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QUARTERLY ECONOMIC COMMENTARY

APRIL 1998

The forecasts in this Commentary are based on data available by late March 1998.

T.J. BAKER, DAVID DUFFY and FERGAL SHORTALL

Special Article by
EOIN O'MALLEY

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SUMMARY

We have revised downward slightly our estimate of GNP growth in 1997, mainly because both imports and profit outflows in the second half of the year were higher than anticipated. Nevertheless, 1997 remains one of the most successful years on record for the Irish economy. Real GNP growth is now estimated to have been about $8\frac{1}{4}$ per cent, with average employment increasing by about $4\frac{1}{2}$ per cent, the unemployment rate falling to under 10 per cent, consumer price inflation averaging $1\frac{1}{2}$ per cent and the general government finances moving into significant surplus.

Some slowing of the growth rate is forecast for 1998, with export values and prices likely to be adversely affected by the Asian crisis and growing constraints, including labour shortages, restricting the growth of output in some industrial and service sectors. Despite this, real GNP is forecast to increase by almost $6\frac{3}{4}$ per cent, a slight upward revision to our previous projection, annual employment to rise by $3\frac{1}{2}$ per cent, the unemployment rate to fall to about 8 per cent by the end of the year and the general government surplus to rise to almost $1\frac{1}{2}$ per cent of GDP. The major uncertainty concerns the rate of price inflation. Taking various conflicting factors into account, including the substantial depreciation in the trade-weighted value of the Irish pound, the most likely outcome is that the consumer price index in the second half of 1998 will be about 3 per cent higher than in the corresponding period last year, implying an annual average increase in the index of about 2.7 per cent.

In spite of the inflationary fears, there is thus a strong probability that Ireland will enter EMU next year with its economy in a fundamentally healthy condition. Balanced economic growth seems set to continue, with indigenous industry contributing substantially to the increase in output, as the Special Article accompanying this *Commentary* shows it has done over the past decade.

The chief foreseeable danger would be if pay settlements were to get seriously out of control. To minimise this danger, it would appear more important that the spirit of *Partnership 2000* is maintained through continued moderate reductions in effective rates of direct taxation than that the fiscal stance is significantly tightened, as some external agencies have advised. In an economy as open as Ireland's, such tightening would have its impact primarily on the balance of payments rather than on the rate of price inflation.

Looking further ahead, it is time to start adjusting our attitudes towards inflation. Within a currency union, moderately differential price movements are likely to become the main channel of adjustment, allowing markets to react to price signals over a wide range of products, services, and, especially, labour costs. Because we do not yet know the strength of such reactions, the initial practical approach to the new circumstances should obviously be very cautious, ensuring that any changes in competitiveness within the Union are kept small and gradual. For the foreseeable future, pay moderation and fiscal responsibility will remain key elements of policy, but the underlying strength of the economy is such that these two potentially conflicting aspects of policy should be able to co-exist.

FORECAST NATIONAL ACCOUNTS 1997

A: Expenditure on Gross National Product

	1996		1997		Change in 1997		
	Preliminary £m	Estimate £m	£m		%		
			Value	Volume	Value	Price	Volume
Private Consumer Expenditure	23,318	25,347	2,029	1,772	8¾	1	7½
Public Net Current Expenditure	6,244	6,712	468	162	7½	4¾	2½
Gross Fixed Capital Formation	7,524	8,901	1,377	1,156	18¾	2¾	15¼
Exports of Goods and Services (X)	33,798	40,040	6,242	5,990	18½	½	17¾
Physical Changes in Stocks	389	389	0	0			
Final Demand	71,273	81,389	10,116	9,080	14¼	1¼	12¾
less:							
Imports of Goods and Services (M)	29,169	34,090	4,921	4,670	16¾	¾	16
GDP at Market Prices	42,104	47,299	5,195	4,410	12¼	1¾	10½
less:							
Net Factor Payments (F)	5,121	6,526	1,405	1,365	27½	½	26¾
GNP at Market Prices	36,983	40,773	3,790	3,045	10¼	1¾	8¼

B: Gross National Product by Origin

	1996		1997		Change in 1997	
	Preliminary £m	Estimate £m	£m		%	
			Value	Volume	Value	Price
Agriculture, Forestry, Fishing	2,426	2,341	-85		-3½	
Non-Agricultural: Wages, etc	19,477	21,327	1,850		9½	
Other:	13,387	15,842	2,455		18¼	
less:						
Adjustments	1,846	2,103	257		14	
Net Factor Payments	5,121	6,526	1,405		27½	
National Income	28,323	30,881	2,558		9	
Depreciation	4,303	4,809	506		11¾	
GNP at Factor Cost	32,626	35,690	3,064		9½	
Taxes less Subsidies	4,356	5,083	727		16¾	
GNP at Market Prices	36,983	40,773	3,790		10¼	

C: Balance of Payments on Current Account

	1996		1997		Change in 1997	
	Preliminary £m	Estimate £m	£m		%	
			Value	Volume	Value	Price
X - M	4,629	5,950	1,321			
F	-5,121	-6,526	-1,405			
Net Transfers	1,353	1,400	47			
Balance on Current Account	862	824	-38			
as % of GNP	2¼	2	-¼			

FORECAST NATIONAL ACCOUNTS 1998

A: Expenditure on Gross National Product

	1997	1998	Change in 1998				
	Estimate	Forecast	£m		%		
	£m	£m	Value	Volume	Value	Price	Volume
Private Consumer Expenditure	25,347	27,628	2,281	1,521	9	2¾	6
Public Net Current Expenditure	6,712	7,168	456	154	6¾	4¼	2¼
Gross Fixed Capital Formation	8,901	10,367	1,466	1,142	16½	3¼	12¾
Exports of Goods and Services (X)	40,040	45,185	5,145	4,780	12¾	¾	12
Physical Changes in Stocks	389	320	-69	-60			
Final Demand	81,389	90,668	9,279	7,537	11½	2	9¼
less:							
Imports of Goods and Services (M)	34,090	38,930	4,840	4,010	14¼	2¼	11¾
GDP at Market Prices	47,299	51,738	4,439	3,527	9½	1¾	7½
less:							
Net Factor Payments (F)	6,526	7,393	867	809	13¼	¾	12½
GNP at Market Prices	40,773	44,345	3,572	2,718	8¾	2	6¾

B: Gross National Product by Origin

	1997	1998	Change in 1998	
	Estimate	Forecast		
	£m	£m	£m	%
Agriculture, Forestry, Fishing	2,341	2,411	70	3
Non-Agricultural: Wages, etc	21,327	23,086	1,759	8¼
Other:	15,842	17,568	1,726	11
less:				
Adjustments	2,103	2,362	259	12¼
Net Factor Payments	6,526	7,393	867	13¼
National Income	30,881	33,310	2,429	7¾
Depreciation	4,809	5,338	529	11
GNP at Factor Cost	35,690	38,648	2,958	8¼
Taxes less Subsidies	5,083	5,697	614	12
GNP at Market Prices	40,773	44,345	3,572	8¾

C: Balance of Payments on Current Account

	1997	1998	Change in 1998
	Estimate	Forecast	
	£m	£m	£m
X - M	5,950	6,255	305
F	-6,526	-7,393	-867
Net Transfers	1,400	1,400	0
Balance on Current Account	824	262	-562
as % of GNP	2	½	-1½

The International Economy

General

World economic growth in 1997 is estimated to have been around 3 per cent, higher than our expectation at the start of the year. Growth was boosted by particularly strong US and UK expansion as well as by the recovery of the main European economies. The continuation of many of the positive elements during 1998 means growth of 2½ per cent is forecast for 1998.

The outlook for 1998, while positive, is subject to a higher than usual level of uncertainty. This is because both the direct and indirect impacts of the Asian crisis have yet to be fully determined. The crisis in the region is expected to reduce growth in the short term. However, the ultimate impact will also depend on how fiscal and monetary policy in the major economies responds to the changed economic environment. One of the main channels through which the crisis in Asia appears to be impacting on the world economy is by reducing the expectation of interest rate increases. Furthermore, lower commodity prices should provide a boost to domestic demand which will at least partially offset downturns in export volumes. The slowdown in exports will reduce trade surpluses, and at the same time the enhanced competitiveness of imports from that region due to weaker exchange rates could increase the current account deficit of some of the main economies. It is particularly unfortunate that the slowdown in exports will affect continental Europe at a time when the growth of the main economies is recovering after a period of stagnation, although at present it appears that rising domestic demand will sustain the recovery.

The US Economy

The US economy continued to perform well in 1997, with official figures estimating growth at 3.8 per cent. Although to date the economic developments in Asia have not had a marked effect on the US economy, any impact is likely to become more visible later in 1998. Preliminary figures show that the US economy grew by just less than 1 per cent in the fourth quarter of 1997, a slight downward revision from advance estimates. The strength of the dollar and lower export growth are expected to mean a reduction in annual GDP growth to about 2½ per cent in 1998 and 1999.

One of the main features of the US economy has been the fall in the unemployment rate which declined during 1997 to average 5 per cent. A slowdown in growth is expected to mean some increase in unemployment during 1998, although the annual average is expected to remain around 5 per cent. The long awaited impact of the tight labour market on inflation has not as yet appeared, although nominal wages have started to increase faster than previously. The expectation that unemployment will remain relatively low means that firms are likely to find it increasingly difficult to find workers. The increase in wage inflation towards the latter half of 1997 was offset by increases in productivity. However if wage increases were to accelerate they could put upward pressure on prices.

The Federal Reserve last increased official interest rates in March 1997 to 5½ per cent. Domestic factors such as large increases in employment and a buoyant consumer sector would normally have led to further interest rate tightening. However, the slowdown in activity towards the end of 1997 and the prospect of slower growth in 1998 is expected to offset the need for interest rate increases in the short term, although there could well be a small rise in interest rates before the end of the year. The continued strength of the dollar together with the weakness of many commodity markets has meant a decline in import prices. Despite the tight labour market, inflation slowed to just under 2½ per cent in 1997 and is expected to be around 2 per cent in 1998 and 1999. The dollar has been strong internationally in recent years and economic conditions suggest that this is likely to continue in 1998. The broad membership base for EMU has increased uncertainty about the initial strength of the euro, and the dollar has also appreciated as a result of the Asian crisis.

The European Economy

Recent EU figures estimate European GDP growth to have been 2.7 per cent in 1997, due to a combination of strong exports and rising domestic demand. Despite a less favourable international environment, economic prospects for the European Union remain good, as growth will increasingly result from domestic demand rather than exports. While EU exports will suffer a marginal decline due to lower demand levels in Asia, the EU estimates that the trade-related effects of the Asian crisis will reduce growth by only 0.3 percentage points in 1998. This will be largely offset by interest rates remaining lower than they would otherwise have been. Thus, events in Asia will have only a small impact on 1998 and 1999. Real GDP growth of 2.8 per cent is forecast by the EU for 1998. Lower import prices are expected to reduce inflationary pressures, and the rate of inflation is expected to average 2 per cent.

In line with expectations, figures released by Eurostat show 11 member states qualifying for the start of EMU. The UK, Sweden and Denmark have decided not to enter first phase of EMU, while Greece does not meet the convergence criteria. The key for the EU will be to ensure that the convergence that has occurred is sustained once EMU starts. Greece is committed to the project and has recently joined the ERM. Both the EU Commission and the European Monetary Institute endorsed the selection but sustainability is an important concern. This concern, however, will not damage the eligibility of any of the qualifying member states.

Unemployment remains a key issue for Europe. In sharp contrast to the tight labour markets of the USA and the UK, unemployment levels in Germany and France climbed during 1997 and seem set to remain high in 1998. Projected growth rates seem insufficient to result in a significant decline in unemployment, and this represents a serious policy issue for governments in continental Europe. Already demonstrations have taken place in France and Germany on the issue. However, the need for continued fiscal discipline as part of EMU will restrict measures that can be taken to tackle the problem.

Official figures indicate that the German economy grew by 2.2 per cent in 1997, in line with our estimate in the December *Commentary*. External demand

was the main driving force behind this growth, with the volume of exports increasing by 10.7 per cent. Domestic demand remained weak throughout the year. While investment in the construction sector fell during the year, investment in machinery and equipment rose by 3.9 per cent, the largest increase since 1992, resulting from the positive impact of export growth on industrial production. High unemployment levels coupled with falling net real wages had a dampening effect on private consumption which increased by only 0.2 per cent in 1997. The outlook for 1998 and 1999 is one of an economy continuing to recover. GDP growth of 2½ per cent is expected in 1998 and a similar level in 1999. The external sector will continue to make a significant contribution to growth and a recovery in the consumer sector is expected to offset any reduction in export growth due to the slowdown in world demand.

One of the main problems facing the German economy at present is a high and persistent unemployment rate. However, the strong industrial production levels enjoyed as a result of the export boom may be beginning to have an impact, with recent figures showing a decline. Unemployment averaged 11½ per cent in 1997, up from nearly 10½ per cent in 1996, and was as high as 12½ per cent in January of this year. While some improvement is expected towards the latter half of 1998 as growth picks up, an annual average of 11½ per cent is forecast for the year falling to about 11 per cent in 1999.

The level of inflation continues to be subdued. Figures show that the consumer price index rose by 1.8 per cent in 1997. Figures for January and February confirm the low inflation environment within Germany, showing annual increases of just 1.1 per cent in each month. The combination of low inflation, a weaker than previously expected international environment and high unemployment means that interest rates are not expected to increase significantly until near the end of 1998. While domestically the Bundesbank may wish to avoid raising interest rates so as to encourage the recovery of the German economy, European considerations are expected to lead to higher rates to ensure that "euro" interest rates are at about 4 per cent once EMU commences.

While there are many similarities in the performance of the French and German economies, growth within each economy now appears to be resulting from different factors. While GDP growth in France for the first half of 1997 had been driven by exports, the second half of the year saw the driving force for growth shift towards private consumption. Growth in consumption has been helped by an increase in disposable income. There is no evidence as yet that the increase in consumption is being reflected in higher inflation, which averaged just under 1¼ per cent in 1997. High unemployment levels mean that wage increases are subdued. While some increase in inflation is anticipated as the recovery becomes more established, this is not expected to exceed 1¾ per cent in 1998 or 1999. In common with Germany, France is faced with a severe unemployment problem. Having climbed as high as 12.6 per cent by May 1997 the unemployment rate stabilised before moving marginally down towards the end of the year to average 12½ per cent. The anticipated GDP growth is expected to make only a slight impact during 1998 and an annual average of 12¼ per cent is forecast. A further decline to about 11¾ per cent is expected in 1999.

Despite some uncertainty during 1997, a stronger than anticipated performance by the Italian economy ensured qualification of EMU by pushing the budget deficit down to 2.7 per cent of GDP. The goal was also facilitated by a mixture of tax measures and spending cuts. A key factor was the growing belief that the country would qualify, which, by bringing down interest rates, both reduced government expenditure and stimulated economic growth. Inflation would seem to be subdued, consumer prices rising by just 1.9 per cent in 1997. Some increase is anticipated as activity picks up but it will remain low by historical standards, averaging about 2½ per cent in 1998. In contrast to the other main economies, external trade did not make a significant contribution to growth, reflecting the impact of the appreciation of the lira since 1995.

The UK Economy

The UK economy grew by 3 per cent in 1997, although the rate of growth did slow in the final quarter. Allowing for some carryover from 1997, only modest growth is expected in 1998, with annual GDP growth of just 2 per cent forecast. This represents a sharp slowdown, which is expected to result from the strength of the pound, high interest rates and the Asian crisis. Manufacturing output is expected, at best, to show only small growth during 1998, while consumer spending will slow from the high rate of increase seen in 1997. While there are some differences, the issues facing the UK economy are similar to those facing the USA – a strong currency, low unemployment levels and worries of inflationary pressures in the labour market.

One of the remarkable features of the UK economy during 1997 was that the strength of sterling and high interest rates did not appear to have a significant impact for most of the year. Export levels remained robust through the first three quarters of 1997, but recent figures for the fourth quarter show a weakening of exports and a decline in manufacturing production. One possible explanation for the delayed impact on export levels is that the appreciation of sterling has been at least partially offset by a fall of nearly 5 per cent in export prices, implying a significant narrowing of exporters' margins. With exports sluggish and imports buoyant, a considerable widening of the UK trade deficit is expected during 1998.

The strength of sterling has had surprisingly little effect on price inflation, which was 2.8 per cent in 1997, above the government target of 2½ per cent. The slowdown in economic activity during 1998 should bring inflation down toward 2½ per cent for 1998 and 1999. On an ILO basis, unemployment in the UK was just under 7 per cent in November 1997. Indications are that the tightness of the labour market is not yet leading to increases in earnings growth, with figures showing average earnings growth for the economy stable at 4½ per cent in recent months.

The stagnation of the manufacturing sector is in contrast to services which have been growing strongly in recent years. The volume of retail sales grew by 5¼ per cent in 1997 reflecting the strength of the consumer sector. The series of interest rate increases by the Monetary Policy Committee does not appear yet to have reduced consumer spending levels. Some natural decline in spending is

anticipated during 1998 as the effects of previous demutualisations no longer provide a boost and with no further major demutualisations in prospect.

Initial reaction to the UK budget focused on its impact on sterling and the outlook for interest rates. The lack of emphasis within the budget on an immediate dampening of demand in the consumer sector was interpreted as likely to encourage a further rise in interest rates. One of the main concerns expressed by the Chancellor is that a build-up of wage pressures would lead to higher inflation. At the same time, the focus of the budget was very much on attempting to encourage employment and work in the medium term. UK business will benefit from a reduction in corporation tax as well as a reduction in employment costs. The public sector borrowing requirement for 1997/98 is expected to be around £5 billion, substantially lower than the government's expectation of £11.9 billion in the November Pre-Budget Report, reflecting high tax revenue and constrained public spending. The Chancellor's aim is to have a balanced budget by the year 2000. However, this is dependent on forecasts for economic growth which might prove to be slightly too optimistic.

The Rest of the World

Despite starting 1997 on a positive note the Japanese economy slowed dramatically during the year. Having risen by 2 per cent in the first quarter, growth fell in the second quarter by 2.8 per cent but recovered to 0.8 per cent in the third quarter. While figures are not yet available for the fourth quarter, it seems unlikely that growth was substantial and so we estimate GDP growth of ½ per cent in 1997. Of the main world economies Japan is the most affected by the Asian crisis due to its closer trading and financial links. This contributed to the slowdown in the economic growth and the collapse of some Japanese financial institutions that occurred throughout the latter part of the year.

TABLE 1: Short-term International Outlook

Country	GNP		Consumer Prices		Hourly Earnings		Unemployment Rate		Current Account Balance	
	Percentage Change		Percentage Change		Percentage Change		%		% of GNP	
	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
UK	3	2	2¾	2½	4½	4½	7	7	-¾	-1¼
Germany	2¼	2½	1¾	2	2	2½	11½	11½	1¾	1½
France	2¾	2¾	1¼	1¼	2¼	2½	12½	12	2	1¾
Italy	2	2¾	2¼	2½	3	3	11¾	11½	2	1¾
Total EC	2¾	2¾	2	2	3	3	11	10½	1¾	1½
USA	3¾	2½	2½	2	3½	3½	5	5	-2½	-2¾
Japan	½	1¼	1	1	1¼	1¼	3½	3½	1¼	1½
Total (OECD)	2½	2½	1¾	2	3	3	7½	7½	0	-½
Ireland	8¼	6¾	1½	2¾	4	4	10	8½	2	½

Government reluctance to stimulate the economy through public expenditure measures gave way in the face of the slowdown in growth and the

need to offset the impact of the Asian crisis. A series of fiscal stimuli have been announced since October aimed at boosting domestic demand. The packages have contained a mixture of deregulation, liberalisation and some tax cuts. While some of the measures have been quite modest the ability of the Japanese government to manoeuvre is restricted by a fiscal reform law which commits the government to reduce the budget deficit to 3 per cent of GDP by 2003.

The immediate outlook for the Japanese economy is for slow growth. The fiscal packages provided by the government should provide some stimulus to the consumer sector but the general lack of confidence will inhibit recovery. The poor state of the economy means that the Yen is expected to remain weak against the dollar for much of 1998, which should help the external sector to offset the loss of exports to other Asian countries.

On this basis, stronger GDP growth of 1¼ per cent is forecast for 1998. Further recovery of growth to 1¾ per cent may occur in 1999. However, recovery has been envisaged before for the Japanese economy and has failed to come about. Indeed, a worse than anticipated impact from Asia or a failure of domestic demand to respond to the government's fiscal stimulus would mean substantially lower growth.

The ultimate impact of the Asian crisis on the world economy has yet to be determined. The crisis is expected to weaken growth internationally, reduce inflationary pressures through a fall in import prices and lower external demand in the rest of the world. The main economies within the region are expected to experience dramatically lower or negative growth rates in 1998 as domestic demand will be severely reduced. While rescue packages have been negotiated for the main economies affected by the crisis, South Korea, Indonesia, Thailand, Malaysia, and the Philippines, the restructuring of the institutions and business practices is likely to be a difficult process. However, if these reforms are seen to be credible and implemented quickly they could well lead to an early return of confidence in the region and some recovery in growth. For the moment any growth will be due to the external sector which has gained in competitiveness from the sharp depreciation in the currencies.

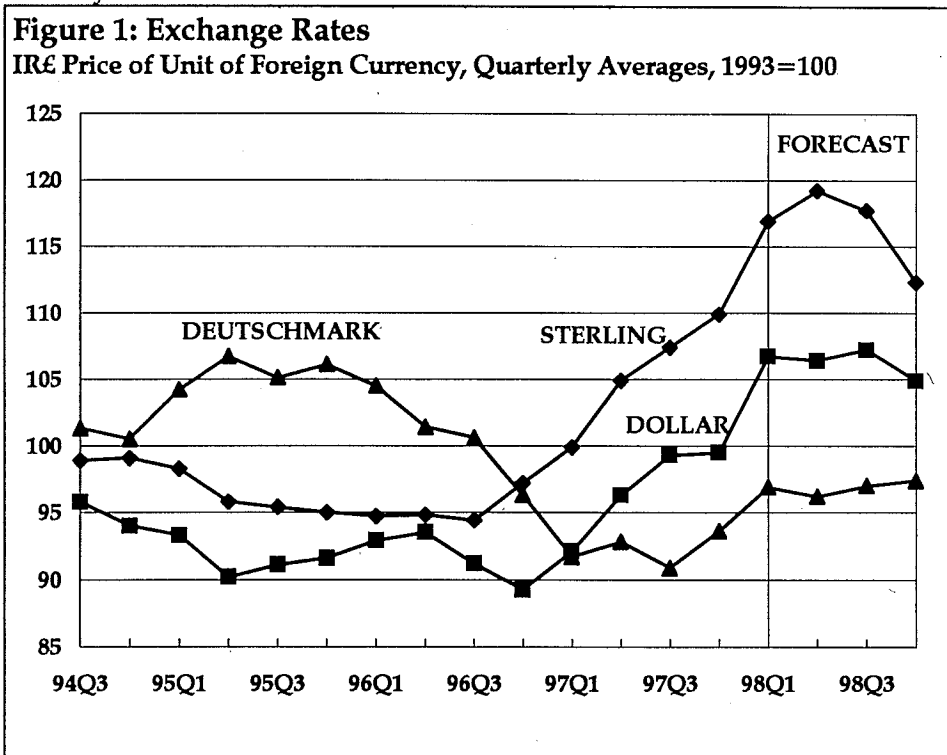
The Context for Ireland

World output growth is expected to decline from about 3 per cent in 1997 to 2½ per cent in 1998. However, most of the reduction will take place in the Asian crisis countries themselves, with only a limited slowdown in the USA. Because of the stage of their economic cycle, allied to countervailing monetary measures, the continental European countries should grow at least as fast in 1998 as in 1997. Geographically, therefore, the anticipated reduction in world output growth and the associated decline to 5½ per cent in forecast world trade growth should have only a limited impact on Ireland's main export markets.

Sectorally, the adverse effects of the Asian crisis could be rather stronger, with the electronics industry in particular suffering both from a decline in significant Far Eastern markets and intensified price competition from that region. On balance, it seems likely that the overall international environment for Irish exports will be moderately less favourable than in 1997.

It remains far from clear what effect, if any, the Asian crisis will have on investment levels in Europe, and in particular on the scale and location of multinational investment in the high technology sectors. A slowdown in world demand can be expected to reduce the global level for investment in electronic products in 1998 and 1999, but it remains quite possible that the prospects of sustained economic growth in Europe will induce a continued high level of investment within Europe, including Ireland. How far the greater post-devaluation competitiveness of the Asian countries will be offset by increased fears concerning their financial stability cannot yet be assessed. Taking the conflicting considerations into account, it seems likely that the flow of multinational investment available for Ireland to compete for will remain quite strong in 1998.

Interest rates in the major economies appear reasonably stable at present. The previously anticipated increases in US and continental European short-term interest rates have been deferred due to the Asian crisis, while long-term interest rates show no sign yet of reversing their decline. It seems probable that long term rates will remain relatively low for the rest of 1998. Little movement is expected in short-term rates in the coming months, but provided that the European economic recovery continues, some small increase in continental short-term interest rates is possible before the end of the year. Despite recent speculation as to how much further UK short-term interest rates may rise, it still seems likely that they will be reduced before the end of 1998.



Currency movements are largely, but not entirely, dependent on expectations of interest rate changes. If we are correct in our predictions of interest rates, both the US dollar and sterling will remain strong against the EMU currencies for much of 1998. However before the end of the year, a slight European appreciation against the dollar is possible, while sterling should see a significant and overdue depreciation from its current damaging level. Assuming that ERM central rates will be used as the basis for EMU entry, the Irish pound will decline slightly in the second half of the year to its re-valued ERM central rate, although if sterling does depreciate the trade-weighted value of the Irish pound would appreciate in the closing months of 1998.

The Domestic Economy

General

Data becoming available since the December *Commentary* reveal two distinct trends with contrasting impacts on estimates of growth in 1997 and 1998. It is now clear that the increase in final demand, especially domestic demand, was even stronger in the closing months of 1997 than had been anticipated. This has been reflected in extraordinarily buoyant tax receipts and in sustained reductions in registered unemployment. On the other hand it has become apparent that a higher than expected proportion of final demand in the second half of 1997 was being met by imports of goods and services, while net factor outflows were also higher than forecast. Thus although our estimates of the volume growth of final demand in 1997 has been revised upwards from 12 per cent to 12¾ per cent, our estimate of real GNP growth has been revised downwards from 9 per cent to 8¼ per cent.

This revised 1997 base has implications for our 1998 forecast, suggesting upward adjustments for both domestic demand and import volumes. However, the general expectation of a significant slowing of the real GNP growth rate remains unchanged. The recent revaluation of the central rate of the Irish pound has reduced the uncertainty concerning inflation prospects in the course of 1998, although the exact course of either the exchange rate or interest rates towards their end-year positions cannot yet be predicted with conviction.

Exports

The value of visible exports rose strongly in 1997, increasing by about 15¼ per cent. If allowance is made for the change in classifying sales of software licences in mid-1996, the true rise in the sale of visible exports in 1997 was almost 18 per cent. The breakdown of exports by category shown in Table 2 is best regarded as indicative, due to the difficulty of reconciling revisions to the total with the breakdown of the original figures. However it is necessary to point out that the apparent fall in other industrial exports is due to the reclassifying of some products from "other food" to "chemical". Thus the apparent growth in manufactured exports is somewhat exaggerated.

TABLE 2: Exports of Goods and Services

	1996	% Change		1997	% Change		1998
	£m	Volume	Value	£m	Volume	Value	£m
Agricultural	2,790	2½	0	2,790	2½	3½	2,890
Manufactured	23,200	19¼	20	27,840	14½	15	32,020
Other Industrial	3,810	-2	-1	3,770	5	6½	4,020
Other	588	10	10½	650	4	6	690
Total Visible	30,388	14¾	15¼	35,050	12¼	13	39,620
Adjustments	-88			1,130			1,300
Merchandise	30,300	18¾	19½	36,180	12½	13	40,920
Tourism	1,888	8¾	10½	2,085	7½	10½	2,305
Other Services	1,609	8¾	10¼	1,775	7½	10½	1,960
Exports of Goods and Services	33,798	17¾	18½	40,040	12	12¾	45,185

Note: Exports by category and the balance of payments adjustment are affected by classification changes made in July 1996. These included the transfer of some products from "other food" to chemicals, and thus from "other industrial" to "manufactured", and of software licence sales from manufactured exports to the balance of payments adjustment. Merchandise exports and total exports of goods and services were not affected.

Figures for the balance of payments adjustment, which now includes software licence sales, and service exports are only available for the first three quarters of 1997, but reasonable forecasts for the final quarter suggest that the value of exports of goods and services for the year as a whole increased by about 18½ per cent. With annual average export prices showing a slight rise, and applying the modest increase in the consumer price index as a deflator for services exports, the volume rise in exports of goods and services in 1997 is estimated at about 17¾ per cent. This represents an upward revision of 1 per cent on our December estimate.

It is still not clear what effects the Asian financial and currency crisis will have on the trend of exports, particularly of computers and their components. Warnings of the corporate impact of the problems by some of the major multinational companies engaged in Ireland suggest that we were correct in our December *Commentary* to take the cautious view that there could be a significant slowdown in the rate of growth of exports from the electronics sector. Although continued economic growth in the main European market, allied to increased capacity in Ireland should enable reasonable volume growth to take place in 1998, intensified Asian competition could result in a significant reduction in annual average prices in this sector.

For most other sectors of manufacturing, both volumes and prices of exports should increase in 1998, aided by the overvaluation of sterling. A mild recovery in agricultural exports still seems probable, while other industrial exports, no longer distorted by classification changes are forecast to show moderate growth. Thus total visible exports in 1998 are projected to increase by about 12¼ per cent in volume and 13 per cent in value.

There seems little reason to expect other than continued steady growth in the value of tourism and other service exports, although the faster rise in the

consumer price index implies that the forecast volume increase in service exports will be rather lower than in 1997. Total exports of goods and services are thus forecast to rise by 12 per cent in volume and 12¾ per cent in value in 1998. These projected increases are close to the annual average between 1990 and 1996, and represent a slight upward revision to our previous forecast. However, it remains true that the forecast is unavoidably tentative, and the actual out-turn could be significantly better or worse than now predicted.

Stocks

Estimates of stock changes in 1997 have been revised downwards slightly, mainly due to a smaller than expected increase in intervention stocks. For 1998, it seems likely that there will be very little change in the level of farm stocks after some years of a declining rate of increase. The rate of intervention stockbuilding is forecast to decline, although it is too early in the year to make an accurate assessment. With economic activity continuing to expand, production and distribution stocks seem likely to increase further. Thus, as shown in Table 3, total stockbuilding is forecast at £320 million in 1998, a moderate decline on the 1997 rate.

TABLE 3: Stock Changes

	1996 £m	Change in Rate £m	1997 £m	Change in Rate £m	1998 £m
Livestock on Farms	91	-60	31	-21	10
Irish Intervention Stocks	169	20	189	-89	100
Other Stocks	129	40	169	41	210
Total	389	0	389	-69	320

Investment

Not unexpectedly, an investment boom was an integral part of the strong economic growth in 1997. On the basis of data for housing completions and expenditure on many types of non-residential building, we have revised upwards our estimate of the volume increase in building and construction in 1997 to 15 per cent, while trends in imports of capital goods suggest that investment in machinery and equipment increased by about 16 per cent in volume, also an upward revision. Thus, as shown in Table 4, total gross fixed capital formation in 1997 is estimated to have risen by 15¼ per cent in volume and 18¼ per cent in value.

TABLE 4: Gross Fixed Capital Formation

	1996	% Change		1997	% Change		1998
	£m	Volume	Value	£m	Volume	Value	£m
Building and Construction	4,877	15	19	5,804	13	17	6,790
Machinery and Equipment	2,647	16	17	3,097	12½	15½	3,577
Total	7,524	15¼	18¼	8,901	12¾	16½	10,367

The upward trend in the course of 1997, recent data on planning permissions and building employment, the announcement of major development schemes, the continued rise in property prices and the general expectation of falling interest rates all combine to suggest that investment in building and construction will again grow very strongly in 1998. A similar absolute volume increase to 1997 is projected, but because of the higher base, the percentage increase is forecast to fall slightly to 13 per cent. In the absence of leading indicators, trends in investment in machinery and equipment are harder to monitor. However, against a background of continuing economic growth and relatively low and declining interest rates, it is probable that the volume of such investment will increase substantially in 1998. A rise of 12½ per cent is projected, representing a moderate deceleration from the exceptional rate of increase which appears to have taken place in 1997. Thus total gross fixed capital formation in 1998 is forecast to increase by 12¾ per cent in volume and 16½ per cent in value. Although far above the long-term average, such a rate of investment growth appears to be in keeping with a general economy in the course of a prolonged boom.

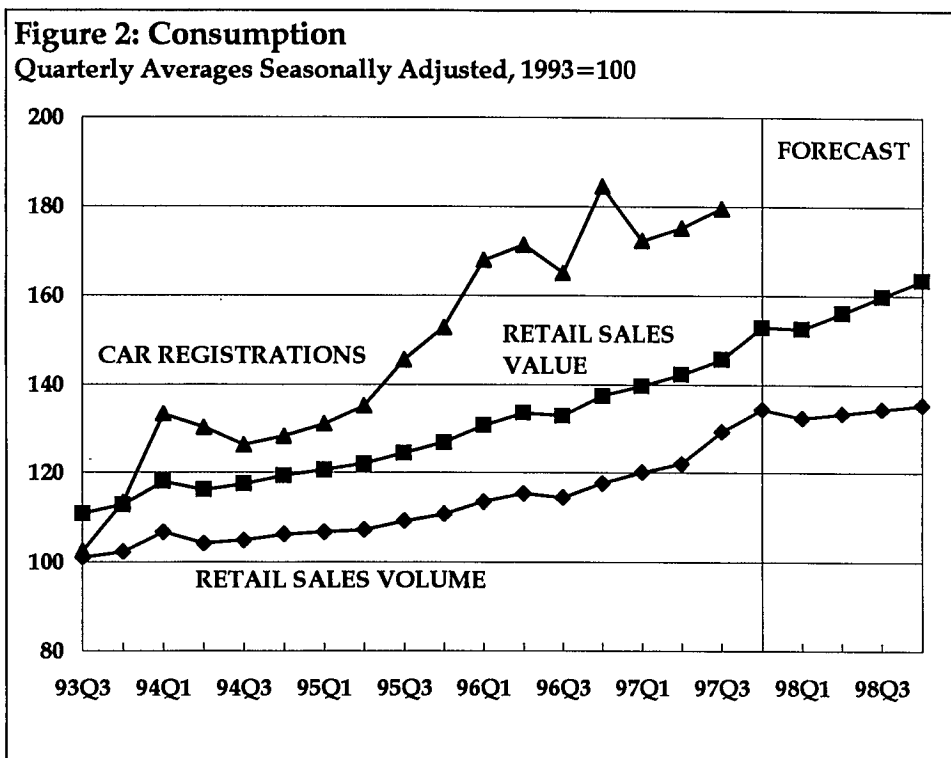
Consumption

A very high level of consumer spending in the closing months of 1997 saw the annual increase in the retail sales index reach 7.9 per cent in volume and 8.5 per cent in value. Given that the implied deflator for retail sales was only 0.6 per cent, and that the overall personal consumption deflator for the year is likely to be higher, it seems probable that the volume of personal consumption increased slightly less rapidly than the retail sales index, while the value of personal consumption rose slightly faster than retail sales, as shown in Table 5.

TABLE 5: Consumption Indicators

	1993	1994	Annual Percentage Change				1997 Forecast	1998 Forecast
			1995	1996	1997 To Date			
<i>Consumption Value</i>								
NIE 1996, Personal Consumption	4.2	9.0	6.3	7.5		8.7	9.0	
Retail Sales Index, Value	3.0	7.9	4.8	8.3	8.5	8.5	8.8	
Divergence	1.2	1.1	1.5	-0.8		0.2	0.2	
<i>Consumption Volume</i>								
NIE 1996, Personal Consumption	2.2	6.1	4.2	6.3		7.6	6.0	
Retail Sales Index, Volume	1.4	5.5	2.8	6.2	7.8	7.8	5.9	
Divergence	0.8	0.6	1.4	0.1		-0.2	0.1	
<i>Consumer Prices</i>								
NIE 1996, Personal Consumption Deflator	1.9	2.8	2.0	1.1		1.0	2.8	
Retail Sales Index Deflator	1.6	2.3	1.9	2.0	0.7	0.7	2.7	
Consumer Price Index	1.5	2.4	2.5	1.6	1.5	1.5	2.7	

Growth in retail sales was very rapid in the course of 1997, so that there is a large apparent carryover into 1998, with the fourth quarter average value index $4\frac{3}{4}$ per cent above the 1997 annual average. However, the index was inflated in the closing months of 1997 by the ending of the car scrappage scheme, and the true carryover from the fourth quarter is probably closer to the 3 per cent shown by the index excluding garages and filling stations.



The prospects for retail sales in the course of 1998 are complicated by the probability that price inflation will increase in the course of the year, with the retail sales deflator perhaps averaging 2.7 per cent compared with only 0.7 per cent in 1997. How far the price increase will be accommodated by consumers maintaining their volume growth of spending and pushing up the value of spending through borrowing or reducing savings, or how far the volume of sales growth will decline in response to higher prices is difficult to predict. The assumption made here is that the personal savings ratio will decline by about 1 per cent, much the same as in 1997, permitting a marginal increase to 9 per cent in the value growth of personal consumption, with retail sales values moving roughly in line with total consumption. This implies a significant decline in the rate of increase in the volume of both retail sales and total personal consumption. Nevertheless the forecast volume increase in personal consumption, at 6 per cent, is still very substantial, by either historical or international standards, and incorporates a further significant rise in the course of 1998.

Net expenditure by public authorities on current goods and services, or government consumption, grew much less rapidly than the other components of domestic demand in 1997, with the increase estimated at 7½ per cent in value and 2½ per cent in volume. It is noteworthy that despite the buoyancy of tax revenue, there appears to have been only a marginal increase in public service employment in 1997. Similar restraint in the public authorities' consumption of resources is planned for 1998, and there is no reason to anticipate any significant deviation from this intention. Thus government consumption is forecast to rise in 1998 by 6¾ per cent in value and 2¼ per cent in volume, thus making a very modest contribution to the total projected increase in domestic demand.

Final Demand

Due to upward revisions to most of its components, final demand in 1997 is now estimated to have increased by 14¼ per cent in value and 12¾ per cent in volume. This extraordinarily rapid growth was balanced between domestic demand and exports, with the former (excluding stock changes) increasing by 8¼ per cent in volume and the latter by 17¾ per cent. Given the strong contributions from personal consumption and investment in machinery and equipment, the import intensity of final demand growth in 1997 was unusually high.

With all components of final demand projected to grow less rapidly in 1998, as already discussed, final demand is forecast to increase by 11¼ per cent in value and 9¼ per cent in volume. In volume terms, domestic demand is forecast to rise by almost 7 per cent and exports by about 12 per cent. Import intensity is expected to remain high.

Imports

A high level of imports in the closing months of the year took the value of visible imports in 1997 to over £26 billion. The percentage increase, of about 15¾ per cent, was much higher than our December forecast of a 12½ per cent rise. On the basis of preliminary price indices, it appears that the volume increase in visible imports was about 15¼ per cent. The breakdown of imports by use category is only available for part of the year, and, as in the case of exports, is difficult to reconcile exactly with revised total imports for the relevant period. However it is quite clear that imports of capital goods rose very steeply for the year as a whole, and that imports of both consumer goods and intermediate goods also increased substantially, as shown in Table 6.

From balance of payments estimates for the first three quarters of the year, it appears that the balance of payments adjustment may have declined, although there has been no classification change such as that affecting exports. Thus merchandise imports in 1997 are estimated to have increased by 16½ per cent in value and 16 per cent in volume.

Tourist spending abroad rose surprisingly little, given the strength of total consumer spending, but other service imports, now including royalty payments, increased rapidly. Thus total imports of goods and services in 1997 are estimated to have risen by 16¾ per cent in value and 16 per cent in volume.

TABLE 6: Imports of Goods and Services

	1996		% Change		1997		% Change		1998
	£m	Volume	Value	£m	Volume	Value	£m		
Capital Goods	2,382	22	23	2,930	15	18	3,460		
Consumer Goods	4,774	14½	15	5,490	12	15	6,310		
Intermediate Goods:									
Agriculture	569	-4	-6	535	0	2	545		
Other	13,381	16½	17¼	15,678	11	13	17,718		
Other Goods	1,397	0	0	1,397	0	0	1,397		
Total Visible	22,503	15¼	15¾	26,030	10¾	13	29,430		
Adjustments	-619			-580			-600		
Merchandise Imports	21,884	16	16½	25,450	11	13¼	28,830		
Tourism	1,355	5½	7	1,450	12	15	1,670		
Other Services	5,930	19½	21¼	7,190	14	17¼	8,430		
Imports of Goods and Services	29,169	16	16¾	34,090	11¾	14¼	38,930		

Further substantial increases in the volume of capital and consumer imports are projected for 1998, although, in keeping with the smaller forecast rise in domestic demand, the rate of growth should be lower than last year. Similarly, the slower rate of expansion projected for manufactured exports is likely to be reflected in a reduced rate of increase in imports of intermediate goods. Thus the volume of visible imports is forecast to rise by about 10¾ per cent in 1998. The course of import prices in 1998 remains difficult to predict. World trade prices for many commodities, including oil, are tending to decline, and manufactured export prices from most industrial countries are either stable or falling. On the other hand, the decline in the trade weighted value of the Irish pound will obviously raise the Irish pound price of the majority of imports. On balance, it is assumed that annual average import prices will increase by just over 2 per cent, although there will clearly be a wide dispersion around this average for individual products. On this basis, the value of visible imports is forecast to rise by about 13 per cent.

Tourist spending abroad seems likely to resume its usual vigorous expansion in 1998, but, if the rest of this forecast is broadly correct, other service imports should rise less rapidly than last year. Thus total imports of goods and services in 1998 are forecast to increase by 14¼ per cent in value and 11¾ per cent in volume. Although a significant reduction on the estimated increase in 1997, this forecast rate of volume growth in imports of goods and services is well above the long term average, and is in keeping with recent years of high but not extreme economic growth.

Balance of Payments

Subject to possible revisions, the trade statistics show that the surplus on visible trade increased by 14½ per cent to £9,020 million in 1997. Because of the classification changes already discussed, the balance of trade adjustment became much more positive from mid-1996, so that the merchandise trade surplus is

estimated to have increased by 27½ per cent to £10,730 million. Largely as a counterpart to rapid export growth, imports of services rose sharply, so that the deficit on service trade is estimated to have increased by 26¼ per cent. Thus the surplus on trade in goods and services in 1997 is estimated at £5,950 million, an increase of 28½ per cent.

Profits of foreign multinational companies rose sharply in 1997, and on the basis of data for the first three quarters of the year the annual increase is estimated at 30 per cent. An unusually high proportion was reinvested in Ireland rather than distributed overseas. National debt interest paid abroad continued to decline, but there was a very large increase in other debit flows, which include current banking transactions. Thus total factor outflows are estimated to have risen by an unusually large 29¾ per cent in 1997. Credit flows also increased sharply, so that net factor outflow are estimated to have risen by 27½ per cent.

Only a minor increase is believed to have taken place in net current transfers, and the overall surplus on the current account is thus estimated at £824 million, a slight decline on the absolute 1996 level, but representing a reduction from 2¼ per cent of GNP to 2 per cent. When unrequited capital transfers are taken into account, the effective current balance in 1997 is estimated at £1,324 million, as shown in Table 7.

If we are correct in our assumption that growth in high-technology exports will slacken in 1998, then the increase in the merchandise trade surplus will be much slower than in 1997. When account is also taken of a probable deterioration in the terms of trade, the rise in the merchandise surplus is forecast at less than half the 1997 rate. The service trade deficit is projected to again increase rapidly, with a substantial rise in tourist spending abroad offsetting some slowdown in the rate of growth of other service imports. Thus the surplus on trade in goods and services is forecast to increase by a relatively modest 5¼ per cent.

The projected slowdown in the value of high technology exports can be expected to be reflected in a significantly smaller rise in the profits of foreign multinational companies. With national debt interest payments abroad declining further and other debit flows increasing less rapidly than last year, gross factor outflows are forecast to rise by 17¼ per cent in 1998. Credit flows are projected to increase faster than gross outflows, although more slowly than in 1997, leaving the forecast rise in net factor outflows at 13¼ per cent.

Allowing for no change in the level of net current transfers the current account surplus is forecast to decline to £262 million, only ½ per cent of GNP. If capital transfers are taken into account, as logically they should be, the effective surplus is forecast at £782 million, or 1¼ per cent of GDP.

TABLE 7: Balance of Payments

	1996 £m	Change %	1997 £m	Change %	1998 £m
Visible Trade Balance	7,885	14½	9,020	13	10,190
Adjustments	531		1,710		1,900
Merchandise Trade Balance	8,416	27½	10,730	12¾	12,090
Service Trade Balance	3,787	26¼	4,780	22	5,835
Trade Balance in Goods and Services	4,629	28½	5,950	5¼	6,255
Factor Flows:					
Debit Flows:					
Remuneration of Employees	-51	2	-52	2	-53
Distributed Profits, etc.	-4,521	15	-5,199	17½	-6,109
Reinvested Earnings	-1,276	83	-2,337	17½	-2,746
National Debt Interest	-915	-17	-759	-12	-668
Other Debit Flows	-1,899	50	-2,848	25	-3,560
Total Debit Flows	-8,662	29¼	-11,195	17¼	-13,136
Credit Flows:					
Remuneration of Employees	241	-8	222	3	229
Direct Investment Income	478	21¼	580	24	719
Other Credit Flows	2,821	37	3,867	24	4,795
Total Credit Flows	3,540	32	4,669	23	5,743
Net Factor Flows	-5,121	27½	-6,526	13¼	-7,393
Net Current Transfers	1,353	3½	1,400	0	1,400
Balance on Current Account	862	-4½	824	-68¼	262
Capital Transfers	489	2¼	500	4	520
Effective Current Balance	1,351	-2	1,324	-41	782

Gross National Product

Despite the various revisions to our estimates for 1997 already discussed, real GDP is still estimated to have risen by an exceptionally large 10½ per cent. However the estimate for real GNP growth in 1997 has been revised downwards from 9 per cent to 8¼ per cent, as net factor outflows now appear to have been larger than expected. With a marginal deterioration in the terms of trade and only a small increase in net transfer income, adjusted gross national disposable income (GNDI) is estimated to have risen by almost 7 per cent, little changed from our December estimate.

Despite some upward revisions, growth is still forecast to decelerate significantly in 1998. Real GDP is now projected to increase by 7½ per cent and real GNP by almost 6¼ per cent. Assuming no change in the level of net current transfers, and allowing for a fairly substantial deterioration in the terms of trade, real GNDI in 1998 is forecast to increase by about 4½ per cent.

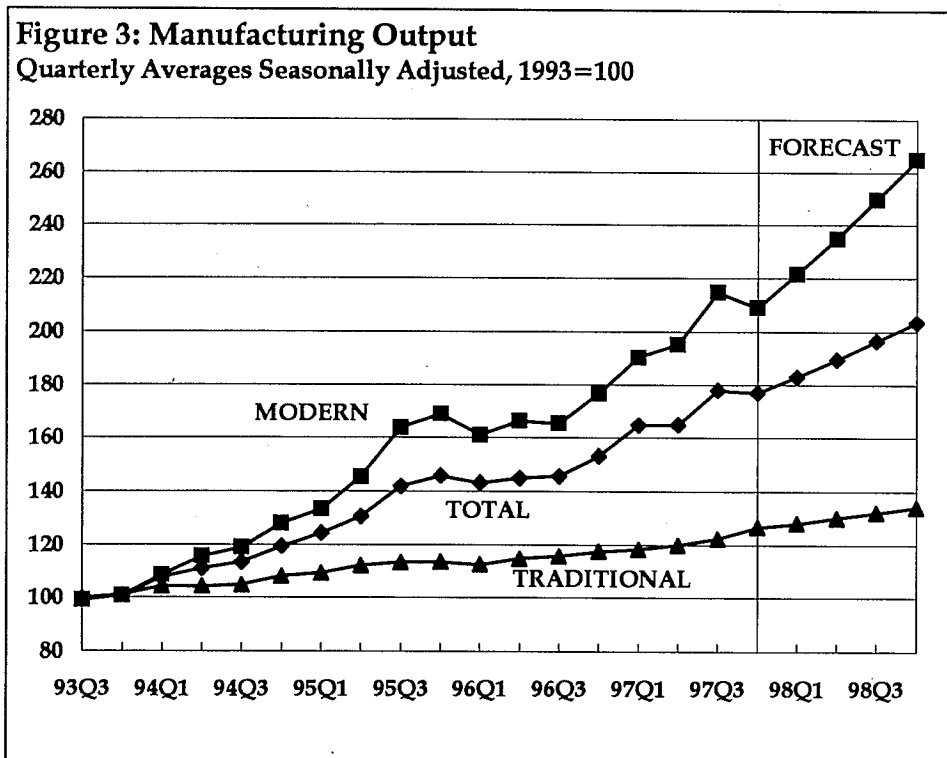
Agriculture

According to preliminary estimates from the CSO, the volume of gross agricultural output rose by ½ per cent in 1997. With the volume of inputs falling significantly, the volume of gross agricultural product at market prices rose by just over 5 per cent. Allowing for an increase in forestry output, the volume of gross domestic product in the broad agriculture sector is estimated to have risen by about 4 per cent.

Assuming that there is little change in the volume of gross agricultural output in 1998, but that the reduction in inputs will be less pronounced, the volume of gross agricultural product is forecast to increase by a little over 1 per cent. With forestry production likely to continue its expansion, gross domestic product in the broad agriculture sector in 1998 is projected to rise by about 1¼ per cent.

Industry

In 1997, the volume of production in manufacturing industry rose by about 16.6 per cent and that in "all industry" by 15.3 per cent. Production rose quite steeply in the course of the year, especially in the second half. Growth was particularly strong in the pharmaceutical industry, but with the exception of clothing and rubber processing, both of which were affected by closures, and a few sections of the food and textile industries, virtually all industrial sectors increased output in 1997. Taking account of the probable small difference between increases in gross and net output, a buoyant building industry and a substantial rise in depreciation, it is estimated that the volume of gross domestic product in the broad industry sector increased by about 14 per cent.



On the general assumptions of the *Commentary* manufacturing production is projected to increase less rapidly in 1998, although at about 13 per cent the forecast annual rise remains substantial. With building output also projected to rise at a rather slower pace than last year, the forecast increase in the volume of gross domestic product in 1998 in the broad industry sector is about 10¼ per cent. This is a significant upward revision on our previous forecast of an 8½ per cent rise.

Services

In national accounting terms, output of services is influenced considerably by changes in intervention stock levels, which tend to dominate the performance of the distribution sector. After a very large increase in 1996, the output of the distribution sector is estimated to have grown substantially again in 1997. Although the expansion of public services was relatively modest, other private services are believed to have grown rapidly in response to the buoyancy of domestic demand. Thus the volume of gross domestic product in the total service sector is estimated to have risen by almost 9 per cent in 1997.

The growth in the volume of public services is expected to remain subdued in 1998. With little further build-up of intervention stocks, the distribution sector should show much slower expansion than in 1996 or 1997. Other private services are likely to increase quite strongly, although not as fast as in 1997, due to the projected deceleration in the volume growth of domestic demand. Thus the volume of gross domestic product in the service sector as a whole is forecast to increase by about 5½ per cent in 1998.

Employment

Short-term series continue to show substantial employment growth in most private sectors of the economy. Allied to trends in the Live Register and direct tax receipts, they indicate that total non-agricultural employment has risen rapidly since the April 1997 Labour Force Survey.

On an annual average basis, we estimate that the total at work increased by 59,000, or 4½ per cent in 1997, with both industrial and services employment growing strongly, as shown in Table 8. Given the pattern of growth, it is reasonable to assume that full-time employees accounted for a high proportion of the growth, and that the annual rise in the number of full-time equivalent non-agricultural employees exceeded 5 per cent.

Although the pace of economic growth is projected to decelerate in 1998, it is still expected to remain high by historical standards, and should generate a significant further increase in employment. The number at work, on an annual average basis, is forecast to rise by 51,000, or almost 3¾ per cent, with the full-time equivalent non-agricultural employee average increasing by about 4 per cent.

TABLE 8: Employment and Unemployment

A: Mid-April Estimates '000					
	1995	1996	1997	1998	1999
Agriculture	143	138	134	131	129
Industry	349	355	386	412	430
Services	756	804	818	852	880
Total at Work	1,248	1,297	1,338	1,395	1,439
Unemployed	192	191	179	160	148
Labour Force	1,439	1,488	1,517	1,555	1,587
Unemployment Rate %	12.2	11.9	10.3	9.3	8.3
Live Register	276	281	256	234	220

B: Annual Averages '000				
	1995	1996	1997	1998
Agriculture	140	136	132	130
Industry	354	374	404	425
Services	782	806	839	871
Total at Work	1,276	1,316	1,375	1,426
Unemployed	189	185	166	150
Labour Force	1,465	1,501	1,541	1,576
Unemployed Rate % ¹	12.2	11.2	9.9	8.6
Live Register	278	279	254	230

¹ Official Standardised Unemployment Rate, based on ILO definitions. This cannot be derived directly from the figures in Table 8.

While a proportion of the fall in registered unemployment in the closing months of 1996 could be attributed to a tightening in administrative practices, it seems unlikely that this factor contributed much to the steady fall in the seasonally-corrected Live Register in the course of 1997 and early 1998. It still seems possible, however, that some divergence persists between trends in the Live Register and in unemployment on the ILO definition. Thus the published seasonally adjusted standardised unemployment rates since April 1997 remain subject to revision in the light of future Labour Force Surveys. In the light of past experience, it seems likely that the revised annual standardised rate for 1997 will be just under 10 per cent, rather than the current official rate of 10.2 per cent. A further significant fall in the standardised rate seems certain in 1998, with the most likely final annual rate being a little over 8½ per cent.

Incomes

Despite the increase in the volume of gross agricultural product, adverse price trends led to a fall in agricultural incomes in 1997. Official preliminary estimates show that income arising in agriculture fell by 3.7 per cent., suggesting that income in the broad agriculture sector declined by about 3½ per cent. With

relative price movements likely to be more favourable in 1998, an increase of about 3 per cent in broad agricultural incomes is forecast for this year.

There is a degree of mystery surrounding the increase in aggregate non-agricultural incomes in 1997. Most specific earnings series, especially those relating to pay in industry and financial institutions, show a relatively modest rate of growth in average earnings in 1997. However, both consumption and taxation trends indicate a strong rise in aggregate earnings. Employment growth certainly accounts for part of this, as does the increasing share of higher-paid jobs in total employment, but it also seems clear that average economy-wide pay must have increased faster than average industrial wages, and also faster than would be implied by a strict adherence to the pay terms of *Partnership 2000*. A reasonable estimate would be that average earnings increased by a little over 4 per cent, and aggregate earnings by about 9½ per cent in 1997.

A similar rise in average earnings is forecast for 1998, with the effects of a tighter labour market offset by a smaller scheduled increase in public service pay. With effective employment projected to grow at the rather slower rate of 4 per cent, aggregate non-agricultural earnings are forecast to increase by 8¼ per cent.

Given the buoyancy of the economy, other non-agricultural personal income, comprising income from self-employment, interest dividends and rents, is likely to have increased substantially in 1997. A rise of 7½ per cent is estimated. A broadly similar rate of increase of 8 per cent is projected for 1998. Thus total income received from economic activity is estimated to have increased by 8 per cent in 1997 and is forecast to rise by 7¾ per cent in 1998 as shown in Table 9.

TABLE 9: Personal Disposable Income

	1996		Change		1997		Change		1998
	£m	%	£m	%	£m	%	£m	%	£m
Agriculture, etc.	2,426	-3½	-85		2,341	3	70		2,411
Non-Agricultural Wages, etc.	19,477	9½	1,850		21,327	8¼	1,759		23,086
Other Non-Agricultural Income	4,273	7½	320		4,593	8	367		4,960
Total Income Received	26,176	8	2,085		28,261	7¾	2,196		30,457
Current Transfers	6,260	10½	660		6,920	7	482		7,402
Gross Personal Income	32,436	8½	2,745		35,181	7½	2,678		37,859
Direct Personal Taxes	6,883	12	822		7,705	7¼	557		8,262
Personal Disposable Income	25,553	7½	1,923		27,476	7¾	2,121		29,597
Consumption	23,318	8¾	2,029		25,347	9	2,281		27,628
Personal Savings	2,235	-4¾	-106		2,129	-7½	-160		1,969
Savings Ratio	8.7				7.7				6.7

There was a very large increase, estimated at 10½ per cent, in current transfer receipts in 1997. This large increase was heavily influenced by the rise in compensation payments. These seem likely to increase further in 1998, but at a slower rate. Taking into account scheduled rises in social welfare transfers, but also the reduction in the level of registered unemployment, an increase of 7 per cent in current transfer payments is forecast for 1998. Gross personal income is

thus estimated to have risen by 8½ per cent in 1997, with the rate of increase declining to 7½ per cent in 1998.

Despite higher tax thresholds and band widening in the 1997 Budget, direct personal taxation is estimated to have risen by about 10½ per cent in 1997. With tax concessions greater in the 1998 Budget, and employment growth projected to be slower, the increase in direct personal taxation in 1998 is forecast at about 7¼ per cent. Personal disposable income is thus forecast to grow slightly more in 1998 than in 1997, at almost 7¼ per cent compared with 7½ per cent.

If our estimates of income and consumption are correct, the personal savings ratio fell from 8.7 per cent in 1996 to about 7.7 per cent in 1997. With the underlying conditions of relatively high job security and historically low interest rates continuing, another reduction of about 1 per cent in the personal savings ratio appears a reasonable assumption for 1998. On this basis, an increase of about 9 per cent in the value of personal consumption could be accommodated.

Consumer Prices

The validity of earlier price forecasting models was thrown into doubt in 1997. In the face of extremely rapid economic growth, relatively low interest rates and adverse currency movements, the annual increase in the consumer price index was only 1.5 per cent. Indeed, as Table 10 shows, the increase in the index excluding housing was only 1.3 per cent, although the non-housing elements should have been more exposed to the influence of a depreciating currency.

TABLE 10: Consumer Price Index - Recent Trend and Forecast

	Quarterly Trend								Annual		
	1996			1997			1998		1996	1997	1998
	May	Aug.	Nov.	Feb.	May	Aug.	Nov.	Feb.			
Index Nov. 1989 = 100											
Housing	117.1	117.6	120.0	119.8	123.0	121.0	122.4	122.5	117.9	121.6	122.8
Other	116.8	117.4	117.9	118.0	118.3	118.4	119.8	120.0	117.1	118.6	121.9
Total CPI	116.8	117.4	118.0	118.1	118.6	118.6	119.9	120.1	117.1	118.8	122.0
Annual % Change											
Housing	-1.8	-2.5	1.0	2.7	5.0	2.9	2.0	2.3	-0.1	3.2	1.0
Other	1.7	1.8	2.0	1.5	1.3	0.9	1.6	1.7	1.8	1.3	2.8
Total CPI	1.4	1.5	1.9	1.5	1.5	1.0	1.6	1.7	1.6	1.5	2.7
Quarterly % Change											
Housing	0.3	0.4	2.0	-0.2	2.7	-1.7	1.2	0.1			
Other	0.4	0.5	0.4	0.1	0.2	0.1	1.2	0.2			
Total CPI	0.4	0.5	0.5	0.1	0.2	0	1.1	0.2			

Figures for the early months of 1998 show only a slight acceleration in consumer price inflation, with the twelve-month increases in the consumer price index being 1.8 per cent in January, 1.7 per cent in February, and 2.1 per cent in March. However, despite the experience of 1997, it remains overwhelmingly probable that the depreciation of the trade-weighted value of the Irish pound will

be reflected in an acceleration of consumer price inflation in the course of 1998. The extent of the likely rise is still uncertain, but, since the revaluation of the Irish pound's central rate, a reasonable assumption is that the twelve-monthly price increase will rise gradually in the first half of the year, and average around 3 per cent in the second half. On this basis the annual average increase in the consumer price index would be about 2.7 per cent, with non-housing items increasing by an average of 2.8 per cent.

Public Finances

The fiscal performance in 1997 was the strongest since Ireland joined the then EEC. Even after bringing several items of expenditure forward and, as in previous years, treating some forms of effective debt repayment as current expenditure, the current budget surplus was £604 million and the Exchequer borrowing requirement was £235 million. On a more appropriate accruals basis, the general government balance, the yardstick for EMU qualification, was in surplus by 0.9 per cent of GDP. This outcome resulted primarily from exceptionally buoyant tax receipts, with tax revenue rising by 14 per cent and total current revenue by 12.9 per cent. Discretionary government expenditure was kept under firm control, and the apparent rise in total current spending was due in part to the rise in non-discretionary compensation payments and in part to the deliberate timing and classification factors mentioned above.

Despite substantial reductions in effective rates of direct taxation, the 1998 Budget aimed for a moderate increase in the current budget surplus, a very small Exchequer borrowing requirement, and a continuing modest general government surplus. In our December *Commentary*, we predicted that the fiscal out-turn for 1998 would be quite close to the Budget targets.

Indications that domestic demand, which has a greater influence on tax receipts than GNP, has been running much higher than expected in the first quarter of 1998 have been reflected in very strong tax returns for the first three months of the year. In consequence it now seems probable that tax receipts for 1998 as a whole will increase by about 10 per cent, compared with just over 7 per cent forecast in the Budget.

Provided that compensation payments and other unforeseen and non-discretionary expenditure do not substantially exceed expectations, there seems no reason why underlying current expenditure should be above the targeted level. It appears that firm control is still being maintained over day-to-day spending, while the unusually sharp fall in the Live Register and the better than anticipated borrowing position should both provide some savings to offset against possible slippage in other areas of spending. It seems probable, however, that there will again be some end-year bringing forward of commitments, so that apparent annual current spending will again be shown as being above the Budget target.

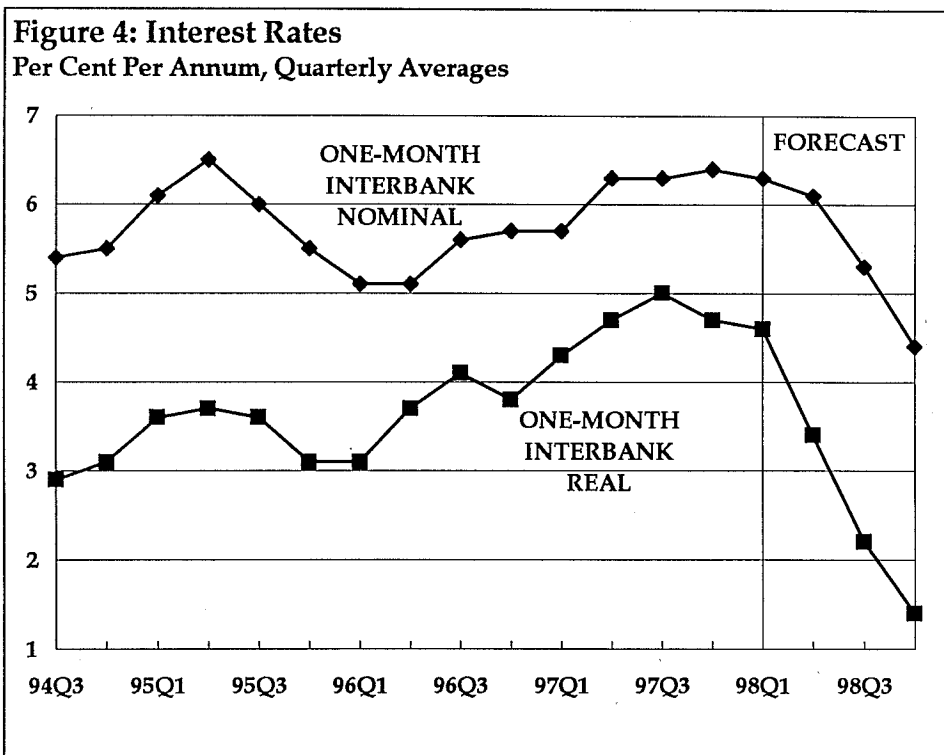
On this basis, it seems likely that the current budget surplus for 1998 will be shown as exceeding £1,400 million, or 3.2 per cent of GNP, with an Exchequer financing surplus (or negative EBR) of over £350 million. The general government surplus, largely unaffected by end-year manipulations, could

approach 1½ per cent of GNP. Whether the Exchequer financing surplus will result in an actual reduction in the absolute level of National Debt in 1998 is uncertain at present, as it could be offset by valuation changes, depending on the movement of exchange rates between December 1997 and December 1998.

Interest Rates

In 1997, Irish short-term interest rates tended to rise, while long-term rates fell substantially. Consequently the annual average of short-term rates was higher and of long-term rates significantly lower than in the previous year. By the end of the year there was an unusually steep reverse yield curve. Obviously these developments in 1997 were heavily influenced by the imminence of EMU, and by uncertainty surrounding both the entry rate of the Irish pound and the future course of sterling.

The revaluation of the central rate of the Irish pound has removed the uncertainty concerning the EMU entry rate. It is becoming clear that the implied decision to enter EMU at a bilateral rate against the DM of about 2.48, relatively close to present currency levels, has facilitated Central Bank control over short-term interest rates.



In exercising this control, the known parameters are the end-year currency value, and the virtual elimination by the end of the year of the differential over German short-term interest rates. It remains unknown at what level German

short term rates will be at that time, although, as discussed in the International section of this *Commentary*, it at present seems likely that they will be only slightly above their current level. Similarly the course of the UK and US currencies, and thus the trade-weighted value of the Irish pound over the remainder of 1998 remain uncertain.

In these circumstances, it seems both probable and appropriate that the Central Bank will continue to operate monetary policy cautiously, with official interest rates being reduced in a series of small steps in the second half of the year. The annual average of the 1 month interbank rate could thus be about 5½ per cent, although the end-year figure will probably be close to 4 per cent. The reduction in the annual average of long-term rates will be greater, as nearly all the adjustment to continental levels has already taken place.

General Assessment

On almost every relevant criterion, the Irish economy performed exceptionally well in 1997. Real GNP is estimated to have increased by 8¼ per cent, with both exports and domestic demand rising strongly. The volume of manufacturing production expanded by 16½ per cent, with indigenous industry, in keeping with the Special Article included in this *Commentary*, contributing significantly to the increase. The annual average number at work is estimated to have risen by about 4½ per cent, and the unemployment rate declined to under 10 per cent by end of the year. The public finances were extremely strong, recording a general government surplus of 0.9 per cent of GDP in spite of a higher than anticipated level of compensation payments. With the exception of asset prices, especially in housing, the rapid economic growth does not appear to have given rise to undue inflationary pressures during 1997, with the current account of the balance of payments remaining in comfortable surplus and the consumer price index increasing by only 1.5 per cent on an annual average basis.

By either historical or international standards the economy should continue to perform successfully in 1998, although some reduction in the rate of growth seems likely. On the demand side, the Asian crisis could diminish the rate of export growth, through the decline of significant markets and through intensified competition in the rest of the world. On the supply side, increasing constraints, including labour supply constraints, could limit growth by restricting the level of output and encouraging a continued surge of imports. Thus real GNP growth in 1998 is forecast at just under 6¾ per cent, with annual average employment rising by 3½ per cent. This is likely to permit a further significant reduction in the unemployment rate to about 8 per cent by the end of the year. The public finances seem set to strengthen further, in response to buoyant domestic demand, with the general government surplus likely to approach 1½ per cent of GDP, and the Exchequer borrowing requirement turning into a modest surplus.

The principal uncertainty concerning the economy in 1998 remains the outlook for inflation. There is little or no evidence that the pace of economic expansion, in itself, is forcing up the general rate of price inflation. In a small open economy, domestically generated inflationary pressures are far more likely to be reflected in the balance of payments than in the price level, and, indeed

there are signs that the current account may have begun to deteriorate in the second half of 1997. Also, as has been pointed out in previous *Commentaries*, the effects of rapid growth in domestic demand on house prices could be sowing the seeds of future social problems, and inhibiting job mobility. However, this is a specific issue which could best be addressed through direct measures to restrict demand for and increase supply of dwellings.

The main threat to general price inflation in 1998, and indeed 1999, lies not in the strong growth in the economy, but in unrelated currency fluctuations. The long-term need to enter EMU at a reasonably competitive exchange rate, allied to the current excessive value of sterling, has resulted in a substantial depreciation in the trade-weighted value of the Irish pound. This depreciation was relatively modest in the second and third quarters of 1997, but accelerated sharply in the closing months of 1997 and in early 1998. The trade-weighted value of the Irish pound is currently about 10 per cent below its level in the first quarter of 1997, and, more relevantly, about 7½ per cent below its average level from 1990 to 1996.

Past experience suggests that such a depreciation would result in substantial price inflation in 1998 and 1999. However, the recent course of the consumer price index suggests that an increase in retail competitive pressures, combined with the widespread perception that the extreme strength of sterling is temporary, has altered the parameters of older models of price determination, at least in the short run. Taking this into account, together with the international weakness of many commodity prices, including that of oil, and the avoidance of a further 3 per cent depreciation later in the year, due to the revaluation of the pound's central rate, our best, although still tentative, estimate is that consumer price inflation will peak at about 3 per cent in the second half of 1998. On an annual average basis, consumer prices are thus forecast to increase by about 2.7 per cent in both 1998 and 1999.

If this prediction is correct, then the Irish economy is due to enter EMU in 1999 with growth still strong, unemployment still falling and with inflation still at a tolerable level. General government debt should have fallen very close to the EMU target level of 60 per cent of GDP. An interesting by-product of the strength of the public finances is that, in contrast to the past few decades, a substantial and increasing proportion of the rising total of net national savings is now accounted for by government current saving.

We have occasionally used the *Commentary* to point out that changing economic conditions required a significant shift in the attitudes underlying current policy. Examples include the downgrading of the aim of reducing government borrowing from the overriding imperative of fiscal policy in the eighties to one desirable goal among several as the nineties progressed, and more recently, the need to consider the supply of labour, and in particular the disincentives blocking movement from unemployment into work, rather than simply attempting to maximise the demand for labour. The present prolonged success of the Irish economy, allied to the imminence of EMU, clearly demands a complex series of such attitude shifts.

Changes in outlook are made necessary by Ireland's rapid movement from one of the poorer members of the EU to achieving approximate equality in living standards with the Union as a whole. At the same time, the massive increases in employment in the past few years have reduced the Irish rate of unemployment to below the EU average, and have led to the emergence of labour shortages. Thus, although involuntary unemployment remains too high to be acceptable on a long-term basis, it is possible that job-creation, like fiscal consolidation a few years ago, should increasingly be seen as one necessary aim among many, rather than the basic cornerstone of economic policy.

The full implications of the mental adjustment to the economics of success are too many and varied to deal with in a single *Commentary*. We hope to return to aspects of the matter in future issues. However, there is one aspect which demands immediate attention, both within Ireland and more generally in Europe, as EMU approaches. This is the problem of economic management, especially in a booming economy, in the absence of domestic monetary and exchange rate policy.

Central to the dilemma is the attitude to inflation. Inflation, even at historically moderate rates of between 3 and 5 per cent, has come to be regarded by many theoreticians and most policy makers world-wide as an overriding danger, to be avoided at almost any cost. Given the attitudes and power of the international financial markets, such an aim has been sound sense on the part of national policy makers, since a market perception of accelerating inflation was likely to result in currency depreciation, thus intensifying and prolonging the inflationary pressures.

The principal tool for containing inflation, in Ireland as elsewhere, has been monetary policy, acting both directly and through its effect on the exchange rate. However, although ultimately effective, interest rate changes have proved to have considerable disadvantages as an instrument of economic management. The direct effects tend to be concentrated on a limited range of sectors, especially the construction industry, the impact on investment means that high interest rates tend to constrict future supply as well as current demand, while the long lags involved before the full effects are apparent have tended to encourage each phase of monetary policy to be applied for too long, so that it ultimately proves to have been pro-cyclical.

Despite these drawbacks, reliance on monetary policy has become so familiar that its absence, or rather its subsuming into policy for a much wider area, poses intellectual as well as practical problems for national policy makers. The initial reaction, as exemplified in recent international reports on Ireland's position in EMU, is to suggest that fiscal policy can be intensified to replace it. This appears to be misconceived with regard to a small open economy, where changes in the fiscal stance are far more likely to be reflected in the balance of payments than in the rate of price inflation.

The answer to this apparent conundrum lies in a change of attitude toward inflation itself. With the currency irrevocably fixed, so that inflation cannot be reinforced by depreciation, moderate inflation differentials within the area of the currency union themselves become the principal agent of economic adjustment.

It is clear from regional economic theory that changes in relative price levels, especially in relative labour costs, together with migration and other factor flows can maintain a reasonable degree of regional equilibrium. Markets for goods, services and factors of production respond to price signals, and, over time, demand and supply reactions to relatively high prices will tend to relieve localised bottlenecks and thus ease the temporary inflationary pressures. Indeed, there are firm grounds for believing that such generalised market reactions to moderate changes in price differentials can offer a smoother adjustment process than an active monetary policy.

However, while it is time for both economists and policy makers to begin to adapt their perspective on the role of inflation, and to take more account of regional than international economic theory, great caution is needed in the practical response to the new situation. The nature of the EMU group of countries within the EU will be radically different from existing large economic areas such as the USA, in the diversity of national characteristics, including language, in the absence of large automatic income transfers between regions, and in the degree of autonomy retained by individual countries on all aspects of policy other than monetary. Thus any parameters established in empirical regional studies in the USA or elsewhere cannot realistically be used as guidelines for possible outcomes within Europe. Only ongoing research within Europe itself will gradually establish the basis for accurate analysis of the consequences of differential rates of price and wage inflation within the EMU area.

As a practical guiding principle in the foreseeable future, Irish policy makers, whether governmental or sectoral, should assume that the trade-off between wage inflation and employment will become more direct under EMU, but that the rate of trade-off will be unknown. Given that there is still a need for rapid net job creation to absorb the growing labour force and to reduce unemployment much further, the case for caution in the evolution of pay increases is overwhelming. Because of the uncertainties involved, the case for two-way flexibility through profit sharing or similar devices is also strengthened. Maintaining a climate where moderation in basic pay increases can continue is more important to future job prospects than any attempt to tighten fiscal policy as an anti-inflationary measure. Of course, fiscal responsibility remains necessary in its own right and debt reduction is very appropriate in the current period of tax buoyancy, but this should be seen as an investment in future living standards rather than as a response to temporary inflationary pressures.

THE REVIVAL OF IRISH INDIGENOUS INDUSTRY 1987-1997

by Eoin O'Malley

I INTRODUCTION

From the 1960s until the mid-1980s, most of the growth of employment, output and exports in manufacturing industry in Ireland occurred in foreign-owned multinational companies, while the performance of native Irish-owned or indigenous industry was relatively poor. Consequently, foreign-owned firms came to account for a large proportion of manufacturing in Ireland by 1987, with 43 per cent of manufacturing employment, 52 per cent of manufacturing gross output and 74 per cent of exports of manufactured products.

In the period since 1987, the foreign-owned multinational component of industry in Ireland has continued to contribute most to Irish industrial growth, with the result that by 1995 its share of total manufacturing employment increased to 47 per cent, its share of gross output increased to 65 per cent, and its share of exports increased to 82 per cent.¹ Despite this continuing increase in the relative importance of foreign-owned industry, however, a major change since about 1987 has been the fact that there has been a substantial and sustained improvement in the growth performance of Irish indigenous industry.

This article aims to show that, not only has the record of Irish indigenous industry been greatly improved by comparison with its own previous experience, but its growth performance over the past decade has also been stronger than that of industrial countries generally. Thus, since about 1987, the record of Irish indigenous industry has changed from one of relatively weak growth trends by international standards to one of relatively strong growth by international standards. This article brings together and analyses information from a variety of sources to document this improvement in indigenous industry, primarily by examining trends in employment, output and exports, but with reference to some other indicators as well. This involves making some estimations to fill a few important gaps in the existing data.

There has been some recognition in relevant literature of the fact that there has been an improvement in indigenous industry in recent years – at least compared with the very discouraging experience of much of the 1980s. But there does not seem to be a real appreciation of the fact that the scale and durability of this improvement is such that it is without historical precedent in twentieth century Ireland. In particular, there does not seem to be much awareness of the fact that Irish indigenous industry now has quite a long record, over about ten years, of relatively rapid growth by comparison with international standards. The

¹These data are derived from the annual *Census of Industrial Production*.

fact that the growth of indigenous industry has continued to lag well behind that of the foreign-owned sector no doubt contributes to this lack of visibility of what has been occurring in the indigenous sector. In view of the efforts made, since the mid-1980s, to devise policies for developing indigenous industry, it seems worthwhile to present this broad review of trends over the past decade, and to give some brief consideration to the role of various factors, including industrial policy, in bringing about the improvement which occurred.

II EMPLOYMENT

2.1 *Employment Trends Over Time*

Before 1987, the long-term record of employment trends in Irish indigenous industry had generally been poor – whenever conditions of open international competition prevailed. There was the beginning of a process of industrial development, involving substantial numbers employed in manufacturing by the 1830s, but after that industrial activity generally declined in most of Ireland during the rest of the nineteenth century, apart from the north-east.² By the 1920s, there was little manufacturing industry in the independent Irish state and, according to the *Census of Industrial Production* of 1926, only about 5 per cent of the labour force was employed in manufacturing. There was a modest increase in industrial employment by about 5,000 jobs in 1926-31 (Kennedy, 1971, Table 2.2), but data presented by Girvin (1989, Table 3.4) indicate that much of the increase in the 1920s occurred in a limited number of sectors which had been granted tariff protection.

After a policy of stronger and far more wide-ranging protection against imports was introduced in the early 1930s, there was substantial growth in industrial employment until about 1951. But the protected industries which developed in that period were for the most part not internationally competitive and they generally failed to export significantly. Following a period of prolonged recession in the 1950s, the protectionist policy was eventually abandoned.

Once the removal of protection began in earnest in the mid-1960s, competing imports began to take a continuously increasing share of the home market (O'Malley, 1989, Ch. 6). In this context, there was no employment growth in indigenous manufacturing from about the mid-1960s to the beginning of the 1980s and then in the 1980s its employment fell sharply. Essentially what happened was that while Irish firms were losing home market shares they were failing to make compensating gains in export markets. Since they were selling very largely to the domestic market, they could just about maintain their overall employment level while domestic demand was growing sufficiently strongly, thereby compensating for the loss of market share, which it did in the late 1960s and the 1970s. After 1980, competing imports continued to take a rapidly rising share of the domestic market until about 1988 (*Employment Through Enterprise*, 1993, Appendix 3), while there was little or no increase in the export-orientation of indigenous industry until about 1986 (see Section IV below). When domestic

²See O'Malley (1981) for a review of the causes which have been suggested for this nineteenth century decline.

demand weakened considerably during much the same period for a variety of reasons, employment in indigenous manufacturing slumped and a large number of firms ceased production.

As regards the data on these employment trends, before 1973 there were no regular data on employment in Irish-owned industry as such. However, survey data on new foreign-owned grant-aided industry in 1966 and 1973 make it possible to show that all of the growth in manufacturing employment in Ireland in 1966-73 occurred in the new foreign industries, while employment in the rest of manufacturing declined slightly (O'Malley, 1989, Table 6.1). Since the "rest of manufacturing" consisted very largely of Irish-owned or indigenous firms, together with quite a small minority of older foreign-owned firms, this indicates that there was probably no employment growth, and perhaps some decline, in indigenous industry in 1966-73.

Beginning in 1973, an annual survey of industrial employment, distinguishing firms by nationality of ownership, was undertaken by the (former) Industrial Development Authority and this survey has been carried on in recent years by Forfás. This survey shows that there was no employment growth in Irish indigenous industry between 1973 and the beginning of the 1980s (O'Malley, 1989, Table 6.2). Table 1 shows the subsequent trends up to 1997.

Table 1: Permanent Full-time Manufacturing Employment, 1980-97, from IDA/Forfás Employment Survey

Year	Irish-owned	Foreign-owned	Total
1980	143,300	88,400	231,700
1988	110,918	82,381	193,299
1990	112,460	86,520	198,980
1992	112,150	85,694	197,844
1994	111,388	90,376	201,764
1995	114,389	95,227	209,616
1996	118,562	99,123	217,685
1997	120,700	107,173	227,873

Source: Forfás (1997b, Chart 4) for years 1988 to 1996. Data for 1980 and 1997 supplied by Forfás.

Employment in indigenous industry fell in every year between 1980 and 1988 and the decline over the whole of that period amounted to 32,000 or over 22 per cent.³ After 1988 employment in indigenous industry showed signs of a rising trend, slow and very hesitant at first, but amounting to an increase of 9,800 or 8.8 per cent over the period 1988-97. These data refer to permanent full-time employment. Forfás (1997b, Chart 9) also presents data from its employment survey on "temporary, part-time and short term contract employment". Such employment in Irish indigenous firms rose rapidly from 5,661 in 1988 to 10,291 in 1994 and 11,996 in 1997, so that the number more than doubled between 1988 and 1997. This was obviously a much faster rate of increase than in permanent full-time employment, indicating that the permanent full-time data alone understate the overall rate of increase to some extent. In particular, taking

³However, it is worth noting that the decline in employment had almost ceased by 1987, since there was a decline by just 300 jobs between 1987 and 1988.

account of the rise in temporary, part-time and short term contract employment in the years between 1988 and 1994, there was a clearly rising trend in the overall level of indigenous employment in that period, despite the very limited net change for the period seen in Table 1.

The growth in employment in indigenous industry since 1988 may not appear spectacular at first sight. But, given the historical background of Irish industry outlined above, it certainly represents the most successful period for employment growth in indigenous industry under conditions of open international competition – since at least the foundation of the state and probably for a much longer time. But this positive view of the recent employment trend in indigenous industry has been rather overshadowed by the considerably faster growth of employment in foreign-owned manufacturing in Ireland, which increased by as much as 30 per cent in 1988-97.

Since 1983, the annual *Census of Industrial Production* (CIP) has also presented data distinguishing firms by nationality of ownership. However, since some firms were “not classified” by nationality of ownership in 1983 and 1984, only the data since 1985 are really suitable for examining trends over time in Irish indigenous industry.⁴ In addition, the latest available CIP refers to 1995, which is a couple of years older than the latest Forfás employment survey data. Table 2 shows employment trends by nationality of ownership from the CIP for the period 1985-95. The CIP confirms that there was a decline in employment in Irish-owned manufacturing in each year from 1985 to 1988 followed by a rising trend after that.

Table 2: Manufacturing Employment, 1985-95, from Census of Industrial Production

Year	Irish-owned	Foreign-owned	Total
1985	111,010	76,289	187,299
1988	103,215	81,825	185,040
1990*	105,884*	88,293*	194,177*
1991*	110,009*	86,869*	196,878*
1993	111,167	88,836	200,003
1994	109,706	95,715	205,421
1995	116,714	103,864	220,578

Source: *Census of Industrial Production*.

*Note: There is a break in this data series between 1990 and 1991 due to changes in classification, as explained in the text.

It should be noted that there was a break in the CIP data series because of a change in the industry classification system after 1990. Up to 1990, NACE 70 was used, and then NACE REV.1 was used from 1991 onwards. This change affected the classification of sectors within the manufacturing total, but it caused only a negligible change in the data for total manufacturing employment. Thus, total manufacturing employment started off in the new series in 1991 with 2,700 more jobs than at the end of the old series in 1990. At the same time, CIP data for 1991

⁴The firms which were not classified by nationality of ownership employed 6,500 in 1983 and 4,000 in 1984. These figures were equivalent to 5.4 per cent of indigenous employment in 1983 and 3.4 per cent in 1984. While such percentages could be regarded as almost negligible for some purposes, they would be sufficiently large to introduce an appreciable margin of error in calculating the percentage change in indigenous employment between 1983 or 1984 and some later year.

provided by the CSO using, as far as possible, the *same* concepts and classifications as the 1990 CIP, show an increase by an almost identical amount of 2,800 jobs between 1990 and 1991.⁵ Thus, the break in the data series for total manufacturing employment in 1990-91 can be regarded as negligible for our purposes.

However, the break in the CIP series involved some changes in classification by nationality of ownership. In the case of Irish-owned manufacturing employment, the new CIP series starts in 1991 with 4,100 more jobs than at the end of the old series in 1990. This means that the Irish-owned share of total manufacturing employment showed an increase by 1.4 percentage points, from 54.5 to 55.9 per cent. In some contrast, the Forfás employment survey indicates that there was a slight decline by 0.2 percentage points in the Irish-owned share of total manufacturing employment between 1990 and 1991. This indicates that some of the increase in indigenous employment seen between the old and new CIP series in 1990-91 was due to changes in classification rather than a real increase.

To make a link between the old and new series, we can take the 1990 and 1991 CIP figures for total manufacturing employment as being effectively consistent, and we can assume that the Irish-owned share of the total declined by 0.2 percentage points in 1990-91 (as in the Forfás survey). This produces an estimated increase by 1,000 jobs in Irish-owned CIP manufacturing in 1990-91. On this basis, indigenous employment in the CIP series is estimated to have increased by 10.1 per cent over the period 1988-95. This increase was distinctly greater than the rise of 3.1 per cent seen in the Forfás data for permanent full-time indigenous manufacturing employment in 1988-95. This confirms that there was significant growth at this time, and it supports the suggestion that the Forfás permanent full-time data alone would understate the overall rate of increase in this period.

Table 3 shows average annual rates of change in indigenous manufacturing employment by sector in 1985-90, using the CIP (NACE 70) data.⁶ It can be seen in this table that the improvement in employment trends after 1988 occurred across a wide range of sectors. In 1985-88, a minority of sectors – 9 of the 21 distinguished in the table – had employment growth, whereas most sectors – 15 of the 21 – had increasing employment in 1988-90. Or to look at it another way, 17 of the 21 sectors had an improvement in their employment performance in 1988-90, i.e., faster growth than in 1985-88, growth replacing previous decline, or at least a reduced rate of decline. Two of the remaining four sectors which had no

⁵Similarly, total manufacturing employment in the CSO's quarterly series on "Industrial Employment", which retained the NACE 70 classification system, increased by 2,500 jobs between September 1990 and September 1991. This was almost the same as the increase of 2,700 shown between the CIP NACE 70 figure for 1990 and the CIP NACE REV.1 figure for 1991 (CIP employment data refer to September of the year concerned).

⁶Note that some of the sectoral data could be affected by changes in the nationality of ownership of individual firms, as in the prominent case of the takeover of Irish Distillers in the Drink & Tobacco sector. However, at the aggregate level of total manufacturing such transfers of ownership would have little net impact. Information from the Forfás employment survey indicates that there was a net overall transfer from Irish to foreign ownership amounting to about 1,000 jobs between 1987 and 1996, i.e., less than 1 per cent of employment in Irish-owned industry in 1987.

such improvement, electrical engineering and other food, had reduced rates of growth but their growth rates continued to be greater than average.

Table 3: Average Annual Percentage Change in Irish-owned Manufacturing Employment, by Sector, 1985-90

NACE 70 Code	Sector	1985-88	1988-90	Employment 1990
24	Non-Metallic Mineral Products	-7.7	0.4	7,613
257	Pharmaceuticals	-4.0	5.6	848
25,26 less 257	Other Chemicals	-3.0	3.4	2,338
22	Metals	0.6	2.9	1,562
31	Metal Articles	-3.0	4.4	9,150
32	Mechanical Engineering	0.2	3.9	3,755
33	Office & Data Processing Machinery	10.2	35.3	527
34	Electrical Engineering	11.3	6.0	5,005
35, 36	Motor Vehicles/Other Means of Transport	0.3	0.7	6,347
37	Instrument Engineering	-2.3	4.1	399
412	Meat Processing	-2.8	6.0	9,236
413	Dairy Products	-0.2	-3.1	7,024
416, 419, 422	Milling/Animal Feeds/Bread, Biscuits	-5.0	-4.8	7,971
420-421	Sugar, Chocolate, etc.	-9.5	-4.3	1,611
411, 414-5, 417-8, 423	Other Food	5.7	3.4	3,808
424-429	Drink & Tobacco	-18.7	-15.8	1,364
43	Textiles	-17.5	2.6	3,430
44-45	Clothing, Footwear & Leather	-1.6	-1.1	9,017
46	Timber & Wooden Furniture	-3.0	2.3	6,965
47	Paper & Printing	2.8	-0.2	12,589
14, 48-49	Miscellaneous Industries	3.1	9.1	5,325
1-4, less 11, 13, 16, 17, 21, 23	TOTAL MANUFACTURING	-2.4	1.3	105,884

Source: *Census of Industrial Production*.

While most sectors had rising employment in 1988-90, it is interesting to note that the growth rates were well above average in the "high-technology" sectors, pharmaceuticals, office and data processing machinery, electrical engineering and instrument engineering.

However, employment in Irish-owned firms in pharmaceuticals, office and data processing machinery and instrument engineering was still small in absolute terms in 1990, being numbered in hundreds rather than thousands.

Table 4 shows average annual rates of change in indigenous manufacturing employment by sector in the subsequent period, 1991-95, using the new series of CIP (NACE REV.1) data. It can be seen in this table that there continued to be employment growth across a wide range of sectors, with growth occurring in 18 of the 25 sectors distinguished in the table. Again, it is worth noting that the highest rates of growth occurred mainly in "high technology" sectors – such as reproduction of recorded media (which is mainly software); medical, precision and optical instruments; office machinery and computers; radio, TV and

telecommunications equipment; and pharmaceuticals. By 1995, most of these were employing between about 1,000 and 2,000 people. There were also relatively high rates of growth in electrical machinery and apparatus and in machinery and equipment, which are conventionally classed as "medium-high technology" industries; by 1995 these two combined were employing over 10,000 people in Irish-owned firms. Irish indigenous industry had for long been under-represented in these types of sectors compared to the industrial structure of the EU. This is no doubt still the case for the most part, but the recent strong growth in such sectors means that, rather than simply building on traditional relative strengths, indigenous industry has been showing signs of developing new areas of competence.

Table 4: Average Annual Percentage Change in Irish-owned Manufacturing Employment, by Sector, 1991-95

NACE REV.1 Code	Sector	Annual Growth	Employment 1995
151	Meat Processing	1.8	12,351
152*	Fish Processing*	5.8	2,738
155*	Dairy Products*	-1.8	7,724
156-157*	Grain Milling, Animal Feeds*	3.4	2,895
153-4, 158	Other Food Products	-0.1	7,422
159, 16	Beverages, Tobacco	6.5	1,232
17	Textiles	-0.5	4,032
18	Wearing Apparel	-4.1	6,201
19*	Leather & Leather Products*	-1.0	1,220
20	Wood & Wood Products	0.5	3,879
21, 221-2	Paper, Publishing, Printing	1.5	13,866
223	Reproduction of Recorded Media	17.3	722
244	Pharmaceuticals	7.3	1,030
24 less 244	Other Chemicals	1.8	2,737
25	Rubber & Plastic Products	5.7	4,669
26	Other Non-metallic Mineral Products	-0.7	8,041
27-28	Metals & Fabricated Metal Products	0.9	9,563
29	Machinery & Equipment n.e.c.	6.4	6,889
30	Office Machinery & Computers	13.0	2,042
31	Electrical Machinery & Apparatus n.e.c.	8.1	3,364
32	Radio, TV & Telecomms Equipment	9.0	1,073
33	Medical, Precision, Optical Instruments	14.4	1,274
34	Motor Vehicles	0.7	2,845
35	Other Transport Equipment	-0.7	4,455
36, 37, 232	Manufacturing n.e.c. incl. Oil Refining	1.2	5,914
15-37	TOTAL MANUFACTURING	1.5	116,714

Source: *Census of Industrial Production*.

*Note: Data for these sectors include foreign-owned firms, but indigenous employment is a very large majority in each case.

2.2 Role of Indigenous Industrial Employment in Total Employment Trends

Although the increase in employment in indigenous industry after 1988 was a big improvement on earlier trends, it made only a small contribution to the increase in total employment in the Irish economy in 1988-96. Thus, total employment in the economy as a whole rose from 1,090,000 in 1988 to 1,285,000 in 1996 – an increase of 195,000. At the same time, employment in Irish indigenous industry increased by 7,600 (according to the Forfás “permanent full-time” data series), which amounted to just 3.9 per cent of the total increase.

However, the *change* in the trend in indigenous industrial employment, switching from rapid decline in 1980-88 to growth in 1988-96, made a rather more important contribution to the turnaround in the trend of total employment. This is illustrated in Table 5. Thus, the table shows that total employment, or the “total at work” declined from 1,156,000 in 1980 to 1,090,000 in 1988, which was a rate of change of -0.7 per cent per annum. If this rate of change had simply continued until 1996, the “hypothetical employment” in 1996 would have been 1,030,000. But in fact total employment increased in 1988-96 to reach an “actual employment” figure of 1,285,000. The gain, by 1996, due to the change from continuing with the 1980-88 rate of decline to achieving the rate of growth which actually occurred, was the difference between the “actual employment” and the “hypothetical employment” in 1996, which amounted to 255,000 jobs – as seen in the last row of Table 5.

Table 5: Impact of Change in Employment Trends Between 1980-88 and 1988-96

	Total at Work	Indigenous Manufacturing	Foreign-Owned Manufacturing
Employment 1980	1,156,000	143,300	88,400
Employment 1988	1,090,000	110,900	82,400
Percentage Change p.a. 1980-88	-0.7	-3.2	-0.9
Hypothetical Employment 1996	1,030,000	85,500	76,700
Actual Employment 1996	1,285,000	118,600	99,100
Actual Minus Hypothetical Employment 1996	255,000	33,100	22,400

Source: Forfás employment survey (permanent full-time series) for data on indigenous and foreign-owned manufacturing. Labour Force Surveys for data on total at work.

The table also shows a similar calculation for indigenous manufacturing. It concludes that the gain, by 1996, due to the change from continuing with the 1980-88 rate of decline to achieving the actual growth recorded in 1988-96, amounted to 33,100 jobs. This was larger than the corresponding figure of 22,400 for foreign-owned manufacturing.⁷ This means that indigenous industry, through the *change* in the trend in its employment, accounted for a greater part of the turnaround in the trend of total employment than was the case with foreign-owned industry. The contribution of indigenous industry to the turnaround in

⁷The sum of the two figures for indigenous and foreign-owned manufacturing, at 55,500, is somewhat less than the figure of 66,200 for all manufacturing that would be obtained using Labour Force Survey data on manufacturing employment. This is because the Forfás employment survey figures for total manufacturing employment are somewhat lower than Labour Force Survey figures.

the total employment trend, amounting to 13 per cent of the total "gain" by 1996, was disproportionately large relative to the share of indigenous industry in total employment.

2.3 International Comparison of Employment Trends

Although the growth in indigenous manufacturing employment after 1988 was not especially rapid compared to some other countries in some earlier time periods, it was in fact an exceptionally strong trend by international standards for the period 1988-96. Table 6 shows some international comparisons of trends in manufacturing employment in two eight-year periods, 1980-88 and 1988-96.

Table 6: Annual Average Percentage Change in Manufacturing Employment, Ireland, EU and OECD, 1980-88 and 1988-96

1980-1988		1988-1996	
OECD	-0.6	Ireland – All	1.5
EU (15 countries)	-1.5	Irish Indigenous	0.8
Ireland – All	-2.2	Japan	0.0
Irish Indigenous	-3.2	USA	-0.6
		Australia	-0.6
		United Kingdom	-1.9
		EU (15 countries)	-1.9
		Canada	-2.0

Source: For Ireland, the Forfás employment survey (permanent full-time series). For the EU, the OECD's *Historical Statistics 1960-1993*, for years up to 1993, and these are updated to 1996 using data from *European Economy – Supplement A*, May 1997. For the OECD in 1980-88, also the OECD's *Historical Statistics 1960-1993*. For the individual OECD countries in 1988-96, the data are derived from the OECD's *Main Economic Indicators*.

It can be seen in the table that in 1980-88 there had been a general decline in manufacturing employment in the EU and in the OECD as a whole. But the decline that occurred in Ireland was steeper than in the EU or OECD, and the decline in Irish indigenous industry was particularly severe, at 3.2 per cent per year. However, in the more recent period, 1988-1996, not only was there a great improvement in the trends in Ireland compared with previous experience, but there was also a big change relative to other countries. In the earlier period, the employment record of Irish indigenous industry looked exceptionally weak compared to the other countries, but in the more recent period after 1988 it looks exceptionally strong compared to the EU and the other major OECD economies. The rate of growth of employment in Irish indigenous industry was still lagging behind that of all manufacturing in Ireland in 1988-96, but this is really the only comparison that makes the recent trend in Irish indigenous industry look relatively poor.

It is worth mentioning, too, that even in the early years within the period 1988-96, when there was only a relatively small increase in Irish indigenous industrial employment (see Tables 1 and 2), this was actually quite a strong trend by international standards. Manufacturing employment in the EU and in the other major OECD countries was generally declining in the period between 1988 and 1993, apart from Japan where there was some increase at that time followed by decline in 1993-96.

III OUTPUT

3.1 Output Trends Over Time

Regular data on the output of Irish-owned manufacturing first became available during the 1980s, when the CIP began to present output data distinguishing firms by nationality of ownership. Up to the present, however, the CIP data on indigenous industrial output are available only in terms of current prices, rather than a constant price series which would show trends in the volume of indigenous industrial production over time.

An approximate indication of trends in the volume of indigenous industrial production, which has been available since the 1980s, is the index of the volume of production of "traditional manufacturing", as opposed to "modern manufacturing", which is published in The Economic and Social Research Institute's *Quarterly Economic Commentary*. These indices are derived by combining together official Central Statistics Office (CSO) volume of production indices for certain sectors. The sectors which are included in the index of "modern" manufacturing are pharmaceuticals, office and data processing machinery, electrical engineering, instrument engineering and "other foods". All other manufacturing sectors are included in the index for "traditional" manufacturing. The output of the "modern" sectors comes very largely from foreign-owned firms while the output of the "traditional" sectors comes predominantly from Irish-owned firms.

It is of interest, therefore, to note that the volume of output of "traditional" manufacturing showed little growth in the years between 1982 and 1987, with an annual average growth rate of just 1.0 per cent in that period. After 1987, it began to grow more rapidly, and it increased by an average of 3.6 per cent per year in 1987-96. However, this is no more than a rough indication of trends in the volume of production of Irish-owned industry. According to the 1990 CIP, 34.0 per cent of the output of the "traditional" sectors came from foreign-owned firms, while 8.4 per cent of the output of the "modern" sectors came from Irish-owned firms. Thus, there is no more than a rather loose correspondence between "traditional" and Irish-owned manufacturing.

To focus more directly on output trends in Irish-owned industry, Table 7 shows the CIP data on gross output of Irish-owned manufacturing in the period 1985-95, valued in current prices. It can be seen that, even in current values, there was little growth between 1985 and 1987, when there was an annual average increase of just 1.2 per cent. After that, however, the growth rate picked up considerably, with an increase of 5.9 per cent between 1987 and 1988, an annual average increase of 7.1 per cent in 1987-90, and an annual average increase of 4.7 per cent in 1991-95. (Note that, owing to the change in classification in the CIP between 1990 and 1991, the data for years up to 1990 are not precisely comparable to the data for years since 1991).

Table 7: Gross Output of Irish-owned Manufacturing, 1985-95, £ million, Valued in Current Prices

1985	1987	1990*	1991*	1993	1995
7,187.0	7,363.7	9,050.3*	9,731.0*	10,378.9	11,686.1

Source: Census of Industrial Production.

**Note:* There is a break in this data series between 1990 and 1991 due to the change in classification.

Of course, these data in current prices do not present an adequate account of the real trends in output. To convert the data to a constant price series, the simplest approach might be to use the index for the volume of all manufacturing production (i.e., including foreign-owned as well as indigenous manufacturing), together with the rate of change in the value of all manufacturing output, to derive a price deflator for all manufacturing. Then this could be applied to the figures for the value of indigenous output to produce an indigenous output series in constant prices. In effect, this would be to assume that the average rate of price change for all manufacturing is the same as the rate which applies for indigenous manufacturing alone. Using this method, manufacturing output prices increased by just 2.1 per cent over the whole period 1987-95, or less than 0.3 per cent per year, which would mean that the increase in the volume of indigenous industrial output was only marginally lower than the increase in the value of output.

It seems clear, however, that this approach is not satisfactory. Looking at volume of production indices together with value of production increases for individual manufacturing sectors, it is evident that most sectors had price increases which were significantly greater than the average figure of 2.1 per cent for all manufacturing over the period 1987-95. At the same time, a minority of sectors had falling prices and these were mostly the sectors which are largely foreign-owned, such as chemicals, office and data processing machinery and electrical engineering. Hence, one would have to conclude that the rate of price change applying to foreign-owned industry was probably lower than the average for all manufacturing, while the rate of price increase applying to Irish-owned industry was probably greater than the average rate for all manufacturing.

Consequently it is necessary to estimate the rate of price change which applies specifically to Irish-owned industry. To do this we use the official volume of production indices for individual manufacturing sectors, together with the official indices of the value of turnover in individual manufacturing sectors, to calculate price trends for the individual sectors. Then we combine these together by attributing to each sector a weight which is determined by net output of Irish-owned firms in the sector as a proportion of total net output of Irish-owned manufacturing in 1987. This weighting of sectors by net output in 1987 is similar to the weighting procedure used by the CSO in constructing the official volume of production index for all manufacturing, except that in this case we use net outputs of Irish-owned rather than all firms. (See the Appendix for a more detailed explanation and discussion of the procedure used to estimate price trends for Irish-owned industry).

In this way we produce estimates of overall price trends for Irish-owned industry which make use of the available data on differing price trends in the different sectors, and combine these in a way which reflects the actual sectoral

composition of Irish-owned industry. Thus, even if some largely foreign-owned sectors have untypical price trends, these are accorded an appropriate very minor weight in the estimated price trends for Irish indigenous industry. Our procedure does, in effect, incorporate an assumption that the rate of price change applying to Irish-owned firms within each individual sector is the same as the rate applying to all firms in the same sector. The available data do not make it possible to avoid incorporating such an assumption. While there seems to be little reason to believe that this assumption would result in a serious systematic bias in the overall price trends estimated for Irish-owned industry, it could nevertheless be a source of some margin of error.⁸

Table 8 shows estimates of the output of Irish-owned industry, in constant 1985 prices, which were calculated by taking account of the price trends derived in the way described above. Note that the 1991 and 1995 figures for the current value of indigenous gross output, in the first column of the table, have been adjusted to take account of the effect of the break in the CIP series arising from the change in classification after 1990. This was done by, first, assuming that the Irish-owned share of total CIP manufacturing employment declined by 0.2 percentage points between 1990 and 1991 (as in the Forfás employment survey), as was discussed above in Section 2.1. Then, the subsequent trends in CIP indigenous employment and gross output per person engaged were applied to produce the adjusted figures for current value of indigenous gross output in 1991 and 1995. The constant price series in the final column of Table 8 estimates that the volume of production in Irish indigenous industry grew by just 0.6 per cent per annum in 1985-87, rising considerably to 4.0 per cent per annum in the period 1987-95.

Table 8: Derivation of Indigenous Manufacturing Output in Constant 1985 Prices

Year	Current Value of Indigenous Gross Output, £ million	Indigenous Manufacturing Price Index (1985 = 100)	Indigenous Gross Output, Constant 1985 Prices, £ million
1985	7,187.0	100	7,187
1987	7,363.7	101.2	7,280
1990	9,050.3	106.1	8,530
1991	9,461.1*	107.2	8,830
1995	11,372.4*	114.1	9,970

Source: *Census of Industrial Production* for current data. Price indices derived as explained in the Appendix. Constant price figures derived by dividing the current data by the price indices.

*Note: The current value figures for 1991 and 1995 are adjusted to take account of the break in the CIP series arising from the change in classification after 1990, as explained in the text.

By way of a test of the plausibility of the growth rates for the volume of output derived above, it is possible to make a comparison with the growth recorded for the volume of "traditional" manufacturing output in the ESRI's *Quarterly Economic Commentary*, as discussed above. Thus, the figure of 4.0 per

⁸Some margin of error could also arise in other respects, e.g., from the use of value of turnover indices as proxies for trends in the value of production. However, there is good reason to believe that such sources of error would have little overall effect on our estimates of price trends for Irish-owned industry, as discussed in the Appendix.

cent per annum for the growth rate of the volume of production of Irish indigenous industry in 1987-95 is a little higher than the average annual growth rate of 3.7 per cent for volume of output of the "traditional" manufacturing sectors in the same period. Given that employment in Irish-owned industry (in the CIP) was increasing by an estimated 1.0 per cent per annum in this period,⁹ while employment in "traditional" manufacturing was growing by just 0.3 per cent per annum, the higher output growth rate for Irish-owned industry is quite reasonable. In fact, the figures imply a growth rate for volume of output per employee which is a little lower for Irish-owned than for "traditional" industry, so that the rate of output growth suggested for Irish-owned industry can scarcely be particularly excessive.

It was shown in Section II above that employment in Irish indigenous industry was declining until 1988 and only increased after that, whereas this section has shown that the rate of growth of the volume of production of indigenous industry increased markedly after 1987. This might appear somewhat inconsistent at first sight, but this is not really the case. For one thing, employment in indigenous industry actually declined only very slightly, by 300 jobs, between 1987 and 1988. Also, it is commonly observed that in the beginning of a cyclical upswing, output growth increases first. This is normally followed some time later by a strengthening of the employment trend, as employers begin to experience the need for additional staff and then start to recruit more employees once they have some confidence that the increase in output is set to continue.

3.2 International Comparison of Output Trends

The growth in the volume of indigenous manufacturing output after 1987 was a relatively strong trend by international standards for the period, as shown in Table 9.

Table 9: Average Annual Percentage Change in Volume of Manufacturing Production, Ireland, EU and OECD, 1985-87 and 1987-95

1985-1987		1987-1995	
Ireland - All	6.6	Ireland - All	9.9
OECD	2.4	Irish Indigenous	4.0
EU	2.1	OECD	2.0
Irish Indigenous	0.6	EU	1.7

Source: For Ireland, as explained in Section 3.1 and in the Appendix. For the OECD and the EU, the OECD's *Main Economic Indicators*.

Notes: The data for the OECD and the EU include mining; electricity; gas and water; in addition to manufacturing. Data for the EU in 1985-91 refer to 12 countries, while the data for 1992-95 refer to 15 countries; there is an overlap of the two series in the period 1990-92, when the trends in the two were virtually identical, so that there is a negligible loss of consistency in joining up the two series.

It can be seen in the table that in 1985-87 the rate of growth of industrial production in the EU and in the OECD as a whole was a little higher than 2 per

⁹This is after making the adjustment mentioned above to take account of the break in the CIP series between 1990 and 1991; this involves assuming that the Irish-owned share of total CIP manufacturing employment declined by 0.2 percentage points between 1990 and 1991.

cent per annum. The growth rate for all manufacturing in Ireland was significantly higher than this, but the growth rate in Irish indigenous industry was distinctly lower. However, in the more recent period, 1987-1995, not only was there a great improvement in the trend in Irish indigenous industry compared with previous experience, but there was also a big change relative to other countries. In the earlier period, the output growth record of Irish indigenous industry looked weak compared to the other countries, but in the more recent period since 1987 it looks relatively strong compared to the other countries. It must be said that there is some margin of error in the estimated growth of production in indigenous industry (by perhaps a few percentage points over the whole period 1987-95, or about one-third of a percentage point per year), but it can be said with some confidence that its growth rate in 1987-95 was close to twice as high or higher than the industrial growth rate of the OECD or EU.

IV EXPORTS

4.1 Export Trends

Regular data on the exports of Irish-owned manufacturing first became available in 1986, when the CIP began to present export data distinguishing firms by nationality of ownership. However, some earlier survey data on new foreign-owned grant-aided industry make it possible to estimate that exports of industries other than new foreign-owned grant-aided industry amounted to about 26 per cent of their gross output in 1973 and about 27 per cent in 1976 (O'Malley, 1989, Table 6.5). These industries (other than new foreign-owned grant-aided industry) consisted very largely of Irish-owned or indigenous firms, together with quite a small minority of older foreign-owned firms. A later estimate by Foley (1987) indicates that Irish-owned indigenous industry exported about 31 per cent of its output in 1984.

When the CIP data on indigenous exports began, they showed that indigenous manufacturing exported 26.6 per cent of its gross output in 1986, which was about the same as in 1973 and 1976 but apparently somewhat lower than in 1984. At any rate, it seems reasonably clear that there can have been little or no increase in the export-orientation of indigenous industry over the period 1973-86. In contrast to this previous experience, exports as a percentage of output of indigenous manufacturing began to increase immediately after 1986, rising from 26.6 per cent in 1986 to 33.4 per cent by 1990 and 35.9 per cent by 1995.

An increase in export-orientation seems to have occurred across a wide range of sectors. In 1986-90, when most of the increase occurred, the export data were not published by nationality and sector at the same time, but it is possible to identify those sectors which were predominantly Irish-owned and to look at the trends in export-orientation for all firms in those sectors. Table 10 shows these trends for all sectors in which Irish-owned firms accounted for at least 60 per cent of gross output in 1988. It can be seen that 13 of the 14 sectors in the table experienced an increase in exports as a percentage of gross output in 1986-90. The increase for all sectors in the table combined, at 8.2 percentage points, was

fairly similar to the increase by 6.8 percentage points for all Irish-owned manufacturing.

It is necessary to point out that there was an exceptionally large and potentially distorting reported increase in export-orientation in the dairy products sector. Given that dairy products accounted for 24 per cent of all exports of the sectors in Table 10 in 1986, this one sector would have had a significant influence on the extent of the increase in the overall export-orientation of Irish-owned industry in 1986-90. Nevertheless, it seems clear from Table 10 that many sectors in Irish-owned industry experienced some degree of an increase in export-orientation. The sub-totals at the foot of the table, for all the sectors excluding dairy products and for all the sectors excluding dairy products and meat, show that there was a general increase in export-orientation for sectors other than dairy products and meat, but the increase was less than that shown when dairy products and meat are included.

Table 10: Exports as a Percentage of Gross Output in Predominantly Irish-Owned Sectors, 1986-90

Sector	1986	1990	Change 1986-90
Metals	65.8	68.2	+2.4
Metal Articles	39.6	42.4	+2.8
Motor Vehicles (incl. parts)	25.3	32.9	+7.6
Other Means of Transport	28.7	58.6	+29.9
Meat ¹	46.5	47.7	+1.2
Dairy Products ¹	29.1	48.7	+19.6
Grain Milling and Animal Feeding Stuffs	4.2	6.5	+2.3
Bread, Biscuits	5.9	4.1	-1.8
Leather, Footwear	55.3	55.5	+0.2
Clothing	39.8	45.7	+5.9
Timber & Furniture	25.1	26.8	+1.7
Paper & Paper Products	14.6	20.3	+5.7
Printing & Publishing	10.6	12.6	+2.0
"Other" Manufacturing	23.5	29.0	+5.5
TOTAL OF ABOVE	30.7	38.9	+8.2
Total less Dairy Products	31.2	35.5	+4.3
Total less Dairy Products and Meat	23.4	29.3	+5.9

Source: Census of Industrial Production.

Notes: (1) Results for Meat and Dairy Products may be subject to varying interpretation by respondents of the "export" status of sales into EC Intervention and to An Bord Bainne.

"Predominantly Irish-Owned Sectors" are defined here as all sectors in which Irish-owned firms accounted for at least 60 per cent of gross output in 1988.

Since 1991 the CIP export data have been published by nationality and sector at the same time (using the NACE REV.1 sectoral classification). Table 11 shows the trends in export-orientation for indigenous manufacturing by sector in 1991-95. As the table shows, there was only quite a small rise in exports as a percentage of gross output for total Irish-owned manufacturing in this period, from 34.8 to 35.9 per cent. Nevertheless, an increase occurred in two-thirds of the sectors, while fairly significant reductions in just two sectors, chemicals and non-metallic mineral products, restrained the overall rate of increase.

Table 11: Exports as a Percentage of Gross Output in Irish-owned Manufacturing, by Sector, 1991-95

Sector	1991	1995	Change 1991-95
Food, Beverages & Tobacco ¹	38.5	40.6	+2.1
Textiles & Textile Products	42.2	46.3	+4.1
Wood & Wood Products	14.4	15.2	+0.8
Paper, Publishing, Printing	14.4 ²	14.9	+0.5 ³
Chemicals	35.6	29.6	-6.0
Rubber & Plastic Products	26.6	31.8	+5.2
Non-metallic Mineral Products	22.4	16.4	-6.0
Metals, Fabricated Metal Products	35.0	35.0	0.0
Machinery & Equipment n.e.c.	40.3 ⁴	39.6	-0.7 ⁵
Electrical, Electronic, Optical Equipment	51.9	53.4	+1.5
Transport Equipment	36.3 ⁴	42.8	+6.5 ⁵
Manufacturing n.e.c.	32.8	34.5 ⁶	+1.7 ⁷
TOTAL	34.8	35.9	+1.1

Source: Census of Industrial Production.

Notes: (1) Results for parts of the Food sector may be subject to varying interpretation by respondents of the "export" status of sales into EU Intervention and to the Irish Dairy Board.

- (2) 1992
- (3) 1992-95
- (4) 1993
- (5) 1993-95
- (6) 1994
- (7) 1991-94

Another point of interest concerning trends in the exports of indigenous industry is the proportion of such exports going to the UK, which has traditionally been by far the most important destination for indigenous exports. The CIP data show that 55.2 per cent of exports from Irish-owned manufacturing went to the UK in 1986, but this declined to 42.1 per cent in 1995. The percentage going to other EU markets increased by a similar amount. Thus, there were signs here of progress in diversifying into new markets.

It must be pointed out, however, that the decline in the percentage of indigenous exports going to the UK essentially occurred in the period 1986-89 when the percentage dropped from 55.2 to 41.2 – and then showed little further change up to 1995 when the figure was 42.1 per cent. When we examine the data for the predominantly Irish-owned sectors (as listed in Table 10) in the period 1986-89, there was a very large decline in the percentage of exports of the dairy products sector going to the UK, from 48.0 per cent to 23.6 per cent. In view of the large share of dairy products in indigenous manufacturing exports, this would have had a significant influence in bringing about such a large reduction in the percentage of all Irish-owned manufacturing exports going to the UK in 1986-89. Nevertheless, this was by no means the whole story, since 9 of the 14 predominantly Irish-owned sectors reduced the proportion of their exports going to the UK in 1986-89.

In 1991-95, when data are available for exports by nationality of ownership and by sector, the percentage of exports of Irish-owned industry going to the UK scarcely changed at all, from 41.9 to 42.1 per cent. At the same time, half of the sectors of Irish-owned industry (as listed in Table 11) reduced the proportion of their exports going to the UK while the other half increased the proportion.

Overall, therefore, there was no sign of a general reduction in the share of exports going to the UK in 1991-95.

4.2 International Comparison of Export Trends

The growth in the exports of Irish-owned manufacturing after 1986 was relatively rapid by international standards for the period. Table 12 shows some international comparisons of trends in manufacturing exports in 1986-95, valued in current US dollars. Note that the value of Irish-owned manufacturing exports for 1995 was adjusted in deriving this table, in order to take account of the effect of the break in the CIP series arising from the change in classification after 1990. This was done by taking the adjusted figure for current value of indigenous gross output in 1995 as derived for Table 8 above, and then multiplying this by the 1995 CIP figure for exports as a percentage of gross output of Irish-owned manufacturing (i.e., 35.9 per cent).

It can be seen in Table 12 that the growth of exports from Irish-owned manufacturing lagged well behind the growth of exports from all industry in Ireland in 1986-95. But indigenous manufactured exports still grew more rapidly than the manufactured exports of the OECD and the EU. Although indigenous exports did not grow very much faster than those of the OECD and EU, it would actually have been a significant improvement over long previous experience even if they had done no more than to keep pace with the export growth of these other countries. It is also worth noting that an increasing proportion of the domestic sales of indigenous industry represents sales of intermediate products to foreign-owned multinational companies in Ireland, which then export most of their output. Thus, the direct and indirect contribution of indigenous industry to Irish export growth has been greater than direct exports alone would suggest.

Table 12: Annual Average Percentage Change in Value of Manufacturing Exports, 1986-95, in Current US Dollars

Ireland – All Manufacturing	15.3
Irish Indigenous	11.0
OECD	10.5
EU (15 countries)	10.2

Source: For Ireland, Census of Industrial Production. For the OECD and EU, the OECD's *Historical Statistics 1960-1995*.

**Note:* The value of Irish-owned manufacturing exports for 1995 was adjusted in deriving this table, in order to take account of the effect of the break in the CIP series arising from the change in classification after 1990, as explained in the text.

V PROFITABILITY

It has been shown in Sections II to IV that there has been a relatively strong performance by Irish-owned manufacturing since about 1987 in terms of employment, output and exports. It is also relevant to examine the profitability of Irish-owned industry because, if profitability was declining at the same time, this would cast doubt on the longer-term sustainability of the other trends. It is therefore of interest to note that in fact the profitability of indigenous industry was generally increasing.

In the period 1987-89, profits as a percentage of sales in Irish-owned manufacturing firms increased from 3.3 per cent to 4.4 per cent. Profits of Irish firms in the food, drink and tobacco sectors showed little change from 3.9 per cent of sales in 1987 to 4.0 per cent in 1989. But in other manufacturing sectors, the profits of indigenous firms increased quite significantly from 2.9 per cent of sales in 1987 to 4.9 per cent in 1989 (Forfás, 1995b, Table 4).

A more recent, and slightly different, data series shows subsequent further increases. Thus, profits as a percentage of sales in Irish-owned manufacturing rose from 3.9 per cent in 1989 to 5.5 per cent in 1994 and a preliminary figure of 6.2 per cent in 1995. Profits of Irish firms in the food, drink and tobacco sectors had a more modest increase from 3.5 per cent of sales in 1989 to 4.3 per cent in 1994 and 1995. But in other manufacturing sectors, the profits of indigenous firms rose quite substantially from 4.5 per cent of sales in 1989 to 7.1 per cent in 1994 and a preliminary figure of 8.9 per cent in 1995 (Forfás, 1997c, Table 3). If some of these figures on profits as a percentage of sales seem rather low, they are in fact consistent with considerably higher levels of profitability expressed in terms of the return on capital employed. The return on capital employed in Irish-owned manufacturing firms was 10.1 per cent in 1992 and 9.7 per cent in 1993, when profits as a percentage of sales were less than 4.5 per cent (Forfás, 1995b, Table 5).

VI RESEARCH AND DEVELOPMENT

Trends in expenditure on research and development (R&D) are commonly regarded as an indicator of the level of resources being formally directed towards innovation, and innovation in turn is generally seen as an important influence on competitive performance. Levels of R&D expenditure are also often interpreted as one indicator of technological capability. It is relevant, therefore, to note that total expenditure on R&D by business enterprises in Ireland increased substantially from 0.47 per cent of GDP in 1988 to 1.02 per cent by 1995. This increase meant that the Irish figure was converging rapidly on the average EU level, which was declining slightly from 1.28 per cent in 1988 to 1.17 per cent in 1995 (Forfás, 1995a, Table 1 and Forfás, 1997a, Figure 13).

Over 60 per cent of total R&D expenditure by businesses in Ireland is undertaken by foreign-owned firms, while a minority of the expenditure by Irish-owned firms is undertaken by non-manufacturing enterprises. Table 13 shows expenditure on R&D by business enterprises in Irish-owned manufacturing alone. It can be seen that such expenditure by indigenous manufacturing increased substantially between 1988 and 1995, while there was also a large increase in R&D intensity as measured by R&D expenditure as a percentage of gross output. In 1988, R&D spending as a percentage of gross output was lower in Irish-owned than in foreign-owned industry, at 0.47 compared to 0.56 per cent. But by 1995 the indigenous figure was higher, at 1.04 per cent, compared to 0.91 per cent for foreign-owned industry.

Forfás (1997a, pp.31, 32) shows that there was a very high annual average rate of growth of R&D expenditure in Irish-owned industry in 1986-95, at 16 per

cent in real terms. Furthermore, when Irish-owned manufacturing is divided into four categories – high technology, medium-high, medium-low and low technology – the annual average rate of growth of real R&D expenditure in 1986-95 was rapid in every category, at 12 per cent in the high technology group and ranging from 16 to 18 per cent in the others. As Forfás (1997a) remarks, “the growth in R&D activity has not been isolated in one pocket of the industrial base and this can be interpreted as being encouraging in terms of indicating a possible strengthening of technological capability throughout the industrial base”.

Table 13: R&D Expenditure by Business Enterprises in Irish-Owned Manufacturing, 1988-95

	1988	1991	1993	1995
R&D, £ million	37.0	49.1	63.1	121.0
Gross Output, Indigenous Manufacturing, £ million	7,794.8	9,731.0	10,378.9	11,686.1
R&D as per cent of Gross Output	0.47	0.5	0.61	1.04

Source: R&D data derived from Eolas (1990, Table 3.17), for 1988; Eolas (1993, p.18), for 1991; Forfás (1995a, Appendix D, Table J), for 1993; Forfás (1997a, Figure 14), for 1995. Gross Output data from *Census of Industrial Production*.

VII AN IMPROVED COMPETITIVE PERFORMANCE?

It has been shown in Sections II to IV that there has been a relatively strong growth performance by Irish-owned manufacturing since about 1987 – both by comparison with previous experience and by comparison with the rest of the EU and OECD. It might perhaps be suggested that there was little of great significance in this, since it could be seen as an almost automatic consequence of relatively strong growth in the Irish economy – growth which may have occurred for reasons which owed little to indigenous industry. Thus, with the Irish economy growing relatively rapidly, it might be seen as almost inevitable that the highly domestically-oriented indigenous industrial sector would grow quite rapidly too, without necessarily indicating that its competitive performance had improved to any significant degree.

There are real elements of truth in such an interpretation, but for a number of reasons it is essentially inadequate. Thus, it is true that Irish indigenous industry remains quite highly oriented towards the domestic market, which accounted for 64 per cent of its sales in 1995. Other things being equal, therefore, strong growth in domestic demand would have a significant influence on the growth of indigenous industry. It is also true that there was relatively strong growth in the Irish economy since 1987. For some years prior to 1987, there was little or no growth in real GNP, whereas real GNP grew by an average of almost 5 per cent per year in 1987-95. By comparison, real GDP increased by only about 2 per cent per year in 1987-95 in the EU and OECD. The stronger growth trend in the Irish economy since 1987 would therefore help to account for the sharp improvement in the growth of Irish indigenous industry.

However there are a number of aspects of the growth performance of Irish indigenous industry which show that it was more than a simple response to stronger domestic demand conditions, and that there was a real improvement in competitive performance. For example, the exports of indigenous industry as a percentage of its output increased after 1986, so that exports increased faster than domestic sales, despite slower growth in overseas economies than in the Irish economy. In contrast, prior to 1986, exports of indigenous industry were not rising faster than its output, despite faster growth in overseas economies than in the Irish economy. This indicates that a substantial improvement occurred in the ability to compete in export markets. In addition, the exports of indigenous industry grew somewhat faster than those of the EU or OECD in 1986-95, whereas it is highly unlikely that this could have been the case previously, probably for a very long time past. The diversification into new export markets other than the UK also suggests an improvement in competitive capabilities.

Furthermore, the pattern of employment growth by sector in Irish indigenous industry after 1988 did not show particularly high rates of increase in the more "sheltered" or "non-traded" sectors, which would be most likely to benefit automatically from strong domestic demand. When there was strong growth in domestic demand previously, in the 1970s, there was relatively fast growth in indigenous industrial employment in such sheltered sectors, e.g., clay, glass and cement; and paper and printing (O'Malley, 1989, Table 6.7). But since 1988, relatively high rates of indigenous employment growth have occurred in more highly traded and internationally competitive sectors, such as the high technology industries as well as machinery and equipment and electrical machinery and apparatus (see Tables 3 and 4 above). These branches of indigenous manufacturing are now quite highly export-oriented (see Table 11 above). These aspects of the performance of Irish indigenous industry combine to confirm that there was a genuine improvement in its competitive performance, and not just an automatic response to stronger domestic demand conditions.

VIII CAUSES OF THE IMPROVEMENT

If there was a real improvement in competitive performance, this raises the question what caused such an improvement. Part of the explanation is likely to be a simple side-effect of the prolonged stagnation or decline prior to 1987, which resulted in many closures of existing indigenous companies. Presumably the closures occurred mainly among the least competitive firms, which would have the effect of raising the average level of competitive ability in indigenous industry. But there was more to it than this, and quite a number of factors which would have been beneficial influences on the performance of indigenous industry have been mentioned in recent literature on the relatively strong growth performance of the Irish economy as a whole since the late 1980s.

Such beneficial influences include, for example, the successive national pay agreements since 1987. Arguably, these ensured that there were relatively moderate and affordable increases in labour costs, as well as relatively few

important industrial disputes. Thus, average hourly earnings in Irish manufacturing had increased considerably faster than in Ireland's major trading partners between the early 1980s and 1987, but they then increased at about the same rate as the major trading partners from 1987 to 1992 and increased a little more slowly than the other countries from 1992 to 1996.¹⁰ Based on this, the trend in Irish manufacturing wage costs relative to major trading partners ceased to be an adverse influence on Irish competitive performance after 1987 and became a moderately positive influence after 1992. Another beneficial influence on Irish competitive performance was the longer-run effects of improvements in educational qualifications and human capital, including a strengthening of the quality of management. There were also significant improvements in infrastructure, associated in particular with the EU Structural Funds. And there was a relatively stable macroeconomic environment since about 1987, with order being gradually restored to the public finances. Bradley *et al.* (1997) provide a more detailed discussion of a number of such factors which would have been favourable influences on the performance of Irish-owned manufacturing.

In addition, the particularly rapid growth of foreign-owned manufacturing in Ireland would have assisted the growth of indigenous industry in several respects. The foreign-owned sector contributed significantly to the growth of the Irish economy, helping to generate strong overall domestic demand conditions. More specifically, there were rapidly growing expenditures by foreign-owned industry on inputs produced by the Irish indigenous sector. The role of foreign-owned companies as discerning customers requiring high standards from their suppliers, probably also helped to prepare indigenous suppliers to meet standards required in international markets. And the presence of foreign-owned multinational companies would also have helped to develop the quality of labour force skills in certain sectors, including management skills.¹¹

Clearly, therefore, there were a quite number of different factors operating together to generate a favourable outcome for indigenous industry, but the role of industrial policy in this should not be overlooked. Beginning in the mid-1980s, a significant series of relevant changes were made in industrial policy. In particular, since the White Paper on *Industrial Policy* (1984), there was an increased emphasis on the objective of developing Irish indigenous industry. Policy statements after 1984 referred to a need for policy towards indigenous industry to be somewhat more selective, aiming to develop larger and stronger firms by building on those with a reasonable track record, rather than assisting a great many firms indiscriminately. Policy was also intended to move towards concentrating state supports and incentives more on correcting specific areas of disadvantage or weakness which would be common in indigenous firms, such as technological capability, export marketing, and management skills. It was intended to shift expenditures on industrial policy away from supporting capital

¹⁰The index of average hourly earnings in manufacturing, in Ireland relative to major trading partners in a common currency, increased from 100 in 1982 (base 1980 = 100) to 114 in 1987 and 113 in 1992, and then declined to 109 in 1996 (Central Bank of Ireland *Quarterly Bulletins*, Statistical Appendix Table E2).

¹¹O'Gorman, O'Malley and Mooney (1997) expand on a number of these points in discussing influences on the competitive performance of the Irish indigenous software industry.

investment and towards these areas (*Industrial Policy*, 1984, Chapters 1 and 5; Department of Industry and Commerce, 1987, Chapter 2).

In 1992, the Industrial Policy Review Group (1992, p.67) recognised that greater efforts had been undertaken by then to promote indigenous industry, but still considered that there had not been a "full commitment" to this process. The Group called for a more decisive shift in the focus of policy towards developing indigenous industry, and this objective was subsequently re-emphasised. However, even going back to the mid-1980s, there were in fact quite a number of relevant policy changes, introduced over a period of some years.¹²

For example, the Company Development Programme was introduced in 1984 with the aim of building on selected indigenous companies, and the National Linkage Programme commenced in 1985 with the aim of developing selected indigenous sub-suppliers to the foreign-owned multinational companies. After the mid-1980s, efforts were made to award grants more selectively to firms which would have the best prospects for growth in international markets, in order to concentrate resources somewhat more on building larger and stronger firms (O'Malley, Kennedy and O'Donnell, 1992, Chapter 3). Significantly, too, the award of such grants was increasingly made dependent on firms having prepared overall company development plans, and performance-related targets were applied as conditions for payment of grants.

The share of the industrial policy budget going to support capital investment declined from 61.2 per cent in 1985 to 46.8 per cent in 1992, and there was a shift in emphasis towards other measures. From 1985, a range of new initiatives were introduced to strengthen export marketing in indigenous firms, and the share of the industrial policy budget going to support marketing increased. Science and technology policies for industry were also reorganised considerably after the mid-1980s, with new measures being introduced, while the share of the industrial policy budget going to science and technology measures increased. New measures intended to strengthen the quality of management in indigenous firms were also introduced since the mid-1980s. These policy changes were accompanied by reorganisation of the institutional arrangements for implementing policy. In particular, responsibility for promoting indigenous industry was separated from the task of encouraging foreign investment, to ensure that there would be a body of state agency staff giving their full attention to the indigenous sector.¹³

It has been argued elsewhere (O'Malley, 1989) that, to a considerable extent, the poor performance of indigenous industry up to the mid-1980s can be explained by the prevalence in many industries of barriers to entry – arising from the strengths of established competitors – which confront new or small indigenous firms in a late-industrialising country such as Ireland. For example,

¹²The relevant policy changes are summarised very briefly here. Further details can be found in official documents such as *Industrial Policy* (1984), and Department of Industry and Commerce (1987 and 1990). Details on the current package of industrial policies can be found in the *Operational Programme for Industrial Development 1994-1999*.

¹³This was done first in 1988 by means of an internal reorganisation within the IDA, which involved the establishment of separate divisions for the promotion of indigenous and overseas industry. Since 1993, there have been separate agencies for these two functions – Forbairt and IDA Ireland.

the existence of significant economies of scale, and the consequent presence of large established firms in many important sectors in advanced economies, presents a barrier to the development of such industries by new or small indigenous firms in a late-developing country which trades freely with advanced economies. It can also be difficult for new or small indigenous firms in a late-industrialising country to match the already existing technological strength of firms in advanced economies in sectors where technology is of key importance. Similarly, if strong marketing is a key requirement for an industry, the established marketing strength of existing firms presents an important entry barrier for new or small firms.

If the existence of these various types of barriers to entry represents a significant part of the explanation of the difficulties experienced by Irish indigenous industry, then at least some of the developments in Irish industrial policy since the mid-1980s look like appropriate responses. This applies to the idea of focusing assistance somewhat more selectively, so as to develop larger and stronger indigenous firms. It also applies to the approach of focusing assistance more on specific areas of weakness, such as technological capability and export marketing. Since about 1987, the overall performance of Irish indigenous industry seems to be consistent with the suggestion that such policies have helped to produce encouraging results. And, apart from the overall performance of indigenous industry, there are some specific aspects of its performance which are consistent with the suggestion that industrial policies had their own particular beneficial influence.¹⁴

IX CONCLUSION

Since about 1987, there has been a substantial improvement in the growth performance of Irish indigenous industry, as measured by trends in employment, output and exports. This improvement has been such that it is without historical precedent in twentieth century Ireland. Not only has the record of Irish indigenous industry been improved by comparison with its own previous experience, but its growth performance over the past decade has also been stronger than that of industrial countries generally. Thus, since about 1987, the record of Irish indigenous industry has changed from one of relatively weak growth trends by international standards to one of relatively strong growth by international standards. The stronger growth trend in indigenous industry has involved an improvement in *competitive* performance. Quite a number of different factors have combined to bring this about, including industrial policy measures.

¹⁴See O'Malley, Kennedy and O'Donnell (1992, Chapter 3) for an elaboration on this point, with reference to the period up to 1990.

APPENDIX

Derivation of Volume of Production Data for Indigenous Industry

Given that we have data on the value of output of Irish indigenous industry, in current prices, the objective is to derive estimates of the rate of increase of the volume of output of indigenous industry, in constant prices. The way that the CSO derives volume of production indices for total manufacturing is to: (a) take the price indices which are appropriate to each individual sector; (b) apply the price indices to the value of gross output figures for each individual sector so as to convert these into sectoral volume of production indices; and (c) combine together the volume of production indices for individual sectors by attributing to each sector a weight determined by that sector's net output as a proportion of total manufacturing net output in 1987. This produces volume of production indices for total manufacturing. Our objective is to apply, as far as possible, an analogous method to estimating volume of production in Irish-owned industry.

It is not possible to obtain price indices which are specific to Irish-owned firms only in each sector. There are two possible options for obtaining data on price trends, for firms of all nationalities, in the individual sectors using the available data. The first option would be to use the CSO's volume of production indices for individual sectors, together with value of gross output data for individual sectors, to derive sectoral price trends. A practical problem with this, however, is that the volume of production indices are classified by sector according to NACE 70 up to the present, whereas the value of gross output data for individual sectors which are available in the CIP have been classified according to NACE REV.1 since the CIP of 1991. But there is an alternative source of value data in the CSO's value of Industrial Turnover indices, which are classified by sector according to NACE 70 up to the present. Turnover is not quite the same as gross output, since turnover data measure the value of sales in a given period whereas gross output refers to the value of production in a period. But the value of industrial turnover index does track the value of industrial gross output closely. Thus, the value of industrial turnover index for total manufacturing increased by 37.1 per cent in 1985-90, while the value of total manufacturing gross output rose by 38.2 per cent in the same period. Consequently, the value of industrial turnover index is an acceptable proxy for trends in the value of gross output.

The second possible option for obtaining the necessary price indices (for firms of all nationalities) for individual sectors would be to use the Industrial Producer Price Indices which are produced by the CSO as part of the process of generating the Wholesale Price Index. These Industrial Producer Price Indices are classified by sector according to NACE 70 up to the present. A problem with these indices, however, is that when they are applied, as a test, to CIP value of gross output data for individual sectors in 1990, so as to generate sectoral volume of production indices for 1990, the resulting volume indices sometimes differ quite significantly from the actual sectoral volume of production indices published by the CSO for 1990.

In contrast, when we test the first option – i.e., using the CSO's volume of production indices for individual sectors, together with the sectoral value of Industrial Turnover indices, to derive sectoral price trends – this option is found to be more satisfactory. Thus, when these sectoral price trend data are applied to CIP value of gross output data for individual sectors in 1990, they generally come a good deal closer to reproducing the CSO's published sectoral volume of production indices. Therefore, this option was chosen as the best way, using the available data, to obtain price trend data for the individual sectors.

Having derived the sectoral price data, it is not possible – for years after 1990 – to apply these to value of indigenous gross output figures for each individual sector so as to convert them into sectoral volume of indigenous production indices. This is because, after 1990, the sectoral value of gross output data are classified according to NACE REV.1, whereas the sectoral price trend data are classified according to NACE 70. However, it is possible to employ a procedure which is conceptually similar to the CSO method. This procedure is, first, to calculate the inverse of the sectoral price indices; second, to combine these together in a manner which reflects the sectoral composition of indigenous manufacturing; and third, to multiply the resulting overall inverted price index for all indigenous manufacturing by the value of total indigenous manufacturing gross output. This results in estimates of total indigenous manufacturing gross output in constant prices. (Note that for purposes of presentation in Table 8, the overall price index for indigenous manufacturing is shown, rather than the overall inverted price index for indigenous manufacturing; dividing the current output data by the overall price index produces the same results as multiplying the current output data by the overall inverted price index).

As was mentioned above, the CSO's method for combining together sectoral volume of production indices is to attribute to each sector a weight determined by that sector's net output as a proportion of total manufacturing net output in 1987. This produces volume of production indices for total manufacturing. Our objective is to apply, as far as possible, a similar method in estimating total volume of production in Irish-owned industry. Therefore, when combining together the inverted sectoral price indices, we attribute to each sector a weight which is determined by net output of Irish-owned firms in the sector as a proportion of total net output of Irish-owned manufacturing in 1987. In this way we produce an overall inverted price index for Irish-owned industry which makes use of the available data on differing price trends in the different sectors, and combines these in a way which is similar to the CSO method but reflects the actual sectoral composition of Irish-owned industry rather than all industry.

It is possible to test the validity of our overall procedure, at least in so far as it would apply in estimating the volume of production of *all* manufacturing (i.e., indigenous plus foreign-owned). Thus, we can use sectoral volume of production indices and sectoral value of industrial turnover indices to estimate sectoral price indices, and we can calculate the inverse of these. Then we can combine the inverted sectoral price indices together by attributing to each sector a weight determined by that sector's net output as a proportion of total manufacturing net output in 1987. Finally, we can multiply the resulting overall inverted price index

for *all* manufacturing by the value of total manufacturing gross output, and then see how the result compares with the CSO's published volume of production index for total manufacturing.

When this test is done, our procedure estimates that the volume of production index for total manufacturing in 1990 would be 150.1 (to the base 1985 = 100), which is close to the actual CSO index of 149.2. For 1995, our procedure estimates a volume of production index of 236, which is not quite so close to the actual CSO index of 242.1. In this case, the difference between the estimated increase in production, at 136 per cent, and the official increase, at 142.1 per cent, amounts to 4.3 per cent of the official increase. Thus, our procedure comes fairly close to reproducing the CSO results, but it must be recognised that there is a margin of error which results partly from the different method of calculation and partly from the fact that there are small differences between turnover and gross output.

When the procedure is adapted, by using *indigenous* sectoral net output weights, and is then used to estimate the total volume of production in Irish-owned industry, there is a further potential source of some margin of error. This is because the procedure, in effect, incorporates an assumption that the rate of price change applying to Irish-owned firms within each individual sector is the same as the rate applying to all firms in the same sector. The available data make it inevitable that such an assumption must be included. There seems to be little reason to believe that this would result in a serious systematic bias in the overall price trends derived for indigenous industry, but it might be a source of some margin of error.

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STATISTICAL APPENDIX

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Table A1: National Accounts

	GNP by Source of Income at Current Market Prices								
	1	2	3	4	5	6	7	8	9
	Agri. Income (£m)	Non- Agri. Wages (£m)	Non- Agri. Other (£m)	Adjust- ments (£m)	Net Factor Income (£m)	Natio- nal Income (£m)	Depre- ciation (£m)	Taxes less Subs. (£m)	GNP (market prices) (£m)
	<i>Annual Series</i>								
1990	1,966	12,801	7,965	-993	-2,921	18,818	2,615	2,836	24,269
1991	1,826	13,647	8,127	-1,095	-2,796	19,708	2,846	2,873	25,427
1992	2,110	14,588	8,231	-1,235	-3,210	20,484	2,979	3,308	26,771
1993	2,155	15,803	9,299	-1,419	-3,521	22,317	3,157	3,223	28,698
1994	2,281	16,871	9,734	-1,493	-3,575	23,818	3,488	3,964	31,269
1995	2,436	18,115	11,631	-1,770	-4,508	25,904	3,848	4,377	34,129
1996	2,426	19,477	13,460	-1,919	-5,121	28,323	4,303	4,356	36,983
1997									
	GDP by Sector of Origin and GNP at Current Market Prices								
	10	11	12	13	14	15	16	17	18
	Agri- culture (£m)	Indus- try (£m)	Distri- bution (£m)	Public Admin- istration (£m)	Other Dome- stic (£m)	Adjust- ments (£m)	Taxes less Subs. (£m)	GDP (output) (£m)	GNP (output) (£m)
	<i>Annual Series</i>								
1990	2,340	8,749	4,816	1,362	8,079	-993	2,836	27,190	24,269
1991	2,210	9,041	5,002	1,463	8,729	-1,095	2,873	28,224	25,427
1992	2,495	9,769	4,563	1,545	9,536	-1,235	3,308	29,980	26,771
1993	2,541	10,379	5,189	1,667	10,638	-1,419	3,223	32,218	28,698
1994	2,669	11,407	5,147	1,714	11,437	-1,493	3,964	34,844	31,269
1995	2,845	13,304	5,721	1,752	12,409	-1,770	4,377	38,638	34,129
1996	2,858	14,480	6,749	1,931	13,648	-1,919	4,356	42,104	36,983
1997									
	Expenditure on GNP at Current Market Prices								
	19	20	21	22	23	24	25	26	27
	Private Consumption (£m)	Public Consumption (£m)	Invest- ment (£m)	Stock changes (£m)	Exports (£m)	Imports (£m)	GDP (exp.) (£m)	Net Factor Income (£m)	GNP (exp.) (£m)
	<i>Annual Series</i>								
1990	15,992	4,067	5,128	719	16,175	-14,891	27,190	-2,921	24,269
1991	16,826	4,481	4,897	623	16,984	-15,587	28,224	-2,796	25,427
1992	17,966	4,842	4,982	-94	18,881	-16,597	29,980	-3,210	26,771
1993	18,714	5,219	4,964	-138	22,033	-18,573	32,218	-3,521	28,698
1994	20,400	5,579	5,575	-128	25,308	-21,891	34,844	-3,575	31,269
1995	21,695	5,949	6,349	177	30,837	-26,369	38,638	-4,508	34,129
1996	23,318	6,244	7,524	389	33,798	-29,169	42,104	-5,121	36,983
1997									

Table A1 (cont'd): National Accounts

	GDP by Sector of Origin and GNP at Constant (1990) Market Prices								
	28	29	30	31	32	33	34	35	36
	Agri- culture (1990= 100)	Indus- try (1990= 100)	Distri- bution (1990= 100)	Public Admin- istration (1990= 100)	Other Dome- stic (1990= 100)	Adjust- ments (1990= 100)	Taxes less Subs. (1990= 100)	GDP (output) (1990= 100)	GNP (output) (1990= 100)
<i>Annual Series</i>									
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	97.9	102.6	101.2	99.4	101.8	107.2	96.1	100.7	101.3
1992	106.1	109.6	92.9	100.8	106.4	118.4	104.8	104.1	103.1
1993	97.9	112.4	100.5	101.5	111.1	128.6	107.7	107.0	105.9
1994	96.7	123.5	102.1	100.9	117.6	134.2	123.0	114.1	113.7
1995	99.1	141.8	109.6	101.8	123.9	155.9	139.9	124.4	121.9
1996	105.0	152.3	125.2	107.5	131.1	165.8	150.6	134.2	130.5
1997									
	Expenditure on GNP at Constant (1990) Market Prices								
	37	38	39	40	41	42	43	44	45
	Private Consu- mption (1990= 100)	Public Consu- mption (1990= 100)	Invest- ment (1990= 100)	Stock changes (1990= 100)	Exports (1990= 100)	Imports (1990= 100)	GDP (exp.) (1990= 100)	Net Factor Income (1990= 100)	GNP (exp.) (1990= 100)
<i>Annual Series</i>									
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	102.2	102.9	92.6	89.3	105.3	102.3	101.9	96.0	102.6
1992	106.4	105.4	91.4	-10.8	119.5	110.4	105.9	112.5	105.2
1993	108.7	106.0	88.3	-18.3	131.1	118.3	109.2	116.0	108.4
1994	115.4	111.1	97.2	-27.7	149.8	135.8	116.8	117.2	116.8
1995	120.3	115.5	106.5	17.9	179.1	157.2	129.0	145.0	127.1
1996	127.8	118.8	123.5	57.1	196.9	175.2	139.0	165.2	135.8
1997									
	Memorandum Items (Current Prices)								
	46	47	48	49	50	51	52	53	54
	GNDI (£m) (1990= 100)	GNP Deflator (1990= 100)	GNP per capita (£) (1990= 100)	Relative GDP (EU15= 100)	Gross Govt. Deficit (%) (1990= 100)	Debt- GDP ratio (%) (1990= 100)	Gov. Exp/ GNP (%) (1990= 100)	Pers. Savings Ratio (%) (1990= 100)	Invest- ment/ GNP (%) (1990= 100)
<i>Annual Series</i>									
1990	25,682	100.0	6,922	72.0	2.3	95.8	46.1	12.7	21.1
1991	27,036	102.8	7,211	76.0	2.3	95.0	47.5	13.2	19.3
1992	28,016	106.0	7,535	79.4	2.5	92.0	48.5	12.4	18.6
1993	30,006	110.4	8,034	82.6	2.4	96.3	49.2	13.8	17.3
1994	32,425	111.9	8,727	87.8	1.7	89.1	47.8	10.5	17.8
1995	35,239	113.0	9,486	92.2	2.1	82.2	47.1	9.8	18.6
1996	38,337	114.5	10,214	98.1	0.4	72.7	46.3	8.7	20.3
1997									

Table A2: Output Indicators

	Volume Indices			Output per Head			Price Indices		
	55 Total Manuf- acturing (1985= 100)	56 Modern Manuf- acturing (1985= 100)	57 Trad. Manuf- acturing (1985= 100)	58 Total Manuf- acturing (1985= 100)	59 Modern Manuf- acturing (1985= 100)	60 Trad. Manuf- acturing (1985= 100)	61 Manuf- acturing Output (1985= 100)	62 Whole- sale Prices (1985= 100)	63 Agricul- tural Output (1985= 100)
	<i>Annual Averages</i>								
1990	149.2	202.4	118.1	145.3	164.6	121.5	107.8	105.1	100.0
1991	153.9	210.0	119.1	147.5	163.2	121.7	108.7	106.4	96.4
1992	169.6	245.2	122.7	160.1	185.4	124.1	110.5	107.3	97.8
1993	178.8	267.5	123.4	167.9	193.2	125.9	115.6	112.4	104.2
1994	201.6	313.8	129.8	186.2	212.5	132.8	116.9	113.5	105.8
1995	242.1	407.4	138.1	211.5	241.2	138.2	119.8	115.9	108.2
1996	261.9	447.1	142.4	219.7	236.0	141.7	120.6	116.4	102.9
1997	305.5	539.3	150.4				119.9		96.0
	<i>Quarterly Averages</i>								
1995I	224.7	375.6	130.1	202.2	238.5	131.7	118.3	115.4	107.8
II	242.4	397.0	143.9	212.7	241.6	143.2	119.5	116.6	110.5
III	233.3	391.8	133.2	201.7	226.2	132.8	120.2	115.3	106.6
IV	268.7	466.4	145.5	229.3	258.3	145.2	121.3	116.3	108.1
1996I	257.4	451.6	133.4	220.7	245.6	135.1	121.3	117.5	109.5
II	268.8	453.0	147.6	226.3	244.3	146.2	121.2	116.9	107.0
III	239.9	396.9	137.0	199.6	211.2	134.1	120.3	116.1	100.4
IV	282.3	488.6	151.8	232.9	255.1	148.2	119.6	115.0	98.9
1997I	295.9	535.6	140.3	242.2	267.6	138.4	118.8	114.9	96.9
II	305.5	532.5	154.1	242.9	257.3	148.0	119.6	115.7	98.8
III	294.0	515.5	145.1	228.9	239.4	137.9	120.1	116.1	96.6
IV	326.7	574.5	162.0				121.1		95.5
1998I									
II									
III									
IV									
	<i>Quarterly Averages (Seasonally Adjusted)</i>								
1995I	221.3	356.0	135.0	197.5	221.7	136.2	118.4	115.3	106.9
II	233.6	388.3	138.4	205.1	232.4	138.8	119.2	116.0	107.7
III	252.9	437.4	139.9	219.6	251.1	140.7	120.2	115.3	108.3
IV	261.5	451.1	140.0	224.0	250.3	140.3	121.5	116.9	110.1
1996I	254.9	429.7	138.8	216.7	231.3	139.6	121.3	117.4	108.6
II	259.3	443.8	141.5	218.5	236.0	141.3	121.0	116.4	104.5
III	260.2	441.3	142.8	217.3	232.2	141.4	120.3	116.2	102.1
IV	274.8	471.8	145.0	227.5	243.3	143.1	119.7	115.6	100.5
1997I	293.1	508.4	146.0	237.8	252.9	142.5	118.8	114.7	96.1
II	294.8	521.8	148.0	234.6	249.8	143.1	119.4	115.2	96.5
III	318.0	573.6	151.0	248.6	267.7	144.0	120.2	116.3	98.3
IV	316.4	558.3	156.3				121.2	117.5	97.0
1998I									
II									
III									
IV									

Table A3: Employment, Earnings and Unemployment Indicators

	Employment			Hourly Earnings		Live Register		71 Total ('000s)	72 Unemp- loyment Rate (%)
	64 Total Manuf- acturing ('000s)	65 Modern Manuf- acturing ('000s)	66 Trad. Manuf- acturing ('000s)	67 Real Terms Manuf. (1985= 100)	68 Money Terms Manuf. (1985= 100)	69 Male ('000s)	70 Female ('000s)		
<i>Annual Averages</i>									
1990	191.9	48.4	143.5	102.4	105.8	152,081	72,630	224,711	13.3
1991	195.1	50.7	144.4	105.4	111.8	170,456	83,491	253,947	14.7
1992	198.0	52.1	145.9	105.7	116.0	187,168	95,974	283,142	15.5
1993	199.1	54.5	144.6	109.0	121.3	193,750	100,529	294,279	15.5
1994	202.4	58.2	144.3	109.4	124.6	184,393	98,020	282,413	14.1
1995	214.0	66.5	147.5	110.5	129.0	178,494	99,273	277,767	12.2
1996	222.8	74.6	148.3	112.8	133.8	175,642	103,593	279,235	11.5
1997						155,839	98,540	254,379	10.2
<i>Quarterly Averages</i>									
1995I	207.7	62.0	145.7	109.4	126.7	181,760	97,836	279,595	
II	213.0	64.7	148.3	109.3	127.9	176,873	96,833	273,707	
III	216.2	68.2	148.0	109.8	129.0	177,670	101,493	279,164	
IV	219.0	71.1	147.9	112.5	132.3	177,673	100,929	278,602	
1996I	218.0	72.4	145.6	111.8	132.0	182,002	103,340	285,342	
II	222.0	73.0	149.0	113.0	134.1	176,857	102,819	279,677	
III	224.7	74.0	150.7	111.8	133.3	177,022	107,882	284,905	
IV	226.6	75.4	151.2	113.7	136.2	166,687	100,328	267,016	
1997I	228.4	78.8	149.6	113.6	136.2	164,688	100,516	265,205	
II	235.1	81.5	153.6			155,693	97,120	252,813	
III	240.1	84.8	155.3			154,256	101,358	255,614	
IV						148,720	95,164	243,884	
1998I						147,228	93,773	241,001	
II									
III									
IV									
<i>Quarterly Averages (Seasonally Adjusted)</i>									
1995I	209.5	63.2	146.3	110.3	127.9	178,233	97,600	275,800	12.5
II	212.9	65.8	147.1	109.6	128.2	178,600	98,433	277,033	12.1
III	215.3	68.6	146.8	111.0	130.3	177,700	98,967	276,700	12.0
IV	218.2	70.9	147.3	112.0	131.9	179,300	102,000	281,300	12.0
1996I	219.9	73.1	146.8	111.6	132.0	178,767	103,167	281,900	11.9
II	221.8	74.0	147.8	112.8	133.8	178,533	104,500	283,067	11.8
III	223.8	74.8	149.0	112.5	134.1	176,833	105,300	282,133	11.4
IV	225.8	76.3	149.5	112.8	135.4	168,367	101,367	269,767	11.0
1997I	230.4	79.1	151.2	113.5	136.3	161,567	100,367	261,933	10.6
II	234.9	82.2	152.7			157,333	98,800	256,233	10.3
III	239.1	84.3	154.8			153,967	98,700	252,667	10.2
IV						150,500	96,267	246,767	9.9
1998I						144,167	93,633	237,833	9.6
II									
III									
IV									

Table A4: IBEC-ESRI Monthly Industrial Survey

	73	74	75	76	77	78	79	80
	Expectations for Production (balance of %)	Expectations for Employment (balance of %)	Adequacy of Present Capacity (balance of %)	Trend in Selling Prices (balance of %)	Expectations for Home Sales (balance of %)	Expectations for Exports (balance of %)	Capacity Utilisation (%)	Months of Production Ensured
	<i>Annual Averages</i>							
1990	11.3	-6.8	11.9	2.1	5.5	8.3	75.5	2.1
1991	4.6	-17.7	15.3	-0.3	-1.8	5.1	75.6	2.0
1992	-1.8	-12.8	15.7	-8.4	-4.4	5.3	76.0	2.1
1993	-0.3	-23.1	22.0	-2.3	-0.3	-0.8	74.0	2.1
1994	16.0	-3.9	16.8	-0.5	6.5	18.7	75.0	2.2
1995	16.1	-3.1	6.6	2.3	5.5	22.8	77.4	2.3
1996	6.7	-7.4	7.5	-6.6	4.4	1.6	74.4	2.3
1997	13.3	-1.1	2.7	-3.8	4.7	15.3	74.4	2.5
	<i>Quarterly Averages</i>							
1995I	21.7	4.0	3.7	11.0	7.0	26.0	77.2	2.5
II	21.0	1.3	10.3	-2.0	7.3	31.3	77.8	2.2
III	16.3	-2.7	5.0	1.3	5.3	17.3	77.7	2.3
IV	5.3	-15.0	7.3	-1.0	2.3	16.3	77.0	2.1
1996I	12.7	-5.0	11.3	-0.3	8.0	4.0	73.0	2.1
II	-1.7	-7.0	7.3	-11.7	-0.3	0.0	73.4	2.3
III	14.0	-5.0	6.0	-9.0	3.3	7.0	73.8	2.4
IV	1.7	-12.7	5.3	-5.3	6.7	-4.7	77.2	2.3
1997I	12.0	-3.7	5.0	-5.0	7.3	22.3	77.0	2.6
II	11.7	-1.7	0.7	-0.7	1.7	18.7	74.9	2.5
III	15.0	1.0	2.0	-6.0	4.0	8.0	72.7	2.4
IV	14.7	0.0	3.0	-3.3	5.7	12.0	73.0	2.5
1998I								
II								
III								
IV								
	<i>Quarterly Averages (Seasonally Adjusted)</i>							
1995I	No	No	No	No	No	No	No	No
II	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal
III	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern
IV								
1996I								
II								
III								
IV								
1997I								
II								
III								
IV								
1998I								
II								
III								
IV								

Table A5: Demand Indicators

	Consumption					Government			
	81 CPI (Nov. 1989 =100)	82 Cars Registered N&S/H (Total)	83 Retail Sales Value (1990= 100)	84 Retail Sales Volume (1990= 100)	85 Elec- tricity Output (GWh)	86 New Houses Comp- leted (Total)	87 Current Reve- nue (£m)	88 Current Expen- diture (£m)	89 Current Deficit (£m)
<i>Annual Series</i>									
1990	101.7	105,849	99.6	99.6	14,325	19,087	8,269	9,144	-200
1991	104.5	89,589	101.5	99.5	14,990	19,364	8,776	9,827	-87
1992	108.0	85,492	105.9	102.0	15,682	22,051	9,360	10,584	415
1993	109.5	87,352	109.0	103.4	16,161	20,707	10,140	11,493	440
1994	112.1	116,636	117.7	109.0	16,844	24,952	11,203	12,229	-235
1995	115.0	124,595	123.5	112.2	17,598	29,619	11,667	13,190	-715
1996	116.8	153,833	133.7	119.1	18,935	32,989	14,018	12,954	218
1997	118.8		145.0	128.4	19,551		15,488	14,619	-604
<i>Quarterly Series</i>									
1995I	114.0	39,283	116.0	106.3	4,674	6,296	2,537	2,973	234
II	115.2	37,934	121.0	109.9	4,151	7,156	3,156	3,205	-200
III	115.7	29,536	123.9	112.4	4,080	7,684	2,914	3,129	-87
IV	115.8	17,842	132.9	120.1	4,693	9,439	3,060	3,883	415
1996I	116.3	50,295	126.1	113.3	5,084	7,216	2,678	3,389	440
II	116.8	48,571	132.6	118.2	4,455	7,931	3,298	3,322	-235
III	117.4	33,460	132.2	117.7	4,316	8,403	3,607	3,178	-715
IV	118.0	21,507	143.9	127.4	5,080	10,175	3,372	4,130	218
1997I	118.1	51,641	134.8	120.0	5,116	8,081	3,101	3,381	99
II	118.6	49,546	141.2	125.0	4,627	9,600	4,151	3,406	-1,068
III	118.6	36,008	144.3	128.1	4,584	9,964	3,523	3,934	40
IV	119.9		159.6	140.5	5,224		3,845	4,767	325
1998I	120.1								
II									
III									
IV									
<i>Quarterly Series (Seasonally Adjusted)</i>									
1995I	114.1	29,538	120.6	110.3	4,345	7,521	2,818	2,951	133
II	115.1	30,401	122.0	110.9	4,369	7,448	2,964	3,377	413
III	115.6	33,018	124.4	112.9	4,440	7,394	2,931	3,328	397
IV	115.9	34,272	126.8	114.5	4,449	8,126	2,955	3,473	518
1996I	116.4	37,853	130.7	117.3	4,732	8,543	2,982	3,423	441
II	116.7	38,551	133.5	119.3	4,683	8,278	3,050	3,503	453
III	117.3	37,544	132.9	118.3	4,693	8,171	3,655	3,384	-272
IV	118.1	41,190	137.4	121.6	4,826	8,722	3,268	3,651	383
1997I	118.2	38,855	139.7	124.1	4,750	9,505	3,459	3,452	-8
II	118.5	39,402	142.3	126.1	4,867	10,034	3,812	3,584	-228
III	118.5	40,922	145.2	128.8	4,982	9,750	3,579	4,202	622
IV	120.0		152.2	134.0	4,970		3,736	4,186	449
1998I	120.2								
II									
III									
IV									

Table A6: Monetary and Financial Indicators

	Interest Rates		Monetary Developments				Asset Prices		
	90 One Month Inter- Bank (% p.a.)	91 Long- Term Gilt Rate (% p.a.)	92 M3 Money Supply (£m)	93 Dom. Credit (Gov.) (£m)	94 Dom. Credit (Non- Gov.) (£m)	95 New Mort- gages (No.)	95 External Res- erves (£m)	97 ISEQ Share Prices (1/1988 =1000)	98 Second Hand Houses (£)
	<i>Annual Series</i>								
1990	11.1	10.1	12,636	2,733	13,856	34,812	2,892	1,562.2	49,134
1991	10.4	9.3	13,025	2,715	13,553	37,058	3,256	1,382.4	50,500
1992	15.2	9.1	14,119	3,180	14,411	44,433	2,113	1,311.1	51,452
1993	10.6	7.8	17,268	3,168	14,911	45,390	4,278	1,576.0	52,559
1994	5.7	8.2	19,209	3,518	16,655	50,204	4,041	1,853.4	55,033
1995	6.1	8.3	21,910	3,559	19,917	49,288	5,473	1,992.9	58,526
1996	5.8	8.1	27,038	2,976	23,548	61,006	4,960	2,494.3	67,438
1997	6.2	6.4		2,576	19,205	64,652	4,636	3,335.9	80,276
	<i>Quarterly Series</i>								
1995I	6.1	8.7	18,897	3,209	17,454	11,573	4,031	1,863.6	55,671
II	6.5	8.4	19,252	3,146	18,384	12,787	4,547	1,893.2	58,603
III	6.0	8.3	20,421	3,505	19,037	12,394	5,504	2,055.7	58,458
IV	5.5	7.8	21,910	3,559	19,917	12,534	5,473	2,159.2	60,910
1996I	5.1	7.8	22,213	4,031	20,585	14,084	5,213	2,304.7	61,248
II	5.1	7.7	22,881	3,801	21,595	16,142	5,048	2,496.1	67,292
III	5.6	7.5	24,096	3,241	22,218	16,363	5,722	2,511.0	69,599
IV	5.7	6.9	27,038	2,976	23,548	14,417	4,960	2,665.6	70,858
1997I	5.7	6.8	27,843	3,149	25,647	14,773	5,876	2,891.3	72,197
II	6.3	6.8	37,931	3,401	19,156	18,199	5,092	3,127.4	77,324
III	6.3	6.1		2,312	18,085	16,345	5,984	3,543.3	80,774
IV	6.4	5.8		2,576	19,205	15,335	4,636	3,781.7	90,061
1998I								4,524.1	
II									
III									
IV									
	<i>Quarterly Series (Seasonally Adjusted)</i>								
1995I	No Seasonal Pattern		No Seasonal Pattern		12,071	No Seasonal Pattern		56,529	
II					11,961			57,807	
III					12,039			57,702	
IV					13,309			61,621	
1996I					14,675			62,202	
II					15,057			66,378	
III					15,966			68,685	
IV					15,299			71,671	
1997I					15,373			73,487	
II					16,835			76,165	
III					16,063			80,676	
IV					16,309			89,853	
1998I									
II									
III									
IV									

Table A7: Trade Prices, Exchange Rates and Competitiveness

	Trade Prices				Exchange Rates			106 Real Effective Index (1990= 100)
	99 Import Unit Value (1990= 100)	100 Export Unit Value (1990= 100)	101 Terms of Trade (1990= 100)	102 Effective Index (12/1971= 100)	103 Sterling (per IR£)	104 Dollar (per IR£)	105 Deutsch- mark (per IR£)	
	<i>Annual Averages</i>							
1990	100.0	100.0	100.1	68.3	0.9305	1.6588	2.6729	100.0
1991	102.3	99.3	97.0	67.3	0.9133	1.6162	2.6708	96.9
1992	100.2	96.6	96.4	69.5	0.9695	1.7062	2.6561	99.7
1993	105.4	103.9	98.6	66.0	0.9771	1.4682	2.4241	93.0
1994	108.1	103.8	96.0	66.2	0.9777	1.4984	2.4263	92.9
1995	112.7	105.6	93.7	67.1	1.0168	1.6038	2.2971	93.4
1996	111.4	105.1	94.3	68.5	1.0255	1.6008	2.4092	95.2
1997	111.9	106.0	94.7	67.4	0.9271	1.5182	2.6286	95.0
	<i>Quarterly Averages</i>							
1995I	111.7	104.0	93.1	66.6	0.9943	1.5733	2.3263	93.1
II	113.7	107.4	94.4	67.1	1.0197	1.6270	2.2717	93.0
III	112.2	105.6	94.1	67.4	1.0247	1.6117	2.3067	93.9
IV	113.2	105.5	93.2	67.4	1.0283	1.6033	2.2837	93.7
1996I	113.4	108.1	95.3	67.6	1.0317	1.5797	2.3193	93.7
II	112.1	106.6	95.1	68.1	1.0307	1.5703	2.3913	94.1
III	111.1	103.8	93.5	68.8	1.0347	1.6090	2.4090	95.5
IV	109.1	101.9	93.4	69.5	1.0050	1.6443	2.5170	97.3
1997I	110.7	105.1	94.9	69.7	0.9780	1.5943	2.6433	98.1
II	111.9	105.7	94.5	67.4	0.9317	1.5250	2.6127	94.9
III	112.8	107.0	94.9	66.8	0.9097	1.4780	2.6680	93.9
IV	112.4	106.4	94.7	65.7	0.8890	1.4753	2.5903	93.1
1998I								
II								
III								
IV								
	<i>Quarterly Averages (Seasonally Adjusted)</i>							
1995I	No	No	No	No	No	No	No	No
II	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal
III	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern
IV								
1996I								
II								
III								
IV								
1997I								
II								
III								
IV								
1998I								
II								
III								
IV								

Table A8: External Trade and Balance of Payments Indicators

	Visible Trade Indicators					Balance of Payments			
	107	108	109	110	111	112	113	114	115
	Imports (Value) (£m)	Exports (Value) (£m)	Trade Balance (£m)	Imports (Volume) (1990= 100)	Exports (Volume) (1990= 100)	Merch- andise Balance (£m)	Services Balance (£m)	Net Factor Flows (£m)	Current Account (£m)
	<i>Annual Series</i>								
1990	12,476	14,342	1,867	100.1	100.1	1,797	513	-2,921	-224
1991	12,851	15,019	2,168	100.8	105.4	2,066	-668	-2,796	209
1992	13,195	16,744	3,549	105.7	121.2	3,501	-1,217	-3,209	320
1993	14,885	19,830	4,945	112.9	133.3	4,826	-1,366	-3,521	1,248
1994	17,251	22,754	5,503	127.6	153.2	5,396	-1,978	-3,575	998
1995	20,619	27,825	7,206	146.3	184.1	7,459	-2,991	-4,508	1,070
1996	22,503	30,388	7,885	161.5	202.1	8,416	-3,787	-5,121	862
1997	25,991	35,028	9,037	184.2	228.7				
	<i>Quarterly Series</i>								
1995I	4,970	6,464	1,494	142.3	173.6	1,558	-693	-1,163	-19
II	4,950	6,843	1,893	139.2	178.2	1,957	-603	-1,192	360
III	4,875	6,766	1,891	139.0	179.0	1,953	-696	-1,084	377
IV	5,824	7,752	1,928	164.6	205.5	1,991	-1,000	-1,070	352
1996I	5,867	7,792	1,925	165.5	201.7	2,006	-940	-1,460	-199
II	5,624	7,656	2,032	160.4	200.7	2,035	-813	-1,305	28
III	5,103	7,112	2,010	147.0	191.4	2,165	-894	-1,177	578
IV	5,909	7,828	1,919	173.1	214.7	2,211	-1,139	-1,179	454
1997I	6,026	7,873	1,848	174.0	209.5	2,209	-1,178	-1,749	-391
II	6,544	8,793	2,249	187.2	232.8	2,704	-1,092	-1,762	154
III	6,180	8,713	2,533	175.4	227.6	2,965	-1,099	-1,588	524
IV	7,242	9,649	2,407	208.4	253.1				
1998I									
II									
III									
IV									
	<i>Quarterly Series (Seasonally Adjusted)</i>								
1995I	4,800	6,488	1,688	137.8	173.9		No	No	
II	4,951	6,684	1,733	140.5	177.1		Seasonal	Seasonal	
III	5,198	7,106	1,908	147.8	188.2		Pattern	Pattern	
IV	5,655	7,517	1,862	158.5	195.9				
1996I	5,687	7,873	2,186	160.7	203.1				
II	5,613	7,455	1,842	161.7	199.5				
III	5,465	7,458	1,993	156.7	200.7				
IV	5,718	7,595	1,877	166.7	204.6				
1997I	5,836	7,930	2,094	168.9	210.4				
II	6,522	8,554	2,032	188.4	231.8				
III	6,643	9,162	2,519	187.4	239.2				
IV	6,994	9,379	2,385						
1998I									
II									
III									
IV									

Table A9 : International Indicators

	GDP (Volume)								
	116	117	118	119	120	121	122	123	124
	UK	Ger- many	France	Italy	EU15	USA	Japan	OECD	Ireland
	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)
	<i>Annual Averages</i>								
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	98.0	112.5	100.8	101.1	103.0	99.1	103.8	101.4	101.3
1992	97.5	114.5	102.0	101.7	103.9	101.8	104.9	103.2	105.0
1993	99.5	113.1	100.6	100.5	103.4	104.1	105.2	104.3	108.1
1994	103.8	116.3	103.4	102.7	106.5	107.7	105.9	107.2	115.4
1995	106.7	118.4	105.6	105.7	109.2	109.9	107.4	109.3	126.7
1996	109.2	120.1	107.2	106.5	111.1	112.9	111.6	112.2	136.6
1997	113.0	122.8	109.8			117.2			
	<i>Quarterly Averages</i>								
1995I									
II									
III									
IV									
1996I									
II									
III									
IV									
1997I									
II									
III									
IV									
1998I									
II									
III									
IV									
	<i>Quarterly Averages (Seasonally Adjusted)</i>								
1995I	105.9	118.0	105.5	105.4	108.6	109.2	105.6	108.6	
II	106.4	118.8	105.7	105.4	109.1	109.3	107.2	108.9	
III	107.0	118.5	105.8	105.8	109.4	110.2	107.9	109.6	
IV	107.5	118.5	105.4	106.2	109.6	110.8	108.7	110.1	
1996I	108.2	118.5	106.8	106.9	110.3	111.2	111.6	111.2	
II	108.6	120.1	106.7	106.0	110.7	112.9	111.7	112.0	
III	109.3	120.7	107.6	106.5	111.4	113.2	111.2	112.5	
IV	110.5	121.0	107.8	106.5	112.0	114.4	112.4	113.4	
1997I	111.6	121.5	108.2	106.3	112.4	115.7	114.7	114.5	
II	112.5	122.6	109.4	108.2	113.8	116.7	111.5	115.2	
III	113.6	123.5	110.4	108.7	114.7	117.6	112.4	116.1	
IV	114.0	123.8	111.3			118.7			
1998I									
II									
III									
IV									

Table A9 (cont'd): International Indicators

	Consumer Prices								
	125 UK	126 Ger- many	127 France	128 Italy	129 EU15	130 USA	131 Japan	132 OECD	133 Ireland
	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)
	<i>Annual Averages</i>								
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	105.9	103.6	103.2	103.2	105.2	104.2	103.3	106.1	106.8
1992	109.8	108.9	105.7	106.4	109.9	107.4	105.0	111.4	110.8
1993	111.5	113.7	107.9	107.9	113.8	110.6	106.3	116.2	115.3
1994	114.3	116.8	109.7	110.5	117.3	113.4	107.1	121.3	117.0
1995	118.2	119.0	111.6	113.2	120.9	116.6	107.0	128.1	119.0
1996	121.1	120.8	113.8	115.2	123.9	120.0	107.1	134.5	121.7
1997	124.9	122.9	115.2	116.8	126.4	122.9	109.0	140.3	123.9
	<i>Quarterly Averages</i>								
1995I	116.4	118.3	110.9	125.1	119.5	115.5	107.0	125.3	112.1
II	118.5	118.9	111.4	127.5	120.8	116.5	107.2	127.6	113.3
III	118.8	119.4	111.8	128.7	121.3	117.0	107.0	128.9	113.8
IV	119.0	119.4	112.4	130.4	121.9	117.6	106.9	130.4	113.9
1996I	119.6	120.1	113.2	131.3	122.8	118.6	106.6	132.2	114.4
II	121.2	120.7	114.1	132.9	123.9	119.8	107.3	134.1	114.8
III	121.4	121.2	113.8	133.2	124.2	120.4	107.2	135.1	115.4
IV	122.1	121.1	114.3	133.9	124.7	121.3	107.5	136.6	116.0
1997I	122.8	122.2	114.9	134.5	125.4	122.1	107.2	138.1	116.0
II	124.4	122.6	115.1	135.0	126.1	122.6	109.5	139.7	116.6
III	125.6	123.5	115.3	135.2	126.7	123.1	109.5	140.9	116.9
IV	126.6	123.3	115.6	136.0	127.2	123.6	109.7	142.5	117.8
1998I									
II									
III									
IV									
	<i>Quarterly Averages (Seasonally Adjusted)</i>								
1995I	116.9	118.2	110.8	125.1	119.5	115.5	107.3	125.3	112.2
II	117.9	118.8	111.3	127.3	120.5	116.4	107.0	127.3	113.2
III	118.7	119.3	111.9	128.9	121.3	117.1	107.0	129.0	113.6
IV	119.2	119.8	112.5	130.4	122.1	117.7	106.8	130.5	114.0
1996I	120.1	120.0	113.1	131.3	122.9	118.6	106.9	132.2	114.6
II	120.6	120.6	114.0	132.7	123.6	119.7	107.1	133.8	114.7
III	121.3	121.0	113.9	133.4	124.2	120.5	107.2	135.2	115.3
IV	122.3	121.5	114.4	133.9	124.9	121.4	107.4	136.7	116.0
1997I	123.2	122.1	114.8	134.5	125.5	122.1	107.5	138.2	116.2
II	123.8	122.5	115.0	134.8	125.8	122.5	109.3	139.4	116.5
III	125.6	123.3	115.4	135.4	126.7	123.2	109.5	141.0	116.8
IV	126.8	123.7	115.7	136.0	127.4	123.7	109.6	142.6	117.8
1998I									
II									
III									
IV									

Table A9 (cont'd): International Indicators

	Hourly Earnings (Manufacturing)								
	134 UK	135 Ger- many	136 France	137 Italy	138 EU15	139 USA	140 Japan	141 OECD	142 Ireland
	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)	(1990= 100)
	<i>Annual Averages</i>								
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	108.0	106.0	104.0	110.0	107.0	103.0	103.0	105.0	105.0
1992	115.0	112.0	108.0	116.0	113.0	106.0	105.0	109.0	110.0
1993	121.0	118.0	111.0	120.0	118.0	108.0	106.0	113.0	117.0
1994	126.0	122.0	113.0	124.0	123.0	111.0	109.0	116.0	118.0
1995	132.0	126.0	116.0	128.0	127.0	114.0	112.0	120.0	123.0
1996	138.0	130.0	119.0	130.0	132.0	118.0	115.0	124.0	126.0
1997	144.0		122.0	135.0		122.0	118.0	127.0	
	<i>Quarterly Averages</i>								
1995I	131.0	123.0	114.0	126.0	125.0	113.0	110.0	118.0	119.0
II	131.0	126.0	115.0	127.0	126.0	114.0	113.0	119.0	119.0
III	131.0	127.0	116.0	129.0	128.0	115.0	113.0	120.0	120.0
IV	134.0	128.0	116.0	129.0	130.0	115.0	114.0	122.0	123.0
1996I	137.0	129.0	117.0	129.0	130.0	116.0	113.0	122.0	122.0
II	137.0	131.0	118.0	129.0	131.0	118.0	115.0	123.0	124.0
III	137.0	131.0	119.0	131.0	132.0	118.0	116.0	124.0	124.0
IV	140.0	131.0	120.0	132.0	135.0	120.0	117.0	126.0	126.0
1997I	143.0	132.0	120.0	134.0	135.0	120.0	116.0	126.0	126.0
II	143.0	132.0	121.0	134.0	135.0	121.0	119.0	127.0	
III	143.0		122.0	135.0		122.0	118.0	128.0	
IV	147.0		123.0	136.0		124.0	119.0	129.0	
1998I									
II									
III									
IV									
	<i>Quarterly Averages (Seasonally Adjusted)</i>								
1995I	129.9	123.5	114.2	125.9	125.4	113.1	111.4	118.4	119.1
II	131.0	125.6	114.8	127.1	126.4	113.9	112.2	119.1	118.9
III	132.3	126.6	115.9	128.8	128.0	115.4	112.8	120.1	120.4
IV	133.9	128.3	116.1	129.1	129.2	114.6	113.6	121.4	122.5
1996I	135.8	129.5	117.2	128.9	130.3	116.1	114.4	122.3	122.1
II	137.1	130.6	117.9	129.2	131.5	117.9	114.2	123.2	123.9
III	138.4	130.6	118.9	130.8	132.1	118.4	115.8	124.1	124.4
IV	139.8	131.3	120.0	132.0	134.1	119.5	116.5	125.3	125.5
1997I	141.6	132.5	120.2	133.9	135.3	120.2	117.4	126.3	126.1
II	143.1	131.6	120.9	134.3	135.5	120.9	118.2	127.2	
III	144.5		121.9	134.8		122.5	117.8	128.2	
IV	146.8		123.0	136.0		123.5	118.5	128.3	
1998I									
II									
III									
IV									

Table A9 (cont'd): International Indicators

	Unemployment Rate								
	143 UK (%)	144 Ger- many (%)	145 France (%)	146 Italy (%)	147 EU15 (%)	148 USA (%)	149 Japan (%)	150 OECD (%)	151 Ireland (%)
	<i>Annual Averages</i>								
1990	7.1	4.9	9.0	9.1	8.1	5.6	2.1	6.1	13.3
1991	8.8	4.4	9.5	8.8	8.4	6.8	2.1	6.8	14.7
1992	10.1	4.6	10.4	9.0	9.1	7.5	2.2	7.4	15.5
1993	10.5	7.9	11.7	10.3	10.8	6.9	2.5	8.0	15.5
1994	9.6	8.4	12.3	11.4	11.1	6.1	2.9	7.9	14.1
1995	8.8	8.2	11.7	11.9	10.8	5.6	3.1	7.5	12.2
1996	8.2	8.9	12.4	12.0	10.9	5.4	3.4	7.6	11.5
1997	7.1	9.7	12.5		10.7	4.9	3.4	7.3	10.2
	<i>Quarterly Averages</i>								
1995I									
II									
III									
IV									
1996I									
II									
III									
IV									
1997I									
II									
III									
IV									
1998I									
II									
III									
IV									
	<i>Quarterly Averages (Seasonally Adjusted)</i>								
1995I	8.9	8.0	11.7	11.8	10.8	5.5	3.0	7.5	12.5
II	8.8	8.1	11.5	11.9	10.7	5.7	3.1	7.5	12.1
III	8.7	8.2	11.6	12.0	10.7	5.7	3.2	7.6	12.0
IV	8.5	8.4	12.0	11.9	10.8	5.6	3.3	7.6	12.0
1996I	8.4	8.7	12.3	12.0	10.9	5.6	3.3	7.6	11.9
II	8.3	8.7	12.4	12.0	10.9	5.4	3.5	7.6	11.8
III	8.2	8.8	12.5	12.0	10.9	5.3	3.3	7.5	11.4
IV	7.8	9.1	12.6	12.0	10.8	5.3	3.3	7.5	11.0
1997I	7.5	9.5	12.5	12.2	10.8	5.3	3.3	7.5	10.6
II	7.2	9.6	12.6	12.1	10.7	4.9	3.4	7.4	10.3
III	7.0	9.9	12.6	12.1	10.7	4.9	3.4	7.3	10.2
IV	6.6	10	12.5		10.6	4.7	3.5	7.2	9.9
1998I									9.6
II									
III									
IV									

Table A9 (cont'd): International Indicators

	Short-Term Interest Rate							
	152 UK (% p. a.)	153 Germany (% p. a.)	154 France (% p. a.)	155 Italy (% p. a.)	156 EU15 (% p. a.)	157 USA (% p. a.)	158 Japan (% p. a.)	159 Ireland (% p. a.)
	<i>Annual Averages</i>							
1990	14.8	8.5	10.3	12.2	8.2	8.2	7.7	11.3
1991	11.5	9.3	9.6	12.2	5.9	5.8	7.4	10.4
1992	9.6	9.5	10.3	14.0	3.8	3.7	4.5	14.3
1993	5.9	7.3	8.6	10.2	3.3	3.2	3.0	9.1
1994	5.5	5.4	5.9	8.5	4.7	4.6	2.2	5.9
1995	6.7	4.5	6.6	10.5	6.0	5.9	1.2	6.3
1996	6.0	3.3	3.9	8.8	5.4	5.4	0.6	5.4
1997	6.8	3.3	3.5	6.9	5.7	5.6	0.6	6.1
	<i>Quarterly Averages</i>							
1995I	6.7	5.1	6.6	9.7	6.2	6.2	2.3	6.5
II	6.7	4.6	7.5	10.8	6.1	6.0	1.4	6.7
III	6.8	4.4	6.1	10.6	5.8	5.8	0.8	6.2
IV	6.6	4.0	6.1	10.7	5.8	5.7	0.5	5.6
1996I	6.2	3.4	4.5	10.0	5.3	5.3	0.6	5.1
II	6.0	3.3	4.0	9.1	5.4	5.4	0.6	5.1
III	5.8	3.3	3.9	8.7	5.5	5.5	0.6	5.7
IV	6.2	3.2	3.5	7.6	5.5	5.4	0.5	5.8
1997I	6.2	3.2	3.4	7.3	5.5	5.4	0.6	5.8
II	6.5	3.2	3.4	7.0	5.7	5.7	0.6	6.2
III	7.1	3.2	3.4	6.8	5.6	5.6	0.6	6.2
IV	7.5	3.7	3.7	6.4	5.8	5.7	0.7	6.1
1998I								
II								
III								
IV								
	<i>Quarterly Averages (Seasonally Adjusted)</i>							
1995I	No	No	No	No	No	No	No	No
II	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal	Seasonal
III	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern	Pattern
IV								
1996I								
II								
III								
IV								
1997I								
II								
III								
IV								
1998I								
II								
III								
IV								

Notes

- 1-48. Calculated on an ESA95 basis. *Source:* CSO.
49. GDP at current market prices per head of population calculated at PPS on an ESA79 basis. *Source:* European Commission.
- 50-51. General government deficit and debt calculated on an ESA79 basis. *Source:* Department of Finance.
52. *Source:* Department of Finance.
53. Calculated as a percentage of personal disposable income. *Source:* Based on CSO Data.
- 54-55. *Source:* Based on CSO Data.
- 56-60. *Source:* ESRI.
- 61-71. *Source:* CSO.
72. Official standardised unemployment rate, based on ILO definitions. *Source:* CSO.
- 73-78. Percentage reporting improvement or increase minus percentage reporting deterioration or decrease. *Source:* IBEC-ESRI Monthly Industrial Survey.
- 79-80. *Source:* IBEC-ESRI Monthly Industrial Survey.
- 81-88. *Source:* CSO.
89. Not calculable from columns 87 and 88. *Source:* CSO.
- 90-91. *Source:* Central Bank of Ireland.
92. *Source:* CSO.
- 93-94. *Source:* Central Bank of Ireland.
- 95-97. *Source:* CSO.
98. *Source:* Department of the Environment and Local Government.
- 99-105. *Source:* CSO.
106. *Source:* OECD.
- 107-115. Calculated on an ESA95 basis. *Source:* CSO.
- 116-123. *Source:* OECD.
124. Average of output and expenditure methods. *Source:* CSO.
- 125-155. *Source:* OECD.
156. Eurodollar market rate. *Source:* OECD.
- 157-159. *Source:* OECD.