QUARTERLY ECONOMIC COMMENTARY

Winter 2008

ALAN BARRETT
IDE KEARNEY
JEAN GOGGIN

The forecasts in this Commentary are based on data available by early-December 2008

Special Articles

An Analysis of the Potential of the European Commission Business and Consumer Surveys for Macroeconomic Forecasting

by

Jean Goggin

An Empirical Analysis of Development Cycles in the Dublin Office Market 1976-2007

by

John McCartney

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Call For Papers

As part of the remit of the *Quarterly Economic Commentary*, articles on various aspects of the Irish economy and Irish economic policy are regularly published along with the forecasts and commentary. Authors are invited to submit papers for consideration to either of the *QEC*'s co-editors, Alan Barrett and Ide Kearney at: ESRI, Whitaker Square, Sir John Rogerson's Quay, Dublin 2 (e-mail Alan.Barrett@esri.ie or I.Kearney@planet.nl). The following guidelines should be followed:

All articles should be up-to-date and policy-oriented. The content should involve the application of economic theory, data analysis or the application of lessons from the international literature. Review articles are also welcome where lessons for policy are explicitly addressed. Articles should normally comprise 4-10,000 words, excluding tables. All articles will be anonymously refereed by members of the editorial board or by an external referee chosen by the editors. The editors may also, where appropriate, seek the comments of policy experts outside of the academic community.

The *QEC* aims for a quick turnaround from submission to acceptance, with decisions usually made within two months. All accepted papers are published electronically as well as being included in the printed version, thereby ensuring a wide circulation well beyond subscribers to the *QEC*.

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SUMMARY TABLE

	2006	2007	2008	2009
OUTPUT				
(Real Annual Growth %)				
Private Consumer Expenditure	7.1	6.3	-2.2	-3.6
Public Net Current Expenditure	4.8	6.0	4.0	-1.0
Investment	4.0	1.2	-18.6	-19.3
Exports	5.7	6.8	0.6	-0.4
Imports	6.3	4.1	-2.7	-3.5
Gross Domestic Product (GDP)	5.7	6.0	-2.4	-3.9
Gross National Product (GNP)	6.3	4.1	-2.6	-4.6
GNP per capita (constant prices)	3.7	1.8	-4.5	-4.3
PRICES				
(Annual Growth %)				
Harmonised Index of Consumer Prices (HICP)	2.7	2.8	3.3	0.5
Consumer Price Index (CPI)	4.0	4.9	4.2	-2.0
Wage Growth	4.9	4.8	2.6	0.0
LABOUR MARKET				
Employment Levels (ILO basis (000s))	2,044	2,117	2,107	1,991
Unemployment Levels (ILO basis (000s))	95	100	136	207
Unemployment Rate (as % of Labour Force)	4.4	4.5	6.1	9.4
PUBLIC FINANCE				
Exchequer Balance (€m)	2,264	-1,619	-12,880	-16,656
General Government Balance (€m)	5,327	443	-12,885	-18,246
General Government Balance (% of GDP)	3.0	0.2	-6.9	-10.2
General Government Debt (% of GDP)	24.7	24.8	36.7	47.5
EXTERNAL TRADE				
Balance of Payments Current Account (€m)	6,298.0	-10,303.0	6,047.1	-974.2
Current Account (% of GNP)	-4.1	-6.4	-3.8	-0.6
EXCHANGE AND INTEREST RATES (end of year)				
US$/€ Exchange Rate	1.26	1.39	1.47	1.32
STG£/€ Exchange Rate	0.68	0.69	0.79	0.79
Main ECB Interest Rate	3.50	4.00	2.50	2.00

SUMMARY

The forecasts in this *Commentary*, especially for 2009, illustrate how the Irish economy is in the midst of a contraction that is large by both historic and international comparisons. For 2009, we expect GNP to fall by 4.6 per cent in volume terms. Following an anticipated contraction of 2.6 per cent in 2008, the accumulated fall in output is dramatic.

The volume of consumption is expected to fall by 3.6 per cent in 2009. The fall in investment is expected to be larger still. We are forecasting a fall of 19.3 per cent in investment volume in 2009. This figure is made up of a huge fall in building activity, both residential and commercial, with volume falling by 26 per cent.

Many of Ireland's trading partners are now in recession and are expected to record falls in output volumes in 2009. For example, the OECD expects the US to contract by 0.9 per cent in 2009 and the Euro Area to contract by 0.6 per cent. Prospects for the UK are even worse, with a fall in GDP of 1.1 per cent expected in 2009. As a result of these anticipated outcomes, we expect Ireland's exports to fall by 0.4 per cent next year.

The downturn has already manifested itself in the labour market and the public finances. The rate of unemployment has jumped from 4.6 per cent in Quarter 1 of this year to 7 per cent in Quarter 3. Tax revenues have fallen rapidly, with current revenues likely to be almost 13 per cent lower in 2008 relative to 2007.

We now expect that average employment will fall by 117,000 in 2009, and consequently the total employed will be well below 2 million by the end of the year. This fall in employment will be distributed across changes in unemployment, migration and participation. It is very difficult to estimate how each will change but we can say that a fall in employment of that size will be consistent with net outward migration of 50,000, the unemployment rate averaging 9.4 per cent and participation falling by 1.3 percentage points.

On the public finances, we expect the General Government Deficit to be 6.9 per cent of GDP in 2008 and 10.2 per cent in 2009. Such deficits, when combined with the contracting economy, imply that the general government debt will reach 47.5 per cent of GDP in 2009, up from 36.7 per cent in 2008.

On inflation, the global economic downturn is leading to falling commodity prices and reduced wage pressures. Taking account of these, we expect HICP inflation to average 0.5 per cent in 2009. With interest rates falling rapidly, we expect CPI inflation to be negative, at -2 per cent. For the economy as a whole, we expect zero wage growth in 2009. As wages in the public sector will show an increase during 2009 as a result of an increase granted in September 2008, implicit in our forecasts is a wage fall in the private sector in 2009.

In our *General Assessment*, we argue that policy options are very limited in terms of the short-run alleviation of the current difficulties. The focus of policy should be on ensuring that Ireland is as well placed as possible to participate in the global upturn. As part of this strategy, we need to ensure that the public finances do not become a constraint on growth, as they did in the 1980s. With this in mind, we would stress yet again the importance of ensuring quality in all public spending, whether current or capital. We would also re-iterate a point that was made in the last *Commentary*, namely, the likelihood in the medium term of a need for tax increases as a result of the erosion in the tax base in recent years. In addition, we would also argue that the deterioration in the public finances will make it difficult for the government to pay the 3.5 per cent increase in September due under the pay agreement. We argue that the social partners need to come together and to reassess the most recent pay deal in the light of rapidly changing circumstances. The possibility of nominal pay cuts in the public sector should at least be considered in this context as pay cuts may well be considered preferable to cuts in services. As well as protecting services levels, the pay adjustment approach to economies could well yield expenditure savings more rapidly than an approach based solely on job cuts through natural wastage, early retirements and redundancy schemes. Finally, new research presented in this *Commentary* on the public/private wage differential suggests that there is a significant pay advantage for those working in the public sector and that this may have increased in recent years. Given this, it seems highly unlikely that any wage reductions in the public sector would, in general, lead to any significant challenges in terms of retaining or recruiting staff.

NATIONAL ACCOUNTS 2007 (Estimate)

A: Expenditure on Gross National Product

	2006	2007 Estimate	Change in 2007 €m		Change in 2007 %		
	€m	€m	Value	Volume	Value	Price	Volume
Private Consumer Expenditure	83,688	91,582	7,894	5,287	9.4	2.9	6.3
Public Net Current Expenditure	24,314	26,766	2,452	1,447	10.1	3.9	6.0
Gross Fixed Capital Formation	47,632	50,140	2,507	571	5.3	4.0	1.2
Exports of Goods and Services (X)	141,663	151,390	9,727	9,610	6.9	0.1	6.8
Physical Changes in Stocks	1,342	-95	-1,437	-1,453			
Final Demand	**298,640**	**319,782**	**21,142**	**15,462**	**7.1**	**1.8**	**5.2**
less:							
Imports of Goods and Services (M)	122,627	131,017	8,390	4,984	6.8	2.7	4.1
less:							
Statistical Discrepancy	-1,274	-1,838	-564	-207			
GDP at Market Prices	**177,286**	**190,603**	**13,316**	**10,685**	**7.5**	**1.4**	**6.0**
less:							
Net Factor Payments (F)	-24,830	-29,393	-4,563	-4,384	18.4	0.6	17.7
GNP at Market Prices	**152,456**	**161,210**	**8,754**	**6,300**	**5.7**	**1.5**	**4.1**

B: Gross National Product by Origin

		2006	2007 Estimate	Change in 2007	
		€m	€m	€m	%
Agriculture, Forestry, Fishing		3,084	3,456	372	12.1
Non-Agricultural:	Wages, etc.	71,900	78,211	6,310	8.8
	Other:	63,482	70,087	6,605	10.4
Adjustments:	Stock Appreciation	157	-362		
	Statistical Discrepancy	-1,274	-1,838		
Net Domestic Product		**137,351**	**149,555**	**12,204**	**8.9**
less:					
Net Factor Payments		-24,830	-29,393	-4,563	18.4
National Income		**112,520**	**120,162**	**7,642**	**6.8**
Depreciation		17,549	18,534	985	5.6
GNP at Factor Cost		**130,069**	**138,696**	**8,627**	**6.6**
Taxes less Subsidies		22,387	22,514	127	0.6
GNP at Market Prices		**152,456**	**161,210**	**8,754**	**5.7**

C: Balance of Payments on Current Account

	2006	2007 Estimate	Change in 2007
	€m	€m	€m
Exports (X) less Imports (M)	19,036	20,373	1,337
Net Factor Payments (F)	-24,830	-29,393	-4,563
Net Transfers	-504	-1,283	-779
Balance on Current Account	**-6,298**	**-10,303**	**-4,005**
as % of GNP	-4.1	-6.4	-2.3

D: GNDI and Terms of Trade

	2006	2007 Estimate	2007 Volume Change	
	€m	€m	€m	%
Terms of Trade Loss or Gain		-3,819		
GNP Adjusted for Terms of Trade	152,456	154,937	2,481	1.6
GNDI*	151,952	153,688	1,735	1.1
National Resources**	152,175	153,750	1,574	1.0

* GNDI is GDP adjusted for terms of trade and net international transfers.
** GNDI including capital transfers.

FORECAST NATIONAL ACCOUNTS 2008

A: Expenditure on Gross National Product

	2007 Estimate €m	2008 Forecast €m	Change in 2008 €m Value	€m Volume	% Value	% Price	% Volume
Private Consumer Expenditure	91,582	91,359	-223	-2,015	-0.2	2.0	-2.2
Public Net Current Expenditure	26,766	29,175	2,409	1,071	9.0	4.8	4.0
Gross Fixed Capital Formation	50,140	39,782	-10,358	-9,340	-20.7	-2.5	-18.6
Exports of Goods and Services (X)	151,390	150,987	-403	976	-0.3	-0.9	0.6
Physical Changes in Stocks	-95	995	1,090	0			
Final Demand	**319,782**	**312,297**	**-7,485**	**-8,098**	**-2.3**	**0.2**	**-2.5**
less:							
Imports of Goods and Services (M)	131,017	128,490	-2,527	-3,496	-1.9	0.8	-2.7
less:							
Statistical Discrepancy	-1,838	-1,838	0	11			
GDP at Market Prices	**190,603**	**185,645**	**-4,957**	**-4,612**	**-2.6**	**-0.2**	**-2.4**
less:							
Net Factor Payments (F)	-29,393	-27,262	2,131	391	-7.3	-6.0	-1.3
GNP at Market Prices	**161,210**	**158,383**	**-2,826**	**-4,224**	**-1.8**	**0.9**	**-2.6**

B: Gross National Product by Origin

		2007 Estimate €m	2008 Forecast €m	Change in 2008 €m	%
Agriculture, Forestry, Fishing		3,456	3,456	0	0.0
Non-Agricultural:	Wages, etc.	78,211	79,705	1,495	1.9
	Other:	70,087	66,074	-4,014	-5.7
Adjustments:	Stock Appreciation	-362	-200		
	Statistical Discrepancy	-1,838	-1,838		
Net Domestic Product		**149,555**	**147,197**	**-2,357**	**-1.6**
less:					
Net Factor Payments		-29,393	-27,262	2,131	-7.3
National Income		**120,162**	**119,936**	**-226**	**-0.2**
Depreciation		18,534	18,632	98	0.5
GNP at Factor Cost		**138,696**	**138,568**	**-128**	**-0.1**
Taxes less Subsidies		22,514	19,815	-2,698	-12.0
GNP at Market Prices		**161,210**	**158,383**	**-2,826**	**-1.8**

C: Balance of Payments on Current Account

	2007 Estimate €m	2008 Forecast €m	Change in 2008 €m
Exports (X) less Imports (M)	20,373	22,498	2,125
Net Factor Payments (F)	-29,393	-27,262	2,131
Net Transfers	-1,283	-1,283	0
Balance on Current Account	**-10,303**	**-6,047**	**4,256**
as % of GNP	-6.4	-3.8	2.6

D: GNDI and Terms of Trade

	2007 €m	2008 Estimate €m	2008 Volume Change €m	%
Terms of Trade Loss or Gain		-3,421		
GNP Adjusted for Terms of Trade	161,210	154,482	-6,741	-4.2
GNDI*	159,927	153,196	-6,731	-4.2
National Resources**	159,989	153,496	-6,493	-4.1

* GNDI is GDP adjusted for terms of trade and net international transfers.

** GNDI including capital transfers.

FORECAST NATIONAL ACCOUNTS 2009

A: Expenditure on Gross National Product

	2008 Forecast €m	2009 Forecast €m	Change in 2009 €m Value	Volume	% Value	Price	Volume
Private Consumer Expenditure	91,359	88,290	-3,069	-3,289	-3.4	0.3	-3.6
Public Net Current Expenditure	29,175	28,970	-204	-292	-0.7	0.3	-1.0
Gross Fixed Capital Formation	39,782	30,261	-9,521	-7,673	-23.9	-5.8	-19.3
Exports of Goods and Services (X)	150,987	152,243	1,256	-654	0.8	1.3	-0.4
Physical Changes in Stocks	995	1,100	105	0		0.0	0.0
Final Demand	**312,297**	**300,865**	**-11,433**	**-11,723**	**-3.7**	**0.1**	**-3.8**
less:							
Imports of Goods and Services (M)	128,490	124,258	-4,232	-4,472	-3.3	0.0	0.0
less:							
Statistical Discrepancy	-1,838	-1,838	0	5		0.2	-3.5
GDP at Market Prices	**185,645**	**178,444**	**-7,201**	**-7,256**	**-3.9**	**0.0**	**-3.9**
less:							
Net Factor Payments (F)	-27,262	-27,677	-415	128	1.5	2.0	-0.5
GNP at Market Prices	**158,383**	**150,768**	**-7,616**	**-7,207**	**-4.8**	**-0.3**	**-4.6**

B: Gross National Product by Origin

	2008 Forecast €m	2009 Forecast €m	Change in 2009 €m	%
Agriculture, Forestry, Fishing	3,456	3,387	-69	-2.0
Non-Agricultural: Wages, etc.	79,705	75,097	-4,609	-5.8
Other:	66,074	65,570	-504	-0.8
Adjustments: Stock Appreciation	-200	-200		
Statistical .Discrepancy	**-1,838**	**-1,838**		
Net Domestic Product	147,197	142,015	-5,182	-3.5
less:				
Net Factor Payments	-27,262	-27,677	-415	1.5
National Income	**119,936**	**114,339**	**-5,597**	**-4.7**
Depreciation	18,632	18,436	-197	-1.1
GNP at Factor Cost	138,568	132,775	-5,793	-4.2
Taxes less Subsidies	19,815	17,993	-1,822	-9.2
GNP at Market Prices	**158,383**	**150,768**	**-7,616**	**-4.8**

C: Balance of Payments on Current Account

	2008 Estimate €m	2009 Forecast €m	Change in 2009 €m
Exports (X) less Imports (M)	22,498	27,985	5,488
Net Factor Payments (F)	-27,262	-27,677	-415
Net Transfers	-1,283	-1,283	0
Balance on Current Account	**-6,047**	**-974**	**5,073**
as % of GNP	-3.8	-0.6	3.2

D: GNDI and Terms of Trade

	2008 €m	2009 Estimate €m	2009 Volume Change €m	%
Terms of Trade Loss or Gain		-1,616		
GNP Adjusted for Terms of Trade	158,383	152,793	-5,591	-3.5
GNDI*	157,100	151,512	- 5,588	-3.6
National Resources**	157,400	151,812	-5,588	-3.6

* GNDI is GDP adjusted for terms of trade and net international transfers.

** GNDI including capital transfers.

THE INTERNATIONAL ECONOMY[1]

The main developments in the international economy can be summarised as follows:

- All of the world's major economies are now contracting, with the pace of contraction appearing to have accelerated since late summer/early autumn.

- On-going difficulties in financial markets seem to have impacted upon business and consumer confidence. Consumption and investment are falling in many economies and sentiment indices have fallen to historically low levels, thereby pointing to a continuation of these trends.

- Falling demand is impacting on commodity prices. Oil has been trading in the region of US$45 per barrel, well down on its highs of earlier this year.

- Falling commodity prices, the associated easing in inflationary pressures and the weakening of the world's economies have led to central banks cutting interest rates at a historically fast pace. Central banks have also been engaged in providing liquidity to money markets while governments have taken actions to support banks, including nationalisation.

- While huge doubts remain over the trajectory which the world will follow in the coming months, OECD forecasts are based on a bottoming out of the cycle in many countries in mid-2009, followed by a very modest pick-up in the latter part of next year. In many ways, this should be viewed as a "best case scenario" as the possibility of a more prolonged global downturn remains.

[1] The discussion in this section is based largely on the OECD's *Economic Outlook* from November 2008 and the Euroframe *Economic Assessment of the Euro Area*, also from November.

Euro area

The Euro Area is now in recession, having experienced quarter-on-quarter contractions of 0.2 per cent in both second and third quarters of 2008. Reductions in private consumption and in business fixed investment have added to the difficulties arising from the slump in housing investment. Exports also declined as a result of weaker external demand and the strength of the euro. These developments are now showing up in the labour market, with the rate of unemployment rising to 7.5 per cent, up from a cyclical trough of 7.2 per cent.

For 2008, GDP growth of 1 per cent is now expected. This is well down on the 2007 growth figure of 2.6 per cent. However, sentiment indicators suggest that the economic difficulties are becoming more pronounced and so a contraction of 0.6 per cent is now expected for the year 2009. Consumption demand is expected to be essentially static in 2009, while investment is expected to contract by 4.4 per cent. On-going weakness in the world economy will see net exports making a zero contribution to overall growth.

The poor conditions in 2009 are expected to lead to the rate of unemployment rising to 8.6 per cent. This, in turn, should lead to less pressure on wages. When combined with falling commodity prices, HICP inflation is expected to fall to 1.4 per cent in 2009, down from 3.4 per cent in 2008. Such an easing in price pressures provides scope for the ECB to remain on the path of aggressive interest rates cuts and many commentators now foresee rates at 2 per cent in the spring of 2009. Such rate cuts would normally be expected, with some confidence, to translate into lower rates for businesses and consumers and hence higher levels of demand. However, the continued problems in financial markets lead to doubts about the usual processes.

Uncertainty over the potential impacts of monetary easing has led to proposals for a coordinated fiscal stimulus at an EU level. At the time of writing, it is still unclear as to whether such an approach will be adopted. Whether such initiative is pursued or not, it is generally accepted that economic activity will not begin to pick up until mid-2009 at the earliest and that even then the pace of upturn will be slow. According to the OECD, an acceleration in the upturn can only be expected in mid-2010.

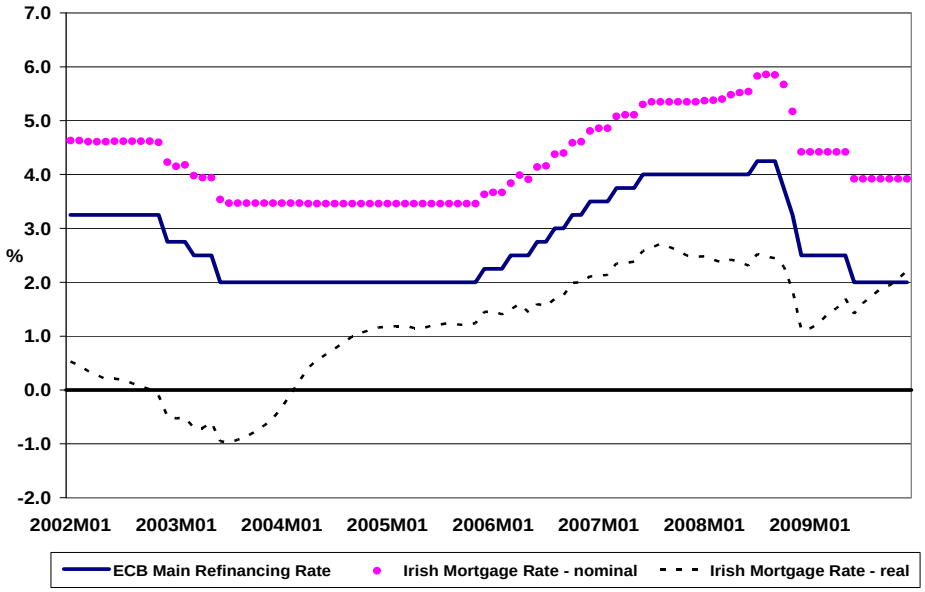
Turning now to countries within the Euro Area, Germany registered a strong pace of economic growth at the outset of 2008 but since then has fallen into recession. As a result of the good performance up to the first quarter, GDP is expected to grow by 1.4 per cent in 2008 but this masks the deterioration during the course of the year. For 2009, GDP is expected to fall by 0.8 per cent. In recent years, the strength of the German economy was its export performance, with growth rates of 13.1 per cent and 7.7 per cent in 2006 and 2007 respectively. The collapse in external demand suggests that export growth could be just 0.7 per cent in 2009. Unemployment is expected to rise to 8.1 per cent in 2009, with HICP inflation moderating to 1.1 per cent.

The French economy is following a broadly similar pattern to that of Germany. Technically, France has not fallen into recession because GDP

registered an increase of 0.1 per cent in the third quarter, following a fall of 0.3 per cent in the second quarter. However, activity is expected to contract in the remainder of 2008 and into 2009. For 2008, GDP growth of 0.9 per cent is forecast but the corresponding figure for 2009 is expected to be -0.4 per cent. The rate of unemployment is expected to rise to 8.2 per cent in 2009, with HICP inflation falling to 1 per cent. As regards the public finances, the general government deficit is expected to reach 3.7 per cent of GDP in 2009. For Germany, the corresponding figure is 0.9 per cent. In spite of the lower deficit in Germany, there appears to be greater enthusiasm on the part of the French government for a coordinated fiscal stimulus relative to its German counterpart.

For Italy, the early part of the year was also characterised by weakening economic activity. As a result, it is expected to experience a contraction in GDP in 2008, in contrast to France and Germany. The contraction is expected to be 0.4 per cent, with a further contraction of 1 per cent expected in 2009.

Figure 1: Interest Rates*



*Mortgage rate used is the Home Purchase Loans Average Interest Rate.
Source: CSO.

United Kingdom

The downturn in the UK economy is expected to be more severe than that of the Euro Area. Whereas GDP for the Euro Area is expected to contract by 0.6 per cent in 2009, the contraction for the UK economy is expected to be almost twice this, at -1.1 per cent. There are two broad explanations for this relatively steep decline in the UK. First, the UK is experiencing a severe contraction in residential construction. For 2009, the fall in house building activity is expected to be 14.3 per cent; for the Euro Area, the fall in residential building is expected to be 7.3 per cent. Part of this house building downturn can be explained by the collapse in house prices in the UK. A second reason behind the UK's steeper decline is the greater importance of financial services in total output.

Table 1: Short term International Outlook

	GDP Output Growth			Consumer Price Inflation*			Unemployment Rate %			Current Account Balance % of GDP		
Country	**2007**	**2008**	**2009**	**2007**	**2008**	**2009**	**2007**	**2008**	**2009**	**2007**	**2008**	**2009**
UK	3.0	0.8	-1.1	2.3	3.7	2.7	5.4	5.5	6.8	-3.8	-1.9	-1.5
Germany	2.6	1.4	-0.8	2.3	2.9	1.1	8.3	7.4	8.1	7.7	6.4	6.2
France	2.1	0.9	-0.4	1.6	3.3	1.0	8.0	7.3	8.2	-1.2	-1.6	-1.5
Italy	1.4	-0.4	-1.0	2.0	3.5	1.5	6.2	6.9	7.8	-2.5	-2.6	-2.1
Euro Area	2.6	1.0	-0.6	2.1	3.4	1.4	7.4	8.6	9.0	0.3	-0.4	-0.1
USA	2.0	1.4	-0.9	2.9	4.3	1.6	4.6	5.7	7.3	-5.3	-4.9	-3.9
Japan	2.1	0.5	-0.1	0.1	1.4	0.3	3.9	4.1	4.4	4.8	3.8	4.3
China	11.9	9.5	8.0	4.8	6.1	3.0				11.3	9.7	9.4
OECD	2.7	3.1	2.6	2.3	3.3	1.7	5.6	5.9	6.9	-1.4	-1.5	-1.1
Ireland	6.0	-2.4	-3.9	2.8	3.3	0.5	4.5	6.1	9.4	-5.4	-3.3	-0.5

Source: OECD *Economic Outlook* No. 84, December 2008.

* HICP for Euro Area countries and the UK, CPI otherwise.

The effects of the downturn are now being seen in the UK's labour market. The unemployment rate rose by 0.4 of a percentage point to 5.8 per cent in the three months ending in September. The numbers unemployed (at 1.82 million) is now higher than at any time since 1997. The unemployment rate is expected to increase to 6.8 per cent in 2009, with employment falling by 1.8 per cent next year.

The severe difficulties facing the UK economy have led to sizeable policy steps on both the monetary and fiscal fronts. The Bank of England has cut rates rapidly and they are now at 2 per cent, the lowest level since 1951. Recognising that such cuts may not be sufficient to prevent a steep and prolonged downturn, the government has announced a fiscal stimulus package which will see borrowing rise to 8 per cent of GDP in 2009. The UK government has also moved to recapitalise its banks and has announced plans with a value of £50 billion. Yet another possible source of stimulus for the UK economy arises from the fall in the value of sterling. In spite all these potential pluses for the UK economy, the sluggish performance is expected to last into 2010, with the OECD expecting growth of just 0.9 per cent in that year.

United States

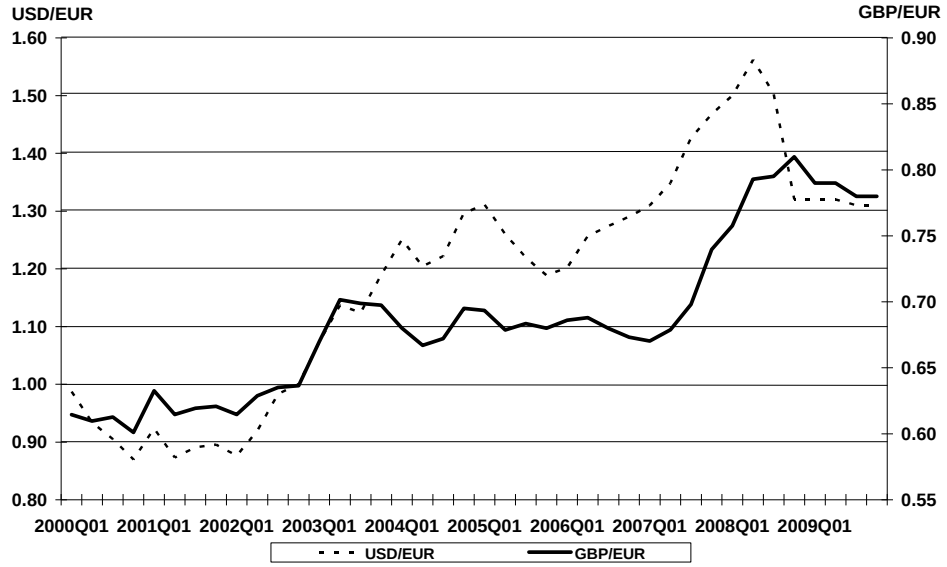
GDP fell at an annual rate of 0.5 per cent in the United States in the third quarter. Although the corresponding figure for the second quarter was an impressive +2.8 per cent, it was generally recognised that the Q2 performance had been artificially boosted by the fiscal stimulus of early 2008 and that the US had been experiencing an underlying downturn for some time. The problems for the US economy began in 2007 with falling house prices and declines in house building activity. Since then, the difficulties in financial markets have meant that falls in both consumer spending and in non-residential investment are now adding to the economic woes. Consumption fell by 3.7 per cent (annualised) in the third quarter; non-residential fixed investment fell by 1.5 per cent (again, annualised).

While these figures illustrate the economic difficulties, figures on car sales provide a starker picture. US car sales were 32 per cent lower in October 2008 relative to the same month in 2007. The actual monthly sales figure was the lowest since January 1991. Adjusting for population size, it was the lowest monthly sales total since World War II. The starkness of the situation can also be seen in developments in the labour market. Employment fell over 500,000 in November alone, with over 1.25 million jobs having been lost since August. (Total employment in the US is 146 million.) The unemployment rate increase by 0.6 of a percentage point between September and November, reaching 6.7 per cent.

As in other countries, the economic difficulties have led to significant policy interventions. The Federal Reserve has been amongst the most aggressive of rate cutters and has brought the official rate down to 1 per cent. Congress eventually passed the US$700 billion package whose original purpose was to buy up so-called "toxic assets" in an effort to free up financial markets. A large-scale fiscal stimulus package is under discussion and it appears likely that this will be enacted early in 2009.

The latest forecast from the OECD sees GDP growing by 1.4 per cent in 2008 and declining by 0.9 per cent in 2009. The OECD also expects that mid-2009 will see a bottoming out in the downturn in the US as normality begins to return to financial markets and the aggressive actions on the part of the Fed begin to yield results.

Figure 2: Exchange Rates



Source: Central Bank & Financial Services Authority of Ireland (historic) and *Euroframe Autumn Report 2008* (forecast).

Asia

Japan had been enjoying its longest period of continued expansion since World War II but this came to an end in the middle of 2008. A contraction in exports led the overall contraction, due to a fall in global demand and an appreciation of the yen. For 2008, growth of 0.5 per cent is now expected. The falling demand for exports is expected to continue into 2009 but there will be some counterbalancing from a fiscal stimulus and increased housing output. This latter effect will arise due to a slump in activity in the latter part of 2007 as a result of changes to building standards laws. For 2009, a GDP contraction of 0.1 per cent in expected.

GDP growth in China is moderating and is expected to be 9.5 per cent in 2008, down from 11.9 per cent in 2007. The deceleration has prompted the Chinese authorities to engage in a fiscal stimulus and also to cut interest rates. For 2009, growth of 8 per cent is anticipated.

Context for Ireland

With Ireland's major trading partners now in a recession that is likely to persist at least into the middle of 2009 the international environment is going to be very difficult. Added to this is the strength of the euro relative to sterling, a factor which will weigh heavily on exports to the UK. In spite of this, the high level of policy activity on the parts of central banks and governments holds out the possibility that the world's major economies will begin to show signs of recovery in the middle of 2009. The OECD holds this view, with positive quarter-on-quarter growth expected to resume in the third quarter across the US, Japan and the Euro Area.

THE DOMESTIC ECONOMY

General

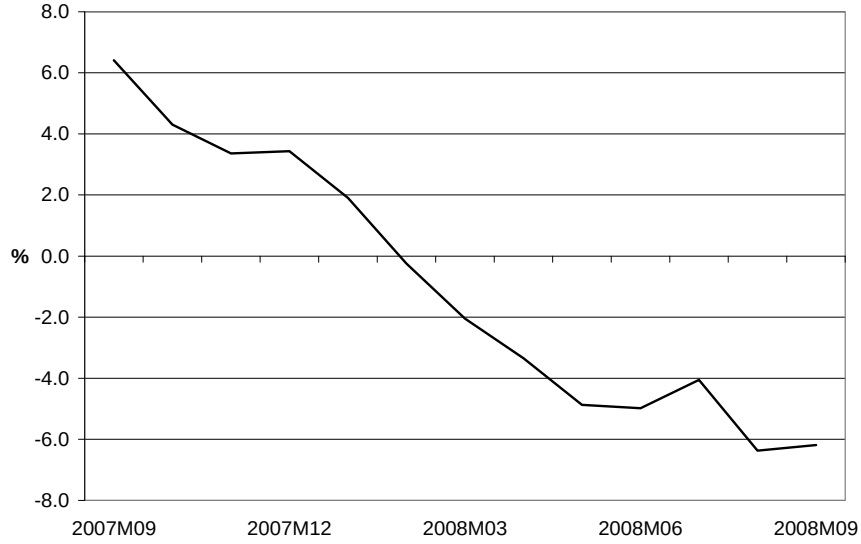
One year ago we were forecasting a growth rate of 2.3 per cent in GNP for 2008. Our latest estimates suggest it will now contract by 2.6 per cent. Within a short twelve months our forecasts have switched from downturn to prolonged recession. We now expect the economy to remain in recession throughout 2009, with both consumption and investment weak throughout the year. We do pencil in the possibility that there will be a small upturn in exports towards the latter half of 2009, if there is a recovery in world growth and world trade at that stage. Nevertheless, this recovery is not sufficient to lead to an increase in volume exports in 2009.

Our forecasts imply a very rapid rise in the unemployment rate, to average 9.4 per cent in 2009. On a quarterly basis this is consistent with an unemployment rate of 10.2 per cent in the fourth quarter of 2009. With rising unemployment and falling output the public finances move into significant deficit, with a general government borrowing requirement of over 10 per cent of GDP in 2009. This implies an increase in the government's net debt position from 12 per cent of GDP in 2007 to 34 per cent in 2009.

Consumption

The quarterly national accounts for Q2 2008 showed how consumption had fallen by 3 per cent in Q2 relative to Q1 (seasonally adjusted). When compared to the volume of consumption in Q2 2007, the volume in Q2 2008 was 1.4 per cent lower. More recent data from the retail sales index show that the decline appears to be accelerating. In September, the index was 6.2 per cent lower than in September 2007. As shown in Figure 3, the year-on-year change in the index turned negative in February and the general trend since then has been for the index to register increasingly larger falls relative to the same month last year. Excluding the motor trade, the fall in the index in September relative to September 2007 was 5.7 per cent. This picture of declining consumer spending is reflected in the KBC/ESRI *Consumer Sentiment Index*. Although the index showed a marginal monthly increase in November, the reading of 44.8 should be compared with the November 2007 reading of 63.1.

Figure 3: Retail Sales Index Volume Growth Rate (Year-on-Year)

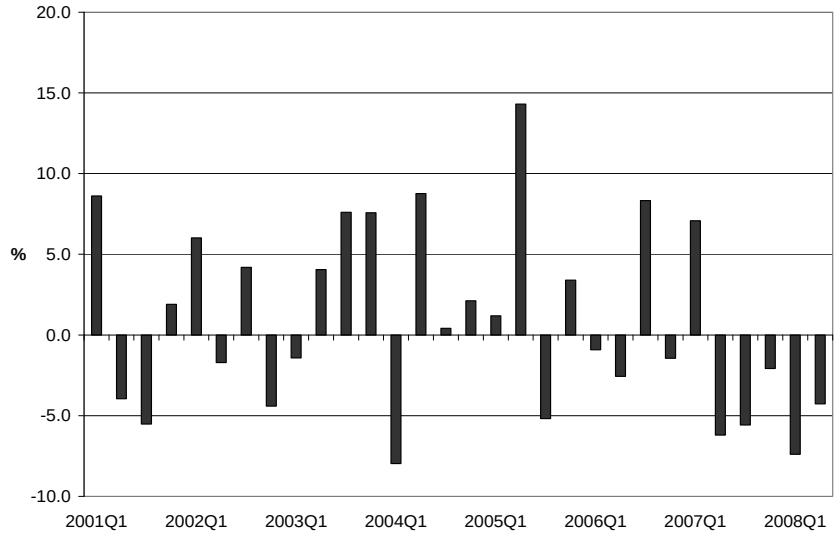


Based on data for the year so far and our view that a range of factors, such as fears of growing unemployment, will continue to depress consumption we expect the volume of consumption to fall by 2.2 per cent in 2008. For 2009, we do not foresee a return to positive growth in consumption during the course of year, and for the year as a whole we expect the volume of consumption to contract by 3.6 per cent.

Investment

Investment growth in the Irish economy has been falling since the first quarter of 2007 (see Figure 4). On an annualised basis, these data suggest that the annual growth rate for 2007 was just 1.2 per cent, six months later in 2008 Q2 this had fallen to -13.2 per cent. While this dramatic slowdown in 2007 was exclusively related to the housing market, we expect that in 2008 and more sharply in 2009 the commercial and retail investment sector will also contract sharply.

Figure 4: Quarterly Growth in Investment, Seasonally Adjusted



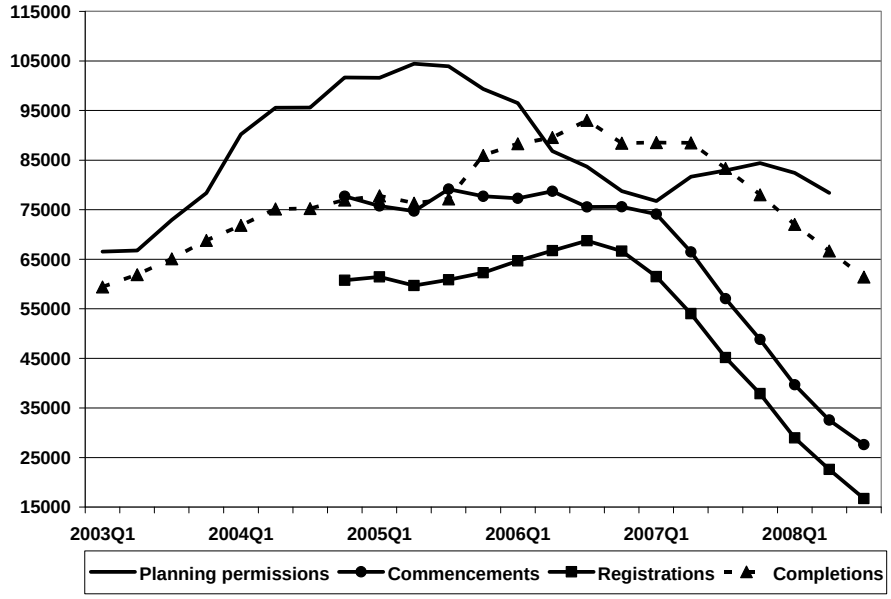
Source: *Quarterly National Accounts*, Central Statistics Office.

Table 2: Gross Fixed Capital Formation

	2006	% Change in 2007		2007	% Change in 2008		2008	% Change in 2009		2009
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Housing	22,664	-9.2	-2.8	22,037	-32.5	-36.3	14,039	-37.3	-41.2	8,253
Other Building	11,135	19.2	20.7	13,436	0.0	-1.0	13,301	-12.0	-20.8	10,535
Transfer Costs	4,168	-19.1	-13.5	3,606	-42.0	-40.0	2,164	-40.0	-40.0	1,298
Building and Construction	37,967	-1.9	2.9	39,079	-21.8	-24.5	29,504	-26.0	-31.9	20,086
Machinery and Equipment	9,665	13.5	14.4	11,061	-8.0	-7.1	10,278	0.0	-1.0	10,175
Total	**47,632**	**1.2**	**5.3**	**50,140**	**-18.6**	**-20.7**	**39,782**	**-19.3**	**-23.9**	**30,261**

In the Autumn *QEC* we estimated housing completions of 45,000 in 2008 and 25,000 in 2009. We have revised these figures to 47,500 in 2008 and 22,500 in 2009. This revision is due to the fact that total completions for the first ten months of the year are running slightly above 43,500 so that our figure for 2008 has been revised upwards. For 2009 we have brought down our estimate based on the very rapid decline in commencements and house registrations data in recent months – see Figure 5. The figure for commencements suggest an annual total of just over 27,600 houses for the year ended October 2008, while data on house registrations for the year ended October 2008 show an annual total of just over 15,000. Based on these estimates we now expect total housing investment over the next eighteen months to contract sharply with volume investment in housing falling by 33 per cent in volume terms in 2008, and a further 37 per cent in 2009.

Figure 5: Housing Statistics, Annualised Numbers



Source: Department of the Environment, Heritage and Local Government.

In terms of house prices, the latest *NIE* data suggest an annual growth in the dwellings investment deflator of 7.6 per cent in 2007. However, this annual average figure masks a steady decline in the pace of dwellings inflation through the year so that by the end of 2008 Q2 this figure had fallen to 0 per cent. Other measures of house prices all point to a strong downward trend. Quarterly data from the DoEHLG suggest that new house prices peaked in the second quarter of 2007, falling over 6 per cent from that peak by 2008 Q2. Monthly data from the permanent tsb/ESRI new house price index suggest new house prices peaked in February 2007 and have been falling steadily since then, down 12.3 per cent from that peak by October 2008.

Table 3: Growth Rate in Different Measures of House Prices

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008f	2009f
Dwellings Deflator	12.7	10.7	9.8	11.1	15.3	13.0	6.5	8.3	7.6	-8.0	-10.0
DoEHLG new house prices	18.5	13.9	8.1	8.3	13.4	11.0	10.8	10.6	5.6	-8.0	-12.2
permanent tsb/ESRI new house prices	21.3	18.8	15.3	4.1	10.1	12.8	8.7	12.5	1.7	-8.0	-14.0

We have revised our forecast for changes in the dwellings deflator in 2008 and 2009 downwards to -8 per cent in 2008 and -10 per cent 2009. Table 3 translates these figures into more widely cited measures of house prices, namely the DoEHLG house price measure and the TSB/ESRI measure. These figures are broadly consistent with monthly prices in December 2009 at 27 per cent below the February 2007 peak in nominal terms.

For non-residential investment, we are forecasting investment in other building and construction (excluding transaction costs) to record zero per cent growth in 2008, this includes a growth of 8 per cent in public investment projects and a 7 per cent decline in investment from the commercial and retail sectors. For 2009 we are forecasting commercial and retail investment to contract by 35 per cent, partly due to the more general slowdown in the economy and partly due to the specific credit problems facing the commercial and retail sector. In relation to public investment, we have assumed a growth in volume terms in 2009 of 10 per cent. With the Budget 2009 figures for capital investment including a nominal fall of 5 per cent in investment expenditures, this figure implies a fall in prices of over 10 per cent. This is in line with the general fall in prices in this sector forecast for next year: the authorities should now have the possibility to negotiate significant savings on NDP-funded projects.

There was very strong growth of 13.5 per cent in machinery and equipment investment in 2007, in large part driven by purchases of airplanes; excluding investment in transport equipment, the growth rate was just 1.2 per cent. For 2008 we expect this to contract by 8 per cent, partly due to the base effect of the large investment in transport equipment in 2007 and partly due to the general slowdown in economic activity. For 2009 we expect no increase in volume and a 1 per cent contraction in value.

These figures imply that investment is expected to contract by 18.6 per cent in volume terms in 2008, and by 19.3 per cent in 2009. If realised, this would mean that the share of investment in GNP would fall sharply from 31 per cent in 2007 to 20 per cent in 2009.

Government Spending and Public Finances[2]

The November exchequer returns show that total tax revenues were down almost €6 billion relative to the same period in 2007 and €7.3 billion below profile. The collapse in tax revenues has accelerated throughout the year as the slowdown in the residential sector has spread more generally to other sectors of the economy. Figure 6 shows the change in exchequer revenues throughout 2008. Until May receipts of non-capital taxes were steady, since then these have also fallen relative to 2007 as the slowdown in other sectors of the economy, in particular the slowdown in consumption and employment, have led to a more general slump in tax revenues. On the basis of these numbers we now expect total exchequer tax revenue to be €42 billion, compared with our initial forecast in Winter 2007 of €48.9 billion. We expect this to fall further in 2009 to €40 billion given our forecast of continued falls in consumption, rising unemployment and further falls in both residential and non-residential investment.

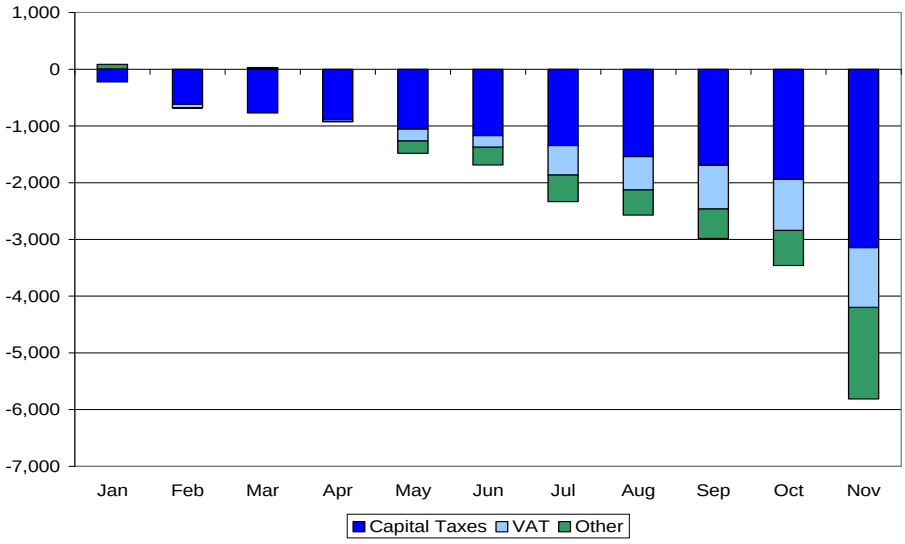
Table 4: Public Finances

	2006 €m	% Change	2007	% Change	2008	% Change	2009
Current Revenue	46,145	3.8	47,887	-12.7	41,810	-3.7	40,262
Current Expenditure	37,090	10.3	40,896	10.2	45,063	7.0	48,220
of which: *Voted*	32,915	12.3	36,959	10.8	40,943	3.2	42,235
Current Surplus	9,055	-22.8	6,991	-146.5	-3,252	144.7	-7,957
Capital Receipts	1,871	-24.7	1,408	-1.1	1,392	11.9	1,559
Capital Expenditure	8,662	15.7	10,019	10.0	11,020	-6.9	10,257
of which: Voted	6,476	18.1	7,650	11.3	8,513	-8.8	7,765
Capital Borrowing	-6,791	26.6	-8,610	11.8	-9,627	-9.6	-8,698
Exchequer Balance	2,264.3		-1,619.2		-12,879.7		-16,655.8
as % of GNP	1.5		-1.0		-8.1		-11.0
General Government Balance*	5,327.3		442.8		-12,885.1		-18,246.2
as % of GDP	3.0		0.2		-6.9		-10.2
Gross Debt as % of GDP	24.7		24.8		36.7		47.5
Net Debt as % of GDP**	12.5		12.0		24.5		34.1

* 2008 and 2009 figures are based on National Accounts estimates.
**Net of Pensions Fund and Social Insurance Fund.

[2] Our figures for 2009 make no provision for possible expenditures on recapitalising the banks. However, we can assume that these expenditures will be made in such a way to ensure no change in the net asset position of the government.

Figure 6: Cumulative Change in Exchequer Revenues During 2008 Relative to Same Period in 2007 (€000s)



This collapse in tax revenues has led to a very dramatic rise in the borrowing requirement. We now estimate that total government borrowing will be close to €13 billion in 2008, almost 7 per cent of GDP rising to €18.2 billion or 10.2 per cent in 2009. Table 5 shows the composition of this deficit. Looking first at tax revenues, we can see that between 2002 and 2006 the share of taxes in GDP rose from 28.3 per cent to 32 per cent of GDP. The source of this increase was almost exclusively due to a rise in the importance of capital taxes as a source of revenue, whose share rose from 1.5 to 4 per cent of GDP. The current collapse of the property market has meant that this share has fallen to an estimated 2 per cent in 2008, this is likely to fall further to 1.3 per cent in 2009. At the same time taxation policy has led to a structural fall in non-capital taxes share of GDP over the past ten years. For instance, as discussed in Lane (2008), OECD data for 2007 show that in relation to net direct taxation, the tax burden on average households in Ireland was significantly lower than the OECD average. Indeed certain low- and middle-income groups, after taking account of cash transfers, were effectively net recipients from the State.[3] Effectively wind-fall taxes generated during the property boom were used to fund a structural reduction in other sources of taxation; this policy has seriously exacerbated the deficit facing the authorities.

[3] Lane, P. (2008). *Setting a Course for Irish Fiscal Policy*, ESRI Budget Perspectives Conference.

Table 5: Tax Revenue and Expenditure as Per Cent of GDP[4]

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tax revenue	31.5	31.5	31.4	29.6	28.3	28.8	30.1	30.5	32.0	31.0	28.5	28.2
Excluding capital taxes	30.1	29.8	29.4	27.6	26.8	26.5	27.5	27.5	28.0	27.5	26.6	27.0
Total expenditure	32.2	31.9	29.5	31.5	31.6	31.3	31.4	31.5	31.8	32.9	37.5	40.8
Current	28.6	26.1	25.0	26.1	26.5	26.7	27.0	27.2	27.2	27.5	31.1	34.8
Capital	3.6	5.8	4.5	5.4	5.1	4.6	4.4	4.4	4.6	5.4	6.4	6.0

Second looking at expenditure, we can see that between 1998 and 2006 total expenditure as a percentage of GDP was relatively stable at between 31 and 32 per cent of GDP. It rose by over one percentage point in 2007, most of which was due to an acceleration in capital spending. However, this figure jumps dramatically in 2008 and 2009, because GDP falls by a cumulative 6.4 per cent (2.6 per cent in 2008 and 3.9 per cent in 2009) and total expenditure[5] rises by a cumulative 16 per cent (10.9 per cent in 2008 and 4.5 per cent in 2009). Together with the collapse of windfall property taxes, this has created a yawning gap between expenditures and revenues.

With the economy facing a relatively prolonged recession with rising unemployment and falling consumption it is inevitable that the public balance will deteriorate. However, policy choices made at the beginning of the decade which led to a structural reduction in the taxation take in the economy were effectively masked by the windfall exchequer gains generated by the property bubble in the middle of the decade. This meant that structural expenditure increases were funded out of an unsustainable revenue trajectory. The consequence of these imbalances for the economy during the current recession is that the borrowing requirement is rising too rapidly to allow for any form of pro-cyclical fiscal policy. Instead over the short-term the key priority of the authorities must be to control the growth of public spending.

Exports

Exports of goods and services have slowed considerably this year, recording an annual volume growth rate of 3.7 per cent in Q2. While the *Quarterly National Accounts* data for Q3 are not yet available, the latest figures suggest a further moderation in the second half of the year. According to the latest *External Trade* statistics, the merchandise export volume index grew by just 0.9 per cent in the year ending September 2008. Services exports slowed dramatically in the first half of the year, growing by just 1.2 per cent compared to the same period last year. We do not expect any significant improvement in this figure in the second half of 2008.

[4] Tax revenues less expenditure do not sum to the deficit, the difference being non-tax revenues on both current and capital side. The revenue and expenditure items here are on a national accounts basis.

[5] In these tables we use Budget day figures for exchequer and gross expenditure numbers. This includes an implicit assumption that any increase in expenditure demands due to the recession will be met by cuts elsewhere so that the authorities will keep within budget for 2009 as a whole.

Following a strong performance in the final quarter of 2007, merchandise export growth decelerated markedly in the first half of 2008, growing by just 1.9 per cent in volume terms in Q2, on an annual average basis. In value terms, they contracted by 2.6 per cent, signalling a continuation in the trend of falling merchandise export prices in that period. The latest *External Trade* statistics estimate a fall of 3.1 per cent in the value of merchandise exports in the year ending September 2008. Overall, we expect no volume growth in 2008 and a contraction of 3.5 per cent in the value of merchandise exports. However, we expect the recent strengthening of the dollar to have an impact on merchandise export prices over the coming months. The Wholesale Price Index for manufacturing, a leading indicator of export prices, has registered an increase in each of the last three months. In October 2008, this index grew by 2.6 per cent, compared to the same month last year. As a result, we are now forecasting 2 per cent growth in the value of merchandise exports next year. We expect no growth in volume terms.

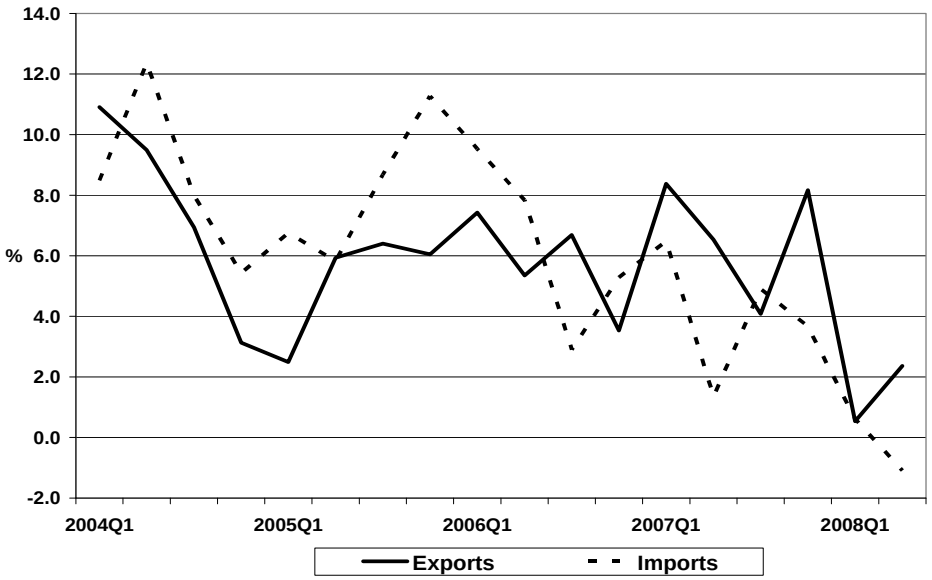
2008 has been a disappointing year for services exports, following an annual volume growth rate of 11.2 per cent in 2007. According to the *Quarterly National Accounts*, the volume of services exports grew by just 6.3 per cent in 2008 Q2, on an annual basis. The *Balance of Payments* figures, which provide a breakdown of services exports in value terms, confirm a slower pace of growth across all services sectors. In particular, however, growth in financial services has moderated significantly, in line with the overall global slowdown in this sector. Financial services exports grew by just 8.3 per cent in the year ending 2008 Q2, following annual growth of 23.4 per cent at the same point last year. The pace of growth in computer services and trade-related business services has also fallen considerably from 2007 levels. Meanwhile, tourism exports grew by just 1.8 per cent. We do not expect any recovery in services exports for the remainder of 2008, in light of the increasingly pessimistic international outlook. We have revised our growth forecast for non-tourism services exports down to just 1.6 per cent in 2008 (4 per cent in value terms). For 2009 we expect a contraction in non-tourism services exports of 1 per cent (0.5 per cent in value). The volume of tourism exports is expected to contract by 0.5 per cent this year (1 per cent growth in value), and for next year we are forecasting a contraction of 1.3 per cent in volume and 1 per cent in value.

With a number of our main trading partners now officially in recession, our forecasts for overall export growth this year have been revised downward since the Autumn *Commentary*. We now expect export growth this year of just 0.6 per cent in volume, and a contraction of 0.3 per cent in value. This will be the slowest pace of export growth in five years. The outlook for 2009 is also considerably more bleak than previously anticipated, and we expect overall exports to contract by 0.4 per cent in volume terms, and to grow by 0.8 per cent in value. However, bearing in mind that the international outlook for 2009 remains highly uncertain, we do expect a very modest recovery in exports towards the end of next year, in line with the expected turnaround in the Euro Area and US economies.

Table 6: Exports of Goods and Services

	2006	% Change in 2007		2007	% Change in 2008		2008	% Change in 2009		2009
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Merchandise	83,235	3.7	1.3	84,300	0.0	-3.5	81,350	0.0	2.0	82,976
Tourism	4,258	1.0	3.9	4,426	-0.5	1.0	4,470	-1.3	-1.0	4,426
Other Services	52,811	12.1	15.9	61,224	1.6	4.0	63,673	-1.0	-0.5	63,355
Exports of Goods and Services	140,304	6.8	6.9	149,950	0.6	-0.3	149,493	-0.4	0.8	150,757
FISIM Adjustment	1,359			1,440			1,494			1,487
Adjusted Exports	141,663	6.8	6.9	151,390	0.6	-0.3	150,987	-0.4	0.8	152,243

Figure 7: Exports and Imports Volume Growth Rates (Year-on-Year)



Source: Quarterly National Accounts, CSO.

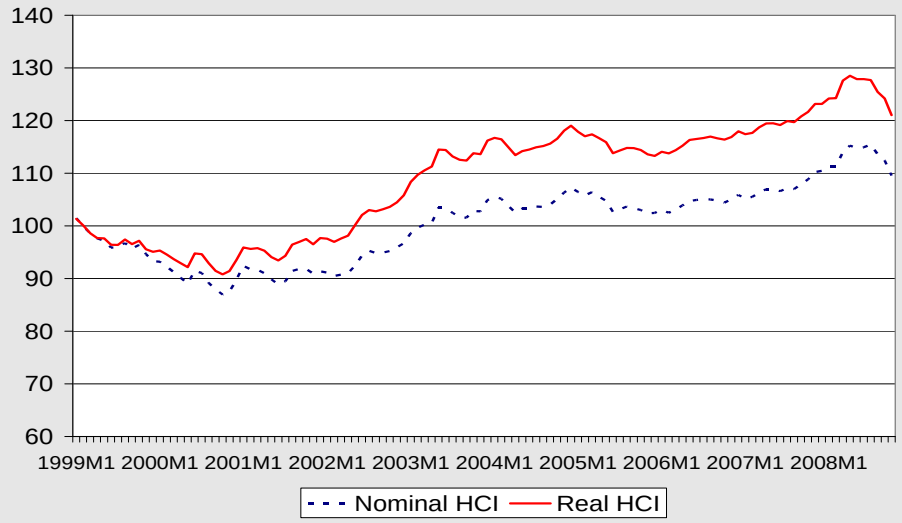
Box: Competitiveness

Ireland has enjoyed a period of remarkable economic growth, beginning in the early 1990s. Inward FDI flows and strong international demand growth fostered a robust export performance during that decade. In more recent years, the composition of Irish economic growth shifted away from export-led growth, to a situation in which domestic sectors drive the economy.

This phase of domestic-led growth has masked an underlying deterioration in the competitiveness of the economy. Figure A displays the nominal and real Harmonised Competitiveness Indicators for Ireland, and shows that the economy has become steadily less competitive since 2001.[6] The Nominal HCI isolates the effect of exchange rate movements and takes a weighted average of the bilateral exchange rates with 56 important trading partners. The Real HCI is deflated by consumer prices, and so it takes into account changes in domestic inflation relative to price changes in our trading partners. While both series show a decline in Irish competitiveness over the last eight years, the sharp deterioration from mid-2007 into early 2008 appears to have been offset in recent months.

[6] An increase in the HCI figure indicates a deterioration in competitiveness.

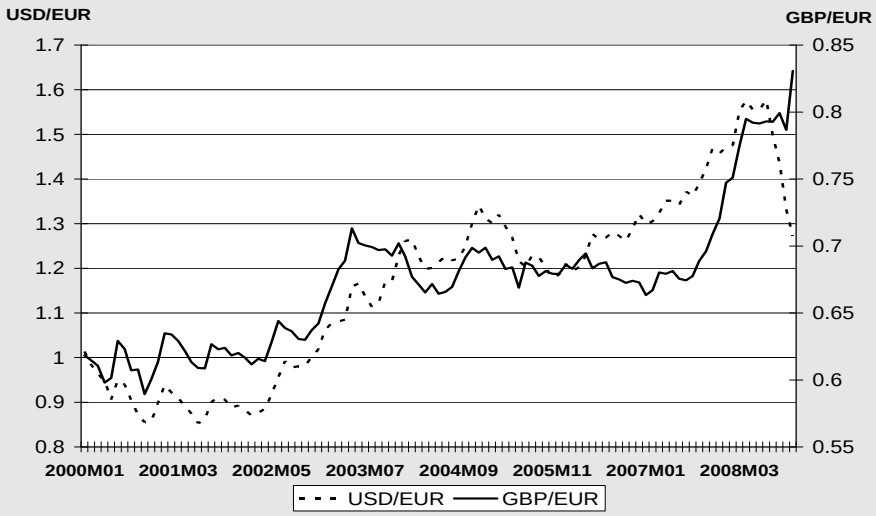
Figure A: Harmonised Competitiveness Indicators



Source: Central Bank & Financial Services Authority of Ireland.

Ireland's primary trading partners outside of the Euro Area are the US and the UK, together accounting for 35 per cent of Irish exports in 2007. As a result, the performance of the euro relative to the dollar and sterling plays a vital role in determining the price competitiveness of the Irish economy. Figure B shows that the euro has appreciated quite significantly over the last eight years, with respect to both currencies. In particular, the euro has made strong gains against sterling and the dollar since early 2007, although the latter has regained momentum in recent months. At its peak in July 2008, the euro was trading at $1.58,[7] representing a 21 per cent appreciation in value from its January 2007 level. The euro recently reached a record high against sterling, trading at an average of £0.83 last month – a 25 per cent appreciation from the January 2007 level. This is a very significant movement, and presents serious implications for Irish exporters whose principal market is the UK.

Figure B: Bilateral Exchange Rates

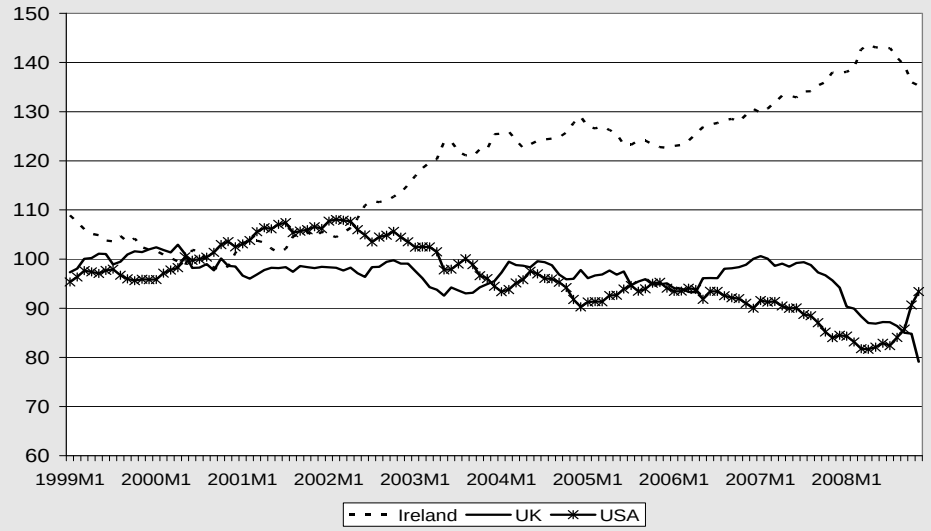


Source: Central Bank & Financial Services Authority of Ireland.

[7] Monthly average for July 2008.

Figure C displays trade-weighted exchange rates for Ireland, the UK and the USA. The trade-weighted exchange rate provides a more comprehensive view of the price competitiveness of exports, as it measures the average price of a domestic good relative to the average price of goods of trading partners, using the share of trade with each country as the weight for that country. An appreciation in this exchange rate results in domestic goods and services becoming less price competitive on world markets, compared to those produced by its trading partners. Figure C indicates that Ireland's trade-weighted exchange rate appreciated significantly from 2002 to mid-2008. Over the same period, the trade-weighted exchange rates of the UK and the US remained relatively stable.

Figure C: Trade Weighted Exchange Rates



Source: Bank for International Settlements (BIS).

Imports

Imports of goods and services also slowed considerably in the first half of 2008, contracting by 0.2 per cent in volume terms compared to the first two quarters of 2007. The volume of merchandise imports contracted by 6.8 per cent over the same period, and the latest *External Trade* figures suggest a further contraction in the second half of the year. The merchandise import volume index contracted by 3.6 per cent in the year ending September 2008. The volume of services imports grew by 6 per cent in Q2 on an annual average basis, while in value terms they grew by 8.8 per cent. Growth in the value of tourism imports remained particularly strong, estimated at 17 per cent in Q2.

Merchandise imports contracted sharply in the first half of 2008, consistent with the lower levels of consumption growth and expenditure on machinery and equipment. The value of merchandise imports contracted by 0.2 per cent in Q2 on an annual basis. The latest *External Trade* statistics indicate that annual growth in the value of food and beverage imports has fallen quite significantly from 2007 levels. In the year ending August 2008, value growth in food imports was 7 per cent, while the value of beverage imports contracted by 2.2 per cent. Imports of petroleum products increased by 30 per cent in value over the same period, although we would expect this to decrease in the coming months, as oil

Table 7: Imports of Goods and Services

	2006	% Change in 2007		2007	% Change in 2008		2008	% Change in 2009		2009
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Merchandise	58,203	4.1	6.2	61,840	-3.5	-4.0	59,366	-4.0	-4.5	56,695
Tourism	5,446	15.0	17.3	6,389	2.5	4.0	6,645	-0.5	0.0	6,645
Other Services	58,421	3.0	6.3	62,130	-2.3	-0.5	61,819	-3.3	-2.5	60,274
Imports of Goods and Services	122,070	4.1	6.8	130,359	-2.7	-1.9	127,830	-3.5	-3.3	123,613
FISIM Adjustment	557			658			659			644
Adjusted Imports	122,627	4.1	6.8	131,017	-2.7	-1.9	128,490	-3.5	-3.3	124,258

prices have dropped considerably from their peak earlier this year. The total value of merchandise imports is estimated to have fallen by 4.3 per cent in the year ending September 2008. We now expect the volume of merchandise imports to contract by 3.5 per cent this year, and by 4 per cent next year. In value terms, we expect a contraction of 4 per cent this year and 4.5 per cent next year.

According to the most recent *Balance of Payments* statistics, non-tourism services imports grew by 8 per cent in value terms in the year ending 2008 Q2. Annual growth in the value of tourism imports was 17 per cent in Q2, although we expect this to moderate significantly in the second half of the year, in line with our forecast for a sharp fall in private consumption. Overall we expect tourism imports to grow by 2.5 per cent in volume this year, and by 4 per cent in value. We are forecasting a 0.5 per cent contraction in the volume of tourism imports next year, and zero growth in value. We now expect non-tourism services exports to contract by 2.3 per cent this year in volume terms, and by 0.5 per cent in value. In 2009, we expect a further contraction of 3.3 per cent and 2.5 per cent in volume and value respectively.

We have cut our overall import growth forecast for 2008 and 2009, consistent with our expectations for consumption and investment growth in both years. We now expect the volume of imports to contract by 2.7 per cent this year and by 3.5 per cent next year. In value terms, we are forecasting a contraction of 1.9 per cent this year and 3.3 per cent next year.

Balance of Payments

Our projections for merchandise exports and imports imply a contraction of 2.1 per cent in the merchandise trade surplus in 2008, followed by a widening of almost 20 per cent in 2009. This is an improvement from the estimated contraction of over 10 per cent in 2007, although the figures show that the slower pace of contraction this year is the result of a dramatic downturn in imports, rather than a stronger export performance. A similar pattern is emerging in the services trade balance, and the significant slowdown in services imports this year is expected to result in a considerable narrowing of the trade deficit. We expect the decline in imports to result in a surplus in services trade next year, the first such surplus since 1982. We estimate a total trade balance of 13.7 per cent of GNP this year, and 18 per cent of GNP next year.

In relation to net factor flows, the latest *Balance of Payments* data estimate that the net factor income deficit widened by 1.3 per cent in the year ending 2008 Q2, while total debit flows increased by 8.2 per cent. Direct investment income is estimated to have grown by 12.1 per cent, while portfolio and other investment income grew by 10.6 per cent, resulting in total credit flow growth of 10.7 per cent. The net factor income deficit increased by over 19 per cent in 2007. We expect the deficit to decrease by 7.6 per cent this year, but to grow by 1.5 per cent next year. The effective current account balance is expected to narrow this year and next, to -3.6 per cent of GNP in 2008 and -0.4 per cent of GNP in 2009.

Table 8: Balance of Payments*

	2006 €m	Change %	2007 €m	Change %	2008 €m	Change %	2009 €m
Merchandise Trade Balance	25,032	-10.3	22,460	-2.10	21,983	19.6	26,282
Service Trade Balance	-6,798	-57.8	-2,869	-88.8	-321	-3,68.7	862
Trade Balance in Goods and Services on BoP basis	18,234	7.4	19,591	10.6	21,662	25.3	27,143
% of GNP	12.0		12.2		13.7		18.0
Total Debit Flows	90,114	23.8	111,566	1.7	113,511	-3.5	109,565
Total Credit Flows	66,086	25.5	82,957	5.0	87,084	-5.0	82,730
Net Factor Flows	-24,028	19.1	-28,609	-7.6	-26,427	-1.5	-26,835
Net Current Transfers	-504		-1,283		-1,283		-1,283
Balance on Current Account	-6,298		-10,301		-6,047		-974
Capital Transfers	223		62		300		300
Effective Current Balance	-6,075		-10,239		-5,747		-674
% of GNP	-4.0		-6.4		-3.6		-0.4

* This table includes adjustments to *Balance of Payments* basis.

Measures of Growth

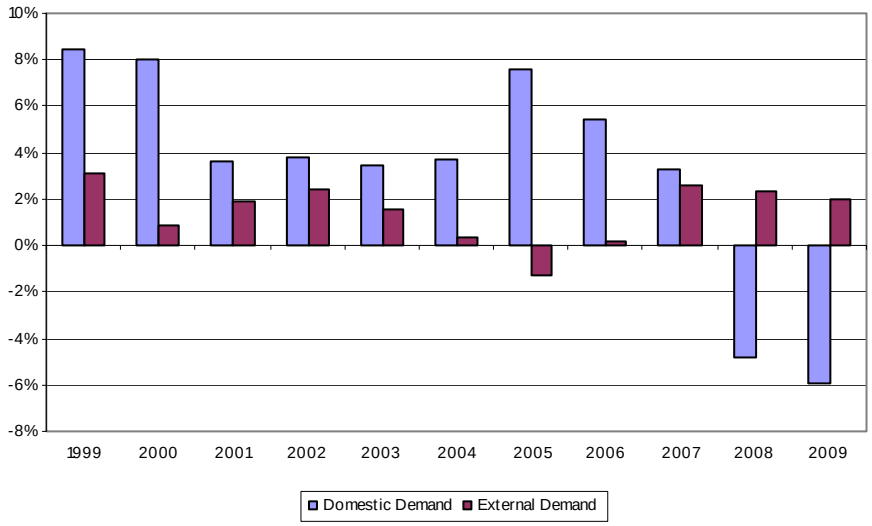
Our figures imply a fall in output and income in both 2008 and 2009. Gross National Disposable Income is a more appropriate measure of a country's overall level of income than GNP since it also includes changes in the terms of trade and net international transfers. Our forecasts for 2008 imply a deterioration in the terms of trade so that while GNP falls by 2.6 per cent GNDI falls by 4.2 per cent. However in 2009, given current forecasts that the dollar will continue to rise in value, we are forecasting an improvement in the terms of trade so that the fall in GNDI of -3.6 per cent is lower than the fall in GNP of -4.6 per cent. GNP per capita, which adjusts for increases in the population size largely driven by inward migration, indicates a fall of 4.5 per cent in 2008 and of 4.3 per cent in 2009.

The most recent national accounts data suggest that in 2007 the external sector made its largest contribution to the overall growth rate since 2002. Our forecasts for 2008 and 2009 suggest that the recession will be entirely driven by domestic demand. The shrinking of the domestic sector is shown in Table 9, which shows that the investment to GNP ratio plummets from 31 per cent in 2007 to just 20 per cent in 2009. As shown in Figure 8 the external sector is forecast to add to the overall growth rate in both 2008 and 2009. However, it is important to point out that some of this is due to a shrinking in the level of imports, reflecting the stagnation in consumption and sharp contraction in investment in the economy.

Table 9: Measures of Growth

Growth Indicators	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GNP	8.5	9.5	3.8	2.9	5.9	4.5	5.8	6.3	4.1	-2.6	-4.6
GNP adjusted for Terms of Trade	8.2	8.3	4.9	4.0	4.7	3.7	4.7	5.4	1.6	-4.2	-3.5
GNDI	7.8	7.8	4.0	4.4	4.4	3.7	4.5	4.8	1.1	-4.2	-3.6
National Resources	7.3	8.5	3.4	4.2	4.0	3.8	4.5	4.7	1.0	-4.1	-3.6
GNP per capita (constant prices)	7.4	8.1	2.3	1.0	4.2	2.8	3.5	3.7	1.8	-4.5	-4.3
Consumption per capita (constant prices)	7.8	8.2	3.6	2.2	1.4	2.2	4.8	4.4	3.9	-4.0	-3.3
Investment in Housing/GNP	8.8	9.1	9.7	10.1	11.7	13.4	14.9	14.9	13.7	8.9	5.5
Investment/GNP	27.2	27.2	26.7	26.4	26.4	28.6	31.4	31.2	31.1	25.1	20.1
Domestic Demand						4.1	8.7	6.2	3.7	-6.1	-7.0

Figure 8: Contributions to Growth[8]



Box: The Flow of Funds and the Balance of Payments

By John Fitz Gerald

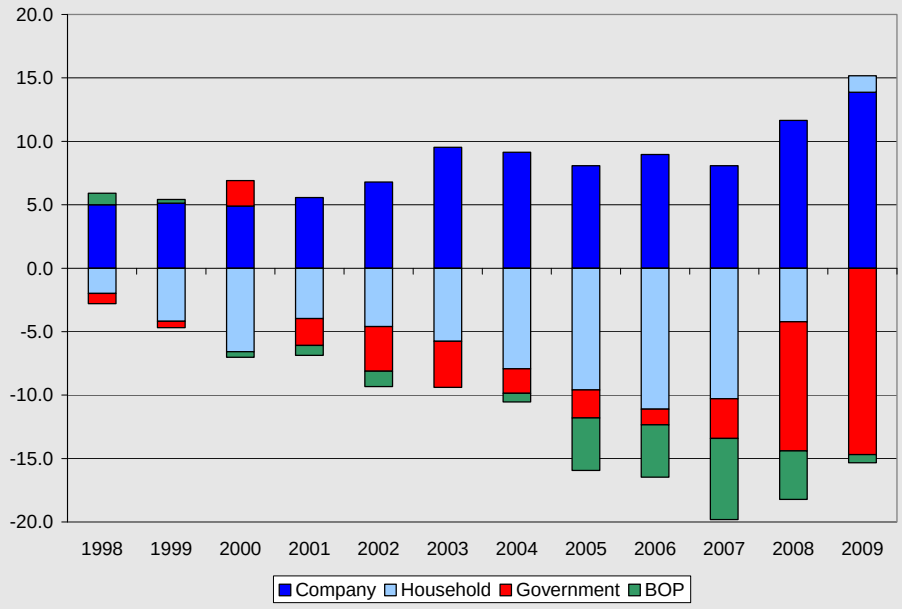
Underlying the latest *QEC* there are significant changes in the flow of funds between sectors in the Irish economy. These flows, in turn, together match the balance of payments deficit (surplus).

Figure A below shows the net acquisition of financial assets by key sectors over the last decade. Traditionally, the household sector in Ireland was a substantial saver and it was a net acquirer of financial assets. However, by the late 1990s the rise in investment in housing by the household sector reversed this pattern, with households becoming net

[8] The growth rates in domestic demand and external demand are weighted by their respective share in GDP. Therefore, these two growth rates sum to the overall growth in GDP.

borrowers to finance their investment in housing. This borrowing reached exceptional levels in the period 2003 to 2007.

Figure A: Net Acquisition of Financial Assets[9]



This borrowing by households was funded directly through mortgages from the domestic financial system. In turn, the financial system was not able to raise adequate funds domestically and, instead, the net foreign liabilities of the banking system rose rapidly in the period to 2007. This very rapid rise in the banking system's net foreign liability, shown in Figure B, would not have been possible if Ireland had not been a member of EMU. If the borrowing by the banking system had been in a foreign currency the dramatic increase in foreign currency risk would have been passed on to domestic borrowers as higher interest rates and this, in turn, would have choked off the boom in the housing market. (The boom would probably have been choked off prematurely around the turn of the century.)

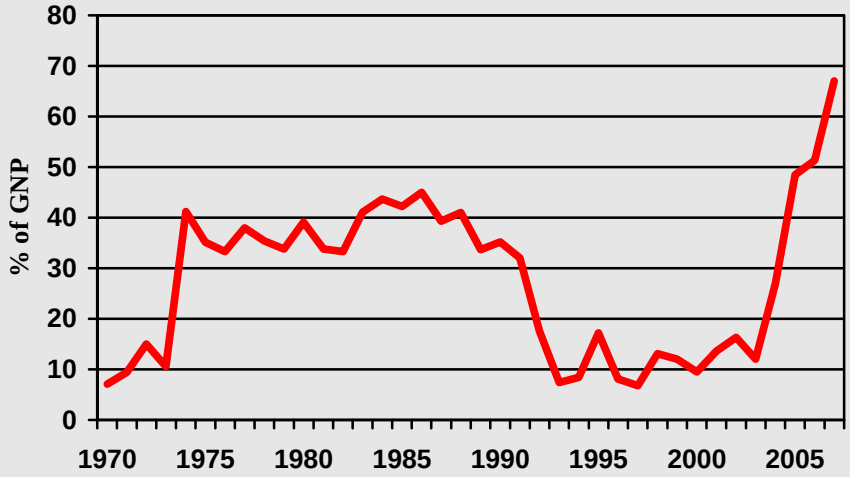
This capital inflow through the banking system was the counterpart to the rapidly rising balance of payments deficit after 2002. With the government sector in close to balance until this year and the company sector in steady surplus, the counterpart to the movement in the balance of payments was the growth in the household sector borrowing and the related change in the banking system's net external position.

However, the situation in 2008 and 2009 is changing rapidly. By 2009 the household sector will no longer be a significant net borrower. However, there has been a dramatic deterioration in the government's position with it borrowing heavily in 2008 and 2009. In spite of this borrowing, the decline in the financing needs of the household sector (and

[9] These balances should sum to zero. The difference is due to the statistical discrepancy plus differences between Balance of Payments and National Accounts measures before 2006.

related decline in investment in housing) will mean that the balance of payments deficit will fall rapidly.

Figure B: Net Foreign Liabilities of the Banking System



Because the government sector will fund its borrowing through sales of bonds abroad this will cover the balance of payments deficit. In fact the government's deficit will tend to pump some liquidity into the economy. With the personal sector no longer a net borrower the banking system will find itself not having to borrow abroad (net) to fund household sector activities in 2009. Moving into 2010, the household sector could even become a net lender. This could even see some repayment by the banks of their net foreign borrowing.

For the banks themselves this changed environment is likely to see them relying more on internal funding (deposits). While funding of the huge existing net foreign liabilities will continue to put them under pressure, at least they will not be trying to increase their funding from abroad. By 2010 this should see some easing in their position. However, because there are quite a number of banks this net position may be consistent with rather different funding needs for individual banks. As there is no Dublin interbank market (because there is no Irish pound) the individual banks will still find themselves reliant to a greater or lesser extent on the interbank market to smooth their inflow of funds and requirements for finance.

While the net foreign liabilities of the banking system are likely to stabilise or even fall over the next two years this will not solve the problem of a potential shortage of capital arising from losses through loans associated with real estate. The banks will probably still need a substantial injection of capital. Failure to do so could see a freezing on domestic credit markets.

Sectoral Output

We reported in the last *Commentary* on recent trends in *industry*, as detailed in the *Quarterly National Accounts* for Q2 2008. The main story at that time was the severe contraction in building and construction, with activity in Q2 2008, 12.2 per cent lower than the corresponding quarter in 2007. Over the same period industry outside of building recorded an increase in output volume, of 5.8 per cent.

The latest data from the *Industrial Production and Turnover* series point to activity being flat as opposed to contracting. The volume index for Q3 2008 was essentially unchanged from that of Q2 2007. Comparing the full year ended Q3 2008 with the same period one year earlier, growth of 4.4 per cent was recorded. This annualised figure is made up, however, of divergent patterns across the traditional and modern sectors. While the modern sector posted growth of 7.4 per cent in volume, the traditional sector contracted by 2.6 per cent. The apparent contraction in the traditional sector is more pronounced if we compare Q3 2008 and Q3 2007. On this basis, a contraction of 6.4 per cent is recorded.

The *QNA* for Q2 also showed that *services* were beginning to contract. On a quarter-on-quarter basis, the volume of services in total fell, although by less than 1 per cent. In proportionate terms, the biggest fall was in distribution, transport and communications where a fall of 2.2 per cent (quarter-on-quarter) was recorded. "Other services" fell by 0.5 per cent, while public administration and defence grew by 0.9 per cent. We can get some additional insights into recent trends in services, and in industry, from the employment figures in the *Quarterly National Household Survey* Q3 2008. In those figures, construction shows the biggest proportionate decline in employment, comparing Q3 2008 and Q3 2007, at 9.1 per cent. The next biggest proportionate decline is for hotels and restaurants (down 3.9 per cent or 5,400 employees), followed by "other productive industries" (down 3.1 per cent or 9,400 employees). Financial and other business services show an employment fall of 0.6 per cent (almost 2,000 employees). However, if we compare Q3 2008 and Q2 2008, the fall in employment for financial and other business services is more pronounced, at 4,000 job losses.

Looking ahead, the highly recessionary environment which we have set out for the demand side of the economy will obviously be reflected on the supply side. For 2008, we expect services to contract by 0.6 per cent in volume terms and for industry (including building) to contract by 3.7 per cent. This figure is largely the result of the on-going contraction in house-building, with building contracting by 19.7 per cent. For 2009, we expect services output volume to fall by 2.1 per cent and industrial (including

Table 10: GDP by Sector

	2006	% Change		2007	% Change		2008	% Change		2009
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Agriculture	3,812	1.3	10.3	4,206	-2.0	-2.4	4,106	-3.0	-4.5	3,922
Industry:	52,610	7.9	7.2	56,403	-3.7	-6.1	52,971	-5.8	-9.1	48,142
Other Industry	36,685	11.3	8.2	39,701	2.6	1.0	40,098	0.0	-2.0	39,296
Building & Construction	15,924	0.1	4.9	16,702	-19.7	-22.9	12,873	-25.0	-31.3	8,846
Services:	99,751	6.7	9.6	109,317	-0.6	1.2	110,590	-2.1	-0.3	110,224
Public Administration & Defence	5,396	2.5	7.4	5,797	2.8	4.5	6,058	-1.5	-1.0	5,998
Distribution, Transport and Communications	25,258	5.8	8.5	27,411	-4.6	-3.4	26,473	-3.4	-3.8	25,458
Other Services (including rent)	69,097	7.4	10.1	76,109	0.6	2.6	78,059	-1.7	0.9	78,768
GDP at Factor Cost	156,173	7.0	8.8	169,927	-1.7	-1.3	167,667	-3.4	-3.2	162,289

building) output to fall by 5.8 per cent. Within this figure, we foresee building output falling by 25 per cent, as the house-building decline (which is expected to continue into 2009) is compounded by a fall in commercial building.

For agriculture, a major uncertainty at the time of writing concerns the fall-out from the withdrawal of pork products. While there will clearly be a one-off hit to the pig industry, and possibly to the government finances via a compensation scheme, it is unclear as to whether there will be a long-term problem in terms of the willingness of consumers internationally to buy Irish pork (or other food products). We have not factored in such a long-run effect and expect agricultural output to fall by 3 per cent in volume terms.

Employment

As with many other elements of the economy, the latest figures on employment point to an economy that is slowing down and at an accelerating pace. According to the latest *Quarterly National Household Survey* (which relates to Q3 2008), there were 25,200 fewer people at work in Q3 2008 relative to Q3 2007, a fall of 1.2 per cent. By looking at this same comparison (i.e. Qx in year t relative to Qx in year t-1) for the earlier part of the year, the astonishing turnaround in the labour market is apparent. In Figure 9, we show these figures. Employment in Q1 2008 was 53,800 higher than in Q1 2007. The corresponding figures in the two quarters preceding it were even higher.

Table 11: Employment and Unemployment

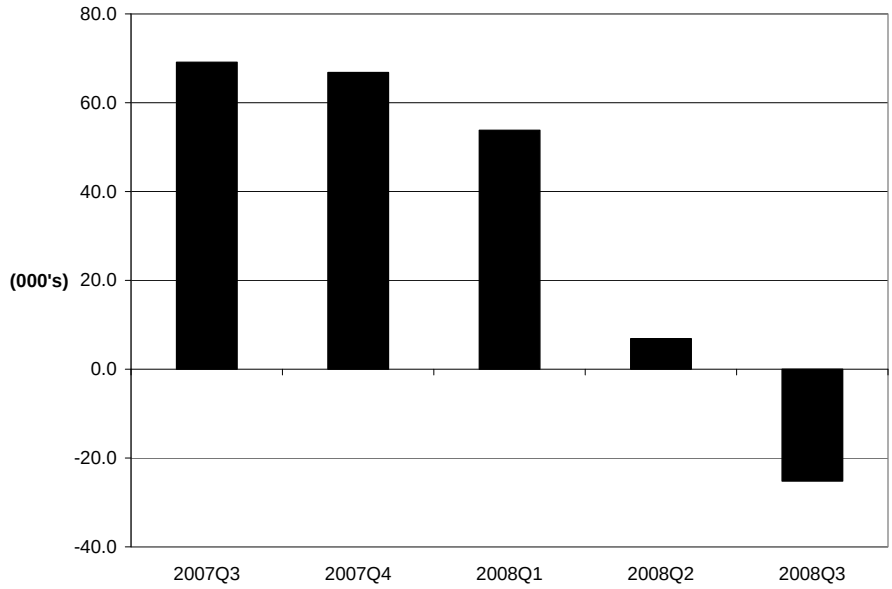
	Annual Averages 000s			
	2006	**2007**	**2008**	**2009**
Agriculture	116.0	116.1	119.8	118.0
Industry	564.4	577.6	541.6	470.6
Services	1,363.4	1,423.4	1,445.9	1,402.0
Total at Work	2,043.7	2,117.0	2,107.3	1,990.6
Unemployed	94.8	100.5	135.9	206.9
Labour Force	2,138.5	2,217.5	2,243.1	2,197.5
Unemployment Rate %	4.4	4.5	6.1	9.4
Net Migration	71.8	67.3	38.5	-50.0
of which: Inward Migration	107.8	109.5	83.8	25.0
Change in Participation Rate*	1.0	1.2	-0.3	-1.3

* *Note:* Participation rate measured as share of population aged 15-64 years; based on Q2 figures as are migration figures.

On a seasonally adjusted basis, the fall in employment between Q2 2008 and Q3 2008 was 18,900 or 0.9 per cent. Construction accounts for the bulk of the decline, with 12,500 fewer people employed in that sector in Q3 relative to Q2. Comparing Q3 2008 and Q3 2007, job losses in construction amount to 25,000. Returning to the Q2/Q3 comparisons, financial and other business services posted job losses of 4,000. Agriculture, forestry and fisheries showed a similar number of job losses over this period but this may be related to how people are reporting their

employment situations. Between Q2 2007 and Q2 2008, there appeared to be an increase of over 7,000 in this sector but it seems reasonable to assume that this resulted from some people who were laid-off from industry or construction reporting themselves as then being employed in agriculture.

Figure 9: Change in Numbers Employed by Quarter, Relative to the Same Quarter One Year Earlier



Source: *Quarterly National Household Survey*, CSO.

Viewing developments in the labour market from the perspective of unemployment shows, unsurprisingly, a similar picture. According to the *QNHS*, the rate of unemployment reached a recent low of 4.5 per cent in Q4 2007. In Q3 2008, this had risen to 7 per cent. In terms of numbers unemployed, the *QNHS* shows that there were 160,600 people in this situation in Q2 2008, up from 101,000 in Q4 2007. While we typically steer away from using the Live Register as an indicator of labour market trends, the figures from this source are too striking to ignore. In November 2008, there were 268,586 on the register, an increase of over 100,000 on November 2007. Between October and November, the increase was almost 17,000 (seasonally adjusted).

Looking ahead, we now expect that total employment will average 2.11 million in 2008 and that it will fall to 1.99 million in 2009. This would be a fall of 116,700 between the two years or 5.5 per cent. With employment contracting to such an extent, there are clearly implications for the rates of unemployment and participation and for the pattern and extent of migration. Our expectation is that unemployment will average 9.4 per cent in 2009 and that net outward migration will be 50,000. Combined with these numbers, we expect participation to fall by 1.3 percentage points. We would stress that the apportioning of the employment adjustment across unemployment, migration and participation is tentative. It could well happen that the net outflow will be lower, whereby the rate of unemployment would be higher, *ceteris paribus*. A crucial variable in this

context will be economic conditions elsewhere. Given the apparently global nature of this recession, it is not clear that significant employment opportunities exist elsewhere. However, if the recovery in Ireland was to lag the recovery elsewhere, this would have clear implications for the direction of migratory flows.

Incomes

The most recent data available on earnings relate to Q2 2008. At that time, annual wage growth in industry was reported at 4.2 per cent.[10] The corresponding figure for distribution and services was 3.6 per cent. Somewhat surprisingly, the reported annual rate of wage growth in building and construction was higher, at 5.1 per cent. Given employment losses in that sector, this figure is difficult to interpret although it might be related to a composition effect, whereby lower skilled (and hence lower paid) workers are the first to be laid off.

The rapidly deteriorating situation in the labour market leads us to believe that the pace of earnings growth will have eased considerably and may even have gone into reverse. For 2008, we expect that nominal wages will rise by 2.6 per cent. For 2009, our forecast is for zero wage growth. While all the forecasts in this *Commentary* are highly uncertain, we should stress that arriving at a forecast for nominal wage growth is particularly problematic. It is clear that the increases in unemployment will have a dampening effect on wages but it is very difficult to assess the speed with which wages will adjust to the new reality that is developing in Ireland's labour market. This is a crucially important point because the speed with which the labour market adjusts will, to a great extent, determine the speed with which the economy can return to a growth path. Our forecast of zero per cent nominal growth assumes that the reaction in the labour market is reasonably quick. Having seen annual rates of increase in the region of 5 per cent or better in a number of recent years, a situation of no nominal increases in 2009 would be a sharp break from the recent past.

If the zero rate of nominal wage growth happens, this would imply a fall of 5.8 per cent in non-agricultural wage income in 2009. However, with transfers increasing by 13.9 per cent, as a result of increases announced in Budget 2009 and increases in the numbers unemployed, the overall fall in gross personal income is lower, at -0.2 per cent. Tax increases from Budget 2009 imply that personal disposable income will fall by 0.2 per cent. With consumption contracting by a larger amount (3.4 per cent in nominal terms), the savings rate will rise to 8.6 per cent, up from 5.7 per cent in 2008 and from 3.8 per cent in 2009.

[10] This figure is taken from the CSO's recently introduced *Earnings, Hours and Employment Costs Survey*. Other figures in this paragraph are taken from their long-established sectoral earnings studies.

Table 12: Personal Disposable Income

	2006	Change		2007	Change		2008	Change		2009
	€m	%	€m	€m	%	€m	€m	%	€m	€m
Agriculture, etc.	3,084	12.1	372	3,456	0.0	0	3,456	-2.0	-69	3,387
Non-Agricultural Wages	71,900	8.8	6,310	78,211	1.9	1,495	79,705	-5.8	-4,609	75,097
Other Non-Agricultural Income	14,807	16.8	2,493	17,300	-16.6	-2,877	14,423	9.2	1,325	15,748
Total Income Received	89,792	10.2	9,175	98,966	-1.4	-1,382	97,584	-3.4	-3,353	94,232
Current Transfers	19,293	2.5	474	19,767	15.0	2,962	22,729	13.9	3,165	25,894
Gross Personal Income	109,084	8.8	9,649	118,733	1.3	1,580	120,313	-0.2	-187	120,126
Direct Personal Taxes	21,409	10.1	2,152	23,562	-0.5	-108	23,454	0.2	35	23,489
Personal Disposable Income	87,675	8.6	7,497	95,172	1.8	1,688	96,860	-0.2	-223	96,637
Consumption	83,688	9.4	7,894	91,582	-0.2	-223	91,359	-3.4	-3,069	88,290
Personal Savings	3,987			3,590			5,501			8,347
Savings Ratio	4.5			3.8			5.7			8.6
Average Personal Tax Rate	19.6			19.8			19.5			19.6

Box: Public and Private Sector Earnings

By E. Kelly, S. McGuinness and P. O'Connell

Over the last decade, there has been a great deal of discussion about pay levels in the public sector in Ireland. Public sector earnings are important. They constitute a substantial proportion of overall public expenditure. They have an important bearing on recruitment, retention and motivation of public servants. They may also influence private sector wage rates, and by extension, national competitiveness. At present, public sector employees account for about 22 per cent of total employees and expenditure on public sector pay amounts to over one-third of total current public expenditure.

Average earnings in the public sector tend to be higher than those in the private sector. For example, data collected by the Central Statistics Office (CSO) in the National Employment Survey (NES) in 2006 showed that average weekly earnings in the public sector were one-third higher than in the private sector. However, such a comparison is not meaningful as it does not take account of differences in the composition of the two sectors. On average, public sector workers tend to be better qualified and have longer work experience than their private sector counterparts. Furthermore, a higher proportion of public sector workers are in professional occupations.

In the last decade or so, Ireland has experienced substantial growth in earnings across the labour market, although the rate of growth has been more rapid in the public sector. The 2006 NES report notes that, overall, average weekly earnings increased by almost 20 per cent between March 2003 and March 2006, with an increase of 27 per cent in the public sector and 17 per cent in the private sector.

Wage movements may differ over time between the public and private sectors because of differing mechanisms for wage determination in the two sectors. Most public sector pay is governed by institutional wage setting and public policy, whereas market forces predominately influence movements in private sector pay.[11] Since mid-2003, there have been several rounds of pay increases awarded to public sector workers. In 2002, the first report of the *Public Sector Benchmarking Body* recommended pay increases ranging from 2-27 per cent, and averaging 8.9 per cent, for 138 public sector grades. The awards were implemented from May 2003 onwards. In 2005, the *Review Body on Higher Remuneration in the Public Sector* recommended a 7.5 per cent interim salary increase to the senior public sector posts within its remit, which had not been covered by Benchmarking. In addition to these pay increases that were specific to the public sector, there were two general national wage agreements negotiated under the *Social Partnership* process that awarded 7 per cent pay increases in 2004, and 5.5 per cent between June 2005 and June 2006. The national wage agreements are applied virtually universally across the public sector. However, implementation of the national wage deals is patchy across the private

[11] Fitz Gerald, J. (1999). "Wage Formation and the Labour Market" in F. Barry (ed.), *Understanding Ireland's Economic Growth*. London: Macmillan.

sector.[12] This is because union density is lower in the private sector and, consequently, a smaller proportion of the private sector is covered by the national pay agreements. Accordingly, the private sector is regarded as being more responsive to market forces than to institutional factors, and private sector companies negotiate wage settlements either above or below the national pay agreement rates.

Analysis of the NES data allows us to assess the extent of the public-sector wage premium while taking account of differences in the composition of the workforces in the two sectors. The analysis shows that, controlling for the influence of education, experience, gender, and occupation, the public sector pay premium increased from less than 10 per cent in 2003 to over 20 per cent in 2006, following the series of pay setting rounds in the intervening years.[13] It should be noted that the methodology used is based on the standard approach in the international literature to the comparison of earnings and is similar to that adopted in the econometric study of the 2003 NES data prepared for the second *Benchmarking* report[14]. Furthermore, the earnings information used in the study takes account of regular bonuses and commissions. The public sector pay premium was found to apply equally to both male and female employees in 2006. In addition, the analysis suggests that in 2003 senior public sector officials, those at the top of the income distribution, earned less then their counterparts in the private sector. However, by 2006, the wage penalty for senior public servants had been reversed and replaced by a pay premium in excess of 10 per cent. The public sector advantage is even greater for those at the lower end of the income distribution, with those in the lowest public sector grades earning a premium in excess of 30 per cent compared to their private sector counterparts.

It is important to note that these results represent conservative estimates of the extent of the differential in compensation between public and private sector workers as they take no account of the fact that the vast majority of public sector workers are entitled to pensions index-linked to wage growth in the public sector. Furthermore, occupational pension coverage is much lower in the private sector, and many such pension schemes are not linked to wage growth. In addition, the estimates do not take account of the job security enjoyed by public sector workers.

Since 2006, additional awards were recommended under the *Review Body on Higher Remuneration in the Public Sector*, mainly to senior posts in 2007, although implementation of some of these rewards has been deferred.

[12] Barrett, A., T. Callan, and B. Nolan (1999). "Rising Wage Inequality, Returns to Education and Labour Market Institutions: Evidence from Ireland", *British Journal of Industrial Relations.*, Vol. 37, No. 1, pp. 77-100.
McGuinness, S., E. Kelly, and P.J. O'Connell (2008). "The Impact of Wage Bargaining Regime on Firm-Level Competitiveness and Wage Inequality: The Case of Ireland" ESRI Working Paper 266.

[13] Kelly, E., S. McGuinness, and P.J. O'Connell (2008). "Benchmarking, Social Partnership and Higher Remuneration: Wage Setting Institutions and the Public-Private Sector Wage Gap in Ireland", ESRI Working Paper 268.

[14] Ernst & Young and A. Murphy (2007). "An Econometric Study of Earnings Based on National Employment Survey 2003 Data".

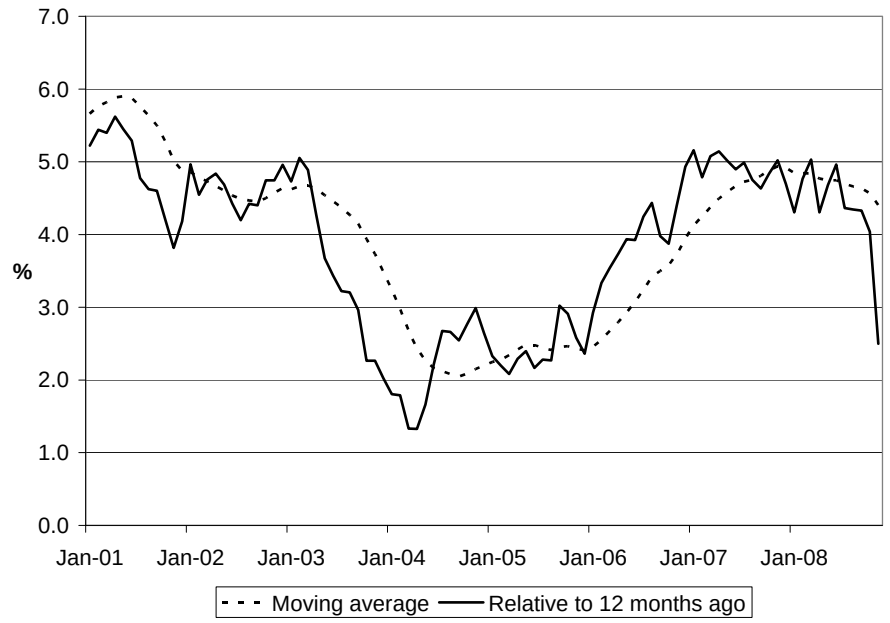
Moreover, a number of additional awards are pending. The second Benchmarking report has recommended awards ranging from 1-15 per cent, mainly for senior public sector grades, although for the vast majority of grades no increase was recommended. Under the most recent *Social Partnership* pay agreement, increases of 5.5 per cent to 6 per cent across both public and private sectors have been agreed over the October 2008 to June 2010 period, with implementation scheduled to begin in September 2009.

The extent of the discrepancy between public and private sector pay in Ireland is far higher than in many other countries: the pay gap rarely exceeds 10 per cent in European countries.[15] This differential would be difficult to justify in normal economic circumstances. The current context of economic recession, with falling employment, growing unemployment and a crisis in the public finances, suggests that the public sector pay premium should come on the agenda for discussion with the Social Partners as a matter of urgency.

Consumer Prices

The *Consumer Price Index* increased by 2.5 per cent in November 2008, compared to November 2007. This is the lowest year-on-year increase in the CPI in 2008 so far, and is down significantly on the previous month's increase of 4 per cent. The twelve month moving average inflation rate fell to 4.4 per cent in the year ending November 2008, and we expect a further decline over the coming months, as inflationary pressures continue to ease.

Figure 10: CPI Inflation Rate



Source: Consumer Price Index, CSO.

Much of the volatility in the CPI throughout 2008 has been a result of fluctuations in international commodity markets, and their effect on the

[15] Lucifora, C., and Meurs, D., (2006) "The Public Sector Pay gap in France, Greta Britain, and Italy" *Review of Income and Wealth,* 52 (1): 43-59.

prices of food and oil-related products. The pace of food price inflation peaked in March, increasing by 9.6 per cent compared to March 2007, but has been falling since then and was estimated at 3.9 per cent in November. Oil prices reached record highs in July, and the price of home-heating oil in that month was 50 per cent higher than in July 2007, while petrol and diesel prices recorded increases of 12 per cent and 32 per cent respectively in that period. However, the price of oil on international markets has fallen by over 60 per cent from that peak and some of this fall has begun to feed through to consumer prices. In November, there were year-on-year decreases in petrol, diesel and home-heating oil of 6.6 per cent, 4.5 per cent and 6.7 per cent respectively.

The contribution of the mortgage interest component to overall CPI inflation fell by over 10 per cent in November compared to the previous month, and this is likely to be a reflection of the October interest rate cut by the European Central Bank. The mortgage interest component accounted for 18 per cent of the increase in the CPI between November 2007 and November 2008. We would expect to see a further reduction in the mortgage interest component over the coming months, as the effects of the substantial interest rate reductions by the ECB in November and December begin to feed through. In addition to this, the average home purchase loan interest rate charged during October fell by 18 basis points compared to September, according to figures from the CSO. This follows substantial increases in this rate earlier in the year, as lenders responded to the higher rates they faced on the inter-bank lending markets.

Clothing and footwear prices fell by a substantial 7.2 per cent in November compared to the same month last year, and this is the fastest pace of decline in almost six years. With sterling falling quite rapidly against the euro in recent months, we would expect to see some of this depreciation reflected in consumer prices here.

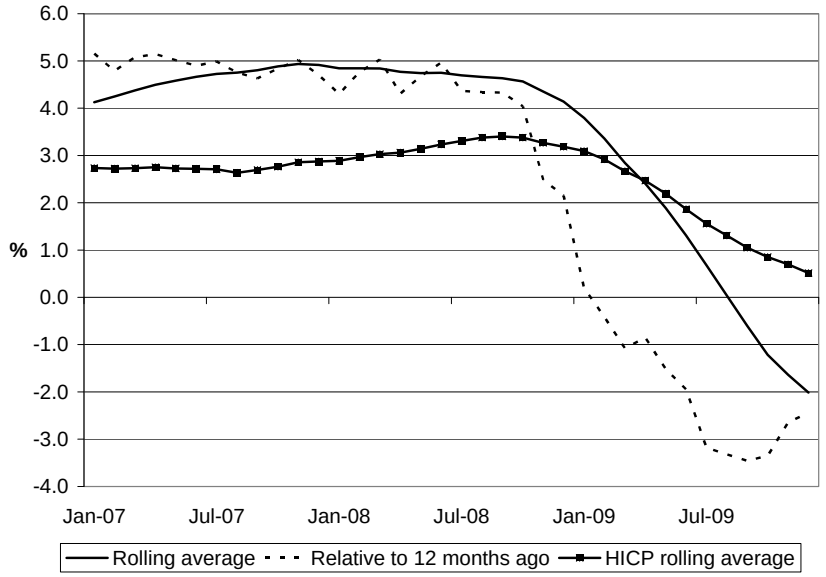
Using the EU Harmonised Index of Consumer Prices (HICP)[16] Ireland's inflation rate averaged 3.3 per cent in Ireland for the twelve months ending November 2008. The HICP does not include mortgage interest, and as a result it is not as sensitive to movements in the ECB main refinancing rate as the CPI. Our forecast for HICP inflation in Ireland this year is 3.2 per cent, and we expect this to moderate quite significantly in 2009, averaging 0.5 per cent on an annual basis, in line with the moderation in food and oil prices.

[16] The HICP excludes mortgage interest, building materials, concrete blocks, union subscriptions, motor car insurance, dwellings insurance, motor car tax and motorcycle tax.

Table13: Inflation Measures (%)

	2003	2004	2005	2006	2007	2008	2009
CPI	3.5	2.2	2.4	3.9	4.9	4.1	-2.0
Mortgage Interest	-8.3	5.4	12.3	31.4	40.4	15.1	-33.2
HICP (Ireland)	4.0	2.3	2.2	2.7	2.9	3.2	0.5
HICP (Euro Area)	2.1	2.1	2.2	2.2	2.1	3.0	1.4

Figure 11: Inflation Profile 2007 - 2009 (Forecast 2008M11 Onwards)



We expect CPI inflation to average 4.2 per cent in 2008. Our forecast for 2009 is heavily dependent on our assumptions regarding ECB interest rate decisions. While the Governing Council has cut the main refinancing rate by a massive 1.75 per cent over the last three months, the deepening recession in the Euro Area and the absence of medium-term inflationary risks mean that future rate cuts are likely. As such, we are assuming a further 50 basis point cut in the main refinancing rate to 2 per cent by mid-2009. We assume that this rate cut, along with recent rate cuts, will be fully passed on by mortgage lenders. Combined with the collapse in commodity prices, we are now forecasting deflation of 2 per cent for 2009. However, if the ECB decides to take a more aggressive monetary policy approach than is assumed in this analysis, we could see CPI inflation slipping even further.

GENERAL ASSESSMENT

The forecasts contained in this *Commentary* show clearly that the economy is currently experiencing severe difficulties and that these difficulties will persist well into 2009 and perhaps beyond. The sources of the difficulties are well known. The global economy is experiencing a dramatic downturn and Ireland is being affected. Export markets are shrinking and both consumer and business sentiment are suffering. In addition, Ireland is also going through a contraction in house-building, the result of which is to make the downturn here steeper than elsewhere. The effects of the downturn are rapidly becoming very real, for example, in terms of job losses. The rate of increase in the Live Register is at historic highs, with over 100,000 people being added in the year ended November 2008. While we do not, as yet, have official data on migration flows since April of this year, it seems highly likely that net outflows have either resumed or will resume soon.

An additional feature of the economy as we look into 2009 is the prospect of negative price inflation. Clearly, this is something which has not formed a part of our analysis in recent memory. However, the implications are potentially numerous and thought needs to be given to them in policy formulation. One point that should be stressed is that many of the problems associated with negative inflation only arise if on-going price falls begin to be embedded in peoples' expectations. It is in such a context that the term "deflation" is more generally applied. If negative inflation becomes embedded in the expectations of consumers, there is an incentive to postpone purchases, thereby further depressing consumption spending. From the perspective of borrowers, be they households or businesses, expectations of continued price falls lead to an increase in the perceived real interest rate, with implications for the cost of borrowing.

Deflation of this type is both highly unusual and highly problematic from an economic perspective. However, if it is the case that a period of negative inflation is short-lived and does not become embedded in expectations, it can be positive in terms of raising the real vale of nominal incomes. In this context, it allows for real increases in wages and welfare payments even without nominal wage increases.

Returning to the broader problems facing the economy, although the situation is both poor and deteriorating, it needs to be pointed out that the policy tools available to the government are very limited. For example, while the recapitalisation of the banks with public money may be necessary for the long-run health of the economy, it may not lead to any immediate rebound in bank lending. In recessionary times, bank lending tends to be

curtailed regardless of the financial health of the banks at the outset of the downturn. Almost by definition, a recession implies an increased risk of bankruptcies for businesses and households. Without perfect information on who are good risks and who are bad risks, banks will tend to be more conservative in general when lending. Hence, lending is likely to be constrained in 2009, even with recapitalisation.

The possible use of a fiscal stimulus has been proposed as another anti-recession policy tool but we see no scope for such a move. With the general government deficit forecast by us to increase from 6.9 per cent of GDP in 2008 to 10.2 per cent in 2009, we cannot see the scope for this. For us, this movement in the public finances is a source of concern because it represents a possible constraint on our ability to emerge from the current problems. On the basis of our forecasts, the general government debt will have risen from 24.8 per cent of GDP in 2007 to 47.5 per cent at the end of 2009. This debt level in itself is not a concern but the speed with which the debt is increasing is a big concern.

In order to ensure that mounting public debt does not act as a constraint on future growth, as it did in the 1980s, there is now an immediate need to start the multi-annual process of bringing the public finances back onto a sustainable path. In this context, it now seems clear to us that it will be difficult for the government to pay the 3.5 per cent due on September 1 2009 under the terms of *Towards 2016*. There is a need to re-open negotiations on the partnership agreement and for all sides to take account of the drastically changed circumstances facing the economy.

We believe that a strong case can be made for the possibility of nominal wage cuts in the public sector being considered. With tax revenues plummeting, the state's ability to pay its public servants at existing rates may not be sustainable. If choices have to be made between reduced numbers, and hence levels of service, or lower rates of pay, the latter would surely be preferred by many. In addition, the speed with which the public finances are deteriorating is such that a pay-based approach offers an approach through which savings can be realised more quickly, relative to an approach based on job reductions.

New research, presented in the box above on the public/private wage differential, suggests that there is a significant pay advantage for those working in the public sector and that this may have increased in recent years. Given this, it seems highly unlikely that any wage reductions in the public sector would, in general, lead to any significant challenges in terms of retaining or recruiting staff.

It should be stressed that a moderation in public sector pay will not be sufficient to restore balance to the public finances. Expenditure cuts will still be needed. Ideally, these should be achieved through the elimination of waste and inefficiencies and through the cancellation of capital projects with low rates of return. While tax increases would not be desirable at this point in time, it is likely that such increases will be needed in the medium term. As discussed in out last *Commentary*, the ending of the property boom

brought with it an erosion in elements of the tax base which will not return. In order to sustain desired levels of public spending, extra revenues will need to be found.

Ireland will only return to a path of growth when (a) a global upturn begins and (b) if Ireland is able to compete in world markets. Only at that point can we see consumer and business confidence lifting. The international forecasts used in this Commentary see a very modest upturn beginning in the middle of 2009, although with output remaining below trend into 2010. Our hope would be that wages, and other prices, adjust rapidly in Ireland so that Ireland does participate in the global upturn. This would imply a re-emergence of positive growth in 2010, although at a low level. We remain concerned that a failure to bring order back to the public finances will act as a drag on growth. This could happen if the burden of interest payments continues to rise, if an increasing debt leads consumers to expect future tax increases above what might otherwise be needed and if investors interpret mounting deficits as a negative signal for the quality of governance. These scenarios need to be avoided so that Ireland's lost decade of the 1980s is not repeated.

As in previous *Commentaries,* it is useful to stress the on-going importance of active labour market policy and competition policy. ESRI research from the 1990s demonstrated very clearly how important it was to keep the unemployed close to the workplace, through training and employment programmes that were closely related to labour market needs. In the context of unemployment, one issue which will return to the national agenda soon is the relationship between wages and unemployment benefits and assistance. With wages likely to be depressed in the coming years, on-going increases in welfare payments would result in an increase in replacement rates, with implications for incentives to move between welfare and work. This issue will need careful consideration when Budget 2010 is being prepared and when a review of the national minimum wage is conducted. Finally, efforts should continue to ensure that competition policy is used to the fullest extent possible, to remove any barriers to entry in areas such as retail. Competitiveness will be aided through such moves and this is the key requirement of policy at present.

SPECIAL ARTICLES*

An Analysis of the Potential of the European Commission Business and Consumer Surveys for Macroeconomic Forecasting

By

Jean Goggin
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An Empirical Analysis of Development Cycles in the Dublin Office Market 1976-2007

By

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An Analysis of the Potential of the European Commission Business and Consumer Surveys for Macroeconomic Forecasting

Jean Goggin

Abstract

It is widely believed that survey-based confidence indicators provide a reasonably accurate picture of economic conditions. This paper examines whether data from the business and consumer surveys conducted for the European Commission might be useful for short-term macroeconomic forecasting. First, the internal consistency of the survey data is tested, to ascertain the extent to which reported outcomes from one month correspond to expectations data from previous months. The forecasting potential is then explored by comparing the survey data to their official data equivalents. The results from this analysis are mixed and suggest that the potential of the business survey data is limited. From these surveys only four variables produced findings that merit further investigation. The results from the consumer survey were more positive, and suggest that a number of statistical relationships exist between the survey series and the official data.

1. Introduction

Until April 2008, a number of regular surveys of households and enterprises were conducted for the European Commission, using methods that were coordinated across the EU so that comparable data was collected. The data were used by the Commission to generate indicators for Irish economic activity and as an input into indicators for the EU and Euro Area. Five surveys were conducted on a monthly basis: Consumer, Construction, Industry, Retail, and Services. The data from these surveys provided information on the conditions in each sector of the economy, and also on expectations about future performances. The results of the survey for a given month were usually available by the final week of the month following, and this timeliness ensures that surveys of this nature have a valuable information lead advantage over other sources of data, which typically have much lengthier publication lags. As such, their most obvious use is an input for macroeconomic forecasting. In spite of this, however, little use has been made of survey data for the purpose of forecasting, and there has not been extensive analysis of their potential predictive power.

The purpose of this paper is to provide a preliminary assessment of the potential usefulness of this type of survey for macroeconomic forecasting. Output and employment are assumed to be the forecasting priorities, and so the focus of this analysis will be these two variables. This assessment will consist of two stages: First, the internal consistency of the survey data will be checked. This procedure tests the extent to which survey predictions in one month forecast the results of following surveys. The results of this analysis are discussed in Section 5. In Section 6, an assessment of the comparability of the survey series with equivalent Central Statistics Office (CSO) series is undertaken. This test of external consistency demonstrates how capable the survey data are of tracking movements in the official statistics. Prior to running this series of testing procedures, a review of some of the relevant literature is provided in Section 2, as well as a brief history of the surveys in question in Section 3. Section 4 gives a brief description of the data.

2. Literature Review

Within Ireland, the industry component of the European Commission surveys has previously been assessed at a preliminary level. Kearney (1991) examined both the internal consistency of the industrial survey series and its comparability with equivalent quantitative statistics. A similar study was conducted by Merriman and O'Reardon (1995). Both of these papers presented reasonably positive results. The industrial survey data were shown to possess a satisfactory level of internal consistency. The results reported in both of these papers also suggest that statistical relationships exist between a number of the survey variables and their equivalent official statistics, although these relationships are arguably quite weak. This paper will re-examine the work of Kearney (1991) and Merriman and O'Reardon (1995), and extend their analysis to include the other three business surveys, and the consumer survey.

A number of studies have been conducted outside of Ireland using survey response data. Hüfner and Schröder (2002) analyse four economic sentiment indicators for Germany – the *Ifo* Business Climate Index (IFO), the European Commission's Economic Sentiment Indicator for Germany (ESIN), the Purchasing Managers' Index (PMI) and the ZEW Indicator of Economic Sentiment (ZEW). They test the forecasting capabilities of these indicators using the year-on-year growth rate of industrial production as a

reference. The results reveal that the IFO, PMI and ZEW all lead the growth rate of industrial production by five months, and as such, may be useful forecasting tools.

Brunco and Malgarini (2002) examined whether fluctuations in Italian economic activity might be predicted using indicators that gather information from business and household surveys. Using a dynamic factor model, they constructed a separate indicator for the manufacturing, construction and retail sectors, and also for household consumption. These indicators were then tested to evaluate their capacity to forecast the main cyclical features of a particular reference series. The indicator for the manufacturing sector was found to track industrial production reasonably well, and the indicator for household consumption also produced satisfactory results. The retail trade and construction sector indicators were found to be very poor predictors of retail sales and investment in production respectively.

The Statistical Office of the Slovak Republic (2005) also obtained successful results from industry survey data. It examined the relationship between the monthly industrial production index and lagged survey responses regarding expectations of output, and found a good degree of correlation. It also carried out an analysis of the construction and retail sectors, and while expectations regarding future construction activity were found to have a positive relationship with official output in the construction sector, no relationship existed between official retail sales and prior expectations about future retail trade receipts.

Santero and Westerlund (1996) explore the forecasting potential of business and consumer survey data in a number of countries.[1] First, they examine the cross-correlation coefficients of business and consumer confidence indicators with selected macroeconomic variables. These include two measures of output – GDP and industrial production, and two demand components – real business investment and real private consumption. They found that the US, Japan, France, Spain and Belgium showed high correlations of business confidence with both measures of output and with investment. In the UK and Canada, business sentiment is well correlated with both measures of output, but not with investment. The results for Germany suggest that business sentiment is very closely related with industrial production, but less so with GDP and investment. The consumer confidence indicators were not shown to have strong correlations, irrespective of the variable examined.

The literature on consumer sentiment and its forecasting capabilities is dominated by studies of the United States. Chopin and Darrat (2000) focus on the issue of whether or not consumer attitudes can forecast the macroeconomy in the United States, and they examine the relationship between The Conference Board's Index of Consumer Confidence[2] and several macro variables. They emphasise the idea that if changes in consumer attitude precede changes in consumer behaviour, then knowledge of these attitudes could help explain consumer spending and

[1] United States; Japan; Germany; France; Italy; United Kingdom; Canada; Belgium; Denmark; Netherlands; Spain.

[2] See www.conference-board.org. The *Consumer Confidence Survey* is based on a representative sample of 5,000 US households.

saving patterns. The authors use a flexible lag structure and a multivariate vector error correction model (VECM) to investigate the Granger-causal relationships among consumer attitudes and several macro variables, including retail sales, personal disposable income, inflation, stock prices and interest rates. The evidence that emerges suggests that the ICC can predict movements in personal disposable income, interest rates, and to some extent, also the DOW Jones Industrial Average. However, the ICC proves an unreliable predictor for retail sales or inflation.

Pain and Weale (2001) examine the information content of consumer surveys in the UK and the United States. The UK measure they use comes from the European Commission, and is also used by the OECD. The indicator combines replies to five separate survey questions relating to the current and expected financial condition of the household, the current and expected general economic situation and whether respondents are planning to make major purchases. The US index is the consumer sentiment indicator that has been compiled by the Survey Research Centre of the University of Michigan since 1952. The questions cover similar issues to those in the UK, relating to current and expected trends in personal finances and business conditions, and current buying conditions for durable goods. The authors run simple dynamic regressions of the growth in consumers' expenditure in the current quarter on lagged expenditure growth and current and lagged survey responses. In both countries, the results show that current surveys are significantly positively correlated with current expenditure. Periods of consumer optimism coincide with periods of comparatively high expenditure growth.

These empirical findings suggest that the potential use of business and household surveys as a forecasting tool is worth investigating. In particular, the literature highlights the success of industry and consumer survey data. While not all the results are positive, there certainly seems to be a consensus regarding the capability, albeit limited, of certain survey series to track official statistics on output and employment.

3. History of the European Commission Activity/ Sentiment

3.1 INDUSTRY SURVEY

This survey was established in Ireland in the early 1970s, post-EU membership, with IBEC as the main contractor at the time. Sectoral coverage for the survey was specified by the Commission, i.e. NACE 15-36. The sample was based on a panel of 650 firms. Approximately 250 questionnaires were returned monthly, representing a response rate of the order of 38 per cent. The data from the industry survey were re-weighted prior to sending results to the Commission. A total of 3 weights were derived for each round of the survey, based on sectoral turnover, employment and export levels. The population parameters upon which the weighting system was built were derived from the annual Census of Industrial Production produced by the CSO.

3.2 CONSTRUCTION INDUSTRY SURVEY

This survey started in the 1970s and was originally undertaken by the Construction Industry Federation (CIF). The sample for the construction survey was selected from lists prepared by the CIF, which contained all the main agents in the sector in Ireland. Selection was on a disproportionate stratified basis, ensuring that the largest possible share of the value of

construction work was captured. Approximately 80 forms were returned monthly and enhanced numbers were surveyed quarterly, generating around 130 responses. Re-weighting of the data was based on the value of business according to the following activities: site preparation; civil engineering; building installation; building completion; and renting of plant and machinery.

3.3 SERVICES SECTOR SURVEY

This survey was started in 1996. The sample was generated from population lists of businesses throughout Ireland, and the population parameters were devised from the Annual Services Enquiry, produced by the CSO. Approximately 230 questionnaires were returned monthly. The data were re-weighted using a ratio-weighting scheme based on number of enterprises within sector/size strata and the total number of employees within the same sector.

3.4 RETAIL SECTOR SURVEY

As with the services survey, this survey was started in 1996. The sample was generated from population lists of businesses throughout Ireland, and sectoral coverage was in the six broad sectors as requested by the Commission: food, beverages and tobacco; textiles, clothing and footwear; household electrical goods; household non-electrical goods; motor vehicles; large multiples; and remaining retail trade. Approximately 260 forms were returned monthly.

3.5 CONSUMER SURVEY

As an input to the EU-wide Consumer Survey, the ESRI conducted a nationally representative survey of households on a monthly basis. The primary objective of the survey was to record details on consumers' attitudes towards trends in the economy. A fresh national sample was used each month, and this sample is representative of the totality of persons living in private households in Ireland. The questions were based on four main themes – the general economic situation, their personal financial situation and capacity to save, intentions with regard to the purchase of durable consumer goods and housing intentions. At present, the monthly KBC Ireland/ESRI Consumer Sentiment Index is constructed using the responses to five of the questions that originally formed part of the Consumer Survey. The Consumer Sentiment Index uses the same methodology that is employed by the University of Michigan.[3]

4. The Data

The data for this analysis are taken from the five monthly surveys discussed above. The business surveys cover a variety of aspects of the company's operations, such as output, employment, exports, stocks and prices. The consumer survey asks for the respondent's opinions on economic issues such as unemployment, prices, the general economic situation, and their own personal expenditure. In most cases, respondents are asked one question regarding actual outcomes, and one question regarding expectations for future months. These types of questions produce a dataset of qualitative responses, and in order to be able to use

[3] A detailed account of the methodology is available at http://www.esri.ie/docs/CSI_METHOD.PDF

this data in an analysis such as this one, the general practice is to calculate the weighted balance for each question. This balance is the difference between the weighted percentage of positives and the weighted percentage of negatives in the responses to each question. Data are generally available from the late 1990s, with a cut off point in early 2007.

Table 4.1: Data Availability by Sector[4]

Sector	Survey Frequency	Data Available	
		From	To
Construction	Monthly	January 1999	February 2007
Industry	Monthly	July 1999	February 2007
Retail	Monthly	March 1999	March 2007
Services	Monthly	March 1999	March 2007
Consumer	Monthly	February 1996	March 2007

5. Internal Consistency

Internal consistency testing involves comparing the responses concerning outcomes in a particular month to expectations expressed by respondents in previous months, and it shows how accurately the respondents predict their own future responses. The method of assessing internal consistency involves fitting a regression model in order to test the relationship between the reported trends in output and employment and the lagged expectations data on output and employment. In many cases, multiple lags were tested, due to the ambiguity of some of the expectations' questions in the surveys, and the potential lack of consistency across all respondents in their interpretation of the questions. In addition, the regression analysis was performed using both raw and smoothed survey data. The data were smoothed using three period moving averages, and the purpose of this is to reduce some of the inherent variability of responses in surveys of this nature.

While assessing these results, it should be noted that sentiment at time t-1 cannot be expected to fully predict outcomes at time t. As such, we should not expect the degree of fit to be exact. However, a certain level of consistency between expectations and realised observations is to be expected. Bearing this in mind, the most important points to note from the regression results are the sign and significance of the estimated coefficients, and the R^2 values. Unsuccessful results have been omitted.

[4] For a number of the testing procedures as many as 90 observations were available. However, many of the official series used in the external consistency tests were only available as quarterly figures. This meant that the survey data had to be converted to quarterly figures, and this obviously reduced the number of observations. In some cases this number was less than 30.

Table 5.1: Tests for Internal Consistency

Sector	Dependent Variable	Independent Variable
Construction	Current work **(CWORK)**	Contracts in hand **(ORDER)**
Industry	Volume of production **(PRODL)**	Expected production **(PRODE)**
	Volume of production **(PRODL)**	Total order book **(ORTOT)**
	Volume of production **(PRODL)**	Total new orders **(ORNEW)**
	Number of employees **(REMPI)**	Expected number of employees **(EEMPI)**
Retail	Current business/sales **(CBUSR)**	Expected business/sales **(EBUSR)**
	Current stock levels **(CSTOCKR)**	Expected orders **(EORDRR)**
	Number of employees **(REMPR)**	Expected number of employees **(EEMPR)**
Services	Current business **(CBUSS)**	Expected business **(EBUSS)**
	Recent business **(RBUSS)**	Expected business **(EBUSS)**
	Number of employees **(REMPS)**	Expected number of employees **(EEMPS)**
Consumer	Economic situation **(ECSITL)**	Expected economic situation **(ECSITE)**
	Financial situation **(FINSITL)**	Expected financial situation **(FINSITE)**
	Prices **(PRICEL)**	Expected prices **(PRICEE)**

5.1 CONSTRUCTION

The variable CWORK refers to the question in which respondents are asked to describe how their level of work in the past month compares to that of the previous month. The variable ORDER is constructed using responses regarding work in progress and contracts in hand during the past month. This question is not an expectations' question, however, we can use the data to examine the consistency between responses regarding contracts in hand and the subsequently reported work levels.[5] One- and two-period lags were tested, and while the estimated coefficients were positive and significant, the R^2 values were unacceptably low.

5.2 INDUSTRY

The results of the industry survey tests are the most encouraging. Looking first at production, the variables PRODL and PRODE describe the volume of production in the past month, and expectations about production over the next three months, respectively. In spite of the wording of the question, the one- and two-period lag tests are the most successful, and these are displayed below. All four coefficient estimates are statistically significant, and while the correlation coefficients are higher for the smoothed data, the R^2 values are more impressive for the raw data, having corrected for first-order autocorrelation where appropriate. Figure 5.1 plots the raw data for PRODL and PRODE(-1), and it can be seen that, in general, there is a consistent relationship between the two. The consistency between production levels and total orders in previous months was also tested, although again this did not involve testing the performance of expectations variables. Nonetheless, the results were good – positive and significant coefficient estimates, and satisfactory R^2 values, which again are slightly higher in the cases of the raw data, as shown below.

Turning to employment, the variable REMPI refers to responses regarding the number of people employed by the firm in the past month,

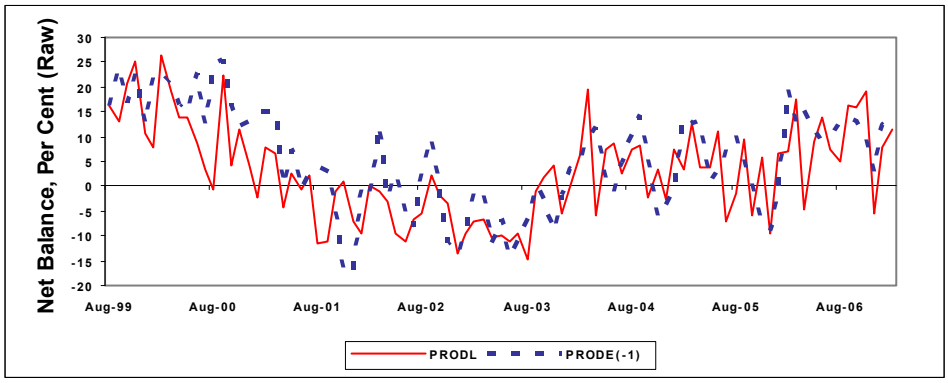
[5] There is no output expectations question in this survey.

compared with that of the previous month, while EEMPI refers to expectations for employment over the next three months. Again, the best results came from a one-period lag test. In this case, although both coefficient estimates are significant, the R^2 values were disappointing.

Table 5.2: Internal Consistency Results – Industry Survey

Dependent Variable	Independent Variable	β_1 Estimate[6]	t-stat	R^2	Rho
PRODL	PRODE(-1)	0.62*	8.69	0.46	----
Smoothed data		0.36*	4.38	0.2	0.81
PRODL	PRODE(-2)	0.62*	8.63	0.46	----
Smoothed data		0.44*	5.47	0.28	0.8
PRODL	ORTOT(-1)	0.47*	8.00	0.42	----
Smoothed data		0.64*	6.53	0.34	0.66
PRODL	ORNEW	0.76*	13.65	0.67	----
Smoothed data		0.74*	10.89	0.58	0.68

Figure 5.1: Survey Response Variables, PRODL and PRODE(-1)



5.3 RETAIL

The variable CBUSR describes the responses regarding the retail company's current business position. Respondents are also asked to predict their business trend over the next six months. Multiple lags were tested, however, once again contrary to the wording of the expectations question, the best results were obtained when there was a one- or two-period lag on the expectations variable. Beyond a three-period lag, the coefficient estimates become negative. Looking at the one-period lag test results below, both coefficients are positive and significant, however, the R^2 value in the case of the smoothed data is very low.

These poor results are mirrored throughout the retail survey. Extremely low R^2 values reported in the remaining tests indicate that no relationship exists between reported stock levels and expected future orders placed on

[6] β_1 refers to the coefficient on the independent variable

suppliers, or between current employment and expected future employment.

Table 5.3: Internal Consistency Results – Retail Survey

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
CBUSR	EBUSR(-1)	0.53*	5.87	0.27	0.42
Smoothed data		0.26*	2.88	0.08	0.95

5.4 SERVICES

The services survey asks respondents to consider both their current and recent business position, CBUSS and RBUSS respectively. As in the other surveys, they are also asked about their expectations regarding their level of business during the next few months. Multiple lags were tested, however, the results obtained were poor. Although a number of positive coefficients were estimated, not all of these were significant, and once again the R^2 statistics were poor. Furthermore, many of the reported Rho values were extremely high, suggesting the presence of unit roots. The employment variables produced similar disappointing results. Once again, although the coefficients were significant and correctly signed, the R^2 values indicate a lack of consistency between employment levels and prior expectations about employment, particularly in the case of the raw data. The R^2 value was slightly more encouraging in the case of the smoothed data, however, once again the Rho value was extremely high. It must be concluded that, overall, the services survey responses perform badly in the internal consistency testing procedure.

5.5 CONSUMER

The variable ECSITL refers to the responses on how the general economic situation in this country has changed over the last twelve months. The variable ECSITE asks how they think the general economic situation will develop over the next twelve months. Similarly, respondents are asked about the change in their financial situation over the last twelve months (FINSITL) and the expected change in their financial situation over the coming twelve months (FINSITE). In spite of the wording of the questions, it cannot be assumed that all survey participants base their responses on a full twelve month period, and so multiple lags were tested. The most superior results did in fact come from the tests in which the expectations variables were lagged by twelve periods. However, these results still proved disappointing. Although all four coefficients were correctly signed, and three of these were statistically significant, the R^2 values were poor, and the Rho values extremely high. Internal consistency tests were also performed on the responses regarding prices, again using a twelve period lag on the expectations variable. In the case of both the raw and smoothed data, the coefficients were not statistically significant, and the R^2 values were zero.

5.6 INTERNAL CONSISTENCY: CONCLUDING REMARKS

The results from this section are mixed. The industry survey performs well, particularly on the output side. The data for the production variables indicate a significant degree of consistency between expectations and subsequent realisations. Elsewhere, the results are less promising. The construction survey results produced very poor R^2 values, although as mentioned previously, the independent variable is not an expectations variable, and as such, we cannot conclude that this survey has failed a true test of internal consistency. The results for both the retail and services surveys, however, are undeniably poor. With very few exceptions, the R^2 statistics are unacceptably low, and it must be concluded from this that there is no consistency between the respondents' expectations about future output or employment, and their subsequently reported outcomes.

Unsatisfactory results in the internal consistency tests do not preclude the use of data from these surveys in the subsequent analysis of external consistency. The rationale for performing these tests is that if the survey expectations variable is found to be consistent with the survey outcome variable, and this outcome variable is subsequently found to be consistent with the official data, then the survey *expectations* variable can be used in short-term forecasting. Expectations variables have a very significant information time lead over official statistics. However, if the expectations variable fails the internal consistency test, the survey outcomes may still be useful forecasting tools, given the timeliness of their release.

One important point that has emerged from the different lag tests performed on the business survey responses is that the expectations expressed by the respondents seem to represent a very short future time horizon. The one- and two-period lag results dominate in all tests, even when respondents are asked to consider a longer time period. Kearney (1991) drew the same conclusions in her internal consistency testing, and suggested that perhaps the reason respondents only consider a very short future time horizon is that they complete the same questionnaire each month.

The consumer survey performs particularly badly in the internal consistency tests, although perhaps this is not altogether surprising. The average consumer may not be as capable of responding accurately to some of their own survey questions as a recipient of one of the business surveys might be of answering their own questions. A consumer cannot be expected to know as much about the general economic situation as an industry survey respondent knows about production levels in his own company, for example. Furthermore, these issues may be worsened by the fact that the questions in the consumer survey are based over a longer time period. It is therefore not unreasonable to suggest that the views expressed by consumers a year ago, regarding the economic situation over the next year, may not match their current responses regarding the change in the economic situation over the previous year.

6. External Consistency

The forecasting potential of the survey data is best explored by testing the external consistency. This involves comparing the survey data on outcomes with a range of official data series. The survey data has a publication lag of approximately four weeks, and therefore has an important advantage over the official quantitative series, which typically have much lengthier publication lags. The aim of this analysis, therefore, is to ascertain whether or not this advantage may be exploited for the purpose of short-term forecasting, by testing the consistency between the survey data and the equivalent official series.

The relationships tested are listed in Table 6.1. Many of the official series used were only available as quarterly statistics. In these cases, the independent variables were compiled as the average of the three monthly responses relating to each quarter. Where monthly series are used, three month moving averages were also tested as dependent and independent variables. All of the dependent variables in the business survey tests are expressed either as percentage monthly changes or percentage quarterly changes, depending on the frequency of the official series in question. The dependent variables in the consumer survey are expressed as annual percentage changes.[7] In spite of the fact that the business surveys ask respondents to discount seasonal effects, previous studies have detected a problem of seasonality in the survey responses (Conniffe, 1985). Ideally, the survey responses should be compared to the de-seasonalised official data, as it is the intention of these surveys to predict de-seasonalised trends. However, given the previous findings of seasonality in the survey responses, where possible, tests were conducted using both raw and de-seasonalised official series.

Finally, due to the ambiguous wording of some of the survey questions, different leads and lags were tested. Only the results deemed most informative are reported – all others have been omitted[8]. While assessing the results, it must be noted that we are testing relationships between qualitative and quantitative variables. As such, we are asking that the respondents' sentiment explain observed outcomes in production and employment, and so we cannot expect very impressive R^2 statistics.

[7] The dependent variables are all expressed as percentage changes because all survey questions ask respondents to compare across time periods, i.e. the response will be 'higher', 'same' or 'lower'. Unlike the other surveys, the consumer survey asks respondents to compare current conditions with those of twelve months ago, and so the official statistics are expressed as annual percentage changes.

[8] The most superior set of results for each of the 19 tests outlined in Table 6.1 have been reported in the Appendix. Any additional results that showed negative coefficient estimates and low R^2 values were deemed worthless, and were omitted from this report.

Table 6.1: Tests for External Consistency[9]

Sector	Dependent Variable[10]	Independent Variable
Construction	Index of Total Production **(ITPC)**	Current work, quarterly **(CWORKQ)**
	Monthly Index of Employment **(MIEC)**	Expected employment **(EEMPC(-1))**
	QNHS Employment **(QNHSC)**	Expected employment, quarterly **(EEMPCQ(-1))**
Industry	Monthly Industrial Prod. Index **(MIPI)**	Volume of production **(PRODL)**
	No. of Employees in Industry **(EMPI)**	Number of employees, quarterly **(REMPIQ)**
	QNHS Employment **(QNHSI)**	Number of employees, quarterly **(REMPIQ)**
Retail	Expenditure on Consumer Goods **(PECG)**	Current business, quarterly **(CBUSRQ)**
	Monthly Retail Sales Index **(MRSI)**	Current business, quarterly **(CBUSRQ)**
	QNHS Employment **(QNHSR)**	Number of employees, quarterly **(REMPRQ)**
Services	Services sector GDP **(GDPS)**	Current business, quarterly **(CBUSSQ)**
	QNHS Employment **(QNHSS)**	Number of employees, quarterly **(REMPS)**
Consumer	Gross Domestic Product **(GDP)**	Economic situation, quarterly **(ECSITLQ)**
	Expenditure on Consumer Goods **(PECG)**	Economic situation, quarterly **(ECSITLQ)**
	Expenditure on Consumer Goods **(PECG)**	Expected economic situation, quarterly **(ECSITEQ)**
	Expenditure on Consumer Goods **(PECG)**	Financial situation, quarterly **(FINSITLQ)**
	Expenditure on Consumer Goods **(PECG)**	Expected financial situation, quarterly **(FINSITEQ)**
	Consumer Price Index **(CPI)**	Prices (**PRICEL**)
	QNHS Unemployment **(QNHSU)**	Expected unemployment, quarterly **(UEMPEQ)**
	Gross Domestic Product **(GDP)**	Consumer Sentiment Index, quarterly **(CSIQ)**
	Expenditure on Consumer Goods **(PECG)**	Consumer Sentiment Index, quarterly **(CSIQ)**
	Monthly Retail Sales Index **(MRSI)**	Consumer Sentiment Index, quarterly **(CSIQ)**

6.1 CONSUMER

A number of tests were performed using the data from the consumer survey. GDP data were used to test the external consistency of the survey variable relating to responses on how the general economic situation has changed over the last twelve months. Responses regarding expectation for unemployment levels were tested against the official unemployment statistics from the QNHS, using the appropriate lag on the survey expectations variable.[11] The third external consistency test compared responses to the question regarding prices with the official Consumer Price Index. These data are available monthly, and so the tests were performed

[9] As these variables appear in the results tables, an additional 'M' in front of the variable indicates that three-period moving averages have been calculated. 'Q' indicates that it has been converted to a quarterly variable. 'S' indicates that the variable has been seasonally adjusted.

[10] All of the official series were obtained on the Central Statistics Office website: www.cso.ie

[11] The employment expectations variable was transformed into a quarterly variable, so that it could be compared with the data from the QNHS. Given that the question asks respondents about expectations for the next twelve months, the appropriate lag on the variable is four periods, as shown in Table 6.2a.

using both raw and smoothed data. The results are presented in Table 6.2a below. All of the coefficient estimates are positive and significant, and the degree of fit is good.

Table 6.2a: External Consistency Results – Survey Responses and Their Official Data Equivalents

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
GDP	ECSITLQ	0.04	3.92	0.31	----
GDP(S)	ECSITLQ	0.04	3.88	0.31	----
QNHSU	UEMPEQ(-4)	0.17	2.20	0.15	0.77
(M)CPI	(M)PRICEL	0.04	5.91	0.21	0.68

While these tests compared the survey responses with their official data equivalents, a number of other tests were conducted which examined the theory that the sentiment expressed by the average consumer may influence the behaviour of the average consumer. The first of these tests compares the ECSITL variable with the official statistics for personal expenditure. For example, if the average consumer reports that the general economic situation has got a lot better over the last twelve months, is this mirrored by an increase in the average consumer's personal expenditure over that time period? The variable relating to expectations about the economic situation (ECSITE) was also tested against personal expenditure, in order to explore the possible relationship between the two. If the average consumer expects the economic situation to improve or worsen over the coming year, is this reflected in average expenditure patterns? The responses regarding the survey participant's own personal finances were also tested against personal expenditure in a similar manner.[12] Finally, the overall Consumer Sentiment Index was used in tests with GDP, personal expenditure, and the Monthly Retail Sales Index.

With the exception of the final test, all the coefficients estimates are positive and significant, and the R^2 values are good. The results of these successful tests are provided in Table 6.2b. Looking first at personal expenditure, the results suggest that when the average consumer believes that the economic situation has improved over the last twelve months, the personal expenditure of the average consumer has also increased over the last twelve months. A similar correlation is apparent between the consumer's financial situation and personal expenditure. The tests conducted using the expectations variables examine the relationship between the consumer's predictions for the future and their personal expenditure. Multiple lags were tested, and the most superior results were found when the expectations variables were lagged by two quarters. Finally, the examination of the correlation between the overall Consumer Sentiment Index and both GDP and personal expenditure produced good results, particularly in the latter case.

Table 6.2b: External Consistency Results – Consumer Sentiment and Consumer Behaviour

PECG	ECSITLQ	0.04	6.93	0.59	----
PECG(S)	ECSITLQ	0.04	6.92	0.58	----
PECG	ECSITEQ(-2)	0.06	7.01	0.60	----
PECG(S)	ECSITEQ(-2)	0.06	7.18	0.60	----
PECG	FINSITL	0.11	5.34	0.46	----
PECG(S)	FINSITL	0.11	5.36	0.46	----
PECG	FINSITE(-2)	0.12	5.34	0.46	----
PECG(S)	FINSITE(-2)	0.12	5.32	0.45	----
GDP	CSIQ	0.09	3.91	0.31	----
GDP(S)	CSIQ	0.08	3.85	0.31	----
PECG	CSIQ	0.08	6.61	0.56	----
PECG(S)	CSIQ	0.08	6.60	0.56	

These results suggest that the consumer survey data may possess some forecasting potential. In particular, personal expenditure is highly correlated with consumer sentiment regarding the recent and future economic situation, and their own financial situation. Unfortunately, the graphs of these variables[13] suggest that the data are incapable of predicting turning points in the official series, but merely the overall trend.

6.2 INDUSTRY

The Monthly Industrial Production Index, provided by the CSO, was selected as an appropriate official series for the purpose of testing the external consistency of the survey data. The monthly change in this index was used as the dependent variable, in order to test the usefulness of the PRODL variable derived from Question 1 on the industry survey. Again, both the official series and the survey data were smoothed using three period moving averages, because of the volatility of monthly series. Seasonally adjusted data for the Industrial Production Index were also tested. Two different official measures of employment were used to test the external consistency of the survey responses regarding employment. The first, EMPI, is a measure of the number of employees in manufacturing, and this is a quarterly statistic. The second is the Quarterly National Household Survey figure for employment in industry, and this was available in the form of both raw and seasonally adjusted data.

With regard to output, the results from the external consistency tests are very disappointing. While all but one of the estimated coefficients are correctly signed, only one of these estimates is significant at the 5 per cent level. Furthermore, the degree of fit is extremely low. Therefore, we must conclude that there is no consistency between the official statistics and the survey responses on industrial production levels.

In light of these poor results, the Industrial Production Index weighted by the wage bill was also tested as a dependent variable. The rationale for this test is the dominance of high-tech firms in the standard Index of Industrial Production. In order to test for the existence of a superior

[13] A selection of graphs is shown in the Appendix.

relationship between the weighted Industrial Production Index and the survey responses regarding output, the PRODL variable had to be converted to a quarterly series. These results did, in fact, prove superior to the results of the tests using the unweighted index. Table 6.3 shows that for both tests the coefficients are positive and statistically significant, and, while not spectacular, the R^2 values are a vast improvement on those from the unweighted IPI tests.

Table 6.3: CSO Industrial Production Index Weighted by the Wage Bill, and Survey Responses Regarding Industrial Output

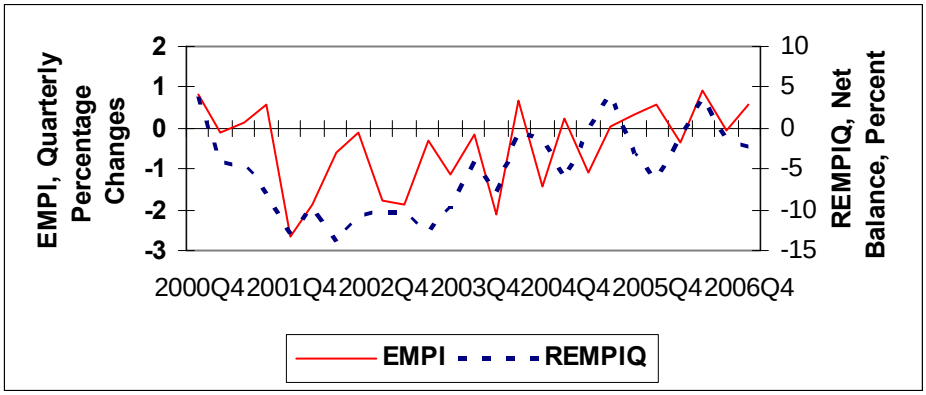
Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
IPIWQ	PRODLQ	0.14	2.05	0.15	-0.81
IPIWQ	PRODLQ(+1)	0.16	2.37	0.19	-0.84

The employment results are more encouraging. In particular, a good relationship was found between the number of employees in manufacturing (EMPI) and survey responses on industrial employment levels. These results are shown in Table 6.4. The estimated coefficient on the independent variable is positive and statistically significant, and the R^2 value of 0.3 is one of the highest reported in this section. However, looking at Figure 6.1, the survey variable fails to track a number of turning points in the official series.

Table 6.4: CSO Data on the Number of Employees in Manufacturing, and Survey Responses on Industrial Employment

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
EMPI	REMPIQ	0.11	3.18	0.30	----

Figure 6.1: Official Number of Employees in Manufacturing and Survey Responses on Industrial Employment



6.3 RETAIL

The Monthly Retail Sales Index was selected as an appropriate series for comparison with responses regarding current business. Three-period moving averages were calculated for both the retail sales index and the survey response data. Personal Expenditure on Consumer Goods was also used as an official statistic, against which the survey responses on current

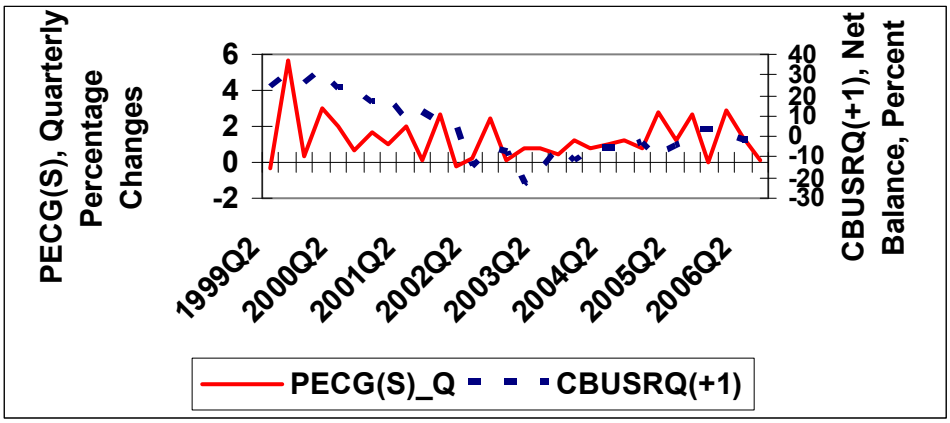
business could be compared. Once again, the official measure of employment used was QNHS employment data for the retail sector.

The results for the retail sector overall are poor, and indicate that there is no relationship between monthly retail sales and survey responses regarding current business, or between QNHS employment and survey responses regarding current employment levels. There is, however, a good statistical relationship between seasonally adjusted expenditure on consumer goods, and the current business/sales position reported by survey respondents, especially when tested with a one-period lag on the current business variable. These results are shown in Table 6.5. However, a graph of this relationship shows that, while the general trend is the same, the survey variable misses a number of turning points in the official series, as shown in Figure 6.2.

Table 6.5: Personal Consumption (Seasonally Adjusted) and Survey Responses on Current Business

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
PECG(S)	CBUSRQ	0.02	2.61	0.26	-0.55
PECG(S)	CBUSRQ(+1)	0.03	3.44	0.36	-0.6

Figure 6.2: Personal Consumption and Survey Responses on Current Business/Sales



6.4 SERVICES

GDP in the services sector was used as an official series, and tests were undertaken to check the consistency between this variable, and the survey response variable relating to current work. GDP is supplied as a quarterly series, and so the survey responses were averaged over the three months in each quarter. Tests were conducted using the quarterly percentage changes in both the raw and seasonally adjusted GDP series. The dependent variable in the employment tests was once again the quarterly percentage change in QNHS employment.

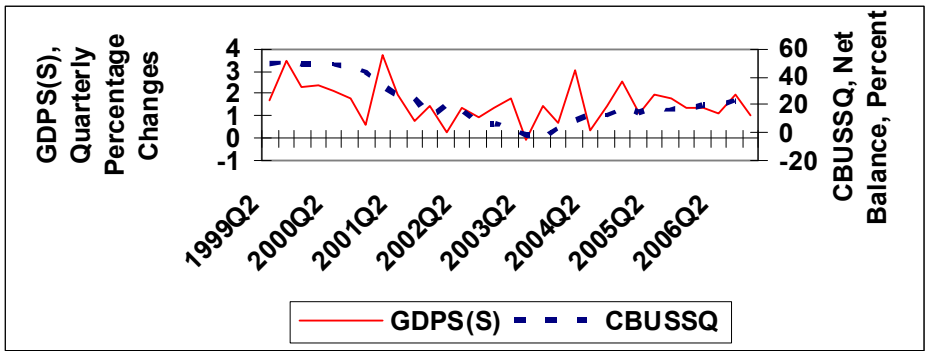
A good relationship was reported between seasonally adjusted GDP and the "current business" variable. (See Table 6.6.) The estimated coefficient is positive and significant, and the R^2 is the highest reported in this section. However, the graph indicates that this variable is incapable of tracking the turning points in GDP. The employment tests did not yield positive results.

While the two estimated coefficients were correctly signed, neither was statistically significant, and so we must conclude that there is no relationship between the QNHS employment series and the employment levels reported by survey respondents.

Table 6.6: Service Sector GDP (Seasonally Adjusted) and Survey Responses on Current Business

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
GDPS(S)	CBUSSQ	0.02	4.02	0.37	-0.39

Figure 6.3: Services Sector GDP and Survey Responses on Current Business



6.5 CONSTRUCTION

In relation to production, the Index of Total Production in Building and Construction (ITPC) was selected as an appropriate series with which current work levels expressed in the survey could be compared. The ITPC is a quarterly series, and so it is expressed as quarterly percentage changes here. With regard to employment, two official series were selected for testing. The first is the Monthly Index of Employment in Building and Construction (MIEC), and the second is the employment series from the Quarterly National Household Survey (QNHS). Tests were conducted using the quarterly percentage changes in both the raw and seasonally adjusted QNHS series. The independent variable used in the employment tests was expectations of future employment expressed by survey respondents, due to the fact that the actual observed employment response data were unavailable. The results of all of these tests are provided in the Appendix.

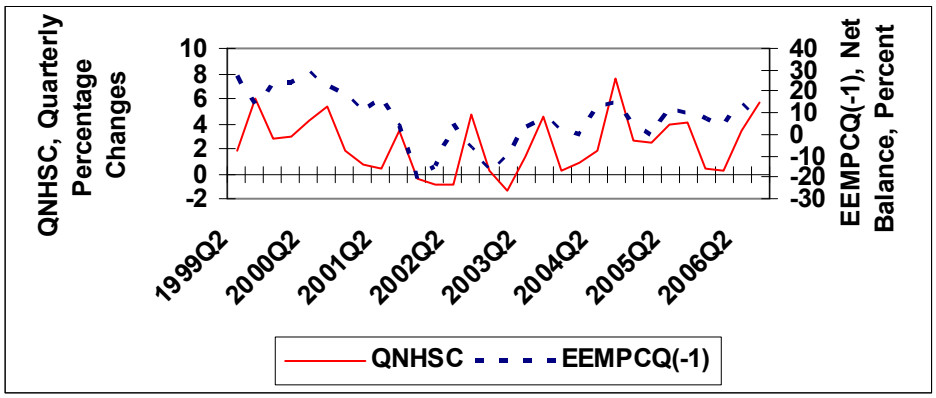
Looking first at output, the relationship between the Index of Total Production and the survey responses regarding work levels was weak, with a reported R^2 value of just 0.12. The results of the monthly employment series were equally poor. None of the reported R^2 values exceeded 0.1, and so no relationship exists between the Monthly Index of Employment, and survey respondents' expectations about employment. In spite of the prior expectation that the survey series might be more capable of predicting the seasonally adjusted official series, the best results in this sector come from the comparison between the raw QNHS series and lagged employment expectations. The results are presented in Table 6.7. While the R^2 value of 0.23 is not overly impressive, Figure 6.4 indicates a good degree of consistency between the QNHS series and survey respondents'

employment expectations over the time period studied. This is particularly apparent from 2003 Q1 onwards. During this period, the survey variable tracks the turning points in the official series very well.

Table 6.7: QNHS (Unadjusted) and Survey Respondents' Employment Expectations

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
QNHSC	EEMPCQ(-1)	0.09	2.91	0.23	----

Figure 6.4: QNHS Employment and Survey Respondent's Employment Expectations



6.6 EXTERNAL CONSISTENCY: CONCLUDING REMARKS

As mentioned, this testing procedure compares sentiment data and official quantitative statistics, and as such, is extremely demanding of the survey series. The results in this section suggest that many of the survey variables have little or no predictive power. The vast majority of the tests conducted resulted in R^2 values lower than 0.1, and while it was stressed that we should not expect the R^2 values to be impressive, these statistics are unacceptably low.

With regard to the business survey data, four good relationships between the survey series and the official series were reported in this section – one for each of the four surveys. These preliminary findings suggest that the four survey variables used in these tests may possess some forecasting potential. The graphical analysis indicates that the employment data from the construction survey are capable of tracking the seasonally unadjusted QNHS employment series. This is an important result, and the relationship between these variables certainly merits further investigation. Unfortunately, the graphs of the three other statistical relationships did not display such promising results. In each of these cases, the survey variables missed a number of the turning points in the official series.

The consumer survey produced some promising results. The statistical relationships between the survey variables and their official equivalents were good, with the exception of the relationship between the overall Consumer Sentiment Index and the Retail Sales Index. The most impressive results were produced when a selection of the survey response variables were compared with data on personal expenditure. The results suggest that survey data on the overall economic situation and on personal finances are highly correlated with the official data on personal expenditure, and this relationship could perhaps be exploited for the

purposes of forecasting. Unfortunately, the graphs suggest that the survey variables may not be capable of tracking turning points in the official series, but merely the overall trend in that series.

7. Conclusion

The findings in this analysis suggest that the potential of the survey data is limited. This verdict is based on the results of both the internal and external consistency testing procedures. First, only the industry survey provides variables that fully satisfy the internal consistency condition. Although the results from the construction survey are somewhat inconclusive, the retail, services and consumer results are unquestionably poor. It was argued, however, that the disappointing results from the consumer survey were not altogether surprising. In any case, unsatisfactory results in the internal consistency tests do not preclude the use of data from these surveys in the subsequent analysis of external consistency. They do, however, imply that the survey expectations variables may be unreliable indicators, and may not be useful for short-term forecasting purposes. The survey outcomes variables may still be useful forecasting tools, given the timeliness of their release.

The external consistency testing procedure is extremely demanding of the survey variables. In spite of this admission, a number of the reported R^2 values were unacceptably low, and lead to the unavoidable conclusion that the associated variables are worthless, in terms of forecasting. With regard to the business surveys, four survey variables produced results that, at the very least, make these variables worthy of further examination.[14] The test results from the consumer survey were far superior to those from any other survey. With the exception of the relationship between the Consumer Sentiment Index and the Retail Sales Index, all of the tests conducted found positive and significant coefficients, suggesting that a number of statistical relationships exist between the survey series and the official data, and that these relationships could perhaps be exploited for the purposes of forecasting.

Several areas of this analysis merit additional attention. In some of the tests performed, the sample size was very small. An increased sample might strengthen the results from these testing procedures. An extension of this study might examine the business survey series at a disaggregated level. Kearney (1991) argued that the heterogeneity of the firms in the different sectors and sub-sectors cannot be adequately captured by the weighting procedures used. In addition, there is a question mark over the representativeness of the surveys, and it is likely that this is more satisfactory in some areas than others. This certainly merits further investigation, in order to ascertain the extent of the issue, and how it may be improved. Furthermore, the ambiguous wording of some of the survey questions may need to be addressed. While multiple lags may be tested during the internal consistency testing in order to obtain the best relationship, it must still be assumed in this analysis that all firms interpret the questions in the same way. This is clearly an invalid assumption, and more accurate phrasing of survey questions might eliminate this problem to a certain extent. Specifically, it would appear that responses seem to

[14] These variables were: employment expectations in the construction survey (EEMPCQ), observed employment in the industry survey (REMPIQ), current business/sales in the retails survey (CBUSRQ), and current business in the services survey (CBUSSQ).

represent only one or two future time periods, regardless of the wording of the question. As such, questions that require respondents to consider three or more periods ahead should be revised.

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APPENDIX

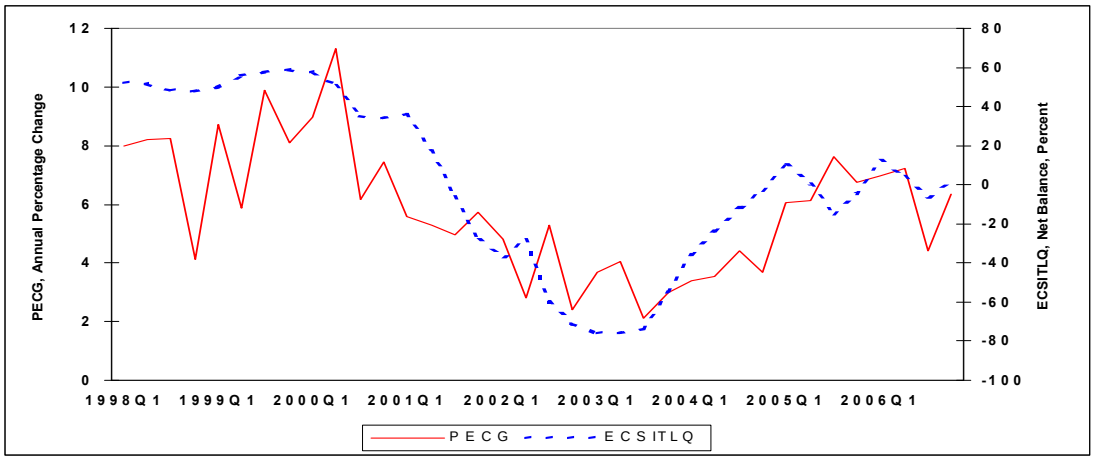
External Consistency Results

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
ITPC	CWORKQ	0.24	1.82	0.12	----
MIEC	EEMPC(-1)	0.04	1.61	0.03	----
MIEC	(M)EEMPC(-1)	0.05	1.90	0.04	----
(M)MIEC	EEMPC(-1)	0.03*	1.99	0.04	0.43
(M)MIEC	(M)EEMPC(-1)	0.05*	2.11	0.05	0.44
MIEC	EEMPC	0.07*	2.72	0.07	----
MIEC	(M)EEMPC	0.04*	2.41	0.06	----
(M)MIEC	EEMPC	0.07*	2.74	0.08	0.40
(M)MIEC	(M)EEMPC	0.09*	3.26	0.10	0.44
QNHSC	EEMPCQ(-1)	0.09*	2.91	0.23	----
QNHSC(S)	EEMPCQ(-1)	0.12	0.86	0.05	0.59
MIPI	PRODL	0.16	1.81	0.04	-0.29
MIPI	(M)PRODL	0.14	1.28	0.02	-0.26
(M)MIPI	PRODL	0.10*	2.05	0.05	0.30
(M)MIPI	(M)PRODL	0.14	1.80	0.04	0.32
MIPI(S)	PRODL	-0.01	-0.22	0.00	-0.49
MIPI(S)	(M)PRODL	0.02	0.31	0.00	-0.49
(M)MIPI(S)	PRODL	-0.0006	-0.02	0.00	----
(M)MIPI(S)	(M)PRODL	0.02	0.5	0.00	----
EMPI	REMPIQ	0.11*	3.18	0.30	----
QNHSI	REMPIQ	0.06	1.54	0.08	-0.32
QNHSI(S)	REMPIQ	0.05*	2.14	0.14	----
PECG	CBUSRQ	0.03	0.68	0.02	-0.46
PECG(S)	CBUSRQ	0.02*	2.61	0.26	-0.55
PECG	CBUSRQ(+1)	0.05	1.29	0.06	-0.48
PECG(S)	CBUSRQ(+1)	0.03*	3.44	0.36	-0.6
MRSI	CBUSR	-0.3	-0.65	0.004	-0.34
MRSI	(M)CBUSR	-0.02	-0.38	0.002	-0.34
(M)MRSI	CBUSR	-0.02	-0.30	0.001	0.28
(M)MRSI	(M)CBUSR	-0.004	-0.57	0.004	0.28
MRSI(S)	CBUSR	-0.009	-0.51	0.00	-0.49
MRSI(S)	(M)CBUSR	-0.001	-1.10	0.01	-0.53
(M)MRSI(S)	CBUSR	-0.001	-0.21	0.005	0.22
(M)MRSI(S)	(M)CBUSR	-0.006	-0.89	0.02	0.21
QNHSR	REMPRQ	-0.02	-0.08	0.00	-0.57
QNHSR(S)	REMPRQ	0.0004	0.00	0.00	----

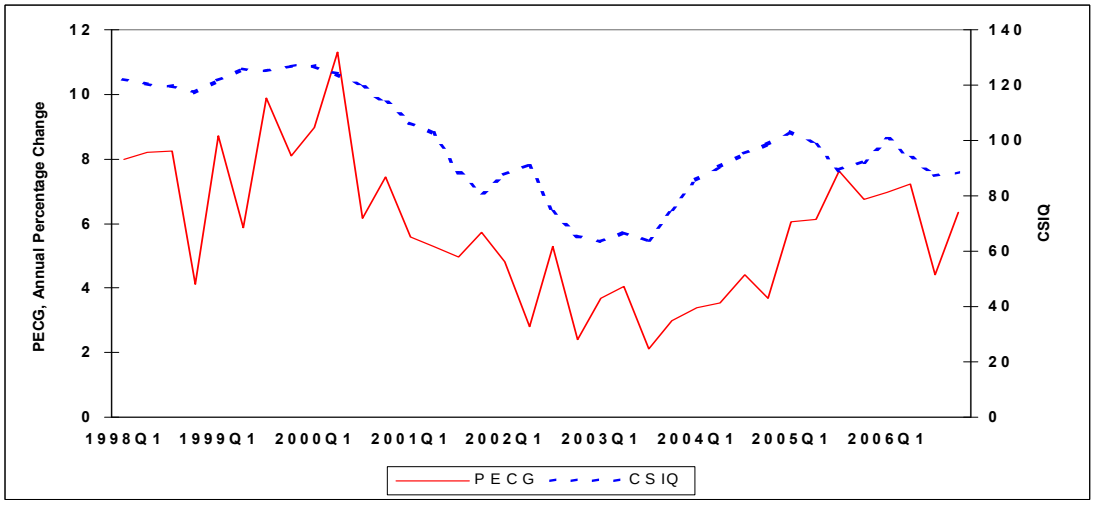
* Significant at 5 per cent level.
Rho values indicate that corrections have been made for AR(1).
Lags are indicated between parentheses.
All dependent variables are expressed as monthly or quarterly percentage changes. (Annual percentage changes in the case of the consumer survey.)
An additional 'M' in parentheses in front of a variable indicates that three-period moving averages have been calculated. 'S' in parentheses following a variable indicates that it is seasonally adjusted.

Dependent Variable	Independent Variable	β_1 Estimate	t-stat	R^2	Rho
GDPS	CBUSSQ	0.03	1.13	0.04	----
GDPS(S)	CBUSSQ	0.02*	4.02	0.37	-0.39
QNHSS	REMPSQ	0.06	1.29	0.05	----
QNHSS(S)	REMPSQ	0.02	1.56	0.08	----
GDP	ECSITLQ	0.04*	3.92	0.31	----
GDP(S)	ECSITLQ	0.04*	3.88	0.31	----
QNHSU	UEMPEQ(-4)	0.17*	2.20	0.15	0.77
MCPI	MPRICEL	0.04*	5.91	0.21	0.68
PECG	ECSITLQ	0.04*	6.93	0.59	----
PECG(S)	ECSITLQ	0.04*	6.92	0.58	----
PECG	ECSITEQ(-2)	0.06*	7.01	0.60	----
PECG(S)	ECSITEQ(-2)	0.06*	7.18	0.60	----
PECG	FINSITL	0.11*	5.34	0.46	----
PECG(S)	FINSITL	0.11*	5.36	0.46	----
PECG	FINSITE(-2)	0.12*	5.34	0.46	----
PECG(S)	FINSITE(-2)	0.12*	5.32	0.45	----
GDP	CSIQ	0.09*	3.91	0.31	----
GDP(S)	CSIQ	0.08*	3.85	0.31	----
PECG	CSIQ	0.08*	6.61	0.56	----
PECG(S)	CSIQ	0.08*	6.60	0.56	----
MRSI	CSIQ	0.02	0.61	0.00	0.92
MRSI(S)	CSIQ	0.02	0.57	0.00	0.93

Personal Expenditure and Survey Responses Regarding the Economic Situation



Personal Expenditure and the Overall Consumer Sentiment Index



An Empirical Analysis of Development Cycles in the Dublin Office Market 1976-2007*

*John McCartney***

Abstract

Commercial property has taken centre-stage in recent debates about Ireland's banking system and the health of our economy. However, these debates have been hampered by a lack of empirical research on non-residential real estate. This article sheds light on one key segment of the commercial property sector – the Dublin office market. Using 32 years of annual data, a simple regression model is elaborated which explains office completions. This indicates that office starts react to two key demand signals – rental growth and lettings activity, with completions following after an 18 month construction lag. Reliance on these simple demand signals, combined with a lengthy construction lag, leads to periodic supply overshoots. In turn, this contributes to the boom-bust pattern that has characterised office building in Dublin over many years. We are now entering the 'bust' phase of this cycle. Office completions remained strong in 2008 but the Dublin market is now overbuilt. Our model predicts that output will fall by 48 per cent next year and by a further 14 per cent in 2010. All else equal this will deduct 0.5-0.6 per

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cent directly from GNP and will lead to the loss of approximately 7,500 construction jobs.

1. Introduction

The residential property market has provoked lively debate in all sections of Irish society. Reams have been written about house prices in the popular press and property has become the staple fare of dinner party conversation. Policy makers, consultants and academics have also engaged with this subject and numerous reports and scholarly papers have been produced. To a large extent these endeavours have been facilitated by the availability of official data on Ireland's housing market. Although these are far from perfect – for example we do not have complete information on the overhang of unsold properties – useful statistics are available on many aspects of the residential market.

Unfortunately, the same cannot be said for commercial property where a lack of data has impeded our analysis of market dynamics. This is problematic, because non-residential real estate represents a significant part of Ireland's economy that mainstream economics knows relatively little about. Commercial building, not including infrastructure, directly accounted for around 4 per cent of GNP in 2007.[1] However, if we factor in expenditure on the fit-out of new buildings, not to mention spending associated with construction wages, property management and legal services, the total contribution to our economy is significantly higher.

The objective of this article is to shed new light on one important segment of Ireland's commercial property sector – the Dublin office market.[2,3] Specifically, the paper aims to derive a statistical model which explains the quantum of new office space completed in any given year. It is hoped that this model will facilitate more accurate estimates of construction output in our macroeconomic forecasts. Moreover, by revealing the dynamics which underpin cycles in the Dublin market, the analysis in this article should help to inform the business decisions of office developers, investors and the institutions that fund them.

Section 2 of the article briefly describes the Dublin office market. *Inter alia,* it provides information on the existing stock of buildings, the historical flow of new completions, annual trends in take-up, rental growth rates and the geographical distribution of office space within the city. The second section discusses factors that might influence developers' decisions to construct new office space. This conceptual discussion underpins the

[1] Based on output estimates by DKM Economic Consultants, expressed as a percentage of GNP after adjustment for imported intermediate consumption.
[2] Data limitations mean that the spatial level of analysis for most previous studies has been the single metropolitan area (McDonald, 2002).
[3] To give some idea of this paper's coverage, figures from estate agents DTZ Sherry FitzGerald indicate that Dublin accounted for around three-quarters of the total office space in Dublin, Cork, Galway and Limerick at end-2007. Consistent with this, in their latest review of the construction industry, DKM Economic Consultants assume that Dublin represents 80 per cent of Ireland's total office market.

derivation of a simple regression model that aims to explain Dublin office completions. Details of this model, and the empirical data that are used to estimate it, are provided in Section 3. The estimated model is then presented in Section 4, and the results are used to forecast Dublin office completions for the 2008-2010 period. The broader implications of this analysis are discussed in Section 5, before a brief summary and conclusion.

2. A Brief Description of the Dublin Office Market[4]

Dublin offices fall into two broad categories. On one hand, there are traditional Georgian office buildings. These are mainly located in the Central Business District to the south of the river Liffey, encompassing the postal areas of Dublin 2 and 4. Georgian office stock is also present in Dublin 1 which lies just to the north of the Liffey. Most of Dublin's Georgian office buildings were constructed between 1750 and 1840.[5] They typically encompass a net lettable area of 230-560 square metres (sq. m) and consist of four storeys over basement. However, these converted dwellings now account for a small and declining fraction of the overall office market. Their restricted scale, fragmented layouts and inflexible structures make them less appealing to larger IT intensive occupiers and some have now been restored to residential use. The Georgian market is explicitly excluded from the analysis in this paper.

Instead, we focus on purpose-built 'Modern Offices' which have been constructed since 1960.[6] Within this heading, current industry convention is to classify the modern stock into "Second Generation" buildings (c. 1960-1990) and "Third Generation" premises (1990-date). The former characteristically have solid concrete floors, single glazing and conventional heating systems. The latter feature raised access flooring (to facilitate IT wiring etc.), air conditioning and double glazing. In addition, these more recent buildings have flexible floor plates which can accommodate alternative layouts and sub-divisions.[7]

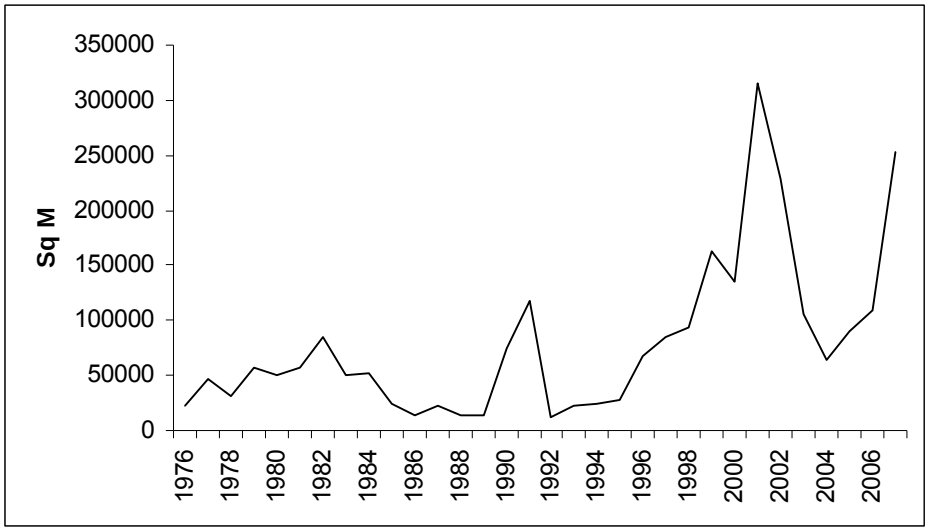
At end-June 2008, the total stock of modern office space in Dublin was estimated at 3,118,907 sq m. Perhaps underlining the extent of Ireland's economic growth in recent years, more than two-thirds of this space has been constructed since 1990 and can, therefore, be deemed to be "Third Generation".

Between 1976-2007 Dublin office completions averaged 79,125 sq m per annum. However, as the graph below demonstrates, office construction has been highly cyclical during this time, with four distinct peaks since

[4] Unless otherwise stated, the figures herein derive from an office market database maintained by chartered surveyors Lisney.
[5] Kealy *et al.* (2006) and O'Brien and Guinness (1994) provide detailed reviews of Dublin's Georgian architectural history.
[6] McDonald (1985) notes that prior to 1960 there was just one large modern office block in Dublin – Busáras on Store Street.
[7] An additional category of environmentally sustainable "Fourth Generation" offices is now beginning to emerge (see Lisney, 2007; Power, 2008). As yet, however, only a few examples of these buildings exist in the Dublin market.

1976.[8] This pattern closely follows international norms, with similar cycles having been observed in many other cities across the world (McDonald, 2002; Mueller, 1999). Over our study period, the first three peaks in Dublin office building occurred at approximately 10-year intervals, with completions spiking in 1982, 1991 and 2001. Again this closely mirrors the international experience. For example, Wheaton (1987) studied a number of American cities and found that the typical office market cycle lasted for 10-12 years. The Dublin market now appears to be approaching another peak. Just over 250,000 sq m of new office space was completed in 2007. This represented a rise of around 130 per cent on the previous year's new construction and was the second highest total ever recorded. Current forecasts indicate that at least as much new space will be completed in 2008.[9]

Figure 1: Dublin Office Completions, 1976-2007



In value terms, latest estimates indicate that offices accounted for one-quarter of commercial building output in 2007.[10] This puts the value of office building behind that of retail, but almost on a par with agriculture and tourism combined, and well ahead of industrial.

Table 1: Output Share of Commercial Building 2007

Commercial Sector	%
Retail	35.62
Agriculture/Tourism	27.28
Office	24.82
Industrial	12.28
Total	100

Source: Adapted from DKM Economic Consultants (2008).

[8] Malone's 1981 analysis of the Dublin office market indicates that the cyclical pattern of completions pre-dates this paper's study period. Distinct output peaks were evident in 1964 and again in 1972/1973.

[9] Lisney *Dublin Office Market Update*, July 2008.

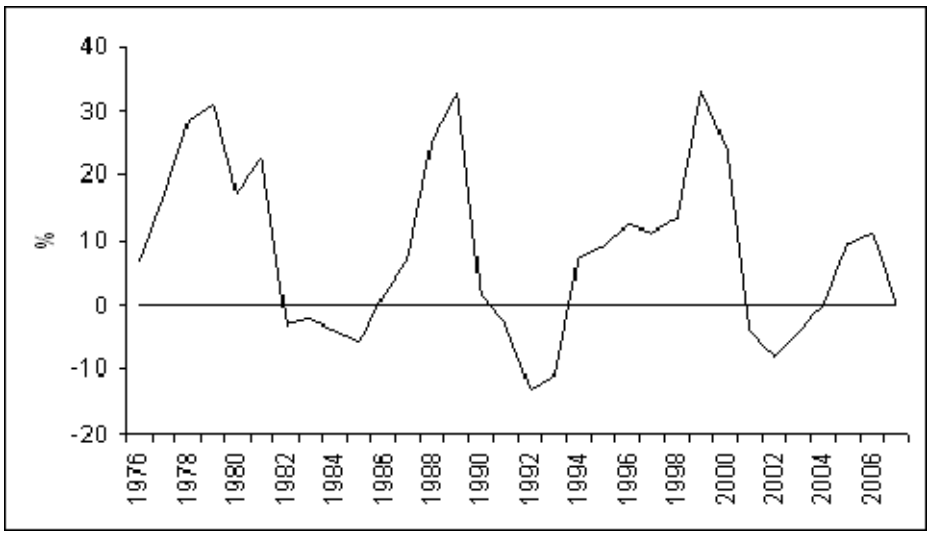
[10] Derived from DKM Economic Consultants (2008) *Review of the Construction Industry 2007 and Outlook 2008-2010*. Table A2.1.

Average take-up (i.e. office letting) during the 1976-2007 period was 97,135 sq m per annum. The fact that take-up exceeds completions should not be surprising because some proportion of new lettings will always involve occupiers relocating. Similar to completions, take-up exhibits a cyclical pattern with four peaks and troughs visible over the last 32 years.

During the 1970s and 1980s the main takers of Dublin office space were State bodies, the large indigenous banks and an assortment of professional practices. However, while these occupiers remain prominent, an expanding cohort of financial services firms has begun to account for an increasing share of the market, particularly since the development of the International Financial Services Centre (IFSC) in the late 1980s. Reflecting this, the share of Dublin office take-up accounted for by financial services companies increased from 6.5 per cent in 1999 to 45 per cent in 2007.

Unsurprisingly, given the peaky nature of completions and take-up, Dublin office rents have also exhibited a highly cyclical pattern. Between 1976-2007 there were four clear cycles in the market and, as illustrated in the graph below, the amplitude of these cycles has been substantial. Nominal rent growth reached a high of 33.3 per cent in 1999, but it also exceeded 30 per cent in the previous cyclical peaks of 1979 and 1989. In each case, however, these peaks were followed by periods of negative rental growth lasting for 3-4 years. The largest fall occurred in 1992 when rents declined by 13.2 per cent, but rental growth bottomed-out at –9.1 per cent on average over the last three troughs. Emphasising the extent of volatility within the rent cycle, the average peak-to-trough downswing in rental growth over the last three cycles has been 41.5 percentage points.

Figure 2: Annual Growth in Dublin Office Rents, 1976-2007



In terms of geographical distribution, the bulk of Dublin's modern office space is located in the city centre. However, as the capital has developed, substantial office building has also occurred in the suburbs. Currently, suburban locations account for 1,115,039 sq m, or 35.8 per cent, of Dublin's office stock. Within this, the South suburbs is the largest sub-

market, accounting for 18.0 per cent of all modern office space in Dublin. The North suburbs and West suburbs account for 10.2 per cent and 7.5 per cent of stock respectively.

3. A Conceptual Model of Office Development

To understand the dynamics of office building it is necessary to consider the issue of development risk. In theory, rational developers will only undertake a new office project when the expected value of the completed property exceeds the development costs. However, while this might sound straightforward in principle, neither the costs nor the value of an office development are easy to estimate in advance (Herring and Wachter, 1999). On the costs side, various factors can lead to unexpected outlays. For example, planning delays and construction hold-ups (perhaps due to unforeseen environmental or geological problems) can result in significant budget overruns (Gordon, 2003).

On the benefits side, the uncertainties may be even greater. As well as affecting costs, 'planning risk' can radically alter project returns. For example, if planning authorities refuse a proposed development or impose significant conditions, the value of the scheme can be dramatically reduced.

The value of new developments will also be affected by future demand for office space, which may be difficult to predict when a scheme is first being conceived. The capital value of a proposed building is usually calculated by discounting the expected stream of future rents to a present value (Harvey, 1981; Hendershott, 1996a). This calculation requires developers to make forecasts about several critical unknowns. Not only must they choose a discount rate (effectively an interest rate forecast), they must also estimate future office rents, which are clearly a function of market demand. In addition, because rental income only derives from space that is actually let, developers must also make some assessment about future rental voids, which will also reflect office demand (Herring and Wachter, 1999; McDonald, 2002).

It is reasonable to assume that, in the absence of definitive information on future conditions, developers will try to mitigate their risk by carefully monitoring current market conditions and seeking evidence of a demonstrable appetite for new office space before embarking upon projects (Gordon, 2003). Intuitively, then, one would expect office development to be a strongly demand-led activity (Harvey, 1981), and this appears to be supported by previous empirical work (see McDonald, 2002 and references therein). If this hypothesis is correct, then indicators of demand should help to explain office completions in the Dublin market.

INDICATORS OF OFFICE DEMAND

In their efforts to gauge market conditions, it is likely that developers and funding institutions will pay close attention to several key indicators. At the highest level, the requirement for office space should be positively correlated with overall economic growth. Therefore, we would expect developers to monitor economic conditions and undertake more office building projects in periods of strong growth.

Economic growth, however, is not the proximate cause of office demand. Rather, economic growth is associated with employment growth, which in turn creates a requirement for more office accommodation. Therefore labour market trends might provide developers with a more immediate signal of office demand. A priori, we would expect office construction to be positively associated with employment growth (Pollakowski, Wachter and Lynford, 1992).

Another indicator of market conditions might be recent lettings activity. Take-up is not a perfect proxy of demand because some proportion of each year's lettings represents a 'churn' of occupiers within the existing stock of space. In this sense, take-up does not measure the net additional requirement for new office space. But in itself, strong lettings can send a positive signal to developers. Where transactional activity is brisk and the market is fluid, developers and investors will have a better chance of securing occupiers for their buildings – even if this is at the expense of attracting tenants from other schemes.[11] Intuitively, therefore, we would expect office completions to be positively associated with take-up.

Although take-up contains valuable information for development stakeholders it is, as outlined above, an imperfect measure of net demand. For this reason, an additional variable – rental growth – might also be closely watched by developers and funding institutions. By capturing the interaction between lettings activity and the stock of available space, this indicator may give a more comprehensive picture of demand relative to supply.

The market signals listed above are likely to influence developers' decisions to initiate office-building projects. Consequently, they should be a good predictor of office *starts*. However, the aim of this paper is to explain variation in office *completions*. There are several reasons for this focus on completions rather than commencements. First, and most importantly, there are very limited data on office starts. From a practical perspective, this precludes the possibility of incorporating commencements as the dependent variable in our regression analysis. Second, the focus on completions is consistent with the methodology adopted in compiling our main macroeconomic statistics.[12]

Because office buildings take some considerable time to construct, the demand signals that contemporaneously influence starts can only be

[11] Indeed, this hypothesis is consistent with evidence from the London market which found that office rents are positively related to mobility within the market (Wheaton, Torto and Evans, 1997).

[12] The main source of official data on construction output is the Annual Review and Outlook for the construction industry, which DKM Economic Consultants produce on behalf of the Department of the Environment, Heritage and Local Government. Estimates of office output are based on completions, adjusted for construction lags. These estimates are incorporated, with adjustment, by the Central Statistics Office (CSO) into its gross fixed capital formation figures in the National Accounts.

expected to affect completions with a time lag. The time required to build-out an office scheme can vary depending on many factors, including the size of the building. However, industry experts suggest that, on average, major projects usually involve a construction phase of around 18 months (DKM Economic Consultants, 2008). Therefore, in formulating our model it is necessary to build in a time lag to reflect this. In practice, however, because the analysis is based on annual data, it is impossible to introduce a lag of precisely 18 months. Effectively, therefore, the choice is between one or two years. The decision between these options was determined on an empirical basis, as discussed in Section 4 below.

4. Developing a Statistical Model – Data and Variables

A simple linear model is elaborated below to explain Dublin office completions. This model is estimated using Ordinary Least Squares (OLS) regression, populated by 32 years of annual data (1976-2007 inclusive). This data set is smaller than would be ideal for a comprehensive econometric analysis. Indeed, data limitations are a recurring theme in the international literature, something which may derive from the fact that empirical research on commercial real estate markets invariably relies on data from private sources (McDonald, 2002). Some studies have attempted to address this problem by pooling data from multiple locations. For example, Pollakowski *et al.* (1992) analyse 10 years of annual data from 21 cities. However, although this approach provides additional observations for analysis, it does not alter the fact that office cycles typically have a 10-12 year frequency and ideally we should include more than one cycle in an analysis. Other studies have achieved larger samples by using bi-annual or quarterly data. However this approach may require the use of dummies to control for seasonality, and this could impose degrees-of-freedom constraints. Furthermore, unless a long run of quarterly data is available, the analysis may still be restricted to a single market cycle.[13] A reliable series of quarterly data is not available for the Dublin market over multiple office cycles. In this context, the 32-year annual dataset described below is acceptable for the simple analysis herein.

DEPENDENT VARIABLE

As outlined above, the dependent variable for our model is Dublin office completions. This is measured in square metres per annum. A gross measure (i.e. before same-year demolitions are netted out) is appropriate as our objective is to explain new building activity rather than stock movements. The data come from Lisney which updates an inventory of finished Dublin office buildings every three months.[14] Lisney defines a building as completed when it has been certified as 'practically complete' by the architect.

[13] For example, Fuerst (2006) uses 11 years of quarterly data.
[14] Therefore, the completions data used in this analysis are backed-up with an itemised list of identifiable buildings completed in each period.

INDEPENDENT VARIABLES

In specifying the right-hand-side of the equation, the aim is to derive a parsimonious model that explains as much of the variation in Dublin office completions as possible using the minimum number of independent variables necessary.

Given our hypothesis that office building is demand-led, a logical point of departure is to introduce variables which might signal to developers that there is a market requirement for more office space. Therefore, rental growth, which contains information on office demand relative to the stock of available space, was included in the model as an explanatory variable.[15] Rental growth is operationalised as the annual percentage change in the nominal rent for a square metre of modern Dublin office space. The data used derive from the *Lisney Rental Indices* which have been published since 1970.[16] Rents in this series are defined as the 'bald' headline rent on new leases, without adjustment for rent-free periods and other incentives.[17]

As discussed above, while rental growth is likely to influence building starts in real time, the dependent variable in this analysis is completions. The effect of rents on completions is likely to occur with some delay due to the time elapsed between commencing and finishing an office building. Given estimates of an 18-month construction phase, it was unclear a priori whether rental growth should be regressed against completions with a one or two-year lag adjustment term. Therefore a two-staged process was employed to shed light on this matter. First, line graphs of rental growth in periods t-1 and t-2 were overlaid on a plot showing growth in office completions. This simple visual test suggested that completions tended to follow trends in rental growth with a two-year lag. This was corroborated with an examination of the correlation matrix – whereas rental growth in t-1 had a zero-order correlation of 0.23 with the dependent variable, rental growth in t-2 exhibited a much stronger relationship of 0.50. Consequently, rental growth in period t-2 was entered into the right-hand-side of our equation.

Take-up is another variable which may potentially influence office development. Although it is an imperfect proxy of the net additional demand for office space, take-up does provide developers and funding institutions with key information on transactional activity. This, in itself, is likely to influence construction decisions. When letting activity is brisk,

[15] Some measure of rents has been included as an explanatory variable in virtually all previous econometric models of metropolitan office supply (Hendershott *et al.* 1999, McDonald, 2002; Pollakowski *et al.,* 1992; Wheaton *et al.,* 1997; McGough and Tsolacos, 1999).

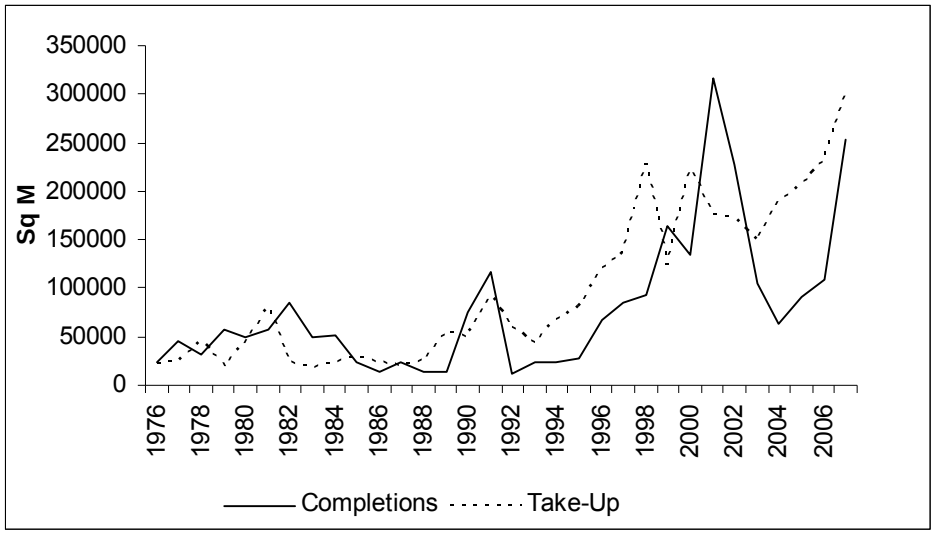
[16] The Lisney Rental Indices are a weighted average of rental movements in 12 office locations across Dublin. A full methodological description of these indices is available in *Lisney Rental Indices* (March 2007).

[17] In theory, net effective rents, which adjust for factors such as rent-free periods, capital contributions to fit-out costs etc. may be a more precise indicator of market conditions (McDonald, 2002). In practice, however, these are notoriously difficult to measure due to complex lease variations and the confidential nature of the information required to make accurate adjustments.

developers will perceive that there are greater opportunities to find tenants for a new building – either by attracting new occupiers or by 'poaching' tenants from existing buildings. For this reason, a take-up measure was also introduced to our explanatory model.

As with rental growth, the take-up variable in our equation is operationalised using Lisney data.[18] It is measured gross (i.e. no adjustment for space vacated in relocations), in square metres, and refers to leases actually signed in any given year.[19] As per our discussion of the rental growth variable above, take-up is expected to influence completions with a lag. Again, however, it is unclear whether the appropriate lag period should be one or two years. As before, a two-staged process was employed to determine this matter. In the first step, a line graph of take-up was superimposed on a graph of completions. Figure 3 indicates that, in this case, the lagged effect was closer to one year than two. This was confirmed in step two. The correlation matrix showed that the relationship between completions and take-up in period t-1 (0.76) was stronger than in period t-2 (0.63). Therefore, take–up was included in our equation with just a one-year lag.

Figure 3: Take-up and Office Completions – A One Year Lag



It is interesting to consider why rental growth appears to take longer to influence developer behaviour than take-up. One possibility is that there is an information asymmetry between take-up and rents. Developers and investors have a strong incentive to publicise new lettings because this creates a favourable impression of their buildings and can help to attract additional occupiers. In practice, therefore, lettings tend to be quickly reported in the national press and can be brought to bear in developers' construction decisions almost immediately. However, the incentive to publicise rental information may be much weaker, particularly if rents have been heavily discounted. As a result, it has been suggested that rental

[18] Published in Lisney *Annual Review* various years (1974-2007).

[19] Lisney tracks take-up by updating a list of office leases signed in each quarter. As with completions, this means that the data are backed-up by an itemised list of lettings.

information may leak more slowly into the market, causing a delayed effect on completions. While this is an interesting theory, it is not entirely convincing for two reasons. First, contrary to the suggestion that rental information is slow to surface, indicative rental indices for the Dublin office market are available with relatively short reporting lags from various sources, including Investment Property Databank Ltd. (IPD), Lisney and Jones Lang LaSalle. Second, even if it were true that rental information seeps out slowly, this would only explain the delay between actual rental movements and movements in measured rent. The adjustment term in our model refers to a different lag – the delay between measured rental growth and a supply reaction.

In light of this, a more cogent – albeit speculative – explanation is that developers are not just interested in whether rents are growing in the year that starts are initiated. They may also be interested in how quickly rents are growing in that year (t-1) relative to rental growth rates in the previous year (t-2). This second-derivative measure may be important to developers because it can help them to identify what stage the rental market is at on its long-term cycle. To illustrate, office rents can grow at an annual rate of 5 per cent twice in the cycle – once on the way up and once on the way down. But on the upswing, the 5 per cent growth will be preceded by weaker growth the year before, whereas on the downswing the previous year would have seen stronger growth. Clearly, developers might be more confident to initiate building works when the market is improving (i.e. rental growth accelerating between t-2 and t-1) than when it is in decline.

Contrary to a priori expectations, no specification of either GNP or GDP growth was significant in our regression model.[20] The most likely reason for this is multicollinearity – i.e. the relationship between overall economic growth and office completions is intermediated by factors already included among our explanatory variables. Two factors seem to support this diagnosis. First, while real GNP and GDP growth are both significant when regressed against completions without any other independent variables,[21] their effects evaporate when rent growth and take-up are also included in the model. Second, although both GNP and GDP are correlated with office completions, they are also correlated with the other explanatory variables in our model, particularly in two-year lagged form.

Intuitively, one would expect employment growth to create a demand for more office space, which in turn should encourage development. However, employment had little effect in our model. A similar finding was discovered by McGough and Tsolacos (1999) in the UK and one possible explanation is that the 'space occupied per employee ratio' may not be a constant. For example, trends towards more open plan office accommodation or efforts by firms to utilise their office space more

[20] GNP and GDP variables were introduced to the model in lags from 0-2 years. T-statistics on the relevant coefficients ranged from 0.23 to 1.45.
[21] T-statistics in two-year lagged specifications were 4.73 and 4.98 for GNP and GDP respectively.

intensively in the face of stronger economic activity could weaken the relationship between employment growth and office demand (D'Arcy *et al,*. 1999). Similarly, a change in the occupational mix – e.g. a growing cohort of managers who tend to be assigned more office space than clerical workers – may have a similar effect (Wheaton, Torto and Evans, 1997). However, as with economic growth, the insignificance of employment as a predictor of completions could also be due to collinearity in the right-hand-side variables. Although employment was strongly correlated with office completions (r = 0.59-0.64 depending on lag specification), it was also very closely associated with take-up (r = 0.87-0.91).

A final reason for the insignificance of employment could be the specification of the variables tested in our model. Neither total employment numbers (measured on a Principal Economic Status basis) nor the annual change in overall employment yielded significant results. However, the relationship between these measures and office building may be diluted by the fact that a great deal of jobs creation has occurred outside of office-based sectors. For example, just 25 per cent of overall employment growth in the last eleven years has occurred in the office-intensive sectors of 'Financial and Other Business Services' and 'Public Administration and Defence'. A further problem arises from the fact that much of the jobs growth outside these sectors has occurred in the building industry itself. Latest figures show that 21 per cent of overall employment growth since the commencement of the *Quarterly National Household Survey* in 1997 has been in construction. As many of the workers that make up this statistic have been engaged in office building, endogeniety may be an issue (i.e. there may be bilateral causality between overall employment growth and office output). Endogeniety can lead to biased and inconsistent OLS estimators and it is possible that this affected our estimated employment coefficient. An obvious solution to these specification problems is to obtain a data series which isolates office-based employment (see Rankin and White, 2008; Wheaton, Torto and Evans, 1997). However, this is not a straightforward exercise. Over the last 32 years there have been changes to both the survey instrument for collecting official employment data and to the sectoral classifications for identifying 'office-based' employment. Therefore, although it may be possible to develop an acceptable series for office based employment, this task is flagged for further research. In the meantime, no employment measure was included in our final model.

In a review of the international literature, McDonald (2002) found that elasticity of supply estimates for metropolitan office markets cluster in the 2.0-4.0 range. One interpretation is that, in the past, factors such as the cost and availability of credit do not appear to have acted as a major constraint on office building. It is not entirely surprising, then, that neither nominal nor real interest rates had any significant effect on our regression results, and this is consistent with the findings of previous research in the UK.[22] Consequently, interest rates were excluded from our estimated model. This notwithstanding, however, it is now becoming clear that the crisis in

[22] See McGough and Tsolacos (1999) and Wheaton, Torto and Evans (1997).

financial markets could fundamentally alter lending practices and credit conditions in the future. Therefore, it may be necessary to incorporate this affect into our model going forward.

Bearing all of these discussions in mind, the final variables included in our model are summarised in Table 2 below.

Table 2: Variable Definitions and Summary Statistics

Variable	Variable Type	Description	Mean	S.D.
Completions	Dependent	Sq M of office space 'practically completed', year t.	79,125	72,759
Rental Growth	Independent	Percentage change in nominal office rents, year t-2.	8.73	13.29
Take-Up	Independent	Sq M of office space for which leases were signed, year t-1.	88,977	72,246

5. Regression Results

The model outlined above was estimated using OLS and the results of this exercise are presented in Table 3 below. Despite the fact that the analysis is restricted to 32 annual observations, the model provides a good fit. Looking first at statistics for the full equation, the R^2 is 0.82. This indicates that 82 per cent of all the variation in Dublin office completions since 1976 is explained by our model. This level of explanatory power is encouraging considering that just two independent variables are included in the analysis, and the regression R^2 compares well with those reported in the international literature.[23] A Durbin-Watson statistic of 1.37 indicates no correlation in the error terms at 1 per cent.[24]

Table 3: OLS Model of Dublin Office Completions

Dependent Variable: Completions (Sq M per annum)

Regression Statistics	
R^2	0.82
$\bar{R}^2$	0.80
F	64.89*
D.W.	1.37

Independent Variable	Description	Coefficient	T-Statistic (Absolute)
Constant		-11,159.70	1.14
Rent Growth	Δ% Y/Y	2,323.17*	5.34
Take-Up	Sq M Let	0.79*	9.84

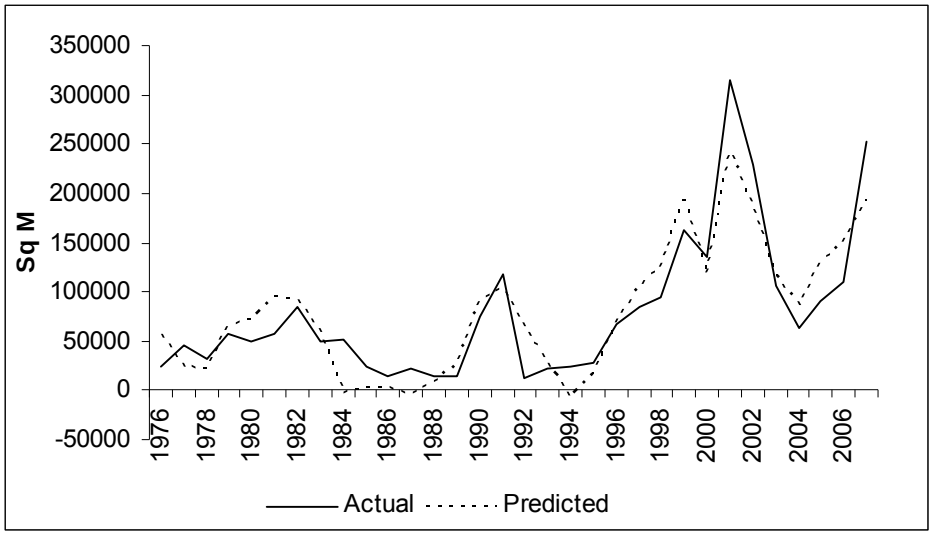
N = 32. * Significant at 1 per cent.

[23] R^2 values on previous office supply equations range from 0.19 (Rosen, 1984 – San Francisco) to 0.88 (Wheaton, Torto and Evans, 1997 – London). Pollakowski *et al.* (1992) estimate supply equations for 21 US cities with R^2 statistics of 0.49-0.69. Fuerst's (2006) equation for Manhattan yielded an R^2 of 0.60. Hendershott *et al.* (1999) estimate completions equations for London with adjusted R^2s of 0.50-0.82.

[24] A lagged-dependent version of the model was also tested. The results were similar to those reported above and the lagged dependent coefficient was not significant.

The graph below compares actual office completions in the 1976-2007 period against those predicted by the model. Not only does this picture confirm the explanatory power of the model, it also demonstrates that the model is very good at 'calling' turning-points in the building cycle. Over a 32-year period, the model has predicted three of the four construction peaks to the exact year. In the fourth case, it was just out, predicting a marginally higher completions rate in 1981 than in 1982 when completions actually peaked. This ability to identify peaks and troughs in the cycle is impressive, particularly considering the context – the Dublin market is small in absolute terms and completions in any given year can, therefore, be sensitive to one or two large individual projects (D'Arcy *et al.,* 1999).

Figure 4: Actual vs Predicted Office Completions, 1976-2007



Looking at the individual variables, lagged rental growth and lagged take-up have positive signs as expected, meaning that both are positively associated with higher office completions. In addition, both variables are significant at the 1 per cent level. This indicates that there is less than a one per cent probability that coefficients of the magnitude reported could occur if the underlying relationship with office completions was zero. This evidence appears to support the overarching hypothesis that developers' construction decisions are driven by signals of market demand.

The finding that lagged rents are positively associated with office development is consistent with empirical evidence from other metropolitan markets (see Fuerst 2006, Hendershott *et al.,* 1999). A simple interpretation is that strong rental growth in previous periods is taken as an indication that office space is scarce relative to demand.[25] This appears to give developers confidence that, if they construct new office buildings, occupiers can be found for the finished product. A closely related but more

[25] Some previous models have used vacancy rates as an alternative measure of the demand/supply balance (Rosen, 1984; Wheaton, Torto and Evans, 1997). However, consistent data on vacancy rates in Dublin are only available back to 1987. In trial regressions over this truncated period the vacancy rate was not significant in lags from 0-2 years (t-statistics = 0.37-1.33).

formal interpretation is that strong rental growth raises the present value of new buildings above construction costs, thereby making office development viable.

Interpretation of the take-up coefficient is similar in principle. To the extent that some portion of take-up derives from occupiers shifting around within the existing office stock, this is an imperfect measure of the requirement for additional space. However, it is an accurate measure of transactional activity, and when take-up is strong developers are likely to see greater opportunities to lease their buildings – either to relocating occupiers or to new entrants to the Dublin market. In this sense, even in a market that is not growing, strong take-up gives developers the chance to achieve lettings by attracting occupiers from other buildings.

FORECASTS FOR DUBLIN OFFICE COMPLETIONS 2008-2010

It is useful to apply our estimated equation to the task of forecasting office output in the years ahead. For 2008, the following values were substituted into the model;

- 2006 rental growth (i.e. rental growth t-2) = 11.34 per cent
- 2007 take-up (i.e. take-up t-1) = 299,009 sq m

This gave us the following equation;

2008 Completions = -11,159.70 + 2,323.17 (11.34) + 0.79 (299,009)

Solving for this equation yields a 2008 completions forecast of 251,402 sq m. If correct, this would mean that office output in 2008 would be on a par with 2007 which had the second highest level of completions ever recorded in the Dublin market. It should be noted, however, that this forecast understates Lisney's estimate that a total of 361,071 sq m will be completed in 2008.[26] The latter is based on actual completions in quarters one and two, plus works already underway at end-June 2008 that are scheduled for completion before year-end.

The forecasting process for 2009 is slightly complicated because take-up in t-1 (i.e. in 2008) is currently unknown. Therefore, office agents/researchers in Dublin's larger real estate companies were canvassed for a 2008 take-up estimate.[27] Their predictions were averaged to give an expected take-up of approximately 180,000 sq m. This number was then substituted into the model, along with the known figure of 0 per cent rental growth in 2007.

2009 Completions = -11,159.70 + 2,323.17 (0) + 0.79 (180,000)

[26] Lisney, *Dublin Office Market Update*, July 2008.

[27] A telephone poll was conduced in mid-June 2008. Five firms responded with a definitive figure; Savills HOK, DTZ Sherry FitzGerald, CBRE, Lisney and Bannon Property Consultants. The precise average of their forecasts was 179,032 sq m.

This exercise predicts office completions of 131,040 sq m in 2009, which would represent a 48 per cent downturn in office building over the next twelve months. While this estimate may appear quite extreme, it is entirely in line with past experience – the average fall-off in office completions in the years immediately following previous construction peaks (1983, 1992 and 2002) was 53 per cent.

Generating a 2010 forecast is less straightforward because it requires assumptions about both input variables – rental growth in t-2 (i.e. 2008) and take-up in t-1 (i.e. 2009). However, using realistic figures based on practitioner estimates and an analysis of previous market cycles, the model suggests that 2010 completions will be in the 100,000–125,000 sq m range. However, this early forecast should be taken as tentative, particularly in light of uncertainties around the deepening financial crisis and its affect on funding.

Overall, then, our regression analysis shows that office completions are a function of two simple factors – lagged rental growth and lagged take-up. Based on known and expected values for these variables, our model predicts that Dublin office completions will be at or near a cyclical peak in 2008, before dropping sharply in 2009 and 2010.

6. Discussion

Two key findings have emerged from the above analysis. First, it seems that office building in Dublin is strongly demand-led. The regression equation elaborated above supports the hypothesis that supply follows demand with a time lag. A second finding is that the Dublin office market is highly cyclical. Certainly this is the case for completions, with four output peaks clearly visible over the last three decades. But strong cyclicality is also evident in many of the other key variables e.g. rental growth, vacancy rates, occupancy and take-up.

Given these findings, one key question remains – What, if any, relationship is there between the demand-driven nature of Dublin office building and the cyclical pattern that appears to characterise the market over time? In answering this question, the international literature may provide assistance. As discussed above, Dublin is far from unique in having a strongly cyclical office market. Indeed, so common are commercial real estate cycles that numerous models have been developed to explain them.[28] One simple model, proposed by Mueller (1999), provides a useful framework for analysing the dynamics behind cycles in the Dublin market.

A SIMPLE DESCRIPTIVE MODEL OF OFFICE MARKET CYCLES

Mueller's model focuses on occupancy variations in real estate cycles.[29] Based on observed trends in 54 US markets over a 30-year time frame, it identifies four classic stages within the typical cycle:

[28] Phyrr, Roulac and Born (1999) review eight models of real estate cycles.
[29] Occupancy is the percentage of total office stock currently occupied. It is simply the vacancy rate subtracted from one hundred.

Stage 1 – Recovery

Beginning at the trough of the cycle, occupancy rates are well below their long-term average. Vacant space is abundant due to overbuilding towards the end of the previous cycle. This glut of surplus accommodation leads to negative rental growth which discourages new construction.

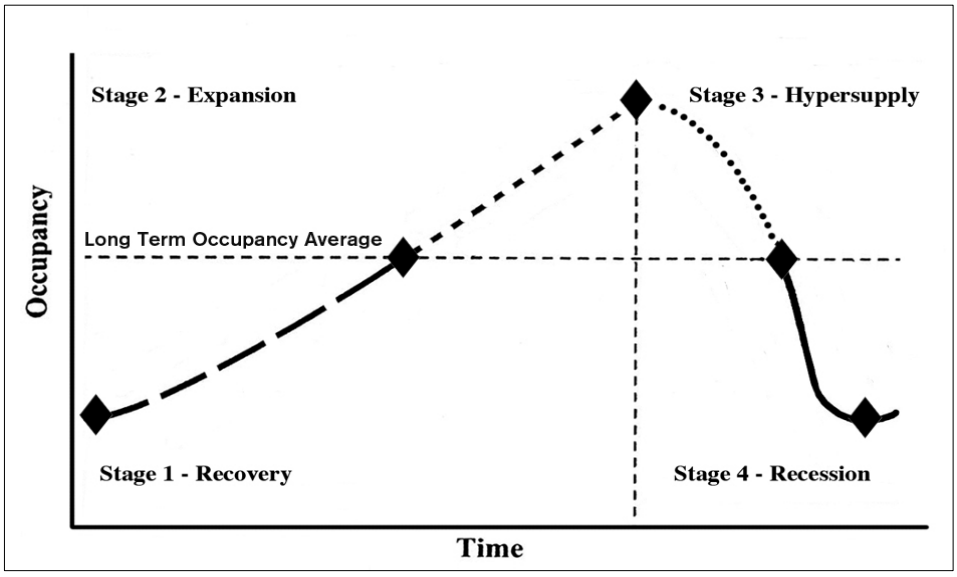
Stage 2 – Expansion

As time passes, natural economic growth helps to digest the overhang of surplus office space on the market. Occupancy rates slowly recover to their long-term average and, as availability becomes tighter, rents stop falling before stabilising and beginning to rise. Eventually, they exceed the point where new office development becomes viable. Office starts begin to occur, but due to long construction lead times, the new space is not immediately available to the market. As a result, rental growth continues to accelerate, peaking towards the end of this phase.

Stage 3 – "Hyper Supply"

Occupancy rates are above their long-term average and rental growth remains very strong, particularly in the early part of this phase. This attracts the attention of more developers and the number of new starts increases. As this phase continues, however, buildings that were commenced during the previous (expansion) stage now begin to find their way onto the market. Eventually, this growth in supply causes occupancy levels to ease back towards their average. As a result, rental growth also begins to cool-off. Belatedly, developers realise that the balance of the market has tipped towards oversupply and commitments to new construction slow or stop. However, projects already commenced in this phase are past the point of no return and will be built-out.[30]

Figure 5: Mueller's Four Stages of the Office Market Cycle



[30] Grenadier (1995) notes that the inability to reverse construction start decisions is a factor in over supply.

Stage 4 – Recession

Completions of new office buildings that were started during the hyper supply stage now come to the market, compounding the oversupply that started to emerge towards the latter part of stage three. Occupancy rates are driven below their long-term average and rental growth turns negative. New office construction remains subdued.

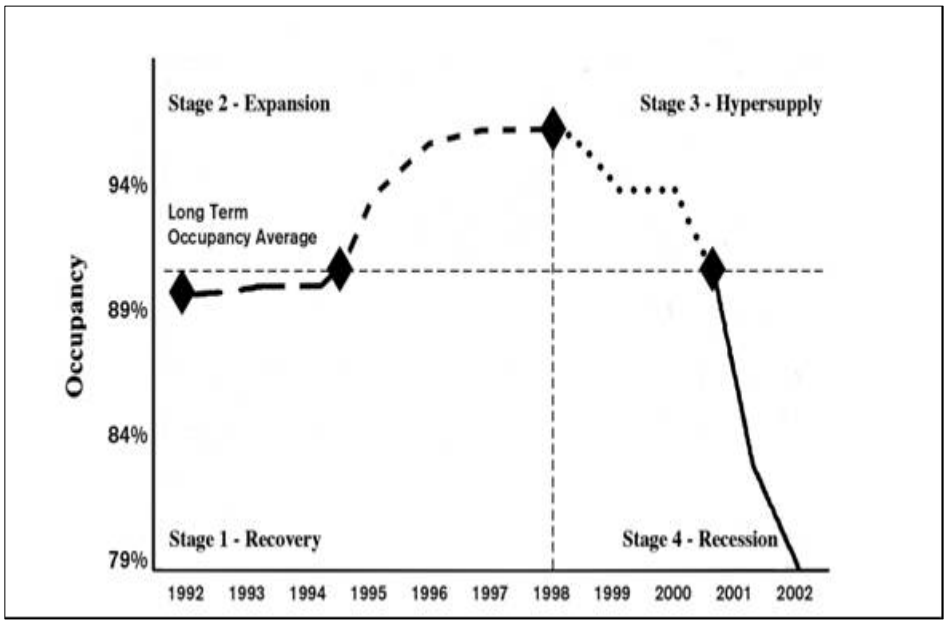
Having looked at Mueller's theoretical model, it is useful to apply this schematic to actual events in Dublin over the last office market cycle. This cycle lasted approximately a decade and spanned the years 1992-2002, trough-to-trough.

Dublin Market 1992-1995 – Recovery Stage

In 1992 the market was at its cyclical trough with occupancy levels down at 89.8 per cent. Because there was an abundance of un-let space, rents fell by 13.2 per cent that year. Reflecting this, developers were not attracted into the market, and very little construction took place (completions fell from 117,052 sq m in 1991 to around 23,000 sq m in 1993 and 1994 – an 80 per cent decline).

During this phase, however, the Irish economy performed well, with GDP growth averaging 5.3 per cent per annum in real terms. This generated a natural increase in the demand for office accommodation and take-up rose accordingly. As a result, the surplus of vacant space was gradually absorbed. Occupancy rates returned to their long-term average by 1995, while rents stopped falling and began to recover.

Figure 6: Dublin Office Market Cycle 1992-2002



Dublin Market 1995-1998 – Expansion Stage

Occupancy rates continued to climb during this period as a sustained increase in take-up consumed much of the surplus space that had been

available during the recovery phase. Rental growth, which had resumed in 1994, began to accelerate. This, combined with strong lettings activity, attracted some developers back into office building. From our earlier analysis we would expect this to have led to higher completions after a lag. In practice, this is exactly what happened – Dublin office completions rose by 140 per cent in 1996. Initially, however, construction lags meant that available space remained quite tight in this period. This led to continued rental growth, which averaged 11.5 per cent per annum between 1995-1998. In turn, this encouraged further development with commencements continuing to rise strongly.

Dublin Market 1998-2001 – Hyper Supply Stage

Occupancy and take-up reached their highest point in 1998 with rental growth peaking one year later at 33.3 per cent. Around that time, new completions (reflecting strong starts in the latter part of Stage 2) caught up with, and then overtook, demand. Inevitably this led to the beginnings of a rental slowdown. At first, however, this may not have been obvious to developers; even though rental growth slowed in 2000, it remained almost three times higher than the long-term average at 24 per cent. As a result, new office starts continued to occur, eventually leading to an all-time completions record of 315,455 sq m in 2001.

Dublin Market 2001-2002 – Recession Stage

By 2001 the Dublin market was showing clear signs of overbuilding. Partly, this was because some developers failed to recognise that strong rental growth in the previous period was only temporary – i.e. reflecting a short-lived scarcity of space pending the completion of office buildings that had already been commenced.[31] However, this problem was compounded by an abrupt softening of office demand due to three separate shocks that hit the economy in quick succession – the bursting of the dot.com bubble, the outbreak of foot and mouth disease and the September 11th 2001 attacks. These shocks meant that the high take-up levels which prompted strong office starts back in 2000 had evaporated by the time the buildings were completed. Occupancy fell to 84 per cent, while rental growth swung from +24.3 per cent in 2000 to -3.5 per cent in 2001. Paradoxically, despite this clear evidence of over supply, completions remained very strong in 2002. With the benefit of our regression model we can say that this occurred because office starts, which had been initiated on foot of strong demand signals in the latter half of 2000, continued to come on-stream as completions. This amplified the crisis with both rents and occupancy falling further in 2002.

The above example is not unique – similar patterns have been observed in many other countries and, indeed, in previous cycles of the Dublin market. However, it does help us to understand how the demand driven nature of office development contributes to market cyclicality. The up-front costs associated with office development are enormous. Consequently, developers want to be sure that there is a strong market for

[31] See Herring and Wachter (1999) for a more general discussion of this dynamic.

new office space before they commit major resources to a scheme. However, in the context of a significant construction lag, the two key indicators that they rely on to gauge market demand are imperfect. On one hand, the rental growth indicator can give misleading signals if it is viewed in isolation. Instead, this indicator needs to be assessed in conjunction with the amount of space-under-construction. To illustrate the importance of this, consider two examples from our recent past. Rental growth was elevated in both 1999 and 2006. But the amount of office space already under construction was also abnormally high in those years. In this context it should have been predictable that rents were likely to soften when the schemes under construction were finished and delivered to market. However, failure to adequately account for this contributed to significant overbuilding in 2001 and again in 2007-2008.

If rental growth is not, on its own, a perfect market signal, the limitations of take-up are even more obvious. While strong lettings may provide an accurate guide to the strength of the market when projects are commenced, an 18 month construction lag means that conditions can have changed dramatically by the time these schemes are completed. This factor also contributed to overshooting supply following the 2001 slowdown, and a similar oversupply is now emerging as the 'credit crunch' begins to undermine office demand.

POLICY IMPLICATIONS

As was witnessed in America during the 1980s, and as we are now beginning to see in Ireland, over development at the peak of office cycles can have a strongly adverse impact on the finances of developers, investors and lenders – not to mention national economies (see Herring and Wachter, 1999; Howarth and Malizia 1998; McDonald 2002; Phyrr, Roulac and Born, 1999). In light of this, and given the discussion above, it is natural to ask whether anything can be done to smooth out cyclical peaks and troughs.

Clearly, developers can do little to prevent the economic shocks that sometimes lead to a sudden collapse in office demand between the commencement and completion of schemes. These events are inherently unpredictable and they are often global rather than domestic in origin. Nonetheless, several factors might minimise the extent to which these shocks result in an overhang of unwanted office space. A number of authors e.g. Grenadier (1995) and Wheaton (1999) have found that longer construction lags increase the probability of overbuilding. This makes perfect sense, since lengthy gaps between commencement and completion contribute to supply bottlenecks which can cause temporary, and potentially misleading, rental spikes. At the same time, longer construction lags leave more opportunity for demand shocks to occur. In this context, modern methods of construction (MMCs) and other innovations (e.g. administrative streamlining) which shorten the gestation of major office projects may help to reduce overbuilding at the peak of market cycles.

In addition, reducing the proportion of speculative construction should lessen the extent to which demand shocks result in large surpluses of empty

office space following construction peaks. In practice, however, achieving this might be easier said than done. It has traditionally been difficult for developers to pre-let office space in Dublin.[32] This probably derives from the small size profile of the typical Dublin office occupier. Larger tenants may be prepared to enter pre-letting arrangements because their accommodation requirements are difficult to satisfy from the stock of space that is available 'off-the-shelf'. However, these big occupiers only form a small part of the Dublin market. For example, between 2002-2007, deals of 5,000 sq m or more averaged only 3.7 per cent of annual transactions, and just 30 per cent of the total space let across Dublin each year. Instead, the bulk of activity involves small and medium sized occupiers who are much less willing to enter into pre-letting arrangements. There are several reasons for this. First, because the Dublin market traditionally provides ample opportunities to let finished office suites in the 500-2,000 sq m range, their accommodation requirements can usually be met from the frictional stock of office space available at any given time. For this reason, smaller occupiers have less incentive to pre-let. Second, smaller organisations do not have the same financial strength as State bodies and big global corporates. This may make them less willing to pre-commit to long-term leases, particularly in times of economic turbulence when their hiring plans are uncertain. Third, some smaller enterprises may see their size and flexibility as a strategic advantage which they are unwilling to relinquish by entering into leasing pre-commitments.

In addition to reducing construction lags and speculative building, a third recommendation might be for development stakeholders to take greater cognisance of space already under construction when appraising proposals for new office schemes. Our regression model suggests that developers rely heavily on rental growth when deciding whether or not to build. But rental growth can be temporarily elevated pending the completion of buildings that are already under construction. Therefore, to get the complete picture it is essential to supplement a rental market analysis with research on the amount of space in progress. A corollary of this is that real estate firms should continue to develop their supply-side data and provide the market with detailed and timely information on this critical factor (see D'Arcy *et al.*, 1999).

Even with these efforts, however, natural economic cycles and the inevitability of construction lags mean that some element of cyclicality in office building probably cannot be avoided. Therefore, a final suggestion is that development practitioners simply ensure that they take cognisance of market cycles when evaluating new office schemes (Phyrr, Roulac and Born, 1999). In itself, this may discourage behaviour which amplifies market peaks and troughs. For example, several authors emphasise the mean-reverting nature of office rents and argue that factoring this into discounted cash flow analyses can help to avoid excessive construction

[32] To illustrate the scale of the challenge, consider that, at end-June 2008, substantially less than 20 per cent of the 428,471 sq m total office space under construction in Dublin was reserved (Lisney *Dublin Office Market Update*, July 2008).

peaks based on over optimistic valuations during the good times.[33] Other authors, e.g. Carn *et al.* (1988) take an even more pragmatic view. They argue that natural cycles in the office market make the timing of development extremely important. Understanding these cycles will help developers, funding institutions and investors to identify 'development windows'. Not only might this improve the profitability of individual projects, it should also dampen the amplitude of office cycles themselves.

7. Conclusions

Econometric analysis of commercial real estate markets is a relatively new discipline which really only emerged in the 1990s. This was largely driven by a desire to better understand the boom-bust cycles which led to heavy losses for lenders, developers and investors in US office property during the 1980s (Howarth and Malizia, 1998; McDonald, 2002). In Ireland, the econometric approach is rare, and an office supply model has never previously been estimated.[34] However, given strong evidence that the Dublin office market is now overbuilt, considering persistent speculation about the role of commercial property lending in the Irish banking crisis, and in view of the fact that construction employment is already in sharp decline, this paper is timely. For sure, it does not address all the gaps in our knowledge of Irish commercial property markets. For one thing, its scope is quite narrowly focused. Furthermore, data constraints restrict us to a very simple analysis. But despite these limitations, this article adds value to our understanding of the Dublin office market by confirming two key conclusions. First, simple demand signals such as rental growth and take-up are the trigger for office starts, which then materialise as completions approximately 18 months later. Second, and partly because of this demand-driven behaviour, the Dublin office market is highly cyclical.

It is hoped that, by modelling these dynamics, this article will be of practical assistance in two ways. First, it should make it easier for our macroeconomic analysts to accurately forecast the office building component of gross fixed capital formation. The analysis herein shows that Dublin's office market is now entering the recession phase of its cycle. Over-building has driven occupancy rates well below their long-term average and, as a result, headline rents are falling. Consequently, although office completions remained strong through 2008, the flow of new starts has now dried up.[35] Inevitably, this means that completions will fall sharply over the next two years. The model presented above indicates that office output will fall by 48 per cent in 2009, followed by a further 14 per cent drop in 2010. Although severe, it should be noted that these estimates are consistent with the scale of retrenchment experienced following previous peaks in the office building cycle. In economic terms, a slowdown of this

[33] See Hendershott (1996a) who analysed the Sydney office market in the 1980s and 1990s. Also see Mueller (1999) whose conclusions were based on US data. A more general assertion of this point can be read in Herring and Wachter (1999). It is, however, unclear how factors such as upward-only rent review and infrequent break-clauses (as often found in Dublin office leases) might affect this conclusion.

[34] D'Arcy *et al.* (1999) do, however, estimate a rent adjustment equation for the Dublin office market using data from an earlier 1970-1997 period.

[35] See DTZ Sherry FitzGerald *Dublin Office Market Autumn Review* (2008).

magnitude will directly deduct between 0.5 per cent and 0.6 per cent from nominal GNP by 2010[36] and will cost the economy approximately 7,500 construction jobs.[37]

This article may also add value in a second way. By exposing the underlying reasons behind market cyclicality it should contribute to the knowledge-base of Ireland's commercial property stakeholders. Specifically, it is hoped that the perspectives outlined above may provide developers and funding institutions with additional information which can be applied to the appraisal and scheduling of proposed office schemes.

[36] *Ceteris paribus,* compared to forecast GNP of €158,228 million in 2008 (Barrett *et al.*, 2008). Estimates assume a similar decline in Ireland's smaller office markets. However, the impact would be magnified if similar dynamics were assumed in other areas of commercial building, and if indirect effects were taken into account.

[37] *Ceteris paribus*, compared to estimated office construction employment at Q3 2008, derived as follows; Total construction employment in Q3 2008 = 257,300 persons, of which 44.5 per cent (114,499) are engaged in non-residential building. Applying office share of non-residential output to this figure gives an estimate of 13,648 currently engaged in office construction.

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