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Ireland: Selected Issues

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IRELAND

Selected Issues

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Approved by European I Department

November 5, 1998

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I. Fiscal Consolidation in Ireland and Challenges Ahead[1]

A. Introduction

1. Since the early 1980s Ireland has achieved an impressive fiscal consolidation, turning one of the largest deficits in the OECD area into a surplus and reversing a rapid rise in public debt. Besides policy measures to curb public spending and/or raise revenues, strong economic growth has been crucial to this success. Fiscal policy played a major role in the improvement during the 1980s, while high economic growth (associated in part with a reduction in structural unemployment and rapid increase in the labor force) has made the major contribution during the 1990s. For the future, particularly after the loss of the monetary instrument from January 1999, the Stability and Growth Pact (SGP) and demand management considerations will have to replace deficit and debt reduction objectives as the major guidelines for fiscal policy.

2. Part B of this chapter contains a description of fiscal developments since 1980 and an attempt to decompose the improvement in the fiscal accounts into contributions from pure fiscal policy measures and contributions from other factors. Fiscal policy in 1997 and the budget for 1998 are outlined in Part C, while Part D contains a discussion of the implications of the SGP for policy formulation in Ireland.

B. Fiscal Consolidation in the 1980s

3. Ireland entered the 1980s with its public finances in worse shape than those in any other OECD country: the general government deficit exceeded 12 percent of GDP, the gross debt had grown to more than 70 percent of GDP, and debt-servicing costs were increasing rapidly (Figure 1). The fiscal imbalances were accompanied by large external and internal imbalances; by 1980, the current account deficit was in excess of 10 percent of GDP, while the unemployment rate had grown to 7.3 percent. It was clear that a strong policy response was necessary, and the 1980s saw two major attempts at consolidating the public finances.

4. The first consolidation effort started in 1982, and after two years had succeeded in lowering the structural deficit by more than 6 percentage points of GDP (Table 1).[2] Part of this improvement took place through higher taxes but the bulk of it was achieved through lower expenditure. The consolidation effort adversely affected domestic demand, which

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[1]Prepared by Arild J. Lund

[2]The structural deficit is calculated using estimates of the output gap derived by applying the production function approach, see Chapter II, and OECD *Economic Studies 24,1995, Potential Output, Output Gaps and Structural Budget Balances*. See section D for the impact on the structural balance of employing alternative methods for calculating potential output.

contracted by slightly more than 2 percent in both 1982 and 1983, in spite of lower nominal and real short-term interest rates resulting from the improved credibility of the exchange rate link to the deutsche mark through the participation in the ERM. Exports increased sharply in this period, but could not offset the drop in domestic demand; GDP fell in 1983 and the unemployment rate increased by 4 percentage points from 1982 to 1985. The public debt continued to grow unabated, reaching 116 percent of GDP by 1987.

5. Notwithstanding the mixed results from the first consolidation effort, the new government that was elected in February 1987 embarked on another attempt at strengthening the fiscal position. The structural balance improved by almost 8 percent of potential GDP from 1987 to 1989, and a substantial primary surplus of close to 4 percent of potential GDP was reached in 1989. This time, however, a reduction in expenditure accounted for more than the total improvement in the structural balance. A "tax-based" incomes policy was a new and important element in the second consolidation effort. Marginal tax rates were lowered, contributing to a fall in the revenue-to-GDP ratio, in spite of a fiscal reform that widened the tax base. In sharp contrast to the previous attempt, this second round of consolidation sparked a strong economic resurgence. GDP growth accelerated from 3.7 percent in 1986 to 6.1 percent in 1989 and the unemployment rate came down to 15.6 percent in 1989 from a peak of 17.6 percent in 1987.

6. The successful fiscal consolidation in Ireland, together with a similar episode in Denmark earlier in the 1980s, gave rise to many articles in the economic literature about whether fiscal contractions could have an expansionary effect on the economy, and if so, under what conditions.[3] The conclusions from the academic debate on this issue include the following:

- The extent to which any expansionary effects can dominate the direct contractionary effects of fiscal tightening depends on the severity of the fiscal imbalance at the outset and on the composition of the fiscal tightening.

- If the deficit and the debt levels are sufficiently large, the mere fact that the problems are being addressed might create expectations of lower taxes and higher private income in the future and thus spur private demand immediately.

- Expenditure restraint is more likely to give rise to such expectations than tax increases, and the expansionary effects are thus most likely to occur if the consolidation takes place through lower expenditure.

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[3]This point was made in Giavazzi and Pagano: *Can Severe Fiscal Contractions be Expansionary?*, in O.Blanchard and S.Fisher (eds.), National Bureau of Economic Research, Macroeconomic Annual 1990, Cambridge, MA; MIT Press. A similar argument was also developed by McAleese in *Ireland's Economic Recovery*, Irish Banking Review, Summer 1990.

7. During the 1990s, the structural balance has been relatively stable, but strong output growth—with the exception of the growth recession following the currency turmoil in Europe in 1992–93—has contributed to a continued improvement in the overall fiscal balance and a steep decline in the debt-to-GDP ratio. In 1997, the general government balance went into surplus for the first time in modern history. The assessment of the structural fiscal position and stance of fiscal policy during this period has been complicated by the increased elasticity of labor supply which has tended to raise potential output growth but to an extent that cannot be measured precisely. Nevertheless, it appears that while the continued reliance on tax cuts has helped keep wage growth down, it has also introduced a new element of procyclicality into fiscal policy. (Figure 2).[4] At times, this procyclical bias in fiscal policy has been compounded by expenditure overruns. Overall, given the very strong output growth, especially since 1994, one might have expected an even larger improvement in public finances than has been the case.

Factors behind the improved structural balance

8. A decomposition of the improvement in the structural balance into factors stemming from fiscal policy, factors affecting the potential growth rate of the economy, and other factors can provide some insights into the nature of the fiscal consolidation in Ireland since 1980. While the change in the structural balance is often used as an indicator of fiscal policy changes, stronger potential output growth will improve the structural balance even in the absence of any policy measures. Of particular importance in that regard is the impact on potential output of labor market reforms and exogenous developments. A higher participation rate or a lower (structural) unemployment rate (NAIRU) and thus a lower dependency rate will not only permit the economy to grow faster on a sustainable basis, but also reduce current and future social expenditure and broaden the revenue base. In the following exercise, an attempt is made to estimate the effect on the structural balance of labor market variables as well as of changes in net European Union contributions and net interest payments.[5] The residual from subtracting the impact of these factors from the total change in the structural balance is then used as a proxy for the contribution of fiscal policy measures to the change in the structural balance.[6]

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[4]Phillip R. Lane, *On the Cyclicality of Irish Fiscal Policy*, in the Economic and Social Review, Dublin, January 1998, provides new evidence of a procyclical fiscal policy in Ireland.

[5]The elasticity of potential output with respect to changes in labor input has been estimated at 0.65, while the elasticity of structural revenues with respect to the output gap has been estimated at 1.08.

[6]Arguably, changes in capital inputs and total factor productivity growth have a much smaller impact on the structural balance and therefore can be left out when calculating the contribution of supply-side factors to changes in the structural balance. Although a higher

(continued...)

9. The estimates in Table 1 suggest that fiscal policy measures played an important role in improving the structural balance in the 1980s, while supply-side factors related to labor inputs in the production process accounted for more than the total improvement during the 1990s, implying that fiscal policy may well have been expansionary in this latter period. The 1987–89 period is special in the sense that a lower expenditure ratio accounted for more than the total improvement in the structural balance.[7] Structural revenues fell in 1987–89, whereas they rose in the periods before and after.[8]

10. The contributions to the strengthening of the fiscal position of net interest payments and European Union grants and transfers largely cancel each other out. Net interest payments worsened the structural balance up to the late 1980s, but lower interest rates and a declining public debt ratio have brought about a positive contribution since then. The contribution from European Union grants and transfers has followed the opposite path, as their increase since Ireland joined the EU in 1972 came to an end in the 1990s.

11. On the other hand, the contribution of labor supply factors to the improvement in the fiscal position has gradually strengthened throughout the whole period (Figure 3). In the first part of the 1980s it was negative, owing to a decline in the average working time and higher structural unemployment. In the latter half of the 1980s—when the improvement in the structural balance was strongest—the contribution of labor supply factors was in fact zero. Faster growth in the population of working age, a higher participation rate, and a lower NAIRU have all made a positive contribution to the strengthening of the public finances in the 1990s. In this period, improvements in the performance of the labor market tended to offset the apparent negative contribution of fiscal policy measures, thus ensuring a broadly stable structural budget balance.

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[6](...continued)
contribution of supply-side factors to changes in the structural balance. Although a higher level of capital would increase potential output, it would also be associated with a lower structural revenue ratio because of the lower taxation of capital income than of labor income and because of a reduction in revenues from VAT or sales taxes. As for the effect of higher productivity, it is reasonable to assume that higher productivity results in higher nominal wages in the business sector. If public wages and other public expenditure are indexed *de facto* to business sector wages, as they probably are in the longer term, higher total factor productivity would not affect the structural balance either.

[7]Part of the fall in expenditure reflected accounting changes.

[8]It should be noted that this method calculates the impact of fiscal policy as a residual and that other policy measures are not taken into account. Clearly, economic policy during the 1990s has contributed to the improvement in the fiscal position through other indirect channels, for instance through labor market reforms or income policies that helped reduce structural unemployment and raise economic growth.

C. Fiscal Policy in 1997 and 1998

12. Fiscal policy in 1997 and the budget for 1998 followed broadly the pattern of previous years; the continued strength of the economy, and the fact that the deficit had almost been eliminated and the debt halved since its peak made expenditure restraint increasingly difficult, while the procyclical impact of commitments made under the Partnership 2000 agreement became more evident. Measured by the change in the structural (or the primary structural) balance, fiscal policy appears to have been tightened by some ½ percent of GDP over the two years combined. However, as shown in Table 1, the improvement in the structural balance can be more than accounted for by continued favorable supply-side developments. Within this framework, fiscal policy can be viewed as expansionary in both years. Tax cuts beyond commitments made as part of Partnership 2000, significant slippages on current spending in 1997, which fed fully into the base for the 1998 budget, and strong growth in capital spending in 1998 contributed to this expansionary effect.

13. The **fiscal outcome in 1997** was considerably better than budgeted because of buoyant tax revenues associated with the much stronger economic activity than projected. The general government balance showed a surplus of close to 1 percent of GDP, compared with a budgeted deficit of 1.5 percent of GDP. The increase in all categories of tax revenues exceeded projections, and overall tax revenues rose by 14 percent compared with a budgeted increase of 6 percent. Indeed, the strength of tax revenue, in spite of substantial tax cuts, might indicate that the nominal output growth in 1997 was even higher than suggested by the national accounts estimates.

14. There were slippages on the expenditure side in 1997, due in part to cash smoothing operations. Current expenditure was IR£625 million higher than budgeted, rising by 10.7 percent compared with a budgeted increase of 5.7 percent. In addition, government transfers to the social insurance fund were IR£150 million less than budgeted so that in gross terms actual expenditure exceeded the budget by about IR£775 million.[9] The cash smoothing operations took the form of bringing forward some outlays for education that were due in 1998 (IR£100 million), the discharging of accumulated liabilities to the Post and Telecom pension fund (IR£305 million), and a transfer to the Small Savings Reserve Fund (IR£208 million).[10] The genuine slippages, which can be estimated at about IR£250 million or

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[9]Detailed information on expenditures in 1997 is available only on a cash basis (which is the basis employed in the Exchequer Accounts). The central government covers the difference between the social insurance contributions and the expenditure of the social insurance fund. Contributions soared in 1997 due to the strong economy and the government transfers needed to cover the deficit turned out to be IR£150 million less than budgeted.

[10]The Small Savings schemes are tax exempt savings instruments aimed at financing public deficits. Interest payments are not due until the redemption of the saving certificate and as

(continued...)

about 2 percent of the original budget, were caused by extra costs for the nurses' pay settlement, extra overtime pay for police and prison guards, higher than projected health spending, and higher spending on agriculture related to changes in the green pound. Both public employment and consumption turned out as planned.

Public Finances, Budget and Outturn

	1996 Outturn	1997 Budget	1997 Outturn	1998 Budget
		(In millions of Irish pounds)		
Current expenditure	12.7	13.4	14.0	14.4
Current revenue	12.9	13.6	14.6	15.5
Capital expenditure	1.5	1.6	1.7	2.0
Capital resources	0.8	0.8	0.8	0.8
		(In percent of GNP)		
Exchequer borrowing requirement	-1.2	-1.7	-0.6	-0.2
		(In percent of GDP, Maastricht-basis)		
General government balance	-0.4	-1.5	0.9	1.8 1/
General government gross debt	72	69	63	55 1/

Source: Data provided by the Irish authorities.

1/ Revised, September 1998 estimates.

15. Even though the cash-smoothing operations in 1997 had raised the basis for expenditure growth in the **1998 budget**, the budget reiterated the commitment to contain the growth in net current expenditure to 4 percent. The budget also provided for a 23 percent growth in public investment, which implied almost a 7 percent increase in total expenditure. Substantial tax cuts were also budgeted (see Box 1) and the general government surplus was targeted to fall to about ¼ percent of GDP, a lower surplus than the outcome in 1997.[11] As tax revenues for the first several months of the year turned out to be much higher than anticipated, the government made it clear that any additional revenues would be used to retire

[10](...continued)
many investors have rolled over their investment the Schemes have built up considerable liabilities in the form of accrued interest payments. The Small Savings Reserve Fund is set up to fund those accrued interest liabilities.

[11]Capital expenditure was budgeted to increase by as much as 23 percent from 1997 to 1998 because of extra allocations to education (the Scientific and Technological Education Fund) and environmentally based investment in infrastructure, and to a smaller extent extra allocations for the health sector and prison buildings.

Box 1. Recent Tax Measures

Personal Taxes: Under Partnership 2000 the government is committed to introducing personal tax reductions to the cumulative value of IR£900 million on a full year basis over the three years of the programme (1997–1999). The tax cuts in the 1997 budget amounted to IR£393 million, while the cuts in the 1998 budget amounted to IR£517 million, bringing the combined value up to IR£910 million, slightly above the three-year amount committed in Partnership 2000. The bulk of the tax cuts took the form of a reduction of 2 percentage points in the top and the standard income tax rates to 46 percent and 24 percent respectively, effective April 1998. It is the government's intention to reduce the standard rate further to 20 percent over the next few budgets. In addition, the standard income tax band, the basic personal allowance and some other special allowances aimed at lowering unemployment and poverty traps and promote social inclusion, as well as the general income tax exemption limits were increased in the 1998 budget. To reduce the possibility for certain high-income earners to reduce their tax liability the government also introduced an annual cap of IR£25,000 on the amount of capital allowances on buildings that an individual taxpayer can claim against non-rental income.

The **capital gains tax rate** was lowered from 40 to 20 percent.

The 1998 budget reduced the standard **corporate tax rate** to 32 percent from 36 percent and the rate on the first IR£50,000 of profits to 25 percent from 28 percent. Furthermore, the government confirmed its intention to introduce a single corporate tax rate of 12½ percent for trading profits for all sectors to replace the current dual rate structure, which provides a 10 percent rate for manufacturing and certain internationally traded services.

debt rather than increase spending. Accordingly, the estimated surplus for 1998 has been revised up to 1.8 percent of GDP.

D. Challenges Ahead

16. In *An Action Programme for the Millennium*, the government outlined the following medium-term fiscal objectives:

- to run a current budget surplus
- to eliminate the exchequer borrowing requirement over the next two to three years if present conditions continue

- to limit net current expenditure growth to 4 percent and capital expenditure growth to an average of 5 percent and to reduce overall Government spending as a share of national output.

- to fulfill the terms and commitments of the Partnership 2000.

17. Strong economic growth has already helped to achieve the first two objectives, the 1998 budget is fully in line with the third objective, and the government has delivered its tax cut promises in Partnership 2000 in two rather than in three years as originally promised (see Box 1). Limiting expenditure growth is arguably the most ambitious objective and one that the authorities have not been able to fully observe in the recent past. With output exceeding potential, rapid asset price inflation and signs of more widespread inflationary pressures, it would seem appropriate for demand management considerations to play a more prominent role in policy formulation. In addition, the commitments under the Stability and Growth Pact (SGP) will serve as important guidelines for fiscal policy in Ireland in the years ahead.

18. Historical experience might suggest that it will be challenging for Ireland to observe the 3 percent deficit ceiling envisaged in the SGP, as the general government deficits during most of the 1970s and 1980s were substantially larger than 3 percent of GDP. However, fiscal adjustment and the significant structural improvement in the overall economy have turned the deficits into a surplus and Ireland appears to have one of the strongest fiscal positions among the 11 countries that will enter EMU in January 1999. Whether that surplus is large enough to ensure that the balance would not exceed the 3 percent deficit ceiling stipulated in the SGP in a future recession is not clear: the answer would depend *inter alia* on an assessment of the current cyclical position of the Irish economy, the severity of shocks that might hit the Irish economy in the future and the economy's ability to cope with those shocks; and the future evolution of the substantial budgetary transfers that Ireland receives from the EU's structural funds.

19. Various methods of calculating potential output gaps give different results not only for the historical size of output gaps, but also for the current potential output growth rate, the current output gap, and the current structural balance (see Section II). The estimation of Ireland's potential output is complicated by the highly elastic labor supply, arising primarily from the significance of inward and outward migration flows, and the increasing importance of the foreign-dominated modern manufacturing sector. The usual end-point problem one encounters in estimating potential growth is also more problematic in Ireland than in other cases because of the exceptionally high growth rates Ireland has experienced over the most recent years.

20. A safeguard against breaching the 3 percent deficit limit in the SGP might be to aim for a structural balance such that the deficit stays within the 3 percent limit even if the largest output gap experienced in the past should occur again. In Ireland, the largest output gaps occurred in 1986 and 1993. Based on a fiscal sensitivity of 0.5—implying that a 1 percentage point change in the output gap changes the budget balance by 0.5 percentage point of

GDP—various methods of estimating the output gap indicate that the structural balance required to safely comply with the provisions of the SGP may be somewhere in the range of -1½ percent to ¼ percent of GDP. For comparison, the structural balance in 1997 is estimated at between -1 percent and -½ percent of GDP, suggesting that some additional fiscal adjustment may be desirable to facilitate compliance with the SGP in a future recession, while allowing the automatic stabilizers to operate fully. This could easily be achieved, for example, by allowing the lower debt-servicing costs stemming from favorable debt dynamics to feed into the overall balance.

21. It might be argued that in the future asymmetric shocks will likely be smaller than the one experienced, for example, in 1993 in the wake of sterling's departure from the ERM. In the first place, the United Kingdom's importance as a trading partner has fallen; its share in total exports has fallen to about 25 percent from 31 percent in 1992, while its share in total imports has declined to about 35 percent from 42 percent in 1992. Moreover, the new monetary policy framework in the United Kingdom could underpin a more stable exchange rate against core European currencies than experienced before.

22. On the other hand, one needs to keep in mind that discretionary fiscal and monetary policy measures helped to dampen the amplitude of cyclical fluctuations in the past. Moreover, there are factors that would underscore the desirability of setting more ambitious fiscal objectives. First is the prospective reduction in structural transfers from the EU. The authorities have built a contingency provision of 0.75 percent of GDP into the medium-term budget plan for 2000 to cover this possibility, but the size of the shortfall is still uncertain. Another consideration is related to the unusually high actual and potential growth rates of the Irish economy. In Ireland, where potential output growth might be as high as 5–6 percent, a slowdown in growth to the average European level would, if sustained for a few years, open up a considerable output gap with significant implications for the budget balance. In such a situation, Ireland would probably not benefit from the "exceptional circumstances" clause of the SGP which would allow a deficit in excess of 3 percent to be viewed as exceptional only if it coincides with a drop in output of at least ¾ of 1 percent.[12] Also, the growth in the "modern' industries has narrowed the export base, making Ireland potentially more vulnerable to industry specific shocks (e.g. computer industry). This consideration, combined with the loss of monetary policy independence implicit in membership of the EMU, makes it desirable to aim for a modest fiscal surplus over the cycle in order to provide room for discretionary fiscal policy in the future. The need for discretionary fiscal management is also supported by

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[12]A general government deficit in excess of 3 percent of GDP will be considered exceptional and temporary, and the country will not be subject to an excessive deficit finding and the sanctions associated with it, if the deficit results from an unusual event outside the control of the country in question or from a severe economic downturn, provided also that, should the unusual event or the severe downturn have passed, Commission projections for the following year envisage the deficit falling back to 3 percent or less. See IMF, World Economic Outlook, October 1997 for further details.

the expectation that the automatic stabilizers, which are weaker in Ireland than in some other EMU countries, would probably tend to weaken further in the future as progress is made toward a lower and less progressive tax burden and a leaner, better targeted, safety net. Finally, as discussed in Section IV, in deciding on an appropriate fiscal target for the period ahead, the authorities may also want to take into account the implications of the likely increase over the longer-term of social spending stemming from the aging of the population.

Table 1. General Government Structural Financial Balance, 1982–97

(In percent of potential GDP)

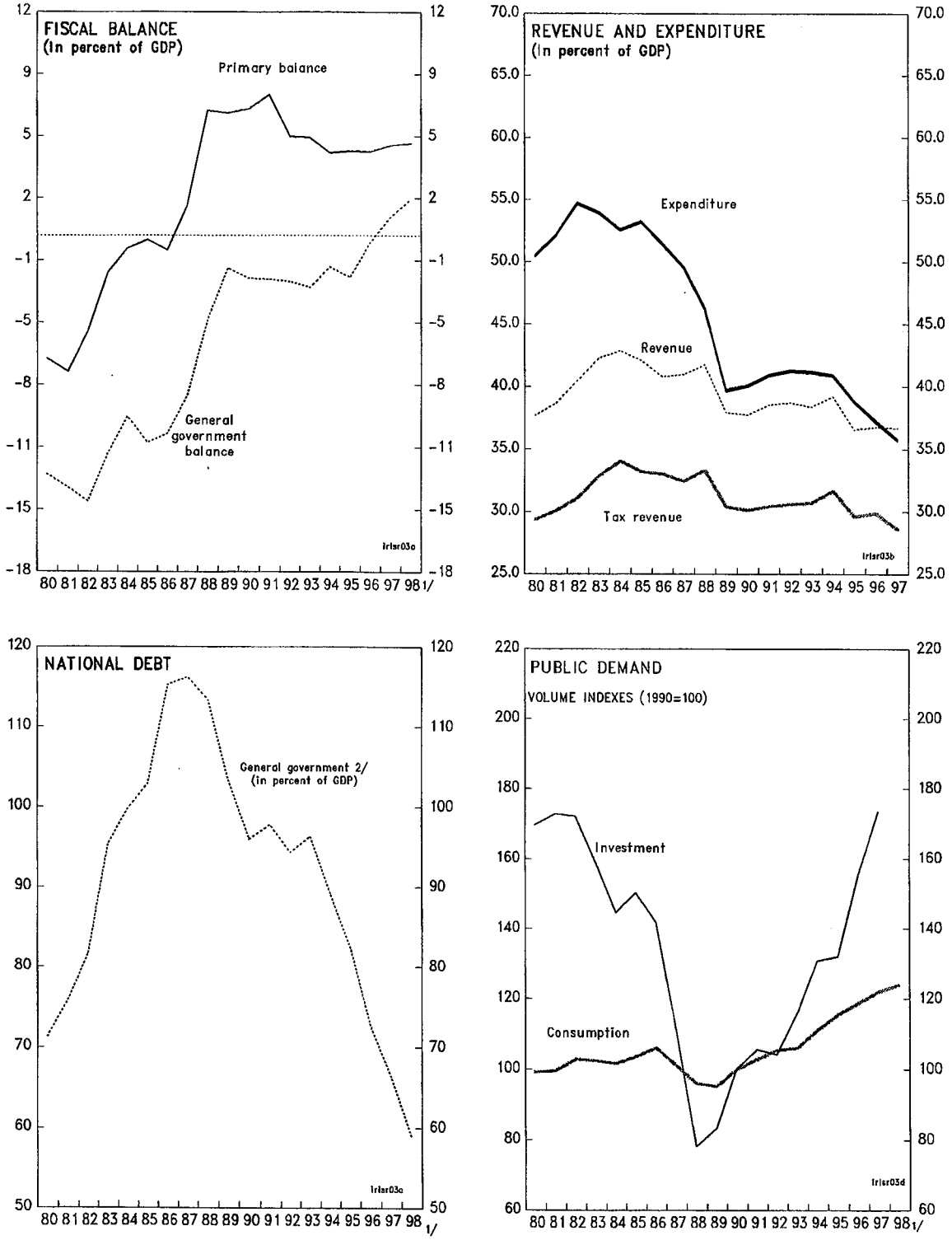
	1982-84	1985-86	1987-89	1990-95	1996	1997
General government balance (end of period)	-9.7	-10.6	-1.8	-2.3	-0.4	1.0
Primary balance (end of period)	-4.1	-4.3	4.8	1.9	3.5	4.3
Structural balance (end of period)	-7.6	-10.7	-2.8	-2.5	-0.8	-0.4
Primary structural balance (end of period)	-2.0	-4.9	3.8	1.6	3.2	2.9
(A) Change in structural balance	**6.2**	**-3.1**	**7.9**	**0.3**	**1.7**	**0.4**
Change in structural revenue (increase =+)	(4.3)	(-2.2)	(-3.0)	(-0.7)	(0.3)	(-0.2)
Change in structural expenditure (decrease =+)	(1.9)	(-0.9)	(10.9)	(1.0)	(1.4)	(0.6)
Contribution to change in structural balance of:						
(B) Total labor-supply factors	-0.8	-0.4	-0.1	4.1	1.0	1.0
Of which: Trend labor force growth	0.7	0.2	0.1	2.6	0.6	0.6
Change in working time	-0.1	0.0	-0.1	-0.1	0.0	0.0
Change in structural unemployment	-1.4	-0.5	-0.1	1.6	0.4	0.4
Effect on potential output	(-0.7)	(-0.3)	(0.0)	(0.9)	(0.2)	(0.2)
Direct effect on structural expenditure	(-0.7)	(-0.2)	(0.0)	(0.7)	(0.2)	(0.2)
(C) Change in structural component of debt interest payments	-0.3	-0.5	0.2	1.7	0.3	0.3
(D) Change in structural EU-payments	0.0	0.4	0.2	-0.6	-0.2	-0.3
(E) Residual (A-B-C-D) 1/	7.3	-2.7	7.5	-4.9	0.7	-0.6

Source: Staff estimates

1/ The residual is used as a proxy for the effect of fiscal policy measures on the structural balance. Positive (negative) numbers imply a contractionary (expansionary) policy shift.

FIGURE 1
IRELAND

GENERAL GOVERNMENT FINANCES

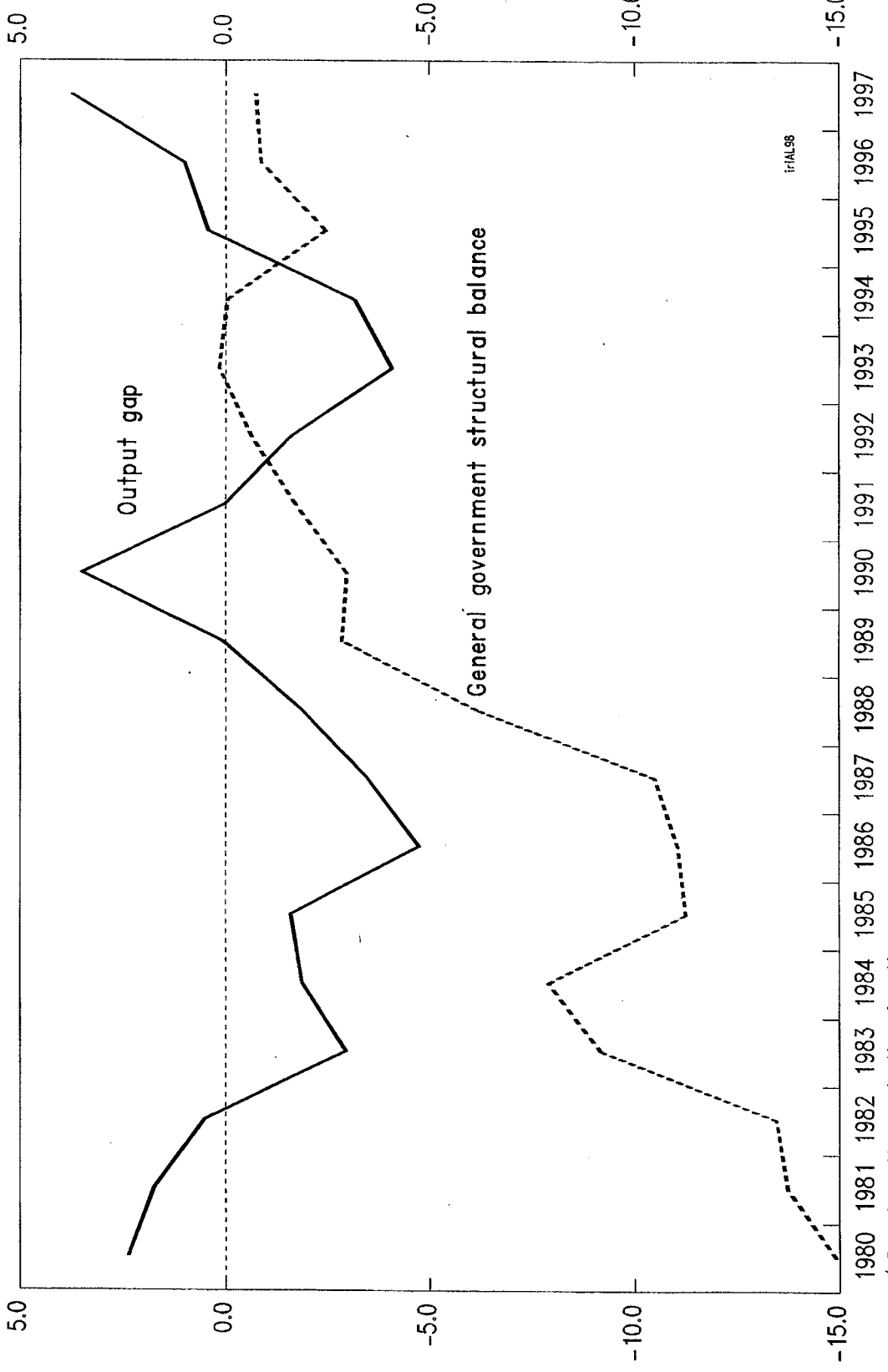


Sources: Department of Finance, Economic Statistics.

1/ Budgeted.
2/ Maastricht basis.

FIGURE 2
IRELAND

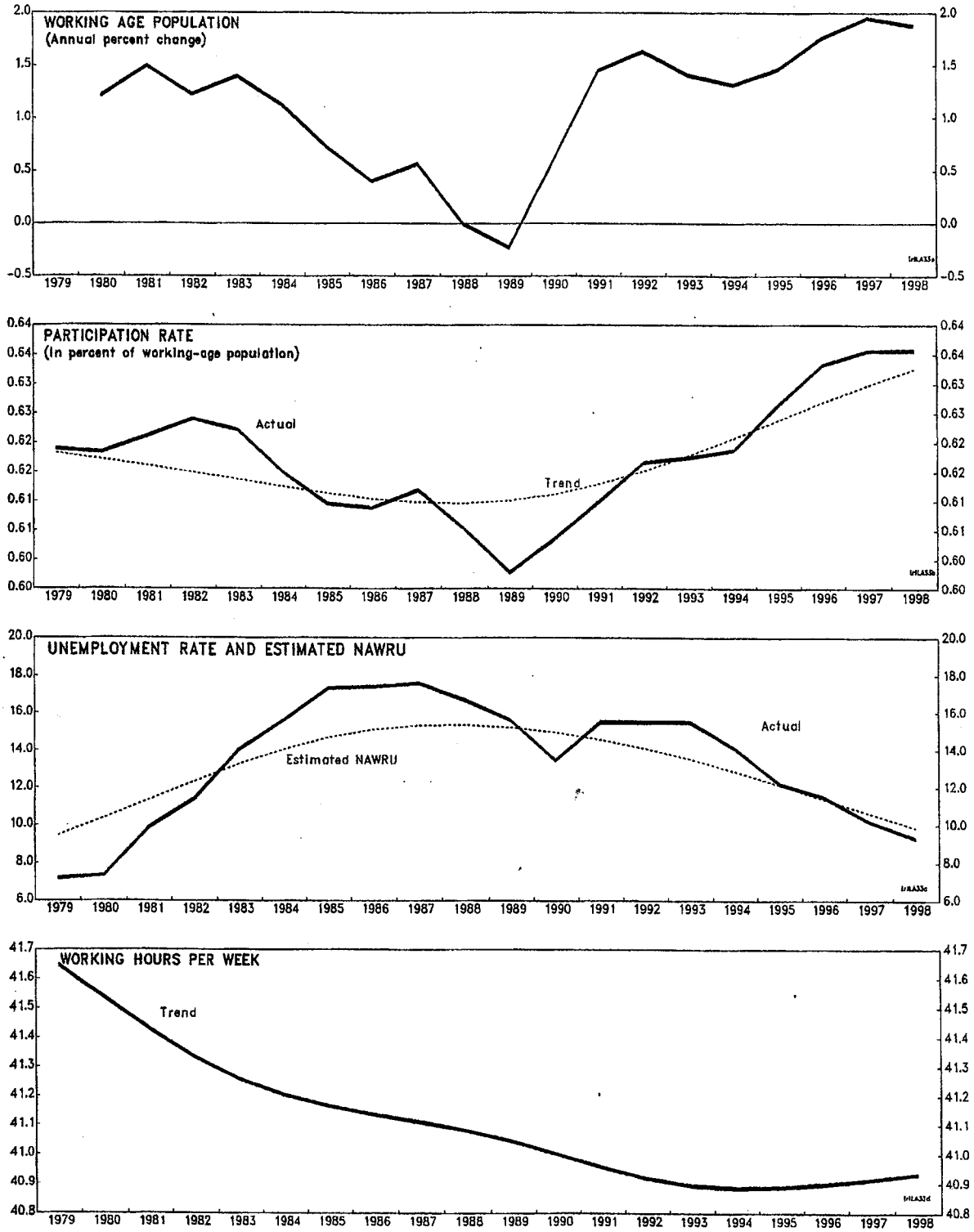
OUTPUT GAP AND GENERAL GOVERNMENT BALANCE



1/ Based on the production function.

FIGURE 3
IRELAND

LABOR INPUTS FOR POTENTIAL OUTPUT CALCULATION



Source: Staff calculations.

II. On the Relevance of the Output Gap in Ireland[13]

23. Measures of potential growth provide useful information about the long-term supply conditions of the economy. They also yield estimates of the output gap, which can be used to assess the cyclical position of the economy, the prospects for inflation, and the cyclically adjusted state of the public finances. While the output gap is, in principle, a useful concept in assessing macroeconomic policy issues, estimates of the gap often lack the precision required for effective policymaking, in particular during periods of significant structural change.

24. The uncertainties associated with measuring the output gap are illustrated clearly in the case of Ireland. Estimates of potential output using historical data suggest that output may be as much as 4½ percent above trend (Figure 1). This does not seem consistent with the relatively benign inflationary pressures in the goods and labor markets. Moreover, the estimates are subject to relatively large variations depending on what method and historical period is used and are quite different from those reported by the staff in 1996 using the same methodology (Figure 2).[14]

25. The Hodrick-Prescott (HP) filter with a standard smoothing factor (λ=100) suggests an increase in trend growth from 4–4¾ percent in the late 1980s to 6¾–7¾ percent in 1997–98, and to 6¾ percent over the medium term. The production function approach, which incorporates information about factors of production, points to an even larger increase, from 3½–3¾ in the late 1980s to 7¼ percent in 1997–98, and to around 7 percent over the medium term. The output gap in 1998 is estimated to be in the range of 2½–4½ percent of GDP, depending on which estimates or parameter values are used.

26. While it is extremely hard to dispute the fact that potential growth in Ireland has risen over the past decade, one cannot have a great deal of confidence in its estimates. As is well known, estimates based on the HP filter are highly sensitive to end point conditions and the smoothing parameter chosen, while those based on the production function approach depend on estimates of the NAIRU, which are obviously uncertain. End-point sample biases have also proved particularly high in Ireland: removing the 1997–98 period from the sample, for example, lowers the estimated potential growth for 1996 from 7 percent to around 5.5 percent.

27. In spite of the upward revision, potential growth may still be underestimated—and the output gap overestimated, presenting an exagerated assessment of overheating or incipient inflation. This is because recent or ongoing structural changes in the economy are not fully reflected in historical data. The supply potential of the Irish economy has been greatly

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[13]Prepared by Hossein Samiei and Antoine Magnier.

[14]See Chapter V in *Ireland—Recent Economic Developments,* IMF Staff Country Report No. 96/78, August 1996, which also describes the estimation procedure used in this chapter.

enhanced in recent years: effective labor supply has increased rapidly owing to favorable demographics, higher female participation, inward migration, and improvements in the quality and the educational level of the labor force; and outward-oriented policies have encouraged foreign direct investment and provided conditions for the expansion of the modern sector of the economy. The economy may, therefore, be capable of growing, at least for the time being, at a faster rate than suggested by historical data, without necessarily causing excessive inflation.

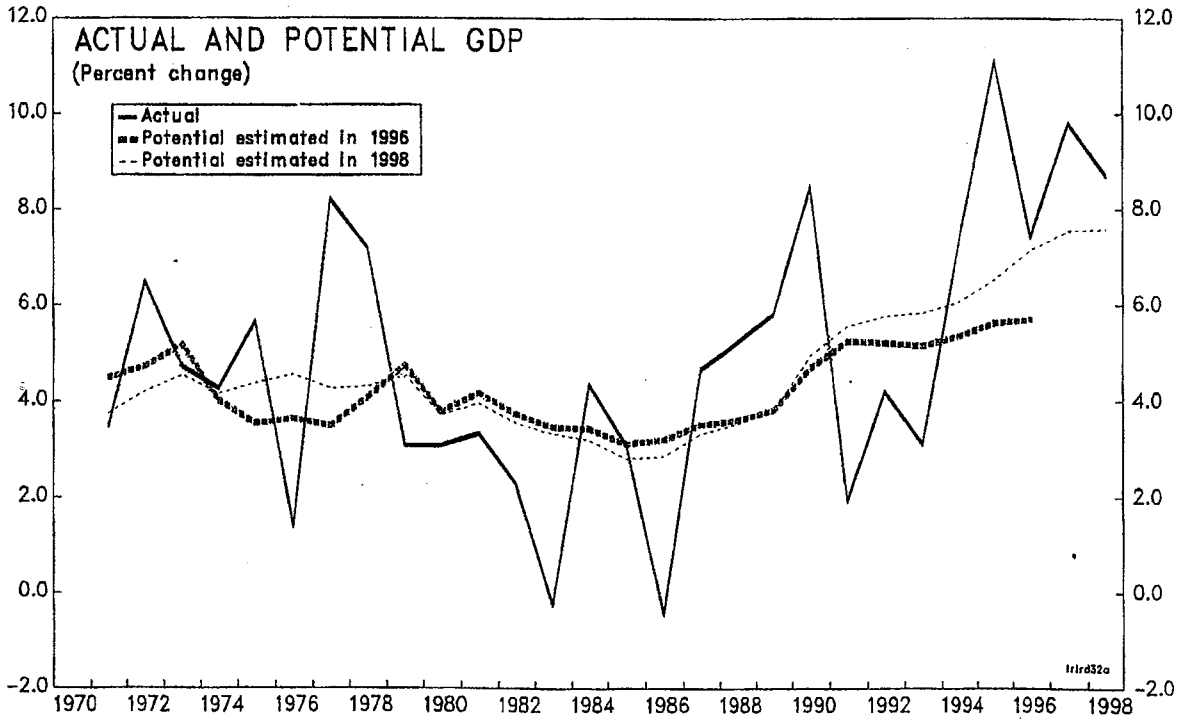
28. Moreover, even reliable estimates of the output gap may not be good indicators of incipient inflation because of structural change in the inflationary process itself. Successful social partnership arrangements in Ireland have helped moderate private sector wage increases in exchange for tax cuts and increased social welfare spending. In addition, increased international competition and exchange rate links within the EMS have likely reduced the role of domestic factors in determining inflation, a process which will strengthen further once Ireland is in the EMU.

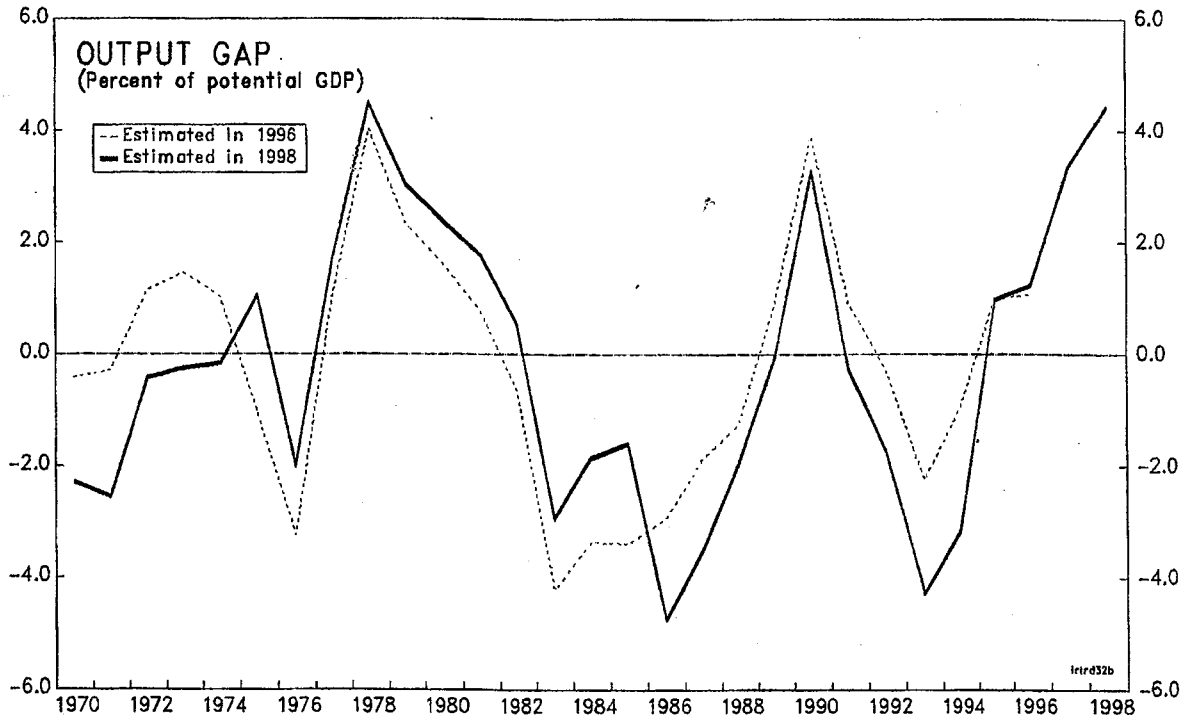
29. Despite its shortcomings, the output gap is not necessarily less satisfactory than other measures of excess capacity (such as capacity utilization), which also depend on subjective assessments and are confined to specific sectors, such as manufacturing. When the economy is changing rapidly, the best that can be hoped for is a rough estimate of excess capacity using a range of measures.

FIGURE 1
IRELAND

POTENTIAL GDP AND THE OUTPUT GAP

(Production function approach)

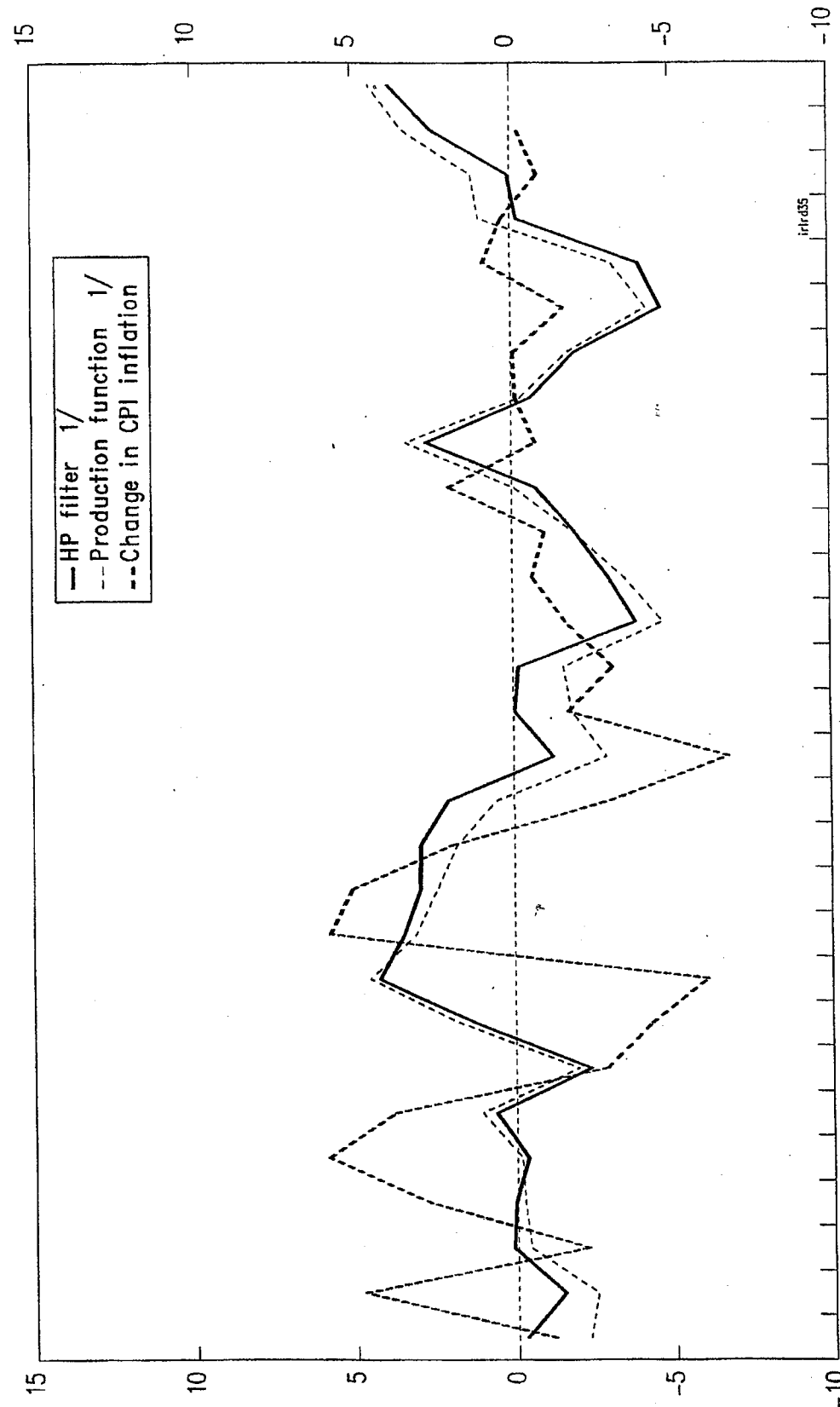




Source: Staff calculations.

FIGURE 2
IRELAND

OUTPUT GAPS AND INFLATION



Source: Staff Calculations.
1/ In percent of trend GDP.

III. Causes of Asset Price Inflation [15]

A. Introduction

30. The boom in equity and house prices, together with the associated rapid rise in private sector credit, raises the question of whether the Irish economy runs the risk of experiencing an asset price bubble. Speculative bubbles could cause overheating problems and, in the event of a reversal, seriously harm the balance sheets of both borrowers and lenders. From a policy perspective, therefore, it is essential to assess whether inappropriate policies (excessively loose monetary policies, overly generous fiscal incentives, and/or inadequate banking supervision) as opposed to structural determinants of asset prices (income growth, demographics, supply-side, and external variables) have been responsible for the boom.

31. This chapter examines the supervision system in Ireland and the performance of lending institutions, and provides econometric estimates of the contribution of different factors to the asset price boom. It presents evidence suggesting that the financial system is in a reasonably healthy state and systemic risks are low, and that while domestic monetary conditions have played a role in asset price developments, other factors, such as global asset prices, rising incomes, and the supply of housing, have made important contributions. Although the rise in asset prices is not simply caused by inappropriate macroeconomic or prudential policies, and the likelihood of a detrimental asset price reversal may be low, there is clearly a need to continue to monitor lending practices closely in the period ahead, especially as interest rates fall in the run-up to EMU.

B. Financial Supervision and Regulation in Ireland

32. The experience of industrial countries with asset price cycles in the late 1980s and early 1990s highlights the importance of supervision and lending practices, especially in the real estate market. In particular, the financial crises in the Nordic countries, although associated with the removal of financial restrictions and therefore not fully relevant to the case of Ireland, demonstrated how distortions in the financial sector and the absence of adequate supervision could increase the vulnerability of the system to negative shocks.[16]

33. In Ireland, the Central Bank is statutorily responsible for the supervision and regulation of banks and other financial institutions. Supervision covers banks, building societies, and other deposit-taking institutions, as well as a range of non-bank institutions and exchanges, including the stock exchange. At present it does not cover insurance companies,

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[15] Prepared by Hossein Samiei.

[16] See B. Drees and C. Pazarbasioglu (1998), *The Nordic Banking Crises, Pitfalls in Financial Liberalization?*, IMF Occasional Paper 161, April.

life and non-life businesses, insurance intermediaries, credit unions, and credit intermediaries, which are supervised by other government agencies.[17] The principal objectives of supervision include ensuring the stability of the banking and financial system, containing systemic risks, and protecting depositors and investors.[18] The Bank's view is that regulation, which by nature is an interference in the market, should aim at addressing market failure and help financial institutions in making decisions with imperfect information. Thus, regulation should endeavor to lower the risks of bank failure, but if a firm becomes financially unviable, it should ensure that the exit causes the least disruption to the system rather than impeding its exit. Excessive protection and regulation would likely discourage competition and lower efficiency.

34. Since the supervision act of 1971, the legal framework has evolved considerably in response to implementation of European supervisory legislation and domestic financial innovation, for example to deal with the activities of the International Financial Services Center (IFSC) from the late 1980s. The current legal framework follows European law in the area of supervision. All EU banking and investment services directives have been incorporated into Irish law. The capital adequacy directive, implemented in 1995, requires the maintenance of a minimum level of capital to cover market and other risks. The Bank performs both on-site and off-site inspections of institutions, and also requires a regular flow of detailed financial data. There are areas, however, where this can be improved, in particular in relation to bad loan data. The Bank also requires all supervised entities to put in place and maintain internal control systems to ensure that their businesses are managed in accordance with sound administrative and accounting principles. Since 1989, a deposit protection scheme has been in place funded by all licensed credit institutions.

35. Against the background of the rapid rise in credit and in asset prices, the Bank has endeavored to enhance its supervision capabilities in recent years in order to ensure that lending practices do not fall below reasonable standards. The number of staff engaged in supervision has increased substantially in recent years (at present there are over 100 engaged in this function compared with around 50 in 1994). The Bank follows international norms in regulating aggregate lendings, in particular by requiring that capital adequacy ratios do not fall below a ceiling of 8 percent, but does not indulge in setting rules on individual loans for specific purposes. Lending institutions are expected to follow self-imposed rules of thumb in relation to loan-to-value and income-to-value ratios in the case of house mortgages. In general, borrowers are also required to undertake indemnity insurance arrangements, which in effect transfer risks of default to a third party. The Bank has also continually warned lending institutions of the hazards of excessive lending.

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[17]According to new government legislation, insurance intermediaries will soon fall under the Bank's supervision.

[18]For further details of the issues discussed in this section, see "The Central Bank's Regulatory and Supervisory Role," mimeo., Central Bank of Ireland; and *Annual Report*, Central Bank of Ireland, various issues.

C. The Rise in Asset Prices and the Performance of Lending Institutions

36. Asset prices have soared in recent years. House prices were 40 percent higher in 1997 than in 1992, while equity prices rose by 150 percent over the same period. There have been further rapid increases during 1998, although in the case of equity prices the increases have been reversed since July. Credit to the private sector has also risen rapidly in recent years, growing faster than income. The assets of the credit institutions accounted for by credit to the private sector amounted to 94 percent of GDP in 1997, up from 70 percent in 1992 (Table 1). At the same time, the share of residential and other mortgage lending in total lending has remained roughly constant at 35 percent, suggesting that the rise in private credit has been broadly based and not simply reflecting increased borrowing for house purchases.

37. Despite anecdotal evidence that mortgage lenders have lowered their standards to attract borrowers, a recent report commissioned by the government, the Bacon Report, does not consider this practice to be pervasive in the housing mortgage market or likely to pose any systemic risks.[19] According to the Report, two factors have put pressure on adhering to lending criteria by lending institutions: rapid house price inflation, which has made it difficult for many borrowers to meet all the criteria, and increased competition. However, there does not seem to be any major systematic deterioration in lending institutions' aggregate risk or in the quality of their portfolios. At the same time, the Report urges the Central Bank to continue to monitor lending practices in order to ensure that standards are maintained.

38. Despite the rapid growth in lending to the private sector, credit institutions' capitalization ratios remain at comfortable levels, even though they have tended to fall in recent years, partly in response to increased competition and large dividend distribution (Table 2). Capital adequacy ratios—at around 12 percent for banks and 14 percent for building societies are well above the international norm of 8 percent. Moreover, according to preliminary indications capitalization has improved somewhat in 1998.

39. Profitability, at around 1 percent in 1997 (Table 3), also is not low by international standards (see Table 10 in Drees and Pazarbasioglu for an international comparison). For banks, it is in fact higher than in 1992, but lower than the peak of 1994. Loan loss provisions do not indicate a rise in losses as a ratio to total assets. Net interest income for banks fell significantly to 1.7 percent in 1997,[20] but the ratio for the two largest banks, the Bank of Ireland and the Allied Irish Bank, was considerably higher at 3.7 percent. (The Moody ratings

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[19] Peter Bacon & Associates, *An Economic Assessment of Recent House Price Development*, A Report Submitted to the Minister for Housing and Urban Renewal, April 1998.

[20] According to the authorities this in part reflects the activities of International Financial Services Center. The downward trend throughout the period could also be a result of higher competition.

for these two banks (A1 for the former and Aa3 for the latter— upgraded from A1 last year) are also favorable. The recent fall in profitability and interest income also reflects in part increased competition and tightening of margins.

D. Determinants of House Prices

40. The Bacon Report provides a comprehensive examination of the housing market in Ireland. It finds that the recent trend in house prices is an effect of several factors, including rising living standards, employment growth, social and demographic changes, in particular rapid growth in the rate of household formation, as well as falling interest rates and convergence of interest rates to those in Germany. Using annual data, the Report provides econometric estimates of house price and supply equations that broadly support these conclusions.

41. The Report discusses how the pressure in the housing market may be eased through improving infrastructure and supply conditions, in particular by increasing lands zoned for residential purposes. The Report also recommends fiscal measures to lower incentives for residential investment demand by lowering deductibility on interest payments and imposing a stamp duty on purchases of new houses by nonowner occupiers. At the same time it recommends that the stamp duty for second-hand houses be lowered in order to lower the barrier to entry into the market by first-time buyers. The government implemented most of these recommendations in April 1998.

42. This section provides further analysis of the factors that influence house prices by placing more emphasis on estimation issues (particularly the possibility of the presence of unit roots) and by using quarterly data. The principal objective is to assess the effect of monetary factors on house price inflation.

43. Based on relatively standard arguments, the relative price of new houses, denoted by h_t, is assumed to be influenced by loans advanced to purchase a new house in real terms, l_t, the interest rate, i_t, a measure of activity, y_t, and the addition to the stock of housing, q_t.[21] The rationale for including loans advanced is obvious. Note that the relationship between this variable and house prices may be bi-directional (see below). The interest rate is the cost of borrowing and, therefore, the opportunity cost of buying a house as opposed to holding assets in an interest-bearing form, while income is a measure of consumers' purchasing power, which is likely to influence both housing demand and prices. Finally, house completion and house prices are related through both supply and demand channels and the relationship is likely to go both ways: a larger addition to the stock of housing could ease pressure on prices by increasing supply, while higher prices could encourage an increase in house building.

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[21] Building costs could also affect house prices, but this was not supported by the analysis and the variable was dropped from the analysis. Demographic factors also were not included in the analysis because of data problems.

44. The data are quarterly and cover the period 1983Q1-1997Q4.[22] All nominal variables are deflated by the CPI. The three-month interest rate is used because a large part of the stock of mortgage loans is still with flexible rates. Quarterly data for GDP or disposable income are not available. Annual GDP series are converted into quarterly series using the cubic spline method. All variables are in natural logarithms.

45. The results of testing for the presence of unit roots (Augmented Dickey-Fuller tests) are reported in Table 4.[23] The tests do not reject the presence of unit roots in any of the series. First differences, on the other hand, are all suggested to be free of unit roots.

46. In the presence of series with unit roots an appropriate methodology to use is the Johansen maximum-likelihood procedure to test for and estimate both long-run cointegrating and short-run error-correction relationships. The standard Johansen procedure, however, assumes that all the included variables are endogenous to the system, which may not always be a reasonable assumption.[24] A modified version of this procedure is used that allows for the presence of exogenous non-stationary variables.[25] It is not unreasonable to assume that short-term interest rates and GDP are exogenous variables in this model, while house prices and

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[22] House prices and housing loans data are from the Housing Statistics Bulletin, various issues, Department of Environment and Local Government; housing completion and building costs are from Bloomberg; and all nominal series are deflated by the consumer price index (CPI) from the Central Office of Statistics (CSO).

[23] The order of the lag structure is determined using the Schwarz Bayesian (SB) Criterion. All the estimations and tests were carried out using *Microfit 4.0 for Windows* (M.H. Pesaran and B. Pesaran).

[24] Assuming that all variables are endogenous could give rise to a large number of statistically acceptable estimated cointegrating vectors, some of which would not make sense theoretically. In some applications it is reasonable to assume that some variables are exogenous. This would reduce the number of possible estimated cointegrating vectors and, by enhancing the theoretical structure of the estimated system, mitigate the need to rely solely on the data, or other arbitrary post-estimation procedures, for choosing from among the estimated vectors.

[25]See I. Harboe, S. Johansen, B. Nielsen, and A. Rahbek (1995), "Test for Cointegration Ranks in Partial Systems," Preprint No. 5, Institute of Mathematical Statistics, University of Copenhagen; and M. H. Pesaran, Y. Shin, and R. J. Smith, "Structural Analysis of Vector Error Correction Models with Exogenous I(1) Variables,", mimeo., University of Cambridge February 1997, for a description of how exogenous variables may be introduced in the Johansen procedure. Note that this methodology requires that the first differences of the exogenous variables be included as I(0) variables in the cointegrating equation.

house loans are endogenous. It is also possible, as suggested above, that housing completion is influenced by other variables in the model. This was tested and not supported by the data (the error-correction equation for this variable did not include any significant variables; the results are not reported here). Therefore, the estimations reported below assume that house prices and housing loans are endogenous I(1) variables, whereas the other three variables are exogenous I(1) variables.

47. Table 5 reports cointegration likelihood ratio tests for a VAR(1) relationship (the order of the VAR was selected by the SB Criterion; see also footnote 25). The results support the existence of one cointegrating vector. Table 6 presents the maximum-likelihood estimates of the cointegrating vector, including exclusions tests (chi-squared) for the long-run coefficients. The results suggest that house prices and housing loans are positively correlated. They also indicate that housing completion has a negative effect on prices, consistent with the hypothesis that increased supply eases pressure on prices. Income and the interest rate do not seem to have significant coefficients in the long-run relationship.

48. Since there are two endogenous variables in the system, the maximum-likelihood estimation gives rise to error-correction equations for both variables, which include the same error-correction term derived from the long-run relationship. Table 7 contains the results for house prices. GDP now has a significant coefficient (at the 10 percent level) but the interest rate remains insignificant. Importantly (see below), the error-correction term also has a significant coefficient. Table 8 presents the error-correction equation for housing loans. Here, both GDP and housing completion have positive significant coefficients, as does the error-correction term, although the equation seems to suffer from serial correlation.[26] The significance of both error-correction terms indicates that house prices and housing loans are simultaneously determined. Housing loans, moreover, are also affected by the increase in the stock of housing and factors that influence this variable. This is an important result because it implies that the rise in house prices is not simply driven by increased credit.

E. Determinants of Equity Prices

49. In this section we examine the determinants of equity prices. In particular, we test whether equity prices are influenced by the nominal interest rate, credit to the private sector, the level of activity, and global equity prices. As in the case of house prices, both the interest rate—representing the opportunity cost of holding equity—and credit to the private sector are included in order to allow for the possibility that credit rationing could affect equity holding. The level of activity, on the other hand, is an indicator of the stage of the business cycle and

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[26] Increasing the order of the VAR to 3 would remove serial correlation and would leave the conclusions unchanged as far as the two-way relationship between house prices and housing loans are concerned. As noted earlier, however, the SB Criterion prefers a VAR(1) relationship, as reported in the tables.

the economic agents' purchasing power, while the price of global equities, which for investors are an alternative to domestic equities, is also likely to influence domestic equity prices.[27]

50. Irish equity prices and broad money are deflated by the consumer price index, and are denoted by s_t and m_t, respectively. The U.S. equity prices are converted into domestic currency and deflated by domestic CPI, and are denoted by us_t. The interest rate and GDP, as before, are denoted by i_t and y_t, respectively. All variables are in natural logarithms.[28]

51. The Augmented Dickey-Fuller unit root tests, reported in Table 4, do not reject the presence of unit roots in any of the levels but suggest that first differences are all I(0). Table 9 presents the cointegration test (under the reasonable assumption that only equity prices are endogenous in the system). The results, perhaps not surprisingly, do not provide support for the existence of a cointegrating relationship, reflecting the difficulty of explaining long-run equity price movements.

52. Since no long-run relationship between the levels of the variables appears to exist, we test for the presence of a relationship between first differences. This can be done using OLS since all first differences are I(0). The results are reported in Table 10 (longer lags were not significant). They strongly indicate that the main determinants of growth in equity prices are growth in U.S equity prices and in activity. The interest rate is significant at the 10 percent level only and, moreover, its lagged value is significant with the opposite sign and a similar magnitude. The stock of money has an insignificant coefficient.

F. Concluding Remarks

53. Evidence presented in this chapter does not seem to suggest that recent developments in asset prices and private sector credit pose significant systemic risks to the financial system in Ireland. Capital adequacy and profitability, although lower than in recent years, are both at comfortable levels. Econometric analysis, moreover, does not implicate loose monetary conditions as the principal exogenous cause of asset price inflation. In the case of house prices, the results suggest that while the availability of credit at low interest rates has

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[27] Productivity, as a measure of firms' performance, did not appear to have a bearing on equity prices and it was not included in the analysis.

[28]The data are quarterly and cover the period 1983Q1-1997Q4. Equity prices are the Irish stock price index. The nominal interest rate is the three-month rate. Private credit is only available from 1990, and broad money is used as a proxy. Quarterly data for GDP or disposable income are not available. Annual GDP series are converted into quarterly series using the cubic spline method. Global equity prices are represented by US equity prices. Irish and U.S. equity prices are from the *International Financial Statistics* (*IFS*). The interest rate, broad money, GDP, and CPI are from the *Central Statistics Office* (*CSO*).

contributed to higher house price inflation, so have rising incomes and supply pressures. Moreover, increased mortgage lending has been largely a response to higher prices and increased demand for housing and the factors that have contributed to this. The results for equity prices suggest that their growth has been influenced by movements in global equity prices and income growth, rather than domestic monetary conditions per se.

54. The significance of structural factors in the evolution of house prices, the likelihood of low interest rates in the period ahead, and the apparent strength of the banking sector in Ireland imply that the risk of a major house price reversal with detrimental ramifications may be small. On the other hand, the risk of a reversal in equity prices is higher since they seem to respond heavily to movements in global equity prices. Indeed the Irish stock index has fallen by more than 25 percent from its highs earlier in the year. However, while fluctuations in equity prices affect the ability of businesses to raise capital, they are unlikely to have a large impact on consumers' and banks' balance sheets because of the relatively small share of equities in total wealth.

55. While asset price inflation in Ireland may largely reflect fundamental and exogenous factors, rather than inappropriately loose monetary and financial policies, tighter macroeconomic policy will be necessary in the period ahead as interest rates fall further. Recently implemented policies to restrict fiscal subsidies to mortgage borrowing and to improve supply conditions in the housing market are also likely to moderate the boom in house prices. Moreover, even though capital adequacy ratios remain well above international norms, and imposing unnecessarily restrictive regulations would likely impede economic growth and competition in financial markets, the Central Bank will need to continue to monitor lending practices closely and to warn lending institutions of the hazards of imprudence.

Table 1. Credit Institutions: Assets and Liabilities vis-vis Residents, Selected Years
(In billions of pounds; in percent of GDP in parantheses)

	1992	1995	1997
Total Liabilities	24.6	33.0	50.2
	(82)	(85)	(107)
Of which:			
Non-government deposits	18.6	27.3	38.0
	(62)	(71)	(82)
Total assets	28.2	37.5	53.4
	(94)	(97)	(114)
Of which:			
Non-government credit	21.0	29.2	44.2
	(70)	(76)	(94)
Of which:			
Residential and other mortg.	7.5	11.1	15.6
	(25)	(29)	(33)

Source: Central Bank Annual Report: Various issues

Table 2. Credit Institutions: Measures of Capitalization
(In percent of total risk assets)

	1995	1996	1997
Tier 1 ratio *			
Banks	10.73	10.44	9.93
Building societies	N.A.	13.26	12.36
Solvency ratio **			
Banks	13.88	13.57	13.39
Building societies	18.60	13.12	13.08
Capital adequacy			
Banks	18.56	15.53	11.86
Building societies	18.74	14.42	14.12

Source: Central Bank (Figures submitted to the staff).

* Defined as ratio of tier 1 capital to total risk assets.
** Defined as ratio of total own funds to total risk assets.

Table 3. Credit Institutions: Indicators of profitability
(In percent of total assets)

	1992	1993	1994	1995	1996	1997
Net interest income						
Banks	3.60	3.61	3.12	2.67	2.31	1.73
Building societies	2.68	3.14	2.85	2.86	2.57	2.18
Operating expenses						
Banks	3.26	3.29	2.82	2.33	2.03	1.55
Building societies	1.75	1.84	1.69	1.58	1.44	1.47
Loan loss provisions						
Banks	0.90	0.51	0.23	0.15	0.12	0.10
Building societies	0.12	0.14	0.07	0.06	0.09	0.06
Profit before tax						
Banks	0.88	1.27	1.44	1.34	1.34	1.05
Building societies	1.31	1.62	1.35	1.49	1.34	0.96

Source: Central Bank (Figures submitted to the staff)

Table 4. Augmented Dicky-Fuller Unit Root Tests 1/

Variable	ADF
s_t	-2.15
Δs_t	-5.56*
i_t	-3.42
Δi_t	-8.32*
m_t	-1.09
Δm_t	-7.95*
y_t	-0.14
Δy_t	-5.75*
us_t	-1.18
Δus_t	-6.99*
h_t	-0.87
Δh_t	-8.22*
l_t	-0.20
Δl_t	-4.55*
q_t	-1.06
Δq_t	-4.07*

1/ See text for data definitions and sources. All regressions include and intercept and a time trend. Order of lags is chosen to maximize the Schwarz Bayesian Criterion. The crotical value in all cases is -3.48. An asterisk denotes rejection of a unit root at the 5 percent level.

Table 5. Cointegration Likelihood Ratio Tests for the House Price Equation 1/

		Maximal Eigenvalue		Trace	
Null	Alternative	Statistic	95% CV	Statistic	95% CV
$r = 0$	$r = 1$	44.85	27.80	63.21	40.37
$r \leq 1$	$r = 2$	18.37	20.47	18.37	20.47

1/ Based on a cointegrating VAR of order 1, Selected using the Schwarz Bayesian Criterion, with unrestricted intercepts and restricted trend, which includes h_t and l_t as endogenous I(1) variables, i_t, y_t, and q_t as exogenous I(1) variables, and first differences of the latter variables as I(0) exogenous variables. Sample period is 1983q1-1997q4.

Table 6. Maximum-Likelihood Estimates of the Coefficients in the Cointegrating VAR(1) for Relative House Prices and Likelihood Ratio Tests of Exclusions

Variable	Cointegrating Coefficients	$\chi^2(1)$ [Rejection Probability]
h_t	-1.00*	16.56 [0.00]
l_t	0.52*	22.84 [0.00]
i_t	0.03	0.48 [0.49]
y_t	0.46	0.82 [0.37]
q_t	-0.33*	22.08 [0.00]
t	-0.02	1.84 [0.17]

1/ The sample period is 1983q1-1997q4. χ^2 statistic in each case tests the restriction that the coefficient is equal to zero in the cointegrating relationship; and an asterisk denotes significance at the 5 percent level.

Table 7. Estimated Error-Correction Model for New House Prices Based on the Cointegrating VAR(1) in Table 6 1/

Regressor	Coefficient	Standard Error
Δi_t	-0.02	0.02
Δy_t	0.75**	0.39
Δq_t	-0.02	0.02
ecm_{t-1}	-0.24*	0.02

R^2	=	0.38	
s.e.	=	0.022	
χ^2_{sc} (4)	=	6.57 [0.16]	Test for serial correlation
χ^2_{ff} (1)	=	0.07 [0.79]	Test for functional form
χ^2_{n} (2)	=	1.07 [0.59]	Test for normality
χ^2_{he} (1)	=	1.21 [0.27]	Test for heteroscedasticity

1/The dependent variable, Δh_t, is the change in the logarithm of new house prices deflated by CPI; ecm_{t-1} is lagged residuals from the conintegrating relationship in Table 6; sample period is 1983q1-1997q4; and single and double asterisks, respectively, denote significance at the 5 and 10 percent levels.

Table 8. Estimated Error-Correction Model for Loans Paid for New Houses Based on the Cointegrating VAR(2) in Table 6 1/

Regressor	Coefficient	Standard Error
Δi_t	-0.04	0.09
Δy_t	4.56*	1.98
Δq_t	0.71*	0.10
ecm_{t-1}	1.15*	0.11

R^2	=	0.59	
s.e.	=	0.11	
χ^2_{sc} (4)	=	12.58 [0.01]	Test for serial correlation
χ^2_{ff} (1)	=	0.07 [0.78]	Test for functional form
χ^2_{n} (2)	=	0.83 [0.66]	Test for normality
χ^2_{he} (1)	=	0.08 [0.78]	Test for heteroscedasticity

1/ The dependent variable, Δl_t, is the change in the logarithm of loans deflated by CPI; ecm_{t-1} is lagged residuals from the conintegrating relationship in Table 6; sample period is 1983q1-1997q4; and single and double asterisks, respectively, denote significance at the 5 and 10 percent levels.

Table 9. Cointegration Likelihood Ratio Tests for the Equity Price Equation 1/

		Maximal Eigenvalue		Trace	
Null	Alternative	Statistic	95% CV	Statistic	95% CV
$r = 0$	$r = 1$	15.84	23.17	15.84	23.17

1/ Based on a cointegrating VAR of order 2, with unrestricted intercepts and restricted trend, which includes s_t as the endogenous I(1) variable, m_t, i_t, y_t, and us_t as exogenous I(1) variables, and first differences of the latter variables as I(0) exogenous variables. Sample period is 1980q1-1997q4.

Table 10. Estimated Model for the Rate of Change in Equity Prices using OLS 1/

Regressor	Coefficient	Standard Error
Δs_{t-1}	0.40*	0.12
Δm_t	-0.01	0.19
Δi_t	-0.09**	0.05
Δy_t	2.81*	1.25
Δus_t	0.54*	0.10
Δm_{t-1}	0.04	0.19
Δi_{t-1}	0.09**	0.05
Δy_{t-1}	-2.17	1.33
Δus_{t-1}	-0.10	0.12

R^2	=	0.53	
s.e.	=	0.067	
χ^2_{sc} (4)	=	3.97 [0.41]	Test for serial correlation
χ^2_{ff} (1)	=	1.79 [0.18]	Test for functional form
χ^2_{n} (2)	=	3.90 [0.14]	Test for normality
χ^2_{he} (1)	=	1.47 [0.23]	Test for heteroscedasticity

1/The dependent variable, Δs_t, is the change in the logarithm of equity prices deflated by CPI; sample period is 1980q1-1997q4; and single and double asterisks, respectively, denote significance at the 5 and 10 percent levels.

IV. The Pension System in Ireland: Long-Term Prospects[29]

A. Introduction

56. The likely long-term evolution of pension outlays in Ireland has been assessed in two recently issued reports—*Securing Retirement Income*, prepared by the Pensions Board and the *Interim Report to the Minister for Finance*, prepared by the Commission on Public Service Pensions. The report of the Pension Board, which was prepared in the context of a national initiative aimed at elaborating a strategy for ensuring a fully-developed national pension system, included an assessment of the long-term sustainability of the social welfare old-age pension system. The Interim Report, by contrast, focused narrowly on the long-term outlook of the public service pension schemes.[30]

57. The reports suggest that in the long run the financing requirements of the pension schemes would increase significantly: by the year 2046 total public spending on pensions could be as high as 10 percent of GNP, which would lead (in the absence of any changes in financing arrangements) to a financing gap of about 7 percent of GNP. The increase in the old-age dependency ratio is projected to boost expenditures on social welfare pensions by the beginning of the second decade of the next century, while the increase in the cost of public service pensions will begin earlier. Each report independently concluded that advance funding arrangements would help to smooth the financing of pension outlays over time.

58. Section B gives a brief overview of the old-age pension system in Ireland. Section C outlines the findings and recommendations of the Pension Board Report regarding the long-term costs of social welfare old-age pensions. Section D reviews the outlook for the long-term liabilities of the government with respect to the public sector pension schemes.

B. An Overview of Ireland's Pension System

59. The old-age pension system in Ireland is essentially a two-pillar system. The first pillar is the social welfare system, while the second consists of voluntary supplementary pensions (mostly occupational). **The social welfare pension system**—an unfunded, *pay-as-you-go* scheme—provides contributory and noncontributory benefits. Contributory pensions are paid to those who qualify on the basis of pay-related social insurance (PRSI) contributions, while noncontributory pensions are means-tested benefits for those who do not qualify for PRSI contributions. Contributory pensions are paid irrespective of other income, and an individual

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[29] Prepared by N. Koliadina.

[30] Public service pension schemes include pension arrangements for civil service employees, permanent defense and security forces, education and health workers, local authorities, and noncommercial state-sponsored bodies; and schemes providing pensions for surviving spouses and children of deceased public sector employees.

over age 66 can receive the benefit even if employed. Although there is no formal indexation commitment, social welfare pensions are adjusted annually to reflect at a minimum price inflation; usually, the increase in pensions is close to the increase in average industrial earnings—over the period from the mid-1980s to 1998 social welfare pensions rose by about 95 percent of the increase in average annual industrial earnings. Since June 1998 the contributory pension has been IR£83 per week, which is about 29 percent of gross average industrial earnings.[31] The weekly cash pension is augmented by in-kind benefits, which on average raise the pension level by about 14½ percent.[32]

60. Currently, almost 90 percent of individuals over 66 years of age receive social welfare pensions, of which 58 percent draw contributory benefits. It is expected that the share of those entitled to contributory benefits will increase to 86 percent in 2016, owing primarily to the increased female participation in the labor force.

61. **Occupational pension schemes** can be grouped into unfunded public service schemes, covering civil servants, the defense and security forces, teachers, and health workers; privately funded occupational schemes, covering private sector employees and those working for commercial state bodies; and individual personal pensions, usually arranged by self-employed individuals. Occupational schemes are voluntary—employers are not legally obliged to provide occupational pensions.[33] The coverage rate, at about 46 percent of total employment, is not high and is gradually declining, owing to the surge in the number of people working part-time or on a temporary basis.[34] The tabulation below illustrates the sectoral breakdown of people covered by supplementary pensions:

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[31] The noncontributory old-age pension benefit at present is 12.7 percent lower than the contributory benefit.

[32] The in-kind benefits include an electricity allowance, which covers electricity costs up to a certain limit; a telephone allowance, which covers monthly telephone charges and certain number of free telephone calls; and some other benefits.

[33] Except for the public service schemes.

[34] ESRI Survey, 1995.

Composition of People at Work Covered by Occupational and Personal Pensions

	Employment by category	Pension coverage
	(In percent of total employment)	(In percent of occupational employment)
Private sector	55	38
Manufacturing and building	22	46
Distribution	10	19
Services	22	40
Public sector, of which	23	83
Core public service	18	84
Commercial bodies	5	82
Self-employed, of which	22	27
Agriculture	10	12
Other	12	39
Total	100	

Source: The Pensions Board, "Securing Retirement Income," May 1998.

62. The coverage by occupational pensions is significantly higher in the public sector than in the rest of the economy, owing primarily to the mandatory nature of the public sector pension schemes. In general, the coverage is higher for full-time, permanent employees than for those working temporarily or part-time: about 60 percent of all permanent full-time employees are covered by occupational pensions; by contrast, only 10 percent of temporary, part-time, and seasonal employees are covered by occupational pensions. Coverage also differs with the firms' size: the smallest firms (with fewer than 5 employees) have coverage rates of less than 10 percent, whereas in large companies (with more than 500 employees) the coverage rate is close to 80 percent. The coverage rate also varies significantly by income level, with almost 90 percent covered in the top two salary deciles, and only 3 percent in the lowest decile.

63. Eighty-one percent of the occupational schemes are defined benefit schemes and the rest are defined contribution schemes. The level of an occupational pension is determined by the target benefit, net of the social welfare pension, since most occupational schemes are integrated with the social welfare old-age pension scheme. There is no large discrepancy

between the levels of public sector and private sector pensions, both of which provide a benefit of about three-fourths of final pensionable pay. However, unlike private sector schemes, where benefits are usually indexed to the increase in the cost of living, civil service pensions are indexed to wages.

64. Social welfare pensions are financed out of the pay-related social insurance (PRSI) contributions, government transfers to cover the full cost of means-tested benefits, and a budget transfer covering the deficit on contributory pensions. In 1996, total pension-related budgetary spending amounted to 2.8 percent of GNP, of which 57 percent was allocated for financing the social welfare pensions and the rest for financing public service pension benefits.

65. Box 1 outlines the arrangements for pay-related social insurance contributions. As indicated below, the effective PRSI contribution rates tended to fall in recent years, reflecting measures taken by the authorities to narrow the tax wedge, particularly with respect to the low-paid jobs, and to strengthen employees' incentives for taking low-paid jobs.

Evolution of PRSI Contributions

	1994	1995	1996	1997	1998
Employer PRSI rates 1/					
Standard	12.2%	12.2%	12.0%	12.0%	12.0%
Reduced	9.0%	9.0%	8.5%	8.5%	8.5%
Employee PRSI rate 1/ 2/	5.5%	5.5%	5.5%	4.5%	4.5%
Weekly employee PRSI allowance 3/					
Full rate	none	50	80	100	100
Self-employed	none	10	20	20	20
Modified rate	none	10	20	20	20
Earnings ceilings					
Employer	25,800	25,800	26,800	27,900	29,000
Employee	20,900	21,500	22,300	23,200	24,200
Self-employed	20,900	21,500	22,300	23,200	24,200

Sources: Budget 1994, 1995, 1996, 1997, 1998.

1/ In percent of weekly earnings
2/ Does not include health contributions and employment and training levies.
3/ Irish pounds

Box 1: Pay-Related Social Insurance Contributions

Pay-related social insurance (PRSI) contributions are paid by employers and employees. The employer contributes 8½ percent of the remuneration of each employee, if weekly earnings are IR£270 or less, and 12 percent if weekly earnings exceed IR£270. The ceiling for contribution purposes is IR£ 29,000 in annual earnings.

The first IR£100 of weekly earnings are exempt from the employees' PRSI contributions. A 4.5 percent contribution rate is levied on weekly earnings above IR£100; self-employed individuals contribute at the rate of 5 percent of their earnings, with the first IR£20 per week exempt. The ceiling of IR£24,200 is applicable to both groups—employees and the self-employed.

C. Recommendations of the Report of the Pension Board

66. Considering the social welfare pension as a major instrument for poverty alleviation, the Pension Board proposed to raise the level of social welfare pension benefits over the next 5–10 years to the subsistence minimum, estimated at IR£96 per week, or 34 percent of average industrial earnings in 1996 terms.[35]

67. The Board also emphasized the importance of raising the rate of coverage of supplementary pensions, and proposed to set an ultimate goal of ensuring that some 70 percent of the total workforce over age 30 are covered by supplementary pension schemes. Moreover, it recommended the introduction of a new type of pension provision— the personal retirement savings account (PRSA)—designed primarily for those who previously did not have access to occupational pension schemes—small business employees, and part-time, temporary, and seasonal workers.

68. **Social welfare pensions**. The Pension Board considered two scenarios: the baseline, according to which pensions are indexed to prices; and an alternative, which envisaged an increase in the level of benefits to 34 percent of average industrial earnings, with indexation of pensions to wages thereafter. The baseline scenario may not be realistic, since it would imply that in 2056 the replacement ratio would drop to 9 percent of average earnings. The baseline scenario can be modified, assuming no change in the pension replacement rate and an indexation of benefits to wages. The difference in the cost of the modified and the baseline scenarios amounts to almost 5 percentage points of GNP by 2046; an increase in the level of

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[35] According to the estimates of the Commission on Social Welfare's Minimum Adequate Income (ESRI), the minimum adequate income for a single adult in 1996 terms was in the range of IR£68–96 per week.

pensions from 28.5 percent to 34 percent of average earnings would add approximately another 1 percentage point of GNP to pension costs in 2046. The tabulation below illustrates the approximate trajectory of the long-term net pension expenditures under different scenarios, assuming that the pension scheme contribution rates are unchanged.

Net Pension Expenditures Under Alternative Scenarios [36]
(In percent of GNP)

	1996	2006	2016	2026	2046
Baseline	1.6	0.7	0.7	0.8	0.8
Modified baseline	1.6	1.4	2.0	4.0	5.5
Alternative	1.6	2.6	3.2	5.0	6.8

Sources: staff estimates, based on Actuarial Review of Social Welfare Pensions and the Pension Board Report.

69. The Report pointed out that if budgetary transfers to the Social Welfare Pension System were frozen at their present level of 5 percent of total contributions, contribution rates would need to rise in the long-run by 19 percent, if pension benefits were indexed to prices, or by 227 percent, if pension benefits were indexed to wages.

70. To avoid the need for large increases in contribution rates or in budgetary transfers to the social pension system, the Board recommended setting up a fund, to be financed by an annual budgetary transfer of ½–1 percent of GNP in 1999–2011 (Figure 1). The fund would help minimize the additional burden on future generations of taxpayers from implementation of the Board's proposals on raising pension benefits. Specifically, the Board estimated that assets accumulated in the fund by 2031 would be worth IR£30 billion (26 percent of GNP). The gradual depletion of these assets, including the income generated from their investment, would be sufficient to cap the Exchequer transfers at 3.8 percent of GNP in 2011–2046. However, increases in contribution rates might still become necessary once the fund is fully depleted.

[36] Estimates are based on own GNP projections, and assumptions of the Actuarial Review of Social Welfare Pensions and of the Pension Board Report.

Box 2. Summary of the Assumptions Underlying the Pension Board Estimates

Annual real GNP growth:		
1996–2006		5 percent
2007–2016		3 percent
2017–2056		2 percent
Projected life expectancy at birth:	Males	Females
1996	73.1	78.7
2026	77.1	83.2
2056	77.6	83.7

The **participation rate** is assumed to decline for the cohort of people between 15 and 24 years of age, owing to increased participation in full-time education, and for men over 50, as a result of a higher incidence of early retirement. The female participation rate is expected to rise, with particularly dramatic changes for women of 35–54 years of age. The **unemployment rate** is expected to decline to 6 percent by 2007, and to remain unchanged thereafter. **Average earnings** are assumed to increase by 2 percent annually in real terms. The **dependency ratio** is expected to increase from 21 percent in 1996 to 53.3 percent in 2056—the number of pensioners in 2056 is expected to be more than three times larger than in 1996.

71. The recommendations of the Pension Board did not receive unconditional support from the government. The government agreed to examine the proposal of raising the pension replacement rate to 34 percent in the context of the overall budgetary situation and economic climate. It also set up an interdepartmental group to discuss the issue of advance funding of pension liabilities. The government welcomed the proposal to expand the coverage of occupational pension schemes, and accepted the proposal to introduce personal retirement savings accounts (PRSAs).

72. **Occupational pensions**. An expansion of the coverage of occupational (supplementary) pension schemes is another avenue for poverty alleviation among the elderly. Moreover, the introduction of PRSAs would improve labor market flexibility and remove some of the obstacles to the expansion of occupational schemes. These obstacles include the high costs of running the schemes for small companies or self-employed individuals, investment and annuity risks, information gaps, and insufficient access to occupational pension plans. PRSAs should be designed as an investment account owned by individuals and managed by an approved PRSA provider. The introduction of PRSAs would broaden the base of funded pension schemes, as long as they were available to everyone, irrespective of employment status.

73. An expanded coverage by occupational pension schemes is likely to have a limited effect on poverty reduction for the low-income group. However, it could be instrumental in raising retirement income for those middle-income groups that currently do not have access to company-run occupational pension schemes.

D. Long-Term Financing of Public Service Pensions

74. The public service pension schemes are financed on a *pay-as-you-go* basis as part of the public service pay bill, with costs met from current budget revenues and, to a limited extent, employee contributions. No provisions are currently made to meet future pension liabilities.[37] In 1996, gross civil service pension costs amounted to IR£ 608 million, or 1.6 percent of GNP, of which 0.3 percent of GNP was paid in lump-sum payments and the rest in pension benefits.

75. The public service pension schemes cover all permanent employees. Spouses and children are covered by a separate compulsory contributory pension scheme.[38] The statutory retirement age is 65, but civil servants can retire with immediate payment of their pension at any time after age 60. The retirement age for some groups, such as prison officers, may be as low as 50 years of age, provided they have 30 years of continuous service.

76. The current financial arrangements for public sector pensions are likely to come under significant strain in 2020–2035. The accrued public service pension liabilities to date amount to more than one-third of GNP (IR£15 billion). In gross terms, public service pensions are projected to peak at 2.3 percent of GNP in 2025–2030, compared with about 1.6 percent of GDP at present and a projected 1.4 percent of GNP in 2005, and to stabilize at 1.8 percent of GNP after 2040. This increase in pension outlays is expected to arise mainly from the age profile of the civil service staff—the major cohort of public servants includes individuals currently in their thirties and forties, who would reach retirement age in the 2020s. In addition, the increased share of female public service employees is likely to extend the period of benefit payments, owing to the longer female life expectancy; and the overall life expectancy is projected to increase in the medium term.

77. The Commission came to the conclusion that it was not feasible to switch the public service pension system to a funded basis, as this would have required an annual transfer of

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[37] Civil servants recruited on or after April 6, 1995 have to contribute 5 percent of their remuneration to their pensions.Those recruited before that date do not explicitly contribute to their pension fund. It has been accepted in a number of arbitration findings that an implicit contribution is made through salary being set at a lower level to take account of the pension benefits.

[38] Part-time staff members are not covered by the scheme, and employees of commercial state bodies are covered by funded occupational schemes.

IR£700 million (1.7 percent of GNP)—63 percent higher than the 1996 transfer. In order to cover pension costs on a *pay-as-you-go* basis, a civil servant of 20 years of age would have to contribute to the scheme for 45 years at a 15 percent rate.

78. The estimates of the Commission were based on macroeconomic assumptions similar to those of the Pension Board. In addition, the Commission assumed that public service pay would grow at an annual rate of 1.5 percent in real terms. The rate of return was assumed to be 4 percent. The report proposed to establish a fund for partial funding of future pension liabilities, which would supplement the *pay-as-you-go* system. However, the report did not explore this possibility in detail, with regard to the sources of financing, or the magnitude of the fund. Another recommendation was to switch accounting of pension costs from cash to an accrual basis, which would provide a clear idea of the accumulated costs of the public sector pension scheme.

E. Conclusion

79. The cost of pensions in Ireland is expected to grow markedly over the longer run. Currently Ireland's pension costs are much lower than those in other OECD countries, owing primarily to its favorable demographic profile and comparatively low level of benefits. However, the demographic profile of the population is projected to change significantly after 2026. Maintaining the present comparatively low level of benefits may be difficult in the long run, given buoyant economic growth and considerably higher levels of pension benefits elsewhere in Europe. Moreover, past experience suggests that benefits are likely to be indexed to wages, even if they are not raised in relation to average earnings.

80. The burden of higher pension costs can be eased if measures are taken in advance. In the next few years contributions toward pensions would exceed the cost of contributory benefits, which may provoke demands to cut PRSI contribution rates. The expected surplus, however, should not lead to cuts in the PRSI contribution rates: their reduction in the short run would have to be more than offset in the long run, boosting labor costs. Alternatively, if the government decided not to raise contribution rates, the fiscal position would be adversely affected by the higher budgetary transfers needed to finance the pension system. The dilemma confronting the authorities could be eased through advance funding of future pension liabilities. The current strong fiscal position provides a good opportunity for the government to smooth the burden of pension costs over time. This could be achieved either through rapid repayment of outstanding debt, which would reduce debt service costs in the future and thus facilitate the absorption of increased pension outlays, or through the creation of a fund for financing future pension liabilities when their cost is high.

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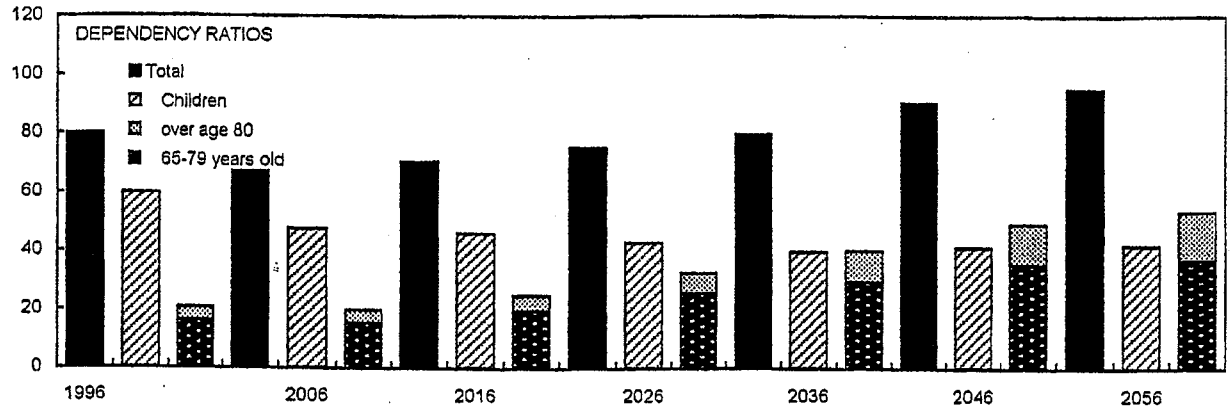
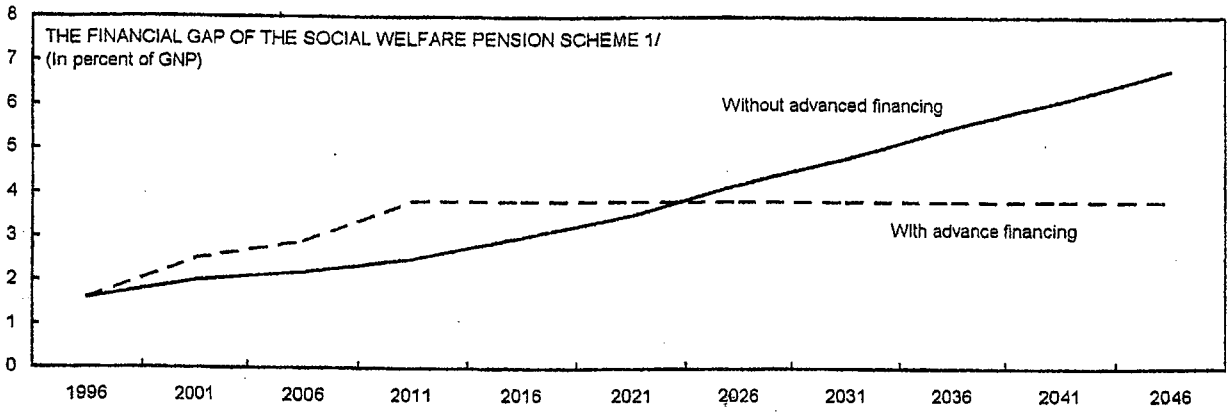
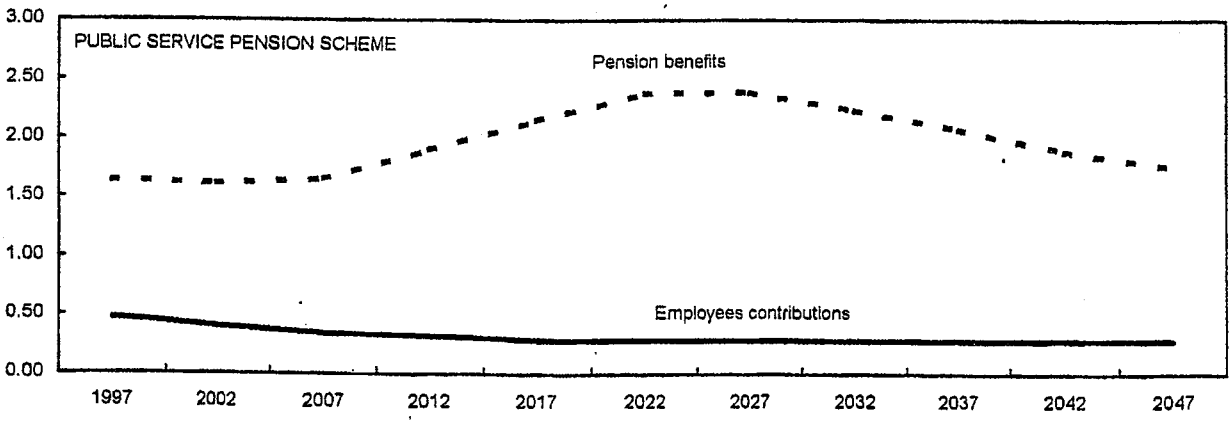
Figure 1.
IRELAND
DEPENDENCY RATIOS AND LONG-TERM PENSION OUTLAYS







Sources: The Pensions Board "Securing Retirement Income".

1/ Gap between outlays and income from contributions (assuming unchanged contribution rates). Pension benefits are assumed to be raised to 34 percent of average earnings over the next 5 years, and indexed to wages thereafter. See Box 3 for details.

V. Developments in Wage Differentials and Taxation of Labor Income Under the Centralized Wage Agreements[39]

81. This chapter briefly reviews some recent changes of relevance to the performance of the labor market, focusing on changes in earnings across sectors, and tax measures directed at improving incentives to work. Over the last decade the sectoral income distribution has changed considerably. Wage differentials among public service, and financial sector employees and of skilled workers in the construction industry have narrowed, while the increase in earnings of unskilled construction workers and manufacturing sector employees was relatively modest. This indicates that while the policy of wage moderation was in general more effective in the tradeables than the non-tradeables sectors, it did not unduly compress skill differentials. In fact, the earnings of relatively skilled workers grew faster than those of unskilled.

Sectoral Distribution of Average Weekly Earnings 1/
(In percent of earnings in the public sector)

	1988	1991	1993	1995	1997
Public service	100.0	100.0	100.0	100.0	100.0
Financial sector	108.3	101.7	102.8	100.9	98.1
Manufacturing	74.4	70.3	69.3	69.0	66.9
Building and construction					
Skilled workers	77.8	76.6	81.4	86.0	93.5
Unskilled workers	67.2	65.5	66.1	71.2	72.5
Memorandum items:					
Cumulative changes since 1988:					
Public sector earnings		19.3	32.6	40.1	53.1
Financial sector		12.0	25.9	30.5	38.7
Manufacturing		12.8	23.6	30.0	37.7
Building and construction					
Skilled workers		17.5	38.7	54.9	84.1
Unskilled workers		16.1	30.4	48.4	65.1
GNP		26.8	44.2	73.5	109.0
CPI		11.0	16.1	21.8	25.5

Source: CSO, and staff estimates.
1/ Averages for the year. The cumulative changes shown in this tabulation relate to gross pay. Reductions in the level of both personal taxes and social security contributions mean that "take home" pay has been growing faster than gross pay.

[39]Prepared by Natasha Koliadina.

82. The tabulation above also suggests that the growth in average wage earnings lagged considerably behind the increase in GNP. This has recently fueled demands for additional wage increases, and the wage drift under Partnership 2000 (P2000) is evidently stronger than under the previous agreement. The wage increase has been significantly inflated by increased overtime and special settlements: with employment broadly unchanged, the public sector wage bill increased by 10½ percent in 1997; and in building and construction wages were 19.1 percent higher in the fourth quarter of 1997 than in the fourth quarter of 1996. An almost 20 percent wage increase granted to nurses and paramedics, as well as an 18 percent special pay increase granted to electricians are responsible for much of the overall pay increase in the public sector and in construction in 1997. The situation did not change in 1998: a recent wage settlement with the security forces entailed an average wage increase of 9 percent, including the renegotiation of pay increases under the previous centralized wage agreement and a regular pay increase under P2000. An additional wage increase due to productivity growth is to be negotiated before the end of the year.

83. The modest average growth in earnings, suggested by the tabulation, does not reflect accurately the growth of disposable incomes of wage earners. Under the terms of centralized wage agreements, moderate wage increases have been combined with cuts in personal taxation. All groups of the population gained substantially from the tax cuts over the last 10 years: average tax rates declined from 26.2 percent in 1987 to 21.6 percent in 1998.[40] The decline in the average marginal rate of taxation from 43.1 percent in 1987 to 33.2 percent in 1998 had a positive effect on incentives to work and has probably contributed to the gradual increase in the female labor force participation rate.

84. Nonetheless, the "effective" marginal rates of taxation of low to moderate incomes remain relatively high, owing to the system of tax exemption limits, marginal tax relief and child additions. Marginal relief is designed to avert a sharp increase in tax liability (if computed by applying the standard rate to income net of allowances) as income passes the exemption limits. The 40 percent marginal relief faced by low-income workers significantly reduces their work incentives, since they would be exposed to an aggregate marginal tax rate, including social security contributions, of almost 48 percent. Tax measures taken in the 1998 budget are likely to improve incentives to take up low-paid jobs. The reduction in the number of taxpayers on the marginal relief, and of those who are tax exempt, is likely to reduce the unemployment trap .

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[40]In 1998 alone, the tax cuts raised take-home pay by 2.5 percent to 4 percent, depending on marital status and number of dependents.

Categories of Personal Income Taxpayers

(In percent of total number of taxpayers)

	1997	1998
Exempt	31.3	30.2
Marginal relief	11.6	8.5
Standard income tax rate (24 percent)	51.4	53.3
Top income tax rate (46 percent)	37.0	38.1

Source: The Department of Finance.

85. The 1998 budget has also changed the calculation of the family income supplement from gross income to a net income basis, which is important for improving the incentives to work for those on low incomes. The increase in personal allowances, and a 2 percentage points reduction in the standard income tax rate are likely to work in the same direction. However, incentives to work could be further improved through a widening of the standard income tax band.

86. Work incentives and employers' incentive to hire unemployed workers are strengthened by the new initiative—"Job Assist". As part of the initiative, a special tax allowance of IR£3000, and an additional allowance of IR£1000 per child, are to be granted to long-term unemployed returning to work, during their first three years of employment. Employers, hiring long-term unemployed are exempt from contributing to the pay-related social insurance system for up to 3 years, if the former unemployed stays at work.

Table A1. Ireland: National Accounts

	1993	1994	1995	1996	1997 Prel.	1998 Proj.
			(In millions of Irish pounds at 1990 prices)			
Consumption	21,800	23,112	23,984	25,224	26,714	28,339
Private	17,496	18,591	19,345	20,517	21,812	23,186
Public	4,304	4,520	4,639	4,707	4,931	5,153
Investment	4,402	4,857	5,988	6,824	7,661	8,081
Gross domestic fixed capital formation	4,532	5,085	5,640	6,410	7,106	7,881
Stockbuilding	-129	-228	347	414	555	20
Total domestic demand	26,203	27,968	29,972	32,048	34,404	36,420
Exports of goods and nonfactor services	21,208	24,222	28,970	32,362	37,846	44,280
Aggregate demand	47,410	52,191	58,941	64,410	72,250	80,699
Imports of goods and nonfactor services	17,611	20,217	23,412	26,258	30,349	35,205
Net exports	3,597 4	4,005	5,558	6,104	7,497	9,075
GDP at market prices	29,800	31,974	35,529	38,152	41,901	45,495
Net factor income from abroad	-3,389	-3,422	-4,235	-4,854	-5,891	-6,748
GNP at market prices	26,411	28,552	31,294	33,298	36,010	38,747
			(Real growth rates)			
Consumption	2.0	6.0	3.8	5.2	6.0	6.0
Private	2.4	6.3	4.1	6.1	6.3	6.3
Public	0.4	5.0	2.6	1.5	4.8	4.5
Investment	-4.7	10.3	23.3	14.0	12.3	5.5
Gross domestic fixed capital formation	-3.6	12.2	10.9	13.6	10.9	10.9
Stockbuilding 1/	-0.2	-0.3	1.8	0.2	0.4	-0.8
Total domestic demand	0.8	6.7	7.2	6.9	7.4	5.9
Exports of goods and nonfactor services	9.7	14.2	19.6	11.7	16.9	17.0
Aggregate demand	4.6	10.1	12.9	9.3	12..2	11.7
Imports of goods and nonfactor services	7.2	14.8	15.8	12.2	15.6	16.0
Net exports 1/	2.4	1.4	4.9	1.5	3.7	3.8
Gross domestic product	3.1	7.3	11.1	7.4	9.8	8.6
Net factor income from abroad 2/	-0.4	-0.1	-2.8	-2.0	-3.1	-2.4
Gross national product	3.1	8.1	9.6	6.4	8.1	7.6

Sources: Central Statistics Office, *National Income and Expenditure*; and data provided by the Irish authorities.

1/ Contribution to GDP growth.

2/ Contribution to GNP growth.

Table A2. Ireland: Distribution of National Income

	1992	1993	1994	1995	1996	1997 Prel.
	(In millions of Irish pounds at current prices)					
Income from agriculture, forestry, and fishing	2,138.3	2,182.1	2,280.5	2,470.9	2,470.0	2,370.0
Wages and salaries 1/	218.0	219.9	220.6	225.8	224.0	234.0
Income from self-employment and other trading income	1,920.3	1,962.2	2,059.9	2,215.1	2.246.0	2,136.0
Nonagricultural income	22,922.0	25,221.9	26,871.0	30,226.6	33,143.0	37,239.0
Wages and salaries 1/	14,648.1	15,853.4	16,869.6	18,195.5	19,778.0	21,806.0
Of which:						
Employers' contributions to social insurance	961.5	1,043.2	1,104.3	1,192.1	1,273.0	1,416.0
Profits, professional earnings, interest, dividends, and rents	8,709.9	9,990.5	10,810.1	12,970.9	13,647.0	16,034.0
Adjustment for stock appreciation	-162.1	-245.8	-420.2	-362.2	118.0	-87.0
Adjustment for financial services	-1,235.4	-1,419.4	-1,492.8	-1,769.7	-1,673.0	-1,930.0
Net factor income from abroad	-3,209.5	-3,520.8	-3,575.2	-4,508.1	-5,151.0	-6,322.0
Net national product at factor cost (= national income)	20,615.4	22,463.8	24,083.5	26,389.7	28,789 .0	31,357.0
Indirect taxes less subsidies	3,302.6	3,218.5	3,959.9	4,376.3	4,540.0	5,448.0
Depreciation	2,997.5	3,238.7	3,612.0	4,041.0	4,461.0	5,114.0
Gross national product at market prices	26,915.5	28,921.0	31,655.4	34,807.0	37,790.0	41,919.0
Memorandum items:						
Personal disposable income	20,610.3	21,870.2	22,911.9	24,482.7	25,981.0	27,932.0
Real personal disposable income 2/	19,516.5	20,332.6	20,723.9	21,685.4	22,695.6	24,185.3
Personal savings	2,563.1	3,050.8	2,358.0	2,642.2	2,494.0	2,741.0
Personal savings ratio (in percent)	12.4	13.9	1023	1068	9.6	9.8
			(Annual percentage change)			
Personal disposable income	6.3	6.1	4.8	6.9	6.1	7.5
Real personal disposable income 2/	3.6	4.2	1.9	4.6	4.7	6.6

Sources: Central Statistics Office, *National Income and Expenditure*; and data provided by the Irish authorities.

1/ Including employers' social insurance contributions.
2/ Deflated by personal consumption deflator.

Table A3. Ireland: Gross Capital Formation

	1992	1993	1994	1995	1996	1997 1/
	(In millions of Irish pounds at constant 1990 prices)					
Gross domestic fixed capital formation	4,699	4,532	5,085	5,640	6,410	7,106
Building and construction	2,832	2,573	2,905	3,272	3,882	4,397
Dwellings	1,330	1,199	1,518	1,695	1,991	2,199
Roads	246	311	255	286	296	335
Other	1,257	1,063	1,132	1,291	1,595	1,863
Machinery and equipment	1,866	1,959	2,180	2,368	2,527	2,708
Transport	724	722	920	1,091	1,124	1,237
Agricultural	88	88	124	147	151	149
Other	1,054	1,149	1,136	1,129	1,252	1,322
Change in stocks	-79	-129	-228	347	414	555
Agriculture	88	-5	53	87	95.	125
Nonagriculture	-166	-1124	-281	261	319	430
Gross domestic capital formation	4,620	4,402	4,857	5,988	6,824	7,661
	(Changes in percent)					
Gross domestic fixed capital formation	-1.9	-3.6	12.2	10.9	13.6	10.9
Building and construction	-0.1	-9.2	12.9	12.7	18.6	13.3
Dwellings	7.4	-9.9	26.7	11.6	17.4	10.4
Roads	11.5	26.7	-18.2	12.2	3.6	13.2
Other	-8.7	-15.4	6.5	14.1	23.5	16.8
Machinery and equipment	-4.5	5.0	11.3	8.6	6.7	7.2
Transport	-11.5	-0.3	27.4	18.7	3.0	10.1
Agricultural	-4.5	0.1	41.2	18.3	2.6	-1.3
Other	0.2	9.0	-1.1	-0.6	10.9	5.6
Gross domestic capital formation	-14.9	-4.7	10.3	23.3	14.0	12.3
Memorandum items:						
As percent of nominal GNP						
Domestic fixed capital formation	18.7	17.6	18.5	19.3	21.0	22.5
Domestic capital formation	18.4	17.1	18.0	20.5	22.1	23.8
As percent of nominal fixed capital formation						
Building and construction	60.9	57.2	58.1	59.1	63.0	66.2
Machinery and equipment	39.1	42.8	41.9	40.9	37.0	33.8

Sources: Central Statistics Office, *National Income and Expenditure*; and data provided by the Irish authorities.

1/ Preliminary.

Table A4. Ireland: Sectoral Origin of Gross National Product

	1991	1992	1993	1994	1995	1996	1997
	(In millions of Irish pounds at current prices)						
Agriculture, forestry, and fishing	2,236	2,524	2,568	2,668	2,852	2,904	2,816
Industry	9,090	9,802	10,417	11,537	13,370	14,302	16,624
Distribution, transport, and communications	4,988	4,563	5,225	5,239	5,924	6,971	7,546
Public administration and defense	1,463	1,563	1,686	1,725	1,762	1,855	2,011
Other domestic	8,675	9,606	10,746	11,594	12,801	14,044	15,725
Adjustment for financial services	-1,094	-1,235	-1,419	-1,493	-1,770	-1,673	-1,930
GDP at factor cost	25,358	26,822	29,223	31,271	34,939	38,403	42,792
Net indirect taxes	2,866	3,303	3,218	3,960	4,376	4,540	5,448
GDP at market prices	28,224	30,125	32,442	35,231	39,315	42,941	48,241
Net factor income from abroad	-2,796	-3,210	-3,521	-3,575	-4,508	-5,151	-6,322
GNP at market prices	25,427	26,916	28,921	31,655	34,807	37,790	41,919
	(As percent of GNP)						
Agriculture, forestry, and fishing	8.8	9.4	8.9	8.4	8.2	7.7	6.7
Industry	35.7	36.4	36.0	36.4	38.4	37.8	39.7
Distribution, transport, and communications	19.6	17.0	18.1	16.5	17.0	18.4	18.0
Public administration and defense	5.8	5.8	5.8	5.4	5.1	4.9	4.8
Other domestic	34.1	35.7	37.2	36.6	36.8	37.2	37.5
Adjustment for financial services	-4.3	-4.6	-4.9	-4.7	-5.1	-4.4	-4.6
GDP at factor cost	99.7	99.6	101.0	98.8	100.4	101.6	102.1
Net indirect taxes	11.3	12.3	11.1	12.5	12.6	12.0	13.0
GDP at market prices	111.0	111.9	112.2	111.3	113.0	113.6	115.1
Net factor income from abroad	-11.0	-11.9	-12.2	-11.3	-13.0	-13.6	-15.1
GNP at market prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(Real growth rates)						
Agriculture, forestry, and fishing	-1.7	8.5	-7.7	-1.9	1.2	2.3	1.4
Industry	2.5	6.4	2.4	9.7	16.2	8.3	15.2
Distribution, transport, and communications	1.0	-8.2	8.2	1.6	8.0	15.6	8.8
Public administration and defense	-0.6	2.6	0.6	-1.1	0.9	1.6	2.8
Other domestic	3.6	4.6	2.9	4.2	5.9	2.3	5.1

Source: Central Statistics Office, *National Income and Expenditure*.

Table A5. Ireland: Industrial Production

(Annual volume changes in percent)

	1991	1992	1993	1994	1995	1996	1997	1997 1/			
								Qtr 1	Qtr 2	Qtr 3	Qtr 4
Food	4.7	9.4	4.9	7.6	10.9	0.8	1.1	-3.8	2.9	6.4	-0.9
Beverages and tobacco	4.9	-0.3	-0.2	5.9	5.2	5.0	6.1	10.9	5.1	2.9	6.7
Textiles	-0.3	5.7	2.5	2.3	0.7	-5.3	2.3	4.5	-1.0	-4.1	10.8
Clothing, footwear, and leather	-11.9	-5.0	-6.4	-4.5	-3.5	0.6	-14.3	1.5	-9.9	-19.2	-27.7
Wood and furniture	--	2.4	1.2	10.6	5.4	7.9	19.5	13.4	10.1	24.6	29.3
Paper and printing	8.4	9.2	7.0	2.0	11.0	0.3	-8.6	13.7	2.4	7.4	11.1
Chemicals	21.5	17.0	10.2	19.6	15.8	18.3	32.3	19.2	20.8	45.5	43.4
Nonmetallic mineral products	-6.1	4.0	-3.7	10.8	9.0	9.9	20.6	15.1	19.8	22.7	24.5
Metals and engineering (including transport equipment)	-2.9	11.4	5.9	15.9	33.8	8.1	17.5	20.9	17.0	22.3	10.8
Miscellaneous industries	-1.5	4.3	-2.0	8.1	6.8	-1.2	5.8	-1.4	3.0	3.9	18.2
Total manufactures	3.1	10.0	5.4	12.7	20.2	8.2	16.6	15.5	13.6	22.4	15.2
Mining, quarrying, and turf	-3.7	-8.3	22.0	-4.1	11.8	3.8	-4.3	3.9	-6.4	-26.6	16.2
Total transportable goods industries 2/	2.9	9.6	5.6	12.4	20.2	8.1	16.1	15.0	13.0	20.9	15.7
Electricity, gas and water	7.3	3.9	5.6	5.0	3.1	5.3	4.0	4.0	2.0	6.5	3.3
All industries 3/	3.2	9.1	5.6	11.9	19.0	7.9	15.3	14.6	12.4	19.7	14.6

Source: Central Statistics Office, *Industrial Production Index*.

1/ Quarterly data are seasonally adjusted.
2/ Includes manufacturing, mining, quarrying, and turf production.
3/ Includes transportable goods, electricity, gas, and water.

Table A6. Ireland: Summary of Balance of Payments

	1991	1992	1993	1994	1995	1996	1997
			(In millions of Irish pounds)				
Current account balance	210	320	1,248	998	1,070	1,176	1,362
Trade balance	2,066	3,501	4,826	5,396	7,459	8,756	11,084
Exports, f.o.b. 1/	14,675	16,505	19,460	22,424	27,698	30,723	36,506
Imports, c.i.f. 1/	12,609	13,004	14,633	17, 028	20,239	21,968	25,421
Invisibles	-1,854	-3,179	-3,576	-4,396	-6,386	-7,581	-9726
Services	-665	-1,214	-1,363	-1,975	-2,988	-3,783	-4,691
Factor incomes	-2,797	-3,219	-3,521	-3,575	-4,508	-5,151	-6,322
Current transfers	1,608	1,245	1,309	1,156	1,110	1,353	1,290
Capital and financial account	-1,170	-587	-2,016	-2,218	-933	-1,182	-3,812
Capital transfers	378	464	513	252	512	489	578
Private capital	-1,141	-742	-471	-1,376	-1,824	-536	-2,661
Official capital	254	-167	541	-1,335	24	39	-2,181
Credit institutions	-381	-1,344	-844	140	1,798	-1,230	-304
Official external reserves 2/	-280	1,202	-1,755	101	-1,443	56	754
Net residual	960	267	768	1,219	-137	5	2,450
			(In percent of GNP)				
Memorandum items:							
Trade balance	8.1	13.0	16.7	17.0	21.4	23.2	26.4
Invisibles balance	-7.3	-11.8	-12.4	-13.9	-18.4	-20.1	-23.2
Current account balance	0.8	1.2	4.3	3.2	3.1	3.1	3.2
Overall balance	3.8	1.0	2.7	3.9	-0.4	0.0	5.8

Source: Central Statistics Office, *National Income and Expenditure*.

1/ Including adjustments for balance of payments purposes.

2/ Computed on a transations basis, i.e., change in total reserves less valuation changes and allocations of SDRs. Minus (-) equals net increase in reserves.

Table A7. Ireland: Merchandise Trade 1/

	1992	1993	1994	1995	1996	1997	1998 Qtr 1
Value (in millions of Irish pounds)							
Balance of trade	3,549	4,945	5,502	7,206	7,978	9,255	2,606
Exports, f.o.b.	16,744	19,830	22,754	27,825	30,407	35,083	10,284
Imports, c.i.f.	13,195	14,885	17,251	20,619	22,429	25,828	7,678
Of which:							
Petroleum imports	533	561	531	542	682	699	157
Growth in value (in percent)							
Exports, f.o.b.	11.5	18.4	14.7	22.3	9.3	15.4	29.9
Imports, c.i.f.	2.7	12.8	15.9	19.5	8.8	15.2	29.2
Of which:							
Petroleum imports	-9.3	5.3	-5.3	2.0	26.0	2.4	-11.1
Volume growth (in percent)							
Exports	14.8	9.9	15.0	20.1	9.9	14.8	24.2
Imports	4.9	7.1	13.1	14.6	10.0	14.5	25.3
Unit value growth (in percent)							
Exports	-2.7	-7.6	-0.1	1.8	-0.5	0.4	4.5
Imports	-2.1	5.2	2.6	4.3	-1.1	0.3	0.5
Terms of trade							
Index (1990 = 100)	96.3	98.5	95.9	93.6	94.2	94.1	94.9
Percentage change	-0.7	2.3	-2.6	-2.4	0.6	-0.1	1.3

Sources: Central Statistics Office, *Statistical Bulletin*; and data provided by the Irish authorities.

1/ Data on customs basis; not adjusted for balance of payments purposes.

Table A8. Ireland: Exports by Sector of Origin 1/

(In percent)

	1992	1993	1994	1995	1996	1997
Share in total exports						
Agriculture, fishing, and forestry 2/	16.9	13.9	12.5	11.5	9.2	7.9
Industrial exports	82.2	81.4	84.6	86.1	89.0	90.6
Unclassified 3/	0.9	4.7	2.9	2.4	1.8	1.5
Total exports	100.0	100.0	100.0	100.0	100.0	100.0
Of which: High technology 4/	31.2	33.6	34.2	36.0	36.2	36.2
Modern sector/total manufacturing ratio	51.1	55.9	54.8	54.6	55.9	56.8
Total exports (in millions of Irish pounds)	16,744	19,830	22,754	27,825	30,407	35,083
Volume growth						
Agriculture, fishing, and forestry 2/	29.7	-9.8	3.6	10.6	-12.5	-0.9
Industrial exports	12.6	8.9	19.4	22.3	13.6	16.9
Total exports	14.6	10.1	14.9	20.2	9.8	14.9
Memorandum items:						
Export volume growth of manufactures	12.1	8.3	19.6	26.8	7.8	13.0
Partner country non-oil import volume growth	4.4	0.5	8.7	7.7	6.0	6.5

Sources: Central Statistics Office, *Statistical Bulletin*; IMF, *World Economic Outlook*; and data provided by the Irish authorities.

1/ Data on a customs basis.

2/ Including the value of EC intervention stocks sent for storage abroad, which is excluded from merchandise exports for balance of payments purposes.

3/ From 1993, includes Intrastat Survey Estimates which are not classified by main use.

4/ Comprises SITC divisions 09, 54, 75, 76, and 87.

Table A9. Ireland: Foreign Trade Shares

(At current prices)

	1992	1993	1994	1995	1996	1997
			(Percentage distribution)			
Exports						
United Kingdom	31.5	28.2	27.6	25.5	24.1	24.3
Germany	12.8	13.3	14.0	24.4	13.0	12.3
France	9.6	9.3	9.2	9.4	8.4	7.8
Other EC	23.3	20.3	21.1	22.8	22.7	21.8
Total EC (12)	77.2	71.0	72.0	72.1	68.2	66.1
United States and Canada	9.3	10.1	9.4	9.1	10.4	12.1
Other countries	13.6	18.9	18.7	18.8	21.4	21.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Imports						
United Kingdom	42.5	36.5	36.4	35.5	33.6	33.3
Germany	8.4	7.4	7.1	7.0	7.3	5.9
France	4.4	4.0	3.6	3.7	3.8	4.6
Other EU	23.3	20.3	21.1	22.8	22.7	21.8
Total EU	69.2	59.2	58.3	56.1	55.4	54.2
United States and Canada	14.6	17.9	19.2	18.4	16.6	15.7
Other countries	13.6	18.9	18.7	18.8	21.4	21.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
			(In millions of Irish pounds)			
Trade balance						
United Kingdom	-371.9	243.7	155.6	-173.0	-205.8	-149.0
Germany	1,017.8	1,570.5	1,996.6	2,530.7	2,250.2	2,750.5
France	1,016.8	1,260.5	1,472.0	1,823.9	1,681.0	1,516.3
Other EC	2,037.7	2,363.4	2,912.6	4,234.2	4,366.8	4,912.5
Total EC	3,700.4	5,438.1	6,536.9	8,415.7	8,092.2	9,030.2
United States and Canada	-383.6	-618.2	-1,104.0	-1,230.8	-547.6	154.3
Other countries	116.5	404.6	456.4	-38.1	198.9	-170.0
Total	3,433.3	5,224.5	5,889.5	7,146.8	7,743.5	9,014.6

Source: IMF, *Direction of Trade Statistics.*

Table A10. Ireland: Imports Classified by End Use

(Percentage distribution)

	1992	1993	1994	1995	1996	1997	1998 Qtr 1
Producers' capital goods ready for use	10.8	9.3	9.9	10.0	10.7	11.6	12.9
Consumption goods	28.2	23.6	22.7	20.4	21.3	21.5	20.1
Of which:							
Food, drink, and tobacco	7.8	6.7	6.5	5.8	5.7	5.4	4.6
Other	20.4	16.9	16.2	14.6	15.6	16.0	15.5
Materials for further production	60.5	59.9	60.6	63.5	62.1	62.3	62.0
Of which:							
Agriculture	3.5	3.1	3.1	2.7	2.5	2.0	2.2
Industry	52,780	56.8	57.5	60.8	59.6	60.3	59.8
Unclassified 1/	0.6	7.2	6.8	6.2	5.8	4.8	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Central Statistics Office, *Statistical Bulletin*.

1/ From 1993, includes Intrastat Survey Estimates which are not classified by main use.

Table A11. Ireland: Services and Transfers

(In millions of Irish pounds)

	1991	1992	1993	1994	1995	1996	1997
Credits							
Transportation 1/	689	689	685	700	721	771	827
Tourism and travel 2/	939	949	1,090	1,202	1,375	1,543	1,713
Other nonfactor services	656	716	754	922	964	1,242	1,495
Factor incomes	2,082	1,981	1,946	2,401	3,244	3,541	4,930
International transfers	2,109	1,766	1,942	1,883	1,874	2,194	2,026
Of which: EU	2,201	1,994	2,245	1,841	2,023	2,218	2,332
Total credits	6,475	6,101	6,417	7,108	8,179	9,291	10,991
Debits							
Transportation	295	296	297	294	297	294	296
Tourism and travel	699	797	834	1,071	1,266	1,373	1,467
Other nonfactor services	1,479	1,821	1,866	2,218	2,869	3,600	4,307
Factor incomes	4,879	5,191	5,466	5,977	7,752	8,692	11,253
Of which:							
Profits, dividends, and royalties 3/	1,936	2,246	2,692	3,210	3,946	4,454	6,005
Government debt interest	1,031	923	1,021	1,080	1,014	914	764
Other interest 4/	1,267	1,182	1,044	1,062	1,496	1,900	3,052
International transfers	501	521	635	728	764	841	738
Of which: EU	348	353	454	506	543	541	582
Total debits	7,853	8,626	9,098	10,288	12,948	14,800	18,061
Net invisibles							
Nonfactor services	-189	-560	-468	-759	-1,372	-1,711	-2,035
Transportation 1/	394	393	388	406	424	477	531
Tourism and travel 2/	240	152	256	131	109	170	246
Other nonfactor services	-823	-1,105	-1,112	-1,296	-1,905	-2,358	-2,812
Factor incomes	-2,797	-3,210	-3,520	-3,576	-4,508	-5,151	-6,323
International transfers	1,608	1,245	1,307	1,155	1,110	1,353	1,288
Of which: EU	1,853	1,641	1,792	1,336	1,480	1,677	1,750
Total	-1,378	-2,525	-2,681	-3,180	-4,770	-5,509	-7,070

Sources: Central Statistics Office, *Statistical Bulletin*; and Statistical Release on Balance of International Payments; Central Bank of Ireland, *Quarterly Bulletin*; and data provided by the Irish authorities.

1/ Including passenger fare receipts from nonresidents.
2/ Excluding passenger fare receipts from nonresidents.
3/ Including associated interest flows.
4/ Including semi-state and bank interest flows.

Table A12. Ireland: Consumer, Wholesale, and Tradables Price Indices

(Percentage change from one year earlier) 1/

	1992	1993	1994	1995	1996	1997	1997			1998	
							Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
Consumer price index	3.1	1.4	2.3	2.5	1.7	1.5	1.5	1.2	1.6	1.9	2.7
Of which:											
Food	1.7	0.3	3.5	3.0	2.0	1.7	1.0	1.9	2.6	2.8	4.7
Services	3.9	3.4	3.6	3.0	1.1	1.6	2.1	0.9	3.0	2.9	3.8
Fuel and light	0.5	0.3	0.7	0.1	1.7	-0.1	-0.8	-0.4	-0.4	0.8	0.9
Durable household goods	2.7	0.1	2.3	1.1	1.0	0.1	0.3	-0.2	0.1	0.1	1.1
Implicit GDP deflator	2.5	4.4	1.2	0.4	1.7	2.3	...	...	...	...	...
Wholesale price index 2/	0.9	4.7	0.7	2.3	0.4	-0.4	-1.1	0.0	1.6	...	...
Of which:											
Manufacturing	1.6	4.6	...	...	0.6	-0.6	-1.3	-0.1	1.3	2.6	1.6
Capital goods	1.9	2.8	2.3	3.0	1.3	2.3	2.0	2.7	3.1	3.0	2.8
Of which:											
Building and construction	2.0	2.7	2.3	3.6	1.2	3.5	2.7	4.4	5.2	4.4	3.3
Export unit value	-2.7	7.6	-0.1	1.8	-0.5	0.4	-2.2	3.1	4.9	4.5	...
Import unit value	-2.1	5.2	2.6	4.3	-1.1	0.5	0.1	1.5	2.8	3.2	...
Terms of trade	-0.7	2.3	-2.6	-2.4	0.6	-0.1	-2.3	1.5	2.1	1.3	...

Sources: Central Statistics Office, *Statistical Bulletin*; and data provided by the Irish authorities.

1/ Annual data are based on period averages.
2/ Wholesale price indices are exclusive of VAT.

Table A13. Ireland: Wage and Productivity Indicators in Manufacturing

(Percentage change from one year earlier)

	1993	1994	1995	1996	1997
Average hourly earnings	5.7	2.3	2.8	3.3	2.5
Average weekly earnings	5/3	3.5	2.9	3.2	...
Output per person employed 1/	4.9	10.9	13.5	4.0	10.0
Output per person-hour	5.4	9.5	13.7	4.1	9.9
Unit wage costs 2/	0.0	-6.1	-9.7	-0.9	-5.7
Real unit wage costs 3/	-4.4	-7.2	-11.9	-1.5	-5.1

Source: Central Statistics Office, *Industrial Employment, Earnings, and Hours Worked.*

1/ The Central Statistics Office defines productivity as output per person employed.
2/ Defined as the change in hourly earnings divided by the change in output per person-hour.
3/ Unit wage costs deflated by the manufacturing output price index.

Table A14. Ireland: Population and Employment

	1990	1991	1992	1993	1994	1995	1996	1997 (Prelim.)
	(At mid-April in thousands, unless otherwise indicated)							
Population	3,506	3,526	3,553	3,574	3,586	3,601	3,626	3,661
Natural increase	19	22	21	20	17	17	17	20
Net migration	-23	-2	7	-0	-5	-2	8	15
Labor force	1,309	1,342	1,362	1,382	1,407	1,440	1,488	1,537
Employment	1,133	1,156	1,165	1,183	1,221	1,282	1,329	1,380
Unemployment (labor force survey data) 1/	176	186	197	199	186	158	160	157
First-time job seekers	25	34	31	35	34	31	32	31
Long-term unemployed	124	115	114	116	117	95	94	90
Live register: end-April	221	248	281	295	284	276	281	256
Live register: annual average	225	254	283	294	282	278	279	254
	(In percent of labor force)							
Unemployment rate								
Standardized	13.2	14.7	15.1	15.5	14.1	12.1	11.5	10.2
Labor Force Survey	13.4	13.9	14.5	14.4	13.2	10.9	10.7	10.2
First-time job seekers	1.9	2.5	2.3	2.5	2.4	2.1	2.2	2.0
Long-term unemployed 2/	66.2	61.9	57.7	58.6	62.8	60.2	58.9	57.3
Live register 3/	16.9	18.5	20.6	21.3	20.2	19.2	18.9	16.7
Participation rate 4/	60.8	61.5	61.4	61.4	61.7	62.3	63.3	64.1
Males	82.3	82.3	81.3	80.4	80.3	80.3	79.7	79.4
Females	39.3	40.5	41.3	42.2	43.0	44.1	46.6	47.0

Source: Central Statistics Office, *Census of Population* and *Labor Force Surveys*.

1/ Unemployment data are collected in two ways: Labor Force Surveys and the Live Register. The labor force survey involves an annual sampling of about 4.5 percent of the population and the results are presented by reference to April of that year. The Live Register consists of claimants for Unemployment Benefit, applicants for Unemployment Assistance, and other persons registered as unemployed at the local offices of the Department of Social Welfare. The Live Register is subject to rule changes which affect its composition, the latest of which were in May 1992. Accordingly, there is a discontinuity in the series from that date.

2/ Those unemployed for a period exceeding one year. In percent of total unemployed.

3/ Annual numbers are the annual average of the live register in relation to the labor force estimated at mid-April.

4/ Defined as persons aged 15 years and over either at work or unemployed (including first time job-seekers) expressed as a percentage of the total population aged 15 years and over.

Table A15. Ireland: Employment by Sector

(At mid-April in thousands, unless otherwise indicated)

	1991	1992	1993	1994	1995	1996	1997
Total employment 1/	1,134	1,145	1,152	1,188	1,248	1,297	1,380
Agriculture, forestry, and fishing	159	157	150	147	149	141	142
Industry	318	320	316	335	352	359	390
Mining, quarrying, and turf	7	6	5	5	6	5	6
Manufacturing	226	227	228	238	250	252	274
Building and construction	71	74	71	78	83	88	98
Electricity, gas, and water	14	13	12	14	13	14	12
Services	672	679	718	737	781	828	849
Commerce, insurance, and finance	238	241	254	255	273	285	296
Transport, communication, and storage	66	60	70	73	77	81	85
Public administration and defense	71	70	68	70	74	79	75
Other nonagricultural activity	297	308	326	339	357	383	393
Memorandum items:							
Manufacturing 2/	195	198	199	202	214	223	236
Traditional	144	145	143	143	147	148	153
Modern	51	53	56	59	67	75	83

Sources: Central Statistics Office, *Labor Force Surveys*, *Census of Industrial Production*, Department of Finance, and *Quarterly Industrial Inquiry*.

1/ Labor force survey data.
2/ *Quarterly Industrial Inquiry* data; annual average.

Table A16. Ireland: Overview of Public Finances

	1991	1992	1993	1994	1995	1996	1997 Budget	1997 Outturn	1998 Budget
				(In millions of Irish pounds)					
1. Current budget									
Revenue	8,776	9,360	10,140	11,203	11,667	12,954	13,584	14,619	15,497
Expenditure	9,076	9,806	10,519	11,188	12,029	12,662	13,391	14,015	14,388
Balance	-300	-446	-379	15	-362	292	192	604	1,109
2. Capital budget									
Resources 1/	1,549	1,618	1,905	1,689	2,417	2,490	2,725	2,831	3,202
Expenditure	1,750	1,885	2,216	2,376	2,682	3,219	3,555	3,671	4,400
Deficit	-201	-267	-311	-687	-265	-729	-830	-840	-1,198
3. Total									
Revenue/ resources 1/	10,325	10,978	12,045	12,892	14,084	15,444	16,309	17,450	18,699
Expenditure	10,826	11,691	12,735	13,564	14,711	15,881	16,946	17,686	18,788
EBR	501	713	690	672	627	437	638	236	89
General government balance	-670	-752	-909	-600	-889	-190	730	458	1,038
Memorandum items:									
Service of national debt	2,351	2,309	2,390	2,227	2,405	2,360	2,560	2,755	2,625
				(In percent of GDP)					
Current revenue	31.1	31.1	31.3	31.8	29.7	30.2	28.2	30.3	28.9
Current expenditure	32.2	32.6	32.4	31.8	30.6	29.5	27.8	29.1	26.8
Current balance	-1.1	-1.5	-1.2	0.0	-0.9	0.7	0.4	1.3	2.1
Capital resources 1/	5.5	5.4	5.9	4.8	6.1	5.8	5.6	5.6	6.0
Capital expenditure	6.2	6.3	6.8	6.7	6.8	7.5	7.4	7.4	8.2
Capital deficit	-0.7	-0.9	-1.0	-2.0	-0.7	-1.7	-1.7	-1.7	-2.2
Total revenue/resources 1/	36.6	36.4	37.1	36.6	35.8	36.0	33.8	36.0	34.8
Total expenditure	38.4	38.8	39.3	38.5	37.4	37.0	35.1	36.4	35.0
EBR	0.8	2.4	2.1	1.9	1.6	1.0	1.3	0.5	-0.0
General government balance	-2.4	-2.8	-2.8	-1.7	-2.3	-0.4	-1.5	1.0	1.9
Memorandum item:									
Service of national debt	8.3	7.7	7.4	6.3	6.1	5.5	5.3	5.7	4.9

Sources: Department of Finance, *Budget*; Central Bank of Ireland, *Quarterly Bulletin*; and information provided by the Irish authorities.

1/ Includes non-Exchequer capital resources and expenditure.

Table A17. Ireland: Public Sector Debt

	1992	1993	1994	1995	1996	1997
			(In millions of Irish pounds)			
Outstanding debt (year end)						
Government 1/	26,344	28,357	29,227	30,209	29,912	30,689
Of which: External 1/	10,122	11,386	10,978	10,563	8,718	8,288
Semi-state bodies	5,213	5,660	5,748	5,802	5,638	6,222
Of which: External	2,162	1,512	1,142	1,012	661	796
Total	31,557	34,017	34,975	36,011	35,550	36,911
			(In percent of GNP)			
Outstanding debt (year end)						
Government 1/	87.4	87.4	83.0	76.8	69.7	63.6
Of which: External 1/	33.6	35.1	31.2	26.9	20.3	17.2
Semi-state bodies	17.3	17.4	16.3	14.8	13.1	12.9
Of which: External	7.2	4.7	3.2	2.6	1.5	1.7
Total	104.8	104.9	99.3	91.6	82.8	76.5
Memorandum items:						
External government debt/ total government debt	38.4	40.2	37.6	35.0	29.1	27.0
External semi-state debt/ total semi-state debt	41.5	26.7	19.9	17.4	11.7	12.8
External debt/total debt	38.9	37.9	34.7	32.1	26.4	24.6

Sources: Department of Finance, *Budget*; and information provided by the Irish authorities.

1/ Central government debt net of deposits.

Table A18. Ireland: Summary of Current and Capital Budgets

(In millions of Irish pounds)

	1993	1994	1995	1996	1997 Budget	1997 Outturn	1998 Prov.
Current revenue	11,203	11,203	11,667	12,954	13,584	14,619	15,497
Tax	9,704	10,835	11,335	12,520	12,236	14,298	15.167
Nontax	436	368	332	434	321	345	330
Current expenditure	10,519	11,188	12,029	12,662	13,391	14,015	14,388
Central Fund	2,869	2,821	2,983	3,161	3,260	3,691	3,403
Supply services	7,650	8,367	9,046	9,501	10,131	10,324	10,985
Current budget balance	-379	15	-362	292	193	604	1,109
Capital expenditure 1/	2,216	2,376	2,682	3,219	3,555	3,671	4,400
Public capital program	2,084	2,230	2,633	3,007	3,529	3,475	4,344
Nonprogram capital outlays	132	132	49	212	26	196	56
Capital resources 2/	1,905	1,689	2,417	2,490	2,725	2,831	3,202
Non-Exchequer resources of state bodies and local authorities 2/	1066	1,144	1,411	1,683	1,950	1,891	2,399
Exchequer resources and receipts	839	545	1,006	807	775	782	804
Capital budget deficit	-311	-687	-265	-729	-830	-839	-1,198
Exchequer borrowing requirement	690	672	627	437	636	235	89

Sources: Department of Finance, *Budget*; and data provided by the Irish authorities.

1/ Includes non-Exchequer capital expenditure.
2/ Includes borrowing of state bodies and local authorities.

Table A19. Ireland: Central Government Current Expenditure

(In millions of Irish pounds)

	1991	1992	1993	1994	1995	1996	1997 Budget	1997 Outturn	1998 Budget
Service of public debt	2,353	2,309	2,390	2,227	2,405	2,360	2,560	2,755	2,625
Interest	2,149	2,096	2,159	2,004	2,156	2,099	2,275	2,468	2,310
Sinking funds, etc.	204	213	231	223	249	261	285	287	315
Economic services	796	891	961	989	1,093	1,225	1,255	1,290	1,322
Industry and labor	246	280	320	389	493	522	568	574	632
Agriculture, fisheries, and forestry	524	584	613	565	564	668	652	672	642
Tourism	26	27	28	35	36	35	35	44	48
Infrastructure	71	75	54	80	81	89	87	97	91
Social services	6,311	6,997	7,551	8,049	8,670	8,976	9,418	9,764	10,282
Health	1,535	1,722	1,907	2,121	2,272	2,333	2,475	2,678	2,943
Education	1,415	1,569	1,727	1,876	1,964	2,088	2,203	2,362	2,351
Social welfare	3,186	3,534	3,743	3,879	4,261	4,381	4,595	4,567	4,866
Subsidies, etc.	175	172	174	173	173	174	145	157	122
Security	851	899	950	1,013	1,032	1,106	1,151	1,221	1,300
Other	926	948	1,110	1,355	1,344	1,605	1,739	1,840	1,879
EU budget	347	354	453	507	547	589	582	517	673
Supply services	557	577	631	761	766	804	1,039	904	1,101
Other Central Fund	22	17	26	87	31	212	118	419	105
Total (gross)	11,308	12,119	13,016	13,713	14,625	15,363	16,210	15,967	17,499
Less supply services and PRSI receipts	2,236	2,373	2,494	2,540	2,585	2,676	2,819	2,939	3,091
Total (net)	9,072	9,746	10,522	11,173	12,040	12,687	13,391	14,028	14,408
Memorandum item:									
Exchequer pay and pensions bill included in above	3,392	3,761	4,087	4,356	4,560	4,804	5,154	5,297	5,639

Sources: Department of Finance, *Budget*; and data provided by Irish authorities.

Table A20. Ireland: Public Capital Program

	1992	1993	1994	1995	1996	1997 Budget Est.	1997 Outturn	1998 Prov.
	(In millions of Irish pounds)							
Sectoral economic investment	608	579	730	955	1,158	1,266	1,298	1,473
Of which:								
Agriculture	122	136	186	226	287	307	191	161
Industry	374	340	407	573	697	739	927	1,076
Productive infrastructure	897	1,103	931	1,032	1,128	1,508	1,363	1,722
Of which:								
Energy	256	355	227	228	242	357	301	441
Transport	158	123	151	173	149	285	202	309
Roads, sanitary services, etc.	316	433	366	405	444	534	543	625
Telecommunications, broadcasting, post	167	192	188	225	293	332	317	347
Social infrastructure	337	402	569	646	721	801	814	1,067
Housing	143	191	283	321	336	390	355	439
Education	73	82	99	101	110	96	127	224
Hospitals	44	44	65	96	119	108	131	147
Government construction, computerization	77	85	123	129	155	207	201	257
Total 1/	1,842	2,084	2,230	2,633	3,007	3,575	3,475	4,262
Memorandum item:								
Real increase over previous year 2/ (in percent)	5.9	8.6	5.7	17.7	11.9	12.2	12.7	22.7
	(In percent of total)							
Sectoral economic investment	33.0	27.8	32.7	36.3	38.5	35.4	37.4	34.6
Of which:								
Agriculture	6.6	6.5	8.3	8.6	9.5	8.6	5.5	3.8
Industry	20.3	16.3	18.2	21.8	23.2	20.7	26.7	25.2
Productive infrastructure	48.7	52.9	41.7	39.2	37.5	42.2	39.2	40.4
Of which:								
Energy	13.9	17.0	10.2	8.7	8.0	10.0	8.7	10.3
Transport	8.6	5.9	6.8	6.6	5.0	8.0	5.8	7.3
Roads, sanitary services, etc.	17.2	20.8	16.4	15.4	14.8	14.9	15.6	14.7
Telecommunications, broadcasting, post	9.1	9.2	8.4	8.6	9.7	9.3	9.1	8.1
Social infrastructure	18.3	19.3	25.5	24.5	24.0	22.4	23.4	25.0
Of which:								
Housing	7.8	9.2	12.7	12.2	11.2	10.9	10.2	10.3
Education	4.0	3.9	4.4	3.8	3.7	2.7	3.7	5.3
Hospitals	2.4	2.1	2.9	3.6	4.0	3.0	3.8	3.4
Government construction, computerization	4.2	4.1	5.5	4.9	5.2	5.8	5.8	6.0
Total 1/	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Public Capital Program; and information provided by the Irish authorities.

1/ Excludes Community initiatives.
2/ Deflated by the GNP deflator.

Table A21. Ireland: Central Government Current Revenue

(In millions of Irish pounds)

	1992	1993	1994	1995	1996	1997 Budget Est.	1997 Outturn	1998 Budget Est.
Taxes on income	4,152	4,664	4,973	5,275	5,988	6,374	6,917	7,448
Personal income tax	3,413	3,712	3,841	4,129	4,562	4,926	5,218	5,522
Corporation tax	739	952	1,132	1,146	1,426	1,448	1,699	1,926
Taxes on capital	98	87	120	117	178	141	225	198
Taxes on goods and services	4,127	4,327	4,807	5,282	6,296	6,035	6,325	6,676
Value-added tax	2,177	2,332	2,598	2,889	3,718	3,461	3,718	4,017
Excise	1,734	1,757	1,960	2,139	2,320	2,470	2,507	2,659
Motor vehicle duties 1/2/	216	238	249	254	258	104	100	--
Customs duties	125	159	191	200	159	170	180	176
Other duties and levies 3/	408	467	510	461	512	543	628	669
Tax Amnesty	...	...	238	...	...	242	...	...
Total tax revenue	8,910	9,704	10,835	11,335	12,520	13,505	13,263	15,167
Nontax revenue	450	436	368	332	434	321	345	330
Total current revenue	9,360	10,140	11,203	11,667	12,954	13,826	13,608	15,497
Memorandum item:								
Taxes on personal income as a percentage of total tax revenue	38.3	38.3	35.4	36.4	36.4	36.5	39.3	36.4

Sources: Department of Finance, Budget, various issues; and information provided by the Irish authorities.

1/ Including road tax; these revenues have been assigned to local authorities since mid-1997.
2/ Beginning from 1998 retained by local authorities.
3/ Including Youth Employment Levy, Income Levy, Agricultural Levies, and Stamp Duties.

Table A22. Ireland: Public Sector Employment 1/

	1987-97 (Percent change)	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 (est.)
Exchequer financed	4.9	183.6	178.0	169.6	171.7	174.8	177.7	181.1	183.7	188.8	191.9	192.6
Local authorities	-18.3	32.4	30.3	26.9	26.5	26.7	26.7	26.8	27.1	26.5	26.5	26.5
Public service	1.4	216.0	208.3	196.5	198.2	201.5	204.4	207.9	210.8	215.4	218.4	219.1
Commercial semi-state bodies	-22.8	78.4	73.3	72.0	72.0	71.9	66.8	64.7	63.5	62.8	61.9	60.5
Total public sector (Percent change)	-5.1	294.4	281.6 (-4.3)	268.5 (-4.7)	270.2 (0.6)	273.4 (1.2)	271.2 (-0.8)	272.6 (0.5)	274.3 (0.6)	278.2 (1.4)	280.2 (0.7)	279.5 (-0.3)

Source: Information provided by the Irish authorities, and staff estimates.

1/ Figures are for full-time equivalents as at January 1 of each year.

Table A23. Ireland: EU Receipts, Loans, and Contributions

(In millions of Irish pounds)

	1993	1994	1995	1996	1997	1998 Budget
A. Subsidies and grants						
FEOGA:	1,407.7	1,304.6	1,293.1	1,515.1	1,685.7	1,677.2
Guarantee Section	(1,281.8)	(1,173.7)	(1,150.2)	(1,364.5)	(1,519.8)	(1,500.0)
Guidance Section	(125.9)	(130.9)	(142.9)	(150.6)	(165.9)	(177.2)
European Social Fund	311.6	277.1	256.2	253.0	271.0	324.6
European Regional Development Fund	464.4	175.6	358.1	297.1	356.0	408.0
Cohesion Fund	41.6	68.3	102.0	137.1	162.7	149.0
Miscellaneous	20.0	15.8	13.8	17.3	31.0	18.8
Total	2,245.3	1,841.4	2,023.2	2,219.6	2,506.6	2,577.6
(In percent of GDP)	(6.9)	(5.3)	(5.1)	(5.2)	(5.2)	(4.8)
Net of FEOGA guarantees	963.5	667.7	873.0	855.1	986.8	1,077.6
(In percent of GDP)	(3.0)	(1.9)	(2.2)	(2.0)	(2.0)	(2.0)
B. Less: Contributions 1/	453.5	505.5	542.8	541.1	513.5	673.0
(In percent of GDP)	(1.4)	(1.4)	(1.4)	(1.3)	(1.1)	(1.3)
C. Net subsidies and grants	1,791.8	1,335.9	1,480.4	1,676.8	1,993.1	1,904.6
(In percent of GDP)	(5.5)	(3.8)	(3.8)	(3.9)	(4.1)	(3.5)
D. Loans from EIB	309.6	232.1	268.0	150.0	159.0	0.0
(In percent of GDP)	(1.0)	(0.7)	(0.7)	(0.3)	(0.3)	(0.0)

Sources: Department of Finance, *Budget*; and information provided by the Irish authorities.

1/ Contribution to the budget of the European Communities net of refunds and other small contributions (to EIB and ECSC).

Table A24. Ireland: Financing of the Exchequer Borrowing Requirement

	1991	1992	1993	1994	1995	1996	1997
				(In millions of Irish pounds)			
Net sales of domestic securities	288	-1,092	1,379	462	868	1,191	952
To nonbank public 1/	69	282	-162	584	162	540	1,798
To commercial banks 2/	-14	435	-131	299	100	-383	276
To nonresidents	233	-1,809	1,672	-421	605	1,034	-1,122
Small savings	172	145	238	377	297	322	60
Other Irish pound	...	...	...	-100	--	--	...
External borrowing by Government, net 3/	-23	1,008	-60	-388	-672	-1,009	-1,041
Small savings reserve 4/	...	...	...	...	...	...	288
Change in balances at Central Bank	-206	652	-867	321	134	-67	-24
Total Exchequer borrowing requirement 5/	231	713	690	672	627	437	236

Sources: Central Bank of Ireland, *Quarterly Bulletin*; and data provided by the Irish authorities.

1/ Data for 1994 onwards refer to the public excluding credit institutions.
2/ Data for 1994 onwards refer to credit institutions.
3/ Excludes sales of government securities to nonresidents.
4/ The fund was established in 1994 to address the interest accrued liabilities in Government personal savings scheme.
5/ Excluding privatization receipts of IR£270 million in 1991.

Table A25. Ireland: Exchange Rates and Interest Rates

	Exchange rates						Interest rates		Interest rate differentials			
	US$/IR£	St/IR£	DM/Ir£	Nominal effective exchange rate (1990=100)	Bilateral rates (1990=100) Against St£	Against DM	3-month Interbank	10-year bond	Ireland-United Kingdom Short-term	Ireland-United Kingdom Long-term	Ireland-Germany Short-term	Ireland-Germany Long-term
1996												
Jan.	1.584	0.966	2.315	97.8	111.4	86.4	5.09	7.21	-1.27	-0.20	1.53	1.31
Feb.	1.582	0.971	2.319	97.8	110.8	86.6	5.13	7.74	-1.03	-0.01	1.83	1.55
Mar.	1.573	0.971	2.324	97.5	110.8	86.7	5.10	7.89	-0.95	-0.16	1.80	1.43
Apr.	1.565	0.968	2.357	98.0	111.1	88.0	4.96	7.35	-1.04	-0.70	1.69	0.96
May	1.563	0.969	2.397	98.6	111.1	89.4	5.13	7.55	-0.89	-0.53	1.88	1.09
June	1.584	0.974	2.419	99.2	110.5	90.3	5.24	7.47	-0.61	-0.58	1.90	0.90
July	1.604	0.969	2.413	99.6	111.1	90.1	5.57	7.52	-0.16	-0.39	2.23	1.05
Aug.	1.611	0.962	2.389	99.5	111.9	89.2	5.84	7.50	0.09	-0.31	2.57	1.19
Sep.	1.610	0.968	2.425	99.9	111.1	90.5	5.69	6.88	-0.08	-0.93	2.59	0.65
Oct.	1.608	0.986	2.457	99.9	109.1	91.7	5.70	6.83	-0.24	-0.68	2.60	0.83
Nov.	1.665	0.999	2.516	101.4	107.7	93.9	5.68	6.45	-0.62	-1.10	2.51	0.59
Dec.	1.660	1.003	2.575	102.4	107.3	96.1	5.89	6.58	-0.46	-0.98	2.68	0.77
1997												
Jan.	1.633	1.017	2.620	102.6	105.9	97.8	5.84	6.54	-0.47	-0.99	2.75	0.72
Feb.	1.587	1.024	2.658	102.8	105.0	99.2	5.76	6.34	-0.43	-0.83	2.60	0.76
Mar.	1.564	1.026	2.654	102.5	104.9	99.1	5.73	6.79	-0.56	-0.63	2.49	1.01
Apr.	1.552	1.050	2.655	101.7	102.5	99.1	6.25	6.81	-0.21	-0.80	3.04	0.91
May	1.513	1.079	2.577	98.6	99.7	96.2	6.03	6.62	-0.50	-0.51	2.88	0.82
June	1.507	0.917	2.603	98.4	98.6	97.1	6.25	6.44	-0.50	-0.67	3.14	0.69
July	1.497	0.895	2.682	98.9	96.4	100.1	6.26	6.21	-0.78	-0.80	3.13	0.64
Aug.	1.454	0.907	2.678	98.8	97.6	99.9	6.23	6.29	-1.01	-0.77	2.99	0.62
Sep.	1.481	0.926	2.651	99.3	99.6	98.9	6.17	5.94	-1.12	-0.84	2.88	0.34
Oct.	1.468	0.900	2.580	97.0	96.9	96.3	6.16	6.03	-1.19	-0.44	2.62	0.43
Nov.	1.503	0.891	2.605	97.8	95.8	97.2	6.19	6.02	-1.43	-0.57	2.49	0.46
Dec.	1.457	0.877	2.589	96.6	94.4	96.6	6.01	5.64	-1.69	-0.70	2.31	0.31
1998												
Jan.	1.382	0.845	2.512	93.2	91.0	93.7	5.91	5.37	-1.64	-0.69	2.36	0.27
Feb.	1.376	0.839	2.496	92.6	90.3	93.2	6.07	5.25	-1.46	-0.77	2.58	0.25
Mar.	1.368	0.823	2.498	92.0	88.6	93.2	5.72	5.09	-1.84	-0.88	2.22	0.18
Apr.	1.390	0.831	2.522	93.1	89.4	94.1	6.04	5.06	-1.48	-0.75	2.43	0.15
May	1.419	0.866	2.518	94.8	93.2	94.0	6.21	5.18	-1.27	-0.67	2.61	0.22
June	1.407	0.853	2.520	94.5	91.8	94.1	6.27	5.09	-1.45	-0.69	2.73	0.28
July	1.399	0.851	2.515	94.3	91.6	93.9	6.19	4.99	-1.61	-0.85	2.67	0.31
Aug.	1.400	0.858	2.504	94.8	92.4	93.4	6.02	4.75	-1.71	-0.81	2.55	0.34
Sep.	...	...	...	...	...	...	...	...	...	...	...	...
Oct.	...	...	...	...	...	...	...	...	...	...	...	...
Nov.	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	...	...	...	...	...	...	...	...	...	...	...	...
1999												
Jan.	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	...	...	...	...	...	...	...	...	...	...	...	...
Apr.	...	...	...	...	...	...	...	...	...	...	...	...
May	...	...	...	...	...	...	...	...	...	...	...	...

Sources: IMF, *International Financial Statistics*; Research Department.

Table A26. Ireland: Exchange Rate Developments 1/

	US$/IR£		£ sterling/IR£		Trade-Weighted Index 2/		Real effective Exchange Rate 3/	
	Level	Annual Percent change	Level	Annual Percent change	1990=100	Annual Percent change	1990=100	Annual Percent change
1989	1.419	-7.0	0.865	-1.0	94.3	-1.0	95.6	-2.2
1990	1.658	16.9	0.929	-6.9	100.0	6.1	100.0	4.6
1991	1.616	-2.6	0.913	1.8	98.6	-1,4	97.0	-3.0
1992	1.705	5.6	0.966	-5.5	101.7	3.2	99.5	2.6
1993	1.467	-14.0	0.977	-1.1	96.6	-5.0	92.3	-7.2
1994	1.498	2.1	0.978	-0.1	96.8	0.2	92.6	0.3
1995	1.604	7.1	1.016	-3.8	98.2	1.4	93.1	0.6
1996	1.601	-0.2	1.025	-0.9	100.2	2.0	94.9	1.9
1997	1.518	-5.2	0.927	10.6	98.7	-1.6	94.6	-0.3
1996 1st qtr.	1.579	0.4	1.031	-3.6	98.9	1.5	93.4	0.6
2nd qtr.	1.571	-3.4	1.031	-1.2	99.6	1.5	94.0	1.2
3rd qtr.	1.608	-0.2	1.035	-1.1	100.7	2.0	95.2	1.9
4th qtr.	1.644	2.5	1.004	2.3	101.7	3.0	96.9	3.8
1997 1st qtr.	1.595	1.0	0.978	5.4	102.0	3.0	97.8	4.7
2nd qtr.	1.524	-3.0	0.932	10.6	98.7	-0.9	94.7	0.7
3rd qtr.	1.477	-8.2	0.909	13.8	97.8	-2.9	93.6	-1.7
4th qtr.	1.476	-10.2	0.889	12.9	96.2	-5.3	92.3	-4.7
1998 1st qtr.	1.375	-13.8	0.836	17.0	91.7	-10.1	88.2	-9.9
2nd qtr.	1.405	-7.8	0.850	9.6	93.2	-5.6	90.2	-4.8

Sources: Central Bank of Ireland, Quarterly Bulletin; and IMF, International Financial Statistics.

1/ Period averages.

2/ Official index computed by the Central Bank of Ireland; based on 15 major currencies using total trade weights.

3/ Based on relative consumer prices using total trade weights in manufacturing.

Table A27. Ireland: Selected Interest Rates

(In percent; end-of-period data)

	Central Bank	Interbank Market			Associated Banks		Yields on Government Securities		
	Short-term facility rate 1/	Call Money	One-month deposit rate	Three month deposit rate	Prime over-draft rate 2/	Deposit rate 3/	One year to maturity	Five years to maturity	Fifteen years to maturity
1992	...	13.80	18.00	17.50	19.00	9.50	13.13	10.71	9.53
1993	7.00	6.91	6.63	6.34	7.00	1.50	5.74	5.86	6.47
1994	6.25	5.25	5.75	6.44	6.21	1.00	6.41	8.74	8.84
1995	6.50	5.70	5.45	5.48	6.00	1.25	5.02	6.60	7.56
1996	6.25	5.04	5.74	5.89	6.25	1.00	5.98	6.00	6.87
1997	6.75	7.00	6.43	6.01	6.75	1.50	5.34	4.95	5.65
1997									
Jan.	6.25	5.50	5.71	5.84	6.25	1.00	5.72	5.78	6.86
Feb.	6.25	5.54	5.76	6.25	6.25	1.00	5.72	5.76	6.64
Mar.	6.25	5.58	5.65	5.73	6.25	1.00	5.86	6.12	7.02
Apr.	6.25	6.28	6.41	6.25	6.15	1.00	5.92	5.93	6.93
May	6.75	5.59	6.20	6.20	6.63	1.50	6.02	5.92	6.88
Jun.	6.75	6.10	6.25	6.25	6.75	1.50	6.06	5.83	6.68
July	6.75	6.08	6.27	6.26	6.75	1.50	5.91	5.74	6.49
Aug.	6.75	6.17	6.26	6.23	6.75	1.50	5.99	5.69	6.49
Sep.	6.75	6.20	6.23	6.17	6.75	1.50	5.73	5.33	6.15
Oct.	6.75	6.25	6.26	6.16	6.75	1.50	5.66	5.43	6.18
Nov.	6.75	6.34	6.38	6.19	6.81	1.50	5.82	5.21	5.96
Dec.	6.75	7.00	6.43	6.01	6.75	1.50	5.34	4.95	5.65
1998									
Jan.	6.75	6.27	6.41	5.91	6.75	1.50	4.61	4.70	5.49
Feb.	6.75	6.30	6.27	6.-7	6.75	1.50	4.68	4.62	5.39
Mar.	6.75	6.63	6.20	5.72	6.59	1.50	4.51	4.57	5.27
Apr.	6.75	6.50	6.43	6.04	6.91	1.50	4.98	4.81	5.34
May	6.75	6.84	6.55	6.21	6.93	1.50	5.22	4.77	5.26
June	6.75	6.48	6.29	6.27	6.75	1.50	5.24	4.66	5.20
July	6.75	6.13	6.35	6.19	6.73	1.50	5.11	4.53	5.06

Source: Central Bank of Ireland, *Quarterly Bulletin*.

1/ The short-term facility was suspended in November 1992 and reopened in February 1993.
2/ Up to December 1991, the maximum rate for overdrafts and term loans up to one year for AAA customers is used. After that date, the prime rate is used.
3/ Deposits of Ir 25,000 to Ir 100,000; maximum rate.

Table A28. Ireland: Developments in Monetary and Credit Aggregates

(In millions of Irish pounds)

	1992	1993	1994	1995	1996	1997	1998	
							March	June
Net foreign assets 1/	3.7	13.6	-3.2	-1.3	2.9	-0.7	-5.5	-6.3
Net domestic credit 2/	13.9	7.1	12.9	13.1	12.6	27.6	27.7	23.4
Governmentment	58.8	10.3	25.2	-8.5	-20.5	5.0	21.3	-2.4
Nongovernment	9.6	6.7	11.2	16.6	16.7	29.6	28.2	24.7
Narrow money (MI)	0.8	22.2	13.2	13.8	16.4	26.4	29.9	29.7
Broad money (M3) 3/	8.4	22.3	11.2	14.1	23.4	...	...	...
M3E 4/	12.2	15.8	10.2	12.4	15.9	21.8	19.9	18.4
	(In percent of M3 in corresponding period of previous year)							
Contribution of growht of M3:								
Net foreign assets	3.7	13.6	-3.2	-1.3	2.9	-0.7	-5.5	-6.3
Net domestic credit	22.6	12.2	19.3	19.9	19.0	38.0	39.0	25.6
Government	8.3	2.1	4.7	-1.8	-3.4	0.5	1.8	-0.1
Nongovernment	14.3	10.0	147	21.7	22.4	37.5	37.2	25.7

Sources: Central Bank of Ireland, *Quarterly Bulletin;* and data provided by the Irish authorities.

1/ Change in NFA as a percentage of M3 in corresponding period of previous year.

2/ Net domestic credit is banking system credit to the Government plus banking system credit to the nongovernment sector plus accrued interest receivable on nongovernment credit less government deposits with the Central Bank.

3/ M3 was discontinued from July 1997.

4/ From December 1990, a new wide measure of money supply, "M3E," is used. "M3E" comprises the public's holdings of notes and coins, plus current and deposit accounts denominated in both Irish pounds and foreign currency, and including accrued interest, of resident private sector entities at licensed banks, building societies, TSB Bank, state-sponsored financial institutions and the Post Office. It replaces the previous wide measure of money supply (broad money and other liquid assets) used until then.

Table A29. Ireland: Monetary Survey 1/

(In millions of Irish pounds; end-of-period data)

	1992	1993	1994	1995	1996	1997	1997			
							Mar.	June	Sept.	Dec.
Net foreign assets	-114	1,802	1,257	998	1,628	1,439	1,018	1,386	2,688	1,439
Official external reserves	2,113	4,278	4,041	5,472	4,960	4,636	5,876	5,092	5,984	4,636
Net external position	-2,227	-2,476	-2,784	-4,474	-3,332	-3,197	-3,706	-3,706	-3,296	-3,197
Net domestic credit	24,128	25,844	29,184	33,013	37,172	47,444	39,250	41,518	43,399	47,444
Net claims on Government	2,902	3,202	4,011	3,671	2,918	3,063	2,412	2,008	1,701	3,063
Claims on nongovernment sector 2/	21,226	22,642	25,173	29,342	34,254	44,381	36,848	39,510	41,698	44,381
Other items, net	-3,180	-3,516	-3,845	-4,108	-4,151	-6,692	-4,309	-4,973	-5,584	-6,692
Broad money (M3) 3/	14,118	17,268	19,209	21,910	27,038	...	...	...	...	...
Narrow money (M1)	3,220	3,934	4,455	5,070	5,899	...	...	...	...	...
Savings deposits	10,899	13,334	14,754	16,841	21,139	...	...	...	...	...
M3E 4/	20,834	24,130	26,596	29,903	34,649	42,191	35,959	37,931	40,503	42,191

Sources: Central Bank of Ireland, *Quarterly Bulletin*; and data provided by the Irish authorities.

1/ Consolidated balance sheet of the Central Bank, Associated Banks, and non-Associated Banks; all interbank items are excluded. Borrowing abroad for onlending to the Government under revolving credit facilities is also excluded.

2/ Credit to the private sector, local authorities, state-sponsored bodies, and the Agricultural Intervention Agency.

3/ M3 was discontinued from July 1997.

4/ From December 1990, a new wide measure of money supply, "M3E," is used. "M3E" comprises the public's holdings of notes and coins plus current and deposit accounts denominated in both Irish pounds and foreign currency, and including accrued interest, of resident private sector entities at licensed banks, building societies, TSB Bank, state-sponsored financial institutions and the Post Office. It replaces the previous wide measure of money supply (broad money and other liquid assets) used until then.

Table A30. Ireland: Distribution of Private Sector Credit

(End of period)

	November 1995		November 1996		November 1997	
	In millions of Irish pounds	Percent share of total	In millions of Irish pounds	Percent share of total	In millions of Irish pounds	Percent share of total
Sectoral distribution						
Agriculture, forestry, and fishing	1,682.7	5.9	1,868.0	5.6	2,039.0	4.8
Energy	213.6	0.7	207.0	0.6	185.0	0.4
Manufacturing	1,795.6	6.3	2,173.0	6.5	2,459.0	5.8
Building and construction	510.2	1.8	671.0	2.0	739.0	1.7
Distribution	2,631.2	9.2	3,102.0	9.3	3,804.0	9.0
Transport	493.8	1.7	471.0	1.4	567.0	1.3
Postal services and telecommunications	30.0	0.1	58.0	0.2	95.0	0.2
Financial services	5,927.2	20.7	6,982.0	20.8	11,549.0	27.2
Business and other services	2,649.5	9.3	3,325.0	9.9	3,728.0	8.8
Personal services	12,305.0	43.1	14,267.0	42.6	17,275.0	40.7
Total	28,578.0	100.0	33,487.0	100.0	42,422.0	100.0

Source: Central Bank of Ireland, Quarterly Bulletin.

Table A31. Ireland: Official External Reserves

(In millions of Irish pounds unless otherwise specified) 1/

	Total reserves minus gold (US$ millions)	Total reserves minus gold (IR£ millions)	Foreign Exchange	SDRs	Reserve Position in the Fund	Gold
1991	5,740.4	3,280.6	3,040.3	139.0	101.2	59.4
1992	3,439.6	2,111.0	1,890.1	76.2	144.6	66.9
1993	5,925.1	4,199.8	3,954.8	94.0	151.0	87.2
1994	6,114.8	3,952.4	3,713.5	95.6	143.4	91.1
1995	8,630.3	5,375.5	5,093.4	99.2	182.8	85.3
1996	8,205.1	4,880.8	4,589.2	98.3	193.4	85.1
1997	6,526.0	4,562.3	4,208.4	116.1	237.8	81.1
1997						
July	8,043.7	5,521.5	5,212.8	110.9	197.8	78.9
Aug.	7,718.3	5,183.9	4,878.8	110.8	194.3	78.9
Sep.	8,582.2	5,989.4	5,585.9	113.5	199.1	79.0
Oct.	7,508.7	5,000.1	4,684.0	111.4	204.7	81.2
Nov.	7,905.1	5,339.5	5,022.0	113.2	204.3	81.1
Dec.	6,526.0	4,562.3	4,208.4	116.1	237.8	81.1
1998						
Jan.	6,630.5	4,828.9	4,828.9	120.6	247.1	75.0
Feb.	6,666.4	4,870.6	4,397.3	123.9	349.4	75.3
Mar.	6,608.7	4,851.5	4,381.0	123.2	347.3	75.6
Apr.	6,710.8	4,784.5	4,323.9	120.6	340.0	77.0
May	6,770.3	4,791.1	4,310.9	121.9	358.3	77.1
Jun	7,741.9	5,548.9	5,053.0	123.1	372.9	77.4
July	9,113.6	6,451.2	5,962.1	121.4	367.7	75.7
Aug.	8,181.5	5,767.7	5,255.1	125.9	386.7	76.1

Source: IMF, *International Financial Statistics*.

1/ End of period data. Foreign reserves converted into local currency at end of period exchange rates.

Table A32. Ireland: Capital Transactions (Net)

(In millions of Irish pounds)

	1991	1992	1993	1994	1995	1996	1997
Capital and financial account	-1,170	-586	-2,014	-2,218	-933	-1,182	-3,812
Capital transfers	378	464	513	252	512	489	578
Public sector 1/	254	-167	541	-1,335	24	39	-2,181
Exchequer foreign borrowing	-109	981	-79	-416	-614	-986	-1,054
Irish Government securities	233	-1,809	1,672	-421	606	1,035	-1,122
Other 2/	130	661	-1,052	-498	32	-10	-5
Banking sector	-381	-1,344	-844	140	1,798	-1,230	-304
Nonbank private sector	-1,141	-742	-471	-1,376	-1,824	-536	-2,661
Semi-state companies	21	132	-141	-285	-259	-146	47
Direct investment and other	-1,162	-874	-330	-1,091	-1,565	-390	-2,708
Official external reserves	-280	1,203	-1,753	101	-1,443	56	754
Monetary gold	3	9	-50	12	1	11	6
SDRs	-10	67	-37	-3	-3	2	-18
Reserve position in the Fund	-16	-39	-26	4	-42	-10	-45
Foreign exchange reserves	-341	1,108	-2,049	223	-1,387	511	381
Counterpart to valuation changes	84	58	409	-135	-12	-458	430
Net residual	960	267	768	1,219	-137	5	2,450
Memorandum item:							
Nonbank private sector 3/	-181	-475	297	-157	-1,961	-531	-211
In percent of GNP:							
Nonbank private sector 3/	-0.7	-1.8	1.0	-0.5	-5.6	-1.4	-0.5
Public sector	1.0	-0.6	1.9	-4.2	0.1	0.1	-5.2

Sources: Central Statistics Office, *Statistical Bulletin*; and data provided by the authorities.

1/ Excluding valuation changes in outstanding external public debt.

2/ Net external borrowings by the Agricultural Intervention Agency plus changes in external agency accounts at the Central Bank of Ireland, including EMCF debtor position.

3/ Including net residual.

Table A33. Ireland: External Debt

	1991	1992	1993	1994	1995	1996	1997
			(In millions of Irish pounds, at end of period)				
External public debt	11,063	12,284	12,898	12,120	11,575	9,379	9,084
Government 1/	8,859	10,122	11,386	10,978	10,563	8,718	8,288
State-sponsored bodies	2,204	2,162	1,512	1,142	1,012	661	796
Net external liabilities of financial institutions 2/	5,040	3,571	2,476	2,815	4,474	3,332	3,197
Total external debt	16,103	15,855	15,374	14,935	16,049	12,711	12,281
Debt service payments on external public debt	1,812	2,125	2,612	2,696	2,636	2,300	n.a.
Government debt	1,473	1,695	2,224	2,224	2,248	2,041	1,893
Interest	736	712	787	782	782	689	848
Principal	737	983	1,437	1,442	1,466	1,352	1,045
State-sponsored bodies	339	430	388	472	388	259	n.a.
Interest	199	186	177	149	122	72	n.a.
Principal	140	244	211	323	266	187	n.a.
				(In percent)			
Ratios to GNP							
Government debt	31.4	33.6	35.1	31.2	26.9	20.3	17.2
State-sponsored bodies	7.8	7.2	4.7	3.2	2.6	1.5	1.7
External public debt	39.2	40.8	39.8	34.4	29.4	21.8	18.8
Net external liabilities financial institutions	17.9	11.9	7.6	8.0	11.4	7.8	6.6
Total external debt	57.1	52.6	47.4	42.4	40.8	29.6	25.5
Ratios to exports of goods and services							
External public debt	65.1	65.1	58.5	47.9	37.5	27.3	22.4
Debt service payments on government debt	8.7	9.0	10.1	8.8	7.3	5.9	4.7
Debt service payments on external public debt	10.7	11.2	12.0	10.9	8.6	6.8	n.a.
Interest	5.5	4.8	4.4	3.7	2.9	2.2	n.a.
Principal	5.2	6.5	7.5	7.0	5.6	4.5	n.a.
				(In millions of Irish pounds)			
Memorandum items:							
Government bonds held by nonresidents 3/	4,110	2,321	4,047	3,679	4,352	5,370	4,137
Nominal GNP	25,427	16,916	28,921	31,655	34,807	37,790	41,919
Exports of goods and services	16,984	18,881	22,033	25,308	30,837	34,341	40,614
Proportion of external public debt outstanding at variable interest rates (in percent) 4/	37	54	68	52	47	46	37

Sources: Central Bank of Ireland, *Quarterly Bulletin*; Department of Finance; OECD, *OECD Economic Survey of Ireland*; and data provided by the Irish authorities.

1/ Central government gross external debt; the enterprises had foreign currency deposits of IR 269.3 millions and IR 733.4 million at end 1991 and 1992, respectively.

2/ Data to 1989 refer only to licenced banks,to all credit institutions thereafter. Net external liabilities of licenced banks for 1990, 1991, 1992 were IR 4393 millions, IR 3858 millions, and IR 2227 millions, respectively.

3/ Government bonds held by nonresidents are not included in the figures for external public debt.

4/ 1993 to 1996 percentages are for Government debt only.

Table A34. Ireland: External Government Debt 1/

	1991	1992	1993	1994	1995	1996	1997
			(In millions of Irish pounds)				
Central government debt outstanding at end of period	8,859	10,122	11,386	10,978	10,563	8,718	8,288
			(In percent of total debt)				
Currencies in which loans are repayable							
U.S. dollar	15.0	19.6	15.7	19.8	20.6	20.0	20.7
Deutsche mark	34.2	41.0	31.1	19.2	19.0	15.2	19.6
Swiss franc	30.5	20.6	15.7	11.9	15.0	11.3	13.7
Japanese yen	7.5	7.3	10.9	10.4	6.4	4.7	1.7
Pound sterling	1.2	0.6	7.6	14.3	14.7	27.8	26.4
Dutch guilder	4.2	2.4	6.1	6.3	3.1	1.4	2.0
ECU	5.8	4.7	8.4	9.0	7.0	2.8	2.1
Other	1.6	3.8	4.5	9.1	14.1	16.8	13.8
Total external debt	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Central Bank of Ireland, Annual Reports, and *Quarterly Bulletin*.

1/ Amounts outstanding at a given date have been converted into Irish pounds at the exchange rates obtained at that date and are net of foreign currency deposits.