Quarterly Economic Commentary

David Duffy
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Kevin Timoney
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Autumn 2013

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Research Notes

Research Bulletins

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Summary Table

	2010	2011	2012	2013	2014
Output (Real Annual Growth %)					
Private Consumer Expenditure	0.9	-1.6	-0.3	0.2	1.5
Public Net Current Expenditure	-6.9	-2.8	-3.7	-0.7	-1.3
Investment	-22.6	-9.5	-1.0	0.7	4.2
Exports	6.4	5.4	1.6	0.0	4.6
Imports	3.6	-0.4	0.0	-0.1	4.0
Gross Domestic Product (GDP)	-1.1	2.2	0.2	0.5	2.6
Gross National Product (GNP)	0.5	-1.6	1.8	2.0	2.7
Prices (Annual Growth %)					
Consumer Price Index (CPI)	-1.0	2.6	1.7	0.7	1.5
Growth in Average Hourly Earnings	-1.5	-1	0.0	1.4	1.4
Labour Market					
Employment Levels (ILO basis (000s))	1,882	1,849	1,839	1,874	1,899
Unemployment Levels (ILO basis (000s))	303	317	316	295	285
Unemployment Rate (as % of Labour Force)	13.9	14.6	14.7	13.6	13.1
Public Finance					
General Government Balance (€bn)	-48.3	-21.3	-12.5	-11.7	-7.6
General Government Balance (% of GDP)	-30.5	-13.1	-7.6	-7.0	-4.4
General Government Debt (% of GDP)	91.2	104.1	117.5	123.9	119.7
External Trade					
Balance of Payments Current Account (€bn)	1.8	2.0	7.3	9.4	11.7
Current Account (% of GNP)	1.4	1.5	5.5	6.9	8.2
Demand					
Final Demand	1.3	2.2	0.2	0.2	3.2
Domestic Demand	-4.4	-1.8	-1.6	0.6	1.4
Domestic Demand (excl. Stocks)	-5.0	-3.0	-1.1	0.1	1.3

Note: Detailed forecast tables are contained in an Appendix to this *Commentary.*

Summary

Understanding the pattern of growth in the Irish economy is very difficult this year. Many of the key indicators that one would normally rely on are affected by special factors. In particular, the data for industrial output, exports and, hence, GDP, are driven by an exceptional fall in the profitability of the pharmaceutical sector, a fall which has little if any direct impact on Irish economic welfare in the short run. For this reason, in explaining the current trends in the Irish economy we concentrate on GNP as a measure of economic welfare, a measure which is largely unaffected this year by these special factors.

The clearest signal of what is happening in the economy this year is the growth in employment. Beginning with the last quarter of 2012, we have now seen three consecutive quarters where employment grew, quarter-on-quarter, by around 0.5 per cent, so that it seems likely that employment growth for the year overall could be close to 2 per cent. The message from the employment numbers is reinforced by the fall in the *Live Register*, which has continued in the third quarter of 2013.

These statistics, and a detailed examination of what lies behind all the other indicators, underpin our forecast of 2 per cent growth in GNP this year. Nearly all of this growth will come from the tradable sector of the economy, with continuing weakness in domestic demand and in the output of businesses supplying the domestic market. Because of exceptional accounting issues, we envisage that measured growth in GDP in 2013 will be only around 0.5 per cent.

For next year much will depend on what happens internationally. Here we rely on the current forecasts for the Eurozone economy suggesting a return to significant growth. Given the resilience of the Irish tradable sector this year in the face of a fall in output in the Eurozone, we anticipate somewhat more rapid growth in Ireland next year of around 2.7 per cent for GNP. Assuming that the special accounting factors no longer apply, we expect growth in GDP in 2014 to be of a similar magnitude.

We anticipate that the public finances this year will come in ahead of target, with borrowing at around 7 per cent of GDP. As discussed in the Spring *Commentary* and the July *Medium-Term Review,* we believe that the most prudent course of action in the 2014 Budget is to implement a fiscal adjustment amounting to €3.1 billion. On this basis, we expect that borrowing next year will be just under 4.5 per cent of GDP, significantly below the target set in the medium-term economic strategy.

National Accounts 2012

A: Expenditure on Gross National Product

	2011	2012	% Change in 2012		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	82.4	82.6	0.3	0.6	-0.3
Public Net Current Expenditure	25.7	25.1	-2.4	1.4	-3.7
Gross Fixed Capital Formation	17.3	17.4	1.0	2.0	-1.0
Exports of Goods and Services	167.0	176.7	5.9	4.2	1.6
Physical Changes in Stocks	1.0	0.4			
Final Demand	**293.3**	**302.3**	**3.1**	**2.8**	**0.2**
less:					
Imports of Goods and Services (M)	131.8	137.0	3.9	3.9	0.0
Statistical Discrepancy	1.1	-1.3			
GDP at Market Prices	**162.6**	**163.9**	**0.8**	**0.7**	**0.2**
Net Factor Payments (F)	-31.9	-31.3			
GNP at Market Prices	**130.7**	**132.6**	**1.5**	**-0.3**	**1.8**

B: Gross National Product by Origin

	2011	2012	Change in 2012	
	€bn	€bn	€bn	%
Agriculture	3.2	2.9	-0.3	-9.5
Non-Agriculture: Wages, etc.	68.3	68.4	0.1	0.1
Other	61.1	59.8	-1.3	-2.2
Adjustments: Stock Appreciation	-0.1	-0.1		
Statistical Discrepancy	-1.1	1.3		
Net Domestic Product	**131.3**	**132.3**	**1.0**	**0.8**
Net Factor Payments	-31.9	-31.3	0.6	-2.0
National Income	**99.4**	**101.0**	**1.6**	**1.7**
Depreciation	16.3	16.4	0.1	0.7
GNP at Factor Cost	**115.6**	**117.4**	**1.8**	**1.5**
Taxes less Subsidies	15.0	15.3	0.2	1.5
GNP at Market Prices	**130.7**	**132.6**	**2.0**	**1.5**

C: Balance of Payments on Current Account

	2011	2012	Change in 2012
	€bn	€bn	€bn
X – M	35.0	39.6	4.6
F	-31.9	-31.3	0.6
Net Transfers	-1.2	-1.2	0.0
Balance on Current Account	**2.0**	**7.3**	**5.2**
as % of GNP	1.5	5.5	

National Accounts 2013

A: Expenditure on Gross National Product

	2012	2013	% Change in 2013		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	82.6	83.5	1.1	0.9	0.2
Public Net Current Expenditure	25.1	25.5	1.4	2.2	-0.7
Gross Fixed Capital Formation	17.4	17.8	2.4	1.7	0.7
Exports of Goods and Services	176.7	178.9	1.2	1.2	0.0
Physical Changes in Stocks	0.4	1.0			
Final Demand	**302.3**	**306.7**	**1.5**	**1.2**	**0.2**
less:					
Imports of Goods and Services (M)	137.0	138.4	1.1	1.1	-0.1
Statistical Discrepancy	-1.3	-1.4			
GDP at Market Prices	**163.9**	**166.9**	**1.8**	**1.3**	**0.5**
Net Factor Payments (F)	-31.3	-29.7			
GNP at Market Prices	**132.6**	**137.2**	**3.4**	**1.3**	**2.0**

B: Gross National Product by Origin

	2012	2013	Change in 2013	
	€bn	€bn	€bn	%
Agriculture	2.9	3.0	0.1	3.0
Non-Agriculture: Wages, etc.	68.4	70.2	1.8	2.6
Other	59.8	60.1	0.3	0.5
Adjustments: Stock Appreciation	-0.1	-0.1		
Statistical Discrepancy	1.3	1.4		
Net Domestic Product	**132.3**	**134.5**	**2.2**	**1.7**
Net Factor Payments	-31.3	-29.7	1.6	-5.1
National Income	**101.0**	**104.8**	**3.8**	**3.8**
Depreciation	16.4	16.4	0.0	0.1
GNP at Factor Cost	**117.4**	**121.2**	**3.9**	**3.3**
Taxes less Subsidies	15.3	16.0	0.7	4.4
GNP at Market Prices	**132.6**	**137.2**	**4.5**	**3.4**

C: Balance of Payments on Current Account

	2012	2013	Change in 2013
	€bn	€bn	€bn
X – M	39.6	40.2	0.7
F	-31.3	-29.7	1.6
Net Transfers	-1.2	-1.3	-0.1
Balance on Current Account	**7.3**	**9.4**	**2.2**
as % of GNP	5.5	6.9	

National Accounts 2014

A: Expenditure on Gross National Product

	2013	2014	% Change in 2014		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	83.5	86.1	3.0	1.5	1.5
Public Net Current Expenditure	25.5	24.8	-2.5	-1.2	-1.3
Gross Fixed Capital Formation	17.8	19.0	6.4	2.2	4.2
Exports of Goods and Services	178.9	190.2	6.3	1.7	4.6
Physical Changes in Stocks	1.0	1.0			
Final Demand	306.7	321.1	4.7	1.4	3.2
less:					
Imports of Goods and Services (M)	138.4	146.3	5.7	1.7	4.0
Statistical Discrepancy	-1.4	-1.4			
GDP at Market Prices	**166.9**	**173.4**	**3.9**	**1.2**	**2.6**
Net Factor Payments (F)	-29.7	-30.8			
GNP at Market Prices	**137.2**	**142.5**	**3.9**	**1.1**	**2.7**

B: Gross National Product by Origin

	2013	2014	Change in 2014	
	€bn	€bn	€bn	%
Agriculture	3.0	3.0	0.1	2.5
Non-Agriculture: Wages, etc.	70.2	72.0	1.9	2.6
Other	60.1	64.5	3.3	5.5
Adjustments: Stock Appreciation	-0.1	-0.1		
Statistical Discrepancy	1.4	1.4		
Net Domestic Product	134.5	139.7	5.2	3.9
Net Factor Payments	-29.7	-30.8	-1.1	3.8
National Income	104.8	108.9	4.1	3.9
Depreciation	16.4	16.6	0.2	1.2
GNP at Factor Cost	121.2	125.5	4.3	3.5
Taxes less Subsidies	16.0	17.0	1.1	6.7
GNP at Market Prices	**137.2**	**142.5**	**5.4**	**3.9**

C: Balance of Payments on Current Account

	2013	2014	Change in 2014
	€bn	€bn	€bn
X – M	40.2	43.6	3.4
F	-29.7	-30.8	-1.1
Net Transfers	-1.3	-1.3	0.0
Balance on Current Account	**9.4**	**11.7**	**2.3**
as % of GNP	6.9	8.2	

1

The International Economy

Prospects for the economies in the Eurozone, the United States and the United Kingdom in the short term have improved in recent months. Uncertainty about the likely path of economic growth has abated, as key indicators of economic activity in Ireland's main trading partners have been more favourable over the course of 2013. Although a second consecutive year of negative growth is expected for the Eurozone this year, a recovery in growth continues to be forecast for 2014. Elsewhere, the UK and the US are forecast to see growth continuing this year and next year. The median forecasts and ranges are shown in Figure 1 below.

FIGURE 1   Real GDP growth (% change, year-on-year)
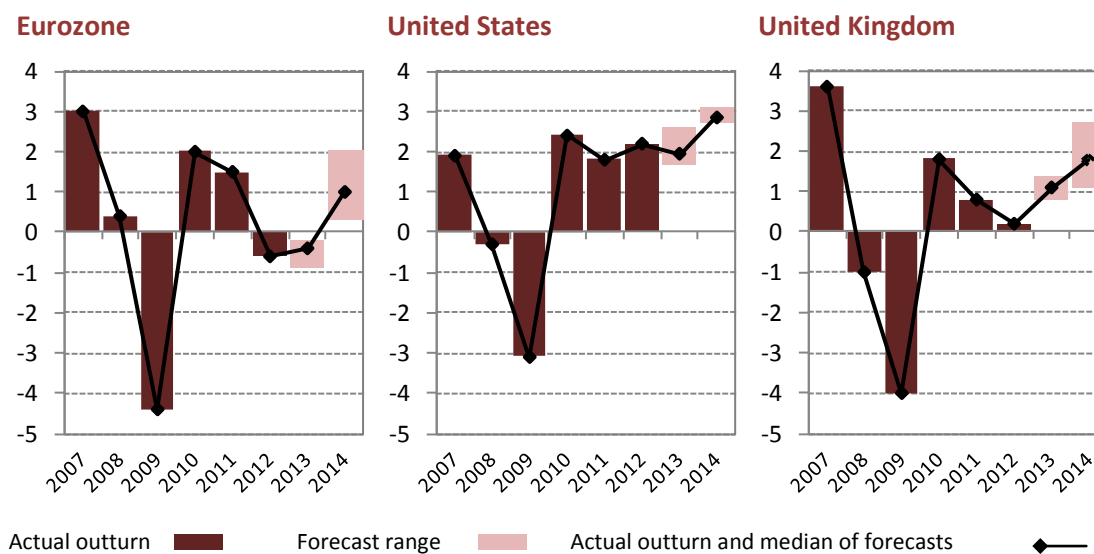
Sources: FocusEconomics, Eurostat, IMF, OECD, HM Treasury and US Federal Reserve.

Unlike the US and the UK, economic conditions have remained challenging in the Eurozone as a whole, although some member states continue to be affected to a greater extent than others. Ongoing fiscal consolidation in many countries continues to hold back growth rates, and the headwinds have prompted a number of downward revisions to growth forecasts for the currency bloc, both for 2013 and 2014. A second consecutive year of contraction in the order of 0.4 per cent is currently expected for 2013, and the 2014 growth forecast has been reduced to 1.0 per cent. These rates can be compared to the forecasts of -0.1 per cent (2013) and 1.1 per cent (2014) at the time of the previous *Commentary*. In the second quarter of this year, the Eurozone emerged from a prolonged six-

quarter contraction, while the unemployment rate in August remained at 12 per cent, unchanged from July.

While some progress has been made towards establishing the necessary institutional framework for a well-functioning monetary union, there are still a number of challenges facing the 17 Eurozone member states.[1] Enabling the Single Resolution Mechanism (SRM) to provide direct recapitalisations to struggling Eurozone banks will be important. This is especially relevant as the European Central Bank (ECB) has recently assumed its new regulatory responsibility as part of the Single Supervisory Mechanism (SSM). Despite these ongoing challenges, there have been some positive indications in the latest data releases. Relatively strong economic growth in Germany and France helped the Eurozone to a quarterly expansion of 0.3 per cent in the second quarter of this year (Figure 2). The performance has eased uncertainty somewhat for the common currency area, and this could support an increase in activity towards the end of the year.

FIGURE 2   Quarterly Real GDP Growth for selected Eurozone countries, 2010 Q1 – 2013 Q2
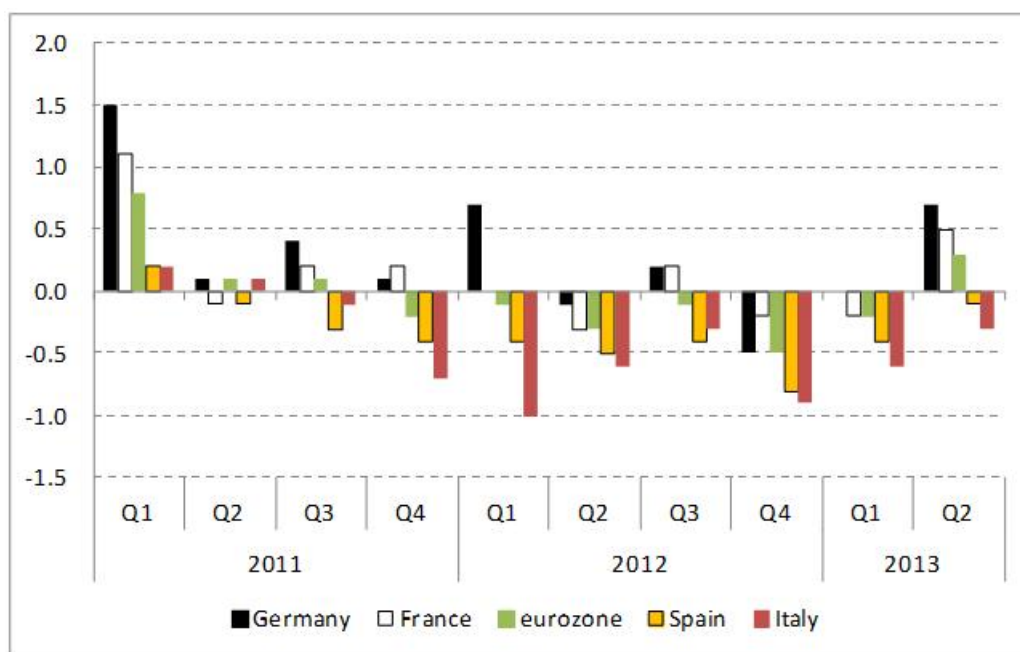

Source: Eurostat.

The US economy has continued on a path of relatively resilient growth in recent times, despite the introduction of additional taxation and expenditure reductions during 2013. Revised GDP data show that the economy grew by 1.3 per cent in the first quarter and 1.6 per cent in the second quarter of this year, compared to the

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[1]   Latvia will become the 18th member state of the Eurozone from 1st January, 2014.

same quarters of 2012. Meanwhile, employment has been increasing continuously since the final months of 2010, as shown in Figure 3. Non-farm payrolls employment exceeded 136 million in August, the highest level in nearly five years. Risks remain to future growth due to potential fiscal retrenchment arising from political deadlock. However, the imperative of allowing economic recovery to continue should hopefully ensure a growth-favourable resolution will be negotiated in the short term. Recent forecasts suggest the US economy will grow by 2.1 per cent in 2013, before accelerating to 2.9 per cent in 2014.

Signs of a strengthening US economy have intensified the scrutiny and speculation surrounding the likely direction of monetary policy. Markets had been expecting the US Federal Reserve to gradually withdraw its quantitative easing programme between end-2013 and mid-2014, conditional on whether economic conditions continued to improve. Recently, the Federal Open Market Committee signalled it no longer intends to begin reducing the stimulus measures as early as previously announced,[2] due to concerns over the strength of the recovery. The earlier prospect of imminent monetary tightening had seen the yield for US 10-year treasury bonds increase by 100 basis points since the beginning of the year.

FIGURE 3   US Non-farm Payrolls Employment
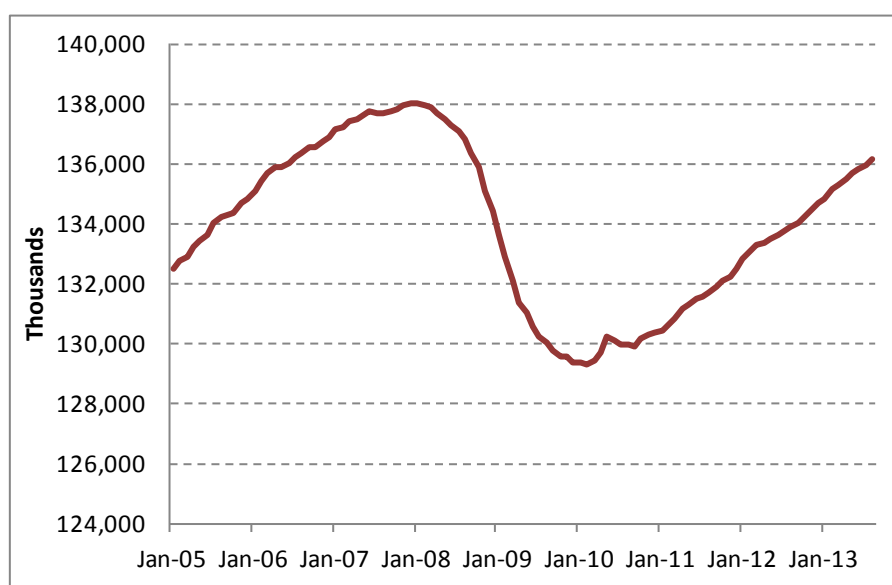
*Sources*:   US Bureau of Labor Statistics.

Like the US, the UK economy has recently been showing signs of strengthening. The labour market has seen improvements in six of the past seven quarters for employment, and five of the past seven for unemployment. Annual GDP growth in the second quarter of 2013 increased to 1.3 per cent, up from 0.2 per cent in the

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[2]   The previous plans were announced at the press conference of the June Federal Open Market Committee meeting: http://www.federalreserve.gov/mediacenter/files/fomcpresconf20130619.pdf

first quarter. The improved performance was mainly driven by stronger growth in exports and investment, while manufacturing output returned to quarterly growth following a period of broad decline since mid-2011. With expected improvements in activity in trading partners over the remainder of 2013, this year's UK growth forecast has been revised up to 1.1 per cent (from 0.7 per cent in the previous *Commentary*), while growth for 2014 is forecast at 1.8 per cent.

UK house prices have been growing steadily in 2013, and this has prompted upward revisions in price growth forecasts[3]. The UK Treasury's *Help to Buy* scheme provides favourably-termed equity loans for newly-built properties, and it has been linked with an increase in the demand for housing, following initial release in April of this year. A second phase of the scheme is due to be unveiled in January 2014, and seeks to provide mortgage guarantees to all property purchases under £600,000 with a 5 per cent deposit. The scheme has proven controversial, with many declaring it a precursor for a housing bubble. Apart from house price issues, there are more general concerns about the UK's competitiveness. Eurostat figures show that the UK's Harmonised Index of Consumer Prices (HICP) has been rising faster than in the Eurozone in recent years, with average annual price growth of 3.2 per cent in the UK since 2008, compared to 1.8 per cent for the Eurozone (see Figure 4). If this divergence continues, there may be competitiveness benefits for the UK's trading partners in future, or else sterling could come under pressure from the euro and dollar.

FIGURE 4   UK and Eurozone Monthly Harmonised Index of Consumer Prices, 2008 = 100
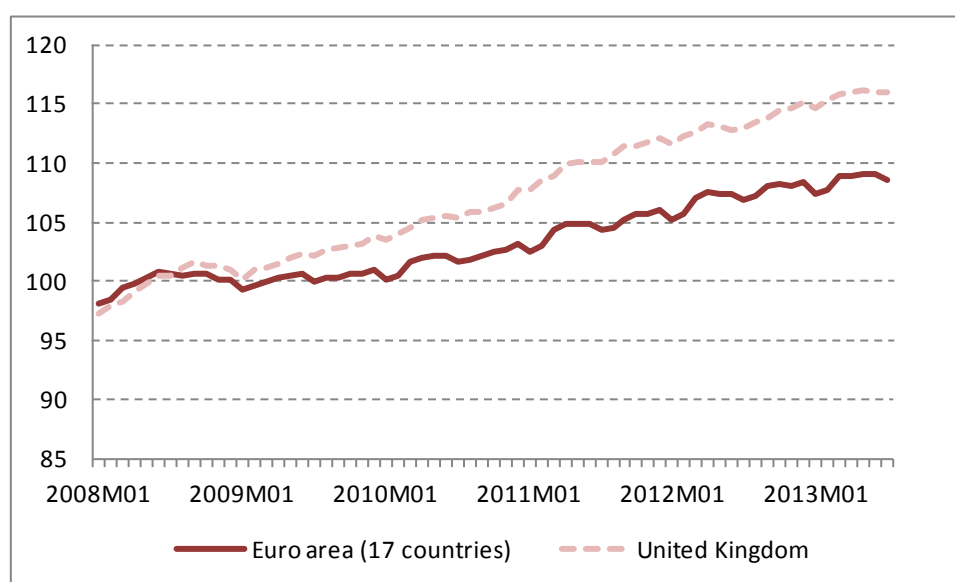
Source: Eurostat.

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[3]   In September, Rightmove increased their price growth forecast for 2013 to 6 per cent, up from 2 per cent at the start of the year. See http://www.rightmove.co.uk/news/house-price-index/september-2013

The latest economic forecasts of the National Institute of Economic and Social Research (NIESR) for the world economy revise downwards the expected growth rate for this year and next year, citing slowing activity in key emerging markets, in particular in China. The upward pressure on long-term interest rates, mainly arising from speculation on US monetary policy, is also expected to exert a drag on growth.

Despite these concerns, there remains greater stability in the world economy than there has been in recent years. If this stability persists, there should be a more accommodative environment for consumers and businesses to make investment decisions with greater certainty. As discussed in previous *Commentaries*, we emphasise again that a meaningful recovery in Ireland will depend heavily on economic recoveries in our main trading partners. Risks to this improving stability remain considerable, however, in particular because many countries still face difficult reforms and budgetary adjustments, and also from the potential for large recapitilisation requirements in European banks following ECB-supervised stress tests in early 2014. If further progress is made to alleviate the institutional issues within the Eurozone's financial sector, this would serve to further reduce uncertainty, and the prospects for economic recovery in the currency union would improve as a result.

2

GNP and GDP

In preparing each *Quarterly Economic Commentary* it is normal to emphasise the uncertainties inherent in any forecast. However, in the case of this *Commentary* a major problem arises in understanding what has happened in the recent past, as well as the usual uncertainty inherent in any forecast.

The *National Income and Expenditure* Accounts, published in June 2013, brought substantial revisions to previous years' data, due to the impact of *Census 2011* findings. These revisions showed that the economy had grown more rapidly in 2011, though the upward revisions did not apply to initial 2012 estimates. This resulted in muted growth rates for 2012 of just 0.2 per cent for GDP and 1.8 per cent for GNP, although the latter rate would be just 0.5 per cent when account is taken of re-domicled plcs (as discussed by FitzGerald in the previous *Commentary*).[4] Figure 5 shows the impact of these re-domiciled plcs on GNP.

FIGURE 5   Real GNP, Constant Prices, €million
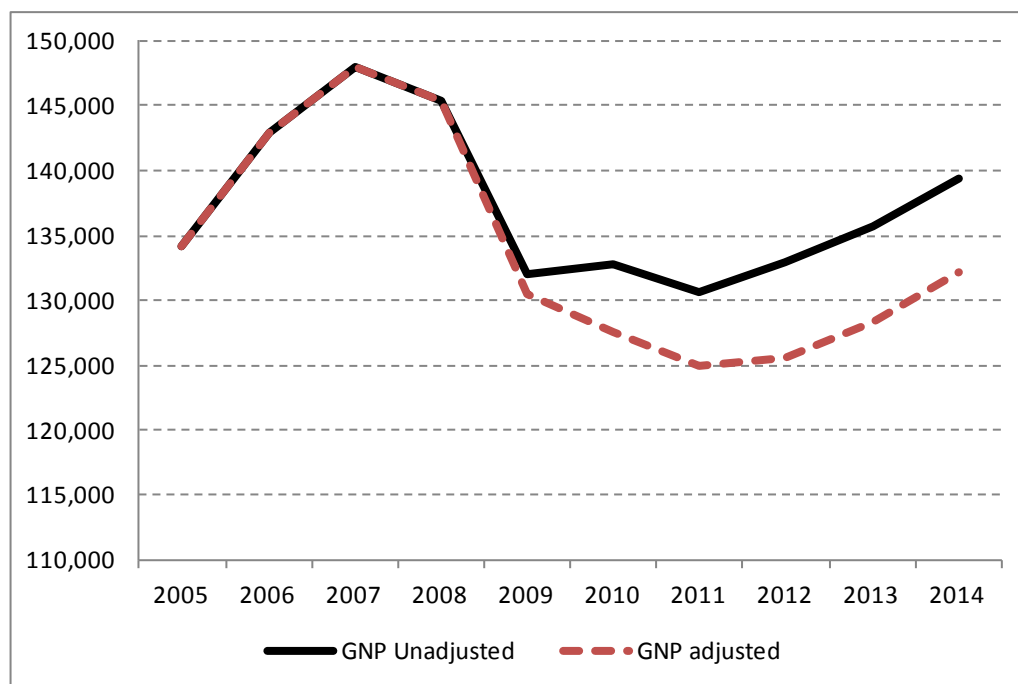
Source: Central Statistics Office and ESRI Estimates.

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[4]   FitzGerald, J. (2013), 'The effect of Re-domiciled Plcs on Irish Output measures and the Balance of Payments,' ESRI *Quarterly Economic Commentary*, Spring.

Normally, three quarters of the way through a year key indicators of economic progress begin to converge in telling an increasingly coherent story about the state of the economy. This year there is a most unusual apparent conflict between two key sets of data. However, we believe that, if correctly interpreted, the apparent differences in message can be reconciled.

One set of data, the *Quarterly National Accounts* (QNA) and indicators of industrial output and trade, suggest that growth in GDP this year could be very low, between zero and a half of one per cent. On the other hand, the data from the *Quarterly National Household Survey* (QNHS) for employment, unemployment and the labour force, when combined with the *Live Register* figures and the revenue from income tax, all suggest that the growth rate may lie between 1.5 per cent and 2 per cent. We discuss below how these seemingly contrasting sets of data can be explained.

The best indicator of what is currently happening in the economy is the growth rate of GNP. In Figure 5 we show the path of real GNP since 2005, for both the published CSO series and a series where an adjustment is made for the profits of redomiciled plcs.[5] The path of the adjusted series shows GNP falling continuously from 2008 through to 2011. The economy returned to significant growth in 2012 and we expect that growth in GNP will accelerate this year and next. Over the period since 2008 this pattern of decline and recovery fits the pattern of change in the labour market better than does the unadjusted GNP series (or the series for GDP). (It is also consistent with the alternative output index described in a Research Note by Timoney in this *Commentary*.)

TABLE 1   Rate of Growth in GNP, %

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Adjusted	3.6	-1.8	-10.2	-2.3	-2.0	0.5	2.2	3.0
Unadjusted	3.6	-1.8	-9.1	0.5	-1.6	1.8	2.0	2.7

Source: Central Statistics Office and ESRI estimates.

Table 1 shows the growth rate for GNP for recent years and for the forecast horizon.[6] The forecast growth rate for GNP for 2013 is based on the very rapid growth in the first half of the year manifested in the latest *Quarterly National Accounts*. The forecast for 2013 as a whole assumes that in the second half of the year there will be a short pause in growth in GNP.

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[5] Note that in 2013 and 2014 the profits of redomiciled plcs are assumed to be identical in magnitude to profits in 2012.

[6] The difference between the growth rates of the adjusted and the unadjusted series for 2013 and 2014 is due to the difference in the absolute size of the two measures of GNP. The change in GNP in constant prices is of identical absolute magnitude in the two series.

The *Quarterly National Household Survey* data show that seasonally adjusted employment rose by at least 0.5 per cent quarter-on-quarter for the last quarter of 2012 and the first two quarters of 2013, resulting in an accumulative increase in employment over the three quarters of over 1.5 per cent. These data on employment have a good record on reliability and are rarely revised, unless due to a census. While the CSO has indicated that there was some uncertainty about the sectoral classification of the employment increase, the change in total employment could be treated as being reasonably reliable.

The pattern of growth in employment has been mirrored in the fall in unemployment, discussed later in Chapter 7. The *Live Register* data up to September 2013 suggest that the fall in unemployment has continued into the third quarter. If this is the case, then the growth in average employment in 2013 compared to 2012 is likely to be closer to 2 per cent than to the 1.5 per cent that would transpire if there were no further employment growth in the third and fourth quarters.

FIGURE 6   GDP per Person Employed (Productivity), % Change
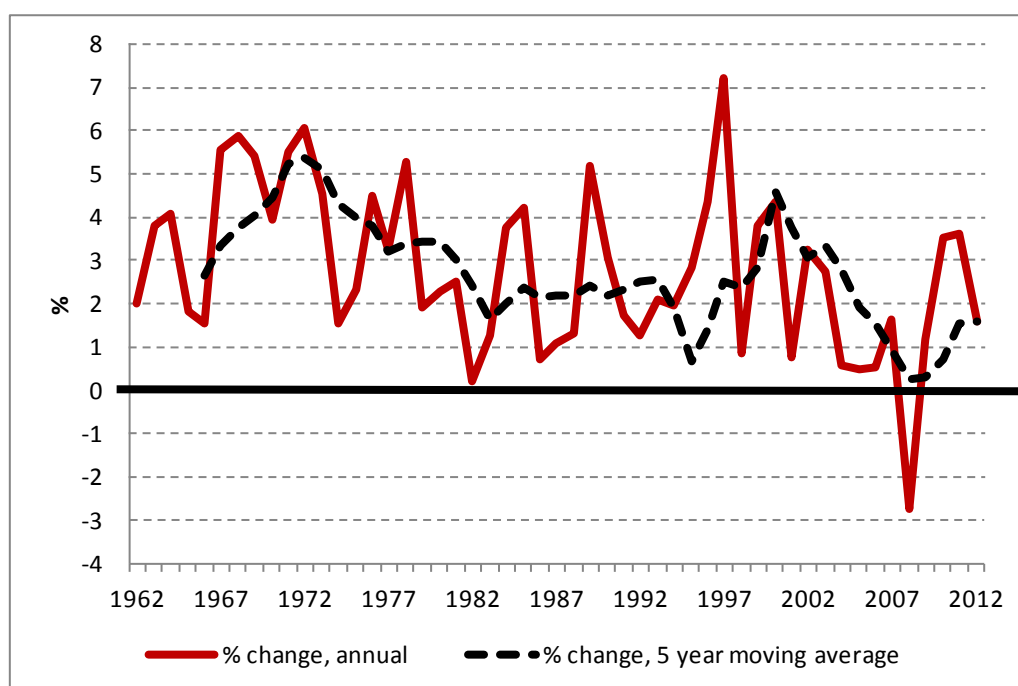
Source: ESRI Databank.

Given employment growth one must add the change in productivity (here measured simply as GDP per person employed) to arrive at an estimate of the growth of GNP (and GDP). Figure 6 shows the rate of growth in GDP per person employed over the last half of a century. In only one of the 51 years shown in Figure

6 did productivity fall – 2008. In all other years there was growth in productivity. When the growth in employment is combined with a conservative estimate of only a small rise in productivity, this suggests a growth rate for the economy in 2013 of around 2 per cent – the forecast for GNP in this *Commentary*.

Where the picture becomes extremely complicated is when we turn to the published QNA data for the first half of this year for GDP and its components. If the seasonally adjusted figure for GDP in the first half of the year were to be maintained for the second half of the year there would be an actual fall in GDP this year. However, as explained in the attached Research Note by FitzGerald, summarised overleaf, the effects of a few key pharmaceutical drugs falling out of patent (the "patent cliff") has resulted in very large distortions in the figures for the volume of exports, industrial output and GDP. As explained in that Note, the figure for GNP is substantially unaffected by these distortions and, hence, it provides a much clearer picture of the change in the economic welfare of people living in Ireland.

On the expenditure side of the accounts the QNA show a picture of no growth in domestic demand. This picture is not distorted by the "patent cliff". However, the QNA shows that exports fell substantially in volume in the first half of the year. This outturn masks a more favourable pattern of change when account is taken of the effects of the "patent cliff". The effects of the fall in volume of exports are then largely offset by a fall in net factor income paid abroad resulting in the strong rise in GNP. On the output side of the accounts there is a major fall in manufacturing output which is also offset by the fall in factor income.

If account is not taken of the effects of the "patent cliff" the numbers could be construed as painting a bleak picture of no growth or even a fall in output in the economy in the first half of the year. However, when properly interpreted, the numbers suggest a rather different picture, as captured in our headline figure for GNP growth.

One further piece of evidence that tends to confirm our interpretation of the available data is the receipts for income tax for the first nine months of the year. These data also suggest significant growth in the base on which that tax is levied – personal income. This issue is discussed further in Box 3 (in Chapter 5). In turn, significant growth in personal income suggests real growth in GNP.

How the "Patent Cliff" Affects Key National Accounts Aggregates

A number of drugs have dropped out of patent over the last two years. The major impact of these changes in patent status is a fall in the value of output and of profits of the multinationals producing these drugs. (There may also be a small fall in employment, though the effect of any such change will be dwarfed by the impact on profits.)

National accounting conventions mean that this decline in profits is treated as a fall in the volume of industrial output and of exports. Because the fall in profits is very large, the impact on industrial output and exports is also large. However, the vast bulk of this fall in profits, output and exports is a loss to the foreign owners of the plants, strongly affecting their patent royalties but having no immediate impact on the economic welfare of people living in Ireland. This can be reflected in the National Accounts in one of two ways. For simplicity we here concentrate on one of these possible accounting treatments (the other is described in the Research Note published with this *Commentary*).

In this *Commentary* we have treated the offset to the loss in output as a fall in net factor income from abroad. This fall in net factor income largely offsets the fall in output. This means that, while the ending of the patents affects GDP, this effect is cancelled by the factor income figure when arriving at the figure for GNP. The only impact on GNP will arise from a loss of employment or a fall in corporation tax payments by the sector, changes that are dwarfed by the change in profits as measured in the national accounts. It is for this reason that we concentrate on the figure for GNP as the best undistorted measure of real growth in the economy.

While we feel that the apparently discordant data available for this year can be reconciled to paint a more coherent picture of growth, nonetheless, as indicated above there still remains huge uncertainty about what is happening this year, and this uncertainty should be factored into decisions on economic policy.

For next year much will depend on whether there is a return to growth in the Eurozone. On the assumptions set out in Chapter 1, we expect slightly faster growth in Ireland next year with GNP rising by around 2.7 per cent. Assuming no more major drugs drop out of patent this year, the national accounts aggregates for next year will be more easily interpreted and, on this basis, GDP is forecast to rise by 2.6 per cent.

3

Exports of Goods and Services

National Income and Expenditure data for 2012 show that exports of goods and services grew by 1.6 per cent in volume and by 5.9 per cent in value giving an overall export price deflator of 4.2 per cent for the year. More disaggregated data show that the growth was due to services sector exports, which increased by 6.9 per cent in volume and by 10.9 per cent in value. This contrasts with a 3.6 per cent fall in the volume of goods exports, although the value of goods exports rose by 1 per cent. On the basis of these numbers, the price deflator for services exports rose by 3.8 per cent and for goods exports by 4.7 per cent in 2012.

In recent months it appears that the international environment for world trade, and Irish exports, has improved and stronger growth is forecast for 2014. Recent trade statistics show that volume of exports in the first six months of 2013 was nearly 6 per cent lower than in 2012, with an equivalent decline in value. Much of this decline is attributed to the pharmaceuticals "patent cliff". As outlined in the accompanying note by FitzGerald (this issue), the analysis of Ireland's external trade is made more difficult at present due to the impact of the "patent cliff". Taking account of this, we are forecasting a decline in the volume of merchandise exports this year of 3.7 per cent. Based on the analysis of the *Industrial Production and Turnover Index*, (Timoney, this issue) we are of the view that there is underlying growth in the industrial sector and so we expect that merchandise exports will grow by 2 per cent in volume next year.

By contrast, exports of services have performed well in recent years, with volume growth of over 7 per cent in both 2011 and 2012. Indicators for this year show that trips to Ireland performed well in the first eight months of the year (annual growth of 6.5 per cent), and a volume increase in tourism exports of 4.5 per cent is estimated for this year. The end of *The Gathering* tourism initiative may result in somewhat slower growth next year, with growth forecast to be approximately 4 per cent.

As shown in Table 2, the largest component of Ireland's exports is now other services exports which include Information Technology related services, communications, insurance services and financial services. Ireland's success in continuing to attract and retain service-sector Foreign Direct Investment means that we expect the improving international environment to result in other services

exports growth of 3.4 per cent in volume this year. On the basis of the anticipated recovery in world economic activity next year, we are forecasting that growth in other services exports increases to nearly 7 per cent in 2014.

TABLE 2   Exports of Goods and Services

	2011	2011	2012	2013	2014
	Value	Volume Change			
	€ billion	%	%	%	%
Merchandise	85.0	3.8	-3.6	-3.7	2.0
Services:					
Tourism	3.0	-4.8	-0.2	4.5	4.0
Other Services	78.5	7.6	7.2	3.4	7.0
Total Services	81.5	7.0	6.9	3.4	6.9
Exports of Goods and Services	**167.0**	**5.4**	**1.6**	**0.0**	**4.6**

Source: Central Statistics Office.

Total exports of goods and services in 2013 are forecast to be unchanged from last year in volume and increase by 1.2 per cent in value, primarily reflecting the impact of the "patent cliff". Assuming that no more drugs fall out of patent over the forecast period we are forecasting that total exports will grow by 4.6 per cent in volume and by 6.3 per cent in value in 2014.

4

Investment

Data from the *National Income and Expenditure Accounts* provide some insights into the differences in investment performance across the sectors. Investment in housing continued to decline, down by over 21 per cent in volume in 2012 compared to 2011. However, the volume of investment in other construction activity increased by 7.2 per cent. Investment in building and construction thus declined by just over 4 per cent in 2012. Investment in machinery and equipment rose by 2.6 per cent in real terms. Taking account of the different trends across sectors, overall investment in Ireland continued to contract in 2012, down by 1 per cent in volume.

On the basis of house completion, planning permission and commencement data it seems likely that investment in housing will remain subdued in 2013 and there appears little reason to change our forecast from the Spring *Commentary* of a 5.7 per cent volume fall in residential investment. While the increase in construction employment over recent quarters suggests there may be some upturn in activity, the limited number of available indicators for non-residential construction point to a market with high vacancy levels and an adequate supply of stock. As outlined in previous *Commentaries*, some non-residential investment activity will take place under the Infrastructure Stimulus Plan, some large scale projects and construction spending by NAMA. We, therefore, maintain our forecast of a modest upturn in 2013 which continues into 2014. Thus, investment in building and construction is forecast to remain broadly unchanged in 2013.

Estimates in the *Medium-Term Review* (July 2013) under the 'Recovery Scenario' indicate an underlying demand for housing over the rest of the decade of the order of 20,000 units per annum based on demographic factors. There are a range of indicators suggesting the housing market has stabilised, but that there is a regional element to this. Data show signs of recovery in the Dublin residential market, but the market outside Dublin continues to experience declines, albeit at a much slower pace than in recent years.

Completion levels in recent years have remained well below this level, as shown in Figure 7. An increase in planning permission, coupled with improving confidence regarding the economic outlook, means that we are forecasting a limited upturn in house completions in 2014. This increase is from a very low base, an estimated

8,000 completions in 2013, and this growth contributes to the forecast volume increase in total building and construction of 5.8 per cent for 2014.
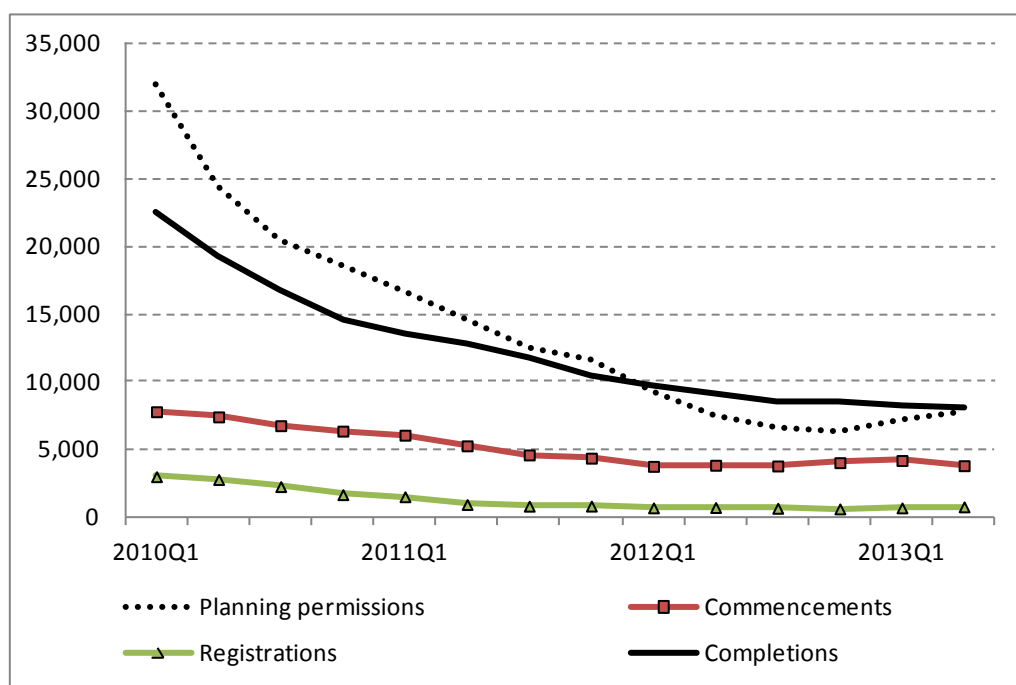
Source: Central Statistics Office.

If economic growth continues to pick up, and with interest rates remaining low, this could stimulate some investment in machinery and equipment. A determining factor here will be the extent to which businesses continue to deleverage. National Accounts show that although there was some decline in 2012, company savings remain high. Investment in machinery and equipment is forecast to increase by 1.7 per cent this year and by 2.4 per cent in volume terms in 2014. Total gross fixed capital formation is forecast to grow by approximately 0.7 per cent in 2013 and by 4.2 per cent in volume in 2014, as shown above in Table 3.

**TABLE 3**   Gross Fixed Capital Formation, % Change in Volume

	2011	2011	2012	2013	2014
	Value	Volume Change			
	€ billion	%	%	%	%
Housing	3.8	-20.5	-21.4	-5.7	12.5
Other Building	5.1	-14.8	7.2	1.9	2.0
Total Building and Construction	**9.3**	**-16.2**	**-4.1**	**-0.3**	**5.8**
Machinery and Equipment	8.0	-0.9	2.6	1.7	2.4
Total	**17.3**	**-9.5**	**-1.0**	**0.7**	**4.2**

Source: Central Statistics Office and ESRI Forecasts.

Box 1: The Expected User Cost of Housing

by David Duffy

A key determinant of the housing market outlook is price expectation. The user cost of housing aims to take account of the role played by price expectation and is the notional price an owner-occupier pays for the housing services provided by their dwelling; the rate of return or the cost of owning a house. The user cost measure takes account of taxation, depreciation, mortgage costs, as well as any benefit/loss arising from capital gain/loss measured by house price expectation. An expectation that house prices will grow, resulting in expected capital gains, makes homeownership attractive while the expectation that house prices will fall reduces housing demand through the impact of an expected capital loss from homeownership. (Barham, 2004; Duffy, 2011; Browne, Conefrey and Kennedy, 2013).[7]

FIGURE B1 Expected User Cost of Housing and Rent
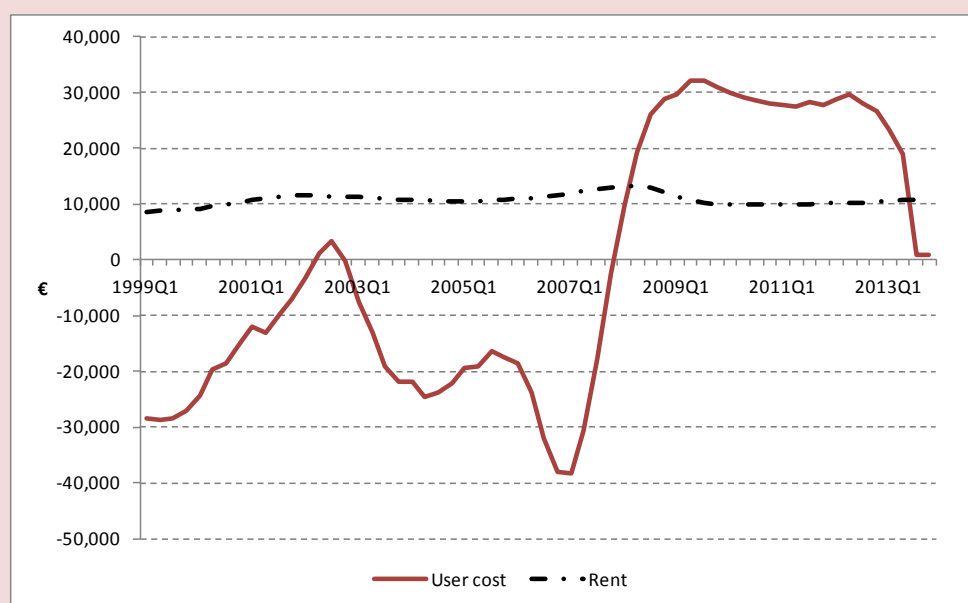
Source: Own calculations based on Duffy (2011).

Once a measure of user cost is constructed it is then compared to the cost of renting a dwelling to determine the attractiveness of alternative housing tenures. Figure B1 compares the annual user cost of homeownership to the annual cost of renting. House price expectations are measured by a moving average of house price change over the previous four quarters. For most of the period since 1999

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[7]   Barham, G. (2004). "The Effects of Taxation Policy on the Cost of Capital in Housing – A Historical Profile (1976-2003)", Dublin: Central Bank Financial Stability Report.
Duffy, D. (2011). "User Cost and Irish House Prices", Dublin: ESRI *Quarterly Economic Commentary,* Autumn.
Browne, F., T. Conefrey and G. Kennedy (2013). "Understanding Irish house price movements - a user cost of capital approach," Research Technical Papers 04/RT/13, Dublin: Central Bank of Ireland.

the user costs of homeownership has been below the estimated annual cost of renting a dwelling. The expectation that house prices would continue to grow resulted in a negative user cost for much of the period to the beginning of 2008, reflecting capital gains exceeding other costs of homeownership. This made homeownership attractive and contributed to strong housing demand at a time of rapid price growth.

The housing market crash from late 2007 resulted in the user cost of housing rapidly turning positive as the expectation of falling house prices meant one of the costs of homeownership was a capital loss. The latest data from the CSO and from daft.ie would suggest that annual average house prices will record some growth in 2013 and that price expectations may be turning positive again. On this basis the attractiveness of homeownership has improved and this could contribute to an upturn in housing market activity levels. However, although the relationship between user costs and rents may provide us with a guide as to how tenure options may be viewed, it is not a precise indicator of when and by how much house prices will change direction. A sudden change in expectations can lead to a sharp shift in the relationship and change the relative attractiveness of homeownership.

Improved price expectations may be the result of higher prices due to supply constraints. In addition, house price and rent statistics show the regional element to the stabilisation, with prices and rents increasing in Dublin but remaining weak in the rest of the country. Even though the market is showing signs of improvement, we are not forecasting a major recovery in the short term. In our view, given the severity of the housing market downturn it will take some time for confidence to be fully restored.

5

Incomes, Prices and Consumption

National Income and Expenditure data show that personal consumption was 6 per cent lower in 2012 than in 2008. The bulk of this fall occurred between 2008 and 2009, with 2012 showing only a moderate fall of 0.3 per cent in consumption.

The KBC Ireland/ESRI *Consumer Sentiment Index* series has shown improvements in consumer sentiment in 2013, with consumers generally more positive in their expectations of the future and in their view of current economic conditions. Sentiment can, however, be described as cautious. Retail sales also inform our view of consumption growth, and show small positive growth in value and volume in 2013, excluding the motor trade. The introduction in 2013 of a new vehicle registration system has seen significant increases in the number of new vehicle licenses in July and August. On an annual basis, however, car sales are expected to be slightly lower than in 2012, reflecting credit conditions and consumers delaying the purchase of durable goods.

The value of private consumer expenditure is forecast to rise by 1.1 per cent in 2013, with growth of 0.2 per cent in volume terms and growth in the personal consumption deflator of 0.9 per cent. For 2014, the growth in value is forecast to be 3.0 per cent, with volumes rising by 1.5 per cent and the deflator rising by 1.5 per cent.

Recent data from the CSO's *Earnings, Hours and Employment Costs Survey* (EHECS) have shown moderate increases in hourly earnings in 2012 and 2013. Increases of greater magnitude are seen in employment. Taken together, these inform the forecasts of non-agricultural wages in Table 4, which show increases of 2.6 per cent in 2013 and 2014.

As discussed in Chapter 7, we expect continuing improvement in the state of the labour market in 2013 and 2014. This will contribute in part to falls in current transfers and increases in personal taxation. On the basis of tax receipts to date this year it is anticipated that the average tax rate will increase slightly in 2013, followed by a further small increase in 2014.

Personal disposable income is forecast to grow by 2.2 per cent in 2013 and 3.1 per cent in 2014. We expect consumption growth to continue to lag behind the growth in disposable income due to the effects of household deleveraging and of continued precautionary saving in Irish households. Increases in personal savings and in the savings ratio are thus forecast in each year, although at a slower rate in 2014.

TABLE 4   Personal Disposable Income

	2011	2012	2013	2014
	€bn	€bn	€bn	€bn
Agriculture etc.	3.2	2.9	3.0	3.0
Non-Agricultural Wages	68.3	68.4	70.2	72.0
Other Non-Agricultural Income	13.3	15.9	17.9	20.3
Total Income Received	84.7	87.1	91.0	95.4
Current Transfers	25.3	25.0	24.3	23.7
Gross Personal Income	110.0	112.2	115.3	119.1
Direct Personal Taxes	22.6	23.1	24.2	25.1
Personal Disposable Income	87.4	89.1	91.1	93.9
Consumption	82.4	82.6	83.5	86.1
Personal Savings	5.0	6.5	7.6	7.8
Savings Ratio	5.8	7.3	8.3	8.4
Average Tax Rate	20.5	20.6	21.0	21.1

Source: Central Statistics Office and ESRI Forecasts.

Figure 8 describes the path of household indebtedness and debt as a percentage of household disposable income, an indicator of debt sustainability. Household debt declined to €172 billion in the first quarter of 2013, a fall of 0.9 per cent. This represents the lowest level of indebtedness since the fourth quarter of 2006 and continues a trend which has seen debt fall since the fourth quarter of 2008. The level of debt remains substantial, however, and it is our view that further declines in household indebtedness are needed before a satisfactory level is reached. Household debt stands at 197.3 per cent of (household) Gross disposable income, its lowest level since the first quarter of 2007. While the level of household debt has been declining steadily since 2008, there have been increases in the ratio of debt to disposable income in the intervening years due to falling household incomes. With the wage bill set to rise in 2013 and 2014, further declines in this ratio are expected.

FIGURE 8   Household Debt and Disposable Income
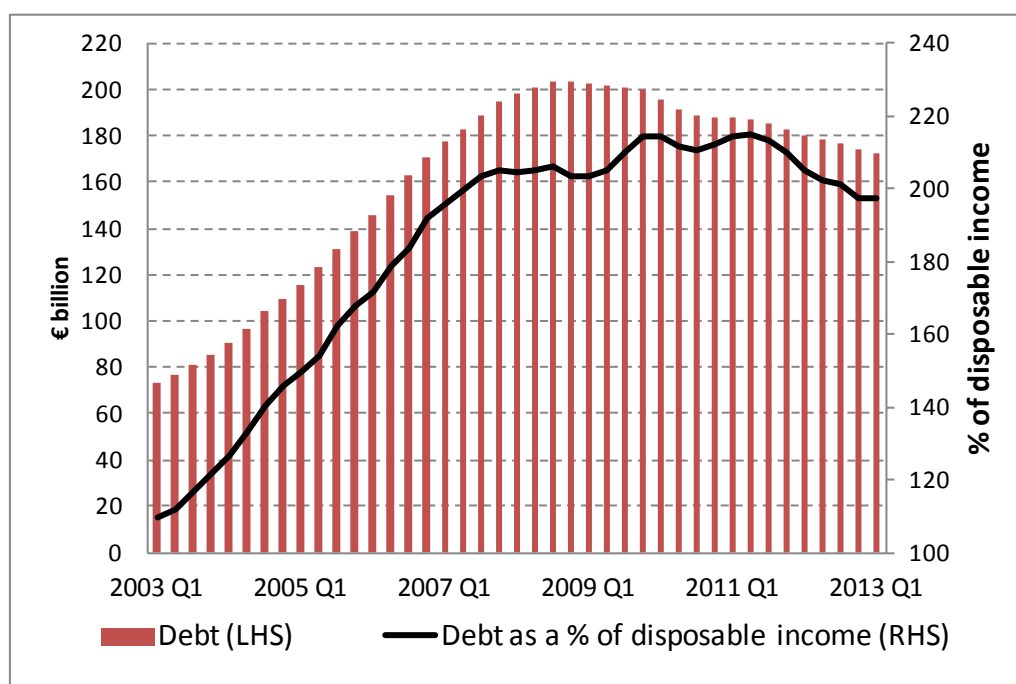
Source: Central Statistics Office and Central Bank of Ireland.

Consumer price inflation is expected to remain moderate in both years, reflecting the impact of weak domestic demand. The Consumer Price Index is expected to rise by 0.7 per cent in 2013 and 1.5 per cent in 2014 (Table 5). The increase in prices in 2014 includes an assumed increase in taxes on expenditure including VAT.

TABLE 5   Inflation Measures

	2011	2012	2013	2014
	Annual Change			
	%	%	%	%
Consumer Price Index	2.6	1.7	0.7	1.5
Personal Consumption Deflator	1.8	0.6	0.9	1.5
HICP	1.1	2	0.9	1.6

Source: Central Statistics Office and ESRI Forecasts.

Box 2: Forecasting Gross Disposable Income Using Income Tax Receipts

by David Byrne

Consumption by households in Ireland has been depressed for a prolonged period. The reasons for this are clear: incomes have fallen considerably since the advent of the financial crisis, households have chosen to save at a higher rate in the face of future uncertainty and they have made significant attempts to deleverage. This *Commentary* discusses the signs of recovery in the labour market (Section 7). Gains to employment and to household disposable income are now a prospect, and levels of consumption can be expected to rise subsequently, adding to economic growth.

Here, we attempt to estimate the gains in Gross Disposable Income for 2013 using a model which links income tax receipts to gross disposable income. We estimate a relationship between Gross Disposable Income, Income Tax Receipts and the Average Tax Rate, controlling for seasonal effects. The data used in the regression analysis span from the first quarter of 2002 to the last quarter of 2012. Data available for the first eight months of 2013 are held out-of-sample and used for to check the model's ability to predict. Monthly Income Tax[8] receipts are sourced from the Department of Finance, and we aggregate them to quarters. Gross Disposable Income is available from the Institutional Sector Accounts by quarter. The Average Tax Rate is defined as the ratio of Income Tax to Personal Income.

TABLE B1: Tax Receipts and Gross Disposable Income: Regression Output

FIGURE B2: Log of Gross Disposable Income and Forecasts

	Gross Disposable Income (log)
Income Tax (log)	0.86***
	(16.27)
Average Tax Rate (log)	-0.96***
	(-9.25)
Quarter 2	0.03
	(1.21)
Quarter 3	-0.06**
	(-2.86)
Quarter 4	-0.38***
	(-12.27)
Constant	1.12
	(1.98)
N	44
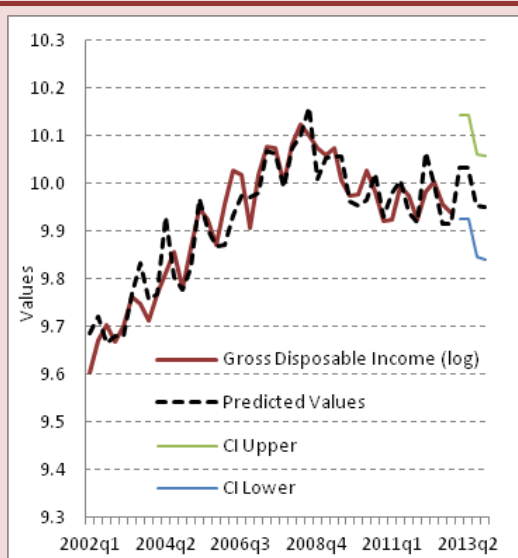
Note: t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The log of each of these series is used in the regression, allowing the coefficients to be interpreted as elasticities. Seasonal dummies are included for Quarters 2, 3 and

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[8] This measure includes Income Levy and the Universal Social Charge, but omits PRSI.

4, to control for the presence of seasonality in Gross Disposable Income and in Income Tax Receipts. The regression results are shown above in Table B2 and Figure B2.

The Income Tax series and the Average Tax Rate series are both significant and show the expected signs. An increase in the Average Tax Rate of 1 per cent brings a decrease in Disposable Income of 0.96 per cent, while an increase in Income Tax receipts of 1 per cent is associated with an increase of 0.85 per cent in Gross Disposable Incomes. The seasonal dummies for Quarters 3 and 4 are significant, and show the expected negative signs. Due to the reporting schedule for Income Tax, the series have strong seasonal components. Income taxes are highest in the second half of the year, especially the fourth quarter. The reverse holds for Gross Disposable Income; it is lowest in the fourth quarter.

Based on the estimated equation, prediction of 2013 Gross Disposable Income (GDI) is possible. The Income Tax series provides data up to August of 2013. For the remainder of the year we use ESRI forecasts of Income Tax. Figure B2 shows the Gross Disposable Income Series (in log form). Predictions are provided both in the estimation sample and out-of-sample for 2013. Confidence bands of 95 per cent are provided around the predictions. The series shows higher GDI in the first half of 2013, with seasonally lower disposable income in the second half.

Results for 2013 Quarters 1 and 2 show growth in Gross Disposable Income, with respect to the same quarters in 2012, of 5.06 per cent and 3.13 per cent respectively. The third quarter of 2013 shows a small fall in GDI of -0.13 per cent, with Quarter 4 showing moderate growth of 0.92 per cent. The year 2013 thus shows 2.25 per cent growth in Gross Disposable Income compared with 2012. This informs the forecast included in the *Commentary* and is consistent with the growth in employment and in Income Tax receipts thus far in 2013.

6

Public Finances

We now have exchequer returns for the first nine months of the year. These suggest some outperformance compared to targets, though VAT and excise did not perform well in the first half of the year. However, the changing seasonal pattern of car sales as a result of changes in the registration system may mean slightly more rapid growth in the second half of the year in these specific tax aggregates. Income tax has performed surprisingly well, even taking account of the major increase in employment (see Box 3).

Box 3: Exchequer Returns – Income Tax Analysis

by David Byrne

Figure B3 shows Income Tax Revenue on a monthly basis from January 2009 until August 2013, the most recent month for which data are available. The degree to which this series is seasonal is apparent: the month of November provides, by a strong margin, the greatest return to the Exchequer in each year. Analysis of income tax receipt patterns, therefore, requires that the series be seasonally adjusted.

Figure B3 shows the seasonally adjusted series and the trend in income tax receipts in addition to the raw series. There is a trend of increasing receipts in each month since early 2010. Using the seasonally adjusted series, on the basis of the trend to date in 2013, a yearly increase in income tax receipts of 4.4 per cent seems likely for the year. This increase in income tax receipts appears to be due to changes in the base rather than changes in tax rates. Given moderate increases in wage rates, an important driver of the increase in income tax revenue is likely to have been the growth in employment, as discussed in Chapter 7.

FIGURE B3 Monthly Income Tax Revenue
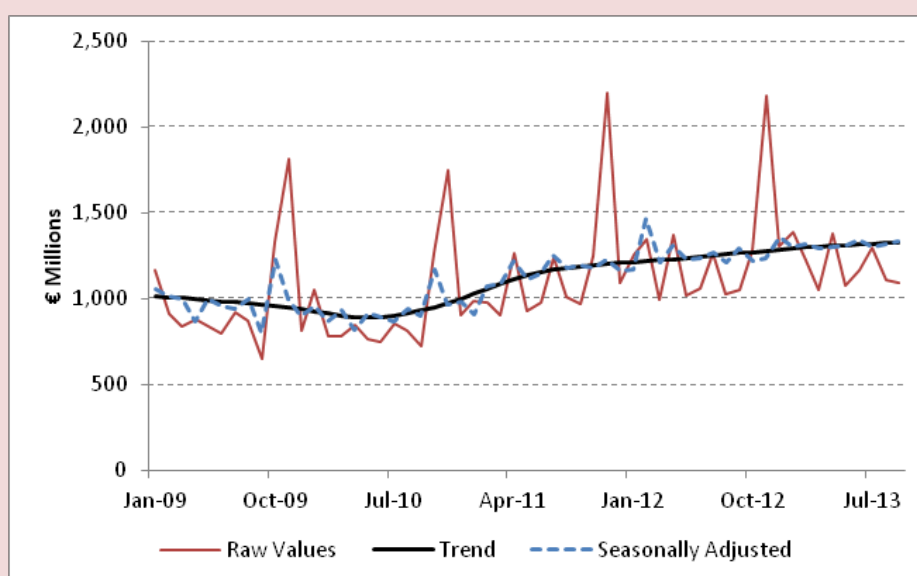
Source: Department of Finance *Exchequer Returns* statistics and own calculations.

On this basis, for 2013 we expect government borrowing as a percentage of GDP to be lower than the target of 7.5 per cent. In particular, as shown in Table 6, we estimate that national debt interest payments in 2013 and 2014 are likely to be significantly lower than was envisaged by the Department of Finance earlier this year. Partially offsetting this saving, it is likely that corporation tax will come in lower than expected by the Department because of the fall in net factor income, reflecting trends in profits of multinationals. On the basis of our forecast the outturn for the borrowing requirement in 2013 looks like being close to 7.0 per cent of GDP, significantly outperforming the target.

In spite of the fiscal effort this year, the reduction in the borrowing requirement in 2013 is less than the reduction last year because of two exceptional items. The ending of the bank guarantee means that revenue from the banks will be approximately €500 million lower this year than in 2012 (shown as other income in Table 6) and, in addition, approximately €1 billion in additional capital expenditure is needed to fund the once-off costs of winding up Irish Banking Resolution Corporation. In 2014 this latter special item of expenditure will disappear, contributing to a bigger reduction in the borrowing requirement than this year.

TABLE 6   Public Finances

	2012	2013	2013	2014	2014
	€bn	€bn	% change	€bn	% change
Income					
Taxes on income incl. Social insurance	27.3	28.3	3.8	29.6	4.6
Taxes on expenditure	18.0	18.5	2.6	19.5	5.5
Gross trading and investment income	3.0	3.5	17.4	3.1	-12.3
Other Income	3.9	3.6	-8.0	3.2	-11.1
Total receipts : Current	52.2	53.9	3.3	55.4	2.8
Total receipts : Capital	1.4	1.8	27.8	1.8	2.1
Total receipts - current and capital	53.6	55.7	3.9	57.2	2.7
Expenditure					
Sudsidies	1.5	1.4	-11.9	1.3	-3.3
National debt interest	5.9	7.6	27.7	7.7	1.7
Transfer payments	27.5	26.9	-2.1	26.4	-2.2
Expenditure on Goods and Services	26.9	26.8	-0.4	25.8	-3.8
Total expenditure - current	61.9	62.7	1.3	61.2	-2.4
Total expenditure - capital	3.9	4.7	19.8	3.6	-23.4
Total expenditure - current and capital	65.8	67.4	2.4	64.8	-3.9
General Govt. Balance	-12.5	-11.7		-7.6	
As % of GDP	-7.6	-7.0		-4.4	

The forecast reduction in borrowing this year would continue the success of the government in 2011 and 2012 in exceeding the targets set for reducing the borrowing requirement. As discussed in FitzGerald (2012),[9] the outgoing government in 2010 set a series of targets for the borrowing requirement for the period 2011-15 that were deliverable, in spite of the fact that the economy has underperformed in terms of growth. As a result, fiscal policy has been seen by the markets to have been successfully managed over the last three years. The lesson is to under-promise and over-deliver. The success of this strategy has been reflected in the ability of the National Treasury Management Agency (NTMA) to return to the markets earlier this year securing new funding at competitive rates.

If a package of measures is implemented in the 2014 Budget to reduce the borrowing requirement by €3.1 billion *ex ante* we anticipate that government borrowing for 2014 will come in significantly ahead of the target (expressed in terms of a percentage of GDP, Table 6). Given our forecast for 2014 we estimate that the borrowing requirement could be around 4.4 per cent of GDP, well below the target of 5.1 per cent. However, as discussed elsewhere in this *Commentary* and in the *Medium-Term Review* (*MTR*) published in July 2013, there is considerable uncertainty about the timing and strength of the EU recovery. If it were to be delayed by a year then growth in 2014 would be much lower than we

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[9]   FitzGerald, J. (2012). 'Fiscal Policy for 2013 and Beyond,' in ESRI *Budget Perspectives 2013*, Callan, T. (ed)., September.

are forecasting and it might be difficult to meet the target of 5.1 per cent of GDP even with cuts of €3.1 billion.

As shown in Table 7, for 2014 a significant part of the €3.1 million adjustment has already been announced and implemented. However, there are further measures to be implemented that will prove difficult politically. Here we provide an illustrative set of measures which would meet the target adjustment. These fiscal measures are not intended to be normative; instead they reflect what we know about the government's intentions from published documents and speeches.

The composition of the adjustment is assumed to be split into roughly a third increased revenue and approximately two-thirds cuts in expenditure. The new measures to be announced include a further cut in current government expenditure of €800 million. This appears to be consistent with the assumptions set out in the Department of Finance *Stability Programme Update* of last April. Achieving this saving on top of the Haddington Road agreement will be particularly demanding. Because the government has ruled out further increases in property tax or income tax, we have assumed that there is an increase in rates of indirect taxation in 2014 so as to realise additional revenue of around €400 million.

TABLE 7   Illustrative Budgetary Measures 2014, € million

	Total Budget	Tax	Expenditure
Already announced and implemented:			
Haddington Road Agreement	300		300
Cut in numbers, natural wastage	200		200
Raising retirement age	150		150
Taxes on income and property	500	500	
Other cuts in expenditure	250		250
Sub-Total	1,400	500	900
New Measures:			
Current expenditure	800		800
Transfers	200		200
Subsidies	100		100
Excise and VAT & other revenue	600	600	
Total	**3,100**	**1,100**	**2,000**

On the basis of last year's adjustment we would anticipate that the impact of such an illustrative 2014 Budget would be to reduce growth by around 0.75 per cent below what it would otherwise be. This is built into our forecast for 2014. (Taking account of the deflationary impact of the 2013 Budget the economy still grew by around 2 percentage points suggesting an underlying dynamic in the

economy in the absence of fiscal cutbacks.) Even if the actual composition of the adjustment is rather different in character to what we have assumed here, it is likely that the macro-economic impact will not be greatly altered.

7

Population and the Labour Market

The situation of the labour market has become increasingly important to our understanding of current economic conditions in Ireland. Other indicators of the economy have been subject to various distortions in recent times; some of the impact of these distortions has been analysed in Notes accompanying this and previous *Commentaries*. The latest labour market data have shown a continuation of recent encouraging trends, with unemployment falling and employment growing. However, the most recent population estimates confirm what is anecdotally evident about migration; an increasing number of Irish nationals are leaving the country. While sizable challenges remain to return the economy to near-full employment, the rate at which this is achieved is a crucial factor for assessing how the economy is performing.

The latest *Quarterly National Household Survey* (QNHS) results show further improvement for unemployment in the second quarter of this year. The first six months saw a reduction of 26,300 in seasonally adjusted unemployment compared to the January-June level in 2012. The main decrease has been in long-term unemployment, which is 24,200 lower over the same period. The long-term unemployment rate has fallen substantially since last year, from a peak of 9.5 per cent in the first quarter of 2012 to 8.1 per cent in the second quarter of 2013. Monthly Live Register data point to a continued decrease in the unemployment rate, with September showing the nineteenth consecutive month without an increase for the standardised unemployment rate, now down to 13.3 per cent. Figure 9 shows the path of the unemployment rate since the first quarter of 2007, which shows that the reduction over the past six quarters has been primarily driven by changes in the rate of unemployment for males.

The gains to employment are now similar in magnitude to the falls in unemployment, which was not the case for some recent quarters. For the first six months of the year, there was an increase of 27,300 for total employment, compared with the first half of 2012. The size of the labour force has also begun to stabilise. Following a contraction of 12,100 in 2012, there was an annual increase of 1,300 for the first six months of 2013. This suggests that the recent improvement in the unemployment rate is no longer mainly driven by emigration, as previously appeared to be the case.

By sector, agriculture, forestry and fishing remains the source of the largest increases in the *QNHS* employment data, with half-year annual growth of 15,700, an increase of 18.7 per cent. While this is an unexpectedly strong result, this may reflect features of the sampling technique of the QNHS more so than any large expansion of agricultural employment over the period (as discussed in the Spring 2013 *Commentary*). The CSO emphasise that more weight should be put on the figure for total employment than for its sectoral composition. The improvement of both unemployment and total employment over the past four quarters indicates there has been a real gain of momentum in the Irish labour market since the second quarter of last year. Seasonally adjusted employment in industry in the second quarter of 2013 was 4 per cent above the level in the third quarter of 2012. Elsewhere, employment in accommodation and food service activities has increased for the year to end-June, reflecting the increase in visits to Ireland from abroad. Unusually good summer weather and *The Gathering* tourism initiative are possible explanations for this sector's improvement.

**FIGURE 9**   Unemployment Rate, Q1 2007 – Q2 2013
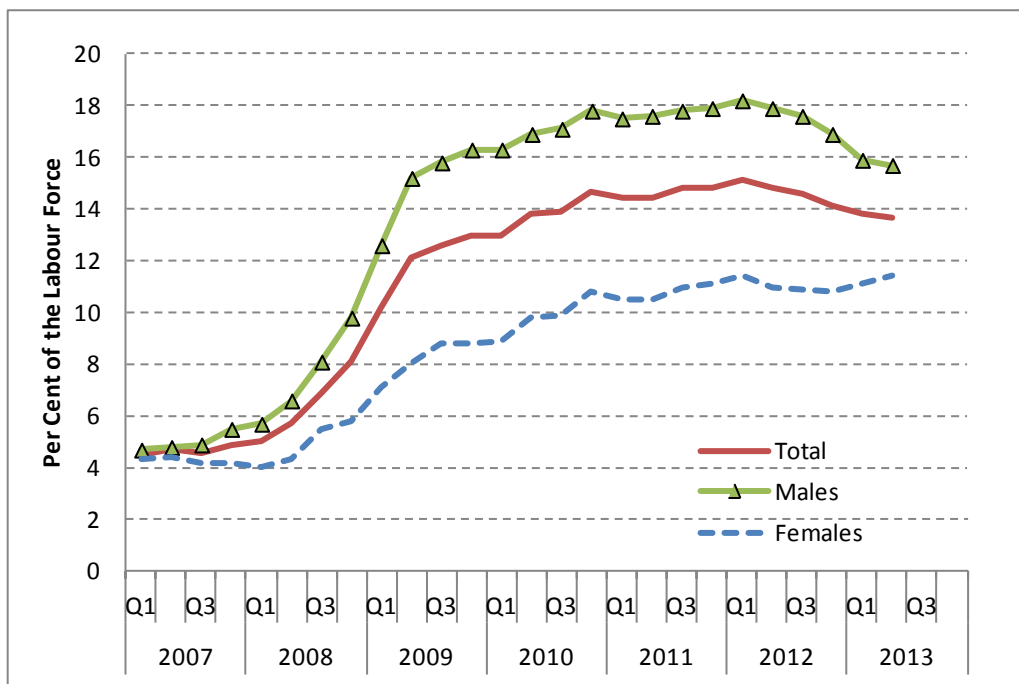
Source: Central Statistics Office.

Population statistics for the year to April 2013 show there are an increasing number of Irish nationals leaving the country. Of those who emigrated 50,900 were Irish nationals in the year to April, up from 46,500 in the year to April 2012. Total emigration (including that of other nationalities) of 89,000 took place over the year to April, up slightly from 87,100 the previous year. A recent study has found that over three in five recent emigrants have tertiary education, and that the population of

rural areas have been most affected as a result (MacÉinrí, Kelly and Glynn, 2013).[10] However, as the stabilisation of the labour force suggests, there are also an increasing number of immigrants (Irish and non-Irish) coming to Ireland. In the year to April 2013 there were 55,900 immigrants, up modestly from 52,700 a year earlier. Net emigration was similar in magnitude to the year ending in April 2012.

The combined impact of net migration and past fertility patterns has lead to an annual reduction of the population aged 15-39, from 1.65 million to 1.60 million, a fall of 46,600. This contrasts with the remaining working-age population aged 40-64, which grew by 22,700. The population of those aged under 15 increased by 12,900, while the population aged 65 and over grew by 18,800. Figure 10 below charts the annual changes of these age groups' populations since 2006. The patterns imply a rising dependency ratio of non-working age to working age population, from 46.3 per cent to 52.2 per cent over the period since 2009. The rapid increase in recent years is mainly explained by net emigration, estimated at 90,700 Irish nationals and 29,800 non-Irish nationals. Ireland's dependency ratio is now broadly in line with other European countries. In 2012 the dependency ratio was 52.1 per cent in Germany, 53.1 per cent in the UK, 55.6 per cent in France and 52.0 per cent on average in the Eurozone.

FIGURE 10   Annual Population Change for Selected Age Groups, April 2006-April 2013
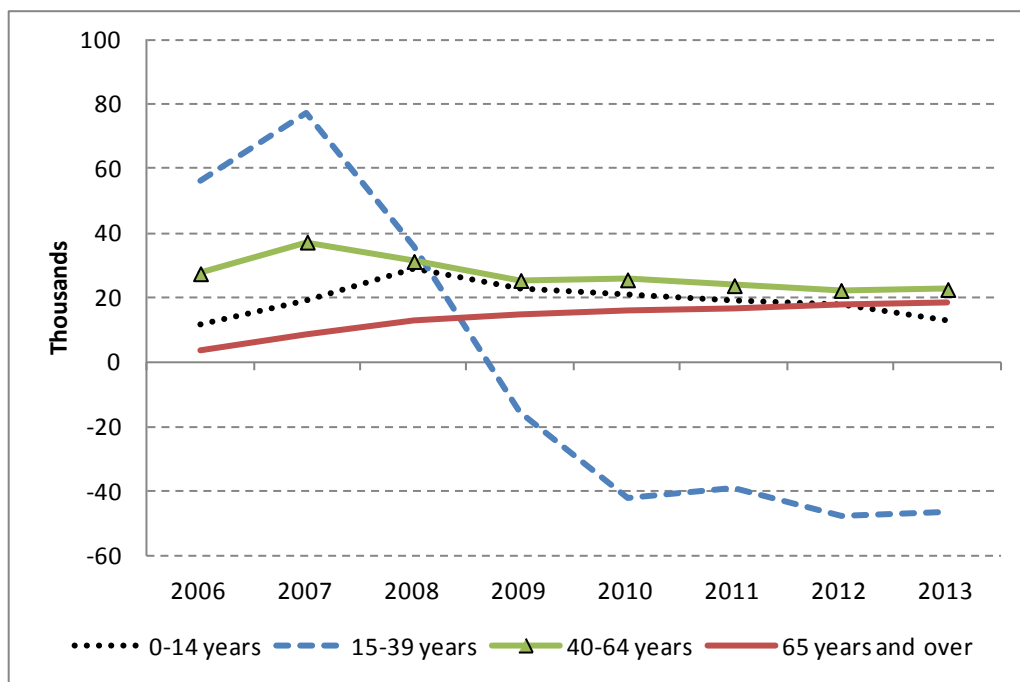
Source: Central Statistics Office.

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[10]   MacÉinrí, P., Glynn, I. and Kelly, T. (2013). *Irish Emigration in an Age of Austerity*, Department of Geography and Institute for the Social Sciences in the 21st Century, University College Cork.

The labour force participation rate has returned to its 2011 level of 60.2 per cent in the second quarter of the year. It is forecast to increase further for the remainder of 2013 and into next year. The labour market will continue its improvement in 2013, with the annual rate of unemployment falling to 13.6 per cent from 14.7 per cent last year. Looking ahead to 2014, we expect ongoing emigration and employment growth to reduce the level of unemployment further, with the unemployment rate falling to just above 13 per cent (Table 8). Total employment is now expected to increase in 2013 by 35,300, before increasing by a further 24,100 in 2014. Unemployment is forecast to continue falling in 2013 and 2014, falling below 300,000 this year and continuing this trend in 2014. The labour force is forecast to recover marginally this year in line with the labour force participation rate.

TABLE 8   Employment and Unemployment

	Annual Averages, 000s			
	2011	2012	2013	2014
Agriculture	83	86	100	103
Industry	348	336	344	354
of which: Construction	108	102	102	104
Services	1,414	1,415	1,429	1,441
Total at work	1,849	1,839	1,874	1,899
Unemployed	317	316	295	285
Labour Force	2,166	2,155	2,169	2,184
Unemployment Rate, %	14.6	14.7	13.6	13.1
Participation Rate, %	60.2	59.9	60.4	60.8
Net Migration	-27.4	-34.4	-33.1	-26.0

Source: Central Statistics Office and ESRI Forecasts.

8

Imports and the Balance of Payments

Imports

Weakness in the domestic economy during 2012 is reflected in the fact that the volume of imports of goods and services was unchanged when compared with 2011. In value terms imports grew by 3.9 per cent, giving a deflator for overall imports of goods and services of 3.9 per cent. More detailed data show a 2.9 per cent fall in the volume of goods imports, although the value of goods imports rose by 2.4 per cent. Services imports recorded growth of 1.7 per cent in volume and by 4.7 per cent in value. Thus, the price deflator for services imports rose by 3.0 per cent and for goods imports by 5.5 per cent in 2012.

We envisage some moderate growth in final demand in 2013 and some acceleration in this growth in 2014. However, we anticipate that merchandise imports will fall in value by approximately 3.5 per cent this year before rising in 2014 by 2.3 per cent. A significant factor in the fall in 2013 is a lower level of imports of aircraft.

TABLE 9   Imports of Goods and Services, Percentage Change, Volume

	2011	2011	2012	2013	2014
	Value €bn	%	%	%	%
Merchandise	48.3	-2.4	-2.9	-3.5	2.3
Services					
Tourism	4.8	-11.2	-7.1	0.5	1.1
Other Services	78.4	1.7	2.3	1.9	5.1
Total Services	83.2	0.8	1.7	1.0	4.9
Imports of goods and services	**131.8**	**-0.4**	**0.0**	**-0.1**	**4.0**

Note: Value of total imports of goods and services includes FISM adjustment.
Source: Central Statistics Office and ESRI Forecasts.

The weakness in the domestic economy means that we are forecasting a growth in the volume of other services imports of only 1.9 per cent in 2013, increasing to 5.1 per cent in 2014. Table 9 shows that total imports of goods and services in 2013 are forecast to remain roughly unchanged in volume. In value terms total imports are forecast to rise by roughly 1 per cent in 2013.

If our forecast of an upturn in activity in 2014 proves to be correct, then we anticipate that the volume of imports of goods will grow by 2.3 per cent next year. An

important determinant of services imports is growth in services exports. With these forecast to return to strong growth in 2014 we are assuming an associated pick-up in service sector imports. On this basis overall services imports are forecast to grow by 4.9 per cent in volume terms and by 6.7 per cent in value terms in 2014.

Factor Income

In Figure 11 we show the quarterly pattern of the seasonally adjusted net factor income outflows. This series shows considerable volatility but the seasonal factors are significant. While the effect of the inflows into the re-domiciled plcs was to reduce the increase in the net outflow in the period 2009-11, this has not been a factor in the most recent quarters. This would suggest that the reduction in the outflow in the most recent quarters has been due to other factors, especially the "patent cliff", representing a real change in the balance of payment current account.

FIGURE 11   Net Factor Income Outflow, Seasonally Adjusted, €million
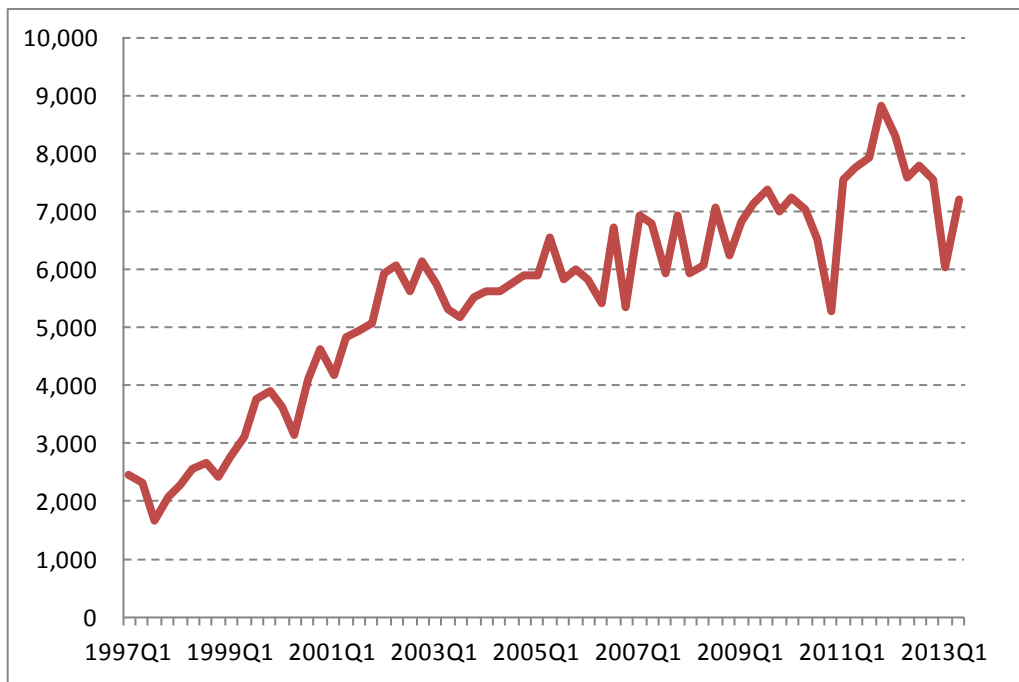
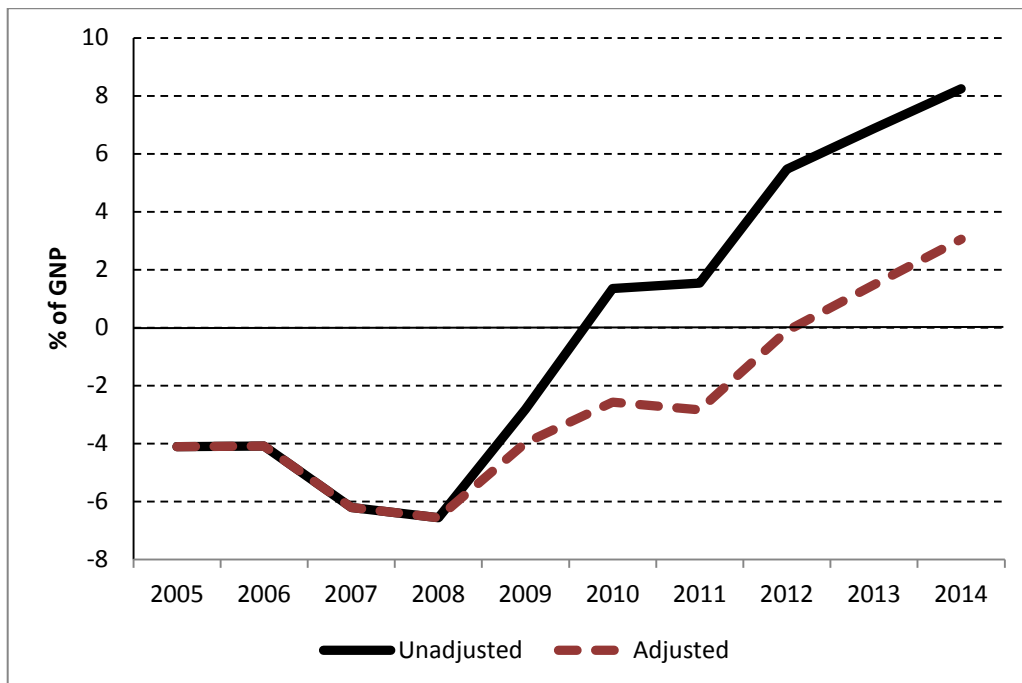*Source*:   Central Statistics Office.

Included in these outflows is the foreign debt interest paid abroad. As described elsewhere, while total national debt interest will increase substantially this year, a significant part of that increase will be paid to the Central Bank for their new holdings of Irish government bonds: consequently this will not add as much as might be expected to the outflow on the current account of the balance of payments.

There would be a large reduction in net factor payments abroad for the year 2013 if the outflow of factor income in the second half of the year were to remain close to its seasonally adjusted level in the first half of 2013. This would give rise to a very large increase in GNP. Instead we take the view that the outflow for the year as a whole will be only moderately down on last year, implying increasing outflows in the second half of the year.

Current Account of the Balance of Payments

Forecasting the balance of payments has become increasingly difficult in recent years as account has to be taken of the effect of re-domiciled plcs[11] and now of the "patent cliff". Given our forecasts for exports and imports already set out in the *Commentary,* it is likely that the surplus on trade will increase by only a small amount in 2013 due to the impact of the "patent cliff" on goods exports. As discussed above, net factor flows are forecast to fall in 2013 to €29.7 billion as a result of the big fall in the profits of the pharmaceutical sector and to grow by just 3.7 per cent in 2014 to reach €30.8 billion, lower than in 2012. When account is taken of net current transfers we expect that the current account surplus will amount to €9.4 billion this year and increase to €11.7 billion in 2014.

FIGURE 12   Current Account of the Balance of Payments, Adjusted for Re-domiciled Plcs

Source: Central Statistics Office and own calculations.

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[11]   See FitzGerald, J. (2013). "The Effect of Re-domiciled Plcs on Irish Output Measures and the Balance of Payments" in *Quarterly Economic Commentary,* Summer.

The trend in the published figures for the current account over the period 2008-12 is significantly affected by the rise in the undistributed profits of redomiciled plcs. However, it would appear that while this inflow grew rapidly over the period 2009-12, since early in 2012 this inflow has levelled off, albeit at a high level. Thus the growth in the current account surplus in 2013 (and 2014) is not affected by this issue.

In Figure 12 we show the current account as published by the CSO (unadjusted) and the current account adjusted for the undistributed profits of re-domiciled plcs.[12] The adjusted current account figure for last year was roughly in balance and the figure for this year and 2014 shows an increasing surplus.

[12] We assume no change in these profits in 2013 and 2014.

9

Monetary Sector Developments

Bank Funding

Continuing stability of the domestic economy and reduced uncertainty over international economic prospects supported increasing deposit levels in Irish banks during 2013. For the first three months of the year, adjusted for non-transaction related effects (including revaluations and exchange rate movements), deposits from the private sector grew by 5.5 per cent on average, despite the potentially destabilising developments in Cyprus that took place during March. This was followed in April-June by average growth of 8.3 per cent, and 8.4 per cent in July. The fall in the weighted average interest rate for term deposits has continued for the first seven months of the year, falling by 104 basis points compared to April 2012. The spread between this and the Eurozone equivalent has narrowed to just 5 basis points, as shown in Figure 13.

FIGURE 13   Average Household and Non-Financial Corporation Deposit Rates[1]
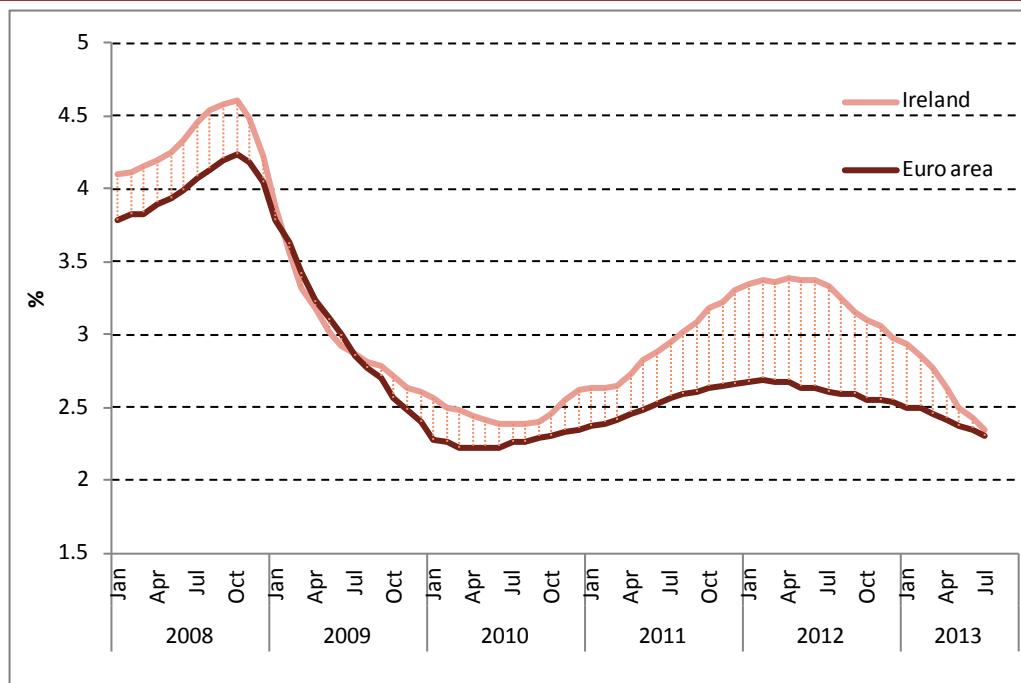
[1] Average for deposits outstanding with agreed maturity.
*Source*:   European Central Bank, *Bank Lending Survey 2012.*

The reliance on extraordinary Eurosystem funding also continues to decline. As of July, total Eurosystem borrowing in domestic Irish banks is down to €35 billion. The reduction in reliance has been achieved in parallel with renewed conventional

market funding for both the banks and sovereign. In March, the NTMA issued a new benchmark 10-year government bond, the first of its kind since January 2010. Efforts to normalise debt financing have continued with monthly treasury bills auctions, and the yield attached to such issuances has been declining since February. Banks have also seen access to wholesale funding channels improve, with Bank of Ireland recently announcing intentions to sell a covered €500 million bond with a maturity of seven years.

Net Foreign Liability of the Financial System

The Irish banking system displayed heavy reliance on lending from foreign sources to fund the expansion of its lending, especially property-related, during the last decade. Figure 14 shows that between 2004 and 2008, the banking system developed an increasingly large Net Foreign Liability (NFLB) position.

FIGURE 14   Net Foreign Liabilities of the Banking System, January 2003 – August 2013
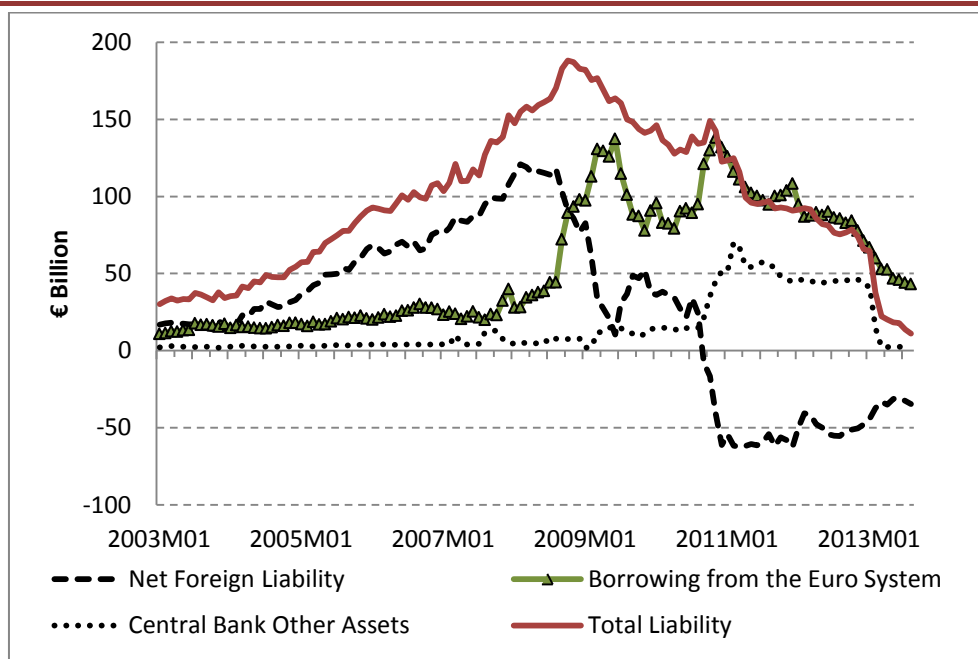
Source: Central Bank of Ireland, *Money and Banking Statistics.*

The Emergency Liquidity Assistance (ELA) provided by the Central Bank to the banking system is represented in Figure 14 as a component of the Central Bank Other Assets curve.[13] Adding this to the banking system's Net Foreign Liability and Eurosystem borrowing gives the total "foreign" liability of the banking system. It reaches its peak in October 2008, and has declined considerably since that point to €11.2 billion, its lowest level over the period from January 2003. This represents 5.9

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[13]   This curve is the sum of the entries "Other Claims on Euro Area Credit Institutions in Euro" and "Other Assets" in the Financial Statement of the Central Bank (Table A.2 in the *Money and Banking Statistics* series). This curve also accounts for the February 2013 exchange of Promissory Notes for Irish Government Bonds following the liquidation of IBRC.

per cent of the 2008 peak. Should the decrease in total liabilities continue at a similar pace, a total net foreign asset position could be developed in 2015/16.

Driving this decrease in total net foreign liabilities has been the deleveraging of the banking system. At the same time the recent development of alternative outside sources of funding has further contributed to a lessening of reliance on Eurosystem funding and the development of a net foreign asset position of the banking system. Borrowing from the Eurosystem lies at its lowest level since June 2008, while September 2010 marked the change in the Net Foreign Liability curve to a net foreign asset position. The selling of assets and reduction in size of balance sheets has contributed to this, with net repayment of debt by the private sector also being significant.

In February 2013 the Irish Bank Resolution Corporation (IBRC) was liquidated. A result of this was the appropriation of IBRC collateral (backing ELA) by the Central Bank. This included the Promissory Notes issued by the Irish Government. The collateral was then exchanged by the Central Bank for Irish Government Bonds and NAMA Bonds. We thus remove this component from the "Central Bank Other Assets" series in Figure 14 as the ELA is no longer a liability of the banking system. This causes the significant drop in the "Other Assets" series and in the "Total Liability" series in February 2013, as seen in Figure 14. On current trends, the total foreign liability of the banking system, as represented in Figure 14 by the "Total Liability" series, could be eliminated next year. Similarly, reliance on borrowing from the Euro System could be eliminated in 2015, should it continue to decrease at the same pace. The Irish banking system should largely be funding itself domestically at that point, representing an improvement in the stability of the system.

Recent Lending Developments

Monthly lending data (adjusted for non-transaction related effects) show household lending has continued to fall throughout 2013. Annual contractions of between 4 and 4.5 per cent have been recorded for the first seven months of the year, compared to between 3.6 and 4 per cent for the same period in 2012. The faster pace of deleveraging taking place this year is confirmed in the transactions data, which show €2.5 billion more repayment than draw-downs for the first seven months of 2012, and €3.1 billion for January-July in 2013. Activity in lending for house purchases fully explains this decrease, with a fall of €1 billion to July 2012 widening to €1.6 billion for the first seven months of this year. Deleveraging has also continued for consumer credit and other lending in 2013, but the rate of decrease has been broadly unchanged at €1.6 billion more repayment than draw-downs. Table 10 summarises the latest lending data of the Central Bank.

Data on lending to Irish-resident Small and Medium Enterprises (SMEs) shows continued reductions throughout 2013. The most recent data shows a large 5.2 per cent fall for the second quarter of this year. Based on the first half of this year, the pace of lending to SMEs (net of repayments) has been declining faster than in 2012. 'Core' lending fell by 5.8 per cent as it did in the first quarter, as lending to the sectors outside of financial intermediation, construction and real estate activities continues to decrease faster than the total.

TABLE 10   Net Lending to Irish Households and SMEs (% Change, Year-on-Year)

	Quarter	Irish Household Lending			Small and Medium Enterprise Lending		
		All Lending	For House Purchases	Consumer Credit	Total	Total excl. Financial Intermediation	Total excl. Financial Intermediation & Property Related Sectors
2011	Q1	-2.0	-2.6	0.8	-8.8	-11.3	-9.2
	Q2	-1.3	-2.2	2.9	-9.1	-12.5	-10.6
	Q3	-1.5	-2.4	3.3	-5.4	-8.2	-8.9
	Q4	-3.1	-2.4	-6.3	-3.0	-5.4	-6.2
2012	Q1	-4.1	-2.4	-11.6	-3.9	-4.9	-6.3
	Q2	-3.8	-2.2	-10.7	-1.7	-2.9	-4.6
	Q3	-3.4	-1.9	-9.5	-2.7	-4.1	-4.9
	Q4	-3.4	-1.6	-10.6	-2.8	-4.1	-5.0
2013	Q1	-3.7	-1.9	-12.1	-3.2	-4.6	-5.8
	Q2	-3.9	-2.2	-11.9	-5.2	-4.6	-5.8

Source: Central Bank of Ireland, *Money and Banking Statistics.*

The continued deleveraging by SMEs, as shown in Table 10 above, is driven by a number of factors. First, a cohort of SMEs still remains highly leveraged and it is working through the debt overhang built up during the pre-crisis phase. As the note published with this volume suggests (O'Toole, Gerlach-Kristen and O'Connell, 2013), firms with high debt levels are concentrated mainly in domestic-oriented sectors such as hotels and construction, which built up unsustainable balances during the boom. In addition to managing debt overhang, there is another, albeit more limited, dynamic driving the continued reduction in SME debt balances. Recent research by Lawless *et al.* (2013) and Casey and O'Toole (2013)[14] highlights the fact that SMEs in Ireland have shifted out of bank financing and moved to using alternative sources. This may go some way to reconciling the stabilisation in output with the continued reduction in credit volumes.

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[14]   Casey, E. and O'Toole, C. M. (2013). "Bank-lending constraints and alternative financing during the financial crisis: Evidence from European SMEs," Working Paper 450, Dublin: Economic and Social Research Institute (ESRI). Lawless, M., McCann, F. and O'Toole, C. (2013). "The Importance of Banks in SME Financing: Ireland in a European Context," *Economic Letters* (forthcoming), Dublin: Central Bank of Ireland.

10

Industry and Output

The pattern of growth in output is very difficult to ascertain. The data available for the first half of this year on industrial output are not easy to interpret because of the problem with the ending of patents in the pharmaceutical sector. When allowance is made for the ending of the pharmaceuticals "patent cliff", it would appear that there is some underlying growth in manufacturing. A Research Note by FitzGerald (this issue) details how the national accounts data are affected by this development.

In addition, because the Industrial Production index is weighted by gross value added (GVA), it can overstate how developments in the industrial sector affect the wider economy. In particular, since pharmaceuticals output carries a very large GVA (31 per cent of all manufacturing in 2008), the path of the Industrial Production index can be heavily influenced by activity in that sector. In 2010 and 2011, the Industrial Production index suggested a recovery had taken place, but other indicators for those years such as employment and consumption pointed to an ongoing economic crisis.

The accompanying note by Timoney (this issue) presents an alternative index where the output of individual manufacturing sectors is weighted by the wage bill rather than value added. This index may give a better impression of the real contribution of the manufacturing sector to the wider economy. As detailed in the research note, this alternative index suggests a much larger contraction of output took place in 2008 and 2009, and the recovery since then has yet to reach the implied pre-downturn level of production.

TABLE 11   Industry and Output, Percentage Change, Volume

	2011	2011	2012	2013	2014
	Value €bn	%	%	%	%
Agriculture	3.9	-1.4	-12.6	-0.5	0.8
Industry	41.0	2.3	-0.8	-2.8	3.2
Distribution, Transport, Software and Communications	35.6	0.5	-0.6	1.9	3.0
Public Administration and Defence	6.5	-6.0	-6.3	-0.7	-0.7
Other Services	61.7	-0.2	2.7	1.1	2.0
GVA at Factor Cost	**147.6**	**2.6**	**0.3**	**0.1**	**2.4**

Source: Central Statistics Office and ESRI Forecasts.

Current data for this year so far indicate that annual growth in the region of 1 per cent is likely for the re-weighted output index. This is despite an expected fall in pharmaceuticals production this year, as a result of the impact of the "patent cliff" and the accounting treatment of the sector's output this year. The forecasts for output in the economy by sector are shown above in Table 11.

The *Quarterly National Accounts* for the first half of this year shows quite strong growth in output in the services sector (excluding public administration). If the first half-year figure for services sector output were maintained for the rest of the year (no further growth) there would be a volume increase in the output of the sector in 2013 of around 2.5 per cent. This is consistent with the story of underlying growth in the economy this year best reflected in the forecast for GNP.

For 2014, with a return to growth in our external markets, we envisage growth of at least 3 per cent in industry next year. Growth in the services sector will also be maintained contributing to a growth in GVA at factor cost of around 2.4 per cent. However, it is difficult to monitor developments in the services sector because the intra-year data are not as well developed as for the agricultural and the industrial sector. The non-market Public Administration and Defence sector will continue to contract as a result of the tight fiscal policy.

11

General Assessment of the Irish Economy

Understanding the pattern of growth in the Irish economy has become very difficult. Many of the key indicators that one would normally rely on to understand current trends in the economy are affected by special factors. The problem arises either because of administrative changes or because the indicators do not adequately capture the impact of foreign firms on the Irish national accounts.

One example of an administrative change that has affected the data is the implementation this year of a new system of registration for motor vehicles. As a result, the seasonal pattern of retail sales for the year has been disturbed. The effect of this change was to pull down retail sales in the first half of the year while, as a result, in the second half of the year vehicle sales are likely to be much higher than previous seasonal factors would suggest.

The effect of changes in the multinational sector on current economic indicators is even more far-reaching. For example, the measured volume of industrial production and the volume of merchandise exports in the first half of this year actually fell. Yet, as explained in the Research Notes in this *Commentary*, the headline figures mask real growth in the volume of the rest of manufacturing, when the unusual effects of changes in patent status and their treatment in the accounts are taken into account. Another example of how the behaviour of multinational firms can send confusing signals was set out in the last *Commentary* in a Research Note. That note explained how the movement to Ireland of certain foreign companies (referred to as re-domiciled plcs) artificially inflated the current account surplus and the level of GNP.

Given these complications, probably the best guide to what is going on in the economy this year is the pattern of growth in employment and the continuing fall in unemployment. We can be reasonably happy that the pattern of growth in total employment, manifested over the last three quarters from Quarter 4 of 2012 to Quarter 2 of this year, represents real progress in the labour market, unaffected by unusual accounting conventions or unusual behaviour by multinational firms. These labour market data show strong growth with the seasonally adjusted data for total employment rising by at least 0.5 per cent each quarter on the previous quarter. The decline in unemployment mirrors this change; the latest unemployment figures

for September suggest that the trend is being maintained in the third quarter of 2013.

Even if there were no further growth in employment in the second half of this year, with employment maintaining its end-June level, the growth in average employment in 2013 compared to 2012 would be around 1.5 per cent. If the growth rate of the last three quarters is maintained to the end of the year, employment in 2013 will be around 1.9 per cent higher than in 2012.

When considering the implications of such a growth in employment for the growth in output, account must be taken of the growth in productivity for the year. Looking back over data since 1960, there was only one year in the last half century when GDP per person (a measure of national productivity) actually fell (2008), with growth being observed in each of the other 50 years. In this *Commentary* we are making the conservative assumption that there is very little growth in productivity this year. On this basis, growth in GNP this year of around 2 per cent seems likely. However, if employment growth were to accelerate over the rest of the year or if there were any significant growth in productivity, then growth could prove stronger than suggested in this *Commentary*.

This *Commentary* describes how the ending of certain drug patents in the pharmaceutical sector has caused a major distortion to key national accounts aggregates, which makes them difficult to interpret. However, as the Research Note on this topic indicates, GNP is relatively unaffected by these distortions.

The forecast for growth in GNP for this year of 2 per cent represents a significant upward revision compared to the forecast in the last *Commentary* of growth in GNP of only 1 per cent. As explained above, this upward revision seems appropriate in light of the favourable trends in the labour market and the latest published figures for GNP and the current account surplus for the first half of the year (in the *Quarterly National Accounts* and the *Balance of International Payments* statistics).

By contrast, because of the way the ending of pharmaceutical patents are treated in the National Accounts, we anticipate that growth in GDP this year will be around 0.5 per cent, a major downward revision compared to our forecast in the last *Commentary* of 1.8 per cent. However, as explained above, this low rate of growth masks a much more positive underlying trend in the tradable sector of the economy.

The effect of this "artificial" reduction in GDP will be to make the debt and borrowing, expressed as a percentage of GDP, look worse than would otherwise be the case. However, as argued in the Research Note, this reduction in GDP is an unusual accounting artefact and using the increase in the debt ratio this year as an indicator of the burden of the debt on the economy will tend to exaggerate the underlying trend in this variable.

A vital ingredient in understanding what may happen in the Irish economy next year is the forecast for the EU economy. While most experts who provide such forecasts (e.g., the OECD, the IMF, and NIESR) are forecasting a recovery next year, there remains considerable uncertainty. Over the summer some of the leading indicators do suggest that the EU economy passed a turning point and may be returning to growth. However, the continuing deflationary fiscal stance across Europe will render any such recovery weak, even if it progresses. Thus, in making our forecast, while we rely on other international forecasts as a basis, we remain uncertain as to the validity of these forecasts until there is firm evidence that such a recovery is actually happening in Europe. The *Medium-Term Review (MTR)*, published in July, handled this uncertainty in a medium-term context by considering a number of scenarios. However, when considering short-term forecasts for the coming year such an approach is unduly complex. Nonetheless, the forecast for the Irish economy next year in this *Commentary* must be seen as carrying considerable uncertainty until the future course of the EU economy becomes clear.

In terms of the domestic policy environment for next year, we are assuming that the government, in its 2014 Budget, implements cuts in expenditure or increases in taxation amounting to €3.1 billion. We explained in the July *MTR* why we felt that this course of action would be wise. While approximately half of these budgetary measures are already announced and implemented, there remain some very difficult decisions to be made if the target for a reduction in borrowing is to be met. In this *Commentary* we have implemented these cuts in a stylised way. This involves a substantial further cut in public expenditure on goods and services (as seems to be assumed in the Department of Finance *Stability Programme Update*) and also a substantial rise in indirect taxes, which would affect the rate of inflation next year. These assumptions are not intended to be normative; rather they are designed to be consistent with the commitments made by the government (e.g., no further increase in property tax beyond that already announced).

As discussed in the *MTR*, the effect of a rather similar cut in borrowing in the Budget for 2013 was probably to reduce growth this year by around 0.75 per cent below where it would otherwise have been. The effects of the 2014 Budget on growth next year could be rather similar. On this basis, assuming a return to growth in the EU next year, growth in Ireland could be a bit higher next year than this year.

In this *Commentary* our central forecast is for growth in GNP in 2014 of 2.7 per cent. However, depending on what happens outside Ireland and also depending on the response of the private sector in Ireland, growth next year could be significantly lower or higher than we are forecasting. This makes a change from the recent past when most of the uncertainty was on the down side.

While the greatest uncertainty surrounds future growth in the EU economy, there is also uncertainty about the speed of the response of the domestic economy to any recovery in foreign demand. The housing market is showing signs of turning. As discussed in the *MTR*, there is likely to be upward demographic pressure on the housing market over the rest of the decade.

Recent data show growth in both prices and rents at a national level. To date this has been driven by an upturn in the Dublin market. If house price increases lead to a change in household's price expectations, accompanied by growth in rent levels, then, as discussed in the Investment Section, homeownership is becoming an attractive tenure option again. However, there remains great uncertainty as to when households will wish, or be able, to turn this potential demand for additional accommodation into actual demand. Also, there is at least as great uncertainty as to how the construction sector might respond to such an increase in demand, given the challenges of accessing credit. In this *Commentary* we assume that any significant recovery in the housing market and in the construction sector is delayed until 2015, or even later in the decade.

Detailed Forecast Tables

FORECAST TABLE A1   Exports of Goods and Services

	2011	% change in 2012		2012	% change in 2013		2013	% change in 2014		2014
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	85.0	1.0	-3.6	85.9	-2.7	-3.7	83.5	3.5	2.0	86.4
Tourism	3.0	0.4	-0.2	3.0	5.4	4.5	3.2	5.6	4.0	3.4
Other Services	78.5	11.2	7.2	87.3	4.9	3.4	91.5	8.9	7.0	99.7
Exports Of Goods and Services	166.5	5.8	1.6	176.1	1.2	0.0	178.2	6.3	4.6	189.5
FISM Adjustment	0.5			0.6			0.6			0.7
Adjusted Exports	167.0	5.9	1.6	176.7	1.2	0.0	178.9	6.3	4.6	190.2

FORECAST TABLE A2   Investment

	2011	% change in 2012		2012	% change in 2013		2013	% change in 2014		2014
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Housing	3.8	-19.8	-21.4	3.1	-3.9	-5.7	3.0	17.0	12.5	3.5
Other Building	5.1	10.3	7.2	5.6	3.5	1.9	5.8	3.6	2.0	6.0
Transfer Costs	0.4	-4.1	22.9	0.3	14.4	10.0	0.4	14.4	10.0	0.5
Building and Construction	9.3	-2.8	-4.1	9.0	1.4	-0.3	9.1	8.4	5.8	9.9
Machinery and Equipment	8.0	5.3	2.6	8.4	3.4	1.7	8.7	4.4	2.4	9.1
Total Investment	17.3	1.0	-1.0	17.4	2.4	0.7	17.8	6.4	4.2	19.0

FORECAST TABLE A3   Personal Income

	2011	Change in 2012		2012	Change in 2013		2013	Change in 2014		2014
	€ bn	%	€bn	€ bn	%	€bn	€ bn	%	€bn	€ bn
Agriculture, etc	3.2	-9.5	-0.3	2.9	3.0	0.1	3.0	2.5	0.1	3.0
Non-Agricultural Wages	68.3	0.1	0.1	68.4	2.6	1.8	70.2	2.6	1.9	72.0
Other Non-Agricultural Income	13.3	19.9	2.6	15.9	12.8	2.0	17.9	13.5	2.4	20.3
Total Income Received	84.7	2.8	2.4	87.1	4.5	3.9	91.0	4.8	4.3	95.4
Current Transfers	25.3	-1.0	-0.2	25.0	-3.1	-0.8	24.3	-2.4	-0.6	23.7
Gross Personal Income	110.0	2.0	2.2	112.2	2.8	3.1	115.3	3.3	3.8	119.1
Direct Personal Taxes	22.6	2.0	0.5	23.1	5.0	1.1	24.2	3.9	0.9	25.1
Personal Disposable Income	87.4	1.9	1.7	89.1	2.2	2.0	91.1	3.1	2.8	93.9
Consumption	82.4	0.3	0.3	82.6	1.1	0.9	83.5	3.0	2.5	86.1
Personal Savings	5.0	28.7	1.4	6.5	16.4	1.1	7.6	3.8	0.3	7.8
Savings Ratio	5.8			7.3			8.3			8.4
Average Personal Tax Rate	20.5			20.6			21.0			21.1

FORECAST TABLE A4   Imports of Goods and Services

	2011	% change in 2012		2012	% change in 2013		2013	% change in 2014		2014
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	48.3	2.4	-2.9	49.5	-3.0	-3.5	48.0	3.8	2.3	49.8
Tourism	4.8	-4.3	-7.1	4.6	2.0	0.5	4.7	3.6	1.1	4.9
Other Services	78.4	5.3	2.3	82.5	3.4	1.9	85.3	6.9	5.1	91.2
Imports of Goods and Services	131.5	3.9	0.0	136.6	1.0	-0.1	138.0	5.7	4.0	145.9
FISM Adjustment	0.3			0.4			0.4			0.5
Adjusted Imports	131.8	3.9	0.0	137.0	1.1	-0.1	138.4	5.7	4.0	146.3

FORECAST TABLE A5   Balance of Payments

	2011	2012	2013	2014
	€ bn	€ bn	€ bn	€ bn
Exports of Goods and Services	167.0	176.7	178.9	190.2
Imports of Goods and Services	131.8	137.0	138.4	146.3
Net Factor Payments	-31.8	-31.1	-29.5	-30.6
Net Transfers	-1.2	-1.2	-1.3	-1.3
Balance on Current Account	2.0	7.3	9.4	11.7
As a % of GNP	1.5	5.5	6.9	8.2

FORECAST TABLE A6   Employment and Unemployment, Annual Average

	2011	2012	2013	2014
	000s	000s	000s	000s
Agriculture	83	86	100	103
Industry	348	336	344	354
Of which: Construction	108	102	102	104
Services	1,414	1,415	1,429	1,441
Total at Work	1,849	1,839	1,874	1,899
Unemployed	317	316	295	285
Labour Force	2,166	2,155	2,169	2,184
Unemployment Rate, %	14.6	14.7	13.6	13.1

Research Notes

The Effect on Major National Accounting Aggregates of the Ending of Pharmaceutical Patents

John FitzGerald[*]

Over the last couple of years a number of drugs produced by the pharmaceutical sector in Ireland have fallen out of patent. This change in patent status has had a big effect on the value of gross output in the sector and, because of the importance of the sector, these changes have impacted on key economic aggregates. The purpose of this note is to explain how these changes impact on the national accounts.

To simplify the exposition we first concentrate on the effects of the loss of patent on the profits of the pharmaceutical sector and how this loss is treated in the national accounts. In our conclusions we briefly consider how the loss of patent may result in a loss of employment and related real value added in Ireland. [1]

The fastest growing sector in Irish manufacturing in recent decades has been pharmaceuticals. Many of the top firms in the industry have located plants in Ireland, providing a significant share of world output of particular drugs from these plants. These pharmaceutical firms have been attracted to Ireland for a number of reasons: the low corporation tax rate; the availability of specialist skilled labour; serviced sites and a suitable regulatory regime. Many of the drugs being produced in the Irish plants have been developed relatively recently and are covered by patents. The duration of the patents ensures that the firms can, over time, recover the huge cost of developing modern pharmaceuticals.

The patents are for limited periods and, once they run out, it is open to other firms anywhere in the world to produce generic equivalents of the drugs previously covered by patent[2]. Even without the entry of generic equivalents into the market, the ending of patent cover means that the firm's profits from

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[1]   Because the wage bill is under 5 per cent of the turnover in the sector, big changes in the turnover of the sector, and hence in profits of the sector, can have a much bigger effect on national accounts aggregates than changes in the wage bill.

[2]   The patents may run out at different dates in different jurisdictions. This may mean that the effects of the ending of a patent are spread over a number of quarters, or even years.

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producing and selling the drugs are likely to fall. In particular, the owners of the original patent may drop the price of the pharmaceuticals to discourage market entry by suppliers of generic equivalents. If the capital cost of establishing production of a particular generic drug is high (including the cost of getting US Food and Drug Administration (FDA) approval), then the owner of the existing plant can discourage entry by dropping the price to a level that would make it uneconomic for a new entrant.

While the patent lasts the profits for the owner of the patent are very high. (Over the life time of the drug, when the cost of research and development is included, the true economic profits will be substantially lower than the accumulated profits from actually manufacturing the drug – the cost of manufacture is small relative to the R&D costs). The practise with most of these pharmaceutical firms is that the drugs are sold from Ireland and the profit – the sale price less the short-run cost of production - arises in Ireland. However, the firms also pay very substantial royalties to their parent company for the right to produce the drug[3]. To the extent that such royalties are paid abroad the profits in Ireland are reduced and, hence, the taxes arising in Ireland are also reduced. The outflow of royalties also reduces the value added arising in Ireland. These royalty payments are treated as services imports in the national accounts and the residual profits due to the foreign multinational parent are treated as profit repatriations, part of net factor income in the national accounts.

FIGURE 1   Real Output of Pharmaceuticals (NACE21), Seasonally Adjusted
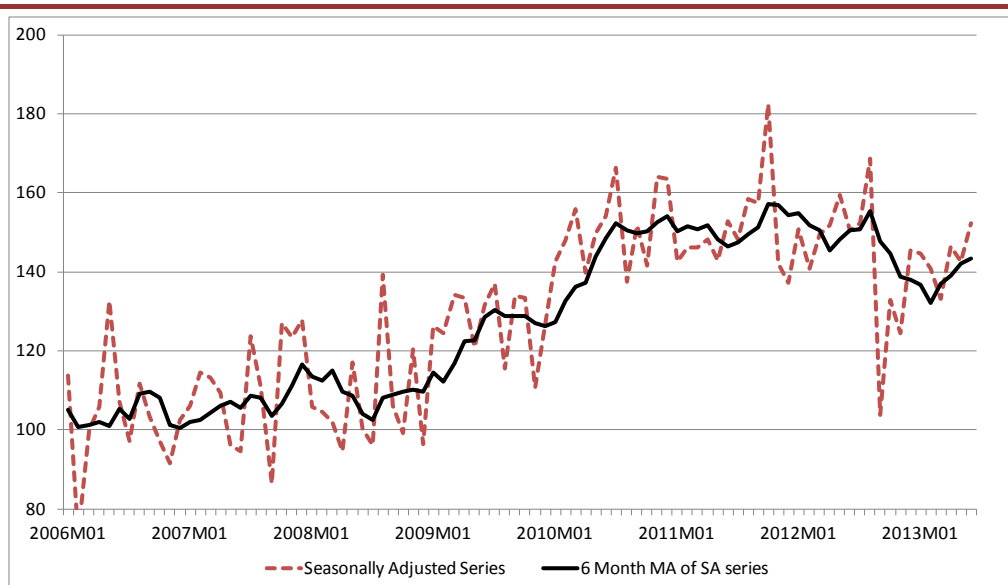
Source: Central Statistics Office, *Industrial Production and Turnover Index.*

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[3]   Of course the parent company may choose to receive the royalties in a jurisdiction other than where it has its headquarters or where the research was actually undertaken.

It has been known for some considerable time that patents on a number of very important and profitable drugs would run out in this decade.[4] The effect of key patents running out is that the value of output of the firm will fall by a very significant amount, even if the firm continues to produce the same chemical compound after the patent expires. Given the importance of the pharmaceutical sector to Ireland, such changes may well affect macro-economic aggregates in a noticeable fashion.

Figure 1 shows both the raw seasonally adjusted series for the volume of output of the Pharmaceuticals sector (NACE 21) and a 6 month moving average of that series. As can be seen from the Figure, the monthly series shows a lot of noise but it is useful in identifying where significant changes in trend may have occurred. These data suggest significant falls in output at the end of 2011 and in the late summer of 2012.[5] This was almost certainly primarily because a drug (or drugs) dropped out of patent around the time of the change in trend.

The smoothed 6 month moving average series shows a very rapid rise in the volume of output from 2009 to 2010. However, the pattern of growth changed towards the end of 2011. The smoothed series falls from then until the late spring of 2012. There was some further growth in output until August 2012 when the trend changed again resulting in another step change downwards in output. This shows up in Figure 1 as a marked change in direction in the series for the 6 month moving average of output from the autumn of 2012 until the spring of 2013. The smoothed series reverted to growth from March 2013 through to June.

The pattern of change shown by the series suggests two discrete changes, probably due to patent status changes, leading to once off declines in the value of sales and, hence, of output. However, these discrete downward adjustments in sales in those months are superimposed on a tendency for output elsewhere in the sector to rise in the absence of the expiry of patents.

While there are no published data on the actual magnitude of the effect of the ending of patents on the value and volume of the gross output (turnover) of the sector, a possible crude estimate of the magnitude of the effect can be derived on certain very restrictive assumptions. In June 2013 the 6 month moving average

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[4]   An example of such a drug is Lipitor. The patent for Lipitor, produced by Pfizer, ran out in the US in 2011 and in Europe in 2012. According to Pfizer's annual report, sales revenue from the drug worldwide fell in 2012 by $5.6 billion. Ireland was a major site for the production of that drug.

[5]   These changes roughly coincide with the expiration dates for the patent for Lipitor in the US and in Europe. However, quite a number of other drugs have also fallen out of patent over the last two years.

of the index of the volume of gross output in the sector was down 8 per cent on its peak level (in 2012). If all of the fall in output were due to the loss of patents this would provide a crude estimate of the effect of the change. However, to the extent that there was a trend increase in output of drugs not covered by the patent status change, this number would underestimate the effects of the drugs dropping out of patent. On the other hand, if the EU recession was contributing to a fall in output, this estimate could exaggerate the effects of the patent status changes. On balance, because of the apparent underlying growth in the series discussed above, this estimate of the effect on the volume of output is likely to be conservative. In any event, this number should be considered as being purely illustrative in nature.

Figure 2 shows the path of employment in the broad sector of chemicals and pharmaceuticals (NACE sectors 20 and 21). While there was a substantial drop in the period to 2010, employment flattened out thereafter. However, there was some further fall in employment in the last two quarters of 2012 coinciding with the likely ending of patents, suggesting a real fall in output however it is measured. As discussed later, this fall in output, because it affected employment, would have also affected the volume of value added in the sector. However, compared to the changes in value arising from the loss of profits / royalties, the effect of the change in the wage bill on the volume of value added (and hence of GDP and GNP) would have been more limited. To simplify the exposition we concentrate first on the potential effects of the loss of patent status on profits and royalties and return at the end of this note to the effect on the wage bill and value added.

FIGURE 2   Employment in Chemicals and Pharmaceuticals
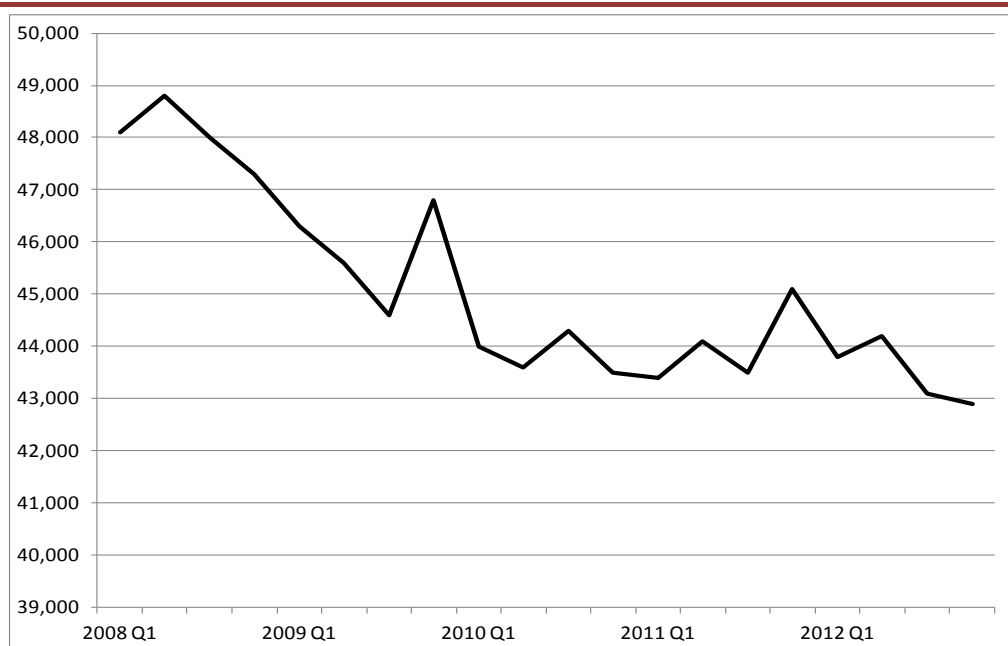
Source: Central Statistics Office, *Census of Industrial Production*

Taking the *Census of Industrial Production* figure for the turnover of the sector in 2010, projecting it forward to 2011 using the turnover index, this would suggest gross output for the sector in 2011 of around €38 billion. This would mean that an 8 per cent fall in output would amount to around a €3 billion loss of revenue. This would also amount to a fall in merchandise exports of around 3.5 per cent.

One would normally expect that the direct effect of the changes in the profitability of foreign owned drug companies on Irish national income would be quite limited. The multinational owner of the plant would receive lower profits corresponding to lower sales revenue and one would expect that the net effect on the volume of Irish output would be zero. However, because of national accounting conventions, it actually has an appreciable effect on a number of the components of national income, while probably leaving real GNP largely unchanged.

The first item that it affects is the volume of gross output in the industrial sector, as measured by the output volume index. This is due to the way changes in patent status are treated in calculating the volume index. For national accounting purposes the drug covered by the patent is treated as a different product from the equivalent generic drug, which in all other respects is similar to the patented drug. Thus, when a drug falls out of patent but the firm continues to produce the same chemical compound without patent protection, it is treated as a different product. At the same time, as a result of the change in patent status, there is a dramatic fall in revenue from selling the drug in the month when the patent ends.

To calculate the volume of output the CSO takes the value of sales and deflates it by a suitable price index. This price index includes only drugs which were on sale both in the last month when the patent applied and in the first month when the patent had ended. Because the ending of the patent is treated as giving rise to a new drug, this drug (whether patented or generic) is excluded from the price index. Thus the price index does not change between the two months, while the value of sales of the specific drug, which loses its patent protection, falls dramatically. As a result, all of the fall in the value of sales due to the loss of patent protection is treated as a fall in the volume of production. While this maye seem counterintuitive it is the standard national accounting practise.

The ultimate effects of this national accounting treatment on the key national accounts aggregates depends crucially on whether the fall in the company's revenue results in a fall in royalty payments or a fall in the profitability in the company in Ireland. While, in practise, some companies may not pay royalties

and earn profits in Ireland, it is simpler to consider the two approaches separately. Set out below are illustrative examples of how these two eventualities are treated in the national accounts. In each case the numbers used are purely illustrative.

Changes in Royalty Payments

Table 1 uses these illustrative numbers to show how a fall in revenue of €3 billion would be treated in the national accounts in the case where all of the loss of revenue results in a fall in imports of royalties (payments abroad of royalties). In this case the value of gross output would fall by the €3 billion as would the value of exports. However, the firm would no longer pay royalties or licenses to the parent firm for the patent. The result would be a fall in imports of royalties of €3 billion and a corresponding fall in inputs (of royalties) used by the firm. The net result of these transactions would be to leave GVA in the sector unchanged and also to leave GDP and GNP unchanged.

TABLE 1 Illustrative National Accounts Treatment of ending of patent:
Fall in Import of Royalties, €millions, current prices

Output	Before	After	Change	Expenditure	Before	After	Change
Gross output	38,000	35,000	-3,000	Exports	36,000	33,000	-3,000
Royalties (services imports)			-3,000	Imports	22,000	19,000	-3,000
GVA	14,000	14,000	0				
Wages	1,300	1,300	0				
Profits	12,700	12,700	0				
Corporation tax	1,588	1,588	0				
Profits after tax	11,113	11,113	0				
GDP	14,000	14,000	0	GDP	14,000	14,000	0
Factor Income	0	0		Factor Income	0	0	
GNP	14,000	14,000	0	GNP	14,000	14,000	0

In real terms there would be a corresponding fall in the volume of gross output and of exports. This would be exactly matched by a fall in the volume of imports of royalties. This would mean that the deflator for exports would change consistent with the change in the deflator for output. Similarly the deflator for services imports of royalties, whether used as an import or classified as an input, would change to ensure that the volume change in imports (in € billion) was identical to the volume change in exports. This would mean that, to ensure consistency, the volume of GVA in the sector would be derived using what is referred to as the double deflation method, rather than by applying the same deflator that is used for gross output. This means that the deflator applied to the inputs (of royalties) would be different from the implied deflator for value added.

The result would be that all of the fall in the volume of gross output would be reflected in the fall in the volume of imported inputs, with the result that there would be no change in the volume of GVA (or in its deflator).

This treatment would mean that there would be large visible changes in the national accounts and other published data for gross output and also for exports and imports, but there would be no effect on GDP or GNP. This seems sensible where the volume of the physical output of the pharmaceutical sector was unchanged and the only change was in the profitability of the parent firm.

Changes in Profits

An alternative possible treatment would be that the firms involved take the effects of the loss of patent as a reduction in their profits earned in Ireland. This is illustrated in Table 2. In this case the value of gross output and exports would also fall by €3 billion. However, in this case the loss of revenue would not result in a fall in royalties paid as imports of services (or a fall in inputs). Instead the value of GVA arising in the sector would also fall by €3 billion. In turn, with the wage bill unchanged, the reduction in profits would also amount to €3 billion. To the extent that these profits were taxable in Ireland the fall in profits would result in a fall in domestic corporation tax revenue. Here it is assumed for illustrative purposes that all of the reduction in profits was taxable at the 12.5 per cent rate so that tax revenue would fall by €0.375 billion.

TABLE 2   Illustrative National Accounts Treatment of ending of patent:
Fall in Irish Profits, €millions, current prices

Output	Before	After	Change	Expenditure	Before	After	Change
Gross output	38,000	35,000	-3,000	Exports	36,000	33,000	-3,000
Royalties (services imports)			0	Imports	22,000	22,000	0
GVA (Gross Value Added)	14,000	11,000	-3,000				
Wages	1,300	1,300	0				
Profits	12,700	9,700	-3,000				
Corporation tax	1,588	1,213	-375				
Profits after tax	11,113	8,488	-2,625				
GDP	14,000	11,000	-3,000	GDP	14,000	11,000	-3,000
Factor Income	0	0	-2,625	Factor Income		-2,625	-2,625
GNP	14,000	13,625	-375	GNP	14,000	13,625	-375

As discussed above, the reduction in GDP (GVA arising in the sector) would be €3 billion. However, unlike the earlier case, the profits accruing to the foreign owner of the firms (Factor Income paid abroad) would only fall by €2.625 billion, reflecting the fact that domestic taxes would also fall (in this illustrative case by

€0.375 billion). The net effect would be a substantial fall in GDP but only a small fall in GNP, equivalent to the loss of tax revenue. In volume terms the effects would be similar to the value effects shown above, assuming that the price deflators for all relevant items handle the ending of the patent in a consistent manner.

Possible Impact on National Accounts

These two examples show that, depending on which of these accounting models is adopted by the firms experiencing a loss of patents, it can make a big difference to the national accounts. Where the impact of the ending of patents is chiefly on royalty payments, there would be no effect on GDP but substantial effects on exports and imports; in the case where all the effect is on profits, there would be a similar large impact on exports but also, in this case, on the trade balance and on GDP in both value and volume. In the case where profits fall there could also be a small impact on GNP and the current account of the balance of payments (equivalent to the lost tax revenue).

Table 3 provides an estimate of the possible impact on key national accounts aggregates under the two different accounting treatments. As discussed above, in each case the fall in gross output as a result of the ending of the patents is assumed to be around 8% of the 2011 level of gross output. (As indicated earlier, this number is very crude and is used for illustrative purposes.) It is also likely that the effects of the changes would have been spread over 2012 and 2013. Hence the estimates shown in Table 3 are for the cumulative impact of the loss of patents.

TABLE 3   Possible Cumulative Impact on Key Economic Aggregates using Illustrative Numbers

		Accounting Treatment	
		Royalties	Irish Profits
	€ billion	%	%
Merchandise exports	85.9	-3.5	-3.5
Exports	165.8	-1.8	-1.8
Imports	127.9	-2.4	0.0
GVA manufacturing	31.5	0.0	-9.7
GDP	158.7	0.0	-1.9
GNP	127.0	0.0	-0.3

Whichever treatment is used, the impact on merchandise exports would have been to reduce them in both volume and value by around 3.5 per cent. In the first six months of 2013 the volume index for merchandise exports has been substantially lower than in 2012.

The effect on imports depends on the way the companies treat the effects of the fall in revenue. In the case where royalty payments fall, the reduction in the value and volume of imports, while of the same absolute magnitude as the change in exports, would have been around 2.4 per cent. However, if all of the impact was on domestic profits then the impact on imports would have been zero.

In the case where companies just reduce their payment of royalties there would be no other effects on GVA, GDP or GNP. However, in the case where all of the fall in revenue shows up as a fall in profits in Ireland, the negative impact on GVA in manufacturing would be very large at around 9.7 per cent. This would result in a reduction in GDP of 1.9 per cent. While there would have been no impact on GNP in the case of a reduction in royalty payments there could be a small impact (-0.3 per cent) in this case as a result of a possible loss of tax revenue.

Whichever treatment is used by firms when accounting for the loss of patent income, the effects on real GNP are likely to be small. This correctly reflects the fact that nearly all of the direct cost of the loss of patent protection accrues to the foreign owners of the plants located in Ireland. This emphasises the importance of concentrating on the trend of GNP rather than the trend of GDP when trying to understand underlying developments in the Irish economy.[6]

To the extent that the loss of revenue from the ending of the patents is treated as a reduction in imports of royalties, as indicated above, it would mean that both GDP and GNP (value or volume) would be largely unaffected by the change in patents unless the plant closes. Instead, in the national accounts figures for 2012 and 2013 the main effect would be to reduce exports and imports by a similar absolute amount in value and volume. However, as discussed in this *Quarterly Economic Commentary*, the published Quarterly National Accounts for the first two quarters of 2013 are best reconciled with other labour market data for the same period if the ending of the patents has resulted in a substantial reduction in the profits of the companies recorded in Ireland rather than through a reduction in royalties.

Possible Permanent Impact on GNP

The longer term economic impact of the ending of the patents may be more substantial than the short-term impact. As shown here, whichever treatment is used the impact of a loss of sales revenue for a foreign firm should wash out of

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[6]   However, account must be taken of the effect of the earnings of redomiciled PLCs. as discussed in the Spring 2012 QEC.

the national accounts, leaving Irish GNP largely unchanged. However, if employment is lost because a plant shuts down or if tax revenue falls there would be a real impact on GNP.

While the need to undertake major investment in physical plant and in obtaining permits in order to produce generic equivalents of what are very sophisticated drugs provides a substantial barrier to entry, in the longer term production of these generic drugs could move from Ireland to lower cost locations. In particular, if a company has suitable plants elsewhere where costs are lower, the production could be relocated by the company.

Already there have been announcements of closures and job losses in Ireland as a result of patents ending.[7] These closures involve the movement of the manufacture of the out of patent drugs to locations outside Ireland. In this case there is a real impact on GNP and GDP amounting to the loss of the wage bill and any taxes paid in Ireland by the companies concerned. If the fall in employment in the last two quarters of 2012 is indicative of a movement of production of generics to other countries, this would have an impact on GVA in the pharmaceuticals sector and on GDP and GNP. However, the magnitude of the impact on aggregates such as exports would be much smaller than in the case of the reduction in profits because of the ending of the patent. This is because the wage bill in the sector is less than 5 per cent of the gross output of the sector in Ireland.

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[7]   Pfizer have already announced the closure of a plant in Ireland and resulting job losses as a consequence of the loss of the Lipitor patent.

An Alternative Index of Industrial Production for Ireland using Manufacturing Wages

Kevin Timoney[*]

Introduction

Industrial production in Ireland experienced a sharp decline towards the end of the last decade. The CSO's monthly *Industrial Production and Turnover Index* provides timely indicators of the volume of manufacturing output, and could be expected to follow the path of the economy over time. The index suggests a downturn in manufacturing took place between early 2008 and mid-2010, with a rapid recovery then lasting until the final quarter of 2012. More recently, the pharmaceutical patent cliff (discussed in detail in FitzGerald, this issue) resulted in a large drop-off in industrial production.

While the initial rebound for industrial production volume was encouraging, it was not accompanied by improvements in other indicators for the economy. Indeed, there are some aspects of the index's construction which may limit its utility as an indicator of current economic conditions. The pharmaceuticals sector holds a substantial presence in Irish manufacturing and merchandise trade, contributing two-fifths of total manufacturing Gross Value Added (GVA) and a quarter of total goods exports value for the four years 2008-2011. Consequently, the recovery in the Industrial Production volume index in the immediate aftermath of the crisis could have been masking an on-going weakness in other areas of manufacturing. By contrast, today the effects of the patent cliff on output in the sector could be masking more favourable developments elsewhere in manufacturing. The reason why the index may not be a very useful indicator of what is happening in the economy is that it is weighted using manufacturing GVA, which may overstate the benefits of the output to the Irish economy. This overstatement could arise because much of the value added in foreign-owned firms may flow back out of the economy in profits.

In this note, an alternative Industrial Production index is constructed using sectoral manufacturing wages rather than GVA as the fixed base weights. This approach allows for an assessment of how the volume of output implied by labour earnings in manufacturing has changed over time. The intention here is to

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provide a more relevant indicator of industrial production that would possibly reflect other important economic indicators.

The recent performance of the Industrial Production index is discussed below followed by analysis of the alternative measure of output with labour costs base weights. Conclusions are then drawn and an appendix sets out the methodology for the re-weighting of the index.

Industrial Production Weighted by Gross Value Added

Manufacturing output measured with GVA entered a period of recovery in 2010 and 2011, following the initial downturn during the previous two years. In 2006 and 2007, manufacturing grew by 4.5 per cent a year. During the downturn in 2008 and 2009, there was a fall of 3.5 per cent a year, but a rebound of 4.3 per cent a year then took place in 2010 and 2011. Figure 1 below shows the six-month moving average, seasonally-adjusted index for all manufacturing, over the period January 2005 to August 2013. The chart shows also shows the series for pharmaceuticals and non-pharmaceuticals.

FIGURE 1   Industrial Production (Gross Value Added, SA, 6-month MA)
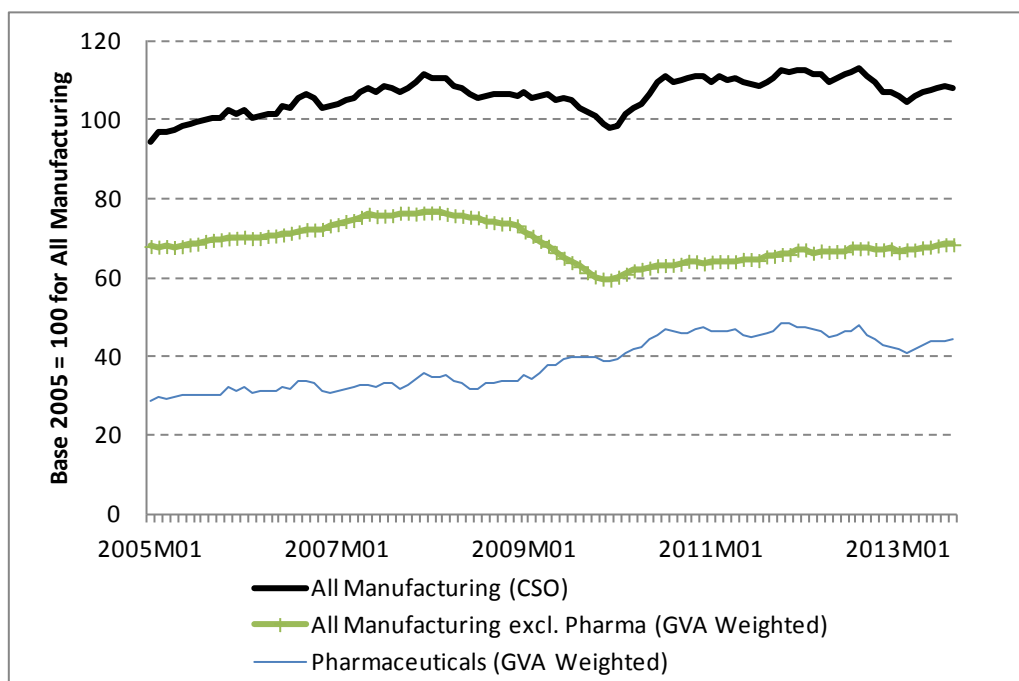
Source: Central Statistics Office.

To obtain estimates of the composition of the Industrial Production index by sector, the volumes are reconstructed using GVA weights obtained from the

CSO's *Census of Industrial Production* (CIP). The method is described in further detail in the appendix, and the result closely approximates the CSO's Industrial Production index.

Analysing the index values by sector reveals the contrasting paths for industrial output in pharmaceuticals compared to other manufacturing sectors during the downturn period. Pharmaceuticals output grew by 7 per cent during the downturn years, while all other manufacturing fell by 10 per cent. As the overall index is weighted by GVA, and pharmaceuticals output accounted for a very large GVA in 2008 (31% of manufacturing GVA), the fall of industrial output during the downturn was swiftly recovered due to the expanding volume of pharmaceuticals output. Rather than the result of improving economic conditions, this may have been related to the then-upcoming expiry of pharmaceuticals patents towards the end of 2012 (see FitzGerald, this issue, for details of the impacts of patent expiry on various economic indicators).

The rebound in industrial production in 2010 and 2011 coincided with a return to positive growth in goods exports, including exports of pharmaceuticals. Unfortunately, there was no corresponding improvement for the labour market over this period, with CIP data showing the number of persons engaged in manufacturing enterprises falling from 174,215 to 167,373. These figures suggest a continued weakness of the economy, in contrast to the industrial production data.

Industrial Production Weighted by Labour Costs

As indicated above, manufacturing output, measured using GVA weights, suggests a benign recovery took place in 2010 and 2011, but this trend was not reflected in other indicators for current economic conditions. This section considers an alternative Industrial Production index using 2008 manufacturing wages as fixed base weights. (See the appendix for details of the methodology.)

The re-weighted index is compared with the original CSO index in Figure 2 below. Initially, the re-weighted index closely matches the trend in the CSO index for 2005-2008. A larger decrease then occurs in 2009, and the re-weighted index shows a trend consistent with a much more subdued level of economic activity for the past number of years. The downturn was much more severe than that of the CSO index, and the recovery was more modest. Furthermore, the more recent "patent cliff" downturn since the final quarter of 2012 is much less pronounced than for the CSO index. The implied output level has remained 10-15 per cent below the official index since mid-2009, and is also below the 2005 level.
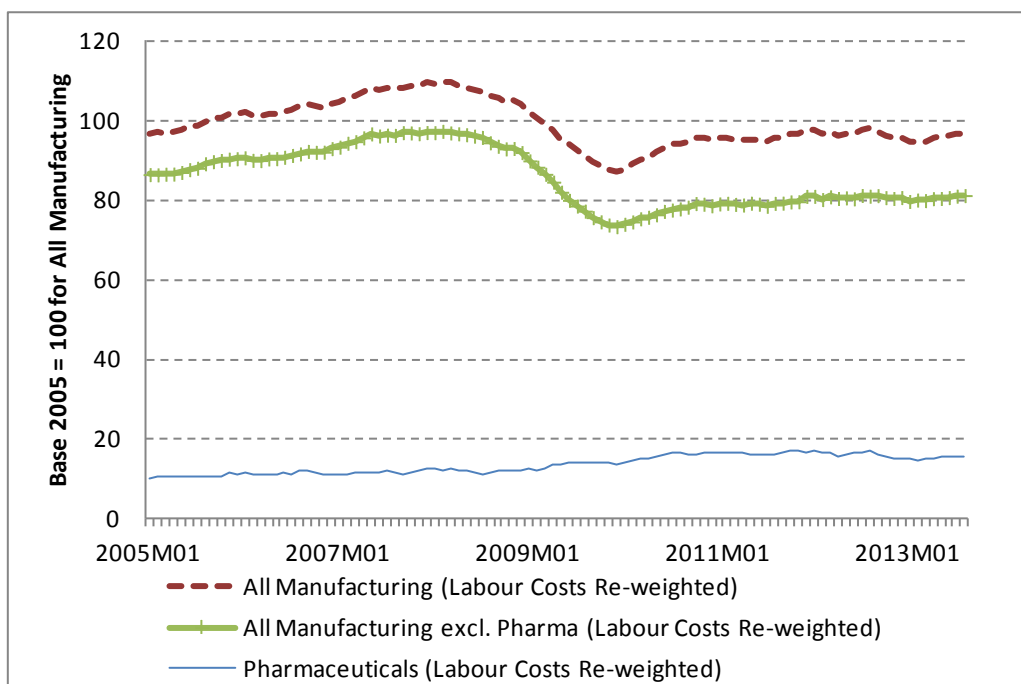
The path of the re-weighted index is more consistent with the trend of employment in the manufacturing industries.

FIGURE 2   All Manufacturing Index (CSO and Labour Costs, SA, 6-month MA)
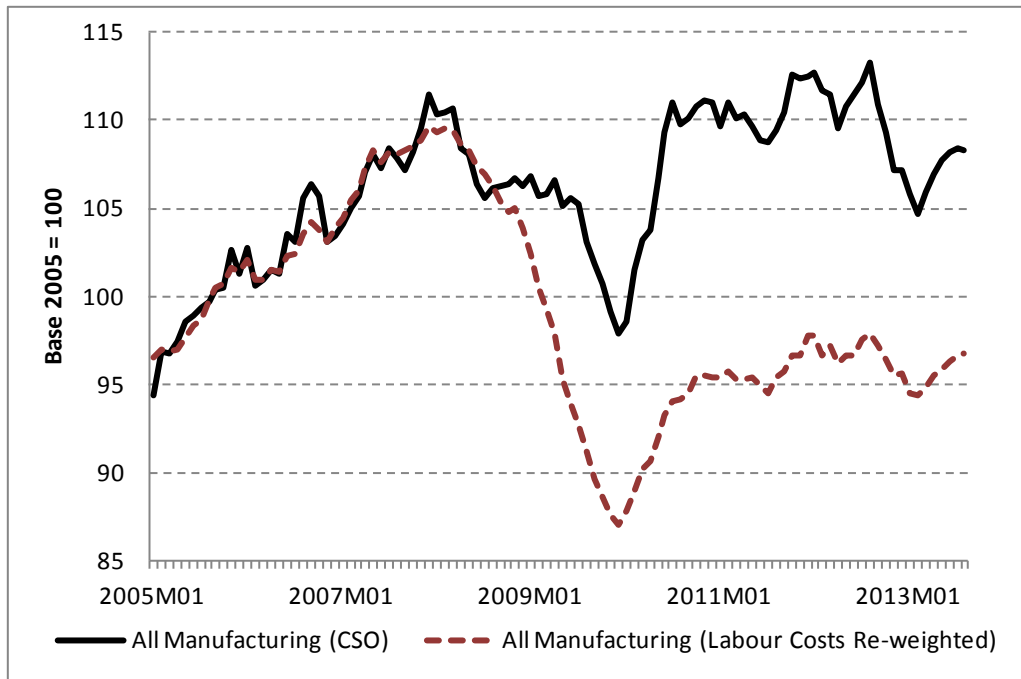
Source: Central Statistics Office and own calculations.

FIGURE 3   Industrial Production (Labour Costs, SA, 6-month MA)

Source: Central Statistics Office and own calculations.

Figure 1 is replicated for the re-weighted index in Figure 3. The aggregate labour cost in the pharmaceuticals sector relative to all manufacturing sectors (11%) is lower than its relative aggregate GVA (31%). This translates to a smaller index value in the range of 8 to 19 for labour costs, rather than between 23 and 56 for GVA. Weighted by labour costs, the pharmaceuticals volume index is no longer compensating for the downturn in all other manufacturing, and the overall index is much lower as a result. The re-weighted index for all manufacturing moves closely with manufacturing excluding pharmaceuticals, and it is much less affected by the recent "patent cliff" downturn.

Conclusions

The recovery of measured industrial production in recent years has been primarily driven by the rise of output by the pharmaceuticals sector. However, the GVA weights used in the Industrial Production index mean that the index can be of limited use as an indicator of current economic conditions. Using the wage bill of manufacturing sectors to re-weight the index yields a similar pattern of implied output volume for 2005-2008, with a much larger fall and a more subdued trend emerging for the years since 2009. By contrast, while the official index shows a significant fall in output in recent months, the pattern of change in the re-weighted index excluding pharmaceuticals suggests relatively limited change in industrial output over the last year. The interpretation of the pattern of change in the (original) pharmaceuticals index is discussed in a separate note by FitzGerald. The re-weighted index presented in this note intends to show a more meaningful measure of industrial production in terms of current economic conditions.

Appendix

The re-weighting methodology applied in this note is described here in further detail. Using the CSO's seasonally adjusted manufacturing output series (NACE sectors 10-33), the first task is to reproduce this volume index using a re-weighted series of Gross Value Added (GVA) by individual sectors. Table A1 shows the groups of sectors for which the output index is available and their 2008 GVA and labour costs weights. The data for these sector groups are constructed from the CSO's *Census of Industrial Production* (CIP). These data were available for 2008-2011 at the time of writing, and due to some adjustments to the NACE sector groupings over this period, 2008 is chosen as the base year.

TABLE A1   Manufacturing Output 2008 Weighting by Sector Group

Sector Group	GVA Weighting	Labour Costs Weighting
Food products and beverages (10,11)	0.19	0.20
Tobacco; coke and refined petroleum products; furniture (12,19,31)	0.03	0.03
Textiles and wearing apparel (13,14)	0.00	0.01
Leather and related products (15)	0.00	0.00
Wood and wood products, except furniture (16)	0.01	0.02
Paper and paper products; printing and reproduction of recorded media (17,18)	0.02	0.05
Chemicals and chemical products (20)	0.10	0.06
Basic pharmceutical products and preparations (21)	0.31	0.11
Rubber and plastic products (22)	0.01	0.04
Other non-metallic mineral products (23)	0.03	0.05
Basic metals and fabricated metal products (24,25)	0.03	0.07
Computer, electronic, optical and electrical equipment (26,27)	0.15	0.15
Machinery and equipment n.e.c. (28)	0.03	0.05
Transport equipment (29,30)	0.01	0.03
Other manufacturing (32)	0.08	0.11
Repair and installation of machinery and equipment (33)	0.01	0.01

Source: Central Statistics Office, *Census of Industrial Production.*

Using a fixed weights approach, the weights are constructed from the GVA data and then multiplied by the corresponding sectoral manufacturing output index values. The sum of these values across sectors should well-approximate the CSO's index. Following this procedure, the six-month moving averages of the series are taken to remove the volatility by month. In Figure A1 below, the unadjusted results of this comparison are shown, with the two indices closely matching each other since 2005. To re-weight the index by labour costs, the same procedure is followed as for GVA, but using manufacturing wages from *CIP* data. These data are also presented above in Table A1. As discussed in this note, the re-weighting approach intends to highlight the recent disconnect between the industrial production series measured by GVA, and that measured by labour costs. The unadjusted data for the re-weighted output index are shown below in Figure A2.

Re-weighted with labour costs, manufacturing output closely follows the index weighted with GVA until early 2009, when a larger fall takes place. This index has remained largely unchanged since shortly after the original downturn in 2008 and 2009.

FIGURE A1   Manufacturing Output index, Reproduced with 2008 Gross Value Added Weights
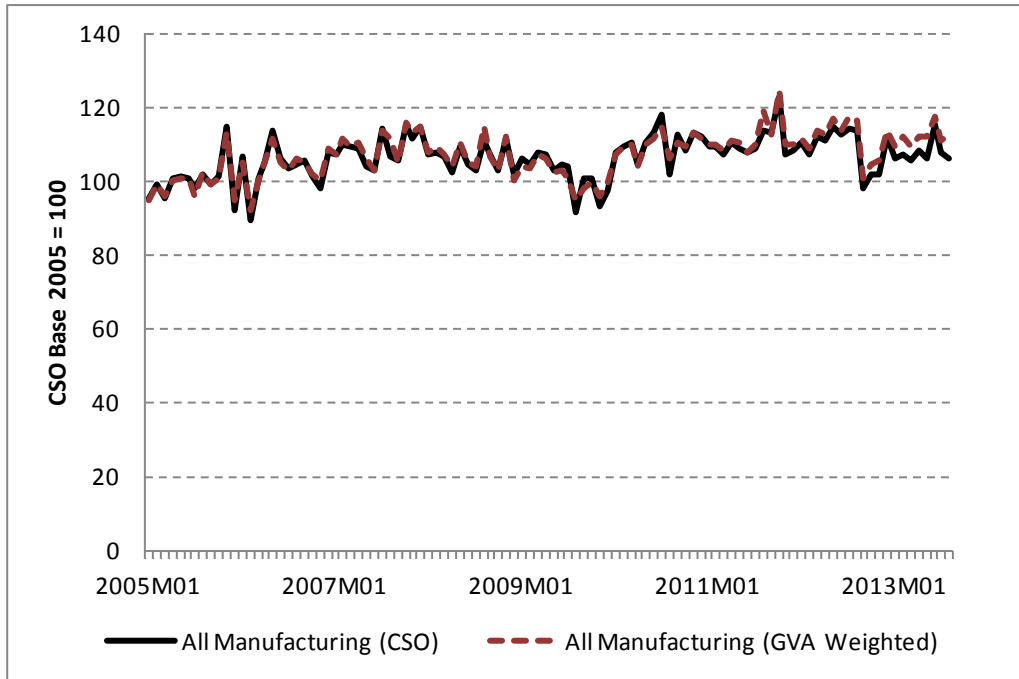
Source: Central Statistics Office and own calculations.

FIGURE A2   Manufacturing Output index, reproduced with 2008 Labour Costs Weights
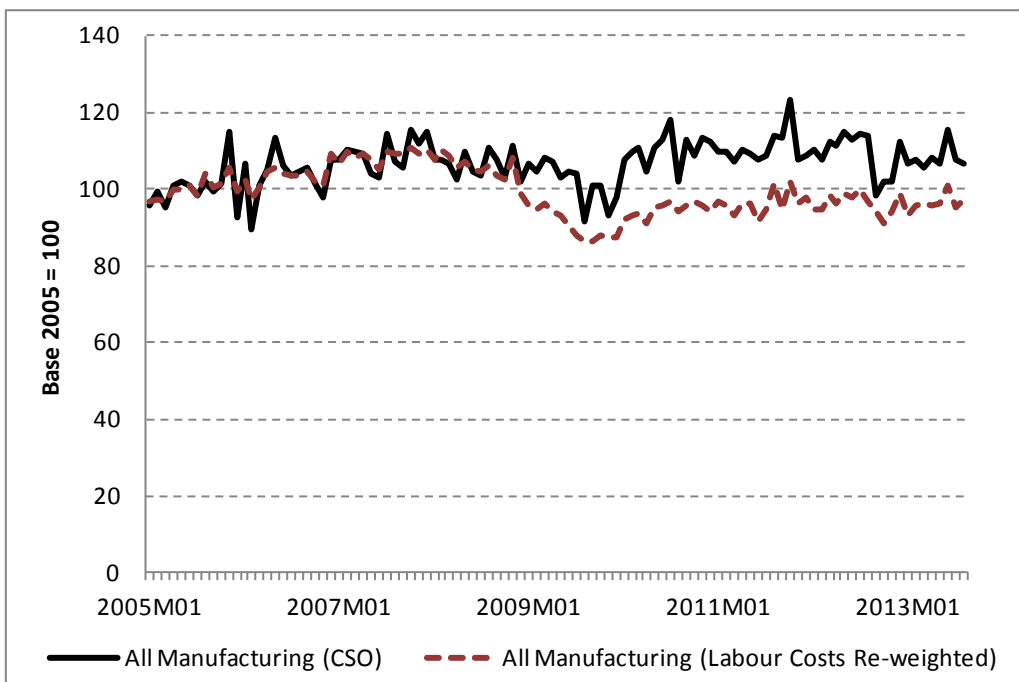
Source: Central Statistics Office and own calculations.

SME Debt and Interest Costs in Ireland

[*]**Conor O'Toole, Petra Gerlach-Kristen and Brian O'Connell**

Introduction

Given the scale of the property boom and bust in Ireland, there has been considerable attention given to how legacy debt is affecting Irish Small and Medium Enterprises (SMEs). Indeed, there have been a number of important policy interventions aimed at providing debt-burdened SMEs with workable solutions, including the decision by the National Pension Reserve Fund to establish the Better Capital Ireland SME Turnaround Fund and the changes to the examinership rules which facilitate the use of the less expensive circuit court in such proceedings.

However, to date, the debate has lacked a statistical profile of loan burdens across Irish SMEs. This short note uses new survey data from the latest wave of the Department of Finance/RedC SME Credit Demand Survey to provide a cross-sectional overview of loan burdens of Irish SMEs and the interest costs associated with these loans. The note examines the debt profiles of different SMEs according to size, sector, age, banking relationship and trading status. For each of these characteristics we illustrate average outstanding loans, average loan-to-turnover ratios and average interest rates.

Context

The solid line in Figure 1 outlines the path of total outstanding credit to non-financial corporations in Ireland since 2003. Volumes in the figure have been normalised to 100 in 2003Q1. For Ireland, we can clearly observe the build up of credit between 2005 and 2008 and the subsequent collapse following the onset of the financial crisis[1].

The other series in Figure 1 put the path of credit growth in Ireland in a European context. We include the crisis countries in the Eurozone as well as Germany as a baseline. All countries analysed saw growth in credit to non-financial corporate

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[1] Net lending to Irish non-financial corporates was €58bn in 2003Q1, peaked at €192bn in 2008Q3 and stood at €93bn in 2013Q2.

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firms in the pre-crisis period. Though the trend was upward for all the countries, the scale of the credit expansion varied markedly. For instance, Germany saw credit growth of 14% from 2003 to the peak in early 2009. On the other end of the scale, Spain and Ireland saw credit to non-financial corporates grow by 176% and 232%, respectively, from 2003 to their pre-crisis peak levels. Figure 1 also suggests that deleveraging has been strongest and fastest in Ireland.

FIGURE 1   Total Lending Volumes in Ireland and Select European Countries
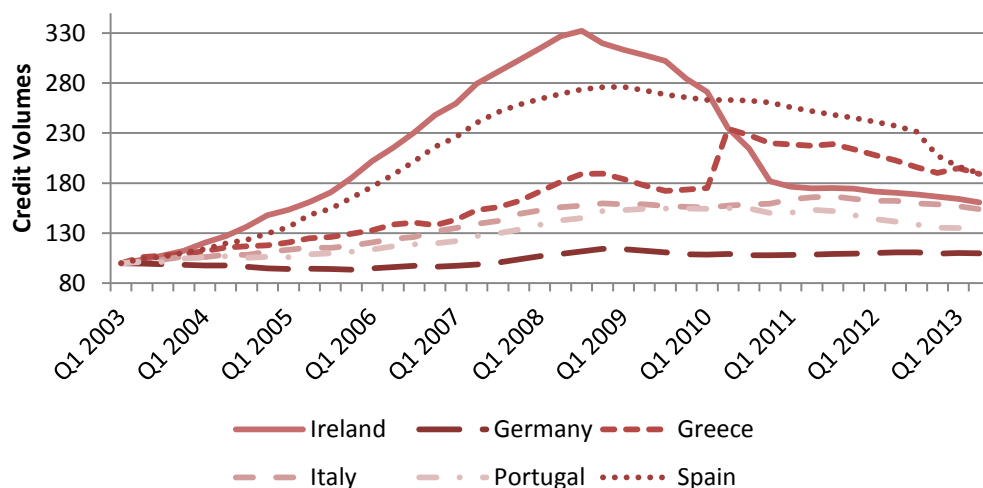
Source: Authors' calculations using ECB data.

Figure 2 illustrates the recent evolution of changes to the interest burden on Irish SMEs against the Eurozone average using data from the ECB Survey on Access to Finance of SMEs (SAFE). In the most recent survey, Irish SMEs reported considerably more increases in the interest burden on their debts than the European average. The previous surveys have, however, seen Irish firms report increasing interest burdens at around the Eurozone average or below it.

**FIGURE 2**   Net Share of Firms Reporting an Increased Interest Burden
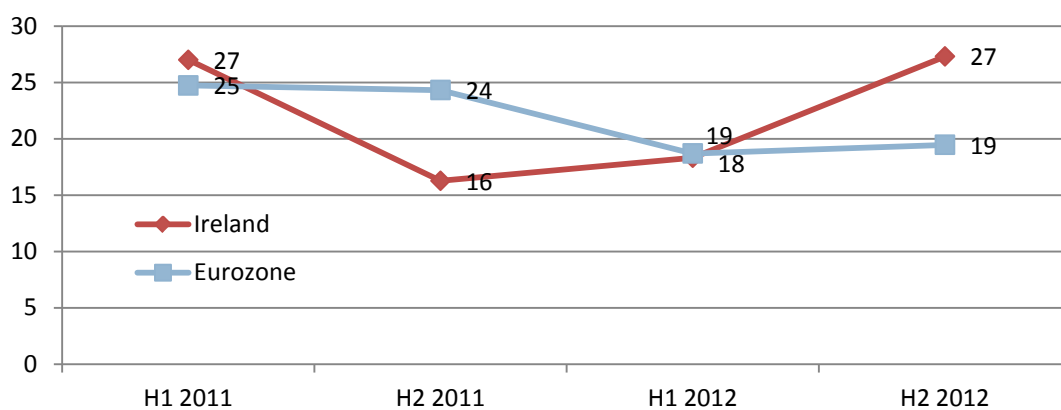
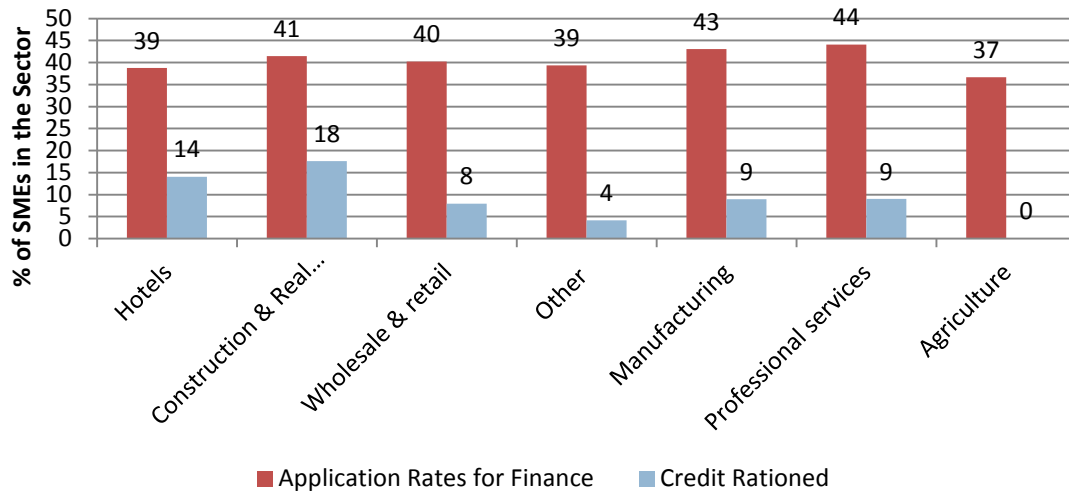*Source:*   Authors' calculations using ECB SAFE data.

Panel A in Figure 3 outlines the change in total outstanding loans to each SME sector in Ireland since Q1 2010. We can clearly observe that all SME sectors have seen a decline in total loans outstanding. The hotels sector and the "other" sector have seen the biggest collapse in credit since 2010 of around 40% in both cases. The construction & real estate and wholesale & retail sectors have also seen substantial declines in outstanding credit volumes.

FIGURE 3   Changes in Lending in the SME Sector

Change in Total Outstanding Lending by SME Sector since 2010
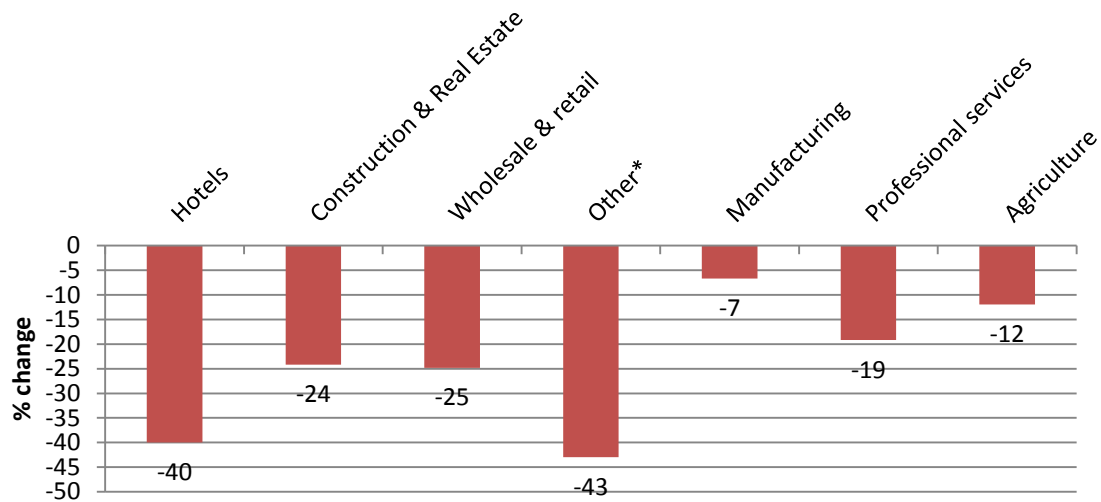
B. Application Rates and Credit Rationing by SME Sector - Oct 2012- March 2013

■ Application Rates for Finance   ■ Credit Rationed

Note: "Other" in this case and throughout the note refers to firms in the transportation, storage, communication and administration sectors.

Source: Authors' calculations using Central Bank of Ireland data & Department of Finance/Red C data.

Of course, credit volumes are determined by credit demand and credit supply. Panel B in Figure 3 shows for each sector what fraction of the firms surveyed applied for a loan between October 2012 and March 2013, the period covered by the latest Department of Finance/RedC survey. We see that around 40% of firms in all sectors applied for credit i.e. 60% of firms did not apply. Some 15% of those

firms which did not apply for credit stated that they did not do so due to existing financing already being in place while 80% said that they simply did not need the funds. This low level of demand for credit is clearly a factor in the reduction of outstanding debt to the various sectors illustrated in panel A.

On the supply side, Gerlach-Kristen et al (forthcoming) study credit constraints in the Irish SME sector and count as "credit-rationed" those firms whose loan applications were rejected because of a change in the bank's lending policy or because the bank does not lend to that particular sector anymore.[2] Panel B shows that credit rationing was highest in the hotels and property-related sectors. This reflects supply-side decisions from the lending institutions to reduce their exposure to these sectors and also goes some way to explaining the large-scale reductions in total outstanding debt of hotels and construction & real estate companies.

Overview of the Debt Burden Across Irish SMEs

The Department of Finance/RedC SME Credit Demand Survey covering the six months from October 2012 to March 2013 asked 1,500 SMEs about their debt situation. Due to the incomplete response rate and after the removal of outliers we are, however, only able to report on the debt profiles of around 750 of these 1,500 firms.

It should be noted that the survey specifically asks firms to discuss their outstanding bank-loan debt. This gives rise to two caveats. First, we have no information on non-bank debt which an SME may also have to service. If, for example, an SME has built up unsustainable outstanding trade credit liabilities over the crisis period, this is not captured in our data. Nevertheless, given the high reliance of Irish SMEs on banks for financing as compared to their European counterparts (Lawless et al., 2013), an examination of purely bank lending debt should be reasonably illustrative of general debt trends amongst Irish SMEs.

Second, if an entrepreneur took out personal property-related loans using the SME as collateral, this is not captured in our data either. In this respect, our estimates potentially provide a lower bound on the total debt burden of Irish SMEs.

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[2]   Moreover, firms that were told that their collateral was insufficient and those that were only granted a fraction of the requested sum (but more than 70%) were counted as credit-rationed.

Figure 4 demonstrates both the proportion of SMEs in the sample which indicated that they have a loan and of those firms how many are in arrears on one of more of those loans.[3] We find that just over 60% of SMEs surveyed have outstanding bank debt. We also observe that just under 12% of those firms with outstanding debt are in arrears.

FIGURE 4   Share of Firms with Loans Outstanding and those in Arrears
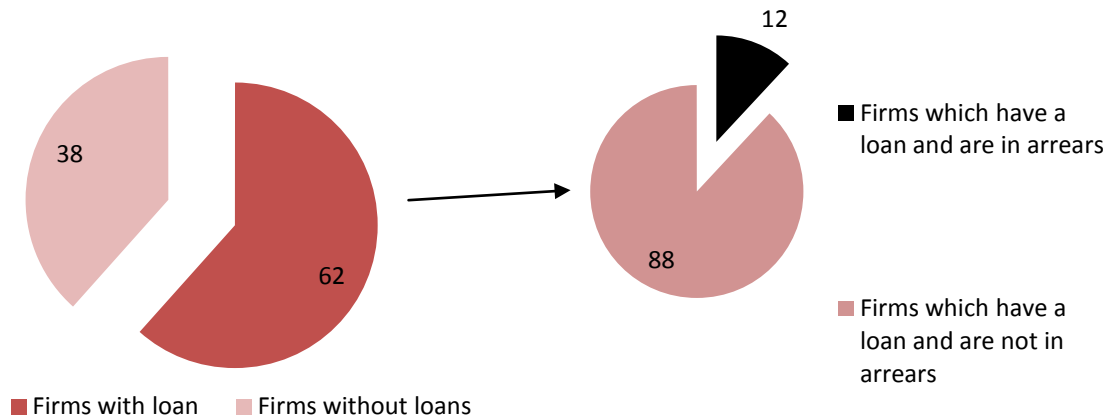
Source: Authors' calculations using Department of Finance/Red C data.

We next discuss average loan size, loan-to-turnover (LTT) ratio and interest rate for different firm characteristics, such as sector, firm size, etc. It should be noted that these are just bi-variate relationships. O'Connell and O'Toole (forthcoming) present a multi-variate analysis, which we draw on when interpreting the figures presented below.

Panel A in Figure 5 gives a breakdown of average loan amounts by sector in millions of euro. As one would expect given the levels of expansion in these sectors in the lead up to the crisis, SMEs in the hotels sector and the construction & real estate sectors have the highest average outstanding loans. Panel B shows that it is these sectors that also have the highest average LTT ratios.

We examine the LTT ratios as a measure of the sustainability of the debt. The sectoral LTT ratios range between 0.30 and 1.84. This implies that in all but the hotels and construction & real estate sectors, a year's turnover would suffice to lift the average firm out of debt.

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[3]   In this context, we are defining arrears as a firm that has missed a debt repayment in the previous six months.

Panel C in Figure 5 shows the average interest rates paid by firms in each sector. We observe that agricultural firms (farms) pay the lowest average rate of interest. We suspect that this is due to the abundance of collateral these firms can offer as security in the form of both farm land and equipment as well as to the availability of risk-free income streams through EU subsidy supports. Conversely, professional services firms pay the highest average interest rates. This may be due to the relative lack of collateral these firms can offer banks as security on their debts.

**FIGURE 5**   Average Loan Amount, Loan-to-Turnover Ratio and Interest Rate by Sector
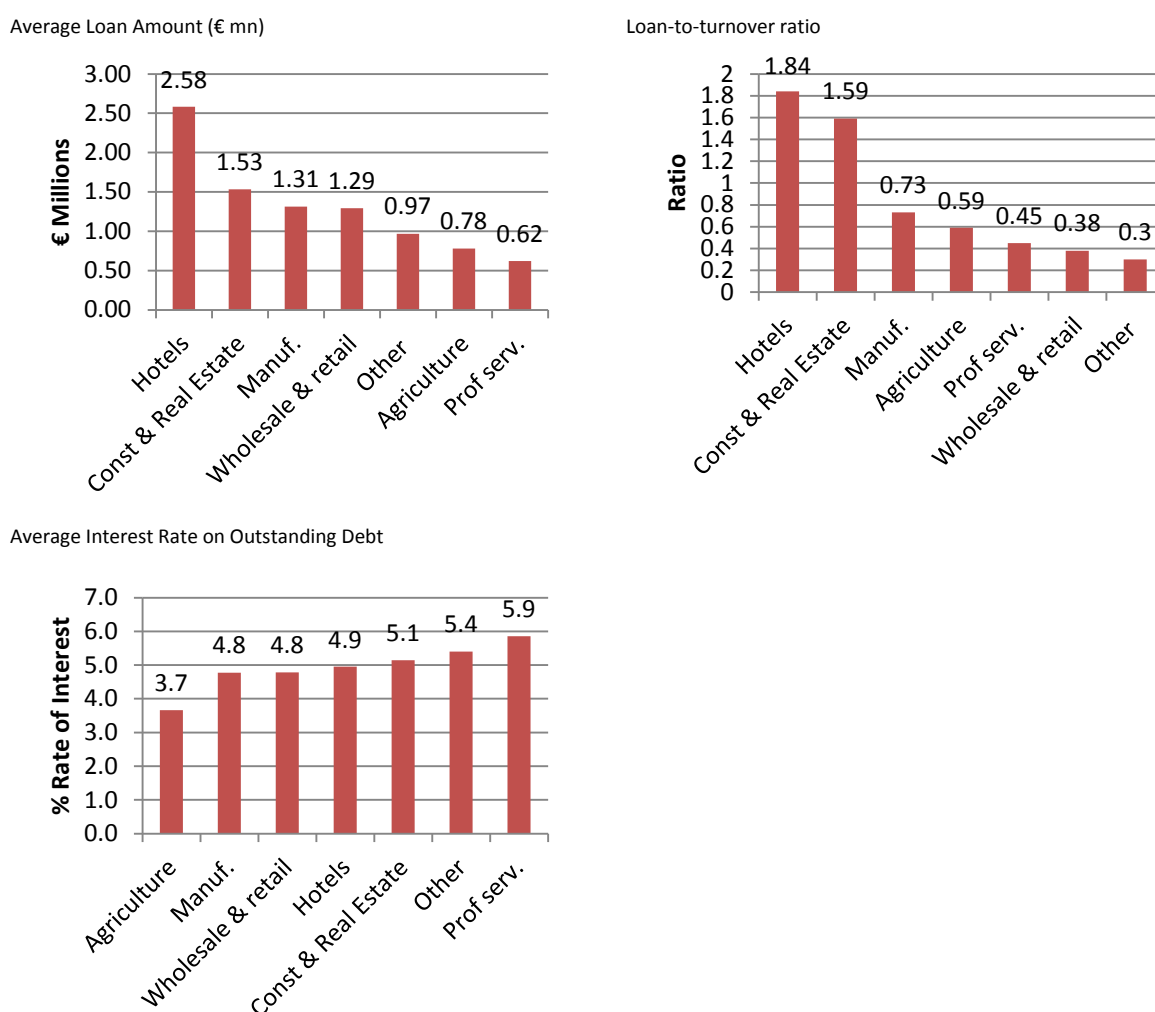
Source: Authors' calculations using Department of Finance/RedC data.

Figure 6 examines the debt profile of Irish SMEs by firm size. The survey data largely conform to expectations. We find that micro firms have the lowest average debt levels, the highest LTT ratios and the highest average interest costs. Conversely, we find that medium sized firms, the largest firms in our analysis, have the highest average debt levels, lowest LTT ratio and lowest interest costs.

Overall, this suggests that micro firms struggle most with their debt, both in terms of level relative to turnover and interest rate burden.

FIGURE 6   Average Loan Amount and Loan-to-Turnover Ratio and Interest Rate by Firm Size
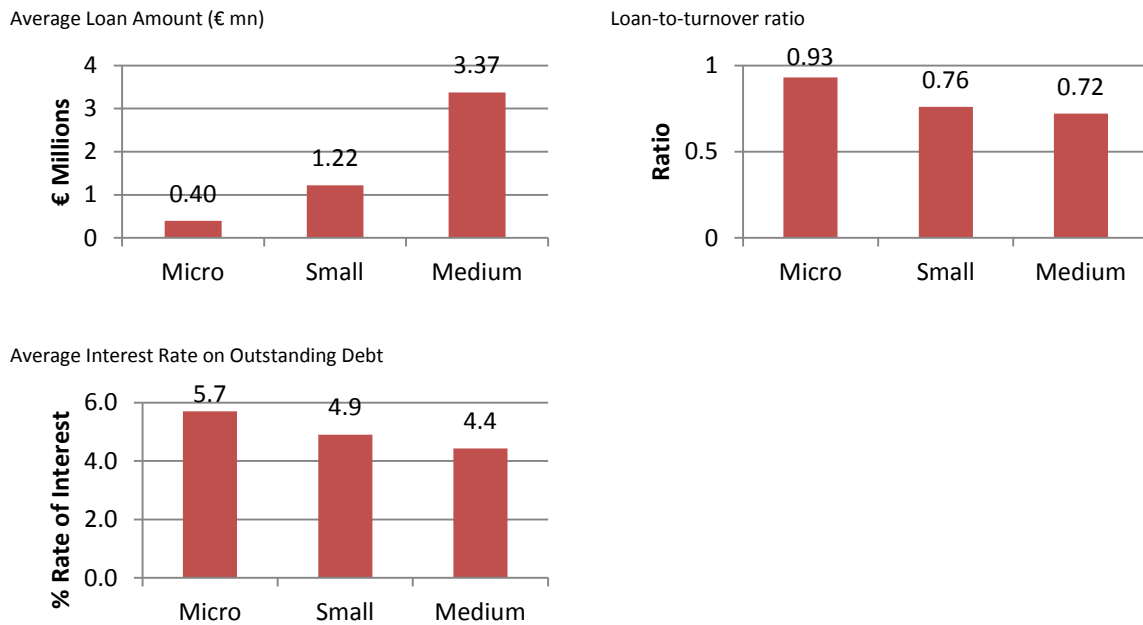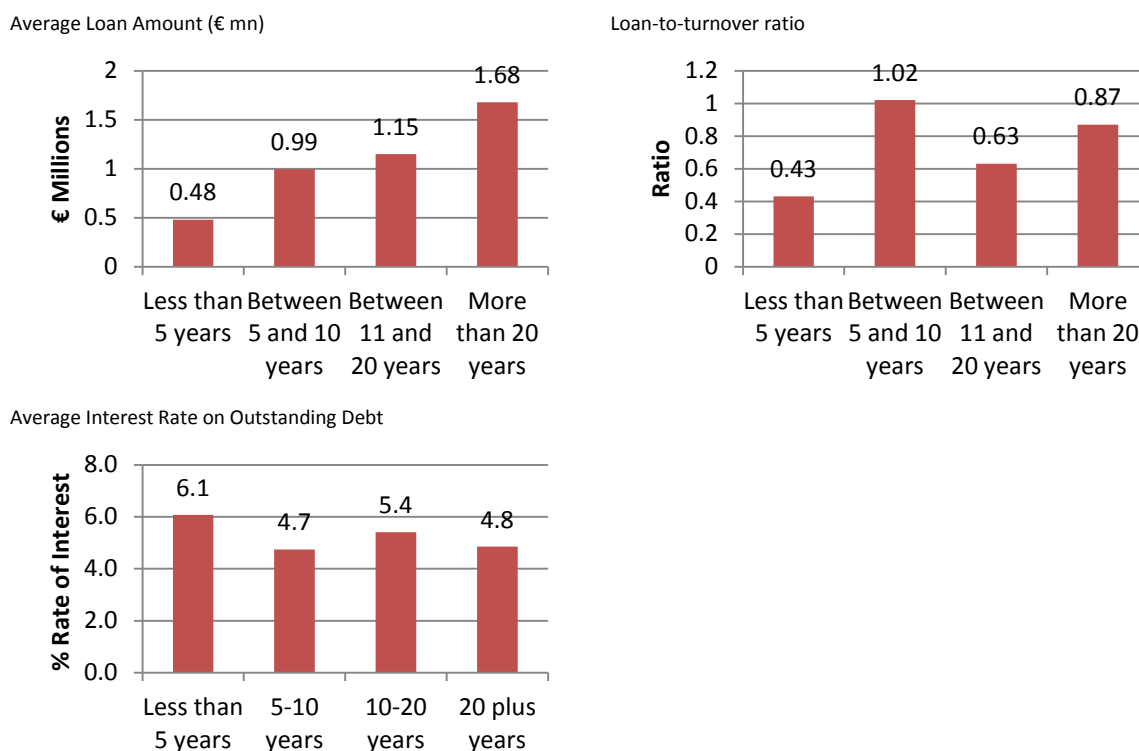

Source: Authors' calculations using Department of Finance/RedC data.

Figure 7 examines SME debt profile by firm age. We see a positive relationship between the level of total average outstanding loans and firm age. It is likely that this reflects the fact that firms that increased their debt during the boom are now older than five years.

We can also observe that those firms which have been in existence for less than five years have a substantially lower LTT ratio. However, beyond the youngest firms, the relationship between firm age and LTT ratio is not as clear as that between age and total outstanding loans. For example, firms between five and ten years old display the highest LTT ratios, potentially due to being in an expansionary phase of their lifecycle during the boom.

Similarly, and unsurprisingly, we find that it is the youngest firms which pay the highest average interest rate but that beyond these younger firms the relationship between age and interest appears to be non-linear. The fact that the youngest firms pay the highest interest rate may reflect their riskiness; another explanation is that banks started charging higher interest rates after the onset of the crisis.

FIGURE 7   Average Loan Amount and Loan-to-Turnover Ratio and Interest Rate by Firm Age

Average Loan Amount (€ mn)

Loan-to-turnover ratio

Average Interest Rate on Outstanding Debt

Source: Authors' calculations using Department of Finance/RedC data.

Figure 8 contains a similar analysis to Figure 7 but instead of firm age it considers the profile of SME loans according to the length of the relationship between the SME and its bank. Theory would suggest that those firms with longer banking relationships should have easier access to finance at a lower cost than those firms with shorter banking relationships. This is due to the trust built up between the bank and the client firm over the course of the relationship and the gradual elimination of certain information asymmetries between the bank and the client.

We find no simple pattern linking loan volumes, LTT ratios and interest rates to the relationship age. Indeed, O'Connell and O'Toole (forthcoming) show in multivariate regressions explaining debt levels and costs that no simple linear relationship with bank relationship age exists.

FIGURE 8   Average Loan Amount and Loan-to-Turnover Ratio and Interest Rate by Bank Relationship Age

Average Loan Amount (€ mn)

Loan-to-turnover ratio

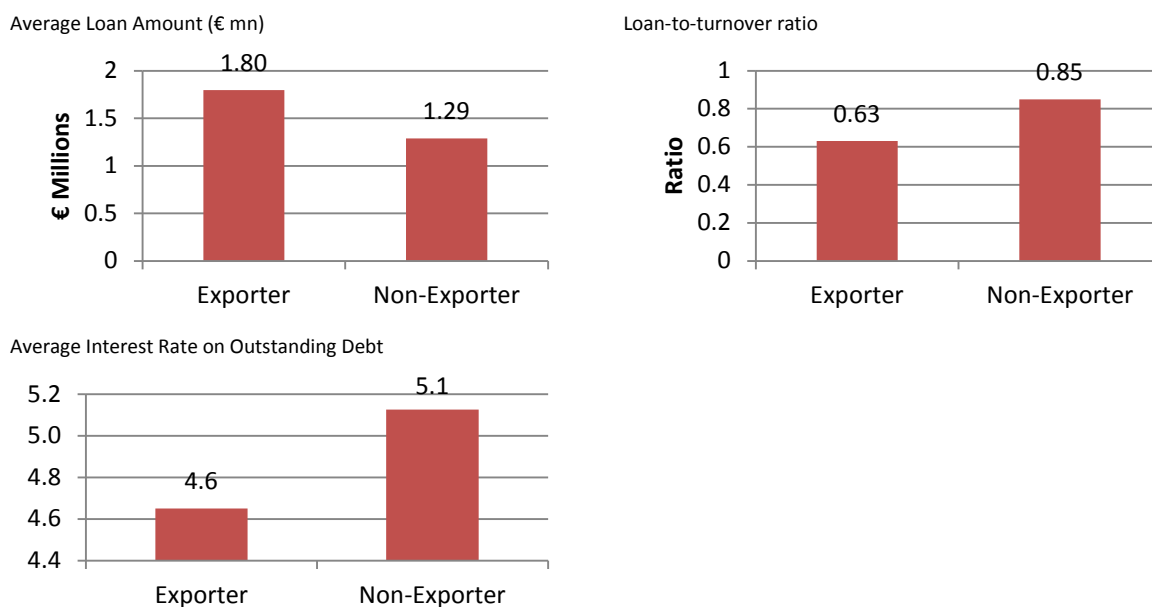Average Interest Rate on Outstanding Debt
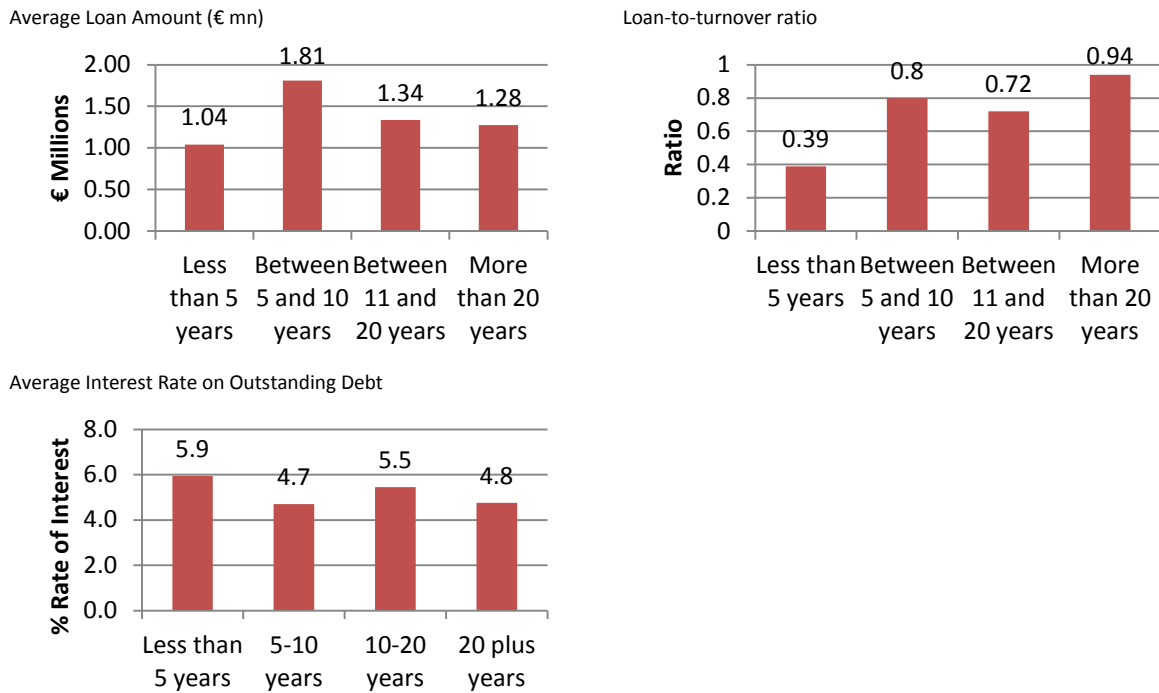
Source: Authors' calculations using Department of Finance/RedC data.

Figure 9 examines the debt profile of Irish SMEs according to their trading status i.e. whether or not the firm exports. International research suggests differential access to credit for exporting than non-exporting firms (Greenway el al., 2007). This can be due to a combination of access to financing in other markets and also a lower risk profile by having customers in more than one country and so not being entirely reliant on a single market for business. However, it is difficult to disentangle the causality between exporting and access to finance (Contessi and Nicola, 2012; Manova, 2013).[4]

We observe in the survey data that exporting firms generally have higher outstanding loan amounts, a lower LTT ratio and pay a lower average interest rate on their outstanding loans.

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[4]   Berman and Hericourt (2010) find that better access to finance improves the link between productivity and exporting.

FIGURE 9   Average Loan Amount and Loan-to-Turnover Ratio and Interest Rate by Trading Status

Average Loan Amount (€ mn)

Loan-to-turnover ratio

Average Interest Rate on Outstanding Debt

Source: Authors' calculations using Department of Finance/RedC data.

In Figure 10 we examine the contrasting debt profiles of Irish SMEs according to the ownership of their bank. Specifically we examine the differences between those SMEs banking with domestically-owned Irish banks and those banking with foreign-owned banks. In our sample 82% of SMEs banked with domestically-owned banks.

We observe in panel A that the average loan amount of firms banking with foreign-owned banks is substantially higher than those firms banking with domestically-owned banks. This is also the case for the average LTT ratio and the average interest rate charged. One interpretation of this finding is that foreign-owned banks entered the Irish market relatively late and in an effort to capture market share operated with laxer lending standards. The foreign banks may thus have charged higher interest rates than their competitors to account for the riskiness of their borrowers.[5] As these borrowers saw turnovers decline in the crisis, their average LTT ratios rose.

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[5]   A more detailed analysis reveals that micro and small firms, and firms in the hotels trading property sectors are particularly likely to have loans from foreign-owned banks.

FIGURE 10   Average Loan Amount, Loan-to-Turnover Ratio and Interest Rate by Bank Ownership
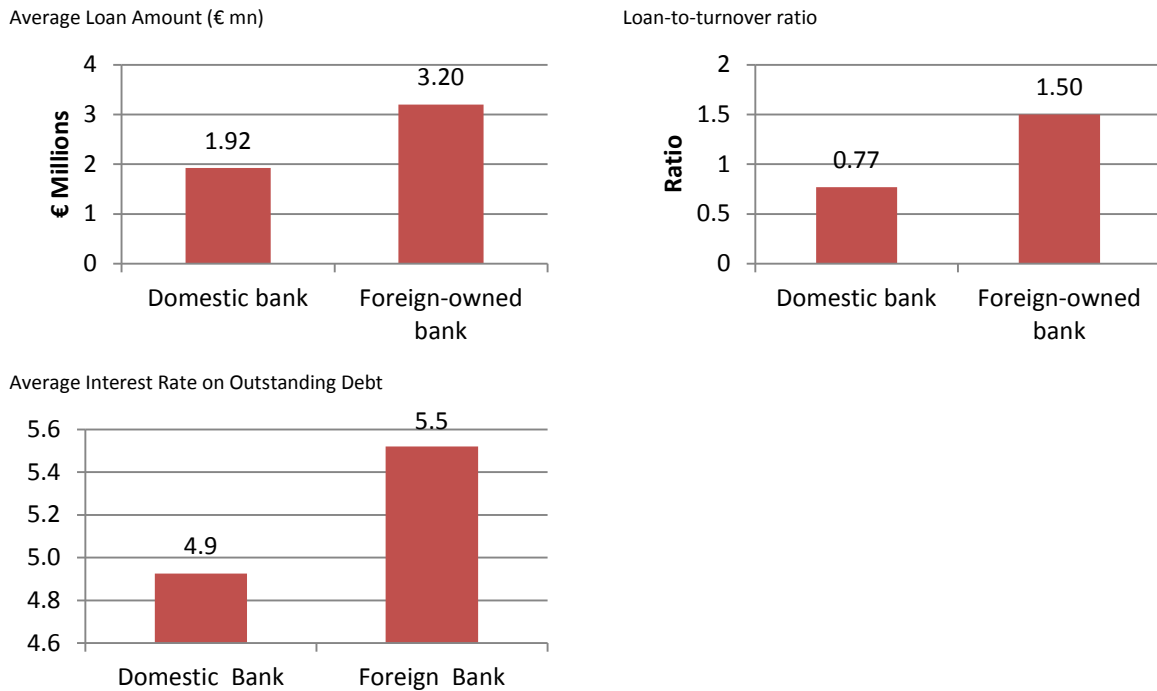
Source: Authors' calculations using Department of Finance/RedC data.

Conclusions

Ireland, like the other crisis countries in the Eurozone, saw substantial growth in credit to non-financial corporates in the years leading up to the crisis. From 2003 to its peak in late 2008 credit in Ireland grew by 232%. Since then, credit volumes dropped by more than half. It seems that this is due both to a drop in credit demand, which suggests deleveraging at firm level, and a contraction of credit supply, which reflects banks' attempts to shrink and rebalance their portfolios.

The latest wave of the Department of Finance/RedC SME Credit Demand Survey allows a granular examination of the debt profile of Irish SMEs. We find that of all SMEs with outstanding debt, just under 12% have been in arrears in the 6 month survey period. When examining loan profiles of SMEs across sectors we find, unsurprisingly, that the hotels and property-related sectors have the largest amounts of outstanding debt and the highest loan-to-turnover ratios, and thus struggle most with their existing debt. Professional services firms pay the highest rate of interest on their outstanding debt, while farms are borrowing at the lowest average cost.

Other firms that face higher debt burdens are micro firms and firms that are borrowing from foreign-owned banks. We suspect that the late entry of foreign-owned banks meant that their loan portfolio was particularly risky and most

vulnerable to the economic downturn. Interestingly, young firms, which often are at a disadvantage when dealing with banks, tend to have on average low loan-to-turnover ratios. This may reflect that they were not in operation during the years of the credit boom or have been unwilling or unable to amass outstanding loans to date.

All in all, this examination of the survey data shows that average loan-to-turnover ratios range between 30 and 184%. If compared with the government debt-to-GDP ratio, this suggests that debt today is sustainable for many SMES. This clearly reflects a drastic deleveraging that has taken place since 2008.

That said, certain sectors, like hotels and construction & real estate, continue to face high debt burdens. The data presented here is based on averages both within and across sectors and there are outliers in terms of loan-to-turnover ratio within each sector. This suggests that debt overhang is an issue on a firm by firm basis and not across entire sectors of the economy. The dispersed nature of the problem is in line with the targeted policy approach currently being followed via initiatives such as the NTMA's Better Capital Ireland SME Turnaround Fund. However, as with government debt, the key to a broad-based recovery in the SME sector remains a sustained revival of consumer spending and demand in the Irish economy.

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The PRTB Rent Index

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Introduction

Data from Census 2011 show that 28.8 per cent of households rent their accommodation. The Census also shows that, between 2006 and 2011, there was a dramatic increase in the share of households in private rented accommodation. Between 2006 and 2011 the number of households in Ireland increased by 187,000 or almost 13 per cent, to 1,649,000, while the number of households renting increased by 160,000. As a result of this change in tenure pattern, according to the 2011 Census, 18.5 per cent of households were in private rented accommodation, compared with 9.9 per cent in 2006.

In October 2012, the ESRI commenced working on the construction of a mix-adjusted rent measure for the Private Residential Tenancies Board (PRTB)[1]. Owners of private residential accommodation in Ireland are required to register with the PRTB, in accordance with the Residential Tenancies Act 2004. The registration requires an application to be filed for all tenancies with the PRTB's Register of Tenancies, from which aggregate data on the private rented sector is compiled. Registration is the responsibility of the landlord and involves filing various details, either online or by hard copy, about the dwelling and the leasing arrangements, along with information about the tenant(s), the landlord(s) and the management company where applicable. The PRTB provided the ESRI with an anonymised dataset of registrations – tenants or landlords are not identifiable.

Constructing the Index

The Data

If a measure of rents constructed using the PRTB data are to reflect movements in rents in the overall market, it is necessary that the PRTB data is representative of the rental market as a whole. In order to assess this we compare the PRTB data for quarter 2, 2011 to data published as part of Census 2011. Figure 1 shows that the Dublin region is somewhat over-represented, while the Border region and the South West region are under-represented. Differences may reflect misinterpretation of or households declining to answer

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the Census questions on homeownership, landlords not registering or being unaware of the need to register with the PRTB.

FIGURE 1.1   Distribution of sample by planning region
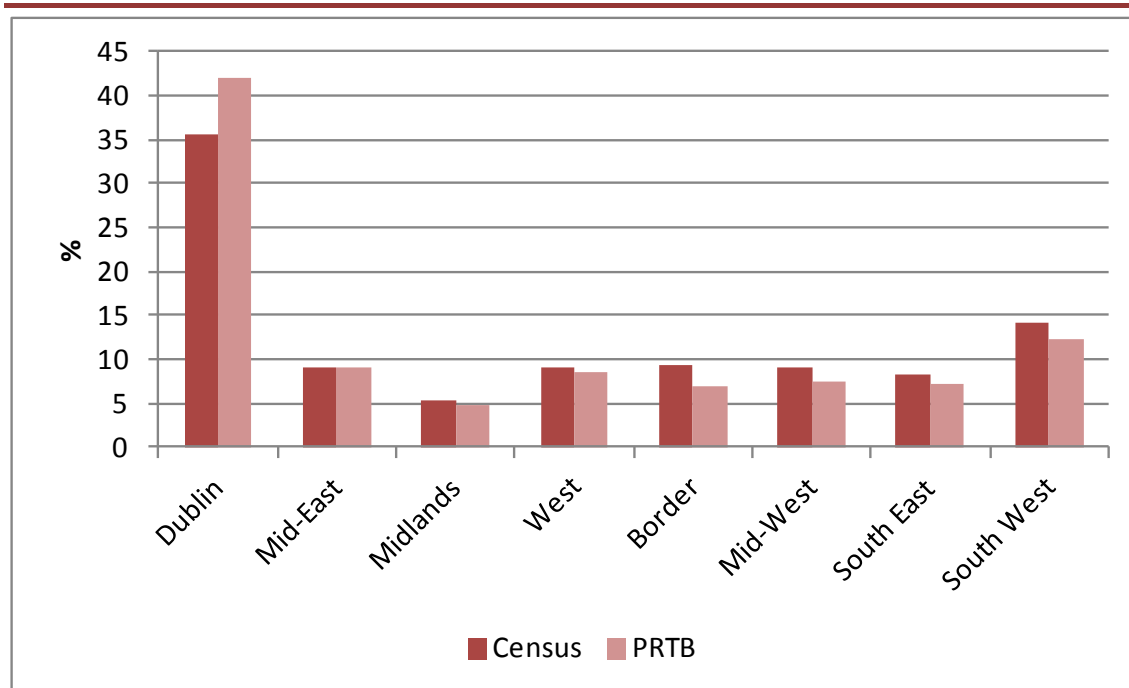
Note: PRTB data is for quarter 2, 2011 to compare to Census 2011.

Table 1 shows the distribution of rented properties by property type and the average rent. As can be seen the PRTB sample is more heavily concentrated in apartments, flats and bedsits, while showing a similar proportion of semi-detached dwellings, and a lower proportion of detached properties. Despite this the average weekly rent for semi-detached houses and apartments is very similar. However, the average weekly rent for detached and terraced houses is higher in the PRTB sample.

TABLE 1   Distribution of dwellings and average weekly rent, by property type

	Census 2011	PRTB		Census 2011	PRTB
	Distribution by property type			Average Weekly Rent	
	%	%		€	€
Detached	18.3	10.1		160	185
Semi-Detached	27.7	26.1		171	171
Terraced	17.1	14.9		176	191
Apartment, Flat, etc.	36.8	48.6		147	135
	100.0	100.0			

Note: Census data for properties rented from a private landlord. Census 2011 data are April 2011, PRTB data are for quarter 2, 2011.
Source: Central Statistics Office Census 2011 and PRTB Data.

The distribution of average rents may well provide some explanation as to the difference. The data show that the PRTB sample does not contain as many properties with low rents as the Census data. A similar pattern is evident for detached and terraced houses, the PRTB sample has a higher proportion of properties with higher rents than in the Census.

In spite of the variations the PRTB sample appears to be sufficiently comprehensive to provide a suitable base for constructing hedonic rent indices that reflect the rental market as a whole.

Data Editing

The primary focus of the study is to create a mix-adjusted measure of rents; that is, a measure of rents that takes account of the changing mix of properties rented in different time periods. Thus, the data are examined prior to any mix-adjustment to identify outliers and/or data entry errors. This is not a comprehensive check of all the variables but is focused on those that will form a part of the mix-adjustment process.

To arrive at the dataset for our analysis we restrict the data to the period specified in the tender documents for the "trend" report, 2007:Q3 to 2012:Q4. Extreme observations where the rent is below €100 or above €10,000 per month are also excluded. We exclude cases where there are not enough data present to allow the application to be registered. The impact of these different steps results in a dataset under consideration of just over 460,000 cases.

Identifying and Excluding Outliers

Outliers and cases that contain data errors must be excluded so that they do not bias the results. While some visual checking of the data is possible, the size of the dataset means that outlier detection must be automated. To do this we employ a measure known as "Cook's Distance" where a regression measures the distance between each observation and the means of the dependent and independent variables. In other words it provides a measure of the influence an observation is having on the results. Our examination of the data showed that data errors were independent of each other – an error in number of bedrooms did not mean that there was an error in the rent amount for the same observation. Given our concern is with the rent paid we focussed our outlier analysis on the monthly rent amount.

In addition we also examined the number of bedrooms by property type. Previous studies of Irish house prices have found that property size is a key explanatory variable (Conniffe and Duffy, 1999). Similar to O'Hanlon's (2011) analysis of data for the Residential Property Price Index, the data entered for floor area contain a mix of metric and imperial measures.

As the majority of the data is inputted online as part of the registration process this means that the data have been input by a large number of individual landlords when registering their property. Thus, there is a wide distribution in the number of bedrooms, reflecting data input errors. The distribution of number of bedrooms by type of property was examined and if the number of bedrooms for a given property type was less than 1% of records for that property type then it was identified as outside the threshold. For these observations, following the practise of O'Hanlon, 2011, the number of bedrooms was set to the average number of bedrooms for that property type.

The Index

The Hedonic Methodology

One of the challenges faced when measuring changes in prices is to take account of the impact that a change in the composition of goods sold in a period can have on the price level. Even if all rents remained unchanged over a time period, the average rent would change if the mix of properties rented changed.

The need to mix-adjust so that a measure of "pure" price change is constructed has lead to extensive use of the hedonic regression methodology. This methodology has been extensively used to measure house price change both internationally and in Ireland. However, it has also been applied to the rental market (see Lyons 2012, Hoffmann and Kurz, 2002). Hedonic regression decomposes the item being researched into its constituent characteristics, and obtains estimates of the value of each characteristic. In other words, it is based on the hypothesis that products can be treated as bundles of characteristics and that prices can be attached to each characteristic. For example, a house may be valued according to such components as the number of bedrooms, floor area, the age of the house and its location. It is usually estimated using ordinary least squares (OLS) regression analysis. The characteristics may be non-numeric attributes that are represented by dummy variables. The regression coefficients are treated as estimates of the contributions of the characteristics to the overall prices.

The Variables

The rent paid for a dwelling can be influenced by a wide range of variables. While not all variables are captured in the sample, the PRTB dataset does contain sufficient variables that can be used as explanatory variables to explain variation in rents. The variables can be grouped into the following: size, dwelling type, location and other characteristics.

Dwelling size

The PRTB registration form contains a number of variables that could be used as a measure of size: the floor area of the dwelling, the number of bedrooms, number of occupants and number of bedspaces. However, an analysis of the data indicated that for a number of these variables there may be issues with how they are interpreted. For example, does a double bed represent one or two bedspaces, or does the number of occupants include, for example, young children? In addition it is evident that the floor area is reported as either square metres or square feet, but no indication of which is reported is available. Based on the analysis it has been decided to use number of bedrooms as a measure of dwelling size.

Dwelling type

The data include dwelling identifiers for semi-detached, detached, terraced, maisonette, apartment, flat and bedsit. Using these data, dummy variables are constructed for the different types of dwellings, with maisonette, flat and bedsits grouped into a single variable "other property". The PRTB registration form also requires the landlord to indicate, when the property being rented is a house, if the property is the whole house or part of the house. A dummy variable is constructed to control for this.

Location

Properties are registered with full address, including local authority. In the case of Dublin city, location includes city postcode. Rents are calculated for the country as a whole, Dublin, and outside Dublin. For the Dublin regressions, where feasible, location is identified by postcode and by a dummy variable identifying Dublin locations outside Dublin City, based on local authority, e.g., South County Dublin. In the National regressions location is captured by a dummy variable identifying the planning region in which the property is located, if outside Dublin, and by the local authority if located in Dublin. We separately identify urban areas outside Dublin based on local authority (Galway, Waterford, Limerick and Cork). Similarly, for the regressions that measure rents outside Dublin, location is captured by planning region dummy variables.

Other Characteristics

The PRTB registration form aims to capture additional details about the tenancy. For example, landlords registering their property are asked to indicate changes incurred by the tenant (Electricity, Oil, TV licence, Waste, Gas, Other) subletting (Y/N), BER Certificate (Y/N), BER Rating (Y/N), length of lease, deposit amount, frequency of rent (weekly, monthly, annually) and if the rent applies to whole of house or part of house. In reality most of this information is not provided by landlords when registering and has only been completed in a small proportion of cases. This limits the number of other characteristics that can be used as explanatory variables. However, as an additional location explanatory variable we construct a dummy variable taking the value of 1 if there is a third level institution located in the local authority.

TABLE 1   Summary of Variables Used

	Description
Rent	Monthly rent. Log of monthly rent used in regressions
Number of bedrooms	Dummy variable: 1 Bed, 2 Bed, 3 Bed, 4 Bed, 5 bed plus
Dwelling type	Dummy variable: Detached, Semi-detached, Terraced, Apartment, Other property (flat, maisonette, bedsit)
Number of tenants	Dummy variable: 1, 2, 3, 4 plus
Part	Identifies if rented house is whole or part of house
Tenancy Length	Dummy variable: 1-6 months, 7-9 months, 10-12 months, Over 12 months
Rent Frequency	Dummy Variable: Weekly, Fortnightly, Monthly, Quarterly, Annual
Location	Dummy Variable: Dun Laoghaire-Rathdown, Fingal, Dublin city, South Dublin, Midlands, Mid-East, Mid-West, Midlands, Border, South-East, South West
Third level	Dummy variable indicating the presence of a third level institution in the local authority.

Constructing the Indices

Having identified and excluded outliers, imposed the threshold for the number of bedrooms, the next stage is to run hedonic regressions. Following international practice the dependent variable is the log of the monthly rent for the dwelling. The explanatory variables are entered as a series of dummy variables. For each characteristic group one dummy variable is omitted to avoid multicollinearity. As is the norm internationally the most frequently occurring observation within each characteristic group is omitted. Thus, the equations calculate the difference in the price of each transaction for that of a reference dwelling.

A number of alternative hedonic methodologies exist. One approach is to run a separate hedonic regression for each time period. This has the advantage of allowing the implicit price for each characteristic to vary over time but requires large amounts of data and so may become unreliable if the volume of transactions becomes very low. In addition the need to run a regression for each time period is time-consuming, particularly if data are revised over a long time series.

An alternative is to include time dummy variables in the hedonic regression. In this case the characteristics variables capture the changing mix of properties between time periods while the time dummies capture changes in the price or rent of a constant quality representative dwelling. A mix adjusted index is then calculated based on the time dummy coefficients. An assumption of this approach is that the implicit price of characteristics remains constant over time.

In constructing the rent index we follow the practice of the Central Statistics Office when constructing its Residential Property Price Index and use the rolling time dummy hedonic regression model. The PRTB rent index is constructed using quarterly time dummies. In each regression a dummy variable is added for the most recent quarter and the "oldest" time dummy is dropped. This is a variant of the time-dummy method and has the advantage of keeping the coefficients relatively up-to-date while still using pooled data.

In general the equations are found to explain approximately 50 per cent of the rent paid. However, for some of the sub-indices the proportion explained declines to between 30 and 40 per cent. This is particularly the case for sub indices by location. In view of the limited number of explanatory variables we are able to use and the cross-sectional nature of the data this can be regarded as satisfactory. The coefficients for individual variables are fairly consistent over time, have the expected signs and in most cases are significant at a 95 per cent confidence level in all equations. When a sufficiently long data series exists, the seasonality of the data can be assessed and a seasonally adjusted index introduced if necessary.
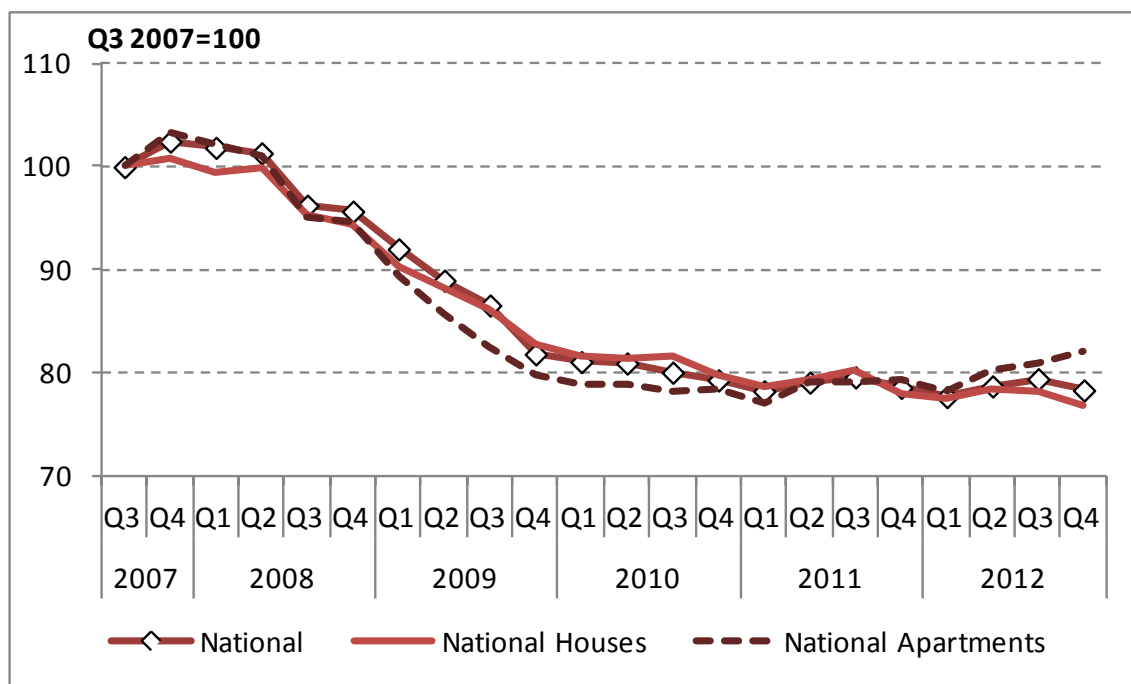
The PRTB Rent Index

Separate indices are calculated for the national market, the national house market, and the national apartment market. Similar indices are calculated for Dublin and Outside Dublin. These indices are shown in Table 2. Table 3 shows standardised rents based on these indices. The standardised rent is based on the average rent in the base period which is then updated using the mix-adjusted index.

Figure 1.2 shows the index values for the national market, national houses and national apartments. The indices show that, nationally, rents rose in the latter half of 2007 before starting to decline in 2008. Declines were strongest in 2008 and 2009 and although there have been further, more moderate, monthly declines since then, on a mix-adjusted basis rents appear to have stabilised at around 80 per cent of their level in quarter 3, 2007. Figure 1.3 shows the index values for the Dublin market, Dublin houses and Dublin apartments. As in the case of the national market the indices show a decline in rents from mid-2008 and a broad stabilisation after the first quarter 2010. Having reached a trough in the first quarter of 2011 the indices show by the end of 2012 rents in Dublin had increased by close to 4 per cent.
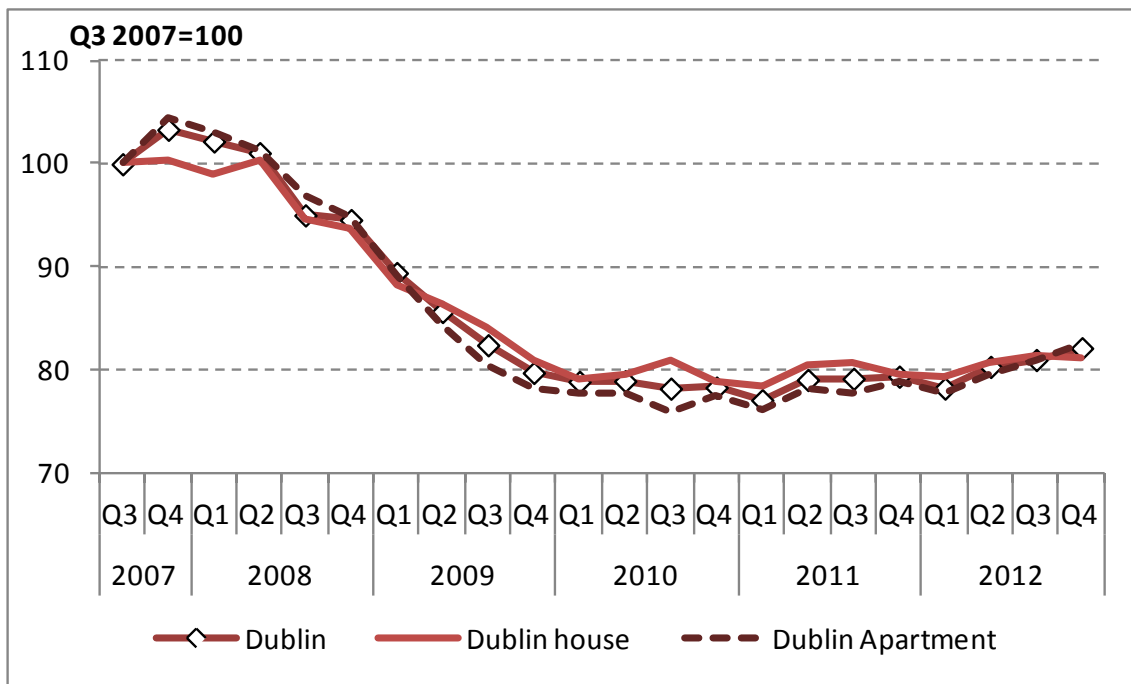
Figure 1.4 shows the index values for the non-Dublin market, non-Dublin houses and non-Dublin apartments, which shows that a similar trend in rents, although the graph suggests that the stablisation in rents occurred after the Dublin market.

FIGURE 1.2   Mix-adjusted Rent Index, National Market

Source: PRTB data.

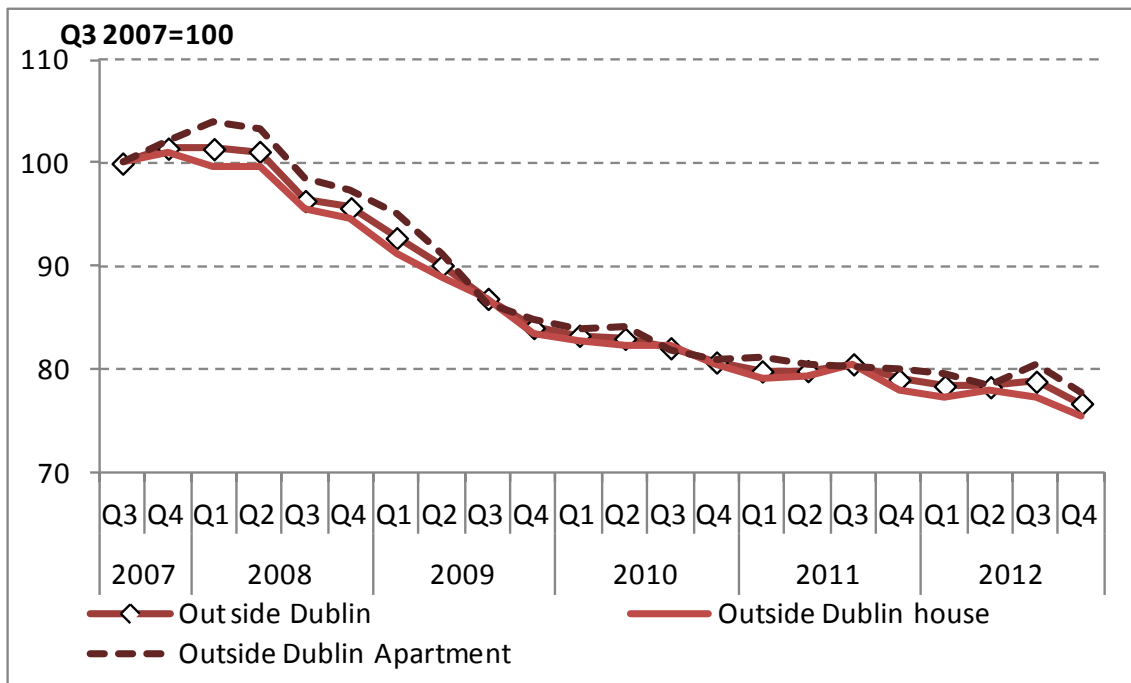**FIGURE 1.3**   Mix-adjusted Rent Index, Dublin Market

Source: PRTB data.

**FIGURE 1.4**   Mix-adjusted Rent Index, Outside Dublin Market

Source: PRTB data.

Using the PRTB index we compare the mix-adjusted measure of rents with a mix-adjusted measure of house prices from the CSO Residential Property Price Index, Figure 1.5. The graph shows that house prices started to decline before rents. In

addition the declines in house prices are more severe than the decline experienced in rent. From quarter 3, 2007 to quarter 4, 2012 house prices have fallen by close to 50 per cent, while market rents have fallen by just under 22 per cent. The smaller decline in rents may reflect the increase in the number of households opting to rent, as shown in Census 2011.

FIGURE 1.5   National House Prices and National Rents, Q3 2007=100
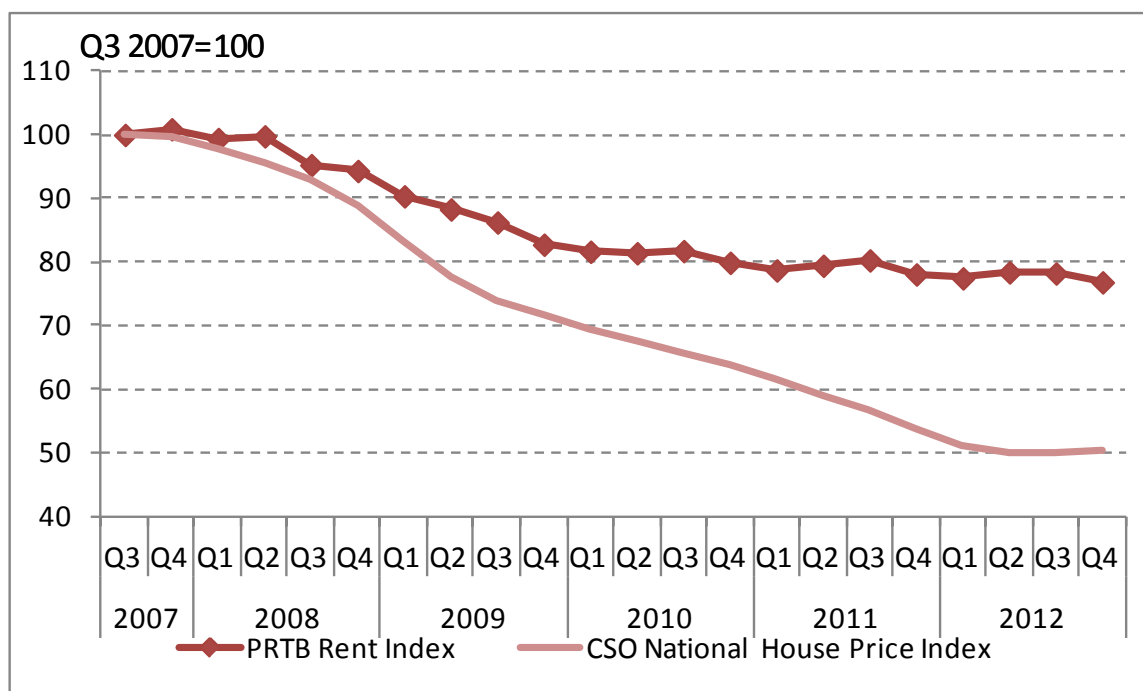
Source: Based on CSO and PRTB data.

Conclusions

The new PRTB Rent Index allows us to examine what has happened to market rents since the second half of 2007. The index shows that rents rose between the third and fourth quarter of 2007. Rents fell sharply throughout 2008 and 2009. Since then the declines have been much more moderate and there have been some increases on a basis, although these have been infrequent. In nominal value terms, the index shows that monthly rents declined from a value of €975 in quarter 3, 2007 to €764 in the fourth quarter of 2012.

The PRTB Rent Index provides us with a reliable measure of trends in the private rental market. The intention is that the results will be published quarterly, approximately one month after the end of the quarter.

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TABLE 2   Quarterly Rental Indices by Property Type and Location, Q3 2007=100

		National	National House	National Apt	Dublin All	Dublin House	Dublin Apt	Outside Dublin All	Outside Dublin House	Outside Dublin Apt
2007	Q3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Q4	102.5	100.9	103.3	103.3	100.4	104.3	101.4	101.1	102.2
2008	Q1	101.9	99.4	102.2	102.2	99.0	103.2	101.4	99.6	104.0
	Q2	101.3	99.8	101.1	101.1	100.3	101.4	101.1	99.6	103.3
	Q3	96.3	95.3	95.1	95.1	94.6	96.9	96.4	95.5	98.5
	Q4	95.7	94.3	94.6	94.6	93.8	94.8	95.7	94.6	97.4
2009	Q1	92.1	90.4	89.5	89.5	88.3	89.3	92.8	91.2	95.0
	Q2	89.0	88.3	85.7	85.7	86.5	84.3	90.2	89.0	91.1
	Q3	86.6	86.2	82.5	82.5	84.2	80.6	86.9	87.0	86.5
	Q4	81.9	82.8	79.8	79.8	81.1	78.2	84.1	83.6	84.9
2010	Q1	81.1	81.6	79.0	79.0	79.1	77.8	83.3	82.8	83.9
	Q2	81.0	81.4	79.0	79.0	79.6	77.8	83.1	82.2	84.2
	Q3	80.1	81.7	78.3	78.3	81.0	76.0	82.1	82.3	82.0
	Q4	79.4	79.9	78.4	78.4	79.0	77.6	80.8	80.5	81.0
2011	Q1	78.3	78.7	77.2	77.2	78.4	76.2	79.9	79.2	81.3
	Q2	79.2	79.4	79.1	79.1	80.5	78.2	79.9	79.5	80.6
	Q3	79.7	80.3	79.2	79.2	80.7	77.9	80.6	80.6	80.4
	Q4	78.7	78.1	79.5	79.5	79.5	79.0	79.1	78.1	80.2
2012	Q1	77.8	77.5	78.3	78.3	79.3	77.9	78.5	77.2	79.7
	Q2	78.8	78.4	80.4	80.4	80.6	79.7	78.4	78.0	78.6
	Q3	79.5	78.2	81.1	81.1	81.5	81.0	78.9	77.4	80.6
	Q4	78.4	76.8	82.2	82.2	81.2	82.5	76.8	75.6	77.8

Note: The data in this table may be revised due to retrospective registrations.
Source: Based on PRTB Data.

TABLE 3   Quarterly Standardised Rents by Property Type and Location, Euro

		National	National House	National Apt	Dublin All	Dublin House	Dublin Apt	Outside Dublin All	Outside Dublin House	Outside Dublin Apt
2007	Q3	975	968	1,019	1,212	1,356	1,216	809	817	818
	Q4	999	976	1,053	1,253	1,362	1,269	821	826	836
2008	Q1	993	962	1,041	1,239	1,343	1,255	821	814	850
	Q2	988	966	1,030	1,225	1,361	1,233	818	814	845
	Q3	938	922	969	1,152	1,283	1,178	780	780	806
	Q4	933	913	964	1,147	1,272	1,153	774	773	797
2009	Q1	897	874	912	1,085	1,198	1,086	751	744	777
	Q2	868	854	873	1,039	1,173	1,026	730	727	746
	Q3	844	835	841	1,000	1,142	980	703	710	707
	Q4	798	801	813	967	1,099	951	681	683	694
2010	Q1	791	790	805	957	1,073	946	675	676	687
	Q2	790	788	805	958	1,080	946	672	672	689
	Q3	781	791	798	949	1,099	925	665	672	671
	Q4	774	773	799	950	1,072	944	654	658	663
2011	Q1	763	762	786	935	1,064	927	647	647	665
	Q2	771	769	806	959	1,092	951	647	649	660
	Q3	776	777	808	961	1,095	947	652	658	658
	Q4	767	756	810	963	1,079	961	640	638	656
2012	Q1	758	750	798	949	1,075	947	635	631	652
	Q2	768	759	819	974	1,094	970	634	637	643
	Q3	775	757	826	983	1,105	985	638	632	659
	Q4	764	744	838	996	1,102	1004	621	618	637

Note: The standardised rent is based on the average rent in the base period which is then updated using the mix -adjusted index. The data in this table may be revised due to retrospective registrations.

Source: Based on PRTB Data.

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