

QUARTERLY ECONOMIC COMMENTARY

Autumn 2007

**ALAN BARRETT
IDE KEARNEY
MARTIN O'BRIEN**

*The forecasts in this Commentary are based on
data available by mid-September 2007*

Special Articles

Consumption and House Prices in Ireland

by
Vincent Hogan and Pat O'Sullivan

Preserving Electricity Market Efficiency While Closing Ireland's Capacity Gap

by
Seán Lyons, John Fitz Gerald, Niamh McCarthy,
Laura Malaguzzi Valeri and Richard S.J. Tol

Owner-Occupied Housing Costs and Bias in the Irish Consumer Price Index

by
Colm McCarthy

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*Price €75 per copy or €300 per year,
(including Medium-Term Review, 2005-2012)*

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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.

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SUMMARY TABLE

	2005	2006	2007	2008
OUTPUT				
(Real Annual Growth %)				
Private Consumer Expenditure	7.3	5.7	7.5	4.0
Public Net Current Expenditure	4.0	5.3	5.5	3.5
Private Investment	11.8	3.1	1.6	-1.2
Exports	5.2	4.4	5.4	5.1
Imports	7.7	4.4	5.8	5.1
Gross Domestic Product (GDP)	5.9	5.7	4.7	2.7
Gross National Product (GNP)	4.9	6.5	4.4	2.9
GNP per capita (constant prices)	2.7	3.7	1.9	1.4
PRICES				
(Annual Growth %)				
Consumer Price Index (CPI)	2.5	4.0	4.9	3.4
Wage Growth	5.6	4.9	5.5	4.5
LABOUR MARKET				
Employment Levels (ILO basis (000s))	1,952	2,039	2,089	2,101
Unemployment Levels (ILO basis (000s))	89	93	105	124
Unemployment Rate (as % of Labour Force)	4.4	4.4	4.8	5.6
PUBLIC FINANCE				
Exchequer Balance (€m)	-500	2,265	-1,393	-3,263
General Government Balance (€m)	1,622	5,032	1,331	81
General Government Balance (% of GDP)	1.0	2.9	0.7	0.0
General Government Debt (% of GDP)	27.3	25.2	24.4	24.9
EXTERNAL TRADE				
Balance of Payments Current Account (€m)	-5,692.0	-7,271	-9,464.2	-9,909.5
Current Account (% of GNP)	-4.2	-4.9	-5.9	-5.9
EXCHANGE AND INTEREST RATES (end of year)				
US\$/€ Exchange Rate	1.19	1.32	1.40	1.40
STG£/€ Exchange Rate	0.68	0.67	0.68	0.69
Main ECB Interest Rate	2.25	3.50	4.25	4.25

SUMMARY

One of the most noteworthy elements within this *Commentary* is the extent to which we have revised downwards our growth forecast for 2008, relative to our June *Commentary*. Whereas in the June *Commentary*, we forecast GNP growth in 2008 of 3.7 per cent, we are now forecasting GNP growth of 2.9 per cent. We have also revised down our growth forecast for 2007, although to a more modest degree; 4.4 per cent, down from the 4.8 per cent forecast of three months ago.

The dominant factor in these downward revisions is house-building. The data that have emerged over the last three months that provide indications of future trends in house-building all point to a more dramatic slowdown than we had previously anticipated. We now expect completions to be 78,000 in 2007 and 65,000 in 2008, compared with our June forecasts of 82,000 and 76,000 respectively. The effect of this faster reduction in house completions is to reduce our forecasts of GDP growth by 0.5 percentage points in 2007 and by 1.3 percentage points in 2008.

Apart from the decline in house-building, the other major issue overshadowing this *Commentary* is turbulence in financial markets. The impacts of the fall-out from difficulties in the US sub-prime lending market are being felt at the time of writing, with great uncertainty over who is the ultimate bearer of the risk associated with the sub-prime loans. While this uncertainty persists, a credit squeeze is in operation. This credit squeeze has led to central banks providing additional liquidity in the money markets, to the cutting of interest rates in the US and to particular difficulties for the UK bank, Northern Rock. Although we are conscious of these financial uncertainties, we do not factor them into our forecasts precisely because of their unknown impacts and duration.

Our forecasts do take into account an anticipated slowdown in the US, with growth there now expected to be 1.9 per cent in 2007 and 2 per cent in 2008. For the Euro Area, we expect growth in 2007 to be 2.7 per cent, followed by growth of 2.3 per cent in 2008.

While a fall in the rate of investment growth is central to our overall domestic growth forecast, we also see consumption growing at a slower pace in 2007 and 2008 relative to our earlier forecasts. Consumption is now expected to grow by 7.5 per cent in 2007 and by 4 per cent in 2008. This downward revision in part reflects itself in a fall in consumer sentiment, as measured by the ESRI/IIB index.

As a result of the general slowdown in the economy, employment growth will slow in 2007 and 2008 relative to 2006, with rates of 2.5 per cent in 2007 and 0.6 per cent in 2008. For 2008, we expect the unemployment rate to average 5.6 per cent. The public finances will also be affected by the slowdown, with the General Government Surplus forecast to fall from a surplus of 2.9 per cent of GDP in 2006 to zero in 2008.

One implication from our analysis is that growth in voted current expenditure in 2008 will have to be curtailed relative to the very high growth rate of 12.9 per cent in 2007. Nevertheless, given the generally healthy state of the public finances, we consider that a mildly stimulatory budget in 2008, including the full implementation of the NDP, is affordable in the context of overall macroeconomic management.

FORECAST NATIONAL ACCOUNTS 2006

A: Expenditure on Gross National Product

	2005 €m	2006 Forecast €m	Change in 2006				
			€m		%		
			Value	Volume	Value	Price	Volume
Private Consumer Expenditure	76,435	82,483	6,048	4,388	7.9	2.1	5.7
Public Net Current Expenditure	22,870	24,939	2,069	1,204	9.0	3.6	5.3
Gross Fixed Capital Formation	42,079	46,027	3,948	1,298	9.4	6.1	3.1
Exports of Goods and Services (X)	132,098	139,766	7,669	5,870	5.8	1.3	4.4
Physical Changes in Stocks	162	1,476	1,313	1,204			
Final Demand	273,645	294,691	21,046	13,965	7.7	2.5	5.1
less:							
Imports of Goods and Services (M)	112,279	120,997	8,718	4,899	7.8	3.3	4.4
less:							
Statistical Discrepancy	-132	-1,011	-878	-196			
GDP at Market Prices	161,498	174,705	13,207	9,262	8.2	2.3	5.7
less:							
Net Factor Payments (F)	-25,775	-25,575	200	-481	-0.8	-2.6	1.9
GNP at Market Prices	135,723	149,130	13,407	8,781	9.9	3.2	6.5

B: Gross National Product by Origin

	2005 €m	2006 Forecast €m	Change in 2006	
			€m	%
Agriculture, Forestry, Fishing	3,397	3,195	-202	-5.9
Non-Agricultural: Wages, etc.	65,992	72,426	6,434	9.8
Other:	56,270	59,649	3,379	6.0
Adjustments: Stock Appreciation	-538	-329		
Statistical Discrepancy	-132	-1011		
Net Domestic Product	124,989	133,931	8,942	7.2
less:				
Net Factor Payments	-25,775	-25,575	200	-0.8
National Income	99,214	108,356	9,142	9.2
Depreciation	17,424	18,436	1,012	5.8
GNP at Factor Cost	116,638	126,792	10,154	8.7
Taxes less Subsidies	19,085	22,338	3,253	17.0
GNP at Market Prices	135,723	149,130	13,407	9.9

C: Balance of Payments on Current Account

	2005 €m	2006 Forecast €m	Change in 2006	
			€m	%
Exports (X) less Imports (M)	19,818	18,769	-1,049	
Net Factor Payments (F)	-25,775	-25,575	200	
Net Transfers	265	-465	-730	
Balance on Current Account	-5,692	-7,271	-1,579	
as % of GNP	-4.2	-4.9	-0.7	

FORECAST NATIONAL ACCOUNTS 2007

A: Expenditure on Gross National Product

	2006 Forecast €m	2007 Forecast €m	Change in 2007				
			€m		%		
			Value	Volume	Value	Price	Volume
Private Consumer Expend							
Private Consumer Expenditure	82,483	91,773	9,290	6,186	11.3	3.5	7.5
Public Net Current Expenditure	24,939	27,932	2,993	1,372	12.0	6.2	5.5
Gross Fixed Capital Formation	46,027	47,838	1,812	719	3.9	2.3	1.6
Exports of Goods and Services (X)	139,766	148,132	8,366	7,550	6.0	0.6	5.4
Physical Changes in Stocks	1,476	664	- 812	- 812			
Final Demand	294,691	316,339	21,648	15,128	7.3	2.1	5.1
less:							
Imports of Goods and Services (M)	120,997	130,546	9,549	7,030	7.9	2.0	5.8
less:							
Statistical Discrepancy	-1,011	-1,011	0	-42			
GDP at Market Prices	174,705	186,804	12,099	8,140	6.9	2.2	4.7
less:							
Net Factor Payments (F)	-25,575	-26,550	-975	-1,517	3.8	-2.0	5.9
GNP at Market Prices	149,130	160,254	11,124	6,604	7.5	2.9	4.4

B: Gross National Product by Origin

	2006 Forecast €m	2007 Forecast €m	Change in 2007 2006	
			€m	%
Agriculture, Forestry, Fishing	3,195	3,243	48	1.5
Non-Agricultural: Wages, etc.	72,426	78,442	6,016	8.3
Other:	59,649	62,495	2,845	4.8
Adjustments: Stock Appreciation	-329	-200		
Statistical Discrepancy	-1,011	-1,011		
Net Domestic Product	133,931	142,969	9,038	6.7
less:				
Net Factor Payments	-25,575	-26,550	-975	3.8
National Income	108,356	116,419	8,064	7.4
Depreciation	18,436	19,739	1,303	7.1
GNP at Factor Cost	126,792	136,159	9,366	7.4
Taxes less Subsidies	22,338	24,096	1,758	7.9
GNP at Market Prices	149,130	160,254	11,124	7.5

C: Balance of Payments on Current Account

	2006 Forecast €m	2007 Forecast €m	Change in 2007
			€m
Exports (X) less Imports (M)	18,769	17,586	-1,183
Net Factor Payments (F)	-25,575	-26,550	- 975
Net Transfers	-465	-500	-35
Balance on Current Account	-7,271	-9,464	-2,193
as % of GNP	-5	-6	-1.0

FORECAST NATIONAL ACCOUNTS 2008

A: Expenditure on Gross National Product

	2007 Preliminary €m	2008 Forecast €m	Change in 2008				
			€m		%		
			Value	Volume	Value	Price	Volume
Private Consumer Expenditure	91,773	97,353	5,580	3,671	6.1	2.0	4.0
Public Net Current Expenditure	27,932	30,027	2,095	978	7.5	3.9	3.5
Gross Fixed Capital Formation	47,838	49,233	1,395	-593	2.9	4.2	-1.2
Exports of Goods and Services (X)	148,132	157,258	9,127	7,501	6.2	1.0	5.1
Physical Changes in Stocks	664	531	-133	0			
Final Demand	316,339	334,403	18,063	11,569	5.7	2.0	3.7
less:							
Imports of Goods and Services (M)	130,546	139,446	8,900	6,637	6.8	1.6	5.1
less:							
Statistical Discrepancy	-1,011	-1,011	0	-38			
GDP at Market Prices	186,804	195,968	9,164	4,970	4.9	2.2	2.7
less:							
Net Factor Payments (F)	-26,550	-27,222	-672	-403	2.5	1.0	1.5
GNP at Market Prices	160,254	168,745	8,491	4,601	5.3	2.4	2.9

B: Gross National Product by Origin

	2007 Preliminary €m	2008 Forecast €m	Change in 2008	
			€m	%
Agriculture, Forestry, Fishing	3,243	3,275	32	1.0
Non-Agricultural: Wages, etc.	78,442	82,522	4,079	5.2
Other:	62,495	65,372	2,877	4.6
Adjustments: Stock Appreciation	-200	-200		
Statistical Discrepancy	-1,011	-1,011		
Net Domestic Product	142,969	149,958	6,989	4.9
less:				
Net Factor Payments	-26,550	-27,222	-672	2.5
National Income	116,419	122,736	6,317	5.4
Depreciation	19,739	20,767	1,027	5.2
GNP at Factor Cost	136,159	143,503	7,344	5.4
Taxes less Subsidies	24,096	25,243	1,147	4.8
GNP at Market Prices	160,254	168,745	8,491	5.3

C: Balance of Payments on Current Account

	2007	2008	Change in 2008
	€m	Forecast €m	€m
Exports (X) less Imports (M)	17,586	17,813	227
Net Factor Payments (F)	-26,550	-27,222	-672
Net Transfers	-500	-500	0
Balance on Current Account	-9,464	-9,910	-445
as % of GNP	-5.9	-5.9	0.0

THE INTERNATIONAL ECONOMY

The main developments of note are as follows:

- At the time of writing, the international context is characterised by uncertainty on international financial markets as the fall-out from the US sub-prime crisis unfolds.
- Growth in the Euro Area is expected to remain robust in 2007 and 2008, with real GDP increasing by 2.7 and 2.3 per cent respectively. The international financial turmoil has made the interest rate outlook more uncertain. On the one hand, a tightening labour market and rising commodity prices raise the potential for one further 25 basis points interest rate increase by the ECB in 2007. However, risks to price stability may soften as the Euro strengthens and global demand for oil may not grow as strongly in 2008 than previously anticipated. More importantly, the effects on the real economy of the continuing credit market turbulence may also warrant a loosening of monetary policy. For the purposes of our forecasts, we have chosen to use a technical assumption that one further interest rate rise of 25 basis points will be made in December.
- Growth prospects for the US economy are weaker than previously expected at 1.9 per cent in 2007 and 2 per cent in 2008 due to our anticipation of much lower consumption growth as the housing market contraction combined with the fallout from the sub-prime mortgage market takes its toll. The US dollar has reached an all-time low against the Euro, and was trading in the \$1.40 range at time of writing.
- The UK economy is expected to grow by 2.9 per cent this year and by 2.2 per cent in 2008.

Box: Euroframe-European Forecasting Network

The forecasts for the international section are based on the Autumn Report of Euroframe-European Forecasting Network, 2007. The Euroframe-EFN is made up of ten institutes from across Europe who collectively produce independent forecasts for the European Commission twice yearly. The countries represented in the network are Germany (2 institutes), France, Italy, the Netherlands, Finland,

Euro Area

The Euro Area contributed to more balanced global growth with a strong performance in 2006, expanding at 2.9 per cent. This pace of growth has been maintained for the most part in 2007, with real GDP growth of 2.7 per cent expected this year and 2.3 per cent in 2008.

The impressive recovery of the Euro Area economy in the recent past has been driven by strong export and investment growth, particularly in Germany where real GDP growth of 3.1 per cent was registered in 2006. According to the Euroframe-European Forecasting Network (EFN), growth in the Euro Area's largest economy is expected to remain healthy although moderating in 2007 and 2008 with rates of 2.7 and 2.2 per cent expected respectively. The continuing buoyancy of the German economy is reflected in the anticipated labour market developments, as unemployment in Germany is expected to fall to 6.1 per cent in 2008. With the tightening of the labour market, earnings growth is expected to increase in 2007 and 2008 contributing to inflation of 2 per cent and 1.8 per cent in each year respectively.

The French economy continues to grow at a slower pace than that of Germany, with real GDP growth of 2.2 per cent in 2006. The EFN forecasts a fall in real GDP growth this year to 1.9 per cent, rebounding to 2.3 per cent in 2008. The slowdown this year is driven by disappointing export and investment growth. As a result of proposed tax cuts and a fall in unemployment to 7.8 per cent, consumer spending is expected to increase robustly in 2008 which leads to the higher forecast for real GDP growth next year.

Italy saw real GDP growth of 1.9 per cent in 2006, its strongest performance for a number of years. While export growth was key to the 2006 result, domestic demand is expected to dominate growth prospects this year. The EFN anticipates real GDP growth of 1.8 per cent in 2007, while unemployment is forecast to be 6 per cent, down from 6.8 per cent in 2006. However, a full blown recovery is yet to take hold in Italy, as real GDP growth is expected to fall in 2008 to just 1.5 per cent as increases in personal consumption moderate and import growth outstrips that of exports.

The outlook for the Euro Area economy as a whole remains positive, with some potential downside risks emerging as the effects of the ongoing re-pricing of risk in financial markets on the real economy become apparent. In 2007 continued strong investment and export performance (4.8 and 5.7 per cent growth respectively), alongside increases in government expenditure in many member states, are expected to be the primary contributors to economic growth. Unemployment fell to 6.9 per cent in June of this year, the

lowest it has ever been since the Euro was adopted, and maintained that level in July. The EFN expects the unemployment rate to average 7 per cent in 2007 and to fall further to 6.5 per cent in 2008. As the labour market tightens, wage demands are likely to increase leading to the forecast for earnings growth of 2.8 per cent in 2007 and 3.3 per cent in 2008.

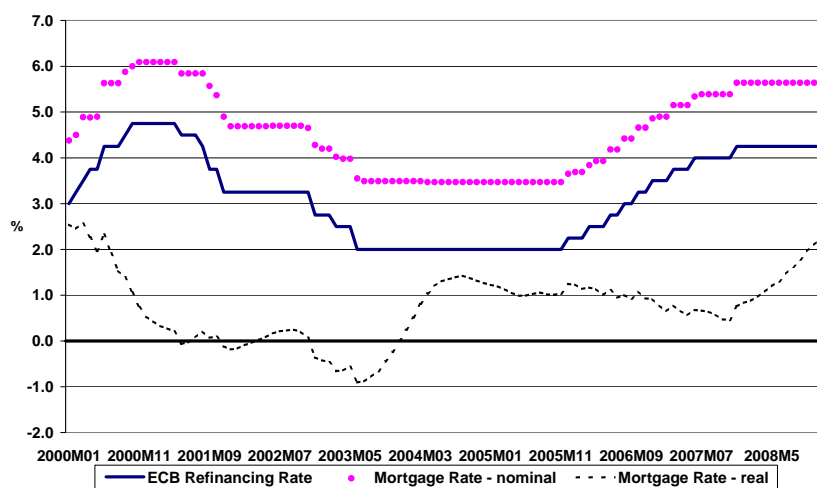
Increases in wage demands present upside risks to inflation in the medium term, and according to the ECB remain a key factor influencing its thoughts on monetary policy. Year on year wage growth in Q2 was 2.5 per cent according to Eurostat. Other upside risks include the price of commodities and food, although the projected slowdown in the US and possible moves to increase production by OPEC might lead to the price of oil remaining at a level consistent with price stability. The EFN assumes oil prices will increase by 5 per cent per barrel in 2007 and 6.5 per cent in 2008, down from an increase of 22.4 per cent in 2006. The pace of growth in the broad money supply (M3) has been increasing throughout 2007, up to 11.7 per cent in July on an annual basis, presenting further upside risks to the inflation outlook. Inflation as measured by the Harmonised Index of Consumer Prices (HICP) was estimated at 1.8 per cent in August, in line with the ECB target of being close to but below 2 per cent. Nonetheless, the bank still regards its monetary stance as “accommodative”. Core inflation, which excludes volatile energy and food prices and is more relevant to underlying price pressures, was 2 per cent in August.

After clearly indicating that a further rise was imminent in August, the recent turmoil in financial markets led the ECB to keep its main refinancing rate at 4 per cent following the latest meeting of its Governing Council in September. Many European banks have been affected by the crisis in international credit markets, and the ECB has been the most proactive central bank in terms of providing liquidity in attempts to ease the strain on the financial system. However, it is still unclear as to the extent to which the crisis stemming from the US sub-prime mortgage market will affect both the monetary and real sides of the Euro Area economy. The direct exposure of financial institutions to sub-prime mortgage backed securities is becoming more evident as their portfolios are marked to market and an appropriate price for bearing these risky securities is found. However, in the absence of a definitive market price for this risk and an understanding of their own and others direct exposure, banks have been reluctant to lend to each other. This has led to inter-bank borrowing rates being well above the ECB main policy rate as the markets have been characterised by a damaging lack of trust. In such an environment it is possible that contagion in the financial markets can affect institutions that will ultimately be shown not to have direct exposure to the US sub-prime mortgage market as well as those who have. It may also affect the real economy through a number of channels: banks may not have sufficient credit to forward to non-financial entities leading to

retail interest rates increasing and dampening business investment and personal consumption; there may be a further consumption shock as the net worth of individuals' portfolios declines; confidence levels of both consumers and businesses could suffer, further depressing economic activity. Therefore, the ECB's actions in providing liquidity have assisted the financial system to avoid seizing up completely and the "wait and see" approach on interest rates is warranted as data become available on the effects felt by the real economy.

In spite of the turmoil, there remains a possibility that the ECB will raise interest rates by a further 25 basis points before the end of 2007. Our forecasts are based on the technical assumption of one further interest rate increase in December of this year, bringing the ECB main refinancing rate to 4.25 per cent and remaining at that level through 2008. The EFN expects Euro Area inflation of 1.9 per cent in 2007 and 2.1 per cent in 2008. However, the increase in inter-bank lending rates faced by banks has caused their spreads to narrow and may lead to retail interest rate increases in the short term.

Figure 1: Interest Rates



*Mortgage rate taken is the Irish Representative Building Societies Mortgage Rate.
Source: Central Statistics Office.

United Kingdom

The robust pace of real GDP growth in 2006 of 2.8 per cent has continued into 2007, with the EFN forecasting growth for the year of 2.9 per cent, falling to 2.2 per cent in 2008. The Bank of England's (BoE) inflationary outlook in early August was cautionary, signalling that domestic consumption, external demand and particularly energy and non-wage labour costs may not evolve in the short to medium term in a manner consistent with the Bank's target of keeping inflation close to 2 per cent. However, more recent data suggest that further tightening of monetary policy would not be needed in the coming months, as headline inflation fell

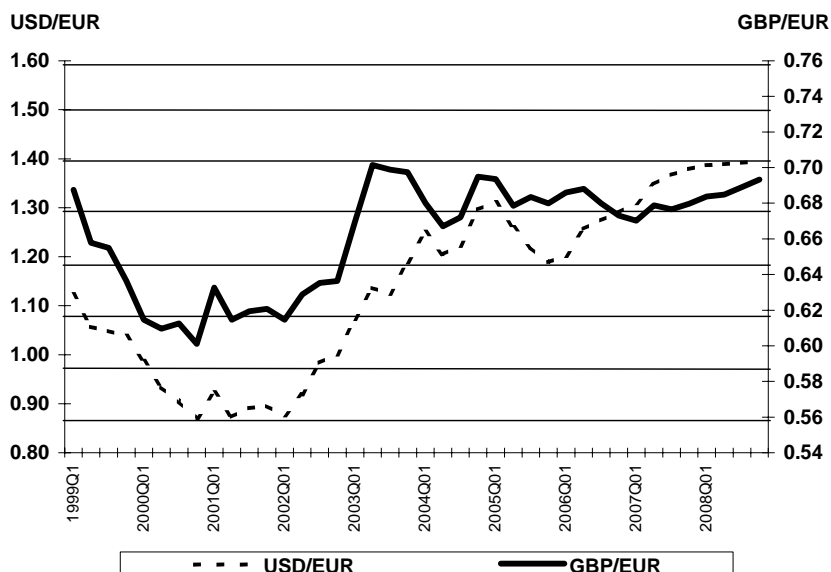
sharply to 1.9 per cent in July and earnings growth of 3.4 per cent in Q2, was at its lowest in six years. Combined with the recent turmoil in financial markets, which saw sterling inter-bank lending rates higher than at any time since 1998, these trends indicate that it is increasingly unlikely that the BoE will increase rates further this year following their latest decision to hold its Bank rate at 5.75 per cent. Some upside risks to inflation still exist. However, the forecast decline in domestic and external consumption growth suggest that these risks are less significant than previously thought.

The BoE has come under criticism over its handling of the liquidity problems faced by British banks recently, especially in the light of developments at Northern Rock. It would appear that the recent intervention in the three-month money market by the BoE has been forced upon it following its prior reluctance to actively seek to reduce the spread between the inter-bank lending rates and its own policy rate.

United States

Real GDP grew by 2.9 per cent in 2006 in the US. This was slightly lower than previous years and much lower than initial estimates, due to a sharper than expected downturn in housing investment towards the end of the year. The housing market has remained the main causal factor in the development of the US economy through 2007. Housing investment has contracted sharply in 2007, in conjunction with both house price growth and housing demand softening. The EFN expects housing investment to fall by 14.6 per cent this year, leading to real GDP growth of just 1.9 per cent.

Figure 2: Exchange Rates



Source: Central Bank & Financial Services Authority of Ireland (historic) and Euroframe-EFN Autumn 2007 (forecast).

Opinion on the fallout from the slowing US housing market had been somewhat positive in the first half of 2007. It was believed that the slowdown in the housing market would not have a major impact on consumption levels as employment growth remained healthy. However, this benign outlook is increasingly difficult to maintain as the year progresses. Declining house prices have provided less incentive for homeowners to refinance their mortgages to support increased consumption.¹ Compounding the problem is the crisis in credit markets stemming from the US sub-prime mortgage market. As defaults by sub-prime borrowers began to increase and the exposure of mortgage lenders and financial institutions who invested in securitised sub-prime instruments became apparent, an ongoing chain of events in credit markets began which has seen inter-bank lending rates increase and banks hoarding liquidity to meet their own short-term financing needs. If this trend continues less credit will be available to fuel household consumption as retail interest rates increase. As a consequence household saving would be expected to rise. According to the EFN, consumption growth is expected to fall to 2.6 per cent in 2007 and 1.1 per cent in 2008 as a result of this double blow of falling house prices and less credit availability. A general lack of consumer confidence may set in as employment growth prospects begin to soften; employment growth was weaker than expected during the summer and the number of jobless claims increased for the first time in four years during August. The anticipated weakening of the US dollar along with earnings growth falling next year to 2.6 per cent is expected to be reflected in import growth of just 1.6 and 1.1 per cent in 2007 and 2008 respectively.

Unemployment is forecast to increase from 4.6 per cent in 2007 to 5 per cent in 2008. Sustained export growth above 6 per cent alongside an increase in government expenditure are expected to be the main contributors to real GDP growth in 2008 of 2. per cent. Retail price inflation is anticipated to average 2.3 per cent in 2007 and fall to just 0.8 per cent in 2008. The effect of the slowdown in housing investment on growth, now accompanied by the effects of the credit squeeze on the real economy, indicates that the Federal Reserve is likely to loosen its monetary policy stance in the coming months as inflationary pressures ease significantly. Interest rates are likely to fall further following the recent decision to cut the Federal funds rate by 50 basis points to 4.75 per cent.

¹ Mortgage equity withdrawal appears to have been a major factor in US household consumption in the light of house price inflation more than doubling the value of owner occupied housing since the start of the decade. 40 per cent of existing mortgages were refinanced in 2005 (Feldstein, M. in "Housing, Housing Finance and Monetary Policy: Proceedings from the 2007 Jackson Hole Symposium of the Federal Reserve Bank of Kansas City", www.kc.frb.org).

Table 1: Short-term International Outlook

Country	GDP Output Growth			Consumer Price Inflation			Average Earnings Growth			Unemployment Rate %			Current Account Balance % of GDP		
	2006	2007	2008	2006	2007	2008	2006	2007	2008	2006	2007	2008	2006	2007	2008
UK	2.8	2.9	2.2	2.3	2.3	2.0	4.7	4.0	5.2	5.4	5.4	5.6	-3.7	-4.5	-5.6
Germany	3.1	2.7	2.2	1.8	2.0	1.8	1.3	2.4	3.0	8.4	6.7	6.1	5.0	5.2	5.2
France	2.2	1.9	2.3	1.9	1.4	1.8	3.4	2.8	2.8	9.0	8.1	7.9	-1.3	-1.0	-1.8
Italy	1.9	1.8	1.5	2.2	1.9	2.2	2.9	2.0	3.0	6.8	6.1	6.0	-2.6	-2.9	-3.2
Euro Area	2.9	2.7	2.3	2.2	1.9	2.1	2.9	2.8	3.3	7.9	7.0	6.5	-0.2	-0.5	-0.6
USA	2.9	1.9	2.0	3.0	2.3	0.8	4.1	4.5	2.6	4.6	4.6	5.0	-6.2	-5.9	-5.5
Japan	2.2	2.0	1.7	0.9	1.2	1.3	-0.4	-0.1	2.4	4.1	3.8	3.8	3.9	4.3	4.3
China	10.7	10.9	9.8	1.4	2.3	2.8							9.5		
Ireland	5.7	4.7	2.7	2.7	2.8	2.5	4.9	5.5	4.5	4.4	4.8	5.6	-4.2	-5.1	-5.1

Source: Euroframe-EFN Autumn 2007.

The Japanese economy experienced real GDP growth of 2.2 per cent in 2006, with external demand being the key factor. However, despite the tightening labour market, with unemployment falling to 4.1 per cent last year, earnings and price inflation have not taken hold and consumption growth remains depressed. Low consumption and investment growth implies real GDP growth slowing to 2 per cent this year. Unemployment is expected to fall in 2007 to 3.8 per cent, a level it should maintain in 2008. However, it is not foreseen that the continued export led growth will result in domestic consumption increasing significantly. Export growth is expected to slow in 2008 as a result of the forecast slowdown in the US, which in the absence of domestic demand picking up leads to the projected 2008 real GDP growth rate of 1.7 per cent. Given the absence of significant price inflation, poor growth prospects and the ongoing financial market turmoil, it is unlikely the Bank of Japan will raise interest rates in the coming months. The governments finances appear to be improving, with the fiscal deficit expected to be just 2.4 per cent of GDP in 2007 and the government debt which had ballooned in recent years to 177 per cent of GDP is expected to stabilise.

China continues to grow strongly, with real GDP growth of 10.9 per cent expected in 2007 following 10.7 per cent growth in 2006. The Chinese economy is expected to expand by 9.8 per cent in 2008, as growth prospects in its main export markets begin to moderate. Meanwhile inflationary pressures domestically are causing concern for policy makers. Food prices are increasing sharply due to rising animal feed costs and a shortage of meat as a result of a large fall in pork production. The People's Bank of China is likely to raise interest rates further in the coming months to combat inflation, which has traditionally been a source of popular unrest, and negative real interest rates, which are providing an incentive for people to invest in an already overheating stock market.

According to the EFN the global economy grew by 5.4 per cent in 2006. This strong performance has continued into 2007, although moderating as the year progresses. The EFN expect global economic growth of 5.1 per cent in 2007 and 4.8 per cent in 2008. Much of this slowdown is related to the moderation of growth prospects in the US and Japan, despite the good performance of emerging economies. World trade is expected to grow by 7 per cent in 2007 and 7.3 per cent in 2008 after increasing by an estimated 8.4 per cent in 2006.

Ireland faces a more uncertain international setting than in our previous *Commentary*. The effects of the recent turmoil in financial markets on the global real economy are yet to be fully ascertained. Global growth was more balanced in 2006, with less of a direct reliance on the US. However, consumer spending in the US has undoubtedly supported global growth in recent years, and has contributed to many emerging economies enjoying export driven

booms, particularly China. In conjunction with this, large current account and trade imbalances have arisen and the US dollar has arguably been kept stronger than its fundamentals warranted by large capital inflows from the rest of the world, further stimulating US consumer demand. The magnitude of this situation looks less likely to be maintained in the current climate. As interest rate cuts are anticipated to be greater in the US than elsewhere, the US dollar is likely to weaken further vis-à-vis the Euro, following its decline to \$1.40 at the time of writing from \$1.32 at the end of 2006. However, given the expected continued growth of the Euro Area, the UK and other emerging markets the international context at the time of writing remains favourable for Ireland, with the potential for downside risks emerging as the sub-prime fallout continues.

The most direct impact from the US sub-prime fallout on the Irish economy could be through interest rates. The ECB may yet decide that monetary policy is already sufficiently tight as data emerges towards the end of the year on how the Euro Area economy is performing in the light of developments in the credit market. Our forecasts are based on the technical assumption that one further interest rate increase of 25 basis points will happen in December. However, the prospects of further interest rate cuts in the US, a strengthening Euro, and potentially slower demand growth for commodities, such as oil, may imply that price pressures would ease such that interest rates may not need to be increased. The risk remains, however, that retail interest rates for Irish consumers will increase due to the increased inter-bank lending rates faced by Irish banks (as opposed to increases in the ECB refinancing rate).

THE DOMESTIC ECONOMY

General

The CSO released the *National Income and Expenditure* for 2006 in July 2007. It contained a number of significant changes from the preliminary quarterly accounts for 2006 Q4 released in March 2007. The headline GNP growth rate is now almost one percentage point lower than initially estimated (6.5 per cent compared to 7.4 per cent), while the deficit on the current account of the Balance of Payments has been revised upwards from 3.8 per cent of GNP to 4.9 per cent of GNP. These revisions have also reduced the estimated level of personal savings over a number of years. The consequence of these revisions is that our forecast balance of payments deficit for 2007 and 2008 is now much wider than in the June *QEC*, and correspondingly our forecast savings rate is much lower. These changes to our forecast are largely knock-on effects, driven by these revisions.

However, our forecasts for 2007 and 2008 do include a number of important substantive changes relative to our June estimates. Despite strong first quarter results as reported in the latest *Quarterly National Accounts* our overall growth forecast is lower. This is largely driven by a much lower forecast for investment, given the latest indicators which suggest that the rate of house completions in 2007 and 2008 is likely to fall sharply. We also expect a slower pace of consumption growth in 2007 relative to our June estimates, although at 7.5 per cent in 2007 this is still a very strong rate of growth due in part to the release of SSIA funds. For 2008 our GNP growth forecast of just under 3 per cent is a significant downward revision and implies a fall in GNP growth to a rate last seen in 2002. This in turn has consequences in the labour market with the unemployment rate expected to rise to 5.6 per cent and the pace of net inward migration expected to slow significantly.

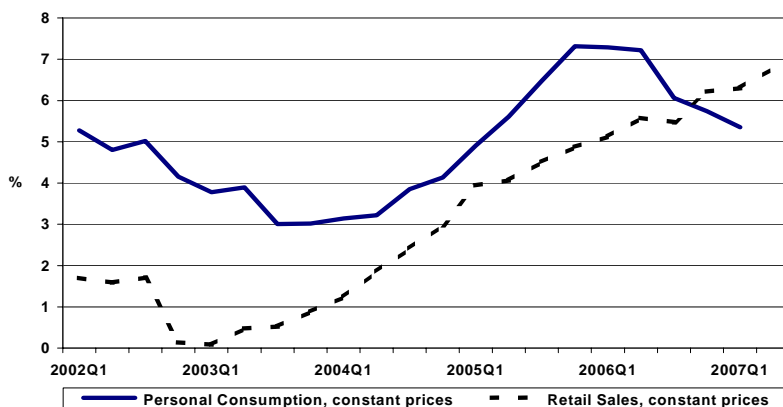
With slower employment growth and a decline in the housing market, the pace of exchequer tax revenue growth is expected to slow significantly in 2007 and 2008. In our estimates this would all but wipe out the General Government surplus of €5 billion recorded at the end of 2006.

Consumption

In 2006, consumption grew by 5.7 per cent in volume terms, thereby registering a faster pace of growth than the other components of demand. As can be seen from Figure 3, this 5.7 per cent hides a slowdown in growth in consumption through the course of the year, and into 2007. In spite of the slowdown, the rate of growth in consumption was still strong in the first quarter of 2007, at 5.4 per cent.

The latest data from the retail sales index (again as shown in Figure 3) show continued growth, and indeed accelerated growth. On an annual average² basis, the index grew by 6.8 per cent in June of this year. This pick-up is likely to be related to the maturing of the SSIA's. Excluding motor vehicles, the rate of growth in the index was 7 per cent, with sales of all vehicles cars growing by 6.5 per cent. Sales of new cars registered an annual increase of 9.3 per cent in June. Trips abroad grew by 13.2 per cent in the first quarter of 2007, thereby providing another indicator of strong spending growth.

Figure 3: Annual Growth Rates in Personal Consumption and Retail Sales



Source: *Quarterly National Accounts & Retail Sales Index*, Central Statistics Office.

Looking ahead, our forecast for the volume of consumption growth in 2007 is 7.5 per cent. This amounts to an acceleration on the 2006 figure of 5.7 per cent and is mostly explained by the anticipated effect of the SSIA's. We should note, however, that our forecast for consumption growth in 2007 is now 0.3 percentage points lower than in our last *Commentary*. The reason for this change is a lowering in consumer confidence, as measured by the ESRI/IIB *Consumer Sentiment Index*. It appears that the slowing in the economy

² Unless otherwise stated annual growth rates refer to the latest twelve months or four quarters relative to a year previously.

is impacting upon consumer perceptions and that a more conservative approach to SSIA's may be taken.

For 2008, our forecast is for consumption growth of 4 per cent. This is down relative to our forecast for 2007, as a result of the absence of SSIA-related spending. However, it is also down 0.5 percentage points on our forecast in the last *Commentary*. Our forecasts for both slower employment and slower wage growth suggested that consumption growth would also be lower in 2008, relative to our earlier expectations.

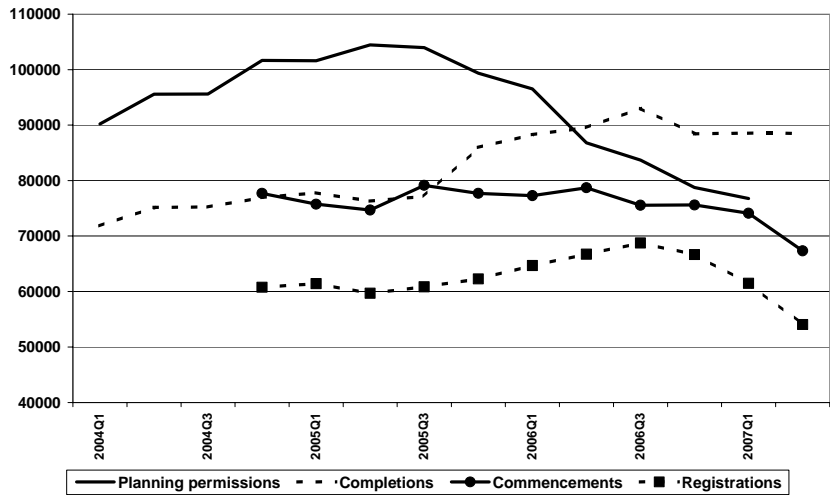
Investment

According to the *NIE 2006* estimates investment grew by 3.1 per cent in volume terms last year, with prices increasing by 6.1 per cent. This marks a very significant deceleration in the pace of investment growth in recent years, the lowest growth rate since 2002. This was driven in part by a fall in investment in machinery and equipment, of 5.1 per cent in volume terms. In addition, the growth in the volume of housing investment, at 3.5 per cent, is the lowest increase since 1994. Given that investment in housing in 2006 accounted for half of all investment in the economy this has also contributed to the marked deceleration in overall investment growth in 2006. Offsetting this was a significant acceleration in the pace of growth in non-housing building and construction, which grew in volume terms by 9.5 per cent in 2006.

In the first six months of 2007 house completions stagnated. In the twelve months ending June 2007 total annual house completions were approximately 88,500, virtually unchanged from the 2006 figure (see Figure 4). However, data for July indicate that total completions were down almost 2,800 units compared to July 2006. Furthermore data on planning permissions, housing commencements and new house registrations, all of which are forward indicators of future house completions, point to a significant slowdown in house completions over the next eighteen months. Planning permissions for houses and apartments for the year ended 2007Q1 were almost 77,000, down from a peak of over 104,000 in 2005Q2, house commencements were just over 67,000 in the year ended 2007Q2 compared to a peak of almost 79,000 in 2006Q2, and new house registrations were just over 54,000 in the year ended 2007Q2 compared with a peak of almost 69,000 in the year ended 2006Q3. Using simple rule of thumb projections³ based on these recent trends we have revised downwards our forecast for house completions for 2007 to 78,000 and for 2008 to 65,000.

³ Projections were carried out using registrations and commencements data assuming a 12-15 month lag. This gives a range of estimates of house completions for 2007 of between 75,000 and 80,000 and for 2008 of between 54,000 and 67,000.

Figure 4: Housing Statistics⁴



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

In terms of house prices, the most recent data from the *permanent tsb/ESRI* house price index point to a slow but steady decline in house prices since the beginning of 2007. Data for July suggest that prices nationally have fallen by 3 per cent relative to December 2006, while prices for new houses have fallen by 1.6 per cent over the same period. We expect this trend to continue and have projected an annual average fall of 3 per cent in new house prices in 2007. It is important to point out that as an annual average figure, this implies quite a significant year-on-year drop in prices. Depending on how prices behave in individual months in the autumn, this could lead to a fall of over 15 per cent in prices by December 2007 relative to December 2006. For 2008 we expect no change in the annual average price, again implying a gradual recovery in new house prices in the early part of 2008.

⁴ The completions figure for 2005 is adjusted upwards to include an estimated 5000 extra completions, Q1 and Q2 2006 reduced by 2000 and 3000 respectively as per DEHLG estimates.

Table 2: Gross Fixed Capital Formation

	2005 €m	% Change in 2006		2006 €m	% Change in 2007		2007 €m	% Change in 2008		2008 €m
		Volume	Value		Volume	Value		Volume	Value	
Housing	20,975	3.5	10.7	23,221	-8.9	-10.2	20,853	-14.0	-12.7	18,207
Other Building	11,201	9.5	18.0	13,216	12.0	20.4	15,913	10.0	18.3	18,817
Building and Construction	32,176	5.6	13.2	36,438	-1.3	0.9	36,766	-4.1	0.7	37,023
Machinery and Equipment	9,903	-5.1	-3.2	9,589	12.0	15.5	11,073	8.0	10.3	12,210
Total	42,079	3.1	9.4	46,027	1.6	3.9	47,838	-1.2	2.9	49,233

Box: The Importance of the Projected House Completions Figures for the Overall Growth Rate

In 2006 housing accounted for almost 16 per cent of total GNP. Because of this our downward revisions in house completions have significant implications for our overall growth forecast. In the June *QEC* we had forecast house completions for 2007 at 82,000 and 76,000 in 2008, cutting this back to 78,000 and 65,000 respectively knocks 0.5 percentage points from our GDP forecast for 2007 and 1.3 percentage points for 2008.

Nevertheless, we would argue that these revisions, especially for 2008, may well turn out to be overly optimistic. Data from the 2006 Census indicate that between the period 2002-2006 the total number of households increased by 182,000 while an additional 320,000 houses were built. Even allowing for some obsolescence of the existing housing stock, these figures point to a 40 per cent rate of vacancy for new houses built in this period. In the Spring 2007 *QEC* we argued that this very rapid growth in the demand for second dwellings may explain our estimate that house prices in 2006 were 15 per cent overvalued.⁵ Factoring in our forecast decline in house prices in 2007 and 2008, together with a lower rate of house completions, means that this over-valuation falls to under 10 per cent by 2008. As discussed above, there is a great deal of uncertainty in world financial markets, and this could well lead to a more significant fall in the demand for second homes than that implied in our forecasts. Were this to happen, then our estimates suggest that house prices could fall further in 2008.

We expect to see a 17 per cent increase in investment in home improvements in 2007, buoyed by SSIA funds, so that the overall deflator for housing investment is expected to fall by 1.5 per cent in 2007 and increase by 1.5 per cent in 2008. This is based on an assumed increase in the price of home improvements of 7 per cent in 2007 and 6 per cent in 2008. In volume terms overall housing investment is expected to fall by 8.9 per cent in 2007 and to fall by 14 per cent in 2008.

Recent data from the *Quarterly National Accounts* point to a pick-up in investment activity in the first quarter of 2007, and this is reflected in our forecast numbers for investment in machinery and equipment and non-housing building and construction for 2007. We have increased our forecast for volume growth in investment in other building and construction in 2007 from 10 per cent to 12 per cent. This is driven in part by the current rapid roll-out of capital spending under the National Development Plan (NDP). We estimate that the NDP will add €1.4 billion to total investment in

⁵ This estimate is based on an equation for housing demand where new house prices are determined by personal disposable income, house building, population and real interest rates, see Duffy, D., J. Fitz Gerald and I. Kearney, 2005. "Rising House Prices in an Open Labour Market", *The Economic and Social Review*, Winter, pp. 251-272.

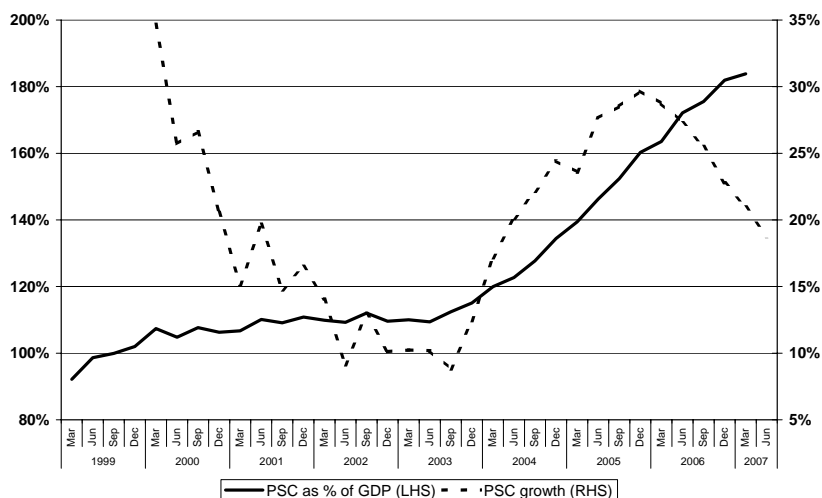
2007 and €1.6 billion in 2008, equivalent to over half of the total increase in other building and construction investment. In addition we expect continued strong growth in commercial building and construction. The latest indicators on planning permissions for non-residential building suggest a strong acceleration in the pace of this investment.

Despite these very strong growth rates in non-residential building and construction investment, the relative importance of housing in total building and construction means that combining these growth rates with a fall of 8.9 per cent in the volume of housing investment in 2007 and 14 per cent in 2008 leads to an overall fall in the volume of total building and construction investment of 1.3 per cent in 2007 and 4.1 per cent in 2008.

Box: Growth in Private Sector Credit

The *Commentary* forecasting model does not have an integrated monetary section. As mentioned in the Balance of Payments section, the sheer scale of financial investment flows in both directions through the current account of the balance of payments, a large part of which are related to IFSC activity, make it difficult to disentangle those which have a lasting real effect on the Irish economy in terms of output and employment. A more tangible indicator of financial activity are the Central Bank monthly data on private sector credit growth. Figure A shows the scale of growth in private sector credit in Ireland since 2003 when it rose from roughly 110 per cent of GDP to over 180 per cent at the beginning of 2007.

Figure A: Developments in Private Sector Credit



Source: CBFSAI *Quarterly Bulletin*.

Well over half of this stock of credit is directly linked to the housing market: in June 2007, some 41 per cent of total private sector credit was to the personal sector (34 per cent directly related to housing finance), while a further 21 per cent was in real estate activities. This is excluding credit to the construction sector, at over

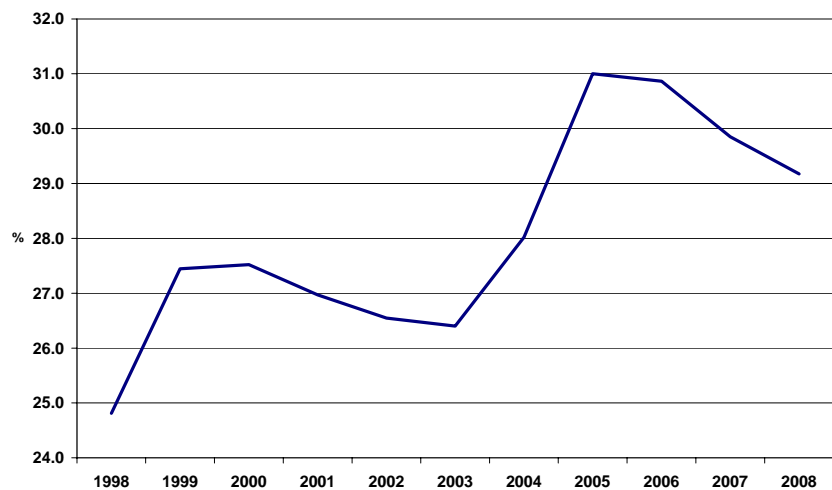
7 per cent of the total, much of which is also be property related. And the latest credit figures suggest that three-quarters of the increase in credit in the year to June 2007 was property-related.

It can also be seen from Figure A that growth in private sector credit has begun to slow since the end of 2005, although still at double-digit rates and well above the low growth rates recorded in the 2002-2003 period. Given the current turbulence in financial markets it remains to be seen how domestic credit growth will develop in the next few months.

The value of investment in machinery and equipment fell by an estimated 3.2 per cent in 2006. A large part of this was due to a fall of 44 per cent in the purchase of aircraft in 2006 following large purchases in 2005. Excluding the impact of aircraft purchases, investment in machinery and equipment grew by 5.4 per cent in value terms. The timing of planned aircraft purchases remains uncertain; based on current published figures we estimate that they could account for over 10 per cent of total investment in machinery and equipment in 2007. Accordingly, we forecast strong growth of 15.5 per cent in the value of machinery and equipment investment in 2007, with volume growth of 12 per cent, this figure also implies strong growth of non-aircraft investments. However, there is a great deal of uncertainty attaching to this forecast. For 2008, we forecast volume growth of 8 per cent and value growth of 10.3 per cent.

These forecasts imply an overall growth in volume investment of 1.6 per cent in 2007 and a fall of 1.2 per cent in 2008. These are very low growth rates relative to recent years and, if realised, will imply that the rapid rise in the share of investment in GNP of recent years, peaking at 30 per cent of GNP in 2005, will fall to just over 29 per cent by 2008 (Figure 5).

Figure 5: Investment as a Share of GNP



Source: National Income & Expenditure Accounts, CSO and own forecasts.

The August Exchequer returns indicate that the exchequer balance deteriorated by just over €3 billion in the twelve months since August 2006. This deterioration is driven by both a significant slowing in the pace of growth in tax revenues, and an acceleration in the pace of voted expenditure growth. In the seven months to August 2007 tax revenue grew by 5.8 per cent as compared with 12.7 per cent in 2006. Voted expenditure grew by 19.8 per cent over the same period as compared with 10.8 per cent in 2006.

Looking at tax revenues first, both corporation tax revenues and stamp duties have fallen below the amount collected in the first seven months of 2006. Changes in payment scheduling for corporation tax to a current year payment basis, which have been phased in over the past five years, have generated cash-flow gains in each of these years. It is anticipated that the end of this transition phase will lead to a once-off fall in the corporation tax yield in 2007. In this context it would be premature to suggest that this fall reflects any real economy effects, indeed the August 2007 figure is almost 7 per cent above the official monthly profile. For stamp duties, the fall of over 2 per cent relative to the same period last year is far below the official profile of an increase of 9 per cent and undoubtedly reflects the current slowdown in the housing market. Aggregating across all capital taxes (stamp duties, capital gains tax, capital acquisitions tax), their growth rate slowed from 46.5 per cent in the seven months to August 2006 to 4.1 per cent in the seven months to August 2007. Across the other main tax heads, customs, excise duties and VAT are below profile and the equivalent growth rate in 2006. All of these data are suggestive of an economy that has slowed rapidly within a twelve-month period. The exception in the monthly returns is income taxes which have been growing strongly and above profile, however, this is partly buoyed by the inflow of SSIA exit tax funds. This slowdown, especially in the housing market, has had a significant impact on our own tax forecasts for 2007 and 2008. We now expect tax revenue to grow by just 5.9 per cent in 2007, slowing to 4.2 per cent in 2008. These are similar to the growth rates seen in the period 2001-2002.

In terms of voted expenditure growth, it is important to distinguish between current and capital expenditures. Budget 2007 planned for an increase of 13.5 per cent in total voted expenditure, 12.9 per cent in current expenditure and 16.2 per cent in capital expenditure. The present overshoot relative to planned expenditures is entirely confined to capital expenditures. On this basis we are assuming that total voted expenditures will come in on target for the full year 2007. Our forecast for 2008 is more complicated. We have increased the growth in current voted expenditure to 8 per cent (an increase of €120 million above budget). This figure assumes full indexation of all transfers and public sector wages but no discretionary change in policy.

Our estimates for 2007 suggest that the General Government Surplus (GGS) will narrow from €5 billion to €1.3 billion, equivalent to a reduction of 2.5 percentage points of GNP. While the rapid slowdown in the housing market, and related tax revenues, have in part driven this deterioration in the public finances, it has also been driven by the very expansionary nature of Budget 2007. The acceleration in planned expenditure in 2007 and beyond that is related to NDP capital expenditure and is broadly to be welcomed. However, the pace of growth in planned voted current expenditure in 2007, at 12.9 per cent, following on rapid growth in 2006 at 11.2 per cent, means that fiscal policy has been unnecessarily stimulatory in those years.

For 2008 our estimates suggest that to achieve a neutral fiscal stance voted current expenditure will have to increase by 8 per cent. Assuming capital expenditure meets its target – with full implementation of planned NDP expenditure – and given our forecast tax revenues this implies a GGS for 2008 of €81 million. Under this scenario the government surplus of €5 billion would be eliminated within a two-year period. In the context of very rapid slowdown in economic growth, we consider that such an outcome should not be a cause for concern; indeed our analysis suggests that the public finances would allow for a mildly stimulatory budget in 2008, in addition to full implementation of the NDP.

Table 3: Public Finances

	2006	% Change	2007	% Change	2008
Current Revenue	46,145	5.7	48,793	4.2	50,846
Current Expenditure	36,994	12.4	41,590	7.1	44,547
<i>of which: Voted</i>	32,915	12.9	37,165	8.0	40,141
Current Surplus	9,151	-21.3	7,203	-12.6	6,299
Capital Receipts	1,871	-20.7	1,483	-0.4	1,477
Capital Expenditure	8,758	15.1	10,080	9.5	11,039
<i>of which: Voted</i>	6,476	16.2	7,528	11.3	8,381
Capital Borrowing	-6,886	24.8	-8,597	11.2	-9,562
Exchequer Balance	2,265		-1,393		-3,263
as % of GNP	1.5		-0.9		-1.9
General Government Balance	5,032		1,331		81
as % of GDP	2.9		0.7		0.0
Gross Debt as % of GDP	25.2		24.4		24.9
Net Debt as % of GDP*	12.9		10.4		9.0

* Net of pensions fund and Social Insurance Fund.

Exports

According to the *NIE*, exports grew by 4.4 per cent in volume terms and 5.7 per cent in value terms in 2006. This growth was dominated by an increase in services exports, which grew at 10.5 per cent in volume terms in contrast with merchandise export volume, which only increased by 0.8 per cent. Overall export

Table 4: Exports of Goods and Services

	2005 €m	% Change in 2006		2006 €m	% Change in 2007		2007 €m	% Change in 2008		2008 €m
		Volume	Value		Volume	Value		Volume	Value	
Merchandise	82,686	0.8	0.8	83,355	3.0	1.5	84,605	3.0	2.0	86,297
Tourism	3,863	8.0	10.2	4,258	4.3	8.0	4,599	5.9	8.0	4,967
Other Services	44,356	10.7	14.5	50,793	9.4	13.0	57,396	8.2	12.0	64,284
Exports of Goods and Services	130,905	4.4	5.7	138,406	5.4	5.9	146,600	5.1	6.1	155,548
FISIM Adjustment	1,193			1,360			1,532			1,711
Adjusted Exports	132,098	4.4	5.8	139,766	5.4	6.0	148,132	5.1	6.2	157,258

growth has continued at a similar pace in the first half of 2007. For the year ended 2007Q1 export volume and value growth were 4.6 and 5.3 per cent respectively. According to the more detailed breakdown provided in the *Balance of Payments*, which only provides data in current prices, average annual export growth for the year ended 2007Q1 was dominated by a robust expansion in services exports, with non-tourism services exports growing by 12.9 per cent and tourism exports by 11.1 per cent. The value of merchandise exports growth was significantly lower at 0.7 per cent for the same period.

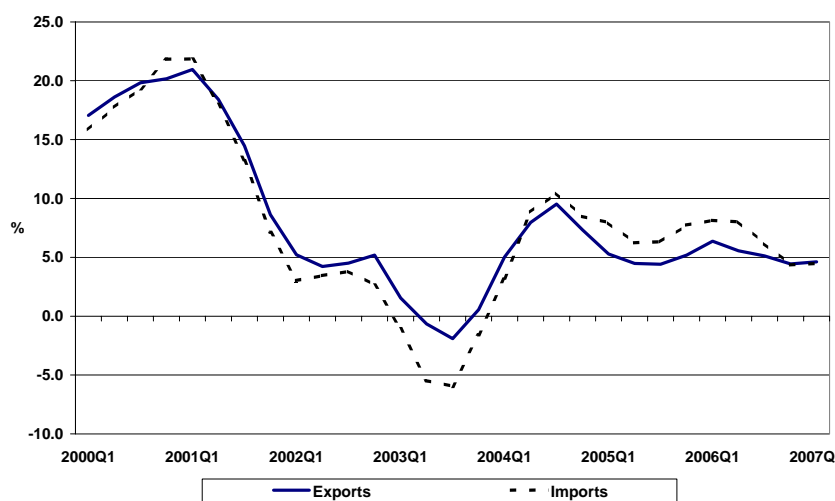
Merchandise exports performed poorly in 2006. This poor performance was however dominated by events in the last quarter of the year. For the first three quarters of 2006 the value of merchandise exports grew by 3.6 per cent on average, falling to 0.8 per cent in 2006Q4 according to the *Balance of Payments*. This equates to a 4.1 per cent year on year fall in the value of merchandise exports for 2006Q4. The equivalent volume measure fell by 1.4 per cent, reflecting the fact that merchandise export prices began to fall in the closing months of 2006. There were indications that the poor performance in the closing months of 2006 was temporary, particularly given the strong expansion of manufacturing output and a large build up of industrial stocks at the time. Our anticipation that these stock levels would be wound down into 2007 appears to have been warranted as year-on-year merchandise export volume growth was 7.1 per cent in the first quarter of 2007, with value growth of 5.5 per cent recorded for the same period. According to the latest *External Trade* statistics, the growth in the value of merchandise exports for the year ended June 2007 is estimated at 2.7 per cent. Industrial production has continued to expand in 2007, albeit with a moderating pace as the year unfolds, and the outlook for most of our major trading partners, except the US, looks reasonably favourable over our forecast horizon. This should sustain the improvement of merchandise exports growth on that experienced in 2006. We expect growth in the volume of merchandise exports to be 3 per cent in 2007, expanding at the same rate again in 2008. Meanwhile the continuing decline in wholesale manufacturing prices leads us to believe that the merchandise export price deflator will fall by 1.5 per cent in 2007, contributing to a significant reduction in Ireland's terms of trade. With export prices forecast to fall by a further 1 per cent in 2008, the value of merchandise exports is anticipated to grow by 1.5 per cent in 2007 and 2 per cent in 2008.

Services accounted for 40 per cent of the total value of exports, and a similar proportion of the volume of exports in 2006. Services export growth continued to outperform that of merchandise, a trend that is expected to continue over our forecast horizon and beyond. Financial, insurance and other business services were the main drivers of growth in services exports last year. The latest *Balance of Payments* data indicate that these categories were again

leading the expansion of the services contribution to overall export performance at the beginning of 2007, with average annual growth of 25, 15.5 and 13 per cent respectively for the year ended 2007Q1. Growth in the volume and value of services exports in 2007Q1 slowed somewhat relative to 2006Q4, increasing by rates of 9.3 and 12.7 per cent respectively. For 2007 we expect non-tourism services export growth of 9.4 per cent in volume terms, moderating further in 2008 to 8.2 per cent. Meanwhile tourism export growth is forecast to remain quite buoyant increasing by 8 per cent in value terms in both 2007 and 2008.

Our forecast for 2007 is for 5.4 per cent growth in the volume of exports of goods and services. This is a downward revision on our June forecast of 6 per cent, and partially reflects the lower growth prospects in the US and to a lesser extent the strengthening of the Euro over our forecast horizon. We expect export growth to ease slightly to 5.1 per cent in 2008.

Figure 6: Volume Growth Rates (Annual Average)



Source: *Quarterly National Accounts*, CSO.

Imports

The *NIE* shows import value and volume growth of 7.8 and 4.4 per cent respectively for 2006. Services accounted for the bulk of import growth last year, growing by 7 per cent in volume terms and 9 per cent in value terms. Merchandise imports increased by 1.6 per cent in volume and 6.4 per cent in value terms. Oil price increases through 2006 were a significant factor in overall merchandise import value growth. The *Balance of Payments* data show that tourism imports grew by 11.2 per cent and non-tourism services imports by 8.4 per cent in 2006. Data for 2007Q1 indicate that total imports continued to increase at a similar pace into 2007, with average annual volume growth of 4.5 per cent for the year ending Q1. The equivalent value measure increased by 6.9 per cent.

Table 5: Imports of Goods and Services

	2005	% Change in 2006		2006	% Change in 2007		2007	% Change in 2008		2008
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Merchandise	54,467	1.6	6.4	57,967	3.9	6.0	61,445	5.0	6.0	65,132
Tourism	4,898	8.5	11.2	5,446	8.8	11.0	6,045	5.9	8.0	6,529
Other Services	52,623	6.8	8.4	57,025	7.4	9.5	62,442	5.1	7.5	67,126
Imports of Goods and Services	111,988	4.4	7.5	120,438	5.8	7.9	129,932	5.1	6.8	138,786
FISIM Adjustment	291			559			614			660
Adjusted Imports	112,279	4.4	7.8	120,997	5.8	7.9	130,546	5.1	6.8	139,446

Despite moving in similar fashion in recent years import volume growth had been higher than that of exports since 2004Q2 (see Figure 6). According to the latest *Quarterly National Accounts* this difference in growth has now been practically eliminated, with import volume growing at an estimated 4.5 per cent and export volume growth of 4.6 per cent for 2007Q1. Data from the *External Trade* statistics suggest that the value of total merchandise imports grew by 4.2 per cent in the year to June 2007. Services import growth moderated in the first quarter of this year to 5.9 per cent in volume terms and 7.9 per cent in value terms. Computer and financial services grew at the fastest pace in 2007Q1, with annual average value growth of 43 per cent and 36.9 per cent respectively. Tourism imports grew by 10.9 per cent over the same period

We forecast import volume growth of 5.8 per cent in 2007, moderating to 5.1 per cent in 2008. The growth in 2007 is expected to be underpinned by the strong growth in private consumer expenditure fuelled by SSIA funds and strong wage growth of 5.5 per cent this year. Next years expected moderation in consumption growth leads to a sharp reduction in services imports, particularly tourism which is forecast to grow by 5.9 per cent, down from 8.8 per cent in 2007. This reduction in services import growth leads to overall import growth slowing in 2008.

Balance of Payments

Our forecasts of merchandise exports and imports for 2007 and 2008 lead to a further narrowing of the merchandise trade surplus in those years. Furthermore we expect the merchandise terms of trade to worsen over the forecast period as merchandise export prices are expected to continue to fall. Offsetting this is a narrowing of the service trade deficit, where services exports growth continues to outpace imports growth. Despite this strong performance from services, the overall trade surplus is expected to narrow further in 2007 and 2008. This is a continuation of a trend that began in 2003 and reflects the poor performance of the external sector in driving total demand in the economy. This forecast trade balance is equivalent to 10.4 per cent of GNP, down from a peak of 21.2 per cent in 2002.

The latest data from the *Balance of Payments* estimate net factor income growth at 2.5 per cent in the year ended 2007Q1. This follows an estimated fall of 0.4 per cent in 2006. The scale of the underlying gross flows through the current account of the balance of payments is huge. Total debit flows in 2006 were equivalent to 57 per cent of GNP while total credit flows were at 40 per cent. In terms of credit flows, almost all of the growth in 2006 was under portfolio and other investment income, which account for 86 per cent of total credit flows. In terms of debit flows there was a 50 per cent growth in portfolio and other investment flows, with a fall in direct investment incomes driven by a 26 per cent fall in repatriated profits flows. In recent years debit factor income flows through the

balance of payments have come to be dominated by portfolio and other investment income flows. In 1999 total “other” debit inflows accounted for 41 per cent of total debit inflows, whereas in 2006 this figure was 62 per cent.

Table 6: Balance of Payments*

	2005 €m	Change %	2006 €m	Change %	2007 €m	Change %	2008 €m
Merchandise Trade							
Balance	28,219	-10.0	25,388	-8.8	23,160	-8.6	21,166
Service Trade Balance	-9,302	-20.2	-7,420	-12.5	-6,493	-32.2	-4,404
Trade Balance in Goods and Services on BOP basis	18,917	-5.0	17,968	-7.2	16,668	0.6	16,762
% of GNP	13.9		12.0		10.4		9.9
Total Debit Flows	68,287	24.0	84,651	27.2	107,646	15.7	124,589
Total Credit Flows	43,417	37.9	59,870	37.0	82,015	20.0	98,418
Net Factor Flows	-24,870	-0.4	-24,781	3.4	-25,632	2.1	-26,171
Net Current Transfers	265	-275.5	-465	7.5	-500	0.0	-500
Balance on Current Account	-5,688		-7,278		-9,464		-9,910
Capital Transfers	264	-15.5	223	34.5	300	0.0	300
Effective Current Balance	-5,424		-7,055		-9,164		-9,610
% of GNP	-4.0		-4.7		-5.7		-5.7

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

In the context of these very large, and often volatile gross investment flows, forecasting the net growth in related income flows is extremely difficult. For 2007 and 2008 we have reduced our forecast growth in net factor income to 3.4 per cent in 2007 and 2.1 per cent in 2008. As can be seen from Table 6, together with a narrowing trade surplus this implies a very rapidly emerging balance of payments deficit in 2007, persisting into 2008. As we have argued previously, we consider this deficit to be an important indicator of the growing imbalances in the economy. It implies an effective current balance of -5.7 per cent of GNP in both 2007 and 2008.⁶

Measures of Growth

Our forecast numbers imply a significant slowdown in the rate of growth in GNP and GDP through 2007 and into 2008. We expect GDP to grow by 4.7 per cent in 2007 and 2.7 per cent in 2008; the corresponding figures for GNP are 4.4 per cent and 2.9 per cent respectively. More importantly, we expect that the terms of trade will deteriorate in 2007 and 2008, so that GNP adjusted for the terms of trade grows by only 3.1 per cent and 2.3 per cent in 2008 (see Table 7). A more comprehensive measure of living standards, Gross National Disposable Income (GNDI), which takes account of current international transfers in addition to terms of trade

⁶ In the Summer *QEC* the equivalent estimates for 2007 and 2008 were -4.7 and -5.1. The 2007 figure is essentially unchanged, as the higher figure is purely driven by revised CSO estimates of the 2006 deficit from -3.7 per cent of GNP in the March *QNA* to -4.7 per cent in the July *NIE* estimates.

effects, is also expected to grow more slowly than GNP. Finally, adjusting our estimates for changes in population and rates of net immigration, our forecasts imply GNP per capita growth of 1.9 per cent in 2007 and 1.4 per cent in 2008.

Table 7: Measures of Growth

	2004	2005	2006	2007	2008
GDP	4.3	5.9	5.7	4.7	2.7
GNP	3.7	4.9	6.5	4.4	2.9
GNP adjusted for Terms of Trade	2.9	3.8	4.5	3.1	2.3
GNDI	2.9	3.7	4.0	3.1	2.3
GNP per capita (constant prices)	2.0	2.7	3.7	1.9	1.4

Sectoral Output

*I*ndustrial output (including construction) grew by 4.6 per cent in 2006, as measured by gross domestic product by sector of origin. With construction output growing by 5.3 per cent in 2006, this meant that output in the non-construction component of industry grew by 4.3 per cent. This represented a solid performance although with one caveat. Stocks grew in 2006 to over €1.3 billion in volume terms (as compared to €162 million in 2005), meaning that some of the extra output was unsold during 2006 with possible consequences for pricing in 2007.

For 2007, the indicators are providing a mixed picture as to the trend in industrial output growth. According to the *QNA* for Q1, output was 14.4 per cent higher in industry (including construction) in 2007Q1 relative to 2006Q1. On an annual basis, the growth in Q1 was 7.2 per cent. A similar picture of rapid growth in industrial output in 2007Q1 can be seen in the index of industrial production. For all industries, a rise of 8 per cent was recorded in Q1; the corresponding figure for manufacturing industries was 8.3 per cent.

Moving into Q2 of 2007, the index of industrial production recorded a somewhat different picture. For all industries, an increase of 4.9 per cent was recorded, well down on the 8 per cent rise in the year ended Q1. For manufacturing industries, the increase to the year ending 2007Q2 was 5.1 per cent. This slowdown in industrial performance between the two quarters is being driven by the modern sector. In Q1, it recorded an annual growth rate of 10.5 per cent but then registered more modest growth of 5.9 per cent in Q2, again on an annual basis.

The slowdown in the rate of growth during the course of 2007 in industrial output makes forecasting difficult. Our view is that the non-construction part of industry will grow by 4.5 per cent in volume terms in 2007, thereby maintaining the level of performance shown in 2006. However, given unfavourable price movements, we see output growing by a lower figure in value terms (3.5 per cent). For 2008, we expect a slower pace of growth in industrial output.

Our forecast is for volume growth of 3 per cent, with a value growth of 2.5 per cent. Given the declines in house-building (as discussed in the Investment section), the forecast growth figures for total industry (i.e. including construction) are lower than those for non-construction industry.

Services output grew by 6.8 per cent in volume terms in 2006 and by 9.6 per cent in value terms. As these rates of growth exceeded those in industry, the trend of a growing service-intensity of the Irish economy has continued. Within the sector, “public administration and defence” grew by 3 per cent, “distribution, transport and communications” grew by 4.6 per cent, while “other services (including rent)” grew by 7.8 per cent (all in volume terms).

For the first quarter of 2007, the *QNA* show services output growing by 6.3 per cent in volume terms, on an annual average basis. The growth rates by sub-sector are as follows: “public administration and defence” grew by 2.8 per cent, “distribution, transport and communications” grew by 5.4 per cent, while “other services (including rent)” grew by 7 per cent.

For 2007, we are forecasting 5.5 per cent growth in the volume of services output, with the value of services output forecast to grow by 9.1 per cent. For 2008, our forecasts are for volume growth of 3.6 per cent and for value growth of 6.5 per cent. Our forecasts for favourable price movements in services are in contrast to our relative pessimism on industrial output prices. Given the shift towards a greater intensity in services exports, these relative price movements have important, positive impacts.

Agricultural output fell by 6.8 per cent in volume terms in 2006, according to the *NIE*. However, this has to be seen in the context of a change in the timing of subsidy payments which led to unusually strong growth being recorded in 2005 (growth of 9.5 per cent). For 2007, we expect volume growth of 1 per cent and value growth of 1.5 per cent. Our optimism for prices is partly based on the data so far for 2007. The agricultural output price index was 5.3 per cent higher in June 2007 relative to June 2006, with milk prices showing particularly strong growth (+20.8 per cent in June 2007 compared to June 2006). We expect volume and value growth of 1 per cent in 2008.

Table 8: GDP by Sector

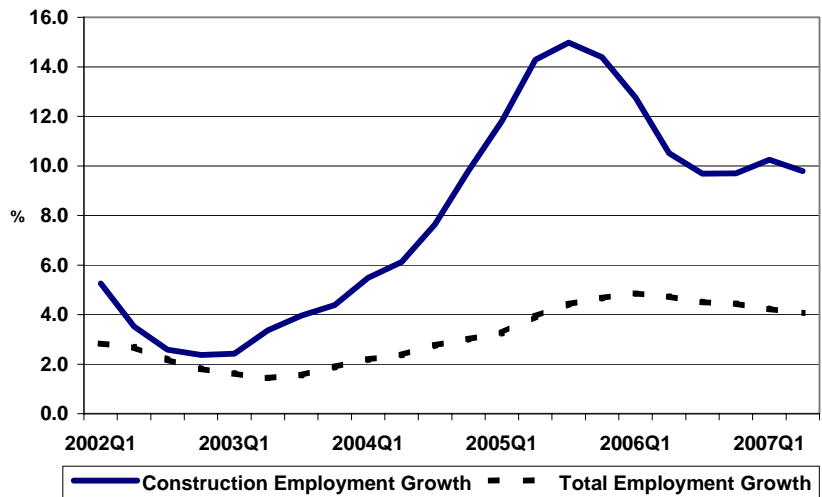
	2005	Change		2006	Change		2007	Change		2008
	€m	Volume	Value	€m	Volume	Value	€m	Volume	Value	€m
Agriculture	4,097	-6.8	-4.4	3,918	1.0	1.5	3,976	1.0	1.0	4,016
Industry:	50,465	4.6	5.1	53,043	2.9	2.8	54,506	1.2	2.0	55,594
Other Industry	36,961	4.3	2.6	37,906	4.5	3.5	39,233	3.0	2.5	40,214
Building & Construction	13,504	5.3	12.1	15,137	-1.3	0.9	15,273	-4.1	0.7	15,380
Services:	87,983	6.8	9.6	96,417	5.5	9.1	105,237	3.6	6.5	112,126
Public Administration & Defence	5,127	3.0	7.0	5,485	2.5	7.0	5,869	1.0	5.5	6,192
Distribution, Transport and Communications	21,759	4.6	6.1	23,075	4.0	6.6	24,592	2.0	3.8	25,521
Other Services (including rent)	61,098	7.8	11.1	67,857	6.3	10.2	74,776	4.3	7.5	80,413
GDP at Factor Cost - output basis	142,545	5.6	7.6	153,378	4.5	6.7	163,719	2.7	4.9	171,736

Employment

The latest employment figures from *Quarterly National Household Survey* (QNHS) (2007Q2) contain a number of interesting findings and pointers. Taking a broad view, employment growth remains strong. For the year ended 2007Q2, employment growth was 4.1 per cent; relative to 2006Q2, employment was 3.9 per cent higher. These are impressive numbers and show that the economy continues to produce jobs at a healthy pace.

A closer analysis of the latest data suggests, however, that the pace of employment growth has almost certainly peaked and that a slower pace is likely in the coming months. As shown in Figure 7, between mid-2003 and early 2006 the rate of employment growth had been increasing. However, since then the rate of increase has been falling and it is our expectation that this trend will continue. The *QNHS* also shows an upward drift in the rate of unemployment, rising from 4.4 per cent in Q1 to 4.6 per cent in Q2.

Figure 7: Annual Employment Growth



Source: *Quarterly National Household Survey*, CSO.

Also of interest in the *QNHS* figures is the sectoral breakdown of employment growth. For a number of years, a concern has been expressed in successive *Commentaries* about the sectoral breakdown and in particular the concentration of employment growth in construction. As shown in Figure 7, the rate of growth in employment in construction increased rapidly from mid-2003 to its peak in 2005Q3. Although this rate of growth did modify in 2006, it remained in double digits and so an ever increasing proportion of the workforce was employed in construction.⁷

⁷ By Q1 2007, construction accounted for 14 per cent of total employment.

This was believed by us to be unsustainable and it does now appear as if a new period of adjustment is being entered. While the annual rate of employment growth in construction (at 9.8 per cent) is similar to that of recent quarters, a quarter-on quarter comparison shows that employment actually fell between Q1 and Q2. The CSO's *Index of Employment in Construction* also registered a decline, with the index being 2.3 per cent lower in July 2007 relative to July 2006. The latest *FAS/ESRI Vacancies Survey* showed how a general decline in vacancies was particularly concentrated in the construction sector. All of this is clearly linked to the slowdown in house building activity discussed in the *Investment* section above and so forms part of the broader story of current economic conditions.

Partly as a result of the slowing in growth in construction employment, the largest absolute increase in jobs between 2006Q2 and 2007Q2 was in “financial and other business services” (+20,300 out of a total employment increase of 78,400). The next biggest absolute increase was in “other services” (+17,700), with construction coming third in terms of absolute extra numbers employed (+17,600).

Inward migration continues to be a quantitatively important component of the general trends in employment. Of the 78,400 extra jobs created between 2006Q2 and 2007Q2, some 41,200 were filled by immigrants (53 per cent). The “wholesale and retail” sector experienced the largest immigrant inflow (+10,600), followed by “other productive industries” (+8,300) and “hotels and restaurants” (+6,700). Only 10 per cent of the extra immigrants in employment were engaged in the construction sector.

We now expect employment to grow by 2.5 per cent in 2007 and by 0.6 per cent in 2008. The slowdown in employment growth is, of course, related to the expected slowdown in the economy generally. Another expected consequence of the slowing in economic growth is an increase in the rate of unemployment. We now expect unemployment to average 4.8 per cent in 2007 and to rise to 5.6 per cent in 2008. We should note that this forecast for unemployment is partly linked to our forecast for inward migration. Based on an April-to-April comparison, we expect net migration to fall from over 70,000 in 2007 to 25,000 in 2008. In the medium term, we see the labour market adjusting to inward migration through wages as opposed to employment. By this, we mean that the increase in the supply of labour brought about through immigration will act to ease wage pressures thereby facilitating employment increases. However, in the short run, we see unemployment rising in the context of lower employment growth and continued inward migration because wages may not adjust immediately to the increased labour supply and slower rate of increase in labour demand.

Table 9: Employment and Unemployment

	2005	Annual Averages 000s		2008
		2006	2007	
Agriculture	115	117	116	115
Industry	539	560	559	544
Services	1,298	1,362	1,414	1,442
Total at Work	1,952	2,039	2,089	2,101
Unemployed	89	93	105	124
Labour Force	2,041	2,132	2,194	2,226
Unemployment Rate %	4.4	4.4	4.8	5.6
Net Migration	53.4	69.9	70.6	25.0
of which: Inward Migration	70.0	86.9	87.6	42.0
Change in Participation Rate*	1.7	1.0	0.9	0.2

* Note: Participation rate measured as share of population aged 15-64 years.

Incomes

In Table 10, we show annual hourly earnings growth for the years 1999-2006 and also the annual rate of growth as of 2007Q1. Comparing the economy-wide figures over time, we can see that the rate of growth appears to have picked up in the early part of 2007. The fastest pace of earnings growth in 2006 was in “financial and business services” and this strong pace has continued into 2007, even though the highest rate of earnings growth in 2007Q1 was in “transport, storage and communications”. When viewed in the context of rapid employment increases in “financial and other business services” (discussed in the *Employment* section above), this points to strong labour demand conditions in this sector.

Table 10: Growth in Average Hourly Earnings 1999-2006

	Hourly	Annualised	Annual Growth**							
	Earnings	Growth	1999	2000	2001	2002	2003	2004	2005	2006
	Q1 2007	Q1 2007								
	Euro	%								
Economy*	18.37	4.7	5.6	7.6	9.8	6.0	4.9	5.8	5.1	4.7
Industry	15.48	4.5	5.3	6.1	10.4	7.9	5.4	4.7	2.9	4.1
Construction	18.13	2.4	7.7	12.5	11.4	10.4	5.2	4.4	7.2	2.1
Distribution	17.90	6.4	6.3	12.0	10.0	6.8	5.7	4.4	4.4	6.3
Hotels and Restaurants	10.95	2.3	7.6	6.5	5.5	3.6	7.1	8.0	6.1	3.2
Transport, Storage and Communications	20.14	7.5	3.5	5.6	8.4	1.0	5.3	5.7	4.2	6.5
Non-Market Public Services	25.86	5.6	5.4	5.7	9.6	3.7	3.8	9.5	7.1	6.0
Other Market Services	18.69	4.1	6.8	8.4	7.7	2.7	5.6	4.1	3.7	4.5
Financial and Other Business	22.37	8.1	3.6	6.1	11.5	4.2	1.8	6.1	5.6	7.4

* Weighted by employment, excludes agriculture and health sector earnings.

** Annual growth defined as the annual growth in the four quarter moving average ended in Quarter 4.

For 2007, we expect nominal wage growth to be 5.5 per cent. The slowing rates of economic growth would usually lead to an easing of wage pressures but we foresee strong nominal wage growth this year partly based on early trends but also because of the high rate of CPI inflation. Given the further slowing in economic activity in 2008 and the forecast increase in unemployment, we expect to see a slowing in the pace of wage growth. Our forecast is for nominal wage growth of 4.5 per cent in 2008.

While a slowing rate of wage growth may be a disappointment to individual employees, it is to be welcomed from a macro-perspective. As discussed in the last *Commentary*, wage rates in Ireland have been growing more rapidly than elsewhere with predictable consequences for competitiveness. Without a slowdown in wage growth, our forecast rise in unemployment would be higher. Through an easing in wage pressures, the non-housing elements of the economy will be more likely to expand and to cushion the economy from the house-building downturn.

With falling employment growth and falling wage growth, we expect to see the rate of growth in income from non-agricultural wages declining from 9.8 per cent in 2006 to 8.3 per cent in 2007 and further to 5.2 per cent in 2008. For 2007, a package of social welfare payments with significant increases means that some of the decline in non-agricultural wages is off-set by a rise in transfers. However, on the assumption that Budget 2008 will provide for lower than Budget 2007, we expect to see growth in gross personal income fall to 6.4 per cent in 2008.

Given the rapid rate of consumption growth in 2007 (as discussed in the *Consumption* section above), we expect to see the savings rate fall in 2007 to 5.6 per cent. The rate of consumption growth is expected to ease substantially in 2008, so that despite a significant slowdown in the rate of growth in gross personal income, the savings rate is expected to increase in 2008 to 6.1 per cent.

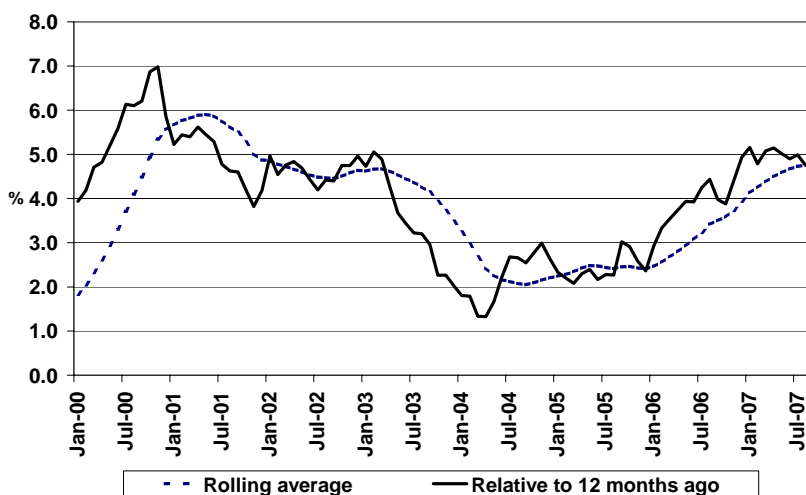
Consumer Prices

Inflation as measured by the Consumer Price Index (CPI), was estimated at 4.8 per cent year-on-year in August, slightly lower than previous months this year. The rate of increase in consumer prices has risen steadily since the end of 2005, and is now reminiscent of that last experienced in early 2003 (see Figure 8). These increases are also reflected in the twelve-month rolling average inflation rate in Figure 8, which has been rising persistently since Autumn 2004. The average inflation rate of the twelve months to August 2007 reached 4.8 per cent.

Table 11: Personal Disposable Income

	2005	Change		2006	Change		2007	Change		2008
	€m	%	€m	€m	%	€m	€m	%	€m	€m
Agriculture, etc.	3,397	-5.9	-202	3,195	1.5	48	3,243	1.0	32	3,275
Non-Agricultural Wages	65,992	9.8	6,434	72,426	8.3	6,016	78,442	5.2	4,079	82,522
Other Non-Agricultural Income	15,409	5.3	823	16,232	7.1	1,149	17,381	8.2	1,431	18,812
Total Income Received	84,798	8.3	7,056	91,853	7.9	7,213	99,066	5.6	5,543	104,609
Current Transfers	18,126	1.1	203	18,329	17.9	3,273	21,601	9.9	2,129	23,730
Gross Personal Income	102,923	7.1	7,259	110,182	9.5	10,486	120,668	6.4	7,671	128,339
Direct Personal Taxes	19,561	9.2	1,800	21,362	9.7	2,080	23,441	5.3	1,242	24,683
Personal Disposable Income	83,362	6.5	5,459	88,820	9.5	8,406	97,226	6.6	6,430	103,656
Consumption	76,435	7.9	6,048	82,483	11.3	9,290	91,773	6.1	5,580	97,353
Personal Savings	6,926	-8.5	-590	6,337	-13.9	- 884	5,453	15.6	850	6,303
Savings Ratio	8.3			7.1			5.6			6.1
Average Personal Tax Rate	19.0			19.4			19.4			19.2

Figure 8: CPI Inflation Rate



Source: Consumer Price Index, CSO.

The main component driving this rise in consumer prices is the rise in mortgage interest rates over the period. Following eight 25 basis points increases in the ECB Refinancing rate since the end of 2005, the mortgage interest component of the CPI increased by 43 per cent in August 2007 when compared to the same month in 2006. Given the treatment of the mortgage interest component in calculating the overall CPI,⁸ this accounted for 60 per cent of the total increase in consumer prices over the period. Rents have also increased sharply, rising by 11.3 per cent from August 2006 to August 2007.

As external forces determine interest rates, it is useful to examine the CPI components that are driven, at least in part, by domestic forces. Of these the most noteworthy increases in price from August 2006 to August 2007 are found in electricity, gas and other fuels (8 per cent), postal services (10.4 per cent), transport services (10.4 per cent), health insurance (9.7 per cent), recreational and sporting services (7.1 per cent) and hotels and restaurants (3.8 per cent). Together these account for approximately 30 per cent of the overall increase in the CPI over the period, and illustrate continuing robust inflation in the services sector of the economy. Inflation for services averaged 8.6 per cent in the twelve months to August 2007, while inflation for goods averaged 0.2 per cent over the same period.

⁸ For a detailed discussion on the treatment of mortgage interest in calculating the Irish CPI see McCarthy, C. "Owner Occupied Housing Costs and Bias in the Irish Consumer Price Index", published along with this *Commentary*.

Ireland continues to be above the Euro Area average in terms of consumer price inflation. Using the EU Harmonised Index of Consumer Prices (HICP), which excludes mortgage interest and certain non-traded items⁹, Irelands year on year rate of inflation in August 2007 was 2.3 per cent. This measure of inflation has averaged 2.6 per cent for the twelve months up to and including August 2007, which is significantly higher than the comparable Euro Area average of 1.8 per cent. Our forecasts (Table 12) see Ireland remaining well above the Euro Area average for inflation as measured by HICP, with rates of 2.8 per cent in 2007 and 2.5 per cent in 2008.

Table 12: Inflation Measures (%)

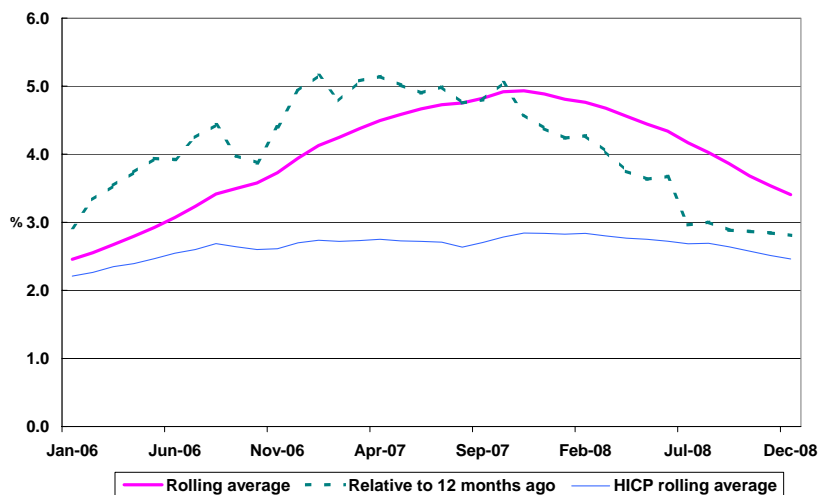
	2000	2001	2002	2003	2004	2005	2006	2007	2008
HICP (Ireland)	5.3	4.0	4.7	4.0	2.3	2.2	2.7	2.8	2.5
CPI	5.6	4.9	4.6	3.5	2.2	2.4	3.9	4.9	3.4
Mortgage Interest	12.5	24.7	-7.6	-8.3	5.4	12.3	31.4	40.0	14.1
HICP (Euro Area)	2.1	2.3	2.2	2.1	2.1	2.2	2.2	1.9	2.1

An increasingly important factor in determining the course of inflation over our forecast horizon will be food prices. Adverse weather conditions across the globe in 2007 have led to significant reductions in crop yields, with wheat being a particular concern. Combined with strong demand growth from countries in the Middle-East and Asia and more agricultural land being devoted to bio-fuel crops, this has led to wheat prices reaching record highs in recent weeks. As a staple ingredient in animal feed, the effect of these price increases will be felt not just in bread and cereals but also in meat and dairy products. Food price inflation has already increased substantially through 2007 as a result, with the annual rate standing at 2.7 per cent in August, significantly higher than recent months. Our forecasts assume that food prices add approximately 0.1 per cent to the CPI rate of inflation in 2008 above what it would have been had food prices continued to grow to trend.

Increases in health insurance premia and reductions in the price of natural gas and electricity have also been factored into our forecasts, but their effects on overall inflation are miniscule.

⁹ In addition to mortgage interest, the HICP also excludes building materials; concrete blocks; union subscriptions; motor car insurance; dwellings insurance; motor car tax and motor cycle tax.

Figure 9: Inflation Profile 2006-2008 (Forecast 2007M9 onwards)



Source: Consumer Price Index, Harmonised Index of Consumer Prices, CSO and own forecasts.

Interest rates remain the key factor in forecasting CPI inflation for 2007 and 2008. Our forecasts are driven by the technical assumption of one further 25 basis point interest rate increase in December of this year, with the ECB Main Refinancing Rate remaining at 4.25 per cent through 2008. We expect inflation to peak towards the end of 2007 (Figure 9), with the annual average rate for the year being 4.9 per cent. As a result of the technical assumption on interest rates, the annual average inflation rate is anticipated to fall to 3.4 per cent for 2008. When compared to our forecasts in the previous *Commentary*, the inflation rate for 2007 remains the same. This is in spite of the assumption on interest rates differing between both forecasts in terms of timing: our June 2007 *QEC* assumed an interest rate increase in September as opposed to December. All else being equal this would have led to a downward revision of the 2007 forecast; however, the higher than anticipated inflation in recent months, particularly in food prices, implies that the annual average inflation rate remains the same. The same cannot be said for our current 2008 forecast compared to that of the June 2007 *QEC*, which increases from 3 per cent to 3.4 per cent as a result of the assumed interest rate increase moving to December 2007.

GENERAL ASSESSMENT

For 2007, the forecasts in this *Commentary* show a slight downward adjustment relative to our previous set of forecasts in the June issue. However, for 2008 we have made a more significant downward adjustment and have cut our forecasts for GNP growth from 3.7 per cent to 2.9 per cent. As discussed above, we have made this adjustment largely because of the flow of information on house building. When writing in June, we did make reference to our concerns that the slowdown in the economy could be steeper than we were forecasting at that time. The data that have emerged since have led us to be more convinced that the slowdown between 2007 and 2008 will indeed be more rapid.

The data on house building provide a clearer sense of the direction of trends as we look ahead. However, the general climate in which this *Commentary* is being written is characterised by uncertainty, in particular with respect to financial markets. By their nature, it is difficult to factor these types of uncertainties into our forecasts. Nevertheless, it is still of value to discuss them and their possible implications.

Foremost among the uncertainties confronting us has been the fallout from the difficulties being experienced in the sub-prime sector of the US lending market. One impact has been a rise in market interest rates over central bank-determined base rates. Should this continue, Irish borrowers could be asked to pay higher interest rates as banks try to pass on the higher borrowing costs that they incur when borrowing on inter-bank markets. The potentially more extreme fall-out from the sub-prime market difficulties would be a banking collapse. It may seem extraordinary for such a possibility to be mentioned in a *Commentary* but the circumstances surrounding Northern Rock mean that the possibility needs to be recognised. However, our understanding is that the likelihood of a European banking collapse is remote, based on our observations of central banks' actions in recent weeks in support of the financial system.

Whatever the on-going fallout brings, the hope would be that the period of financial uncertainty will end before too long as a greater degree of transparency emerges over where the exposure to the sub-prime lies. It is possible that the current uncertainty will have eased by the time of the next *Commentary*.

Moving beyond the sub-prime market, although not unrelated, another set of uncertainties relate to the prospects for the US economy generally and for the dollar in particular. In earlier *Commentaries*, we were guided by the more positive views of the US economy that saw the slowdown in house-building there as being contained, in the sense of not having large knock-on effects on other elements of the economy such as consumption. Based on that view, we were broadly optimistic that the US would regain momentum in 2008. However, more recent data from the US have led us to believe that US growth in 2008 will be closer to 2 per cent, as opposed to the 2.5 per cent that we reported in our June *Commentary*. As regards the dollar, as of mid-September record lows vis-à-vis the euro were being recorded with the \$1.40 mark being approached. Part of the dollar weakness was and continues to be associated with expected interest rate cuts in the US.

These developments in the US bring to mind results from the *ESRI's Medium-Term Review* of 2005 and the *Spring 2007 Euroframe-European Forecasting Network* report. In the MTR 2005, growth prospects for the Irish economy were compared under two scenarios for the US. In one scenario, the US current account deficit remained at existing high levels; in the second scenario, the deficit came within sustainable limits as a result of reduced growth (2.1 per cent on average per annum out to 2010 as opposed to 2.5 per cent) and a weaker dollar (\$1.50 in 2010 as opposed to \$1.34).

The difference in Irish growth as a result of these two scenarios was large. Under the high growth scenario, GNP was expected to grow by 4 per cent per annum between 2005 and 2010 and by 4.9 per cent per annum between 2010 and 2015. Under the low growth/weaker dollar scenario, the corresponding Irish growth rates were expected to be 3.5 per cent (2005-2010) and 3.1 per cent (2010-2015). In terms of unemployment rates, the higher growth scenario envisaged rates of 4.2 per cent between 2005 and 2010 and 3.6 per cent between 2010 and 2015. The corresponding figures for the low growth/weaker dollar scenario were 7.1 per cent and 6.4 per cent respectively. These figures serve to re-emphasise the strong relationship between US and Irish growth rates and hence the potential importance of current developments in the US for Ireland.

The result from the spring *EFN* report that is of relevance concerns the relative impacts on Euro Area GDP of different forms of US adjustment. In that report, the impacts on the Euro Area of an internal adjustment (a US house price fall) and an external adjustment (a dollar fall) were compared. It turns out that in the short run, the impact of the dollar decline on Euro Area GDP is three times higher than the house price decline, when the two shocks are calibrated to have the same impact on the US current account. If this result applies to Ireland, then the dollar decline becomes of particular concern.

Within Ireland, house prices continue to be an area of uncertainty. While our forecasts suggest moderate declines in nominal prices this year and generally stable nominal prices next year, our on-going estimate, discussed in the *Investment* section, is that house prices in Ireland were over-valued by about 15 per cent in 2006. This over-valuation falls to under 10 per cent by 2008 given our forecast decline in house prices and house building. However, the uncertainty in world financial markets could well lead to a more significant fall in the demand for second homes than that implied in our forecasts. Were this to happen, then our estimates suggest that house prices could fall further by 2008.

In the context of possible house price falls, the paper published along with this *Commentary* by Vincent Hogan and Pat O'Sullivan provides important results for assessing the possible impacts. As Hogan and O'Sullivan show there was little impact on consumption as a result of house price rises, it appears that consumption should not fall in response to any house price falls. This is in contrast to the US where the link between consumption and house price rises contributed to the recent US growth experience (and hence leads to concerns as house prices fall). However, as house-building in Ireland is likely to be sensitive to movements in house prices, there remains a possibility that a house price fall could impact on the economy via a fall in investment. As discussed in the *Investment* section, our forecasts are sensitive to the extent of the decline in house-building. If house prices fall further than we are forecasting, house-building could well be lower and hence overall growth would be lower also.

Given the outlook for house-building in Ireland and the uncertainties regarding economic activity in the US, the strength of the US dollar and house prices in Ireland, the question arises over what policy can and should do. The first broad point to be made is that the adjustments in the housing market, both in terms of building activity and price, are part of a process of returning the Irish economy to a sustainable growth path. We do not see that there is a role for government in artificially propping up either prices or building activity.

Instead, policy at this time of uncertainty should aim to provide stability. For this reason we see a need for the rapid acceleration in current expenditure in recent years to be halted. Based on forecasts, it appears that the General Government Surplus in 2006 of over 2.9 per cent of GDP will be reduced to 0.7 per cent of GDP in 2007. While it is likely that the growth in voted capital spending of 16 per cent is contributing to an expansion of the productive capacity in the economy, the growth in voted current expenditure of 12.9 per cent appears to be unsustainable. A curtailment of this rate of growth will be needed in order to safeguard the general soundness of the public finances. For 2008 our forecasts are based on a growth in voted current expenditure of 8 per cent, together with full

implementation of the NDP. On this basis we estimate that the General Government Surplus would be eliminated by the end of 2008. In the context of a sharp slowdown in the economy, we see this as being no cause for concern and would consider that a mildly stimulatory budget in 2008 is affordable in the context of overall prudent macroeconomic management.

Beyond this, the policies that are needed in the face of the adjustments being experienced by the Irish economy are medium-term in nature. The decline in house-building means that other sectors of the economy will have to grow if a strong pace of growth is to be maintained, albeit at a more moderate pace than the very recent past. In order for this to happen, there is a need for on-going investment in infrastructure, in human resources and in R&D, although the capacity of the economy to absorb the extra spending should be continually assessed. With the slowing of activity in construction, fears that were expressed about the potential inflationary impact of the NDP are receding.¹⁰ However, specific bottlenecks may still exist, for example, with regard to certain skills. There is also an on-going need for the provision of an improved business climate, for example, through the promotion of increased competition. But, as noted, the impacts of such policies are likely to be felt in the medium term.

¹⁰ Morgenroth, E. and J. Fitz Gerald (eds.), 2006, Dublin: The Economic and Social Research Institute, *Ex-Ante Evaluation of the Investment Priorities for the National Development Plan 2007-2013*, ESRI Policy Research Paper No. 59.

SPECIAL ARTICLES*

Consumption and House Prices in Ireland

by

Vincent Hogan and Pat O'Sullivan

Preserving Electricity Market Efficiency While Closing Ireland's Capacity Gap

by

Seán Lyons, John Fitz Gerald, Niamh McCarthy,
Laura Malaguzzi Valeri and Richard S.J. Tol

Owner-Occupied Housing Costs and Bias in the Irish Consumer Price Index

by

Colm McCarthy

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CONSUMPTION AND HOUSE PRICES IN IRELAND

V. Hogan, P. O'Sullivan

Abstract

We examine the link between private consumption and housing wealth in Ireland. We find that until very recently the marginal propensity to consume out of housing wealth was essentially zero. This is in marked contrast to the recent evidence for other OECD countries. The evidence is robust to changes in statistical methodology. Thus we can conclude that the recent consumption growth was not financed by borrowing against housing wealth. This suggests that any decline in house prices would not cut consumption significantly.

1. Introduction

The well-documented rise in Irish house prices in recent years has led to some public disquiet on two related questions: the sustainability of the property market itself; and the effect of any collapse on the economy in general. Some commentators worry that the property boom represents an unsustainable bubble market, which will inevitably burst with possibly dire consequences for the economy as a whole. Parallels are often drawn with the collapse of the UK property market in the late 1980s and the early 1990s and the resulting negative equity problem.¹

In fact these two questions are closely related to the overall question of how housing wealth affects private consumption and savings decisions. For years economists have recognised that rational individuals should change the level of their consumption only in response to permanent changes in their wealth. Temporary

¹ See “House of Cards”, a survey of European property markets in the *Economist*, May 29th, 2003. Roche (2003) criticises the *Economist’s* methodology. He suggests that the Irish housing market was then overvalued by no more than 5 per cent.

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changes in wealth should have little or no effect on consumption decisions.²

It would, therefore, be reasonable to expect an increase in private consumption in recent years from the growth in housing wealth in Ireland. Of course, it may be the case that individuals are cautious about borrowing against housing wealth because of the psychological importance of home ownership, the desire to make housing bequests and the general illiquidity of housing wealth etc. Thus we might expect that the marginal propensity to consume out of housing wealth to be less than the marginal propensity to consume out of financial wealth – but we would not expect it to be zero. This is confirmed by most of the international evidence (see below).

We might think, therefore, that the Irish experience mirrors the international experience: large scale increases in consumption caused by increases in housing wealth. The fact that a boom in house prices and a consumer boom have been coincident does not allow us to infer causation. In the Irish case at least, there is a plausible alternative explanation for both: the large increase in national income since the early 1990s could in principle be responsible for both the boom in house prices and the boom in consumption.

In what follows, we show that until very recently, the dramatic rise in personal income has explained all of the increase in consumption and the marginal propensity to consume out of housing wealth is essentially zero. This implies that either the population do not believe that the increase in house prices over the last decade are credible or that they are using the accumulated wealth for purposes other than consumption. However, this result also suggests that the consequences of a large correction in house prices may not be as dire as some have feared. If people have not borrowed against housing wealth to boost consumption then a decline in the housing market would have a limited effect on aggregate consumption, limiting the recessionary effects of a large fall in house prices.

The idea of inferring the sustainability of a boom in asset prices from its effect on private consumption is not new. It has been observed, for example, that the boom in stock prices in the US seemed to have little effect on private consumption, suggesting that most private individuals viewed the changes in their wealth as temporary. Furthermore, when the stock market bubble burst in Summer 2000, there was little recessionary effect on private

² For an overview of consumption theory see Deaton (1992) or Attanasio (1999).

consumption – even allowing for the accommodating monetary policy adopted by world central banks.³

The paper proceeds as follows. In Section 2, we review the international evidence on the link between housing market and private consumption and savings. In Section 3, we review the recent experience of the Irish economy in general and of the housing market in particular. In Section 4, we present a formal econometric model of the link between Irish consumption and the housing market. We show that our estimate – of essentially zero effect – is robust to various methodological and data issues. Finally, Section 5 concludes.

2. Review of Theory and Evidence

There are two broad strands to the literature that are relevant to our discussion. The first uses aggregate data on house prices and consumption to measure the effect of housing wealth on consumption. The second strand to the literature uses data on micro survey data to look at the effect of housing wealth on individuals' consumption.

Using aggregate US data, Elliot (1980) found no effect upon consumption from changes in non-financial wealth. These results were challenged by Peek (1983) and by Bhatia (1987) who raised questions over the methodology used to estimate real non-financial wealth. But in general, for the United States, time series estimates of the marginal propensity to consume (MPC) out of housing wealth were around 0.04. In other words, for every \$1 billion increase in housing wealth, personal consumption increased by \$40 million.

Muellbauer and Murphy (1997) argue that the increase in housing wealth was a significant explanatory variable in the context of the UK consumer led economic boom in the late 1980s. They estimated the elasticity of consumption with regard to housing wealth to be 0.045. So a 10 per cent increase in housing wealth would lead to 0.45 per cent increase in consumption.

Kenny (1998) and Miles (1992, 1994) both argue that there are good reasons to remain sceptical of evidence that increases in housing wealth will have an unambiguously positive effect on consumption. This is especially so if a house price boom occurs at the same time as a consumption boom as both phenomena could be explained by other variables such as rising real incomes, expectations thereof or looser credit constraints.

Furthermore, as Miles (1994) argues, an increase in prices may boost the consumption of those who intend to trade down at some

³ See lecture delivered by Professor Jaime Ventura, Department of Economics, MIT at a conference held by Bank of Ireland Private Banking, Dublin Castle, June 7, 2001.

time in the future, but those who intend to trade up and first time entrants are hurt by price increases and may be forced to cut back on consumption. Therefore, unless households have the ability to exit the housing market en masse then the aggregate wealth effects on consumption could be negligible.

Engelhardt (1996) examined the link between house price appreciation and the savings behaviour of homeowners during the 1980s using micro data. The analysis used self-reported household asset and debt data for a sample of home-owning households under the age of 65 from the 1984 and 1989 waves of the Panel Study of Income Dynamics (PSID) to construct changes in real household wealth as a measure of household saving behaviour. Cross-time and cross-regional variation in housing market conditions were used to identify behavioural savings effects. The estimated marginal propensity to consume out of real housing capital gains was 0.03 for the median household. More recently, Bostic *et al.* (2005) reported estimates of the MPC generated from the US Consumer Expenditure Survey of 0.03.

Disney *et al.* (2002) performed a similar analysis for the UK. They found a marginal propensity consume out of housing wealth of between 0.01 and 0.03. They also found that the effect of housing wealth was higher in absolute terms when house prices were rising i.e. the effect of housing wealth was asymmetric.

McCarthy and Steindel (2007) provide a review of recent US evidence. They show that there is a considerable variation in estimates of the marginal propensity to consume from housing wealth. Estimates based on aggregate data tend to be around 0.05 whereas estimates based on individual level data tend to be around half as large. Belsky and Prakken (2004) using aggregate data, estimate the MPC to be 0.05. Iacoviello (2004) also uses aggregate data but generates estimates of 0.07.

Kenny (1998) focuses on the linkages between the Irish housing market and the economy and one of his main findings is: *...that the response of consumption depends on the type of shock hitting the housing market. In the case of a purely random increase in house prices (a house price shock), there is some evidence in support of the thesis that this gives rise to a positive deviation in consumption above its equilibrium given the level of income. However, in the case of an income shock, while the model gives rise to a positive response in both consumption and real house prices, there would appear to be no evidence that consumption rises above or overshoots its new equilibrium level.*

This again highlights the issue of causation and warns against the simplistic link between housing wealth and consumption.

Case *et al.* (2001) examine the link between increases in housing wealth, financial wealth and consumer spending using a panel of

aggregate macroeconomic data. They perform two separate analyses one using a panel of 14 countries (including Ireland) observed annually during the past 25 years and the other using a panel of U.S. states observed quarterly during the 1980s and 1990s. They found that housing wealth has a statistically significant impact on aggregate household consumption. Perhaps surprisingly, they found that housing wealth had a larger effect on consumption than financial wealth. Their results suggest that the marginal propensity to consume out of housing wealth is 0.11 on average for western countries. Their results, however, do not account for possible simultaneous equation bias. Furthermore, they hide a potentially large degree of variation across countries.

Giourard and Blondal (2001) also examined the impact of house prices on consumption and residential investment using a panel of G7 (excluding Germany) countries. Their main conclusion is that house prices have a significant effect on consumption through either direct wealth effects or the easing of households' liquidity constraints. All the countries, with the exception of Italy, exhibited a significant and positive housing wealth effect on consumption. They argue that the role of the financial system is critical in the translation of increased housing wealth into increased consumption. The ability to borrow or withdraw equity is the prime mechanism to access housing wealth.

The international evidence does point to a housing wealth effect on consumption but the regressions and results rely on evidence from various G7 countries. Inferences from this international evidence have been drawn in describing the Irish economic performance since the early 1990s. This paper attempts to analyse the importance of the increased housing wealth in terms of the consumption and economic boom in Ireland.

3. A First Look at the Data

Figures 1 and 2 show the trend in nominal and real Irish second hand house prices from 1970-2005 from the Department of the Environment's national average second-hand house price series.⁴ Over the period prices in nominal terms rose quite strongly, averaging close to 12 per cent, however these gains were significantly eroded by inflation and in real terms, house prices (deflated by the GDP deflator) rose by only 3.5 per cent on average per annum. In the period 1971-79 (see Table 2) nominal house prices rose by just 16 per cent on average per annum, but again the performance in real terms was significantly lower, rising by a little over 2 per cent on average per annum. In the 10 years from 1980 to 1989 nominal second-hand house prices rose by 6 per cent per annum but actually fell by 1 per cent in real terms. From 1994 to 2003 second-hand house prices rose by 16 per cent per annum in

⁴ Table 1 gives the precise definitions and sources of the data used in the paper.

nominal terms and more significantly by 12 per cent in real terms per annum.

Figure 1: Irish Second-Hand House Prices

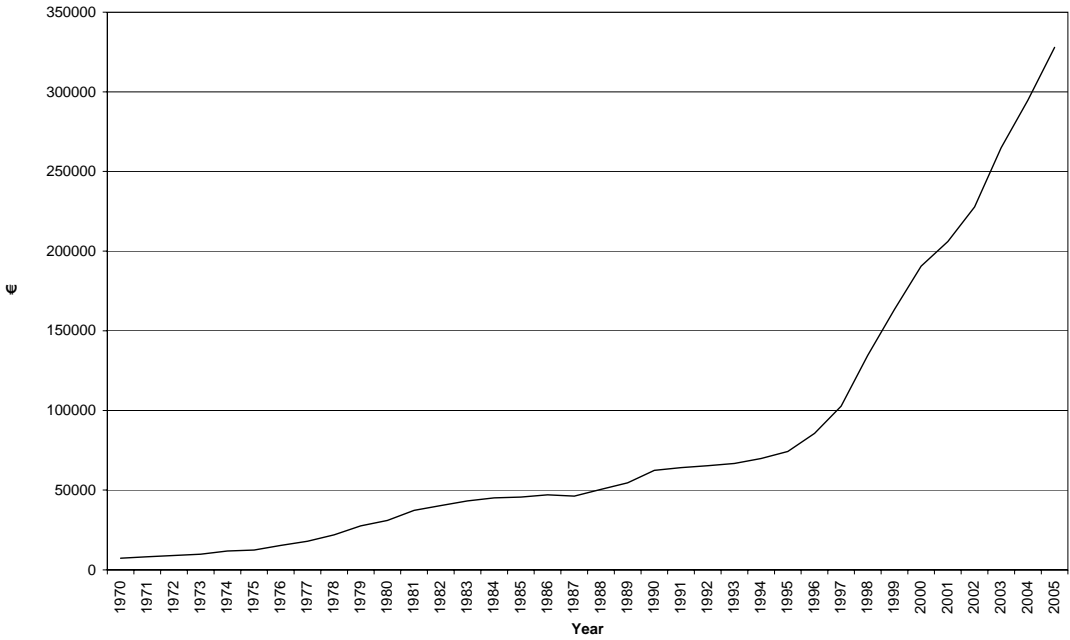


Figure 2: Irish Real Second-Hand House Prices

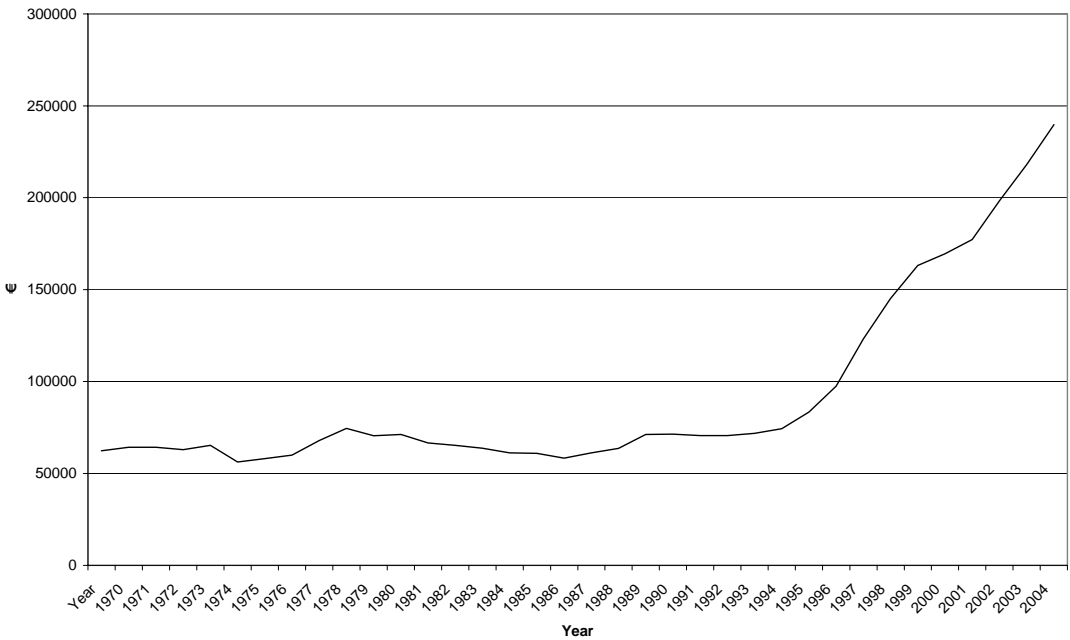


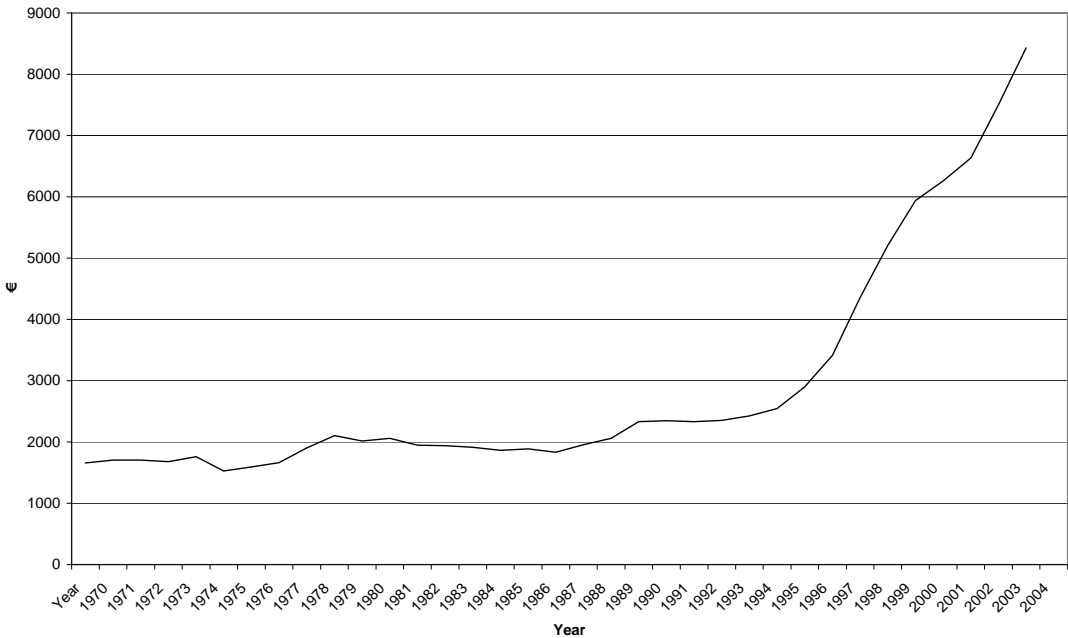
Table 2: Growth Rates

	1970-1979		1980-1989		1994-2003	
	Cumulative	Growth	Cumulative	Growth	Cumulative	Growth
	Growth	p.a.	Growth	p.a.	Growth	p.a.
	%	%	%	%	%	%
House Prices ¹ (nominal)	278	16	76	6	297	16
House Prices (real)	20	2	-10	-1	182	12
Consumption (per capita)	27	3	16	2	56	5
PDI (per capita)	33	3	10	1	58	5
Housing Wealth (per capita)	27	3	2	0	219	14

1. National price of second-hand houses.
2. Consumption, Income, house prices and wealth deflated by the consumption deflator (100 in 1995).

As can be seen from Figure 3, this boom in house prices, combined with a boom in house building, lead to a dramatic increase in housing wealth per capita. Between 1994 and 2003, housing wealth per capita more than tripled (see Table 2).

Figure 3: Housing Wealth per Capita



Figures 4 and 5 show that the increase in wealth coincided with a general boom in the Irish economy, with a cumulative rise in real GNP per capita of 70 per cent over the period 1994 to 2003. During this period, real personal consumption rose by 56 per cent.

Figure 4: Irish Real Personal Consumption Deflator: Personal Consumption Deflator, 1995=100

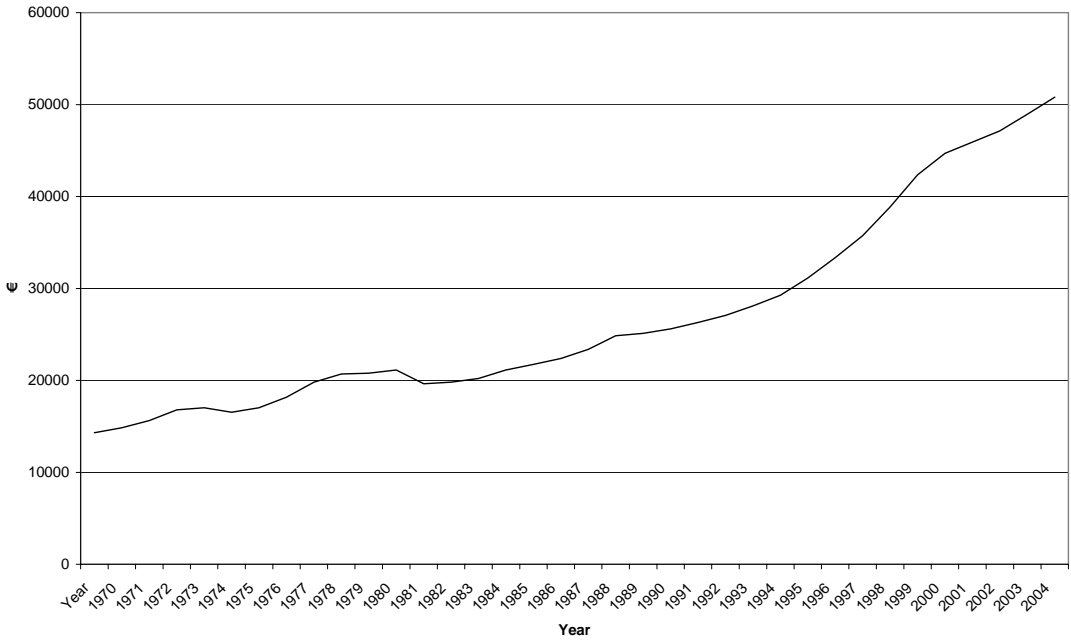
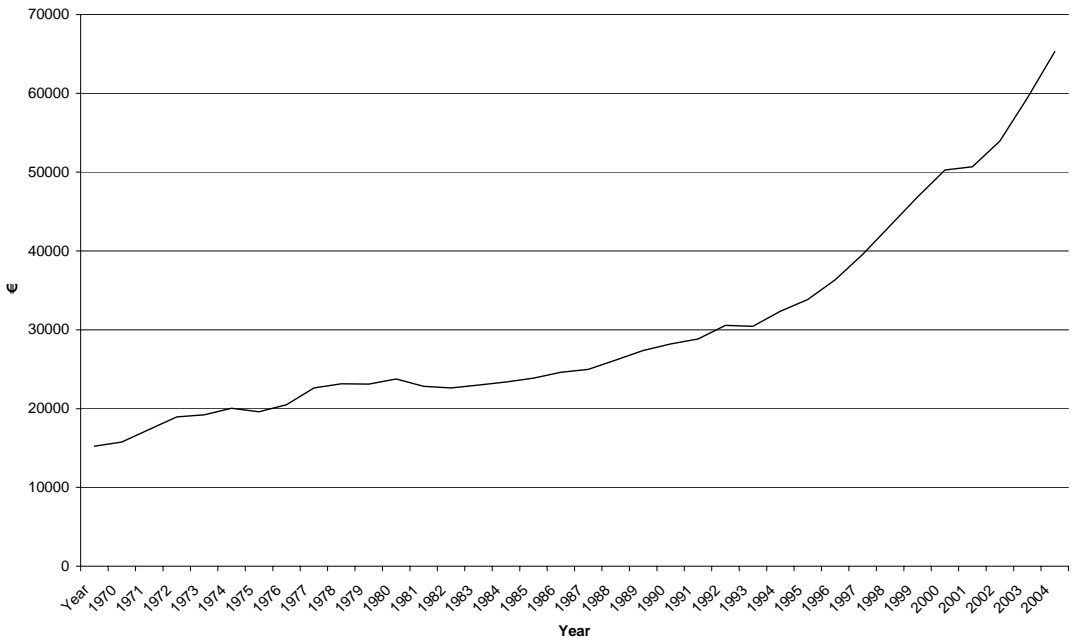


Figure 5: Irish Real Personal Disposable Incomes Deflator: Personal Consumption Deflator, 1995=100



This has raised inevitable questions about the contribution of the increase in housing wealth to the consumer and economic boom. The rise in house prices did not occur in isolation, as real personal disposable income growth was very robust, rising by 58 per cent on a cumulative basis. Thus, an obvious question is whether the rise in house prices played any meaningful role in explaining personal consumption growth or can real income growth unilaterally explain Irish personal consumption?

4. A Simple Econometric Model of Housing and Consumption

The standard framework for examining consumption, income and savings is the permanent income-life cycle hypothesis. The central tenant of the model is that consumption decisions are made in order to maximise utility over time. Furthermore, the level of consumption will only be affected by the permanent component of changes in income or wealth (financial and non-financial). Case *et al.* (2001) argue that consumers will distribute anticipated increases in permanent wealth over their life cycle and the marginal propensity to consume (MPC) out of wealth will be the same for all sources of wealth. There are, however, reasons why the MPC could be different for housing wealth than for other forms of wealth. First, if an accumulation of housing wealth were deemed to be temporary, then a rational agent would refrain from consuming it. Second, housing wealth could be used for investment purposes. Third, a bequest motive may induce individuals to keep property holdings intact until death in preference to financial assets. More generally, there could be an emotional dimension to the ownership of a family home that is not present for other forms of wealth. All of these effects would lead to an MPC from housing wealth that is lower than the MPC for wealth in general.

The basic strategy is to estimate a model similar in structure to Case *et al.* (2001). In essence we run a regression of consumption on disposable income and the value of the housing stock. All variables are in real per capita terms and as defined in Table 1.⁵

⁵ We also tried adjusting personal disposable income to explicitly exclude income arising from property. However, the results are the same as using the usual NIE definition and we do not present them here.

Table 1: Data Sources and Construction

Variable	Definition	Construction /ESRI Mnemonic
PC_nom	Nominal Private Consumption	B0501
PC_real	Real Private Consumption	B0601
PDI_nom	Nominal Personal Disposable Income	B0907- B0909
HSTOCK	Housing Stock	HSTOCK3
GNP	Real GNP	B0422
PSECN	Average national price of second-hand houses	PHOLD
P	Consumption Deflator	PC_Nom/PC_real
Int ⁴	Long-term interest rates	RGL
GC_nom	Nominal Government Consumption	B0502
POP	Population	NT
POTY	Potential Output	HP Filtered GNP
PDI	Real per capita personal disposable income	(PDI_Nom)/(P*POP)
GC	Real per capita government consumption	GC_nom/(P*POP)
HWEALTH	Real per capita housing wealth	HSTOCK*PSECN/(P*POP)
CONS	Real per capita private consumption	PC_real/POP
Real_i	Real long term interest rate	Int-(lnP _t -lnP _{t-1})

1. This data from ESRI Databank but supplemented for 2003 using NIE from CSO, Dublin.
2. This data from ESRI Databank but supplemented for 1970-74 using data from Department of the Environment, Dublin.
3. Second-hand house prices are not available 1970-73 so we use data extrapolated back from the 1974 observation using the growth in the price of new housing.
4. Short-term interest rates are available only since 1975.
5. HSTOCK3 is the estimated stock of permanent dwellings. Using houses completed in year and benchmarked on Census 1991, 1996 and 2002.

Table 3 shows the results. The first column presents the results of a simple OLS regression of consumption on income, interest rates and housing wealth. (Note that the numbers in parenthesis are t-statistics of the significance of the variables.) As can be seen, housing wealth turns out to be statistically insignificant. The p-value generated by a t-test of the null hypothesis that housing wealth has no effect on consumption is 0.34 indicating that the null hypothesis that housing wealth has no impact on consumption cannot be rejected at the usual significance levels.

The results in column 1 show that interest rates have positive and statistically significant effect on consumption. This is implausible and may suggest that the estimates are biased. This could be so because of the presence of stochastic time trends. If all the variables are increasing over time, the OLS may capture this rather than any true causal relationship between them. Figures 1-5 suggest that the main variables are indeed trending up. This is confirmed by formal testing of the three variables for unit roots. We cannot reject the presence of a unit root in any of the three variables

at the usual significance levels.⁶ One way to take account of integrated regressors is to include lags of the variables in the regression.⁷ This we do in the second column of Table 3.

Table 3: Econometric Results

	(1) OLS 1970-2003	(2) OLS 1971-2003	(3) IV 1972-2003	(4) IV 1972-1994
Intercept	-247.88 (1.14)	-287.56 (1.17)	140.42 (0.34)	-138.42 (0.36)
CONS _{t-1}		0.31 (1.42)	0.20 (0.62)	0.45 (1.40)
PDI _t	0.95 (18.42)	0.76 (5.52)	0.65 (2.50)	0.77 (2.60)
PDI _{t-1}		-0.07 (0.43)	0.06 (0.25)	-0.26 (1.39)
HWEALTH _t	-0.07 (0.96)	0.16 (0.94)	0.63 (1.77)	
HWEALTH _{t-1}		-0.28 (1.72)	-0.71 (2.17)	
Real Interest _t	18.58 (2.39)	8.66 (0.82)	-28.60 (1.01)	19.40 (1.25)
Real Inteterst _{t-1}		8.70 (0.71)	-46.99 (1.68)	-1.39 (0.09)
R ²	0.99	0.99	0.99	0.98
p-value from Test of MPC of HWEALTH = 0	0.34	0.11	0.45	-

1. Dependent variable is consumption.
2. All variables in real per-capita terms.
3. Absolute values of t-Statistics in parentheses.
4. Instruments are: Real_{i,t-1}, GC_t, GC_{t-1}, POTY_t, POTY_{t-1}

The coefficients on interest rates remain positive but are now insignificant. More importantly for our purposes, it is clear that there is no change in the basic result: most of the change in consumption is explained by changes in income. The coefficient on current housing wealth is insignificant whereas the coefficient on lagged housing wealth is borderline significant (p-value of 0.1).

A test of hypothesis that the long run MPC out of housing wealth is zero is implemented as a Wald test of the hypothesis that the sum of the coefficients on housing wealth are zero. This

⁶ Specifically we perform Augmented Dickey-Fuller tests with two lags in the testing regression. The resulting t-statistics are 1.02 for CONS; 1.49 for PDI; and 2.10 for HWEALTH. All are greater than the critical value at 10 per cent significance level, which is -2.62.

⁷ If the data is co-integrated then, Equation (1) in Table 3 constitutes an estimate on one of the co-integrating vectors. A test of the residuals from this regression gives an Augmented Dickey Fuller t-statistic of -4.98. This allows us to reject the null hypothesis of no co-integration at any significance level greater than 0.01. This test uses critical values reported in Hamilton (1994) p. 766. This suggests that the consumption is co-integrated with income and interest rates but not HWEALTH (as its coefficient is insignificantly different from zero).

produces a p-value of 0.11. Again we cannot reject the hypothesis that housing wealth has no effect on consumption – albeit a marginal rejection in this case.

These results stand in contrast to results for other countries. McCarthy and Steindel (2007) note that estimates using aggregate data tend to produce estimates of the MPC of above 0.05 for the US. In a similar vein, Case *et al.* (2001) found an average MPC for western countries of 0.11 using aggregate data.

Engelhardt (1996) found that there is an asymmetry in the consumption and saving behaviour of households and that consumption reacted more when house prices were declining than when prices were rising. Disney *et al.* (2002) found the opposite for the UK. We tested for asymmetry by taking the regression in column 2 and adding to it, a dummy set equal to one if growth in wealth was positive. It turned out that this dummy was insignificant (p-value of 0.12) indicating that asymmetry was not important in the Irish case.⁸

Note that, in column 2, the sum of the coefficients on housing wealth is negative, implying that increasing housing wealth *reduces* consumption. This does not seem a plausible result. This may suggest that the estimates are inconsistent due to the presence of simultaneous equation bias. Consumption is a function of income. But aggregate consumption is a component part of GDP, which in turn is the major determinant of PDI, so that income is also a function of consumption. Failure to take account of this circular relationship will bias not only the estimate of the income coefficients but also the estimates of the MPC out of housing wealth. Similarly, housing wealth itself is affected by GDP and it could be an indirect function of consumption also. In order to control for these potential biases we re-estimate the model using Instrumental Variables in the third column of Table 3. For instruments we have the lagged values of all variables and, in addition, current real government consumption per capita, potential GDP per capita and lagged real interest rates. Standard tests suggest these are reasonably good instruments.⁹

The results of the IV estimation are little different from the simple model: the current housing wealth variable is insignificant at the 5 per cent level (p-value of 0.08) while the lagged wealth is

⁸ The results of this regression are available on request. Of course, the insignificance could reflect the fact that there were only 9 years during the sample when housing wealth actually declined.

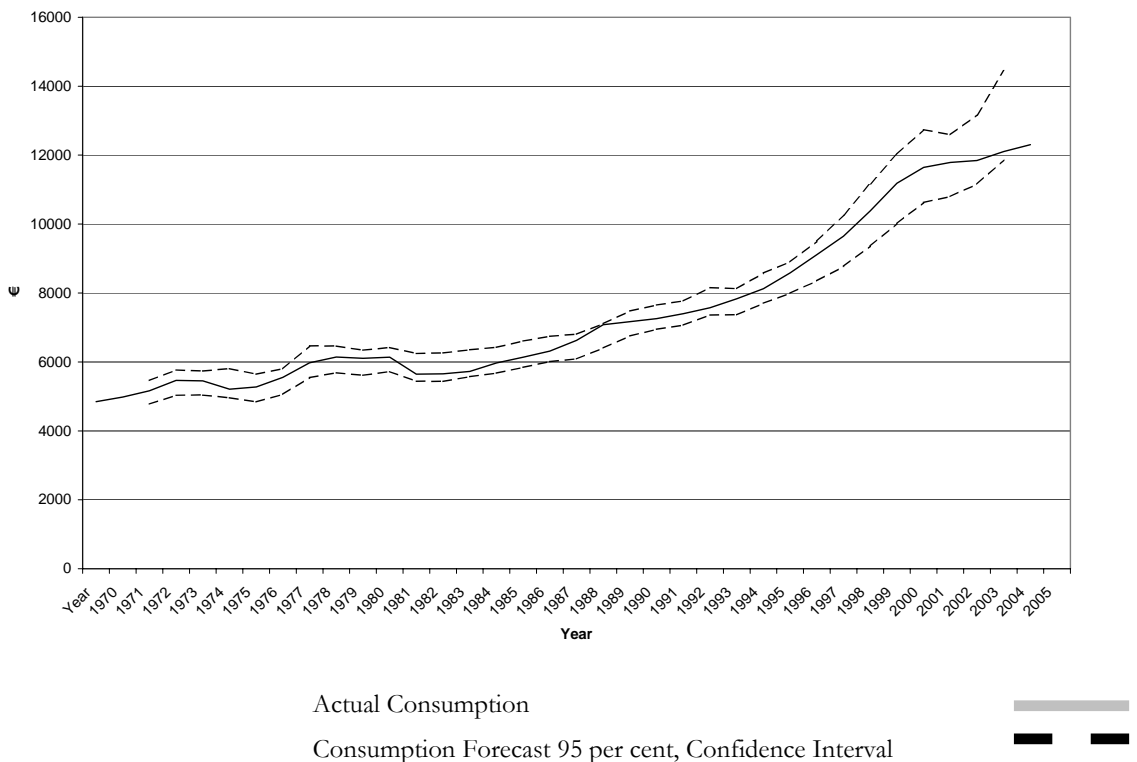
⁹ The regression of the endogenous variables on the instruments yields a R-squared of 0.98 for PDI and 0.98 for HWEALTH. However, F-test of the exclusion of GC, POTY, Real_i and their lags from this regression is 9.01 for PDI, 7.82 for CONS and 8.45 for HWEALTH. Staiger and Stock (1997) suggest that a value above 5 is desirable.

significant (p-value 0.04). As before, we cannot reject the hypothesis that the MPC out of housing wealth (the sum of coefficients on housing wealth) is zero.

Finally, we run the IV regression of column 3 again, but this time on a sample ending in 1994. The idea here is that the Irish economy in general and the housing market in particular grew at unprecedented rates after 1994 (see Figures 1-5). This superior performance is almost certainly a temporary phenomenon and its presence may distort our estimates of the effect of housing wealth on consumption. By restricting the sample to a period of more reasonable growth, we would hope to capture the true underlying relationship between consumption and housing wealth.

In addition we drop the housing wealth variable from the estimation equation. Unsurprisingly, given the previous results, this does not change the R-squared or the other coefficients significantly. As can be seen from column 4, the restricted sample produces essentially the same results as before.

Figure 6: Actual and Forecast Consumption



We can use this model to create a forecast of what consumption would be given income in the years 1995-2005 and compare it with the actual outcome. We present a graph of this forecast in Figure 6, where the solid line represents the actual consumption that occurred

and the dotted lines represent the 95 per cent confidence interval for the forecast. As we can see, until 2002, actual consumption is entirely within, what is a relatively narrow, forecast region. This confirms that housing wealth data is of no use in forecasting or explaining the level of private consumption in Ireland. The level of consumption as it changes through time is explained almost entirely by movements in Personal Disposable Income. Even the consumption boom that occurred in the late 1990s and was coincident with a house price boom appears to have been entirely due to the dramatic rise in real personal incomes. Housing wealth appears to have had no effect.

5. Conclusions

The results of the model indicate that the increase in real personal disposable income explains the rise in real personal consumption and the addition of the housing wealth series does not provide any extra explanatory power. The implication is that the recent increase in housing wealth has not been used to fund personal consumption. In essence, the growth in real incomes caused both the increase in consumption and house prices. In theory this would imply that households in Ireland did not believe that the boom in house prices was a permanent addition to their wealth. However, this explanation is hard to believe given the duration and the extent of the housing boom within the Irish market.

Another possible explanation is that Irish households faced liquidity and credit constraints and were unable to access the positive equity that had begun to accumulate. Anecdotal evidence would indicate that the availability of mortgage equity withdrawal has only become more widespread in Ireland in recent years, while it has been a common feature of the UK housing market for 15 years or more. Furthermore, anecdotal evidence would suggest that the vast bulk of any equity withdrawal that has occurred in the Irish market has been used for residential investment purposes (e.g. providing house deposits for children, extensions to existing properties etc.) rather than for personal consumption purposes.¹⁰ Unfortunately, data are not published in Ireland that can identify the use of mortgage equity withdrawal and therefore it is difficult to be precise about its influence. Our suspicion, based on the anecdotal evidence, is that the latter of these reasons explains why the increase in housing wealth has not influenced personal consumption over the period under review. Further research is clearly required to confirm this.

In the short term, households may well alter their consumption and saving patterns if house prices fall but theory suggests that only a permanent fall in house prices will have a long lasting impact on consumption. Another caveat is that negative equity should only

¹⁰ McCarthy and Steindel (2007) suggest that this is true for the US also.

become a binding constraint on consumption if the servicing costs of the mortgage rise significantly and impact on household's personal disposable incomes. Initially, if house prices fell this would hit consumer confidence but over the longer term, if the servicing costs are not altered significantly, it should have no long lasting impact on consumption.

Furthermore, if households have not used housing wealth for personal consumption purposes to date then personal consumption would remain unaffected by a fall in house prices. This would imply that the recessionary effects of a decline in house prices would not be severe. However, this might be a bit simplistic as Engelhardt (1996) found that there is an asymmetry in the consumption and saving behaviour of households and that consumption reacted more when house prices were declining than when prices were rising. We found no evidence of such asymmetries in the Irish case.

Finally, it has to be borne in mind, that even if a decline in house prices does not affect the economy via the wealth channel examined in this paper, it may affect the economy in other ways. Kelly (2007) has shown that the Irish economy is unusual in having such a large level of housing construction. He suggests that any decline in the housing market could have a large negative impact on the overall economy via a direct reduction in investment and employment.

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PRESERVING ELECTRICITY MARKET EFFICIENCY WHILE CLOSING IRELAND'S CAPACITY GAP*

Seán Lyons, John Fitz Gerald, Niamh McCarthy, Laura Malaguzzi Valeri and Richard S.J. Tol

The public perception of electricity regulation focuses on price outcomes: are prices low or high, rising or falling, stable or volatile. However, the quantity and quality dimensions of electricity services also have important effects on societal welfare. Although electricity is essentially a homogeneous good, the services that deliver it may be differentiated in ways that are significant to users; in particular, by the reliability standard they deliver.¹ Ideally, we should choose the set of market arrangements that will deliver, both now and in the future, the preferred quantity and quality of electricity services at prices that are as low as possible.

Because electrical energy is costly to store and the lead-time for constructing new generation capacity is long in comparison to demand fluctuations, the key decisions affecting quantity and quality of electricity services are the mix and timing of investment in

*We received helpful comments on an earlier draft of this paper from an anonymous referee, Eleanor Denny, Una Nic Giolla Choille, Bob Hanna, Tanya Harrington, Fergal McNamara, Éanna O'Conghaile, Donagh O'Mahony, Iain Osborne and Paul Smith. Funding by the Energy Policy Research Centre of The Economic and Social Research Institute (ESRI) is gratefully acknowledged. Corresponding author: seán.lyons@esri.ie

¹ Consumers may also differentiate electricity by its source (e.g., carbon-neutral, non-nuclear) but that is not the focus of this paper.

different types of generating plants. The system should have an optimal mix of generating plants available to meet demand fluctuations without excessive risk of outages, and capacity should evolve over time in line with demand growth, all at the lowest practicable cost while maintaining incentives to invest.

In past decades, both the evaluation of appropriate capacity levels and the formulation of the best response to it would have been accomplished through central planning mechanisms (Fitz Gerald *et al.*, 2005, p.57). The central planner would specify a level of capacity (for example, by calculating expected demand plus a reserve margin) thought sufficient to meet a defined standard for system reliability.

In contrast, a core premise of the new All-Island Market² is that the regulators should put a mechanism in place that will allow market forces to ensure that adequate capacity is built in an efficient and timely manner. Use of markets, rather than central planning, to deliver the required level of capacity has important advantages; in particular, it should help improve efficiency and lower prices in the long run. However, it also presents challenges for policymakers. Rather than the central planner setting capacity by fiat, investors must be given incentives to build the right sorts of generating plants at the right times and ensure they are available to generate power when needed.

The market's designers have gone to some lengths to create appropriate investment incentives for this purpose. Delivered through a system of administrative "capacity payments", the essence of these incentives is to increase certainty of revenues and allow generators who make plant available at times when capacity margins are relatively tight to earn revenues in such periods that are higher, and in some cases considerably higher, than their short-run costs. The expectation of additional payments at times of scarcity is intended to provide a signal for market participants to ensure that additional capacity is made available when it is required. The overall level of capacity payments is derived administratively from estimates of the tightness of the market and the cost of new peaking capacity.³

The performance of such a mechanism in practice depends crucially upon how market participants respond to the incentives it provides. Theory and international regulatory experience emphasise

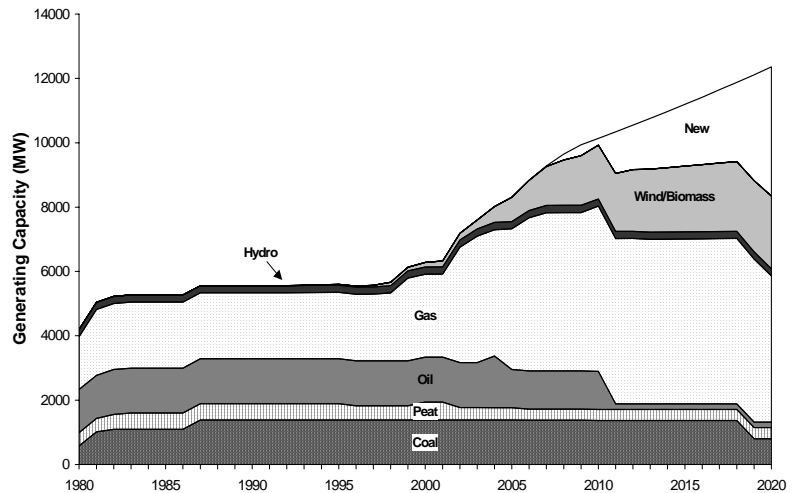
² The All-Island market is a single electricity market covering Northern Ireland and the Republic of Ireland, and it is scheduled to go live in November 2007.

³ Peaking plants display a relatively high variable cost of electricity generation, but fairly low fixed costs. Additionally, they may be switched on and off frequently without excessive cost. Plants suited to such intra-day switching are used to meet demand fluctuations efficiently. On the other hand, base load plants, with relatively high fixed and low variable costs, are optimised for use in a relatively continuous way. Mid-merit plants fall somewhere in between: ideally they produce for several hours, but can be shut down and restarted daily.

the role of credibility as a necessary condition for enabling investment incentives to operate effectively. By credibility, we mean that the state must be in a position to pre-commit that it will not change the rules of the game once irreversible investments are in place. If this sort of credibility is lacking, the market may be subject to under-investment (Blackmon and Zeckhauser, 1992).⁴

This is not merely a theoretical point. Continued increases in demand and planned retirement of old plant imply that significant new electricity generation capacity will be needed over the next seven years (Eirgrid, 2006). Figure 1 below illustrates the extent of future requirements for the All-Island market.

Figure 1: Electricity Generation Capacity in the All-Island Market



Sources: ESRI analysis of generation and transmission adequacy reports published by the System Operator for Northern Ireland and Eirgrid.

Note that the white “New” segment at the top of the chart grows rapidly from 2011 onwards. This represents incremental capacity that will be required to maintain the 2006 level of supply adequacy, allowing for expected demand growth, increases in wind power supply and current plans for plant retirements and introductions.

Indeed, capacity margins are already relatively tight. Forced outages⁵ among a small number of ageing generation units could sharply increase the risk of shortages if they were to coincide with peak winter demand (Malaguzzi Valeri and Tol, 2006).

⁴ Hold-up problems such as this have been studied extensively in the contracts theory literature. See Schmitz (2001) for a recent survey.

⁵ An unscheduled event, such as a technical failure, during which a plant is unable to make all or part of its planned capacity available to the market.

In this paper, we first describe the institutional arrangements used in the SEM to provide capacity incentives and discuss the role of credibility in allowing the market to work. We then examine three important influences on investors' incentives. First, we use a static model of the Single Electricity Market (SEM) to identify the signals the new market will send investors as to the types of generating plant that should be built. Second, we consider the effects of likely future developments in the market, in particular the rapid increase in wind generating capacity. Finally, we analyse some of the sources of risk faced by investors in generating plants, and we suggest that there are important differences in the incidence of the main sources of risk across plant types.

Our static comparison provides ambiguous results as to which sorts of plant should be most attractive to investors. Plant profitability in a relatively small market is likely to be cyclical due to the relatively large size of new plants in comparison to the total market. The growing importance of wind generation in the SEM suggests that the system will need more mid-merit and peaking capacity to help meet system reliability goals in future. We also note that plant retirements planned by the ESB in the next few years are concentrated in the mid-merit segment. Furthermore, peaking and mid-merit plants trading in the SEM should face significantly lower economic, market and credit risks than those faced by base load plants. However, plants that rely heavily on capacity payments are likely to face higher exposure to political and regulatory risk. If such risks are seen as significant, this could have the effect of distorting investors' choices as to which sorts of plant to build, as well as how much investment to commit.

To ensure that there is sufficient investment to meet Ireland's capacity needs and to allow the market to deliver an optimal portfolio of plant types, the SEM must be credible. The third section of the paper refers to direct government intervention in electricity capacity. Recent announcements suggest that this may continue in parallel with the development of the SEM. Such intervention could lead to problems in establishing credibility for the new market.

In the final section, we outline some ways in which the Irish government might support regulatory credibility, increasing societal welfare in the long term.

1.
**Incentives to
Supply
Adequate
Electricity
Generation**

In their design for the new SEM, Ireland's two regulators⁶ have chosen a mechanism that should allow the market to determine when, where and by whom new generation capacity will be built. The model is not completely devoid of state intervention, as discussed below. However, the logic of this approach is that markets will be better than central planning at building and maintaining generating assets that deliver adequate capacity at least cost. In this section, we discuss the features within the SEM that are intended to ensure that adequate capacity is supplied by the market. While this system may be the best option for Ireland, it presents considerable challenges, especially in the establishment and maintenance of regulatory credibility.

INSTITUTIONAL MEASURES FOR ENSURING THERE IS ADEQUATE CAPACITY

The SEM is an "integrated" market, by which we mean that all physical trading of energy is done through a mandatory pool, and it incorporates a **capacity payments** mechanism. This type of mechanism provides an administratively determined payment for each unit of generating capacity that is made available. Paid for by electricity users, these payments are intended to offset some of the fixed costs of generation, encouraging market participants to offer an efficient level of capacity despite the (parallel) imposition of limitations on wholesale prices.⁷ In the SEM the total annual pot of capacity payments is determined in the autumn and is fixed for one calendar year. The pot of capacity payments depends broadly on how tight the market is and on the annual cost of running a best-new-entrant peaking plant. Both these measures are revised once a year.

Several alternative market-based mechanisms are used internationally to provide efficient incentives for supply of electricity generation capacity; De Vries (2007), includes a useful discussion of them. We draw upon his analysis when summarising the main types below:

Energy-only markets allow wholesale prices to vary freely. Periods of scarcity are likely to lead to very high prices, which should act as a signal for potential entrants. However, few jurisdictions are willing to tolerate such extreme price volatility, and the combination of energy-only pricing with price cap measures is likely to lead to under-investment in capacity.⁸ Moreover, payoffs to investors in such a market are likely to be highly dependent on

⁶ The Commission for Energy Regulation in the Republic of Ireland and the Northern Ireland Authority for Utility Regulation.

⁷ In the SEM, prices are limited through bidding principles.

⁸ System reliability is thought to have public good characteristics, which implies that it would likely be under-supplied in the absence of state intervention (Joskow, 2006, p.8).

prices in a few peak hours each year, and these are likely to be difficult to forecast.

Strategic Reserve measures take a portion of capacity out of the market and earmark it for use by the system operator when reserve margins are tight. Their effectiveness depends upon the assumptions that the market will replace the assets placed in the strategic reserve and that a central planner can correctly identify the optimal size of the reserve and price at which it should be dispatched.

Operating Reserves Pricing places a similar informational burden on the system operator. In this mechanism, a volume of reserve capacity is purchased in daily auctions, alongside normal operating requirements. Because of the long lead time in building electricity plants, this mechanism may also be vulnerable to investment cycles, as prices signalling scarcity lead to excess entry, followed by periods of underinvestment when prices signal that capacity is adequate.

Capacity Requirements and related models focus on the *volume* of capacity rather than its *price* as in the models we have discussed thus far. Either the system operator or electricity customers (including retail electricity companies and large users) are required to buy sufficient capacity commitments forward to meet expected demand.⁹ The certainty provided by these forward purchases is intended to provide an incentive for efficient investment. These models have some attractive theoretical properties, but they rely on the presence of effective competition in the supply of capacity.¹⁰ In a small and concentrated market such as the SEM, a forward capacity auction might be vulnerable to exercise of market power by the largest players.¹¹

Although a capacity payments system is probably the most appropriate mechanism for Ireland at present, given that the ESB retains significant market power,¹² it is important to recognise some of its potential shortcomings. First, the system places an important component of price setting in regulators' hands. The level of these capacity payments is based on administrative estimates of the cost of building and maintaining a peaking plant. The incentive properties and the credibility of the SEM are thus dependent upon

⁹ Some variants, such as reliability contract models, employ call options rather than forward purchases of capacity. See e.g., De Vries (2007), pp. 27-29.

¹⁰ De Vries (2007) notes that international trade in electricity would erode many of the advantages of a system of capacity payments; because of limited and *de facto* unidirectional interconnection, this problem does not hold for Ireland.

¹¹ See Malaguzzi Valeri (2006) p. 9, for a discussion of capacity market power problems that have arisen in the PJM system in the United States.

¹² If structural change leads to strengthened competition in the future, this would improve the case for using some form of forward capacity market.

the regulator's ability to set an appropriate level of capacity payments.

Identifying the right level of capacity payments is not easy, and the information provided by market participants on this issue is likely to be one-sided. Both entrants and incumbents have a common interest in arguing for a formula that will provide the highest possible level of payments. Electricity users would prefer the payments (and hence retail prices) to be lower for a given level of capacity, but electricity users do not tend to respond to regulatory consultations.

REGULATORY CREDIBILITY AND PUBLIC OWNERSHIP OF GENERATION ASSETS

There is a second and less direct, but equally important, way in which government actions may affect the capacity payments mechanism. The Irish government retains an influence over a significant proportion of existing capacity through its ownership of the ESB. Public ownership of the largest electricity generation company may give rise to a temptation towards direct intervention in the market. This is partly because the transaction costs associated with direct intervention (e.g. through influence over investment or pricing decisions) may be lower, or more importantly may be perceived to be lower, when the state owns a generator than when it does not.

Why might a government wish to intervene in this way? There are many reasons, but two of the main ones are because the state has a direct stake in the success of the enterprise through the value of its shareholding (which for example might be slated for eventual privatisation), and the government may have conflicting objectives such as maintaining peaceful industrial relations in the short run and maximising long-run consumer welfare. Even if no direct intervention is intended, the government faces an additional hurdle when trying to signal to the markets that it will allow the market to operate without interference (Willig, 1994, pp.157-158; Boycko *et al.*, 1996, p. 318).

One advantage the SEM possesses when trying to establish credibility is its cross-border dimension. Establishing the market on foot of arrangements agreed between two governments and two regulators should make it more difficult for any one party to change the rules for short-term gain. Changing such an arrangement probably involves higher transaction costs than altering the rules within a single jurisdiction. In a related move, the Irish government recently removed issues affecting the SEM from the set of areas on

which the Minister may give policy directions to the CER.¹³ This change should also serve to increase the credibility of policy related to the market.

In parallel with the development of the SEM, the Commission for Energy Regulation (CER) has announced that structural reforms will be undertaken to improve the effectiveness of competition. Many previous studies have considered models for reducing the ESB's market power in generation by requiring the sale of some of its generating assets (recent contributions include Deloitte & Touche, 2005; McCarthy, 2005, and IPA Consulting *et al.*, 2001). In practice, structural change seems likely to rely not on a regulatory mandate, but on an agreement between the ESB and the CER that the firm will divest up to 30 per cent of its generation capacity before 2010 (CER, 2007).

The recent Energy White Paper also indicates that the government will switch the ownership of transmission assets from the ESB to Eirgrid as a means of "...enhancing competition and transparency and reducing costs" (DCMNR, 2007b, p.48). Such structural changes should reinforce regulatory credibility and strengthen competition in two ways. First, ownership of transmission assets by the generating company could encourage an external perception that there may be an incentive for subtle forms of qualitative favouritism between the two companies. Transfer of the assets should help remove any such perception. Although conduct regulation is used to prevent favouritism of this kind, the point of structural regulation is to limit the need for conduct regulation while controlling the exercise of market power. Second, to the extent that different levels of risk are associated with the transmission and generation businesses, borrowing costs based on pooled assets could facilitate implicit cross-subsidies to the higher risk business. Transfer of the assets (together with associated debt), should also eliminate this possibility.

The SEM needs to build credibility in order to operate efficiently in the long term, and this task is made more difficult by the absence of a track record for the market, the administrative challenges of setting capacity payments and the scale of state involvement in electricity generation. It may be helped by the pre-commitment associated with its cross-border dimension and by actions taken to reduce concentration and facilitate effective competition.

¹³ Ministerial policy directions are permitted under Section 7 of the Energy Regulation Act 1999; the amendment was made in Section 11(d) of the Electricity Regulation (Amendment) (Single Electricity Market) Act 2007.

We have earlier noted that Ireland faces a capacity deficit in the medium term. If the SEM performs as designed, it should eliminate this deficit by providing incentives for entry through the signal of high capacity payments at times when the system is under stress. In this section, we ask what sort of plant the SEM's incentives might be expected to attract.

MODELLING OF CAPACITY INVESTMENT OPTIONS

We start with a static comparison of alternative plant types, using a model of economic dispatch for the SEM. This is not intended to be a full project appraisal of the various options, but rather to focus on the main features of the investment decision. The cost of fuel used (at 2006 prices),¹⁴ an estimate of O&M costs and the capital employed by each sort of plant are all taken into account.¹⁵ Carbon prices are assumed to be zero. Plants earn revenue from sales of energy to the market and from capacity payments.¹⁶ Capacity payments have been distributed across the available plant using broad assumptions on availability and assuming no forced outages.

The Irish government has ambitious targets for the share of electricity to be provided by renewable sources in the coming years. On present trends, it seems possible that the market will meet or exceed these targets, principally through the construction of wind generation capacity.¹⁷ Increases in the use of wind generation are included in our modelling, based on projections in Eirgrid (2006).

We have estimated the model for two capacity scenarios: one representing the set of generating plants expected to be available at the start of 2008 and the other as at the end of 2011. We provide more details of the two scenarios below, but the main differences between them relate to the introduction of two new CCGTs, a substantial increase in the amount of wind capacity and planned retirements of other plants by the ESB.

For each scenario, we calculate the short-run return on capital employed (ROCE) by subtracting fuel and O&M costs from total revenue, including capacity payments, and dividing the result by the capital employed.¹⁸ This assumption allows us to make a static comparison between plant types, but it means we are not allowing

¹⁴ Prices were based on IEA averages for the first three quarters of 2006.

¹⁵ However, we abstract from ancillary services and the costs of start-up and ramping up and down generators.

¹⁶ We assume plants bid at fuel cost. This leads to conservative estimates of energy prices, since bids are likely to cover at least some other variable costs.

¹⁷ However, there is also a renewables target for all energy use. Renewables are relatively more expensive in other forms of energy use, particularly transport, so power generation may need to considerably exceed its own target.

¹⁸ Total revenue includes revenue from sales of energy and capacity payments, but omits ancillary services. The inframarginal rent component is also excluded from capacity payments, because it is not clear how it will be applied in the future.

for effects on a plant's profitability of subsequent entry to the market. As we shall see later, such dynamic effects may change this static picture considerably.

Table A below summarises our results for the 2008 scenario. The table compares the return on capital employed that would be earned by a marginal (10MW) new investment in a gas fired CCGT,¹⁹ which is suited to base load generation, compared to a similar investment in a gas fired OCGT,²⁰ which is better suited to mid-merit or peaking operation.²¹ This small increment to capacity is employed as a simplifying device to assist comparison of plant types, abstracting from the “lumpiness” of generation investments. In practice, generation investments have a much higher minimum efficient scale.²² To provide additional context, the results include estimates of return on capital for existing peaking plant and the (base load) Moneypoint coal plant. For the latter, we provide estimates both at historic cost²³ and assumed replacement cost.

Table A: Marginal Profitability of Different Plant Types under the SEM – 2008 Scenario

Plant Type	Plant Size	Utilisation Rate	Surplus over Operating Costs	Capital Employed	Return on Capital Employed (year 1)
	MW	%	€m	€m	%
New Marginal CCGT	10	91.00	0.614	7.03	8.7
New Marginal OCGT	10	8.20	0.228	4.74	4.8
Existing Peaker	52	0.23	1.670	20.00	8.4
Moneypoint historic	284	91.00	90.400	120.00	75.3
Moneypoint replacement	284	91.00	90.400	200.00	45.2

In the 2008 scenario, system capacity is relatively tight and we estimate the time-weighted average price to be about €64 per MWh. CCGTs have been popular among actual and potential entrants in the past. Under our assumptions, a marginal investment in CCGT capacity would make a return of 8.7 per cent. This figure is slightly higher than the assumed “Best New Entrant” (BNE) cost of capital (7.83 per cent),²⁴ but it is important to note that the returns shown in this table do not include likely revenue from sources omitted from our analysis (ancillary services revenue, the inframarginal rents element of capacity payments, ancillary services revenue and any element of O&M costs included in energy bids). In practice, the full

¹⁹ Combined-cycle gas turbine.

²⁰ Open-cycle gas turbine.

²¹ Recently the regulatory authorities of the SEM have decided that for technical reasons the theoretical best-new-entrant peaking plant will run on distillate oil and not gas (All Island Project, 2007). However, this does not affect our analysis.

²² For example, a new CCGT would normally generate about 400MW per hour.

²³ We take the €368 million cost of installing flue gas desulphurisation at Moneypoint as the capital value for the historic cost analysis.

²⁴ All Island Project, 2007, p. 21.

expected return for each plant type should therefore be higher than our estimates.

Moneypoint does better than a marginal CCGT, due to a combination of its low cost fuel (coal), zero assumed price of carbon and the use of historic cost in valuing its capital employed. The use of replacement cost would reduce Moneypoint's estimated return on capital, but we find that the plant would still make a substantial return if the treatment were changed to replacement cost. A change in the price of carbon could adversely affect Moneypoint's profitability; however, given 2006 fuel prices, Moneypoint would still be dispatched unless carbon prices climbed to over €50 per tonne.

Because the capacity payments system is designed to allow an efficient OCGT to make a normal return, we might expect that an incremental investment in this type of plant would receive net revenue close to its required cost of capital. However, as noted above, the returns shown in Table A cannot be directly compared to the BNE cost of capital. We carried out a simple off-model analysis that suggests the apparent shortfall for this plant type compared to the BNE cost of capital is approximately equal to likely revenue from sources not included in our model.

It is important to note that in this scenario the level of demand is high relative to the level of generating capacity in the market. Such scarcity conditions should have a pronounced effect on peakers, which run for more hours than they would if a substantial capacity margin were available. Therefore, the market should (and our model suggests, would) pay oil-fired peaking plants significantly more than their cost of capital under our 2008 assumptions.

Our second static scenario moves the clock forward to 2011 (see Table B below). By this time, we assume, all plant scheduled for withdrawal from the market in Eirgrid's 2007-2013 Generation Adequacy report will have gone. These withdrawals account for over 1,000MW of capacity assumed to be operating in 2007.²⁵ In addition, we assume that two new 400MW CCGT plants approved for construction by ESB and Bord Gais will have entered the market, along with an additional 1,000MW of wind generation capacity. Annual demand growth is included at the average of the high and low predictions given in the ESRI *Medium-Term Review*.

By 2011, the net effect of generation construction and withdrawals is to substantially widen the margin of available generation over demand. The time-weighted average price is predicted to fall to about €58 per MWh (from €64 on the 2008 scenario).

²⁵ Great Island is assumed to have closed prior to the 2008 scenario, and steam capacity from Tarbert and Poolbeg is assumed to be closed by 2011.

Table B: Marginal Profitability of Different Plant Types under the SEM – 2011 Scenario

Plant Type	Plant Size	Utilisation Rate	Surplus over Operating Costs	Capital Employed	Return on Capital Employed (year 1)
	MW	%	€m	€m	%
New Marginal CCGT	10	79.0	0.135	7.03	1.9
New Marginal OCGT	10	4.5	0.116	4.74	2.4
Existing Peaker	52	0.0	1.390	20.00	7.0
Moneypoint historic	284	91.0	77.600	120.00	64.7
Moneypoint replacement	284	91.0	77.600	200.00	38.8

The resulting decrease in the profitability of generation affects all plants to some extent, but the predicted impact is relatively limited for plants towards the bottom or top of the merit order. The results reported above for Moneypoint and existing peakers are qualitatively similar to those reported above for 2008.

However, the withdrawal of expensive²⁶ mid-merit capacity and its replacement by substantial new wind and CCGT capacity has the effect of reducing the predicted ROCE of a new marginal CCGT investment by about 7 percentage points (from 8.7 per cent to 1.9 per cent). The returns on a marginal investment in OCGT capacity fall too, but by less than 3 percentage points (from 4.8 per cent to 2.4 per cent).

The changing relative fortunes of these two plant types appear to reflect the shift in the SEM's plant portfolio away from mid-merit and towards wind and base load capacity. While the utilisation of an incremental OCGT is reduced compared to the 2008 scenario, falling from 8.2 per cent to 4.5 per cent, this change is modest compared to the fall in utilisation of an incremental CCGT (from 91 per cent, which is the maximum level allowed in the model, to 79 per cent). Indeed, older CCGTs are affected still more adversely by the increase in total capacity and changes in the plant portfolio. For example, the 2011 simulation shows Huntstown 1 and Dublin Bay/Synergen running at about half capacity.

Comparing the 2008 and 2011 scenarios illustrates three key points about the SEM. First, plant profitability in a relatively small market is likely to be cyclical. Since increments to capacity tend to be relatively large compared to the size of the market, new plants will tend to depress profitability when they are first brought on stream, at least until demand has time to catch up with the new capacity level. Given that new investment to date has focused on CCGTs, the profitability of older (invariably less efficient) CCGTs is most affected by such increments.

²⁶ In the sense of high marginal cost.

Second, the unprecedented rise of wind generation, if it continues, seems likely to put pressure on the profitability of CCGTs. This, combined with firm plans for two new CCGTs, suggests that the SEM may be oversupplied with base load capacity in the medium term. Some plants may even be pushed towards the limits of their cycling ability.²⁷ However, it is not clear whether the rate of growth in wind generation capacity can or will be maintained at this level.

Finally, investments in peaking and mid-merit capacity are likely to be less acutely affected by these changes in the SEM's capacity level and mix. Coal generation will remain profitable unless there is a substantial increase in the carbon price, together with a fall in the relative price of gas to coal.

EFFECTS OF INCREASING THE SHARE OF RENEWABLES IN GENERATION

Beyond the effects we have modelled, the rising share of wind generation has further implications for the maintenance of adequate capacity and for the relative attractiveness of other types of plants on the system.

Because the short- to medium-term availability of electricity generated from wind is constrained by weather conditions, wind plants normally require commitment of other types of plants as backup. In effect, if wind levels drop but demand remains high, other generation assets must be available to take up the slack, sometimes in a relatively short time.

Peaking and mid-merit plants such as OCGTs are generally better suited to a reserve role than CCGTs. As the share of wind on the system rises, the efficient mix of plants should thus also include a rising share of peaking and mid-merit plants relative to base load capacity.²⁸ The new SEM should facilitate this, because the demand for generation capacity *net of wind power* should become more volatile as the share of wind generation rises. This provides an additional reason that investment in mid-merit and peaking plant should be increasingly attractive over time. The modelling results given above do not include back-up requirements for wind power, so they are likely to underestimate the relative attractiveness of OCGTs.

²⁷ Switching on and off by a plant is known as cycling. Technical and commercial parameters limit the amount of cycling that is practical for a given type of plant; e.g. if CCGTs cycle too much they may emit excessive levels of NO_x.

²⁸ However, the relationship is not necessarily equi-proportionate, since the output from wind plants in different parts of the country is not perfectly correlated.

IMPACT OF DIFFERING RISK PROFILES ACROSS PLANT TYPES

The optimal choice of technology for a new plant is sensitive to several uncertain parameters. Some of these parameters are largely exogenous, such as prices of carbon and various fuels. Others are endogenous, such as the extent, type and timing of competing plant entry. Up to now, we have assumed that investors can be certain about the payoffs from generation investments, given expected market structure and demand. In the remainder of this section we relax this assumption.

In particular, how does the exposure of each plant type to various sources of risk affect its attractiveness as an investment? The main risks associated with a new plant investment can be categorised between market and economic risks (e.g. fuel prices, demand growth and volatility, interest rates, labour costs, carbon prices); operational risks (achievable availability levels, unplanned outages); credit risks (depending upon contractual arrangements with energy customers) and political/regulatory risks (stability of the capacity payments system, changes to the Best New Entrant cost assumptions).

To the extent that there are significant differences among the risk profiles of plant types, changes in the perceived magnitude of particular sources of risks may alter different plant types' relative attractiveness.

Given the design of the SEM, base load (e.g. CCGT) investment is likely to be more exposed to market, economic, operational and credit risk, whereas mid-merit or peaking plant investment is more exposed to political and regulatory risk.

To see why, note that each plant type derives its revenue from two sources: sales of energy through the electricity pool and administrative capacity payments, but the relative importance of these two sources varies by plant type. Table C below shows the share of total revenue each plant type is expected to earn from capacity payments, based on our modelling results with (as before) the expected population of generating plants in 2007 and 2011.

Table C: Regulatory Risk Profiles of Different Plant Types under the SEM

	Scenario	Plant Size	Total Revenue	Capacity Payments Revenue	Share of Revenue from Capacity Payments
			€m	€m	%
Marginal CCGT	2008	MW 10	5.50	0.500	8.9
	2011	10	4.40	0.400	9.8
Marginal OCGT	2008	10	1.20	0.500	42.0
	2011	10	0.80	0.400	55.0
Existing Peaker	2008	52	2.70	2.500	93.7
	2011	52	2.30	2.300	100.0
Moneypoint	2008	284	152.90	13.800	9.1
	2011	284	142.40	15.100	8.8

A new CCGT is expected to earn over 90 per cent of its revenue from sales of electricity under the SEM. Generating this energy requires fuel and carbon inputs, and are reduced to the extent that unplanned outages occur or the plant is otherwise unavailable. Credit risk could arise if the plant's output is sold through long-term contracts. Thus a plant of this type has significant exposure to economic, market, operational and credit risks. In contrast, a peaking plant runs only rarely and uses little fuel (and emits little carbon). Because peakers run much less frequently than other plants, they may also be less vulnerable to operational risks. An unplanned outage would be costly for such a plant if it occurred at a time when the plant would have been dispatched (when prices are high), but if the risk of such breakdowns is more evenly distributed over time periods, the plant's revenues should be less vulnerable to unplanned outages than those of plants that run more continuously.

If these were the only risks faced by a plant investment, peaking and mid-merit investments should be more appealing than base load investments if expected rates of return for the former were at least as high and investors were risk averse.

However, the incidence of political and regulatory risk is probably quite different from the risk types discussed so far. In the SEM, the level of capacity payments seems more acutely exposed to political and regulatory decisions than energy revenues are. Through the bidding principles, energy revenues will be limited to a level associated with the variable costs of a marginal plant, and it is hard to see how a regulator could reduce them significantly from such levels. Maintenance of the capacity payments regime, in contrast, relies on political support and on the credibility of administrative decisions about quite technical parameters, in particular assumptions about Best New Entrant costs.

Base load plants like CCGTs and Moneypoint, which in any scenario earn most of their revenues from energy, would be least affected (in relative terms) if capacity payments were to change. A marginal investment in OCGT capacity would feel a substantially stronger effect from changes in capacity payments, with about half of its revenues depending upon the mechanism. Peakers earn almost all of their revenues from capacity payments when there is adequate capacity, but even when capacity is tight (as in our 2008 scenario), the vast majority of their revenues still come from this source.

If the governments or regulators were to intervene in a way that removed or reduced capacity payments after an investor had already built a plant, some of the revenues the investor expected might not materialise. Actual returns would then be lower than those expected at the time of investment. If this risk is material, investors will take it into account when deciding whether, how much and what type of investment to commit.

Taken together, our results on investment incentives suggest that the SEM design will deliver rates of return on new generating capacity that should be sufficient to attract new entry, provided the market arrangements are seen as credible. The mix of plant that it favours is less clear, depending partly on dynamic factors we have not modelled fully here and partly on the strength of regulatory credibility that accompanies it.

In the next section we discuss a second strand of government policy towards electricity market capacity that may also have implications for regulatory credibility and the future development of electricity generation capacity.

3. Direct State Intervention in Electricity Capacity

To achieve the best long-run outcome, the SEM's regulators need to ensure that the capacity mechanism accommodates a set of strategies by all players (incumbents, entrants, government) that will lead to the highest possible societal welfare. These strategies must also be incentive-compatible for each participant. For example, if the mechanism was designed to deliver too little capacity and shortages would result, it would not be credible to assume that government would refrain from intervention.

Although the SEM includes mechanisms that should bring electricity capacity into line with demand, recent policy developments might be interpreted as suggesting a lack of confidence in its speed or efficacy. As we will discuss in the next section, the government and regulators may wish to take actions to counter this impression and thereby reinforce the credibility of the SEM.

Our main source of concern is the Irish government's apparent intention to establish a new parallel capacity acquisition mechanism. In the recent White Paper, the government sets out seven steps it will take to "[ensure] that generation adequacy margins are improved..." Some of these steps are complementary to the SEM, including actions to improve provision of information and site availability. However, two steps may be read as alternatives to the SEM, or at least to anticipate its possible failure to deliver adequate capacity:

- *CER and EirGrid to facilitate and oversee the competitive provision of additional mid-merit/flexible generating plant of at least 240MW over the next 12-18 months to address demand and capacity constraints in the immediate term. This will also contribute to a more balanced power generation portfolio in support of competition and the growth of wind energy on the system;*
- *EirGrid and CER to plan for the undertaking of a fast build option over the next 12 months should this be warranted for*

*generation security of supply reasons and the ownership and operation of such plant will be awarded by competitive tender.*²⁹

While no further details of these planned initiatives were provided, one gets the impression that the government is contemplating a second capacity-setting mechanism to operate alongside the SEM. From the wording used in the White Paper, this might involve construction of a strategic reserve (an option mentioned earlier in this paper).

Whether or not the parallel mechanism is intended to be a strategic reserve or some other way of boosting system capacity, the possibility that it will be employed is likely to affect investor behaviour under the SEM. In particular, investors will place less confidence in the likely future returns available through the SEM if they believe that government might construct alternative capacity, particularly if it is to be remunerated through some separate mechanism.

Suppose, for example, that the new mechanism involved building a significant amount of mid-merit or peaking capacity through a tender process and dispatching these plants outside the SEM (e.g. by the system operator, as in some strategic reserve systems). This could significantly lower the volatility of residual demand for those in the SEM and thereby affect the distribution of capacity payments available through it. Once the new mechanism was in place, the government might also be tempted to put downward pressure on the sum of money made available through the capacity payments mechanism, since the capacity problem would have been “solved”.

We do not suggest that this is what the government actually intends to do, but leaving its intentions unclear poses a significant risk to the credibility of the SEM.

A second more general area of concern arises from potential uncertainty over how the government views its role as a shareholder in the ESB, and in particular whether that role may affect its stance towards the SEM capacity mechanism.

We have earlier emphasised that state ownership of significant generating assets places an additional “burden of proof” on the government as it tries to establish regulatory credibility. A variety of measures have been taken that may help address this issue, including establishment of an independent regulator, use of a cross-border basis for the SEM, separation of distribution and generation businesses, and encouragement of the ESB to divest generation capacity and sites. However, credibility will ultimately depend upon

²⁹ DCMNR (2007b, p. 22).

whether the government is perceived to maintain a firm separation between its roles as owner of the ESB and regulator of the market. Nowhere is this more important than in decisions about construction of capacity, where firms are making commitments to long-term capital investment.

There is a recent example of how perceptions about the state's two roles may become entangled. In January 2007, the Irish government announced that it would permit the ESB to build a new power station at Aghada, Co. Cork (DCMNR, 2007a). This move was long in preparation, and it may well be justified. As the largest generator in the country, it is to be expected that the ESB would wish to continue to invest in capacity, and state support for such investment may be appropriate as long as the competitive playing field is level and the state is investing in the expectation of receiving commercial returns.

However, part of the stated rationale for government approval of the Aghada investment was to help meet an expected shortfall in Ireland's electricity generation capacity from 2009 (DCMNR, 2007a). This gives the impression that the government's decisions as shareholder are linked to its actions on capacity (which under the SEM should be firm-neutral regulatory matters). Even though this particular decision came before activation of the SEM, it might have been better for the announcement to emphasise that future capacity requirements are expected to be met through the incentives provided by the SEM.

4. Implications for Future Policy

There is a valid choice to be made between a centrally planned system and one that relies on market forces to ensure that there is adequate electricity capacity. We consider that the broad model selected for the SEM is the better choice because the market should deliver lower cost supply in the long run, but in principle either approach could deliver adequate capacity.

However, the worst possible outcome would be one in which the state intervenes over time to manage capacity levels, and the fact of this intervention undermines the credibility required to operate a market-based SEM. Lack of competitive investment through the SEM would then provide a rationale for continued state intervention, leading to a high intervention, low competition equilibrium. This might even be worse for electricity users than if the system was based on central planning in the first place. Additional inducements would probably have to be offered to firms providing capacity outside the SEM, and in the presence of barriers to entry, the existence of two mechanisms could offer opportunities for strategic behaviour by those in the market (e.g. potential investors withholding commitments to extract better terms from the state). Moreover, capacity payments would still be paid at a level intended to attract new investment.

Our modelling results suggest that the capacity payments mechanism should be able to provide appropriate signals as to the timing and nature of required capacity. However, the signals the mechanism sends out concerning how much to invest and what types of plant to build are highly sensitive to a range of factors, including the extent of perceived political and regulatory risk, the existing mix of plant in the system (and hence the pattern of withdrawals) and the Best New Entrant cost assumptions.

The regulators may wish to consider what measures may be available to bolster their perceived commitment to the capacity payments mechanism. One option would be to pre-commit to a minimum level of capacity payments, or a fixed schedule, for a number of years – or at least specify a high hurdle for changing the previously announced capacity payments. This could help to reduce market uncertainty about expected revenues from this source, reducing the perceived risk of mid-merit and peaking plant in particular. A related option would be to pre-commit not to change the assumptions made about cost of a Best New Entrant plant for a specified period of time. As well as reducing regulatory risk during the period covered, this would also have the effect of slowing revenue reductions that might otherwise accrue due to technological change. If a highly efficient new technology were introduced, its lower costs would not feed through to capacity payments while the control was in place. This measure could transfer significant benefits from consumers to producers if technology were to advance rapidly, so its effects should be considered carefully before it is applied.

Credibility may also be adversely affected if government is seen as likely to intervene directly when signals for additional capacity investment are likely to be strong (i.e. when the risk of shortages, and hence levels of capacity payments, are high). We have concerns about the Irish government's apparent intention, mentioned in the White Paper, to establish a new parallel capacity acquisition mechanism. Little detail about these plans has been published to date. If a back-up capacity mechanism is to be established, it is vital that the government signal well in advance the conditions under which it will be activated and explain how its operation will affect those providing capacity through the SEM.

Measures such as these should complement policies directed at facilitating effective competition and encouraging demand-side responsiveness, with the ultimate goal of delivering adequate capacity at least cost.

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OWNER-OCCUPIED HOUSING COSTS AND BIAS IN THE IRISH CONSUMER PRICE INDEX

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Abstract

The treatment of owner-occupied housing costs is a recurring problem in the construction of consumer price indices, and there are competing methodologies. In the most widely-used Irish index, the Payments Approach, which attaches a weight to a term involving historical house prices and an interest rate, is used to measure these costs. It is argued that this has resulted in a substantial over-statement of inflation in recent quarters, and that the over-statement will continue for some time. The Irish version of Eurostat's Harmonised Index of Consumer Prices, recently running well below the CPI, is a more reliable guide. Few national statistical offices use the Payments Approach, and it is argued that the procedure used in Ireland should be reviewed.

1. Introduction

The rate of inflation in consumer prices is an important concern of economic policy, but its measurement is not straightforward and the construction of real-world price index numbers is beset with both conceptual and practical difficulties. Most national statistical

*School of Economics, University College Dublin. The author would like to thank, with the usual disclaimer, Alan Barrett, Peter Neary, Kieran Walsh, Rossa White, an anonymous referee, and participants at the April 2007 meeting of the Irish Economics Association, for helpful comments.

offices publish several alternative measures, and they can differ substantially. There is a tendency for one of the measures to predominate, and to be seen as ‘the’ rate of inflation. Where a measured inflation rate plays an economic policy role as, for example, a monetary policy target, or as the basis for escalator clauses in centralised pay deals, the methodology of index construction is critical and can have important consequences. A principal concern of the extensive technical literature is the accuracy of published indices as measures of the cost of living, that is, the cost of attaining a fixed living standard as prices of goods and services change.

There are well-known sources of potential bias¹ in fixed-weight indices of consumer prices when they are viewed as measures of the cost of living. These include substitution bias, which arises from the failure of a fixed-weight index to accommodate consumer response to relative price changes, as well as bias due to quality change and bias due to the introduction of new goods. Numerous studies conclude that published indices often over-state the rate of inflation, although some of the possible sources of bias (for example quality change) can in principle distort the measure below, as well as above, the ‘true’ rate of inflation in the cost of living.

The monthly Irish Consumer Price Index is conceived as a base-weighted (Laspeyres) index of goods and services prices, and thus it is not a cost-of-living index in the sense of Konus (1939), as the Central Statistics Office (2003) point out in their methodology note. In the terminology of Crawford and Image (2004), it is intended as a COGI (cost of goods index), not a COLI (cost of living index), and therefore ignores the consumer’s opportunities to substitute as relative prices change. The same is true of the Irish and other national versions of Eurostat’s HICP (Harmonised Index of Consumer Prices).² But the most troublesome feature of the Irish CPI, and it is argued below the most significant source of potential bias, lies in its inclusion of a measure of cost for owner-occupied housing. The HICPs for the EU member-states exclude this item altogether.

While fixed-weight indices, such as the Irish CPI or the family of HICPs for EU member countries, may lack a ready interpretation in economic theoretical terms (Afriat (1977) calls them ‘answers without questions’), they are the most widely used measures of the general price level, of inflation, and as the reference for the

¹ The term ‘bias’ is routinely used in the index number literature to denote departures in a measured index from some specified conceptual standard. Its use here is not meant to connote any intent, or calculation error.

² There is thus a potential substitution bias with either index. Substitution bias in the Irish CPI for the period 1985-2001 has recently been studied by Somerville (2004) and in the aggregate consumption deflator for an earlier period by Irvine and McCarthy (1978).

indexation of social expenditures, pensions, coupons on index-linked financial instruments and for price escalation in regulated industries. Somerville (2004) lists numerous examples where Irish CPI data has been invoked in policy discussions about wage negotiations and during the annual budget-time reviews of the rates of payment under the various social welfare schemes. In early 2006, the public debate surrounding the national pay negotiations focused exclusively around recent twelve-month rates of change in the All-Items CPI, and there have been calls during 2007 for upward revision of the pay deal in the light of a recent surge in the 12-month CPI inflation rate. The Irish variant of Eurostat's HICP, recently registering much lower twelve-month inflation rates than the CPI, is rarely invoked.

The HICP for Ireland covers a subset of CPI components with an aggregate weight totalling 89 per cent of the CPI. The principal exclusion is mortgage interest, along with building materials, motor taxation and some other small items.³ The treatment of owner-occupied housing in indices of consumer prices, in either a COGI or a COLI framework, has been controversial, and there is no uniformity of practice internationally. An extensive recent survey is Poole *et al.* (2005). Following Diewert (2003), there are four principal approaches, as follows:

- (i) The Acquisitions Approach, which covers only net acquisitions by the household sector in the current period, and typically attaches a low single-figure weight to a contemporaneous house price index. This is similar to the approach adopted for other durable goods such as automobiles, and in effect ignores the fact that some goods are durable, and yield a flow of consumption beyond the period of purchase.
- (ii) The Payments Approach, of which the Irish CSO's methodology is an example. This attaches a weight, based on household spending patterns in a base period, to the out-of-pocket expenses incurred by owner-occupiers, principally mortgage interest in Ireland.

³The HICPs for all EU countries exclude owner-occupied housing costs altogether and, since the Eurozone HICP is the inflation variable monitored by the European Central Bank, this exclusion raises the issue of whether and how asset price inflation is to be catered for in the target inflation measures used by monetary authorities. The EU's statistical agency, Eurostat, has initiated studies on the issue, and some procedure for incorporating owner-occupied housing costs into a revised HICP methodology is expected to be agreed in due course. Pilot studies are being undertaken in several member-states, and it would appear that some variant of the acquisitions basis is the most likely to be chosen, that is, a weight would be computed and attached to an index of *contemporaneous* house prices.

- (iii) The User Cost Approach, which computes end-period value less starting value, plus maintenance costs, depreciation or taxes during the period.
- (iv) Finally the Rental Equivalence Approach computes the flow of service to owner-occupiers from data on rental levels in the market. This approach, used amongst others by the US Bureau of Labour Statistics in computing the US CPI, typically attaches a high weight, 20 per cent or more, to housing.

Of the four approaches, Rental Equivalence fits most easily into a true cost-of-living framework, and the US CPI is explicitly designed to be a COLI. Theoretical objections to the Payments Approach used in Ireland are principally that it includes an asset price which does not logically belong in an index measuring consumption prices, and that it includes an interest rate term, reflecting the cost of credit rather than the price of a good or service. On the other hand, the weight attached to the term is often small, and the potential impact on the overall CPI might be felt to be immaterial. We will argue below that this is a misperception, and that there can be circumstances where the Payments Approach, even with a small weight, can perturb the overall CPI by implausibly large amounts.

The Irish CPI measure of cost for owner-occupied housing is based on a combination of current *and* historical house price index numbers as well as current mortgage interest costs. The impact of the CSO's treatment of owner-occupied housing costs on the overall monthly CPI reading has recently become quite noticeable, and has been highlighted by White (2005). This paper argues that the measure employed by the CSO is arbitrary, and not widely employed internationally; is not consistent with the interpretation of the Irish CPI as a conventional fixed-weight Laspeyres index of goods and services prices; has materially overstated Irish inflation in recent quarters; imparts a cyclical component (which can be positive or negative) to the CPI which mirrors the interest rate cycle; and finally would continue to generate monthly CPI increases far into the future, even if all constituent prices, including not just goods and services prices but also house prices and interest rates, were to stabilise at current levels.

2.
Treatment of
Owner-
Occupied
Housing in the
Irish CPI

Table 1 shows the weights for each of the twelve categories of goods and services distinguished in the current (base December 2006) Irish All-Items CPI. Category 4 is broken down into two components, 4a which includes rents paid on the portion of the housing stock rented privately or from local authorities, and 4b, called 'mortgage interest'. This category 4b is the CSO's vehicle for including in the CPI some recognition of the fact that almost 80 per cent of the Irish housing stock is occupied by its owners. The CSO

calculates each month a weighted average interest rate based on returns from the principal mortgage lenders. This is applied to an estimate of the average mortgage debt outstanding, and finally the weight, updated every five years from the Household Budget Survey, of .0666 is applied. Item 4b, Mortgage Interest, rose 48 per cent in the twelve months to January 2007.

Table 1: Base Weights and Index Levels at January 2007, Irish All-Items CPI

		Weight %	12-Month % Change
1.	Food, Non-Alcoholic Beverages	11.74	1.8
2.	Alcoholic Beverages, Tobacco	6.05	5.5
3.	Clothing and Footwear	5.42	-1.5
4a.	Rents, Water, Electricity, Gas, Fuels	9.85	6.8
4b.	Mortgage Interest	6.66	47.9
5.	Furniture, Household Equipment, Maintenance	4.42	-0.9
6.	Health	3.15	3.4
7.	Transport	13.29	1.2
8.	Communications	3.42	-0.2
9.	Recreation, Culture	10.10	2.2
10.	Education	2.04	4.9
11.	Restaurants and Hotels	15.42	4.4
12.	Miscellaneous	8.42	1.6
	Total	100.00	5.2

Source: CSO.

The component corresponding to category 4b which goes into the All-Items CPI is

$$\text{Item 4b} = .0666 \times (\text{Mortgage Debt Outstanding}) \times (\text{Mortgage Interest Rate}) \quad (1)$$

This treatment can be thought of as defining the average mortgage debt as a ‘good’, and the interest rate as its price. The average mortgage debt outstanding is measured as a distributed lag on house prices going back 240 months (20 years). The All-Items Irish CPI can thus be expressed as the sum of a contemporaneous fixed-weight Laspeyres goods-and-services index with weight roughly 93.3 per cent and a component which is the product of a weight, a current interest rate term and a distributed lag on historical house prices. Thus

$$\text{Cit} = .9333 L_t + .0666 \sum_{w_{t-i}} H_{t-i} R_t, i = 0 \text{ to } 239, \quad (2)$$

where

L_t = a fixed-weight (Laspeyres) index of contemporaneous goods and services prices, other than the services of the stock of owner-occupied housing,

w_{t-i} = declining weights reflecting interest component of the annuity formula, assuming a 20-year variable rate mortgage,

H_{t-i} = a national index of house prices for month $t-i$,

R_t = contemporaneous average of the variable mortgage rate

The index thus has a memory, and the potential to vary even if contemporaneous prices (including house prices and the interest rate) do not. In effect, the quantity term is not fixed, unless house prices have been constant. To this extent, the Irish All-Items CPI is not a conventional 'snapshot' Laspeyres price index as commonly understood. It contains lagged quantity terms. The mortgage debt outstanding is computed as a sum, going back 240 months (20 years), of the historical index of house prices multiplied by the portion of the principal which remains outstanding under the annuity mortgage formula.

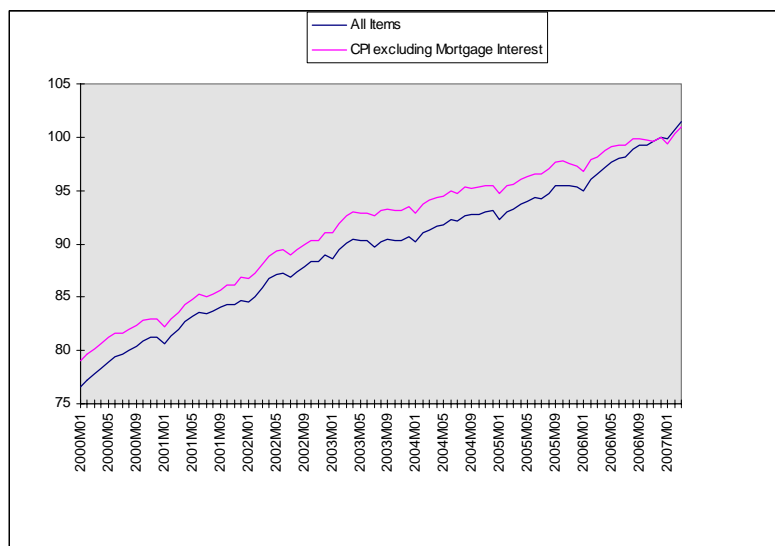
Thus mortgages from 20 years ago have a small weight for two reasons. House prices were much lower twenty years ago, and in addition, very little of the principal will still be outstanding. Each month, a fresh observation, corresponding to today's house price index and with the full loan amount outstanding, is added to the sum, while the oldest observation, corresponding to a much lower house price (national average house price is currently over five times the level of twenty years earlier) and with a tiny portion still outstanding, is deleted. Thus the amount of mortgage debt outstanding will, after a period of house price growth, have strong upward momentum and will impart this to the overall CPI. The CSO acknowledge that this happens even if interest rates do not rise. Eventually though the impact of a once-off jump in house prices peters out, since the weights attaching to the house price term decline fairly quickly, and ultimately to zero after twenty years. The scheme used by CSO at present assigns just under 50 per cent of total weight to the most recent five years, and almost 90 per cent to the most recent ten years.⁴ The potential for this formula to add upward momentum to the CPI is offset when mortgage interest rates are declining, but can be significant even at constant interest rates. But if both house prices and mortgage interest rates are rising, as has been the case through 2006 and into 2007, the CSO methodology will add substantially to the overall measure of CPI inflation.

The All-Items CPI rose 5.2 per cent in the twelve months to January 2007. If the single item 4b were excluded from the CPI calculation for the twelve months to January last, the increase would have been 2.7 per cent. That is to say, the category 4b, despite its small weight, has almost doubled the CPI measure over the period. This bias, if bias is the right way to describe it, is additional to the estimates of substitution and other biases commonly reported for fixed-weight CPIs. Bias from these sources of about 1.1 per cent

⁴ The author would like to thank CSO for making their detailed unpublished workings available.

was computed in the report of the Boskin Commission on the US CPI (Boskin, 1996) and there have been estimates in the 1 per cent zone in similar studies for other countries. Of course, the bias to the Irish index from the mortgage interest item is likely to be episodic. With house prices flat and interest rates falling, it would be negative, that is, it would reduce the CPI reading below that given by a conventional Laspeyres index. The net impact of the two components could also be small or even zero for long periods, as seems to have happened from 2001 to 2005, as the house price and interest rate components moved in opposite directions. But the recent experience in Ireland shows that, when a bias does emerge, it can be substantial, even with a weight below 7 per cent in the overall CPI. It should be noted that the December 2006 weights revision saw the 4b item rise from 4.6 per cent to 6.7 per cent, so whatever distortion is being created has been magnified by the revision. Figure 1 plots index estimates with and without the mortgage interest item 4b.

Figure 1: The CPI Since 2000, With and Without Mortgage Interest



The recent acceleration in the All-Items index is clear from the chart. The twelve-month rates of increase in both indices to January each year are shown in the next table.

Table 2: Twelve-Month CPI Inflation, With and Without Mortgage Interest

Twelve Months to	All-Items CPI	CPI ex Mortgages	Mortgage Impact
January 2001	5.2	4.1	+1.1
January 2002	5.0	5.5	-0.5
January 2003	4.7	5.1	-0.4
January 2004	1.8	2.0	-0.2
January 2005	2.3	1.9	+0.4
January 2006	2.9	2.2	+0.7
January 2007	5.2	2.7	+2.5

Note the negative contribution of the mortgage item during the 2001 to 2003 period, when ECB rates were declining, and the sharp upward impact during 2006. The pattern evident in the monthly figures for the early months of 2007, as rates continued to rise, suggests that the impact of the mortgage item in the twelve months to January 2008 will again be substantial, and the All-Items index could exceed the ex-mortgages index by as much as it did during 2007.

The divergences in inflation rates as measured by the HICPs of the Eurozone member-countries (which exclude housing altogether) have been extensively studied. Ireland's 'excess' inflation relative to the Eurozone (see Honohan and Lane (2003) has been notable, and a feedback loop through informal indexation to an upward-biased CPI is a possible explanatory factor.

3. Projecting the Future Path of the CPI

The CSO methodology in regard to the treatment of mortgage interest (category 4b) is to include in the Consumer Price Index an item which is the product of a distributed lag on house prices, the declining weights reflecting the annuity mortgage process, multiplied by a contemporaneous interest rate term. Before considering the issues raised by this approach, it is interesting to consider what would happen to the Irish index, with current (December 2006) weights, if all prices of goods and services, as well as house prices and the mortgage interest rate, were to be frozen at the current level. Conceding the CSO's point that the CPI is not intended as a cost-of-living index, it is fair to ask to what degree it behaves like a conventional Laspeyres price index, which is a (monthly) snapshot of goods and services prices with no internal dynamics. The conventional Laspeyres index is a straightforward product of fixed weights and (possibly) varying, but contemporaneous, prices. If prices are unvarying, a Laspeyres index should be constant, since the only other component is the fixed weights. But even with fixed prices, the Irish CPI would, given the history of house prices, continue to rise, and at a significant rate, for many years into the future.

Table 3: Future Path of the CPI with Constant Prices and Interest Rates

January of	Level of Item 4b	Level of All-Items CPI
2007	100.0	100.00
2008	110.2	100.67
2009	119.1	101.27
2010	126.8	101.78
2011	133.3	102.21
2012	138.7	102.57
2013	143.2	102.87
2014	146.7	103.10
2015	149.5	103.29
2016	151.7	103.44
2017	153.4	103.55
2027	157.4	103.82

The ultimate increase can easily be calculated. First fix the interest rate at today's figure. If the January 2007 house price is set at the current level for twenty years and the CSO's distributed-lag weights applied, the result is that the sub-index corresponding to 4b eventually rises by 57.4 per cent. Applying the 4b weight in the overall CPI brings the All-Items index up from 100 to 103.82 after twenty years, at which point it increases no further. Thus on average over the twenty years, the CPI rises by roughly 0.2 per cent per annum for no apparent reason: neither goods-and-services prices, house prices, nor the interest rate, have moved.

Moreover this effect is heavily front-loaded. The precise pattern depends on the actual history of house prices, but on the prevailing Irish data, will add 0.67 per cent in the first year, declining to about 0.2 per cent after eight years and dwindling away to very small amounts as the twenty-year horizon is approached. This is of course a reflection of the house price boom over the last decade.

Over the full 20-year period, the overall CPI rises 3.8 per cent, even though no price of a good or service has risen, and neither have house prices or interest rates. The magnitudes of the low 20-year-old house price numbers (weighted by the small amounts still outstanding under the annuity formula) which are being dropped from the calculation eventually catch up with the higher (and constant, by assumption) current numbers being added, and the process peters out. But in the early years, the CPI is biased upwards by more than half of a percentage point. The effect falls below one-tenth of a percentage point per annum only after eleven years. It should be noted that the Irish CSO re-bases the CPI every five years, so in reality the weights would not be unaltered for a twenty-year period. But they will be unaltered for the five years up to December 2011, and the main action is concentrated in this period.⁵

Over the twelve months of 2007, if there is no change to any price of a good or service, no change to house prices, and no change to mortgage interest rates, the All-Items Irish CPI will rise by about 0.67 per cent on these calculations. A conventional Laspeyres index would, of course, show no increase at all in these circumstances, nor would the Eurostat HICP for Ireland, which is a conventional Laspeyres index.

There is an additional problem. The current trend in interest rates is upwards, and the European Central Bank has been imposing quarter-point increases at three-month intervals. Should the ECB base rate increase by 1 per cent in the twelve months to January 2008, as appears likely at time of writing, this factor would raise the typical mortgage rate from about 4.50 per cent to about 5.50 per cent, and would add 1.48 points to the CPI, other things equal.

⁵ Index re-basing produces chain-linked indices and can introduce other biases, see Oulton (2007).

Added to the impact of house price history, the All-Items CPI seems set to rise by at least 2 per cent more over 2007 than the CPI excluding mortgage interest. Thus in the short term, the interest rate oscillations are adding more than the ‘memory’ effect, but it is reasonable to expect that, in the absence of a long-run secular trend in interest rates, they will reverse within a year or two. The ‘memory’ effect, though smaller, is more persistent (a twenty-year distributed lag), and would need a protracted house price bust to reverse itself.

There is an asymmetry in the treatment of house prices and interest rates in the CSO’s deployment of the Payments Approach: house price impacts are damped very heavily, but current interest rates enter with a bang. It should be clear that if house prices doubled in the next month, there would be a tiny impact on next month’s index. While the contemporaneous weight under the annuity formula is the largest, it accounts for only 1/85th of the total of the 240 weights. Thus if house prices doubled, the CPI impact in month 1 would be under one-tenth of a percentage point. It would take twenty years for the full impact to emerge. The immediate impact of just a quarter-point increase in the current interest rate would be about four times greater. The Payments Approach does eventually take the full increase on board, but does so very slowly, in contrast to the Acquisitions Approach, which (with no role for interest rates) transmits the full house price change contemporaneously.

If the mortgage rate were to increase from 4.5 per cent to 4.75 per cent, the 4b sub-index goes up immediately by 5.56 per cent and the overall CPI by 0.36 per cent, all other things equal. The same would happen on the way down, of course, so the CSO methodology imparts a cyclical component, related to ECB policy, to the Irish Consumer Price Index. Should there prove to be a long-term cycle in ECB interest rates, the cyclical pattern will be transmitted to the All-Items CPI. If ECB base rates cycle between say 2 per cent and 5 per cent (the lowest recorded to date has been 2 per cent, the highest 4.75 per cent, versus current June 2007 rate of 4 per cent), retail mortgage rates would oscillate between about 3 per cent and about 6 per cent, and the All-Items CPI would put on 6.67 per cent in total during the upswing years due to this factor alone, and lose it all again through the downswing. Some evidence of this kind of pattern (compounded with the upward momentum from house price history) is clear from the final column in Table 2.

Any Laspeyres index is likely to contain an upward bias for various well-known reasons: the Irish CPI is biased upward *compared to a conventional Laspeyres index*, given the recent history of house prices. The bias is substantial. In addition, the swings in interest rates contribute a cyclical component, currently upwards. The combination of the two is creating an impression of a rapid recent inflation in consumer prices, some of which is due to a real

underlying up-tick in goods and services prices, but most of it is due to a methodology for dealing with the costs of owner-occupancy which is not widely used internationally. The methodology is bound to produce this type of pattern given a recent house price boom, even if that boom is over, and given a cyclical upswing in interest rates, even if that upswing is likely to reverse itself in due course.

4. Discussion and Options for Index Revision

If the use of the Payments Approach made only a small difference as compared to alternatives, and bearing in mind that there are numerous other unavoidable sources of approximation in compiling a monthly price index, the choice of methodology for dealing with owner-occupied housing would be a minor matter. The principal practical problem created by the Irish CSO's use of the Payments Approach derives from two sources. The first, as is clear from the recent history of the index, is that it makes a considerable difference, despite the apparently small weight. The second is that the Irish CPI is routinely treated *as if* it were a cost of living index, and is invariably referred to in these terms in the media coverage of the monthly data release, notwithstanding the CSO's insistence that it is not designed to measure the cost of living. As a result CPI readings are regularly invoked (at least when they are trending upwards) by those seeking increases in wages and in transfer payments.

The twelve-month changes in the index rose substantially during the national pay talks in early 2006, and a further up-tick in the index through late 2006 and early 2007 has already stimulated demands for a revision of the agreement. While there is virtually no automatic indexation to the CPI (or to any other index) in the Irish public finance arrangements, given the highly centralised system of pay negotiation in the public sector and the tendency to take cognisance of the CPI in decisions on rates of transfer payments, the potential impetus to public spending growth is clear. Almost two-thirds of Irish gross current public spending consists of transfer payments or public service pay and pensions. The total of the two will be about €35 billion in 2007, so over- or under-indexation involves substantial amounts.

In their May 2003 methodology note, the CSO observe that the Payments Approach is used in three countries, Australia, Ireland and the United Kingdom. As it happens, the Australian Bureau of Statistics abandoned the Payments Approach following a CPI review in 1997, and they moved to an acquisitions basis (Woolford, 2005). The position in OECD countries is shown in the table.

Table 4: OECD Countries' CPI Treatment of Owner-Occupied Housing, 2002

Method	No. of Countries	List of Countries
Rental Equivalent	13	Mexico, USA, Japan, Korea, Czech Republic, Denmark, Germany, Hungary, Netherlands, Norway, Slovakia, Switzerland, Turkey
User Cost	5	Canada, Finland, Iceland, Sweden, United Kingdom
Net Acquisitions	2	Australia, New Zealand
Payments	2	Ireland, United Kingdom
Excluded Entirely	9	Belgium, France, Greece, Italy, Luxembourg, Poland, Portugal, Spain, Eurozone (HICP)

The United Kingdom, in its Retail Price Index, appears to be the only other OECD country still producing an index using the Payments Approach. It also produces an index using a User Cost method, and of course all EU (not just Eurozone) countries produce national versions of the HICP, which excludes owner-occupied housing altogether. Interestingly the UK, like Ireland, has recently had a house price boom and is in the upswing of the interest rate cycle. The most recent (May 2007) 12-month reading for its RPI is 4.3 per cent, well ahead of the UK variant of the HICP, which was at 2.5 per cent, the same pattern observable in Ireland.

The CSO's implementation of the Payments Approach in compiling the monthly CPI is not at issue: the method used by the Office of National Statistics in the United Kingdom for the RPI is similar, as was the pre-1997 Australian procedure. If the logic of treating debt outstanding as a good and the interest rate as its price is accepted, then the Irish CSO's calculations successfully implement this procedure. The problem is conceptual: the Payments Approach introduces a cuckoo into the CPI nest, which, while a small cuckoo, behaves disruptively *after* a house price boom, and *during* periods of interest rate volatility, precisely the conditions which currently obtain in Ireland. If house prices always rose at the inflation rate of goods and services, and interest rates were stable, the Payments Approach, as is clear with a little manipulation of Equation (2), would not impact the CPI at all. Indeed, over very long periods (say a decade and upwards), one would expect the Payments Approach to equate to the other approaches, since interest rate cycles should wash out, rent/value ratios will tend to revert to the mean and exceptional house price booms tend to be followed by house price busts according to Kelly (2007). The problem is that the CPI comes out every month, and is intended to

give a reliable short-run read on what is happening to goods and services prices.

Following the adoption of explicit inflation targets by central banks around the world over the last decade, there has been extensive professional discussion of price index construction, and in particular of the alternatives in dealing with owner-occupied housing costs. The verdicts on the Payments Approach have been uniformly negative, and this extended quote from Goodhart (2001) is representative:

The second main approach is the payments approach, measuring actual cash outflows, on down payments, mortgage repayments and mortgage interest, or some subset of the above. This approach always, however, includes mortgage interest payments. This, though common, is analytically unsound. First, the procedure is not carried out consistently across purchases. Other goods bought on the basis of credit, e.g., credit card credit, are usually not treated as more expensive on that account (though they have been in New Zealand). Second, the treatment of interest flows is not consistent across persons. If a borrower is worse off in some sense when interest rates rise, then equivalently a lender owning an interest bearing asset is better off; why measure one and not the other? If I sell an interest earning asset, say a money market mutual fund holding, to buy a house, why am I treated differently to someone who borrows on a (variable rate) mortgage? Third, should not the question of the price of any purchase be assessed separately from the issue of how that might be financed? Imports, inventories and all business purchases tend to be purchased in part on credit. Should we regard imports as more expensive, when the cost of trade credit rises? Money, moreover, is fungible. As we know from calculation of mortgage equity withdrawal, the loan may be secured on the house but used to pay for furniture. When interest rates rise, is the furniture thereby more expensive? Moreover, the actual cash out-payments totally ignore changes in the on going value of the house whether by depreciation, or capital loss/gain, which will often dwarf the cash flow.

Diewert (2002) writes: “I agree with Goodhart in being critical of this approach. My main objection to the approach is that it ignores the opportunity costs of holding the equity in the owner-occupied dwelling and it ignores depreciation”.

Most people have mortgages outstanding which are small relative to the price of their homes: the value of the housing stock is somewhere between four and five times the level of residential mortgage debt outstanding. Why should income recipients be compensated for an increase in the cost of credit, ignoring the fact that there are two sides to the household sector’s balance sheet? The impact of interest rate changes on household income (not that this

is what the CPI is supposed to measure) would be more than halved when the banks' liabilities to the household sector are factored in. Where pay increases are formally or informally linked to a CPI, the impact of interest rate tightening will be offset where the CPI includes an interest rate term. If the European Central Bank were to use an index similar to the Irish CPI, it is arguable that interest rate changes would have to be larger, to offset the wage-indexation effect. Not surprisingly, central banks object to the inclusion of interest rate terms in the target price index used in setting interest rates, and the UK's monetary policy target has excluded an interest component from its inception, employing initially RPI-X, the Retail Price Index with mortgages excluded, and more recently the UK version of the HICP, which also excludes them.

The likelihood is that the European HICP revision will, if agreement can be reached at all, opt for an Acquisitions Approach but the question remains as to what should be done with the Irish CPI, which is the most familiar of all Irish price indices to the general public, and features widely in formal and informal indexation contracts and agreements. Some Irish sector regulators use the CPI to reference the price-caps which they administer, and also to compute current valuations of the regulated asset base of the firms they regulate. Some bond-issuers specify the CPI in indexation formulae. At minimum, the Irish HICP would be an improvement for these purposes.

A better reform, and one which could be undertaken without formally shifting from a COGI to a COLI framework, would be to attempt an implementation of the Rental Equivalence approach, which is already deployed by the Irish CSO in the national accounts and is the methodology stipulated in the United Nations 1993 SNA (System of National Accounts). The necessary private rental index already exists, although it is acknowledged that producing a suitable monthly (and quality-adjusted) rental index would be significant extra work-load in the construction of a revised CPI. The flow of services from the housing stock is the item which belongs in an index of the cost of consumption, and the Rental Equivalence approach, the most popular in OECD countries, seeks to price this item directly through a rental index. A paper addressing the problems involved in implementing the rental equivalence approach in Spain is Arevalo and Ruiz-Castillo (2004).

Statisticians tend to be more partial to the COGI than to the COLI approach, which is more popular with economists, see Triplett (2001). The weaknesses of the Payments Approach however have nothing to do with this debate. The Payments Approach yields an index which introduces arbitrary distortions not present with alternative COGI methodologies for incorporating owner-occupied housing.

But since the CPI continues to be treated by the public and the media as a cost of living index, notwithstanding the CSO's reasonable insistence that it is not, perhaps it is time to consider replacing it with an index which measures what everyone seems to think it measures. The CSO has already made some moves in this direction through the introduction of new goods for old, and in the regular introduction of new outlets, measures which should diminish the bias in a COGI relative to a COLI. In the meantime, the Irish variant of the HICP is a more reliable indicator of underlying goods-and-services inflation, although it doubtless remains prone to the upward biases common to any Laspeyres-type index.

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