INTERNATIONAL MONETARY FUND

Staff Country Reports

August 1995

IMF Staff Country Report No. 95/76

Ireland—Background Papers

These background papers on Ireland were prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with this member country. In releasing this document for public use, confidential material may have been removed at the request of the member.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
700 19th Street, N.W. • Washington, D.C. 20431

Telephone: (202) 623-7430 • Telefax: (202) 623-7201
Telex (RCA): 248331 IMF UR
Internet: publications@imf.org

Price: $15.00 a copy

International Monetary Fund
Washington, D.C.

This page intentionally left blank

INTERNATIONAL MONETARY FUND

IRELAND

Background Papers

Prepared by a staff team consisting of
D. Ordoobadi, B. Árnason, L. Catão (all EUR I)

Approved by the European I Department

June 16, 1995

Contents

Charts

Statistical Appendix

Ireland: Basic Data

Demographic and other data:

Area	70.3 thousand square kilometers
Population (April-1994)	3.57 million
Natural rate of increase (10-year average)	0.2 percent
Infant mortality (per 1,000 live births)	8.2
Population per physician	780
GDP per capita (1993)	SDR 9,524

Composition of GDP in 1993, at current prices	In billions of Pounds	Distribution in Percent
Private consumption	18.1	56.1
Public consumption	5.2	16.0
Total investment (including stockbuilding)	4.6	14.4
Total domestic demand	27.9	86.5
Exports of goods and services	21.9	67.8
Imports of goods and services	17.5	54.2
GDP at market prices	32.3	100.0

Selected economic data	1992	1993	1994 1/
	(Annual percentage change)		
Output and unemployment:			
Real GDP at market prices	5.0	4.1	5.7
Manufacturing production	10.1	5.4	12.8
Average unemployment (in percent)	15.5	15.6	14.8
Earnings and prices:			
Average earnings in manufacturing	4.0	5.4	3.5
Retail price index	3.1	1.4	2.3
Money and interest rates (end period):			
M1	1.0	21.9	13.2
M3	8.4	22.3	11.3
3-month Interbank rate	14.3	9.1	5.9
15-year government bond yield	9.1	7.7	8.2
	(In billions of Irish pounds)		
Fiscal accounts:			
Exchequer receipts	11.0	12.0	12.9
Exchequer expenditure	11.7	12.7	13.6
Public sector borrowing requirement	0.9	0.9	0.8
(In percent of GDP)	2.9	2.7	2.2
Balance of payments:			
Current account balance	1.4	2.5	2.4
(In percent of GDP)	4.8	7.6	6.8
Trade balance	3.4	4.8	5.8
Exports	16.4	19.4	22.0
Imports	13.0	14.6	16.3
Services and transfers (net)	-1.9	-2.4	-3.4
Gross reserves, official basis (billions of SDR, end of period)	2.5	4.3	4.2

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

1/ Preliminary.

Introduction

The chapters of the background paper consider in greater detail issues raised in the staff report. The first two chapters consider elements of macroeconomic policy central to Ireland's objective of being among the first countries to enter into European Economic and Monetary Union. The first chapter analyzes the main determinants of the Irish pound/sterling exchange rate, an issue brought to the fore by the currency turbulence of March 1995 which saw a sterling-inspired decline in the Irish pound against the deutsche mark. The second chapter considers recent fiscal developments and prospects, highlighting tax reform measures undertaken to accelerate job creation, the growth of spending in recent years, and the medium term fiscal outlook. The third chapter assesses the implications for the management of the large public sector debt of proposed changes in the structure of the Irish Government bond market.

The remaining chapters consider aspects of Ireland's real economy. The difficulties posed for potential output calculations by Ireland's elastic labor supply and the lack of comprehensive data on capital stock are considered in Chapter 4, which presents two alternative methods for estimating potential output and the output gap. The possible distorting effect of transfer pricing on output and trade data is considered in the fifth chapter against the backdrop of the important presence of multinational firms in Ireland and the preferential tax regime for manufacturing firms. Chapter 6 reviews the implications of the conclusion of the Uruguay agreement for Ireland's highly open economy.

This page intentionally left blank

I. The Irish Pound-Sterling Exchange Rate: Long-Term Trends and Main Determinants 1/

1. Introduction

The recent turbulence in foreign exchange markets has brought exchange rate issues back to center stage in the policy debate in Ireland. After a year of relative stability within the exchange rate mechanism (ERM), in early 1995 the Irish pound experienced a sharp depreciation via-vis the deutsche mark and other former ERM narrow-band currencies. By mid-March the Irish pound reached historical lows vis-a-vis the deutsche mark--trading at over 9 percent below its central ERM rate--and remained for weeks at the bottom of the ERM grid. Reflecting some policy tightening, Irish short-term interest rates rose to 7.1 percent (from an average of 5.9 percent during 1994), opening up a differential of over 2 percentage points against Germany; and, notwithstanding some recovery in the last few weeks, as of June 14, 1995, the Irish pound's bilateral exchange rate with the deutsche mark remained 5.1 percent below the ERM central parity of IR£1 = DM 2.411.

These events have clearly posed a challenge to the announced objective of exchange rate policy 2/ and thus call for a more detailed look into the issue. An influential explanation for the relative vulnerability of the Irish pound in the ERM emphasizes structural constraints posed by the high openness of the Irish economy and its close links with the United Kingdom. According to the share of exports and imports over GDP, Ireland stands out as the second most open OECD economy. 3/ On the one hand, this degree of openness implies that the low inflation objective of monetary policy dictates that the pound should be kept stable vis-a-vis strong currencies--such as the former ERM narrow band currencies. On the other hand, high openness to foreign trade makes employment crucially dependent on export performance. This constraint is particularly severe in the Irish case because trade with the United Kingdom still accounts for 30 percent of exports and 42 percent

---

1/ Prepared by Luis Catão.

2/ As spelled out in a recent statement by the Finance Minister (March 19, 1995), the objective of Ireland's exchange rate policy is that the Irish pound trade vis-a-vis the deutsche mark at least as well as other former ERM narrow band currencies--even if that implied breaching parity with sterling.

3/ According to 1992 figures (i.e. before the introduction of the new system of trade accounting in the EU--the INTRASTAT), exports and imports of goods accounted for 56 percent and 48.7 percent of Ireland's GDP, respectively. Comparable figures for Belgium are 61.5 percent and 62.5 percent. For a wider comparison across OECD countries, see OECD Economic Surveys: Ireland, OECD, Paris, 1993.

of imports. 1/ A depreciation of sterling against strong ERM currencies while the Irish pound keeps its relative position in the ERM, would thus impart a substantial loss of competitiveness for the Irish export sector; unless the strengthening of the Irish pound against sterling is offset by productivity gains or by changes in other "fundamentals" of the Irish economy, this is likely to generate depreciation expectations and thus drive the Irish pound down in the ERM grid.

This chapter examines possible explanations for the recent fluctuations of the Irish pound from a long-term perspective. It looks at a number of potentially important determinants of the exchange rate against sterling since Ireland joined the ERM in 1979, and investigates the extent to which fluctuations in the Irish exchange rate can be explained by changes in economic fundamentals, as opposed to other less systematic influences. To this end, a simple model of the interaction between the Irish and the U.K. economies is developed and estimated empirically, distinguishing between short- and long-run determinants of the Irish pound-sterling exchange rate.

The structure of the chapter is as follows. Section 2 briefly reviews the Irish experience in the ERM since its inception in 1979 and describes the main trends in the nominal and real exchange rates. This sets the stage for a more formal modelling and econometric estimation of the long-run determinants of the sterling-Irish pound exchange rate, which is provided in Section 3. Section 4 summarizes the main findings and points to some policy implications.

2. Trends in Ireland's bilateral exchange rates

Ireland joined the European Monetary System (EMS) in early 1979, ending the monetary union with the United Kingdom that had prevailed since independence a half century earlier. The decision to participate fully in the EMS since its inception was a decisive turnaround in Ireland's exchange rate policy, as it became clear at the time that sterling would not initially participate in the exchange rate mechanism of the EMS. Interestingly enough, neither authorities nor market participants appeared to expect, at that point, that the task of keeping the Irish pound stable vis-a-vis the

---

1/ From the point-of-view of aggregate employment, trade links with the United Kingdom are even more important than these figures suggest. This is because labor-intensive exports are chiefly directed to the British market, while capital-intensive manufacturing exports are much more diversified geographically. A recent study which accounts for labor-intensity effects as well as for distortions of transfer pricing on Irish trade statistics, indicates that the level of dependence of Irish exports on the U.K. market has declined little over the last few years and is currently about 4 percent higher than that recorded in official trade statistics (Conroy, 1994, Low Labour Content Sectors: Implications for the Interpretation of Macroeconomic Data, Draft Research Paper, ESRI).

deutsche mark and other ERM currencies would be strongly dependent on fluctuations in sterling. 1/

These initial expectations failed to materialize, however, soon after the Irish pound joined the ERM. After some respite brought about by a revaluation of the deutsche mark in late 1979, the period 1980-87 witnessed 10 realignment episodes 2/ which resulted in a cumulative depreciation of the Irish pound against the deutsche mark of about 29 percent. Chart 1 shows that the Irish pound's slide was highly correlated with, and often preceded by, a depreciation of sterling relative to the deutsche mark. 3/

The period of frequent realignments came to an end in 1987, in the context of a broad shift toward tight fiscal and monetary policies. During 1987-92 the Irish pound was kept rather stable at around the central parity of IR£1 = 2.679. Realignment risks were gradually brushed aside and policy credibility enhanced, leading to a substantial narrowing of interest rate differentials with Germany. Also in contrast with the pre-1987 period, the Irish pound experienced a clear long-term appreciation vis-a-vis sterling. This contrasts with the experience of the early 1980s, during which the Irish pound remained well below with sterling, thus creating a widespread perception of parity with sterling as an insurmountable "market barrier."

Despite its appreciation against sterling beginning in the late 1980s, the Irish pound remained vulnerable to sharp swings in the former currency. Chart 1 shows that the Irish pound breached parity with sterling and avoided a devaluation in the ERM when sterling left the system in September 1992, but this was short-lived; a 10 percent devaluation came a few months later. Following the January 1993 devaluation, the Irish pound traded below parity with sterling, but resumed an appreciating trend vis-a-vis the former currency. Parity with sterling was gradually approached and eventually breached as sterling experienced a sharp decline in early 1995. Yet, this could not prevent a substantial depreciation of the Irish pound within the wide-band ERM. 4/

A prominent explanation for the apparent difficulties of the Irish pound in breaching parity with sterling stresses competitiveness issues. Since wages and prices are relatively rigid in the short run, a nominal appreciation of the Irish pound against sterling would entail a loss of

---

1/ See Honohan and Conroy (1994).

2/ It must be noted, however, that some of these episodes involved other currencies as well and were part of a broader realignment within the system.

3/ This was particularly the case in 1986, when sterling weakened considerably in the wake of the collapse in oil prices. During that year, the Irish pound was devalued twice, leading to the sharpest fall of the currency since the EMS was put into operation.

4/ Following the July 1993 European currency turmoil, the ERM bands have been enlarged so as to accommodate fluctuations of any member currency of up to 15 percent (either side), measured relative to the strongest currency of the system.

external competitiveness for Irish exports, at least in the short run. 1/ Substantial overvaluation of the Irish pound arising in these circumstances is thus likely to be unsustainable. Chart 2 presents prima-facie evidence in support of this view. One can observe that an appreciation against sterling has been historically associated with an appreciation in Ireland's real effective exchange rate. In particular, episodes of major realignments of the Irish pound within the ERM, such as in mid-1986 and early 1993, were immediately preceded by sharp appreciations of the real effective exchange rate. 2/

A critical step in this analysis is to measure the degree of over- or under-valuation of the pound by simply looking at changes in the actual real exchange rate. The relationship between actual changes in real exchange rate indices and external competitiveness is far from straightforward. 3/ Actual movements in real exchange rates may themselves be a response to shifts in relative competitiveness between national economies. For instance, if productivity in the domestic economy is growing much faster than abroad, the resulting real exchange rate appreciation is not incompatible with an equilibrium current account position. Likewise, a country which undergoes fiscal consolidation, leading to falling interest rates, may enjoy a real exchange rate appreciation, and this need not generate current account disequilibria. For these reasons, an analysis of the impact of competitiveness on the nominal exchange rate by simply looking at actual changes in the real exchange rate around devaluation episodes can be misleading. This is especially pertinent in the Irish case, given the far-reaching changes in productivity, fiscal performance, and in other economic fundamentals since the country joined the ERM. In light of these considerations, Section 3 looks at the impact of changes in economic fundamentals on the real exchange rate and external competitiveness of the Irish economy.

3. Determinants of Ireland's equilibrium real exchange rate with sterling

The degree of over- or under-valuation of a currency should be judged in reference to its equilibrium real exchange rate. Actual and equilibrium real exchange rates can differ due to temporary misalignments brought about by monetary shocks, wage and price stickiness and other non-systematic

---

1/ This view underlines the studies by Bartolini (1993) and Honohan and Conroy (1994) on devaluation expectations and the interest-rate premium on the Irish pound.

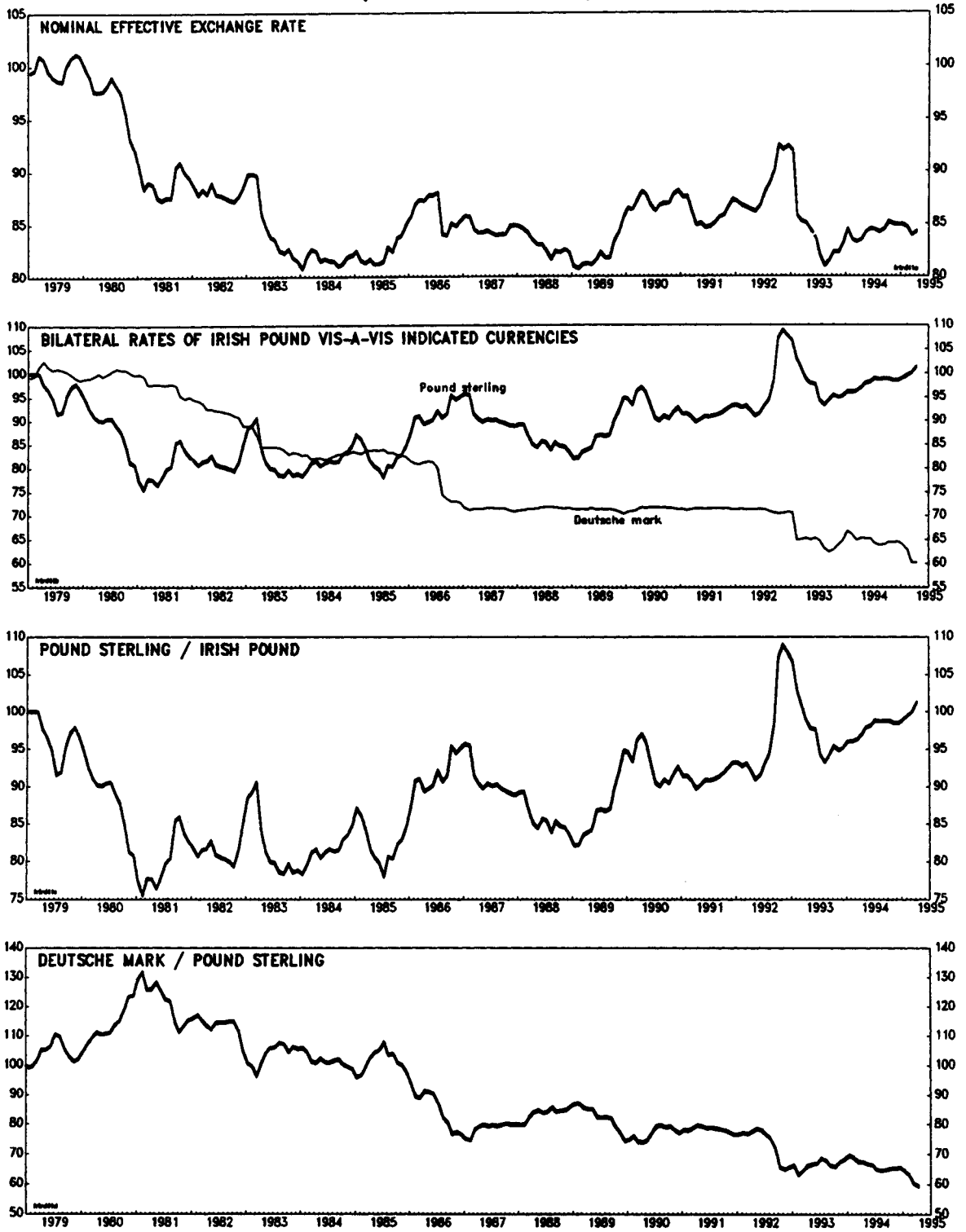
2/ This holds for different real exchange rate indices, as shown in the bottom panel of Chart 2.

3/ See, e.g., MacDonald and Lipschitz (1991) and Edwards (1989). This issue is not dealt with by existing studies (e.g., Thom (1992), Bartolini (1993), Honohan and Conroy (1994)), which assume PPP to hold. This assumption, however, is not robust for the 1979-94 period as a whole. Unit root tests provided in Table 1 cannot reject the hypothesis that Ireland's real exchange rate--both against sterling as well as in real effective terms--is non-stationary, at variance with PPP.

CHART 1
IRELAND

NOMINAL EXCHANGE RATES

(Indices: 1979Q1=100)

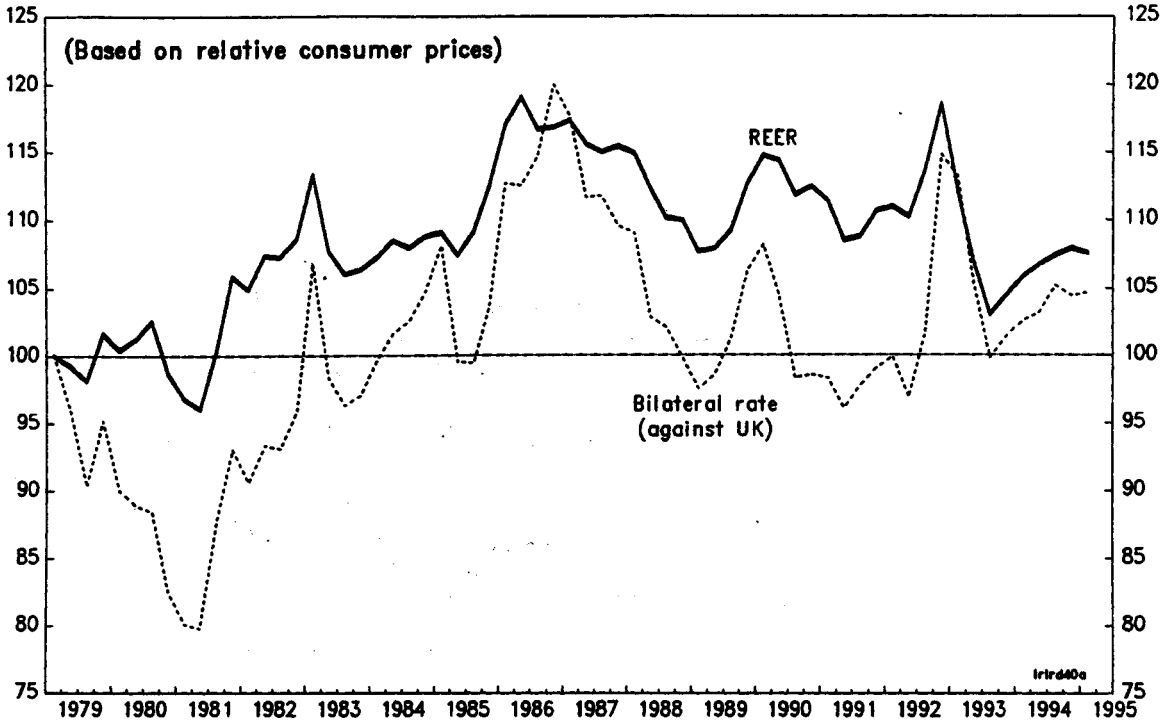


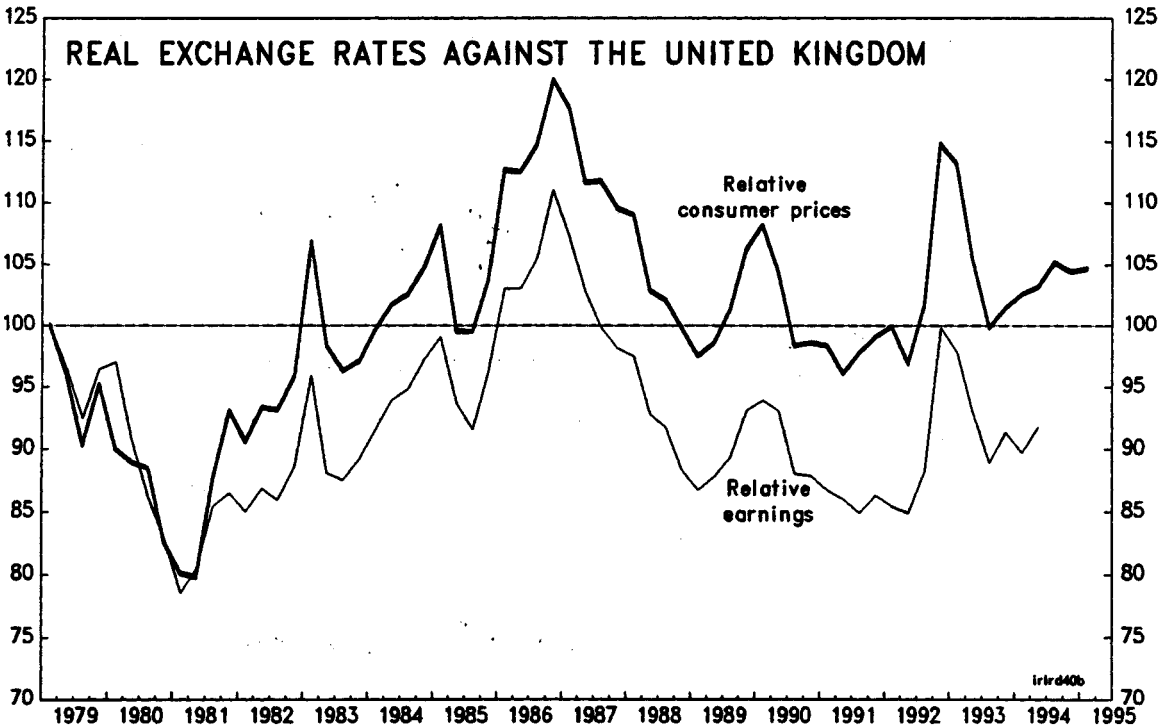
Sources: IMF, Information Notice System; and staff calculations.

CHART 2
IRELAND

REAL EXCHANGE RATES

(Indices: 1979Q1=100)





Sources: IMF, Information Notice System; and staff calculations.

Table 1. Ireland: Unit Root Tests

(In percent)

	DF 1/	ADF 2/	Lag
REER 3/	-2.37	-2.62	1
RER_{IR-UK}	-2.07	-2.78	1
$PRODIF_{IR-UK}$	-1.12	-1.64	3
$TOTDIF_{IR-UK}$	-2.60	-2.65	1
$DEBT_{IR}/GNP_{IR}$	-1.74	-1.94	2
G_{IR}/GNP_{IR}	-0.48	-2.84	2

Source: Staff estimates.

1/ Dickey-Fuller test (no time trend included among the regressors). Critical value at a 5 percent significance level: -2.91.

2/ Augmented Dickey-Fuller test where "lag" stands for the number of lags of the autoregressive term. Critical value at a 5 percent significance level: -3.48.

3/ Ireland's real effective exchange rate based on relative consumer price indices.

factors. Once these dissipate, however, it is expected that the real exchange rate moves in line with its "fundamentals", i.e., variables which determine the equilibrium position of a country's basic balance. 1/ In this general framework, the hypothesis of Purchasing Power Parity or of a constant real equilibrium exchange rate appears as a particular case which may fail to hold in a number of instances.

Although there is much controversy about the way in which distinct macroeconomic variables determine the real equilibrium exchange rate, most studies agree on the potential importance of three key variables. One is relative productivity growth. As a number of studies have shown, faster productivity growth in a country's tradable sector (relative to its non-tradable sector or to the tradable sector of its trading partners) exerts an upward pressure on domestic wages and the price of non-tradable goods. This tends to produce an equilibrium appreciation of the real exchange rate. 2/

The external terms-of-trade is another variable which usually has an important bearing on the real equilibrium exchange rate, particularly in small open economies. On the supply-side, an improvement in the terms-of-trade caused by, say, a fall in the price of imported inputs (e.g. oil) enhances the production potential of a country's export sector and hence improves its current account; 3/ in equilibrium, this will call for an appreciation of the real exchange rate. On the demand side, an improvement in the terms-of-trade raises national income and hence the demand for domestic goods. This pushes both wages and non-tradable prices up, thus also leading to an equilibrium appreciation of the real exchange rate.

Fiscal consolidation is also bound to affect the equilibrium real exchange rate through distinct channels. Important distinctions in this connection are those between the effects on goods and capital markets and between expenditure-based and tax-based fiscal consolidation. In general, fiscal consolidation will have a positive effect on domestic capital markets, stemming pressure on domestic interest rates and thus leading to an equilibrium depreciation in the real exchange rate. Yet, the effects of an expenditure-based fiscal consolidation tend to be stronger than those of tax-based fiscal consolidation due to its direct impact on goods markets. As government expenditure is usually more labor-intensive and biased towards non-tradables, an expenditure-based consolidation shifts demand away from

---

1/ This is equivalent to saying that the real equilibrium exchange rate is the level of exchange rate consistent with a current account surplus (deficit) that finances (is financed by) sustainable levels of capital outflows (inflows).

2/ The ensuing real exchange rate appreciation "corrects" for the initial positive impact of faster productivity growth on the current account balance, thus bringing it back to equilibrium. The impact of productivity differentials on the real exchange rate is widely known as the "Balassa-Samuelson effect."

3/ This effect is bound to be particularly relevant for countries with capital-intensive export industries.

wages and non-tradable goods to a greater extent and thus induces a larger equilibrium depreciation of the real exchange rate. 1/

The effect of these three variables on the equilibrium real exchange rate of the Irish pound should have been considerable. Since Ireland is a small (very) open economy, highly dependent on oil, and with a relatively large share of primary commodities in total exports, terms-of-trade changes have a major bearing on national income. On the other hand, Ireland has witnessed an impressive expansion of hi-tech sectors and a major shake-up of its traditional manufacturing sector since the early 1980s, with far-reaching effects on labor productivity. These favorable productivity developments have been reinforced by fiscal consolidation--the country moved from fiscal profligacy in the late-1970s/early-1980s to a regime of greater fiscal discipline from 1987, with emphasis on expenditure reduction.

The appendix provides a choice-theoretic general equilibrium model which spells out how these distinct transmission mechanisms operate in the context of a small open economy with close ties to a large trading partner. 2/ More specifically, the proposed model attempts to capture three basic features of the Irish economy--namely, its high openness to trade, its close links with the United Kingdom and the country's sizeable public debt. The solution to the model allows us to write the equilibrium real exchange rate between the Irish pound and sterling as

$$RER_{IR\text{-}UK} = f(\underset{+}{TOT_{IR}/TOT_{UK}}, \underset{+}{Prod_{IR}/Prod_{UK}}, \underset{+}{debt_{IR}/GNP_{IR}}, \underset{+}{G_{IR}/GNP_{IR}}) \qquad (1)$$

where TOT, Prod, debt and G, stand for the net barter terms-of-trade, aggregate productivity, the stock of general government debt and government consumption, respectively. The subscripts "IR" and "UK" indicate whether the respective variable refers to Ireland or to the United Kingdom, and f is

---

1/ On the other hand, expenditure-based fiscal adjustments tend to be more expansionary. This may attenuate (and even reverse) the extent of the equilibrium exchange rate depreciation. See, e.g., Edwards (1989) and Barry and Devereux (1995).

2/ The two-country theoretical setting of the proposed model is a useful analytical simplification, in the light of the high correlation between Ireland's real bilateral exchange rate with the United Kingdom and its real effective exchange rate (Chart 2) as well as the remarkable similarity between the yield curves in the two countries. For example, as of June 14, 1995, Ireland's interest rate differentials with Germany on 3-month, 12-month and 10-year bonds are 2.09 percent, 2.44 percent and 1.48 percent, respectively. Corresponding figures for the United Kingdom are 2.06 percent, 2.50 percent and 1.47 percent. In addition, the proposed model does allow for influences outside the Irish-United Kingdom "world", such as exogenous terms-of-trade shocks.

a non-linear functional form. The positive signs underneath (1) stand for the signs of the respective partial derivatives. 1/

Due to its non-linear functional form, equation (1) is better estimated by non-linear least squares. Also, since (1) represents a long-run relationship, estimation should be carried out in levels rather than in first-differences of the variables. 2/ The existence of cointegration can then be tested on the basis of the time-series properties of the regression residuals. Table 2 presents the estimation results.

These results suggest that all the variables have an important bearing on the equilibrium real bilateral exchange rate between the Irish pound and sterling. The signs of the values of the estimated parameters are in accordance with those of the theoretical model and their values suggest plausible long-run elasticities.

The diagnostic statistics for the estimated model are also satisfactory. 3/ The "reset" test indicates that the use of a log-linear functional form is not inappropriate, while Dickey-Fuller unit root tests ("DF" and "ADF") reject the existence of a unit root in the residuals, thus supporting the hypothesis of a long-run, cointegrating relationship among the four variables. Finally, the resulting R2-statistic is very good for an equilibrium real exchange rate model, indicating that it can explain 71 percent of actual variations in the real exchange rate.

Chart 3 depicts both the actual and the equilibrium bilateral real exchange rate computed on the basis of equation (1). The difference between the two can be viewed as an estimate of the over- or under-valuation of the Irish pound relative to sterling and reveals a number of interesting features. First, previous episodes of devaluation of the Irish pound within the ERM were just preceded by a substantial overvaluation relative to sterling. This was clearly the case in 1986 as well as in late-1992. Second, during the relatively long period of stability of the Irish pound within ERM between 1987 and mid-1992, the Irish pound-sterling real exchange

---

1/ As spelled out in the appendix, the exchange rate is here defined as the foreign price level over the domestic price level. So, a rise in the RER index implies a real appreciation of the pound.

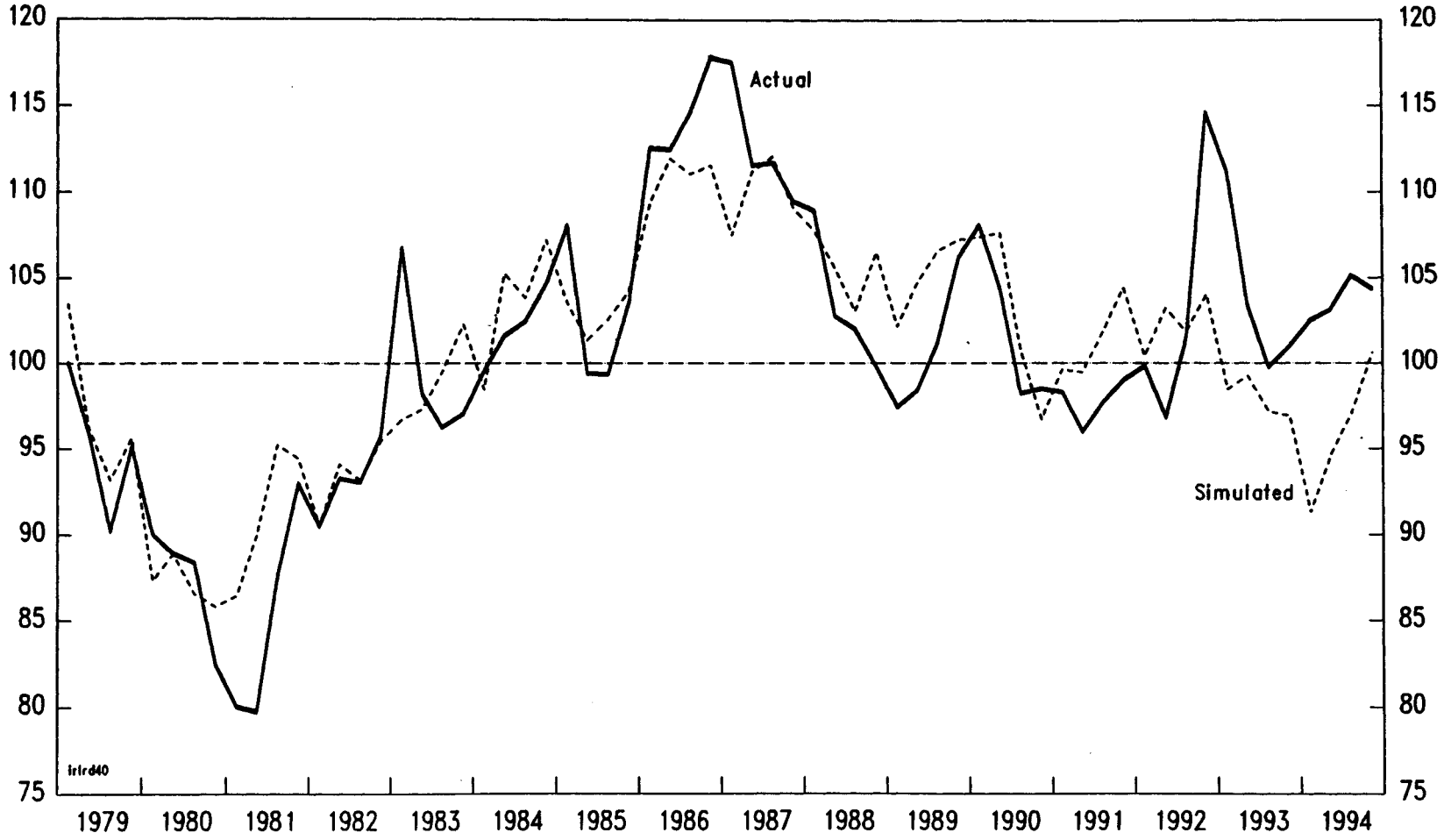
2/ The superconsistency property of least squares estimation ensures that, in the presence of cointegration, the residuals will have bounded variance and the estimated parameters will represent the long-run response of the real exchange rate to changes in the explanatory variables.

3/ The traditional Durbin-Watson statistics as well as other tests on short-run dynamic misspecification are not reported here since they are irrelevant for the issue of cointegration and the existence of a stable long-run relationship between the real exchange rate fundamentals. Also, the t-ratios reported underneath the parameters should not be given their usual interpretation in classic regression analysis. In the present context, they represent asymptotic t-ratios which indicate the degree of precision with which the respective parameter is estimated.

CHART 3
IRELAND

REAL EXCHANGE RATE AGAINST THE UNITED KINGDOM

(Based on relative CPI, 1979Q1=100)



Source: Staff calculations.

This page intentionally left blank

Table 2. Ireland: Non-Linear Least Squares Estimation of the Equilibrium Real Exchange Rate between the Irish Pound and Sterling

Model: $\text{Log (RER)} = \text{Log } \beta o + \beta_1 \log (TOT_{IR}/TOT_{UK}) + \beta_2 \log (PROD_{IR}/PROD_{UK}) + \beta_3 \log \left[\frac{G_{IR} + \beta_4 Debt_{IR}}{GNP_{IR}}\right]$

Sample period: 1979q1 to 1994q4

Parameter	Estimate	t - ratio
β_0	0.76	5.72
β_1	1.02	6.34
β_2	0.87	3.99
β_3	0.17	2.77
β_4	0.69	4.16

Diagnostic statistics

$R^2 = 0.66$ Reset test: $\chi^2_{(1)} = 0.0032$ [$p = 0.986$]

Heteroskedasticity 1/: $\chi^2_{(1)} = 0.99$ [p = 0.32]

Unit root tests for residuals: DF = -3.92 $ADF_{(1)} = -3.61$

1/ Based on the regression of squared residuals on squared fitted values.

rate was never substantially overvalued. Rather, during most of the period, the computed real equilibrium exchange rate was slightly above the actual rate. This suggests that, if anything, the Irish pound was slightly undervalued during those years and hence could "afford" a nominal appreciation against sterling.

Finally, and somewhat surprisingly, Chart 3 indicates that during late-1993 and 1994, the Irish pound witnessed a real equilibrium depreciation against sterling. A careful look at the parameters of the model reveals the reason. This was a period during which the United Kingdom's aggregate productivity 1/ rose sharply and the fiscal stance was tightened relative to Ireland, hence leading to a comparative improvement in the United Kingdom's external competitiveness. As the Irish pound continued to appreciate during the period, this produced an apparent real exchange rate misalignment of about 10 percent in early-1994, which was then subsequently reduced to just over 3 percent by the fourth quarter of 1994. Notwithstanding this improvement, the competitive position of the Irish economy relative to the United Kingdom was not especially strong on the eve of the sharp decline in sterling in early-1995. And although the erosion in Ireland's external competitiveness during early 1995 was not as large as just before previous devaluation episodes, such as in 1986 and in late-1992, this was probably not enough to sustain further substantial appreciation against sterling.

4. Summary and conclusions

This chapter has documented the main trends in Ireland's exchange rate since the country joined the ERM in early 1979 and reexamined the reasons for the recent vulnerability of the pound within the ERM. The analysis presented here lends support to the view that links with the United Kingdom continue to play a prominent role in pushing the Irish currency down in the ERM grid during periods of weakness of sterling vis-a-vis the deutsche mark. This is not only due to the substantial dependence of Irish exports on the U.K. market but also due the comparative macroeconomic performance of the two countries which, in turn, defines a sustainable or "equilibrium" level of their real bilateral exchange rate.

This chapter has developed and empirically estimated a model which captures some basic features of the interaction between the Irish and the U.K. economies. In particular, the model shows that differentials in productivity performance, in the external terms-of-trade, and in the Irish fiscal position are major fundamentals which determine the path of the real equilibrium exchange rate between the Irish pound and sterling. A comparison between the predictions of the model and an analysis of past devaluation episodes as well as of the recent depreciation of the pound within the ERM, indicates that attempts to push the nominal and hence the real bilateral exchange rate above such sustainable levels led to speculative pressures on

---

1/ Throughout the analysis productivity is measured as real GDP (the Unite Kingdom) or real GNP (Ireland) per person employed.

the currency. This suggests that, notwithstanding the increasing geographical diversification of Ireland's foreign trade since the 1980s, "excessive" appreciation against sterling remains an important constraint on Irish currency policy. 1/

The analysis of this chapter also highlighted similarities as well as differences between the recent depreciation of the pound in the wider-band ERM and past devaluation episodes. A clear similarity is the fact that a real overvaluation against sterling has, once again, brought the pound down vis-a-vis the deutsche mark and other former narrow band currencies. In other words, the Irish currency could not "afford" to appreciate against sterling to the extent necessary to keep its relative position in the ERM grid.

On the other hand, the results also suggest that the gap between the real and the "sustainable" real exchange rate with sterling was small by early 1995, relative to the degree of misalignment observed just prior to the devaluations of 1986 and of January 1993. This seems to indicate that a substantial part of the sharp depreciation against the deutsche mark in early 1995 cannot be attributed to the economic fundamentals discussed above but appears to be responding to nominal shocks or other short-term factors. This suggests that, under a favorable fiscal performance and continuing low inflation prospects, a gradual nominal appreciation of the Irish pound against sterling would therefore be warranted by the relative fundamentals between the two economies.

1/ In the long-run, however, this constraint is likely to be gradually attenuated, as Ireland continues to diversify its foreign trade and capital links away from the United Kingdom.

A Model of the Real Equilibrium Exchange Rate between the Irish Pound and Sterling

This appendix presents a model for the real exchange rate between the Irish pound and sterling which builds on three major features of the Irish economy--namely, high openness to trade, close ties with a large trading partner (the United Kingdom), and a sizeable general government debt. The model aims to formalize the mechanisms--already discussed in the main text--through which changes in key economic fundamentals determine the equilibrium path of the real exchange rate in this context.

The proposed setting is a two-country general equilibrium model, where each economy produces one tradable good and is inhabited by a two-period living agent and a long living government. 1/ The model thus consists of three building blocks: a production side, consumer behavior equations, and a government budget constraint. Under simple behavioral rules of utility and profit maximization and associated resource constraints, the model can be solved for a level of real exchange rate which equilibrates both goods and capital markets in the two countries.

1. The production side

Both countries produce a tradable good on the basis of time-varying stocks of capital (K) and labor (L) according to a Cobb-Douglas production function:

$$Y_{1_t} = A_{1_t} K_{1_t}^{\alpha} L_{1_t}^{(1-\alpha)} \qquad (1)$$

$$Y_{2_t} = A_{2_t} K_{2_t}^{\beta} L_{2_t}^{(1-\beta)} \qquad (2)$$

where A stands for total factor productivity and the subscripts 1 and 2 for "home" and "foreign" country, respectively. Under perfect competition, the marginal conditions yield

---

1/ This formulation draws on the existing literature on intertemporal general equilibrium models of exchange rate determination, applying its analytical framework to a two-country setting. For a standard one-country overlapping generations model with tradable and non-tradable goods, see Greenwood (1984). A neo-Keynesian version of the same basic approach can be found in Barry and Devereux (1995). A more general one-country model with non-tradable as well as with exportable and importable goods, is developed in Edwards (1989).

$$w_{1_t} = A_{1_t} (1-\alpha)\, k_{1_t}^{\alpha} \tag{3}$$

$$r_{1_t} = A_{1_t}\, \alpha\, k^{\alpha-1} \tag{4}$$

$$w_{2_t} = A_{2_t} (1-\beta)\, k_{2_t}^{\beta} \tag{5}$$

$$r_{2_t} = A_{2_t}\, \beta\, k_{2_t}^{\beta-1} \tag{6}$$

where k is the capital-labor ratio and w and r are the wage and the profit rates, respectively.

2. Consumer behavior

The representative consumer in the home country seeks to maximize her utility from consuming an amount c of the tradable commodity (measured in terms of labor units). Consumption can differ between the first and the second part of her life, depending on the rate of time preferences. Her maximization effort is subject to a budget constraint given by the wage she earns (w) minus a marginal tax rate (t) and how much she saves in the form of private capital (k) and government bonds (b). Since she has a two-period life and no bequest motive, everything she saves in period 1 will be consumed in period 2. Thus, her behavior can be simply described by the maximization of her utility function subject to a sequence of intertemporal budget constraints:

$$Max.\ U_1 = \log c_{1t} + \delta \log c_{1t+1} \tag{7}$$

$$s.t.\ \ c_{1_t} = w_{1_t} - \tau_t - b_{1_t} - k_{1_t} \tag{8}$$

$$c_{1_{t+1}} = (1+i_{1_t})\, b_{1_t} + (1+r_{1_t})\, k_{1_t} \tag{9}$$

where, r and i are real rates of return in private assets and government bonds, respectively. Assuming perfect arbitrage between government bonds and private stocks, (7) to (9) can be solved for the optimal savings ratio in country 1:

$$S_{1_t} = \frac{\delta}{1+\delta} (w_{1_t} - \tau_{1_t}) \tag{10}$$

Similar behavior is assumed to hold for country 2, with the only difference that the agent only holds foreign bonds as his government does

not run excessive deficits, as country 1, and so does not issue bonds. The optimal savings ratio for the foreign country is therefore

$$s_{2t} = \frac{\delta}{1+\delta}(w_{2t} - d_{1t}) \tag{11}$$

3. The government budget constraint

As indicated above, the home government has run sizeable budget deficits over the years and so has a stock of domestic liabilities (b) as well as a stock of foreign liabilities (d). Domestic bonds yield a real rate of interest i_1; foreign bonds yield a real rate of interest i_2, which is the same as the rate of return in private capital markets in country 2 (otherwise the home government would not be able to trade its bonds abroad). This allows us to write the home government budget constraint as:

$$g_{1t} + b_{1t}\, i_{1t} + d_t\, i_{2t} = t_{1t} + b_{1t+1} - b_{1t} + d_{1t+1} - d_{1t} \tag{12}$$

In contrast, the foreign government is assumed to run either a balanced budget or a relatively small deficit. Due the much larger size of the foreign government and its more developed financial relations with third countries, its small deficit could be easily financed by selling bonds outside this two-country world. Under these assumptions, the foreign government's budget constraint does not have a bearing on the solution of the model and is thus omitted.

4. The resource constraint and solution to the model

In a general equilibrium setting, savings in the two countries have to equal domestic capital formation as well as the issuing of government bonds, i.e.,

$$s_1 + s_2 = b_{1t+1} + d_{1t+1} + k_{1t} + k_{2t} \tag{13}$$

Substituting (10) and (11) into (13) and noting that $k_{1t} = [r_{1t}/A_{2t}\alpha]^{1/1-\alpha}$ and $k_{2t} = [r_{2t}/A_{2t}\beta]^{1/\beta-1}$ from the production marginal conditions, yields

$$\delta\{A_{2t}(1-\beta)\left[\frac{r_{2t}}{A_{2t}\beta}\right]^{\frac{\beta}{\beta-1}} - d_{1t} + A_{1t}(1-\alpha)\left[\frac{r_{1t}}{A_{1t}\alpha}\right]^{\frac{\alpha}{\alpha-1}} - r_{1t}\} = (1+\delta)\{b_{1t+1} + \left(\frac{r_{1t}}{A_{1t}\alpha}\right)^{\frac{1}{\alpha-1}} + \left(\frac{r_{2t}}{A_{2t}\beta}\right)^{\frac{1}{\beta-1}}\} \tag{14}$$

The latter can be further simplified by taking the logarithm approximation $\ln(1+\delta) = \ln \delta$. Moreover, it has been observed in the Irish case that the size of domestic and external debt have been roughly similar, which enables us to assume that b=d. Since in steady state the tax variables t

can be written as a function of current expenditure plus the service of existing debt and $r_1 - \gamma r_2$, we can write

$$A_{2_t}(1-\beta)\left[\frac{\gamma r_{1_t}}{A_{2_t}\beta}\right]^{\frac{\beta}{\beta-1}} + A_{1_t}(1-\alpha)\left[\frac{r_{1_t}}{A_{1_t}\alpha}\right]^{\frac{\alpha}{\alpha-1}} - \left(\frac{\gamma r_{1_t}}{A_{2_t}\beta}\right)^{\frac{1}{\beta-1}} - (1-\gamma)\, r_{1_t} b_{1_t} - \left[\frac{r_{1_t}}{A_{1_t}\alpha}\right]^{\frac{1}{\alpha-1}} = b_t + b_{t+1} + G_t \tag{15}$$

or, more succinctly, as

$$r_{1_t} = g\,(A_{1_t}, A_{2_t}, G_t, b_t) \tag{16}$$

where g is a non-linear function.

An expression for the real equilibrium exchange rate can be derived by combining the production side of the model--equations (3) and (5)--with (16). Defining the real bilateral exchange rate as the ratio between country 1 wage rate over the wage rate in country 2, 1/ and adjusting for relative terms-of-trade gains or losses with the "outside" world, we have

$$RER_t = \frac{A_{1_t}}{A_{2_t}} \cdot \frac{(1-\alpha)}{(1-\beta)} \cdot \frac{\left(\frac{r_{1_t}}{A_{1_t}\alpha}\right)^{\frac{1}{\alpha-1}}}{\left(\frac{r_{2_t}}{A_{2_t}\beta}\right)^{\frac{1}{\beta-1}}} \cdot \frac{tot_{1_t}}{tot_{2_t}} \tag{17}$$

Taking logs of (17) yields

$$Log\ RER = constant + \left(1 + \frac{1}{1-\alpha}\right)\log A_{1_t} - \left(1 + \frac{1}{1-\beta}\right)\log A_{2_t} + \left(\frac{1}{\alpha-1} + \frac{\gamma}{\beta-1}\right)\log r_{1_t} + \log\left(\frac{tot_{1_t}}{tot_{2_t}}\right) \tag{18}$$

Substituting for r_1 as defined in (18), enables one to write the real equilibrium exchange rate between the two countries as a function of the four fundamentals (A_1/A_2, tot_1/tot_2, b, G).

1/ This definition of real exchange rate is consistent with the standard CPI-based index. Since there are only two goods in each country (the traded good and labor), the price level can be considered a weighted geometric average of the two, i.e., $P_1 = p^m w_1^{(1-m)}$ and $P_2 = p^n w_2^{(1-n)}$. If m=n, the two indices are identical; if not, they will move in tandem. A look at both indices, depicted in Chart 2, indicates that they are highly correlated.

II. Recent Budgetary Developments 1/

1. Introduction

Ireland's budgetary position has improved dramatically since 1987. 2/ The double-digit deficits that prevailed in the first half of the 1980s were sharply reduced, largely owing to current expenditure restraint, declining interest rates, and robust growth (Chart 4). The annual Exchequer borrowing requirement (EBR) averaged 2¼ percent of GNP during 1987-94, while the heavy public debt burden--the legacy of past excess--was reduced from 125 percent of GNP to 94 percent over the same period as large primary surpluses were generated.

The economic backdrop to rapid fiscal consolidation was exceptionally favorable, characterized by declining interest rates and rapid growth. Interest payments as a percent of GNP consequently fell during the period from 11.2 percent to 7.2 percent. Rapid growth also facilitated tax collection, and tax amnesties in 1988 and 1994 contributed to revenue surges and a broadening of the tax base that resulted in an average tax elasticity during the period in excess of 1. 3/

Since 1989, however, the restraint on current expenditure has been loosened. Non-interest current expenditure growth averaged 8½ percent during 1989-94, to increase from 26.6 percent of GNP in 1989 to 28.8 percent of GNP in 1994. In recognition of the need to reimpose spending discipline, the Government announced at end-1994 a commitment to contain non-interest current expenditure growth to 6 percent in nominal terms in 1995 and to an average of 2 percent in real terms during 1996-97.

A less fortuitous economic environment or slippage from the commitment to medium term spending restraint could derail further progress in improving the public finances. Such progress is necessary to permit additional reforms to the tax code aimed at reducing the disincentives to seek and create employment; reduce further the still heavy debt burden; create a margin to absorb a backlog of deferred and contingent liabilities; and prepare for the eventual decline of the large flows of European Union (EU) funds. Against this background, this chapter reviews the implementation of the 1994 budget, the main features of the 1995 budget, the policy objectives and budgetary impact of tax reform, the recent evolution of current expenditure, and the medium-term fiscal outlook.

1/ Prepared by David J. Ordoobadi.

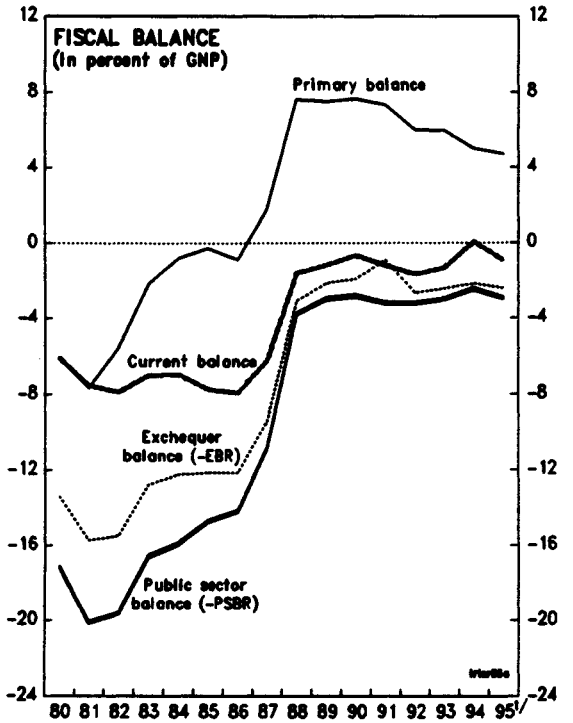
2/ A retrospective of Ireland's fiscal adjustment in the 1980s was provided in SM/94/125 (5/25/94).

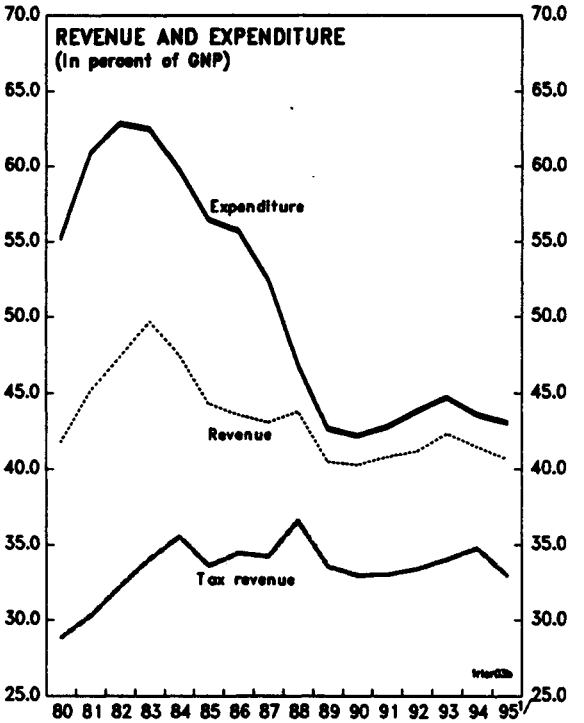
3/ The income elasticity of tax revenue averaged 1.2 during the period, and 1.03 after netting out tax amnesty proceeds.

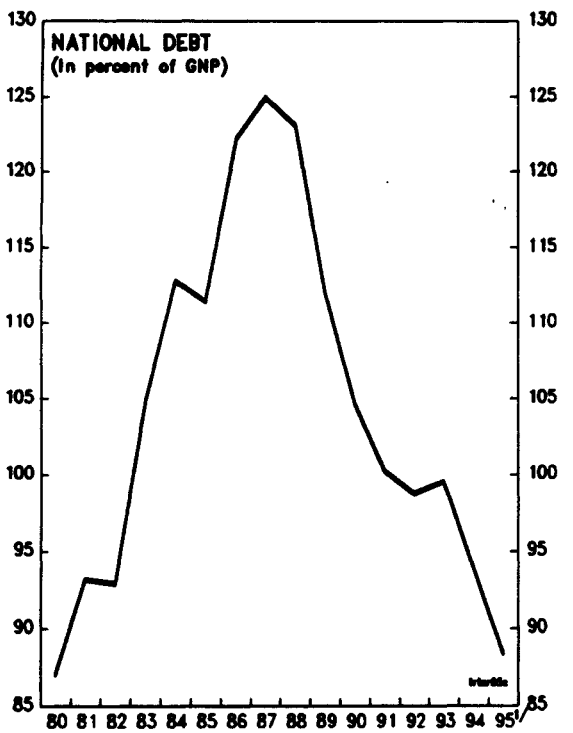
CHART 4

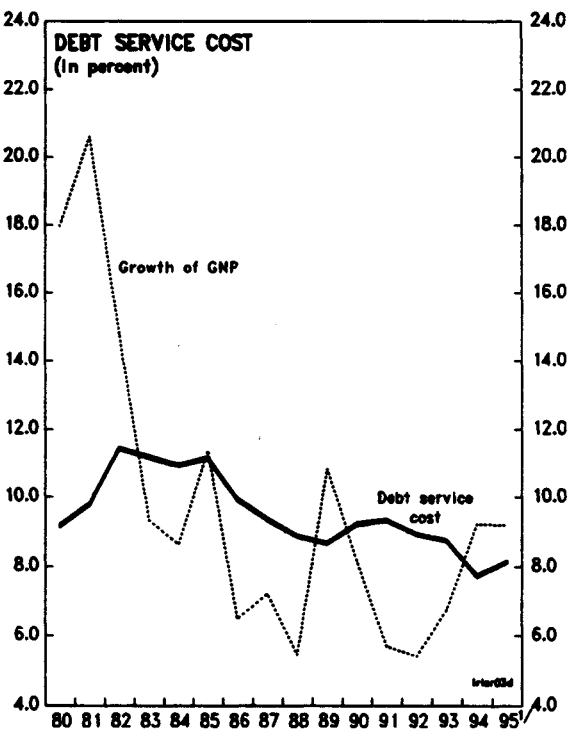
IRELAND

GOVERNMENT FINANCE









Source: Department of Finance, Economic Statistics.

1/ Budgeted.

This page intentionally left blank

2. 1994 budget and outturn

The 1994 budget was framed in the context of the social consensus that underpins an economic strategy whose key elements include: budgetary restraint; exchange rate stability; wage and price moderation; the development of infrastructure; and the promotion of investment and employment creation. It targeted an EBR higher than that achieved in 1993, largely reflecting an increase in capital borrowing (Table A16 and tabulation).

1994 Budget Outturn

	1993 Outturn	1994 Budget	1994 Outturn
	(In percent of GNP)		
Current deficit	1.3	0.9	--
EBR	2.4	2.7	2.2
Primary surplus	6.0	4.8	5.0
Exchequer debt	99.3	...	94.4
	(In percent of GDP, Maastricht basis)		
General government deficit	2.4	2.8	2.3
General government debt	96.9	...	90.0

In the event, the 1994 outturn was better than budgeted, largely because a sharper-than-anticipated rebound in domestic demand generated strong revenue growth. A (small) current surplus was recorded for the first time since the 1960s, and the Exchequer debt-to-GNP ratio was rapidly reduced.

The fiscal outturn in 1994 benefitted from three one-off factors. First, past savings of IR£120 million (0.4 percent of GNP) in debt service payments generated by the National Treasury Management Agency (NTMA) were allocated to the 1994 budget. 1/ Second, the temporary income levy, which was discontinued at the end of the 1993/94 fiscal year, yielded IR£51 million (0.2 percent of GNP) in 1994. Third, tax amnesty proceeds of IR£238 million (0.8 percent of GNP) were received in 1994.

The comfortable budgetary position in 1994 facilitated the acceleration of expenditures and the deferment of receipts. On the spending side, expenditures scheduled for 1995 (of IR£50 million, or 0.2 percent of GNP) to restructure the pension fund liabilities of An Post and Telecom Eireann were shifted to 1994. In addition, the budgeted capital infusion to Aer Lingus

---

1/ These "savings" represent the accumulation of lower-than-budgeted debt service payments held for allocation in subsequent years. The residual savings of IR£59 million were allocated to the 1995 budget.

was doubled from IR£50 million to IR£100 million as planned transfers were moved forward from 1995. In the case of receipts, an asset sale (budgeted at IR£50 million) was deferred, owing to unfavorable market conditions and the lack of a pressing need for funds in 1994. In addition, IR£59 million in accumulated savings in debt service payments were withheld for application to the 1995 budget. The acceleration of payments and the postponement of receipts in the execution of the 1994 budget, which together represented about 0.7 percent of GNP, eased the framing of the 1995 budget.

a. Revenue

The 1994 budget aimed at reducing taxes on low incomes, while broadening the tax net. The main tax relief measures envisaged in the 1994 budget included: the abolition of the temporary 1 percent income tax levy introduced in 1993; increased personal allowances; the broadening of the standard tax band; the reduction of the employers' contribution to pay-related social insurance (PRSI) on low incomes; and the introduction of exemptions from health, employment, and training levies for those on low incomes. A number of measures were introduced to expand the tax base: a tax amnesty was introduced to bring delinquents into the tax net; certain social welfare benefits were stripped of their tax exempt status; tax relief on mortgage interest and health insurance premiums was reduced; and the residential property tax was widened. In addition, certain excise duties were increased, and administrative improvements undertaken to improve compliance. Income tax and VAT rates remained unchanged. The overall impact of the revenue measures adopted in the 1994 budget was estimated at 0.5 percent of GNP.

Revenue exceeded the budget target by 3.3 percent (IR£357 million) to reach 36 percent of GNP, with virtually all sources of tax revenue ahead of budget targets (Table A21). Total tax revenue grew by 11.6 percent (or 9.2 percent net of tax amnesty receipts), compared with nominal GNP growth of 8.4 percent. The yield of excise and motor vehicle duties was well ahead of expectations, while corporation tax revenues also grew rapidly. The tax amnesty yielded IR£238 million (0.8 percent of GNP) and was applied to fund expenditures related to the restructuring of the post and telecommunications pension funds, and the deferred liabilities of the health agency.

b. Expenditure

Net current expenditure increased by 6¼ percent in 1994, three quarters of the growth of nominal GNP, notwithstanding a decline in interest payments (Table A19). The main sources of expenditure growth were social services and public sector salaries and pensions. Current expenditure exceeded the budget target because of an acceleration of payments (IR£134 million versus IR£84 million budgeted) to the post and telecommunications pension funds, a shortfall in EU budgetary contributions, and an overrun on health expenditures. Exchequer capital borrowing (2.2 percent of GNP) also exceeded the budget (by IR£154 million, 0.5 percent of GNP), largely reflecting a delay in Structural and Cohesion Fund receipts from the EU (IR£124 million). Aer Lingus received IR£100 million in 1994, twice the

amount budgeted to restructure past losses, with the excess funded by a surplus on Local Loan Fund receipts.

3. 1995 budget

The 1995 Budget

	1993 Outturn	1994 Outturn	1995 Budget
	(In percent of GNP)		
Current balance	-1.3	--	-0.9
Capital deficit	1.1	2.2	1.5
Exchequer borrowing requirement	2.4	2.2	2.4
Exchequer debt	99.3	94.4	89.4
	(In percent of GDP, Maastricht Basis)		
Current balance	-0.9	0.2	-1.1
Capital deficit	1.4	2.5	1.6
General Government deficit	2.4	2.3	2.7
General Government debt	96.9	90.0	84.8

The 1995 budget targets a higher EBR than in 1994, notwithstanding expectations for continued rapid output growth (tabulation above). Current expenditure, which is more restrained than in recent years, was budgeted to be held just within the 6 percent ceiling on non-interest expenditure announced by the Government. 1/ The budgeted growth in current revenue was modest, reflecting the nonrecurrence of tax amnesty proceeds realized in 1994, the abolition of the temporary income tax levy, and a number of tax reform measures aimed at reducing the deterrents to seek and create employment. Exchequer borrowing for current expenditure was budgeted to increase by 0.9 percentage points of GNP, while borrowing for capital purposes was slated to decline by 0.7 percentage points of GNP.

a. Revenue

Tax revenue was budgeted to increase by 3 percent (one third of the anticipated growth in national income), while non-tax revenue (mainly Central Bank surplus income) was expected to decline. Consequently, the

---

1/ Expenditure restraint was facilitated by two nonrecurrent factors. First, Departmental cash balances of IR£58 million available at end-1994 were treated as a negative expenditure in the 1995 budget. Second, the IR£50 million in pension fund restructuring payments that were shifted to 1994 from 1995 were included in the base for calculating the 6 percent expenditure ceiling. Together, these one-off factors represent 0.3 percent of estimated 1995 GNP.

total-revenue-to-GNP-ratio was slated to fall from 36.2 percent to 34.4 percent.

In addition to the one-off factors that boosted tax revenue in 1994, the sluggish pace of budgeted revenue growth is attributable to a number of discretionary revenue measures, whose combined impact in 1995 is expected to result in revenue losses of about ½ percent of GNP. 1/ The tax reform measures adopted in the 1995 budget focused on: increasing disposable income to preserve the consensus on promoting competitiveness through wage moderation; reducing the cost of employment creation, particularly at low income levels; and encouraging enterprise, particularly in the services sector. The tax code changes are expected to increase disposable income by 2-3 percent for those on low incomes, while reducing replacement ratios by 3-4 percent.

To improve the incentives to seek employment, a number of measures were adopted to increase take-home pay, particularly of low-income workers. General income exemption limits were increased by 2.8 percent; the personal allowance raised by 6.5 percent; the standard band widened by 8.5 percent; and allowances for employee PRSI were introduced. To reduce the replacement ratio, the 1995 budget initiated a process of shifting the basis for dependency allowances from employment to income status. As a first step in this regard, child benefits for the employed were increased, while those for the unemployed were left unchanged.

To promote enterprise and employment creation: the income threshold for the reduced rate (9 percent) of employer PRSI was increased from IR£9,000 to IR£12,000; the standard corporation tax rate 2/ reduced from 40 percent to 38 percent; the stamp duty on the transfer of property and shares between associated companies abolished; and tax incentives for small business, family firms, and the renewal of certain urban areas and traditional seaside resorts enhanced.

To broaden the tax base, the tax relief on covenants was curtailed. Covenants--largely used to shelter parental income by covenanting a transfer to fund the educational expenses of university-aged children--have been growing by one fifth annually. 3/ Covenants are now limited to transfers to elderly dependents and certain charities. In addition, the Government's commitment to continue the phased reduction of mortgage interest and health

---

1/ Tax cuts adopted in the 1995 budget are expected to reduce revenue by IR£213 million (0.6 percent of GNP) in 1995 and by IR£411 million (1.2 percent of GNP) over a full year. Tax increases are expected to yield IR£54 million (0.2 percent of GNP) in 1995 and IR£89 million (0.3 percent of GNP) over a full year.

2/ The standard corporation tax rate applies to all firms not engaged in manufacturing or certain internationally traded services, for which a 10 percent rate applies.

3/ The abolition of university fees offsets the loss of this shelter.

insurance tax relief was confirmed. However, tax relief was extended to all tenants living in private rented accommodation.

There were also some tax increases, namely the deposit interest retention tax (from 10 percent to 15 percent), excise taxes on cigarettes, and the reduction in the allowance for full-rate PRSI contributors.

b. Expenditure

Gross current expenditure was budgeted to increase by about 6 percent in 1995, thereby declining as a percent of GNP from 44.3 percent to 43.3 percent. Interest payments and economic services were expected to increase as a share of gross current expenditure, while the share of spending on social services, infrastructure, and security was expected to decline. The major discretionary expenditure measures adopted in the 1995 budget are expected to increase spending by 0.6 percent of GNP in 1995 and by 0.9 percent over a full year. They include a 2½ percent in social welfare benefits at a cost of IR£56 million in 1995 and IR£111 million over a full year; increased child benefits of IR£34 million in 1995 and IR£104 million over a full year; and the abolition of university fees at a cost of IR£10 million in 1995 and IR£42 million over a full year. The public sector wage bill was budgeted to grow by 5.7 percent, with 40 percent of the increase accounted for by an expansion in the ranks of health and education workers and the balance reflecting an average increase in public sector salaries of 3.4 percent. Capital expenditure was budgeted to increase by 16.5 percent, largely reflecting a surge in capital resources in the form of EU funding delayed from 1994.

c. First quarter outturn

The first quarter Exchequer performance was broadly in line with the budget, when adjusted for seasonal factors and the impact of one-off events. A buoyant economy contributed to satisfactory revenue growth, while current expenditures were dampened by lower interest payments (tabulation below).

First Quarter of 1995 Exchequer Outturn

(In millions of Irish pounds unless otherwise indicated)

	1994 Outturn	1995 Budget	First Quarter 1995 Outturn	First Quarter 1995 Percent of Budget
Current expenditure	11,188	11,852	2,771	23.4
Current revenue	11,203	11,542	2,537	22.0
Current balance	15	-310	-234	75.5
Capital balance	-687	-503	-91	18.1
EBR	672	813	325	40.0

Although the first quarter results were satisfactory, the budgetary arithmetic was subsequently affected by a court order to make IR£200 million (compared with IR£60 million budgeted) in equality payments to married women who had in the past received inadequate welfare benefits. These equality payments, scheduled to be made later in the year, will cause the 6 percent nominal expenditure ceiling to be breached. The additional expenditure, (equivalent to 0.4 percent of GNP), will be financed through an asset sale to neutralize its impact on the deficit. 1/ Moreover, the additional payment will not be included in the base for calculating the 2 percent real ceiling on expenditure growth during 1996-97.

4. Tax reform

Since 1987, the Government has been pursuing a policy of tax reform aimed at improving the incentives to create and seek employment. These measures have led to the reduction in the standard rate from 35 percent to 27 percent, a cut in the top rate from 58 percent to 48 percent, an 89 percent expansion in the standard tax band, and the narrowing of the average tax wedge from 43 percent of total employer labor cost to 37 percent. The reforms are part of a long-term strategy for reform aimed at favoring incentives to work, tackling the poverty trap, reducing the tax wedge, and encouraging enterprise and employment. The reforms, targeted at lower paid workers and new job entrants, aim at widening the standard tax band so that only high-income earners are taxed above the standard rate, maintaining real increases in personal allowances, reducing tax expenditures associated with mortgage interest and health insurance relief, improving tax collection and enforcement, integrating the tax and social welfare codes, and, as resources permit, further reducing the standard corporation tax rate.

1/ Local loan fund assets will be securitized and sold to generate capital income sufficient to offset the increased current spending.

Despite the progress made, the tax code contains a number of features that need to be addressed. First, the imposition on labor is high (see below). However, the scope for shifting the tax burden to other sources is limited. A shift toward indirect taxation is hampered by the openness of the economy, and in particular border trade with the United Kingdom and Northern Ireland, as well as the harmonization within the EU of indirect taxes. Moreover, increases in such taxes would--indirectly--affect disposable income and may well ultimately be reflected in demands for higher wages. Increasing the deposit interest retention tax is similarly restricted by the possibility of driving deposits offshore. While increases in property taxes would appear desirable, particularly as their incidence is not easily shifted, there is strong political resistance to further recourse to this revenue source.

International comparisons (tabulation below) suggests that Ireland's tax imposition on labor, which represents about 49 percent of total revenue, is higher than that of the United Kingdom, but less than OECD and EU averages. However, the Irish data is skewed by the existence of a large, but lightly taxed agricultural sector and the relatively low proportion of workers in the working age population, reflecting a low female participation rate.

Tax Revenue Structure, 1992
(In percent of total revenue)

	Personal Income	Corporate Income	Social Security	Payroll	Property	Goods & Services	Other
Ireland	32.0	6.8	15.3	1.3	4.4	40.2	--
United Kingdom	28.4	7.6	17.8	--	7.9	34.4	3.7
OECD average	29.7	6.8	25.0	0.9	5.5	30.3	1.3
EU average	26.3	6.7	28.9	0.4	4.3	32.1	0.8

Source: OECD

Second, income taxes rise sharply at relatively low levels of income, contributing to the high tax wedge in Ireland. The standard 27 percent band extends to income levels of up to IR£8,900 for single wage earners and IR£17,800 for married wage earners, and rises to 48 percent on higher incomes. As a result, single workers earning less than two thirds of the average industrial wage of IR£14,000 are taxed at the higher band.

Third, there is a wide gap between the 10 percent preferential tax rate accorded manufacturing and certain international services, and the standard 38 percent corporation tax rate. Reliance on tax-based incentives and direct subsidies has contributed to a heavy imposition of taxes on labor, while deterring the development of an indigenous service sector. The preferential tax rate may also affect the types of foreign manufacturing activities attracted to Ireland. Cost centers, such as research and

development may not be located in Ireland as these would tend to reduce the profitability of the Irish subsidiary.

Fourth, replacement ratios remain high. Even after the reforms of the 1995 budget, social welfare payments represent 60 percent of the average industrial wage for a family with two children and 70 percent in the case of a family with four children.

5. Recent trends in current expenditure

During 1989-94, gross current noninterest expenditure increased at an annual average rate of about 8½ percent, compared with nominal GNP growth of almost 7 percent. The structure of current expenditure changed during this period. As a share of gross current expenditure, interest payments declined from 22 percent to 16 percent, while social service expenditures increased from 55 percent to 58 percent, reflecting increased health care costs and a policy to improve the real level of social welfare benefits. 1/ Public sector pay and pension expenditure rose as a share of total expenditure from about 30 percent to 32 percent, reflecting per capita pay increases of about 7 percent annually (tabulation below).

Current Expenditures, 1989-95
(In percent of gross current expenditure)

	1989	1990	1991	1992	1993	1994	1995 Budget
Interest payments	21.9	22.1	20.8	19.4	18.3	16.2	16.6
Economic services 1/	6.6	6.6	7.0	7.4	7.4	7.2	7.8
Infrastructure	0.6	0.6	0.6	0.6	0.6	0.7	0.5
Social services	55.4	55.3	55.8	57.5	57.9	58.7	58.1
Security	7.1	7.5	7.5	7.4	7.3	7.4	7.2
Other	8.3	7.9	8.2	7.8	8.5	9.8	9.8
Memorandum item:							
Pay and pensions included above	29.9	30.4	29.6	30.9	31.4	31.8	31.8

1/ Operations in support of industry, agriculture, and tourism.

The main components of the current expenditure in the Irish budgetary presentation are Central Fund services (about one quarter of total current expenditure), which comprises interest on the national debt, payments to the EU, and certain other non-discretionary current expenditure. The other

---

1/ The Government is committed to increasing social welfare benefits to the minimally adequate rate recommended by the Commission on Social Welfare (see below). As a result, real social welfare benefits have increased rapidly.

component of current expenditure--non-capital supply services--accounts for the balance of current expenditure, including social services, infrastructure, the costs of services provided to the agricultural, industrial, and tourism sectors, and spending on security.

Central Fund services increased at annual rate of 2.8 percent during 1989-94; they are budgeted to increase by 5.9 percent in 1995. The main component of Central Fund expenditure is the cost of servicing the national debt which in recent years has remained relatively static, growing only at an average annual rate of 0.8 percent during 1989-94. In addition, savings in debt service costs generated by the NTMA have been applied to subsequent budgets (IR£120 million of such savings were applied in 1994 and IR£59 million in the 1995 budget). In 1995, debt service expenditures are budgeted to increase by 8.2 percent. The next largest component of Central Fund expenditure is Ireland's contribution to the EU, which has increased 11.8 percent per annum during 1989-94; an increase of 7.3 percent is budgeted in the 1995 budget.

Expenditure on gross non-capital supply services rose by 8.3 percent annually during 1989-94; it is budgeted to grow by 6 percent in 1995. Spending on social services, which accounts for about three quarters of the total, increased at an annual rate of 8.4 percent. The rapid increase in social welfare expenditure reflects the increase in the unemployment rolls during 1989-93, substantial real increases in all social welfare payments, the introduction of new allowances and the expansion of existing social assistance programs, and large increases in supplementary welfare allowances, especially for rent and mortgage payments.

Government discretion in determining the level of social benefits will affect the evolution of social assistance expenditure over the short run. The Government is committed to maintaining the real level of social welfare benefits. In the last five years there have been sharp real increases in social welfare benefits (which have exceeded increases in industrial wages) as the Government has pursued a policy of bringing all rates of social welfare payments up to the minimally adequate rate recommended by the Commission on Social Welfare. Further increases above the rate of inflation would be needed to meet the recommended minimally adequate rates.

The growth in health expenditure--which increased by 11.4 percent annually during 1989-94--is the result of demographic and technological factors: increased life expectancy has contributed to an increase in the population over 65, a group that accounts for a disproportionate share of health spending, while the need to replace medical equipment made obsolete by technological advances has also contributed to the increase in health spending.

Expenditure on education, which has increased by 8.7 percent annually during 1989-94 and is budgeted to increase by 6 percent in 1995, has undergone a reorientation in emphasis, reflecting a large decline in primary enrollments and a less important increase in university enrollments. Budgetary savings from these changes are likely to be offset, however, by

the commitment to improve the pupil-to-teacher ratio at the primary level, a higher proportion of students pursuing secondary and university training, the abolition of university fees introduced in the 1995 budget, and an anticipated increase in the enrollment of mature students.

Exchequer pay and pension expenditure increased 8.4 percent annually during 1989-94; it is budgeted to increase by 5.7 percent in 1995. Public sector salary increases are established in the context of multi-year wage agreements for the private and public sectors negotiated by employer, employee, and government representatives. Much of the rapid increase in pay and pensions in recent years reflects the accumulation of increases deferred in previous budgets when fiscal retrenchment was at a premium.

Budgetary planning has been disrupted by the need to make periodic cash infusions to public enterprises and meet deferred liabilities. Public enterprises have received periodic capital injections to help service publicly guaranteed debt, finance pension plans, and meet past losses and restructuring expenses. Aer Lingus received IR£175 million during 1993-94 to cover past losses and for restructuring expenses; NET, a fertilizer company, received IR£22 million during 1993-94 to cover debt service payments; and IR£134 million was paid in 1994 to cover the transfer of employees from civil service status to the payrolls of An Post and Telecom Eireann and meet unfunded liabilities. These budgetary transfers to public enterprises amounted to about ½ percent of GNP annually during 1993-94.

Deferred and contingent liabilities (such as the court-ordered payment to married women welfare recipients in 1995) and further capital infusions to public enterprises are likely to continue to disrupt expenditure control. Likely prospective transfers to public enterprises during 1995-97 include: IR£40-50 million in restructuring expenses to Irish Steel (subject to EU approval); IR£141 million to Bord na Mona, the peat company, (subject to EU approval), and IR£181 million in further payments to the pension funds of An Post and Telecom Eireann. Prospective contingent liabilities include compensation to recipients of tainted blood transfusions who contracted hepatitis and the reimbursement of EU livestock intervention receipts. 1/

6. Medium-term outlook

The staff's baseline medium-term projections reflect the authorities' policy objectives, expectations for continued robust growth, and (at least until the turn of the century) substantial transfers from the EU. Among the policy objectives having a major impact on the projections are the tax reform and discretionary expenditure measures adopted in the 1995 budget,

---

1/ The amounts involved for the compensation to blood recipients and for EU reimbursement are subject to judicial decision and discussion with the EU, respectively, and are therefore uncertain. However, these contingent liabilities coupled with the payments associated with the court ruling on arrears to married women welfare recipients could represent as much as 1 percent of GNP.

whose full-year impact will not be felt until 1996. The authorities' intention to continue tax reform results in a projected elasticity of tax revenue that is lower than that experienced since 1987. Their intention to limit real non-interest expenditure growth to 2 percent during 1996-97 is also taken into account for those years. Expenditure restraint is continued thereafter in the projections as the means to balance the authorities' objectives of achieving a phased reduction in the deficit, debt reduction, and tax reform (tabulation below).

Demographic factors are expected to facilitate further improvements in the public finances, at least over the medium term as the number of dependent children is expected to decline. Over the long run, the financing of retirement benefits is likely to pose budgetary pressure, although this effect is likely to come some 20 years later than in other OECD countries.

The projections illustrate the impact of the full-year effects of the tax reform measures and increased expenditure adopted in the 1995 budget on 1996, which shows a sharp increase in the EBR to 3.0 percent of GNP from the 2.4 percent budgeted in 1995. They also illustrate the need for a continued tight rein on expenditure to balance the competing goals of tax reform and debt reduction. In the projections, containing real noninterest current expenditure growth during 1997-2001 to 2 percent per annum permits a steady decline in the Exchequer debt-to-GNP ratio to 69.7 percent by 2001, notwithstanding a projected decline in current revenue from the 34.4 percent of GNP budgeted for 1995 to about 31 percent of GNP by 2001. The projected decline in current revenue as a percent of GNP would permit continued tax reform aimed at reducing the tax impediments to job search and creation. This combination of policies would also permit the attainment of the Maastricht target of a general government debt-to-GDP ratio of 60 percent early in the next century.

Baseline Medium-Term Budgetary Outlook
(In percent of GNP)

	1995 Budget	1996	1997	1998	1999	2000	2001
Current revenue	34.4	33.8	33.2	32.7	32.2	31.6	31.1
Current expenditure	35.3	34.8	33.6	33.2	32.4	31.5	30.7
Interest expenditure	7.2	7.4	6.7	6.4	6.2	5.9	5.6
Current balance	-0.9	-1.0	-0.3	0.1	0.4	0.8	1.1
Capital balance	-1.5	-2.0	-2.0	-2.1	-2.1	-2.2	-2.2
EBR	2.4	3.0	2.3	2.0	1.7	1.4	1.1
Exchequer debt	89.4	86.6	83.3	79.9	76.6	73.2	69.7
Primary balance	4.8	4.4	4.4	4.4	4.5	4.5	4.5
(In percent of GDP, Maastricht basis)							
General govt. deficit	2.7	2.7	2.3	2.0	1.6	1.2	0.8
General govt. debt	84.8	80.8	77.5	74.0	70.5	66.7	62.8

Sources: Data provided by the authorities; and staff projections.

The baseline scenario would be adversely affected by a reduction in economic growth or an increase in interest rates. A reduction in the real growth rate from the 4.5 percent annual rate of the baseline scenario to 3.5 percent would result in an EBR of 3 percent of GNP at the end of the projection period, compared with the baseline EBR of 1.1 percent of GNP. Under the slower growth scenario, the Exchequer debt-to-GNP ratio at the end of the projection horizon would be 10 percentage points higher than that of the baseline scenario. An increase in the average interest cost of Exchequer debt of 1 percentage point would, by the end of the projection period, result in an EBR of 2.3 percent of GNP (compared with 1.1 percent of GNP under the baseline scenario, while Exchequer debt would represent three quarters of GNP (compared with about 70 percent under the baseline scenario) (tabulation below).

Sensitivity of Medium-term Budgetary Outlook
(In percent of GNP)

	1995 Budget	1996	1997	1998	1999	2000	2001
				Slow Growth Scenario			
EBR	2.4	3.1	2.9	2.9	2.9	2.9	3.0
Exchequer debt	89.4	87.8	85.8	84.1	82.5	81.0	79.7
Primary balance	4.8	4.2	4.0	3.8	3.7	3.6	3.4
				Higher Interest Rate Scenario			
EBR	2.4	3.4	3.2	3.0	2.8	2.5	2.3
Exchequer debt	89.4	87.1	84.7	82.4	80.0	77.6	75.2
Primary balance	4.8	4.4	4.4	4.4	4.5	4.5	4.5

As shown in the tabulation below, allowing real noninterest current expenditure to grow by 4 percent per annum after 1997 would result in an EBR of 3.2 percent of GNP in 2001 and Exchequer debt-to-GNP ratio of about 75 percent. The growing Exchequer borrowing requirement and diminishing pace of debt reduction of this scenario highlight the importance of maintaining expenditure restraint.

Rapid Expenditure Growth
(In percent of GNP)

	Budget	1996	1997	1998	1999	2000	2001
EBR	2.4	3.0	2.3	2.5	2.8	3.0	3.2
Exchequer debt	89.4	86.6	83.3	80.4	78.1	76.2	74.7
Primary balance	4.8	4.4	4.4	4.5	4.1	3.7	3.3

III. Proposed Changes to the Structure of the Irish Government Bond Market 1/

1. Introduction

A major restructuring of the market for domestic Irish Government Bonds (IGBs) has been proposed by the NTMA, the entity charged with funding Exchequer borrowing requirements and managing the national debt. Under the proposal, the agency-only system of trading IGBs, which has been in place since 1799, would be replaced in October 1995 by a market-making system based on a group of primary brokers committed to quoting firm two-way prices for IGBs.

The changes to the IGB market represent a key element of the Irish authorities' objective of conforming to international conventions in the regulation and structure of financial markets. Other adaptations include legislation to incorporate the Irish Stock Exchange (which now operates as a division of the International Stock Exchange of the United Kingdom and the Republic of Ireland) in Ireland and enable the Central Bank to supervise the Exchange and its members. Other Exchange rules, including listing and membership requirements, would be established and monitored by the Exchange. In addition, the Investment Intermediaries Bill aims at regulating all investment intermediaries not covered in the Stock Exchange Bill. The enactment of these two pieces of legislation would permit firms authorized by the Central Bank or Department of Enterprise and Employment to provide investment services throughout the EU.

The rationale for the proposed reform of the IGB market is threefold. First, since a system of market making based on primary brokers has become the norm in government bond markets, the NTMA hopes that its adoption in Ireland will increase the attractiveness of the Irish market to investors. Second, the NTMA expects that the introduction of a market-making system would reduce trading costs, increase turnover, tighten spreads, and lower the Exchequer's borrowing costs. Finally, the move to a primary broker system has been given impetus by the ruling of the Competition Authority in June 1994 that stock exchange regulations mandating agency-only broking and a system of fixed commissions were anticompetitive. Commissions fell sharply subsequently and a hybrid market has developed that is neither strictly based on agency-only broking, nor entails an obligation by brokers to make continuous markets.

Much progress has already been made in improving the efficiency of the IGB market and reducing funding costs. Average daily turnover increased by a factor of 10 during the 1980s, while the spread on IGBs over deutsche mark denominated bonds has fallen sharply as a result of a successful effort to correct earlier macroeconomic imbalances (Chart 5). Although the largest element of the spread between IGBs and those of other governments is the

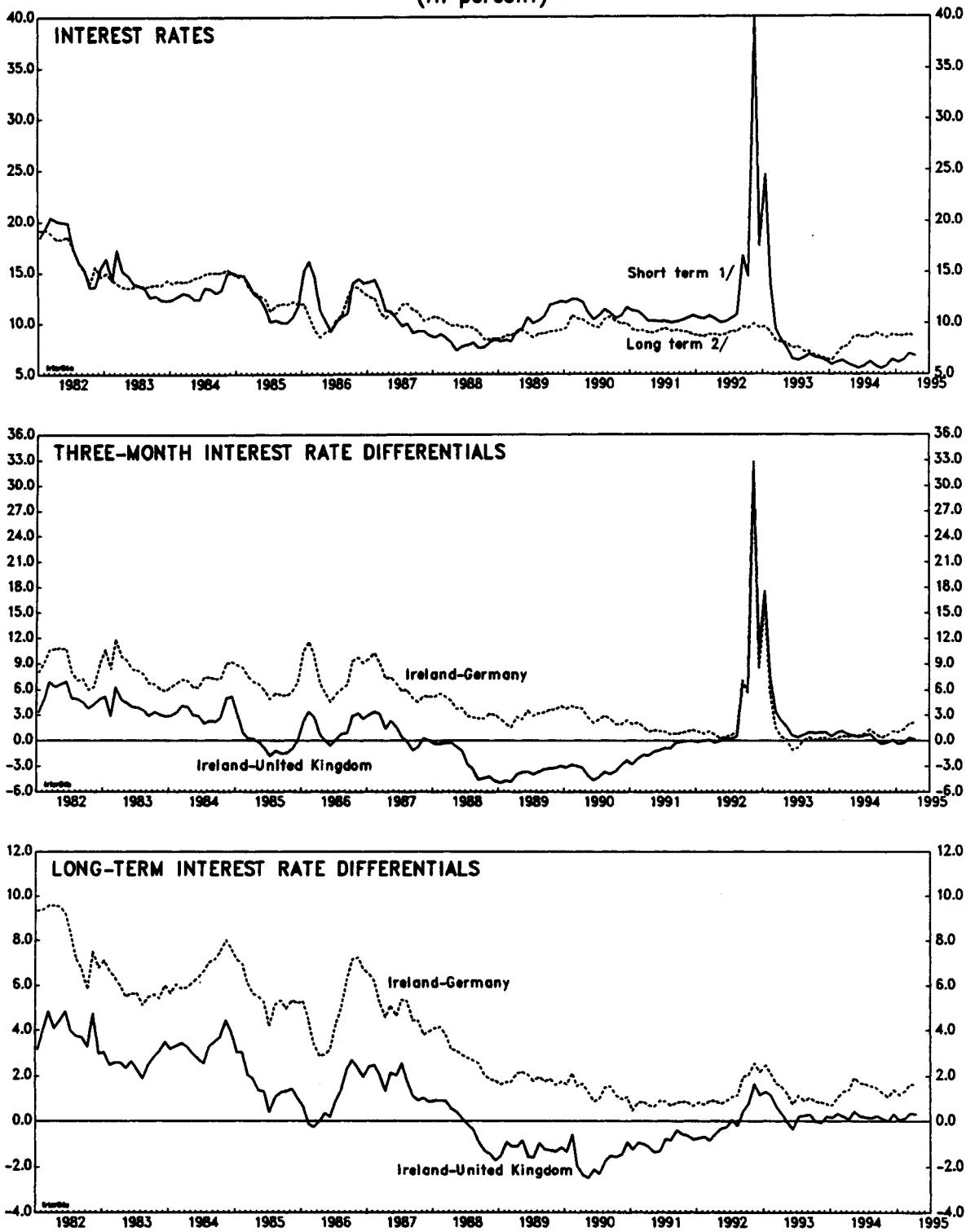
---

1/ Prepared by David J. Ordoobadi.

CHART 5
IRELAND

INTEREST RATE DEVELOPMENTS

(In percent)



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

1/ Three-month interbank deposit rate.
2/ Rate on Irish Government 15-year securities.

This page intentionally left blank

premium for currency and inflation risk demanded by investors (factors little influenced by market structure), a reduction of transaction costs and greater ease in buying and selling IGBs would tend to reduce the liquidity premium on Irish securities. 1/

The proposed reforms represent a sweeping change in the way IGBs are marketed. The small size of the IGB market, the limited number of likely candidates to become primary dealers, and the additional exposure of dealers to market risk under a market-making system dictate that careful attention be given to the introduction and supervision of the new system.

This chapter reviews the current structure of the IGB market, highlighting the NTMA's central role in primary issuance and supporting the secondary market; describes the NTMA's proposal for instituting a primary dealer system, including the obligations and privileges of primary dealers; and considers the issues raised by the proposed change in market structure, focusing on the potential risks of the transition.

2. Current market structure

a. NTMA and primary issuance

Established in 1990, the NTMA is responsible for the borrowing and debt management functions previously performed by the Department of Finance. 2/ The large size of Ireland's debt, the complexity of debt management, and the need for a flexible management structure and qualified personnel to realize cost savings and limit risk were cited as the main rationale for the NTMA's establishment. In carrying out its functions, the NTMA seeks to minimize the long-term costs of servicing the national debt, within annual guidelines 3/ on debt management issued by the Department of Finance. The NTMA pursues sustainable cost minimization in three ways: by selling bonds at the lowest possible yield; structuring its portfolio to take advantage of yield curve developments; and reducing transaction costs. The NTMA arranges

---

1/ Although the NTMA has not attempted to quantify the reduction in funding costs that would arise from the successful adoption of a market-making system, it expects a doubling of turnover to result. Assuming that this increase in liquidity resulted in a 10 basis point decline in the liquidity premium on IGBs, funding costs would, over time, decline by IR£14 million annually.

2/ Its constituent legislation states in relevant part that the NTMA's objective is "to borrow moneys for the Exchequer and to manage the National Debt on behalf of and subject to the control and general superintendence of the Minister for Finance."

3/ These guidelines, which leave a large degree of latitude to the NTMA in its debt management operations, typically indicate financing requirements over the year and preferences of the Department of Finance on the sources of funding, including, for example, the balance between fixed versus floating and domestic versus foreign debt.

tap issues 1/ via the Government Broker who acts as the NTMA's agent on the stock exchange. There are also regular, typically quarterly, auctions of the long bond open to all, but in practice bids are generally made only by brokers.

The NTMA's performance is measured by two benchmarks: the annual budgetary allocation to debt service payments, and a shadow portfolio 2/ against which the cost of the actual portfolio is assessed. This latter assessment, undertaken by J.P. Morgan, seeks to measure in Irish-pound terms the mark-to-market value of all future principal and interest debt service payments of the NTMA's obligations. In this way, the full economic costs of portfolio decisions are considered over their lifespan, rather than in one particular year. However, the assumptions underlying the anticipated performance of the benchmark and the NTMA's portfolio may not apply during times of extreme market turbulence, as these assumptions are typically influenced by historical ranges of average market movements. In 1993, the benchmark was revised to reflect expectations for global interest rates to rise, imparting a tilt in the NTMA's portfolio toward longer maturity, fixed rate debt.

In addition to minimizing funding costs over the long run, the NTMA is responsible for containing risks. Chief among the risks faced by the NTMA is underperformance relative to its two benchmarks, including in particular the annual budgetary allocation for debt service. 3/ In order to minimize the risk of underperforming its shadow portfolio, the divergence of the NTMA's actual portfolio from the composition of the benchmark is likely to be limited, 4/ except in the event of large shifts in market expectations. In addition to the risk of underperformance, the NTMA seeks to contain liquidity risk (which would compromise its ability to refinance maturing debt and meet the Exchequer's new borrowing requirements) by spreading the maturity structure of government debt (Tables A36 and A37). A

1/ Taps are so named because they allow issuers to respond to market demand by opening the tap to permit new amounts of existing bonds to flow into the market. The tap is not opened in falling markets. By periodically reopening existing bonds, the liquidity and depth of benchmark issues can be increased. Bonds not fully subscribed in auctions may also be sold through subsequent taps.

2/ The composition of the shadow portfolio, which is confidential, is determined by the Department of Finance, the NTMA, and J.P. Morgan.

3/ Since the budget is on a cash basis, this benchmark is in practice relatively easy to outperform given the NTMA's latitude in determining the maturity and coupon profile of new debt issuance. In exercising this latitude, however, the NTMA needs to balance both short- and long-term considerations, a discipline imposed by the shadow portfolio. In practice, the NTMA's actual annual debt service payments have been kept well below the budgeted target and these "savings" have been accumulated and applied as a source of funds in subsequent budgets.

4/ Benchmarks thus embody both an expectation for debt management cost and acceptable risk.

balanced maturity structure is also pursued to reduce the market impact of NTMA activities. Credit risk is controlled by the imposition of exposure limits on counterparties. Operational risk is managed through the segregation of the NTMA's dealing, processing, payments, and reporting and control functions.

b. Secondary market

The agency-only broking system which has been in place since 1799 is an order-driven market in which brokers match buyers and sellers; they do not execute trades immediately by temporarily taking the security onto their books or selling bonds from inventory. Trades are executed on the Irish Stock Exchange, which is a self-regulatory organization. 1/ Settlement on the secondary market is typically made the next business day, although deferred settlement is possible. The NTMA quotes terms for deferred settlement of up to 7 days. The Central Bank operates a settlement office, which handles 90 percent of all IGB transactions, to increase efficiency and reduce the risk of default. The transfer of securities is matched against payment guaranteed by settlement banks.

The NTMA is quite active in promoting secondary market liquidity, 2/ although it is not strictly speaking a market maker, a function that would be incompatible with its objective of funding the Exchequer's borrowing requirements. To provide liquidity and gather market intelligence, the NTMA maintains a daily presence in the secondary market through a trader that manages a small fund. In addition, the NTMA bids continuously at below the market clearing level for lots of at least IR£5 million of all designated benchmark bonds, with the view to supporting the market and establishing a floor in unsettled conditions; the liquidity so provided is less (and less certain) than what would be expected in a market-making system, however. The NTMA has established clearly defined tap and auction procedures to permit planning by market participants. It has also adopted a policy of concentrating issues in benchmark bonds as another means of promoting liquidity and depth. 3/ The NTMA facilitates stock switches from illiquid

---

1/ The pending Stock Exchange Bill will, in accordance with the EU Investment Services Directive, name the Central Bank as the competent authority to supervise the exchange and its members. Under this legislation, the stock exchange (and any other subsequent exchanges) would be incorporated in Ireland with a broadly based board that represented its members', users', and the public's interests.

2/ An efficient secondary market serves many purposes: it provides a basis for pricing of new issues; underpins the NTMA's continued access to funds; and limits the market impact of the NTMA's activities.

3/ A deep cash market promoted by concentrating issuance to a limited number of benchmark bonds should also facilitate the development of derivative instruments on these bonds. Thus far, however, the Irish Futures and Options Exchange, which was established in 1990, has been quiescent. Five contracts are traded on the IFOX: short, medium, and long gilt contracts; a DIBOR contract; and a stock index contract on the Irish Stock Exchange.

to benchmark issues. In order to attract international investors, the NTMA has been active in marketing Irish securities abroad, establishing links for international clearance and settlement, and seeking the inclusion of IGBs in international bond indices. 1/

c. NTMA and the Central Bank

The NTMA continuously informs the Central Bank of anticipated transactions in the IGB market to forestall any disruption in the Central Bank's conduct of monetary policy. 2/ In addition to this information flow, the Central Bank and the NTMA coordinate their activities when necessary. 3/ During the 1992 ERM turmoil, the NTMA curtailed its domestic borrowing, maintained firm bids in benchmark bonds and those maturing within one year to sustain liquidity, and increased its foreign borrowing to replace funds that would have otherwise been raised on the domestic market and to supplement the Central Bank's external reserves. In addition to policy coordination, the Central Bank is the NTMA's fiscal agent and banker, and provides a settlement office, which handles IGB transactions in excess of IR£100,000. The Gilts Settlement Office (GSO) provides a secure transfer system for IGBs (and certain other securities) by matching trades with simultaneous payment guaranteed by approved settlement banks. Transactions through the GSO by its members (which include most stock brokers and large domestic institutional investors) are in book-entry form.

d. Shortcomings of the current system

The IGB market is characterized by low liquidity as measured by market depth (the continuity of pricing and trading), speed of execution, turnover 4/, and transaction costs. The NTMA contends that, prior to the June 1994 ruling of the Competition Authority, the market's limited liquidity had been attributable to the maintenance of a system of agency-only broking.

1/ IGBs are included in the global government bond indices of Salomon Brothers, Lehman Brothers, Bloomberg/EFFAS, UBS Phillips & Drew, Merrill Lynch, and J.P. Morgan.

2/ There are two main instruments of monetary policy in Ireland. The short-term facility (STF) rate at which overnight funds are lent to banks is used to influence money market rates. Repurchase and reverse repurchase agreements are used to make short-term and self-reversing adjustments to domestic liquidity. The Central Bank does not undertake outright purchases and sales of securities in open-market operations.

3/ Because of the potential conflicts between debt management and monetary policy implementation and the close contacts between the central bank and market participants, debt management is undertaken in many countries by a department of the Central Bank.

4/ The IGB market turnover ratio (total turnover divided by market capitalization), which measured 2.6 in 1993, compared unfavorably with Australia (11.4), Belgium (5.3), Finland (3.1), Germany (3.0), New Zealand (3.3), Norway (7.7), Sweden (11.0), and the United Kingdom (5.4), but was at least as high as Austria (1.3), the Netherlands (2.6), and Portugal (0.9).

Under that system, delays arose as dealers attempted to match buyers and sellers, exposing investors to intervening adverse price movements. Following the Competition Authority ruling, a hybrid system has emerged. Some brokers have begun to act as principals in filling orders to buy and sell bonds, while others continue to act only as agents on negotiated commissions. According to the NTMA, the current market structure is not conducive to the development of a pool of market makers. Market depth is consequently limited, with the result that small temporary imbalances can trigger disproportionately large price movements, thereby amplifying volatility and reducing the information content of market prices. Although commissions have declined substantially since the abolition of fixed commissions, the NTMA maintains that trading costs remain high. The lack of depth and immediacy in the cash market, and the limited need for hedging vehicles by brokers not obligated to make markets have also inhibited the development of derivative securities on IGBs, and contributed to higher credit costs in other sectors. 1/

3. Proposed new market structure

The market-making system proposed by the NTMA will entail a marked departure from the current roles of the main participants and regulators of the IGB market, and a new entity--an inter-dealer broker--will be required to facilitate wholesale trades. The new structure will also result in the more intensive use of instruments designed to fund (repos) and hedge (futures) bond positions. At the same time as these changes are in train, the Irish Stock Exchange will be reformed under a new legal and regulatory structure.

a. Market making

A market-making system typically involves the selection of a limited number of primary dealers obligated to take up a significant amount of new government issues and to quote firm, continuous, two-way prices in all or some government securities on the secondary market. In exchange for this obligation, primary dealers are typically accorded privileged access to new issues of government debt, or facilities to fund their positions in such securities. Primary dealers are typically selected on the basis of their ability to place new issues, managerial competence, and capital adequacy. In the secondary market, primary dealers facilitate immediate execution and provide market depth by standing ready to act as a principal in trades and bear the risk of adverse price movements on their bond inventory. Imbalances in the market will typically be reflected by widening spreads. 2/ During periods of relative calm, spreads across market makers can be expected to be fine, but differ to reflect varying perceptions of the

---

1/ For example, spreads on 5-year interest rate swaps in Ireland, which are used to price fixed rate mortgages, are high.

2/ In times of extreme market volatility, liquidity may dry up completely (or spreads widen to levels designed to discourage business) as primary dealers temporarily renege on their obligation to make markets.

market and the composition of primary dealer inventories. Spreads are also a function of the cost to primary dealers of hedging their exposures, financing their inventories, and the amount of capital required to underwrite trading activities. As a result, the existence of a liquid derivatives market, an active repo market, and access to securities lending facilities can reduce broker costs and narrow spreads. Primary dealers generate revenues on the bid-ask spread, their inventory, and through proprietary trading, whose profitability may be enhanced through access to information on order flow.

b. Selection criteria for primary dealers

Prior to the introduction of the primary-dealer system envisaged for October 1995, the NTMA hopes to identify 5-7 brokers qualified to make markets in IGBs. The targeted number of primary dealers is an attempt to balance the limited size of the IGB market with the need to avoid market concentration. If the number of primary dealers were to fall below four, the NTMA would reassess the proposed new issuance and debt management procedures. The NTMA will evaluate potential primary dealers on the following criteria: management depth and experience, dealing capability, placement ability (including the capacity to market issues internationally), capital adequacy, and ability to support the NTMA's funding schedule. The minimum capital requirement is IR£5 million dedicated exclusively to market making in IGBs. 1/ In order to limit market concentration, the maximum capital dedicated to this purpose would be IR£8 million. In addition, to limit the NTMA's exposure to any single primary dealer, the level of securities lending and repo facilities afforded to primary dealers by the NTMA would be based on a maximum capital of IR£5 million. Designated primary dealers would be separately incorporated members of the Irish Stock Exchange. Separate incorporation would be aimed at segregating the primary dealer's market-making business from other activities and ensuring adequate capitalization for these activities.

c. Obligations of primary dealers

Primary dealers, who would commit themselves to remain such for at least three years, would be expected to participate in NTMA auctions and taps at reasonable prices and at levels commensurate with their past market share. To facilitate this task, the NTMA would continue to enhance market liquidity by concentrating new issues in existing benchmark bonds. Primary

---

1/ The NTMA's estimate of required capital is based on expectations for market turnover and EU capital adequacy requirements for market makers. On the basis of turnover in 1993, the NTMA estimated that the aggregate capital required to support the IGB market would be IR£11 million (or about IR£2 million for each of five primary dealers). Since the NTMA believes that a significant increase of turnover is both desirable and the likely outcome of its proposed restructuring of the IGB market, the aggregate capital requirement is estimated at IR£25 million or an average of IR£5 million for each primary dealer.

dealers would also be committed to quoting firm two-way prices in eight current and former benchmark issues in a minimum size and maximum spread. The NTMA envisages that normal trading would occur well within the maximum spreads (equivalent to 3 basis points in the case of benchmark bonds and 5 basis points for other designated bonds), which are intended to cover all market conditions. 1/ Primary dealers would be expected to place bonds among a large number of geographically diverse retail clients. Primary dealers would also be obliged to segregate their bond inventory for market making from their proprietary trading book.

d. NTMA support to primary dealers

During the early stages of the primary dealer system, the NTMA would be prepared to support its establishment to ensure that all market participants are confident with the new system. In particular, the NTMA would intervene in the secondary market during times of market turbulence on an exceptional basis and without prejudice to its primary function of Exchequer funding. It would consider requests to unwind the long or short positions of primary dealers. In addition, the NTMA would quote, for the exclusive benefit of primary dealers, continuous bids in minimum lots of IR£3 million for each of the bonds in which primary dealers must make a market. The NTMA may also maintain a secondary trading capability--segregated from its other operations--to trade on the retail market through the Irish Stock Exchange and on the Irish Futures and Options Exchange.

Primary dealers would have sole access to the NTMA's tap issues. Competitive auctions, 2/ however, would be open to all members of the Irish Stock Exchange and to institutional investors. Immediately after the announcement of auction results, primary dealers would be allowed to make non-competitive bids for the issue at its average dealt price. 3/ In addition, the NTMA would facilitate securities lending for primary dealers and enter, through the inter-dealer broker (IDB), into repos and reverses with primary dealers. The NTMA would limit access to these facilities on the basis of primary dealer capital and expects that reliance on the NTMA facility would decline as the market matures. Primary dealers would also have exclusive access to stock switching facilities provided by the NTMA. Primary dealers would trade among themselves through an IDB (to be established) as a means of increasing liquidity in the wholesale market and

---

1/ The NTMA's proposal envisages adjustments to these spreads as new benchmark bonds are introduced, the duration of existing designated bonds declines, and market conditions evolve.

2/ The NTMA plans to continue its quarterly auction of the long bond and may increase its reliance on auctions over time.

3/ The degree of privileged access to taps and non-competitive bidding at auctions accorded primary brokers would be determined by the success of the market-making system. If the primary broker system fails to develop into an efficient means for placing government debt, the NTMA would limit the access of primary brokers to a proportion of new issues with the balance offered directly to the market.

affording anonymity to primary dealers loathe to reveal their positions to competitors.

In order to assess the need of primary dealers for the stock switching, repo, and continuous bid facilities offered by the NTMA, primary dealers would be required to provide daily information on their net open positions in the relevant issues, and monthly data on turnover. These data would also be used to assess the primary dealers' contribution to market liquidity. The NTMA would establish performance criteria--based on share in market turnover--to ensure that primary dealers are meeting their obligations.

4. Main issues

The successful establishment of a primary dealer system would contribute to market efficiency. However, there are a number of potential pitfalls.

First, there is the risk that the small size of the market and its limited daily turnover may not be sufficient to sustain an adequately large number of market makers to avoid market concentration. This outcome is considered unlikely by the NTMA, which expects market turnover to double as a result of its proposed reforms. In any case, the NTMA would always have the option of seeking additional primary dealers. Failing that, the NTMA has left open the possibility of marketing bonds itself through the Irish Stock Exchange to a wider range of investors. In this event, other dealer prerogatives would also be curtailed to reflect changes to their exclusive market-making role.

Second, a market-making system requires primary dealers to accept a degree of market risk on their inventory of bonds carried to fill client orders. The likely increase in proprietary trading undertaken to replace (much reduced) commission income would further expose primary dealers to adverse price movements. The available vehicles to hedge this risk are currently illiquid, although the NTMA expects that turnover on the Irish Futures and Options Exchange (IFOX) will increase with the hedging requirements of primary dealers. The parties undertaking, hedging, and monitoring these additional risks would, at least initially, be untried. Any untoward developments in the IGB market could spill over into other markets, particularly as some of the likely market makers to emerge under the new system are the brokerage arms of large banks. Attentive market supervision, adequate capitalization, and sound internal risk management will be critical to contain the additional risks of the market-making system.

Third, although the adoption of a primary dealer system is likely to enhance liquidity, the gains from the new market structure should not be exaggerated. The IGB will remain a small government bond market, and funding costs will continue to be influenced in the main by global interest rate movements and the risk premia needed to entice investors to hold Irish securities. The pursuit of sound macroeconomic policies that promote price and exchange rate stability are likely to make a far greater contribution to

reduced funding costs than improved market efficiency, although the latter can also reduce costs by diminishing the liquidity risk premium demanded by investors. Liquidity in the IGB market may also be prejudiced by factors unrelated to its structure. For example, the ease with which foreign investors can establish, liquidate, and hedge positions in IGBs will be constrained by the liquidity of Ireland's currency markets.

Fourth, the development of the futures market and the use of repos by primary dealers are necessary to reduce the costs faced by market makers, thereby narrowing spreads. As both these instruments also afford leverage, their abuse needs to be avoided by careful market supervision. In this regard, the adequacy of the minimum capital required to be earmarked by primary brokers to support their market-making activities needs to be monitored carefully and eventually linked explicitly to the risk (rather than the size) of the inventories and proprietary trading of market makers.

Fifth, the NTMA has indicated a readiness to promote the development of the proposed primary dealer system through facilities for repos, stock switching, and securities lending, the maintenance of continuous bids for designated bonds, and the activities of its own secondary market trader. While the NTMA's credit facilities for primary dealers and its market support will be limited, these facilities expose the NTMA to risk. It will be necessary to balance the objective of supporting the development of a market-making system with the need to limit the exposure of the NTMA.

Finally, individual investors appear to lose a degree of access under the proposed reforms. Efforts to make government bonds attractive to individuals have been successfully pursued elsewhere, and might usefully be adopted for the IGB market.

IV. Estimates of Output Gap for Ireland 1/

1. Introduction

This chapter presents estimates of the output gap for Ireland during 1990-95. The main objective is to assess the current cyclical position of the economy, which constitutes important background information for evaluating the current stance of monetary and fiscal policies.

Two widely used approaches to computing output gaps are considered here--the HP filter and the segmented trend method. Given the lack of consensus about the superiority of any method, a comparison between these two approaches is important in that it provides a consistency check on the reliability of the respective estimates. 2/

In light of the potential distortions of Irish GDP figures due to transfer pricing, 3/ this chapter uses GNP as a measure of aggregate economic activity. In addition to GNP, however, an indicator of output in the non-tradable sector is also considered; 4/ the objective is to look more closely at incipient inflationary pressures arising from labor-intensive sectors of the Irish economy that are not subject to international price setting. 5/

The remainder of this chapter is divided into three sections. Section 2 briefly reviews the main features of the segmented trend method and presents the respective output gap estimates for real GNP and non-tradable output. Section 3 considers the HP filter approach and spells out its results. Section 4 summarizes the main findings.

1/ Prepared by Luis Catão.

2/ Ideally, it would also be useful to have estimates based on the production function; since the latter incorporates information on the growth of the capital stock and the labor force, it normally provides a further consistency check on the other two methods. In the case of Ireland, however, the lack of a comprehensive series on capital stock and the difficulties in projecting the growth of the labor force (due to the volatility of immigration and sharp changes in participation rates) prevent a meaningful use of the production function approach for the present purposes.

3/ See Chapter 5.

4/ Defined as GDP minus agriculture minus manufacturing output.

5/ There are two other reasons for considering this alternative indicator. First, increases in productive capacity in those services tend to respond to demand pressures in a much slower fashion than in other sectors. Second, service data are much less subject to possible distortions related to transfer pricing.

2. Segmented trend estimates

The segmented trend approach constitutes an improvement on the traditional method of calculating potential output by fitting a linear or exponential trend to the data. As is well-known, the main shortcoming of fitting an unbroken trend to time-series data is the neglect of shocks which can shift the rate of growth of output or employment on a permanent basis (hysteresis effects). The segmented trend allows for this possibility by breaking the trend rate of growth at benchmark dates at which permanent shocks are supposed to have occurred. Such dates are chosen by the analyst on the basis of a priori information or through visual inspection of the data.

In practice, the segmented trend approach amounts to running a simple OLS regression of the level of the variable on a constant and a time trend with dummy variables to account for trend shifts around the pre-specified break points. Estimates yielded by this method are reported in Table 3 and Chart 6. 1/ In the case of the GNP indicator, the results indicate that aggregate output has moved from below potential in 1994, to being 0.9 percent above potential in 1995. Although such a positive gap could point to underlying inflationary pressures, Table 3 also shows that the magnitude of the current output gap is relatively small compared with that for the period 1990-91. 2/

In contrast, the non-tradable output gap estimate points to larger variations. During the economic slowdown of 1991-93, non-tradable output appears to have been over 4 percentage points below potential. This situation, however, was sharply reversed during the 1994-95 recovery. At the projected production levels for 1995, non-tradable output is estimated at 1.5 percent above potential, higher than for the rest of the economy. 3/

3. HP filter estimates

The HP filter approach is motivated by two main limitations of the segmented trend approach. On the one hand, the segmented trend method assumes that breaks in the growth rate of potential output are infrequent

---

1/ The OLS regression is run from 1979, with a trend break in 1987. The choice of 1979 and 1987 as turning points is clear in the Irish case. The first marks the end of monetary union with the United Kingdom, Ireland's ERM membership and the second oil shock. The period starting in 1987 is characterized by debt consolidation, greater macroeconomic discipline and rapid economic growth.

2/ Consumer price inflation during those years was slightly above 3 percent.

3/ The growth of the non-tradable index for 1995 was projected according to the elasticity of non-tradable output to GNP during 1979-94. Non-tradable output for 1995-97 was then extrapolated using the staff projections of real GNP for those years.

Table 3. Ireland: Segmented Trend Estimates of Output Gap 1/

(In percent)

	Actual growth	Trend growth	Output gap 3/
Real GNP			
1990	9.1	5.0	2.7
1991	4.6	5.0	2.3
1992	3.3	5.0	0.7
1993	3.6	5.0	-0.6
1994	5.5	5.0	-0.1
1995 2/	5.2	5.0	0.9
Non-tradable output			
1990	6.2	4.5	2.6
1991	0.3	4.5	-1.4
1992	1.4	4.5	-4.3
1993	3.9	4.5	-4.8
1994	11.0	4.5	1.2
1995 2/	4.8	4.5	1.5

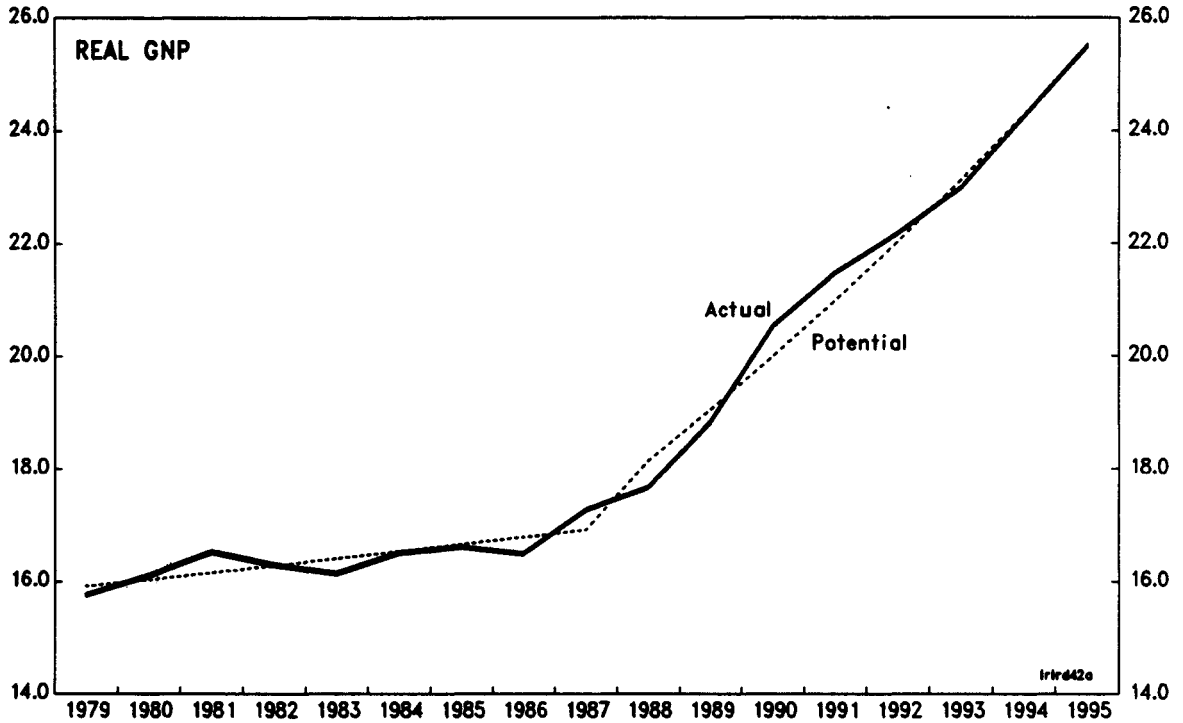
Source: Staff estimates.

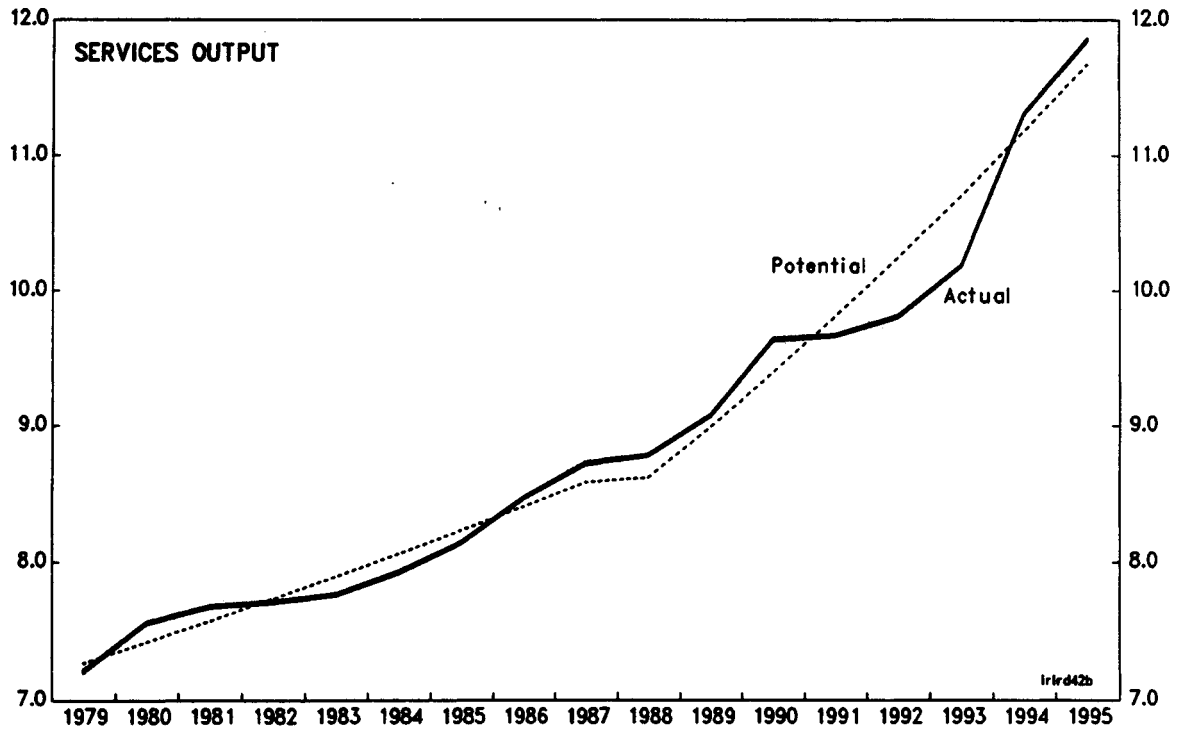
1/ Positive numbers indicate that output is above trend while negative numbers mean that output is below potential. Estimation sample period: 1979-97, annual data.
2/ Staff projections.
3/ As a percentage of potential output.

CHART 6
IRELAND

OUTPUT GAP

(Segmented trend method, in billions of Irish pounds)





Sources: Central Statistics Office; and staff calculations.

This page intentionally left blank

and abrupt. On the other hand, it requires the analyst to choose--based on the data or other source of a priori knowledge--when such breaks take place. This may introduce subjective considerations in the analysis and thus undermine the objectivity of the output gap estimates.

The HP filter overcomes both problems by providing an algorithm which endogenously determine the growth path of potential output. 1/ As a consequence, the trend growth of output tends to be smoother and, in general, tracks actual output more closely than according to the segmented trend approach.

HP estimates of the output gap are provided in Table 4 and in Chart 7. The results are similar to those yielded by the segmented trend method. Estimates based on GNP show that the economy was well above potential in 1990 and 1991 but also that this gap has declined since. In 1995, the economy appears to be just over one percentage point above potential. This is more than half of the size of the output gap in 1990-91. Thus, these estimates suggest that inflationary pressures may be present at the current stage of the cycle, but to a much lesser extent than in the previous upswing.

As with the segmented trend method, HP filter estimates for non-tradable output point to more pronounced variations. The highly negative gap during 1991-93 has been entirely eroded during the current upswing; by 1995, output for these sectors is computed at 2.3 percent above trend. These figures therefore suggest that inflationary pressures in the non-tradable sector are considerably higher than for the aggregate economy at this stage of the cycle.

Over the medium-term, the staff's projection of 4.5 percent real GNP growth implies that the economy should gradually return to potential. According to the HP filter method, the closing of the gap would take place in 1998. The segmented trend approach indicates that the closing of the gap would occur in early 1996. Both methods indicate that non-tradable output will remain slightly above potential for a longer period, a result compatible with the assumption of a relative expansion of the service sector in Ireland over the medium term.

1/ The HP filter is based on the minimization of the following loss-function associated with deviations of log of a variable (y) from its trend (y*):

$$\frac{1}{T}\sum_{t=1}^{T}(y_t - y_t^*)^2 + \frac{\lambda}{T}\sum_{t=2}^{T-1}[(y_{t+1}^* - y_t^*) - (y_t^* - y_{t-1}^*)]^2$$

where the parameter λ determines the degree of smoothness of the filter and is usually set to 1,600.

Table 4. Ireland: HP Filter Estimates of Output Gap 1/

(In percent)

	Actual growth	Trend growth	Output gap 3/
Real GNP			
1990	9.1	4.2	2.5
1991	4.6	4.5	2.6
1992	3.3	4.6	1.3
1993	3.6	4.7	0.3
1994	5.5	4.8	0.9
1995 2/	5.2	4.9	1.2
Non-tradable output			
1990	6.2	3.4	1.6
1991	0.3	3.6	-1.6
1992	1.4	3.9	-3.9
1993	3.9	4.1	-4.2
1994	11.0	4.3	1.9
1995 2/	4.8	4.5	2.3

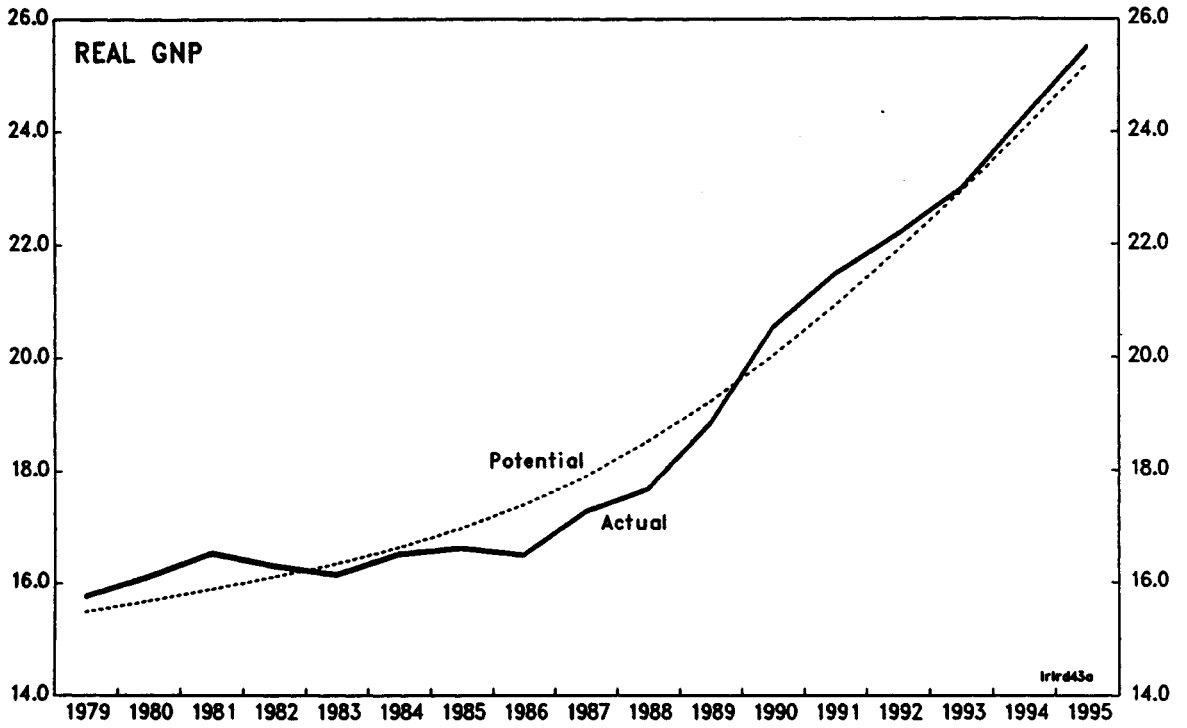
Source: Staff estimates.

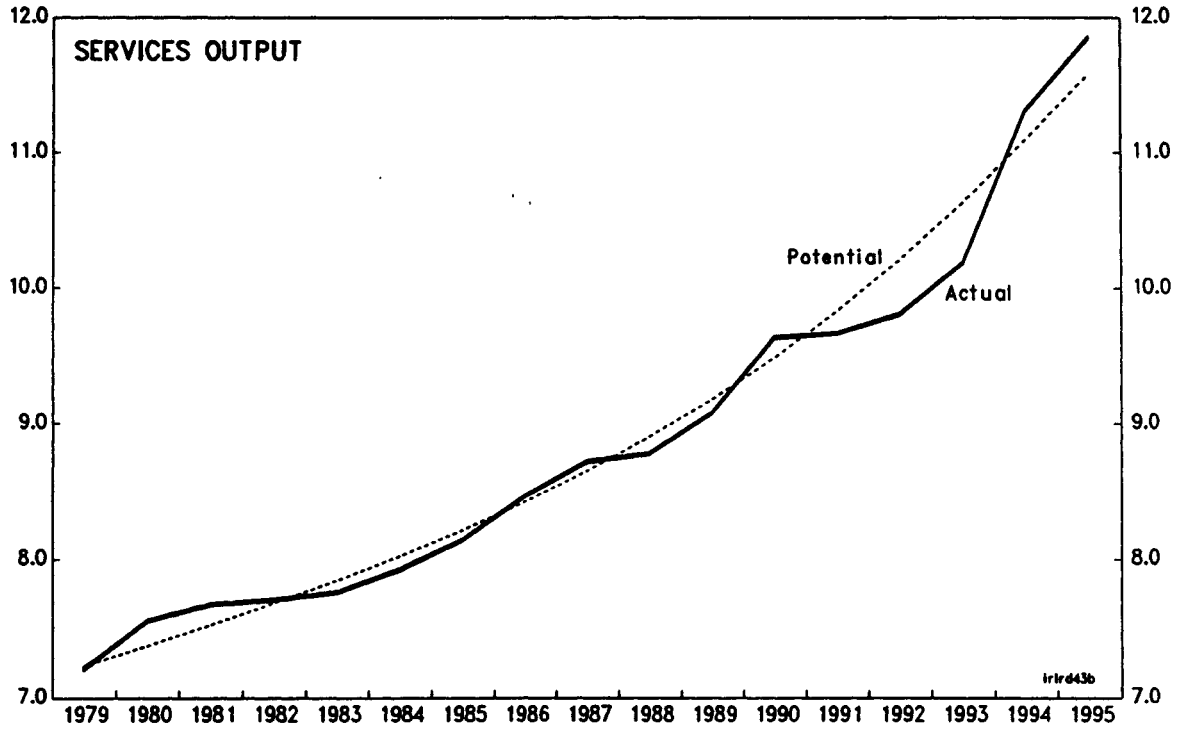
1/ Positive numbers indicate that output is above trend while negative numbers mean that output is below potential. Estimation sample period: 1979-97, annual data.
2/ Staff projections.
3/ As a percentage of potential output.

CHART 7
IRELAND

OUTPUT GAP

(HPFilter method, in billions of Irish pounds)





Sources: Central Statistics Office; and staff calculations.

This page intentionally left blank

4. Summary and conclusions

This chapter has presented estimates of the output gap in Ireland during 1990-95, using two distinct methods--the segmented trend and the HP filter approaches. Both indicate that real GNP is around 1 percentage point above its potential in 1995. Although this posits the existence of some inflationary pressure in the economy, a comparison with estimates for 1990-91 suggests that the current size of the GNP gap is relatively small.

In a small open economy such as Ireland, where domestic prices of tradable goods are determined abroad, domestic inflationary pressures are more prone to arise in the labor-intensive, non-tradable sector. As an attempt to gain some insight into this issue, this chapter also provided output gap estimates based on an index of non-tradable output. The results point to a similar cyclical pattern as that for GNP, but with larger variations. Estimates of the output gap for the non-tradable sector indicate that output is currently in the range of 1.5 to 2.5 percent above potential--i.e. about twice as high as for the aggregate economy.

V. The Significance of Transfer Pricing in Ireland and Its Impact on Output Estimates 1/

1. Introduction

The Irish economy has experienced a very rapid expansion of its multinational sector during the 1980s and early 1990s. Multinational companies (MNCs) currently account for around 70 percent of Ireland's net manufacturing output and have been the main driving force behind the country's export growth and substantial trade surplus. Yet, the fact that this rapid growth of the foreign-owned sector has taken place under the shelter of a generous tax regime raises questions about the extent to which MNC activities in Ireland have been driven by transfer pricing and about the resulting implications for key macroeconomic statistics.

The objective of transfer pricing is to minimize the worldwide tax bill of a MNC by shifting taxable profits from high to low tax countries. This can be done through intra-firm transactions on terms which would not apply if the firms were at "arm's length." For instance, a subsidiary operating in a low-tax country can artificially inflate its profits by understating the price of its inputs purchased from a subsidiary in a high-tax country or by overstating its sale prices for subsidiaries in high-tax countries. Since tax rates on manufacturing activities in Ireland are among the lowest in the OECD, 2/ there is an incentive for locating and declaring profits there.

One side-effect of transfer pricing is the distortion it imparts to official statistics for production and exports. 3/ As the transferred profit is included in the value added reported by those firms, net output figures in the low-tax country are inflated accordingly. The higher the

---

1/ Prepared by Luis Catão.

2/ Ireland has a preferential tax rate of 10 percent for manufacturing and certain internationally traded services. Moreover, foreign firms installed in Ireland have traditionally benefitted from substantial government subsidies and grants from the Industry Development Agency (IDA). Both are part of an industrial policy aimed at making Ireland an attractive destination for foreign investment--a strategy consistently pursued since the 1960s. The Irish government is committed to keeping the 10 percent preferential tax rate for manufacturing until 2010.

3/ Other important implications include disincentives for the development of backward and forward linkages within the domestic economy and limited scope for technology transfer. Transfer pricing favors the expansion of the assembly stages of the production process in the low-tax country and discourages local purchases of intermediary inputs as well as production for the home market. Cost-intensive activities--such as R&D or labor-intensive services--are also discouraged, as tax deductions on such expenditures are higher in high-tax countries. An analysis of these issues, however, is beyond the scope of this chapter.

participation of MNCs in the domestic economy and the more these firms are engaged in such practices, the more distorted official statistics tend to be. Also, if the presence of MNCs in the economy increases or decreases over time, transfer pricing will distort not only the reported level of output but also its growth rate.

Section 2 presents evidence on the existence of transfer pricing in Irish manufacturing using the most recent census data. A review of the existing estimates of transfer pricing in Ireland and the extent to which transfer pricing appears to distort official statistics is presented in Section 3. Section 4 concludes by arguing that transfer pricing distortions are largely eliminated if one uses GNP rather than GDP as a measure of aggregate output.

2. Evidence of transfer pricing in Ireland

Prima-facie evidence of the existence of transfer pricing in Ireland can be gauged from cross-section data on manufacturing. 1/ As shown in Table 5, net output per person in the foreign-owned manufacturing sector is two to three and one half times higher than in the indigenous manufacturing sector. Over 64 percent of the gross output of foreign firms is exported, as opposed to only 33 percent by indigenous firms. These differentials in both labor productivity and export shares are especially large when one focuses on non-EU foreign companies. Output per head in non-EU firms is over three and one half times higher than that of indigenous companies and 93 percent of their gross output is exported.

While the large differences in export shares between non-EU foreign-owned and indigenous firms can be explained by the fact that the former use Ireland as an export platform for entry into EU markets, the large productivity differential between non-EU firms and the remainder of the industry is hard to rationalize. One possible reason is greater capital intensity. However, this still leaves unexplained the substantial productivity gap between non-EU and EU foreign firms; as both tend to be highly capital intensive, the large gap between them is difficult to explain solely on the basis of relative capital intensities or of differences in total factor productivity. 2/

A counterpart of the very high productivity levels in the foreign-owned sector is the fact that its profit rates tend to be remarkably high, not only compared with the indigenous sector but also relative to MNCs in other countries. After deducting wages and salaries, interest and depreciation, and the expenditures on services, profits averaged 34 percent of the net

---

1/ Transfer pricing practices may also be present in services but the lack of more detailed data on service activities prevents a systematic investigation of the issue.

2/ This unexplained productivity difference between EU and non-EU firms operating in Ireland will form the basis for estimates of transfer price presented in Section 3.

Table 5. Ireland: Manufacturing Industry by Ownership, 1990

	Irish	Foreign EU	Foreign Non-EU	Total
Wages and salaries as share of net output (percent)	43.6	30.9	16.9	27.5
Exports as a share of gross output (percent)	33.4	64.4	93.1	62.0
Net output (IR£m)	2,810.9	1,364.1	4,736.6	8,911.6
Employment ('000)	105.9	31.3	57.0	194.2
Net output/person (IR£'000)	26.5	43.6	83.1	45.9
"Excess" net output (IR£m)	--	--	2,252.5	2,252.5
As percent of net output	--	--	47.6	25.3

Source: CSO, Census of Industrial Production, 1990.

output of foreign firms; this contrasts with an average profit rate of 4 percent for indigenous manufacturing. 1/ Some relevant international comparisons are provided in Table 6. Rates of return of U.S. manufacturing firms operating in Ireland are reported to have been over twice as high as the average for twelve EU countries and over three times higher than the rate of return of U.S. firms operating in the United Kingdom in 1992. 2/

The high import content of output by foreign firms constitutes an obvious channel through which transfer pricing can take place. According to IDA data, 3/ only about 30 percent of inputs used by foreign firms are purchased in Ireland, as opposed to 70 percent by indigenous industry. It has also been observed that such shares have remained relatively stable over the past decade, 4/ thus suggesting that these firms have not developed local linkages as foreign firms in other countries usually do. In particular, a large part of the gross output of these firms is spent on imported services. Imported services account for nearly 30 percent of total expenditure on services by foreign firms (about 9 percent of their output), as opposed to an average of 12 percent for indigenous firms (5 percent of their net output). 5/ Service trade is also more difficult to price than commodity trade, making it difficult for custom authorities to assess whether it is being undertaken at arm's length. Data presented in Table 6, indicate that U.S. MNCs in Ireland have higher rates of return than those located elsewhere and spend proportionately greater amounts on services imported from the parent company. 6/

3. Estimates of transfer pricing in Ireland

As pointed out above, transfer pricing masks the true contribution of the MNCs to domestic economic activity. It attributes to the national economy value added generated elsewhere and, in doing so, tends to distort official data on output and other related statistics.

1/ These figures also refer to the year of 1990. Earlier IDA figures, available for 1984, indicate that profits accounted for 39 percent of the net output of foreign firms, as opposed to 6.5 percent for indigenous manufacturing.

2/ US Department of Commerce, Bureau of Economic Analysis, Survey of Current Business (June 1993).

3/ Reported in Kennedy, K.A., "Linkages and Overseas Industry" in Foley, A. and D. McAleese, Overseas Industry in Ireland, Dublin, 1991.

4/ See ibid.

5/ According to the latest data from IDA's Irish Economy Expenditure Survey of 1990.

6/ This can be seen by comparing royalties and other receipts by Irish-based U.S. firms with that of the total for U.S. firms abroad. While the payment of royalties, license fees and imported services by Irish subsidiaries account for 19 percent of worldwide U.S. receipts on these items, the net asset value of Irish-based U.S. firms represents only 1 percent of the worldwide net assets of U.S. manufacturing firms abroad.

Table 6. Ireland: Comparative Performance of U.S. Investment

(In percent)

	Ireland	UK	EU	All Countries
Rates of Return in Manufacturing				
1990	25.2	15.0	18.3	15.5
1991	22.8	5.0	13.0	11.4
1992	24.3	7.5	10.7	11.2
Royalties and license fee payments as a proportion of net assets				
1991	27.3	6.5	9.2	6.2
Services imported from the U.S. parent company as a proportion of net assets 1/				
1991	46.4	2.8	3.5	3.1

Source: "Survey of Current Business" July 1993 and "U.S. Direct Investment Abroad: 1989 Benchmark Survey," Bureau of Economic Analysis, U.S. Department of Commerce.

1/ Net assets include net property, plant and equipment. Based on figures for 1989.

Several attempts have been made to measure the extent of transfer pricing in Ireland. Although no one doubts that the bias on output is in the upward direction, there is no commonly agreed estimate. All existing methods should be seen as tentative, as they involve a number of assumptions whose validity is disputable. This section presents a range of likely estimates which provide a lower and upper bound to the actual magnitude of the phenomenon, with a view to choosing the one that appears to be the most operational.

One estimate is based on the assumption that the unexplained large productivity differential between EU and non-EU foreign firms is entirely due to transfer pricing. In other words, the "true" labor productivity in the non-EU foreign sector in Ireland should be the same as actual labor productivity in the EU foreign-owned sector. Based on data from the 1990 industrial census, such "excess" of profit in the non-EU foreign sector amounts to 47.6 percent of the reported net output in that sector. Since foreign non-EU firms account for 53 percent of total manufacturing net output, this excess profit imparts a 25.3 percent upward bias to the official statistics on total manufacturing net output. This is equivalent to 8.3 percent of GDP.

The main shortcoming of this method, however, is that it makes no allowance for possible transfer pricing by EU foreign firms. An alternative pursued by some analysts is to focus on particular industries which are more likely to be engaged in transfer pricing. In an early study of the pharmaceutical industry, Honohan (1984) 1/ finds that its capital stock as a proportion of the capital stock in manufacturing is much lower than the share of pharmaceutical output in total manufacturing output; this implies that a substantial chunk of profits in that sector is left unexplained and thus likely to be associated with transfer pricing. The author then identifies four other sectors with abnormally low labor share in value added and assumes that transfer pricing accounts for all the deviations from the average labor share of manufacturing. Based on these findings and assumptions, Honohan estimates that transfer pricing amounts to 12 1/2 percent of recorded industrial output or about 5 percent of GDP.

A similar approach was adopted in more recent studies by McGuire (1990) and Conroy (1994). 2/ Both single out a few sectors in which labor productivity in Ireland is far higher than the EU average for those sectors. McGuire focuses on pharmaceuticals, office and data processing equipment, soaps and detergents, and engineering instruments. The difference between Irish value added per head and the weighted EU average for each of these

---

1/ Honohan, P. "Transfer Pricing in Ireland - A Cautionary Note," Central Bank of Ireland, Research Paper 2/R/84, 1984.

2/ McGuire, M. "Transfer Pricing and its Effects on Economic Indicators," Central Bank of Ireland, mimeo, 1990; Conroy, C. "Low Labor Content Sectors: Implications of the Interpretation of Macroeconomic Data", Economic and Social Research Institute, mimeo, 1994.

sectors is multiplied by the number of Irish employees in the respective sector; this would yield an upper bound for transfer pricing in each of these sectors. Yet, McGuire notes that part of these productivity differentials is due to a higher investment per person in these sectors in Ireland, 1/ relative to the EU average. After allowing for this effect, the author arrives at an excess profit of 7 percent of total net manufacturing output, which is entirely attributed to transfer pricing. This would impart a 2 1/2 percent upward bias to GDP for that year (1986).

Conroy's (1994) estimates focus on four sectors: pharmaceuticals, office and data processing equipment (ODP), Audio-video, and miscellaneous foods. Labor productivity in these sectors is far higher than the respective EU average--2.5 times higher in ODP and over 7 times higher in miscellaneous foods. Assuming that such large differentials are due to transfer pricing and that the "true" labor productivity in these sectors in Ireland should equal the EU average, it is estimated that net manufacturing output is artificially inflated by 28.7 percent. This is equivalent to 9.5 percent of GDP. 2/

One important limitation of these sector-based estimates is coverage. By focusing on a few industries, McGuire and Conroy may be leaving out other manufacturing firms engaged in transfer pricing. A widely-used alternative is then to use aggregate data on profit remittances from foreign direct investment. Since the bulk of these flows is associated with foreign direct investment in manufacturing, a comparison with previous estimates is straightforward. 3/ Moreover, data from balance-of-payments statistics are produced on a more regular basis allowing frequent updating of the respective estimates. Taking the year of 1990 for comparability purposes, the gross remittance of profits, dividends, and royalties amounts to 31.9 percent of net manufacturing output. This is equivalent to 10.5 percent of GDP.

In addition to being easily available, the latter indicator has other major advantages. First, its two potential biases pull in opposite directions. On one hand, profit remittances exaggerate the magnitude of transfer pricing insofar as repatriated profits also include an amount of genuine profit repatriation by MNCs. On the other hand, remitted profits would not include the part of the surplus associated with transfer pricing which is retained in Ireland. Casual evidence suggests that non-repatriated profits are indeed substantial--about one fifth of total profits in the foreign-

---

1/ This implicitly assumes that factors such as differences in managerial efficiency are negligible. This may not be unrealistic in light of the very low barriers to flows of managerial manpower across the EU.

2/ These estimates were obtained using data from the latest available industrial census (1990).

3/ Although available BOP data do not permit a sectoral disaggregation of these flows.

owned sector. 1/ Thus, these two biases in the profit remittance indicator offset each other, at least to some extent. The fact that this estimator yields results within the range suggested by the sector-based approaches discussed above provides further support for its use.

Second, the use of profit remittances as a proxy for transfer pricing allows for the fact that transfer pricing may increase or decrease over time as a proportion of manufacturing output and GDP. This in fact appears to be the case, if judged by the percentage share of gross profit remittances in GDP--this ratio rose from 2.7 percent in 1980 to 9.2 percent in 1992. 2/

Last but not least, an implication of accepting gross remittances of profits, dividends, and royalties as an indicator of transfer pricing is that GNP figures would be largely free of such distortions. This is because gross profit remittances are included in net factor payments abroad and thus automatically subtracted from net output in the process of calculating GNP. Thus, the use of GNP figures would provide a "safe"--albeit conservative--estimate of the actual level of net value added in the domestic economy. 3/

A summary of the distinct estimates of transfer pricing in Ireland is reported in Table 7. They span from just over 2 percent (McGuire) to nearly 10 percent of GDP (profit remittance method), with the most recent estimates tending more towards the 10 percent figure--approximately the gap between GDP and GNP.

4. Summary and conclusions

This chapter has documented the incentives for transfer pricing in Ireland and pointed to possible channels through which it can take place. Transfer pricing can impart substantial biases to reported output and other related statistics and so can affect the assessment of a country's economic performance. It is therefore important to try to estimate the magnitude of the phenomenon in Ireland. This chapter has reviewed two sets of methods--those based on comparisons of productivity and profit rates across sectors and countries, and that based on aggregate profit remittance figures. It has been argued that all the existing methods have shortcomings, as they are based on strong assumptions about "normal" patterns of profit rates, productivity gains, profit repatriation and other payments abroad. It is

---

1/ If these companies use Ireland as a platform for the European market, there are advantages in retaining part of the profits in Ireland to fund future investment in the EU.

2/ Comparability with 1993 figures is more hazardous due to the introduction of the INTRASTAT system, following the abolition of custom controls within the EU from January 1993.

3/ Net factor payments abroad have been somewhat higher than the gross remittance of profits, interest and royalties. Taking the year of 1990 for comparison purposes, the difference between GDP and GNP--i.e., net factor payments abroad--was IR£3,197 million, or 11.6 percent of GDP.

Table 7. Ireland: Estimates of Transfer Pricing

	Percent of net manufacturing output	Percent of GDP
Author/Method: (reference year of data used)		
Honohan (1979)	12.5	4.3
McGuire (1986)	7.0	2.25
Conroy (1990)	25.0	9.5
Productivity differentials between EU and Non-EU MNCs (1990)	25.3	8.3
Gross profit remittances (1990)	28.2	10.5
Gap between GDP and GNP (1990)	--	11.6

not surprising, therefore, that the resulting estimates for Ireland range from 2.25 percent to about 11 percent of GDP.

Of all the proposed methods to estimate transfer pricing, it appears that the one based on subtracting gross profit remittances from GDP is the most operative and also yields sensible results. In addition, acceptance of the profit remittance method has two important implications for the interpretation of two key indicators of Irish macroeconomic performance. Since gross profit remittances are automatically included in the computation of the current account balance, Ireland's current account figures should be largely free of transfer pricing distortions. By the same token, GNP figures should also be immune to transfer pricing distortions. This suggests that GNP, rather than GDP, should be the preferred measure for both the level and the rate of growth of domestic activity.

VI. Impact of the Uruguay Round on the Irish Economy 1/

1. Introduction

This chapter reviews estimates of the impact of the GATT Uruguay Round agreement on Ireland's economy. It draws on a report prepared for the Irish authorities just prior to the conclusion of the Round when the broad outline of the agreement had become clear (the Fitzpatrick Report), 2/ supplemented with additional information, particularly on agriculture, obtained from the authorities in April 1995. The first section below discusses the framework that was used to calculate estimates of both sectoral and macroeconomic effects of what was then a prospective GATT agreement as well as the assumptions made concerning the expected world wide impact of the agreement. Subsequent sections examine the sectoral impact of the agreement, with a focus on manufacturing, services, and agriculture. The final section summarizes estimates of the overall impact of the GATT agreement, which indicate substantial economic gains for Ireland.

2. Framework

The Fitzpatrick Report analyzed the likely impact of a GATT Uruguay Round agreement along the lines of the GATT Draft Final Act of December 1991, the EC-Blair House agricultural accord of November 1992 and the Tokyo trade accord of July 1993. The report was based on a minimum average tariff reduction of one third for manufactured goods, accompanied by the phased elimination of non-tariff barriers and the gradual liberalization of heavily regulated trade in textiles, services and agriculture. 3/

The likely impact of the agreement was compared against two alternative scenarios:

(i) a "trade hostilities" scenario, which was based on the assumption that a failure of the Uruguay Round would lead to increased global trade protectionism;

(ii) a "no change scenario", which was based on the assumption that world trade would be unaffected by a failure of the Uruguay Round.

Of the two alternatives, the "trade hostilities" scenario was believed to be the more likely outcome in the case of failure of the Uruguay Round.

1/ Prepared by Birgir Árnason.

2/ Fitzpatrick Associates, Report to the Department of Tourism and Trade: Impact of a GATT Agreement on Ireland, August 1993.

3/ As a member of the European Union, Ireland has common commercial policies with the other member states. It therefore did not negotiate independently in the Uruguay Round but was represented by the European Commission.

The Fitzpatrick Report sought to estimate the long-term net annual impact of the GATT agreement on Irish output and employment, i.e. its effect when the full impact of the agreement had worked its way through the international and Irish economies. The sectoral analyses were based on a model that allowed for four main mechanisms through which individual sectors would be affected by the Uruguay Round agreement. There would be: (i) an "import penetration" effect, arising from increased import competition on the domestic market as trade barriers were reduced; (ii) an "export market access" effect through improved access for Irish exporters to foreign markets; (iii) an "export competition" effect, reflecting intensified competition on traditional markets for Irish exports; and (iv) a "world trade growth" effect, arising from increased world trade buoyancy.

Because of data limitations a more aggregate approach--based mainly on the "world trade growth" mechanisms--was used to estimate the impact of the Uruguay Round agreement for agriculture. For agriculture, it was necessary to first factor in the effects of common agricultural policy (CAP) reform before assessing the impact of the GATT agreement covering agricultural trade.

Concerning the global impact of the Uruguay Round agreement, the Fitzpatrick Report assumed that world trade would over a six year period from the implementation of the agreement expand by an additional 6 percent compared with the "no change" scenario, and by 12 percent compared with the "trade hostilities" scenario.

3. Manufacturing

The Fitzpatrick Report broke manufacturing up into 17 individual sectors and estimated the impact of the GATT agreement--or of a failure of the Uruguay Round--on each of them. Overall, manufacturing output was estimated to be 3 percent (2.2 percent of GNP) higher under the full implementation of an agreement than in the "no change" scenario and employment 2.3 percent higher (4,500 jobs). The "world trade growth" effect significantly outweighed the losses associated with the "import penetration" and "export market competition" effects, whereas the "export market access" effect was estimated to be very small because Ireland already had unrestricted access to its most important markets in the EU and European Free Trade Association (EFTA). The sectors that were judged to benefit the most were those with the sharpest export orientation, namely mechanical engineering, electrical engineering, office and data processing equipment, and chemicals. The only sectors adversely affected by the agreement were clothing and footwear, the former because the removal of the high level of protection provided by the multi-fiber agreement (MFA) outweighed any positive trade expansion effects.

Relative to the "trade hostilities" scenario, the estimated impact of a GATT agreement on output and employment was at 8 percent (6.2 percent of GNP) and 6.6 percent (13,000 jobs), respectively. The hardest hit sectors under the "trade hostilities" scenario would be those most heavily committed

to exports but even clothing and footwear would register a relative decline, because of the trade depressing effects of failure to conclude an agreement.

4. Services

Data limitations precluded the use of the same methodology to assess the impact of the GATT agreement on the service sector as used for manufacturing. The Fitzpatrick Report assumed that internationally traded services would be affected by changes in world trade. Service exports such as freight and transportation, tourism, financial and technical services, and software would all benefit from the increased buoyancy in world economic activity that the GATT agreement would promote. Based on the assumption that world trade would be enhanced by 6 percent by the GATT agreement, it was estimated that the output of the Irish service sector would be raised by the equivalent of 1/2 percent of GNP relative to the "no change" scenario and employment in the service sector would be boosted by the equivalent 0.6 percent of total employment (6,300 jobs). Compared with the "trade hostilities" scenario, the impact of the GATT agreement would be twice that in the "no change" scenario.

5. Agriculture

Although the agricultural chapter of the GATT agreement had not been closed when the Fitzpatrick Report was prepared, the final outcome for agriculture was not significantly different from what was assumed. The original estimates of the impact on agriculture should, therefore, still hold.

As Irish agriculture is already adjusting to the EU's reform of the CAP, the task of the Fitzpatrick Report was to identify the additional impact the GATT agreement would have on Irish agriculture. At the outset, this additional impact was not expected to be very large as the EU sought to negotiate a GATT agricultural agreement that was consistent with the already agreed CAP reform. Irish agricultural output was estimated to decline by around 7 percent (almost 1 percent of GNP) from its 1992 level as a result of the GATT agreement--with the beef and dairy sectors bearing the brunt of the decline--compared with a 12 percent decline under the CAP reform. The agreement was also estimated to reduce agricultural employment by about 7 percent of its 1991 level (10,500 jobs).

Under the "trade hostilities" scenario, Irish agricultural output and employment were also estimated to decline based on lower world market prices for agricultural products and the expected inability of the EU to compensate for those lower prices because of budgetary constraints. However, the declines in output and employment would be somewhat smaller than under the GATT agreement.

6. Macroeconomic impact

Tables 8 and 9 below summarize what has been reported above concerning the impact of the GATT agreement on the Irish economy. Compared with the

"trade hostilities" scenario, it was estimated that total output would be 7 percent of GNP higher under the GATT agreement, and employment about 2 percent higher (22,900 jobs). Manufacturing and services would benefit substantially while the relative loss for agriculture would be quite small. Compared with the "no change" scenario, total output was estimated to be about 2 percent of GNP higher under the GATT agreement whereas unemployment would be unchanged with employment gains in manufacturing and services being offset by job losses in agriculture.

In addition to these effects of the GATT agreement on output and employment, the Fitzpatrick Report estimated that consumers would benefit through somewhat lower prices because of tariff reductions. This effect was roughly put at between 1/2-1 percent of GNP.

Table 8. Ireland: Annual Output Effects of GATT Agreement 1/

(Percent of 1990 GNP)

	Compared with:	
	Trade hostilities scenario 2/	No change scenario 3/
Manufacturing	6.2	2.2
Services	1.0	0.5
Agriculture 4/	-0.2	-0.9
Total	7.1	1.8

Source: Fitzpatrick Associates, Report to the Department of Tourism and Trade. Impact of a GATT Agreement on Ireland, August 1993; and staff estimates.

1/ The estimates refer to the ultimate impact of the agreement when it has been fully implemented.

2/ The "trade hostilities" scenario is based on the assumption that a failure of the Uruguay Round would lead to an intensification of trade disputes and protectionism.

3/ The "no change" scenario is based on the assumption that a failure of the Uruguay Round would not lead to any trade disruptions.

4/ For agriculture, these are estimates of the extra impact of the GATT agreement on top of the effects of CAP reform.

Table 9. Ireland: Direct Employment Effects of GATT Agreement 1/

(Percent of 1990 employment)

	Compared with:	
	Trade hostilities scenario 2/	No change scenario 3/
Manufacturing	1.2	0.4
Services	1.1	0.6
Agriculture 4/	-0.2	-0.9
Total	2.0	--

Source: Fitzpatrick Associates, Report to the Department of Tourism and Trade, Impact of a GATT Agreement on Ireland, August 1993; and staff estimates.

1/ The estimates refer to the ultimate impact of the agreement when it has been fully implemented.

2/ The "trade hostilities" scenario is based on the assumption that a failure of the Uruguay Round would lead to an intensification of trade disputes and protectionism.

3/ The "no change" scenario is based on the assumption that a failure of the Uruguay Round would not lead to any trade disruptions.

4/ For agriculture, these are estimates of the extra impact of the GATT agreement on top of the effects of CAP reform.

Table A1. Ireland: National Accounts

	1990	1991	1992	1993	1994 Prel.	1995 Proj.
	(In millions of Irish pounds at 1985 prices)					
Consumption	17,018	17,459	17,951	18,156	18,978	19,875
Private	13,806	14,161	14,573	14,741	15,478	16,252
Public	3,212	3,298	3,378	3,415	3,500	3,623
Investment	4,876	4,454	3,702	3,584	3,575	4,126
Gross domestic fixed capital formation	4,155	3,813	3,741	3,722	4,048	4,432
Stockbuilding	721	641	-39	-138	-473	-306
Total domestic demand	21,894	21,913	21,653	21,740	22,553	24,001
Exports of goods and nonfactor services	16,455	17,313	19,600	21,490	23,908	25,820
Aggregate demand	38,349	39,226	41,253	43,230	46,461	49,821
Imports of goods and nonfactor services	14,639	14,834	15,639	16,557	18,254	19,851
Net exports	1,816	2,479	3,961	4,933	5,654	5,969
GDP at market prices	23,710	24,392	25,614	26,673	28,207	29,970
Net factor income from abroad	-3,197	-2,936	-3,452	-3,703	-3,916	-4,282
GNP at market prices	20,512	21,455	22,162	22,970	24,291	25,687
	(Real growth rates)					
Consumption	2.1	2.6	2.8	1.1	4.5	4.7
Private	1.3	2.6	2.9	1.2	5.0	5.0
Public	5.8	2.7	2.4	1.1	2.5	3.5
Investment	24.1	-8.7	-16.9	-3.2	-0.3	15.4
Gross domestic fixed capital formation	12.8	-8.2	-1.9	-0.5	8.8	9.5
Stockbuilding 1/	2.2	-0.3	-2.8	-0.4	-1.3	0.6
Total domestic demand	6.3	0.1	-1.2	0.4	3.7	6.4
Exports of goods and nonfactor services	8.9	5.2	13.2	9.6	11.2	8.0
Aggregate demand	7.4	2.3	5.2	4.8	7.5	7.2
Imports of goods and nonfactor services	5.5	1.3	5.4	5.9	10.2	8.7
Net exports 1/	2.6	2.8	6.1	3.8	2.7	1.1
Gross domestic product	8.6	2.9	5.0	4.1	5.7	6.2
Net factor income from abroad 2/	-0.9	1.3	-2.4	-1.1	-0.9	-1.5
Gross national product	9.1	4.6	3.3	3.6	5.8	5.7

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

1/ Contribution to GDP growth.
2/ Contribution to GNP growth.

Table A2. Ireland: Distribution of National Income

	1989	1990	1991	1992	1993	1994 Prel.
	(In millions of Irish pounds at current prices)					
Income from agriculture, forestry, and fishing	1,994.0	1,975.0	1,833.4	2,144.0	2,193.0	...
Wages and salaries 1/	184.0	187.9	190.6	202.0	207.0	...
Income from self-employment and other trading income	1,810.0	1,787.1	1,642.8	1,942.0	1,986.0	...
Nonagricultural income	17,822.7	19,723.7	20,756.8	21,647.0	23,860.0	...
Wages and salaries 1/	12,069.5	13,069.7	13,921.4	14,876.0	15,886.0	...
Of which:						
Employers' contributions to social insurance	764.3	841.3	907.6	975.0	1,045.0	...
Profits, professional earnings, interest, dividends, and rents	6,882.2	7,130.6	7,590.2	8,055.0	9,312.0	...
Adjustment for stock appreciation	-153.1	529.4	359.8	-145.0	-216.0	...
Adjustment for financial services	-975.9	-1,006.0	-1,114.6	-1,139.0	-1,122.0	...
Net factor income from abroad	-3,232.8	-3,131.4	-2,864.6	-3,295.0	-3,804.0	-4,090.0
Net national product at factor cost (= national income)	16,583.9	18,567.3	19,725.6	20,496.0	22,249.0	...
Indirect taxes less subsidies	3,197.3	2,836.2	2,876.2	3,318.0	3,193.0	...
Depreciation	2,379.4	2,558.1	2,722.4	2,879.0	3,053.0	...
Gross national product at market prices	22,160.6	23,961.6	25,324.2	26,693.0	28,495.0	31,120.0
Memorandum items:						
Personal disposable income	16,633.1	17,581.8	18,620.6	19,933.0	20,587.0	22,157.1
Real personal disposable income	14,743.7	15,362.1	15,878.2	16,528.2	16,748.9	17,444.9
Personal savings	1,254.8	1,781.4	2,013.6	2,358.0	2,522.0	2,803.1
Personal savings ratio (in percent)	7.5	10.1	10.8	11.8	12.3	12.7
	(Annual percentage change)					
Personal disposable income	8.7	5.7	5.9	7.0	3.3	7.6
Real personal disposable income 2/	5.3	4.2	3.4	4.1	1.3	4.2

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

	1989	1990	1991	1992	1993	1994 1/
	(In millions of Irish pounds at constant 1985 prices)					
Gross domestic fixed capital formation	3,684	4,155	3,813	3,741	3,722	4,048
Building and construction	1,728	2,077	2,091	2,010	2,033	2,206
Dwellings	825	866	858	945	...	...
Roads	152	173	181	201	...	...
Other	748	1,041	1,054	958	...	...
Machinery and equipment	1,959	2,076	1,720	1,636	1,689	1,842
Transport	690	762	583	508	...	...
Agricultural	105	93	82	77	...	...
Other	1,164	1,220	1,056	1,051	...	...
Change in stocks	246	721	641	-39	-138	-473
Agriculture	155	75	38	64	-71	...
Nonagriculture	91	646	604	-103	-67	...
Gross domestic capital formation	3,930	4,876	4,454	3,702	3,584	3,575
	(Changes in percent)					
Gross domestic fixed capital formation	13.5	12.8	-8.2	-1.9	-0.5	8.8
Building and construction	9.9	20.2	0.7	-3.8	1.1	8.5
Dwellings	14.0	5.0	-0.9	10.1	...	...
Roads	28.1	13.9	4.7	11.0	...	...
Other	2.5	39.0	1.3	-9.1	...	...
Machinery and equipment	17.2	6.0	-17.1	-4.9	3.2	9.1
Transport	36.1	10.5	-23.6	-12.8	...	...
Agricultural	11.9	-10.7	-12.1	-6.2	...	...
Other	8.7	4.8	-13.5	-0.4	...	...
Gross domestic capital formation	21.7	24.1	-8.7	-16.9	-3.2	-0.3
Memorandum items:						
As percent of nominal GNP						
Domestic fixed capital formation	19.3	20.4	18.3	17.5	16.9	17.4
Domestic capital formation	20.5	23.4	20.9	17.2	16.3	15.9
As percent of nominal fixed capital formation						
Building and construction	47.2	52.6	57.5	59.6	58.0	58.0
Machinery and equipment	52.8	47.4	42.5	40.4	42.0	42.0

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

	1987	1988	1989	1990	1991	1992	1993
	(In millions of Irish pounds at current prices)						
Agriculture, forestry, and fishing	1,930	2,224	2,350	2,350	2,218	2,521	2,570
Industry	7,028	7,683	8,559	9,070	9,432	10,064	10,828
Distribution, transport, and communications	3,391	3,693	3,868	4,683	4,859	4,454	4,986
Public administration and defense	1,164	1,178	1,238	1,382	1,480	1,574	1,714
Other domestic	6,094	6,490	7,158	7,777	8,439	9,196	10,121
Adjustment for financial services	-828	-965	-976	-1,006	-1,115	-1,139	-1,122
GDP at factor cost	18,777	20,304	22,196	24,257	25,313	26,670	29,097
Net indirect taxes	2,298	2,353	3,197	2,836	2,876	3,318	3,193
GDP at market prices	21,075	22,657	25,393	27,093	28,189	29,988	32,299
Net factor income from abroad	-2,112	-2,662	-3,233	-3,131	-2,865	-3,295	-3,804
GNP at market prices	18,962	19,995	22,161	23,962	25,324	26,693	28,495
	(As percent of GNP)						
Agriculture, forestry, and fishing	10.2	11.1	10.6	9.8	8.8	9.4	9.0
Industry	37.1	38.4	38.6	37.9	37.2	37.7	38.0
Distribution, transport, and communications	17.9	18.5	17.5	19.5	19.2	16.7	17.5
Public administration and defense	6.1	5.9	5.6	5.8	5.8	5.9	6.0
Other domestic	32.1	32.5	32.3	32.5	33.3	34.5	35.5
Adjustment for financial services	-4.4	-4.8	-4.4	-4.2	-4.4	-4.3	-3.9
GDP at factor cost	99.0	101.5	100.2	101.2	100.0	99.9	102.1
Net indirect taxes	12.1	11.8	14.4	11.8	11.4	12.4	11.2
GDP at market prices	111.1	113.3	114.6	113.1	111.3	112.3	113.3
Net factor income from abroad	-11.1	-13.3	-14.6	-13.1	-11.3	-12.3	-13.3
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	6.0	5.5	-0.7	16.1	-1.0	8.5	-6.1
Industry	6.4	8.6	11.0	6.1	3.0	8.1	4.7
Distribution, transport, and communications	4.8	3.8	6.8	7.7	-0.0	-1.3	1.9
Public administration and defense	-0.9	-2.8	0.4	3.8	-0.9	2.4	1.7
Other domestic	2.6	1.3	1.2	5.0	1.8	3.0	3.8

Source: Central Statistics Office, National Income and Expenditure.

Table A5. Ireland: Industrial Production 1/

(Annual volume changes in percent)

	1989	1990	1991	1992	1993	1994	1994			
							Qtr 1	Qtr 2	Qtr 3	Qtr 4
Food	1.9	3.5	4.6	9.4	4.9	7.5	2.4	5.9	8.5	13.7
Beverages and tobacco	10.6	0.3	5.0	-0.3	-0.2	6.0	0.8	6.8	5.5	10.4
Textiles	4.5	7.1	-0.3	5.7	2.4	2.6	2.0	5.9	4.1	-1.5
Clothing, footwear, and leather	-5.0	1.0	-11.9	-4.9	-6.3	-4.5	3.0	-7.6	-3.7	-8.5
Wood and furniture	5.0	5.7	-0.0	2.4	1.2	10.8	15.0	13.7	8.8	5.1
Paper and printing	7.9	1.4	8.4	9.2	7.1	2.0	6.1	2.8	-2.0	1.2
Chemicals	19.8	2.9	21.5	17.0	10.2	19.7	11.0	22.1	18.3	26.1
Nonmetallic mineral products	18.3	5.0	-6.1	4.0	-3.6	10.6	14.0	6.6	8.7	12.6
Metals and engineering (including transport equipment)	15.9	6.7	-2.9	11.5	5.8	15.9	7.8	12.6	18.9	24.2
Miscellaneous industries	6.4	7.1	-1.4	4.4	-1.9	8.2	3.9	12.8	8.3	7.8
Total manufactures	11.7	4.8	3.2	10.1	5.4	12.8	7.0	11.9	13.6	18.6
Mining, quarrying, and turf	20.7	0.3	-3.9	-8.7	20.3	-4.1	6.0	38.1	-14.8	-6.9
Total transportable goods industries 2/	12.1	4.6	2.9	9.6	5.6	12.5	6.9	12.3	12.6	18.2
Electricity, gas and water	5.4	6.7	7.3	3.8	5.7	5.0	9.0	7.4	4.0	-0.2
All industries 3/	11.6	4.7	3.3	9.1	5.6	11.9	7.1	11.9	11.9	16.7

Source: Central Statistics Office, Industrial Production Index.

1/ Major industrial categories; subsectors are not reported.
2/ Includes manufacturing, mining, quarrying, and turf production.
3/ Includes transportable goods, electricity, gas, and water.

Table A6. Ireland: Summary of Balance of Payments

	1987	1988	1989	1990	1991	1992	1993	1994 Proj.	1994 Qtr 1	1994 Qtr 2	1994 Qtr 3
					(In millions of Irish pounds)						
Exports, f.o.b. 1/	10,448	12,073	14,358	14,100	14,675	16,386	19,449	22,030	5,294	5,627	5,464
Imports, c.i.f. 1/	9,138	10,047	12,115	12,287	12,688	13,020	14,621	16,270	4,189	4,110	3,850
Trade balance 1/	1,310	2,026	2,243	1,813	1,987	3,366	4,828	5,760	1,105	1,517	1,614
Services and unrequited transfers (net)	-1,370	-1,964	-2,591	-1,776	-1,063	-1,934	-2,367	-3,362	-734	-849	-790
Current account balance	-60	62	-348	37	924	1,432	2,461	2,398	371	668	824
Net capital inflows	666	289	-290	477	-645	-2,634	-707	-2,502	-227	-614	-910
Official	1,232	523	964	60	255	-167	537	-1,347	-207	96	-857
Nonofficial	-801	-462	-2,055	-1,087	-2,253	-2,763	-1,766	-1,288	306	-471	-999
Net residual	235	228	801	1,504	1,353	296	522	133	-326	-239	946
Overall balance	606	351	-638	514	279	-1,202	1,754	-237	144	54	-86
Change in official external reserves 2/	-605	-352	640	-513	-280	1,202	-1,755	237	-144	-55	85
Monetary gold	-8	8	6	8	2	9	-50	-12	1	1	-1
SDRs	-12	-7	-10	-11	-10	66	-37	4	-1	-1	-1
Reserve position in the Fund	--	-3	8	17	-16	-39	-27	5	-4	3	4
Foreign exchange reserves	-597	-337	636	-386	-341	1,108	-2,050	-223	-141	-58	84
Counterpart to valuation changes	11	-12	1	-143	84	58	409	463	--	--	--
					(In percent of GNP)						
Memorandum items:											
Trade balance	6.9	10.1	10.1	7.6	7.8	12.6	16.9	18.5	...	...	...
Net invisibles balance	-11.9	-15.0	-16.8	-14.0	-12.0	-13.8	-15.0	-13.8	...	...	...
Current account balance	-0.3	0.3	-1.6	0.2	3.6	5.4	8.6	7.7	...	...	...
Overall balance	3.2	1.8	-2.9	2.1	1.1	-4.5	6.2	-0.8	...	...	...

Sources: Central Statistics Office, Statistical Release; and data provided by Irish authorities.

1/ Including adjustments for balance of payments purposes.

2/ Computed on a transactions 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/

	1988	1989	1990	1991	1992	1993	1993				1994		
							Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
Value (in millions of Irish pounds)													
Balance of trade	2,088	2,309	1,867	2,168	3,434	4,858	932	1,352	1,075	1,499	1,130	1,531	1,630
Exports, f.o.b.	12,301	14,597	14,342	15,019	16,629	19,656	4,573	4,909	4,751	5,424	5,361	5,685	5,523
Imports, c.i.f.	10,213	12,288	12,476	12,851	13,195	14,798	3,641	3,556	3,676	3,925	4,231	4,153	3,893
Of which:													
Petroleum imports	388	494	644	588	533	556	138	129	144	145	128	131	126
Growth in value (in percent)													
Exports, f.o.b.	14.7	18.7	-1.7	4.7	10.7	18.2	13.2	12.6	18.3	28.7	17.2	15.8	16.3
Imports, c.i.f.	11.5	20.3	1.5	3.0	2.7	12.2	9.6	7.0	15.6	16.6	16.2	16.8	5.9
Of which:													
Petroleum imports	-24.2	27.4	30.4	-8.8	-9.3	4.4	9.2	0.9	13.3	-4.2	-7.1	1.8	-12.4
Volume growth (in percent)													
Exports	8.7	9.2	7.7	6.7	11.4	15.5	14.9	14.6	13.7	18.6	11.0	11.0	11.2
Imports	6.5	9.8	7.0	0.8	5.0	4.7	6.0	3.7	7.5	5.3	12.9	11.9	3.5
Unit value growth (in percent)													
Exports	5.5	8.8	-8.7	-2.0	-0.5	2.4	-1.4	-1.5	4.1	8.8	5.6	4.7	5.0
Imports	4.5	8.6	-5.2	2.3	-2.3	5.3	0.9	2.9	7.2	10.3	5.0	4.8	2.6
Terms of trade													
Index (1985 = 100)	104.7	104.8	101.0	96.6	98.4	95.7	95.0	96.5	95.6	95.7	95.5	96.3	98.0
Percentage change	0.9	0.1	-3.6	-4.3	1.8	-2.7	-2.3	-4.3	-2.8	-1.4	0.6	-0.1	2.5

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)

	1988	1989	1990	1991	1992	1993
Share in total exports 2/						
Agriculture, fishing, and forestry 3/	18.5	17.2	15.0	15.0	17.0	13.6
Industrial exports	79.9	81.0	83.2	83.9	82.1	80.5
Unclassified 4/	1.6	1.8	1.8	1.2	0.9	5.8
Total exports	100.0	100.0	100.0	100.0	100.0	100.0
Of which: High technology	37.6	39.6	40.5	40.3	40.1	...
Total exports (in millions of Irish pounds)	12,301	14,597	14,342	15,019	16,629	19,656
Volume growth						
Agriculture, fishing, and forestry 3/	5.1	5.6	-8.7	6.6	28.3	...
Industrial exports	6.7	12.9	11.8	5.8	11.4	...
Total exports	8.7	9.1	7.6	6.9	11.3	15.4
Memorandum items:						
Export volume growth of manufactures	9.5	14.3	12.3	5.2	12.0	...
Partner country non-oil import volume growth	9.8	8.5	3.9	0.7	4.8	0.5

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

1/ Data on a customs basis.
2/ Total may not add to 100 percent due to rounding.
3/ Including the value of EC intervention stocks sent for storage abroad, which is excluded from merchandise exports for balance of payments purposes.
4/ From 1993, includes Intrastat Survey Estimates which are not classified by main use.

Table A9. Ireland: Foreign Trade Shares

(At current prices)

	1989	1990	1991	1992	1993	1994
			(Percentage distribution)			
Exports						
United Kingdom	33.9	33.8	32.0	31.5	28.2	27.3
Germany	10.9	11.7	12.7	12.8	13.3	13.6
France	9.9	10.5	9.5	9.6	9.3	8.8
Other EC	19.7	18.9	20.4	20.5	17.6	17.1
Total EC (12)	74.4	74.9	74.5	74.4	68.3	66.9
United States and Canada	8.5	9.0	9.7	9.3	10.1	10.3
Other countries	17.1	16.1	15.8	16.4	21.6	22.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Imports						
United Kingdom	41.1	42.6	41.4	42.5	36.5	35.6
Germany	8.7	8.3	8.2	8.4	7.4	7.0
France	4.1	4.5	4.3	4.4	4.0	4.6
Other EC	19.7	18.9	20.4	20.5	17.6	17.1
Total EC	65.5	66.9	65.5	66.6	56.7	56.4
United States and Canada	16.8	15.2	15.7	14.6	17.9	17.9
Other countries	17.1	16.1	15.8	16.4	21.6	22.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
			(In millions of Irish pounds)			
Trade balance						
United Kingdom	-94.6	-503.5	-520.6	-371.9	243.7	-33.0
Germany	536.7	637.5	846.0	1,017.8	1,570.5	1,712.3
France	952.3	939.9	865.9	1,016.8	1,260.5	1,112.3
Other EC	1,449.9	1,272.2	1,578.5	1,917.4	2,187.3	2,130.3
Total EC	2,844.4	2,346.2	2,769.9	3,580.1	5,262.0	4,921.9
United States and Canada	-816.6	-617.7	-565.5	-383.6	-618.2	-748.8
Other countries	340.5	59.1	-39.2	236.8	580.7	589.7
Total	2,368.2	1,787.6	2,165.2	3,433.3	5,224.5	4,762.9

Source: IMF, Direction of Trade Statistics.

Table A10. Ireland: Imports Classified by End Use

(Percentage distribution)

	1988	1989	1990	1991	1992	1993	1994		
							Qtr 1	Qtr 2	Qtr 3
Producers' capital goods ready for use	14.4	16.1	15.8	14.1	13.1	14.7	16.0	15.7	14.4
Consumption goods	26.9	25.9	26.9	28.2	28.2	23.7	22.9	22.5	22.7
Of which:									
Food, drink, and tobacco	7.3	6.7	6.9	7.6	7.8	6.6	6.2	6.9	6.8
Other	19.6	19.2	20.0	20.6	20.3	17.1	16.8	15.6	15.9
Materials for further production	57.9	57.3	56.6	57.1	58.2	53.1	54.5	53.7	53.2
Of which:									
Agriculture	4.3	4.1	3.7	3.6	3.5	3.1	4.0	2.8	2.5
Industry	53.6	53.2	52.8	53.5	54.7	49.9	50.5	50.9	50.8
Unclassified 1/	0.7	0.7	0.8	0.6	0.6	8.5	6.6	8.2	9.7
Total	100.0	100.0	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)

	1987	1988	1989	1990	1991	1992	1993	1994		
								Qtr 1	Qtr 2	Qtr 3
Credits										
Transportation 1/	562	572	619	666	689	690	678	150	181	204
Tourism and travel 2/	564	655	751	870	939	949	1,091	162	298	485
Other nonfactor services	280	333	410	480	588	681	665	181	184	176
Factor incomes	771	1,012	1,328	1,622	1,747	1,627	1,609	430	443	473
International transfers	1,322	1,408	1,526	1,989	2,460	2,243	2,499	558	346	455
Of which: EC	1,100	1,162	1,295	1,735	2,177	1,974	2,238			
Total credits	3,499	3,980	4,634	5,627	6,423	6,190	6,542	1,481	1,452	1,793
Debits										
Transportation	278	263	275	284	295	299	297	72	75	74
Tourism and travel	557	630	697	701	699	797	836	159	244	426
Other nonfactor services	709	983	1,273	1,242	1,389	1,603	1,756	485	403	526
Factor incomes	2,899	3,690	4,578	4,770	4,627	4,937	5,430	1,355	1,431	1,408
Of which:										
Profits, dividends, and royalties 3/	1,442	2,094	2,564	2,507	2,377	2,888	3,426	736	941	975
Government debt interest	804	894	973	1,009	1,031	940	1,023	375	249	187
Other interest 4/	654	703	1,041	1,254	1,220	1,126	1,008	243	241	246
International transfers	443	397	418	422	491	505	608	150	152	154
Of which: EC	256	249	287	284	348	354	453			
Total debits	4,886	5,963	7,241	7,419	7,501	8,141	8,927	2,221	2,305	2,588
Net invisibles										
Nonfactor services	-138	-316	-465	-211	-167	-379	-455	-223	-59	-161
Transportation 1/	284	309	344	382	394	391	381	78	106	130
Tourism and travel 2/	7	25	54	169	240	152	255	3	54	59
Other nonfactor services	-429	-650	-863	-762	-801	-922	-1,091	-304	-219	-350
Factor incomes	-2,128	-2,678	-3,250	-3,148	-2,880	-3,310	-3,821	-925	-988	-935
International transfers	879	1,011	1,108	1,567	1,969	1,738	1,891	408	194	301
Of which: EC	844	913	1,008	1,451	1,829	1,620	1,785			
Total	-1,387	-1,983	-2,607	-1,792	-1,078	-1,951	-2,385	-740	-853	-795

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/

	1989	1990	1991	1992	1993	1994	1994				1995
							Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
Consumer price index	4.0	3.3	3.2	3.1	1.4	2.3	1.7	2.7	2.5	2.4	2.5
Of which:											
Food	4.7	1.7	1.4	1.7	0.3	3.4	3.8	4.5	2.9	2.7	3.8
Services	4.5	3.8	4.4	3.9	3.4	3.7	4.1	3.6	3.3	3.6	3.6
Fuel and light	2.7	2.8	3.5	0.5	0.3	0.7	1.1	0.8	0.7	0.4	-0.1
Durable household goods	2.9	2.0	2.9	2.8	0.0	2.2	2.2	2.4	2.3	2.0	1.2
Implicit GDP deflator	4.3	-1.7	1.1	1.3	3.4	3.2	...	...	...	...	...
Wholesale price index 2/	5.5	-2.7	1.2	0.9	4.7	...	3.3	1.8	...	...	...
Of which:											
Manufacturing	4.8	-1.6	0.9	1.6	4.6	1.1	3.6	1.6	-0.5	-0.1	1.2
Capital goods	5.1	3.4	2.5	1.9	2.8	2.3	2.9	1.8	1.8	2.5	3.7
Of which:											
Building and construction	5.5	4.3	2.7	2.0	2.7	2.3	2.8	1.0	1.9	3.3	4.4
Export unit value	8.8	-8.7	-2.0	-0.5	2.4	1.2	5.6	4.7	5.0	...	...
Import unit value	8.6	-5.2	2.3	-2.3	5.3	1.5	5.0	4.8	2.6	...	...
Terms of trade	0.1	-3.7	-4.3	1.8	-2.7	-0.3	0.6	-0.1	2.5	...	...

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)

	1989	1990	1991	1992	1993	1993				1994	
						Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
Average hourly earnings	4.1	4.5	5.6	4.7	5.8	6.1	6.0	5.8	5.3	3.1	2.3
Average weekly earnings	4.0	3.9	4.4	4.0	5.4	5.3	4.1	5.8	6.3	4.7	5.1
Output per person employed 1/	9.2	2.2	2.7	10.4	5.3	8.5	6.1	2.6	4.3	5.2	9.9
Output per person-hour	9.3	2.8	3.9	11.1	5.7	9.2	8.1	2.6	3.3	3.6	7.0
Unit wage costs 2/	-4.8	1.6	1.7	-5.8	0.0	-2.9	-1.9	3.1	2.0	-0.5	-4.5
Real unit wage costs 3/	-9.1	3.3	0.8	-7.3	-4.4	-5.2	-5.3	-2.7	-4.2	-3.9	-6.0

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

	1987	1988	1989	1990	1991	1992	1993	1994
	(At mid-April in thousands, unless otherwise indicated)							
Population	3,546	3,531	3,510	3,506	3,526	3,549	3,563	3,571
Natural increase	29	26	23	19	22	21	20	18
Net migration	-23	-42	-44	-23	-2	2	-6	-10
Labor force	1,322	1,308	1,289	1,310	1,342	1,360	1,375	1,397
Employment	1,090	1,090	1,088	1,134	1,134	1,139	1,146	1,182
Unemployment (labor force survey data) 1/	232	218	201	176	208	221	229	215
First-time job seekers	40	36	31	25	34	31	34	38
Long-term unemployed	154	144	141	124	123	140	147	...
Live register: end-April	251	242	233	221	248	281	295	284
Live register: annual average	247	241	232	225	254	283	294	282
	(In percent of labor force)							
Unemployment rate								
Standardized	16.7	16.1	14.7	13.4	14.7	15.5	15.6	14.8
Labor Force Survey	17.6	16.7	15.6	13.4	15.5	16.2	16.7	15.4
First-time job seekers	3.0	2.8	2.4	1.9	2.5	2.3	2.5	2.7
Long-term unemployed 2/	66.4	66.0	70.1	70.4	59.3	63.3	64.3	...
Live register 3/	19.0	18.5	18.1	16.9	18.5	20.7	21.4	20.4
Participation rate 4/	51.8	51.6	50.9	51.2	51.7	52.0	52.0	52.3
Males	72.9	72.5	71.4	70.9	70.9	70.4	69.7	69.6
Females	32.1	31.2	30.9	32.0	32.9	34.2	34.9	35.7

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)

	1988	1989	1990	1991	1992	1993	1994
Total employment 1/	1,090	1,088	1,134	1,134	1,139	1,146	1,182
Agriculture, forestry, and fishing	165	162	169	155	153	143	140
Industry	299	307	321	324	319	310	329
Mining, quarrying, and turf	6	8	8	7	6	5	5
Manufacturing	209	219	225	225	226	224	231
Building and construction	70	67	76	78	74	70	79
Electricity, gas, and water	14	13	12	14	13	11	14
Services	626	618	643	656	667	693	708
Commerce, insurance, and finance	222	219	226	231	234	245	240
Transport, communication, and storage	64	67	68	66	68	70	73
Public administration and defense	70	67	65	69	69	67	68
Other nonagricultural activity	270	265	284	290	296	311	327
Memorandum items:							
Manufacturing 2/	183	187	192	193	192	192	...
Traditional	140	142	143	143	140	138	...
Modern	43	45	48	50	52	55	...

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

1/ Labor force survey data.

2/ Quarterly Industrial Inquiry data; annual average.

Table A16. Ireland: Overview of Public Finances

	1988	1989	1990	1991	1992	1993	1994 Budget	1994 Outturn	1995 Budget
				(In millions of Irish pounds)					
1. Current budget									
Revenue	7,690	7,756	8,269	8,776	9,360	10,140	10,846	11,203	11,542
Expenditure	8,006	8,019	8,421	9,076	9,806	10,519	11,115	11,188	11,852
Deficit	-317	-263	-152	-300	-446	-379	-269	15	-310
2. Capital budget									
Resources 1/	1,060	1,217	1,374	1,549	1,618	1,905	1,922	1,689	2,265
Expenditure	1,363	1,433	1,684	1,750	1,885	2,216	2,456	2,376	2,768
Deficit	-302	-216	-310	-201	-267	-311	-534	-687	-503
3. Total									
Revenue/resources 1/	8,750	8,973	9,643	10,325	10,978	12,045	12,768	12,892	13,807
Expenditure	9,369	9,452	10,105	10,826	11,691	12,735	13,571	13,564	14,620
EBR	619	479	462	501	713	690	803	672	813
Borrowing by state-sponsored bodies and local authorities	132	188	219	315	148	172	222	95	192
PSBR	751	667	681	816	861	862	1,025	767	1,005
Memorandum items:									
Service of national debt	2,141	2,141	2,300	2,353	2,309	2,390	2,229	2,227	2,410
				(In percent of GNP)					
Current revenue	38.5	35.0	34.5	34.7	35.1	35.6	36.5	36.0	34.4
Current expenditure	40.0	36.2	35.1	35.8	36.7	36.9	37.4	36.0	35.3
Current deficit	-1.6	-1.2	-0.6	-1.2	-1.7	-1.3	-0.9	0.0	-0.9
Capital resources 1/	5.3	5.5	5.7	6.1	6.1	6.7	6.5	5.4	6.7
Capital expenditure	6.8	6.5	7.0	6.9	7.1	7.8	8.3	7.6	8.2
Capital deficit	-1.5	-1.0	-1.3	-0.8	-1.0	-1.1	-1.8	-2.2	-1.5
Total revenue/resources 1/	43.8	40.5	40.2	40.8	41.1	42.3	43.0	41.4	41.1
Total expenditure	46.9	42.7	42.2	42.7	43.8	44.7	45.7	43.6	43.5
EBR	3.1	2.2	1.9	0.9	2.7	2.4	2.7	2.2	2.4
Borrowing by state-sponsored bodies and local authorities	0.7	0.8	0.9	2.3	0.6	0.6	0.8	0.3	0.6
PSBR	3.8	3.0	2.8	3.2	3.2	3.0	3.5	2.5	3.0
Memorandum item:									
Service of national debt	10.7	9.7	9.6	9.3	8.7	8.4	7.5	7.2	7.2

Sources: Budgets; Quarterly Bulletin; and information provided by the Irish authorities.

1/ Includes non-Exchequer capital resources and expenditure.

Table A17. Ireland: Public Sector Debt

	1989	1990	1991	1992	1993	1994 Est.
	(In millions of Irish pounds)					
Outstanding debt (year end)						
Government 1/	24,828	25,083	25,377	26,343	28,359	29,227
Of which:						
External 1/	9,123	8,848	8,859	10,122	11,386	10,978
Semi-state bodies	4,827	5,133	5,174	5,213	5,543	5,691
Of which:						
External	2,108	2,268	2,205	2,162	1,930	2,047
Total	29,655	30,216	30,551	31,556	33,902	34,918
	(In percent of GNP)					
Outstanding debt (year end)						
Government 1/	112.0	104.7	100.2	98.7	99.5	93.9
Of which:						
External 1/	41.2	36.9	35.0	37.9	40.0	35.3
Semi-state bodies	21.8	21.4	20.4	19.5	19.5	18.3
Of which:						
External	9.5	9.5	8.7	8.1	6.8	6.6
Total	133.8	126.1	120.6	118.2	119.0	112.2
Memorandum items:						
External government debt/ total government debt	36.7	35.3	34.9	38.4	40.1	37.6
External semi-state debt/ total semi-state debt	43.7	44.2	42.6	41.5	34.8	36.0
External debt/total debt	37.9	36.8	36.2	38.9	39.3	37.3

Sources: Budget; and information provided by the Irish authorities.

1/ Central government debt net of foreign currency deposits.

Table A18. Ireland: Summary of Current and Capital Budgets

(In millions of Irish pounds)

	1990	1991	1992	1993	1994 Budget Est.	1994 Outturn	1995 Budget Est.
Current revenue	8,269	8,776	9,360	10,140	10,846	11,203	11,542
Tax	7,903	8,357	8,910	9,704	10,458	10,835	11,196
Nontax	366	419	450	436	388	368	346
Current expenditure	8,421	9,076	9,806	10,519	11,115	11,188	11,852
Central Fund	2,604	2,723	2,726	2,869	2,758	2,821	2,987
Supply services	5,817	6,353	7,080	7,650	8,357	8,367	8,865
Current budget balance	-152	-300	-446	-379	-269	15	-310
Capital expenditure 1/	1,684	1,750	1,881	2,207	2,456	2,348	2,779
Public capital program	1,653	1,687	1,842	2,082	2,379	2,228	2,674
Nonprogram capital outlays	31	63	39	125	77	120	105
Capital resources	1,374	1,549	1,618	1,905	1,922	1,689	2,265
Non-Exchequer resources of state bodies and local authorities	871	908	1,008	1,106	1,231	1,144	1,405
Exchequer resources and receipts	503	641	610	839	691	545	860
Capital budget deficit	-310	-201	-263	-302	-534	-659	-514
Exchequer borrowing requirement	463	500	709	681	803	644	824

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

1/ Includes non-Exchequer capital expenditure.

Table A19. Ireland: Central Government Current Expenditure

(In millions of Irish pounds)

	1988	1989	1990	1991	1992	1993	1994 Budget	1994 Outturn	1995 Budget
Service of public debt	2,141	2,141	2,300	2,353	2,309	2,390	2,229	2,227	2,410
Interest	1,962	1,956	2,107	2,149	2,096	2,159	1,987	2,004	2,142
Sinking funds, etc.	179	185	193	204	213	231	242	223	268
Economic services	685	643	682	796	891	963	1,076	990	1,136
Industry and labor	227	209	220	246	280	321	388	389	494
Agriculture, fisheries, and forestry	430	410	438	524	584	614	652	566	607
Tourism	28	24	24	26	27	28	36	35	35
Infrastructure	60	60	67	71	75	75	87	90	78
Roads	30	30	32	33	35	34	52	57	51
Sanitary services	3	3	2	2	1	1	1	1	1
Transport	27	27	33	36	39	40	34	32	26
Social services	5,180	5,410	5,752	6,311	6,997	7,550	8,011	8,063	8,437
Health	1,172	1,240	1,377	1,535	1,722	1,907	2,069	2,111	2,167
Education	1,162	1,235	1,302	1,415	1,569	1,727	1,868	1,875	1,980
Social welfare	2,641	2,744	2,892	3,186	3,534	3,742	3,900	3,903	4,121
Housing	33	24	13	8	5	4	5	5	5
Subsidies	172	167	168	167	167	170	169	169	164
Security	687	697	784	851	899	950	999	1,012	1,041
Defense	310	312	359	389	395	403	423	427	435
Justice	377	385	425	462	504	547	576	585	606
Other	846	807	820	926	948	1,107	1,376	1,345	1,421
EC budget	248	286	283	347	354	453	492	507	544
Supply services	581	499	517	557	577	628	847	751	844
Other Central Fund	17	22	20	22	17	26	37	87	33
Total (gross)	9,599	9,758	10,405	11,308	12,119	13,035	13,778	13,727	14,523
Less supply services and PRSI receipts	1,635	1,717	1,970	2,236	2,373	2,534	2,619	2,551	2,613
Total (net)	7,964	8,041	8,435	9,072	9,746	10,501	11,159	11,176	11,910
Plus Local Loans Fund subsidies	--	--	--	--	--	--	--	--	--
Net expenditure including Local Loans Fund subsidies	7,964	8,041	8,435	9,072	9,746	10,501	11,159	11,176	11,910
Memorandum item: Exchequer pay and pensions bill included in above	2,845	2,914	3,160	3,392	3,761	4,098	4,398	4,370	4,617

Source: Department of Finance, Budget, and "Estimates for Public Services"; and staff calculations.

Table A20. Ireland: Public Capital Program

	1989	1990	1991	1992	1993	1994 Budget Est.	1994 Prov. Outturn	1995 Budget Est.
	(In millions of Irish pounds)							
Sectoral economic investment	445	520	558	608	579	621	727	850
Of which:								
Agriculture	64	82	92	122	137	205	186	228
Industry	326	345	360	374	340	275	408	455
Productive infrastructure	651	802	820	897	1,103	1,009	931	1,095
Of which:								
Energy	109	130	163	256	355	256	227	267
Transport	130	219	197	158	123	156	151	216
Roads, sanitary services, etc.	239	271	292	316	433	379	365	385
Telecommunications, broadcasting, post	173	182	168	167	192	218	188	227
Social infrastructure	295	331	309	337	400	626	570	729
Housing	136	122	124	143	190	297	283	358
Education	54	67	62	73	81	102	99	94
Hospitals	48	46	42	44	44	63	65	102
Government construction, computerization	57	96	81	77	85	164	123	175
Total 1/	1,391	1,653	1,687	1,842	2,082	2,256	2,228	2,674
Memorandum item:								
Real increase over previous year 2/ (in percent)	0.2	19.9	1.0	7.0	9.5	-0.4	4.1	16.6
	(In percent of total)							
Sectoral economic investment	32.0	31.5	33.1	33.0	27.8	26.1	32.6	31.8
Of which:								
Agriculture	4.6	5.0	5.5	6.6	6.6	8.6	8.3	8.5
Industry	23.4	20.9	21.3	20.3	16.3	11.6	18.3	17.0
Productive infrastructure	46.8	48.5	48.6	48.7	53.0	42.4	41.8	40.9
Of which:								
Energy	7.8	7.9	9.7	13.9	17.1	10.8	10.2	10.0
Transport	9.3	13.2	11.7	8.6	5.9	6.6	6.8	8.1
Roads, sanitary services, etc.	17.2	16.4	17.3	17.2	20.8	15.9	16.4	14.4
Telecommunications, broadcasting, post	12.4	11.0	10.0	9.1	9.2	9.2	8.4	8.5
Social infrastructure	21.2	20.0	18.3	18.3	19.2	26.3	25.6	27.3
Of which:								
Housing	9.8	7.4	7.4	7.8	9.1	12.5	12.7	13.4
Education	3.9	4.1	3.7	4.0	3.9	4.3	4.4	3.5
Hospitals	3.5	2.8	2.5	2.4	2.1	2.6	2.9	3.8
Government construction, computerization	4.1	5.8	4.8	4.2	4.1	6.9	5.5	6.5
Total 1/	100.0	100.0	100.0	100.0	100.0	94.8	100.0	100.0

Sources: Quarterly Bulletin; 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)

	1989	1990	1991	1992	1993	1994 Budget Est.	1994 Outturn	1995 Budget Est.
Taxes on income	3,113	3,498	3,824	4,152	4,664	4,816	4,973	5,233
Personal income tax	2,810	3,024	3,231	3,413	3,712	3,797	3,841	3,933
Corporation tax	303	474	593	739	952	1,019	1,132	1,300
Taxes on capital	60	71	103	98	87	97	120	95
Taxes on goods and services	3,729	3,814	3,916	4,127	4,327	4,683	4,807	5,193
Value-added tax	1,943	1,979	2,010	2,177	2,332	2,547	2,598	2,837
Excise	1,638	1,674	1,722	1,734	1,757	1,894	1,960	2,115
Motor vehicle duties 1/	148	161	184	216	238	242	249	241
Customs duties	132	114	120	125	159	176	191	210
Other duties and levies 2/	409	406	394	408	467	445	510	465
Tax Amnesty	...	...	...	...	230	242	238	...
Total tax revenue	7,443	7,903	8,357	8,910	9,704	10,459	10,835	11,196
Nontax revenue	313	366	419	450	436	388	368	346
Total current revenue	7,756	8,269	8,776	9,360	10,140	10,847	11,203	11,542
Memorandum item:								
Taxes on personal income as a percentage of total tax revenue	37.8	38.3	38.7	38.3	38.3	36.3	35.4	35.1

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

1/ Including road tax.

2/ Including Youth Employment Levy, Income Levy, Agricultural Levies, and Stamp Duties.

Table A22. Ireland: Public Sector Employment 1/

	1986-94 Percent change	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995 Est.
		(In thousands)									
Exchequer financed	-1.9	185.5	183.6	178.0	169.6	169.7	172.6	176.0	179.2	181.9	...
Local authorities	-18.3	32.8	32.4	30.3	26.9	26.5	26.7	26.7	26.8	26.8	...
Public service	-4.4	218.3	216.0	208.3	196.5	196.2	199.3	202.7	206.0	208.7	212.5
Commercial semi-state bodies	-23.4	82.4	78.4	73.3	72.0	71.4	71.3	66.1	64.0	63.1	...
Total public sector	-9.6	300.7	294.4	281.6	268.5	267.6	270.6	268.8	270.0	271.8	...
(Percent change)		(-0.2)	(-2.1)	(-4.3)	(-4.7)	(-0.3)	(1.1)	(-0.7)	(0.4)	(0.7)	(...)

Source: Information provided by the Irish authorities.

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

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

(In millions of Irish pounds)

	1990	1991	1992	1993	1994 Est.	1995 Forecast
A. Subsidies and grants						
FEOGA:						
Guarantee Section	1,286.7	1,334.4	1,113.6	1,281.8	1,173.8	1,200.0
Guidance Section	90.9	143.3	147.4	125.9	130.9	199.8
European Social Fund	128.2	370.7	277.3	311.6	277.7	436.4
European Regional Development Fund	225.1	341.9	444.6	464.4	175.6	398.0
Miscellaneous	3.6	10.9	11.1	61.6	84.1	160.8
Total	1,734.5	2,201.2	1,994.0	2,245.3	1,842.1	2,395.0
(In percent of GDP)	(6.4)	(7.8)	(6.6)	(7.0)	(5.2)	(6.2)
Net of FEOGA guarantees	447.8	866.8	880.4	963.5	668.3	1,195.0
(In percent of GDP)	(1.7)	(3.1)	(2.9)	(3.0)	(1.9)	(3.1)
B. Less: Contributions 1/	284.0	348.3	353.6	453.5	506.8	544.0
(In percent of GDP)	(1.0)	(1.2)	(1.2)	(1.4)	(1.4)	(1.4)
C. Net subsidies and grants	1,450.5	1,852.9	1,640.4	1,791.8	1,335.3	1,850.2
(In percent of GDP)	(5.4)	(6.6)	(5.5)	(5.5)	(3.8)	(4.8)
D. Loans from EIB	167.1	182.0	231.2	309.6	232.1	200.0
(In percent of GDP)	(0.6)	(0.6)	(0.8)	(1.0)	(0.7)	(0.5)

Sources: Budget, various years; 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

	1989	1990	1991	1992	1993	1994
			(In millions of Irish pounds)			
Net sales of domestic securities	550	322	288	-1,092	1,379	463
To nonbank public	-556	176	69	282	-162	299
To commercial banks	-214	82	-14	435	-131	585
To nonresidents	1,320	64	233	-1,809	1,672	-421
Small savings	161	86	172	145	238	377
Other Irish pound	...	...	...	...	...	-100
External borrowing by Government, net 1/	-29	-44	-23	1,008	-60	-388
Change in balances at Central Bank	-203	93	-206	652	-867	321
Total Exchequer borrowing requirement 2/	479	462	231	713	690	672
Memorandum items:						
Total monetary financing	874	195	-10	286	614	-4
Domestic bank(including Central Bank) financing	-417	175	-220	1,087	-998	906
Total foreign financing	1,291	20	210	-801	1,612	-810
Other Irish pound	...	...	...	...	...	-100
Total nonmonetary financing 2/	-395	262	241	427	76	676
			(In percent)			
As a percentage of Exchequer borrowing requirement						
Total monetary financing	182.5	42.2	-4.3	40.1	89.0	14.3
Domestic bank (including Central Bank) financing	-87.1	37.9	-95.2	152.5	-144.6	134.8
Total foreign financing	269.5	4.3	90.9	-112.3	233.6	-120.5
Other Irish pounds	...	...	...	...	...	-14.9
Total nonmonetary financing 2/	-82.5	56.7	104.3	59.9	11.0	100.6

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

1/ Excludes sales of government securities to nonresidents.

2/ 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$/Irf	Irf/St£	DM/Irf	Nominal effective exchange rate (1990=100)	Bilateral rates (1990=100) Against St£	Bilateral rates (1990=100) Against DM	3-month Interbank	15-year bond yield	Ireland-United Kingdom Short-term	Ireland-United Kingdom Long-term	Ireland-Germany Short-term	Ireland-Germany Long-term
1993												
Jan.	1.634	0.937	2.641	105.5	114.8	98.6	24.50	9.61	17.59	1.30	15.98	2.47
Feb.	1.481	0.971	2.430	98.5	110.8	90.7	13.79	9.07	7.63	1.12	5.45	2.09
Mar.	1.476	0.990	2.431	97.9	108.7	90.7	9.40	8.27	3.45	0.63	1.49	1.67
Apr.	1.529	1.012	2.440	97.7	106.4	91.1	8.38	8.15	2.43	0.33	0.53	1.51
May	1.514	1.023	2.431	96.9	105.2	90.7	7.56	8.00	1.59	-0.07	0.11	1.19
June	1.477	1.024	2.440	96.1	105.1	91.1	6.48	7.49	0.60	-0.38	-1.07	0.72
July	1.412	1.060	2.420	94.2	101.5	90.3	6.33	7.68	0.39	0.19	-0.85	1.11
Aug.	1.392	1.072	2.360	93.0	100.4	88.1	6.56	7.21	0.71	0.22	--	0.87
Sep.	1.436	1.062	2.330	93.5	101.4	86.9	6.93	7.19	1.03	0.28	0.36	1.06
Oct.	1.435	1.048	2.350	94.5	102.7	87.7	6.64	6.78	0.89	-0.02	0.06	0.85
Nov.	1.404	1.054	2.387	94.5	102.1	89.1	6.52	6.69	0.97	-0.09	0.26	0.83
Dec.	1.418	1.051	2.424	95.3	102.4	90.4	6.34	6.47	1.02	0.19	0.29	0.75
1994												
Jan.	1.433	1.042	2.498	97.0	103.3	93.2	5.91	6.34	0.52	0.15	0.08	0.69
Feb.	1.420	1.042	2.466	95.8	103.3	92.0	6.14	6.94	0.94	0.33	0.28	1.06
Mar.	1.434	1.039	2.428	95.5	103.5	90.6	6.31	7.55	1.14	0.20	0.52	1.29
Apr.	1.437	1.032	2.441	95.8	104.3	91.1	5.99	7.75	0.78	0.07	0.45	1.37
May	1.470	1.022	2.438	96.6	105.3	91.0	5.75	8.57	0.59	0.43	0.60	1.93
June	1.496	1.019	2.437	97.0	105.6	90.9	5.56	8.76	0.43	0.22	0.55	1.69
July	1.527	1.012	2.399	96.9	106.4	89.5	5.75	8.54	0.55	0.16	0.83	1.64
Aug.	1.523	1.013	2.382	96.7	106.2	88.9	6.25	8.64	0.74	0.11	1.29	1.54
Sep.	1.544	1.013	2.395	97.0	106.3	89.4	5.75	9.00	0.07	0.21	0.73	1.45
Oct.	1.587	1.012	2.410	97.8	106.3	89.9	5.50	8.80	-0.40	0.10	0.33	1.23
Nov.	1.565	1.016	2.409	97.5	106.0	89.9	5.81	8.54	-0.23	-0.03	0.65	1.06
Dec.	1.536	1.015	2.415	97.5	106.0	90.1	6.44	8.84	0.09	0.31	1.09	1.39
1995												
Jan.	1.558	1.011	2.387	97.5	106.4	89.1	6.13	8.71	-0.43	0.03	1.02	1.14
Feb.	1.563	1.005	2.348	97.2	107.0	87.6	6.44	8.73	-0.29	0.12	1.40	1.32
Mar.	1.600	1.000	2.250	96.3	107.6	84.0	7.00	8.87	0.36	0.33	1.98	1.61
Apr.	1.629	0.987	2.249	96.7	108.9	84.0	6.81	8.69	0.14	0.30	2.18	1.61

Sources: IMF, International Financial Statistics; Research Department.

Table A26. Ireland: Exchange Rate Developments 1/

	US$/Irf		£ sterling/Irf		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
1986	1.341	25.9	1.094	-10.1	97.5	6.8	103.6	7.2
1987	1.488	10.9	1.101	0.7	96.8	-0.7	102.2	-1.3
1988	1.526	2.6	1.167	6.0	95.3	-1.6	98.7	-3.5
1989	1.419	-7.0	1.156	-1.0	94.3	-1.0	96.5	-2.2
1990	1.658	16.9	1.076	-6.9	100.0	6.1	100.0	3.6
1991	1.616	-2.6	1.095	1.8	98.6	-1.4	96.9	-3.1
1992	1.705	5.6	1.035	-5.5	101.7	3.2	100.0	3.2
1993	1.467	-14.0	1.024	-1.1	96.6	-5.0	94.1	-5.9
1994	1.498	2.1	1.023	-0.1	96.8	0.2	94.4	0.3
1992 1st qtr.	1.648	-5.4	1.075	-1.9	99.5	-0.5	97.9	-0.4
2nd qtr.	1.654	7.2	1.093	-1.4	99.0	1.6	97.2	1.6
3rd qtr.	1.815	18.2	1.050	-4.4	102.2	4.7	100.3	4.5
4th qtr.	1.704	3.8	0.926	-14.2	106.1	6.8	104.6	7.2
1993 1st qtr.	1.530	-7.2	0.965	-10.2	100.9	1.4	98.9	1.0
2nd qtr.	1.506	-8.9	1.019	-6.7	97.2	-1.8	94.4	-2.9
3rd qtr.	1.413	-22.1	1.065	1.4	93.7	-8.3	90.9	-9.4
4th qtr.	1.419	-16.8	1.051	13.5	94.7	-10.7	92.2	-11.9
1994 1st qtr.	1.429	-6.6	1.041	7.8	95.9	-4.9	93.4	-5.6
2nd qtr.	1.468	-2.6	1.024	0.5	96.5	-0.7	94.2	-0.2
3rd qtr.	1.531	8.4	1.012	-4.9	97.2	3.8	94.8	4.2
4th qtr.	1.563	10.2	1.014	-3.5	97.8	3.2	95.2	3.3
1995 1st qtr.	1.574	10.1	1.006	-3.4	97.4	1.6	94.9	1.7

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 overdraft rate 2/	Deposit rate 3/	One year to maturity	Five years to maturity	Fifteen years to maturity
1989	12.00	14.00	12.38	12.12	11.00	7.75	10.79	10.15	9.28
1990	11.25	11.10	11.12	11.50	10.50	7.30	9.79	10.42	9.89
1991	10.75	10.80	10.69	10.75	10.25	7.00	10.36	9.46	8.85
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	7.38	1.50	5.74	5.86	6.47
1994									
Jan.	6.75	5.93	5.97	5.91	6.62	1.50	5.63	5.75	6.34
Feb.	6.75	6.05	6.13	6.14	6.75	1.50	5.96	6.27	6.94
Mar.	6.75	5.99	6.24	6.31	6.75	1.50	6.20	6.89	7.55
Apr.	6.50	5.74	5.93	5.99	6.62	1.50	6.27	7.36	7.75
May	6.25	5.19	5.50	5.75	6.00	1.00	5.93	8.04	8.57
June	6.25	5.50	5.38	5.56	5.88	1.00	6.11	8.41	8.76
July	6.25	5.12	5.38	5.75	5.88	1.00	6.16	8.36	8.54
Aug.	6.25	5.25	5.62	6.25	6.12	1.00	7.07	8.43	8.64
Sep.	6.25	5.00	5.25	5.75	5.88	1.00	6.74	8.66	9.00
Oct.	6.25	4.88	5.25	5.50	5.82	1.00	6.16	8.51	8.80
Nov.	6.25	4.00	5.56	5.81	6.00	1.00	5.88	8.29	8.54
Dec.	6.25	5.25	5.75	6.44	6.25	1.00	6.41	8.74	8.84
1995									
Jan.	6.25	5.13	5.69	6.13	6.25	1.00	6.16	8.64	8.71
Feb.	6.25	5.63	5.94	6.44	6.25	1.00	7.87	8.66	8.73
Mar.	7.25	5.50	6.75	7.00	7.62	1.50	7.87	8.79	8.87
Apr.	7.25	...	6.56	6.81	...	...	7.67	8.66	8.69

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

(End of period data)

	1988	1989	1990	1991	1992	1993	1994	1994 Mar.	1994 June	1994 Sep.	1994 Dec.	1995 Mar.
	(Percentage changes from the corresponding period in the previous year)											
Net foreign assets 1/	-0.1	-2.8	-4.0	7.1	3.7	13.6	-3.3	-1.6	-4.8	-10.3	-3.3	-6.5
Net domestic credit 2/	6.8	8.3	12.1	-3.4	11.4	6.1	14.5	14.7	15.7	22.3	14.4	19.2
Government, net	-15.1	-20.4	12.8	-18.8	58.8	10.3	26.3	81.6	78.0	106.0	26.3	36.8
Nongovernment	13.4	14.8	12.0	-1.0	5.3	5.3	12.1	6.2	9.2	12.3	12.0	9.0
Narrow money (M1)	9.4	12.6	8.1	0.7	1.0	21.9	13.2	22.2	19.7	11.6	13.2	8.9
Broad money (M3)	6.3	5.0	15.4	3.1	8.4	22.3	11.3	10.6	9.4	9.3	11.3	9.1
M3E 3/	8.0	7.2	0.6	4.8	12.2	15.8	10.3	9.2	8.0	7.3	10.2	8.5
	(In percent of M3 in corresponding period of previous year)											
Contribution to growth of M3:												
Net foreign assets	-0.1	-2.8	-4.0	7.1	3.7	13.6	-3.3	-1.6	-4.8	-10.3	-3.3	-6.5
Net domestic credit	8.7	10.7	16.2	-4.5	13.9	7.7	15.7	15.7	16.2	22.0	15.7	21.3
Government, net	-4.5	-4.9	2.3	-3.3	8.3	2.1	4.9	9.8	7.6	11.1	4.9	7.2
Nongovernment	13.3	15.6	13.8	-1.1	5.7	5.5	10.8	5.9	8.5	10.8	10.8	8.2

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/ 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)

	1989	1990	1991	1992	1993	1994	1993				1994				1995
							Mar.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.	Mar.
Net foreign assets	-1,063	-1,500	-602	-114	1,802	1,226	1,867	2,429	3,354	1,802	1,616	1,666	1,621	1,226	486
Official external reserves	2,521	2,892	3,256	2,113	4,278	4,041	3,571	4,256	4,316	4,278	4,422	4,477	4,392	4,041	4,030
Net external position	-3,584	-4,392	-3,858	-2,227	-2,476	-2,815	-1,704	-1,827	-962	-2,476	-2,806	-2,811	-2,771	-2,815	-3,544
Net domestic credit	14,642	16,411	15,845	17,659	18,741	21,456	16,730	16,506	16,646	18,741	19,186	19,100	20,359	21,448	21,866
Net claims on Government	1,994	2,249	1,827	2,902	3,202	4,043	1,874	1,568	1,774	3,202	3,403	2,790	3,654	4,043	4,655
Claims on nongovernment sector 2/	12,648	14,162	14,018	14,757	15,539	17,412	14,856	14,938	14,872	15,539	15,782	16,310	16,705	17,405	17,211
Other items, net	-2,634	-2,275	-2,218	-3,426	-3,276	-3,470	-2,936	-2,886	-3,098	-3,276	-3,489	-3,213	-3,509	-3,463	-3,455
Broad money (M3)	10,945	12,636	13,025	14,118	17,268	19,211	15,660	16,048	16,902	17,268	17,313	17,553	18,471	19,211	18,897
Narrow money (M1)	2,936	3,174	3,195	3,228	3,934	4,455	3,078	3,247	3,562	3,934	3,762	3,887	3,976	4,455	4,098
Savings deposits	8,008	9,367	9,830	10,976	13,334	14,757	12,664	12,931	13,533	13,334	13,551	13,666	14,495	14,757	14,799
M3E 3/	17,625	17,732	18,577	20,834	24,130	26,604	22,273	22,858	23,893	24,130	24,332	24,687	25,635	26,596	26,405

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/ 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: Money Supply Formation

(In millions of Irish pounds)

	1989	1990	1991	1992	1993	1994 Prov.
Budgetary component:						
Exchequer borrowing requirement	479	462	231	713	690	672
Less:						
Small savings	161	86	172	145	238	377
Sales of securities to domestic nonbank public	-556	176	69	282	-162	299
Monetary financing	874	200	-10	286	614	-4
Less:						
Official foreign borrowing	-29	-44	-23	1,008	-60	-388
Sales of securities to nonresident	1,320	64	233	-1,809	1,672	-421
Domestic budget component	-417	180	-220	1,087	-998	806
Foreign component:						
Current account balance	-348	37	924	1,432	2,461	2,398
Government foreign borrowing	-29	-44	-23	1,008	-60	-388
Government sales of securities to nonresidents	1,320	64	233	-1,809	1,672	-421
Other known capital transactions and residual	-1,583	314	-770	-1,774	-1,908	-1,825
Change in official external reserves	-640	371	364	-1,143	2,165	-237
Change in net external position of licensed banks 1/	-344	808	-534	-1,631	249	339
Foreign component	-296	-437	898	488	1,916	-576
Banking sector:						
Advances to nongovernment	1,628	1,514	-144	739	782	1,873
Other 2/	-510	255	-422	1,075	300	841
Domestic banking component	1,118	1,769	-566	1,814	1,082	2,714
Increase in money supply (M3) 3/	524	1,691	389	1,094	3,149	1,944
Percentage increase	5.0	15.4	3.1	8.4	22.3	11.3

Source: Department of Finance, Economic Review and Outlook.

1/ To avoid double counting, foreign currency lending by domestic banks to the Exchequer has been excluded.

2/ Includes changes in premises and other assets of the banking system, less changes in capital and reserves and other liabilities.

3/ Equals sum of domestic budget and foreign and domestic banking sector components.

Table A31. Ireland: Distribution of Private Sector Credit

(End of period)

	November 1992		November 1993		November 1994	
	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	1,306.0	8.8	1,251.8	8.0	1,289.3	7.5
Energy	143.5	1.0	136.2	0.9	171.7	1.0
Manufacturing	1,751.7	11.9	1,572.3	10.1	1,462.4	8.5
Building and construction	373.4	2.5	323.1	2.1	338.2	2.0
Distribution	1,724.9	11.7	1,747.6	11.2	2,008.2	11.6
Transport	357.3	2.4	360.5	2.3	379.2	2.2
Postal services and telecommunications	43.5	0.3	26.0	0.2	19.8	0.1
Financial services	2,304.2	15.6	3,068.9	19.7	3,968.0	23.0
Business and other services	1,814.6	12.3	1,781.2	11.4	1,965.8	11.4
Personal services	4,340.3	29.4	4,531.5	29.1	4,904.4	28.4
Total	14,771.5	100.0	15,597.8	100.0	17,247.4	100.0

Source: Central Bank of Ireland, Quarterly Bulletin.

Table A32. Ireland: Official External Reserves

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

	Total reserves minus gold		Foreign Exchange	SDRs	Reserve Position in the Fund	Gold
	(US$ millions)	(IR£ millions)				
1988	5,086.8	3,374.3	3,134.6	119.9	119.9	75.6
1989	4,057.4	2,607.1	2,378.5	122.8	105.9	70.0
1990	5,223.4	2,941.9	2,731.3	126.8	83.8	61.4
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						
Jan.	5,625.7	3,909.8	3,668.3	92.7	148.8	92.4
Feb.	5,741.0	4,021.2	3,773.4	95.7	152.0	92.5
Mar.	6,341.1	4,419.8	4,167.0	96.2	156.6	92.7
Apr.	6,153.7	4,182.8	3,938.8	94.4	149.6	96.5
May	6,269.7	4,228.3	3,987.9	94.5	145.9	96.4
June	6,626.6	4,366.8	4,123.8	94.4	148.6	96.2
July	6,551.1	4,349.4	4,105.5	94.7	149.2	96.3
Aug.	6,596.9	4,353.8	4,112.0	95.6	146.2	96.4
Sep.	6,588.1	4,216.4	3,979.8	94.0	142.7	96.6
Oct.	6,508.4	4,024.0	3,792.7	91.8	139.4	93.4
Nov.	6,209.0	4,045.7	3,805.4	96.2	144.2	91.2
Dec.	6,114.8	3,952.4	3,713.5	95.6	143.4	91.1
1995						
Jan.	6,673.9	4,250.6	4,015.7	95.3	139.7	90.4
Feb.	6,572.3	4,166.3	3,923.6	97.3	145.4	90.8
Mar.	6,555.5	4,052.4	3,805.2	99.1	148.1	90.3
Apr.	6,730.3	4,122.7	3,864.3	98.9	159.5	87.0

Source: IMF, International Financial Statistics.

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

Table A33. Ireland: Capital Transactions (Net)

(In millions of Irish pounds)

	1988	1989	1990	1991	1992	1993	1994 Est.	1994 Qtr 1	1994 Qtr 2	1994 Qtr 3
Public sector 1/	523	964	60	255	-167	537	-1,347	-207	96	-857
Exchequer foreign borrowing 2/	-282	-51	-115	-109	981	-79	-391	221	173	-327
Irish Government securities	867	1,320	63	233	-1,809	1,672	-421	44	-19	-530
Other 3/	-62	-305	112	131	661	-1,056	-535	-472	-58	--
Banking sector	365	-185	727	-381	-1,344	-844	191	310	-50	-70
Nonbank private sector	-827	-1,870	-1,814	-1,872	-1,419	-922	-1,479	-4	-421	-929
Net residual	228	801	1,504	1,353	296	522	133	-326	-239	946
Net capital flows	289	-290	477	-645	-2,634	-707	-2,502	-227	-614	-910
Memorandum item:										
Nonbank private sector 4/	-599	-1,069	-310	-519	-1,123	-400	-1,346	-330	-660	17
In percent of GNP:										
Nonbank private sector 4/	-3.0	-4.8	-1.3	-2.0	-4.2	-1.4	-4.3			
Public sector	2.6	4.4	0.3	1.0	-0.6	1.9	-4.3			

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

1/ Excluding valuation changes in outstanding external public debt.

2/ Excluding the contribution of domestic banks to syndicated credits arranged by foreign banks (except in 1986) and the upturn of foreign currency Section 69 bonds. In 1986 includes change in nonresident holdings of government securities.

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

4/ Including net residual.

Table A34. Ireland: External Debt

	1988	1989	1990	1991	1992	1993	1994
	(In millions of Irish pounds, at end of period)						
External public debt	11,537	11,231	11,116	11,064	12,284	13,316	13,025
Government 1/	9,498	9,123	8,848	8,859	10,122	11,386	10,978
State-sponsored bodies	2,039	2,108	2,268	2,205	2,162	1,930	2,047
Net external liabilities of financial institutions 2/	3,928	3,584	5,335	5,040	3,571	2,476	2,815
Total external debt	15,465	14,815	16,451	16,104	15,855	15,792	15,840
Debt service payments on external public debt	1,461	1,324	1,930	1,661	2,123	2,610	2,661
Government debt	980	921	1,589	1,322	1,693	2,217	2,296
Interest	703	736	730	736	710	780	867
Principal	277	185	859	586	983	1,437	1,429
State-sponsored bodies	481	403	341	339	430	393	365
Interest	166	170	188	199	186	177	149
Principal	315	233	153	140	244	216	216
			(In percent)				
Ratios to GNP							
Government debt	47.5	41.2	36.9	35.0	37.9	40.0	35.3
State-sponsored bodies	10.2	9.5	9.5	8.7	8.1	6.8	6.6
External public debt	57.7	50.7	46.4	43.7	46.0	46.7	41.9
Net external liabilities financial institutions	19.6	16.2	22.3	19.9	13.4	8.7	9.0
Total external debt	77.3	66.9	68.7	63.6	59.4	55.4	50.9
Ratios to exports of goods and services							
External public debt	84.6	69.6	69.0	65.5	65.7	60.9	52.7
Debt service payments on government debt	7.2	5.7	9.9	7.8	9.1	10.1	9.3
Debt service payments on external public debt	10.7	8.2	12.0	9.8	11.5	10.7	10.4
Interest	6.4	5.6	5.7	5.5	4.8	4.4	4.1
Principal	4.3	2.6	6.3	4.3	6.6	7.6	6.7
			(In millions of Irish pounds)				
Memorandum items:							
Government bonds held by nonresidents 3/	2,690	3,829	3,892	4,112	2,321	4,047	3,679
Nominal GNP	19,995	22,161	23,962	25,324	26,693	28,495	31,120
Exports of goods and services	13,634	16,137	16,116	16,893	18,707	21,883	24,712
Proportion of external public debt outstanding at variable interest rates (in percent) 4/	38	37	40	36	52	68	53

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 and 1994 percentages are for Government debt only.

Table A35. Ireland: External Government Debt 1/

	1989	1990	1991	1992	1993	1994
			(In millions of Irish pounds)			
Central Government						
Debt outstanding at end of period	9,123	8,848	8,859	10,122	11,386	10,978
			(In percent of total debt)			
Currencies in which loans are repayable						
U.S. dollar	18.4	18.7	15.9	18.2	15.6	19.8
Deutsche mark	36.9	35.9	34.1	42.5	32.1	19.2
Swiss franc	17.6	22.0	30.2	19.3	16.8	11.9
Japanese yen	10.4	7.6	7.2	9.3	10.1	10.4
Pound sterling	2.2	1.5	1.2	0.5	7.5	14.3
Dutch guilder	5.9	5.9	4.1	2.2	5.7	6.3
ECU	6.9	6.7	5.6	4.3	7.8	8.9
Other	1.7	1.7	1.7	3.7	4.4	9.2
Total external debt	100.0	100.0	100.0	100.0	100.0	100.0

Source: Department of Finance; and Central Bank of Ireland, 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.

Table A36. Foreign Debt Maturity Profiles, 1989-94

(In millions of Irish pounds, end of period)

	1989	1990	1991	1992	1993	1994
1990	512					
1991	510	508				
1992	526	495	503			
1993	714	700	684	724		
1994	692	722	728	705	1,079	
1995	1,087	1,125	1,121	1,168	1,341	1,343
1996	1,375	1,197	1,398	1,738	1,116	1,219
1997	976	753	552	567	830	879
1998	1,011	941	954	1,085	977	649
1999	920	904	852	893	949	968
2000	397	1,051	1,054	924	1,005	1,022
2001	142	86	617	892	991	1,005
2002	132	254	283	1,276	2,014	1,928
2003	14	15	15	63	986	1,762
2004	22	23	23	21	24	132
2005	9	10	10	10	11	11
2006	3	3	3	3	4	4
2007	--	--	--	--	--	--
2008	52	31	32	27	30	28
2009	29	30	30	26	29	28
Total	9,123	8,848	8,859	10,122	11,386	10,976

Source: National Treasury Management Agency.

Table A37. Domestic Debt Maturity Profiles, 1989-94

(In millions of Irish pounds, end of period)

	1989	1990	1991	1992	1993	1994
1990	1,378					
1991	1,714	1,879				
1992	1,751	1,760	1,537			
1993	1,776	1,836	1,962	1,569		
1994	731	1,305	1,376	1,560	1,207	
1995	234	622	1,055	1,092	1,064	1,062
1996	681	1,098	1,170	1,459	1,622	1,567
1997	498	456	387	1,093	1,547	1,546
1998	452	781	1,166	981	981	1,523
1999	608	608	570	533	1,461	1,857
2000	207	207	207	204	153	68
2001	172	172	937	1,224	1,053	1,050
2002	248	248	229	143	103	95
2003	660	660	1,043	1,153	1,475	1,228
2004	71	71	71	71	928	1,544
2005	325	321	297	285	224	178
2006	291	291	654	711	867	1,053
2007	--	--	--	--	--	--
2008	320	320	320	320	314	4
2009	--	--	--	--	--	--
2010	304	303	323	324	323	18
2011	--	--	--	--	--	--
2012	260	260	516	625	925	975
2013	--	--	--	--	--	--
2014	--	--	--	--	--	--
2015	--	--	--	--	--	--
Total	12,681	13,198	13,820	13,347	14,247	14,543

Source: National Treasury Management Agency.

1/ Excludes Debt with an original maturity of less than 1 year and Small Savings Products.

References

Chapter 1

Barry, F. and M. B. Devereux. 1995. "The 'Expansionary Fiscal Contraction' Hypothesis: A Neo-Keynesian Analysis", Oxford Economic Papers, 47, pp. 249-264.

Bartolini, L. 1993. "Devaluation and Competitiveness in a Small Open Economy: Ireland 1987-1913", International Monetary Fund, Working Paper WP/93/82.

Conroy, C. 1994. "Low Labor Content Sectors: Implications for the Interpretation of Macroeconomic Data", Draft Research Paper, Dublin, ESRI.

Edwards, S. 1989. Real Exchange Rates, Devaluation, and Adjustment. Cambridge, Mass.

Greenwood, J. 1984. "Non-Traded Goods, the Trade Balance, and the Balance of Payments", Canadian Journal of Economics, XVII, no.4, pp. 806-823.

Honohan, P. 1992. "Fiscal Adjustment in Ireland in the 1980s", The Economic and Social Review, Vol. 23, no.3 , pp. 285-314.

Honohan, P. and Charles Conroy, 1994. "Sterling Movements and Irish Pound Interest Rates", The Economic and Social Review, Vol. 25, No.3, pp. 201-220.

Lipschitz, L. and D. McDonald. 1991. "Real Exchange Rate and Competitiveness: A Clarification of Concepts, and Some Measurements for Europe", International Monetary Fund, Working Paper WP/91/25.

Organization for Economic Co-operation and Development (OECD). 1993. OECD Economic Surveys 1992-1993: Ireland. Paris. OECD.

Thom, R. 1989. "Real Exchange Rates, Co-Integration and Purchasing Power Parity: The Irish Experience in the EMS", The Economic and Social Review, Vol. 20, no.2, pp.147-163.

Chapter 3

Central Bank of Ireland, Annual Report, various issues.

National Treasury Management Agency, "Proposals for Development of a Market-Making System in Government Bonds", June 1994.

_____, Statement by the National Treasury Management Agency: Market Making Issuance Procedures and Related Debt Management Arrangements, May 8, 1995.

_____, Annual Report, various issues.

Chapter 6

Fitzpatrick Associates, Report to the Department of Tourism and Trade: Impact of a GATT Agreement on Ireland, August 1993.