in four groups: (i) reduced form regressions; (ii) general equilibrium models; (iii) Investment appraisal methods; (iv) Incidence analysis.

²⁴ Literature comparing the relative efficiency of redistributive expenditure policy and redistributive tax policy is rare (see Chu, Davoodi and Gupta, 2004). Warr (2003) is one exception. He compares the impact of expenditure reform with tax reform on poverty. He also considers the likely significant effects of *simultaneous* changes in both the composition of taxes and the composition of revenues.

²⁵ Admittedly, there is yet further work that investigates other important facets of the link between public expenditure and poverty. As it is not the objective of this paper to give a complete account of all this work we are not discussing this further. Nonetheless, there is an abundant literature on the role of governance on the effectiveness of public expenditure.

ADB (2002) finds that the ability of the poor to make significant economic use of roads depends on their asset base, their skills, etc.²⁶

4.4.2 Combined incidence

While we have emphasized the understanding of the different options in expenditure policy choices, tax policy and cost recovery may also have important implications for poverty reduction. User charges for education and health services, for example, tend to be regressive and may restrict poorer household's access to critical social services. A strand of the benefit incidence literature has attempted to gauge the *net* impact of government interventions, combining both the expenditure and tax incidence to estimate the net incidence of fiscal policy.²⁷ Despite its limitations, net incidence analysis nonetheless represents an important improvement over simple expenditure incidence analysis.²⁸

5. Conclusions and implications

The impact of public spending on common economic goals such as growth, equity and poverty reduction is difficult to assess because of the complex chain of linkages, the time lags involved and the interdependence among the goals. Both initial conditions and institutional capabilities have an important influence on the effectiveness of transmission mechanisms and must be factored into country-specific policy recommendations.

Nevertheless, understanding these linkages is key to good public expenditure policy. The absence of an appropriate conceptual framework to investigate the link between public spending and its impact on growth and poverty reduction is a weakness that has contributed to *ad hoc* approaches to public expenditure policy. The recent, donor-led emphasis on identifying and increasing spending on categories of expenditure presumed to be "pro-poor" reflects the lack of such a theoretical framework.

The main contribution of this paper is to propose a conceptual framework within which questions about broad economic objectives, including growth and poverty reduction, and the appropriate policy instruments (including the appropriate composition of public spending) can be studied. The framework suggests a hierarchy

²⁶ There are many other examples of this type of complementary documented in the literature. For example, Deininger and Okidi (2003) use micro-level survey and panel-data evidence from Uganda spanning 1992-2000 and find that the benefits of education and health care for growth and poverty reduction depend on complementary investments in electricity and other infrastructure, and reductions in civil strife.

²⁷ See, for example, Toye and Jackson (1996).

²⁸ See Whalley (1987) on the improper measurement of consumer surplus. In addition, as typically implemented, net fiscal incidence analysis focuses only on the static incidence and not on net benefits accumulated over time (see, for example, The World Bank, 1990).

of issues to be addressed sequentially prior to focusing on particular questions regarding the contribution of public spending to poverty reduction.

For any given objective, the development strategy is a point of reference that is country specific. But it also provides an important point of reference against which to evaluate the consistency of public policies relative to the dynamic (growth and poverty reduction) aspects of the strategy.

Public economics suggests evaluating the policy framework in terms of the efficiency (market failure) or equity rationale for public policy intervention. While important and necessary, these principles do not provide a sufficient basis to understand and evaluate the dynamic effects of public spending on growth and poverty. Where governments justify their interventions in terms of growth and poverty reduction objectives such policies should be subjected to rigorous evaluation in terms of their effectiveness in achieving the goals of the stated development strategy.

The tradeoffs between social expenditure and infrastructure expenditure, or between policy interventions in general, need to be understood from a dynamic perspective. We do not have all the parameters for understanding all the dynamic interrelationships and cumulative effects, but available empirical tools would allow us preliminary insights into the nature of immediate and lagged effects of expenditure, complementarities, externalities, combined fiscal incidence, and thresholds. The use of such tools and techniques would enable this framework to be used to improve the quality of public policy advice to governments seeking to accelerate growth, improve equity and reduce poverty.

5.1 Operational implications for expenditure policy

There are clear operational implications that follow from these conclusions.

- First, it suggests that the analytical work undertaken by development agencies in advising governments on their development (PRSP) strategies should be better integrated with work on public expenditures along the lines suggested by the proposed framework to enable policy advice on public spending to better link growth, equity, poverty and public expenditure. This might seem like an obvious point but actual practice suggests that this good practice is often not applied.
- Second, it suggests the need for more analytical work that clarifies the expenditure options available to governments to stimulate growth and development. The identification of binding constraints to growth and an assessment of the role of public spending in addressing those constraints would be one avenue to pursue in advising on expenditure composition. In many low-income countries, the recent focus on understanding poverty and public expenditure issues has been undertaken without the corresponding investment in analytical work on growth and development. This has contributed to the adoption of simplistic rules of thumb regarding the growth or poverty impact of specific expenditure.

- Third, there is in general a paucity of empirical work on the impact of the composition of public spending on growth, equity and absolute poverty. Expenditure allocations need to be examined with respect to their alignment with a country's growth strategy or the PRSP as well as empirical validation of their contribution over time to growth, equity and poverty reduction. It will be important to initiate more country specific analytical work (supplemented as appropriate by cross-country studies) on these issues.
- Fourth, to be balanced, analysis of the budget should be comprehensive and not limited to specific "in-favor" sectors. This would limit the risk of periodic swings in coverage wherein a bias towards spending on social sectors is replaced by a bias towards the infrastructure or rural development sectors, based on current donor views of priorities.
- Fifth, there is a case to be made for taking a public finance perspective (*i.e.* both the revenue raising and spending aspects of the budget) rather than just a public expenditure perspective. Benefit incidence may often be insufficient to gauge the pro-poor stance of the budget. Thus net fiscal incidence analysis, which takes account of both the revenue raising and the expenditure impact, may be more appropriate.
- Finally, evaluation of the role of regulatory policy and public infrastructure in stimulating private investment and private sector activity would also be possible and necessary within this framework.

There is, in our view, a significant agenda of work that needs to be undertaken in this area that will be a valuable contribution to development policy. In particular, we feel that there is neglected middle ground between the theory of public economics and the theory of economic growth that provides potentially fertile territory for analysis. This paper is intended to provoke a discussion both about the nature of such work and its sequencing and to stimulate the first steps in that regard.

APPENDIX 1
EMPIRICAL EVALUATION OF PRO-POOR FISCAL STANCE:
SELECTED STUDIES

As noted in the main text, academic studies have themselves consistently used social spending or spending on the education and health sectors as proxy for pro-poor spending. The pro-poor stance of the budget is then assessed based on the relative shares of public spending on education and health care in the overall government budget (e.g., Mooji and Dev, 2004). Using a similar measure, Schneider (2003) determines whether decentralization leads to higher pro-poor spending.

In some cases, simple first-stage cross-country regressions of the poverty headcount (or some other measure of poverty) on each of the major expenditure categories, including education and health care, are estimated, to determine which expenditures are “pro-poor” (e.g., Gomanee, Girma and Morrissey, 2003). Without taking into account the complexities discussed in the main text, these simple, bivariate regressions provide some evidence that education and health care spending are pro-poor. In the second-stage, the statistical relationship between, for example, aid flows and pro-poor expenditure items is evaluated.

Author	Coverage	Period	Method	Pro-Poor Measure	Empirical Findings
Schneider, 2003	68 Countries	1996	Regression analysis	Social sector spending	Political decentralization has a negative impact and administrative decentralization a positive impact on pro-poor spending.
Gomanee and Morrissey, 2002	57 Countries	1980-98	Regression analysis (panel)	Expenditure on social services, education and health	Aid associated with higher welfare because aid finances pro-poor spending.
Gomanee, Morrissey, Mosley and Verschoor, 2003	39 countries	1980-98	Regression analysis (panel)	Expenditure on social services, education and health	Aid associated with higher welfare because aid finances pro-poor spending.
Gomanee, Girma and Morrissey, 2003	38 Countries	1980-98	Regression analysis (quantile)	Expenditure on sanitation and housing services, education and health services	Aid can affect welfare via public expenditure, and this effect tends to be greater in countries with lower welfare.
Mooij and Dev, 2004	India	1990-02	Descriptive statistics	Social sector spending	Documents a shift in spending, within the social sectors, from income and employment programmes to human development programmes. Concludes that there is an urgent need to increase social spending.
Corbacho and Schwartz, 2001	Mexico	1980-02	Descriptive statistics, benefit incidence analysis	Expenditure on education, health, social security and other social expenditure programs (including targeted spending for human capital devt, basic social infrastructure, and productivity)	Primary education spending is progressive, considerable access improvement in health, no significant impact from social security, promising results from some recent initiatives that target specific groups.
Mosley and Hudson, 2004	57 Countries	1994-98	Regression analysis	Expenditure on education, social services, and agriculture	Aid raises pro-poor spending in poor countries but not in middle-income countries.

APPENDIX 2 BRIEF SURVEY OF RELATED LITERATURE

1. General guidelines on expenditure allocation

Devarajan *et al.* (2001) present a way to evaluate expenditure composition with respect to the principles of welfare economics. In particular, they pose three questions as a way of applying those principles: First, what is the rationale for public intervention? Second, what is the best instrument for public intervention (public provision, subsidies, etc.)? Third, what is the fiscal cost of public provision (assuming it is the best instrument) and how does it compare with other expenditures that survive the test of the first two questions.

With respect to the first question, the rationale is either market failure or redistribution. For documenting the degree of market failure, they suggest that quantitative estimate of the degree of crowding out of the private sector, for example, is helpful for evaluating public spending. For evaluating the redistributive objective of public intervention, they suggest that the benefit incidence analysis of public expenditure is valuable.

Fozzard, Holmes, Klugman and Withers (2002) present a similar, three-step framework for deciding when and how governments should intervene: first, determine the rationale for public intervention. Second, decide on the appropriate instrument to offset market failures or improve distribution outcomes. Third, assess expenditure options.

For evaluating expenditure options in general, they survey the available technical tools for guiding policy choices, including cost-effectiveness analysis, multi-criteria analysis, and social cost-benefit analysis. Without providing details on how this could be properly carried out, they also suggest an “overall evaluation”, to determine which public interventions, compared with other interventions, have made a difference. In the absence of quantitative evaluation results in a given country, they suggest two short-term resources: (a) the existing body of experience on how programs work in a country and (b) experiences in other countries with similar characteristics.

Similarly, Pradhan (1996) notes the absence of a systematic attempt in the literature to evaluate methodologies for allocation decisions and offer guidelines for policy choices. He reviews the growing literature on the cross-country analyses of expenditure allocation and growth and concludes that “they are unlikely to provide useful implication” (p. 92). He proposes, instead, that the same three (3) criteria applied to allocation decisions within sectors be applied to decisions across sectors: (i) role of government versus the private sector; (ii) cost-benefit analysis of input-output packages; and (iii) impact on the poor.

The first criterion (i) implies that resources should be channeled to programs that the private sector cannot provide. The second criterion (ii) requires information on the rate of return to various programs. Pradhan (1996) acknowledges that the

principal problem lies in the valuation of benefits in selected sectors (health, education, and defense). In light of these difficulties, he suggests a “three-step analysis”. First, identify alternative combinations of expenditure allocation and their corresponding outcomes. Second, evaluate tradeoffs between these alternative combinations. He shows hypothetical examples of rates of return and input-outcome relationships across sectors as an illustration. Third, alternative combinations can be subject to voting through the budget process, where households, for example, lobby for packages they are willing to pay for.

What is the consensus on the usefulness of quantitative techniques for guiding resource allocation? Some existing guidelines are less confident about the value of existing empirical tools. For example, *The World Bank's Poverty Reduction Handbook* (The World Bank, 1993) notes that some sectors lend themselves more easily to economic cost-benefit analysis. For others, the criteria are less well defined. In theory the allocation of resources across programs should be based on the highest returns. In practice, a full economic analysis will not be possible except for a few sectors. There is then a large premium on professional judgment, based on sectoral and country expertise. The World Bank's review of PERs also confirms that, in practice, there is no optimal allocation of resources (Swaroop, 1999) and that the careful design and implementation of expenditure priorities needs to be conducted country by country.

Similarly, the *World Development Report* (The World Bank, 1988) notes that “no clear techniques exist to guide inter-sectoral choices”, although identifying bottlenecks in the economy and comparing rates of returns to alternative programs may provide guidance. The Report also finds that allocation decisions are inevitably based on intuitive judgments, with recognition of the need for overall balance between sectors.

With respect to public spending for poverty reduction, the Report identifies four characteristics of spending that determine the efficiency and effectiveness of expenditure, representing a pragmatic approach to setting strategic priorities. First, the unit cost of the service per beneficiary. The report suggests that basic, low-cost services are likely to be of most help to the poor. Such schemes are both affordable by definition and self-targeting. Second, location. Subsidies are unlikely to reach the poorest groups if they are provided exclusively in urban areas. Third, a program's ability to reach the informal sector. And fourth, an explicit focus in a program's design on employment and poverty alleviation (e.g., labor-intensive rural works program).

The IMF (1995) also presents a pragmatic approach for guiding expenditure allocation. In reviewing the concept of “unproductive public expenditures”, the IMF identifies some pragmatic guidelines for the analysis of economic components of spending (e.g., general versus targeted subsidy, wage versus non-wage) and the functional components of spending (e.g., primary versus tertiary education). They also suggest the following additional steps for identifying unproductive spending: focus on big-ticket items to identify white elephant projects; comparison of functional and economic classification of spending between countries with the same

level of development and in the same region; analysis of overall and sectoral employment to identify shortages in skill or overstaffing by level; examining institutional arrangements to identify unproductive outlays (e.g., extra-budgetary funds and quasi-fiscal activities of the central bank.

Two conclusions are suggested by the above review: First, the guidelines do not go very far in identifying methodologies for defining pro-poor expenditure. In general, the emphasis is on well established principles of public economics, to identify interventions that address market failures and inefficiencies. To the extent that the guidelines discuss the equity objective it is to refer to established methodologies such as benefit incidence analysis, to “professional judgment” and some principles for targeting the poor. Second, to the extent that there is reference to the impact of public spending on the poor, there is no explicit consideration of the short versus the long term, nor on the direct versus indirect, impact on poverty.

2. Perspectives on pro-poor expenditure allocation

There are a number of recent perspectives on expenditure allocation options, with poverty reduction as an explicit target, that do begin to pose the question in terms of the dynamics of poverty reduction.

Ferroni and Kanbur (1992) develop a framework for public expenditure restructuring taking into account both human resource interactions and multidimensionality of the standard of living. The framework allows for the estimation of opportunity cost in terms of poverty reduction of allocating a marginal dollar to an intervention or program. “Public expenditure restructuring”, in this context, means reallocating resources between social expenditures and what they call “productive” expenditure, to maximize the standard of living. Ferroni and Kanbur (F-K, hereafter) show that the choice depends on the total welfare effects working through both basic needs and income mechanisms. They make a distinction between direct expenditure (expenditure in the primary sector in which one seeks to obtain improvements) and indirect expenditure (income-enhancing expenditure).

The analytical results imply that there is a case for a combination of both “direct” and “indirect” spending. To analyze the poverty-alleviation impact of spending, they identify three sets of parameters that are critical: (a) weights attached to components of the standard of living; (b) estimates of the link between spending and achievements along dimensions of the standard of living; and (c) the benefit incidence of public spending.

The importance of accounting for both the direct and indirect effects of public spending is emphasized by other authors. For example, Mackinnon and Reinikka (2000) drawing from the work of Stern and Dreze (1990) note that the standard method of determining expenditure priorities is by comparing rates of return. Though in practice often neglected, several aspects should be included in such calculations: these include income distributional effects, the substitutions between public and private sectors, and an estimate of external effects. Including these

dimensions is particularly critical assessing priorities for poverty reduction. Mackinnon and Reinikka (2000) cite, as an example, tertiary education which does little for poverty reduction directly but may have significant indirect benefits for poverty reduction if graduates contribute to better service provision, remit their income to poor households, or contribute to local communities. But estimates of such externalities are not readily available. Because of the complexities of benefit valuation, allocation decisions again inevitably depend on judgment.

Duncan and Pollard (2002) present a more comprehensive framework within which to think about relative priorities in planned intervention in support of poverty reduction. They identify the building blocks toward the goal of poverty reduction and the corresponding constraints faced along the way. The building blocks include, in order of priority, (a) civil and social order; (b) institutional rules and regulation; (c) good governance; (d) effective markets; (e) pro-poor investment; and (f) pro-poor growth and poverty intervention. Without these building blocks in place, Duncan and Pollard suggest that there will be no growth in incomes. For example, investment projects in countries with no civil and social order have historically yielded dismal results.

The OECD (1999) reviews the lessons of experience on what works and what does not work in poverty reduction. It identifies three (3) issues generally regarded as critical: (i) the choice of the appropriate level of targeting; (ii) encouraging participation; and (iii) factors affecting sustainability. It reviews the pros and cons of targeted intervention; notes the “clear and demonstrable” benefits of stakeholders being in a position to influence the design and implementation of the intervention, while acknowledging the significant opportunity costs of participation for poor people; and lists rules for improving the sustainability of poverty-focused projects.

3. Typologies of pro-poor interventions

While acknowledging that there is no easy way to define “pro-poor spending”, Hentschel (2002) offers three alternative definitions: (i) spending that benefits the poor more than the non-poor; (ii) spending that actually reaches the poor; and (iii) spending that has an impact on the welfare of the poor over time. The merit of these definitions is that they begin to make explicit the concept of pro-poor, distinguishing between the relative and absolute impact on the poor and the long-term impact on poverty. Secondly, they implicitly underline the importance of empirical verification of the impact of public spending on the target group, using analytical techniques such as benefit incidence, service delivery surveys and expenditure tracking.

It is also important to acknowledge that the choice of public intervention must also take account of the nature of poverty being addressed. In a review of the social impact of its adjustment operations, The World Bank (1995) suggests that it is useful to distinguish between transient poverty and chronic poverty. Public expenditure policies are then designed differently depending on the nature of poverty being

addressed. For example, with respect to transient poverty (poverty associated with abrupt changes in economic conditions), short run public programs (public relief, food aid, severance pay) may be appropriate. In the case of chronic poverty, two (2) sets of public interventions are appropriate: the first increases the productivity of the poor; the second provides a safety net to those unable to participate in the economy.

Lipton and Ravallion (1995, p. 2623) present a framework for classifying alternative interventions. While their framework is based on programs that alter inputs into rural production and thus reduce chronic rural poverty, the classification is potentially useful. In their framework, interventions alter choice about inputs – land, human capital, and credit – and potentially raise incomes among the poor. In each case, the poor can gain from seven types of interventions that affect inputs by raising input volumes, improving factor productivity, or by altering prices. The interventions include (1) a rise in resource availability; (2) redistribution of resources; (3) a combination of (1) and (2); (4) distribution-neutral enhancement of factor productivity; (5) poor-oriented enhancement of productivity; (6) price alteration of inputs bought by the poor; and (7) price alteration of outputs produced by the poor.

For interventions intended to reach the poor, Pradhan (1996) distinguishes between universal programs (or broad targeting) and narrow targeting. The first provides program accessible to all groups while the second actively targets benefits to the poor while excluding the non-poor. Pradhan emphasizes that targeting be seen as a potential instrument and not as an objective. Thus in many developing countries where poverty is widespread and administrative capacity is low, a combination of broad and narrow targeting will be required.

4. Some practical constraints

Country experiences with pro-poor expenditure policy also suggest that there are important resource and informational constraints in the proper identification and implementation of pro-poor interventions. Mackinnon and Reinikka (2000) review Uganda's experience with the selection of its package of universal basic services and suggest that the most difficult aspect is limiting the commitment to what is "feasibly affordable".

The selection process is undermined if the package is, in fact, not affordable; however, defining what is affordable is constrained by the limited information on the costs of services. They also identify the main controversies in Uganda's experience, including (i) the role of the state and (ii) the scope for charging and/or exempting the poor. The second source of controversy is also related to some of the tensions between national and local guidelines for providing services.

The World Bank's (2001a) *Ethiopia Public Expenditure Review* (PER) finds that there are few cases, if any, where "a simple, direct and unambiguous connection" can be made between an intervention and a poverty outcome. It suggests that the problem be approached at three levels: "(a) strengthening the

availability and use of poverty information; (b) strengthening public expenditure management and the quality of information on public expenditure; and (c) making a more effective link between poverty information and expenditure management” (p. 51).

The criteria for comparisons across sectors have a special emphasis on *implementation constraints* in the Zambia PER (The World Bank, 2001b). In particular, it recognizes that some social services may by design be intensive in skilled labor and require higher wages. Administrative constraints may also warrant alternative delivery techniques rather than “best practice”. For example, where the implementation of a comprehensive primary health care program is difficult, dedicated immunization programs by visiting (*i.e.*, non-permanent) staff may be more appropriate.

APPENDIX 3 TOOLS AND TECHNIQUES

1. Reduced form regressions

These studies typically use single-country time-series data or cross-country time-series data to test the statistical relationship between the following: (1) components of public spending and economic growth (this is roughly equivalent to $Y(B, K, O)$); and (2) components of public spending and social indicators (this is roughly $B(Y, S, K, O)$). The empirical evidence on the relative effectiveness of expenditure components has thus far been inconclusive. The robustness of the results is often sensitive to the empirical strategy employed and the countries and time period covered by the sample. The following gives a flavor of the techniques that have been used and their findings.

1.1 Cross-country growth regressions²⁹

This typically uses panel data for a large cross-section of countries over time. A large empirical literature on economic growth has emerged since the early Nineties, due in part to developments in growth theory and the greater availability of cross-country macroeconomic data. Empirical studies of the link between expenditure policy and growth are reviewed in Baldacci, Clements, and Gupta (2003). Dollar and Kraay (2002) and Foster and Szekely (2001) (see Table 2) use aggregate cross-country data and cross-country micro data, respectively, to estimate the link between public spending and poverty. Both find a statistically significant effect of overall government consumption on poverty. Some studies use simple bivariate regressions using cross-country to examine the link between spending and poverty.³⁰

²⁹ Devarajan, Swaroop and Zou (1995) using data on 29 countries over the 1970-90 period suggest that public capital spending has a negative but insignificant effect on growth while current spending has a positive and significant impact on growth. They also find that transport and communication have a negative and significant impact on growth while health and education have a negative but insignificant impact on growth. In contrast, a study of 39 low-income countries over the 1990-2001 period finds that higher public expenditure on capital raises economic growth (Gupta, Clements, Baldacci and Mulas-Granados, 2005). A recent study finds that investment in education is the only expenditure outlay significantly associated with growth in a sample of 30 developing countries (Bose, Haque and Osborn, 2003).

³⁰ Mosley and Hudson (2001) estimate the correlation between expenditure components and poverty using cross-country data. Based on this exercise, they calculate a "pro-poor expenditure" (PPE) index or the ratio to GDP of spending components associated with poverty. In addition, results from recent cross-country regressions have been used to quantify the poverty elasticity of growth.

1.2 Time-series studies

Country studies using time-series data for fairly long time periods provide important evidence on the causal impact of intervention on economic growth. A recent study of the impact of education on growth in India over the 1966-1996 period, for example, suggests that it is primary education that has a strong causal impact on growth, compared to other education levels (Self and Grabowski, 2004). Researchers have also employed vector auto-regression (VAR) techniques to explore the time-series properties of public investment and growth, accounting for potential dynamic interrelationships without imposing a causal structure. A series of studies by Pereira (2000, 2001 and 2002) demonstrate the dynamic relationship between public investment in infrastructure and private output (private sector GDP, employment, and investment). A series of papers by Fan (see Table 2) use time-series data to estimate the relationship between public expenditure components in rural areas on both rural income growth and poverty reduction. The results suggest that there are large returns to agricultural research with respect to income growth and poverty reduction, though there are significant returns from other types of public spending as well. They examine spatial variations in income growth and poverty reduction and find that spending has the larger effects in poorer regions.

1.3 Rates of return studies

Some studies use data drawn from household surveys to test the impact of education on individual earnings (rate of return to education) or aggregate data on public investment, output, and employment to estimate the returns to government investment. There is a large literature on rates of return to education investments (see, for example, Psacharopoulos, 1995), agricultural research (Roseboom, 2002), infrastructure investments (Canning and Bennathan, 2000), and in some cases, health investments (Schultz, 1997 and 2002). However, the calculation of rates of return has typically been conducted to compare spending allocation *within* sectors. To the best of our knowledge, there has not been an attempt to compare these rates of return across sectors within a consistent empirical framework, due to the many technical difficulties inherent in such an exercise.

2. General equilibrium models

Computable General Equilibrium (CGE) models form a class of models where production activities, factors, and institutions and their links are fully specified. These require both national accounts and survey data. The data are compiled into a single information matrix (Social Accounting Matrix, SAM), where the links between activities, factors, and institutions are organized and calibrated using country-specific parameters. Because they are technically demanding and data-intensive, they have been rarely used.

- Jung and Thorbecke (2003) apply and calibrate CGE models for Tanzania and Zambia. Their simulations suggest that well-targeted education expenditures can be effective for growth and poverty alleviation. They also suggest that a sufficiently high level of physical investment is needed as well as an improved match between educational output and the structure of effective demand for labor.
- A dynamic CGE model of overlapping generations calibrated to Ghana suggests that reducing household costs of obtaining primary education has the largest short-run impact on growth and poverty reduction (Dabla-Norris and Matovu, 2002).

The effects can be substantial even when higher education spending comes at the expense of infrastructure investment. Once universal basic education is achieved, however, *tertiary* education spending has the largest impact on growth.

3. Investment appraisal

A large literature exists on techniques for evaluating the rate of return to specific investment projects (see Belli, 1996, for a review of the literature). Are these useful from a poverty perspective? In assessing the role of project appraisal in The World Bank lending, Devarajan, Squire, and Suthiwart-Narueput (1995) advocate a shift away from precise rates-of-return calculation to a broader appraisal of the rationale for public sector intervention; in particular, they suggest a careful assessment of counterfactual private sector supply response, the marginal costs of funds, and the fungibility of lending.

Larsen and Rama (2003) present two practical ways of assessing the poverty impact of investment projects. The first, what they call “the project approach”, calculates the ratio between the additional income generated by a project and its cost. Using this rate-of-return estimate, the nation-wide poverty-reducing effects of a project can be inferred, assuming the elasticity of poverty reduction to economic growth is known. The poverty impact is expressed as:

$$\text{Poverty Reduction (in percent)} = \frac{\text{Project rate of return (in percent)}}{\text{Investment rate (in percent of GDP)}} \times \text{Elasticity of poverty reduction to growth}$$

The second approach, what they call the “statistical approach”, uses statistical information on the local poverty impact associated with local investment. The nation-wide poverty reduction impact is then expressed as:

$$\text{Poverty Reduction (in percent)} = \frac{\text{Statistical impact (local)}}{\text{Local poor (in percent of total poor)}} \times \text{Investment rate (in percent of GDP)}$$

Both approaches yield concrete estimates for the poverty reducing impact of investment projects, but they also suffer critical shortcomings. In particular, the project approach considers only direct effects of a project, ignoring indirect effects or externalities; the statistical approach considers only local effects ignoring effects transmitted to other communities or network effects. Notwithstanding these shortcomings, they provide useful benchmark figures for investment appraisal. For example, there are ongoing efforts to estimate the poverty impact of investment projects in Vietnam (Larsen and Rama, 2003).

4. Incidence analysis

Cross-country regressions and CGE models establish, in very broad terms, the links between expenditure components and poverty reduction. Another set of tools help clarify whether expenditure components indeed reach their intended final beneficiaries, whether these are individuals or local providers of services. These studies have been typically used to assess the efficiency and equity of the allocation of resources within sectors and, to a very limited extent, across sectors.

4.1 Benefit incidence analysis

Benefit incidence analysis (BIA) use household survey data and information on public expenditure to assess the distribution of benefits among different groups, such as households at different income levels. BIA has been typically used to identify who benefits from public spending on education and health care (see Demery, 2003, for a review of the literature). There are existing summary household survey data on access to water, sanitation, and other infrastructure by income quintiles (The World Bank, 2003a) that lend themselves to a benefit incidence analysis of infrastructure but studies of benefit incidence of expenditure items other than education and health care are rare.

4.2 Marginal incidence analysis

The usefulness of gauging the current *average* benefit incidence of public spending is generally acknowledged. However, there is some evidence that the marginal gains of the poor may be high, even for interventions that may not currently have a pro-poor average incidence (Lanjouw and Ravallion, 1999). For example, tertiary education spending may not be pro-poor because it benefits mostly the top household quintiles but the marginal increase in tertiary education spending may primarily benefit the poorer quintiles. Ajwad and Wodon (2001) have recently used marginal incidence analysis to compare the impact of basic infrastructure.

5. Other quantitative tools

5.1 *Service delivery surveys*

Some studies employ various quantitative techniques to assess the efficiency of service provision. For a number of reasons, some of them alluded to in the main text, information on the allocation of expenditures by sectors is a poor indicator of the quantity and quality of services *actually* provided in the frontlines. A number of empirical tools have been developed in recent years – including expenditure tracking surveys and quantitative service delivery surveys – designed to collect information at the service provider level and assess the quality and quantity of service provision. Dehn, Reinikka, and Svensson (2003) review the recent literature.

5.2 *Using household survey to derive allocation choices*

Collier, Dercon, and Mackinnon (2002) illustrate a method for deriving a simple decision rule for allocating expenditures within the health sector. In particular, they present a model – within a framework that incorporates a utility function that depends on health status, a health production function, and a government budget constraint – that yields optimality conditions for allocating between recurrent (in this case, spending to improve quality) and capital spending (building more facilities). They use household survey data for Ethiopia to test their decision rule and find that it would be more efficient to allocate additional spending to improve the quality of health services rather than build more facilities.

REFERENCES

- Agenor, P.R., N. Bayaktar and K. El Aynaoui (2004), "Roads Out of Poverty? Assessing the Links between Aid, Public Investment, Growth, and Poverty Reduction?", The World Bank, Policy Research Paper, No. 3490, Washington (D.C.).
- Ajwad, M.I. and Q. Wodon (2001), "Do Local Governments Maximize Access Rates to Public Services Across Areas? A Test Based on Marginal Benefit Incidence Analysis", mimeo, The World Bank, Washington (D.C.).
- Asian Development Bank (2002), "Impact of Rural Roads on Poverty Reduction: A Case Study Based Analysis", Manila, ADB Operations Evaluation Department.
- Atkinson, P. and P. van den Noord (2001), "Managing Public Expenditure: Some Emerging Policy Issues and a Framework for Analysis", OECD, Economics Department, Working Paper, No. 285, February.
- Baldacci, E., B. Clements and S. Gupta (2003), "Using Fiscal Policy to Spur Growth", *Finance & Development*, December, pp. 28-31.
- Bannerjee, A. and R. He (2003), "The World Bank of the Future", Bureau for Research and Economic Analysis of Development (BREAD), Working Paper, No. 13, Cambridge.
- Belli, P. (1996), "Is Economic Analysis of Projects Still Useful?", The World Bank, Policy Research Paper, No. 1689, Washington (D.C.).
- Bose, N., M.E. Haque and D.R. Osborn (2003), "Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Countries", University of Manchester, Centre for Growth and Business Cycle Research (CGBCR), Discussion Paper, No. 30, Manchester.
- Bourguignon, F. *et al.* (2004), "MAMS – Maquette for MDGs Simulation", mimeo, The World Bank, Washington (D.C.).
- Cairncross, S. (1992), *Sanitation and Water Supply: Practical Lessons from the Decade*, Washington (D.C.), The World Bank and UNDP.
- Canning, D. and E. Bennathan (2000), "The Social Rate of Return on Infrastructure Investments", The World Bank, Working Paper, No. 2390, Washington (D.C.).
- Collier, P., S. Dercon and J. Mackinnon (2002), "Density versus Quality in Health Care Provision: Using Household Data to Make Budgetary Choices in Ethiopia", *The World Bank Economic Review*, Vol. 16, No. 3, pp. 425-48.
- Corbacho, A. and G. Schwartz (2002), "Mexico: Experiences with Pro-poor Expenditure Policies", International Monetary Fund, Working Paper, No. 02/12, Washington (D.C.).

- Dabla-Norris, E. and J.M. Matovu (2002), "Composition of Government Expenditures and Demand for Education in Developing Countries", International Monetary Fund, Working Paper, No. 02/78, Washington (D.C.).
- Deaton, A. (2003), "Health, Inequality, and Economic Development", *Journal of Economic Literature*, Vol. 41, No. 1, pp. 113-58, March.
- Dehn, J. and R. Reinikka and J. Svensson (2003), "Survey Tools for Assessing Performance in Service Delivery", in F. Bourguignon and L.A. Pereira da Silva (eds.), *The Impact of Economic Policies on Poverty and Income Distribution: Evaluation Techniques and Tools*, The World Bank, Washington (D.C.).
- Demery, L. (2003), "Analyzing the Incidence of Public Spending", in F. Bourguignon and L.A. Pereira da Silva (eds.), *The Impact of Economic Policies on Poverty and Income Distribution: Evaluation Techniques and Tools*, The World Bank, Washington (D.C.).
- Devarajan, S., L. Squire and S. Suthiwart-Narueput (1995), "Reviving Project Appraisal at The World Bank", Policy Research Paper, No. 1496, The World Bank, Washington (D.C.).
- Devarajan, S., V. Swaroop and H.F. Zou (1996), "The Composition of Public Expenditure and Economic Growth", *Journal of Monetary Economics*, Vol. 37, pp. 313-44.
- Devarajan, S., M. Holmes, C. Humphreys, A. Moon and V. Swaroop (2001), "Guidelines for The World Bank's Work on Public Expenditure Analysis and Support (including PERs)", mimeo, The World Bank, Washington (D.C.).
- Dollar, D. and A. Kraay (2002), "Growth Is Good for the Poor", *Journal of Economic Growth*, Vol. 7, No. 3, pp. 195-225, September.
- Duncan, R. and S. Pollard (2002), "A Framework for Establishing Priorities in a Country Poverty-reduction Strategy", ERD, Working Paper, No. 15, Manila, Asian Development Bank. Reprinted in C. Edmonds and S. Medina (eds.) (2002), *Defining an Agenda for Poverty Reduction*, Manila, Asian Development Bank, pp. 91-107.
- Fan, S. and P. Hazell (2001), "Returns to Public Investments in the Less-favored Areas of India and China", *American Journal of Agricultural Economics*, Vol. 83, No. 5, pp. 1217-22.
- Fan, S., P.L. Huong and T.Q. Long (2003), "Government Spending and Poverty Reduction in Vietnam", mimeo, Washington (D.C.), International Food Policy Research Institute.
- Fan, S., X. Zhang and N. Rao (2004), "Public Expenditure, Growth, and Poverty Reduction in Rural Uganda", International Food Policy Research Institute, Discussion Paper, No. 4, Washington (D.C.).

- Fay, M., D. Leipziger, Q. Wodon and T. Yepes (2003), "Achieving the Millennium Development Goals: The Role of Infrastructure", Policy Research Paper, No. 2390, The World Bank, Washington (D.C.).
- Ferroni, M. and R. Kanbur (1992), "Poverty-conscious Restructuring of Public Expenditure", in A. Chhibber and S. Fischer (eds.), *Economic Reform in Sub-Saharan Africa*, The World Bank, Washington (D.C.).
- Foster, J. and M. Székely (2001), "Is Growth Good for the Poor?: Tracking Low Incomes Using General Means", Inter-american Development Bank, Research Department, Working Paper, No. 453, Washington (D.C.).
- Foster, M., A. Fozzard, F. Naschold and T. Conway (2002), "How, When and Why Does Poverty Get Budget Priority? Poverty Reduction Strategy and Public Expenditure Reform in Five African Countries", Overseas Development Institute, Working Paper, No. 168, London.
- Fozzard, A. (2001), "The Basic Budgeting Problem: Approaches to Resource Allocation in the Public Sector and their Implications for Pro-poor Budgeting", Overseas Development Institute, Working Paper, No. 147, London.
- Fozzard, A., M. Holmes, J. Klugman and K. Withers (2002), "Public Spending", in J. Klugman (ed.), *A Sourcebook for Poverty Reduction Strategies*, The World Bank, Washington (D.C.).
- Gomanee, K. and O. Morrissey (2002), "Evaluating Aid Effectiveness Against a Poverty-reduction Criterion", paper prepared for the DESG conference, Nottingham, University of Nottingham Centre for Research in Economic Development and International Trade.
- Gomanee, K., S. Girma and O. Morrissey (2003), "Aid, Public Spending and Human Welfare: Evidence from Quantile Regressions", University of Nottingham Centre for Research in Economic Development and International Trade, Research Paper, No. 03/13, Nottingham.
- Gomanee, K., O. Morrissey, P. Mosley and A. Verschoor (2003), "Aid, Pro-poor Government Spending and Welfare", University of Nottingham Centre for Research in Economic Development and International Trade, Research Paper, No. 03/03, Nottingham.
- Gupta, S., B. Clements, E. Baldacci and C. Mulas-Granados (2005), "Fiscal Policy, Expenditure Composition, and Growth in Low-Income Countries", *Journal of International Money and Finance*, Vol. 24, No. 3, pp. 441-63, April.
- Hemming, R. (1991), "Public Expenditure and Resource Allocation", in K.Y. Chu and R. Hemming (eds.), *Public Expenditure Handbook*, International Monetary Fund, Washington (D.C.).
- Hentschel, J. (2002), "Pro-poor Spending", PREM Learning Week 2002 presentation.

- Herrera, S. and F. Blanco (2004), "The Quality of Fiscal Adjustment and the Long-run Growth Impact of Fiscal Policy in Brazil", mimeo, The World Bank, Washington (D.C.).
- International Monetary Fund (1995), "Unproductive Public Expenditures: A Pragmatic Approach to Policy Analysis", Pamphlet No. 48, International Monetary Fund, Washington (D.C.).
- International Monetary Fund and The World Bank (2003), "Heavily Indebted Poor Countries (HIPC) Initiative: Status of Implementation", available on the Internet at: <http://www.imf.org/external/np/hipc/2003/status/091203.htm>, International Monetary Fund, Washington (D.C.).
- International Monetary Fund Independent Evaluation Office (IEO) (2004), *Report on the Evaluation of Poverty Reduction Strategy Papers (PRSPs) and The Poverty Reduction and Growth Facility (PRGF)*, available on the Internet at: <http://www.imf.org/External/NP/ieo/2004/prspgrgf/eng/index.htm>, International Monetary Fund, Washington (D.C.).
- Jha, R., B. Biswal and U.D. Biswal (2001), "An Empirical Analysis of the Impact of Public Expenditures on Education and Health on Poverty in Indian States", Australian National University, Australia South Asia Research Centre, Working Paper, No. 2001-05, Canberra (Australia).
- Jung, H.S. and E. Thorbecke (2003), "The Impact of Public Education Expenditure on Human Capital, Growth, and Poverty in Tanzania and Zambia: A General Equilibrium Approach", *Journal of Policy Modeling*, Vol. 25, No. 8, November, pp. 701-25.
- Kawachi, I., B.P. Kennedy and R.G. Wilkinson (1999), *The Society and Population Health Reader: Volume 1: Income Inequality and Health*, New York, New Press.
- Killick, T. (2004), "Politics, Evidence, and the New Aid Agenda", *Development Policy Review*, Vol. 22, No. 1, pp. 5-29.
- Lanjouw, P. and M. Ravallion (1999), "Benefit Incidence, Public Spending Reforms, and the Timing of Program Capture", *The World Bank Economic Review*, Vol. 13, No. 2, pp. 257-73.
- Larsen, T.I. and M. Rama (2003), "An Empirical Assessment of Vietnam's Public Investment Program", cited in The World Bank *et al.* (2004), *Vietnam Development Report 2004*.
- Lipton, M. and M. Ravallion (1995), "Poverty and Policy", in H. Chenery (ed.), *Handbook of Development Economics*, Vol. 3B, Amsterdam, Elsevier.
- Lofgren, H. and S. Robinson (2004), "Public Spending, Growth, and Poverty Alleviation in Sub-Saharan Africa: A Dynamic General Equilibrium Analysis", mimeo, International Food Policy Research Institute, Washington (D.C.).

- Lopez, R., V. Thomas and Y. Wang (1998), "Addressing the Education Puzzle: The Distribution of Education and Economic Reform", The World Bank, Policy Research Paper, No. 2031, Washington (D.C.).
- Mackinnon, J. and R. Reinikka (2000), "Lessons from Uganda on Strategies to Fight Poverty", Policy Research Paper, No. 2440, The World Bank, Washington (D.C.).
- Mooji, J. and S.M. Dev (2004), "Social Sector Priorities: An Analysis of Budgets and Expenditures in India in the 1990s", *Development Policy Review*, Vol. 22, No. 1, pp. 97-120.
- Mosley, P. and J. Hudson (2004), "Aid, Poverty Reduction and the 'New Conditionality'", *Economic Journal*, Vol. 114, No. 496, pp. F217-43, June.
- Musgrave, R.A. (1985), "A Brief History of Fiscal Doctrine", in A.J. Auerbach and M. Feldstein (eds.), *Handbook of Public Economics*, Amsterdam, North Holland.
- OECD DAC (1999), *DAC Scoping Study of Donor Poverty Reduction Policies and Practices*, Paris, OECD.
- Perotti, R. (2002), "Public Spending on Social Protection in Colombia: Analysis and Proposals", The Foundation for the Superior Education and Development, Working Paper, Bogotá.
- Pradhan, S. (1996), "Evaluating Public Spending: A Framework for Public Expenditure Reviews", The World Bank, Discussion Paper, No. 323, Washington (D.C.).
- Ravallion, M. (2003), "On Measuring Aggregate Social Efficiency", The World Bank, Policy Research Paper, No. 3166, Washington (D.C.).
- Rodrik, D. (2000), "Growth Versus Poverty Reduction: A Hollow Debate", *Finance and Development*, Vol. 37, No. 4, December, pp. 8-9.
- Roseboom, J. (2002), "Underinvestment in Agricultural R&D Revisited", *Quarterly Journal of International Agriculture*, Vol. 41, No. 4, pp. 297-316.
- Schneider, A. (2003), "Who Gets What From Whom? The Impact of Decentralisation on Tax Capacity and Pro-poor Policy", University of Sussex, Institute of Development Studies, Working Paper, No. 179.
- Schultz, T.P. (1997), "Assessing the Productive Benefits of Nutrition and Health: An Integrated Human Capital Approach", *Journal of Econometrics*, Vol. 77, No. 1, March, pp. 141-58.
- (2002), "Wage Gains Associated with Height as a Form of Health Human Capital", *American Economic Review*, Vol. 92, No. 2, pp. 349-53, May.
- Self, S. and R. Grabowski (2004), "Does Education at All Levels Cause Growth? India, A Case Study", *Economics of Education Review*, Vol. 23, pp. 47-55.

- Stiglitz, J.E. (2000), "Chapter Four: Market Failure", *Economics of the Public Sector*, Third Edition, Norton.
- Swaroop, V. (1999), "Public Expenditure Reviews: Progress and Potential", PREM Notes, No. 20, April.
- Toye, J. and C. Jackson (1996), "Public Expenditure Policy and Poverty Reduction", *IDS Bulletin*, Vol. 27, No. 1, pp. 56-66.
- Walker, M.L. (1930), *Municipal Expenditure*, Baltimore, Johns Hopkins Press, reprinted 1983.
- Warr, P. (2003), "Fiscal Policies and Poverty Incidence: The Case of Thailand", *Asian Economic Journal*, Vol. 17, No. 1, pp. 27-44.
- Williamson, T. and S. Canagarajah (2003), "Is There a Place for Virtual Poverty Funds in Pro-poor Public Spending Reform? Lessons from Uganda's PAF", *Development Policy Review*, Vol. 21, No. 4, pp. 449-80.
- Wilkinson, R.G. (1992), "Income Distribution and Life Expectancy", *British Medical Journal*, No. 304, pp. 165-68.
- The World Bank (1988), *World Development Report 1988*, The World Bank, Washington (D.C.).
- (1993), *Poverty Reduction Handbook*, The World Bank, Washington (D.C.).
- (1995), *The Social Impact of Adjustment Operations*, Report No. 14776, The World Bank, Washington (D.C.).
- (1998), *The Impact of Public Expenditure Reviews: An Evaluation*, Report No. 18573, The World Bank, Washington (D.C.).
- (2000), *The Effectiveness of The World Bank's Poverty Reduction Strategy: An Evaluation*, Report No. 20145, The World Bank, Washington (D.C.).
- (2001a), *Ethiopia: Focusing Public Expenditures on Poverty Reduction*, Report No. 23351, The World Bank, Washington (D.C.).
- (2001b), *Zambia Public Expenditure Review: Public Expenditure, Growth and Poverty – A Synthesis*, Report No. 22543, The World Bank, Washington (D.C.).
- (2002), *Uganda: Public Expenditure Review: Report on the Progress and Challenges of Budget Reforms*, Report No. 24882, The World Bank, Washington (D.C.).
- (2003a), *African Development Indicators*, The World Bank, Washington (D.C.).
- (2003b), *The Heavily Indebted Poor Countries (HIPC) Debt Initiative: An OED Review*, Report No. 25160, The World Bank, Washington (D.C.).

- (2003c), *Tanzania: Managing Public Expenditures for Poverty Reduction: Report on Fiscal Developments and Public Expenditure Management Issues*, Report No. 26807, The World Bank, Washington (D.C.).
- The World Bank *et al.* (2004), *Vietnam Development Report*, Vietnam Development Information Center, Hanoi.

THE EFFECTS OF FISCAL POLICY IN ITALY: ESTIMATES WITH A SVAR MODEL

Raffaella Giordano, Sandro Momigliano,* Stefano Neri* and Roberto Perotti***

1. Introduction and conclusions

This paper studies the effects of government spending, distinguishing between wage and non-wage expenditure, and of net revenues on key macroeconomic variables in Italy. We study these effects in the context of a Vector Autoregression approach, using a methodology to identify the fiscal shocks recently proposed by Blanchard and Perotti (2002).

The VAR approach heavily relies on the existence of reliable and non-interpolated quarterly data over a sufficiently long period of time. In Italy, quarterly national accounts data on general government budget are available only for a few years, hence cannot be used in this approach. For our analysis we construct a database of quarterly cash data for selected fiscal variables for the period 1982:1-2003:4, largely on the basis of the information contained in the Italian Treasury Quarterly Reports.

In the method proposed by Blanchard and Perotti (2002) the identification of fiscal shocks is essentially obtained by exploiting decision lags in fiscal policymaking, which allow to assume that discretionary government purchases and revenues are predetermined with respect to the macroeconomic variables, and information about the elasticity of fiscal variables to economic activity, which enable to identify the automatic response of fiscal policy. A similar approach is used by Fatás and Mihov (2001), who rely on Cholesky ordering to identify fiscal shocks.

The method proposed by Blanchard and Perotti (2002) has been applied in a number of studies based on US data. Among these, Blanchard and Perotti (2002) employ a three-variable VAR which includes GDP, government direct expenditure and net revenue. They find that expansionary fiscal shocks increase output. Following a direct expenditure shock, private consumption reacts positively and private investment reacts negatively.¹ The response of GDP to a one dollar shock to

* Banca d'Italia, Research Department.

** Bocconi University, Milan.

The opinions expressed in this paper are those of the authors and do not necessarily reflect those of the Banca d'Italia. We wish to thank Daniele Terlizzese and Andrea Tiseno, who discussed a preliminary version of this paper at the Workshop "Sensibilità al ciclo delle politiche di bilancio ed effetti sull'attività economica" (Rome, 27 October 2004), and the participants at the 7th Banca d'Italia Workshop on Public Finance (Perugia, 31 March-2 April 2005) for very useful comments. We also thank Olivier Biau and Elie Girard for providing the values of the cumulative multiplier, not explicitly calculated in their study. Finally, we are grateful to Giovanni D'Avanzo, Giovanni De Simone, Giuseppe Grasso, Maria Liviana Mattonetti and Giovanni Previti for providing data.

¹ The responses of the components of GDP are assessed on the basis of a 4-variable VAR, which also includes the component of GDP whose response they are studying.

direct expenditure is around 50 cents at the 4th and 8th quarter and gradually increases to a peak of 1.29 cents at the 15th quarter.² Their results imply a cumulative multiplier (*i.e.* the ratio of the cumulative change in GDP to the cumulative change in government expenditure) close to 0.5 at the 4th, 8th and 12th quarters, reflecting leakages through the trade channel.³

The same identification method has been used in Perotti (2002), which examines 5 OECD countries including the US, and in the study by Galí *et al.* (2003) on the US. Perotti (2002) uses a five-variable VAR, which includes GDP, the GDP deflator, government direct expenditure, net revenue and the interest rate. As for the US economy, when using the full historical sample he finds that the cumulative multiplier of an expenditure shock is also positive and below 1 at the 4th, 8th and 12th quarters. Galí *et al.* (2003) use a four-variable VAR, which includes GDP, government direct expenditure, employment and the real interest rate. Their results imply a larger cumulative multiplier of government spending: its value increases from around unity at the 4th quarter to approximately 2 at the 12th quarter. The authors find a relatively large positive reaction of private consumption; the response of investment is not significant.⁴ Also in Fatás and Mihov (2001) a government direct expenditure shock in the US induces a positive response of private consumption, while the response of investment is not significant. The reported results imply values of the cumulative multiplier similar to those of Galí *et al.* (2003). The authors also examine separately the effects of non-wage and wage spending, reaching the conclusion that a fiscal expansion based on the latter is more effective in boosting economic activity. However, the shock to wages is far more persistent and this could explain the greater effects it has on GDP.

Studies applying the method proposed by Blanchard and Perotti (2002) in countries different from the US are relatively scarce, largely owing to the limited availability of quarterly public finance data. Perotti (2002) investigates the effects of fiscal policy for Australia, Canada, Germany and the UK. He finds that responses to fiscal shocks estimated on US data are often not representative of the average OECD country included in the sample. In general, the estimated effects of fiscal policy turns out to be small: in the pre-1980 sample, positive government spending multipliers larger than one are rare; in the post-1980 period, significantly negative multipliers are the norm; the tax multipliers are even smaller. To assess the effects of fiscal policy in France, Biau and Girard (2005) use a five-variable VAR, which includes government direct expenditure, net revenue, GDP, the price level and the interest rate. Their results imply values of the cumulative multiplier of government

² For the sake of comparability with our findings, we report the results obtained by Blanchard and Perotti (2002) using the specification with deterministic trend.

³ We computed the cumulative multipliers, on the basis of the data reported in Blanchard and Perotti (2002), to allow a meaningful comparison with our own results. The cumulative multiplier gauges the effects on economic activity per unit of expenditure, thus automatically correcting for the persistence of the shock. This feature is particularly important as the fiscal shocks that we identify for Italy exhibit a significantly lower persistence than those estimated in the studies using US data.

⁴ The responses of the components of GDP are assessed on the basis of a 5-variable VAR, which also includes the component of GDP whose response they are studying.

spending at the 4th, 8th and 12th quarters equal to, respectively, 1.9, 1.4 and 1.5. The authors find a positive reaction of private consumption. The effects on private investment are also positive but only in the first year.

Summing up, the reviewed studies, which adopt a relatively homogeneous methodology to the one used in our study on Italy, indicate that in the US a shock to government direct expenditure has positive and relatively long-lasting effects on private consumption and output. These results are a straightforward implication of all Keynesian models but they have been shown to be also compatible with a dynamic general equilibrium model characterized by sticky prices and the presence of non-Ricardian consumers (Galí *et al.*, 2003).⁵ There is no consensus on the effects on investment. The evidence concerning the other countries is mixed and very limited.

Alternative approaches to the identification of fiscal shocks in the context of VAR studies have been proposed by Edelberg, Eichenbaum and Fisher (1999) and by Mountford and Uhlig (2002). Edelberg, Eichenbaum and Fisher (1999) study the response of the US economy to specific episodes of military build-ups, identified in Ramey and Shapiro (1997). They conclude that there is a significant and positive short-run effect on output, which fades away after some years. Mountford and Uhlig (2002) use sign restrictions on the impulse responses in order to identify fiscal shocks. In particular, an expenditure shock is identified by a positive response of expenditure for up to four quarters after the shock.⁶ In their results, a deficit spending shock stimulates output only in the first four quarters, although only weakly.

Turning to our analysis, the main results can be summarized as follows.

As in all comparable VAR studies, we examine the effects of a shock to total direct government spending.⁷ We do so on the basis of a six-variable VAR, which includes private GDP, the private GDP deflator, employment, the real interest rate, direct expenditure and net revenue.⁸ As in previous studies, direct expenditure has a positive impact on output. The spending shocks we identify are far less persistent than those estimated in the US context. As a consequence, the response of output after impact is relatively small and fades away quickly. In terms of cumulative

⁵ The model proposed by the authors allows for rule-of-thumb consumers (who do not borrow or save) in coexistence with infinite-horizon Ricardian consumers. An implication of the model is that the impact of government spending on consumption and output is greater when the persistence of the shock is low; this may explain why the results for the cumulative multiplier in our study are on the high side of the range of available estimates.

⁶ This identification strategy excludes temporary fiscal shocks.

⁷ We include only current direct expenditures, almost ninety per cent of total direct expenditure in the Italian context, as we are not fully confident of reliability of our cash data for investment.

⁸ In national accounts, government direct expenditure exactly matches the public component of aggregate demand in total GDP. As our data are not from national accounts, we do not observe this correspondence: *i.e.* a shock to cash government spending does not reflect into a corresponding change in public demand. Therefore, we prefer to include in the VAR private GDP (and its deflator) instead of total GDP (and the corresponding deflator).

multiplier, an indicator which gauges the effects on economic activity per unit of expenditure, our results are on the high side of the evidence from comparable studies, being broadly similar to those reported, for US, in Galí *et al.* (2003) and Fatás and Mihov (2001) and, for France, in Biau and Girard (2005). The values of the multiplier at the 4th, 8th and 12th quarters are equal to, respectively, 1.5, 1.7 and 1.2. The responses of private consumption and investment are positive, but generally not significant.

However, these results (briefly commented in Appendix 1) are not very precise, partly because of the fact that the two main components of direct spending (lumped together in the model) appear to have significantly different effects on the macroeconomic variables.

In our benchmark seven-variable model we therefore distinguish between wage expenditure and purchases of goods and services. We find that a shock to government purchases of goods and services has a relatively sizeable effect on economic activity: an exogenous one per cent (in terms of private GDP) shock raises private real GDP by 0.6 per cent after 3 quarters. The response of private GDP goes to zero after two years, reflecting with a lag the relatively low persistence of the spending shock, which fades away completely in the 4th quarter. The values of the cumulative multiplier (computed for total GDP) at the 4th, 8th and 12th quarters are respectively 2.4, 2.4 and 1.7. These values would suggest that purchases have a larger impact on economic activity than that generally indicated by econometric models with “keynesian” short-term features (e.g., see Henry, 2004, and the specific comparison with the Bank of Italy quarterly econometric model carried out in section 4.2). The increase in economic activity is determined by positive responses of private consumption and investment. The effect on inflation is positive and short-lived.

In contrast, public wages have no significant effect on GDP and employment in the short-run; a negative and significant effect emerges after two years. The reactions of inflation and interest rates are positive and larger than in the case of a shock to purchases. Finally, shocks to net revenue have negligible effects on all the macroeconomic variables.

The results of our analysis are quite robust to the use of alternative models or different specifications of the benchmark model. We broadly confirm the results of other authors using comparable methods, but we are also able to distinguish between the two largest components of direct spending. Contrary to Fatás and Mihov (2001), we find that purchases on goods and services have a greater impact on economic activity than wage spending. As the former is a direct demand of private goods while the latter represents a monetary transfer, having only an indirect impact on private consumption, our result can be considered relatively standard.⁹

⁹ Furthermore, as already mentioned, the results in Fatás and Mihov (2001) may be partly due to differences in the persistency of the shocks.

Finally, at least two important caveats concerning our analysis need to be reminded. First, as in all studies using VARs to analyze the effects of fiscal policy, policy surprises may not coincide with the estimated shocks. Fiscal actions are sometimes preceded by announcements and economic agents may react to the latter rather than to the former. We regard this issue as especially relevant for our estimated shocks to wages: they include large sums for arrears, paid to public employees with significant lags with respect to both the definition of the amounts and the signing of the contracts. Second, we use cash data from an administrative source, whose accounting practices may not be fully consistent over the whole sample period. As documented in section 2, we corrected the original series to increase homogeneity over time. Moreover, we find that the largest fiscal shocks match historical accounts of government actions (section 3.3).¹⁰ Nevertheless, our data may still present some inconsistency. We thus believe that our results need to be taken with caution.

2. Government accounts quarterly data

2.1 Sources and construction of the data

The availability of quarterly fiscal variables represents the main constraint for the analysis of fiscal policy with Vector Autoregressions. In Italy, quarterly national accounts data on general government budget (based on ESA95) have been released for the first time at the beginning of 2004 and are available only from 1999 onwards, hence cannot be used in our analysis. Only for government consumption (an aggregate approximately equal to the sum of public wages and purchases of goods and services) a national account quarterly series starting in 1980 is available.¹¹

In contrast to national accounts data, which are partly elaborated on an accrual basis, our data focus on government actual payments and receipts. It is controversial whether cash-basis or accrual-basis data are the most appropriate when studying the impact of government operations on the behavior of the rest of the economy.¹² In fact, our analysis shows that the effects on GDP of government consumption, if measured per unit of expenditure, does not change significantly when cash data are replaced by national account data. Furthermore, the precision of the estimates in the first quarters is generally higher when using cash data (see Section 4.2.1).

¹⁰ Also, when we compare the effects of a shock to direct spending using alternatively our cash data and a corresponding national accounts time series, we obtain similar values of the cumulative multiplier (section 4.2.1).

¹¹ The use of national account data would have implied two important limitations. First it does not allow us to assess the impact on activity of different spending items. Secondly, as a quarterly series of net revenue is not available, we cannot use national accounts data in a VAR model which presents the desirable feature of taking into account developments in the whole general government budget.

¹² For a discussion on the issue see, among others, Levin (1993).

The sources of our government budget data are the Italian Ministry of Treasury and the Bank of Italy. Since the early Eighties, the Treasury publishes quarterly cash figures, covering actual payments and receipts of central and local governments, as well as those of health and social security institutions.¹³ Starting in 1994 we take public sector data directly from this source. For the previous years (1982-93) we sum the figures for each subsector, consolidating intergovernmental flows when possible.¹⁴ A comparison between our cash data and national account data is reported in Appendix 2.

In our analysis we consider a 3-way disaggregation of the government budget. On the expenditure side we consider current spending on goods and services and compensation of employees. The other expenditure items, mainly monetary transfers to households and firms, are subtracted from total revenues to obtain our third fiscal aggregate, net taxes. Revenues are computed as a residual item starting from the Bank of Italy cash deficit figure, which excludes debt settlements and privatization receipts.¹⁵ Measuring net revenue as a residual from the cash deficit probably ensures a better coverage, because data on the individual revenue items are not statistically homogeneous over the sample period for a number of reasons, including the numerous tax reforms enacted during the sample.¹⁶ As a check, we also constructed net taxes from the sum of individual tax revenues, less transfers to households. The results do not qualitatively differ from those presented in this paper.

In the end, the only budget components which do not appear in our model are interest payments and capital purchases of goods by the government, or government investment. We exclude the former because it is largely outside the scope of government control; we exclude the latter because it has a very erratic behavior, and we are less confident of the quality of the data.¹⁷ We plan to explore this issue, including the construction of government investment data, in further work.

¹³ Cash data with a more limited coverage are available for the years 1980 and 1981 and the late Seventies. See Ministry of Treasury, *Relazione trimestrale di cassa*, various issues.

¹⁴ For the years for which information at both aggregate and sub-sector levels are available, the sum of state sector, local governments, health sector and social security institutions represents a rather constant percentage of total public sector figures (ranging on average between 94 and 100 per cent, depending on the budget item). We apply to each budget item, for the years before 1994, the corresponding scale factor.

¹⁵ Statistics on the general government borrowing requirement (the deficit in cash terms) are published by the Bank of Italy on a monthly basis since the early Eighties. These data refer to the financing of the borrowing requirement (*i.e.*, it is computed by looking at changes in debt instruments), on which precise and almost complete information are available. The main reason why we exclude debt settlements and privatization receipts is that they are not considered in national accounts data. Moreover, outlays for debt settlements refer to expenditures undertaken in past periods, whereas privatization receipts cannot be thought of as resources compulsorily subtracted from the private sector. For these reasons, their impact on the economic activity should be negligible.

¹⁶ Among other factors, in 1998 a new tax (IRAP) is introduced, replacing health contributions and other few taxes. This reform significantly altered the composition of both revenue and expenditure sides. The revenue from this new tax was included in indirect taxes, whose weight in total revenue consequently increased; social security contributions decreased because of the elimination of health contributions.

¹⁷ Note also that the ratio between cash and national account data on investment is very volatile over the sample period, ranging from about 80 per cent to almost 100 per cent.

Current spending on goods and services includes intermediate consumption and social transfers in kind (both included in government consumption). Raw data have been corrected to take into account that some of the expenditures included in this item refer to operations that are either not classifiable as government consumption or are not treated consistently over the sample period. In particular, we excluded compensations of banks for their revenue collection service, as this item is recorded, for accounting purposes and not on a regular basis, both on the expenditure and revenue side. Also, payments by the Municipality of Rome to local transport enterprises, which were recorded as transfers before 1998, have been subtracted from the series starting in that year.

We also corrected the original series of compensation of employees to increase homogeneity over the sample period. First, since contributions for retirement for its employees were not paid by the State to social security institutions until January 1996, we have subtracted from the original series these contributions for the following years (in national accounts this problem is treated by including, until 1996, an imputed value of notional contributions equal to State payments to retirees). Second, from 1994 salaries of University personnel were recorded as transfers to public entities rather than as compensation of employees. Hence, we have augmented the post-1994 figures by an amount equal to the fraction of such payments in total wage expenditure observed in 1993.

Finally, before applying a statistical procedure to adjust for seasonality, we distributed evenly across quarters the corporate income taxes (IRPEG and ILOR) installments, although this additional smoothing did not turn out to significantly affect our results.

2.2 *The seasonally-adjusted data in real terms*

Seasonally-adjusted cash figures in real terms (using the private GDP deflator) for current spending on goods and services and compensation of employees are plotted in Figure 1.

Government spending on goods and services has almost steadily increased over the sample period. A significant reduction in the growth rate occurred in the period 1992-97, when it averaged less than 1 per cent (it was about 6 per cent, on average, in both the previous and the following subperiods), reflecting the consolidation effort in the run-up to the monetary union.¹⁸ As a ratio to GDP, current spending on goods and services decreased from 6.3 per cent in 1991 to 6.1 per cent in 1997. After 1997 fiscal policy loosened, taking advantage of the substantial

¹⁸ The amount of corrections introduced by the budget laws for 1992 and 1993 was sizeable: overall, the estimated impact on the borrowing requirement (against estimates based on the assumption of constant policies) amounted to almost 100 billion euros (about 12 per cent of GDP), of which more than a third coming from expenditure cuts. A significant part of these cuts were made on spending on goods and services and compensation of employees. The adjustments implemented in the following three years were also considerable.

decrease in interest payments, and by 2003 government spending on goods and services was at 7.8 percentage points of GDP.

Compensation of employees shows a slightly different pattern. After a substantial increase in the Eighties, it started falling in real terms. A substantial drop occurred over the period 1991-99, when it moved from 11.4 per cent of GDP to 8.8 per cent. This decline reflects both wage restraints (stricter than those occurred for private employees) and a fall in the number of employees (by close to 5 per cent between 1991 and 1999). In the last years the number of employees and the related expenditure have again increased significantly. As a ratio to GDP, compensation of employees in 2003 reached 9.3 per cent.

Finally, Figure 2 plots seasonally-adjusted cash figures in real terms of our measure of net revenues. Net revenues have steadily been increasing over the sample period, with the significant exceptions of the years 1994, 1998 and 2002. The first two reductions mainly reflected the drop in gross revenue, which owed to the expiration of temporary tax increases in the previous year (e.g. the extraordinary tax in 1997 which aimed at reducing the deficit below 3 per cent of GDP and therefore allowing Italy's participation to the monetary union). The reduction in 1998 (from 48.0 to 46.5 per cent of GDP, in national accounts) was also due to the introduction of a new tax (IRAP), replacing health contributions and other taxes, which, contrarily to the expectations, did not turn out to be revenue neutral.

3. The VAR model

3.1 Specification

The benchmark specification of the VAR model includes the following seven variables: the real private GDP y_t (*i.e.*, real GDP minus real government consumption), the private GDP deflator p_t , private employment e_t , the ten-year nominal interest rate i_t , real government spending on goods and services g_t , real government wages w_t and real net taxes t_t . All variables, with the only exception of the interest rate, are log-transformed. The sample period runs from 1982:1 to 2003:4. All fiscal variables are seasonally-adjusted using the TRAMO-SEATS procedure and expressed in real terms using the private GDP deflator. We use the long-term interest rate, instead of the short-term rate, since the former is arguably a more important determinant of components of GDP such as private investment.

The reduced form VAR model is:

$$X_t = B(L)X_{t-1} + U_t \quad (1)$$

in which X_t is the vector of variables, $B(L)$ is an autoregressive lag polynomial and U_t is the vector of reduced form innovations. Our benchmark specification also

includes a constant and a quadratic time trend, which we omit from the notation for convenience. The choice of the number of lags is made by looking at the autocorrelation function of the reduced form VAR residuals and by computing likelihood ratio tests. The number of lags is set to 3 since it provides serially uncorrelated residuals. The likelihood ratio test of 4 lags against the null hypothesis of 3 lags confirms our choice.

In the paper we refer to a number of other specifications. A 6-variable model, where the two components of government spending are lumped together, is mainly used for the purpose of establishing an homogeneous comparison with other VAR studies (the results using this model are referred to in the introduction and briefly discussed in Appendix 1). A 5-variable model, which includes the four macroeconomic variables of the benchmark model and only the fiscal variable we want to analyse, is used to check for robustness in section 4.2.1. Another 6-variable model is used to analyse the effects of fiscal shocks on the main GDP components; it includes the variables of the previous 5-variable model, except GDP, substituted by the two main components of aggregate private demand (consumption and investment). Finally, a few alternative 7-variable models are again used to check for robustness. The changes with respect to the benchmark model include the use of alternative macroeconomic variables (private wages instead of employment and the short-term interest rate instead of the long-term one), different orderings of the budgetary components in the identification scheme and different ways the variables are expressed (in levels as in the benchmark specification but without trend, or in differences).

3.2 Identification and estimation

Our identification strategy builds on Blanchard and Perotti (2002) and Perotti (2002). We identify the fiscal shocks by imposing contemporaneous restrictions on the vector U_t , so to derive a vector of “structural” fiscal shocks, orthogonal to each other and to the variables of the model. The following relationship holds between the reduced form residuals U_t and the structural shocks V_t :

$$AU_t = BV_t$$

where the shocks V_t are independent and identically distributed with covariance matrix equal to the identity one. The matrix A links contemporaneously the reduced form innovations while the matrix B defines how the structural shocks affects the variables of the VAR. Given the reduced form representation and the relationship between residuals and shocks, the structural form of the VAR can be obtained by pre-multiplying (1) by the matrix A :

$$AX_t = AB(L)X_{t-1} + AU_t = AB(L)X_{t-1} + BV_t = D(L)X_{t-1} + BV_t \quad (2)$$

where $D(L)$ is the structural autoregressive lag polynomial.

In the next section we describe the approach we use to identify the shocks. Only fiscal shocks have a clear economic interpretation in our analysis.

We start by expressing the reduced form innovations of the government spending, government wages and net taxes equations as linear combinations of the structural fiscal shocks v_t^g , v_t^w , v_t^T to these variables, and of the innovations of the other reduced form equations of the VAR:

$$\begin{aligned} u_t^g &= \alpha_y^g u_t^y + \alpha_p^g u_t^p + \alpha_i^g u_t^i + \alpha_e^g u_t^e + \beta_T^g v_t^T + \beta_w^g v_t^w + v_t^g \\ u_t^T &= \alpha_y^T u_t^y + \alpha_p^T u_t^p + \alpha_i^T u_t^i + \alpha_e^T u_t^e + \beta_g^T v_t^g + \beta_w^T v_t^w + v_t^T \\ u_t^w &= \alpha_y^w u_t^y + \alpha_p^w u_t^p + \alpha_i^w u_t^i + \alpha_e^w u_t^e + \beta_g^w v_t^g + \beta_T^w v_t^T + v_t^w \end{aligned} \quad (3)$$

The coefficients α_j^i capture both the automatic elasticity of fiscal variable i to the “macroeconomic” variables j (y , p , i , and e) and the discretionary change in variable i enacted by the policymaker in response to an innovation in these macro variables. The coefficients β_j^i measure instead how the structural shock to the fiscal variables affect contemporaneously the fiscal variable i .

We are interested in estimating the structural shocks v_t^g , v_t^T and v_t^w , and in studying the responses of the other variables of the system, in particular real GDP, to these shocks. However, without further restrictions the system above clearly does not allow us to identify these structural shocks. As in Blanchard and Perotti (2002) and Perotti (2002), we achieve identification by exploiting the existence of decision lags in fiscal policy and institutional information about the automatic elasticity of fiscal variables to real GDP, employment and the price level.

Specifically, we start with the observation that policymakers typically take more than a quarter to enact discretionary measures in responses to shocks to, say, real GDP: by the time the policymakers learn about the unexpected change in output, decide on the fiscal response, get it approved by the legislative branch, and implement it, certainly more than a quarter elapses. As a consequence, with quarterly data the coefficients α_j^i capture only the automatic elasticity of the fiscal variable i to the macro variable j : due to decision and implementation lags, the contemporaneous, discretionary change in variable i in response to an innovation in variable j is zero.

Still, without further restrictions one would not be able to identify the coefficients α_j^i : for instance, in the first equation an OLS regression of u_t^g on u_t^y , u_t^p , u_t^i and u_t^w would not provide a consistent estimate of α_y^g , because all the u_t^j are correlated with the structural shocks v_t^i . In order to identify the system, we need an *external* estimate of the automatic contemporaneous elasticities α_j^i .

We compute these elasticities on the basis of institutional information, like statutory tax rates, as described in Appendix 3. Using these values for the contemporaneous elasticities α_j^i we can estimate the structural shocks.

Using the elasticities described above we construct the *cyclically adjusted* (CA) residuals for the fiscal variables:

$$\begin{aligned} u_t^{w,CA} &\equiv u_t^w - \alpha_y^w u_t^y - \alpha_p^w u_t^p - \alpha_i^w u_t^i - \alpha_e^w u_t^e = \beta_g^w v_t^g + \beta_T^w v_t^T + v_t^w \\ u_t^{g,CA} &\equiv u_t^g - \alpha_y^g u_t^y - \alpha_p^g u_t^p - \alpha_i^g u_t^i - \alpha_e^g u_t^e = \beta_T^g v_t^T + \beta_w^g v_t^w + v_t^g \\ u_t^{T,CA} &\equiv u_t^T - \alpha_y^T u_t^y - \alpha_p^T u_t^p - \alpha_i^T u_t^i - \alpha_e^T u_t^e = \beta_g^T v_t^g + \beta_w^T v_t^w + v_t^T \end{aligned} \quad (4)$$

Since not all the coefficients β_j^i can be identified, we need to take a stance on the ordering among the fiscal shocks, that is on which fiscal variable can contemporaneously react to the others. In our benchmark case, we assume that public wages “come first”: this assumption is equivalent to setting β_T^w and β_g^w to zero. We then assume that government purchases is decided before net taxes, *i.e.* that $\beta_T^g = 0$. Therefore the coefficients β_w^g , β_g^T and β_w^T need to be estimated.

Thus, (4) becomes:

$$\begin{aligned} u_t^{w,CA} &= v_t^w \\ u_t^{g,CA} &= \beta_w^g v_t^w + v_t^g \\ u_t^{T,CA} &= \beta_g^T v_t^g + \beta_w^T v_t^w + v_t^T \end{aligned} \quad (5)$$

Under these assumptions, the government wages shock is equal to the cyclically adjusted residuals of the corresponding equation: $u_t^{w,CA} = v_t^w$. Since we assume that government spending on goods and services can be adjusted taking into account the decision on public wages, then the coefficient β_w^g can be estimated by a simple OLS regression of $u_t^{g,CA}$ on the estimate of the government wages shock. Finally the coefficients β_g^T and β_w^T can be estimated by an OLS regression of $u_t^{T,CA}$ on the government spending and government wages structural shocks. The coefficients of the equations for real private GDP, the GDP deflator, employment and the ten-year interest rate can be estimated recursively by means of instrumental variables regressions. With respect to real private GDP the following equation is employed:

$$u_t^y = \alpha_g^y u_t^g + \alpha_w^y u_t^w + \alpha_T^y u_t^T + v_t^y$$

using the estimated series for the fiscal shocks, \hat{v}_t^g , \hat{v}_t^w and \hat{v}_t^T as instruments for, respectively, u_t^g , u_t^w and u_t^T . We then proceed in a recursive way for the price level, employment and the ten-year interest rate equations.

Having estimated all the coefficients (the alphas and the betas), we can construct the A and B matrices which are used to compute the impulse responses to fiscal shocks. The A matrix is:

$$A = \begin{bmatrix} 1 & 0 & 0 & 0 & -\alpha_y^y & -\alpha_w^y & -\alpha_T^y \\ -\alpha_y^p & 1 & 0 & 0 & -\alpha_y^p & -\alpha_w^p & -\alpha_T^p \\ -\alpha_y^e & -\alpha_p^e & 1 & 0 & -\alpha_y^e & -\alpha_w^e & -\alpha_T^e \\ -\alpha_y^i & -\alpha_p^i & -\alpha_e^i & 1 & -\alpha_y^i & -\alpha_w^i & -\alpha_T^i \\ 0 & -\alpha_p^g & 0 & 0 & 1 & 0 & 0 \\ 0 & -\alpha_p^w & 0 & 0 & 0 & 1 & 0 \\ -\alpha_y^T & -\alpha_p^T & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

while the B matrix is:

$$B = \begin{bmatrix} \sigma^y & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \sigma^p & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \sigma^e & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \sigma^i & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \sigma^g & \beta_w^g & 0 \\ 0 & 0 & 0 & 0 & 0 & \sigma^w & 0 \\ 0 & 0 & 0 & 0 & \beta_w^T & \beta_g^T & \sigma^T \end{bmatrix}$$

where the elements on the main diagonal are the standard deviation of the structural shocks.

Once the VAR is estimated and identified we compute impulse responses to evaluate the dynamic effects of a structural shock. Impulse responses are computed using the structural moving average representation of the VAR defined in equation (1):

$$X_t = [I - B(L)]^{-1} A^{-1} B V_t = C(L) A^{-1} B V_t \quad (6)$$

in which the polynomial $B(L)$ comes from the OLS estimation of the reduced form VAR and the matrices A and B are defined above. The reduced form moving average representation of the VAR is described by the polynomial $C(L)$. Error

bands are computed by Monte Carlo simulations based on 1000 replications, as in Stock and Watson (2001).

3.3 *Interpreting the structural shocks*

Overall, the largest estimated fiscal shocks tend to match well known episodes of government actions. In the case of purchases, the most conspicuous negative shocks are estimated in the third quarter of 1992 and in the last quarter of 1997. In the third quarter of 1992 fiscal policy reacted to the devaluation which occurred in the summer of 1992; at the end of 1997 fiscal policy made its last effort to obtain Italy's participation to EMU, as decisions were taken on the basis of the deficit for 1997. Both episodes are part of a longer period of expenditure containment. As for the first episode, we estimate almost uninterruptedly negative shocks from 1992:2 to 1993:2; as for the second episode negative shocks are observed throughout 1996:4 to 1997:4. More recently, data show the effects of the cash constraints imposed at the end of 2002 and at the end of 2003. Wage shocks are also consistent with the timing of contracts renewals. For example, wage increases for the period 2002-03 started to be paid only at the end of 2003. As a result, real wage shocks are negative in 2002 and in the first half of 2003, then they turn positive. A similar pattern can be observed in the period 2000-01 (Figure 3). In the case of net revenue, the original quarterly series exhibits a large variability, with a relatively unstable seasonal pattern. These features, that are reflected on frequently large estimated shocks, make the matching between the latter and historical episodes of government action less precise (Figure 4). Nevertheless, for example, we estimate uninterruptedly positive shocks to net revenue from 1996:4 to 1997:4, indicating that the restrictive fiscal policy aiming at the participation to the monetary union concerned almost the entire budget and not only purchases.

4. **The effects of government spending**

In this section we comment on the effects on the fiscal and the macroeconomic variables of exogenous shocks to the two largest components of government direct spending. The impulse responses are constructed assuming a shock equal to a one percent of real private GDP. In Figures 5 and 6 the whole set of impulse responses for the benchmark specification for each of the two shocks are plotted. In each figure we also present two lower and two upper bounds, corresponding to, respectively, the fifth, sixteenth, eighty-fourth and ninety-fifth percentiles of the distribution of the responses at each horizon. Throughout the paper, in line with most previous studies, we define as "statistically significant" those estimates for which the narrow error bound (identified by the sixteenth and the

eighty-fourth percentiles) does not include the value 0.¹⁹ All impulse responses can be interpreted as deviations from the baseline and are expressed as shares of GDP, by multiplying them by their average share in GDP.

4.1 *The response of fiscal variables*

We start by studying the responses of the three fiscal policy variables to shocks to government purchases and government wages.

A striking feature of the Italian data is that shocks to government purchases and to government wages display almost no persistence: in both cases, by the fourth quarter, the response of each variable to itself is virtually 0. In contrast, a considerable persistence of government spending to its own shocks is found in VAR studies based on both U.S. data (Blanchard and Perotti, 2002, Mountford and Uhlig, 2002, Fatás and Mihov, 2001, and Edelberg, Eichenbaum and Fisher, 2003) and other OECD countries data (Perotti, 2002).

In all these studies, the government spending variables are from the national income accounts; government spending is measured by total government consumption (essentially the sum of purchases and compensation of employees), and, in some cases, it includes also capital expenditure.²⁰ However, this different aggregation is not a reason for the difference in the estimated persistence of government spending: when we estimate a 5-variable VAR with our 4 benchmark macroeconomic variables and our proxy for government consumption (computed by summing up cash government purchases and wages), we still find no persistence in the shocks.

In the case of government wage shocks, their lack of persistence may reflect the presence of large transitory sums for arrears. In Italy there were long delays in public wage settlements in the last two decades. As a result, the initial payments after a wage settlement have often included large sums for arrears.²¹ Note, however, that this explanation is not without problems: it implies that, at the time of wage settlements, what we call shocks could have been largely anticipated. Similarly, the lack of persistence in cash purchases might reflect irregularities in the timing of payments by public entities.

Of course, an alternative explanation is measurement error in fiscal variables. If the measurement error is white noise, and it is a large component of fiscal

¹⁹ As pointed out by Sims and Zha (1999), error bands corresponding to 0.50 or 0.68 probability (the latter approximately coincides with our narrow error bound) are often more useful than 0.95 bands since they provide a more precise estimate of the true coverage probability.

²⁰ Only Fatás and Mihov (2001) consider also wage and non-wage public spending separately. In their study, a shock to non-wage spending is also quite persistent, though much less than that to wage spending.

²¹ Wage agreements in the public sector concerned a time span of three years in the Eighties and of two years since mid-Nineties. Settlements for different sub-sectors (teachers, doctors, local authorities, ministries and others) usually started in the second year of the period they referred to and were not reached at the same time; they were instead irregularly distributed over two years.

variables, then the lack of persistence of fiscal shocks is precisely what we should expect our impulse responses to display.

Interestingly, when we use real government consumption (deflated using its own deflator) from the national income accounts in the 5-variable VAR, together with our 4 benchmark macroeconomic variables, we find a considerable persistence of the government spending shock, in line with the other VAR studies. The persistence is lower but still significant (the shock disappears only after 16 quarters) if we apply the deflator of private GDP to the national account series in nominal terms.

The responses of public wages to purchases, and of purchases to public wages, are minimal. We find instead a surprisingly large²² positive impact effect of public wages on net taxes – about 1.2 percentage points of GDP – which is, again, very short-lived. This effect does depend, however, entirely on the most recent data: it halves, becoming fully consistent with the working of the tax system, when we end the sample in the mid-Nineties. Purchases, instead, have a large negative effect on net taxes in the second quarter; which, again, disappears afterwards. The effect is surprising, as GDP expands and this should automatically lead to a positive response of net taxes. The negative response may reflect the fact that in Italy fiscal policies aimed at modifying the balance have been generally pursued with actions on both revenue and expenditure.

Inverting the order of the first two fiscal variables (government purchases and government wages) in our identification scheme has virtually no effects on the results displayed so far. These results are also robust to several alternative specifications of the VAR: in particular, when only one fiscal variable (public wages, purchases, or net taxes) is included in turn in the VAR, or when the short-term interest rate replaces the long-term one. The results are also robust when all variables are expressed in levels without any time trend, with the small exception that in this case the response of public wages to its own shocks appears to be more persistent, stabilising between 0.4 and 0.2 percentage points of GDP in the first 2 years. As it is often the case, the responses are more persistent when the variables are expressed in first differences: typically, after the first quarter the response of a fiscal policy variable to its own shock stabilises between 0.4 and 0.6 percentage points of GDP over the whole five years horizon.

4.2 The response of output

GDP responds to a purchase shock in a hump-shaped fashion: it increases on impact by about 0.2 percentage points, then it increases further to reach a peak of 0.6

²² The mechanical impact on revenue of an increase in public wages, taking into account social security contribution rates and the personal income tax, is currently slightly above 50 per cent. Net revenue would also react to the impact on government purchases and private GDP, both approximately 0.2 per cent of GDP. Overall, the impact on revenue consistent with the automatic working of the tax system is inside the bounds (16th and 84th percentiles) of our confidence interval.

percentage points after 3 quarters, and then slowly returns to trend by the end of the second year. The response to a wage shock hovers at about 0.2 percentage points for the first year and a half; however, this response is estimated rather imprecisely, and it is never statistically significant. At the end of the second year the response of private GDP becomes slightly negative and, for a few quarters, statistically significant.

These GDP responses are quite small if compared to standard textbook presentations of the impact of fiscal expansions. However, one should keep in mind at least three points. First, standard analyses focus on total GDP, which includes government consumption. Second, the impact on private GDP depends on the persistence over time of the shock, and, as already mentioned, the fiscal shocks we identify are very short-lived. Third, it is not entirely appropriate to compare the GDP responses to the two spending shocks, since when one fiscal variable is shocked the other moves too.

One way to address these issues is to compute the cumulative multipliers, *i.e.* the ratio of the cumulative change in *total* GDP to the cumulative change in total government consumption (the sum of the cumulative change in purchases and the cumulative change in public wages), in response to each of the two shocks. This ratio provides a measure of the cumulative impact on GDP of a unit cumulative change in government consumption due to a spending shock.²³ Figures 8 and 9 display the median cumulative multipliers of the shocks to government purchases and to government wages, respectively. The cumulative multiplier of a purchase shock is quite large relative to the rest of the literature: it starts at about 1.2, it reaches a value slightly above 2.5 after 6 quarters, and then declines slowly to about 1.5 after 4 years; it is also estimated quite precisely, so that it is always significant. In contrast, the cumulative multiplier of a public wage shock is smaller and goes below 1 (indicating that the increase in aggregate demand coming from the its public sector component is partly compensated by other factors) in the fourth year; moreover, it is very imprecisely estimated, so that it is always statistically insignificant.

An issue not addressed by the cumulative multiplier presented above is that the impact on GDP depends also on the response of net revenue. If the latter is approximately proportional to the response of total GDP, this factor may be disregarded, as it merely represents the automatic working of the tax system. This is approximately the case when we analyse the shock to wages.²⁴ In the case of

²³ It can be shown, in a two-variable model, that the cumulative multiplier provides a measure of the effects on GDP independent of the persistence of the shock. This feature allows to compare the results of a VAR study with simulations of econometric models, where the shocked variable can be kept constant afterwards. Unfortunately the result does not hold exactly when more than two variables are involved. We are indebted for this analysis with Daniele Terlizzese.

²⁴ The response of net revenue to a shock to wages is slightly too large in the first quarter (given the size of the shock and the impact on private GDP) and unexpectedly negative in the third (taking into account that the responses of wages and private GDP are, respectively, slightly positive and nil). Overall, these two deviations from what it could be expected from the working of automatic stabilizers offset each other.

purchases, instead, notwithstanding the GDP expansion, there is a large decline in net revenue in the second quarter. A way to partially take into account this factor, which may have facilitated the GDP expansion (though, as shown in section 5, changes in revenue alone do not seem to have significant effects on GDP), is to modify the cumulative multiplier described above, netting its denominator by the cumulative change in net revenue.²⁵ As shown in Figure 10, the resulting value of this modified cumulative multiplier still exceeds 2 at peak but is lower than that of the more standard indicator.

An alternative way to compare our results with those of other approaches is to try to replicate the fiscal shock we observe, and also the responses of the other fiscal variables, in a model simulation. The results of this comparison, using the Bank of Italy quarterly econometric model (BIQEM) are presented in Figure 11 (see Banca d'Italia, 1986 and Terlizzese, 1993).²⁶ In the simulation with the Bank of Italy model the effects on GDP of a shock to purchases are smaller but more persistent; in the first 2 years they are well inside our error bounds.

Finally, a few caveats concerning the substantial difference in our results between the effects on GDP of a shock to purchases and one to wages should be mentioned. First, as just mentioned, the shock to purchases is accompanied by a transitory but sizeable drop in revenue, which may have facilitated the rise in economic activity. Second, as mentioned in section 4.1, the wage shocks may be anticipated, as significant delays in the payments typically occur. Third, the variability that we observe in the total amount paid for public wages seems largely due to its unit wage component and to a much smaller degree to the changes in public employment. In a different institutional context the relative role of these two factors may be different and this may modify the effects on GDP.

4.2.1 Robustness

The above results are qualitatively quite robust to alternative specifications of the model. In Figure 12 we present the median response of GDP to a purchase shock in alternative models that differ with respect to the variables included and the way shocks are identified. In particular, we present the results of the following five alternatives: the first, labelled "short-term rate", includes the short-term interest rate instead of the long-term one; the second, "private wage", includes the latter instead of private employment; the third, "5VAR", excludes the two other fiscal variables; the fourth, "purchases first", uses a different ordering of the expenditure variables when identifying the shocks (in the benchmark model wages are ordered first, whereas in this alternative specification purchases are first); the fifth, "Cholesky" or

²⁵ In standard textbook analyses of the Keynesian model, to a large extent the effect of fiscal policy on GDP depends on the deficit, which is very close to the resulting variable at the denominator. Thus, this ratio provides a measure of the cumulative impact on GDP of a unit cumulative change in the aggregate deficit due to a fiscal policy shock.

²⁶ In the simulation, nominal interest rates are kept as in the baseline and the responses of fiscal variables to the shock to purchases are treated as shocks.

recursive ordering, identifies the shocks following the approach used by Fatás and Mihov (2001). Under this identification scheme, it is assumed that fiscal variables respond in the same quarter to the macroeconomic variables in the VAR while it takes at least one quarter for fiscal policy to affect the economy. The ordering among the fiscal variables is the same as in the benchmark specification: revenues are allowed to adjust to changes in the two spending components of the budget. The results obtained with this identification scheme are very close to those of the benchmark model and well within the upper (95 per cent) and lower (5 per cent) bounds of the GDP response in that model, also reported in the figure. Figure 14 does the same, but with respect to a public wage shock. Again, there are no noticeable differences from the results obtained by the benchmark specification.

A second set of specifications makes different assumptions regarding the statistical properties of the variables included in the VAR. Figure 13 displays the median responses of private GDP to purchase shocks when all variables are entered in levels, but a trend is not included, and when all variables enter in first differences. The Figure also reports the median response of GDP in the benchmark specification. As in the benchmark specification, in the specification in levels with no trend private GDP has a hump-shaped response, but it is stronger: the peak is at about 1, instead of 0.6, and the entire response is statistically significant over the whole horizon. In the first-difference specification, the response of GDP is initially similar to that of the benchmark model. Afterwards, the response remains almost constant at 0.4 per cent of GDP, reflecting the higher persistence of the shock to purchases in this specification. The response of private GDP is no longer statistically significant.

Figure 15 does the same as Figure 13, but it refers to the public wage shock. Here the GDP response was insignificant to start with. Alternative specifications of the trend do not alter the results substantially: in all specifications the GDP responses are statistically insignificant.

We also assess whether our cash data and national account data provide different results. This comparison is necessarily restricted to the aggregate of government consumption, for which national accounts data are available, and for which the sum of wages and purchases is a relatively good approximation (in both cases, we compute variables in real terms by using the private GDP deflator). Moreover, it has to be carried out with a 5-variable VAR model, as we have not a quarterly series for net revenue in national accounts. As already mentioned, the national accounts variable is smoother. Its shocks exhibit a greater degree of persistence, fading away in about four years. The effects on GDP are positive in the first two years and negative afterwards, as when using cash data, but their size is significantly larger (Figure 16). However, there is no significant difference between the cumulative multiplier obtained by the two sets of data (Figure 17). As for the precision of these estimates, using the cash data the error band is significantly narrower in the first four quarters; afterwards, national accounts estimates are slightly more precise.

4.3 The responses of GDP components and the other variables in the VAR

When studying the GDP response to a given spending shock, the results are virtually identical when the other spending variable and net taxes are excluded (see Figures 12 and 14). Thus, we study the effects of spending shocks on private consumption and private investment by having both these two variables in a VAR that only includes the government spending variable whose shock we are studying.

Figure 18 displays the responses of private investment and private consumption to a shock to purchases as shares of GDP, by multiplying them by the average share of private investment and private consumption in GDP, respectively. Both components are positively affected by the shock, and exhibit roughly similar patterns: both responses are hump-shaped, starting at about zero on impact and reaching a peak in the fourth quarter, at about 0.2 percentage points of GDP in the case of investment, 0.3 percentage points in the case of consumption. When the two components are added together, they explain relatively well the effects of purchases on GDP in the benchmark 7-variable VAR model.

The response of private investment to a public wage shock is positive but very limited, 0.1 percentage points of GDP at most; private consumption instead declines, by as much as 0.3 percentage points after about 3 years (Figure 19). Once again, the sum of the two responses is sufficiently close to the response of GDP in the benchmark model.

Figures 20 and 21 display the median responses of private employment to the two spending shocks, together with the usual lower and upper bounds. The results closely tailor those of private GDP. In the case of a shock to purchases, the effects on employment are slightly more sluggish and persistent, in line with what one could expect: employment increases on impact by almost 0.2 percentage points, then it increases further to reach a peak of 0.5 percentage points after 4 quarters, and then slowly returns to trend by year 4, two years after the effects on GDP have vanished. In the case of a shock to public wages, the responses of employment are very small and estimated rather imprecisely, similarly to those of GDP.

The median effects on inflation of the two spending shocks are positive but transitory (Figures 22 and 23). The shock to purchases causes an increase in inflation (measured by the change in the private GDP deflator) by 0.5 percentage points on impact, partly offset by a fall in the third quarter. The effects are negligible in all other quarters. The cumulated effect on the price level stabilises at 0.3 percentage points by the end of the first year; this result is slightly higher than those reported in Henry *et al.* (2004), which refer to a set of harmonized simulations conducted using various econometric models of countries of the euro area.²⁷ In the case of a wage shock, inflation does not react on impact but increases by 0.5 percentage points in the second quarter; this reaction is, again, partially offset in the third quarter; inflation is positive in each of the following 3 quarters, before

²⁷ We take into account that the shock in the model simulations is persistent.

returning to trend. The response of the price level stabilises at 0.6 percentage points by the end of the second year. The limited response of inflation to government spending shocks is in line with results obtained by other studies (see Perotti, 2002, and Henry *et al.*, 2004 and the studies cited therein). In fact, the response we find, though relatively small, is larger than what is found in many other studies (see, e.g., Mountford and Uhlig, 2002).

Figures 24 and 25 display the median responses of long-term nominal interest rates to the two spending shocks. In the case of a shock to purchases, the interest rate falls on impact by 0.3 percentage points; afterwards it is constantly above trend, by around 0.2 percentage points, but this effect is not statistically significant. The initial negative change in the interest rate has been found already in other studies (see Perotti, 2002, and studies cited therein); at this stage, we do not have a convincing explanation for this negative impact effect. A shock to public wages leads instead to a positive effect on interest rates already in the first quarter. The profile of the response is hump-shaped, with a peak in the fifth quarter at 0.6 percentage points. The effect, statistically significant between the fourth and the seventh quarter, dies out at the beginning of the third year. The larger response of interest rates in the case of a wage shock might be related to its stronger effects on inflation.

5. The effects of net revenue

We now discuss the response of the various macro variable in our VAR to a shocks to net revenues equal to 1 percentage point of GDP. In Figure 7 the whole set of impulse responses for the benchmark specification are plotted. Like in the case of the other fiscal shocks, the response of net revenue to its own shock is very short-lived, returning to zero immediately after the shock. Overall, we were not able to estimate any significant – statistically or economically – effect of net revenue shocks on the other variables. The effect on government wages and purchases is extremely small, and entirely insignificant. Rather counter-intuitively, we find a positive effect on GDP; however, this effect is extremely small, and again statistically insignificant. Similarly, the effects on private employment and inflation are very small and insignificant. Overall, these results are robust to all the alternative specifications that have been considered for assessing the robustness of the effects of government purchases and wages (level VAR without time trends, variables in first differences and other specifications).

APPENDIX 1
RESULTS OF THE MODEL INCLUDING TOTAL DIRECT SPENDING
(6-VARIABLE MODEL)

To establish a setup comparable with those used in most of the VAR studies on the topic, we consider a specification in which the two main components of government expenditure, namely wages and purchases of goods and services, are lumped together.²⁸ The other variables are the same as in the benchmark model. Figure 26 displays the impulse responses, to a 1-percentage-point-of-GDP shock to government expenditure, of the six variables included in the VAR. The median and lower and upper bounds (corresponding to the fifth, sixteenth, eighty-four and ninety-fifth percentiles of the distribution) are also presented. Figure 27 reports the impulse responses to a shock to net revenue. An analogous overview of the results obtained for the benchmark model is provided in Figures 5, 6 and 7.

As in the benchmark model, the shock to government expenditure exhibits a very low persistence: by the second quarter, government expenditure response to itself drops significantly and by the fourth quarter it is virtually 0. The response of net taxes in the second quarter is counter-intuitive, as in the benchmark specification as for a shock to purchases.

As in previous studies, direct expenditure has a positive impact on output. The response of private GDP after impact is relatively small and fades away quickly: private output increases on impact by about 0.1 percentage points, then it increases further to reach a peak of about 0.3 percentage points in the fourth quarter (except for a blip after 3 quarters); it becomes slightly negative starting in the seventh quarter. Furthermore, this response is estimated rather imprecisely, and it is statistically significant only in the 4th, 5th and 6th quarters. The responses of private consumption and investment are positive, but generally not significant.

Finally, Figure 28 shows the cumulative multiplier of a shock to total direct government expenditure. The value of the multiplier reaches a peak in the 6th quarter, at 1.8, and gradually declines to around unity in the fourth year.

²⁸ In this way we limit our analysis to the impact of current direct expenditures, which however in Italy accounts for almost ninety per cent of total direct expenditure.

APPENDIX 2 COMPARISON WITH NATIONAL ACCOUNT DATA

A comparison of yearly national accounts data and our cash data, adjusted in the way described in Section 2 above, shows reasonably similar patterns. National accounts series are generally smoother than cash series, mainly due to the accrual criterion adopted in the computation of the former.

Until 1994 national accounts data on current spending on goods and services are significantly higher than cash data, indicating that items recorded under these items in national accounts appear elsewhere in cash data; afterwards the difference shrinks, getting almost negligible in the last five years. Also for net revenue, national account data are higher than cash data; the difference remains more or less constant over the sample period. Instead, the series of compensation of employees in cash and national account data almost coincide.

Turning to quarterly data, we can only compare government consumption from the national accounts with the sum of current spending on goods and services and compensation of employees in our cash data.²⁹ The raw data from the two sources are very similar; this is not true for the seasonally-adjusted data, where the national account series is significantly smoother than our cash series.

Finally, a comparison between cash and national account quarterly data for each of the three fiscal aggregates we use can be done for the period 1999-2003.

For both spending items the cash and national accounts series exhibit very similar patterns. The series of net revenue in national accounts looks more volatile than our cash series, but this is due to the mechanical smoothing we have performed on it.

A detailed analysis of the data and graphs is available from the authors upon request.

²⁹ To have an homogeneous comparison, we subtracted from government consumption the sum of a number of very small items, also included in this aggregate. As for these items we only have annual data, we split evenly the total on the different quarters.

APPENDIX 3 COMPUTATION OF THE ELASTICITIES OF FISCAL VARIABLES

In the approach used by Blanchard and Perotti (2002) to identify fiscal shocks it is necessary to employ estimates (obtained outside the VAR model) of the contemporaneous elasticities of the fiscal variables with respect to the macroeconomic variables.

As for expenditure items, we assume that only purchases of goods and services are affected, though marginally, by changes in the price level in the same quarter. Our benchmark elasticity is 0.1, implying a -0.9 elasticity of the variable in real terms (to deflate, we apply the GDP deflator for all variables). Using lower or higher values (-1.0 and -0.5 , as in Perotti, 2002) has almost no impact on the results.

We assume that other influences of macro variables on direct expenditures are either extremely small or non-existent. The length of the procedures governing most payments simply exclude the possibility that a change in real GDP affects direct expenditure in the same quarter, either via automatic rules or via discretionary actions.³⁰ As for prices, a change in the GDP deflator does not influence wages in the same quarter as generalized pay increases are awarded only on the basis of contracts renewed every two years and there are lags between the signing of the contract and the actual payments.³¹

As for the elasticity of net revenue with respect to the macroeconomic variables (ϵ_{nr}^{varj}):

$$\epsilon_{nr}^{varj} = \epsilon_r^{varj} * r/nr$$

we compute it as the product of the elasticity of revenue to the macroeconomic variables and the average ratio of revenue over net revenue in the period we examine. As for the elasticity of revenue, we take into account that the bulk of the contemporaneous effects on revenue of private employment, GDP and GDP deflator come from the withholding tax on employment income (IRPEF) and, in the case of the two latter variables, also from excises and VAT.

Overall, we obtain an elasticity of total real net revenue to employment, GDP, and GDP deflator of, respectively, 0.3, 0.3 and -0.4 . Clearly, the elasticity with respect to GDP crucially depends on the inclusion in the VAR of the employment variable (or, in some alternative specifications, private wages). In the specifications without employment, the revenue elasticity with respect to GDP rises to 0.5.

³⁰ Real GDP may have indeed a slight contemporaneous influence on social transfers, but this budget items enters with a negative sign our net revenue variable (see below).

³¹ Over the period we examine, only in the years 1982-86 both private and public wages were indexed to prices and the linkage included some lags.

FIGURES

Figure 1

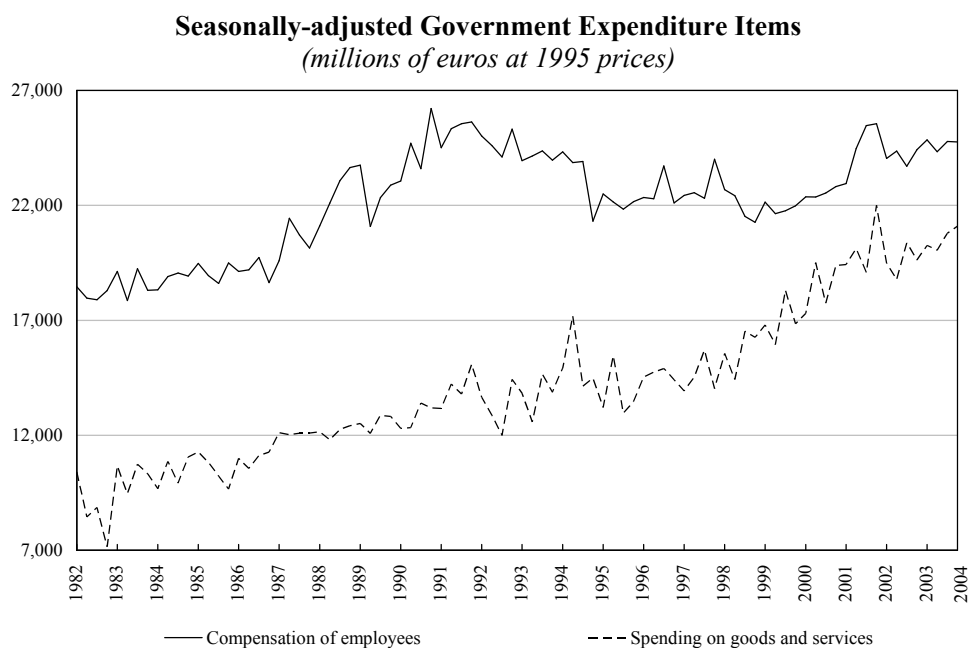


Figure 2

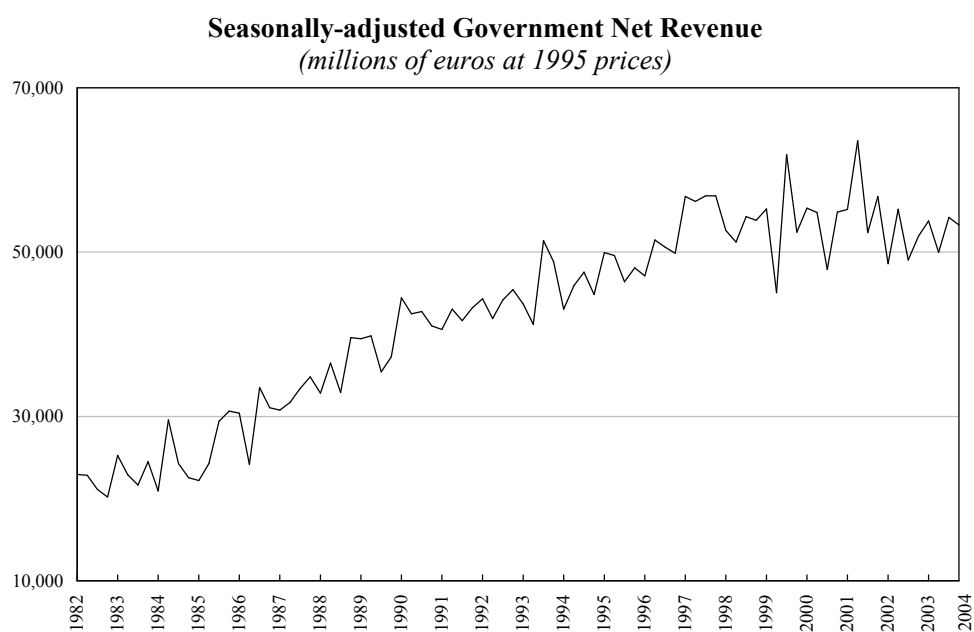


Figure 3

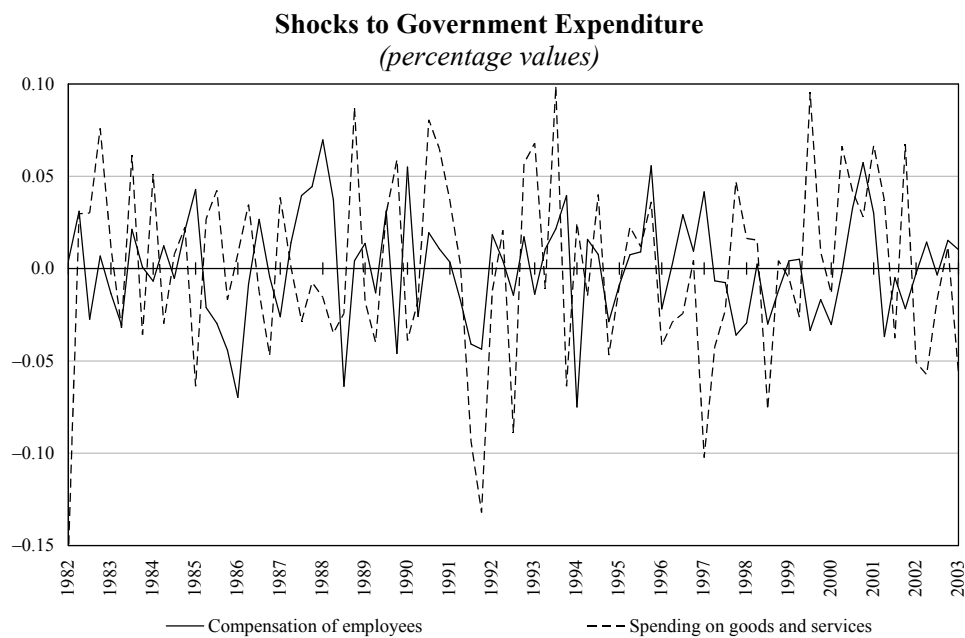


Figure 4

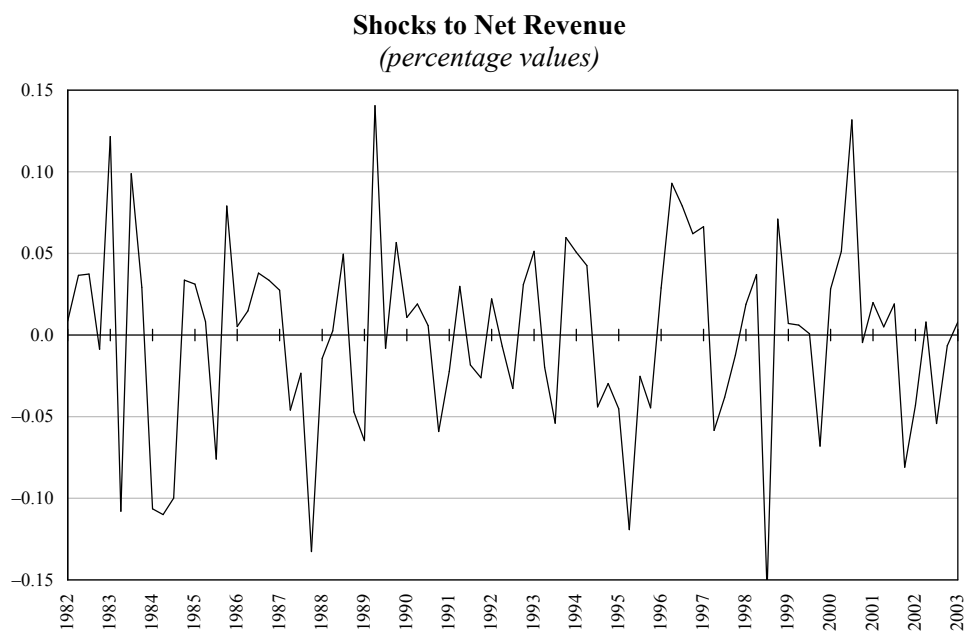
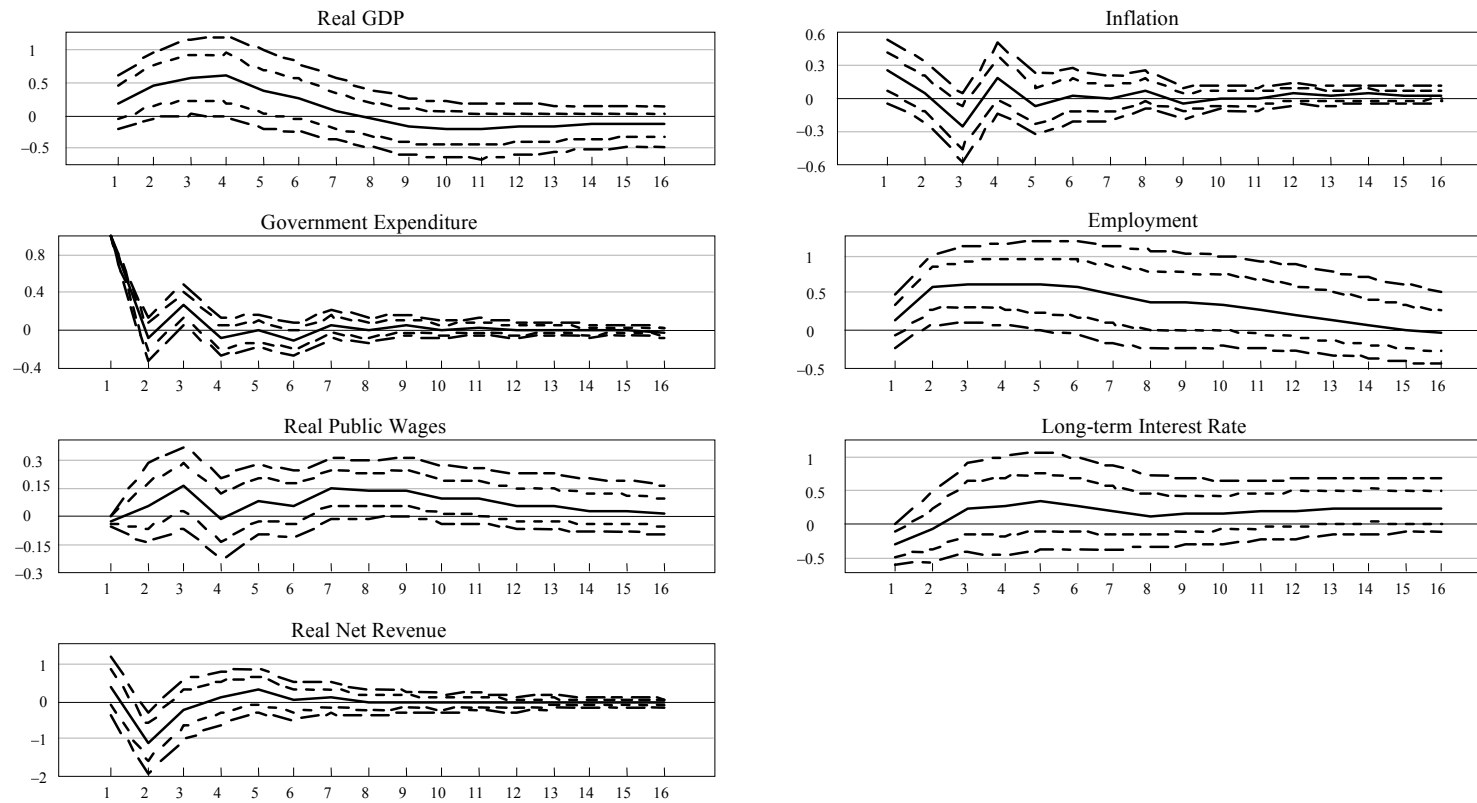


Figure 5

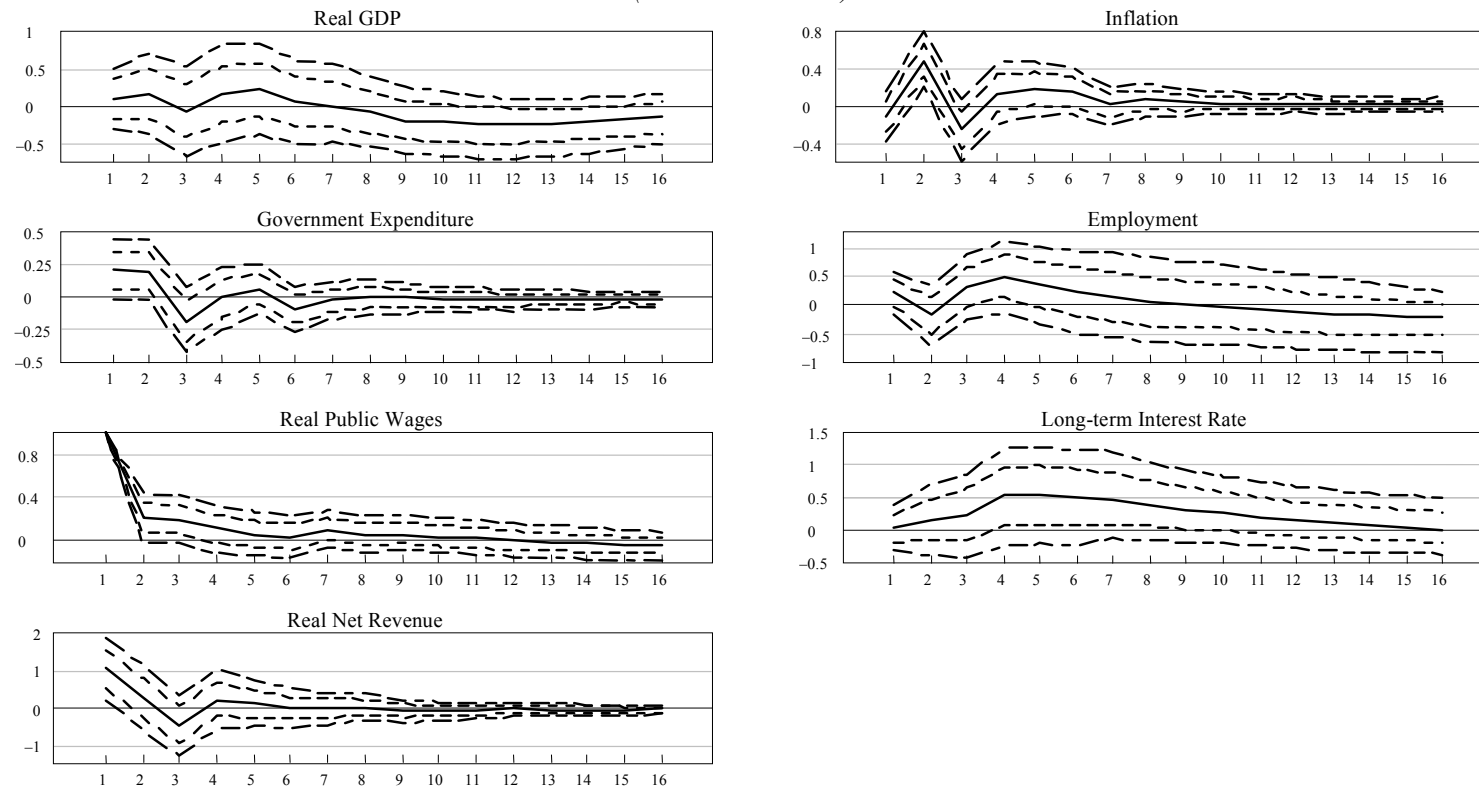
Impulse Responses to a Positive Government Purchases Shock⁽¹⁾
(benchmark model)



⁽¹⁾ The curves represent the median and two sets of lower and upper bands, corresponding to the 5th, 16th, 84th and 95th percentiles of the distribution.

Figure 6

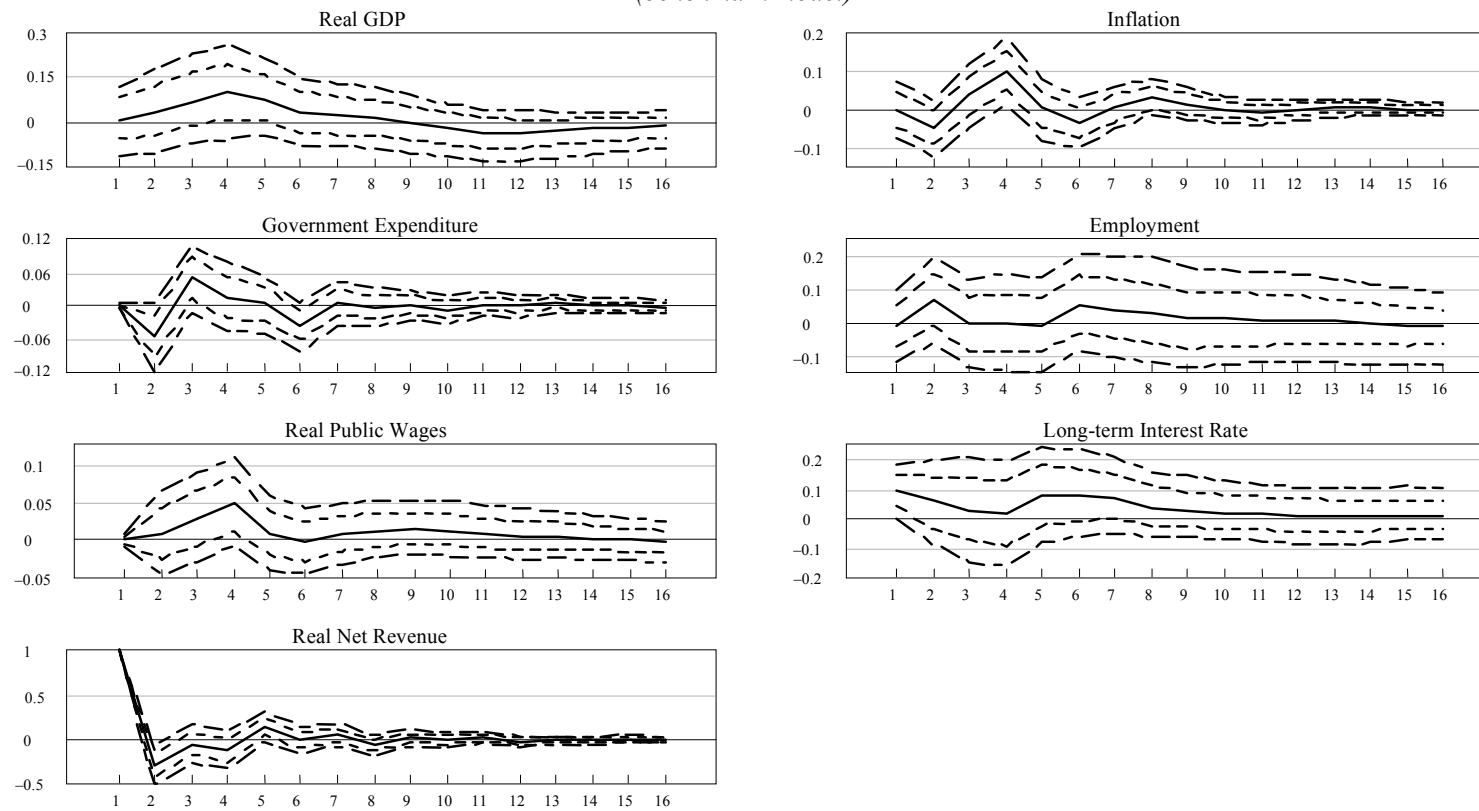
Impulse Responses to a Positive Government Wage Shock⁽¹⁾
(benchmark model)



⁽¹⁾ The curves represent the median and two sets of lower and upper bands, corresponding to the 5th, 16th, 84th and 95th percentiles of the distribution.

Figure 7

Impulse Responses to a Positive Net Revenue Shock⁽¹⁾
(benchmark model)



⁽¹⁾ The curves represent the median and two sets of lower and upper bands, corresponding to the 5th, 16th, 84th and 95th percentiles of the distribution.

Figure 8

**Effects of Government Purchases on GDP:
Cumulative Multiplier – Median and Upper and Lower Bounds**
(benchmark specification)

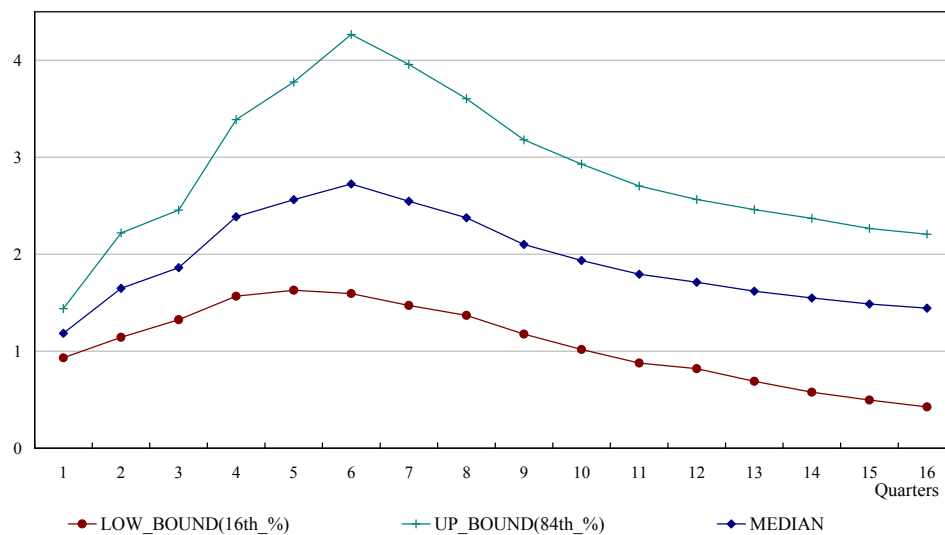


Figure 9

**Effects of Government Wages on GDP:
Cumulative Multiplier – Median and Upper and Lower Bounds**
(benchmark specification)

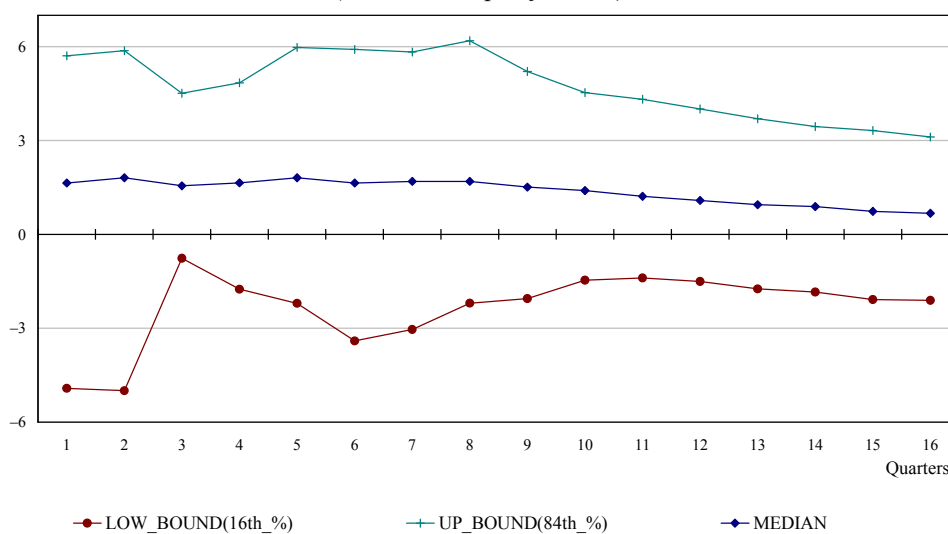


Figure 10

Effects of Government Purchases on GDP: Cumulative Multiplier and Cumulative Multiplier Corrected for Revenue – Median
(benchmark specification)

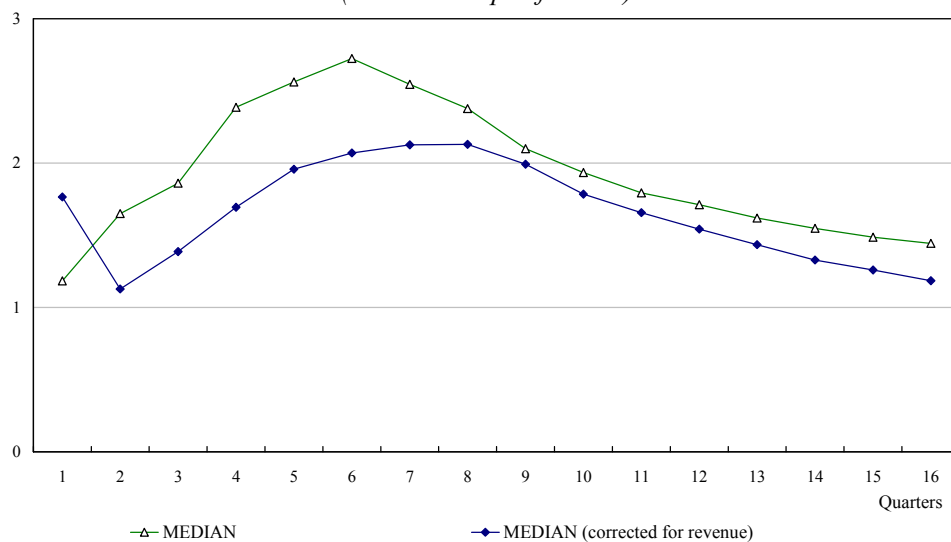


Figure 11

Effects of Government Purchases on GDP: Benchmark Specification and BIQEM
(median values – percent of GDP)

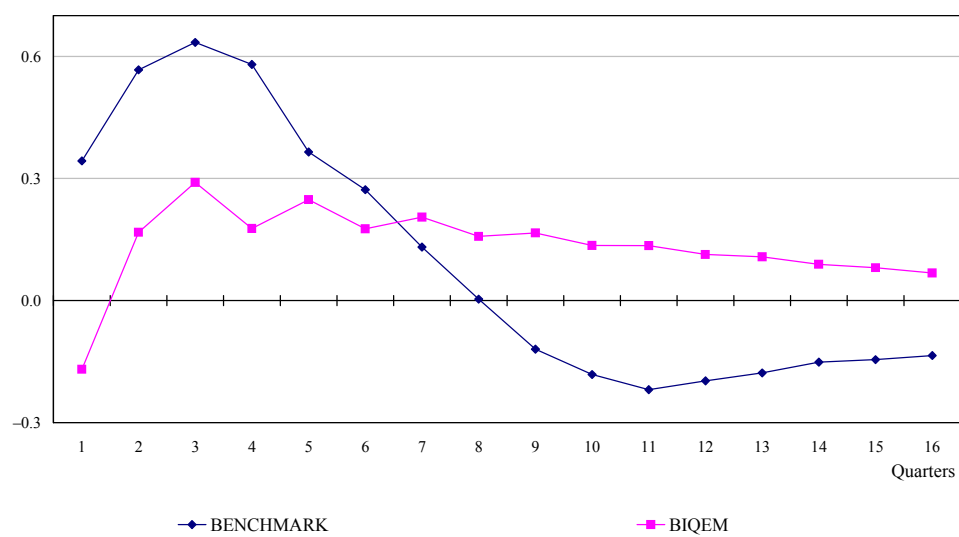


Figure 12

Effects of Government Purchases on GDP:
Benchmark Specification and Alternative Models
(median values – percent of GDP)

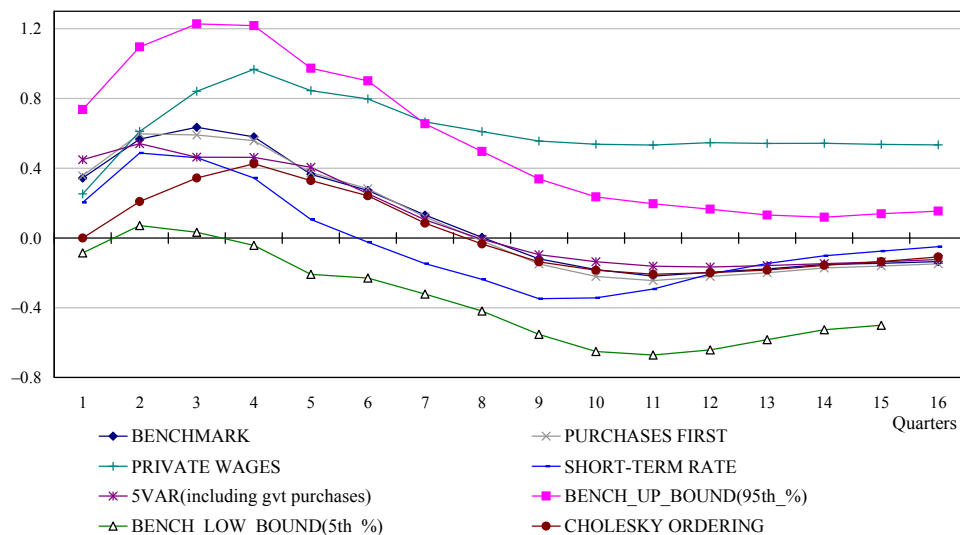


Figure 13

Effects of Government Purchases on GDP: Benchmark Specification
and Models in Levels without Trend and in Differences
(median values – percent of GDP)

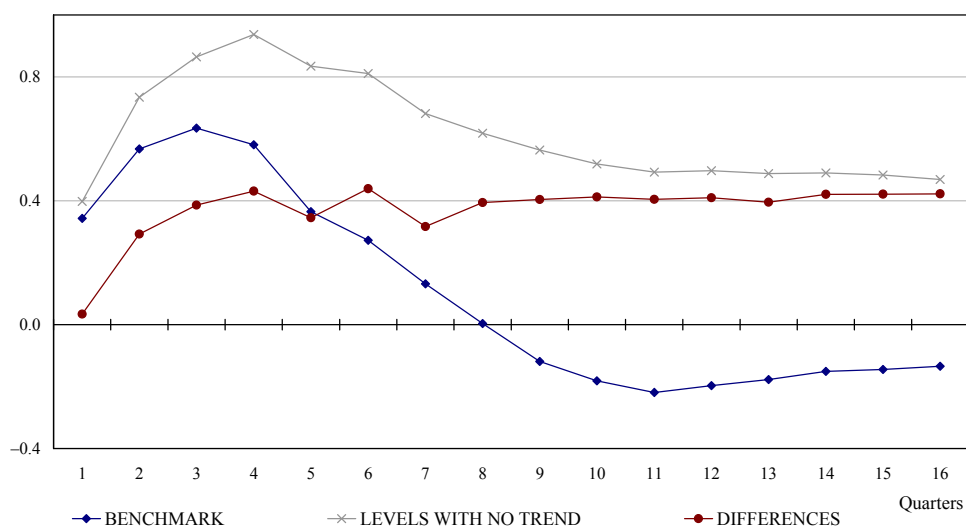


Figure 14

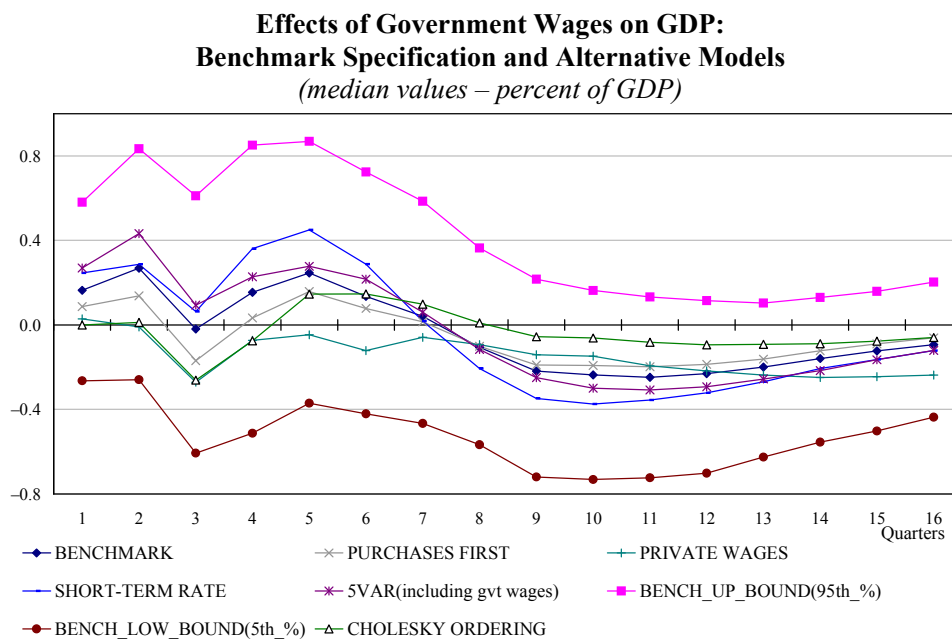


Figure 15

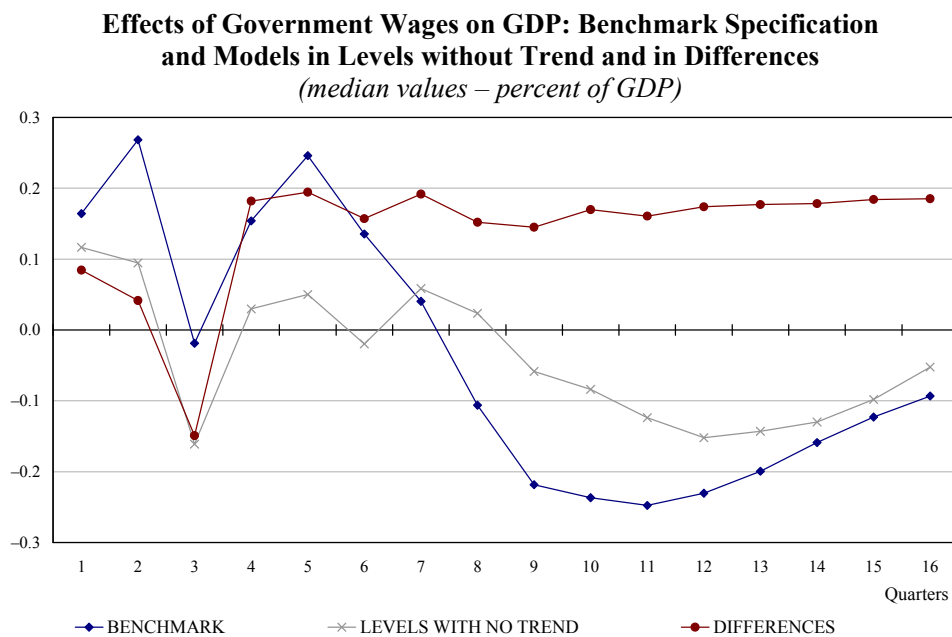


Figure 16

Effects of Government Consumption and Government Purchases+Wages on Themselves and on GDP: Median Values
(5-variable model – percent of GDP)

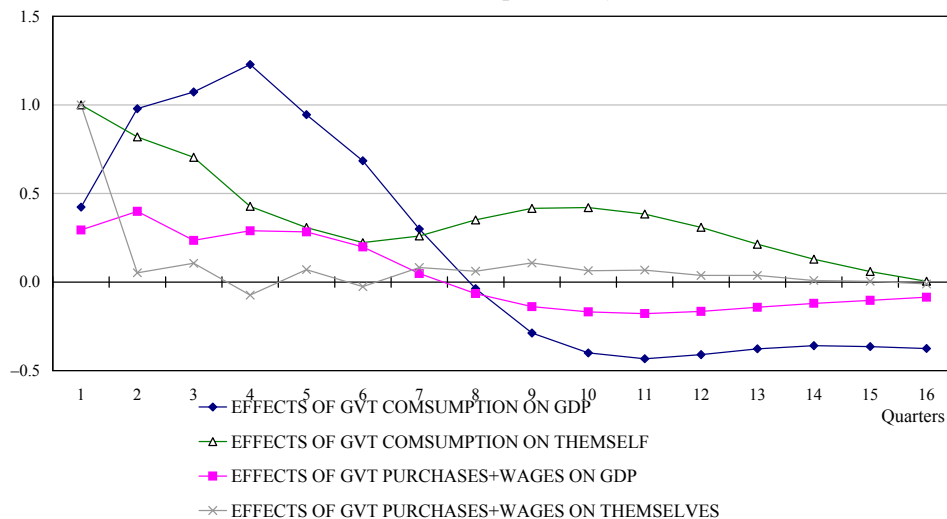


Figure 17

Effects of Government Consumption and Government Purchases+Wages on GDP: Cumulative Multipliers
(5-variable model)

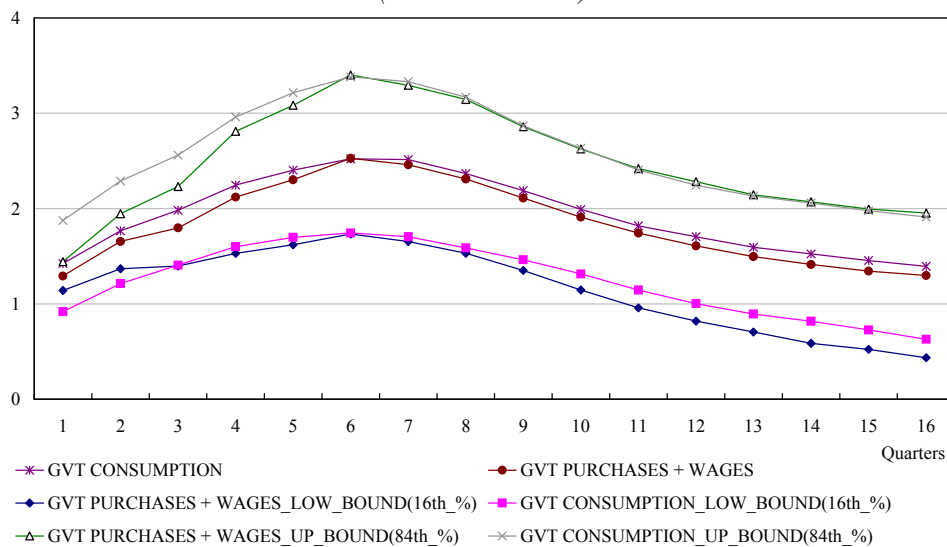


Figure 18

**Effects of Government Purchases on: GDP (Benchmark Specification),
Private Consumption, Private Investment and Total Private Demand**
(6-variable model – percent of GDP)

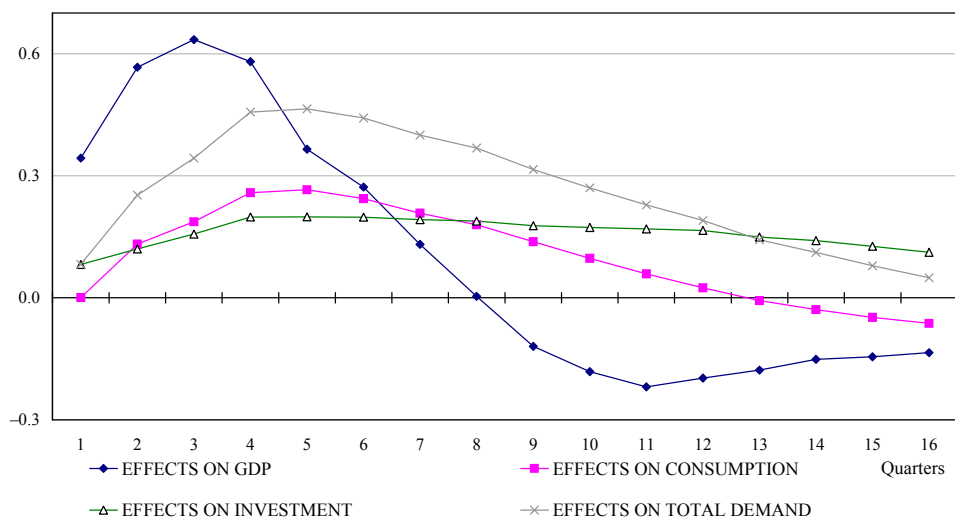


Figure 19

**Effects of Government Wages on: GDP (Benchmark Specification),
Private Consumption, Private Investment and Total Private Demand**
(6-variable model – percent of GDP)

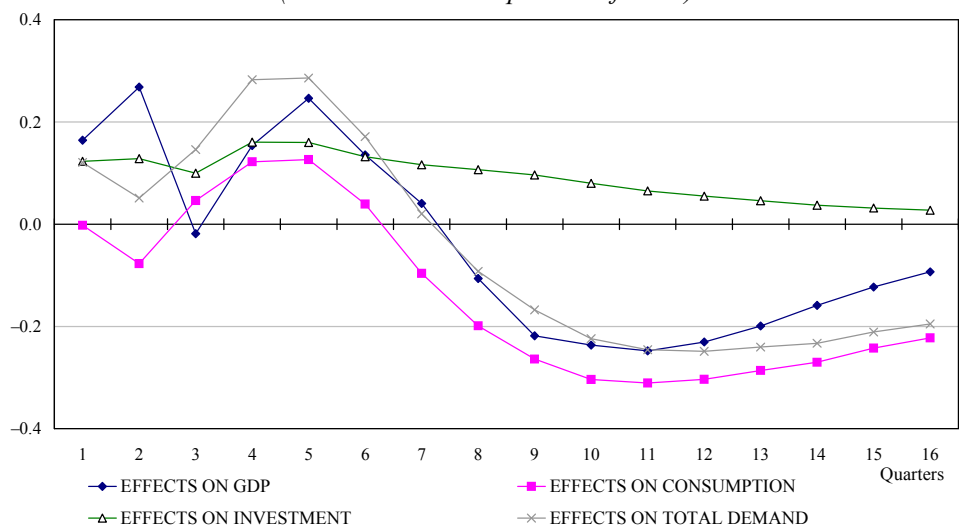


Figure 20

**Effects of Government Purchases on Private Employment:
Median and Upper and Lower Bounds**
(benchmark specification – percent change)

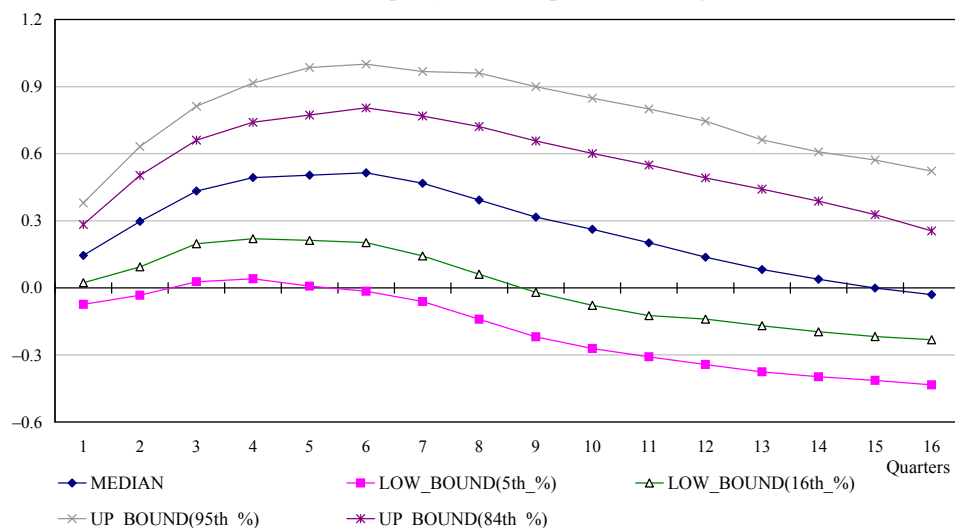


Figure 21

**Effects of Government Wages on Private Employment:
Median and Upper and Lower Bounds**
(benchmark specification – percent change)

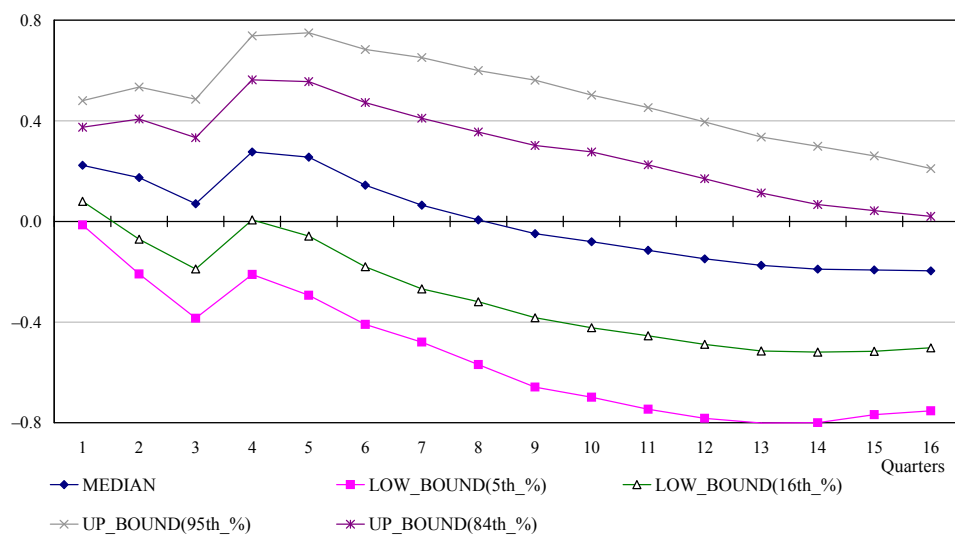


Figure 22

**Effects of Government Purchases on Inflation:
Median and Upper and Lower Bounds**
(benchmark specification – percent change)

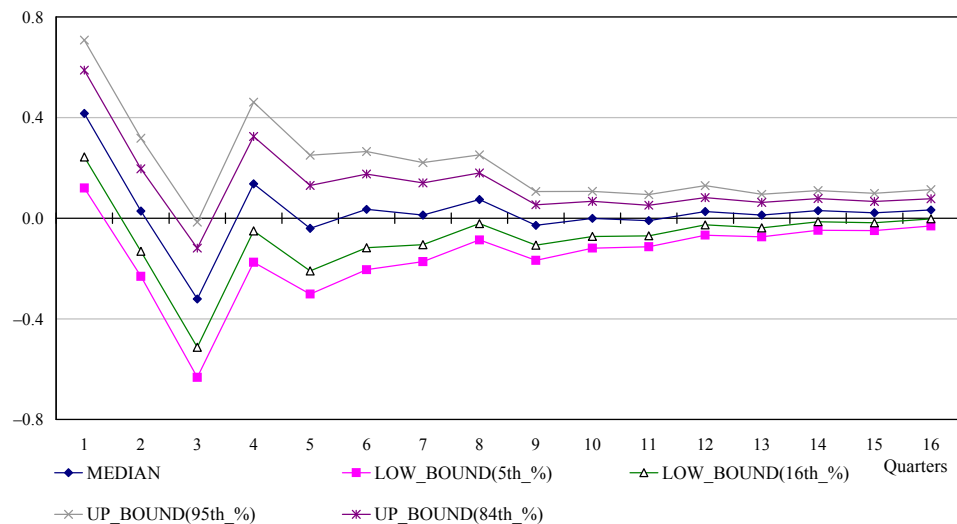


Figure 23

**Effects of Government Wages on Inflation:
Median and Upper and Lower Bounds**
(benchmark specification – percent change)

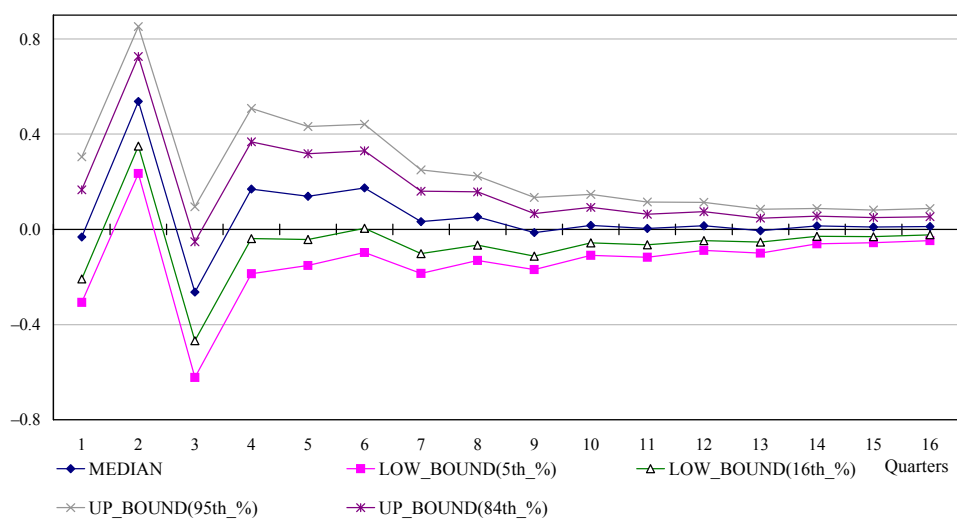


Figure 24

**Effects of Government Purchases on Long-term Interest Rates:
Median and Upper and Lower Bounds**
(benchmark specification – percent values)

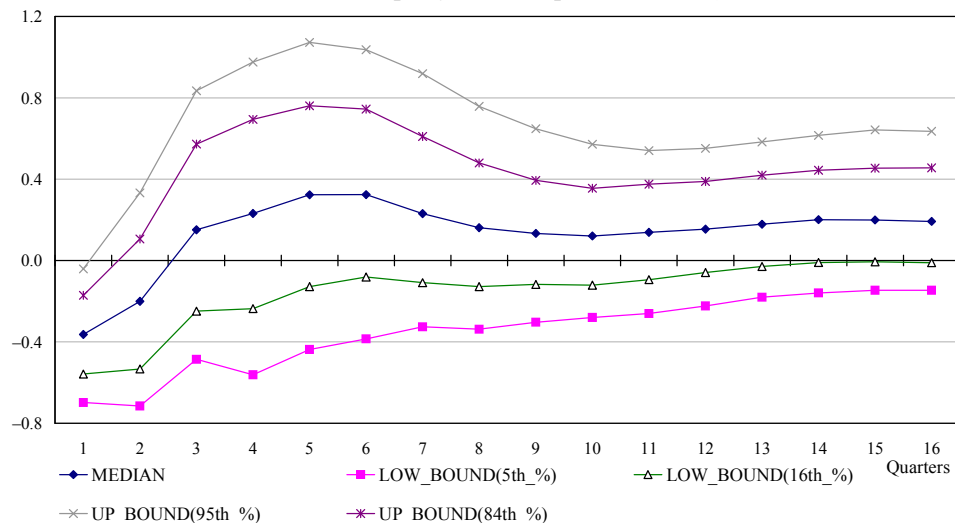


Figure 25

**Effects of Government Wages on Long-term Interest Rates:
Median and Upper and Lower Bounds**
(benchmark specification – percent values)

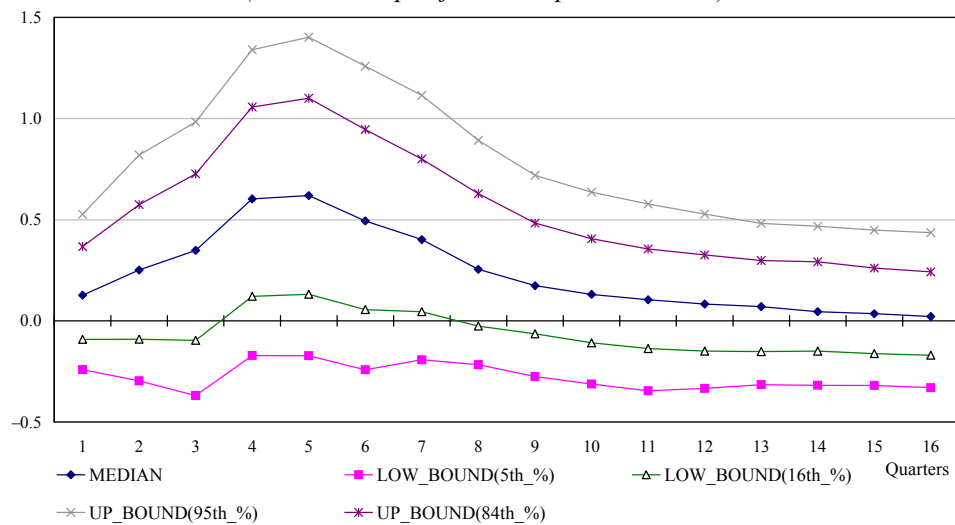
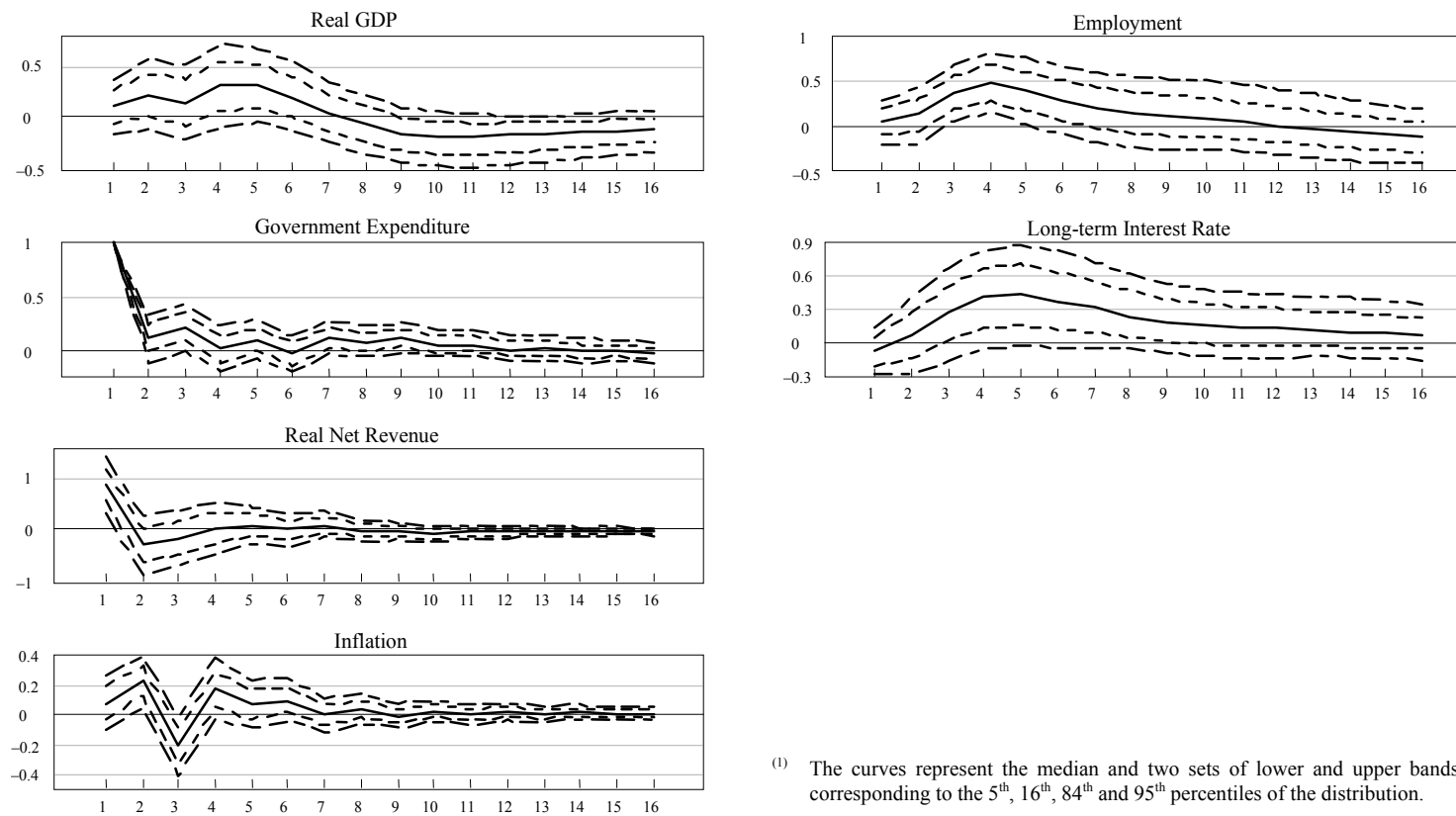


Figure 26

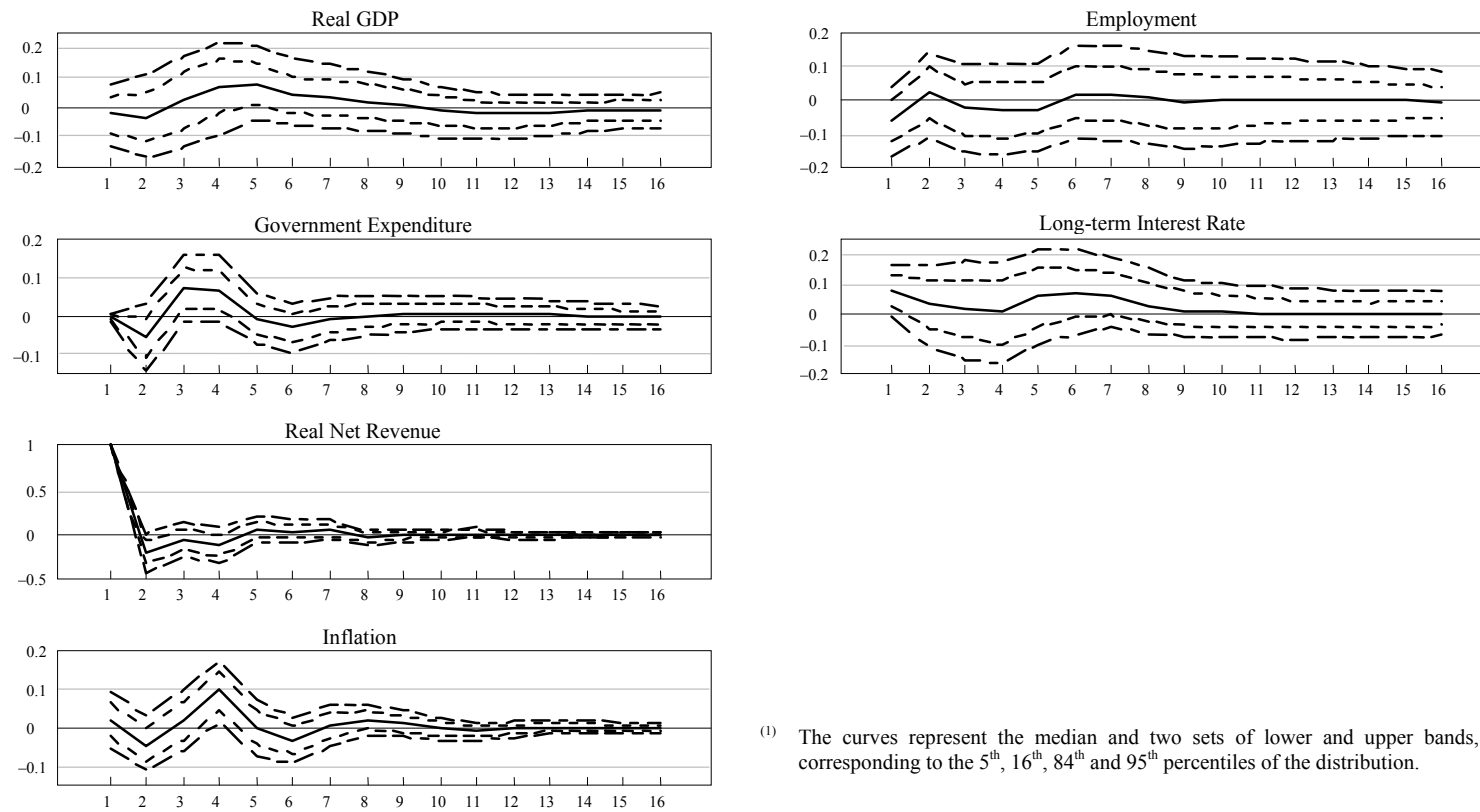
Impulse Responses to a Positive Government Expenditure Shock⁽¹⁾
(6-variable model)



⁽¹⁾ The curves represent the median and two sets of lower and upper bands, corresponding to the 5th, 16th, 84th and 95th percentiles of the distribution.

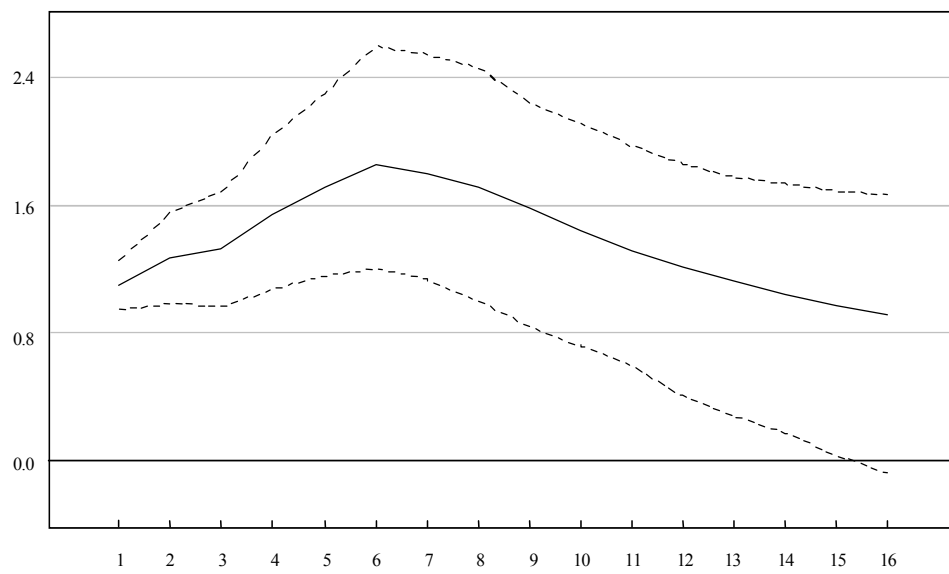
Figure 27

Impulse Responses to a Positive Net Revenue Shock⁽¹⁾
(6-variable model)



⁽¹⁾ The curves represent the median and two sets of lower and upper bands, corresponding to the 5th, 16th, 84th and 95th percentiles of the distribution.

Figure 28

Cumulative Multiplier
(6-variable model)

REFERENCES

- Alesina, A. and R. Perotti (1997a), "Fiscal Adjustments in OECD Countries: Composition and Macroeconometric Effects", IMF, Working Paper, No. 96/70.
- Banca d'Italia (1986), "Modello trimestrale dell'economia italiana", Banca d'Italia, Temi di discussione, No. 80.
- Biau, O. and E. Girard (2005), "Politique budgétaire et dynamique économique en France: l'approche VAR structurel", *Economie et Prevision* (forthcoming).
- Blanchard, O. and R. Perotti (2002), "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output", *Quarterly Journal of Economics*, Vol. 117, No. 4, pp. 1329-68.
- Canova, F. and E. Pappa (2002), "Price Dispersions in Monetary Unions: The Role of Fiscal Shocks", paper presented at the CEPR-INSEAD conference on "Political, Institutional and Economic Determinants of Fiscal Policy", Fontainebleau, 7-10 November.
- Church, K.B., J.E. Sault, S. Sgherri and K.F. Wallis (2000), "Comparative Properties of Models of the UK Economy", *National Institute Economic Review*, No. 171, January.
- Edelberg, W., M. Eichenbaum and J. Fisher (1999), "Understanding the Effects of a Shock to Government Purchases", *Review of Economics Dynamics*, Vol. 2, No. 1, pp. 166-206.
- Fatás, A. and I. Mihov (2001), "The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence", Center for Economic Policy Research, Discussion Paper, No. 2760.
- Favero, C. (2002), "How Do European Monetary and Fiscal Authorities Behave?", Center for Economic Policy Research, Discussion Paper, No. 3426.
- Galí, J., J.D. López Salido and J. Vallés (2003), "Understanding the Effects of Government Spending on Consumption", Documento de Trabajo, No. 321, Madrid, Banco de España.
- Hemming, R., M. Kell and S. Mahfouz (2002), "The Effectiveness of Fiscal Policy in Stimulating Economic Activity – A Review of the Literature", IMF, Working Paper, No. 02/208.
- Henry, J., P. Hernández de Cos and S. Momigliano (2004), "The Short-term Impact of Government Budgets on Prices: Evidence from Macroeconometric Models", ECB, Working Paper, No. 396.
- Levin, J. (1993), "The Cash Deficit: Rationale and Limitations", in M. Blejer, I. and A. Cheasty (eds.), *How to Measure the Fiscal Deficit: Analytical and Methodological Issues*, IMF, Washington.

- Marcellino, M. (2002), "Some Stylized Facts on Non-systematic Fiscal Policy in the Euro Area", Center for Economic Policy Research, Discussion Paper, No. 3635.
- Mountford, A. and H. Uhlig (2002), "What Are the Effects of Fiscal Policy Shocks?", Center for Economic Policy Research, Discussion Paper, No. 3338.
- Neri, S. (2001), "Assessing the Effects of Monetary and Fiscal Policy", Banca d'Italia, Temi di discussione, No. 425, November.
- Perotti, R. (2001), "What Do We Know About the Effects of Fiscal Policy?", in M. Bordignon and D. da Empoli (eds.), *Politica fiscale: flessibilità dei mercati e crescita*, Milano, Franco Angeli.
- (2002), "Estimating the Effects of Fiscal Policy in OECD Countries", ECB, Working Paper, No. 168.
- Ramey, V. and M. Shapiro (1997), "Costly Capital Reallocation and the Effects of Government Spending", Carnegie Rochester Conference on Public Policy.
- Sims, C., A. and T. Zha (1999), "Error Bands for Impulse Responses", *Econometrica*, Vol. 67, No. 5, pp. 1113-55.
- Terlizzese, D. (1993), "Il modello econometrico della Banca d'Italia: una versione in scala 1:15", in Banca d'Italia (ed.), *Ricerche quantitative per la politica economica*, Vol. I, Roma.

PUBLIC EXPENDITURE AND EMERGING FISCAL POLICY SCENARIO IN INDIA

*Ranjit Kumar Pattnaik, Dhritidyuti Bose, Indranil Bhattacharyya and Jai Chander**

1. Introduction

This paper seeks to analyse the role of public expenditure policy and management as key instruments in the pursuit of the fiscal policy goals in India. The role of public expenditure in the fiscal policy goals of growth, equity and stability, has varied across different phases of economic development in India. The historical importance of public expenditure lies in the mixed economy model adopted after Independence in India whereby the government assumed the primary responsibility of building the capital and infrastructure base to promote economic growth. The concerns regarding equity and poverty alleviation after two decades of Independence added another important dimension to public expenditure in terms of redistribution of resources. The inadequate returns on capital outlays and the macroeconomic crisis of early Nineties arising out of high fiscal deficit shifted the focus of public expenditure to efficiency in its management for facilitating adequate returns and restoring macroeconomic stability. While the fiscal policy goal of stability could be achieved, the *modus operandi* of public expenditure management through curtailing capital expenditure raised concerns about infrastructure investment and its impact on the long-term growth potential of the economy. Furthermore, stagnating revenue mobilisation in particular and some upward movements in expenditures led to a reversal of the fiscal stabilisation process since the second half of the Nineties. An improved fiscal performance during 2003-04 engendered by containment of the non-plan expenditures and supported by high revenue mobilisation on the back of buoyant real activity paved the way for renewed commitment towards fiscal consolidation in India.

Against this backdrop, this paper would analyse the behaviour of public expenditure aggregates and their management in India in the context of fiscal policy objectives set out by the government. Accordingly, the paper is schematised as follows: After setting out the theoretical underpinnings and an analytical framework of public expenditure management in Section 2, Section 3 would discuss the imperatives to fiscal policy reforms and public expenditure policy and management in India. Section 4 would analyse the trends in the government expenditure aggregates in India followed by an evaluation of their behaviour in the context of fiscal policy goals in Section 5. The recent developments in the government finances in India along with an assessment of the emerging fiscal scenario are discussed in

* Department of Economic Analysis and Policy, Reserve Bank of India.

The views expressed in this paper are those of the authors and do not represent the views of institution to which they belong.

Section 6. Section 7 presents some future perspectives in the management of public expenditure in India. Section 8 presents few concluding observations.

2. A framework for public expenditure analysis

2.1 Theoretical underpinnings

Traditionally public expenditure represents a form of government intervention designed to promote allocative efficiency through correction of market failures, redistribute resources equitably and promote economic growth and stability (Musgrave, 1959). The redistributive powers of the state, through public expenditure, emanates from the normative arguments in favour of greater equality (Marshall, 1950; Rawls, 1971).

The level and composition of public expenditure can have conflicting implications for diverse macroeconomic considerations, *viz.*, growth, inflation, and the Balance of Payments. Balance of Payments and inflation problems often require a fiscal contraction to contain aggregate demand, and the experience has been that adjustment has tended to affect the expenditure side of the budget more than the revenue side. Moreover, in face of the constraint imposed by high interest payments, especially in the heavily indebted countries, and the resilience of some other current outlays such as defense and social spending, capital spending, in general, and infrastructure projects, in particular, have borne the burden of expenditure adjustment. While halting or delaying public investment projects may offer sizeable immediate dividends for public finances, the Balance of Payments, and inflation, a price could be paid in the longer term in the form of lower growth, especially if more productive investments are affected.

Structural policies are a response to the need to ensure that, while stabilisation measures may be harmful to economic growth in the short term, the longer-term growth objective is not jeopardised. While this requires sound stabilisation policies, it is also dependent upon policies to stimulate the supply side of the economy. As regards public expenditure, the challenge is to secure a level of spending consistent with macroeconomic stability, and then restructure expenditure as part of a systemic reform package aimed at raising the sustainable growth rate by promoting domestic saving, productive investment, and the efficiency of resource allocation. However, the notion of sustainability extends beyond macroeconomic stability; growth may be stable, but if little progress is made in terms of equity gains, which are also a function of public expenditure, this may undermine the social and political sustainability of growth.

In the Keynesian paradigm, public expenditure promotes growth through upward shift in real effective demand in an economy operating at less than full employment level. Empirically, however, it has been found that the link between public expenditure and growth is contingent upon the nature of expenditure. Typically, studies have found that current spending does not have any significant influence on the real growth of the economy whereas capital spending particularly

on health, housing and welfare has significant impact on growth (Diamond, 1989). Similarly, in the framework of endogenous growth theory (Romer, 1994), public spending on investments in areas like infrastructure, human capital, science and technology exerts positive influence on economic growth (Tanzi and Zee, 1997).

Traditional demand management programmes typically focus on the size rather than the structure of reduction in deficit, *i.e.* the quantity of adjustment rather than its quality. Tanzi (1987) has argued that a good stabilisation programme must be implemented with fiscal measures, which are durable and efficient, and if attention is not paid to this, stabilisation programme may achieve successes, which are only short lived. Furthermore, if fiscal adjustment is carried out with well-chosen specific measures, it may induce an important supply response in the economy to reduce the magnitude by which the fiscal deficit would need to be contained. Tanzi clearly distinguishes between a microeconomic approach and macroeconomic approach to stabilisation programme. The former refers to an approach, which explicitly recognises both demand and supply management, while the latter refers to demand management alone. When the focus is only on demand management, whether a country reduces its fiscal deficit by raising revenue or by cutting expenditure is inconsequential. The observance of the fiscal ceilings is the most essential fiscal element of such a programme.

The theory of “fiscal federalism” argues that because the lower levels of government are constrained in their macroeconomic policies (since monetary policy is centralised), the central government should have the basic responsibility for macroeconomic stabilisation, such as using the central budget to alleviate demand shocks (Oates, 1972, 1999). Local governments, in contrast, should be responsible for providing public services and redistributing incomes within their jurisdiction, according to the particular political preferences of their constituents. In this regard, budgetary expansion can be restricted by institutional mechanisms. For instance, a balanced-budget rule, like the proposed “balanced-budget amendment” in the US or the expenditure ceiling in the EU, prevents expenditure from being expanded without commensurate increase in revenue. If revenue cannot be increased, changes in the budget can only occur through reallocation of expenditure from one programme to another.

2.2 *An analytical framework*

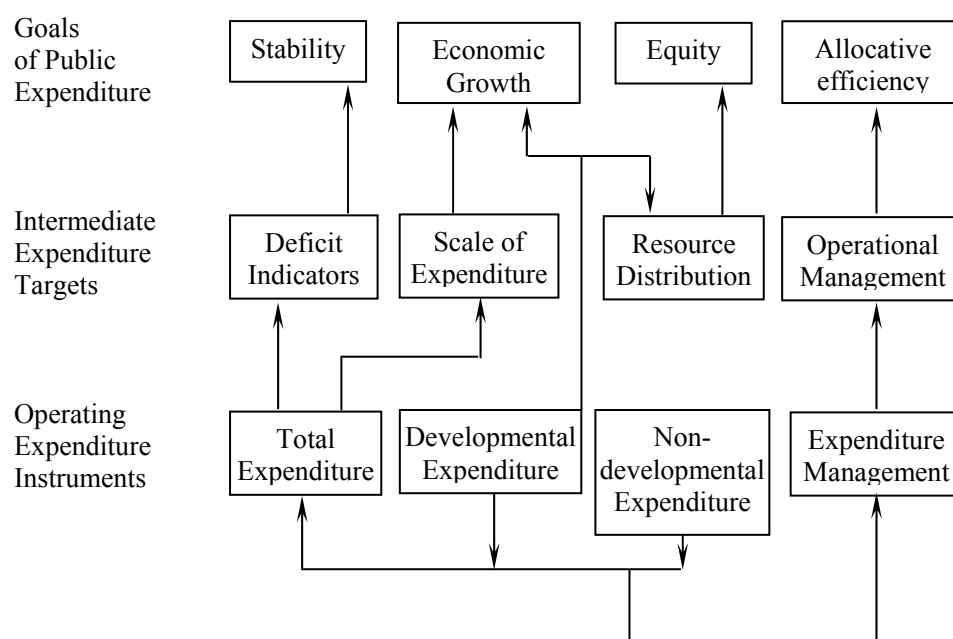
Fiscal policies across economies, while shaped by country-specific histories, can nevertheless be mapped generally into a standard fiscal framework. Typically, fiscal policy sets growth, stability and equity as the goals where public expenditure management is one of the main operating instruments in pursuing these goals. In this pursuit, public expenditure management plans to achieve intermediate targets set for overall expenditure control, strategic resource allocation as per the policy priorities and efficient, effective and responsive operational management of expenditure.

With a view to understand as to how public expenditure management serves as a central instrument in pursuit of fiscal policy goals, it is useful to analytically classify the various components of government expenditure in terms of their influence on various segments of economy. The government expenditure typically consists of expenditure on general, social and economic services. In practice, these expenditures are also classified under current and capital heads where current expenditure represents the consumption and capital expenditure represents asset creation by the government. Alternately, the government expenditure can also be classified in terms of developmental and non-developmental categories so as to assess their welfare impact. The developmental expenditure mainly includes spending on economic services (agriculture, industry, energy, communication, transport, science, technology and environment) and social services (education, health, employment, nutrition, housing and others). The remaining categories such as government administration, interest payments, pensions, defence and other non-productive services constitute non-developmental expenditure.

Given the above classification of government expenditure, it is possible to identify the role of each of the above components of expenditure towards achievement of the fiscal policy goals through the operation of intermediate targets as schematised in Exhibit 1. It may be noted, however, that the interrelationships shown in the exhibit is a simplified framework just indicating directions where the responsiveness of fiscal policy goals is more to intermediate targets and expenditure policy operating instruments. The economic growth is normally more responsive to developmental expenditure, in general, and capital outlays, in particular. The achievement of equity goal depends on the social expenditure such as poverty alleviation, education, health and employment generation which also forms developmental expenditures. Overall government expenditure affects macroeconomic stability through movements in deficit indicators. Thus, government expenditures have to be balanced so as to pursue the goals of growth and equity while at the same time keeping a vigil on the overall size of the expenditure to contain the deficit within levels consistent with macroeconomic stability.

In the above context, it may be noted that the public expenditure *policy* essentially sets out the “goals” to be achieved while the management of public expenditure is instrumental in nature and focuses on “how” to achieve these goals. In terms of the framework devised by Premchand (2000), the objectives of public expenditure management, in general, can be schematised as follows (Exhibit 2).

The evolutionary pattern of the public expenditure management system in the early phase of development typically boils down to maximising the growth through higher allocations towards capital formation. The equity concerns in the growth process call for more spending on social sectors. These expenditure responsibilities are often met from the borrowed resources which creates a vicious cycle of debt, interest payments, deficit, and further debt. These dynamics indicate the unsustainability of the public finances which may spill over to adversely affect overall macroeconomic stability. With a view to break this vicious cycle, public expenditure management system need to be designed in an efficient and congruent

Exhibit 1**Fiscal Policy Operating Procedure and Public Expenditure**

manner where all the objectives of fiscal policy are adequately addressed through a coherent policy package.

It may also be noted that while greater centralisation improves revenue mobilisation, expenditure management tends to be more effective with greater decentralisation. It follows, therefore, that the imposition of expenditure constraint needs to be based on bottoms-up rather than top-down approach, although the former needs to be consistent with the overall framework of expenditure management. In terms of sequencing, fiscal discipline or overall expenditure control needs to come first followed by resource allocation and operational efficiency objectives. One of the strategies followed to institutionalise expenditure management is by setting formal rules such as fiscal responsibility legislations put in place in a number of countries. While expenditure management normally yearns to follow the formal rules, a key part of expenditure management is to also recognise informal rules. It may be noted in this context that the implementation of such rules may often pose a policy dilemma where cutbacks in capital expenditures may adversely affect economic growth which in turn contributes to reduction in revenue leading to larger deficit. It is important, therefore, to note that the policy formulations should not be such that remedy would be worse than the disease (Pattnaik, 1996).

Exhibit 2

Effective Government	<ul style="list-style-type: none"> • Provision of services to the public within specified time and cost schedule • Achievement of allocative and technical efficiency • Ensuring that budgetary intent and outcome are congruent • Matching outlays with resources • Provision of management flexibility to the implementation agencies
Responsive Government	<ul style="list-style-type: none"> • Achievement of macroeconomic stability • Responsiveness to changing economic situations • Responsiveness to the changing needs of the client/consumer • Provision of a utilisation culture in <i>lieu</i> of a spending culture
Accountable Government	<ul style="list-style-type: none"> • Accountability for results • Provision of accurate information on the status of government finances

The public expenditure management, thus, has to follow some canons of public finance whereby sustainability is ensured by bringing the key deficit indicators within some thresholds. Ideally, revenue surplus should finance the capital and social outlays keeping the budget in balance. To achieve this implies continuous efforts to contain the magnitude of current expenditure, particularly unproductive ones, and once revenue surplus is achieved, the developmental and social spending should be enhanced keeping human development as one of the key priorities.

In the context of human development, a key role of public expenditure is to alleviate poverty. This becomes even more critical in the light of multidimensional sources of poverty which may call for multidimensional solutions (Sachs, 2005). Thus, clean water, productive soils and a functioning good health care system are just as relevant to development as any other economic issue. In this regard, Sachs has advocated a new method called “clinical economics”, to underscore the similarity between good development economics and good clinical medicine. In this regard, it has been argued that the contemporary problems of poverty and human development call for “clinical” solutions where the policy measures are taken on the basis of proper diagnosis.

3. Imperatives to fiscal policy reforms and public expenditure management in India

Traditional budget making in the Indian context favours a revenue account surplus and deficit in capital account and lower overall balance. The implicit logic behind a deficit in capital account of the government budget is that capital expenditure is growth supportive. However, the capital account has been continuously in surplus since fiscal 1982-83 reflecting the emergence of large revenue deficit and decline in capital outlays. Moreover, the average returns on the capital outlays have been found to be lower than the average rate at which funds have been borrowed to finance the capital outlays (Pattnaik, 1996).

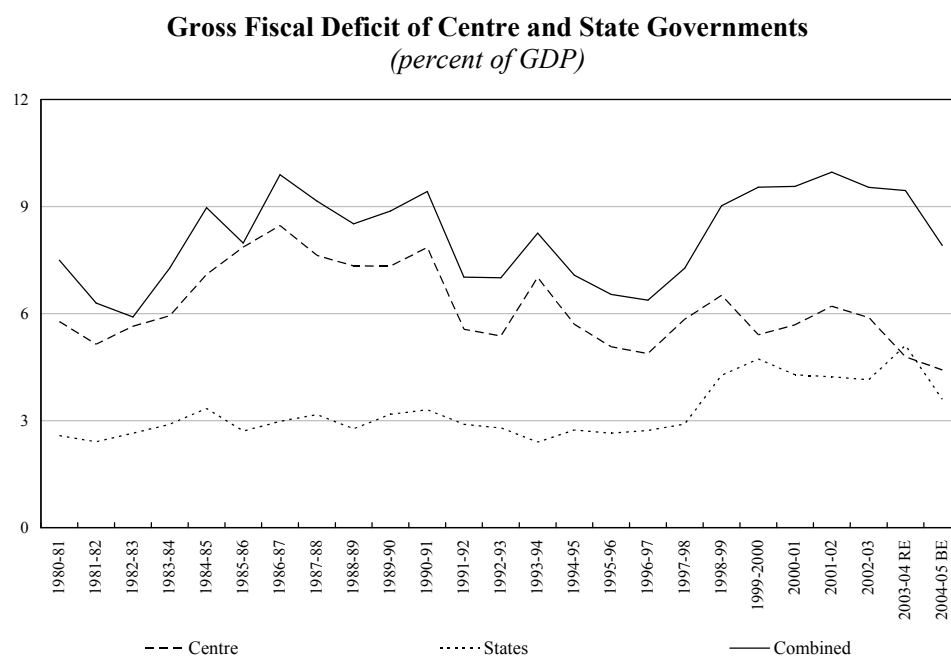
3.1 Need for prudent expenditure management in India

The cumulative impact of these developments was reflected in the deterioration of fiscal deficit of the central government during the late Eighties. On the other hand, in the face of borrowing restrictions, the expenditure of the state governments grew more or less in consonance with revenue mobilisation thereby preventing any unabated rise in deficits. Nevertheless, due to a rise in the centre's deficits, the combined deficit of the centre and the state governments increased significantly from 7.5 per cent of GDP in 1980-81 to 9.4 per cent in 1990-91 (Figure 1).

A closer analysis of the central government finances reveals that a widening of about two percentage points of GDP in gross fiscal deficit (GFD) emanated from the revenue deficit which widened from 1.4 per cent of GDP in 1980-81 to 3.3 per cent in 1990-91. The key factor behind the worsening of revenue and fiscal deficits was increase in interest payments which registered a rise of almost two percentage points of GDP over the same period. This reflected a vicious cycle of widening deficit, larger borrowings, increasing debt stocks, higher interest payments and further widening of deficit. The debt stock of the central government over the Eighties increased by around 14 percentage points of GDP to reach 55.3 per cent of GDP in 1990-91. In respect of state governments, though the revenue deficit widened by almost two percentage points of GDP, the rise in fiscal deficit could be contained at below one percentage point of GDP mainly due to compression in capital expenditure. The main factor behind the widening of revenue deficit of the states was the increase in non-interest revenue expenditure. The rise in interest payments was, however, of a lower order as they had limited and restricted access to borrowed resources.

A large and growing fiscal deficit of the government had macroeconomic implications in terms of sustainability of growth process. The mounting fiscal deficit in the Eighties was increasingly financed by the draft of financial surpluses of the households through statutory preemptions of resources from the financial sector at sub-market clearing rates. The Statutory Liquidity Ratio (SLR), which represents statutory investments by banks in government securities, was raised to its peak level

Figure 1



of 38.5 per cent by 1990. Furthermore, the tendency of automatic monetisation of the fiscal deficit compromised effectiveness of monetary policy and fuelled inflation. This eventuated into a macroeconomic crisis spilling over to a balance of payments crisis in 1990-91 and thereby necessitating the measures towards fiscal consolidation.

The strategy of fiscal consolidation initiated in the early Nineties was a mix of measures towards revenue augmentation through tax reforms and expenditure compression. Given the limited improvement in revenue mobilisation, the fiscal consolidation during the first half of the Nineties was essentially achieved through expenditure containment. A series of expenditure management measures to check the built-in growth of expenditures as well as to bring about a structural change in the expenditure composition were announced in successive budgets of the central government since the early Nineties. The process included subjecting ongoing schemes to zero-based budgeting, rationalisation of manpower requirements in the government departments, review of all subsidies so as to introduce cost-based user charges wherever feasible, a review of the budgetary support to autonomous institutions and encouragement to PSUs for greater internal generation of resources.

Notwithstanding the wide range of measures, the expenditure compression was mainly effected in the capital expenditure. Notably, the capital outlay of the

centre declined from 3.0 per cent of GDP in 1986-87 to 2.1 per cent in 1990-91 and further to 1.0 per cent in 1996-97. Since then, there has been a significant reversal of the trend with a renewed focus of expenditure management. A major initiative towards institutionalising an expenditure management system was through constitution of Expenditure Reforms Commission (ERC) to look into various areas of expenditure correction. These included creation of national food stock along with cost minimisation of buffer stock operations, rationalisation of fertiliser subsidies through phased dismantling of controls, imposing a ceiling on government staff strength through a two-year ban on new recruitment, introduction of voluntary retirement scheme and redeployment of surplus staff. Endeavour was also made to promote transparency and curb growth in contingent liabilities by setting up the Guarantee Redemption Fund. As a part of these efforts, Administered Price Mechanism (APM) in the petroleum sector was dismantled from April 2002, restriction of fresh recruitment to one per cent of total civilian staff strength over the four years was placed from 2002-03 and a new pension scheme of defined contribution for new recruits was introduced from 2003-04.

In respect of the states, the fiscal imbalances turned adverse particularly in the second half of Nineties thereby necessitating initiation of reforms during this period at the state level as well. In part, this was also necessitated by sluggish central transfers to the states, introduction of reform linked assistance as a part of Medium-term Fiscal Reform Programme and adjustment programme of some of the states as linked to borrowings from multilateral agencies. The expenditure management programmes of the states included restrictions on creation of new posts, review of manpower requirements, lowering of establishment expenses and reduction of non-merit subsidies through better targeting.

3.2 *Institutions for public expenditure management in India*

A research study, which was instituted by Japan Bank for International Cooperation, assessed the structural as well as working aspects of public expenditure management (PEM) system in India in terms of a four-stage cycle, *viz.*, from plan/programme/activity to budgeting (stage 1), from budgeting to execution (stage 2), from execution to evaluation (stage 3) and from evaluation to feedback (stage 4) (JBIC, 2001). The study commended the consultative policy formulation in the budgetary exercise in India but also noted lack of feedback on the outcome of outlays to the budget makers, the inherent policy rigidities resisting any sizeable intersectoral reallocations and absence of medium-term policies for non-plan budget items. The study also recognised the strengths of concretising outlays for the budget estimates six months' in advance, setting ceilings for non-plan and plan outlays as well as aligning investment decision making strictly as per the guidelines but notes lacunae in the form of lack of activity-wise scrutiny of the non-plan expenditure and absence of medium-term perspectives on ongoing allocations for the continuing activities. It also notes that the PEM in India has a predesigned system for monitoring physical progress of infrastructure sectors and major plan projects but

there is no monitoring of the physical progress of non-plan as well as socio-economic activities. In the case of plan outlays, physical targets are often unrealistic in relation to the financial allocations. Although there is budgeting for each activity and within each activity, different objects of expenditure are monitored through monthly accounts prepared by the Controller General of Accounts, the monitoring system seems to be accounts-oriented with weak internal auditing system. Furthermore, though the government's Programme Evaluation Organisation evaluates plan programmes and a pre-designed system exists whereby external and international donors evaluate programmes that they finance, a regular mechanism is absent for evaluating all programmes in a time bound manner.

4. Trends of public expenditure in India

The fundamental strategy for boosting growth in the Indian economy was to assign a lead role for the public sector in building the capital base of the country. The effect of Mahalanobis model, adopted in Second Five Year Plan (1955-56 to 1960-61) is visible in the capital formation in the public sector comprising central government, state governments and public sector undertakings.

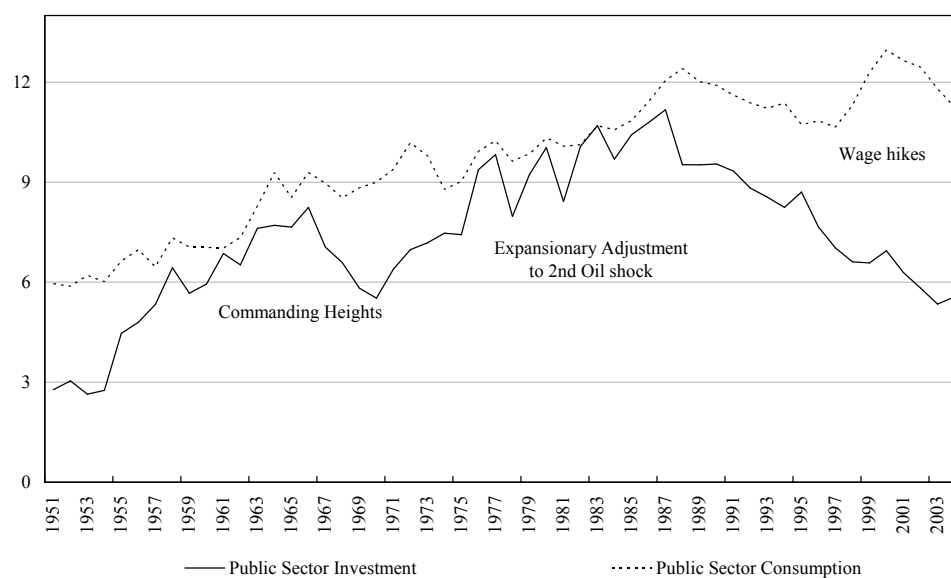
4.1 An overview of public sector investment and consumption

Public sector investment and consumption expenditure have constituted important constituents of effective demand in the Indian economy. The investment process was initiated in the planning period with the public sector being in charge of the "commanding-height" of the industrial sector, representing infrastructure, heavy industries and defence that required heavy doses of capital formation. Accordingly, public sector investment rate improved from the low level of 2.8 per cent of GDP in 1950-51 to 11.7 per cent in 1986-87 (Figure 2).

The spurt in public investment during the late Seventies reflected government's response to the second oil shock by expansionary adjustment through increased investment and reorienting investment for boosting oil production and removing infrastructural constraints. However, in the wake of two successive monsoon failures in 1986 and 1987, the government had to resort to expenditure cuts that affected capital formation. Since the mid-Eighties, the public sector capital formation slackened which, however, did not narrow the saving-investment gap of the public sector as the public sector saving deteriorated more rapidly than investment. The asset-wise distribution of public sector capital formation shows the predominance of investment in construction rather than machinery and equipment reflecting its greater accent on infrastructure (Table 1). A noteworthy feature has been a decline in the share of construction in the gross fixed capital formation in the public sector with a corresponding increase in that of machinery and equipment up to the Nineties which has somewhat reversed thereafter reflecting renewed emphasis on infrastructure.

Figure 2

Final Demand from the Public Sector
(percent of GDP)

**Table 1**

Distribution of Gross Fixed Capital Formation in the Public Sector
(percent)

	Share of Construction	Share of Machinery and Equipment
1	2	3
1950-51	73.9	26.1
1960-61	63.7	36.3
1970-71	64.1	35.9
1980-81	58.8	41.2
1990-91	50.8	49.2
2000-01	58.4	41.6
2002-03	64.8	35.2

Public sector consumption has generally shown an upward trend up to the mid-Eighties reflecting expansion of the overall government sector. Since the mid-Eighties public sector consumption have shown sporadic episodes of expansion partly due to the revisions in wages and salaries of government employees. The rise in public consumption and decline in public investment have raised some concerns regarding the sustainability of the growth process particularly in the second half of the Nineties. Such an outcome in respect of public sector outlays was reflective of the shift in government's strategy for the development and growth process whereby the role of government was rationalised so as to allow a greater role for market forces. The increasing borrowings and monetisation of the government deficits, however, had serious implications on the overall investment and growth of the economy as manifested by the macroeconomic crisis of the early Nineties. This called for fiscal consolidation leading to a series of measures in respect of expenditure as well as revenue of the government. It may be noted that the revenue enhancement was constrained by the need to align the tax rates with international standards and the fiscal correction mainly came from the expenditure side.

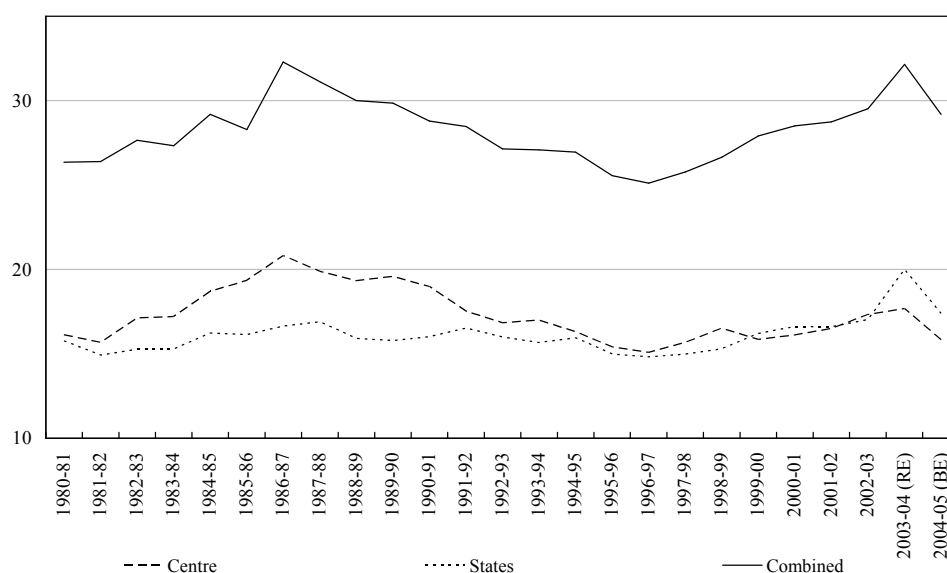
4.2 Government expenditure pattern

Government expenditure comprises expenditure on economic, social and general services. The pattern in government expenditure since the Eighties has been mainly influenced by a change in role of the government in the growth process, financing pattern of the deficits (debt and interest payments) and the need for fiscal consolidation. As noted above, the revenue mobilisation was constrained by the need for rationalisation of tax structure and aligning the tax rates with international standards. Despite the initiation of tax reforms in the early Nineties, in the Indian context, the typical "Laffer curve effect" did not fructify and expected increase in tax buoyancies did not occur. The tax-to-GDP ratio of the centre declined from an average of 9.9 per cent during the Eighties to 9.7 per cent in the first half of the Nineties. In this scenario, the only way out from the macroeconomic crisis was to undertake an expenditure compression strategy. Accordingly, the overall size of the government sector (centre and states) expenditure after reaching a peak of 32.3 per cent of GDP in 1986-87 showed a steady decline till first half of the Nineties (Figure 3). However, on account of predominance of committed expenses, curtailment could not take place in the revenue expenditure. The overall pattern in expenditure was primarily shaped by the central government while the states' expenditure remained stable at around 15-16 per cent of GDP.

As noted above, there has been a slowing down of public sector capital formation since the Eighties which is also reflected in the switch in pattern of government expenditure more towards revenue expenditure (Figure 4). The sharp increases in revenue expenditure reflected continued growth in non-plan expenditure on account of interest payments, subsidies, administrative and defence expenses.

Figure 3

Total Expenditure of Centre and the State Governments
(percent of GDP)



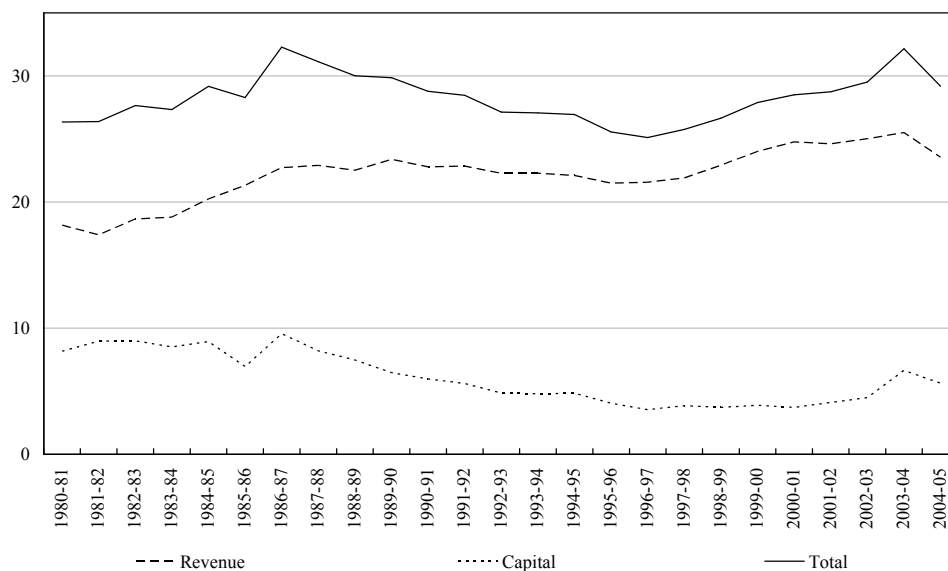
Interest Payments

The widening of fiscal deficit and consequent rise in debt stocks during the last two decades have resulted in mounting expenditure on interest payments. The debt-to-GDP ratio rose from 46.4 per cent of GDP at the beginning of the Eighties to around 62 per cent by the beginning of the Nineties. The fiscal consolidation process in the first half of the Nineties facilitated some control in the debt burden of government. However, the fiscal stress in the latter half of the Nineties again built up the debt burden with the debt-GDP ratio rising to around 77 per cent in 2003-04 (Figure 5).

As a result of the mounting debt burden of the government, interest payments registered substantial increases during the Eighties. The interest payments continued to increase despite a reduction in the combined debt-to-GDP ratio from 61.7 per cent of GDP in 1990-91 to 56.5 per cent in 1996-97, reflecting alignment of interest rates on government borrowings from sub-market to market related rates which led to a rise in the weighted average interest rate on market borrowings of both the centre and the state governments. The interest burden kept on increasing even in the second half of Nineties despite a softer interest rate regime reflecting impact of sizeable outstanding liabilities contracted at higher interest rates during the early part of the decade and also a return to rising deficits. The persistent rise in interest payments since the mid-Eighties has remained a cause of serious concern as they

Figure 4

Revenue and Capital Expenditure of Centre and the States
(percent of GDP)



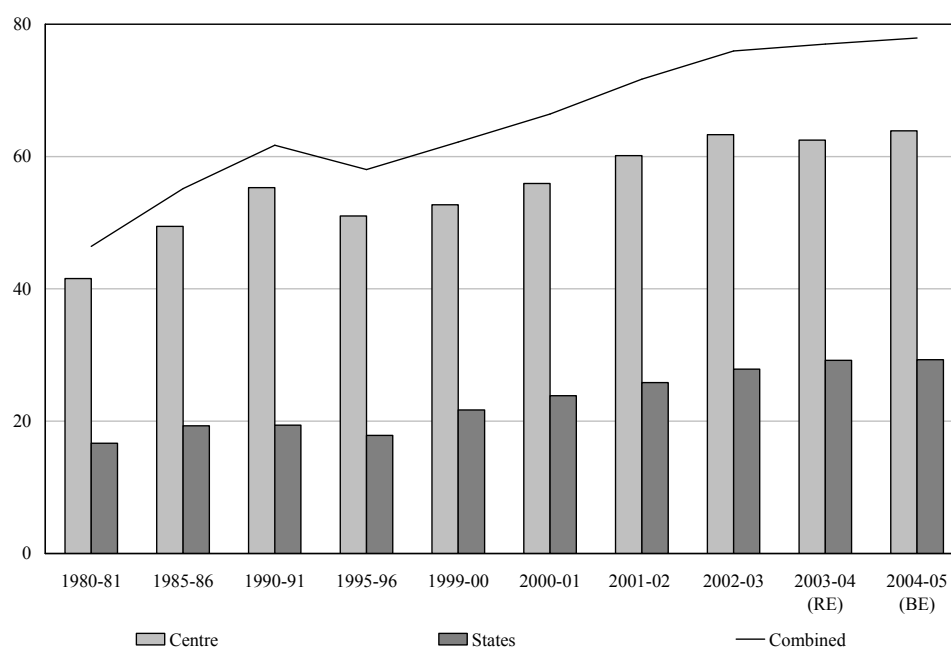
increasingly absorbed greater portion of revenue receipts (Figure 6). In respect of centre, interest payments were more than half of the revenue receipts in the late Nineties and early years of the current decade. It may be noted that the combined interest payments to revenue receipts ratio is lower than that of the centre reflecting the intergovernmental interest payments (by states to centre) which are netted out while calculating the combined interest payments.

Subsidies

Expenditure on subsidies is a crucial element of government expenditure particularly in the light of targeting poverty alleviation and the growing need to rationalise expenses for fiscal consolidation. The total burden of subsidies on government finances should take into account, in addition to the explicit subsidies, several implicit subsidies in the form of lower user charges for economic and social services provided by the government. According to an estimate, the quantum of total subsidies in India in the form of unrecovered cost of non-public goods and explicit subsidies on food and other items amounted to 4.2 per cent of GDP in 2003-04 whereas the explicit subsidies were placed at 1.6 per cent of GDP. The major element of explicit subsidies is food subsidies which is determined by the minimum support price of foodgrains, operational efficiency of public distribution

Figure 5

Debt-to-GDP Ratio of the Centre and the States
(percent of GDP)

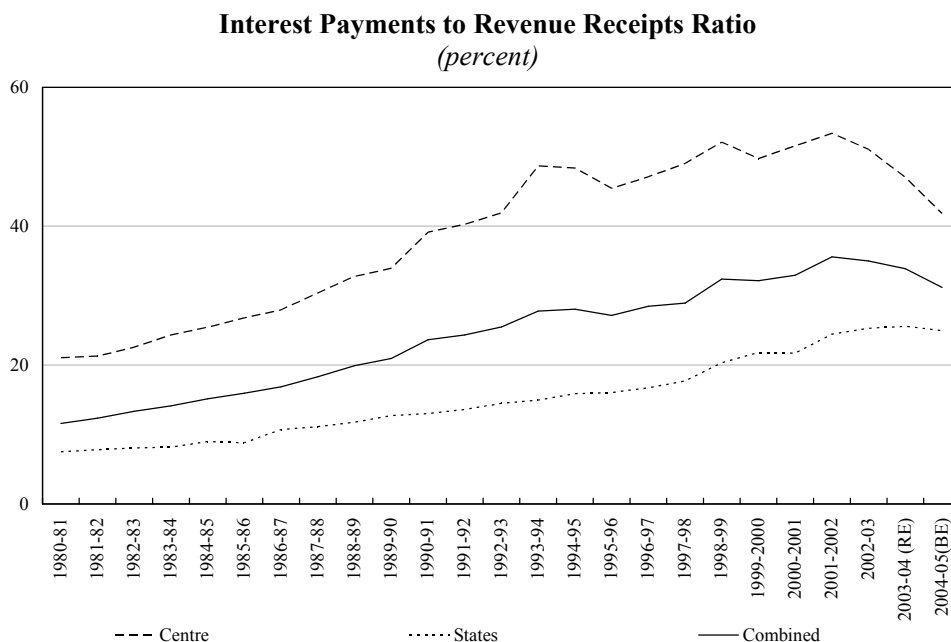


system and highly subsidised welfare schemes. The expenditure on fertilizers subsidies also formed a major chunk of total explicit subsidies; almost half of the total in 1991-92. The decontrol of fertilizers prices enabled a reduction in the expenditure on fertilizers subsidies to 0.5 per cent of GDP in 1993-94 from 0.8 per cent in the preceding year. Another major initiative, as a part of conscious efforts to curtail the expenditure on subsidies, was a phase out of the export subsidies in the beginning of the reform period. Accordingly, total explicit subsidies of the central government were reduced from 2.1 per cent of GDP in 1990-91 to 1.1 per cent by 1995-96.

Since the second half of the Nineties, however, the size of subsidies again started rising and increased to 1.6 per cent in 2003-04 from 1.1 per cent in 1995-96. With the dismantling of Administered Price Mechanism, petroleum subsidies were introduced in the union budget in 2002-03. As a result, subsidies under “others”, which include petroleum subsidies, increased substantially to 0.3 per cent of GDP in 2002-03 from a negligible amount in the preceding year (Table 2).

Downward rigidity of subsidies is a worrisome feature as their unabated growth impacts revenue deficits adversely. Among the various components, the most critical one is the food subsidy which nearly recorded a ten-fold increase during the period 1990-91 to 2003-04 on account of carrying costs of piling

Figure 6



excessive quantity of foodstocks. This has reflected the government's policy of encouraging food procurement through assured minimum support prices even while there was no commensurate off-take. The food subsidies could be an effective instrument to address the problems of economically deprived sections of the society; however, the proper targeting of such expenditure is a major concern. While data on state government subsidies are not available, the trend observed from other indicators like subsidy support to the State Electricity Boards (SEBs) shows that they also displayed similar movement. It led to misallocation of resources and also reflected inadequate revenue generating capacity through poor recovery of service costs, particularly in the non-merit goods sector.

Wages, salaries and pensions

The rising bill in respect of wages, salaries and pensions is considered to be an important element in the fiscal health of the government, particularly in the recent years. These components partly represent the committed expenditure obligations of the government. An intertemporal analysis of the behaviour of the expenditure on these components shows periodic spurts co-terminus with the implementation of wage revisions. For instance, the impact of Fifth Pay Commission Award by the central government could be seen in the rise of spending on wages,

Table 2

Central Government Expenditure on Subsidies
(Rupees crore) (percent of GDP)

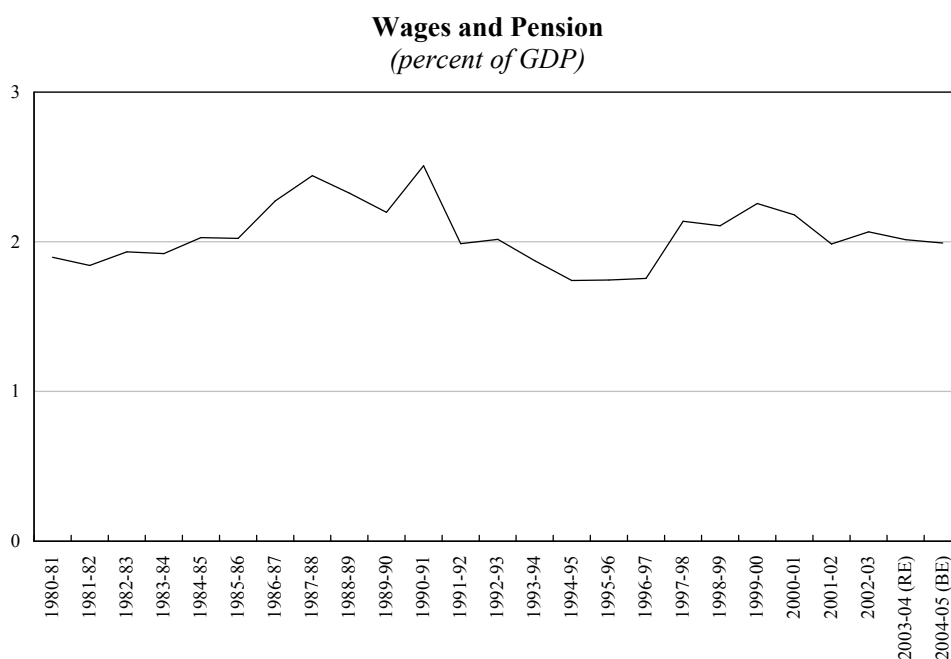
Year	Food	Fertilisers	Interest	Others	Total	Food	Fertilisers	Interest	Others	Total
1	2	3	4	5	6	7	8	9	10	11
1990-91	2,450	4,389	379	4,940	12,158	0.4	0.8	0.1	0.9	2.1
1991-92	2,850	6,100	316	2,987	12,253	0.4	0.9	0.0	0.5	1.9
1992-93	2,800	6,136	113	2,946	11,995	0.4	0.8	0.0	0.4	1.6
1993-94	5,537	4,562	113	1,393	11,605	0.6	0.5	0.0	0.2	1.4
1994-95	5,100	5,769	76	909	11,854	0.5	0.6	0.0	0.1	1.2
1995-96	5,377	6,735	34	520	12,666	0.5	0.6	0.0	0.0	1.1
1996-97	6,066	7,578	1,222	633	15,499	0.4	0.6	0.1	0.0	1.1
1997-98	7,900	9,918	78	644	18,540	0.5	0.7	0.0	0.0	1.2
1998-99	9,100	11,596	1,434	1,463	23,593	0.5	0.7	0.1	0.1	1.4
1999-2000	9,434	13,244	1,371	438	24,487	0.5	0.7	0.1	0.0	1.3
2000-01	12,060	13,800	111	867	26,838	0.6	0.7	0.0	0.0	1.3
2001-02	17,499	12,595	210	897	31,201	0.8	0.6	0.0	0.0	1.4
2002-03	24,176	11,015	750	7,592	43,533	1.0	0.4	0.0	0.3	1.8
2003-04	25,160	11,848	194	7,054	44,256	0.9	0.4	0.0	0.3	1.6
2004-05 RE	25,800	15,662	563	4,489	46,514	0.8	0.5	0.0	0.1	1.5
2005-06 BE	26,200	16,254	383	4,595	47,432	0.7	0.5	0.0	0.1	1.3

salaries and pensions to 2.3 per cent of GDP in 1999-2000 from 1.7 per cent in 1995-96 (Figure 7).

Capital Outlays

Capital outlays represent the expenditure undertaken by the government to build its investments. These investments enhance the productive capacity of the economy through provision of the infrastructure and capital goods. The actual impact of these investments on the growth process is magnified by the “crowding-in” impact on private investment. The impact of resource crunch and the need for fiscal correction has more often been in form of compression of capital outlays. Amidst the fiscal consolidation process in the early Nineties, the capital outlays of the centre declined to almost one per cent of GDP in 1996-97 from around three per cent in the mid-Eighties. There was some reversal of trend as the centre’s capital outlays are estimated to recover to two per cent of GDP in 2004-05.

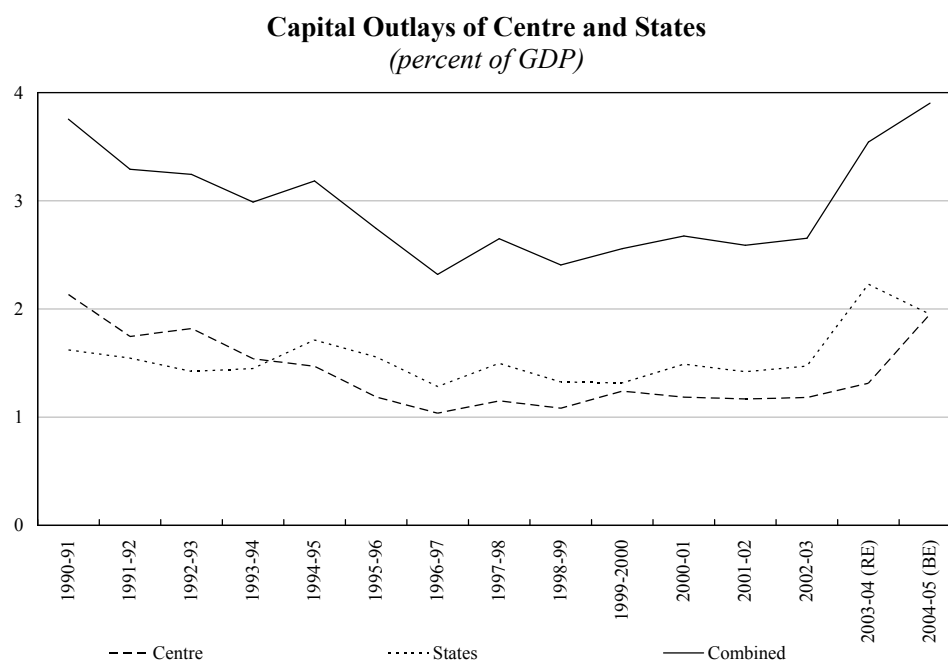
Figure 7



A noteworthy feature is that since 1993-94, the states' capital outlays have exceeded that of the centre reflecting the fiscal consolidation process launched by the centre. Furthermore, the upward kink of the state capital outlays in 2003-04, when it increased to 2.2 per cent of GDP from 1.5 per cent of GDP in 2002-03, reflected specific measures undertaken by a couple of states in respect of irrigation, flood control and energy (Figure 8).

It may be noted that since the early years of Independence, the investment profile has considerably changed. While in the earlier periods, direct capital formation from central budget used to be the norm, gradually the capital expenditure shifted to the states, central Public Sector Enterprises and other parastatals, changing the nature of government investment from direct creation of physical assets to financial assets in the form of equity and loans. Equity investments have also progressively declined as the public sector enterprises gradually began to finance their capital expenditure by raising resources directly from the market. The process received a further boost when in 1993 the government switched over to the policy of "disintermediation" of external assistance to central PSEs under which central PSEs are now allowed to access external funding directly rather than through the central budget. These developments have contributed to a decline in capital expenditure/investment of the central government (GoI, 2005).

Figure 8



Defence

The central government also undertakes revenue and capital expenditures for defence purposes which act as a public good at the national level. An analysis of the behavior of defence outlays shows a steady increase from 2.5 per cent of GDP in 1980-81 to 3.4 per cent in 1987-88 before declining thereafter to 2.2 per cent in 2003-04.

5. Public expenditure policy and fiscal policy goals

The goals of fiscal policy in India over the years have been promotion of growth, equity and stability although the relative emphasis on each of them has varied across the different phases. Typically, the growth objective was assigned the prime importance during the first four decades of the planning era. As the government's attention shifted more towards poverty alleviation and employment generation, equity became the overriding objective thereafter. With the fiscal imbalances turning unsustainable since the early Nineties, the objective of restoring stability was accorded priority and the fiscal consolidation programme was undertaken to correct the fiscal imbalances. A common feature across all these phases was the adoption of public expenditure management as the key operating

fiscal policy instrument to pursue the objectives. Accordingly, public expenditure on capital formation undertook the responsibility of commanding heights to foster economic growth during the take-off phase in early part of the planning era. The shift in orientation of fiscal policy towards taking direct measures for addressing social and equity objectives reflected the concerns about the effectiveness of the “trickle-down” theory of growth strategy. Accordingly, public expenditure policy had to be reoriented towards undertaking of social expenditure in terms of direct measures on poverty alleviation and employment generation. In respect of capital outlays, the focus was shifted towards improving efficiency of their utilisation for capital formation and growth. Amidst the initiation of fiscal consolidation in the Nineties, however, expenditure compression measures had to bear the major burden of sharing the fiscal correction which led to a decline in capital outlays as a proportion of GDP.

5.1 Public expenditure and growth

Economic growth has been one of the abiding goals of fiscal policy in India and public expenditure management has been one of the key fiscal policy instruments to attain it. Empirical studies have, however, come out with debatable and competing results about the relationship between the two. Some studies have found a negative impact of government spending on output growth and, therefore, advocated small government sector for faster growth (Barro, 1991). On the other hand, there are studies, which distinguished government expenditure into government consumption and government capital accumulation and have found that government capital stock had a positive impact on productivity and growth (Ram, 1986 and Aschauer, 1989). It may also be noted that empirical support of capital expenditure leading to increase in growth has not only been debated in terms of disputes pertaining to classification between consumption and investment but also on the basis of counter intuitive results found in some studies that productive expenditures, when used in excess, turn unproductive and that several components of current expenditure, such as operations and maintenance may have higher rates of return than capital expenditure (Deverajan, Swaroop and Zou, 1996). In this context, a better classification of public expenditure would be in terms of dividing it into productive (growth inducing) and non-productive (growth-retarding) categories (Tanzi and Zee, 1997). In the case of India, studies have found a stable long run relationship between public sector expenditure and national income with the causality running strictly from the former to the latter, although in the short-run there is a trade-off between growth in public expenditure and income (Khunderakpam, 2003).

In India, it is observed that gross capital formation in the public sector (GCFPub) is positively related to gross domestic product (GDP) (at factor cost). An investigation of the relation between the two indicates that the elasticity of overall income with respect to public investment of the preceding year works out to about 0.90 over the period 1950-51 to 2003-04. A noteworthy feature, however, is that this

is estimated to increase from 0.79 during the pre-reform period (1950-91) to 1.42 during the reform period so far (1992-2004) (Exhibit 3). The benefits of the capital stock accumulation built up over the years are reflected in the improved productivity of capital formation in the public sector in the post reform period. The large stock of capital formed by public sector investment remained underutilized as the regulatory regime stifled optimum mix of the public and private sector operations. The initiation of reforms in the Nineties provided a conducive environment for the private sector to increase investment and promote economic activity through better utilisation of public infrastructure.

Exhibit 3

GDP and Public Investment

$\text{Log (GDP)} = 3.61 + 0.90 \log (\text{GCFPub}_{-1})$ (20.9*) (47.8*)	$R^2 (\text{bar}) = 0.98; - (1950-51 \text{ to } 2003-04)$
$\text{Log (GDP)} = 4.44 + 0.79 \log (\text{GCFPub}_{-1})$ (29.8*) (43.7*)	$R^2 (\text{bar}) = 0.98; - (1950-51 \text{ to } 1990-91)$
$\text{Log (GDP)} = -2.16 + 1.42 \log (\text{GCFPub}_{-1})$ (-2.6) (19.9*)	$R^2 (\text{bar}) = 0.98; - (1991-92 \text{ to } 2003-04)$

* significant at one per cent level of confidence.

Note: Parenthetic figures indicate *t* statistics.

It is also found that public sector capital formation has crowded in private investment in the Indian economy. During the period 1971-72 to 2003-04, the public investment elasticity of private investment works out to 1.23. An econometric investigation of determinants of private investment indicates that private investments in manufacturing and services are favourably impacted by public sector investment in the services sector, corroborating the operation of a “crowding-in” phenomenon between appropriate types of public and private investment.¹

¹ An econometric exercise of real private gross capital formation in manufacturing (*GCFP_{vtm}*) and real private gross capital formation in services (*GCFP_{vts}*) with real bank lending rate (*rl*), real gross domestic product at factor cost (*Y*) and public sector investment in services (*GCFP_{ubs}*) (over the period 1970-2000 yielded the following results (RBI, 2002):

$$\begin{aligned} \text{GCFP}_{vtm} &= -19,261 + 0.61 \Delta Y (-1) - 811 \text{rl} + 2.2 \text{GCFP}_{ubs} & R^2 = 0.76; DW = 1.82 \\ & (2.4) \quad (-2.4) \quad (4.7) \\ \text{GCFP}_{vts} &= -3,889 + 0.22 \Delta Y (-1) - 304 \text{rl} + 1.41 \text{GCFP}_{ubs} & R^2 = 0.84; DW = 1.96 \\ & (2.6) \quad (-2.02) \quad (6.54) \end{aligned}$$

As mentioned above, there is a need to classify the expenditure components in terms of being productive or non-productive in order to ascertain the impact of public expenditure on the growth process. It may be noted that the central government budget categorises expenditures in terms of revenue and capital and Plan and non-Plan groups. With a view to examining the welfare impact, the centre's expenditures need to be classified in terms of developmental and non-developmental categories as done in the states' budgets. An analysis of the last two decades indicates that the share of developmental expenditure in total expenditure has generally declined in respect of centre as well as the states. Furthermore, the states have shared a greater responsibility in undertaking developmental expenditure (Table 3).

In order to examine the growth impulse generated by the developmental expenditure, an econometric exercise on the relationship between gross domestic product at factor cost (GDP) and developmental expenditure (Dev) was undertaken for the period 1980-2004. The results indicate that there is a positive and statistically significant influence of the developmental expenditure on income. The elasticity of the overall income with respect to developmental expenditure works out to about 1.14 during the period 1980-04. Furthermore the responsiveness of income to developmental expenditure has increased during the post-reform period (Exhibit 4). This reflects that with the conducive environment provided by the economic reforms, the developmental expenditures have increasingly facilitated "crowding-in" of private investment thereby facilitating the growth process.

5.2 Public expenditure and equity

Another abiding objective of the public expenditure policy in India has been to promote equity through poverty alleviation, employment generation, improving health services, providing education and provision of food subsidies. The impact of

Table 3

Developmental Expenditure of the Centre and States

	1981-91 (Average)	1992-2004 (Average)
1	2	3
Centre's Development Expenditure (percent of total)	54.7	46.1
States' Development Expenditure (percent of total)	76.5	66.2
Centre's Share in Combined Developmental Expenditure (percent)	55.8	51.5

Exhibit 4

GDP and Developmental Expenditure

$\text{Log (GDP)} = 0.58 + 1.16 \text{ log (Dev)}$ (1.28) (28.3*)	$R^2 \text{ (bar)} = 0.97; - (1980-81 \text{ to } 2003-04)$
$\text{Log (GDP)} = 3.40 + 0.82 \text{ log (Dev)}$ (7.25*) (15.33*)	$R^2 \text{ (bar)} = 0.96; - (1980-81 \text{ to } 1990-91)$
$\text{Log (GDP)} = 0.26 + 1.19 \text{ log (Dev)}$ (0.38) (20.7*)	$R^2 \text{ (bar)} = 0.97; - (1991-92 \text{ to } 2003-04)$

* significant at one per cent level of confidence.

Note: Parenthetic figures indicate *t* statistics.

measures undertaken in the above areas is visible in the achievements in respect of various social indicators such as poverty ratio, demographics, education and health. An analysis of the trends of social expenditure of the general government (centre and states combined) indicates that the share of social expenditure in the total general government expenditure rose from 18.9 per cent in 1986-87 to 19.0 per cent during 2003-04 after reaching a peak of 22.2 per cent in 1998-99 (Table 4).

An analysis of the pattern in social expenditure indicates that the share of expenditure on health services in total expenditure on social services declined from 24.1 per cent in 1986-87 to 21.8 per cent in 2003-04. In this context, the lower allocation of expenditures towards health needs to be carefully interpreted in the light of evolving demographic transition in India. The demographic process in India is moving towards a higher share of working age population *vis-à-vis* young and old age dependency (Table 5). As is well known, the economic impact of a decline in dependency ratio is usually beneficial to economic growth, welfare and employment, often referred to as the “demographic dividend” (Mohan, 2004). Thus, India is poised to reap the benefits of this demographic dividend in the next 25 years as also corroborated by the BRIC Report (Goldman Sachs, 2003). Nevertheless, unlike in industrial countries, as India does not have a comprehensive “Beveridgean” social insurance system in place (Heller, 2004), the government’s emphasis on social sector expenditures should continue to assume high priority in the foreseeable future.

The share of expenditure on education in total government expenditure on social services declined from 51.4 per cent in 1990-91 to 48.5 per cent in 2003-04. This trend also needs to be carefully interpreted particularly in the light of changing environment where the private sector is being encouraged to take more responsibilities in imparting education. In this set up, the government is increasingly focusing to ensure education for economically weaker sections of the society and also to promote female literacy.

Table 4

Expenditure on Social Services by the Centre and State Governments
(percent of total expenditure)

Years	1986-87	1990-91	1995-96	1998-99	2000-01	2001-02	2002-03	2003-04RE	2004-05BE
	1	2	3	4	5	6	7	8	9
<i>Centre</i>									
Social Services	3.7	3.1	4.3	5.3	5.6	5.8	5.5	5.2	5.7
Education	1.3	1.2	1.7	2.2	2.1	2.0	2.3	2.3	2.4
Health	0.5	0.5	0.7	0.8	1.0	1.0	1.0	1.0	1.2
Others	1.8	1.4	1.9	2.3	2.5	2.7	2.2	2.0	2.0
<i>States</i>									
Social Services	32.4	32.9	32.6	33.1	32.7	31.0	29.1	25.9	26.8
Education	15.2	17.4	16.5	17.4	17.4	16.1	15.0	12.6	13.3
Health	8.2	7.5	7.3	6.3	7.1	6.6	6.5	5.8	6.2
Others	9.0	8.1	8.8	9.4	8.3	8.3	7.6	7.4	7.3
<i>Combined</i>									
Social Services	18.9	20.3	21.6	22.2	22.1	21.1	20.0	19.0	19.3
Education	8.6	10.4	10.7	11.3	11.3	10.4	10.0	9.1	9.4
Health	4.5	4.5	4.7	4.1	4.7	4.4	4.3	4.2	4.4
Others	5.7	5.4	6.3	6.8	6.2	6.3	5.7	5.7	5.4

Source: As compiled in the Reserve Bank of India from the budgets of central and state governments of India.

The stable share of social expenditure at about one-fifth of the overall government expenditure over the past two decades has facilitated a significant reduction in the incidence of poverty. According to the latest official estimates, the proportion of population living below the poverty line (BPL) declined significantly from 51.3 per cent in 1977-78 to 26.1 per cent in 1999-2000. The Tenth Five Year Plan has set a target of further reduction in the poverty ratio to 19.3 per cent by 2007 and 9.3 per cent by 2012.

The social expenditure of the centre and states, particularly on health, education and poverty alleviation, has direct bearing upon the Human Development Index (HDI) of the country. India ranked 127 in terms of HDI in the year 2002. A cause of concern has been high regional disparity in HDI across the states in India, although an analysis of the state level HDIs by the Planning Commission indicates a decline in such regional disparity during the last two decades. There is a need to enhance the spending on social sector in India to improve its HDI status in general and to achieve the stated objectives of Tenth Five Year Plan of education for all, improvement in health status of the population and "shelter for all" by 2012.

Table 5

Trends in Total Dependency Ratio

Regions/Countries	1950	1975	2000	2025	2050
1	2	3	4	5	6
World	65.2	73.7	58.4	53.2	57.7
More developed regions	54.4	53.8	48.3	57.0	73.4
Less developed regions	71.0	81.8	61.1	52.5	55.7
Least developed regions	79.7	91.5	86.0	71.4	54.9
Asia	68.3	78.0	56.5	49.0	56.8
Eastern Asia	62.9	74.1	46.2	47.8	66.0
South-Central Asia	73.4	80.1	65.9	49.5	51.4
South-East Asia	74.4	84.0	58.9	46.7	56.1
Western Asia	75.2	85.3	68.5	59.0	57.1
China	61.3	78.2	46.4	46.2	63.9
India	73.2	77.4	62.5	46.1	52.6
Bangladesh	70.2	95.4	71.9	50.0	49.0
Sri Lanka	83.7	69.3	48.3	47.8	62.9
Pakistan	76.3	83.0	83.4	64.6	45.9
Indonesia	75.8	80.6	55.2	45.7	57.1
Thailand	83.1	84.4	46.8	44.8	61.9
Malaysia	85.0	84.6	61.9	48.4	54.4
Philippines	89.3	89.7	69.7	46.6	52.0

Note: The total dependency ratio is the number of persons under age 15 years *plus* persons aged 65 years or older per one hundred persons in the category of 15 to 64 years. It is the sum of the youth dependency ratio and the old-age dependency ratio.

Source: United Nations (2002), *World Population Ageing 1950-2050*, Population Division, Department of Economic and Social Affairs.

5.3 Public expenditure and stability

One of the challenges for the government during the reform period has been to strive for the process of fiscal consolidation with public expenditure management as one of the main operating fiscal policy instruments. The challenge has emerged as the public expenditure management had to contend with compression of capital expenditure in the face of committed nature of interest payments, subsidies and defence expenses. As a proportion of GDP, aggregate expenditure of the central government declined almost continuously from 18.5 per cent in 1990-91 to 14.7 per cent in 1996-97 before recovering to 17.1 per cent in 2003-04. It should be noted that the expenditure compression, as part of fiscal consolidation process in the

first half of the Nineties, was mainly effected in the capital outlays which enabled reduction in the fiscal deficit of the centre and states from 9.4 per cent of GDP in 1990-91 to 6.4 per cent in 1996-97.

Although the fiscal corrections achieved in the first half of the Nineties restored macroeconomic stability, it raised concerns about the dwindling capital outlays and its possible repercussions on sustainability of the high economic growth achieved in the mid-Nineties. The need for restoring the capital outlays was felt while simultaneously efforts were made to rationalise functions, activities and structures of most of the Departments and Ministries of the central government so as to curtail wasteful expenditure and suggest measures for optimising government's staff strength. The series of new initiatives undertaken included pre-payment of high cost external debt, buyback of high cost domestic debt and introduction of contributory pensions for new government personnel. These measures enabled some control over expenditure without compromising on capital outlay which was restored in the late Nineties and the early years of the current decade. Notwithstanding an improvement in the expenditure management, fiscal deficit increased to 9.5 per cent of GDP in 2002-03 reflecting the inadequate pace of revenue mobilisation.

Another cause of concern for macroeconomic stability was the worsening fiscal health of the state governments, particularly since the latter half of Nineties. This reflected, *inter alia*, the influence of pay revisions as well as declining transfer of resources from the centre. A series of initiatives to correct this include the medium term fiscal reforms programme, operation of the debt swap scheme to substitute past high cost with new low cost debt and reduction of interest rate on central loans to the states.

It may be noted that fiscal policy may promote macroeconomic stability through the mechanism of an in-built or automatic stabilisers. This is particularly important in the industrial countries as they have provisions like "unemployment dole" which are counter cyclical in nature. In the case on India, the counter cyclical forces in terms of expenditures, typically associated with developed economies, are not prominent. Nevertheless, the expenditures on account of periodic wage revision, drought relief, poverty alleviation measures, and defence if occur in the downswing phase can act as discretionary stabilisers. For instance, the Fifth Pay Commission award during the latter half of the Nineties acted as a source of discretionary stabiliser when industrial output was in the downswing.

6. New dawn in fiscal consolidation

6.1 Developments in 2003-04 to 2004-05

The year 2003-04 was a landmark in terms of fiscal performance of the central government as the fiscal outcome in terms of key deficit indicators showed a marked improvement over the budgeted levels anticipated at the beginning of the year. Apart from higher revenue mobilisation in terms of taxes (particularly

corporate taxes) and disinvestment receipts, one of the major factors was the containment of non-plan expenditure, particularly interest payments. Amidst conducive monetary management and softer interest rate conditions, the interest rates on fresh borrowings declined in recent years. Furthermore, the central government also initiated a strategy of prepaying debt. This facilitated a reduction in the ratio of interest payments to revenue receipts. With a view to pass on the benefits of the softer interest rate regime to the states, they were allowed to swap high cost debt with the low cost fresh loans under the Debt Swap Scheme which was in operation from 2002-03 to 2004-05. There was a reduction of non-plan expenditures in terms of subsidies and grants to the states. Strikingly, a positive development was a decline in the share of non-merit subsidies in total subsidy from 66 per cent in 2002-03 to 58 per cent in 2003-04, thereby reflecting “substantial” improvement in cost recovery from 45 to 47 per cent in the non-merit categories. Social services contributed more to the overall growth of subsidies at 20.5 per cent between 2002-03 and 2003-04 than economic services which grew by 8.0 per cent during the same period (GoI 2004).

Table 6

Fiscal Responsibility and Budget Management Rules 2004

Parameter	Provisions in the FRBM
1	2
Fiscal Deficit (GFD)	GFD to be reduced by 0.3 per cent or more of GDP every year, beginning with the year 2004-05, so that the GFD does not exceed 3 per cent of GDP by end-March 2008
Revenue Deficit (RD)	RD to be reduced by 0.5 per cent or more of GDP at the end of each year, beginning from 2004-05, in order to achieve elimination of the RD by March 31, 2008, as prescribed in the FRBM Act. Subsequently, it was proposed in the Union Budget 2004-05 to move an amendment to eliminate the RD by 2008-09
Contingent Liabilities	The central government shall not give guarantees aggregating an amount exceeding 0.5 per cent of GDP in any financial year beginning 2004-05
Additional Liabilities	Additional liabilities (including external debt at current exchange rate) shall not exceed 9 per cent of GDP for the year 2004-05. In each subsequent year, the limit of 9 per cent of GDP shall be progressively reduced by at least one percentage point of GDP
Borrowings from RBI	Direct Borrowings from the RBI prohibited from the year 2006-07 except by way of WMA to meet temporary mismatches or under exceptional circumstances

The progress in terms of fiscal consolidation, contributed to some extent by reduction in expenditure, paved the way for implementation of the Fiscal Responsibility and Budget Management (FRBM) Act 2003 which was initiated with notification of FRBM Rules, 2004. These rules stipulated the minimum annual reductions of 0.5 percentage point and 0.3 percentage point of GDP, respectively, for revenue deficit and fiscal deficit (Table 6).

Although a front loaded fiscal consolidation was budgeted for the inaugural year with deficit reductions in revenue and fiscal deficits much above the stipulated minimum FRBM thresholds, the fiscal outcome for 2004-05 showed achievement of the FRBM targets though budgeted projections could not be met (Table 7). The slippage in the budgeted targets for 2004-05 was more on account of tax shortfalls and some unforeseen factors and difficulties faced during the course of the year. These include: time taken in the passage of the Finance Bill, the cumulative impact of the post-budget duty concessions given to ease the impact of inflation on the common man, increase in fertilizer subsidy, additional funds allocated for rural telephone network and Tsunami relief.

6.2 Emerging fiscal policy scenario

The Union Budget 2005-06 has set a “pause” in the FRBM keeping in view the impact of implementing the recommendations of the Twelfth Finance Commission (TWFC), which implies substantially higher devolution of resources from the centre to the states and some provisions for enabling smoother implementation of Value Added Tax in the states. Nevertheless, the government has

Table 7

Key Fiscal Indicators of the Central Government (Rupees crore)

Item	2003-04 (Accounts)	2004-05 (BE)	2004-05 (RE)	2005-06 (BE)
1	2	3	4	5
1. Gross Fiscal Deficit	123,272 (4.5)	137,407 (4.4)	139,231 (4.5)	151,144 (4.3)
2. Revenue Deficit	98,262 (3.6)	76,171 (2.5)	85,165 (2.7)	95,312 (2.7)
4. Gross Primary Deficit	-816 (0.0)	7,907 (0.3)	13,326 (0.4)	17,199 (0.5)

BE: Budget Estimates. RE: Revised Estimates.

Note: Figures in parentheses are percentages of GDP.

committed to “resume the process of fiscal correction with effect from 2006-07 and achieve the FRBM goals by 2008-09”.

The expenditure management strategy planned for 2005-06 is to switch away from extending loans and towards grants from the centre to the state governments, as recommended by the Twelfth Finance Commission. Accordingly, the non-plan grants to states and UTs are budgeted to increase significantly by Rs.19,125 crore (129 per cent) as against a moderate increase of Rs.1,107 crore (8.1 per cent) in 2004-05. A higher amount of current transfers is aimed at promoting vertical equity of resources (between centre and states).

On the other hand, a noteworthy feature has been a budgeted decline in the expenditure on subsidies to 1.3 per cent of GDP in 2005-06 from 1.5 per cent in 2004-05. The expenditure on food subsidies is expected to decelerate on account of proposed policy to undertake procurement of foodgrains on a decentralised basis, especially in the non-traditional states. This is intended to be more cost effective and would not impair the present MSP-based procurement. As a result, food subsidies are budgeted to decline to 0.7 per cent of GDP from 0.8 per cent in 2004-05. The budget also proposes to reduce the growth in fertilizers subsidies substantially to 3.8 per cent from 32.2 per cent in 2004-05; in terms of GDP, however, it is budgeted to remain at 0.5 per cent. The fertiliser subsidies are expected to be rationalised in future after the Working Group’s examination of issues involved in implementing the New Pricing Scheme. With a view to contain and properly target subsidies, a government’s Report on Central Government Subsidies in India, prepared by the National Institute of Public Finance recommended in December 2004 recommended a reduction in volume of subsidies relative to revenue receipts, limiting subsidies to only Merit I and II categories while eliminating them from non-merit category products, targeting of subsidies directly to the intended beneficiaries by eliminating input subsidies and focusing more on transfers than subsidies, improving transparency and explicitly reporting subsidies in the budget and avoiding multiple subsidies to serve the same policy objective.

The other components of revenue expenditure, *viz.* interest payments and defence, are, however, budgeted to expand substantially. The substantial rise in interest payments reflects continued dependence on debt resources to finance the government expenditure and additional payments on account of Market Stabilisation Scheme (MSS) reflecting the cost of sterilisation borne by the government. The enhanced defence outlay in the revenue account is due to provisions to meet additional expenditure on pay and allowances and contractual liabilities. The total capital expenditure is budgeted to decline by 43.3 per cent in 2005-06 as against an increase of 9.6 per cent in 2004-05. It may be noted that, the capital outlay is budgeted to rise by 9.8 per cent in 2005-06; however, adjusting for defence expenditure, it would show a higher growth of 20.2 per cent.

The sectoral allocation of expenditure under certain developmental heads indicates the government thrust on rural development through agriculture and universalisation of education. The shares of agriculture and rural development in total expenditure are budgeted to increase in 2005-06 on account of provision made

for developing agriculture market infrastructure, establishment of Rural Knowledge Centre and for initiating strategic agricultural research. The increase in share of health spending reflects higher allocation for financing, *inter alia*, the National Rural Health Mission (NRHM) which will be launched from 2005-06 (Table 8).

There were two major changes in the budgetary practices of the union government during the year 2005-06 which have bearing on the computation of fiscal deficit. The disinvestment proceeds, which were earlier treated as non-debt capital receipts, would no longer be a part of the budget. Instead, these proceeds would be credited to an "investment fund", the income from which will be used to finance expenditure on social infrastructure and to provide capital to viable public sector enterprises.

The second major change is due to the implementation of the recommendations of the Twelfth Finance Commission (TWFC). Accordingly, the share of states in shareable central taxes was enhanced by one percentage point to 30.5 per cent while the loans assistance to the states and Union Territories (UTs) Plan was done away with from 2005-06. However, the Union Budget 2005-06 has made a higher provision of non-Plan grants to the states and UTs. Thus the implementation of the recommendations of TWFC is expected to improve the fiscal position of the state governments and pave the way for cooperative fiscal federalism.

Table 8

Expenditure on Select Developmental Heads
(Rupees crore)

Items	2003-04	2004-05(RE)	2005-06(BE)
1	2	3	4
Agriculture	32900 (7.0)	36614 (7.2)	39727 (7.7)
Education	10630 (2.3)	12999 (2.6)	15941 (3.1)
Health	4980 (1.1)	6032 (1.2)	7907 (1.5)
Rural Development	12138 (2.6)	8525 (1.7)	11359 (2.2)
Irrigation	370 (0.1)	323 (0.1)	425 (0.1)

Note: Figures in parentheses are percentages of total expenditure.

6.3 Role of expenditure policy and management in emerging fiscal scenario – An assessment

The fiscal policy strategy in the coming years would be to increase revenues by reaping the opportunity of a high growth phase and at the same time reorienting expenditure to pay for more outlays on education, health and infrastructure. Furthermore, a concerted resolve would be there to improve the quality of implementation and enhance the efficiency and accountability of the delivery mechanism thereby facilitating translation of outlays into outcomes.

First, while the system of providing subsidies would continue to sub-serve the equity objective and remain a measure for protecting poor, the strategy would be to restructure this system cautiously. The food subsidy system which was hitherto a *centralised* system of procuring food grains at remunerative prices and issuing them at reasonable prices is intended to be made more cost effective by decentralising the procurement system especially in the non-traditional states without impairing the system of Minimum Support Prices (MSP). The new pricing scheme which is being worked out for fertilisers and would commence from April 1, 2006 as well as the proposal of replacing FO/LSHS (used as a feedstock) by natural gas are expected to rationalise the fertilizer subsidy bill. The petroleum subsidy is also being rationalised.

The government has announced enhanced outlays for various programmes and schemes for eliminating poverty through generation of gainful employment and accordingly has identified the sectors with high potential. It also seeks to improve health conditions of citizens through better nutrition and hygienic drinking water facilities. The budget 2005-06 bestows special attention to minorities, backward classes and regions and gender specific issues. It intends to provide impetus to rural economy in India in six areas, *viz.*, irrigation, roads, water supply, housing, rural electrification and telecom connectivity. It proposes to have a road map for agricultural diversification particularly in respect of fruits, vegetables, flowers, dairies, poultry, fisheries, pulses and oilseeds. It recognises the need for large investment from private and cooperative sectors for setting up agricultural markets, marketing infrastructure and support services. The government has set out a new paradigm in investment policy whereby the government will play essentially a catalytic role in terms of a public private partnership rather than fully funding investment.

The state governments in India have been assigned higher responsibilities by the Constitution (Seventh Schedule, Article 246) in respect of social spending such as health, education and family welfare. The major part of the policy is designed by the Planning Commission and states to undertake the responsibility of implementing these policies. The deterioration in the fiscal health of states has placed pressure on the development and social spending in recent years. It is necessary, therefore, to restore the health of state finances through control of non-developmental expenditure. In this context, the enactment of fiscal rules by five states so far assumes importance in the process of fiscal consolidation at state level. While fiscal

prudence at the state level is important, it should also be recognized that the states in future have to shoulder greater responsibilities of developmental and social spending.

7. Public expenditure policy and management in India – Future perspectives

7.1 Risks to the fiscal consolidation process

While the government has drawn up plans for undertaking effective and efficient economic and social expenditures, the potential risks to the fiscal stability arise on the likely increase in interest payments due to projected significant rise in its market borrowing programme. This may jeopardise the government's plans to phase out revenue deficit by 2008-09. The Kelkar Task Force's strategy of reaching this FRBM target is contingent on freezing of stock of debt at the level that existed at the beginning of the FRBM implementation and softer interest rate conditions which would enable the government to replace old securities as and when they mature with new securities issued at lower interest rates. The substantial increase in market borrowings of the centre budgeted for the year 2005-06 and firming up of interest rate conditions and consequent possibility of rising government's interest expenditures would pose a potential source of risk for reaching the FRBM target of phasing out revenue deficits by 2008-09.

If the committed expenses in the form of interest expenditures mount, this would, perforce, make the government to compromise on other productive expenditures. Specifically, the Kelkar Task Force had projected a growth of 12.8 per cent *per annum* in plan expenditure of the centre and that capital expenditure at least maintains its ratio to total expenditure at 2003-04 level in the baseline scenario (or a steady increase in capital expenditure to reach about 0.5 per cent of GDP higher than the baseline projection by 2008-09). Therefore, the government would be facing a dilemma of whether to stick to its stated outlays so as to pursue its social and economic expenditure goals or compromise on them so as to be on track of achieving FRBM targets by 2008-09.

An analysis of the consolidated fiscal position of the state governments shows a sizeable deterioration in their finances during the Nineties followed by some correction during 2000-01 to 2002-03 enabled by reforms. The worrisome feature is, however, that the underlying weaknesses in the state finances still remain and moreover there was a reversal of fiscal correction during 2003-04 partly on account of one-off factors essentially relating to the settlement of dues of the state Electricity Boards aimed at strengthening the power sector.

7.2 Proposed strategy for future expenditure reforms: emphasis on outcomes, not just outlays

The Kelkar Task force had noted that despite expenses by the central and state governments, the provision of public goods in India lacked quality as well as quantity. It, therefore, recommended a goal of refocusing expenditure on public goods as well as “to improve instrumentalities to translate a resource outflow into public goods *outcomes*”. The Task Force also had admitted that while most of the non-Plan expenditures (defence, salaries and pensions) were relatively inflexible, interest payments were an exception with the expectation of declining average interest cost and fiscal consolidation. However, as discussed above, the interest risks posed by higher market borrowings and with the pause in the FRBM implementation in 2005-06, even the leeway of softening of interest expenses are less evident especially when interest rates are on an upward cycle. Therefore, the central theme of fiscal consolidation has to be the improvement in tax-to-GDP ratio, while simultaneously addressing the concern regarding quality of public expenditure in respect of public goods through a four-pronged strategy.

First, a greater share of total expenditure has to be devoted to public goods as against transfers and subsidies. In particular, it must be recognised that the government expenditures on pure public goods (law and order, and defence) can play a key role in the development process as the consumption of these goods by an incremental citizen introduces no costs and one cannot exclude any citizen from benefiting from such consumption. Similarly, some quasi-public goods such as primary health and education services would also qualify as legitimate functions of the government. Simultaneously, as the present system of food and fertilizer subsidy is ineffective in reaching the poor sections, the government’s rationalisation so as to appropriately contain and target them assume prime importance. Furthermore, there is a need to review the existing expenditure classifications in India in terms of revenue and capital or plan and non-Plan. The classificatory system should clearly switch to the international norm of *current* and capital expenditures bifurcation as also a breakdown of government expenditure in terms of subsidies and public goods to facilitate a better analysis of the public expenditure management in India.

Second, it must be recognised that local governments are better equipped for provision and upkeep of local public goods (health, primary education, water and sewage, and local roads) as they are more attuned to local tastes and preferences. They can also respond better to local problems and allocate resources as per the local priorities and above all can ensure sound outcomes. Additionally, the political accountability to local voters raises a case for devolution of resources for production of local public goods to local government. The 74th amendment to India’s constitution has been made to set up a process of higher transfer of resources earmarked for production of local goods to Panchayati Raj institutions who have better incentive to spend effectively as well as better knowledge about local preferences, local problems and alternative production technologies so as to ensure actual outcomes. A powerful instrument to ensure local delivery of outcomes is to shift resources from the existing centrally-driven programmes to the Panchayati Raj

institutions contingent on sound reform initiatives emerging from these lower levels of government.

Third, the central theme of expenditure reforms is the shift in focus from outlays to outcomes as emphasised in the government of India's Budget 2005-06. Accordingly, a framework needs to be envisioned which documents the targets in each of the expenditure schemes in terms of expected outcomes in numerical terms. The Union Budget 2005-06 has already initiated the process by setting physical targets for various projects. This, therefore, creates an appropriate setting for undertaking a subsequent scheme-wise performance audit to test the actual delivery on the promised goals in terms of outcomes.

Finally, the *provision* of public goods can often be achieved more effectively through private sector operations particularly in the production stage. Thus, the role of public-private partnerships needs to be extended to a wider range of public goods. The government has already taken initiatives in this regard.

There is a need to undertake expenditure reforms so as to not only enhance the productivity but also the quality of public expenditure. Accordingly, there is growing realisation in the government to shift from "itemised" control of expenditure to its "budgetary control". Accurate budgeting at the commencement of the year needs to be followed by delegation of resources to the Ministries for careful operations within the approved budgets, well regulated cash flow, strong financial management systems at all levels and organisational restructuring/reengineering to ensure effective utilisation of resources.

7.3 *Growth potential in the years ahead*

The stated strategy for fiscal consolidation process in India to achieve the FRBM target is based on higher revenue mobilisation and containment of non-productive expenditures. The achievement of the FRBM targets by 2008-09 implies that combined deficit of the centre and the states will be around six per cent of GDP as compared to more than nine per cent in 2003-04. Once the FRBM targets are achieved, the continuance of efforts towards revenue mobilisation and reduction in non-productive spending would provide room for expansion of developmental spending. As discussed above, each percentage point increase in developmental spending would lead to an increase of about 1.2 per cent in GDP.

8. **Concluding observations**

This paper has attempted to analyse the role of public expenditure in India as a key operating fiscal policy instrument in order to achieve the goals of growth, equity and stability and yet maintaining the intermediate targets of deficit indicators to ensure the sustainability of public finances. An analytical framework indicates that the various components of government expenditure may be identified to have specific role in the pursuit of fiscal policy goals. The evolving pattern in the public

expenditures in India over the years brings fore the following developments. The overall expenditure has shown an upward movement till the mid-Eighties. The macroeconomic crisis in the early Nineties necessitated fiscal consolidation which primarily came from expenditure compression particularly in the capital outlays whereas increasing interest payments remained on the upward trajectory. As a result, public expenditure witnessed a decline during the first half of the Nineties mainly on account of the central government's expenditure whereas the expenditure of state governments has remained mostly stable in terms GDP. The share of developmental expenditure has declined over the years which needs to be reversed to improve future economic growth potential. The developmental expenditure, particularly in the social sector, has important implications for human development in India.

Though the capital outlays have shrunk in terms of GDP, an encouraging development has been the improvement in the responsiveness of the income generation process to government expenditure in the post reform period. This reflects the conducive environment generated by the liberalisation of regulatory controls on the private sector. The expansion of the private sector resulted into a better utilisation of the public infrastructure accumulated over the years. It is observed that in India, the counter cyclical forces in terms of the expenditures typically associated with developed economies are not prominent. Nevertheless, the expenditures on account of periodic wage revision, drought relief, poverty alleviation measures, and defence, if occur in the downswing phase, can act as discretionary stabilisers.

Public expenditure management remains the main operating fiscal policy instrument in India in achieving the goals of economic growth, equity and stability. Although the implementation of the Fiscal Responsibility and Budget Management (FRBM) Act for the central government in India has set a pause after the first year due to a stress in the union budget arising out of the higher share of tax devolution to the state governments, it is well recognised that the bulk of fiscal adjustment has to be borne out by improving greater mobilisation of revenue receipts rather than curtailing capital expenditure. As expenditure multiplier is higher than the tax multiplier, the expansionary impact of increased capital expenditure will far outweigh the contractionary influence of increased taxes. This has been recognised in the Indian context and with the Indian economy running "nearly at full steam", there is a case of reaping the benefits by higher mobilisation of revenue receipts. This can emanate in three ways. First, when the economy is on an upswing, there is more probability of mobilising more taxes. Second, the increased capital expenditures would promote growth and enable higher tax collections. Thirdly, the user charges levied on the use of capital goods would boost non-tax revenue collections. Furthermore, given the fiscal policy transmission lag, there is a need to front load decisions on public investments, especially at a time when the Indian economy is on a high growth phase and industries have improved their efficiencies and increased their capacity utilisation. The higher tax mobilization as well as recently increased share of their devolution to the states would be able to garner resources for implementation of schemes for provision of local public goods.

The deterioration in the fiscal health of states has placed pressure on the development and social spending in recent years indicating a need for restoring the health of state finances through control of non-developmental expenditure. In this context, the enactment of fiscal rules by five states so far assumes importance in the fiscal consolidation process at the state level. While fiscal prudence at the state level is important, it should also be recognized that the states in future have to shoulder greater responsibilities of developmental and social spending. The implementation of recommendations of the TWFC, in this regard, is expected to provide adequate resources complementing the efforts made by the states to put their finances in order.

REFERENCES

- Aschauer, D.A. (1989), "Is Public Expenditure Productive?", *Journal of Monetary Economics*, Vol. 23.
- Atkinson, P. and P. van den Noord (2001), "Managing Public Expenditure: Some Emerging Policy Issues and a Framework For Analysis", in Banca d'Italia (ed.), *Fiscal Rules*.
- Barro, R.J. (1991), "Economic Growth in a Cross-section of Countries", *Quarterly Journal of Economics*, No. 106, pp. 407-43.
- Devarajan, S., V. Swaroop and Heng-fu Zou (1996), "The Composition of Public Expenditure and Economic Growth", *Journal of Monetary Economics*, Vol. 47.
- Diamond, J. (1989), "Government Expenditure and Economic Growth", International Monetary Fund, Working Paper, WP 89/45.
- Goldman Sachs (2003), "Dreaming with BRICs: The Path to 2050", Global Economics Paper, No. 99.
- Government of India (2004), *Report of the Task Force on Implementation of the Fiscal Responsibility and Budget Management Act, 2003*, Ministry of Finance.
- (2004), *Central Government Subsidies in India*, prepared with the assistance of the National Institute of Public Finance.
- (2005), *Union Budget 2005-06*, Ministry of Finance.
- (2005), *Economic Survey 2004-05*, Ministry of Finance
- Heller, S.P. (2004), "India: Today's Fiscal Policy Imperatives Seen in the Context of Longer-term Challenges and Risks", IMF/NIPFP conference on *Fiscal Policy in India*.
- Japan Bank for International Cooperation (JBIC) (2001), "India Fiscal Reforms and Public Expenditure Management", Research Paper No. 11, JBIC.
- Khunderakpam, J. (2003), "Public Sector Spending and Economic Growth in India", Reserve Bank of India, Occasional Papers, Summer, Monsoon and Winter, 2001, Vol. 22.
- Marshall, T.H. (1950), *Citizenship and Social Class and Other Essays*, Cambridge University Press.
- Mohan, R. (2004), "Fiscal Challenges and Population Ageing: The Asian Experience", presentation at the *Global Demographic Change Symposium* sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 26-28.
- Musgrave, R. (1959), *The Theory of Public Finance*, New York, Mc Graw-Hill.

- Oates, W.E. (1972), *Fiscal Federalism*, New York, Harcourt Brace Jovanovich.
- (1999), “An Essay on Fiscal Federalism”, *Journal of Economic Literature*, Vol. 37, September.
- Pattnaik, R.K. (1996), “Budget Deficit in India: Measurement, Analysis and Management”, Ph.D. Thesis, Indian Institute of Technology, Mumbai.
- Premchand, A. (2000), “Control of Public Money”, *The Fiscal Machinery in Developing Countries*, Oxford.
- Ram, R. (1986), “Government Size and Economic Growth: A New Framework and Some Evidence from Cross-section and Time-Series Data”, *American Economic Review*.
- Rawls, J. (1971), *A Theory of Justice*, Harvard University Press.
- Reserve Bank of India (2002), *Report on Currency and Finance 2000-01*.
- (2003), *Report on Currency and Finance 2001-02*.
- Sachs, J.D. (2005), *The End of Poverty : Economic Possibilities for Our Time*, The Penguin Press, USA.
- Salvatore, S.C. and D. Tommasi (1999), *Managing Public Expenditure*, ISBN: 971-561-197-4, Asian Development Bank.
- Romer, P. (1994), “The Origins of Endogenous Growth”, *The Journal of Economic Perspectives*, Vol. 8, No. 1, Winter.
- Tanzi, V. (1987), “Fiscal Policy, Growth and Design of Stabilisation Programmes”, International Monetary Fund, Working Paper, WP/87/1.
- Tanzi, V. and H.H. Zee (1997), “Fiscal Policy and Long Run Growth”, International Monetary Fund, Staff Papers.

**DISCRETIONARY POLICY INTERACTIONS
AND THE FISCAL THEORY OF THE PRICE LEVEL:
A SVAR ANALYSIS ON FRENCH DATA**

*Jérôme Creel, Paola Monperrus-Veroni and Francesco Saraceno**

1. Introduction

The “fiscal theory of the price level” (FTPL; Woodford, 1995 and 2001) marks the revival of interest for fiscal policy, after the long blackout that followed the crisis of Keynesian economics. Among the causes of this revival, an important role was played by the dramatic drop in US public debt during the Clinton presidency. The reduced stock of bonds in the hands of households led researchers to re-investigate the relationship between consumption, the government intertemporal budget constraint, wealth effects and monetary policy. As we will argue below, the attempts to give empirical support to the FTPL – that had its theoretical precursors in the work of Leeper (1991) and Sims (1994) among others –, have been rather unsuccessful so far, so that its main merit lies in the fact that it brought back into the debate the interaction between fiscal and monetary policy and its effects on the level of activity and on prices.

One of the consequences of this resurgence of interest is a small but growing literature that tries to isolate and quantify the effects of fiscal policy shocks. With a few notable exceptions, most of this literature finds Keynesian effects of discretionary fiscal shocks. This result is particularly interesting when related to European countries because it introduces an element of complexity in the debate linked to the European institutional setting and, in particular, to the Stability and Growth Pact (SGP). In fact, the ineffectiveness (and even the harmfulness) of discretionary fiscal policy is one of theoretical foundations of the original institutional setting (the balanced-budget-over-the-cycle feature of the SGP), that only allows for automatic stabilization in “bad times”. If we are unable to rule out effects on output of discretionary fiscal policy, the main reason for restricting government action to automatic stabilization drops, and the debate on European economic “governance” can be looked at from a different perspective. The modifications of the SGP adopted in March 2005 are quite interesting in this respect. They extend the “exceptional circumstances” to slow growth and the relevant factors that can justify that the limit of the 3 per cent of GDP has not been enforced. Nevertheless, the “new SGP” still involves a deficit limit that heavily constrains the

* Observatoire Français des Conjonctures Économiques.

We do thank Jacopo Cimadomo, Peter Heller, Dan Knudsen, George Kopits, Sandro Momigliano and Balázs Romhányi for their useful comments on a first draft of this paper. We are also most grateful to Olivier Biau and Elie Girard who kindly provided the RATS code that we modified to estimate our model. We thank also Françoise Charpin for her very helpful advice. The usual disclaimer applies. Corresponding author: Jérôme Creel, OFCE, 69 Quai d’Orsay, 75007, Paris, France. E-mail: jerome.creel@sciences-po.fr

scope for discretionary policy, so long as budget deficits will not have converged towards zero.

Our paper aims at investigating the empirics of fiscal and monetary policies in France within a precise theoretical framework and, meanwhile, to shed light on the current debate regarding the optimality, necessity and drawbacks of the SGP. We take our motivation in particular from the papers of Blanchard and Perotti (2002), and of Biau and Girard (forthcoming) who constitutes an application of the former to France. Both papers find Keynesian effects of structural shocks to fiscal policy. The objective of this paper is twofold: First, it constitutes a robustness test for the results of Biau and Girard, in that we try to apply their methodology to a different, more complex, theoretical framework. Second, the structural VAR that we test is constructed to embed the main features of the FTPL (notably the interaction of wealth effects linked to the stock of debt, and the interaction of fiscal and monetary reaction functions), that are also used as the theoretical assumptions behind identification: one objective of the paper is to test the underlying theory.

The paper is structured as follows: the next section discusses the literature that is related to this paper, both the theoretical research on the fiscal theory of the price level, and the literature on structural VAR and fiscal policy. In Section 3 we start with a simple theoretical model that sketches the channels by which fiscal policy changes affect output and prices. We then present the VAR model, and discuss the identification procedure that has been used, together with main underlying assumptions. Section 4 describes the dataset, and contains a detailed discussion concerning the issue of quarterly public finance data. Section 5 presents the results. Even though they are obtained within a different theoretical framework, the findings confirm the “Keynesian story” already highlighted by Blanchard and Perotti (2002) for the US and by Biau and Girard (forthcoming) for France. Quite unusually within this strand of the literature, the impact of a monetary shock is also presented. Finally, as a side result, main findings also seem to give support to the FTPL predictions that a fiscal shock should have a positive impact on prices. Section 5 presents some robustness checks. The last section concludes.

2. Related literature

2.1 *The fiscal theory of the price level (FTPL)*

The renewal of interest in favor of expansionary fiscal policy can be traced back to the development of the fiscal theory of the price level in the early Nineties.¹ Before that, mainstream literature had endeavored to show that expansionary fiscal policies would either harm the price stability objective of a “conservative” central banker (Barro and Gordon, 1983; Rogoff, 1985), or induce a steep rise in private savings (along the lines of the so-called Ricardian equivalence principle, see

¹ Comprehensive surveys related to the roots of the FTPL can be found in Creel and Sterdyniak (2001) and Woodford (2001).

Barro, 1974), or induce, quite unexpectedly, a mix of the two previous effects that would lead to a contractionary impact on real GDP² (see Giavazzi and Pagano, 1990; Giavazzi, Jappelli and Pagano, 2000), or provoke higher long-term interest rates (the so-called “crowding-out effects”).³

In comparison with this overwhelming literature, the FTPL focuses on the interactions between monetary and fiscal policies. The main message of the FTPL is that there are two different mechanisms that enable the *ex ante* satisfaction of the government present-value budget constraint, *i.e.* this budget constraint is not viewed as an identity but as an equilibrium condition.⁴ In the first case, the fiscal authority adjusts its future spending and taxes so that they meet the constraint for any value of the interest rate and the nominal income.

In the second case – the FTPL case –, the fiscal authority does not act in accordance with the fulfillment of its budget constraint, so that it is the “task” of the price level to ensure equilibrium. The FTPL thus states that the government can exogenously set its real spending and revenue plans, and that the price level will take on the value required to adjust the real value of its contractual nominal debt obligations to ensure government solvency. This theory hence emphasizes that the price level is able to “jump” in relation to the government present value budget constraint. The allocation of instruments to targets in this case can be totally reversed from that chosen in the EU.

Although Woodford (2001) argues in favor of the Maastricht public finances criteria, his theoretical framework may be seen as a contradiction to the current EU institutional and macroeconomic setting. His model shows that the situation of governments as followers *vis-à-vis* the European Central Bank (ECB) could be reversed without disturbing the steady state. With governments acting as leaders in the strategic policy game with the ECB, general equilibrium would only necessitate a less reactive monetary policy *vis-à-vis* inflation deviations from target than that ensuing from the application of a usual “monetary Taylor rule”.⁵

But does the FTPL works “in real life”? Tests by Canzoneri, Cumby and Diba (2001) showed that the FTPL was invalidated by the data in the US. More recently,

² The Barro and Gordon (1983) and the Barro (1974) stories are inconsistent with each other: the former states that active policies would change the domestic inflation rate, at full employment; whereas the latter states that active fiscal policies have no impact on an economy at full employment: higher savings just matches higher public investment (or expenditures).

³ The plausibility of these four effects is investigated both theoretically and empirically in Creel *et al.* (2004).

⁴ The main message of Buiter (2002) is that the FTPL is flawed in this respect. The response of Woodford (2001) is that the budget constraint is still satisfied *ex post* and does not contradict the identity. This controversy is beyond the scope of this paper, as the macroeconomic framework that will be used is more about flows than about stocks. As demonstrated by Niepelt (2004), such a framework establishes a link between fiscal policy and the price level, but unlike Niepelt we consider that this alternative – in our case, macroeconomic – framework to the FTPL goes beyond the conclusions of Sargent and Wallace (1981) in that it incorporates a wealth effect (absent from Sargent and Wallace) that makes old-fashioned unrealistic money debt financing unnecessary to solve the model.

⁵ This is the theoretical conclusion of Leeper (1991).

Creel and Le Bihan (2006) have extended their work to European countries. Based upon a modified VAR analysis that makes a distinction between cyclically-adjusted and non-cyclically-adjusted deficits, they have shown that the FTPL was also invalidated in these countries.

Although these results seem to cast doubts on the empirical relevance of the FTPL, they do not diminish the usefulness of the theory: renewing the interest for fiscal policy aimed at stabilization, for wealth effects, for public debt and for the interactions between monetary and fiscal policies within a common framework is largely enough to gain consideration. Moreover, as we show in Section 5, the FTPL would gain support for France within our SVAR identification.

2.2 *Structural VARs and the analysis of discretionary fiscal policy effects*

The long-lasting debate on the effects of fiscal policy on GDP and other macroeconomic variables has struggled with the methodological issue of correctly identifying such a policy. First, as argued by Creel and Sterdyniak (1995), and also more recently by Galí and Perotti (2003), the existing measures of structural and cyclical deficits do not correctly deal with a functional classification of public expenditure and revenues. For instance, the cyclically-adjusted deficit usually incorporates interest payments, although they may originate in past cyclical downturns that have provoked higher overall deficits. Second, difficulties arise in isolating the effects of discretionary policy on economic activity from other effects at work, as for example the change in interest rate payments, automatic stabilization, and so on. Thus, until very recently, no serious attempt had been made to assess the effects of fiscal policy shocks on the economy.

The development of SVAR models, originally conceived for the analysis of monetary policy (Bernanke, 1986; Blanchard and Watson, 1986; were among the first ones), has initiated a relatively small body of literature that in the past years has tried to look into this issue.⁶ The first paper, by Blanchard and Perotti (2002), investigates the United States, and obtains identification by imposing contemporaneous restrictions based on the institutional features of the tax and expenditure system.⁷ Such a method allows the authors to isolate the effects of fiscal policy shocks on GDP and its components. Their estimates are broadly consistent with standard textbook Keynesian analysis, in that positive public expenditure shocks, and negative tax shocks have significant and positive effects on GDP and consumption. These results are nevertheless mitigated by the effects on investment that are instead negative for expenditure increases and positive for tax reductions,

⁶ Here we do not discuss other identification schemes (all applied to the US) such as the “narrative approach” (Ramey and Shapiro, 1998; Edelberg, Eichenbaum and Fisher, 1999; Burnside, Eichenbaum and Fisher, 2004); that identify the VAR by means of well-known exogenous fiscal episodes; or the “sign restriction” approach, in which the sign of impulse responses is pre-imposed on the basis of theoretical priors (Mountford and Uhlig, 2002; Canova and Pappa, 2003).

⁷ The authors also use dummies to take into account large shocks (as the temporary tax cut of 1975).

results that are more consistent with variants of the neoclassical model. Similar results are obtained by Fatás and Mihov (2001), who focus on public expenditures, and show that GDP, employment and consumption react positively to expansionary fiscal policy shocks. Their identification procedure however is relatively more standard, and ranks fiscal shocks first in the Choleski decomposition; the authors conclude that their empirical findings are at odds with a number of versions of Real Business Cycles models, while they concord with the predictions of a standard textbook IS-LM model.

Most of the existing literature on the effects of fiscal policy deals with the US. Among the few papers using the SVAR methodology and dealing with other countries we can cite two that are directly related to our work. The first, by Biau and Girard (forthcoming), replicates Blanchard and Perotti with French data.⁸ The conclusions are also similar, making the case for Keynesian results. The short term impact of fiscal policy is expansionary and larger than one; as was the case for the US, this result passes through positive effects on private consumption. An increase in tax receipts, on the other hand, has weak effects, even if the sign is negative as expected in a Keynesian framework. The difference with the US data as reported by Blanchard and Perotti is explained by the different estimated elasticity of tax receipts to GDP: whereas Blanchard and Perotti use a value of 2, Biau and Girard opt for a value of 0.8. The main difference between these two values stems from the elasticity of employment to GDP, which is four times lower in Biau and Girard than in Blanchard and Perotti. In this respect, Biau and Girard mention that the *quarterly* elasticity of tax receipts to GDP in Blanchard and Perotti is relatively close to that estimated in the US with *annual* data. Finally, they also include an innovation with respect to Blanchard and Perotti in that they explicitly consider monetary policy, with the inclusion of the interest rate in the VAR. Doing so, they are closer to Perotti (2004). Nevertheless, in their paper the interest rate is shown to have only negligible effects on fiscal multipliers.

Perotti (2004) also considers monetary policy, and extends the framework to five OECD countries.⁹ He finds results contrasting with those reported above. The evidence of an important structural break around 1980, for all the countries, allows drawing a number of conclusions. First, GDP effects of expansionary fiscal policy are limited, and the multiplier is larger than one only in one case (the US before 1980). In general, the effects of fiscal policy have weakened over time, to the point of becoming significantly negative in a number of cases in the post-1980 period. Second, tax cuts and spending increases do not emerge as having significantly different effects. This conclusion contrasts with the findings of Alesina and Perotti (1995) that expenditures cuts are better than tax hikes when a fiscal contraction is

⁸ The German and Italian cases were also investigated, respectively by Mohr (2002) and Giordano *et al.* (2005).

⁹ USA, West Germany, UK, Canada, Australia. According to the author, for the other countries the quality of data at quarterly frequency is too low to permit a meaningful analysis. As explained at length in Section 4 below, we believe that the quality of French quarterly data is good enough to perform this type of analysis.

under way. Third, while interest rates were substantially unaffected in the pre-1980 period, the effect of fiscal policy shocks became positive in the most recent period. This reaction of interest rates to changes in fiscal variables explains the weaker and often negative impact on GDP that can be observed after 1980. The author explains the difference with the original Blanchard and Perotti results by the division in two sub-samples. And in fact, he argues, when taking the whole sample the results are in line with most of the existing literature. Perotti concludes arguing that neither the neoclassical nor the Keynesian (or New-Keynesian) models are successful in explaining this complex set of findings.

3. Model and methodology

3.1 A simple model of price determination

In this section we present a very simple model of an economy in which debt and the price level are related *via* the fiscal and the monetary authorities' behaviors. The model is a macroeconomic version of the FTPL quite close to that developed by Leith and Wren-Lewis (2000) and is borrowed from Creel and Sterdyniak (2002).

The first equation is an aggregate demand relationship (all variables are real; fiscal variables are expressed in percent of GDP):

$$y = cy_{-1} - \delta r + \phi b + t - s, \quad (1)$$

where real debt affects demand positively (due to a wealth effect), the real interest rate has a negative influence on demand, and public expenditure is written as the difference between tax receipts and primary surplus, $g = t - s$.

Aggregate supply is standard, and relates inflation to the level of output:

$$\pi = \pi_{-1} + \nu(y - y^*) \quad (2)$$

Real debt cumulates according to the law of motion:

$$b = b_{-1}(1 + r) - s \quad (3)$$

Finally, the last two equations define the reaction functions of fiscal and monetary authorities:

$$s = s^* + h(b - b^*) \quad (4)$$

and:

$$r = r^* + \alpha(\pi - \pi^*) + \beta(y - y^*) \quad (5)$$

Equation (4) states that the fiscal authority reacts to deviations of debt from its steady state value, while equation (5) is a standard Taylor rule relation if α is positive (hence an inflationary shock would provoke a rise in the *real* interest rate).

If both fiscal and monetary policies are active in contrasting inflation (large α) and increases in debt (large h), prices are under the control of the monetary

authority and fiscal solvency is guaranteed by fiscal policy. Given that fiscal policy responds strongly to debt deviations, expansionary fiscal shocks will be followed by a fiscal restriction of the same size in present discounted value to stabilize debt, and as a consequence equilibrium is restored through larger surpluses.

If debt and inflation do not trigger reaction from fiscal and monetary authorities (small h and α), the intertemporal balance of the budget and fiscal solvency will be guaranteed by price changes, the typical FTPL mechanism: an expansionary fiscal shock will stimulate aggregate demand through wealth effects.¹⁰ This in turn drives prices up, inflation deflates the stock of nominal debt and there is no need for corrections in the surplus process.

Thus, in the latter framework, debt, the price level and the instruments of fiscal and monetary policies are linked by a set of complex relationships. The structural VAR that we present in the next paragraph tries to look into these relationships.

3.2 The 5-variable VAR and the identification assumptions

Our starting point is a canonical VAR in five variables: primary surplus, net debt (both expressed in percent of GDP), real GDP growth (expressed in percent), the inflation rate (computed as the first difference in the log of the CPI), and the short term interest rate:

$$\mathbf{Y}_t = \mathbf{A}(L)\mathbf{Y}_t + \mathbf{X}_t\boldsymbol{\beta} + \mathbf{u}_t \quad (6)$$

where $\mathbf{Y}_t = [s_t, b_t, y_t, \pi_t, r_t]'$ is the vector of endogenous variables, while \mathbf{X}_t is a vector of exogenous variables, notably the German interest rate, a Maastricht dummy, and an interaction variable taking care of the interest rate convergence after 1993. Data are quarterly and go from 1978:1 to 2003:4. A detailed description of the variables and of the sources is given in Section 4 below.

After performing a sequential LR test on the VAR, taking 8 quarters as a lag maximum, we found 5 lags to be the optimum. In this our model does not depart from that of Biau and Girard. What is different is our choice of performing a VAR in level, with variables that are non stationary: the ratio of public debt to GDP, the inflation and interest rates. Doing this, we follow Sims' (1980) recommendation against differencing even if the variables contain unit roots because the goal of a VAR analysis is to determine the inter-relationships among the variables, not to determine estimates. As reported in Sims, Stock and Watson (1990), VARs with non stationary variables incur some loss in estimators' efficiency without any costs in

¹⁰ In this sketchy and pedagogical version of the model we abstract from expectations that of course play a crucial role in the FTPL. See Creel and Sterdyniak (2002) for a more complete description of the model and of its stability conditions. Creel and Sterdyniak notably show that in the case of backward-looking expectations, the FTPL is incompatible with Ricardian consumers. Interestingly, this conclusion is similar to that of Niepelt (2004) although it is obtained in a very different setting: for the FTPL to function, Creel and Sterdyniak argue that a wealth effect is required whereas Niepelt argue that "surprise inflation" is.

terms of estimators' consistency. In the present case, another – economic – reason lies at the heart of our methodological choice: with a stationary primary surplus and a public debt on GDP having a unit root, we would have to take the latter in first difference and include two indicators of the fiscal stance in the VAR: the primary surplus and the government overall surplus. Economically, this would largely depart from the theoretical background, implying a loss of information.

Consistently with our priors, two exogenous variables (the German interest rate and its interaction with the Maastricht dummy) are significant for the interest rate equation (results not reported). These exogenous variables capture the influence of German monetary policy on the estimated monetary reaction function of France, when the two countries were members of the European Monetary System.

The residuals of the canonical VAR are uninformative on the response of endogenous variables to shocks; to obtain response functions meaningful for the analysis of economic policy we need to isolate structural shocks. Thus, while the canonical residual of, say, the primary surplus collects information on all the unexpected movements of the variable, the corresponding structural residual is obtained by eliminating all feedback mechanism (automatic or discretionary) triggered by changes in the other variables. Thus, the structural residual will be interpreted as an autonomous, discretionary shock, whose effects on the other variables can be examined by means of the impulse response functions (IRF).

The procedure originally suggested by Sims (1980) to pass from canonical to structural innovations, a triangularization of the residual covariance matrix, was soon criticized as being arbitrary and difficult to justify from an economic viewpoint. Structural VARs, originally proposed by Shapiro and Watson (1988), aim at substituting this identification procedure with one that has sounder roots, in the sense that the constraints on the variance matrix of residuals stem from economic behavior. Specifically, Shapiro and Watson, like Blanchard and Quah (1989) shortly after, impose long run restrictions by assuming that only supply shocks have permanent effects. The identification here, following Blanchard and Perotti (2002), is instead based on restrictions in the contemporaneous correlation matrix. In particular, Blanchard and Perotti use the institutional features of the American tax system to impose constraints to the matrix. If we write the relationship between canonical (u_t) and structural (ε_t) residuals as:

$$\mathbf{M}_1 \mathbf{u}_t = \mathbf{M}_2 \varepsilon_t \quad (7)$$

The identification procedure consists in imposing constraints on the elements of the two matrices that allow writing:

$$\varepsilon_t = \mathbf{M}_2^{-1} \mathbf{M}_1 \mathbf{u}_t \quad (8)$$

The system of equations that has been used to build the matrices \mathbf{M}_1 and \mathbf{M}_2 is the following (the time subscript is omitted, as we only deal with contemporaneous relationships, and all the variables are indexed by t):

$$\begin{aligned}
u_s &= \alpha_{sb} u_b + \alpha_{sy} u_y + e_s \\
u_b &= \alpha_{b\pi} u_\pi + \alpha_{br} u_r + \beta_{bs} e_s + e_b \\
u_y &= \gamma_{ys} u_s + \gamma_{yb} u_b + \gamma_{y\pi} u_\pi + \gamma_{yr} u_r + e_y \\
u_\pi &= \gamma_{\pi y} u_y + e_\pi \\
u_r &= \gamma_{ry} u_y + \gamma_{r\pi} u_\pi + e_r
\end{aligned} \tag{9}$$

The model (9) replicates the theoretical model presented above (equations 1 to 5). Following Blanchard and Perotti (2002), we identify the two matrices \mathbf{M}_1 and \mathbf{M}_2 in three steps:

- the first step consists in estimating contemporaneous elasticities that relate unexpected shocks within the same quarter, when the institutional features of the system are such that discretionary reactions may be excluded (for which, in other words, we can safely assume that regressors and residuals are uncorrelated). Thus, if we assume that policy makers cannot react within the quarter to unexpected GDP shocks, we can use the estimated elasticity of primary surplus to GDP, $\alpha_{s,y} = (ds/dy)(y/s)$ to fix the coefficient. If two variables are not assumed to be related at all within the quarter, the corresponding α will be set to 0;
- using these elasticities, we can construct the cyclically-adjusted reduced-form primary surplus and debt residuals that are no longer correlated with the other structural shocks. Within an FTPL framework, the causation between surplus and debt is more from the former to the latter than the reverse. We thus assume that the instantaneous response of the surplus to a structural shock on debt $\beta_{sb} = 0$. Hence, the surplus structural shock is equal to the cyclically-adjusted primary surplus residual. Estimating the cyclically-adjusted debt residual on the surplus structural shock finally gives β_{bs} ;
- the unexpected shocks, for which the theory and/or the institutional features make it impossible to rule out discretionary responses within the quarter, are estimated and the coefficients are denoted by $\gamma_{x,y}$. Of course, the correlation between residuals and explanatory variables requires instrumental-variable estimation.

These three steps permit to isolate different kinds of responses to innovations: elasticities give what can be labeled “automatic and immediate responses” to shocks; step 2 gives the “autonomous discretionary responses” of governments to a surplus unexpected innovation; and step 3 gives the “systematic and instantaneous discretionary responses” to structural shocks. In the case of the primary surplus, the “autonomous discretionary responses” can be considered as the economically correct response of the “cyclically-adjusted” part of the surplus to an innovation.

In Blanchard and Perotti’s (2002) methodology, the key to the identification procedure is that the use of quarterly data allows ruling out some instantaneous responses because of diffusion lags, as well as some discretionary responses because

of decision delays and policy implementation lags. With these assumptions and the knowledge of the non discretionary (automatic) component of the responses of some variables to unanticipated changes in others, it is possible to fix many non-diagonal elements of \mathbf{M}_1 to 0. Such is the case for the third equation in bloc (9): we assume that the responses of GDP to unanticipated changes in inflation and the interest rate, respectively, within the quarter can be set equal to 0 (*i.e.* $\gamma_{y\pi} = 0$; $\gamma_{yr} = 0$). Doing so, it is possible to regress GDP on the primary surplus and public debt, taking the structural shocks on both as instruments.¹¹ For the two remaining equations of bloc (9), we still use as instruments the structural shocks related to the explanatory variables. The induced structural shocks are then fully uncorrelated with the canonical VAR residuals.

To sum up, the matrices \mathbf{M}_1 and \mathbf{M}_2 can be written as:

$$\mathbf{M}_1 = \begin{pmatrix} 1 & -\alpha_{sb} & -\alpha_{sy} & 0 & 0 \\ 0 & 1 & 0 & -\alpha_{b\pi} & -\alpha_{br} \\ -\gamma_{ys} & -\gamma_{yb} & 1 & 0 & 0 \\ 0 & 0 & -\gamma_{\pi y} & 1 & 0 \\ 0 & 0 & -\gamma_{ry} & -\gamma_{r\pi} & 1 \end{pmatrix} \quad (10)$$

and:

$$\mathbf{M}_2 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ \beta_{bs} & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix} \quad (11)$$

Fixing α_{sy} and α_{sb} allows for identification of e_s , the structural shock on the primary surplus, which is obtained by simple calculation, since the values of the residuals of the canonical VAR are known. Once $\alpha_{b\pi}$ and α_{br} have been fixed and e_s is known we can estimate by OLS β_{bs} and isolate the structural shock on debt e_b in the equation of the canonical residual of the debt. We can then use e_s and e_b as instruments in the third equation in order to obtain estimates for γ_{ys} and γ_{yb} and the structural shock on activity e_y . We do the same in the equation of the canonical residual of the inflation rate to estimate $\gamma_{\pi y}$, and the structural shock on inflation rate e_{π} , and in the fifth equation to estimate γ_{ry} , and $\gamma_{r\pi}$ and the structural monetary shock e_r .

Elasticities of the public debt-to-GDP ratio resulted from OLS regressions *vis-à-vis*, alternatively, the interest rate and the inflation rate (all variables were

¹¹ We thus assume that structural fiscal shocks can have an immediate impact on GDP (residual): to motivate our choice, without relying exclusively on methodological convenience, we affirm that real variables have a more immediate impact on real variables than nominal ones.

expressed in first difference for elasticities' calculations). Elasticities of the public-surplus-to-GDP ratio followed a two-step procedure: the primary surplus was separated between public expenditures (excluding interest payments) and tax receipts and both items were regressed *vis-à-vis*, alternatively, real GDP and the public-debt-to-GDP ratio. Finally, the elasticity of the primary surplus was equal to the corresponding weighted sum of the elasticity of tax receipts less that of public expenditures.

Elasticities took the following values: $\alpha_{sy} = 0.1$; $\alpha_{sb} = -6.5 \cdot 10^{-5}$; $\alpha_{bp} = -0.7$; and $\alpha_{bi} = 0.2$. α_{sy} corresponds to the elasticity of the primary surplus in percent of GDP to GDP and should not be confused with that of the primary surplus to GDP (generally equal to 0.5 in the literature). If we consider the institutional features reported by Biau and Girard for France, their value for α_{sy} can be confirmed.¹²

Second, the low elasticity of public debt *vis-à-vis* interest rate (within a quarter) is consistent with one important feature of French public debt, 80 per cent of which is issued at a fixed interest rate. Third, the relatively high elasticity of debt *vis-à-vis* inflation is also consistent with French debt's institutional features: 95 per cent of this debt is non-indexed. Finally, the computation of an elasticity of the primary surplus to the public debt residual, rather than fixing it to zero, can be explained from two different perspectives. The less satisfactory one is technical: fixing α_{sb} to zero would give the FTPL interpretation of data an *ex ante* prominence that would bias *ex post* results. The other, more satisfactory, perspective relies on institutional information: the uncertainty surrounding debt financing quasi-automatically induces a stop in the program of public capital expenditures and has thus an effect on the primary surplus.¹³ In the present situation, it is straightforward to show that this effect is marginal: α_{sb} is almost zero.

¹² Biau and Girard consider that the elasticity of net receipts to GDP is equal to 0.8 while that of public expenditures is equal to 0 (real expenditures are not modified within a quarter): expressed in percent of GDP, it is straightforward that the net receipts ratio decreases less than the public expenditures ratio after GDP has grown; hence, the surplus increases in percent of GDP.

¹³ In France, since the mid-Eighties, the "new public debt" is auctioned every month over the fiscal year, the program of these auctions for mid-term and long-term public bonds being decided at the end of the preceding fiscal year. This program of debt auction depends on planned public net borrowing and on planned capital amortization charges. Every month, the interest rate at which the auction has taken place is uncertain, depending on supply and demand, and so does capital amortization charges. Hence, although debt financing is planned in advance, the conditions at which it takes place give rise to monthly (and, in our case, quarterly) errors in the measurement of the real value of public debt. As a matter of fact, the French Treasury is fully aware of the quarterly cost of debt and can quasi-automatically compensate the increase (decrease) in the future streams of interest charges by a delay (acceleration) in the implementation of public capital expenditures. Note that the computed value of α_{sb} is sufficiently small to validate this mechanism. For a comprehensive survey of French public finances, see Llau (1996).

4. Description of data

The estimation period goes from 1978:1 to 2003:4. We use French quarterly national accounts from INSEE for gross domestic product and for primary surplus. French and German price consumer indexes and nominal short term (3-month) interest rates are obtained from DATASTREAM. Annual data for the stock of net liabilities come from the INSEE Balance Sheets; quarterly government net lending figures come from INSEE National Accounts; and quarterly data for net lending from the Financial Accounts of the Bank of France are used to construct a quarterly series of net financial liabilities. All variables have been seasonally adjusted by the original sources. Only GDP and main budget aggregates, notably operations on goods and services, are also adjusted for working days. Quarterly general government budget figures, as part of the ESA95 integrated system of National Accounts, are consistent with national income data.

Real gross domestic product is the only variable deflated by the GDP deflator. We use the French consumer price index to deflate all French nominal series and the German consumer price index to obtain the real German interest rate. We have included a Maastricht dummy (DUMMA) starting from 1992:1 as well as a composite dummy (INTER), which is the product of the German interest rate and of DUMMA to take care of the interest rate convergence after 1993. Government primary surplus is obtained as the sum of government net lending and interest payments. The quarterly series for net financial liabilities from 1978 to 1994 is obtained by adding to the 1977 annual figure of the stock of net liabilities the quarterly observations on government net borrowing. For the 1995-2003 period, quarterly observations on the flow of net financial liabilities replace those on government net borrowing. There is a difference between the authentic annual series and the annual series stemming from this artificial quarterly series, in that in the 1978-94 period information concerning revaluations and changes in volume of net liabilities is lost, since these items are omitted in government net borrowing observations from National Accounts. This difference has thus been calculated and then interpolated at quarterly frequency. It has been reattributed on a quarterly basis to the quarterly observations. The new artificial quarterly series thus obtained, when annualized, is consistent with the annual data from the INSEE Balance Sheets. This statistical artifice provides us with a quarterly series of government net financial liabilities containing more quarterly information than a simply interpolated series.

Although not completely free from interpolation, French government series contain a considerable amount of quarterly information. On the expenditure side, almost all components of actual collective and individual consumption are calibrated using quarterly indicators. So are social transfers in kind. Social benefits other than transfers in kind are obtained by quarterly observations from social protection institutions. Seventy percent of public investment (construction) is made of genuinely quarterly series. As far as government receipts are concerned, social contributions are mainly genuinely quarterly data or calibrated by quarterly indicators. As a consequence, only some items on the government revenue side are

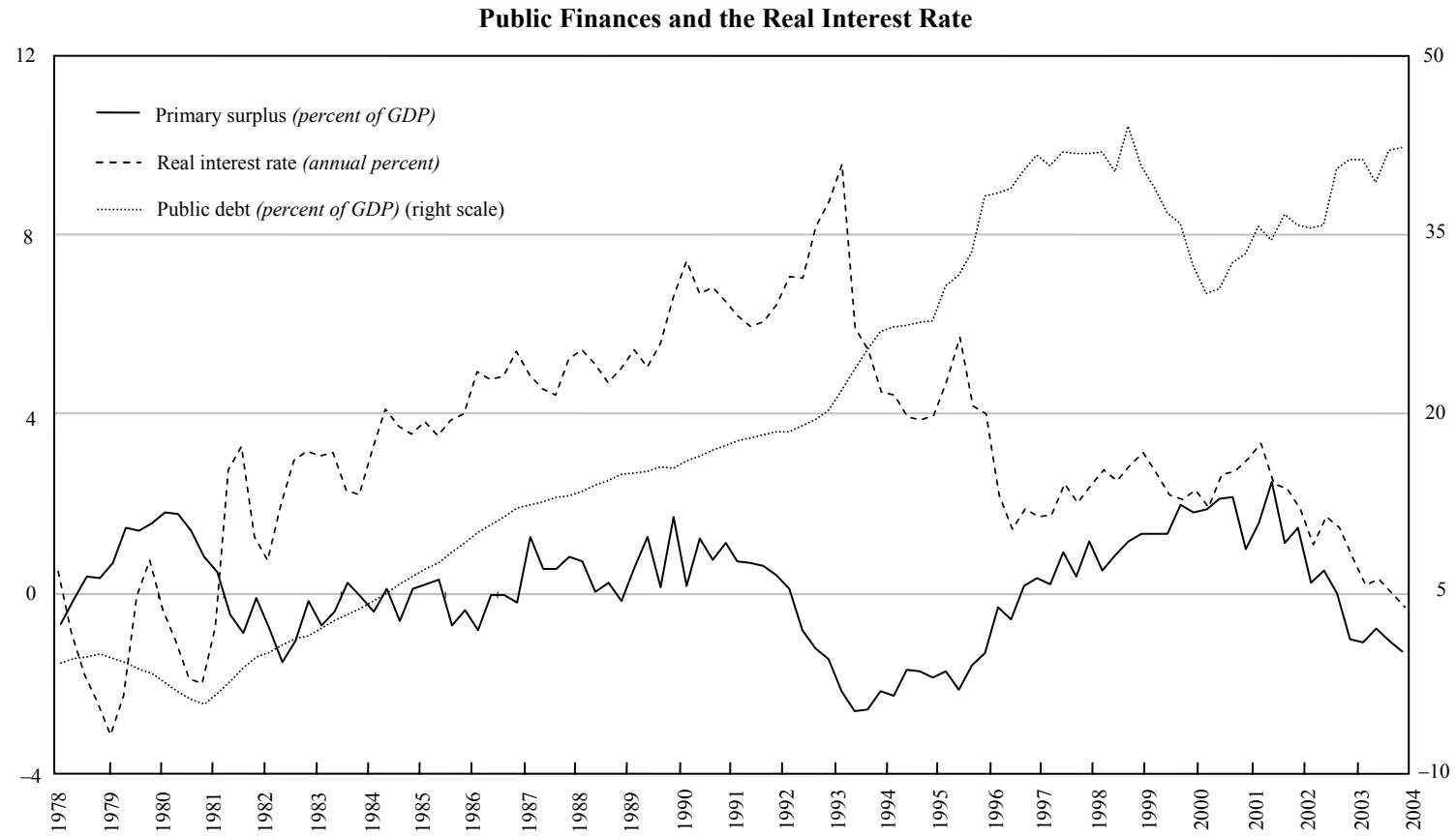
pure quarterly interpolations from annual data: business and net wealth taxes, rights on real property, and property income.

The public finance variables are plotted in Figure 1. They reveal the general orientation of French fiscal policy since the late Seventies. They also shed light on the very close relationship between the primary surplus, net public debt and the real interest rate that thus gives peculiar importance to the above-mentioned model.

It is well known that public deficits increased dramatically in the early Eighties since upon taking office in the spring of 1981, the new socialist government decided to reflate despite the so-called “external constraint” (that finally turned out to bite). It is interesting to note that although public deficits were soaring, primary surpluses increased dramatically and thus emphasized the key incidence of the sudden rise in interest charges on the overall fiscal stance of French fiscal policy in the early Eighties. The reversal to a stricter economic policy began in the summer of 1982. The “*tournant de la rigueur*” (materialized in the execution of the budget after the spring 1983 third devaluation of the French Franc in the European Monetary System) resulted in a slow improvement of the primary-deficit-to-GDP ratio by the end of 1983. As fiscal consolidation became a declared objective of left- and right-wing policy makers over the period 1984-87, primary balance was almost achieved over this period. From 1989 to 1992, primary balances were continuously positive and the remaining overall public deficits of France were mainly due to growing real interest rates. The primary surplus worsened dramatically between 1993 and 1995 mostly due to the recession of 1991-93 (real economic growth for 1993 had been equal to -1.3 per cent). Since 1991, social security experienced a deficit (which represented 0.9 points of GDP in 1993). At the end of 1993, the public deficit ratio reached 6 per cent of GDP (*i.e.* twice the Maastricht 3 per cent limit), half of which could be attributed to the primary deficit. The next phase was characterized by fiscal consolidation in order to meet the Maastricht limit of the 3 per cent of GDP. Since the end of 1994, fiscal policy turned to be strongly restrictive, resulting in sharp increase in the primary surplus, from -2 of GDP 1996 to $+2$ per cent of GDP four years later. Between 2001 and 2004, however, fiscal policy has been less restrictive and the primary deficit in percent of GDP has reached the level of 1995, hence has erased the “convergence years”.

As far as the public-debt-to-GDP ratio is concerned, it is noteworthy that its rise over the Eighties occurred despite the increase in the primary-surplus-to-GDP ratio. This leads to conclude that, the impact of the real interest rates on debt growth has been predominant. In the Nineties, the steep increase in the public-debt-to-GDP ratio coincided mainly with that of the primary deficits; only in the late Nineties did the relatively low real interest rates permit a decrease in the public-debt-to-GDP ratio.

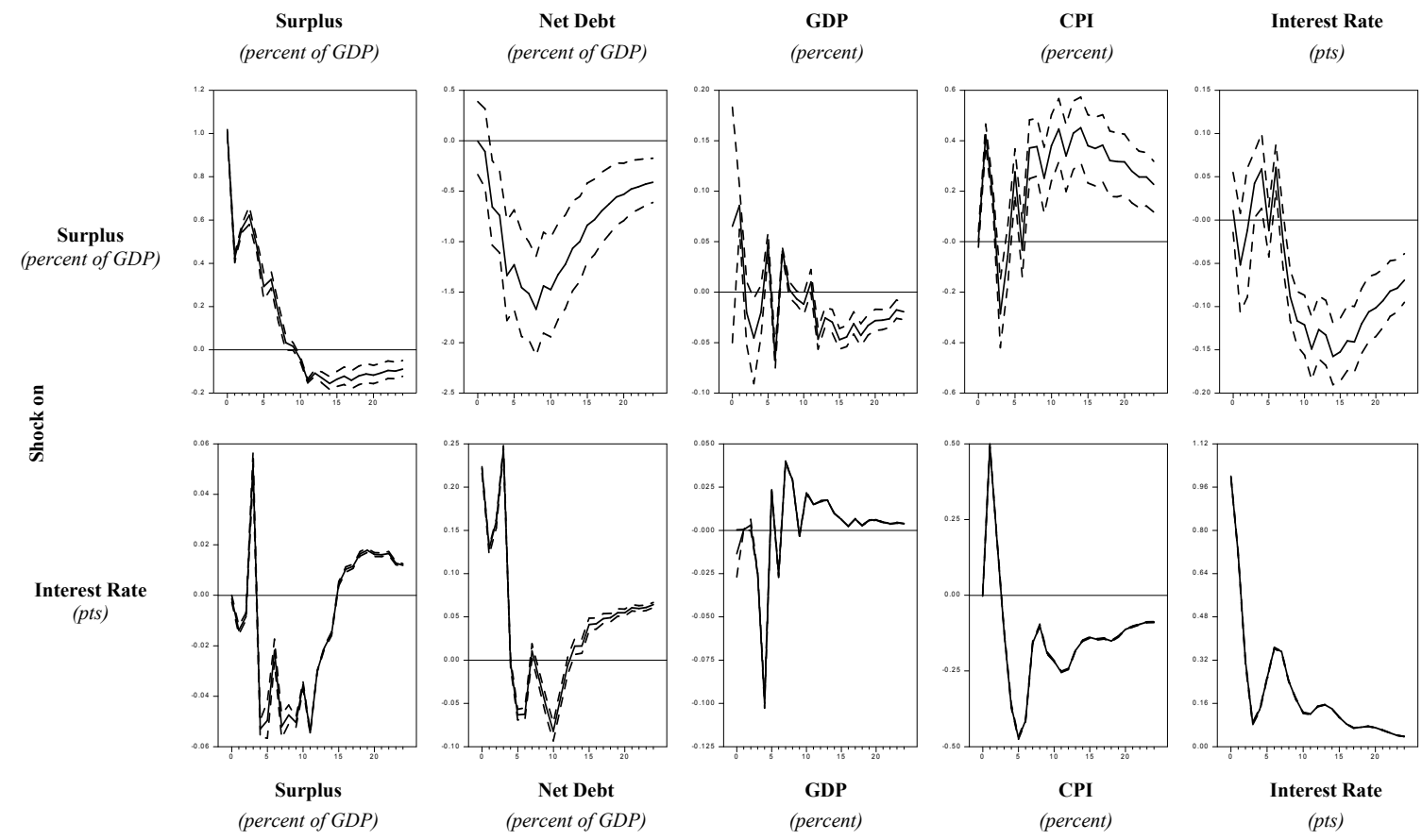
Figure 1



Source: INSEE and DATASTREAM.

Figure 2

Impulse Response Functions for the Full Sample, 1978-2003



5. Results

Figure 2 displays the responses of the five endogenous variables to two different shocks: first a shock to e_s equal to 1 percent of GDP; second a shock to e_r equal to 100 basis points. Like in Perotti (2004), the figure also displays the two symmetric one standard error bands computed by bootstrapping, as in Stock and Watson (2001).

5.1 A fiscal shock

The first outcome worth emphasizing is the negative significant impact of a positive surplus shock on GDP, from the second quarter after the shock has occurred. In fact, although the immediate response of the interest rate to the fiscal shock leads to a one-quarter long increase in GDP and prices, FTPL characteristics appear from the second quarter on. Two non-Keynesian episodes carrying no significance appear during the first 3 years, most surely driven by the fall in the interest rate. Nevertheless, afterwards FTPL properties prevail and non-Keynesian arguments can be disregarded for France. This negative impact increases in absolute value although at a decreasing rate from the sixth year after the shock has occurred. The effect continues to deploy in the longer run, remaining however quite low in absolute value. This confirms the Keynesian properties of fiscal policy in France that were the main conclusion of Biau and Girard. However, the fiscal multiplier that we obtain is lower than theirs.

As could be expected from the theoretical framework, the wealth effect plays a crucial role in the long-lasting decrease in GDP: in fact, after the decrease in the real interest rate, the negative wealth effect is shown to have a more substantial impact on GDP than the usual positive private investment effect. The effect on output in the long run thus stems from the negative wealth effect which is itself consecutive to the sharp decrease in public debt. Origins of the latter are twofold: a temporary shock on the primary surplus and a decrease in the real interest rate.

The incidence of the surplus shock on prices appears unable to reject the FTPL; after the instantaneous fiscal-induced pick up in prices, the price level adjusts to lower aggregate demand, inflates net public debt thus reestablishing the intertemporal budget balance. A new steady state with lower net debt and lower wealth justifies the persistence of a lower GDP. This result is relatively at odds with the conclusions of Creel and Le Bihan (2006) for France. In their paper, the VAR only incorporated the primary surplus and net debt (both expressed in percent of GDP) whereas the interactions between monetary and fiscal policies were not studied.¹ This latter element might be crucial in the present context. As Figure 2 shows, monetary policy loosens in the medium run, in response to the contractionary fiscal shock, and it surely has a positive impact on prices.

¹ Also noteworthy, Creel and Le Bihan (2006) do not use the same sample: data are on an annual basis and start in 1963.

Revealed substitutability in the behaviors of monetary and fiscal authorities in France, stemming from the fiscal shock, might seem quite amazing if we were trying to argue that both authorities have long worked hand in hand without conflict. The story is simpler: with the substantial rise in nominal and real interest rates that occurred in the Western countries during the Volcker's era at the end of the Seventies and beginning of the Eighties, some countries like France implemented expansionary fiscal policy that were meant to cushion the negative impact on private consumption and investment that this monetary shock had provoked. As we show in Section 6, in the more recent years, most notably after the disinflation strategy had been launched and during the Maastricht convergence period, the "complementary behaviors" have disappeared and a new regime made up of fiscal contraction and relatively restrictive monetary policies has arisen.

5.2 *A monetary shock*

The most interesting response is that of GDP: we observe an immediate significant decrease in output until economic growth resumes two years after the shock, when the monetary shock has disappeared. However, an immediate increase in the price level is observed despite the fall in aggregate demand. The VAR monetary literature has long exhibited a puzzling phenomenon: following a positive innovation on the policy interest rate (here related to the real interest rate, rather than the nominal one, for reasons that have to do with the FTPL framework, see paragraph 3.1), the price level tends to increase rather than to decrease. According to Sims (1992), this so-called "price puzzle" arises due to an error in identifying the exogenous part of monetary policy. Without an indicator for *future* inflation among the endogenous variables of the VAR, the price rise following a positive shock on the nominal interest rate would appear as a normal response to higher *expected* inflation: what has been labeled an "exogenous monetary shock" in fact contains some portion of the endogenous response of monetary authorities to higher future (or expected) inflation. In order to circumvent the "puzzle", Sims and others have suggested incorporating commodity prices as endogenous variables in VARs. Doing so, the truly exogenous component of monetary policy would be more accurately identified.² It is noteworthy here that the "price puzzle" seems to be present in spite of the fact that the monetary policy shock is exogenous, thanks to the overall methodology which has been implemented. However, the price puzzle rapidly disappears and the pick up in GDP growth stems from the positive wealth effect that has resulted from the increase in net public debt; the latter after having immediately responded to the structural monetary shock and subsequently to the pick up in inflation, is finally driven by the fall in the price level. As in the case of a fiscal shock we observe a "coordination" of the fiscal and monetary authorities as a monetary restriction yields an immediate expansionary response of fiscal authorities, supporting growth until the positive effect of higher wealth takes over.

² Two recent contributions on the "price puzzle" have cast some doubts on the favourable incidence of introducing commodity prices in VARs (Giordani, 2004; Hanson, 2004).

Consistently with the predictions of the FTPL, public debt dynamics appear to react to the real interest rate and prices rather than to the evolution of the primary surplus: after a structural fiscal shock, the decrease in net debt is mainly driven by the immediate and sharp decrease in the real interest rate. Its upsurge, once the fiscal shock has disappeared, is led by the fall in prices. After a structural monetary policy shock, net debt decreases immediately while the primary deficit shows a persistent increase. The subsequent rise in net debt is led by the price movement while the primary deficit declines.

6. Robustness

In this section we perform a simple test to check the robustness of the results described in the previous section. We split our sample in two, the pre- and post-Maastricht periods, and we computed the impulse response functions corresponding to the two sub-samples. Table 1 shows how the computed elasticities changed.

It is interesting to notice that the changes over the two sub-periods are substantial, and that they denote a change in policy. The Maastricht discipline shows in the sign of α_{sb} , that, though extremely small in absolute value, changed from positive to negative. The sensitivity of the debt-to-GDP ratio to the interest rate went from large and positive to negative; the overall result is a small and positive value. Finally, the important swing of α_{sy} reflects the institutional change intervened with the Maastricht treaty, when primary surplus became an objective rather than an instrument.

Figures 3 and 4 show the impulse response functions computed for the two sub-samples. With respect to the complete sample, the optimal lag length passed from 5 to 4. Obviously, we dropped from the two regressions the Maastricht

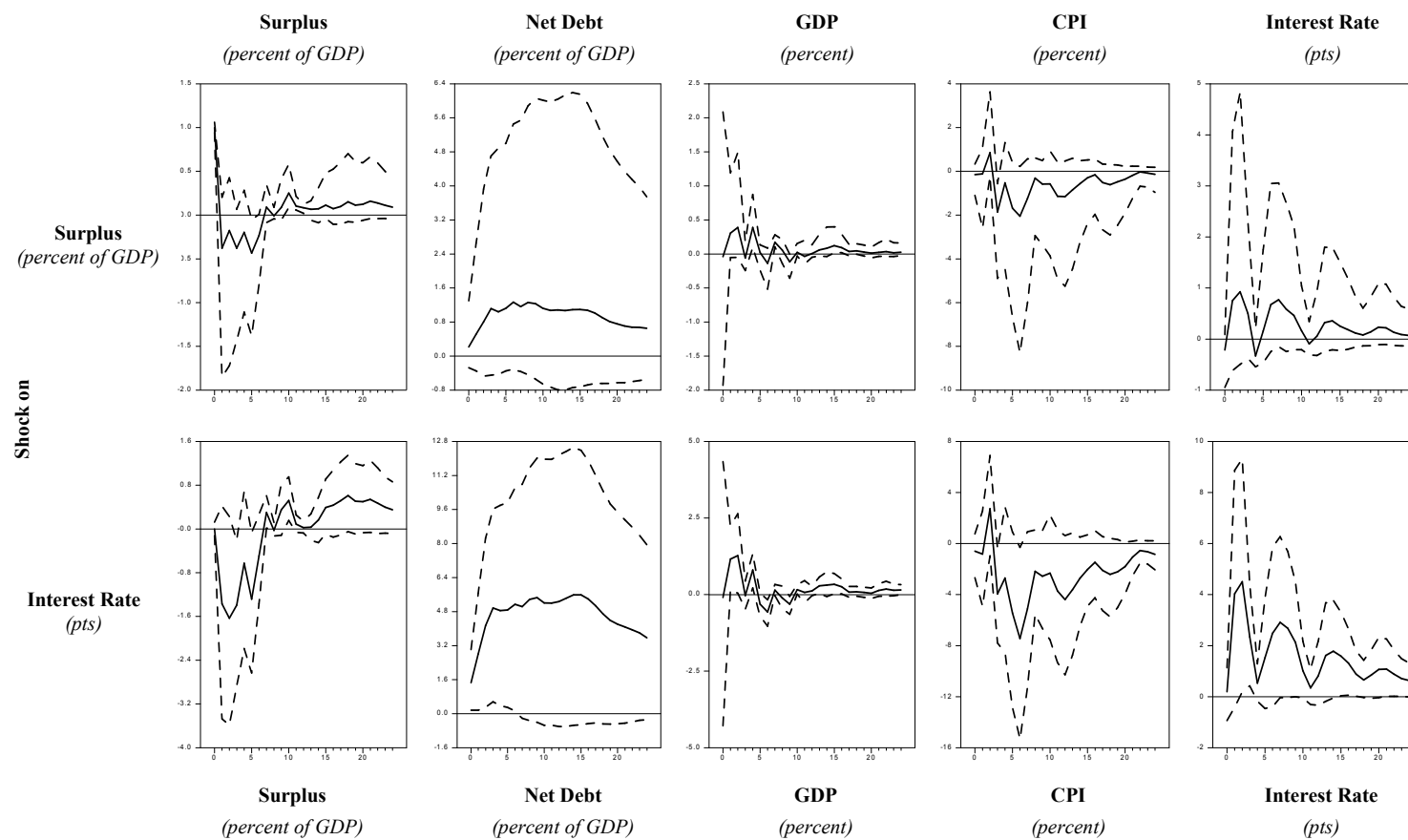
Table 1

Computed Elasticities			
Sample	all	1978-91	1992-2003
α_{sy}	0.10	0.03	0.16
$\alpha_{b\pi}$	-0.69	-1.49	-0.31
α_{br}	0.22	3.27	-0.48
α_{sb}	$-6.5 \cdot 10^{-5}$	$3.3 \cdot 10^{-4}$	$-3.5 \cdot 10^{-4}$

Source: Authors' calculations.

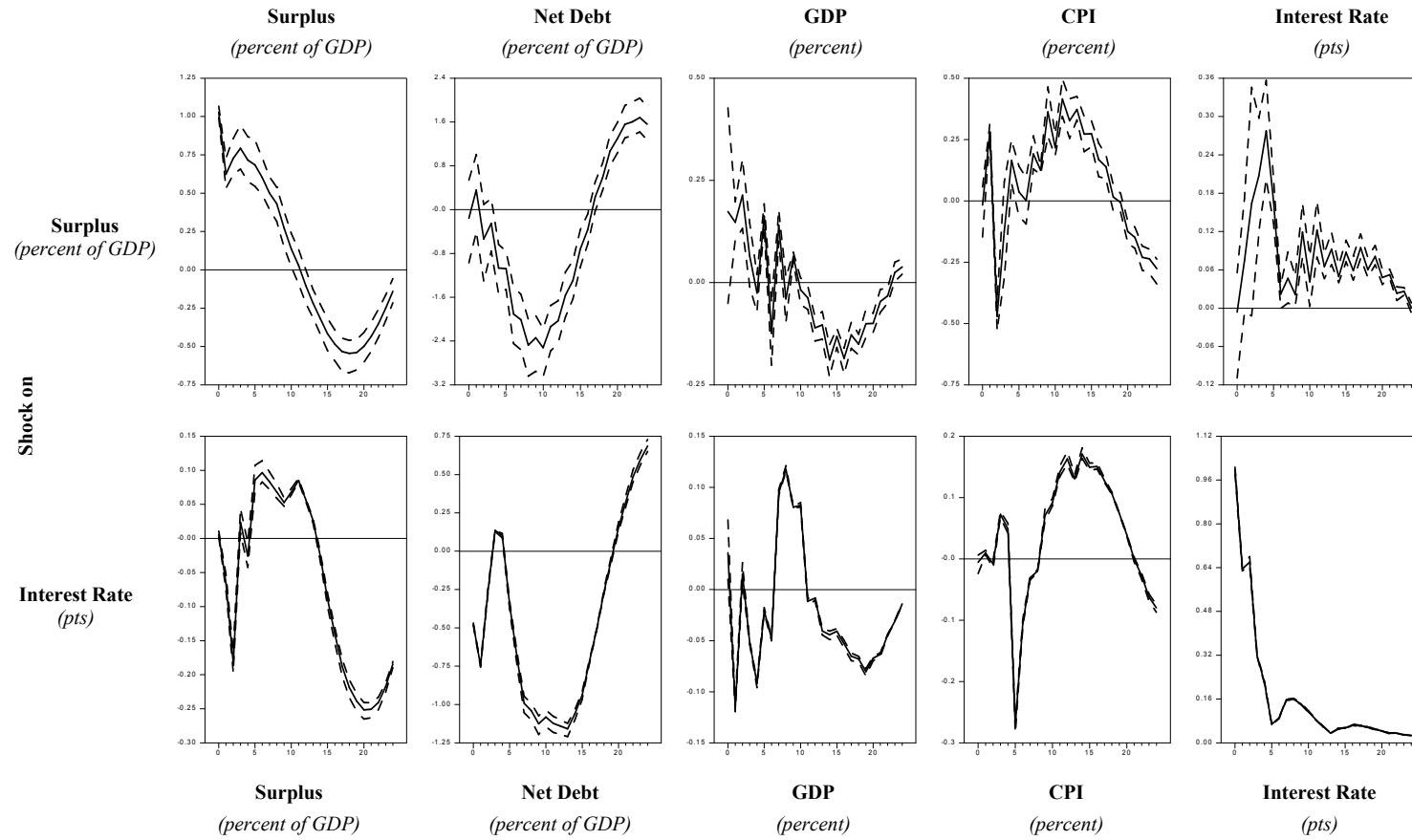
Figure 3

Impulse Response Functions for the First Sub-sample, 1978-91



Impulse Response Functions for the Second Sub-sample, 1992-2003

Figure 4



dummy, so that the exogenous variables are the constant and the German interest rate.

The results for the first sub-sample (1978-91) are that neither fiscal nor monetary policy shocks yield significant responses of the main macroeconomic variables. Two factors in our opinion contribute to explaining this result of policy ineffectiveness. The first is the high inflation environment of the late Seventies and early Eighties, that on one side made it very hard for fiscal and monetary authorities to design and implement efficient policy measures, and on the other made coordination harder to obtain. The second and in our opinion even more convincing explanation is that the process of European integration has progressively transformed the European Union in a large economy, in which policy has an important role to play. In the Eighties, on the other hand, such a process was just beginning, and even the largest European economies were strongly influenced by external factors. In that decade, in particular, the strong fluctuations of the dollar, and the US interest rates can explain most of the macroeconomic developments of the European economies (Fitoussi and Phelps, 1988). Thus, it is hardly surprising that national policies were not as effective as they had been when these economies were less open.

As for the Maastricht years (1992-2003) the discourse is more complex. By looking at Figures 2 and 4 we can observe that the overall behaviour over this sub-sample is similar to that over the full sample, with two important differences. The first is the response of interest rates to fiscal shocks that shows how the substitutability between fiscal and monetary policy was reduced. In the full sample monetary policy loosens in the medium run, in response to a contractionary fiscal shock. This has the effect of softening the effects on GDP, even if at the price of a persistent effect on inflation. In the past decade, instead, monetary policy tended to reinforce the effects of fiscal shocks. Thus, while inflation was curbed, the loss in terms of output growth was more pronounced. The lower degree of coordination between fiscal and monetary policy also emerges from the response to monetary shocks. While in the full sample monetary restrictions yield an expansionary response of fiscal authorities, in the past decade this behaviour was disrupted by the fiscal rules introduced with the Maastricht Treaty. Many governments including France were forced to react to GDP slowdowns and to the ensuing degradation of the fiscal position by taking a tighter stance. Thus, the response of primary surplus to a contractionary monetary shock is unsurprisingly positive at least in the medium run.

7. Conclusion

This paper develops along the lines traced by a recent body of literature that tried to assess the effects of fiscal policy shocks on the economy. We tackled the issue from a new perspective, using as a background model the fiscal theory of the price level. It has allowed a richer structure than in the current literature, in

particular in what concerns the importance of wealth effects and of the strategic interaction between fiscal and monetary policy.

In spite of this new and more complex setup, our paper is in line with the consensus that is emerging in the literature, in particular on the effects of fiscal policy shocks. On the one hand, our results confirm the standard textbook effects of fiscal expansions, though the size of the impulses should not be overstated. On the other hand, the impulse response functions of the structural VAR are consistent with the theoretical predictions of FTPL models, mainly as regards the positive link between the primary surplus and the price level. Moreover the wealth effect has been shown to work quite well and it facilitates the general understanding of the complex relationships between monetary policy, fiscal policy, net debt accumulation and GDP.

Our analysis has concerned one of the largest European economies, France. Thus, the results carry a very strong political economy implication. The whole set of rules that governs the European Union has been designed based on the assumption that fiscal policy is largely ineffective, when not harmful; an assumption that is in line with the theoretical results that characterized the literature on non-Keynesian effects that developed along the Nineties, when the Treaties were debated and written. In light of the results presented in this paper and in the literature it refers to, the Stability and Growth Pact, that is designed to let *at most* automatic stabilization play a role, lacks an empirical foundation.

On a more general level, the resurgence of interest in fiscal policy shows how dangerous are the attempts to crystallize in a constitutional framework the policy prescriptions that come from a particular doctrine. As our understanding of the mechanisms governing the economy deepens, the policy prescriptions and the tools best suited to face given shocks are also likely to change, so that the institutions in charge of governing the economy should be given the freedom to adapt to the new advances in economic theory.

REFERENCES

- Alesina, A. and R. Perotti (1995), "Fiscal Expansions and Adjustments in OECD Countries", *Economic Policy: A European Forum*, No. 21, pp. 205-40.
- Barro, R.J. (1974), "Are Government Bonds Net Wealth?", *Journal of Political Economy*, Vol. 82, No. 6, pp. 1095-117.
- Barro, R.J. and D.B. Gordon (1983), "A Positive Theory of Monetary Policy in a Natural Rate Model", *Journal of Political Economy*, Vol. 91, No. 4, pp. 589-610.
- Bernanke, B.S. (1986), "Alternative Explanations of the Money-Income Correlation", Carnegie-Rochester Conference Series on Public Policy, No. 25, pp. 49-99.
- Biau, O. and E. Girard (forthcoming), "Politique budgétaire et dynamique économique en France: l'approche VAR Structurel", *Economie et Prévision*.
- Blanchard, O.J. and R. Perotti (2002), "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output", *Quarterly Journal of Economics*, Vol. 117, No. 4, pp. 1329-68.
- Blanchard, O.J. and D. Quah (1989), "The Dynamic Effects of Aggregate Demand and Supply Disturbances", *American Economic Review*, Vol. 79, No. 4, pp. 655-73.
- Blanchard, O.J. and M. Watson (1986), "Are Business Cycles All Alike?" in R.J. Gordon (ed.), *The American Business Cycle: Continuity and Change*, pp. xiv and 868, Chicago, University of Chicago Press.
- Burnside, C., M. Eichenbaum and J.D.M. Fisher (2004), "Fiscal Shocks and Their Consequences", *Journal of Economic Theory*, Vol. 115, No. 1, pp. 89-117.
- Canova, F. and E. Pappa (2003), "Price Dispersions in Monetary Unions: The Role of Fiscal Shocks", CEPR, Discussion Paper, No. 3746, February.
- Canzoneri, M.B., R.E. Cumby and B.T. Diba (2001), "Is the Price Level Determined by the Needs of Fiscal Solvency?", *American Economic Review*, Vol. 91, No. 5, pp. 1221-38.
- Creel, J., B. Ducoudré, C. Mathieu, F. Saraceno and H. Sterdyniak (2004), "Should we Forget Fiscal Stabilisation Policies? A Critical Survey of the New Anti-Keynesian View of Public Finances", paper prepared for the 1st EUROFRAME conference on *Economic Policy Issues in the European Union*, Paris, June 4th.
- Creel, J. and H. Le Bihan (to be published in June 2006), "Using Structural Balance Data to Test the Fiscal Theory of the Price Level: Some International Evidence", *Journal of Macroeconomics*.

- Creel, J. and H. Sterdyniak (1995), "Les déficits publics en Europe: causes, conséquences ou remèdes à la crise?", *Revue de l'OFCE*, No. 54, pp. 57-100.
- (2001), "La théorie budgétaire du niveau des prix, un bilan critique. (The Fiscal Theory of the Price Level, a Critical Assessment. With English summary.)", *Revue d'Economie Politique*, Vol. 111, No. 6, pp. 909-39.
- (2002), "The Fiscal Theory of the Price Level and Sluggish Inflation: How Important Shall the Wealth Effect Be?", OFCE, Working Paper, No.2002-01.
- Edelberg, W., M. Eichenbaum and J.D.M. Fisher (1999), "Understanding the Effects of a Shock to Government Purchases", *Review of Economic Dynamics*, Vol. 2, No. 1, pp. 166-206.
- Fatás, A. and I. Mihov (2001), "The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence", CEPR, Discussion Paper, No. 2760, April.
- Fitoussi, J.P. and E. Phelps (1988), *The Slump in Europe: Reconstructing Open Macroeconomic Theory*, Blackwell.
- Galí, J. and R. Perotti (2003), "Fiscal Policy and Monetary Integration in Europe", *Economic Policy*, No. 37, pp. 533-64 and 571-72.
- Giavazzi, F., T. Jappelli and M. Pagano (2000), "Searching for Non-linear Effects of Fiscal Policy: Evidence from Industrial and Developing Countries", *European Economic Review*, Vol. 44, No. 7, pp. 1259-89.
- Giavazzi, F. and M. Pagano (1990), "Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries", in O.J. Blanchard and S. Fischer (eds.), *NBER Macroeconomics Annual 1990*, pp. 75-111, Cambridge (MA) and London, MIT Press.
- Giordani, P. (2004), "An Alternative Explanation of the Price Puzzle", *Journal of Monetary Economics*, Vol. 51, No. 6, pp. 1271-96.
- Giordano, R., S. Momigliano, S. Neri and R. Perotti (2005), "The Effects on the Economy of Shocks to Different Government Expenditures Items: Estimates with a SVAR Model", in this volume.
- Hanson, M.S. (2004), "The 'Price Puzzle' Reconsidered", *Journal of Monetary Economics*, Vol. 51, No. 7, pp. 1385-413.
- Leeper, E.M. (1991), "Equilibria under 'Active' and 'Passive' Monetary and Fiscal Policies", *Journal of Monetary Economics*, Vol. 27, No. 1, pp. 129-47.
- Leith, C. and S. Wren-Lewis (2000), "Interactions between Monetary and Fiscal Policy Rules", *Economic Journal*, Vol. 110, No. 462, pp. 108.
- Llaur, P. (1996), *Economie financière publique*, collection Thémis – Économie, Paris, Presses Universitaires de France.

- Mohr, M. (2002), "On the Macroeconomic Impact of Fiscal Policy in Germany – Preliminary Results of a SVAR Approach", in Banca d'Italia (ed.), *The Impact of Fiscal Policy*.
- Mountford, A. and H. Uhlig (2002), "What Are the Effects of Fiscal Policy Shocks?", CEPR, Discussion Paper, No. 3338, April.
- Niepelt, D. (2004), "The Fiscal Myth of the Price Level", *Quarterly Journal of Economics*, February, pp. 277-300.
- Perotti, R. (2004), "Estimating the Effects of Fiscal Policy in OECD Countries", IGER, Working Paper, No. 276, December.
- Ramey, V.A. and M.D. Shapiro (1998), "Costly Capital Reallocation and the Effects of Government Spending", Carnegie-Rochester Conference Series on Public Policy, No. 48, pp. 145-94.
- Rogoff, K. (1985), "The Optimal Degree of Commitment to an Intermediate Monetary Target", *Quarterly Journal of Economics*, Vol. 100, No. 4, pp. 1169-89.
- Sargent, T.J. and N. Wallace (1981), "Some Unpleasant Monetarist Arithmetic", *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 5, pp. 1-17.
- Shapiro, M.D. and J. Watson (1988), "Sources of Business Cycle Fluctuations", Cowles Foundation, Discussion Paper, Yale University, No. 870, May.
- Sims, C.A. (1980), "Macroeconomics and Reality", *Econometrica*, Vol. 48, No. 1, January, pp. 1-48.
- (1992), "Interpreting the Macroeconomic Time Series Facts: The Effects of Monetary Policy", *European Economic Review*, Vol. 36, No. 5, pp. 975-1000.
- (1994), "A Simple Model for Study of the Determination of the Price Level and the Interaction of Monetary and Fiscal Policy", *Economic Theory*, Vol. 4, No. 3, pp. 381-99.
- Sims, C.A., J.H. Stock and M.W. Watson (1990), "Inference in Linear Time Series Models with Some Unit Roots", *Econometrica*, Vol. 58, No. 1, January, pp. 113-44.
- Stock, J.H. and M.W. Watson (2001), "Vector Autoregressions", *Journal of Economic Perspectives*, Vol. 15, No. 4, pp. 101-15.
- van den Noord, P. (2000), "The Size and Role of Automatic Fiscal Stabilizers in the 1990s and Beyond", OECD, Economics Department, Working Paper, No. 230.
- Woodford, M. (1995), "Price-Level Determinacy without Control of a Monetary Aggregate", Carnegie-Rochester Conference Series on Public Policy, No. 43, pp. 1-46.
- (2001), "Fiscal Requirements for Price Stability", *Journal of Money, Credit, and Banking*, Vol. 33, No. 3, pp. 669-728.

EXPENDITURE CEILINGS AND FISCAL POLICY: SWEDISH EXPERIENCES

*Urban Hansson Brusewitz and Yngve Lindh**

1. Introduction

In the late Nineties, the Swedish budget process and fiscal framework were thoroughly reformed. At present (2005), the new system has been in place for seven years. The aim of this paper is to describe this system, with an emphasis on expenditure ceilings, and to discuss the experience so far. The paper is organized as follows: Section 2 presents the reforms of the budget process and the Swedish fiscal framework. In particular, the relation between expenditure ceilings and the surplus target will be explained. Section 3 discusses the track record of the expenditure ceilings, describes the budget margin mechanism and the main elements that set the nominal levels of the ceilings. Section 4 highlights some problems with the system and in Section 5 the functioning of the system over the economic cycle 1998 to 2004 is discussed. Section 6 concludes.

2. Description of the fiscal policy framework¹

2.1 *Budget process and expenditure ceilings*

The Swedish public finances went through two weak periods during the last decades – one in the early Eighties and a second in the early Nineties. The latter episode was the most severe fiscal crisis after the second world war and probably one of the deepest in the industrialized world at the time. This pronounced weakening was influenced by the international slowdown, but had without doubt also domestic causes related to stabilization policy, sequencing of deregulation and to the wage-formation process. At that time it was also observed that the Swedish budget process was rather loose and could have contributed to the crises.² A reform process was initiated, which led to substantial changes in the budget process later in the Nineties. Central features of the new budget process, implemented in January 1997, are a “top-down” budgetary process, with multi-year expenditure ceilings and a medium-term target for the government’s net lending.

* Both authors are employed in the Swedish Finance Ministry. Urban Hansson Brusewitz is Director, Division for Budget Totals and Coordination of the Budget Process at the Budget Department and Yngve Lindh is Senior Economic Adviser, Division for Public Finances, Economic Affairs Department. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Finance Ministry.

The authors would like to thank Robert Boije, Jonas Fischer, Gösta Ljungman, George Kopits and other participants at Banca d’Italia workshop for valuable comments.

¹ This part draws on Hansson Brusewitz (2002) and Heeringa and Lindh (2001).

² Molander (2000).

The “top-down” budget process assigns a clear role to the Ministry of Finance in drawing up the budget. The multi-year framework includes nominal expenditure ceilings for the coming two or three years. For the two coming fiscal years ($t+1$ and $t+2$) these ceilings are already set by decisions taken in earlier years. The new expenditure ceiling three years ahead ($t+3$) is discussed and decided at a cabinet budget meeting in August. The discussion is based on a proposal from the finance minister. The level of the expenditure ceiling for year $t+3$ is presented to the Parliament in the Budget bill in September and is approved by the Parliament in November. The decision is a guideline decision that can be changed by a new decision by the Parliament. A lot of political prestige has, however, been invested in the expenditure ceiling and there are strong political commitments to maintain the ceiling at the decided level.³

The new budget process also includes a so-called two-stage frame decision process. Total expenditure is divided into 27 different expenditure areas for the coming fiscal year, for each of which the Parliament first determines a budget frame. This decision must comply with the previously set expenditure ceiling for year $t+1$. The Parliament then approves the level of the appropriations within each expenditure area. The total sums of the appropriations must not exceed the previously determined budget frame. Hence, additional spending on one appropriation must be matched with corresponding spending cuts within the same expenditure area, otherwise the proposal will not be allowed to be discussed by Parliament. The new decision process in Parliament has reduced the size of parliamentary amendments to the government’s budget. Indicative frames for the expenditure areas for years $t+2$ and $t+3$ are also approved by the Parliament as starting points for the preparation of future budgets.

The ceiling includes central government expenditures and expenditures for the pension system outside the budget but doesn’t include interest expenditures. It covers approximately two-thirds of total general government expenditures. Cyclically sensitive expenditures, such as expenditures on active labour market programmes, unemployment benefits and social security are included.⁴ Inflation is treated as all other factors affecting expenditures without any automatic adjustments. Interest costs are excluded, according to the argument that in the short term it is not possible for the government to influence them. Local government expenditures are excluded, with reference to the autonomy of this level of the government. The basic rules governing the budget process, including the expenditure ceilings, were collected in a budget act dated 1997.

³ In the period 1997 to 2001 the ceiling for $t+3$ was approved by the Parliament in spring. Since 2002 it is approved in November.

⁴ A motivation for including also cyclically sensitive expenditures is that transparency of the budget rule improves with a broad covering. The cyclical effects are intended to be taken care of by the so-called budget margin, see paragraph 3.2.

Table 1

The Surplus Target: Annual Targets and Outcome
(net lending, percent of GDP)

	2000	2001	2002	2003	2004	2005
Annual Target	2.0	2.5	2.0	2.0	0.5	0.5
Outcome	5.0	2.6	-0.5	-0.1	1.1	-

Source: Swedish Ministry of Finance and Statistics.

2.2 The surplus target

The fiscal policy framework implemented in the late Nineties includes two targets at the national level.⁵ In addition to the expenditure ceiling, there are also surplus targets that cover the general government sector, *i.e.* the central government, local governments and the old-age pension system. The target, which is set for the medium term, is that the general government net lending (according to ESA95) should amount to 2 per cent of GDP per year on average over the business cycle. One indicator of the targets is that the structural surplus (adjusted for the cycle and one-off measures) should amount to 2 per cent of GDP. Other indicators are averages over periods of several years indicating a cycle.

In practical implementation *ex ante*, the medium-term target is translated into an annual target for the actual budget surplus in year t and $t+1$.⁶ This annual target is proposed by the Government in the Budget Bill for the year $t+1$ in September in year t and is approved by Parliament later in the autumn. The targeted surplus could deviate from 2 per cent of GDP for two reasons. First, the cyclical situation (measured as the GDP gap) is normally taken into account when the annual target is set. Secondly, a large initial deviation from 2 per cent could motivate a slower adjustment back to the targeted level than within one year. The annual targets were fulfilled in the years 2000, 2001 and 2004. In 2002 and 2003, an unexpected weak growth contributed to the outcome.

2.3 The aim of the surplus target

The main reason for the surplus target is to reduce public debt to account for the budgetary impact of an ageing population. Thus, the target is forward-looking. The dependency ratio of the elderly related to the working population will increase

⁵ In addition to the targets set at national level, there is also a balanced budget requirement for local governments.

⁶ This is the practice since the Budget for 2003. Earlier annual targets were set for the whole projected period of three years.

rapidly after 2010. A surplus of public net lending of, on average, 2 per cent during the coming decade will reduce public debt and interest payments. This will diminish the need to for budgetary retrenchment (e.g., tax increases) when costs for the ageing population start to rise, and also smooth the tax burden across generations. The sustainability criterion behind the choice of the surplus target is that the debt situation should not deteriorate over a foreseeable period, which is sufficiently long to include the demographical structural change. The estimates presented in the Updated Swedish Convergence Programme for 2004 result in a central government ratio for 2050 that is lower than today. The calculations include the assumption that the surplus target is fulfilled up to 2015.⁷

A second motive of the surplus target is to maintain a large enough margin to avoid excess deficits according to EU fiscal rules, defined as deficits exceeding 3 per cent of GDP, and to fulfil the Stability and Growth Pact's (SGP) medium-term target of a budget position of "close to balance or in surplus". For Sweden, a country with a relatively large expenditure and revenue ratios, a small structural surplus is needed to give room for automatic stabilizers and for other types of budget uncertainty.⁸ However, the Swedish national surplus target is somewhat more ambitious compared to the SGP target. Hence, besides automatic stabilizers, there could be some room for discretionary policies when there are risks for larger output gaps.

The attainment of the medium-term target also helps to support the credibility of the budget policy and thereby supports monetary policy and moderate market interest rates. This may, in turn, have positive effects on investments.

2.4 *Why two targets?*

The surplus target could be seen as the overarching target and the expenditure ceilings as an operational supplement to the surplus target. However, the expenditure ceilings have also their own virtues, as explained in Section 3.

There exist several motives behind the two-target system. First, even if the surplus target promotes long-term sustainability and secures room for automatic and active stabilization policies, it does not constrain the total spending level nor the total tax revenues. However, together with the surplus target, the level of the expenditure ceiling determines an implicit target for the tax level. A separate revenue target is therefore not needed, but a desired tax level could guide the choice of the expenditure ceiling.

⁷ For more detailed presentations of assessments of long term sustainability of Swedish public finances and its relation to the surplus target, see the Budget Bill for 2005, Appendix 2, "Sweden's Economy" (Chapter 13) and the Swedish Convergence Program 2004.

⁸ Empirical estimates show that the so-called semi-elasticity measuring the budget sensitivity with respect to the output gap is approximately 0.7, while it is on average 0.5 in EU-15.

Second, a top-down budget process where a target for total expenditure is decided before expenditure details, makes budget choices more explicit and results in improved argumentation for new spending proposals. This should, in turn, lead to an improved allocation of scarce resources on the budget.

Third, a multi-annual expenditure ceiling set in advance might prevent a situation where temporary high tax revenues are used to pay for permanently higher spending. Hence, a pro-cyclical policy can be avoided in periods of cyclical upturns on the expenditure side of the budget. The multi-annual system supports a long-term direction of fiscal policy, and strengthens its credibility.

In their practical application, expenditure ceilings show advantages over surplus targets. The nominal ceilings are highly transparent, a strict ceiling being expressed as a simple figure in billion SEK, and therefore easy to monitor. The experience so far is that this contributes to the political commitment to keep the target and that there are substantial political costs not to do so. Other institutions monitor the ceilings, most strictly the National Financial Management Authority (ESV).⁹ In several occasions, in the autumn, this authority reported that the ceilings were threatened and such reports are published by the media. So far, in these occurrences the government has always corrected its expenditure policy to comply with the target. The medium-term surplus target, on the other hand, is a symmetric target and less easy to monitor.¹⁰ Measures of structural balances could be used as indicators of compliance but they are notoriously uncertain. Also, the length of the cycle is not a clearly defined concept.

3. Track record of expenditure ceilings, 1997-2004

3.1 *The level of the expenditure ceiling*

General government expenditure as a percentage of GDP rose sharply during an economic crisis in the early Nineties. In 1993 the expenditure-to-GDP ratio amounted to 70.4 per cent of GDP. The savings in the consolidation program that was implemented in 1994, to become fully effective in 1998, contributed to a fall in the expenditure-to-GDP ratio. Between 1998 and 2000, after the completion of the consolidation program, general government expenditure, as a percentage of GDP, continued to decline from 58.2 in 1998 to 54.7 per cent in 2000. This fall in the expenditure ratio was mainly a consequence of relatively restrictive levels of the expenditure ceilings set for those years. As a percentage of GDP, the expenditure ceiling fell by about 2.5 per cent between 1998 and 2000. During the same period the tax ratio increased by about 1 percentage point and general government net lending increased from 1.9 to 5.0 per cent of GDP. Hence, during these years the

⁹ ESV is an authority which, in its activities, operates independently from the Government and the Finance Ministry.

¹⁰ However, annual targets have been formulated as a floor for the surplus. That is, for instance, the case for the annual target in 2005.

Table 2

Expenditure Ceilings Adjusted for Technical Changes
(billions of Swedish Krone)

Year	1997	1998	1999	2000	2001	2002	2003	2004
Expenditure Ceiling	698	695	711	720	746	773	803	836
<i>percent of GDP</i>	36.2	35.2	34.2	32.8	32.9	32.9	32.8	32.4
Expenditure under the Ceiling	674	693	709	715	741	773	800	834
<i>percent of GDP</i>	35.7	35.1	34.1	32.6	32.7	32.8	32.8	32.8
Budget Margin	24.0	2.0	1.5	5.0	4.7	0.4	2.9	2.4

Sources: Ministry of Finance and Statistics Sweden.

expenditure ceiling prevented a situation where temporary high tax revenues, due to a cyclical upswing, were used to finance permanently higher spending.

Corrected for technical changes, the expenditure ceiling has been set at a relatively stable level of almost 33 per cent of the *actual* GDP for the period 2000-04. However, since average economic growth has been lower than trend growth during these years, the expenditure ceiling as a percentage of *potential* GDP has decreased somewhat since 2000. According to the National Accounts, during the same period, primary general government expenditure – including local governments – is expected to increase by about 0.8 of GDP to 52.5 per cent 2004 (see Table 2).¹¹ The expenditure ceilings have, so far, been effective in restraining the growth of public expenditures and in maintaining a structural surplus in general government finances.

Corrected for technical changes, the expenditure ceiling decreased from 36.2 per cent of GDP in 1997 to 32.4 per cent of GDP in 2004. The ceilings that are now in effect up to year 2006 imply that the expenditure ratio will continue to decline over the next few years, but at a lower rate.

3.2 The budget margin

A critical feature of the expenditure ceiling is that it has an *ex post* dimension: it should be implemented in a way such that the outcome of the ceiling-restricted

¹¹ The minor difference between the development of the ceiling to GDP ratio and the central government expenditure ratio according to the National Accounts depends mainly on the fact that certain central government expenditures are reported on the income side in the central government budget and in the National Debt Office's net borrowing.

Table 3

General Government Expenditure and Primary Expenditures
(percent of GDP)

Year	1997	1998	1999	2000	2001	2002	2003	2004
Expenditure	60.5	58.2	57.2	54.7	54.2	55.7	55.9	54.5
Primary Expenditure	54.2	52.7	52.9	50.6	51.1	52.4	53.5	52.5

Sources: Swedish Ministry of Finance and Statistics.

expenditure is below the decided expenditure ceiling. It is not enough that the target is met *ex ante* when the ceiling is determined three years in advance or at the time of budget approval.

Since the ceiling limits the actual expenditure – not just appropriated funds – uncertainty in the expenditure forecast has to be taken into account. To accommodate the impact of unanticipated developments there is a buffer – a so-called budget margin – between the ceiling and the ceiling-restricted expenditures. The main purpose of this budget margin is to absorb fluctuations in the expenditure level due to changes in the business cycle and other macroeconomic uncertainties. The margin should also absorb the uncertainty caused by the fact that Swedish agencies can shift the consumption of appropriated funds between years.¹² However, the budget margin does not only serve as a contingency reserve. Given that the margin is considered sufficiently large to handle uncertainty, the margin also leaves some scope for future spending reforms. Hence, this part of the margin has served as a planning reserve for future spending initiatives not yet decided or announced.

A large budget margin will substantially reduce the risk of an overrun of the ceiling and the need for active measures in case of such a risk. It also gives room for the action of the automatic stabilizers on the expenditure side of the budget to operate. On the other hand, too large a margin softens the budget constraint; so a trade-off has to be made when the expenditure ceiling and the budget margin are determined three years in advance. There is no established principle for determining the appropriate size of the budget margin. When the ceiling has been set for the third additional year in the three-year budget framework, the budget margin has normally amounted to about 2 per cent of the expenditure ceiling.¹³ Since the uncertainty in

¹² For most appropriations there is a carry-over possibility, which means that unused appropriations – within certain limits – can be carried forward to the next year. For most appropriations there is also a possibility – within certain limits – to borrow against the following years' appropriation. Such a credit is automatically deducted from the carry-over fund the following year.

¹³ To understand the principles for the decisions on the ceilings, see paragraph 3.3.

the expenditure level is smaller for the coming two years, a smaller budget margin has been accepted for these years.

Table 1 shows the outcome of budget margins for 1997-2004. We see that the expenditure ceiling has been met every year since its introduction in 1997. In 1997 the budget margin was relatively large in relation to the expenditure ceiling. Between 1998 and 2004, however, the outcome of the budget margin was relatively small, just a fraction of a percent of the expenditure ceiling. The budget margins are also expected to be small between 2004 and 2006.

Since 1998, the budget forecasts for each current year have usually indicated a risk of an overrun of the expenditure ceiling. Among the reasons for this are (i) the new expenditure reforms decided after the level of the expenditure ceiling was approved and (ii) the economic downturn in the economy that began in 2001 (see also Section 5). This development has created a pressure on the expenditure ceiling, mainly through higher-than-expected unemployment benefits. The small budget margins have also – to a large extent – been caused by higher-than-expected costs for sick leave insurance. In 1997 the sick numbers were at a historically low level. In 1998, the sick leave numbers started to increase. This increase was forecasted not to last long. Because the increase from 1997 onwards was not forecasted, it took a long time for the Government to react to it. In 2002, an all-time high was reached. Hence, from 1997 to 2003, the total costs for sickness benefits, including early retirement, rose rapidly. In relation to total ceiling-restricted expenditures, the costs for sick leave insurance and disability pensions increased from 11 per cent in 1997 to 15 per cent in 2003.

The new budget process, with relatively small budget margins under the expenditure ceiling, implies that expenditure forecasting over the short- and medium-term has become a high priority activity in the Government Office. Forecasting now plays a central role both during the budgeting phase and as a component of the in-year monitoring activities.

A lot of political prestige has been invested in the expenditure ceiling. Furthermore, the budget act stipulates that the Government must act to prevent an overrun of the ceiling if there is a risk of such an overrun. There has, therefore, been both a strong political commitment, together with a legal one, to comply with the ceilings. To cope with the ceilings, the Government has most years used its right to set the maximum allowed expenditures below the amounts appropriated by the Parliament by using the so-called “limitation amounts”. Because of the carry-over possibility that is applied to most appropriations in the Swedish budgetary system, the limitation amounts have carried forward expenditure from the current year to the next fiscal year. Therefore, the limitation amounts have not given rise to a permanent reduction of the expenditure level. However, they reduced the level of the budget margin in the following fiscal year and thus the scope for expenditure reforms or increased the need for budgetary retrenchments in that year.

On some occasions, to comply with the expenditure ceiling the government has also proposed permanent savings in, e.g., some transfer systems. Other measures

can also be used. The Government has submitted proposals to the Parliament on exceptions from the normal rule that acquisition of assets of an infrastructural nature shall be financed by appropriations. Instead, the Government has, in a few cases, proposed that acquisition of such assets shall be financed by loans in the National Debt Office. This means that accounting in relation to appropriations and the expenditure ceiling takes place in future years when the loans are amortized and not in the fiscal year to which the investment expenditure relates. Hence, just like in the case with limitation amounts, loan-financed infrastructure projects tend to reduce the level of the budget margin in the following fiscal years. The Government has also used *tax expenditures* or *net budgeting* of fees as a remedy when the expenditure ceilings have been threatened (see below). It should, however, be observed that the introduction of new tax expenditures have not been used as a substitute for existing expenditure programs but as a substitute for new expenditure reforms.

3.3 Principles for the decisions on the expenditure ceilings

When the ceiling for the new third coming fiscal year is to be set, the previously decided expenditure ceilings for the first two years are maintained, unless very strong reasons justify modifications of the ceilings. So far, the ceilings have been maintained at the previously decided levels, with exceptions for some technical adjustments.¹⁴

Several factors are normally taken into consideration when the level of the expenditure ceiling is determined. One factor is that the expenditure ceiling affects the scope for tax reforms or the need for tax hikes over the medium-term. The desired level of future tax reforms should therefore be taken into consideration when the ceiling is proposed. Equation (1) illustrates the relation between the desired level of tax reforms for year ($t+3$), ΔT_{t+3} , and the level of the expenditure ceiling, C_{t+3} :

$$C_{t+3} = R_{t+3} + \Delta T_{t+3} - S - OE_{t+3} + M \quad (1)$$

where R_{t+3} denotes projected general government revenues assuming unchanged tax rules for year ($t+3$),¹⁵ S is the desired structural level of general government net lending (2 per cent of GDP), and OE_{t+3} is projected net expenditures outside the

¹⁴ Such adjustments have been made several times due to policy changes that have affected the ceiling-restricted expenditures without affecting the consolidated expenditures of the general government sector. After the technical adjustment of the expenditure ceiling, the margin between the new ceiling and ceiling-restricted expenditures should in principle be the same as before the change that gave rise to the adjustment.

¹⁵ When the level of the expenditure ceiling for the third coming year is to be determined, the output gap is normally assumed to be approximately zero for that year. Hence, the tax forecast for year $t+3$ normally shows expected tax revenues collected at the potential level of GDP. This means that a calculation of the level of the expenditure ceiling made in accordance with equation (1) is based on tax revenues obtained at the potential level of GDP. Higher-than-expected tax revenues due to a cyclical upturn (resulting in a positive output gap) will therefore be used to improve the budget balance (given that the expenditure ceiling is a more or less binding constraint).

ceiling (mainly, projected local government expenditures and interest on central government debt). The level of ceiling-restricted expenditures that are compatible with the planned tax measures then equals $R_{t+3} + \Delta T_{t+3} - S - OE_{t+3}$. By adding an appropriate budget margin (M), one obtains the desired level of the expenditure ceiling.

The difference between the maximum planned expenditure level that follows from the expenditure ceiling ($C - M = R_{t+3} + \Delta T_{t+3} - S - OE_{t+3}$) and the consequent assessment of how large the expenditure will be for the coming third year (if the measures already decided are implemented) then shows the potential scope for expenditure reforms for that year.¹⁶ If this difference is negative there is instead a need for budgetary retrenchments on the expenditure side of the budget.

Hence, by choosing an appropriate level of the expenditure ceiling this way, a projected structural budget surplus in excess of 2 per cent of GDP can be divided between a scope for future desired tax reforms and a scope for future desired spending reforms. If the projected structural budget surplus instead is below 2 per cent of GDP, the difference is instead divided into expenditure retrenchments and tax boosts.

A problem with the top-down method of determination of the level of the expenditure ceiling in equation (1) is that it requires information on desired future tax reforms and the budgetary impact of such reforms. Because of this problem, the expenditure ceilings have also been determined on the basis of other factors and considerations. One is the relation between the expenditure ceiling and GDP. As mentioned above, the expenditure ceiling has – since year 2000 – been set at an approximately constant level of GDP. For a given level of the surplus target and local government expenditure, this means that the government has planned for an approximately constant level of the overall tax burden over time when the expenditure ceilings were determined.¹⁷ It is also seen as important to avoid a trend growth in the expenditure ratio during the current decade, because of the future budgetary impact of the ageing population after year 2010.

4. Problems

A drawback with hard budget constraints is that they might encourage the use of dubious accounting practices, thereby reducing the degree of transparency in the government budget.¹⁸ Normally, such operations give the government some margin of flexibility in the implementation of fiscal rules. In the case of Sweden, that has a rule on the aggregate level of central government spending, the easiest way to

¹⁶ This difference also equals the difference between the projected budget margin, which follows from the consequence assessment and the contingency reserve.

¹⁷ Surpluses well above 2 per cent in 2000 and 2001, however, gave room for tax cuts.

¹⁸ This is, for instance, discussed in Kopits (2001) and Milesi-Ferretti (2001).

circumvent the expenditure ceiling is to introduce net accounting or subsidies on the revenue side of the budget (tax expenditures).

As a rule, the Budget Act prescribes that the state budget shall, in principle, include all government revenue and expenditure, and that revenue and expenditure shall be entered gross in the state budget. However, the Parliament may decide on exceptions to these rules. This has occurred on a few occasions, when the Government was given authority to decide on the disposition of certain revenues from user fees. This means that related expenses are no longer accounted for in the state budget. The effect of these operations on ceiling-restricted expenditures have, however, been relatively small and the proposals have been presented to the Parliament in a transparent way.

Another potential problem related to the expenditure ceiling is the use of tax expenditures. A tax expenditure exists if there is a deviation between the tax system and a certain benchmark or norm. In Sweden, tax expenditure estimates have been published annually since 1996 in the Spring Fiscal Policy Bill. The report covers most types of taxes, for example, the national and the local personal income tax, the corporate income tax, social security contributions and most indirect taxes. More than 150 different tax expenditure items are included in the report. Currently, total reported tax expenditures amount to about SEK 250 billion or about 8 per cent of GDP. Some of these tax expenditures are very close substitutes to ordinary expenditures, e.g. the so-called “employment support” that is paid to local governments by crediting their tax accounts. Tax expenditures that can be directly compared to public expenditures amount to about 0.4 per cent of GDP.¹⁹ Other tax expenditure items are less close substitutes of ordinary expenditures. Theoretically, proposals for new tax expenditure items that take place after the level of the expenditure ceiling has been set, should be accompanied by a proposal for a downward technical adjustment of the ceiling. However, because of the varying degree of substitutability between tax expenditures and ordinary expenditures, it is difficult to establish unambiguous rules for such technical adjustments. Hence, new tax expenditures have not usually been followed by a proposal for a technical adjustment of the expenditure ceiling. Small budget margins under the expenditure ceiling have led to increased pressure for tax expenditures. This pressure has, however, to some extent been held back by the surplus target.²⁰

Hard budget constraints might increase the temptation to present biased expenditure and revenue forecasts. By strategically manipulating the budget assumptions, the government can abide by the law and then have a list of explanations as to why the targets were missed *ex post*. The risk of a political element in budget forecasting can probably be reduced if the government is committed to meet the fiscal rule both *ex post* and *ex ante* and if independent agencies outside the Government Office monitor the budget and produce independent budget forecasts. Currently there are three domestic bodies outside of

¹⁹ In accordance with general accepted accounting practice in the Central Government's Annual Report.

²⁰ Tax expenditures have also been discussed in Boije (2002).

the Government Office that monitor budget execution and produce independent short-term and medium-term forecasts for central government finances.²¹ Naturally, the Swedish public finances are also monitored by the EU Commission and the Council in the context of the SGP. Since these forecasts are made public, it may be hard for the Government to present budget forecasts that differ too much from the external forecasts without presenting a clear motivation for the deviation.

5. The fiscal framework in different cyclical situations

In the period after the expenditure ceilings were introduced in 1997, the Swedish economy has roughly experienced a full business cycle. The period 1998-2000 included "good years" with an average growth rate of 3.8 per cent *per annum* and a positive output gap in 2000. On the contrary, the period 2001-03 was economically weaker. Average GDP growth rate amounted to 1.5 per cent of GDP with the largest negative output gap in 2003, approximately 1.5 per cent of GDP. 2004 was again a year with higher growth, around 3.5 per cent. The profile of the cycle did not diverge much from those of most other countries in the European Union, although the average growth rate over the whole period was somewhat higher compared to the European average.

Below, the expenditure ceilings and their coordination with the surplus targets in two different cyclical situations are discussed.

5.1 Expenditures in the boom years, 1998-2000

In the period of "good years", the expenditure ceilings constituted a distinct limit to spending. As was intended, the central government expenditure-to-GDP ratio fell by 2.5 per cent of GDP between 1997 and 2000 and reached 32.4 per cent. Windfall gains generated by the buoyant cyclical upswing were directed towards amortization of the central government debt and, to some extent, towards tax cuts. At the same time, the surplus targets were easily met and in large the fiscal framework seemed robust and to function well. By setting limits on total expenditures, the ceilings supported sound counter-cyclical policies. Doubtless, without the ceilings, fiscal policy would have been more expansionary. The framework was however not really tested, due to an unusually favourable macroeconomic development.

In addition to a sustained growth and low unemployment in this period, inflation was moderate. On average, CPI rose by only 0.4 per cent *per annum*.

²¹ The National Debt Office publishes forecasts of the central government borrowing requirement for the current year and the coming fiscal year. The National Financial Management Authority publishes medium-term forecasts of central government revenues and expenditures (as well as ceiling-restricted expenditures) about four times per year. The National Bureau of Economic Research quarterly publishes medium-term forecasts of central and general government net lending as well as forecasts of ceiling-restricted expenditures.

Compared to the forecasts and projections in the *Budget Bill for 1998*, growth developed 1.0 per cent faster *per annum* and CPI inflation turned out 1.3 per cent lower *per annum*. As several transfers in the Swedish system are indexed to the development of CPI (with a lag), low inflation mitigated the pressure on the ceilings. This development was also reinforced by the budget effects of declining unemployment. At the same time, budget margins reserved for cyclical effects on the budget in “bad times” were more or less fully used up. These margins appeared to be soft restrictions and constituted a weak part of the framework. All together, there was room for discretionary, and to some extent permanent, increases in non-cyclical expenditures. Examples were increased expenditures for *education and research* and *economic security for families and children*. The pressure on higher expenditures was, however, also reinforced by the substantial increase in expenditures for *economic security in case of illness and disability*, i.e. the sick leave insurance and early retirement schemes between 1998 and 1999 and, after that, their trend-wise growth up to 2003, see also Section 3.²²

To sum up, expenditure ceilings contributed to counter-cyclical policies in this period by giving strict limits for total expenditures, but there was also an embryo of pro-cyclical policies later on, due to the failure to preserve budget margins for later periods when expansionary fiscal policies were needed.

5.2 *The slowdown in 2001 to 2003*

In the weak economic situation 2001 through 2003, surpluses deteriorated from approximately 5 per cent of GDP to just around balance. Roughly two thirds of the deterioration was due to discretionary fiscal policy measures and one third to automatic adjustments. In the first two years of the slowdown, fiscal policy was strongly expansionary, including both tax cuts amounting to approximately 2 per cent of GDP and increased expenditures of around 1 per cent of GDP. In 2003, the last year in the prolonged slowdown, the fiscal stance turned less expansionary and included only modest expenditure increases (0.2 per cent of GDP).²³

The pressure on the ceilings for cyclical reasons was not that hard in 2001 and in the election year 2002, but grew stronger in the two successive years. This reflects the lagged effect on expenditure of the low CPI inflation in earlier years and that unemployment only increased late in the slowdown. In these years there were two other distinct factors behind the pressure on the margins. First, as mentioned above, active expansionary fiscal policy was substantial, executed in part at the expenditure side of the budget. Major expenditure increases were directed towards increased *child allowances*, *education and research* and to *health care*, *schools* and *social services*, the latter by increased grants to local governments. Most of this expenditure increases must be seen as permanent measures. Second, the costs for

²² *Spring Fiscal Policy Bill 2004*.

²³ See the *Updated Convergence Programmes for Sweden, 2001 to 2004*.

illness insurance and early retirement grew rapidly in a trend-wise and non-cyclical way. It is also notable that expenditures related to labor market policy (a semi-automatic stabilizer) did not increase as could be expected in the slow-growing economy, not even in 2003 when unemployment clearly picked up. An interpretation could be that automatic stabilizers on the expenditure side of the budget were hampered by pressure on the ceilings by used-up margins of other reasons.

The net lending surplus then shrank to close-to-balance as a result of automatic adjustments and active fiscal policy. Due to the prolonged slowdown, it continued to stay below 2 per cent of GDP both in actual and structural terms.

6. Reflection and conclusions

A first reflection is that the Swedish reform in the late Nineties was a typical example of how a severe economic and budgetary crisis made a reform necessary.

A general conclusion is that the nominal expenditure ceilings have functioned well. First, the government has, in the period 1997-2004, *i.e.* for eight years, complied with the ceilings. The expenditure ceilings have helped the Swedish Government to eliminate its deficits and to stabilize public finances. Between 1997 and 2004, the expenditure ceiling has contributed to a fall in general government expenditure ratio from 60.5 to 54.4 percent of GDP. The new process with expenditure ceilings is also felt to have increased long-term programming, because decisions on expenditure ceilings are taken early in the process.

A further consideration is that there might be some truth in the proposition that strict rules – to some extent – promote incentives to circumvent them. The Parliament has, in some occasions, decided on exceptions from the rule of gross accounting. The introduction of subsidies on the revenue side of the budget, the so-called tax expenditures, could also be seen as a circumvention of the expenditure ceiling. These measures have however been relatively small in relation to the total expenditure level.

The so-called budget margin under the expenditure ceilings was introduced to take care of the impact of cyclical and other unanticipated developments affecting the budget. With the exception of the first year with the ceilings, 1997, these margins have been very small even in the period of “good years”, which was not the intention. This could have hampered automatic stabilizers at the expenditure side.

REFERENCES

- Boije, R. (2002), "Should Tax Expenditures be Integrated into the Budget Process?" *Sveriges Riksbank Economic Review*, No. 2.
- Hansson Brusewitz, U. (2002) "The Swedish Medium-term Budget Framework", in *A Collection of Country Reports*, KDI School of Public Policy and Management, Seoul (Korea).
- Heeringa, W. and Y. Lindh (2001), "Dutch versus Swedish Budgetary Rules: A Comparison", in Banca d'Italia (ed.), *Fiscal Rules*, pp. 489-513, Rome.
- Milesi-Ferretti, G.M. (2001), "Good, Bad and Ugly? On the Effects of Fiscal Rules with Creative Accounting", CEPR, Discussion Paper, No. 2663.
- Molander, P. (2000), "Reforming Budgetary Institutions: Swedish Experiences", in R.R. Strauch and J. von Hagen, *Institutions, Politics and Fiscal Policy*, Kluwer Academic Publishers, Boston/Dordrecht/London.
- Kopits, G. (2001), "Fiscal Rules: Useful Policy Framework or Unnecessary Ornament?", in Banca d'Italia (ed.), *Fiscal Rules*, pp. 59-83, Rome.
- Swedish Ministry of Finance (1997-2003), *Annual Report for Central Government Finances*, Stockholm.
- (1998), *Spring Fiscal Policy Bill*, Stockholm.
- (2005), *Budget Bill for 2005*, Stockholm.
- Swedish Updated Convergence Programme (2001-2004)*, Stockholm.

**PUBLIC EXPENDITURE MANAGEMENT IN AN INDEBTED COUNTRY –
IS FISCAL CONSOLIDATION VIABLE?
(THE EXPERIENCE OF BULGARIA IN 1991-2004)**

*Mariella Nenova-Amar**

1. Setting the scene – The debt burden

Ever since 1991, when the transition to a market economy reforms had been launched in Bulgaria, the economic development of the country has been marked by the debt burden, accumulated in the second half of the Eighties. Although in the early Eighties the debt-to-GDP ratio was around 20-23 per cent, since 1986 the speed of debt accumulation accelerated and brought the ratio up to double in 1988-89. The combination of high debt accumulation rate and short-term maturity of newly acquired debt jeopardised the financial position of the government and questioned its ability to service the debt. The severe administrative measures, introduced in order to curb the debt growth rate, had a negligible effect on the debt growth rate but adversely affected the economic growth.¹ The overall economic activity started to cool down.² Ineffective in its measures to stabilise the debt ratio and opting for refinancing debt payments by short term borrowing the government was shortly pressed to announce a moratorium on debt payments in March 1990. The debt-to-GDP ratio at that time had barely hit 50 per cent (Figure 1).

The immediate response of the international financial markets to the moratorium was to renounce the country as a borrower and to cut off its access to foreign financing. The sudden disruption in external inflows exerted a severe blow on the economy. Another shock followed – the collapse of the socialist system and its common market. As a consequence, in 1991 the GDP in dollar terms plummeted to 37.4 per cent of its respective level as of 1989.

The fiscal position of the government sharply weakened in 1991 when the ratio of budget revenues to GDP fell down from 57.9 in 1989 to 39.6 per cent in 1991 largely due to the output loss and the vast deterioration of the state-owned companies' finances. Under the socialist regime budget revenues were channelled entirely through the enterprises. They paid profit contributions at a specific differentiated rate; they paid all social security contributions and transferred automatically to the budget the personal income tax accrued on their employees' wages. The profound control over the state-owned enterprises and the state of literary full employment allowed the government to collect resources at about 60 per cent of GDP. It enjoyed the irrevocable authority to accumulate as much resources

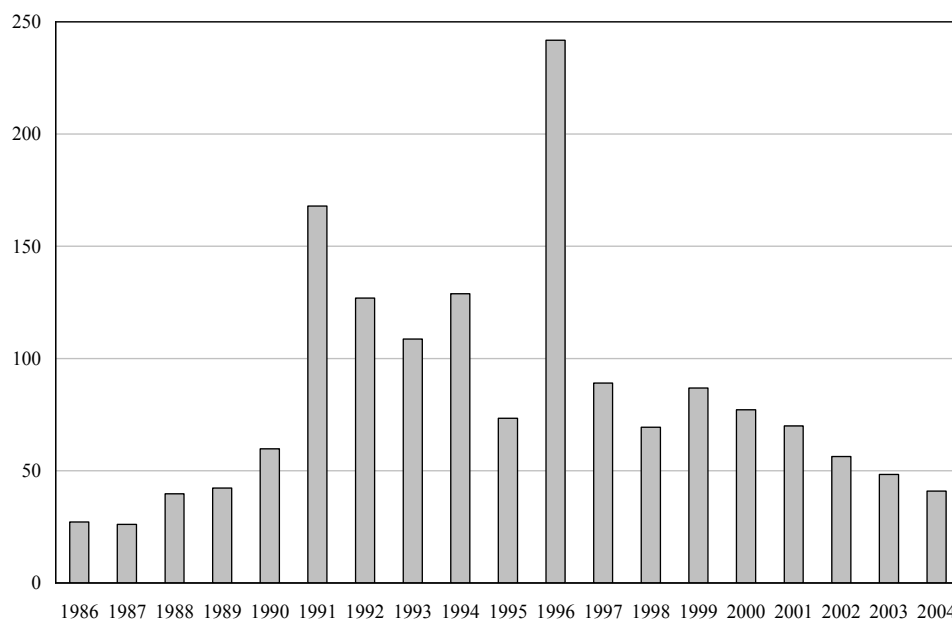
* Bulgarian National Bank.

¹ The measures had been targeted at administrative reallocation of the scarce foreign currency (predominantly US dollars) inflow among a great number of net importers. All requests for foreign currency had been checked by the administration and either approved or rejected.

² The GDP in US dollar terms fell down by 25 per cent in 1988-89 (the exchange rate being stable).

Figure 1

Bulgaria: Total Government Debt-to-GDP Ratio
(percent)

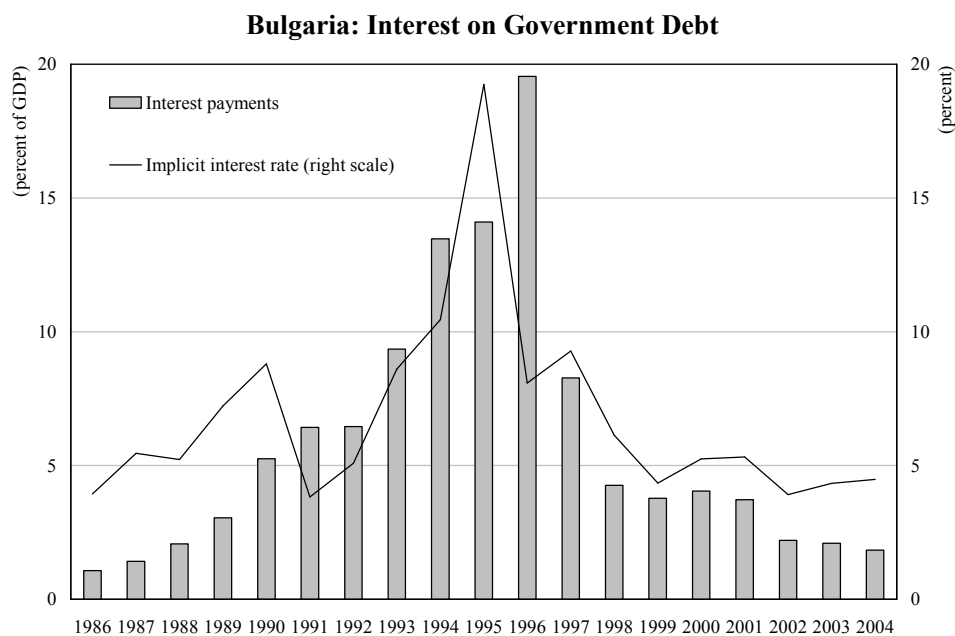


Source: Ministry of Finance.

as necessary to fulfil its expenditure programmes by discretionary changing the regulations of taxation. But even that in place it needed to resort to central bank financing and foreign borrowing.

The transition to a market economy reform, launched in February 1991, not only caused a substantial loss in output but also initiated a change in the principles of taxation and the taxpayers' behaviour that adversely affected the budget revenues. The incidence of taxation and the size of the tax base shrank abruptly in 1990-91. First, due to rising unemployment the numbers of employed decreased sharply. Second, early retirement schemes introduced in 1990 and the high emigration wave, following the change of the political regime, both reduced the number of tax payers. Next, the financial status of the already overburdened by debt state-owned enterprises further deteriorated. The liberalisation of prices – an important component of the reform package, allowed enterprises to raise output prices but they were not able to benefit from a higher profit margin. They got trapped in-between private firms which overtook all operations of input supply and output sale, thus re-shifting profits from the state-owned enterprises to the private sector – a phenomenon, which further exacerbating the financial position of the state sector (Beleva, Jackman and Nenova, 1995).

Figure 2



Source: Ministry of Finance.

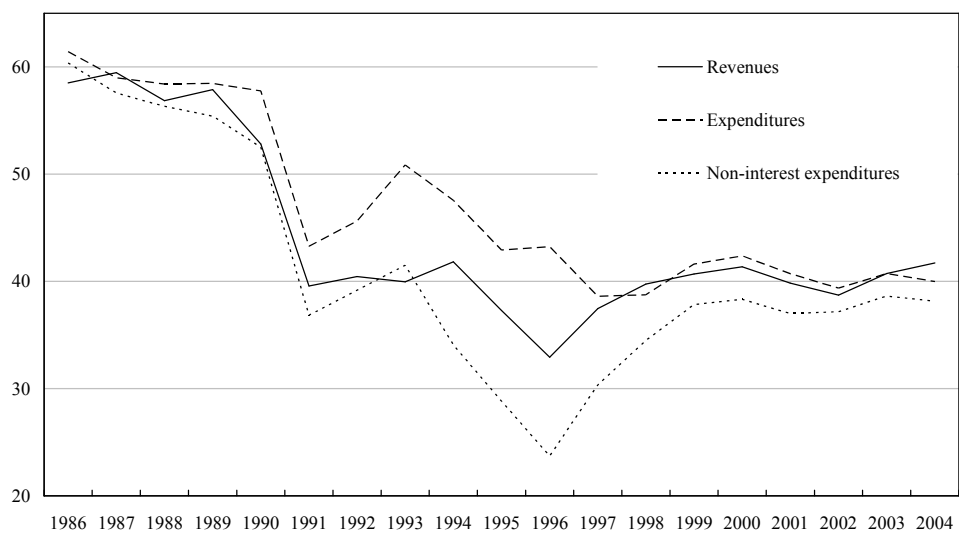
The negative impact of the reform package on the tax revenue would have been softened if significant and fast legislative and institutional changes had been undertaken and enforced in 1991. Privatisation would have helped to eliminate the problem of profit sharing, too. Instead, the obsolete tax laws and rules were subjected to continuous repair based on unclear principles. The incidence and timing of tax payments became ambiguous keeping market participants in the dark about possible short-term changes in legislation and rules. Tax rate differentiation remained dominant and the preferential tax regime for certain types of tax payers continued to exist. As a result, the distortionary tax legislation was preserved thus impeding the transition process and inspiring tax evasion (Nenova, 1994a).³

Financially constrained by both external and domestic factors, the government was expected to reform radically the principles of budgetary expenditures management and shortly to achieve a significant consolidation of public finances. Although the primary balance was on a surplus in the years following 1990 (with the only exception of 1993), it was not sufficiently high to cover the interest payments on government debt (Figures 3 and 4). Moreover, additional financial resources were needed for payments on principal. In 1991 only

³ Radical changes in the tax laws took place only after 1997.

Figure 3

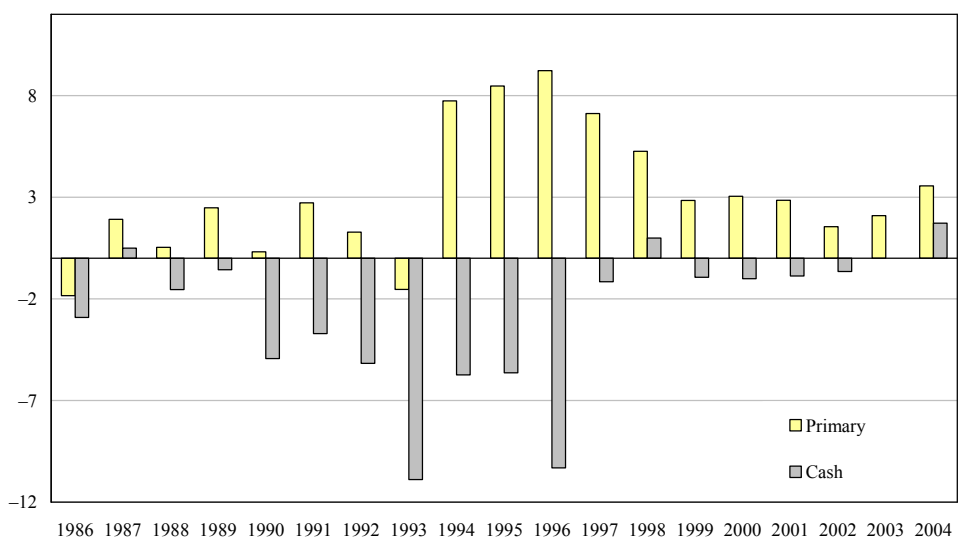
Bulgaria: Total Budget Revenues and Expenditures
(percent of GDP)



Source: Ministry of Finance.

Figure 4

Bulgaria: Consolidated Budget Balances
(percent of GDP)



Source: Ministry of Finance.

the IMF and the World Bank extended loans to the government but those were quite insufficient to cover all the expenses at the prevailing fiscal policy. As the government (the country) had no access to international financing it resorted to domestic resources, ultimately linked to money issue.

Data suggests that the initial 1991 slump of budget revenues brought them down to a level, which was maintained on average during all subsequent years until nowadays (Figure 3). So, from a retrospective point of view, it had been recommendable to quickly adjust public expenditures to the new level of revenues. As it did not happen and a growing share of budgetary expenditures had been financed by money issue the economy developed on an unsustainable path with high inflation, volatile exchange rate and high nominal interest rates. Although the lack of radical structural reforms like privatization or effectively applied bankruptcy procedures for indebted companies had been the fundamental factors destabilising the economy it was the lack of fiscal expenditures adjustment generating the crisis outbursts of 1994 and 1996-97.

The GDP loss caused by the crisis of 1996-97 was about 16 per cent. High inflation (climbing up to hyperinflation in February 2005) reduced real wages and personal income, and wiped out the real value of the domestic government debt. The year 1997 marked the launch of the transition to a market economy in Bulgaria, this time brought to completion, with a starting point of public finances being almost at balance.

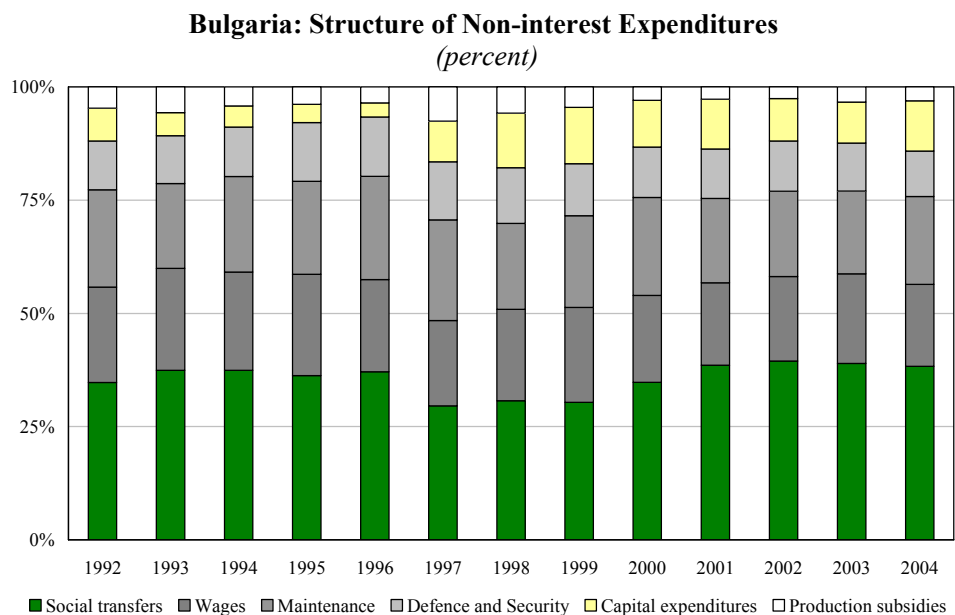
The paper will describe the ups and downs of the fiscal expenditures adjustment process since 1991 and will search for evidence to justify a conclusion that public finances have been in a sustainable position since 1999. The first section comments on the very initial change in public expenditures – the reduction of production subsidies and capital expenses. The role of income policy for government expenditures adjustments is the topic of the second section. The third section presents the structural reforms in the social security system as a major factor for achieving stability. The fourth section reviews the structural reforms in progress in the health care system and education – two sectors which like the public social security system determine to a great extent the sustainability of fiscal policy. The last section concludes with an assessment of the sustainability achieved up to now.

2. The adjustment process

2.1 The initial response – reduction of production subsidies

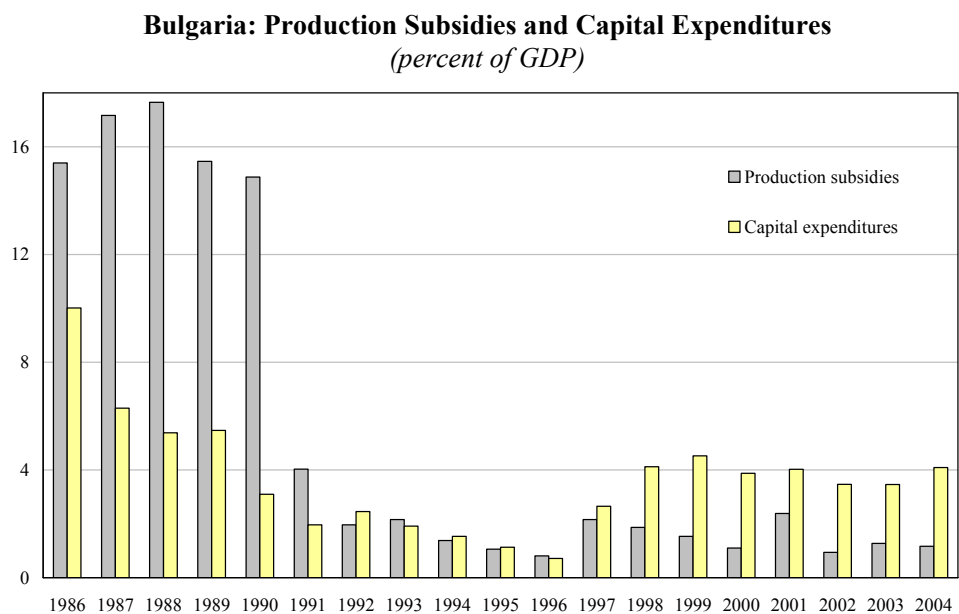
Budget expenditures plummeted in 1991 and underwent substantial structural change compared to their breakdown during the socialist period (Figure 5). Production subsidies had been cut down not only in nominal terms, but also in percent of GDP and as a share of non-interest expenditures. Their GDP ratio fell down in 1991 by 11.4 percentage points in comparison to 1989 (Figure 6).

Figure 5



Source: Ministry of Finance.

Figure 6



Source: Ministry of Finance.

The liberalization of prices was an inextricable component of the reform programme of 1991. The centralised determination of prices was abolished and the government preserved its control over a small number of goods and services with a weight in the consumer basket of about 10 per cent. The scope of subsidised production was restricted to the sectors of electricity distribution, central district heating, and public transport (intra-city and railway transport).

In the years to follow up to 1996, the range of administered prices was gradually widened as an instrument to curb the persistently high inflation (closely related to the money finance of budget deficits). In April 1997 the weight of controlled prices in the consumer basket had already reached 52 per cent. The price control depressed inflation by slowing down the adjustment or in some cases even freezing the level of administered prices. However, this type of measures aimed at lowering the inflation rate was not matched by a corresponding extension of subsidies to the companies, adversely affected by the cap on their output prices. Those enterprises that were able to run profits now turned into loss-makers, contributing to the overall destabilisation of the economy.

The resumption of the reform efforts in 1997 initiated a new wave of price liberalisation. At the end of the year the weight of goods and services with controlled prices diminished to 12.8 per cent. The adjustments of administered prices, undertaken in the next years up to 2004, were facilitated by the overall macroeconomic stability. Quite successfully the costs of providing certain goods and services were transferred to the final consumer leading to a steep rise of households' expenditures on utilities (Figure 7).

Capital expenditure was the other item considerably lowered in 1991 to 2.2-2.5 per cent of GDP from 5.8 per cent in 1989. Only the sustained macroeconomic stability and the improved public finances management after 1997 allowed for an increase in capital expenditures to around 4 per cent of GDP, highly related also to the major task to prepare the country for EU accession.

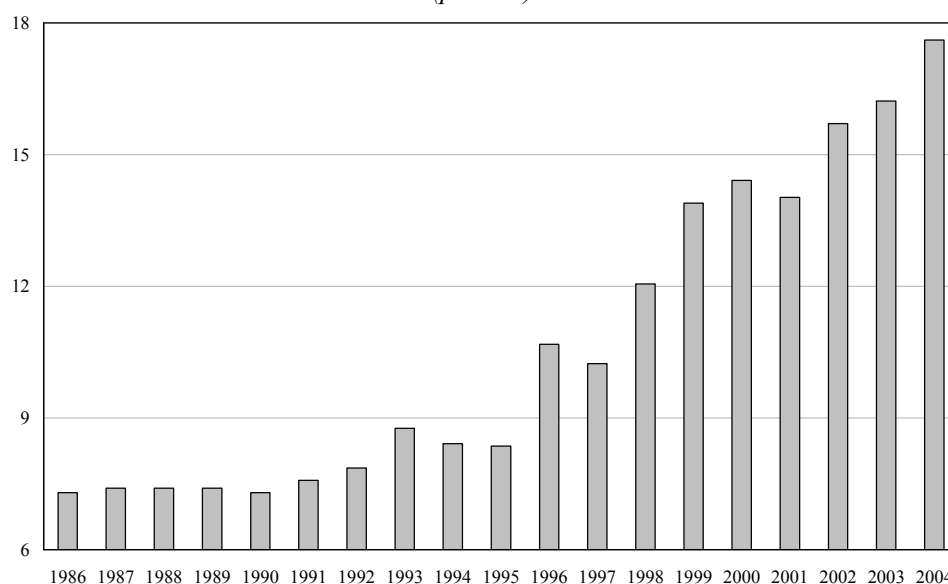
2.2 Income policy and the flexibility of fiscal policy

Going back to 1991, a restrictive income policy had to be implemented in support of the macroeconomic stabilisation programme launched at the beginning of the year, according to the Bulgaria-IMF stand-by agreement. The restrictive income policy pursued during the first months of 1991 was aided by the then-existing rigid wages tariff system with built-in limits on nominal wages linked to workers' education, qualification and job position. While the system had been created to operate under non-inflationary environment and total control over wages increase it proved beneficial in 1991 for the enforcement of a centralised approach to inflationary indexation of wages (Nenova, 1993).

The size of wages inflationary compensation was decided upon in a Tripartite Commission, established at the beginning of 1991 and represented by government officials and trade unions, as well as members of the Union of

Figure 7

**Bulgaria: Expenditure on Utilities and Housing in Total Household Expenditures
(percent)**



Source: National Statistical Institute.

Employers. The initial indexation scheme envisaged an invariable nominal amount of compensation. As inflation in the first months of 1991 exceeded the forecast the schedule underwent subsequent changes in the form of a series of compensation increases matching the actual rate of inflation. Yet the state control over wages rise helped to depress inflation from the sky-rocketing 123 in February and 50 in March to 2.5 in April and 0.8 per cent in May.

Although extremely appropriate from income policy point of view, the outdated wages tariff system was abolished in November 1991 as part of the reforms. It was replaced by the system of collective wages bargaining at a firm level. The government preserved the control over salaries of government employees and had the right to enforce regulations over wages increases in state-owned enterprises after negotiations in the Tri-partite Commission.

As a result of the introduction of the collective bargaining system wages rocketed at the end of 1991. To outweigh the possible stimulus on domestic demand the government imposed further restrictions on government employees' wages and social transfers (pensions, unemployment benefits and social aid).

By mid-1992 government employees' wages, the minimum wages as well as pensions and social benefits steadied at their late 1991 level while wages in the

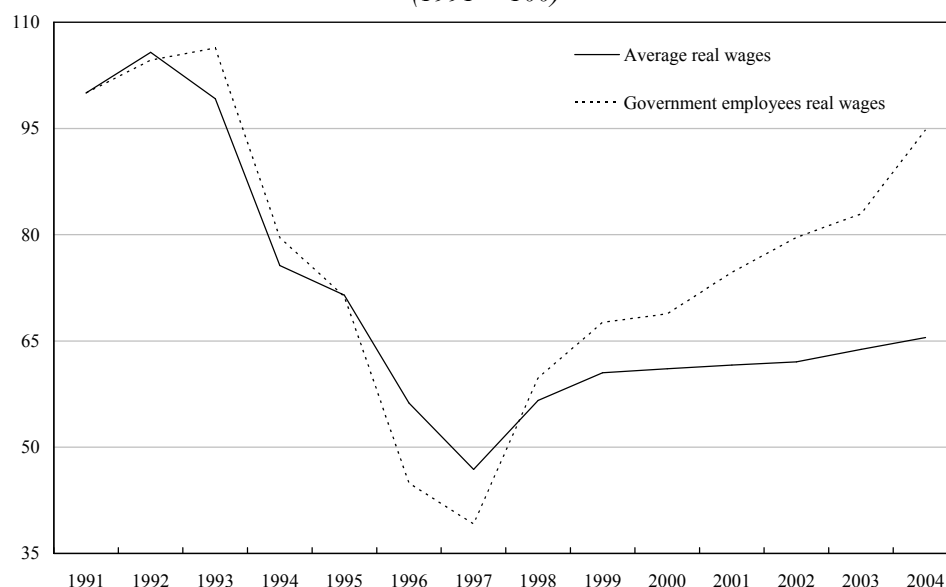
non-government sector followed the rates of inflation. The rising social discontent brought the government of 1992 down and it was replaced by a coalition government. One of the first measures of the new government was to grant a 26 per cent rise of wages in the government sector (Nenova, 1994b).

In 1993 a mechanism of automatic indexation had been introduced. According to the regulation wages in budget organizations were subjected to automatic indexation of 90 per cent of the reported inflation rate. The same principle applied to the level of the minimum wages, the pensions, social insurance and unemployment benefits. The minimum wages was increased four times in the course of the year. As a consequence, though the average real wages was on a downturn trend, real wages of government employees as well as the real pension and all social benefits went up. Ultimately, the share of budget expenditures on wages and social transfers increased in 1993 (Figures 8-10). The primary balance turned negative, while the cash deficit rocketed to almost 10 per cent of GDP (Figure 4), financed by domestic resources and money printing.

Not surprisingly the first quarter of 1994 was marked by an exchange rate crisis and the negotiations with the IMF had been resumed urgently. The crisis enforced the government to adopt a restrictive income policy. Though the

Figure 8

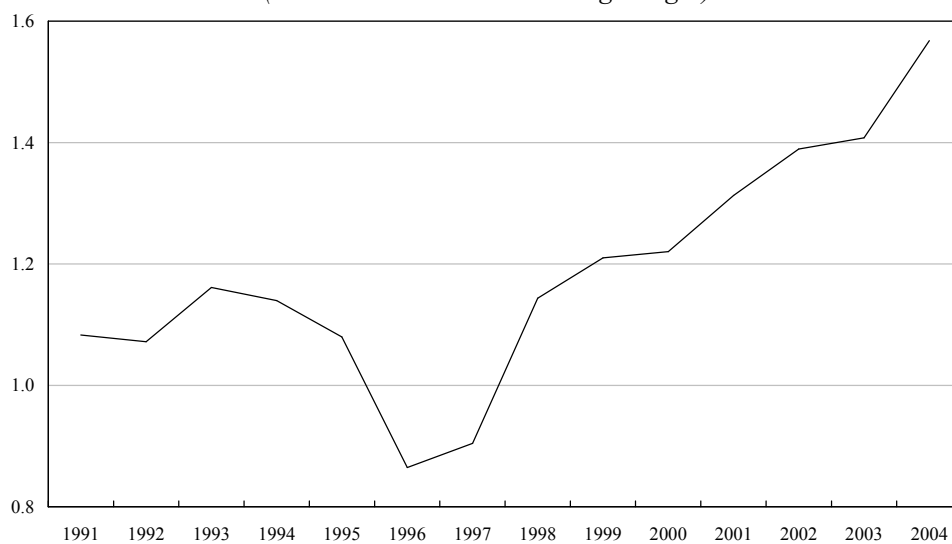
Bulgaria: Real Wages
(1991 = 100)



Source: National Statistical Institute.

Figure 9

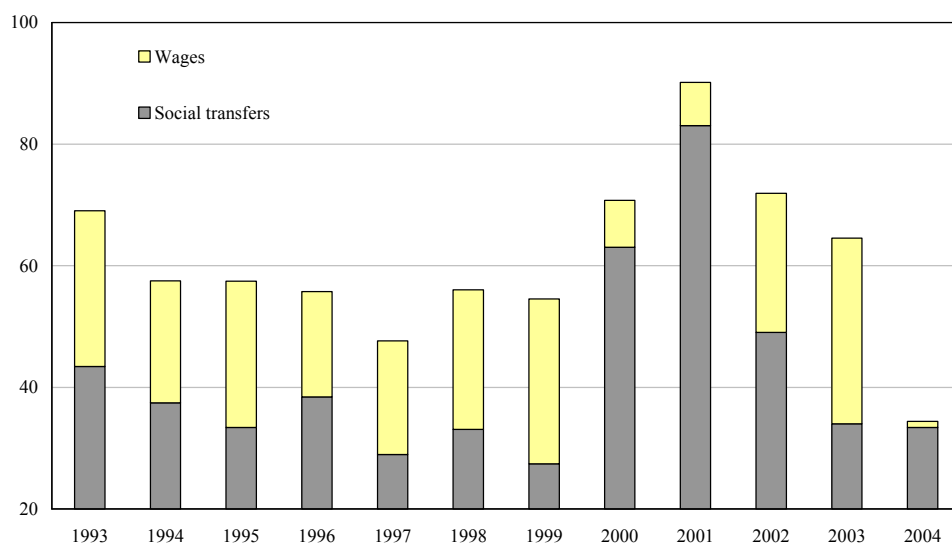
Bulgaria: Relative Wages of Government Employees
(relative to the national average wages)



Source: National Statistical Institute.

Figure 10

Bulgaria: Share in the Nominal Growth of Non-interest Budget Expenditures
(percent)



Source: Ministry of Finance.

mechanism of wages indexation remained similar to the one introduced in 1993, the rate of indexation was linked now to forecasted and not to the reported inflation. The actual inflation was thrice higher than the forecasted but no steps had been undertaken to increase the rate of compensation rate.

The crisis of 1994 denoted the beginning of a downward trend in real income of government employees, retirees, recipients of social aid, ruthlessly imposed by the growing government expenditures on interest and principal debt payments. In 1994 Bulgaria had to make the first payment on its external debt after the conclusion of agreement with the London Club creditors. But since the domestic debt had been on an increase ever since 1991 it was the domestic debt interest and principal payments imposing rigid constraints on fiscal policy. Moreover, a law, adopted at the end of 1993, transferred the debts of the state-owned enterprises into a government debt. The first two payments on this newly accepted debt were due also in 1994.

In 1995 the primary surplus amounted to 7 per cent of GDP. The restrictive stance of wages policy was preserved. But other errors in macroeconomic policy initiated a fast reduction in international reserves at the end of the year and unleashed the crisis of 1996-early 1997.

In 1996 the crisis developed at a very fast speed. Efforts had been made to increase tax rates, to further curtail wages of government employees and social transfers and pensions. In real terms, non-interest budget expenditures decreased twice compared to the previous year. A political crisis at the end of 1996 led to a change in government and enforced early parliamentary elections.

In the period of mid-1996 to early 1997, income lost a lot of purchasing power. The February 1997 decline was more than two fold relative to December 1996. After February 1997, the government adopted a cautious approach to the upward adjustment of wages so as to avoid cost-push and demand-pull inflation, as well as inflation caused by the monetisation of government debt. March 1997 witnessed the first adjustment of wages. In May the average real wages gradually recovered to its December 1996 level and it remained practically at a freeze afterwards.

The practice of inflationary compensation of wages was completely abolished in 1998. The process of privatization of state-owned enterprises was accelerated and the restructuring of the newly privatized enterprises gradually took momentum. Eliminating labour redundancies was a first priority and the unemployment rate started to grow up and reached a maximum in 2000. Employers in the private sector regulate the average wages growth rate in accordance with labour productivity and their profit targets.

Since 1998 the government employees' salaries are determined quite as a residual in dependence with the forecasted budget revenues and other expenditures

and constrained by the target of achieving a balanced budget.⁴ A coefficient of wages indexation, corresponding to the restrictions, is calculated and presented to the Tri-partite Commission for approval. The acidity of discussions on wages indexation in the Tri-partite Commission is diluted by a provision that if in the course of the budget implementation revenues exceed the forecast it is possible by a discretionary decision of the government to grant bonuses equal to one but not more than two monthly wages at the end of the year. The applied principle allowed for a fast recovery of government employees' average real wages (Figures 8-9).

In summary, income policy played a major role in destabilising (and stabilising) public finances. The approaches applied since 1991 range within the extreme cases of automatic inflation indexation, when the respective governments dared to ignore the priority of debt payments, to wages freeze at times, when ignoring the highest priority of debt service generated depletion of foreign reserves and brought the economy on the verge of a crisis. The recently selected approach of tightly relating income policy to budget programme implementation allows for attaining real increase in income and grants flexibility to the management of budget expenditures.

2.3 *The pension system*

A severe structural imbalance, generated in 1991 by a number of factors like the absolute decline in population, the growth of the unemployment rate, the introduction of an early retirement scheme and the rising number of pensioners, overwhelmed the pension system. The dependency ratio, calculated as a ratio of the pensioners to employees sharply increased (Figure 11).⁵

After the slow down of the average pension nominal growth rate in 1992 since 1993 onwards pensions were subjected to the same mechanism of automatic indexation to inflation which was applied to wages. However, it was almost impossible to preserve the replacement ratio and it plummeted in the years to follow. Since 1997 the regulation of the annual update of pensions has been changed and consequently the replacement ratio has been kept quite stable at around 40 per cent in 2000-04 (Figure 13).

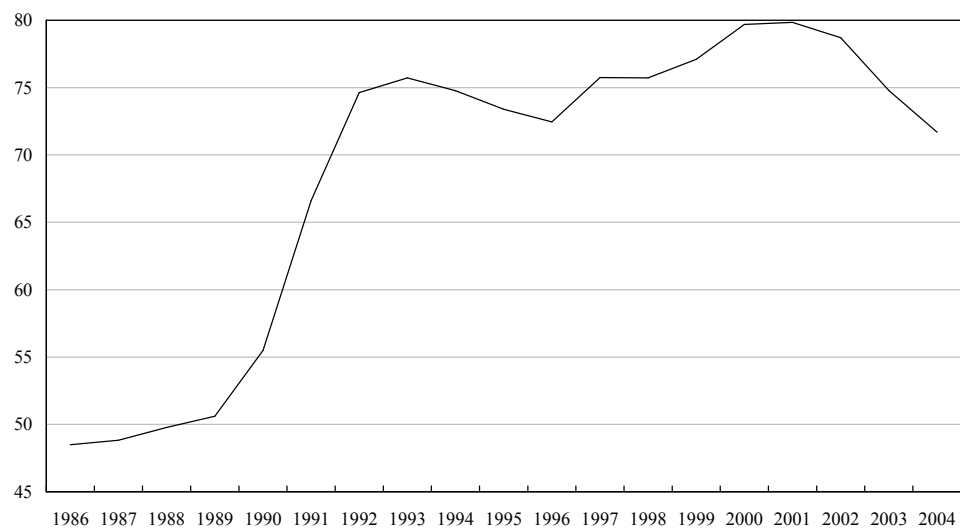
It is a difficult task to strike a financial balance in a system with persistent structural imbalance. In mid-1997 amendments to the Law on Pensions had been adopted. In line with the overall cautious income policy of 1997 the amendments allowed for regular annual indexation of pensions based on the growth rate of the average monthly gross salary, announced by the National Statistical Institute (NSI)

⁴ The consolidated budget balance target in recent years was for a deficit of less than 1 per cent and balancing the budget in 2006. However, due to a better tax revenue collection it was possible both to reduce some tax rates and to achieve a cash surplus. In 2004 the cash surplus amounts to 1.7 per cent of GDP.

⁵ In 1990 a provision of early retirement enabled women to retire at 53 instead of 55, and men at 57 instead at 60, which raised the absolute number of retirees (Figure 12).

Figure 11

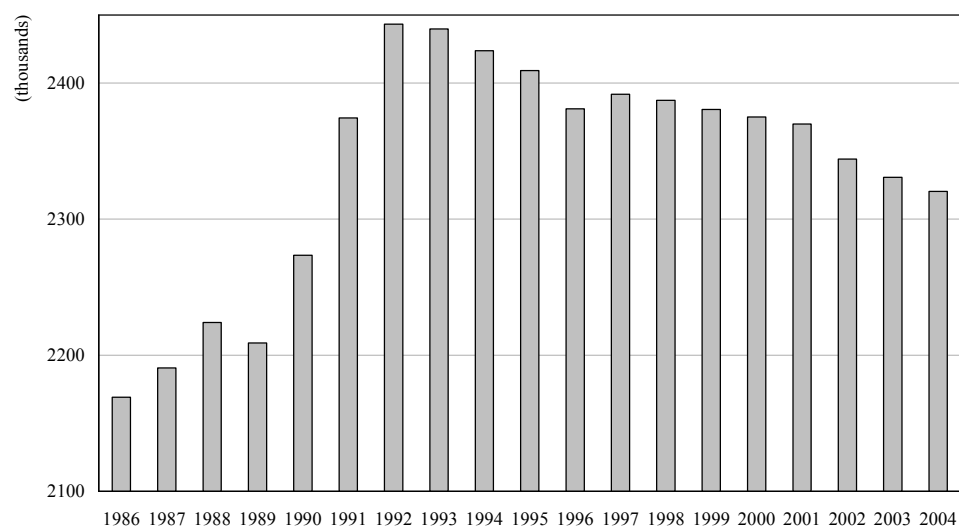
Bulgaria: Dependency Ratio



Note: The dependency ratio is calculated as the ratio of the number of pensioners to the number of employees.

Source: National Social Security Institute.

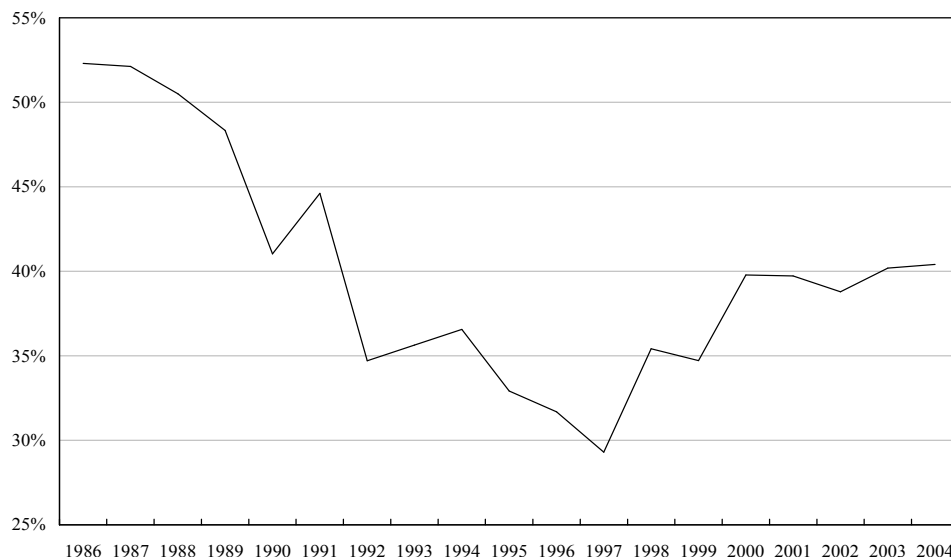
Figure 12

Bulgaria: Number of Pensioners
(thousands)

Source: National Statistical Institute.

Figure 13

Bulgaria: Replacement Ratio



Note: The replacement ratio is calculated as a ratio of the average pension to the average gross wages.

Source: National Social Security Institute.

in the calendar year preceding the year of adjustment. As an exception the 1997 adjustment of pensions had to be based on the average salary of the first quarter of 1997. Even with this revision, the basis for the calculation of pensions remained twice lower than the average working salary in the second quarter of 1997. The maximum pension was limited to three times the amount of the social pension but so restrictive were the conditions that only few retirees were eligible to receive it.

The radical reform of the public social security system started in January 2000 with the adoption of a new Social Code. Three public insurance funds were established, namely the Pension Fund, the Work Injury and Occupational Sickness Fund and the General Sickness and Maternity Fund, each fund financed through a specific contribution rate, determined on an assessment of the risks it covers. The objective of the reform was to draw a clear-cut line between short-term and long-term type of insurance. The Social Code states a provision that the rate of each contribution is determined on an annual basis in relation to forecasted expenditures.

In July 1999 a new institution was established, independent from the government, namely the National Health Insurance Fund (NHIF) – responsible for financing of the public health care sector.⁶

⁶ The issue of health care reform is discussed in the next section of the paper.

Table 1

Average Social Security Contribution Rates
(percent)

	Before 1991	1991-96	1996-99	2000	2001-04
Pension Fund	30	35	37	32.0	29.0
Work Injury and Occupational Sickness Fund				0.7	0.7
General Sickness and Maternity Fund				3.0	3.0
Unemployment Fund (the different rates correspond to changes in the rates within the period)	0	3.75 5.0 7.0	5.0 4.5 4.0	4.0	4.0
National Health Insurance Fund	0	0	0	6.0	6.0
Overall	30.0	40.2	41.5	45.7	42.7

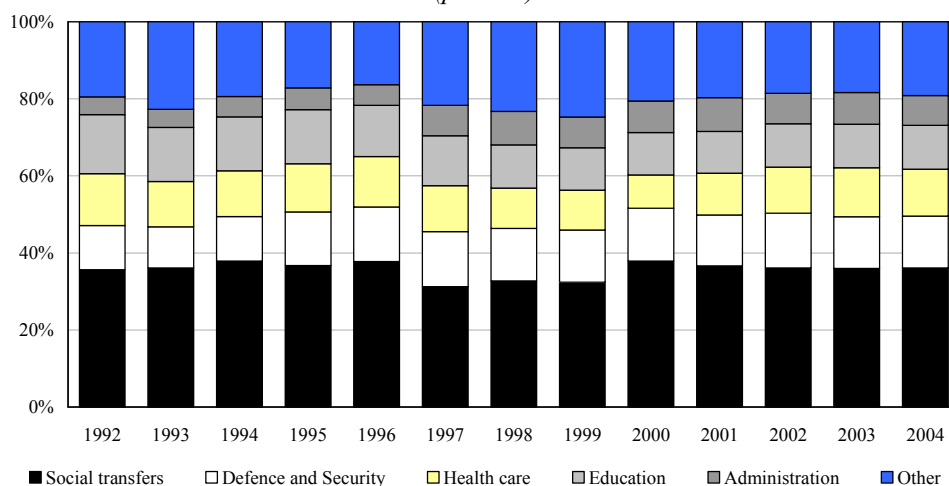
Source: National Social Security Institute.

The amendments of the pension system introduced in 2000 have been targeted at strengthening the public Pay As You Go (PAYG) pension system. The retirement age of men and women is going to be raised to 63 and 60, respectively, in a gradual way until 2010. The eligibility for a public pension is granted based on the following criterion: a minimum number of points representing the sum of the age and the length of participation in the system. The retirement eligibility requirements did influence the number of pensioners, which started to decline since 2001 (Figure 12). A compulsory fully funded system for people born after 1960 had been introduced, too.

According to the Social Code provisions the annual indexation of individual pensions is implemented once a year (in June). The rate of indexation is decided upon by the Supervisory Board of the National Social Security Institute (NSSI) and it may reflect the changes of the insurance income and inflation in the preceding calendar year. The discretionary determination of indexation contributes to the flexibility of the pension system and leaves room for manoeuvre. The restriction on the maximum pension is still valid but the ceiling has been lifted up recently.

Figure 14

Bulgaria: Structure of Non-interest Expenditures by Major Budgetary Sectors
(percent)



Source: Ministry of Finance.

An important provision in the Social Code regulates the split of contribution payments between employer and employee.⁷ According to the time table, stated in the Social Code, the burden will be equally distributed between employers and employees in 2008. In the meantime the employees' share is gradually to be raised. This provision, on one hand, alleviates the social security contribution burden of the employers and, on the other hand, increases the awareness of workers to the actual payment of the contribution and their importance. Both are expected to improve the collection rate.

All changes in the social security legislation have been targeted at achieving long-term sustainability of the system. Although the reduction of the unemployment rate since 2001 and the growing employment relieve the tension of the structural imbalance over the pension system the dependency ratio remains still very high.

2.4 Education and health care

Social transfers (pensions, unemployment contributions, social aid) represent the highest share in the structure of budget expenditures by sectors. Next in importance come education and health care expenses (Figure 14).

⁷ Until the adoption of the Social Code in 2000, employers were responsible for the payment of the social security contributions of their employees.

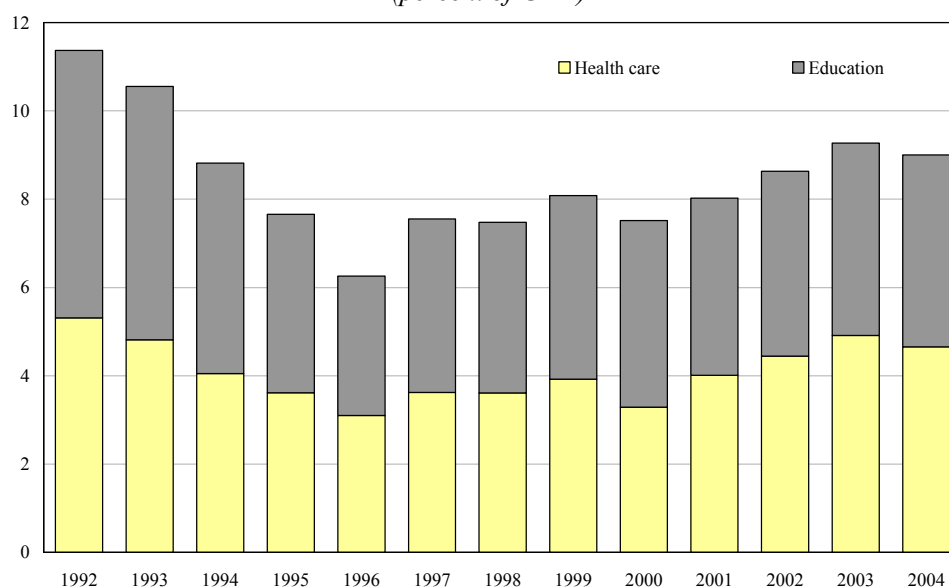
The macro stabilisation programme of 1991 focused on fiscal and monetary policies but not on structural reforms. As a consequence the reform package did not envisage any radical fiscal expenditures adjustments apart from reducing subsidies and implementing restrictive income policy. No changes, either legislative or institutional, were perceived related to the incidence of government services provision. Any attempts to introduce market driven supply of services in the sectors of health care or education were doomed to fail because of the well established notion (stated also in the Constitution) that basic services should be provided for free. The behavioural problems inherited from socialism stepped on long cultivated beliefs that:

- government will shelter job security and support the existing standard of living (identical for most of the citizens). This type of belief nurtured expectations for centralised inflationary compensations;
- the centralised provision of education and health care services will continue at the prevailing insignificant prices or free of charge.

To break with the habitual behaviour was a task no politician put forward in 1991. Due to insufficient financial resources, however, the quality of services provided by the health care system and education declined abruptly and households were forced to resort to private providers (Figures 15 and 16).

Figure 15

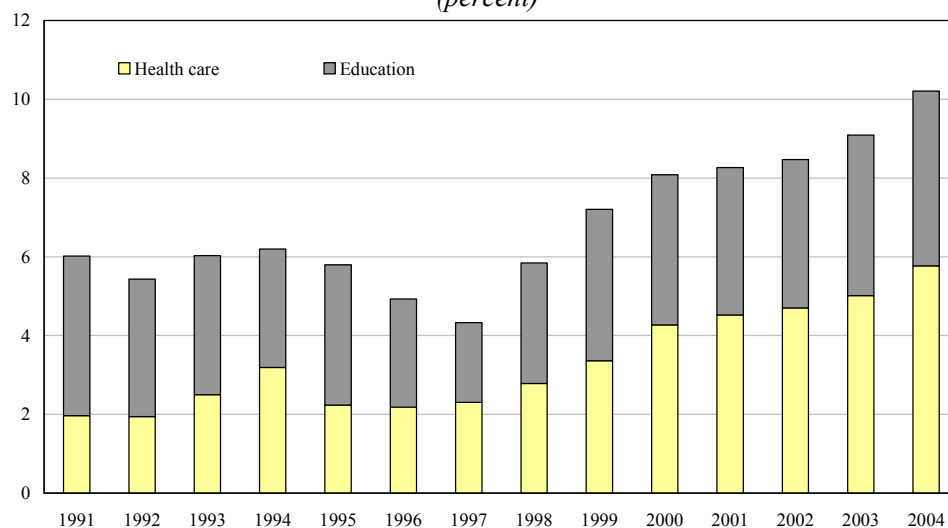
Bulgaria: Budget Expenditures on Health Care and Education
(percent of GDP)



Source: Ministry of Finance.

Figure 16

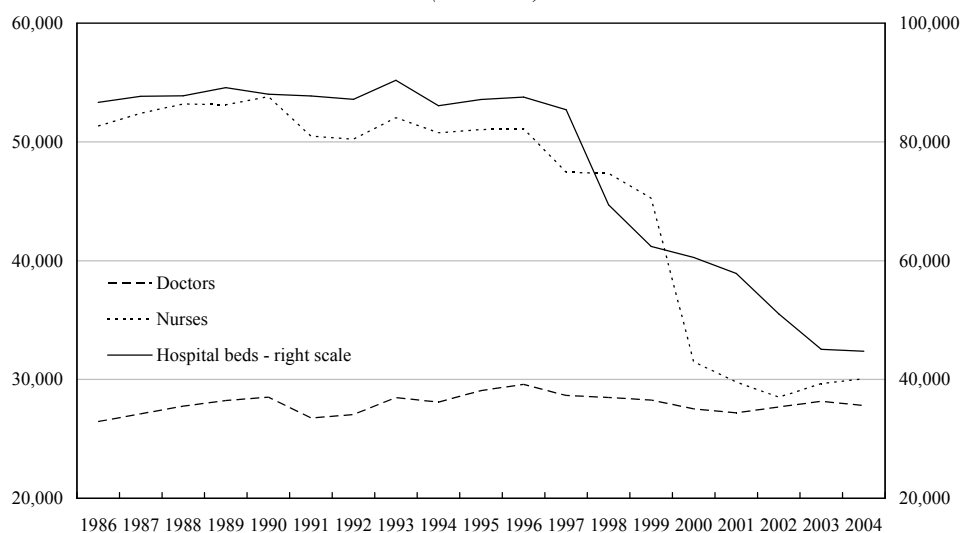
**Bulgaria: Expenditures on Health Care and Educational Services
in Total Household Expenditures
(percent)**



Source: National Statistical Institute.

Figure 17

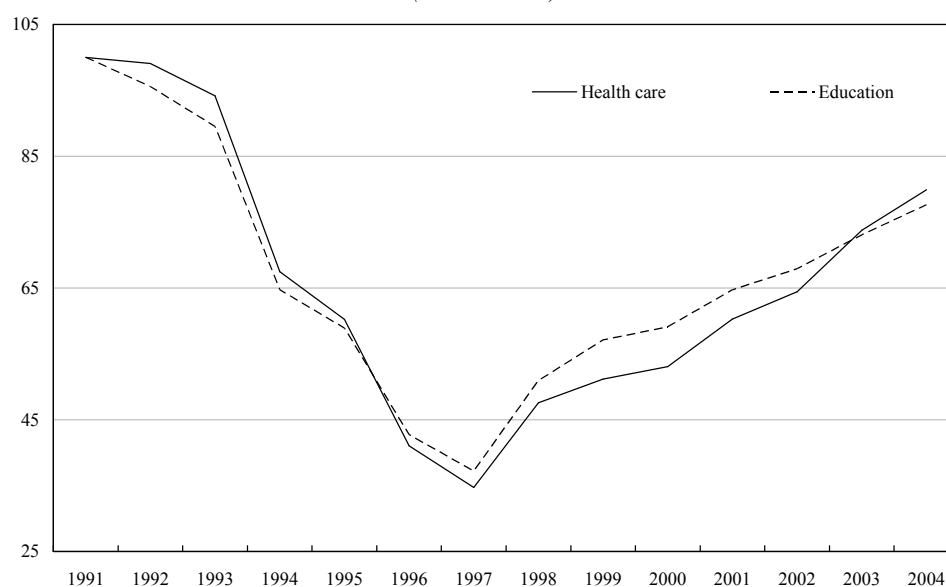
**Bulgaria: Employees in the Health Care Sector
(numbers)**



Source: National Social Security Institute.

Figure 18

Bulgaria: Real Average Wages in Health Care and Education
(1991 = 100)



Source: National Statistical Institute.

The health care sector remained practically intact until 1999 (Figure 17). There was no reduction in the number of medical staff or hospital beds, whereas the fixed costs of maintaining the system remained relatively high. The reduction in expenditures in percent of GDP was achieved by keeping wages low and slowly transferring costs to patients (Figures 18-19).

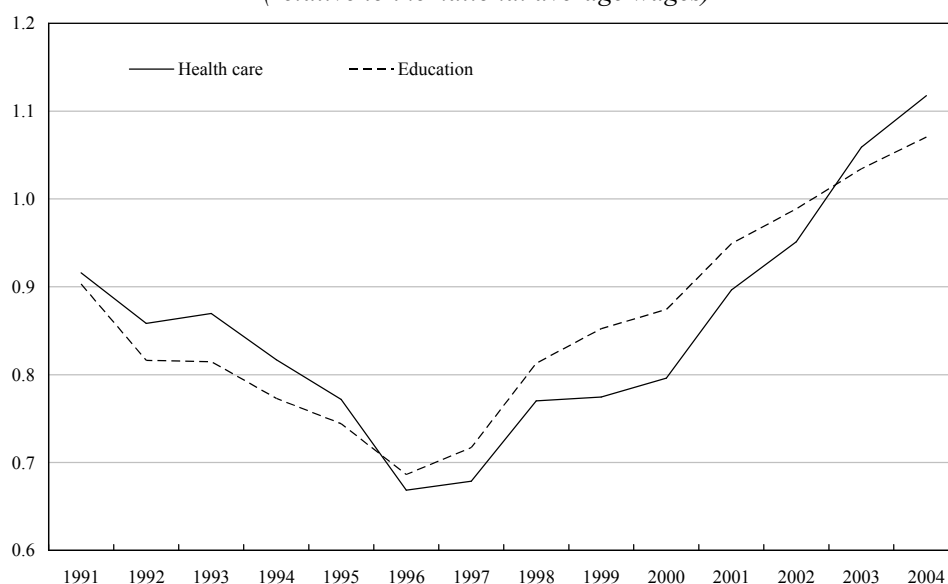
The reform in public health care was launched in July 1999 with the establishment of the National Health Insurance Fund (NHIF). A new contribution was imposed at the amount of 6 per cent of wages and the contribution is equally shared by employers and employees. During the first year of its establishment the Fund only accumulated resources while the financing of health care still remained within the responsibility of the government budget.⁸ In July 2000 the NHIF started its operation by opening the financing of primary health care. Since 2001 a step by step process of transferring hospital health care financing from the budget to the NHIF is in progress.

The health care reform initiated in 1999-2000 was targeted at improving the link between the actual provision of services and their financing. The reform was

⁸ Accumulated resources are still available on the Fund's account at the central bank.

Figure 19

Bulgaria: Relative Wages in Health Care and Education
(relative to the national average wages)



Source: National Statistical Institute.

Table 2

The Share of the NHIF in Health Care Financing

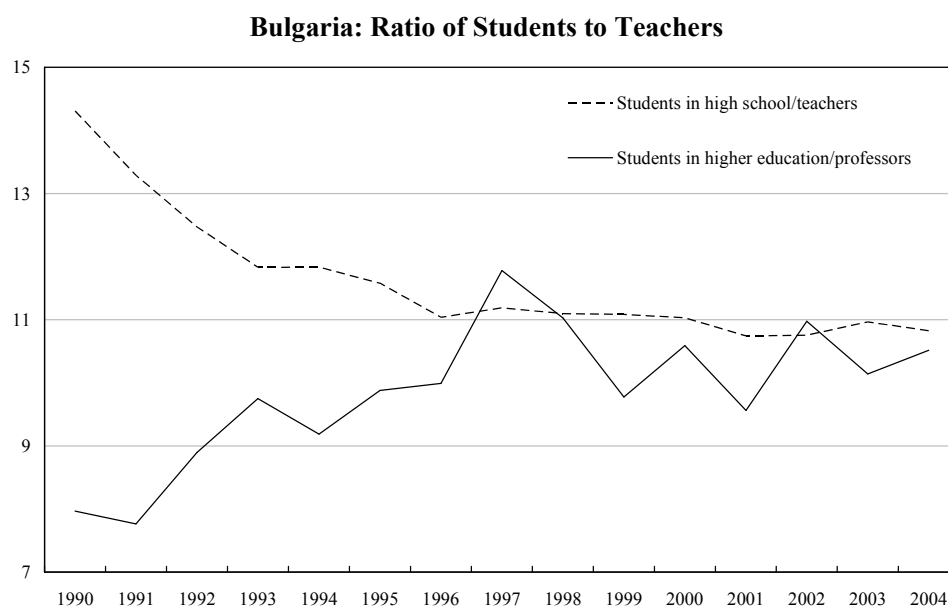
	2000	2001	2002	2003
Share of NHIF in overall financing of health care	13.0%	36.0%	41.0%	46.0%
Share of NHIF in the hospital health care financing	0.0%	3.0%	15.0%	36.0%

Source: Ministry of Health Care (2004), National Health Insurance Fund (2004).

also supported by a process of granting licenses to hospitals as a result of which a substantial decrease in the number of hospital beds was achieved. One consequence of the applied structural measures was the sharp decline in medical staff, particularly nurses (Figure 17). Although public expenditures on health care are growing recently the households' costs on health care services are also on the increase. In practice the public health care is financed from three sources – the government budget, the NHIF and the households.

In terms of sustainability of health care financing it may be presumed that equilibrium may be achieved if the contribution rate of 6 per cent is raised in accordance with the process of shifting financing of hospital health care from the budget to the NHIF. The restructuring of the sector is still undergoing and may improve the efficiency in service provision. The amount of financing supplied by the NHIF is negotiated every year so that to reach a balance between expected revenues and expenditures. By law the NHIF is not allowed to run a deficit and to accumulate debt. The private supply of services is thriving but it closely depends on income growth rate and the quality of services.

The ongoing reform in education does not follow the clear-cut path of the health care reform. The demographic changes influence developments in education, too. The number of students enrolled in primary and secondary education decreases and the ratio of students per one teacher diminishes (Figure 20). Closing down schools due to a reduction in students creates high social tension in the regions affected. Although social discontent may slow down the speed of restructuring it can not stop the process because of its purely demographic nature. On the other hand, the demand for higher education is high and keeps the ratio of students to a professor relatively stable (Figure 20). Since 1991, financing of higher education is mixed. One part is funded through the government budget based on negotiations between the higher schools and the government. The remaining part is covered by tuition fees, determined independently by every higher school.

Figure 20

Source: National Social Security Institute.

The structural reforms in the health care system and education are far from completed. The aging of the population will put pressure on the health care system, while the absolute decline in the number of the young population should be matched by a respective reduction of schools and dismissal of teachers, very sensitive issues representing a potential source of social tension.

3. Sustainability of the achievements

Confidence in the current and the future fiscal policy represents the most important building block of fiscal sustainability. Rising support to the economic policy implemented reduces the discount rate used for assessing the inter-temporal budget constraint and in the evaluation of the sustainable fiscal position of the government (Nenova and Kaloyanchev, 2004). In Bulgaria, the two consecutive governments that have taken office since July 1997 maintained a restrictive stance of fiscal policy (Figure 4). The continuity and coherence of the economic policy put into practice was appreciated highly by the international financial markets and the credit rating agencies. The spread on the Bulgarian government securities declined and also in 2004, after seven years of macroeconomic stability and prudent fiscal policy, Bulgaria has been granted an investment credit rating.

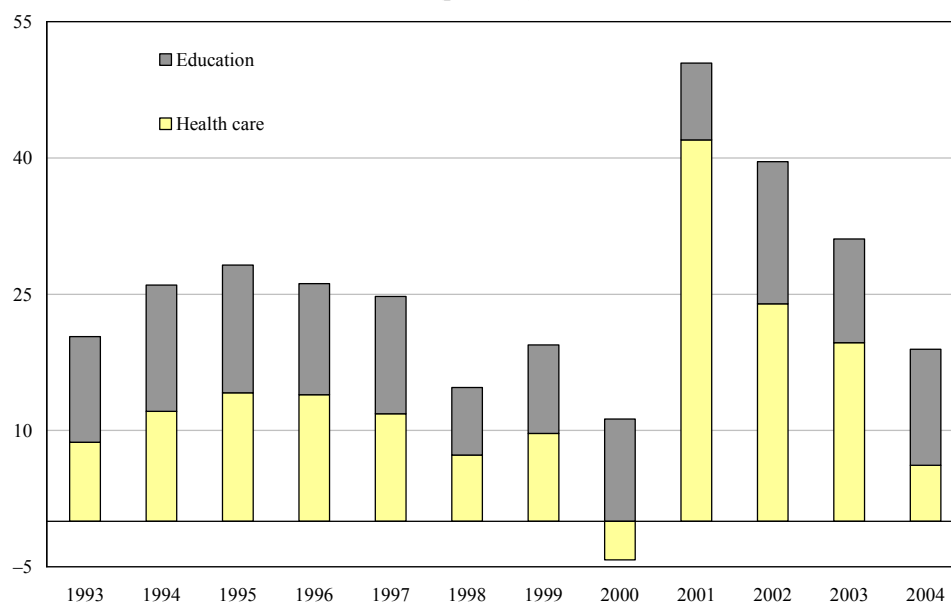
In addition to the positive track record, two documents, related to the Bulgaria's preparation for the EU membership, had been published in 2004, namely the Strategy of the Bulgarian National Bank for the period of 2004-09 and an Agreement between the Government of Bulgaria and the Bulgarian National Bank (BNB) on the policy and commitments to be followed in the process of introducing the Euro in the Republic of Bulgaria in the period until 2009-10. They reveal the commitment of both the Government and the central bank to apply for ERM II entry as early as the country becomes an EU member and to fulfil the criteria for entry into the third phase of EMU at the earliest possible time (end of 2009-beginning of 2010). The documents aim at strengthening the confidence in the implemented economic policy on the eve of the country's EU membership. The signing of the accession treaty in April 2005 contributed to the positive assessment of the medium-term perspectives of the economy.

It should be noted that the falling international interest rates in 2002-03 had been crucial for the maintenance of a balanced budget (even running a surplus) and allowed for the progress in the reforms performed in the fiscal sector. On the other hand, the governments did take the opportunity of the favourable international environment and through a series of debt net payments and buy backs succeeded in reducing twice the nominal government debt in the period 1999-July 2005. The ratio of the total government debt to GDP diminished to about 30 per cent in July 2005 from 86.8 per cent in 1999, a pre-requisite for the future sustainability of public finances.

The wages policy set by the Government and negotiated in the Tri-partite Commission concerns only the minimum wages and the government employees'

Figure 21

Bulgaria: Share in the Nominal Growth of Non-interest Expenditures
(percent)



Source: Ministry of Finance.

salaries, which now cover a small share of overall employment. The approach to wages determination for sectors financed by the budget is quite flexible as it contains two components – a rule, stating that the coefficient of wages increase depends on the target of maintaining a close to balance fiscal policy; and discretion allowing for end of year bonuses in case of budget revenues out-performance. Although the average wages in the government sector, health care and education is permanently on the increase in the last few years the share of wages expenses in non-interest budget expenditures is quite stable (Figures 5, 8 and 18-19).⁹

The privatization in 2004-2005 of utilities like distribution of electricity to final consumers and the fixed telephone lines will further advance the process of price liberalization as the new owners will set their prices under the monitoring and with the approval of independent regulatory bodies. If expectations for future increases in personal income, revealed in the consumer confidence surveys, come true then households will be better positioned to absorb possible rises in utilities prices.

⁹ There is a process of faster growth of wages in the sectors but in real terms they are still far below the 1991 level (Figures 18-19).

The structural imbalance in the pension system will remain, but it will be alleviated by the gradual reduction in the dependency ratio as a result of the reforms in the system, launched in 2000 and envisaged for completion in 2010. The medium term forecasts perceive relatively high real growth rates of GDP and growing employment in Bulgaria. Based on the forecasts and adjusting for the higher retirement age it might be expected that the dependency ratio will further improve while the built-in procedure in the Social Code for pension calculation and indexation will keep the replacement ratio within affordable limits of around the current level of 40 per cent of the average wages. These are all factors easing the pressure on the public pension system and support the view that the new system of public social security as a whole supplemented by the mandatory fully funded pension scheme will operate in a sustainable way in the future. As of today the national social security system is not burdened by debt and its deficit of about 5 per cent of GDP in 2002 has been reduced to 3.9 per cent in 2004 and it is financed by a transfer from the central government budget.

The financial soundness of the health care and education sectors has been achieved in the last few years by significant reduction of hospital beds, closures of schools in depopulated regions, staff dismissals, and a poor quality of the services provided. The last factor – the very low quality of services provided by the public providers, urged the households to resort to services supplied by the private sector. However, the balance of today is extremely fragile and the structure of financing creates a high degree of social discontent. A priority for the fiscal policy of the coming years is to continue with the reforms in the two sectors that will improve the overall quality of services and sustain the balance in their financing.

The experience of Bulgaria in the period 1991-2004 exemplifies the challenges faced by governments in managing public finances under a heavy debt burden. But it also points out that it is not an impossible task to undertake successful fiscal restructuring and gain a gradual reduction of the debt burden to a sustainable level.

REFERENCES

- Agency for Economic Cooperation and Development (AECED)(1992-1996), *Annual Report*, Sofia, AECED.
- Agency for Economic Analysis and Forecasting (1997-2003), *Annual Report*, Sofia, AECED.
- Beleva, I., R. Jackman and M. Nenova (1995), “Bulgaria”, in S. Commander and F. Coricelli (eds.), *Unemployment, Restructuring, and the Labour Market in Eastern Europe and Russia*, Washington (D.C.), EDI Development Studies, The World Bank.
- Ministry of Health Care (2004), “*Report on the Health of the Nation. Analysis of the reform in the health care sector*”, Sofia, http://www.mh.government.bg/program_and_strategies.php
- National Health Insurance Fund (2004), *Annual Report 2003*, Internet address: http://www.nhif.bg/downloads/otchet_03_Last.pdf
- Nenova, M. (1993), “*Wages Controls: The Bulgarian Experience in 1991/1992*”, AECED, Working Paper.
- (1994a), “Fiscal Policy and Macroeconomic Stabilization in Bulgaria”, in R. Avramov and V. Antonov (eds.), *Economic Transition in Bulgaria*, Sofia, AECED.
- (1994b), “Wages and Employment”, in R. Avramov and V. Antonov (eds.), *Economic Transition in Bulgaria*, Sofia, AECED.
- (1998), “Fiscal Policy and Macroeconomic Stabilization”, in G. Minasjan, M. Nenova and V. Yotzov, *The Currency Board Arrangement in Bulgaria (The Start and the Perspectives)*, Sofia, GorexPress.
- Nenova, M. and P. Kaloyanchev (2004), “Possible Points of Contradiction Between Fiscal Policy and Debt Management Objectives (in Developing Countries)”, in Banca d’Italia (ed.), *Public Debt*, Rome.

PUBLIC EXPENDITURE AND FISCAL CONSOLIDATION IN PORTUGAL

Jorge Correia da Cunha and Cláudia Rodrigues Braz***

1. Introduction

At the beginning of the Nineties, Portugal still recorded in most years general government deficits exceeding 7 per cent of GDP. However, the country was able to qualify for the participation in EMU. The convergence period was characterised by a tightening of fiscal policy in 1994-95 but a slight loosening in 1996-97 (Figures 1, 2 and 3). The soft fulfilment of the fiscal convergence criteria was basically allowed by a pronounced decline in interest expenditure, stemming from the impact of disinflation and the credibility effects associated with nominal convergence. From 1997 to 2001, the structural position of public finances worsened considerably. Nevertheless, until 2000, the sizeable impact of the buoyant economic activity and the decline in interest payments more than offset the significant pro-cyclical loosening of fiscal policy. In 2001, the effects of the cyclical downturn and the continuation of an expansionary fiscal policy gave rise to an excessive deficit in the context of the Stability and Growth Pact. The cyclically adjusted deficit reached then 5.6 per cent of GDP. Some consolidation measures were implemented since 2002. They included, essentially, increases in indirect taxes and a tighter control of some expenditure items. The government also adopted a very significant amount of temporary measures (1.4, 2.5 and 2.3 per cent of GDP in 2002, 2003 and 2004, respectively). The cyclically adjusted deficit, excluding the effects of temporary measures, still amounted to 4.0 per cent of GDP in 2004.

The lack of fiscal consolidation before 2002 is largely responsible for the current budgetary situation. Between 1997 and 2001, the significant loosening was mostly explained by a strong increase in current primary expenditure. The main goal of this paper is to analyse the evolution of the Portuguese public expenditure from 1990 to 2004, in order to assess the current position and the prospects for future developments in the absence of corrective measures and structural reforms.

The paper is organised as follows. Section 2 presents the main features of the evolution of public expenditure in Portugal in the context of the European Union. Section 3 analyses the main explanatory factors behind the growth of public expenditure in Portugal in the period from 1990 to 2004. Section 4 describes the measures aiming at the control of public expenditure implemented in the period 2002-04. Section 5 briefly assesses the quality of public expenditure in Portugal. Lastly, Section 6 concludes.

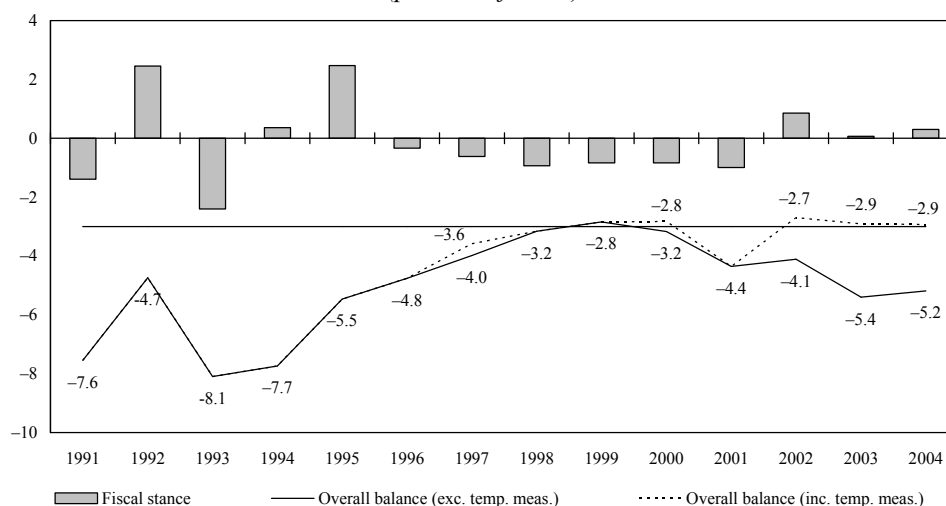
* Banco de Portugal (Economics and Research Department).

** Banco de Portugal (Economics and Research Department) and Universidade Nova de Lisboa.

The views expressed in this paper are those of the authors and not necessarily those of the Banco de Portugal. Corresponding authors: Jorge Cunha, E-mail: jmmccunha@bportugal.pt, tel: +351-21-3128358 and Claudia Braz, E-mail: crbraz@bportugal.pt, tel: +351-21-3130549.

Figure 1

General Government Overall Balance and the Fiscal Stance in Portugal
(percent of GDP)



Note: Fiscal stance is measured by the change in the cyclically adjusted primary balance, excluding the effects of temporary measures.

2. Public expenditure in Portugal in the context of the European Union

At first sight, according to the currently available National Accounts data on general government expenditure, Portugal does not appear to be a singular case among the European Union member states. Indeed, in 2002, the public expenditure ratio to GDP reached 46.0 per cent in Portugal, below the EU15 average for the same year, which stood at 47.7 per cent of GDP (see Table 1 and Appendix 1). However, the comparison with other EU member states with similar per capita income level suggests that Portugal is a relatively high spending country, exceeding the ratio of the overall public expenditure to GDP recorded in Spain and the ratio of primary expenditure to GDP in Greece.

In any case, Portugal's most distinctive feature in the context of the EU15 as far as the relative weight of the public sector in the economy is concerned is not the current position, but last years' developments. Actually, on average in the EU15 the public expenditure as a percentage of GDP declined by 5.7 per cent between 1995 and 2002,¹ while in Portugal it increased by 0.9 per cent. This different pattern is mostly a result of the buoyant growth of primary current expenditure in Portugal,

¹ The period is not extended back to 1990 as the New Cronos database does not have available information on an ESA95 basis for all the 15 EU member states.

Figure 2

Change in Cyclically-adjusted Revenue and Primary Expenditure
(excluding temporary measures)

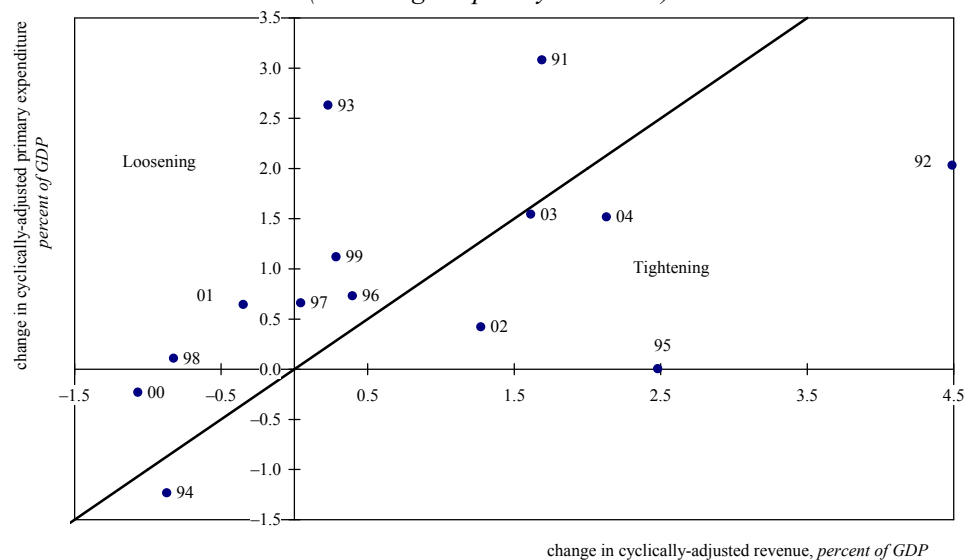


Figure 3

Portugal: General Government Gross Debt
(percent of GDP)

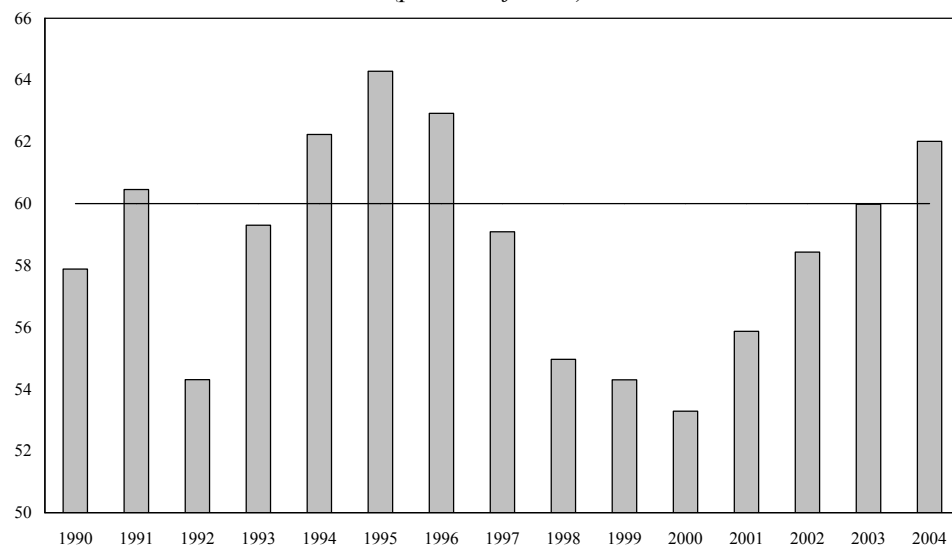


Table 1

Public Expenditure in the European Union and in Portugal, 1995 and 2002
(economic classification, percent of GDP)

	1995		2002		Change	
	EU15	PT	EU15	PT	EU15	PT
Current expenditure	47.1	39.8	44.3	41.8	-2.8	2.0
Compensation of employees	11.4	13.6	10.9	15.4	-0.5	1.8
Intermediate consumption	5.6	3.7	6.2	4.3	0.6	0.6
Interest expenditure	5.4	6.3	3.4	3.1	-2.0	-3.2
Social payments	21.5	13.2	20.5	15.0	-1.0	1.8
Subsidies	1.6	1.3	1.2	1.5	-0.4	0.1
Other current transfers	1.6	1.6	2.1	2.5	0.5	0.9
Capital expenditure	6.3	5.3	3.4	4.2	-2.9	-1.1
Investment	2.7	3.7	2.3	3.3	-0.4	-0.4
K2	-0.0	0.0	-0.0	-0.2	0.0	-0.3
Capital transfers	3.7	1.5	1.2	1.1	-2.5	-0.4
Total Expenditure	53.4	45.0	47.7	46.0	-5.7	0.9
<i>Memo item:</i>						
Primary current expenditure	41.7	33.5	40.9	38.7	-0.8	5.2

Source: NewCronos database.

which rose by 5.2 per cent of GDP in the period under analysis, in sharp contrast with the trend in the EU15 as a whole, where a -0.8 per cent of GDP decrease was recorded. It should be referred that from 1995 to 2002 primary current expenditure as a percentage of GDP only increased in Greece (+3.4 per cent), Italy (+1.5 per cent), Belgium (+0.9 per cent) and Germany (+0.3 per cent).² Public expenditure developments in Portugal will be analysed in more detail in the next section.

Regarding the composition of public expenditure in Portugal and in the EU15, according to the economic classification of expenditure, the most striking differences show up in the items compensation of employees and social payments. Based on the 2002 National Accounts data, the share of compensation of employees in the overall public expenditure is substantially higher in Portugal than in the EU15 (33.5 per cent, in Portugal, to be compared with 22.8 per cent, in the EU15), while the share of social payments is considerably lower (32.7 and 43.0 per cent in

² It should be highlighted that the evolution of current primary expenditure between 1995 and 2002 in each country reflects, beyond the effects of discretionary measures and structural trends, a different impact of the economic cycle on expenditure, mainly through expenditure with unemployment benefits.

Portugal and the EU15, respectively) (Figures 4 and 5). Additionally, there are also smaller differences in the shares of intermediate consumption and investment, but the sum of the two items is more or less the same in Portugal and in the EU15.

Three points should be made at this stage. Firstly, the comparisons carried out in this section are influenced by the delimitation of the general government sector. Indeed, it is important to know for each country the degree of outsourcing in the supply of some goods and services usually provided publicly, in particular in the areas of health and education. The differences in the general government perimeter may only have an effect on the composition of public expenditure, for example in the case of health services financed publicly but provided by entities classified outside the general government sector, or, alternatively, may also have an impact on the time pattern of government expenditure (and, as such, on its level in each period), as it happens with many public/private partnerships. Secondly, differences in the tax system concerning the taxation of social benefits and the existence of tax allowances and tax credits instead of explicit expenditure might have a non-negligible impact on the level of overall public expenditure as measured in National Accounts. Finally, other country-specific factors, like the recording of the expenditure related with the civil servants pension system in Portugal, might also distort international comparisons of public expenditure.

Having in mind these considerations, it is worth referring that in Portugal, in 2002, most health and education services were provided by entities classified inside the general government sector, explaining, to some extent, the relatively high share of compensation of employees in public expenditure. At the end of 2002, some public hospitals were transformed into public corporations, which resulted in an increase in social payments in kind and a decline in compensation of employees and intermediate consumption in the general government accounts. In addition, in Portugal, the actual social contributions of general government entities as employers are not calculated as a fixed rate on wages but as the amount required to ensure the financial balance of the civil servants pension system. As in the last few years' expenditure with pensions of former civil servants has been increasing significantly, the figure for compensation of employees is substantially influenced by this sort of recording mechanism. A simple exercise, calculating actual social contributions of general government entities on the basis of a rate compatible with the one used in the private sector social security system would reduce the share of personnel outlays in total expenditure in 2002 from 33.5 per cent to 32.8 per cent. Concerning social payments, the relatively low share of this item in Portugal suggests that the Portuguese social security system is much less generous or that its degree of maturation is lower than in the other EU15 countries. If the explanation is predominantly the second one, the above-mentioned figures provide a clear indication of the expected evolution of this item in the next years if no major reforms are implemented.³

³ The conclusion still holds when social transfers in kind are excluded from the analysis, helping to corroborate the explanations presented.

Figure 4

Public Expenditure in Portugal, 2002
(economic classification)

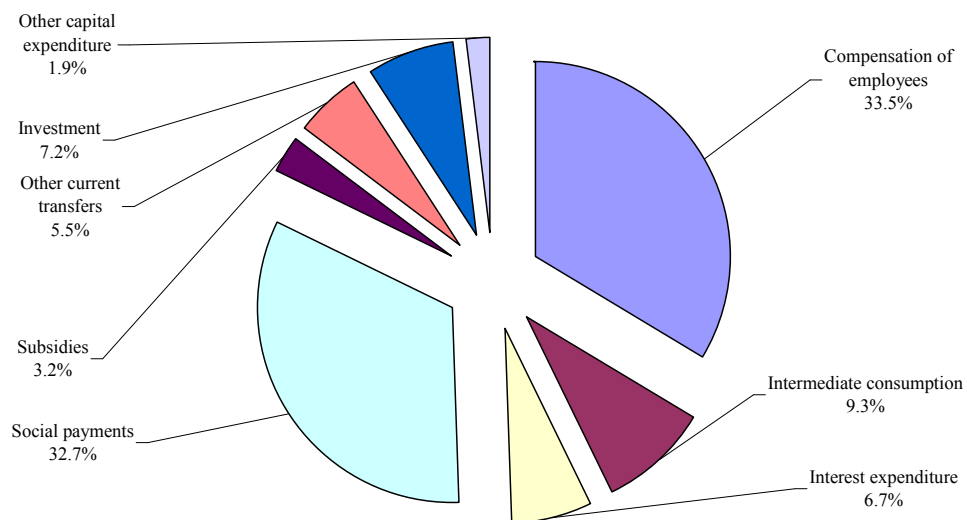
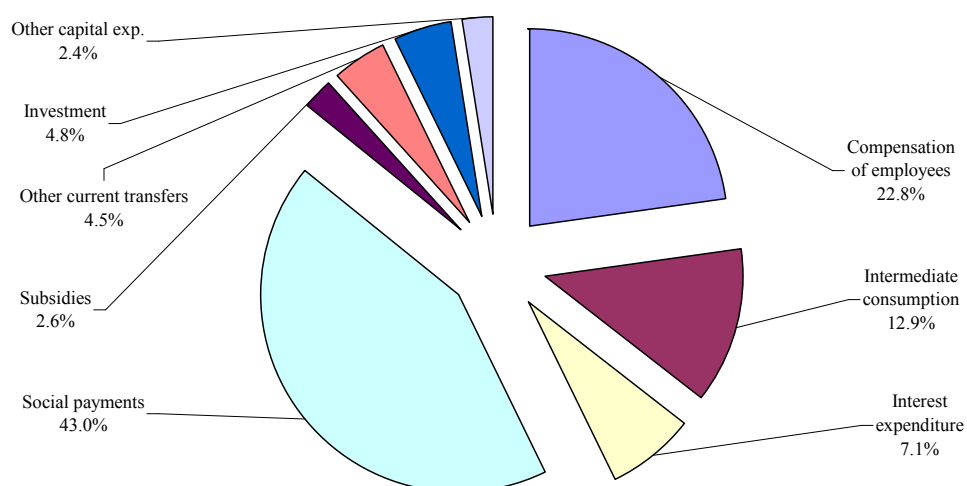


Figure 5

Public Expenditure in the EU15, 2002
(economic classification)



Figures 6 and 7 split public expenditure in Portugal and the EU15 in 2002, following the functional classification. According to these data, the share of general government expenditure of health and education is higher in Portugal (15.0 and 15.3 per cent, to be compared with 13.7 and 10.9 per cent, in the EU15), while expenditure with social protection is considerably lower in Portugal (30.4 per cent, in Portugal, and 40.0 per cent, on average in the EU15) (see Appendix 2).

3. The growth of public expenditure in Portugal in the period from 1990 to 2004: main explanatory factors

Portugal witnessed a period of strong growth of primary current expenditure during the Nineties, which made its evolution quite exceptional in the European Union context. The objective of this section is to analyse the main explanatory factors underlying the growth of public expenditure in Portugal between 1990 and 2004.

Following the Portuguese general government National Accounts, cyclically adjusted public expenditure⁴ as a percentage of nominal trend GDP⁵ increased by 3.8 per cent, from 1990 to 2004 (Table 2 and Appendix 4). In the same period, interest payments declined substantially (–6.1 per cent of nominal trend GDP), in particular in the period from 1990 to 1998, as a result of the disinflation process and the decline in the risk premium (Figure 8). A simple exercise to decompose the evolution of interest payments into the effect of the decline in the implicit interest rate on public debt and the effect of the stock of debt shows that almost all the observed change is indeed explained by the first factor (around –6.4 per cent in an overall change of –6.1 per cent). Since capital expenditure remained broadly unchanged in the period under analysis, the rise in cyclically adjusted current primary expenditure was very significant, reaching 10.6 per cent of nominal trend GDP. The two items that contributed most to this outcome were social payments (+6.6 per cent of nominal trend GDP) and compensation of employees (+2.5 per cent of nominal trend GDP). The analysis of data according to the functional classification of public expenditure, without making any adjustment for cyclical developments, leads to conclusions mostly in line with the ones based on the data following economic classification, cyclically adjusted. Indeed, in the period from 1990 to 2002, the highest increase occurred in expenditure on social protection (4.0 per cent of nominal trend GDP), which is mainly composed by social payments (85.9 per cent in 2002), on health (2.9 per cent of nominal trend GDP) and on education (1.8 per cent of nominal trend GDP). It is worth mentioning that these two last items of expenditure include a high proportion of personnel outlays in its

⁴ Calculated according to the ESCB harmonised methodology. For further details, see Bouthevillain *et al.* (2001) and Neves and Sarmiento (2001).

⁵ The objective is to eliminate the annual changes in ratios, which result from cyclical fluctuations of GDP. As such, nominal trend GDP is defined as the trend of real GDP multiplied by the unadjusted GDP deflator. The trend is derived by applying the Hodrick-Prescott filter with smoothing parameter $\lambda = 30$.

Figure 6

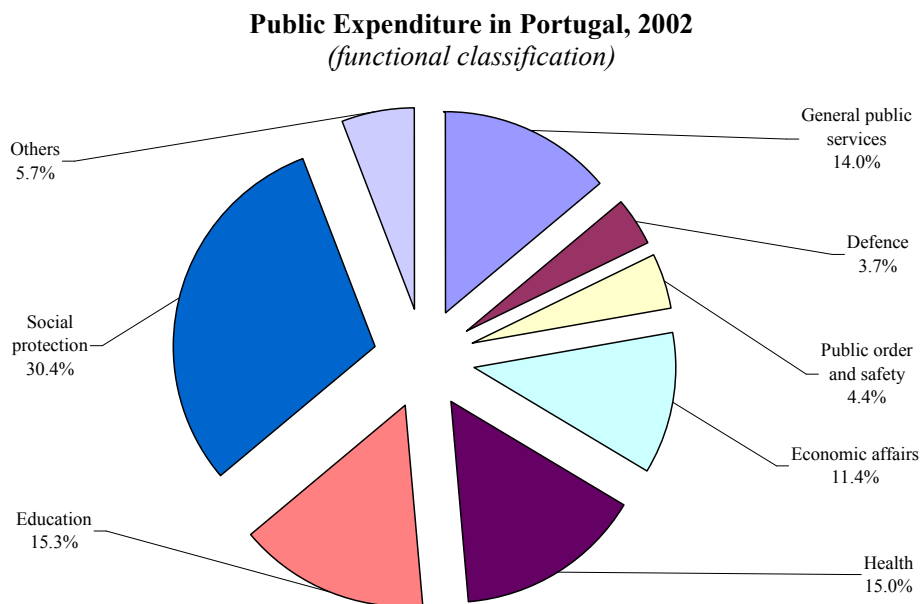


Figure 7

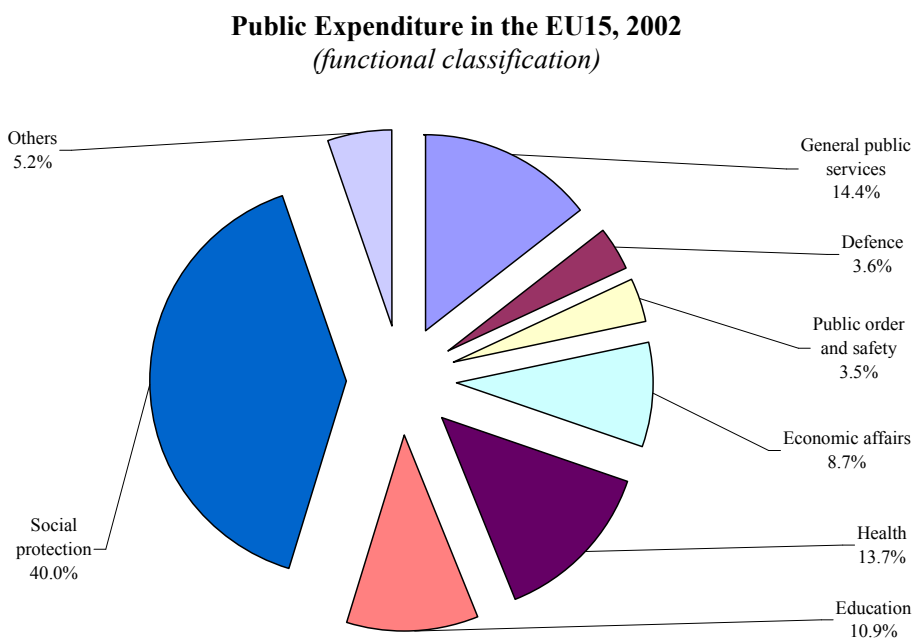


Table 2

Cyclically-adjusted Public Expenditure in Portugal
(economic classification, percent of nominal trend GDP, changes)

	1990-1998	1998-2002	2002-2004	1990-2004
Current expenditure	-0.1	3.9	0.6	4.5
Compensation of employees	1.8	1.5	-0.8	2.5
Intermediate consumption	0.5	0.5	-0.6	0.4
Interest expenditure	-5.4	-0.4	-0.3	-6.1
Social payments	2.5	1.8	2.3	6.6
Subsidies	-0.3	0.0	0.1	-0.2
Other current transfers	0.9	0.4	-0.1	1.2
Capital expenditure	0.7	-1.3	-0.1	-0.7
Investment	0.5	-0.3	-0.4	-0.2
K2	0.1	-0.1	0.0	0.0
Capital transfers	0.1	-0.8	0.2	-0.5
Total Expenditure	0.6	2.7	0.5	3.8
<i>Memo item:</i>				
Primary current expenditure	5.4	4.3	0.9	10.6

composition (47.9 and 79.7 per cent of the overall expenditure of the category, respectively), confirming the perspective resulting from the analysis based on data according to the economic classification (see Table 3, Figure 9 and Appendix 3 and 5).

3.1 *The evolution of compensation of employees*

Concerning compensation of employees as a ratio to nominal trend GDP, a rising trend can be observed between 1990 and 2002. As already mentioned, part of this evolution stems from the current mechanism of recording actual social contributions of general government institutions as employers, which ensures the financial balance of the civil servants pension system. Figure 10 presents the decomposition of compensation of employees into three components: the wage bill, actual employer social contributions and imputed social contributions. The part of the evolution of compensation of employees in the last decade to be explained by actual social contributions is more or less half of the overall change observed in this item and results, to a large extent, from the rise in expenditure with pensions of the former civil servants, which will be analysed in more detail later in the text.

Figure 8

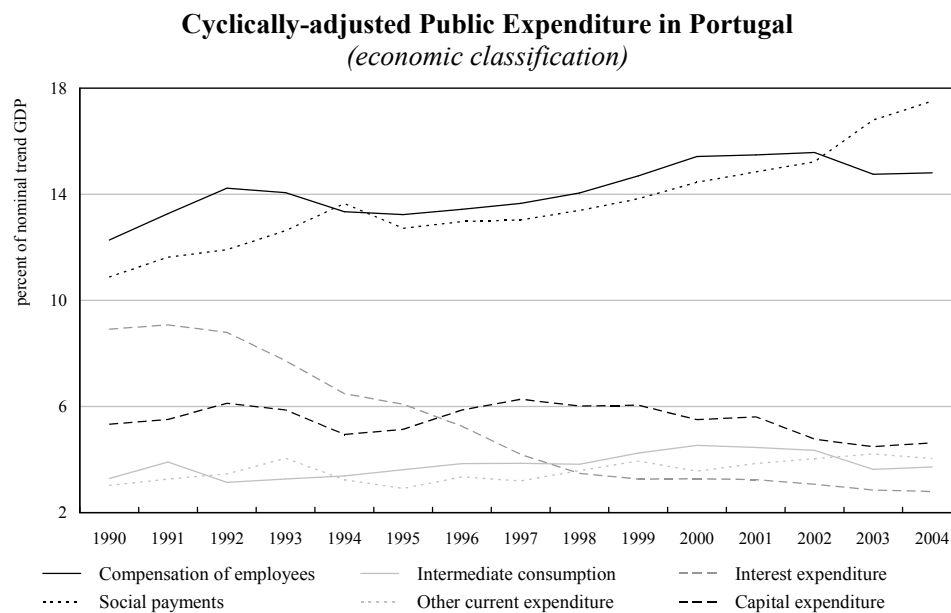


Figure 9

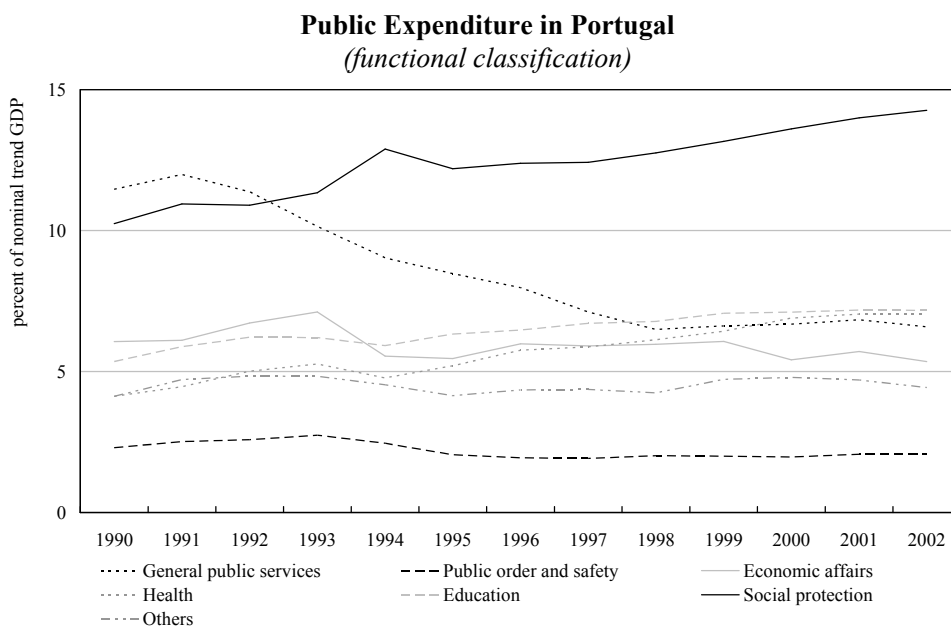


Table 3

Public Expenditure in Portugal
(functional classification, percent of nominal trend GDP, changes)

	1990-1998	1998-2002	1990-2002
General public services	-5.0	0.1	-4.9
Defence	-0.4	0.1	-0.3
Public order and safety	-0.3	0.1	-0.2
Economic affairs	-0.1	-0.6	-0.7
Environment protection	0.2	0.0	0.2
Housing and community amenities	0.1	0.0	0.0
Health	2.0	0.9	2.9
Recreation, culture and religion	0.2	0.2	0.4
Education	1.4	0.4	1.8
Social protection	2.5	1.5	4.0
Total expenditure	0.7	2.5	3.3

Regarding the wage bill, the strong growth observed in the period under analysis (1.6 per cent of nominal trend GDP between 1990 and 2002) does not stem from annual updates of the civil servants wage scale above inflation. Actually, the annual updates were broadly in line with the inflation estimates assumed in the Budgets, and these ones anticipated quite well the disinflation process⁶ (Figure 11). Figure 12 shows the decomposition of the growth rate of the wage bill into four explanatory factors: the update of the wage scale, the wage “drift”, the number of civil servants and a residual. The wage “drift” corresponds to the increase in wages due to normal promotions and the rise of the average wage resulting from the renewal of the population of civil servants, and it was assumed to be constant at 1.25 per cent in the period under consideration. The wages residual represents essentially the effect of extraordinary revisions of careers. In the period from 1990 to 2002 it was recorded, on the one hand, a strong rise in the number of civil servants, in particular at the beginning of the decade and after 1997. In 2003, the transformation of some hospitals into public corporations, classified outside the general government sector, explains the reduction in the number of civil servants in that year.

⁶ As referred in the next section, the measures to control the growth of public expenditure from 2002 onwards included the quasi-freezing of the update of the wage scale of civil servants in both 2003 and 2004.

Figure 10

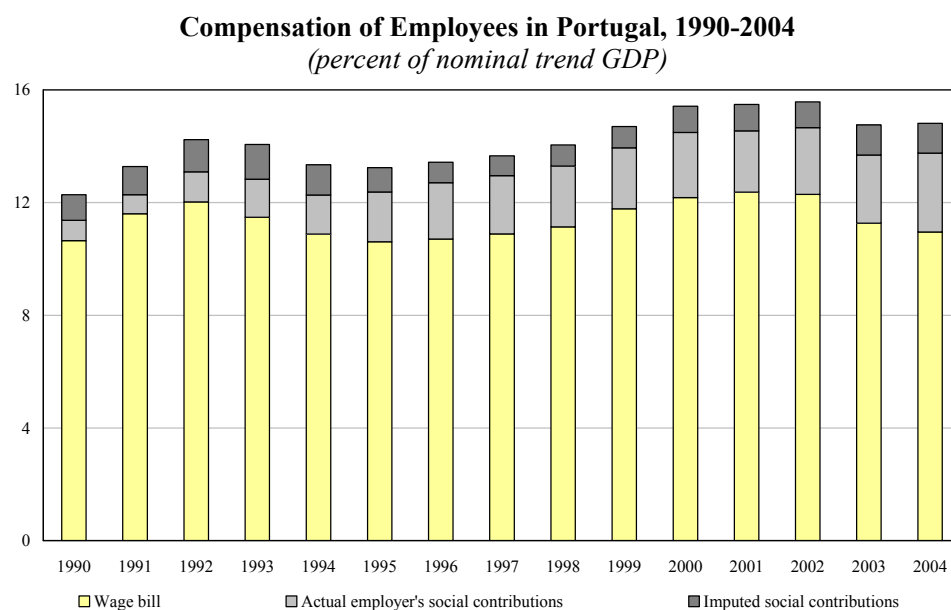
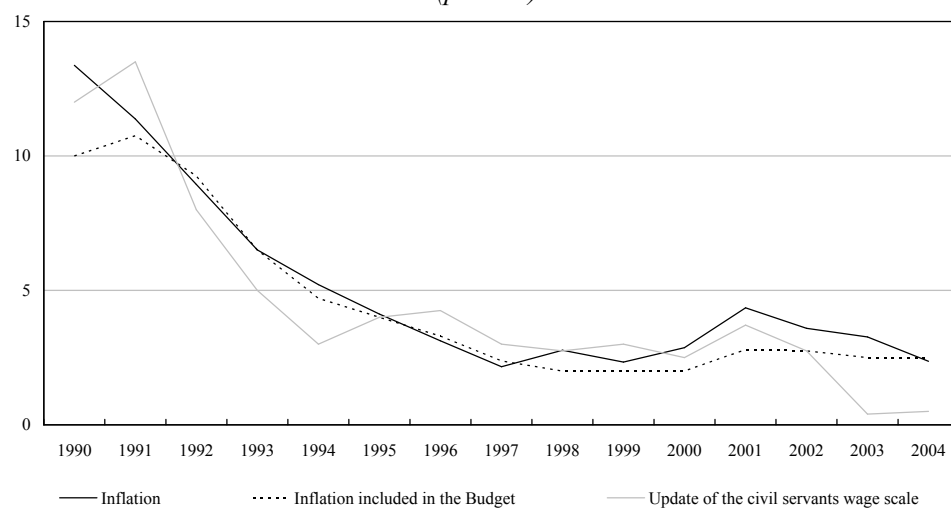


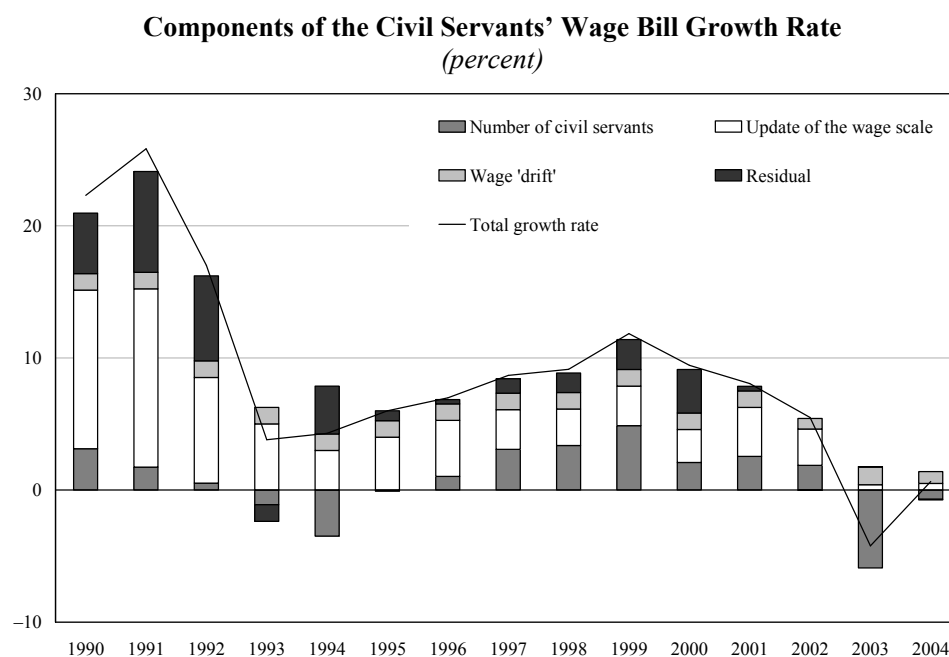
Figure 11

Observed and Budgeted Inflation and the Update of the Civil Servants Wage Scale
(percent)



Note: The inflation included in the Budget is measured by the private consumption deflator while the observed inflation is measured by the consumer price index.

Figure 12



Nevertheless, correcting for this effect, the number of civil servants remained more or less constant in 2003, contrasting with the developments observed in the previous years. On the other hand, the residual effect was also very significant from 1990 to 1992, mainly as a consequence of the introduction of the New Civil Servants Pay System,⁷ and between 1997 and 2002, due to additional revisions in some specific careers.⁸

3.2 The evolution of social payments

The evolution of social payments stemmed, mostly, from the behaviour of pension expenditure. Indeed, of the 6.6 per cent of nominal trend GDP increase in cyclically adjusted social payments in the period from 1990 to 2004, 1.8 per cent are related with social transfers in kind, which were affected by the already mentioned

⁷ The New Civil Servants Pay System was designed with two main objectives: the civil service pay system needed to regain internal fairness, and public sector salaries needed to become more competitive in relation to those paid by other sectors for the same job or the same qualifications.

⁸ A simulation was performed in another paper of the authors (Cunha and Braz, 2003), showing that the elimination of the residual component of the wage bill, plus keeping unchanged the number of civil servants, between 1990 and 2002 would have had a cumulative impact in the cyclically adjusted overall balance as a percentage of trend GDP of 3.9 percentage points.

transformation of public hospitals into public corporations at the end of 2002. The remaining increase of social payments results predominantly from pension expenditure (4.2 per cent of nominal trend GDP). Since in Portugal there are two main public social security systems, comprising the private sector workers (general system) and civil servants, they are analysed separately.

3.2.1 *The general pension system*

The strong increase in expenditure on old age, disability and survival pensions of the private sector social security system between 1990 and 2004 (1.8 per cent of nominal trend GDP) can be explained by three factors:

- the annual updates of pensions;
- the number of pensioners;
- a composition effect, which comprises, essentially, the change in the average pension, including the effect of some discretionary measures.⁹

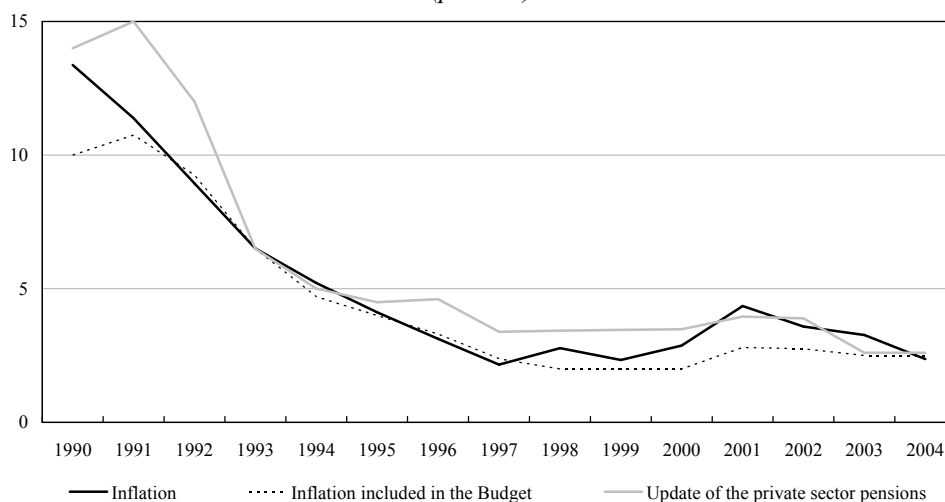
Concerning the first one, the general system pensions were updated above inflation in most years under consideration, as it is shown in Figure 13. However, among the three factors of pension growth, this is definitely the least important one in the last years. The strong rise in the number of pensioners, stemming mainly from the ageing of population, contributed on average by 1.8 per cent to the annual growth rate of the general system pension expenditure (around 2.7 per cent for old-age pensions) (Figure 14). It is worth mentioning that between 1994 and 1999 the slowdown in the growth rate of the number of pensioners is explained by the increase in the retirement age for women from 62 to 65 years old, six months per year. Having in mind the demographic composition of the Portuguese population, the continuation of strong increases in the number of pensioners is expected for the next years, if no reform is actually implemented.¹⁰ Finally, the hike in the average pension, excluding the annual update, has also been very significant in the last years, even in the absence of discretionary measures: 3.6 per cent of the annual growth rate, on average. This effect is a consequence of the higher wages the new retirees received during their contributive careers, but it is also due to the fact that, on average, they contributed more years to the system. As the general system of pension in Portugal has not reached yet its maturity, in the next years it is predictable that the increase in the average pension will persist. To sum up, if no reform in this sector is carried through, in the next years the structural factors will continue to lead to a strong growth in expenditure with pensions of the general system, quite above the increase in nominal GDP, hindering the consolidation efforts of fiscal authorities. This effect will be stronger on years of low economic

⁹ Like, for example, the introduction of the 14th month in the payment of pensions in 1990.

¹⁰ The last Report of the Working Group on Ageing of the Economic Policy Committee (2001) showed that, according to official estimates, the increase in the private sector pension expenditure between 2000 and 2050 should amount to 3.4 per cent of GDP, of which 6.7 per cent of GDP were related to the dependency ratio, reflecting the effect of the ageing of population.

Figure 13

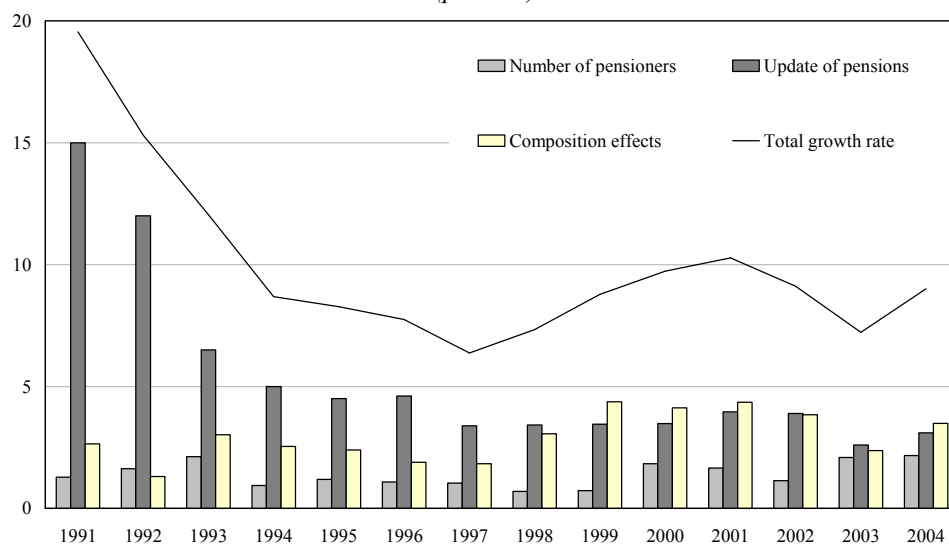
Observed and Budgeted Inflation and the Update of the Private-sector Pensions (percent)



Note: The inflation included in the Budget is measured by the private consumption deflator while the observed inflation is measured by the consumer price index.

Figure 14

Components of the Growth Rate of the Private-sector Expenditure on Pensions (percent)



growth, like in 2003 and 2004 in Portugal, where the general system pension expenditure contributed by 0.4 per cent of GDP, in each of the years, to the deterioration of the underlying fiscal situation.

3.2.2 *The civil servants' pension system*

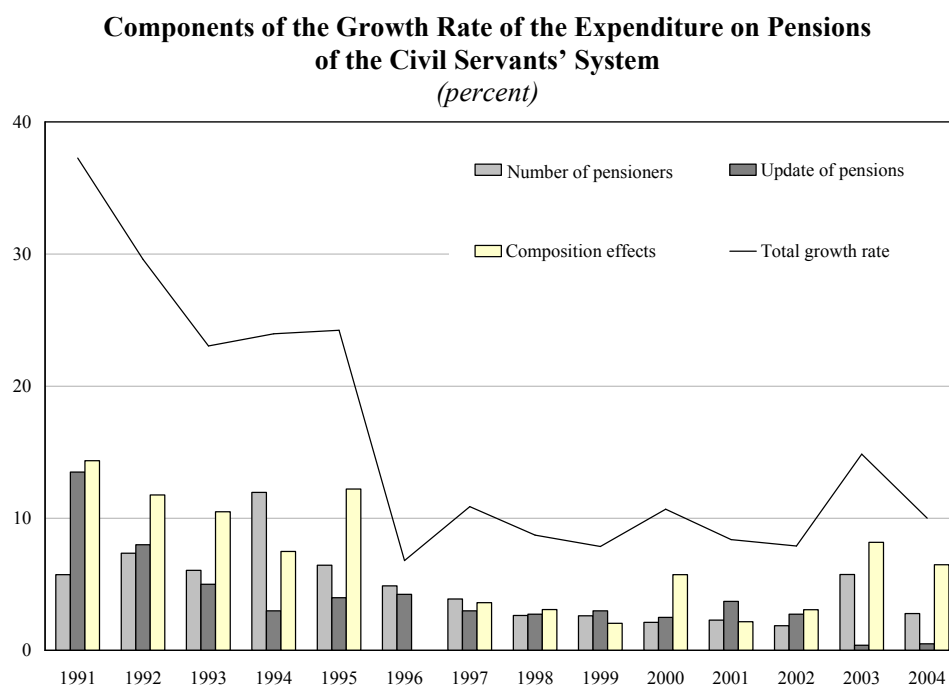
Pension expenditure in the civil servants' system increased by 2.4 per cent of nominal trend GDP in the period from 1990 to 2004. Figure 15 illustrates the decomposition of the rate of change of this item in the same explanatory factors as in the general system case. Concerning the update of former civil servants pensions, it is worth referring that they are annually adjusted in line with the update of the wage scale, which, as mentioned before, has followed inflation quite closely and was nearly frozen in 2003 and 2004. As far as the number of pensioners is concerned, a strong growth can be observed in all years of the period from 1990 to 2004 (around 4.7 per cent on average in this period). It is worth mentioning that the substantial increase of the number of pensioners in 2003 is mainly the result of an extraordinary rise in requests for retirement before the entry into force of new rules for the calculation of the initial pensions from January 1st, 2004 onwards, explained in more detail in the next section. In addition, there is a smaller effect, related with the inclusion of the pensions of the former employees of the post office in general government expenditure, following the transfer of the pension fund of this public corporation to the civil servants pension system. The magnitude of the composition effect, which usually follows quite closely the change in the number of pensioners, has also been very significant in almost all years of the 1990-2004 period due, essentially, to higher wages at the end of their contributive carriers. Lastly, it should be referred that, similarly to the private sector system, the expenditure on pensions of the civil servants system will follow a structural growth trend in the next years. However, this one may be mitigated in about 25 years, at the time when the new retirees will have their pensions calculated according to the general system rules, which are less favourable.¹¹

4. **The measures to control public expenditure in the period 2002-04**

Expenditure control was seen as the keystone of the fiscal consolidation strategy delineated by the government formed in the wake of the March 2002 legislative elections. It included some structural measures, with a long-run impact on expenditure, and a package of restraint measures, with a sizeable effect in the short term, which by its own nature could not be repeated successively without hindering the working of most general government institutions. However, crucial reforms like

¹¹ For the subscribers that joined the civil servants pension system after September 1993, the rules for the calculation of their initial pension will be those of the private sector system. This means that, in general terms, their contributive carriers will have to be 40 years instead of 36 years to have access to a full pension and the replacement rate will also be lower.

Figure 15



the ones of public administration, instrumental to curb the growth of compensation of employees, and the private sector social security system were barely initiated.

The structural measures on the expenditure side actually implemented from 2002 to 2004 concerned four major areas: the civil servants pension system, the National Health Service (NHS), the subsidisation of interest on loans for house purchase and the ceiling on municipalities financing. The changes to the civil servants pension system, effective from the beginning of 2004 onwards, involved the definition of the initial pension – formerly the average gross wage of the last three months, now the average wage net of the civil servant social contributions of the last three months – and the introduction of penalties for those who retire before reaching 60 years old: –4.5 per cent per each year below the age of 60. In the NHS two major reforms were launched: the transformation at the end of 2002 of 34 public hospitals into 31 new public corporations, now financed according to the medical services provided, and the introduction of generic drugs and the change in the cofinancing of pharmaceutical drugs rules. The interest relief grants for house purchase were eliminated for new credit contracts from October 2002 onwards. Finally, according to the Budgetary Framework Law revised in 2002, the Budgets for 2003, 2004 and 2005 included ceilings on additional net indebtedness of

municipalities, in order to ensure that all general government subsectors contribute to the fulfilment of Portugal's fiscal targets in the context of the EU (for more details on this issue see Cunha and Silva, 2002 and Cunha and Braz, 2004).

As the structural measures referred above are limited in their scope and take time to have a sizeable impact, expenditure control in the recent years relied mostly on short-term measures not sustainable in the medium and long term. These ones concerned predominantly civil servants wage bill and pensions, intermediate consumption and investment. An important part of the burden of expenditure restraint actually fell on civil servants wage bill and pensions, through three main channels: the freezing of wages and pensions exceeding a certain amount (€ 1,000 and € 1,021 per month in the framework of the 2003 and 2004 Budgets, respectively); a stricter control of the hiring of civil servants in central government; and, a freezing of extraordinary revisions in specific careers. Intermediate

Table 4

**Comparison between the State Subsector Account
Included in the Budget Report and in the Budget Law**
(millions of euros)

	State – Public Accounting					
	2003			2004		
	Budget Report (1)	Budget Law (2)	Difference (3)=(2)–(1)	Budget Report (4)	Budget Law (5)	Difference (6)=(5)–(4)
CURRENT REVENUE	31,568.6	31,568.6	0.0	30,475.1	30,475.6	0.5
Direct taxes and social contributions	11,950.6	11,950.6	0.0	10,956.0	10,956.0	0.0
Indirect taxes	17,511.3	17,511.3	0.0	17,543.0	17,543.0	0.0
Other current revenue	2,106.7	2,106.7	0.0	1,976.1	1,976.6	0.5
CURRENT EXPENDITURE	33,295.6	33,564.8	269.2	33,527.0	34,719.4	1,192.4
Public consumption	13,437.2	13,652.6	215.4	13,391.9	14,077.6	685.7
Compensation of employees	11,986.6	11,998.3	11.7	12,025.6	12,299.6	274.0
Acquisition of goods and services	1,053.7	1,107.3	53.6	1,072.7	1,202.2	129.5
Other current expenditure	396.9	547.0	150.1	293.6	575.7	282.1
Subsidies	863.0	863.8	0.8	786.3	873.9	87.6
Interest expenditure	4,343.0	4,343.2	0.2	3,870.8	3,871.0	0.2
Current transfers	14,652.4	14,705.2	52.8	15,478.0	15,897.0	419.0
CURRENT BALANCE	-1,727.0	-1,996.2	-269.2	-3,051.9	-4,243.9	-1,192.0
CAPITAL REVENUE	769.2	769.2	0.0	1,849.9	1,849.9	0.0
CAPITAL EXPENDITURE	3,582.0	4,067.3	485.3	3,489.1	4,023.6	534.5
Investment	719.5	806.5	87.0	719.0	820.1	101.1
Capital transfers	2,739.3	2,987.6	248.3	2,700.1	2,931.3	231.2
Other capital expenditure	123.2	273.2	150.0	70.0	272.3	202.3
OVERALL BALANCE	-4,539.8	-5,294.2	-754.4	-4,691.1	-6,417.6	-1,726.5

consumption and investment not cofinanced by the EU were subject to important cuts at the level of central government. These cuts were implemented through initial freezing defined in the Budget itself, which could be confirmed or lifted in the last months of the year, according to the room for manoeuvre in the budgetary execution. Table 4 shows the initial freezing for the State in the Budgets for 2003 and 2004.

Two of the main negative effects of the short-term policy which aimed at curbing the growth of general government expenditure in the recent years were to make the recruitment of highly qualified professionals by public institutions and the renewal of civil servants even more difficult than previously; and, to increase further the rigidity of public expenditure, as the few items which are not mandatory bear a disproportionate share of the fiscal effort. Table 5 illustrates the rigidity of State expenditure in the last years. These developments clearly highlight the limits of the strategy of financial squeezing across the board and, consequently, the urgency of speeding up structural reforms.

Table 5

**State Budgeted Primary Expenditure
Mandatory Expenditure versus Discretionary Expenditure**

	State Budget for		
	1996	2002	2005
Primary current expenditure	100.0	100.0	100.0
Mandatory expenditure	80.8	82.7	87.4
Local Finance Law ⁽¹⁾	4.0	5.2	5.1
Social Security Framework Law	9.2	12.1	14.5
<i>Caixa Geral de Aposentações – CGA</i> (civil servants pension system)	8.1	8.8	11.2
National Health Service	17.0	18.9	18.8
<i>ADSE</i> (civil servants health system)	1.6	1.9	1.9
Financial contribution to the European Union	5.2	4.3	4.2
Compensation of employees (excluding <i>CGA</i> and other health)	33.5	28.6	29.1
Other mandatory expenditure ⁽¹⁾	2.3	3.0	2.6
Discretionary expenditure	19.2	17.3	12.6
Capital expenditure	100.0	100.0	100.0
Mandatory expenditure	26.2	30.0	41.0
Regional Finance Law	5.4	8.9	11.2
Local Finance Law ⁽¹⁾	18.6	19.7	24.7
Other mandatory expenditure ⁽¹⁾	2.2	1.4	5.1
Discretionary expenditure	73.8	70.0	59.0

(1) The split between current and capital expenditure in these items is still provisional in the column with the 2005 Budget data.

5. The quality of public expenditure in Portugal

There is currently the presumption that public expenditure is quite inefficient in Portugal, that is to say that services provided by general government institutions do not match the resources used, human and other. The main factor behind the poor performance of public institutions is certainly the lack of adequate incentives for civil servants, heads of the government departments and local authorities. Wages are defined according to rigid scales based on professional category and seniority. Promotions result predominantly from seniority, not merit. Mobility between services is very limited and it is virtually impossible to fire civil servants. The gap between public and private wages for identical characteristics of the workers is the highest in the EU (Portugal and Centeno, 2001). However, the general government institutions seldom are able to attract highly qualified professionals, even to ensure the management of key departments. Top wages are relatively low and are not connected with the performance of the services. Finally, local authorities take their expenditure decisions without bearing the political cost of raising additional revenue.

The relation between inputs, activities and outputs in the provision of public services is in most cases difficult to quantify. Education and health are the main exceptions. Together, they represented close to a third of the overall public expenditure in Portugal, in 2002.

Public expenditure in education as a ratio to GDP in Portugal is slightly above the OECD average. Costs per student in secondary education are higher in Portugal than in many OECD countries, as a consequence of a low students per teacher ratio and high teacher wages, in particular at the end of the career. However, the results are poor. According to the OECD PISA programme, which aims at assessing the ability of 15 year old students to use their knowledge to solve problems, as well as their competences in the areas of reading, mathematics and sciences, Portugal is consistently in the last positions in all the dimensions taken into account. In 2003, among the 29 OECD countries included in the study, Portugal occupied the 25th place as far as the ability of students to solve problems is concerned and the 24th, 26th and 27th places regarding the specific competences in reading, mathematics and sciences, respectively. Further, a significant share of students takes additional years to complete compulsory and secondary education. The general perception about the quality of non-university public education encourages an important number of middle-class families to private schools. The very centralized design of the non-university public education and the fact that parents are not able to choose the school for their own children are certainly among the main sources of the system's inefficiency as they lead to an inadequate set of incentives to school directors, teachers and local authorities.

Public expenditure in health care grew very fast in the last two decades and is now already close to the OECD average as a percentage of GDP. This trend allowed a significant improvement in the health status of the population, reducing the gap

vis-à-vis the rest of OECD, in particular regarding years of potential life lost and infant mortality.

However, the resources allocated to the sector would have justified better results. Actually, according to several studies, Portugal's health performance is still lagging behind the EU average. The sources of inefficiency have been related with several factors, including: the system of doctors remuneration, which is not connected with productivity; budget constraints too "soft" and lack of incentives for hospital and other health institutions to improve the performance of their units; inadequate coordination between public health institutions; and, finally, insufficient competition in health provision and sale of pharmaceuticals.

Most of these problems began to be addressed in a comprehensive reform of the National Health Service launched in 2002. The backbone of this reform was the transformation of 34 public hospitals into 31 public corporations, which started to operate in December 2002. This institutional change separated in functional terms the financing/purchaser entity from the provider of health-care services. Payments are based upon contracted production levels, with production exceeding by 10 per cent contracted levels paid at marginal cost. The other main aspect of the reform already under implementation concerns the introduction of generic drugs and the change in the cofinancing of medicines by the National Health Service. These measures should improve the efficiency of public expenditure in the health sector, but have yet to be complemented by additional ones in order to become fully effective.

6. Conclusions

The lack of fiscal consolidation before 2002 is largely responsible for the current difficult budgetary situation in Portugal. Between 1997 and 2001, there was a significant loosening, mostly explained by a strong increase in current primary expenditure. This growth was the most distinctive feature of Portugal's fiscal developments in the context of EU15.

An analysis of the main explanatory factors underlying the growth of public expenditure in Portugal between 1990 and 2004, shows that cyclically adjusted current primary expenditure rose by 10.6 per cent of nominal trend GDP. The two items that contributed most to this outcome were social payments (+6.6 per cent of nominal trend GDP) and compensation of employees (+2.5 per cent of nominal trend GDP).

Concerning compensation of employees, the rising trend observed in almost all years between 1990 and 2002 is, to a large extent, explained by the increase in actual social contributions of general government entities as employers and the wage bill. The latter results predominantly from the strong rise in the number of civil servants, in particular at the beginning of the decade and after 1997, and from the residual effect, which was very significant from 1990 to 1992, mainly as a

consequence of the introduction of the New Civil Servants Pay System, and between 1997 and 2002, due to additional revisions in some specific careers.

Regarding the cyclically adjusted social payments, the 6.6 per cent of nominal trend GDP increase in the period from 1990 to 2004 stemmed, mainly, from rises in social transfers in kind (1.8 per cent of nominal trend GDP) and in pension expenditure of both the private sector (1.8 per cent of nominal trend GDP) and the civil servants system (2.4 per cent of nominal trend GDP). The evolution of pension expenditure in both systems is justified, predominantly, by the increase in the number of pensioners and the considerable magnitude of the composition effect. Both of these structural factors should continue to contribute in the next years to the strong growth of this item of expenditure.

The fiscal consolidation strategy delineated by the government formed in the wake of the March 2002 legislative elections included some structural measures, with a long-run impact on expenditure, and a package of restraint measures, with a sizeable effect in the short term, which by its own nature could not be repeated successively without hindering the working of most general government institutions. The structural measures on the expenditure side actually implemented from 2002 to 2004 concerned four major areas: the civil servants pension system, the National Health Service, the subsidisation of interest on loans for house purchase and the limits on municipalities financing.

Concerning the quality of public expenditure in Portugal, the main factor behind the poor performance of public institutions is certainly the lack of adequate incentives for civil servants, heads of the government departments and local authorities. Public expenditure in education as a ratio to GDP in Portugal is slightly above the OECD average, but the results are quite poor. As far as health care expenditure as a percentage of GDP is concerned, there was a very fast growth in the last two decades, placing Portugal at the OECD average. This trend allowed a significant improvement in the health status of the population, reducing the gap *vis-à-vis* the rest of OECD. However, the resources allocated to the sector would have justified better results.

APPENDIX 1

Total Expenditure in the European Union, 1995 (economic classification, percent of GDP)

1995	EU15	SE	DK	FI	NL	DE	AT	FR	IT	BE	GR	LU	ES	PT	UK	IE
Current expenditure	47.1	63.2	58.0	56.2	48.0	45.7	51.1	50.4	48.8	50.1	46.1	39.4	38.8	39.8	41.6	37.6
Compensation of employees	11.4	16.7	17.3	15.2	10.8	9.0	12.5	13.7	11.2	11.9	11.3	9.7	11.3	13.6	10.8	10.2
Intermediate consumption	5.6	10.9	7.7	8.7	6.3	4.1	6.0	5.6	4.8	2.7	5.3	3.6	4.2	3.7	9.0	5.6
Interest expenditure	5.4	6.6	6.4	4.0	5.9	3.7	3.9	3.8	11.5	9.3	12.7	0.4	5.2	6.3	3.7	5.4
Social payments	21.5	22.7	20.5	23.5	22.8	25.6	23.3	23.8	18.7	22.6	15.1	20.9	16.1	13.2	15.4	13.3
Subsidies	1.6	3.7	2.5	2.8	1.1	2.1	2.8	1.5	1.5	1.5	0.4	1.8	1.1	1.3	0.8	1.0
Other current transfers	1.6	2.4	3.6	2.0	1.2	1.2	2.6	2.1	1.1	2.0	1.3	3.2	0.9	1.6	2.0	2.1
Capital expenditure	6.3	4.6	2.3	3.4	8.3	10.4	5.0	4.8	4.6	2.9	4.9	6.1	6.2	5.3	3.4	3.9
Investment	2.7	3.9	1.8	2.9	3.0	2.3	3.0	3.4	2.1	1.9	3.2	4.6	3.7	3.7	2.2	2.3
K2	0.0	0.0	0.0	0.1	-0.5	-0.1	-0.2	0.1	0.1	-0.1	0.1	0.0	0.1	0.0	0.0	0.0
Capital transfers	3.7	0.7	0.5	0.5	5.9	8.2	2.1	1.3	2.4	1.1	1.7	1.5	2.4	1.5	1.2	1.6
TOTAL EXPENDITURE	53.4	67.7	60.3	59.6	56.4	56.1	56.0	55.2	53.4	52.9	51.0	45.5	45.0	45.0	45.0	41.6
<i>Memo item:</i>																
Primary current expenditure	41.7	56.5	51.6	52.2	42.2	42.0	47.2	46.7	37.2	40.8	33.4	39.1	33.6	33.5	37.9	32.3

Source: NewCronos database.

Total Expenditure in the European Union, 2002
(economic classification, percent of GDP)

2002	EU15	SE	DK	FI	NL	DE	AT	FR	IT	BE	GR	LU	ES	PT	UK	IE
Current expenditure	44.3	54.8	53.6	47.0	43.7	45.5	47.2	49.5	44.6	47.7	43.1	37.0	35.0	41.8	39.6	28.8
Compensation of employees	10.9	16.3	17.6	13.5	10.5	8.0	9.6	13.7	10.8	12.0	12.1	8.5	10.3	15.4	10.2	8.6
Intermediate consumption	6.2	10.3	8.6	8.6	6.9	4.0	4.4	5.4	5.0	3.4	6.4	3.5	4.4	4.3	10.7	5.7
Interest expenditure	3.4	3.2	3.7	2.2	3.1	3.1	3.4	3.0	5.9	6.0	6.4	0.2	2.8	3.1	2.1	1.3
Social payments	20.5	20.6	17.7	18.7	19.8	27.2	23.2	23.8	19.6	22.6	17.0	20.4	14.9	15.0	13.5	10.4
Subsidies	1.2	1.5	2.2	1.4	1.5	1.5	3.2	1.3	1.1	1.5	0.1	1.6	1.2	1.5	0.6	0.6
Other current transfers	2.1	2.9	3.8	2.6	1.9	1.7	3.5	2.2	2.1	2.1	1.2	2.8	1.3	2.5	2.6	2.1
Capital expenditure	3.4	3.4	2.2	3.1	4.1	3.3	3.4	4.0	3.4	2.6	5.9	6.1	5.0	4.2	2.1	5.0
Investment	2.3	3.3	1.7	2.9	3.6	1.7	1.3	3.1	1.9	1.6	3.7	4.7	3.5	3.3	1.4	4.3
K2	0.0	-0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	-0.1	0.2	0.0	0.0	-0.2	-0.1	-0.2
Capital transfers	1.2	0.3	0.4	0.3	0.5	1.6	2.1	0.8	1.5	1.0	2.1	1.3	1.4	1.1	0.8	0.9
TOTAL EXPENDITURE	47.7	58.2	55.8	50.1	47.8	48.7	50.6	53.5	48.0	50.2	49.1	43.1	39.9	46.0	41.7	33.8
<i>Memo item:</i>																
Primary current expen.	40.9	51.6	50.0	44.8	40.6	42.3	43.8	46.4	38.7	41.7	36.8	36.8	32.1	38.7	37.6	27.4
Change in total expen.	-5.7	-9.5	-4.5	-9.5	-8.5	-7.3	-5.5	-1.7	-5.4	-2.7	-1.9	-2.4	-5.1	0.9	-3.2	-7.8
Change in primary current expenditure	-0.8	-4.9	-1.7	-7.4	-1.5	0.3	-3.3	-0.2	1.5	0.9	3.4	-2.3	-1.5	5.2	-0.4	-4.8

Source: NewCronos database.

APPENDIX 2

Total Expenditure in the European Union, 1995 (functional classification, percent of total expenditure)

1995	General public services	Defence	Public order and safety	Economic affairs	Environment protection	Housing and community amenities	Health	Recreation, culture and religion	Education	Social protection
EU15	-	-	-	-	-	-	-	-	-	-
Eurozone	-	-	-	-	-	-	-	-	-	-
BE	23.0	2.9	2.8	8.8	1.4	0.5	11.8	1.7	12.1	35.1
DK	17.8	3.0	1.7	7.6	0.0	1.4	8.5	2.8	12.7	44.4
DE	12.0	2.5	3.0	20.3	1.8	1.5	11.5	1.5	8.0	37.9
GR	33.0	5.2	1.3	9.0	1.0	0.8	6.7	0.5	6.5	35.9
ES	-	-	-	-	-	-	-	-	-	-
FR	11.4	5.3	1.8	11.8	2.1	1.5	14.3	1.4	11.5	38.9
IE	17.7	2.6	4.0	11.8	0.0	3.0	14.9	1.0	12.2	32.8
IT	26.4	2.2	3.9	8.6	1.3	1.6	10.3	1.5	9.1	35.1
LU	10.0	1.4	1.8	11.7	3.2	2.5	12.2	3.8	11.0	42.2
NL	17.7	3.3	2.4	8.7	1.5	12.1	6.9	1.6	9.0	36.8
AT	16.2	1.8	2.7	9.0	2.5	1.9	13.7	2.1	11.2	39.0
PT	19.3	4.8	4.7	12.4	0.8	1.4	11.9	2.4	14.4	27.8
FI	11.8	3.3	2.5	11.7	0.5	1.7	10.5	2.1	12.2	43.6
SE	17.6	3.7	2.2	9.0	0.3	4.2	9.4	2.8	10.5	40.2
UK	13.2	6.9	4.9	7.6	1.1	2.7	12.6	1.6	10.5	38.9

Source: NewCronos database.

Total Expenditure in the European Union, 2002
(functional classification, percent of total expenditure)

2002	General public services	Defence	Public order and safety	Economic affairs	Environment protection	Housing and community amenities	Health	Recreation, culture and religion	Education	Social protection
EU15	14.4	3.6	3.5	8.7	1.5	1.8	13.7	1.8	10.9	40.0
Eurozone	15.0	3.1	3.3	9.1	1.6	1.9	13.6	1.9	10.4	40.1
BE	19.9	2.5	3.4	8.8	1.5	0.6	13.2	2.4	12.5	35.3
DK	15.3	2.9	1.8	6.6	0.0	1.6	10.1	3.0	14.9	43.9
DE	12.8	2.5	3.4	8.3	1.2	2.4	13.2	1.5	8.6	46.1
GR	22.9	5.8	2.3	9.7	1.3	1.0	6.6	0.9	6.8	42.7
ES	13.4	3.1	5.3	11.2	2.4	2.8	13.5	3.4	11.1	33.9
FR	13.5	4.6	1.9	8.9	2.2	1.9	15.7	1.5	11.2	38.6
IE	10.6	2.0	4.4	15.0	0.0	6.2	19.1	1.6	13.0	28.1
IT	19.4	2.6	4.1	8.0	1.8	0.3	13.5	1.9	10.5	37.8
LU	11.3	0.7	2.4	11.7	2.8	1.9	11.2	4.3	11.5	42.1
NL	17.1	3.2	3.4	11.6	1.6	3.4	9.4	2.3	10.5	37.5
AT	15.3	1.7	2.8	10.0	0.7	1.6	13.2	2.1	11.5	41.2
PT	14.0	3.7	4.4	11.4	1.3	1.9	15.0	2.6	15.3	30.4
FI	12.1	2.9	2.8	10.0	0.7	1.0	12.6	2.4	13.1	42.5
SE	15.4	3.7	2.5	8.4	0.6	1.5	12.1	1.9	12.8	41.1
UK	11.1	6.1	5.0	6.8	1.4	1.5	15.2	1.5	12.7	38.5

Source: NewCronos database.

APPENDIX 3

Economic and Functional Classification of General Government Total Expenditure in Portugal – Ia

1990	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumpt.	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	12.4	21.9	100.0	0.7	0.0	3.5	5.2	0.7	26.3
Defence	9.1	12.7	0.0	3.1	0.0	0.2	4.7	0.0	4.7
Public order and safety	14.1	5.5	0.0	1.8	0.0	3.4	3.6	1.2	5.3
Economic affairs	6.3	13.9	0.0	0.3	84.2	5.2	45.5	88.6	13.9
Environment protection	1.1	1.4	0.0	0.0	0.7	0.0	5.4	0.7	0.9
Housing and community amenities	1.8	2.2	0.0	0.0	0.0	15.7	9.0	3.9	2.0
Health	16.4	21.4	0.0	10.8	0.0	2.1	5.8	0.0	9.4
Recreation, culture and religion	1.4	4.0	0.0	0.0	6.5	12.3	5.7	2.4	1.9
Education	32.9	12.8	0.0	1.4	0.0	22.3	13.5	0.3	12.3
Social protection	4.5	4.3	0.0	81.8	8.5	35.1	1.6	2.3	23.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Statistical Institute.

Economic and Functional Classification of General Government Total Expenditure in Portugal – Ib

1995	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumption	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	10.2	13.8	100.0	0.5	0.0	23.6	2.1	0.4	19.3
Defence	9.2	13.3	0.0	1.5	0.0	0.0	6.1	0.0	4.8
Public order and safety	11.6	4.9	0.0	1.3	0.0	2.8	2.8	1.4	4.7
Economic affairs	6.6	12.7	0.0	0.2	71.2	12.0	49.1	79.7	12.4
Environment protection	1.1	2.0	0.0	0.0	1.9	0.0	3.2	0.2	0.8
Housing and community amenities	1.2	1.7	0.0	0.0	0.0	2.1	8.5	4.4	1.4
Health	17.9	30.9	0.0	11.6	0.0	0.1	6.4	0.1	11.9
Recreation, culture and religion	1.5	3.9	0.0	0.0	5.3	13.3	7.5	9.6	2.4
Education	36.8	13.2	0.0	0.9	0.0	21.5	13.6	1.4	14.4
Social protection	4.0	3.5	0.0	83.9	21.5	24.5	0.8	2.9	27.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Statistical Institute.

Economic and Functional Classification of General Government Total Expenditure in Portugal – Ic

2002	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumpt.	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	12.1	16.9	100.0	0.3	1.0	27.2	3.9	0.4	14.0
Defence	6.8	8.2	0.0	1.4	0.0	0.1	2.6	1.2	3.7
Public order and safety	9.9	5.0	0.0	0.9	0.0	2.5	2.4	1.7	4.4
Economic affairs	5.8	12.1	0.0	0.2	60.4	18.8	41.7	74.9	11.4
Environment protection	1.0	3.1	0.0	0.0	0.4	0.2	8.6	0.3	1.3
Housing and community amenities	0.9	2.8	0.0	0.0	0.5	2.4	13.2	7.5	1.9
Health	21.5	30.5	0.0	14.5	0.0	0.0	4.9	0.0	15.0
Recreation, culture and religion	1.6	4.7	0.0	0.1	7.8	9.7	7.7	8.7	2.6
Education	36.3	13.1	0.0	1.2	1.4	11.5	12.2	1.2	15.3
Social protection	4.0	3.6	0.0	81.4	28.4	27.6	2.8	4.2	30.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Statistical Institute.

Economic and Functional Classification of General Government Total Expenditure in Portugal – IIa

1990	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumpt.	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	13.2	6.3	77.8	0.7	0.0	0.4	1.6	0.1	100.0
Defence	54.9	20.6	0.0	16.5	0.0	0.1	7.9	0.0	100.0
Public order and safety	75.3	7.9	0.0	8.6	0.0	1.8	5.4	1.0	100.0
Economic affairs	12.8	7.5	0.0	0.5	24.9	1.1	26.0	27.3	100.0
Environment protection	34.1	11.2	0.0	0.9	3.2	0.1	47.3	3.2	100.0
Housing and community amenities	25.3	8.2	0.0	0.2	0.1	22.2	35.8	8.3	100.0
Health	48.9	17.1	0.0	28.5	0.0	0.6	4.9	0.0	100.0
Recreation, culture and religion	21.4	16.0	0.0	0.3	14.2	18.7	24.0	5.4	100.0
Education	75.4	7.9	0.0	2.8	0.0	5.1	8.7	0.1	100.0
Social protection	5.4	1.4	0.0	86.5	1.5	4.2	0.5	0.4	100.0
Total	28.1	7.5	20.4	24.8	4.1	2.8	7.9	4.3	100.0

Source: National Statistical Institute.

Economic and Functional Classification of General Government Total Expenditure in Portugal – IIb

1995	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumpt.	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	16.0	5.9	71.9	0.8	0.0	4.5	0.9	0.1	100.0
Defence	57.6	22.8	0.0	9.0	0.0	0.0	10.5	0.0	100.0
Public order and safety	74.8	8.7	0.0	8.3	0.0	2.2	5.0	1.0	100.0
Economic affairs	16.0	8.4	0.0	0.5	17.0	3.5	33.0	21.4	100.0
Environment protection	38.9	20.0	0.0	1.0	7.1	0.1	32.2	0.6	100.0
Housing and community amenities	24.6	9.8	0.0	0.9	0.0	5.2	49.2	10.3	100.0
Health	45.4	21.5	0.0	28.5	0.0	0.0	4.5	0.0	100.0
Recreation, culture and religion	18.8	13.7	0.0	0.3	6.7	20.5	26.3	13.6	100.0
Education	77.0	7.6	0.0	1.8	0.0	5.4	7.9	0.3	100.0
Social protection	4.4	1.0	0.0	88.5	2.3	3.2	0.2	0.3	100.0
Total	30.2	8.2	13.9	29.3	3.0	3.6	8.4	3.3	100.0

Source: National Statistical Institute.

Economic and Functional Classification of General Government Total Expenditure in Portugal – IIc

2000	Current expenditure						Capital expenditure		Total expenditure
	Compens. of employees	Intermediate consumpt.	Interest expenditure	Social payments	Subsidies	Other current transfers	GFCF + K2	Capital transfers	
General public services	28.9	11.3	47.1	0.8	0.2	9.7	1.9	0.1	100.0
Defence	61.4	20.5	0.0	12.1	0.0	0.2	4.7	1.1	100.0
Public order and safety	75.0	10.7	0.0	6.4	0.0	2.8	3.8	1.3	100.0
Economic affairs	16.9	9.9	0.0	0.5	16.8	8.3	25.2	22.4	100.0
Environment protection	27.6	23.0	0.0	0.4	1.1	0.7	46.4	0.9	100.0
Housing and community amenities	16.8	13.9	0.0	0.3	0.9	6.3	48.2	13.5	100.0
Health	47.9	19.0	0.0	30.9	0.0	0.0	2.3	0.0	100.0
Recreation, culture and religion	21.2	17.2	0.0	0.7	9.7	18.9	20.7	11.6	100.0
Education	79.7	8.0	0.0	2.5	0.3	3.8	5.5	0.3	100.0
Social protection	4.4	1.1	0.0	85.9	3.0	4.5	0.6	0.5	100.0
Total	33.5	9.4	6.6	32.1	3.2	5.0	6.9	3.4	100.0

Source: National Statistical Institute.

APPENDIX 4

Cyclically-adjusted Public Expenditure in Portugal – a (economic classification, percent of nominal trend GDP, levels)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Current expenditure	38.4	41.2	41.5	41.7	40.1	38.6	38.8	37.9	38.3	40.0	41.2	41.9	42.2	42.2	42.9
Compensation of employees	12.3	13.3	14.2	14.1	13.3	13.2	13.4	13.7	14.0	14.7	15.4	15.5	15.6	14.8	14.8
Intermediate consumption	3.3	3.9	3.1	3.3	3.4	3.6	3.8	3.9	3.8	4.2	4.5	4.5	4.3	3.6	3.7
Interest expenditure	8.9	9.1	8.8	7.7	6.5	6.1	5.3	4.2	3.5	3.3	3.3	3.2	3.1	2.9	2.8
Social payments	10.9	11.6	11.9	12.6	13.6	12.7	13.0	13.0	13.4	13.8	14.5	14.8	15.2	16.8	17.5
Subsidies	1.8	1.7	2.0	2.4	1.7	1.3	1.5	1.2	1.5	1.7	1.1	1.3	1.5	1.6	1.6
Other current transfers	1.2	1.6	1.5	1.7	1.6	1.6	1.9	2.0	2.1	2.2	2.5	2.5	2.6	2.6	2.4
Capital expenditure	5.3	5.5	6.1	5.9	4.9	5.1	5.9	6.3	6.0	6.1	5.5	5.6	4.8	4.5	4.6
Investment	3.5	3.6	4.0	4.0	3.6	3.6	4.1	4.3	4.0	4.2	4.0	4.1	3.6	3.3	3.3
K2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	-0.1	0.0
Capital transfers	1.9	1.9	2.1	1.8	1.3	1.5	1.7	1.9	2.0	1.8	1.4	1.5	1.1	1.3	1.3
TOTAL EXPENDITURE	43.7	46.7	47.7	47.6	45.0	43.7	44.7	44.2	44.3	46.0	46.8	47.5	47.0	46.7	47.5
<i>Memo item:</i>															
Primary current expenditure	29.5	32.1	32.7	34.0	33.6	32.5	33.6	33.7	34.8	36.7	38.0	38.6	39.2	39.4	40.1

Source: National Statistical Institute, Ministry of Finance and Banco de Portugal.

Cyclically-adjusted Public Expenditure in Portugal – b
(economic classification, percent of nominal trend GDP, changes)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Current expenditure	2.8	0.4	0.2	-1.7	-1.5	0.3	-0.9	0.4	1.7	1.3	0.6	0.4	-0.0	0.6	
Compensation of employees	1.0	1.0	-0.2	-0.7	-0.1	0.2	0.2	0.4	0.7	0.7	0.1	0.1	-0.8	0.1	
Intermediate consumption	0.6	-0.8	0.1	0.1	0.2	0.2	0.0	-0.0	0.4	0.3	-0.1	-0.1	-0.7	0.1	
Interest expenditure	0.2	-0.3	-1.1	-1.2	-0.4	-0.8	-1.1	-0.7	-0.2	0.0	-0.0	-0.2	-0.2	-0.1	
Social payments	0.7	0.3	0.7	1.0	-0.9	0.2	0.1	0.4	0.4	0.6	0.4	0.4	1.6	0.7	
Subsidies	-0.1	0.3	0.4	-0.7	-0.4	0.2	-0.2	0.3	0.2	-0.6	0.2	0.2	0.1	0.0	
Other current transfers	0.3	-0.1	0.2	-0.1	0.0	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.1	-0.2	
Capital expenditure	0.2	0.6	-0.3	-0.9	0.2	0.7	0.4	-0.3	0.0	-0.5	0.1	-0.8	-0.3	0.1	
Investment	0.2	0.4	0.0	-0.4	0.0	0.4	0.2	-0.3	0.3	-0.3	0.1	-0.5	-0.4	-0.0	
K2	0.0	-0.0	0.0	0.0	0.0	0.1	-0.1	0.0	-0.0	0.1	-0.1	0.0	-0.1	0.1	
Capital transfers	-0.0	0.3	-0.3	-0.5	0.2	0.2	0.2	0.0	-0.2	-0.4	0.1	-0.4	0.2	0.1	
TOTAL EXPENDITURE	3.0	1.0	-0.1	-2.6	-1.3	1.0	-0.5	0.1	1.7	0.7	0.7	-0.5	-0.3	0.8	
<i>Memo item:</i>															
Primary current expenditure	2.6	0.7	1.3	-0.4	-1.1	1.1	0.2	1.1	1.9	1.3	0.7	0.6	0.2	0.7	

Source: National Statistical Institute, Ministry of Finance and Banco de Portugal.

Cyclically-adjusted Public Expenditure in Portugal – c
(economic classification, growth rates)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Current expenditure	23.8	14.0	9.2	5.7	4.6	6.8	4.3	7.8	10.4	9.2	8.0	7.2	4.4	5.0	
Compensation of employees	24.8	21.1	7.4	4.4	7.9	7.6	8.6	9.8	10.7	11.0	6.8	6.9	-1.1	3.9	
Intermediate consumption	37.3	-9.2	13.2	13.6	16.4	12.7	7.2	5.8	17.6	13.0	4.5	3.6	-12.7	6.1	
Interest expenditure	17.5	9.4	-4.5	-7.7	2.1	-8.4	-14.8	-11.4	-0.8	6.3	5.5	0.3	-3.0	1.4	
Social payments	23.4	15.7	15.2	18.9	1.4	8.1	7.4	9.6	9.2	10.6	9.2	9.0	15.2	7.9	
Subsidies	9.0	33.0	30.7	-22.5	-15.7	18.3	-10.3	28.5	22.9	-32.0	28.0	18.7	10.6	6.3	
Other current transfers	46.7	5.8	22.2	3.6	11.9	25.0	11.5	14.1	11.9	16.9	9.0	7.4	8.1	-5.0	
Capital expenditure	19.4	25.5	4.2	-7.3	13.0	21.1	14.2	2.4	6.4	-3.7	8.4	-9.8	-1.8	6.9	
Investment	20.5	25.0	9.4	-1.0	9.1	19.2	12.6	-1.7	12.5	-0.8	10.0	-5.7	-5.9	3.3	
K2															
Capital transfers	15.1	28.4	-6.0	-21.5	22.1	20.9	22.1	9.3	-3.5	-16.9	14.8	-21.1	18.5	8.3	
TOTAL EXPENDITURE	23.2	15.4	8.6	4.1	5.5	8.5	5.6	7.0	9.8	7.5	8.0	5.2	3.8	5.2	
<i>Memo item:</i>															
Primary current expenditure	25.6	15.3	12.9	8.7	5.1	9.7	7.3	10.2	11.5	9.5	8.2	7.7	5.0	5.3	

Source: National Statistical Institute, Ministry of Finance and Banco de Portugal.

APPENDIX 5

Public Expenditure in Portugal
(percent of total expenditure)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
General public services	26.3	25.7	23.9	21.3	20.0	19.3	17.8	16.1	14.6	14.4	14.4	14.4	14.0
Defence	4.7	4.8	4.6	4.5	4.6	4.8	4.3	4.0	3.8	3.8	4.1	3.7	3.7
Public order and safety	5.3	5.4	5.4	5.8	5.4	4.7	4.3	4.3	4.5	4.3	4.2	4.3	4.4
Economic affairs	13.9	13.1	14.1	14.9	12.3	12.4	13.3	13.3	13.4	13.2	11.7	12.0	11.4
Environment protection	0.9	0.9	0.9	0.9	0.8	0.8	1.2	1.4	1.4	1.6	1.5	1.5	1.3
Housing and community amenities	2.0	2.5	2.7	2.5	2.6	1.4	1.9	2.1	2.1	2.2	2.2	2.1	1.9
Health	9.4	9.6	10.5	11.1	10.6	11.9	12.8	13.3	13.8	14.0	14.8	14.8	15.0
Recreation, culture and religion	1.9	1.9	2.0	2.1	2.0	2.4	2.2	2.4	2.3	2.7	2.5	2.6	2.6
Education	12.3	12.6	13.0	13.0	13.1	14.4	14.4	15.1	15.3	15.3	15.3	15.1	15.3
Social protection	23.5	23.5	22.9	23.8	28.6	27.8	27.6	28.0	28.7	28.6	29.3	29.5	30.4
Total expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Statistical Institute and Banco de Portugal.

Public Expenditure in Portugal
(percent of nominal trend GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
General public services	11.5	12.0	11.4	10.1	9.0	8.5	8.0	7.1	6.5	6.6	6.7	6.8	6.6
Defence	2.0	2.2	2.2	2.2	2.1	2.1	1.9	1.8	1.7	1.7	1.9	1.8	1.8
Public order and safety	2.3	2.5	2.6	2.7	2.5	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.1
Economic affairs	6.1	6.1	6.7	7.1	5.5	5.5	6.0	5.9	6.0	6.1	5.4	5.7	5.4
Environment protection	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.7	0.7	0.7	0.6
Housing and community amenities	0.9	1.2	1.3	1.2	1.2	0.6	0.9	0.9	0.9	1.0	1.0	1.0	0.9
Health	4.1	4.5	5.0	5.3	4.8	5.2	5.8	5.9	6.1	6.4	6.9	7.0	7.1
Recreation, culture and religion	0.8	0.9	0.9	1.0	0.9	1.0	1.0	1.1	1.0	1.2	1.2	1.2	1.2
Education	5.4	5.9	6.2	6.2	5.9	6.3	6.5	6.7	6.8	7.1	7.1	7.2	7.2
Social protection	10.2	10.9	10.9	11.3	12.9	12.2	12.4	12.4	12.8	13.2	13.6	14.0	14.3
Total expenditure	43.7	46.6	47.6	47.6	45.1	43.8	44.9	44.3	44.4	46.1	46.5	47.5	46.9

Source: National Statistical Institute and Banco de Portugal.

REFERENCES

- Banco de Portugal (2001, 2002 and 2003), *Annual Report*.
- Bouthevillain, C., P. Cour-Thimann, G. van den Dool, P. Hernández de Cos, G. Langenus, M. Mohr, S. Momigliano and M. Tujula (2001), "Cyclically Adjusted Budget Balances: An Alternative Approach", ECB, Working Paper, No. 77, September.
- Bronchi, C. (2003), "The Effectiveness of Public Expenditure in Portugal", OECD, Economics Department, Working Paper, No. 349, February.
- Clements, B. (1999), "The Efficiency of Education Expenditure in Portugal", International Monetary Fund, Working Paper, No. 179, December.
- Cunha, J. and P. Neves (1995), "Fiscal Policy in Portugal: 1986-1994", Banco de Portugal Economic Bulletin, pp. 47-61, March.
- Cunha, J. and P. Silva (2002), "Local Finance and Fiscal Consolidation in Portugal", Banco de Portugal, Economic Bulletin, March, pp. 47-56.
- Cunha, J. and C. Braz (2003), "Disinflation and Fiscal Policy in Portugal: 1990-2002", Banco de Portugal, Economic Bulletin, pp. 49-61, December.
- (2004), "Local Finance and Fiscal Consolidation in Portugal", mimeo, December.
- Economic Policy Committee (2001), "Budgetary Challenges Posed by Ageing Populations", October.
- Guichard, S. (2004), "The Reform of the Health Care System in Portugal", OECD, Economics Department, Working Paper, No. 405, October.
- Ministério das Finanças (2001), "Relatório da Estrutura de Coordenação para a Reforma da Despesa Pública (ECORDEP)", September.
- Neves, P. and L. Sarmiento (2001), "The Use of Cyclically Adjusted Balances at Banco de Portugal", Banco de Portugal, Economic Bulletin, pp. 99-109, September.
- OECD (2004), "Learning for Tomorrow's World: First Results from PISA 2003".
- (2004), "Problem Solving for Tomorrow's World – First Measures of Cross Curricular Competencies from PISA 2003".
- Portugal, P. and M. Centeno (2001), "Wages of Civil Servants", Banco de Portugal, Economic Bulletin, pp. 89-97, September.
- St. Aubyn, M. (2002), "Evaluating Efficiency in the Portuguese Health and Education Sectors", Banco de Portugal conference: *Desenvolvimento Económico Português no Espaço Europeu – Determinantes e Políticas*, May.

FRAMEWORK FOR FISCAL CONSOLIDATION – SUCCESSSES AND FAILURES IN JAPAN

*Masato Miyazaki**

Summary

Japan's experience in fiscal consolidation is dotted with successes and failures. The success in terminating deficit-financing bond issuance in 1990 has been played down as a mere by-product of the bubble economy. The role played by luck cannot be denied, but steady efforts for spending cuts and revenue increase in the late Eighties were equally important. The efforts made in the late Nineties were generally believed to have failed, because it was implemented untimely. However, it has now been gradually accepted that the increase in consumption tax rate in 1997 did not severely affect the economy by itself. If there was an error in judgment, it was the drive towards the enactment of the Fiscal Structural Reform Act, the structure of which was too rigid, in an economic environment where troubles could have been foreseen.

This short article first traces historic developments of Japan's fiscal conditions, and then analyses factors that made the efforts in the 1980 a success and those that made the efforts in the 1990 a failure. It also looks at the ongoing reform efforts in a forward-looking manner.

1. Background – Historical developments of Japan's public finance

1.1 *Legal principle for balanced budget (1947-1964)*

The Public Finance Law (1947) stipulated that national expenditure must be financed by revenues other than government bonds or borrowings, and thereby establishes the principle of balanced budget. The law, however, set exceptions: the government can issue bonds or borrow funds for the purpose of financing public works, investments (e.g. quota at the IMF) and loans. Among these exceptions, bond issuance for public works ("construction bonds") had by far the greatest implication for the subsequent fiscal developments.

The rationale behind this provision is that public works create assets for the nation, which match government's liability incurred by bonds/borrowing. Because the benefit of such assets would accrue for a long time, it would be reasonable to let the future generations share the burden of debt service. At the time when much of infrastructure had been destroyed by bombings during the war, it seems natural that

* At the time of writing, the author was Director for Fiscal Affairs, Budget Bureau, Ministry of Finance, Japan. The article is based on the author's personal views and should not be regarded as reflecting official stance of the Japanese government.

policy makers wanted to keep the borrowing option open for public work projects so that reconstruction would proceed as fast as possible, given the depleted national coffer.

In practice, however, construction bonds were never issued until well into the Sixties. This is because the government's priority in the late Forties was to reduce fiscal deficits, following the advice of a US envoy, Joseph Dodge. After the Korean War of 1950-51, a tragic event that nevertheless gave an unexpected boost to the Japanese industry, the economy began to expand very fast, which in turn increased tax revenues so much that it was unnecessary for the government to issue bonds to finance expenditures.

1.2 Deficit-financing bonds as an exception (1965-75)

The initial budget for FY 1965 was balanced, as had been the case for all previous post-war budgets, but it became clear in the course of the year that revenues would not meet the budgeted target, due to the stagnant economic situation. The government therefore decided to issue bonds to cover the revenue shortfall. In order to do so, a special law that enabled the government to issue deficit-financing bonds was required, because there was no legal basis to issue bonds to cover current (*i.e.* not for public works or investment) expenditure.

The issuance of deficit-financing bonds in FY 1965 was regarded as a one-off event. In fact, deficit-financing bonds were not issued again between FY 1966 and FY 1974, though the government had to issue construction bonds every year. In other words, revenue shortfalls during this period were kept smaller in size than the public works expenditures.

The first oil crisis of 1973 was a turning point. Recession that followed the crisis resulted in prolonged stagnation of tax revenues, which obliged the government to issue deficit-financing bonds, based on another special law, in the course of FY 1975. Since then, such special law was enacted every year, and government bonds (both construction bonds and deficit-financing bonds) outstanding got accumulated.

1.3 Exception turned to norm: accumulation of debt (1976-78)

As the government finance relied more on borrowing, the idea of Keynesian demand management became more widely accepted. Bonds were issued not only to cover tax shortfalls, but also to stimulate the economic activity with the hope that the ensuing recovery would result in increased future tax revenues. The trouble is that, since the government expenditure programmes were on the increasing trend, revenue

shortfalls became structural.¹ In addition, memory of the high-economic growth period (Fifties and Sixties) took hold of people's expectation so much that the real GDP growth rates of 4-6 per cent in the late Seventies were deemed unsatisfactory, and the government was permanently under pressure to achieve higher growth through public expenditure and/or tax cuts. Thus, even though the 1974 recession following the oil crisis turned in late 1975 to a positive growth led by private-sector demand, the government continued to issue sizable amount of both construction and deficit-financing bonds. If Keynesian demand management also involves government's retreat (and hence redemption of outstanding debt) during an upturn, Japanese fiscal policy since the Seventies could not be defined as such.

The problem was compounded by international policy coordination. At the 1977 G7 Economic Summit in London, Germany and Japan were pressured by the US to implement measures to achieving higher economic growth. The Japanese government duly increased the FY 1978 budget expenditure by 20 per cent and at the following Summit meeting in Bonn Prime Minister Fukuda promised to take appropriate measures as necessary for a 7 per cent growth for that year.

Because of the failure to cut back expenditure, Japan's public finance had become totally dependent on bond issuance. In the budget of FY 1979, revenue raised through bonds amounted to 39.6 per cent of the total expenditure. The bond outstanding was 25.0 per cent of GDP, and debt service cost exceeded 10 per cent of the budget expenditure.

1.4 First attempt at fiscal consolidation that failed (1979-83)

Facing this severe fiscal condition, Prime Minister Ohira, who succeeded Fukuda in 1978, proposed to introduce a 5 per cent general consumption tax. He included this idea in the LDP (Liberal Democratic Party) campaign platform for the 1979 general election, only to lose the majority in the House of Representatives (Lower House). Apparently, the general public, who were concerned about the economic outlook in view of the second oil crisis, preferred lower tax burden in the short term to higher debt burden in the long run.

After abandoning the general consumption tax proposal, the Ohira government adopted in 1980 a policy goal of stopping deficit-financing bond issuance in 1984. Following Ohira's demise, the Suzuki government committed itself to "fiscal consolidation without tax increase". In order to achieve this objective, the so-called "zero ceiling" was introduced in 1982. It refers to the guideline that sets the maximum budget requests each spending ministry could submit to the Ministry of Finance (MOF): for the first time, spending ministries

¹ Kakuei Tanaka became prime minister in July, 1972. His two main domestic policy agendas were infrastructure development and more generous social security (social security is a wide-ranging concept that refers not only to public pension systems, but also to public medical insurance, unemployment benefit, subsistence allowance, etc.). These hugely-popular programmes were introduced in law and institutions in the context of FY 1973 budget, which became politically as well as institutionally difficult to curtail.

were not allowed to request budget for the following year above and over the amounts authorised in the ongoing budget. From 1983, a “minus ceiling”, namely the spending ministries are only allowed to request an amount below the authorised amount for the ongoing budget, has been maintained to date with some variations.

Despite these efforts, because tax revenues fell far short of the budget in FY 1981 and 1982 and thus could not be expected to increase much afterwards, it became clear that it would be impossible to stop issuing deficit-financing bonds in FY 1984.

1.5 Second attempt at fiscal consolidation that succeeded (1984-90)

In 1983, a new target for foregoing deficit-financing bonds was set for 1990 and more vigorous efforts were made to contain expenditure. Through the “minus ceiling” system, the general expenditure² decreased slightly every year between FY 1983 and FY 1987. As a result, in FY 1987, the bond-to-expenditure ratio decreased to 16.3 per cent and the general government fiscal balance recorded a surplus of 0.7 per cent of GDP.³

That such improvement in fiscal condition was achieved without tax increase was a great success in any standards. The various measures taken included privatisation of national railway and telecom companies, sale of government assets, and encouraging private-sector initiatives for urban and resort developments. Contrary to those forward-looking measures, there were also measures that did not squarely tackle the problem. For instance, some transfer payments to special accounts, local authorities etc. were simply postponed. The rationale behind the decision was that the recipients of these funds were rich in reserves, so that they could do without the payments from the national government for a while. However, most of these missed payments were not cancelled but simply deferred, so that the central government (general account) still owes them these liabilities plus interests, which contributed to fiscal sclerosis that has been developing since then.

An unexpected development resulted from the fiscal consolidation efforts at the time was that decrease in general government dis-saving led to an increase in current account surplus, which invited much international criticism, especially from the US. This set a stage for the international policy coordination starting with the Plaza Agreement of 1985. Japan was requested to appreciate the yen and stimulate domestic demand. The request put the Japanese government in a bind: on the one hand, fiscal consolidation that the government had been committed to during the past ten years was gradually bearing fruit, the fruit which could be lost forever if the austere policy stance was allowed to slip back even a little; on the other hand, stormy trade conflicts with the US in the mid-Eighties needed to be calmed at any

² Total budget (“general account”) expenditure less debt service and tax allocation grants to local governments.

³ The general government surplus was largely due to the surplus in the social security fund, however.

cost, not least because of the fact that, in those days of renewed East-West tensions, Japan depended its national security almost exclusively on the US.

The problem, however, turned out to be easier to solve. Because the rise of the yen was beyond any imagination in its magnitude and speed, the Japanese economy stagnated and the government did not have any other choice but taking expansionary measures. In 1987, interest rate was lowered to the then historic low of 2.5 per cent, while large-scale public investment programmes were adopted. The excessively lax policy stance led to an explosive recovery spurred by private sector consumption and investment. The euphoria pushed up stock markets and land prices, creating a huge bubble. Even the introduction of consumption tax in 1989, with the tax rate of 3 per cent, did not change the optimism that filled the air. Thus, the bubble economy increased tax revenues so much that in FY 1990 the government was able to stop issuing deficit-financing bonds. The bond-to-expenditure ratio reached 8.4 per cent in the FY 1990 budget. It should be noted, however, construction bonds were still issued in order to finance public investment programmes that were either ongoing or newly introduced. Given the favourable economic conditions at the time, it is clear that these programmes were not necessary from a demand management viewpoint.

In any event, the government's policy target of foregoing deficit-financing bonds in FY 1990 was achieved almost by default. It is undeniable that austere efforts during the mid-Eighties prepared the ground for the subsequent success: but, to be fair, the main reason behind the success in the late Eighties was a windfall increase in tax revenues brought about by the bubble economy. Had there not been a boom, the efforts since the mid-Eighties that focussed mostly on spending cuts would have failed just as the similar efforts that failed during the early Eighties. In other words, for all undesirable side effects and long-lasting repercussions, without the help of the bubble economy, fiscal consolidation could not have been achieved in 1990.

1.6 Post-bubble blues (1991-96)

Hugely inflated stock prices began to fall in January 1990, while equally skyrocketed land prices started to decline in January 1991. The bubble was thus punctured. Still, people remained so bullish that they thought a downturn was merely a short-term phenomenon from which the economy would rebound strongly before long.

In this environment, tax revenues started to decline from 1992, though the decrease was offset by the reserves until 1993. Accordingly, the government could do without deficit-financing bonds until 1993.

In hindsight, the first four years of the Nineties, when deficit-financing bond issuance was suspended, were but a short respite. As time progressed, it became quite obvious that the government was fighting a desperate battle to resist reissuing deficit-financing bonds. Since 1992, the government had to increase

Table 1

Fiscal Measures for Stimulus (1)
(trillion yen, percent)

Fiscal Year	1992	1993			1994	1995		1996	1997
	Aug.	Apr.	Sept.	Feb.		Apr.	Sept.		
Expenditure packages	10.7	13.2	6.0	9.4	-	7.0	14.2	-	-
<i>(percent of GDP)</i>	2.2	2.7	1.2	2.0	-	1.4	2.8	-	-
Tax changes compared to 1993	-	-			(3.8)	(3.8)		(3.8)	0.2
<i>(percent of GDP)</i>	-	-			0.8	0.8		0.7	0.0

Note: Figures in brackets show negative values.

Source: Ministry of Finance.

construction bond issuance in order to finance public investment projects that were expected to add demand to the sinking economy. In addition, from 1994, major tax cuts were implemented, aiming at stimulating the economy, which was a last straw that made it unavoidable to issue deficit-financing bonds.⁴

Although the highest national priority of the period was economic recovery, fiscal consolidation was not completely forgotten, if not by the public at large at least within the government. In 1994, the government decided that consumption tax rate should be raised from 3 to 5 per cent. To prepare the ground for it, taxes were cut for the three preceding years. Because the tax cuts were larger in size than the expected increase in consumption tax revenues, it was thought that the economic impact of the tax increase would be well offset. To ensure that the rate increase would not damage the recovery, it was also decided that a final decision for the increase would be made in FY 1996, looking at the economic conditions then. It was a desperate move, from the viewpoint of fiscal soundness, because in FY 1996 the bond-to-expenditure ratio rose to 28 per cent, roughly the level of FY 1980.

1.7 Getting closer to deflationary spiral (1997-2004)

Indeed the economy duly recovered, apparently responding to the massive Keynesian stimuli. After shrinking by 1.0 per cent in FY 1993, real GDP grew by 2.3, 2.5 and 3.6 per cent in the following three years.⁵ Against this development, the

⁴ Figures in Table 1 and 2 show the balance between tax revenues that can be expected under the 1993 regime and each fiscal year's estimated tax revenues after major tax cuts. The value does not take into consideration changes from inflation/deflation in subsequent years.

⁵ SNA data after FY 1995 are taken from the recently-published revision that uses the chain-linking method.

rise in consumption tax rate in April 1997 was confirmed in the autumn of 1996. As expected, demand was frontloaded in the first quarter of 1997, and household consumption turned negative in the second quarter of 1997 before recovering in the third quarter. Unexpectedly, however, the Asian crisis set off in July 1997, which poured cold water to manufacturing companies' demand projections, followed by a severe crisis exploded in the Japanese financial sector in the autumn, resulting in considerable retrenchment of credit by financial as well as non-financial companies. As a result, bankruptcies jumped to the level not seen since 1985, and the aggregate debts of the failed companies amounted to 15 trillion yen, twice as much as the previous record. Corporate reduced investment, while household, feeling insecure about jobs, decreased consumption.

Prime Minister Hashimoto, inaugurated in January 1996, was strongly committed to fiscal consolidation. He not only pressed forward with the rise in consumption tax rate, but also wanted to install a mechanism that projected a path along which fiscal consolidation should move towards the final goal of fiscal soundness. While he achieved a primary balance in the FY 1997 budget, he also pushed through Diet the Fiscal Structural Reform Act in November 1997. Although deterioration of confidence in economic outlook was already apparent in late 1997, reversal of the single biggest agenda of the Hashimoto government was deemed a political suicide. Thus, the austere FY 1998 budget was formulated based on the Act, and submitted to Diet in January 1998.

The economy, however, started to contract again: this time it was not a short-lived backlash. Real GDP contracted by 1 per cent in 1998. In hindsight, 1998 was probably the toughest year for the post-war Japanese economy. None disputes that crises in the domestic banking sector (two of the largest banks were nationalised) and upheavals in international finance (Indonesia, Russia, LTCM, etc.) played a major role in this precipitation, but it seems also undeniable that the severely austere fiscal stance contributed to multiplying pessimism. As it happens, a large-scale expenditure package was announced just after the initial budget passed Diet, the Act was relaxed in May, Hashimoto resigned in July after a defeat in an Upper House election, his successor, Obuchi, made a U-turn on the government's fiscal stance and the Act was finally suspended in December 1998.

Obuchi, who called himself the greatest debtor king in the world, indeed borrowed to expand expenditures and cut taxes. The FY 2000 budget that he formulated before he passed away relied heavily on bond issuance, which financed 38.4 per cent of the expenditure.

Prime Minister Koizumi, who inaugurated in April 2001, first promised not to issue bonds more than 30 trillion yen for the FY 2002 initial budget. He kept the promise, but the sluggish economy in 2001-02 obliged him to increase bond issuance in the course of FY 2002. Because the Koizumi government was committed to cutting down the size of public works, towards which the public opinion had increasingly become hostile for their alleged wastefulness, larger and larger portion of the bonds issued became deficit-financing bonds. 44.6 per cent of the expenditure was expected to be financed by bonds in FY 2003 and 2004, and the

Table 2

Fiscal Measures for Stimulus (2)
(trillion yen, percent)

Fiscal Year	1998		1999	2000	2001		2002	2003	2004
	Apr.	Nov.	June	Oct.	Oct.	Dec.	Dec.		
Expenditure packages	16+	17+	17.0	11.0	1.3	4.1	4.4	-	-
<i>(percent of GDP)</i>	3.1	3.3	3.3	2.1	0.3	0.8	0.9	-	-
Tax changes compared to 1993	(2.6)		(4.5)	(4.5)	(4.5)		(4.5)	(6.0)	(7.0)
<i>(percent of GDP)</i>	0.5		0.9	0.9	0.9		0.9	1.2	1.4

Note: Figures in brackets show negative values.

Source: Ministry of Finance.

total bond outstanding reached 100 per cent of GDP in FY 2004, but continued low interest rates enabled the government to keep debt service burden under control. As the economy was firming up finally in 2004, tax revenues started to increase, so that the government had to issue fewer bonds than projected in the budget. The initial FY 2005 budget is the first in four years that incorporated fewer bond issuance, though the bond-to-expenditure ratio is still expected to be as high as 41.8 per cent.

2. Case study of success: the Eighties

2.1 Spending cuts

Through the failure to introduce a general consumption tax in 1979, the government realised that popular resistance to tax increase was so strong that another attempt would be counterproductive for the time being. On the other hand, there was a popular support for spending cuts. Thus the government's option was limited: it had to pursue spending cuts with a hope that one day popular opinion would become warmer to the idea of increasing taxes.

The first technique used to cut spending was to limit the size of budget request across the board. The "minus ceiling" system worked in such a way that, e.g. for the FY 1984 budget, requests for current expenditures were not allowed to exceed 90 per cent of the amounts, while requests for investment expenditures should not exceed 95 per cent of the amounts, that were authorised in the ongoing FY 1983 budget.

This method was quite effective, so much so that the pace of increase in general expenditure slowed considerably. Although it increased by 13.9 per cent in FY 1979, the rate fell to 5.1 per cent in FY 1980, 4.3 per cent in FY 1981, 1.8 per cent in FY 1982 and for five years since FY 1983 it did not increase at all. In real terms using CPI, the size of the FY 1987 general expenditure was 9 per cent smaller than that of FY 1979.

The method had a shortcoming, however. Because the size of the requests was determined by the size of the ongoing expenditure in the same category, the share of a certain expenditure item in proportion to the total expenditure tended to be static. It was unlikely that one area of expenditure won a bold increase while others got drastically chopped.

The second technique to note was placing an emphasis on general expenditure⁶ and thereby created a target that was easy to understand and compare with previous years. Indeed, the fact that general expenditure hardly increased for nearly ten years bore a symbolic appeal, which might have helped the government address the deep-rooted resistance towards consumption tax.

However, because general expenditure at initial budget became a point of reference, with which the public judged the success of fiscal consolidation efforts, it became highest priority for the government to manage its size. Thus, as mentioned before, some expenditure was apparently shifted from general expenditure to special accounts, and sometimes transfer payments from general expenditure to other accounts were suspended. In addition, if there was a need to add spending, it was more likely done in the supplementary budget during the course of a fiscal year.

Although great efforts were made in this period to contain budget expenditures with these methods, large budget deficit remained. Deficit in the FY 1980 budget was 14.3 trillion yen (of which deficit-financing bonds amounted to 7.5 trillion yen), while that in the FY 1987 budget was 10.5 trillion yen (of which deficit-financing bonds amounted to 5.0 trillion yen).

In sum, the first serious attempt at fiscal consolidation focused much on spending cuts, but it had only a limited, though respectable, impact to dent budget deficit.

The main reason for the limited success was that debt service costs and allocations to local governments, the two expenditure items outside general expenditure, continued to mark a double-digit growth for most of this period. Annual budget deficit in this period was about 10-13 trillion yen while general expenditure was around 32 trillion yen. In other words, if debt service costs and allocations to local governments could not be reduced, spending cuts needed to be as large as one third of the total expenditure in order to balance the budget. It is

⁶ Total expenditure (= "general account") includes debt service costs and allocations to local governments, both of which cannot easily be cut even at a time of dire fiscal situation at the national level.

debatable, if the public could have been realistically expected to accept cuts of such magnitude.

Still, it should be noted that the “culture” of spending cuts was firmly embedded in this period. In fact, initial budgets would rarely increase by more than 5 per cent (general account), or by more than 3 per cent (general expenditure), for the past 20 years since then. This prepared the ground for successful fiscal consolidation when revenues started to rise.

2.2 *Revenue increases*

In the early Eighties, tax revenues fell short of the budget projections. However, since FY 1986, they began to exceed projections. The aggregate “windfall” revenues in the five years between FY 1986 and FY 1990 amounted almost 20 trillion yen, thanks to the booming economy.

The most noteworthy development, however, was the introduction of consumption tax in 1989. Although the attempt at introducing general consumption tax failed in 1979, the government remained convinced that imbalance between direct taxes on income (which was heavy in Japan) and indirect taxes on consumption (which was light) needed to be rectified, in order to prepare for the ageing society while maintaining vitality of the economy. Thus, soon after Prime Minister Nakasone and the LDP (Liberal Democratic Party) won a general election in 1986, promising that he did not intend to introduce “the kind of large-scale indirect tax that were being discussed”, a government panel proposed an introduction of sales tax. However, local elections in April 1987 returned devastating results to LDP candidates. Facing strong opposition, the government withdrew the bill in May. Late in 1987, Nakasone was succeeded by Takeshita, who restarted a debate on the need to reform the tax system. Eventually, after two failures in ten years, the consumption tax bill passed Diet in December 1988.

Although consumption tax (tax rate: 3 per cent) did not make an instant impact on the revenue intake, because its introduction was simultaneously sweetened by cuts in income and other taxes,⁷ it was to be a building block on which subsequent efforts for fiscal consolidation could be built.

2.3 *Key factors behind success*

To sum up, a few key factors that brought about the successful realisation of the pre-set target, namely stopping deficit-financing bond issuance in FY 1990, may be listed as follows.

⁷ It was projected that consumption tax would collect 5.6 trillion yen. Together with other measures, tax increase effect was expected to amount to 6.8 trillion yen, while effect of tax cuts (e.g., simplifying income tax rates, lowering corporate tax rate, abolition of indirect taxes etc.) was projected to reach 9 trillion yen.

a) *Political leadership*

Every prime minister who served during the Eighties was committed to fiscal consolidation. The fact that, influenced by Reagan-Thatcher revolution, small-government conservatism also became a popular ideology in Japan's political circle seemed to play an important role. Administrative reforms including deregulation and privatisation were effective for winning popular support for the government policy as well as for improving government finance.

b) *Economic conditions*

The Japanese economy had gone through a slump in the mid-Eighties, due to a doubling of the yen's value against the dollar, but adjustment efforts by corporate sector and accommodative monetary and fiscal policies led to a long boom since 1987. When there was no credible path to fill the remaining gap between revenues and expenditures, especially after fiscal stimuli had started to be applied, no one could have foreseen that an economic boom, the magnitude of which would dispel all worries about revenue shortage, was indeed in store.

c) *Spending cut vs. revenue increase*

Spending cuts were a necessary condition to promote fiscal consolidation. Without them, the public opinion would not accept even the need to raise taxes. This was a lesson the government learned from its failure to introduce general consumption tax in 1979. However, it is also true that spending cuts alone could not achieve the goal, if tax revenues did not increase, as was witnessed in the early Eighties.

The government was lucky, in a sense, that the boom arrived just when revenue enhancement was needed. But, the luck may have visited the government, because it had been doing its homework, namely efforts to contain expenditure and to introduce an unpopular new tax.

3. Case study of failure: the Fiscal Structural Reform Act

3.1 Structure of the original Act

The Fiscal Structural Reform Act, enacted in 1997 after one-year-long deliberations, stipulated multi-frontal goals that were to circumscribe budgets for the subsequent years.

First, by FY 2003, the annual fiscal deficit⁸ should fall below 3 per cent of GDP. In addition, deficit-financing bond issuance should be reduced every year until FY 2003 when the issuance had to be terminated.

⁸ The targeted deficit was defined as combined balances of central and local governments on the SNA basis. It did not take into account balances of social security fund.

Second, the Act set numerical reduction targets for major expenditure categories. For instance, expenditure for social security, which was expected to continuously increase because of the rapid ageing, should not increase by more than 300 billion yen in FY 1998 and by less than 2 per cent thereafter. Public works should decrease at least by 7 per cent in FY 1998, and stay below that amount thereafter.

Third, long-term plans for certain expenditures were revised downward. For example, a 10-year public investment basic plan was extended by 3 years, and defence procurement plan should make a saving as large as 10 per cent of the planned cost.

Fourth, in addition, the Act listed a guideline for reform in each expenditure category.

3.2 *Modifications to the Act*

Soon after the Act was implemented, the economy deteriorated even further, making it unavoidable to modify the provisions of the Act. Thus, in May 1998, three amendments were made:

One, annual decrease in deficit-financing bond issuance might be suspended in case measures were needed to address extraordinary natural disaster and/or considerable stagnation of the economy.

Two, the fiscal year by which fiscal deficit needed to fall below 3 per cent of GDP and deficit-financing bond issuance should be stopped was extended from FY 2003 to FY 2005.

Three, social security expenditure for FY 1999 was allowed to increase by more than 2 per cent so long as the increase was contained as far as possible.

The economic difficulty was such that these amendments were regarded as cosmetic, and therefore voices for a U-turn in fiscal policy were heard much louder by the day. When the new prime minister came, the Act became virtually fictional. It was finally suspended in December 1998 by special legislation.

Two supplementary budgets in the course of FY 1998 saw an increase of budget deficit for that year jump from 16 trillion yen to 34 trillion yen, of which deficit-financing bonds more than doubled from 7 trillion yen to 17 trillion yen. Since then, annual budget deficit has exceeded 30 trillion yen every year, leading to debt outstanding of over 100 per cent of GDP. It was as if Pandora's box had opened and pent-up appetite for borrowing had sprung out. Thus, the historic attempt at institutionalising fiscal consolidation ended up in failure, and a backlash was so great, and the recession so severe, that it was only in 2004 when the government could talk again of a need for fiscal consolidation in a realistic setting.

3.3 Key factors behind failure

To understand why the efforts in the late Nineties were a bitter failure, while those in the Eighties were successful, it will be useful to analyse key factors behind the failure.

a) Political leadership

Prime Minister Hashimoto who pressed forward the Act was as strongly committed, if not more, as prime ministers in the Eighties to fiscal consolidation. He was also skilful in forging consensus within the governing parties: in early 1997 he set up a council that he chaired in order to discuss the ways to achieve fiscal consolidation. Members of the council included former prime ministers, finance ministers and executives of governing parties, so that dissenting voices within the parties could be pre-empted.

Unlike in the Eighties, when there were a number of small and divergent opposition parties, a large opposition party existed in 1997. However, because it was a united front of small parties that was a showcase of infighting, and because the policy stance of key executives was close to the governing parties in fiscal conservatism, the government was able to pursue its own agenda.

Thus it appears that political leadership in the Nineties was not weaker than that in the Eighties. If there was one difference, the government in the Nineties was a coalition among three parties, while the LDP was able to form the government on its own in the Eighties. However, there is no evidence that the coalition partners checked the prime minister's drive for fiscal reform.⁹

b) Spending cut vs. revenue increase

Limits on requests from spending ministries were equally stringent both in the mid-Eighties and the mid-Nineties. Growth rates in general expenditure were contained to 1 to 5 per cent during the few years in the run-up to the zero-growth period starting in FY 1983, whereas the rates for the mid-Nineties just before the implementation of the Act were about 1 to 3 per cent. Cuts in spending that became obligatory thanks to the Act were of course much more severe: general expenditure decreased by 1.3 per cent in FY 1998.¹⁰ To sum up, it was not the case that spending cuts were less vigorous in the Nineties than in the Eighties. On paper at least, the Nineties had a more solid regime which set legally-binding spending cut targets for ministries.

The increase in consumption tax rate was decided in 1996, when the Act was still on a designing board. Still, there is little doubt that the increase was seen as a part of the ongoing fiscal consolidation package, though the effect of the rise was

⁹ Coalition partners, social democrats and a new, small left-of-centre party called the Harbinger, may have realised their policy agendas in other fields: however, even the social democrats, who increased Dietary representation by campaigning against consumption tax in the Eighties, supported the increase in the consumption tax rate within the government.

¹⁰ As written above, the decrease at the initial budget was more than offset by three supplementary budgets during the fiscal year.

offset by income tax cuts that had been implemented previously. In the event, the rate rise brought about a one-off shock to the economy, which was shrugged off after a quarter, but the economy was heavily damaged by following two shocks, *i.e.* Asian crisis and financial crisis at home, and a round of large-scale tax cuts began in 1998. Tax revenues collapsed since then. In contrast, as stated above, tax revenues jumped up in the late Eighties and early Nineties, thanks partly to the introduction of the consumption tax, but mainly to the bubble economy.

c) Economic conditions

The economic recovery began to be felt in the mid-Nineties. Every quarter since the first quarter of 1995, real GDP continued to mark positive growth until the first quarter of 1997. Activity in 1996, when the Hashimoto government was formed, was particularly robust: real GDP grew by around 4-5 per cent (annualised) in three out of four quarters. Naturally, this trend was expected to continue and based on that assumption rigorous fiscal consolidation was planned. Negative growth in the second quarter of 1997 came as no surprise, due to the fact that the rise in consumption tax rate took effect in April of that year. Private consumption, and real GDP as a whole, returned to a positive growth in the third quarter. However, due to the double shocks mentioned above, the economy dipped into recession: consumption turned to negative in the fourth quarter, and real GDP shrank for five quarters out of eight in 1998 and 1999.

d) Shortcomings of the Act

It cannot be denied that the Act had shortcomings. The size of spending cuts and schedule for stopping deficit-financing bond issuance were stipulated in a very mechanical and rigid manner. The fatal error was that it did not include a clause, which would make it possible to allow some flexibility depending on the external conditions. The Act and its supporters were therefore put to a very vulnerable position when the economic situation started to deteriorate.

The Act was belatedly amended in May 1998, by which time the economy had been clearly in a slump and a fiscal stimulus package had been already announced, to allow an increase in deficit-financing bond issuance at a time of considerable economic stagnation. Such condition was defined as two successive quarters of less-than-one-percent real GDP growth.¹¹ This is a generous escape clause, considering the EU's stability and growth pact (SGP) that can be waived when a country's real GDP grow for a year was negative 2 per cent or worse. Even though the Act took its idea from the SGP,¹² it was originally much stricter than the model, and then became much tamer, reflecting a growth-oriented public opinion and a panicky reaction to the severe deterioration of the economy.

¹¹ Annualised and seasonally adjusted.

¹² The final target for the Act was to limit fiscal deficit (central and local governments on the SNA basis) to less than 3 per cent of GDP, just like the target of the SGP.

4. Lessons for future

4.1 Keys to success

From Japan's experiences since the Sixties, a few lessons for fiscal soundness may be distilled.

a) *Addiction to demand management*

When a catch-up period of fast growth ends, an economy usually moves to a more moderate growth path, reflecting a lower potential GDP growth. Japan was no exception. It is widely accepted among academics that Japan's potential growth rate refracted in the mid-Seventies: two oil shocks made this shift more conspicuous. At least it should have been, but the general public tended to believe that a high growth would continue if and when proper economic policies were taken. This expectation led to a political culture that placed high priority in a higher growth, which needed to be achieved almost at any cost. Thus, fiscal stimulus, which Keynes thought should be an exceptional measure at an exceptional time,¹³ became a norm, which mainly took the form of public investment projects. A popular notion that it was the government's responsibility to make high-grade infrastructure and world-class social security system available throughout the country compounded the problem. Even during an upswing, fiscal withdrawal hardly took place. This trend was occasionally enhanced by international pressure for domestic demand stimuli, with a view to reducing Japan's current account surpluses.¹⁴

Because of such bias towards higher growth, and expectation for the government's action to achieve the target, fiscal deficits accumulated. Since it is very difficult to uproot public expectation after it was strongly embedded in the national sentiment, it is critical not to unduly raise the expectation in the first place. The best recipe for fiscal consolidation is to forego the need for it.

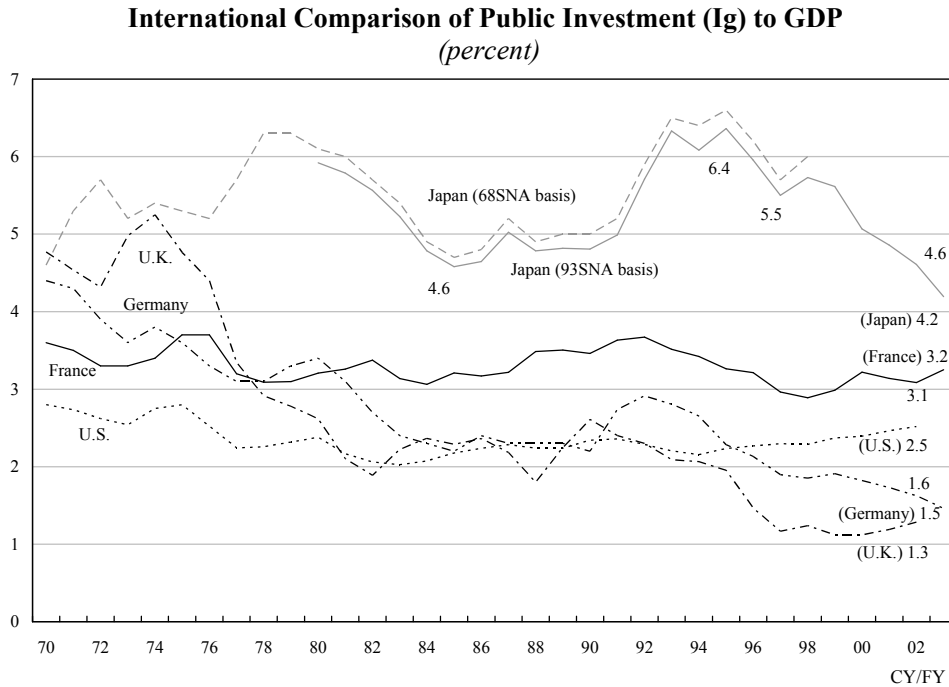
b) *Political leadership*

Without a strong will, it should be impossible to achieve fiscal consolidation, especially when fiscal stimulus is so strongly embedded in the political culture. Prime Minister Nakasone (1982-87), who pressed forward fiscal consolidation, was indeed a strong character, though his power base within the LDP was a small faction. There may be a different style of strong leadership: Takeshita (1987-89) valued consensus more than top-down decision-making. Still, because he headed

¹³ It is argued that fiscal stimulus is a rather blunt tool, not least because of the unavoidable lags. "Normal" demand management should therefore be left to monetary policy and a built-in stabiliser function in the fiscal field.

¹⁴ The G-7 argued for a locomotive theory in the late Seventies, and domestic demand stimuli in the Eighties. The US then argued that Japan's chronicle current account surplus reflected "structural impediments" that existed in the Japanese economy. To address these, Japan promised to make public investment worth 430 trillion yen between 1991 and 2001, the plan which was revised upwards in 1994 for 630 trillion yen for 1995-2004. To be fair, the US also demanded deregulation to address Japan's structural impediments: still, it was intellectually interesting to hear that increased public works would solve structural problems.

Figure 1



Source: For Japan: Ministry of Finance, *Annual Report on National Accounts* (FY basis), for the other countries: OECD, *National Accounts 2004* (CY basis).

the largest faction within the LDP, his prestige and influence was peerless at that time.

Hashimoto (1996-98) was in a sense ideal, since his personality was strong-willed and he also had a power base in the largest faction that he had inherited from Takeshita. He did push forward many reforms ranging from the financial sector “big bang” to ministerial mergers, but failed in the fiscal field. Although he overcame any resistance to implement severe spending cuts and an increase in consumption tax rate, he could not prevail over economic shocks. Sometimes quixotic charges by political leaders may indeed be indispensable to fiscal consolidation: but too strong leaders may become a liability if they do not pay attention to factors that may contradict their conviction, e.g., deteriorating external conditions. And it is always extremely difficult to choose between the two courses. If the goal is achieved, even a reckless leader with no qualms about adversities may be hailed as great, but if the goal is not achieved after all, collateral damage may be phenomenal. Those who stopped ongoing efforts paying due attention to, e.g., changing circumstances may be called coward, but they may be the ones who are truly brave. Flexibility is a virtue, but luck plays a big role. In any event, when the economy sank to recession, it would be

extremely difficult to continue an austere fiscal stance in modern democracies. In sum, strong leadership alone is not a sufficient condition for success.¹⁵

If pursuing fiscal consolidation becomes unhelpful to achieving higher goods, just as in the late Nineties when salvaging the economy came before fiscal soundness, political leadership also plays an important role. Even if there is a bias towards accommodative fiscal policies, as in Japan, it is not an easy task to retrieve a previous position (“Fiscal crisis should be averted through tough income/expenditure measures, which is good for the economy”) to argue for a contradictory position (“Given the economic environment, fiscal consolidation comes secondary”). Hashimoto swallowed pride and did it, which was no mean achievement.

c) Spending cuts and revenue increase

In the early Eighties, the attempt at containing expenditures was overwhelmed by a decrease of tax revenues. Similarly, in the late Eighties, spending cuts were pursued in earnest, but it was obvious that cuts alone could not balance the budget. Introduction of consumption tax would help, but the economic boom increased tax revenues faster and more than the consumption tax would.

In the late Nineties, legal obligations for spending cuts were introduced, and the consumption tax rate was raised. However, tax revenues collapsed, due partly to the slump and partly to numerous tax cuts that were designed to stimulate economic activity. In order to add demand, expenditure increased dramatically. As a result, bond issuance exploded to finance the gap between the increased revenue and decreasing revenue.

Thus, Japan’s experience shows that simultaneous improvements on both revenue and expenditure sides increase chances of success in fiscal consolidation.

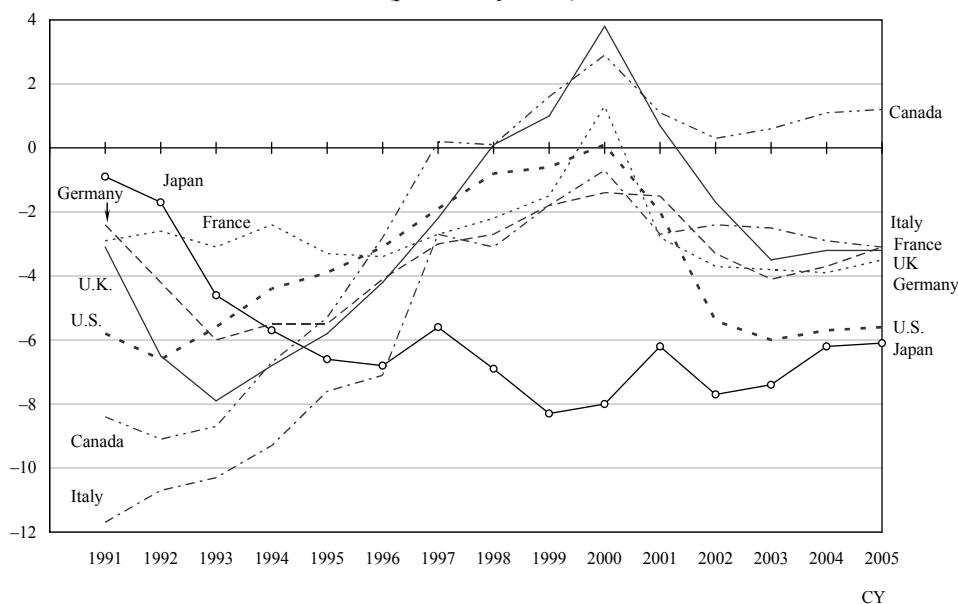
4.2 Renewed efforts

After marking a negative real growth in 2001, influenced by the US recession, the Japanese economy began to grow again in 2002. Against this background, the current Koizumi government (2001-) put fiscal structural reform back on its agenda. The need for it was obvious, since Japan’s fiscal position had further deteriorated in the few years since the failure of the Fiscal Structural Reform Act. The general government fiscal balance remained negative while all other G7 countries scored impressive improvements in their fiscal conditions. As a result, the level of debt outstanding in Japan is by far the worst among the G7. However, given

¹⁵ Similar argument can be made to a rule-based approach to fiscal consolidation. Its advocates argue that following a pre-fixed fiscal rule regardless of external conditions is superior to an arbitrary approach, because it will work to people’s expectation. However, it seems debatable if the rule-based approach is always more effective and less costly.

Figure 2

International Comparison of General Government Balances
(percent of GDP)



Note: Figures for Japan and the U.S. exclude social security funds.

Source: OECD.

the still fragile state of the economy, the government's approach has been a cautious one.

a) *Policy framework*

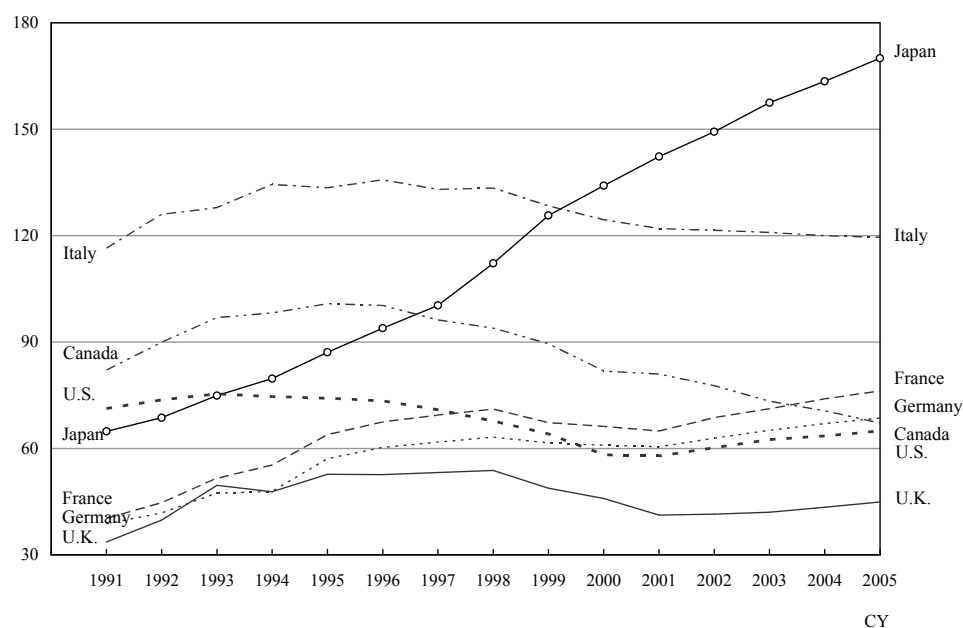
The main target is to turn the primary balance¹⁶ to surplus in the early 2010s. In the FY 2005 budget, the size of the primary deficit is projected 4 per cent of GDP: central government's deficit is 4.5 per cent, while aggregate local governments score a surplus of 0.5 per cent.¹⁷

¹⁶ The primary balance is defined as the gap between "revenues excluding bond revenues" and "expenditure excluding debt service". The target figure is a combined primary balance of central and local governments on the SNA basis.

¹⁷ Advisory council to the Finance Minister published a simulation in May 2005. It said that in order for the central government's general account to achieve a primary surplus in 2015, while assuming no change in policies, either expenditure excluding debt service needed to be cut by 30 per cent across the board, or tax revenues should increase by 40 per cent. In the latter case, if all the increase was to be covered by the consumption tax, its tax rate would need to be as high as 19 per cent, an increase of 14 per cent from the current level.

Figure 3

International Comparison of General Government Gross Debt
(percent of GDP)



Source: OECD.

To reach this goal, several guidelines have been put in place.

First, until FY 2006, the size of the government (ratio of general government expenditure to GDP) will be equal or below its FY 2002 level. While the FY 2002 level was about 37.6 per cent, the FY 2005 budget foresees that of 36.2 per cent.

Second, the amount of public investment by the central government should be streamlined, with a view to fall, by FY 2006, below the level that had been seen before stimulatory expenditure increases were introduced since 1990. In the FY 2005 budget, this level was almost within reach.

Third, by FY 2006 the government is to judge what tax measures are required on the assumption that spending cuts are maintained and the economy is revitalised.

Following these guidelines, the FY 2005 budget was formulated, so that on the spending side every expenditure item except for social security and debt service has been reduced, and on the revenue side one half of the across-the-board income credit introduced in 1999 will be withdrawn from January 2006. As a result, the amount of deficit-financing bonds decreased for the first time since 2001.

b) *Outlook for fiscal consolidation*

Against this background, considerations should be made to judge if the current fiscal consolidation efforts will succeed.

First, among the key factors discussed above, political leadership is not in short supply.

Second, as for the spending side, the key lies in whether social security expenditure can be contained when the massive baby-boomer generation is expected to move from the contributing side to the recipient side in the next few years. It is estimated that the pace of ageing in Japan is among the fastest in the world, which gives the government a sense of urgency in reforming social security systems. Another reason for hurry is the possibility that the ongoing, extraordinarily low-interest environment may end before long, which could threaten to derail fiscal consolidation efforts.

Table 3

Age Dependency Ratio

	US	Australia	Canada	UK	France	Netherlands	Belgium	Germany	Sweden	Spain	Japan	Italy
2000	0.26	0.26	0.26	0.34	0.34	0.29	0.37	0.38	0.38	0.35	0.39	0.40
2040	0.47	0.56	0.63	0.65	0.69	0.69	0.71	0.72	0.74	0.99	1.00	1.03

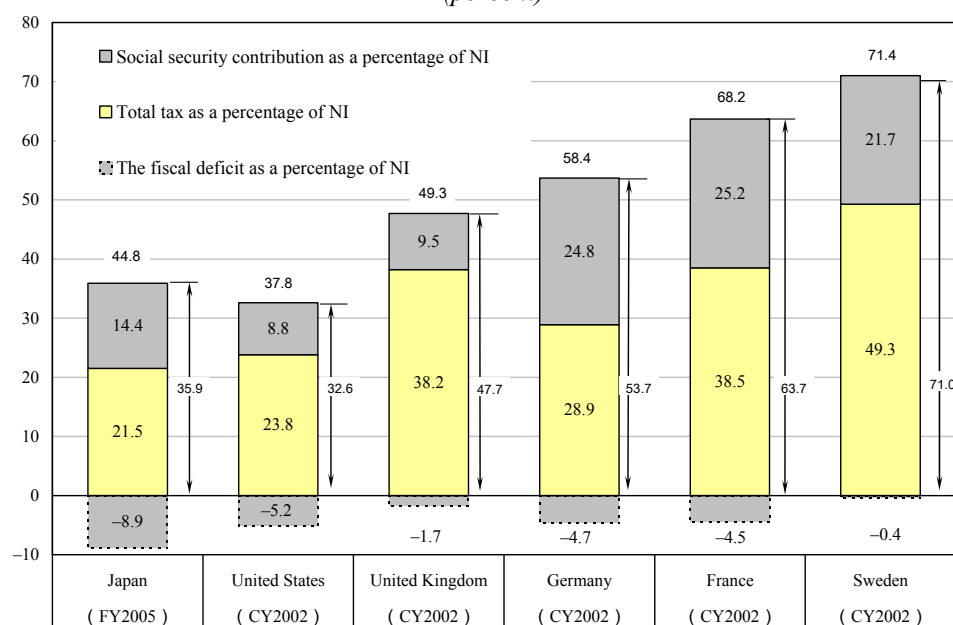
Note: Ratio of elderly adults aged 60 and over to working-age adults aged 15-59.

Source: Center for Strategic and International Studies.

Third, as for the revenue side, two measures need to be taken. Firstly, most, if not all, of the accumulated tax cuts since 1994 need to be withdrawn. Secondly, the consumption tax rate needs to be raised again. Both tasks are not easy even during the boom years. However, the lesson from the past is that spending cuts alone will not achieve fiscal consolidation, because expectation of the general public for government's role cannot be deflated easily. Thus, unless the public can be persuaded that future levels of public services will be dramatically reduced, success in revenue increase is critical. This observation may be attested by an OECD calculation: Japan's cyclically-adjusted general government fiscal balance has been constantly in deficit since 1993. It is clear that such chronic structural deficits can only be eradicated by a wholesale review of the government's role or an increase in tax and other burdens that the public should

Figure 4

International Comparison of Benefits and Burdens
(percent)



Note: Japan: FY 2005 budget. United States, United Kingdom, Germany, France and Sweden: CY 2002 actual. Fiscal deficit as a percentage of national income for Japan and United States excludes social security funds. Others are based on general government figures.

Source: Japanese Government.

pay for the services they receive.^{18 19} Indeed, the balance between the benefits received from the public sector and the burden shouldered is very out of line in Japan compared with other industrial countries.

All these reforms will be indispensable. But, perhaps most importantly, for the reforms to succeed, a benign economic environment is a *sine qua non*. Because the economy, which slightly shrank in real terms in the second and third quarters of 2004, returned to the recovery path from the fourth quarter and marked a significant growth (4.9 per cent) in the first quarter of 2005, the time may be indeed ripe for renewing vigorous efforts.

¹⁸ *Economic Outlook, Volume 2004/2* (OECD, December 2004). Because Japan has a big social security fund, and the fiscal condition of the local governments is better than the central government, the figures shown by the OECD almost certainly mask the true state of the central government fiscal conditions.

¹⁹ According to the same data, it is interesting to note that a number of countries, as well as the total euro area and the total OECD, continuously record deficits in cyclically-adjusted balances. This suggests that the observation made here should apply not only to Japan but also to most industrial countries.

5. Conclusion

There is no quick fix for fiscal consolidation. Although the bubble economy brought about an unexpected increase in tax revenues that enabled the government to stop issuing deficit-financing bonds, it will be wrong to hope its return, considering the lasting distortions and damages a bubble can inflict on the economy. It is as wrong as hoping inflation to solve the fiscal problem.

Spending cuts and revenue increase are both important. The former is critical to constantly re-focus resources to priority areas in an efficient manner. It is also helpful in convincing the general public for the need to increase taxes. The latter is necessary especially when the public does not go too far down the road to a small government.

In Japan, economic conditions are improving, which will facilitate reforms including fiscal consolidation. The need for further spending cuts are widely shared, especially in the fields of public investment. Financial arrangements of local governments should also require drastic changes, since the current system does not give sufficient incentive to individual local governments to improve their fiscal balances.²⁰ In addition, the need for reforms in the social security area is obvious, though the public opinion may prefer keeping some of the current benefits, even if it results in heavier tax burden, to making severe cutbacks with lighter burdens. It requires a political leadership to strike the right balance, and it must be done very quickly. While long-term interest rates are relatively low, and while the baby-boomers are still in the workforce, the government needs to create a self-sustaining process of fiscal consolidation. Given the huge stockpile of past debts, the time left for Japan may be limited.

²⁰ Much of the gap between aggregate fiscal requirements and estimated revenues is almost automatically financed by the central government.

Figure 5

Nominal GDP, Budget Expenditure and Revenues

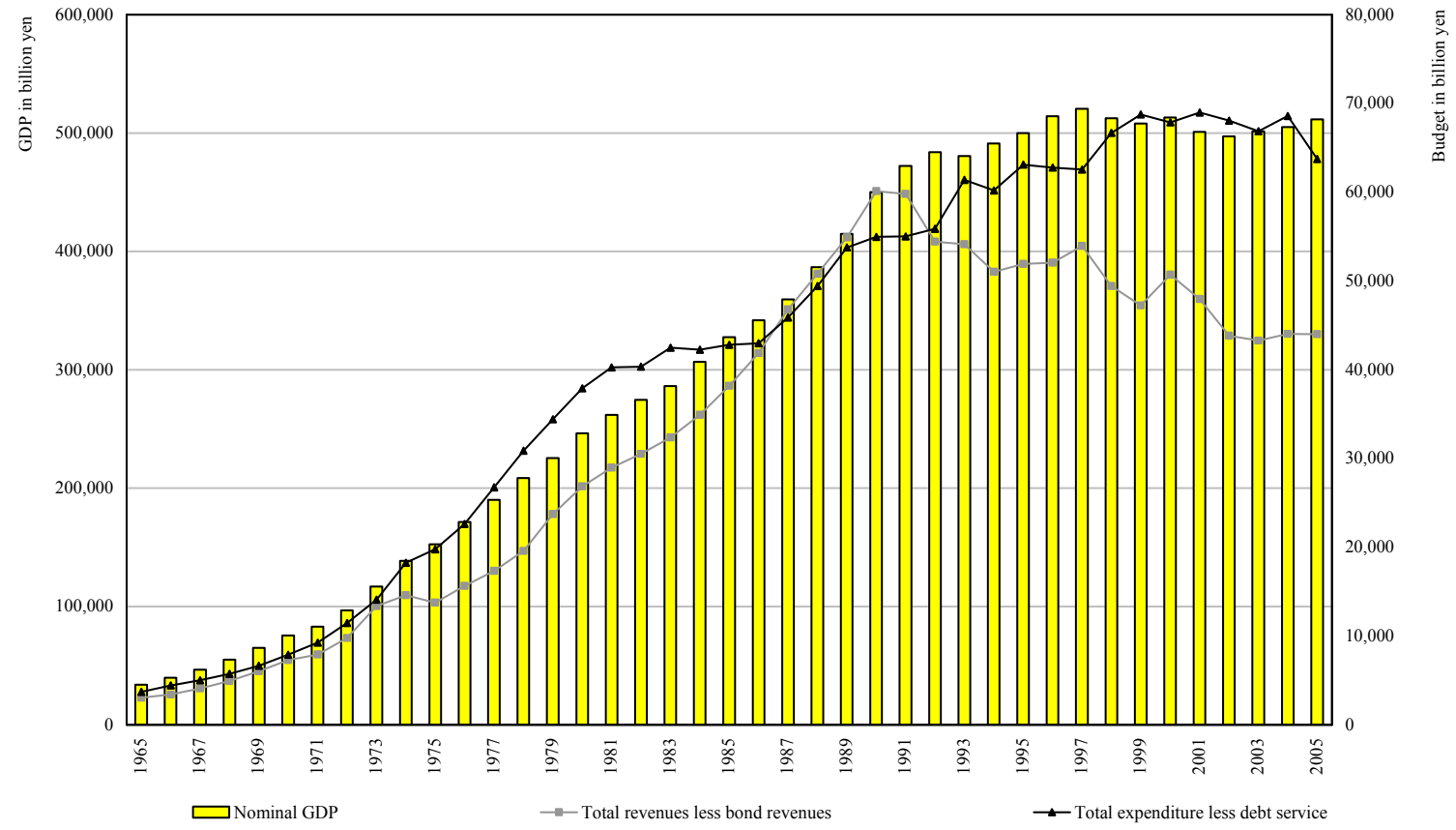
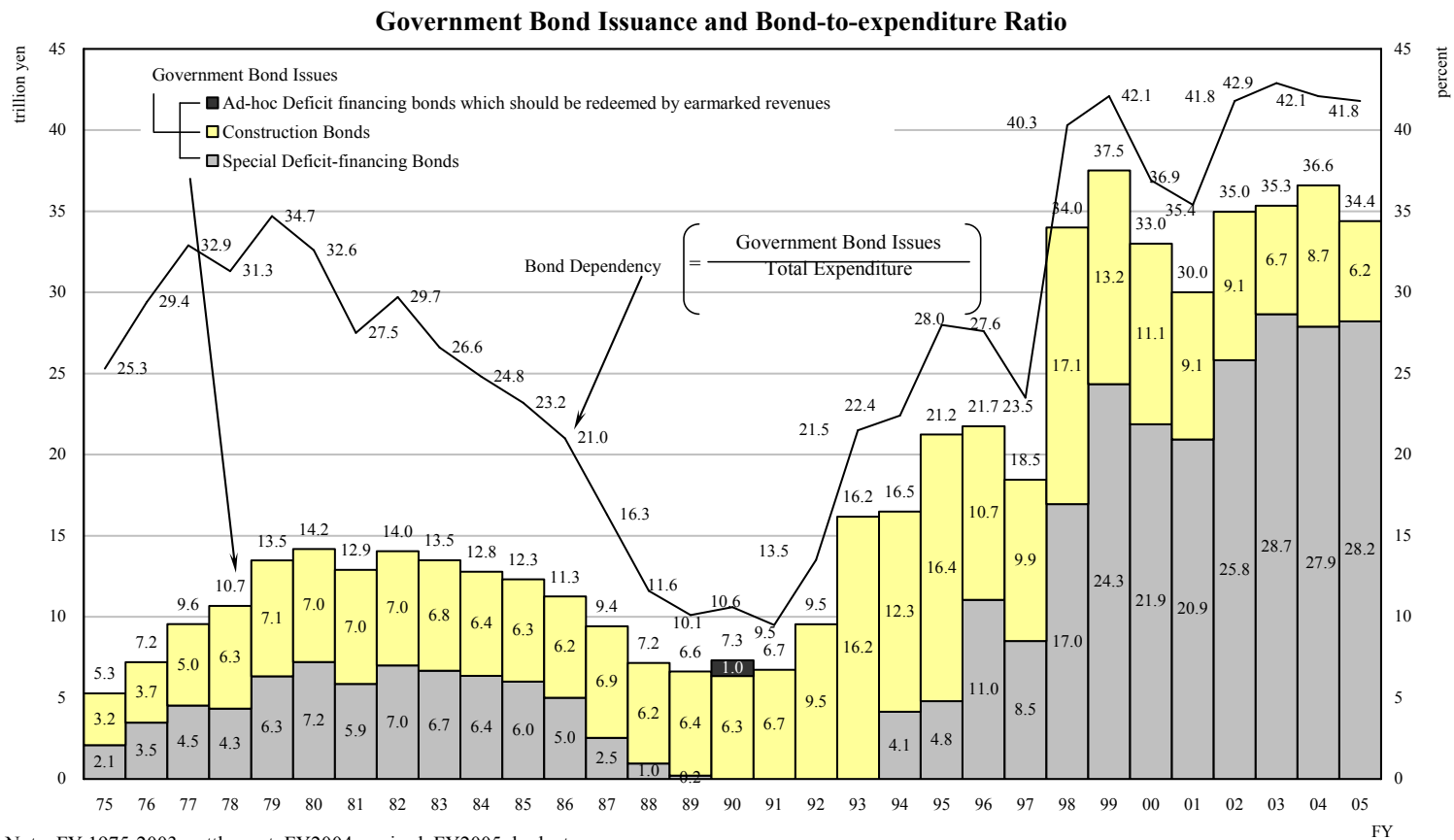


Figure 6

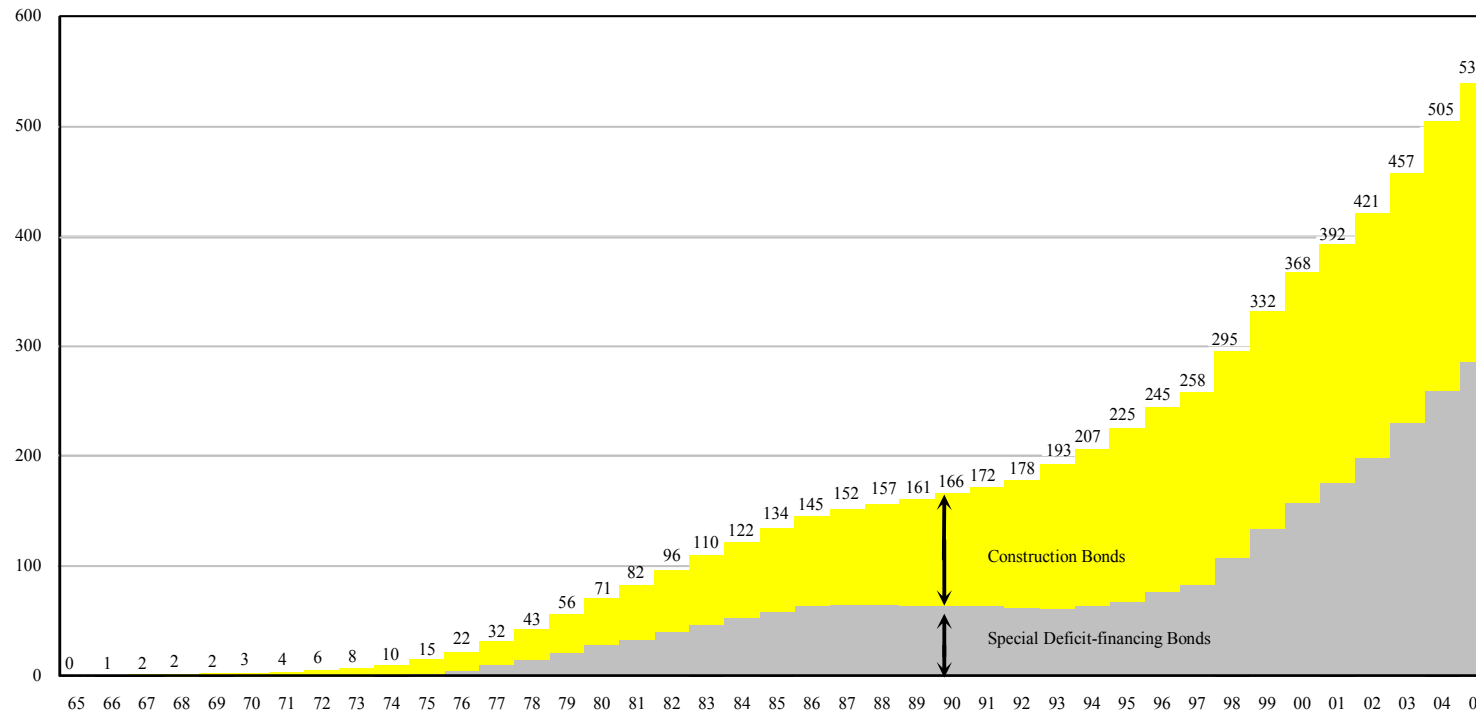


Note: FY 1975-2003: settlement, FY2004: revised, FY2005: budget.

Source: Ministry of Finance.

Chart 7

Accumulated Bond Outstanding
(trillion yen)



Note 1. FY1965-2003: actual. FY2004, FY2005 are estimates.
 2. The special deficit-financing bond amount includes refunding bonds for long term debts transferred from JNR Corp. settlement and National Forest Service, etc.
 3. The estimate of FY2004 and FY2005 excluded front-loading issuance of refunding bonds is approximately 481 trillion yen, 508 trillion yen, respectively.

Source: Ministry of Finance.

**COMMENTS ON SESSION 3:
PUBLIC SPENDING AND FISCAL POLICY MANAGEMENT**

*Dan Knudsen**

I shall mainly concentrate on the fifth paper of this session: Creel, Saraceno and Monperrus-Veroni's "Dynamic Fiscal Policy in France: The Cases of Public Spending, Taxes and Public Debt". I will also touch on paper 3 on the same issues for Italy and on paper 9 on Japan's fiscal policy.

The French paper is an elegant technical study on a VAR approach to the issue. For instance, I like your thorough account of shocks to the relations.

I am not sure I understand fully the fiscal theory of the price level from this paper, but I understand that I should not worry about this theory, as its impact seems small, judging from your results. Can we add that this theory is also difficult to reconcile with membership of a monetary union where the French price formation will be influenced by the rest of the euro area?

Paper 5 is a paper with an attitude. It stresses the apparently long-lasting negative impact on output of fiscal tightening and welcomes the recent EU summit decision, which softens the Stability and Growth Pact.

I wonder how robust your result is. I am now looking at your Figure 2, upper part, on the surplus shock.

The immediate GDP response seems rather small at first, but it turns big after some years. I would have expected the opposite profile: a rather quick impact on GDP followed by simple crowding out. Especially if you expand public consumption, I would expect some direct impact on GDP, due to the definitional relation. Such underlying definitional relations may, by the way, suffer from a sort of measurement problem if you are working with the fiscal balance as such. The whole balance is not part of GDP.

Moreover, it puzzles me to see the inflation going up, although only marginally, after a fiscal contraction where GDP is reduced in the medium term. This way, the result resembles a negative supply shock.

You relate the medium-term GDP fall to a negative wealth effect. I do not see a clear correlation between wealth and GDP effects in your results, but I think I understand the potential wealth effect you mention. Having wealth in the determination of consumption is like introducing Say's law. If income is not spent in the first quarter it will go into the stock of wealth and impact consumption in the following quarters until it is spent. You have this mechanism creating a delayed negative impact from fiscal contraction to demand.

* Economics Department, Danmarks Nationalbank.

I imagine that it will be difficult for you to sell your emphasis on this lagged-wealth effect. Decision makers like fiscal expansions because they promise an immediate positive impact on activity.

Concerning your political conclusions, I think you are going too far. You do not need to be a non-Keynesian to accept the Pact. An honest Keynesian could also accept the pact. By “an honest Keynesian” I mean one who makes sure to reload the fiscal gun by tightening in good times.

I am indeed interested in the longer-term effects on GDP from fiscal expansions, and the French paper shares the VAR approach to this issue with the Italian paper, where the GDP impact of fiscal shocks is rather short-lived. This obviously differs from the results in the French paper. It is often difficult to reconcile VAR results.

Both papers identify a reaction in the interest rate when fiscal policy is changed, but will this link not be weak in a euro framework? The present 10-year interest differentials between euro members do look moderate. If we forget the interest rate reaction for euro members, what do the authors of both papers think about the role of wage flexibility and of the trade channel?

The final paper in this session, number 9, Masato Miyazaki’s “Framework for Fiscal Consolidation: Successes and Failures in Japan”, gives it to us without mercy. To succeed with your fiscal policy it is not enough to be clever and wise economically and politically. You also need good luck! It is like playing in a cup tournament where you need a bit of luck to win.

Implementing fiscal tightening or structural reforms is so much easier if followed by an economic upturn. With Ireland and Denmark in the eighties as examples, it has been claimed that tightening creates the necessary upturn. Indeed, if you start with a 10 per cent interest differential to what is supposed to be your currency-anchor, you may reduce your interest rate by tightening to make your policy credible. However, today we do not have an interest differential to reduce and neither has Japan, so we need all the luck we can get.

Your paper exemplifies some old lessons like the expansionary bias in fiscal policy. You have also made the positive experience that when problems get serious enough more things get politically feasible. Somehow the world must have been sustainable until now.

I will not question your presentation of Japanese fiscal policy, but I have a question as to the outlook. You note that negative GDP growth in the 2nd and 3rd quarter of 2004 has been followed by positive growth in the 4th quarter, so you are on the path to recovery. That may be an optimistic assumption. Is there a Plan B?

**COMMENTS ON SESSION 3:
PUBLIC SPENDING AND FISCAL POLICY MANAGEMENT**

*George Kopits**

My comments cover recent or ongoing fiscal adjustment episodes in India, Sweden, Bulgaria, Portugal and Japan, discussed in the chapters by Pattnaik, Bose, Bhattacharyya and Chander, Hansson-Brusewitz and Lindh, Nenova-Amar, Braz and Cunha, and Miyazaki, respectively. The authors provide informative and competent analysis of these episodes, with enough food for policymakers. Instead of a detailed critique of each chapter, I shall attempt to give a broad comparative assessment.

Apart from the fact that these case studies are intrinsically interesting, I welcome them because of their potential relevance for the new EU members in Central Europe (mainly Czech Republic, Hungary, Poland), currently engaged in indulgent fiscal behavior¹ though aspiring to join the euro area by the end of the decade. From this perspective, I would like to explore the lessons that can be drawn from these five episodes mainly for the new EU members in their convergence to the fiscal reference value to qualify for the euro.

The episodes under consideration, while displaying some common characteristics, offer in fact a rich and diverse experience. Whereas their level of economic and institutional development ranges from a developing stage (India) to an advanced stage (Sweden and Japan), all experienced similar initial conditions: a deficit bias and a major sustainability problem. At the outset, all countries faced considerable structural weaknesses and expenditure rigidities; an added structural impediment to adjustment was India's highly decentralized federal fiscal system. In all five countries, we can find the necessary technical capacity – financial literacy, information system, etc. – to design and implement a fiscal adjustment program.

There has been fairly widespread recognition of the need for structural reform, involving mainly rationalization of social entitlements and other current expenditure programs, instead of merely relying on one-off across-the-board expenditure cuts. But not all countries were equally successful in pruning primary current expenditure; in particular, India thus far opted in part for reducing capital outlays. Besides restraining expenditure, Japan had also raised the value-added tax rate, given its relatively low ratio of government outlays and revenue to GDP.

* National Bank of Hungary.

¹ See G. Kopits and I. Szekely (2003), "Fiscal Policy Challenges of EU Accession for the Baltics and Central Europe," in G. Tumpel-Gugerell and P. Mooslechner (eds.), *Structural Challenges for Europe*, Cheltenham, Edward Elgar, on the fiscal laxity in the new members in Central Europe, as distinct from the fiscal discipline in the Baltics. For an analysis see H. Berger, G. Kopits and I. Szekely (2004), "Fiscal Indulgence in Central Europe: Loss of the External Anchor?", IMF, Working Paper, WP/04/62, April.

The framework of adjustment differed across countries. Aside from Japan, which had in fact abandoned its current-balance rule, all countries relied to a greater or lesser extent, formally or informally, on a rules-based framework. Both Sweden and Bulgaria established a binding constraint on the overall balance in the mid-Nineties, following severe currency and banking crises. In Sweden, the government is legally required to maintain a structural budget surplus and to abide by a limit on primary expenditure set over a rolling medium-term horizon – both rules being stricter than the applicable EU Stability and Growth Pact (SGP). In Bulgaria, consistent with a currency board arrangement established in the wake of the crisis, the government has been bound by an informal balanced-budget rule.² To facilitate compliance with these rules, both countries undertook an in-depth reform of their welfare programs, which broadened the scope for discretionary spending. In sum, combination of the fiscal framework and a coherent monetary framework has made a major contribution to macroeconomic stability and growth.

As a participant in the euro area, in principle, Portugal's adjustment effort was intended to meet the annual targets specified in convergence programs under the excess deficit procedure pursuant to the SGP. However, the annual targets were barely met (or not met at all) through one-off expenditure cuts (albeit including reduction in subsidies) or application of creative accounting practices. Recently, having learned from this experience, the authorities have embarked on a more credible adjustment effort, with the support of structural reform steps.

Of all the countries under scrutiny, India faces the greatest challenge in the period ahead. As the most fiscally decentralized economy in the group and with a very large public sector deficit and indebtedness for an emerging-market economy, it intends to liberalize its external trade and payment systems. To tackle this task, the authorities have enacted a rules-based fiscal responsibility legislation at the federal level, to be emulated over time by most state governments. This initiative is seen as promising, but its success will require major reform in a number of fiscal areas.

Japan stands alone in several respects. The track record shows continuous application of discretionary demand management – to cool the economy in the Eighties and then to stimulate it since the Nineties – that for the most part has been met with very limited success. Besides difficulties in fine-tuning the fiscal adjustment, unlike in the other countries, these efforts have been offset by what appears to be a case of Ricardian equivalence in action. As high public indebtedness and recurrent deficits seem to be compensated by high saving propensity in the household sector, perhaps Japan's intertemporal budget constraint will always be satisfied and its sustainability problem solved – not much of a benchmark for most other countries.

² This stands in stark contrast with Argentina's currency board arrangement in the Nineties when, on average, the externally-financed actual public sector deficit had exceeded 4 per cent of GDP yearly, which – not surprisingly – contributed to the ensuing currency crisis. See M. Teijeiro (2001), "Una vez más la política fiscal..." in M. Lascano (ed.), *La Economía Argentina Hoy*, Buenos Aires, Centro de Estudios Públicos.

Overall, our comparative review of the above episodes suggests that Sweden and Bulgaria experienced the most successful fiscal adjustment, in terms of its durability and contribution to sustained growth. The track record in Portugal and Japan has been rather mixed, while in India the adjustment has barely begun. In these last three cases, however, recognition of past mistakes and likely correction holds out the promise of future success.

A number of important lessons, particularly useful for the new Central European EU members, can be distilled from the collective experience of these five countries. First, a rules-based policy framework is superior to a discretionary approach. In particular, a balanced-budget rule plus a ceiling on primary outlays are key elements of such a framework. The balanced-budget rule should possibly be defined in cyclically-adjusted or structural terms, so as to allow for the operation of automatic stabilizers.

Second, the framework should provide for a rolling medium-term budget plan, quantifying major expenditure priorities. The reduction in primary outlays can be complemented with nondistortionary revenue-enhancing measures – with emphasis on broadening the effective tax bases rather than raising statutory rates – in countries characterized by a relative low tax yield.

Third, instead of reduction in productive infrastructure investment or of one-off across-the-board spending cuts, the bulk of the adjustment should consist of structural reform measures – including in areas such as civil service and social security. Reform steps do not always result in immediate budgetary savings, but they serve to relax expenditure rigidities, to ease fiscal stress in the medium run, and to ensure fiscal sustainability in the long run.

Fourth, sustained political support for the adjustment is essential. Unfortunately, support can be mobilized much easier in a crisis situation (Sweden and Bulgaria) than in tranquil times (Portugal). In general it is the responsibility of party leaders to join forces in generating the necessary support by alerting voters as to the costs of postponing much-needed adjustment in the face of a looming sustainability problem.

COMMENTS ON SESSION 3: PUBLIC SPENDING AND FISCAL POLICY MANAGEMENT

*Balázs Romhányi**

Three of the papers in this session are covered in my comments. First I'll talk about each of them separately and then I'll raise two broad issues, which are connected – to some extent – to the first two of them.

The main message of the Fedelino and Hemming's paper (FH) is that any fiscal indicator has to be analyzed from an incentive point of view, before using it as a policy target in any specific situation.

It is clear that once investments are excluded from the targeted category of fiscal deficit (especially when the target is set by outside actors, e.g. the IMF), there is a strong incentive for the government to classify public consumption as investment and, in many cases, this is not very difficult due to practical problems of the separation but, in my view, the statistical classification problems are no excuse for washing away the conceptual difference between consumption and investment. The key question is whether expenditure finances itself in the form of enhanced economic growth (in corporate finance language, the net present value is positive of the project). In this sense, education or health expenditures are candidates for being classified as investment into human capital. It is true that no single expenditure item in the standard fiscal reports seems to be immune to the problem of classification or, put in another way, there are no so-called growth-enhancing expenditure items (not even R&D is a safe bet).

The problem from an economic policy point of view is that even a project with a highly positive net present value can cause problems in the aggregate demand management.

According to FH, "Irrespective of the accounting principles applied and the fiscal balances targeted, public investment needs to be financed from public resources, and it contributes to demand pressures just like other government spending."

As it is already cited (from Vito Tanzi) in the paper, "... a range of fiscal indicators should be used". Here we have to raise the question: What do we want to measure by the deficit? There are at least three different concepts:

- long-term sustainability (net change of government wealth);
- government liquidity (net change of financial assets);
- inflationary pressure (short-term aggregate demand).

* Ministry of Finance, Hungary.

It is not completely obvious that demand pressure is always the most important from society's or even economic policy's point of view. It might well be true that in cases where the IMF steps in to assist in handling or preventing macroeconomic crises, short-term demand is usually the main concern, but (fortunately) this is not always the case. FH acknowledge that "...where macroeconomic stability and debt sustainability are not pressing concerns for fiscal policy, a supplementary target for the current balance can limit the government's ability to utilize any scope it has for additional borrowing to finance tax cuts or increased current spending".

This leads us to the next question: what do we want to use the deficit indicator for? Here again we have several options, e.g.:

- economic modeling;
- have a simple "early warning system" for the society about fiscal affairs;
- justify (peer) pressure on malevolent politicians.

The above citation shows that the authors are sympathetic with the third view, but (unfortunately) come to the conclusion that "there is no magic bullet when it comes to safeguarding public investment".

My personal conclusion is somewhat different: if we want to use the deficit indicator "against politicians", then institutional arbitrage has to be excluded (e.g., the arbitrary distinction between *real* and *financial* assets) and hence private sector accounting standards should rather be used as much as possible (e.g., depreciation should be substituted for investment, that is now *de facto* solved in the form of PPP availability fees). The informational asymmetry problem due to the separation of ownership (principal/citizens) and management (agent/politicians) has been a well-known problem for several hundreds of years. To a large extent, the development of private sector accounting practices is an answer to the problem of institutional arbitrage. Hence the main message is that any fiscal indicator has to be analyzed from an incentive point of view before using it as a policy target in any specific situation.

The central finding of the Paternostro, Rajaram and Tiongson's paper (PRT) is that to maximize efficiency of international donations or any other form of assistance to fight poverty, the receiver side has to be adequately analyzed. The key sentence is: "There is, however, growing concern regarding the wisdom of relying so heavily on social sector spending to promote poverty reduction. The OED finds that a different balance between social and other sectors, particularly infrastructure and rural development, may be warranted for mobilizing investment to promote growth, a necessary condition for sustainable poverty reduction".

The effect of fiscal policy (or, in a narrower sense, government expenditure) on poverty is, hence, partly related to its effect on long-term growth. Unfortunately, private sector investment doesn't show up in the framework proposed, though crowding in and crowding out is an important issue from this point of view.

On one hand, PRT claim that “The paper sketches out such a framework as the first step in what will have to be a longer-term research agenda to provide theoretically and empirically robust and verifiable guidance to public spending policy”. On the other hand, however (in the section about application of the proposed tax-and-transfer scheme), they acknowledge that “...the impact on Y [output] in the longer-run is an empirical question”. On the whole, we can only conclude that first we need a flexible enough theoretical model, but its parameters have to be estimated or calibrated on a case-by-case basis. For this second step, the receiver side has to be analyzed adequately.

The main point of the Giordano, Momigliano, Neri and Perotti’s paper (GMNP) is that the type of government expenditure matters a lot.

I have a few minor question marks from a technical point of view. First, it is not completely convincing that empirical results of an open-economy VAR model cannot be affected by the inclusion of some “international” variables such as exchange rates or foreign interest rates. My suspicion is somewhat supported by the result that, according to GMNP, “The largest negative shocks to purchases take place in the third quarter of 1992 and in the last quarter of 1997”: two periods when “international” variables did change a lot. Especially 1992Q3 is also a candidate for introducing a structural break into the series.

The private real GDP is free from the government-output and efficiency-measurement problem, but can be a poor proxy for our preferences. Modeling the interaction between private and public output will be needed before using the results for policy advice.

The model only distinguishes wage and non-wage expenditures, but the composition of the wage shock should matter as well. Based on the identity that:

$$\text{Wage bill} = \frac{\text{wage}}{\text{hour}} \times \frac{\text{hour}}{\text{employee}} \times \text{number of employees}$$

we should expect different effects of an increase in government wage rates (per hour), changes in regulation (e.g., 38-hour work week) and increase in government employment, since they imply completely different effects on the private sector. The core statement that “the type of government expenditure matters a lot” could be amended: the way of spending the money matters as well.

Finally, based on these papers, I’d like to mention briefly two broad issues for further debate.

1. The concept of fiscal deficit

By accepting some corrections of the Maastricht deficit indicator when using it for the purpose of the Stability and Growth Pact, the positive and normative concept of the fiscal deficit is officially separated. In the future we might see the development of an array of fiscal indicators tailor-made for different purposes

(effect on long-term growth, short-term demand or poverty), analogous to the development of quantity of money concepts (M1, M2, etc.) in the Seventies and Eighties.

2. When applied to fiscal policy, the mainstream neoclassical framework of economic policy analysis has to be amended by behavioral, institutional and transactions costs effects

PRT point out that "... unlike tax policy, where the theory of optimal taxation was developed, there is not a comparable theory of optimal expenditure policy that provides comparably well-defined rules for expenditure allocation". In my view, the "neglected middle ground between the disciplines of public economics policy and the theory of economic growth", as they call it, might not exist. Solid micro-foundation (allowing for behavioral, institutional and transactions costs effects) might be a better starting point.

FH state that "Public investment should naturally decline over time as the public capital stock is built up". In my opinion, the demand for public capital stock is a matter of technology and preferences. It depends on the (1) capital intensity, (2) public or private nature and (3) the scope for public or private provision of newly-developed goods and services. One of the key variables in technologies are transactions costs (in a broad sense). There is no clear theoretical reason for assuming a constant demand for public goods while the demand for private goods increases. Whether public goods (e.g., airport safety) can be supplied by private producers (e.g., privatized airports), which are formed from private fixed capital, is a matter regarding institutions, transaction costs (can we efficiently control private airports?) and behavior (is an official policeman more deterring than a private bodyguard?).

PRT cite Duncan and Pollard (2002): "... have identified the building blocks necessary – such as social order, good governance, and functioning markets – prior to any government investment for poverty reduction". This sort of ordering doesn't seem to be very helpful in achieving policy goals. I rather prefer the approach of Merton and Bodie (2004) in "The Design of Financial Systems: Towards a Synthesis of Function and Structure" (NBER, Working Paper, No. 10620): institutions are invented and evolving over time in order to get closer to the ideal world of neoclassical general equilibrium. Evolution of markets and institutions is complementary.