

Budgetary Policy in Times of Plenty

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Introduction

The prolonged economic boom that Ireland has enjoyed since 1994 has radically improved the state of the public finances. At the same time, the growth in private output has revealed serious deficiencies in the adequacy of public infrastructure. These developments arguably make the formation of optimal budgetary policy a more difficult analytical problem than in the “dark days” of the 1980s: the government now has the financial freedom to choose among a range of alternative paths and cannot credibly appeal to external constraints to forestall demands for increased spending from the various claimants on the public purse.

In this paper, we briefly discuss some of the strategic issues that are central in thinking about the future direction for fiscal policy in Ireland. In particular, we address the following topics: the size of government; trends versus cycles in output growth; public infrastructure; a state pension fund; and tax policy. An understanding of these broad issues is vital if informed choices are to be made concerning the best allocation of the budget surplus and privatisation proceeds that Ireland is currently enjoying between increased government spending, reduced taxation, a lower government debt and the accumulation of investment and reserve assets.

The Size of Government

In evaluating tax and expenditure policies, a fundamental question is the optimal size of government. If the size of government is too large, it makes sense to prune expenditure and cut taxation; conversely, increases in spending and taxation are required if the government is too small to achieve desired policy outcomes. Of course, determining the optimal size of government is tough and involves both economic and political dimensions.

At an efficiency level, all would agree that the provision of public goods such as legal and regulatory systems, policing and public infrastructure requires a threshold size of government. Many would also argue in favour of a substantial role for government in the provision of education, healthcare and social insurance. There is a wider divergence of views concerning the appropriate role of government in income redistribution and in the

provision of public amenities, according to heterogeneity in values, tastes and theories of “how the world works”.

Although the government can also exert much influence through legislation, regulation, social partnership and moral suasion, measures of public expenditure and taxation are typically employed as imperfect proxies for the size of government. The choice between GDP and GNP as the appropriate denominator is important in the case of Ireland, since GDP is so much larger than GNP due to the high net investment income outflow. This choice is non-trivial. For some components of public spending and taxation, GDP is the more relevant denominator. For example, infrastructure needs are linked to the scale of domestic economic activity, which is captured by GDP. Some elements of the tax base (such as corporation tax paid by foreign multinationals, infrastructural user charges) are also more appropriately scaled by GDP. However, GNP is the appropriate denominator for “non-productive” public expenditure items (such as debt servicing, foreign aid or health-care spending on the elderly) which should be scaled by the level of national wealth or national income.

Tables 1 and 2 respectively use GDP and GNP as the denominators to track the recent evolution of government spending and taxation in Ireland¹. Both tables show the same trends --- total government spending has dramatically declined since 1987, with about one third of the decline attributable to a reduction in debt servicing costs. However, the decline in government revenues (tax and non-tax) has been much smaller, with the balance contributing to a sharp decline in the debt/output ratio. Moreover, it is important

to recognize that the vast bulk of the reduction in non-interest expenditure and in the total tax burden took place in the 1987-1989 period: there has been only a further marginal decline during the 1990s.

The contrast between Tables 1 and 2 is in the levels of fiscal variables: for instance, government revenue was only 35.9 percent of GDP in 1998 but, according to OECD data, this corresponds to 41.3 percent of GNP. Similarly, the debt burden looks more severe at 65.8 percent of GNP than at 56.6 percent of GDP.

Figures 1-3 offer some cross-country comparisons. Figure 1 shows the 1998 ratios of non-interest government spending to GNP. The rapid decline in the government expenditure share means that Ireland is well below the mean but six countries have even smaller ratios. With respect to the debt/GNP ratio in Figure 2, Ireland is only just below the sample average and ten countries have even lower debt burdens.

Of course, many factors contribute to cross-country variation in government spending, debt and fiscal balance ratios. At least with respect to the debt ratio, Ireland's high vulnerability to external shocks suggests that a below-average ratio is desirable. Debt ratio dynamics depend heavily on the gap between the interest rate and the GNP growth rate. Currently, Ireland is benefiting from the unusual good fortune of a growth rate in excess of the interest rate but, as occurred in the late 1970s, this can quickly unravel: an increase in European interest rates and a growth slowdown would sharply change the level of the primary budget surplus that is required to stabilise the debt/GNP ratio.

¹ In what follows, we use OECD data which differ from domestic data sources in important respects.

Moreover, the asymmetry between Irish and Euroland growth patterns raises the likelihood of an increase in interest rates precisely when Irish growth is decelerating².

Finally, Figure 3 shows that, although Ireland's structural (cyclically-adjusted) surplus is positive, it is by no means the largest in the sample: for instance, Sweden and Canada are running significantly larger surpluses.

It is useful to keep in mind these basic international comparisons in thinking about the Irish fiscal position. Although dramatic improvement has taken place since 1987, it is not clear that the debt/GNP ratio has yet reached a level that would prove comfortable in the event of a serious decline in the international environment. Although running a surplus is a novel experience for Ireland, even larger surpluses may in fact be appropriate for a country that is experiencing an extraordinary boom but, for reasons given below, must soon face a deceleration in the growth rate.

Trends versus Cycles

In assessing the appropriate stance of fiscal policy, it is critically important to distinguish between cyclical and trend output movements³. A permanent 10 percent gain in output may justify an increase in government activity but this is not true in the case of a purely transitory output expansion.

² 94 percent of Irish debt is denominated in euros with 6 percent in sterling (NTMA 1999). As such, there is a high exposure to an increase in Euroland interest rates. It is open to question whether this portfolio composition is the optimal hedge against Irish macroeconomic risk.

³ See also Lane (1998a) and Cronin and McCoy (1999).

Unfortunately, it is very difficult to accurately decompose output into its trend and cyclical components. Statistical de-trending techniques (such as the widely-used Hodrick-Prescott filter) automatically adjust measures of potential output in line with actual performance: an economy that is in a persistent slump (such as Japan) sees its level of potential output downgraded; conversely, the potential output of an economy that enjoys a prolonged boom (such as Ireland) is upgraded. While this is a justifiable ex-post technique, it is not helpful in real time since it does not give a true guide to future potential output.

Krugman (1998) nicely illustrates this point by employing the Hodrick-Prescott filter to calculate US potential output during the Great Depression. The feedback from actual performance to estimated growth potential is such that the filter indicates that the US economy was actually operating above potential by 1935!

Unfortunately, a “production function” approach to measuring potential output is also of limited value in the case of Ireland. In a catch-up economy, the potential rate of productivity growth is highly uncertain, since it depends as much on the pace of adoption of existing technologies as on the rate of technological innovation. Moreover, the supply of factor inputs available to a small and open economy with non-maximal participation rates is more elastic than is the case for leading economies such as the US.

For these reasons, it is very difficult to quantitatively estimate the potential growth rate of the Irish economy. That said, at a qualitative level, it is clear that the current high growth

rates cannot be sustained. First, participation rates and net immigration have been steadily rising, such that the labour force margin is becoming ever tighter. Second, quasi-fixed factors such as serviced land and the urban road network are facing capacity constraints that will bind in the near term. Third, one contributory factor to the boom has been the cyclically-low level of European interest rates. As interest rates return to more normal levels, this will act to slow down the economy.⁴

It is in the context of a high but declining growth rate that optimal budgetary policy must be analysed. In addition, the feedback between fiscal policy and growth performance must be taken into account. In particular, as is further discussed below, enhanced public investment is essential in relieving bottlenecks in the economy.

Public Infrastructure

It is important to be clear that public investment has two economic functions: the provision of (a) public inputs that directly raise the productivity of the economy; and (b) public amenities that improve the quality of life and are valued by the community. Of course, the same project may contribute to both objectives. For example, an improved road network not only improves economic performance but the elimination of traffic jams is to be welcomed for its own sake. Conversely, as recently argued by the ESRI, cultural projects and sports facilities not only improve the quality of leisure time but may indirectly improve economic performance by making Ireland a more attractive home for internationally-mobile workers. Despite this caveat, it is important to retain the analytical

⁴ I mean normal for a low-inflation, continent-sized economy such as euroland. The Irish interest rate

distinction in evaluating individual projects under the forthcoming National Development Plan --- for instance, an amenities project may have zero economic benefit but still be justified on the basis that it is deemed to significantly improve the quality of life, even at the cost of a decline in the growth rate. Evaluation of such projects is inherently a political task: the role of the economist is to make explicit the opportunity cost in terms of alternative uses and the overall fiscal position.

A widely-expressed concern is that increased infrastructural spending will lead to overheating in the construction sector and that it may be better to postpone public investment projects until a slowdown in the economy occurs. This argument is overdone --- if a public investment project is projected to have a high social return, it deserves precedence over marginal lower-return private activities and such efficient crowding out necessarily involves a bidding up of construction costs in a market economy. That said, full employment means that it is especially important that only truly high-value public projects are supported⁵. As such, it is a mistake to rush the evaluation of public investment projects and, by the same token, it is desirable to allocate sufficient analytical resources to ensure that this evaluation process is not unnecessarily delayed.

A State Pension Fund?

premium generated by liquidity, Sterling and default risks has been eliminated.

⁵It is of course important to also eliminate any planning, servicing and zoning distortions that may artificially inflate land prices.

Ageing populations pose significant public finance challenges for all developed nations. Compared to many other EU countries, Ireland is relatively well placed, in the sense of having a young population and a fast-growing economy⁶. Moreover, the government's role in the provision of pensions is much more limited than in countries such as Italy⁷. Even so, demographic trends indicate that the costs of social welfare and public sector pensions will trend upwards in coming decades.

To forestall future tax increases, an alternative is to pre-fund rising pensions expenditures. One option is simply to pay down the public debt: by saving on future debt servicing costs, resources are released that can be allocated to other expenditure items, such as pensions. However, the return on retiring public debt is low, since it is a safe and liquid security: accordingly, on its own, it does not represent an appropriate investment vehicle in providing for future pension needs. This approach also does not address the types of assets the government would purchase once the public debt is driven to zero. Moreover, there is no in-built mechanism to ensure that future governments would allocate the savings to pensions rather than other, potentially frivolous, items of public expenditure.

For these reasons, there is considerable merit in the proposal to establish a state pension fund. By accumulating an appropriate asset portfolio, a stream of investment income can

⁶ The massive emigration during the 1950s is also a contributory factor: many Irish people nearing retirement age have permanently settled overseas.

⁷ I confine my discussion to government expenditure on pensions. I do not discuss the role of government in encouraging increased pension funding in the private sector.

be generated that will meet future pension obligations without requiring a future increase in the tax burden⁸.

Table 3 illustrates the impact of introducing a state pension fund that receives one percent of GNP each year between 1999 and 2020 and that would progressively be run down to zero between 2021 and 2050⁹. These Department of Finance projections are based on a set of assumptions concerning future trends in public expenditure, an average GNP growth rate of 2.5 percent over 1999-2050 and a rate of return on the pension fund that is one percentage point higher than the interest rate on the public debt¹⁰.

In the absence of a fund [column (1)], persistent fiscal surpluses will lead to a negative government debt that peaks at 14 percent of GNP in 2030. However, the fiscal position will sharply deteriorate after that point, with a fiscal deficit of 2.3 percent and a public debt of 11 percent of GNP by 2050. Column (2) shows the impact of introducing a pension fund under the baseline assumptions. In exchange for a smaller reduction in the public debt, the state pension fund will accumulate assets equivalent to 26 percent of GNP by 2020. This will allow a more comfortable financing of increased pensions

⁸ It should be noted that the state already holds significant financial assets, in the form of the reserves still held by the Central Bank. Although some reserves have been transferred to the European Central Bank, a considerable stock still remains. The rationale for continuing to hold significant short-term liquid assets is not entirely clear. It should also be noted that other types of investment fund could also be considered. For example, Singapore has established separate investment funds to finance anticipated future increases in healthcare and education spending (Medisave and Edusave respectively). Kuwait, Alaska and Norway also have significant investment trusts: see Chalk and Hemming (1998) for other international examples. Lane (1998) discusses the option of establishing a fiscal reserve fund that may be used in the event of a need to recapitalise the banking system.

⁹ The following material draws heavily on the fascinating report by the Department of Finance (1998).

¹⁰ Clearly, it would be useful to explore the impact of alternative sets of. A rate of return in excess of that paid on the public debt is plausible, since government debt is a safe, liquid asset and a pension fund could invest in riskier, illiquid projects that earn a higher expected return.

expenditures, with the fiscal deficit only reaching 1.5 percent and the public debt standing at just 1 percent of GNP by 2050.

Under the baseline assumptions, the introduction of a state pension fund would clearly improve the dynamic path for the public finances. There are two basic mechanisms: (i) if public expenditure is projected to increase in the future, it is better to increase savings now than to hike taxes in the future; (ii) relative to paying the public debt, it is assumed that the pension fund can earn a superior rate of return. That said, in the baseline scenario, the state of public finances do not look too critical in the absence of a fund so the introduction of a fund may not seem like a pivotal issue.

The risks to not introducing a fund are well illustrated by looking at a set of alternative scenarios. As calculated by the Department of Finance, column (3) shows that a one percentage point reduction in the annual growth rate would lead to a dramatic long-term deterioration in the public finances, with the Maastricht conditions violated by 2020 and the fiscal deficit ballooning to 36.1 percent and the fiscal debt to 455 percent of GNP by 2050. Put differently, it will be infeasible to finance future pension commitments at current tax rates under this scenario.

Columns (4) and (5) show the impact of a one percentage point increase in current expenditure and a similar decrease in tax revenues respectively. Both have a similar effect on the dynamic path for the public finances: a significant deterioration relative to the baseline but not as dramatic as in the case of growth slowdown. Finally, column (6)

shows the impact of holding the debt at 30 percent of GDP until 2020: again, the failure to pay down the debt and accumulate investment assets would lead to a serious fiscal problem, with the fiscal deficit reaching 12.9 percent and the public debt 168 percent of GNP by 2050.

Table 3 vividly demonstrates the impact of ignoring the pensions timebomb and the recent announcement to introduce a state pension fund is to be enthusiastically welcomed. However, the precise design of such a fund presents is critically important for its success and political acceptability.

A major concern is the politicisation of investment decisions. At the extreme, this might involve discriminating between domestic projects on the basis of the political connections of entrepreneurs. Less obviously, it may induce the allocation of an excessive portfolio share to domestic over foreign assets, with lobby groups pressing the state fund to support domestic firms and workers.

This is a very difficult problem. On the one side, it is desirable to minimize political interference in the operation of the fund. On the other side, in a democratic society, the operators of a state fund must be politically accountable. Much of the international debate concerning the delegation of public tasks to independent agencies, such as central banks and industry regulators, is relevant here. An important principle is that the government defines the objectives of the agency but that the agency is given wide scope in the pursuit

of these objectives, subject to the issuing of regular public reports justifying any deviations from targeted outcomes.

It should be clear that the correct investment approach for a state pension fund is to overwhelmingly hold overseas assets. First, this strategy minimizes the politicisation problem. Second, it is a sensible hedge. Imagine if the state pension fund held domestic assets: in the event of a domestic downturn, the public finances would be hit not only by a decline in tax revenues but also by a contraction in investment income. By holding foreign assets, in contrast, “tax base risk” is offset. Third, the state pension fund would be large relative to the domestic market but tiny in global terms such that investing overseas improves flexibility and liquidity in portfolio management¹¹.

In defining the investment strategy of the state pension fund, an important consideration should be the level of operating costs. Actively-managed funds incur much higher fees than passive/index funds without any improvement in average performance: one strategy might be for the government to simply hold an appropriate mix of index funds from Fidelity or Vanguard that would involve only trivial transactions costs. To the extent that some proportion of funds should be actively managed (to more precisely tailor the portfolio to the risk profile of the Irish economy), the NTMA may play a partial role. However, in contrast to public debt management, there is no reason for the NTMA to have a monopoly in investing the assets of a state pension fund and the participation of (domestic and/or international) private fund managers would provide welcome

¹¹ In designing a state pension fund, the small and open nature of the Irish economy provides more degrees of freedom and is a great advantage compared to countries such as the US.

competition. The NTMA's lack of experience in equity investment also supports a role for the private sector in asset management.

Norway provides an interesting example (International Monetary Fund 1999). The equity component of its State Petroleum Fund is managed entirely by external managers (Barclays Global Investors Limited, Gartmore Investment Limited and State Street United Kingdom Limited) which follow an indexing strategy¹². The Norges Bank monitors the externally-managed portfolios and it also manages the bulk of the bond portfolio. The portfolio consists of specified equities and bonds in 21 countries, with an equity share of 40 percent. Exposure to Europe has been reduced to 50 percent.

Investments in individual companies cannot exceed 1 percent of their share capital. It should be noted that Norway retains its own currency, such that it needs to hold a larger share of domestic bonds than would be the case for an EMU-member country.

The establishment of a state pension fund raises issues to do with intergenerational equity. It is clear that the establishment of a fund is of greatest benefit to the younger cohorts in the population and that individuals above a certain threshold would more directly gain from a cut in taxes. It is interesting to note that, in contrast to the powerful position of the American Association of Retired Persons (AARP) in the US, the Irish political system does not (as yet) include a prominent lobby that is defined by age group.

It is also important to carefully distinguish between investment funds for future social welfare pensions and the pensions of public sector workers. In the case of the

(noncontributory) social welfare pension, this is a minimum entitlement and it is appropriate for the state to guarantee defined benefits and to take responsibility for prefunding future pensions via a state-managed fund. For public sector pensions, a greater range of options should be debated¹³. For example, if a defined-benefit scheme is retained, how should any investment surplus be distributed? Under the alternative of a defined-contribution scheme, should personal accounts be established that permit individual employees to decide the risk/return trade-off in the design of portfolios? If so, should the state still guarantee some minimum return? Although personal accounts would involve significantly higher transactions costs and require individuals to spend resources in improving their level of financial sophistication, it may still be justified as an important extension to personal choice and liberty.

Finally, the pensions debate should also address other dimensions. For instance, it is dubious whether 65 will remain an appropriate retirement age when life expectancy and the quality of healthcare are trending upwards and the physical demands of many occupations are in decline. In the context of a progressively ageing population, the dynamic sustainability and intergenerational fairness of subsidised early-retirement schemes must also be called into question.

¹² A small portion is to be placed under active management in the near future.

¹³ Indeed, the Commission on Public Sector Pensions is currently studying many of these issues in some depth.

Tax Policy

Unsurprisingly, the existence of budget surpluses has led to calls for further tax reductions. As a preliminary, it is important to understand the roles played by the structure of tax rates and tax bands and the rate of growth in determining the amount of tax revenue that is raised. Table 4 presents elasticities for various tax components with respect to the rate of GDP growth. At unchanged tax rates and bands, revenues from personal income tax, corporation tax and indirect taxes increase more than proportionately as the level of output increases. In the case of income tax, for instance, this phenomenon is explained by “fiscal drag”: at unchanged bands, rising income mean that more and more people meet tax thresholds and enter high tax brackets. For this reason, an automatic indexation of tax bands to GDP growth rates would be a truly tax-neutral policy in the sense of maintaining a constant revenue/output ratio.

We earlier discussed the appropriate size of government relative to the overall economy and, over the medium term, this size dictates the overall level of taxation that must be raised. A reduction in income tax rates or an expansion in tax bands that is greater than required to maintain a constant revenue/output ratio either requires an increase in other tax revenues or is a statement that the current size of government is too large. To the extent that tax reductions over the last decade have been largely financed by a declining debt servicing bill, this escape route is being progressively shut down: as interest rates stabilise and the debt shrinks, there is not much scope for further dramatic declines in the

debt servicing burden. This imposes tremendous pressure on the government since it must design a budgetary policy that achieves aggregate targets but under bombardment from special interest groups demanding increases in specific expenditure items and tailored tax exemptions/reductions.

For argument's sake, let us take the view that the scope for government downsizing is limited and that hard choices in tax reform need to be addressed¹⁴. If taxes on labour are to be significantly reduced, what alternative sources of tax revenue can be expanded? The most obvious candidate is a comprehensive well-designed household property tax --- although the history of such taxation in Ireland is troubled, it is not sensible to permanently exclude household property from the tax base.

In the Irish case, a low corporation tax rate is probably the correct strategy: conditional on higher corporation taxes elsewhere, a low rate pays for itself via tax shifting. The case for a low capital gains tax is more dubious: clearly, a switch from a high rate to low rate temporarily improves revenues, with a once-off realisation of historic capital gains. It is also true that a low rate improves turnover and encourages entrepreneurial activity but all forms of taxation are distortionary so that the efficiency gains from a low capital gains tax have to be set against the efficiency losses incurred from higher taxes elsewhere.

Finally, a widening of the base for indirect taxes and the implementation of a carbon tax would also help to finance income tax reductions.

¹⁴ Projected future increases in items such as pensions and health spending mean that, moving forwards, the size of government is actually set to increase. It is not efficient to cut taxes now only to raise taxes at a

There is no doubt that lower income tax rates would stimulate labour supply and thereby reduce shortages in the labour market. Lower income taxes may also be helpful in securing a new national pay agreement. But the goal of policy is not to maximize the short-term output growth rate and a new pay agreement may prove too expensive if it is at the price of an excessive erosion of the state's taxing capacity. First, taxes are required to finance the infrastructure required to sustain long-term growth. Indeed, at a time of infrastructural bottlenecks, the efficient strategy may be to actually discourage extra labour supply until the deficiencies in the housing stock and road network have been redressed. Second, the government also pursues non-economic objectives such as the provision of public amenities, a social safety net and improving equality of opportunity: again taxation is needed to achieve these targets, even at the cost of a slower output growth rate.

Conclusions

As should be evident from the preceding analysis, the government faces a severe challenge in designing a forward-looking budgetary strategy that will ensure that sustained benefits are obtained from the current boom times. Further reduction in the government debt and the accumulation of long-term investment assets are prudent and reasonable in the current climate. A substantial increase in public investment is also warranted, subject to selected projects meeting rigorous approval criteria. The case for significant overall tax reductions is less clear, unless it can be shown that a corresponding decline in overall public expenditure is both desirable and feasible. That said, there is plenty of room for revenue-neutral tax reform, with a decline in income tax rates feasible

future date.

if the aggregate tax base is enlarged.

Finally, there is little formal apparatus in the Irish political/administrative system to ensure that the common good is properly elevated above the excessive demands of sectional interest groups. In addition to improvements in the physical infrastructure, investment in an enhanced "policy infrastructure" may also be warranted.

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Table 1: Fiscal Variables as a Ratio to GDP

	GTOTY	NIGTOTY	GCURRY	SOCY	GCY	GIY	GINTY	RECY	GDY
1981	49.5	45.0	43.7	14.4	20.6	5.9	4.6	36.5	77.4
1987	49.7	42.9	46.6	17.3	18.3	3.0	6.8	40.3	117.6
1989	39.4	33.4	37.6	14.6	14.5	1.8	6.1	36.9	104.0
1993	41.9	37.2	39.7	15.7	14.4	2.2	4.7	38.0	98.3
1998	34.2	31.4	32.2	13.5	11.2	2.1	2.8	35.9	56.6

Note: Data source is OECD Economic Outlook Database. All variables are ratios to GDP. GTOT is total government spending; NIGTOT is non-interest government spending; GCURR is current disbursements; SOC is social security expenditure; GC is government consumption; GI is government investment; GINT is debt servicing; REC is government receipts; GD is government debt.

Table 2: Fiscal Variables as a Ratio to GNP

	GTOTQ	NIGTOTQ	GCURRQ	SOCQ	GCQ	GIQ	GINTQ	RECQ	GDQ
1981	51.9	47.1	46.0	15.2	20.3	5.8	4.8	38.5	81.6
1987	54.7	47.2	51.7	19.2	19.1	3.0	7.5	44.7	130.6
1989	44.8	37.9	42.7	16.6	16.5	2.1	6.9	41.9	118.1
1993	47.2	41.9	44.7	17.6	18.1	2.5	5.3	42.7	110.5
1998	39.8	37.0	36.7	15.6	15.4	3.1	2.8	41.3	65.8

Note: Data source is OECD Economic Outlook Database. All variables are ratios to GNP. GTOT is total government spending; NIGTOT is non-interest government spending; GCURR is current disbursements; SOC is social security expenditure; GC is government consumption; GI is government investment; GINT is debt servicing; REC is government receipts; GD is government debt.

Table 3: Long-Run Fiscal Projections

		(1)	(2)	(3)	(4)	(5)	(6)
		No Fund	Fund	A	B	C	D
2000	Surplus	1.7	0.7	1.6	0.7	0.7	1.7
	Debt	57	59	59	59	59	57
	Fund		2				
2010	Surplus	2.2	0.8	-1.4	0.8	0.8	-0.9
	Debt	17	27	32	27	27	30
	Fund		12				
2020	Surplus	1.8	-0.3	-5.7	-2	-1.9	-2.8
	Debt	-8	13	52	22	22	33
	Fund		26				
2030	Surplus	0.5	1.5	-13	-2.8	-2.7	-5.9
	Debt	-14	-9	124	36	35	61
	Fund		12				
2050	Surplus	-2.3	-1.5	-36.1	-7.8	-7.8	-12.9
	Debt	11	1	455	99	98	168
	Fund		0				

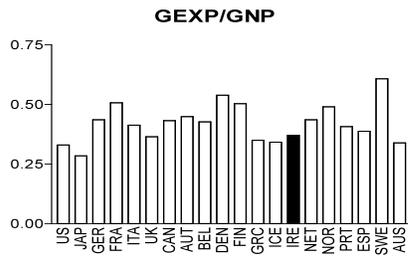
Note: Calculations drawn from Department of Finance (1998).

Table 4: Tax Elasticities

	Personal Income Tax	Corporation Tax	Indirect Taxes	Social Security Contributions
OECD	1.3	2.5	1	0.5
D/Finance	1.3	1.5	1.3	0.6

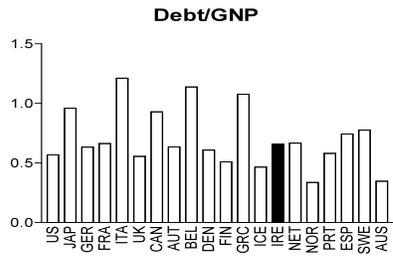
Note: Calculations drawn from Department of Finance (1999).

Figure 1: NIGTOT/GNP ratio, 1998



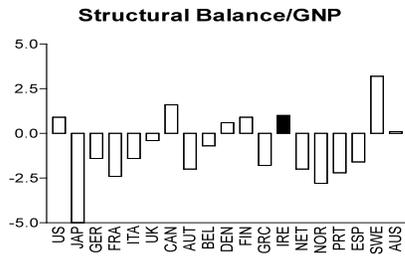
Note: Non-interest government spending as a ratio to GNP. Source: OECD Economic Outlook database.

Figure 2: Debt/GNP ratio, 1998



Note: Debt/GNP ratios. Source: OECD Economic Outlook Database.

Figure 3: Structural Balance/GNP ratio



Note: Structural Balance/GNP ratios. Source: OECD Economic Outlook Database.