Quarterly Economic Commentary

David Duffy
Joseph Durkan
Kevin Timoney
Eddie Casey

Winter 2012

ESRI

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Quarterly Economic Commentary

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Research Notes

Tim Callan, Michael Savage, Elish Kelly, Seamus McGuinness, Philip O'Connell (UCD Geary Institute), Edgar Morgenroth, Brian O'Connell, Conor O'Toole, Nuša Žnuderl, Kevin Timoney

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Summary Table

	2010	2011	2012	2013	2014
Output (Real Annual Growth %)					
Private Consumer Expenditure	1.0	-2.4	-1.0	-0.5	-0.5
Public Net Current Expenditure	-6.5	-4.3	-3.0	-1.5	-1.5
Investment	-22.6	-12.6	-3.9	3.1	3.6
Exports	6.2	5.1	2.7	3.9	4.9
Imports	3.6	-0.3	0.0	4.3	4.4
Gross Domestic Product (GDP)	-0.8	1.4	1.3	1.3	2.3
Gross National Product (GNP)	0.9	-2.5	3.1	-2.0	1.4
Prices (Annual Growth %)					
Consumer Price Index (CPI)	-1.0	2.6	1.7	1.8	2.0
Growth in Average Hourly Earnings	-1.5	0.1	1.1	1.2	1.5
Labour Market					
Employment Levels (ILO basis (000s))	1,882	1,849	1,832	1,832	1,839
Unemployment Levels (ILO basis (000s))	303	317	322	314	307
Unemployment Rate (as % of Labour Force)	13.9	14.6	14.9	14.6	14.3
Public Finance					
Exchequer Balance (€bn)	-18.7	-24.9	-14.9	-15.2	-12.4
General Government Balance (€bn)	-48.4	-20.2	-12.9	-12.6	-9.1
General Government Balance (% of GDP)	-30.9	-12.7	-7.9	-7.5	-5.1
General Government Balance excluding bank costs (% of GDP)	-10.8	-9.0	-7.9	-7.5	-5.1
General Government Debt, % of GDP	92	106	117	121	118
External Trade					
Balance of Payments Current Account (€bn)	1.8	1.8	7.8	4.3	6.9
Current Account (% of GNP)	1.4	1.4	5.9	3.2	5.0

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

Summary

Since the last *Commentary*, expectations for global economic activity have been scaled back once more. The outcome for 2012 is likely to be slightly more muted than had been expected, while any improvement in 2013 also looks set to be more subdued than previously thought. There are some signs that there could be a slight pick-up in growth in 2014. A resumption of trend growth in the eurozone would lead to an upward revision to Irish export growth forecasts, higher levels of GNP and GDP, an improvement in the public finances and a more speedy resolution of the public finances crisis.

GDP is estimated to have increased by 1.3 per cent in 2012. Export growth in 2012 was driven by a large expansion in services, while exports of goods declined. The domestic economy remained weak with contractions in household consumption, investment and government consumption. Employment levels are likely to have continued to decline and, as a result, the unemployment rate is estimated to have averaged 14.9 per cent, an increase on the 2011 average of 14.6 per cent.

This *Commentary* presents our first forecast for 2014. We forecast that GDP will grow by 1.3 per cent this year and by 2.3 per cent in 2014. In 2013 and 2014 we expect exports of goods to increase and exports of services to continue to grow rapidly. Domestic demand, on the other hand, will further contract as high unemployment, fiscal adjustment and deleveraging persist. A large balance of payments surplus in 2012 is expected to remain over the forecast horizon.

The unemployment rate is forecast to decline from 14.9 per cent in 2012 to 14.6 per cent in 2013 and 14.3 per cent in 2014, mainly due to ongoing net emigration. We expect continued stabilisation in employment and the labour market over the two years.

Our view is that the fiscal targets will be met in 2013 and 2014, though meeting the expenditure targets in 2013 will be challenging. If the Croke Park Extension discussions are successful, the carryover into 2014 could lead to the realisation of the 2014 targets.

National Accounts 2012

A: Expenditure on Gross National Product

	2011	2012	% Change in 2012		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	81.3	81.6	0.4	1.4	-1.0
Public Net Current Expenditure	25.4	25.0	-1.6	1.5	-3.0
Gross Fixed Capital Formation	16.1	15.6	-3.3	0.6	-3.9
Exports of Goods and Services	166.8	176.9	6.1	3.3	2.7
Physical Changes in Stocks	0.2	-0.1			
Final Demand	**289.8**	**299.0**	**3.2**	**2.4**	**0.7**
less:					
Imports of Goods and Services (M)	131.9	136.8	3.7	3.7	0.0
Statistical Discrepancy	1.0	1.0			
GDP at Market Prices	**159.0**	**163.2**	**2.7**	**1.3**	**1.3**
Net Factor Payments (F)	-32.0	-31.1			
GNP at Market Prices	**127.0**	**132.1**	**4.0**	**0.9**	**3.1**

B: Gross National Product by Origin

	2011	2012	Change in 2012	
	€bn	€bn	€bn	%
Agriculture	3.2	3.0	-0.3	-8.0
Non-Agriculture: Wages, etc.	67.8	68.0	0.3	0.4
Other	58.1	61.7	3.7	6.3
Adjustments: Stock Appreciation	-0.6	-0.6		
Statistical Discrepancy	-1.0	-1.0		
Net Domestic Product	**127.4**	**131.1**	**3.7**	**2.9**
Net Factor Payments	-32.0	-31.1	0.8	-2.7
National Income	**95.5**	**100.0**	**4.6**	**4.8**
Depreciation	15.8	15.5	-0.3	-2.0
GNP at Factor Cost	**111.3**	**115.5**	**4.2**	**3.8**
Taxes less Subsidies	15.8	16.6	0.8	5.4
GNP at Market Prices	**127.0**	**132.1**	**5.1**	**4.0**

C: Balance of Payments on Current Account

	2011	2012	Change in 2012
	€bn	€bn	€bn
X – M	34.9	40.1	5.2
F	-32.0	-31.1	0.8
Net Transfers	-1.2	-1.2	0.0
Balance on Current Account	**1.8**	**7.8**	**6.0**
as % of GNP	1.4	5.9	4.6

National Accounts 2013

A: Expenditure on Gross National Product

	2012	2013	% Change in 2013		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	81.6	82.5	1.1	1.6	-0.5
Public Net Current Expenditure	25.0	25.0	0.0	1.5	-1.5
Gross Fixed Capital Formation	15.6	16.1	3.5	0.4	3.1
Exports of Goods and Services	176.9	188.0	6.2	2.3	3.9
Physical Changes in Stocks	-0.1	1.0			
Final Demand	**299.0**	**312.6**	**4.6**	**1.9**	**2.6**
less:					
Imports of Goods and Services (M)	136.8	145.6	6.4	2.0	4.3
Statistical Discrepancy	1.0	1.0			
GDP at Market Prices	**163.2**	**168.1**	**3.0**	**1.6**	**1.3**
Net Factor Payments (F)	-31.1	-36.9			
GNP at Market Prices	**132.1**	**131.1**	**-0.7**	**1.3**	**-2.0**

B: Gross National Product by Origin

	2012	2013	Change in 2013	
	€bn	€bn	€bn	%
Agriculture	3.0	3.2	0.2	7.5
Non-Agriculture: Wages, etc.	68.0	68.9	0.9	1.3
Other	61.7	64.9	3.1	5.1
Adjustments: Stock Appreciation	-0.6	-0.6		
Statistical Discrepancy	-1.0	-1.0		
Net Domestic Product	**131.1**	**135.4**	**4.3**	**3.2**
Net Factor Payments	-31.1	-36.9	-5.8	-18.6
National Income	**100.0**	**98.5**	**-1.5**	**-1.5**
Depreciation	15.5	15.5	0.0	0.0
GNP at Factor Cost	**115.5**	**114.0**	**-1.5**	**-1.3**
Taxes less Subsidies	16.6	17.2	0.6	3.4
GNP at Market Prices	**132.1**	**131.1**	**-1.0**	**-0.7**

C: Balance of Payments on Current Account

	2012	2013	Change in 2013
	€bn	€bn	€bn
X – M	40.1	42.4	2.3
F	-31.1	-36.9	-5.8
Net Transfers	-1.2	-1.2	0.0
Balance on Current Account	**7.8**	**4.3**	**-3.5**
as % of GNP	5.9	3.3	-2.7

National Accounts 2014

A: Expenditure on Gross National Product

	2013	2014	% Change in 2014		
	€bn	€bn	Value	Price	Volume
Private Consumer Expenditure	82.5	83.4	1.1	1.6	-0.5
Public Net Current Expenditure	25.0	25.0	0.0	1.5	-1.5
Gross Fixed Capital Formation	16.1	16.8	3.9	0.3	3.6
Exports of Goods and Services	188.0	203.6	8.3	3.2	4.9
Physical Changes in Stocks	1.0	2.0			
Final Demand	**312.6**	**330.8**	**5.8**	**2.5**	**3.2**
less:					
Imports of Goods and Services (M)	145.6	155.1	6.6	2.1	4.4
Statistical Discrepancy	1.0	1.1			
GDP at Market Prices	**168.1**	**176.7**	**5.2**	**2.8**	**2.3**
Net Factor Payments (F)	-36.9	-40.4			
GNP at Market Prices	**131.1**	**136.4**	**4.0**	**2.6**	**1.4**

B: Gross National Product by Origin

	2013	2014	Change in 2014	
	€bn	€bn	€bn	%
Agriculture	3.2	3.5	0.3	8.5
Non-Agriculture: Wages, etc.	68.9	70.5	1.6	2.3
Other	64.9	70.1	5.2	8.0
Adjustments: Stock Appreciation	-0.6	-0.6		
Statistical Discrepancy	-1.0	-1.1		
Net Domestic Product	**135.4**	**142.3**	**7.0**	**5.1**
Net Factor Payments	-36.9	-40.4	-3.4	9.3
National Income	**98.5**	**102.0**	**3.5**	**3.6**
Depreciation	15.5	16.0	0.5	3.2
GNP at Factor Cost	**114.0**	**118.0**	**4.0**	**3.5**
Taxes less Subsidies	17.2	18.4	1.2	7.2
GNP at Market Prices	**131.1**	**136.4**	**5.2**	**4.0**

C: Balance of Payments on Current Account

	2013	2014	Change in 2014
	€bn	€bn	€bn
X – M	42.4	48.4	6.1
F	-36.9	-40.4	-3.4
Net Transfers	-1.2	-1.2	0.0
Balance on Current Account	**4.3**	**6.9**	**2.6**
as % of GNP	3.3	5.0	1.9

1

The International Economy

Since the last *Commentary*, expectations for global economic activity have been scaled back once more. The outcome for 2012 is likely to be slightly more muted than had been forecast, while any improvement in 2013 also looks set to be more subdued than previously thought, although there could be a slight pick-up in growth in 2014. Major issues concerning Ireland's main trading partners relate to the pace at which decisions are being taken to alleviate policy uncertainty, the speed at which outstanding balance sheet problems are being resolved and the appropriateness of large-scale, parallel efforts to tighten fiscal policy.

US figures for the third quarter of 2012 suggested that Ireland's second largest goods export market[1] expanded at an annual rate of 3.1 per cent. The expansion was primarily driven by rising consumer and government expenditure and a gradually recovering residential property market. Weaknesses remained evident in other major components of growth, however, with business fixed investment and exports both softening.

The debate surrounding the expiration of various fiscal measures and the very short-term solution agreed in early January continues to be a source of concern in the US and has already prompted some scale-back in growth estimates for this year. Fiscal tightening equivalent to as much as 4.1 per cent of GDP would have occurred in 2013 if political gridlock had not been avoided. In the event there were some modest changes in taxes with the removal or reduction of allowances and credits and a higher tax rate (from 35 per cent to 39.6 per cent) on incomes over $400,000. Expenditure was virtually untouched, but the authorities must return to the issue by end February. The extent to which various welfare and other expenditure measures are withdrawn or extended over future years will determine the size of this impact but the uncertainty caused by a delay in resolving these issues has constrained the recovery in private investment as well as consumer spending and will continue to do so. On a more positive note, the Federal Reserve has announced that the federal funds rate will remain in the range of 0-0.25 per cent as long as unemployment remains above 6.5 per cent, in the context of inflation remaining only marginally above the target rate. The Federal Reserve also announced that it will continue to purchase agency

[1] Central Statistics Office data shows goods exports to the US were valued at €16.8 billion for the first 11 months of 2012.

mortgage-backed securities at the rate of $40 billion per month, and will also purchase Treasury securities to keep long-term interest rates low. If the fiscal adjustment is muted there could be a modest pick-up in 2013 and 2014 from moderate GDP growth of around 2 per cent in 2012.

The German and French economies contracted during the fourth quarter of 2012, and economic activity across the eurozone remains stagnant. Much of this relates to the parallel efforts to tighten public finances. Improved coordination of eurozone fiscal policy would be more desirable at present as larger fiscal multipliers stemming from concurrent fiscal contractions appear to be inducing stronger negative impacts on output than would be the case where fiscal policies were more varied.[2] Many economies are now attempting an economic restructuring, whereby domestic demand is repressed, competitiveness recovered and exports expanded. The logic of this approach, when practised in unison, is highly questionable. Specifically, it is not clear whether demand will be vigorous enough in traditional eurozone markets to sustain multiple export-led recoveries if domestic demand is widely suppressed. Unlike the situation in a single country there are no internal transfers from well performing areas to poorly performing areas in the eurozone. Following an estimated contraction in 2012 of 0.5 per cent, eurozone GDP is forecast to decline by 0.1 per cent in 2013, with prospects for improvement in the second half of the year remaining fragile, before returning to growth of 1.1 per cent in 2014. This poor growth in Europe, in turn, is undermining the capacity of the Irish economy to engineer near-term growth.

Medium-term prospects for the UK economy also remain subdued, with a number of inhibiting factors restraining the emergence of a meaningful recovery. An appreciation in the nominal exchange rate (4 per cent for the year-to-date on a trade-weighted basis) is also taking its toll on export competitiveness at a time when external demand in traditional export markets, most notably the eurozone, is already highly depressed. Another over-riding factor affecting the pace of the recovery is the on-going process of balance sheet repair in the private sector following the financial crisis. UK gross household debt is currently higher than in any other G7 economy while savings rates are comparatively low. These factors combined with the simultaneous pursuit of pronounced fiscal tightening are constraining economic activity.[3] If confronted with further evidence of weak growth, the UK government may well decide to ease the pace of fiscal consolidation in the near future, though this is by no means clear at present.

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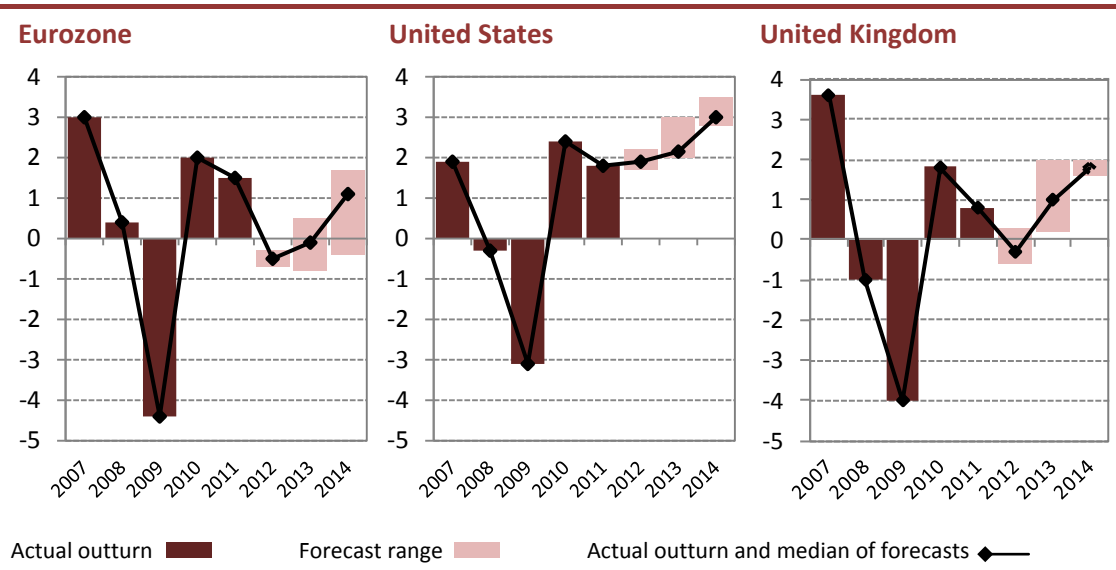
2 Country simulations estimate that for an economy attempting a fiscal consolidation while the rest of the world is also engaged in consolidation and interest rates are near zero, the negative impact on output is more than double what it would be in a scenario where the rest of the world was not engaged in such consolidation. See IMF, "Will it Hurt? Macroeconomic effects of Fiscal Consolidations," Chapter 3 of *World Economic Outlook*, October 2010.

3 The IMF forecast a general government deficit for the UK in 2012/2013 of 8 per cent.

Another area that has concerned policymakers is the reduced flow of credit to businesses. The availability of cheaper funding through the Bank of England's *Funding for Lending Scheme* and the ECB announcement of outright monetary transactions appear to have had some positive impact in terms of reducing banks' funding costs.[4] The pass-through, in terms of easing credit conditions facing businesses as well as households, will take some time, but already signs of a significant increase in secured credit availability have emerged in the Bank's *Credit Conditions Survey*. In light of the various headwinds confronting the UK economy, we expect that GDP will have contracted in 2012, with only a modest expansion likely in 2013.

FIGURE 1 Real GDP Growth (% change, year-on-year)



Sources: *FocusEconomics, Eurostat,* IMF, OECD, HM Treasury and Federal Reserve.

In spite of poor economic performance in all Ireland's main markets, world trade is expected to grow more rapidly in 2013 and 2014 than in 2012. At a country level this reflects a return to very rapid growth in trade, both exports and imports, in China, India and Brazil. The recovery in these countries' exports reflects an improvement in domestic demand in the more developed economies and the continued competitiveness of their products.

4 Outright Monetary Transactions entail the purchase by the European Central Bank (ECB) of sovereign bonds on the primary or secondary markets and are focused on securities with a maturity of one to three years. This funding is to be provided so long as strict conditions attached to a macroeconomic adjustment programme or a precautionary programme are met. The Bank of England's £80 billion *Funding for Lending Scheme* launched in July 2012 is intended to incentivise more household and business lending in the UK by providing direct central bank loans to banks or building societies below market interest rates. If these institutions subsequently decrease such lending, then the associated cost of obtaining this funding from the Bank of England is subject to an increase.

The critical factor affecting the world economy is the failure of the eurozone to pull out of recession. This in turn has dampened the recovery in the US and the UK, both markets that are very important for Ireland. The eurozone economy is bedevilled by the failure to resolve the debt crisis in a decisive manner. Our view of the prospects for the Irish economy in 2013 and 2014 is heavily influenced by the continued failure to deal with the international crisis. A fundamental shift in fiscal policy at the eurozone level is needed to return the monetary union to stable growth. If measures were adopted along the lines we have suggested in previous *Commentaries*, Ireland's economic prospects would improve significantly. A resumption of trend growth in the eurozone would lead to an upward revision to Irish export growth forecasts, higher levels of GNP and GDP, an improvement in the public finances and a more speedy resolution of the public finances crisis.

2

Exports of Goods and Services

Merchandise exports from Ireland have reflected the poor performance of the developed world's economies over the past two years. These exports peaked in the second quarter of 2011 and were on a downward trend to the third quarter of 2012 when there was a very modest recovery.[5] Despite the recovery, it seems that the volume of merchandise exports may have fallen by as much as 2.5 per cent in 2012. This is very much weaker than we had previously expected. Exports from indigenous companies were weak with food and drink exports particularly poor. The hope of a continued shift to exports as domestic demand was squeezed did not take place. Partly this reflected the poor international situation, but domestic supply conditions may also have been a factor. For example, milk output fell in 2012 by 2.5 per cent and cattle slaughterings were down by over 10 per cent. Production of beverages fell by 8 per cent, and while domestic demand was weak here exports did not take up the slack. The weakness in exports was somewhat surprising in that there have been substantial reductions in unit wage costs in recent years and the weakness of the euro had provided a short-term exchange rate gain. It remains very difficult to increase export sales in the face of a downturn in external demand. One consequence of the euro weakness was an increase in the deflator for exports of goods, now estimated to have increased by 5 per cent in 2012.

By contrast, exports of services in 2012 grew very rapidly. We estimate the growth at 8-9 per cent. This growth was due primarily to the expansion of recently established overseas firms in the communications and IT sectors. Within the services sector tourism receipts were weak. The recovery in the number of tourists from North America and Europe continued, but there was a decline in the number coming from Britain. Overall exports of goods and services rose by 2.7 per cent in volume in 2012.

Turning now to this year and next our forecasts are heavily influenced by the continuing weakness in the world economy. Trade in a downturn tends to weaken more than domestic demand as stock levels and world imports are driven down. Once that stock adjustment is complete then world imports tend to rise again, even though the underlying levels of demand are depressed. Thus we expect some increase in merchandise exports for this reason later this year. At the same time, significant new foreign direct investment in manufacturing took place in

[5] The data for both exports and production in the pharmaceuticals sector was affected by the ending of patents in the final quarter

2011/12 and the expansion of some existing companies continued apace. Finally, with regard to the traditional sector, we expect the supply situation to improve. In terms of the time profile we expect the first half of the year to remain relatively weak but thereafter exports from the indigenous sector could resume growth. If this profile proves correct then merchandise exports may increase in volume terms by close to 2 per cent this year and 2.5 per cent in 2014.

Tourism receipts in volume terms are expected to grow by about 3 per cent this year and slightly more in 2014. The numbers coming to Ireland from major markets are small relative to the size of these countries' overseas tourism. This may be one reason why numbers from North America and Europe have continued to grow. Tourists from Britain are a different matter – while the proportion of British tourists coming to Ireland is small, it is much larger than the proportion in other markets. A significant element of those from Britain is associated with visiting friends and relatives. Given the emphasis, through "The Gathering", on attracting this part of the market (not just from Britain), we could expect an increase in numbers this year.

Other service exports are expected to continue the fast growth of recent years at about 6 per cent in volume terms. There has been an increase in the number of firms and an expansion of existing firms, so that we would expect sales to grow rapidly. While these exports now outstrip merchandise exports, there are very significant management charges associated with their operation, so that the contribution to GNP per € exported is less than for manufacturing exports from multinationals. This sector is now driving growth of approximately 4 per cent in exports of goods and services, so that it is as well to recognise that the domestic impact on the economy of a 1 per cent rise in exports is now less than a decade ago.

We expect overall exports of goods and services to grow by 3.9 per cent in volume terms in 2013 and further growth in the volume of overall exports of 4.9 per cent in 2014.

TABLE 1 Exports of Goods and Services

	2011	2011	2012	2013	2014
	Value	Volume Change			
	€ billion	%	%	%	%
Merchandise	84.9	2.7	-2.5	1.8	3.5
Tourism	3.3	4.0	0.5	3.0	3.5
Other Services	78.2	7.9	8.5	6.0	6.3
Exports of Goods and Services	**166.8**	**5.1**	**2.7**	**3.9**	**4.9**

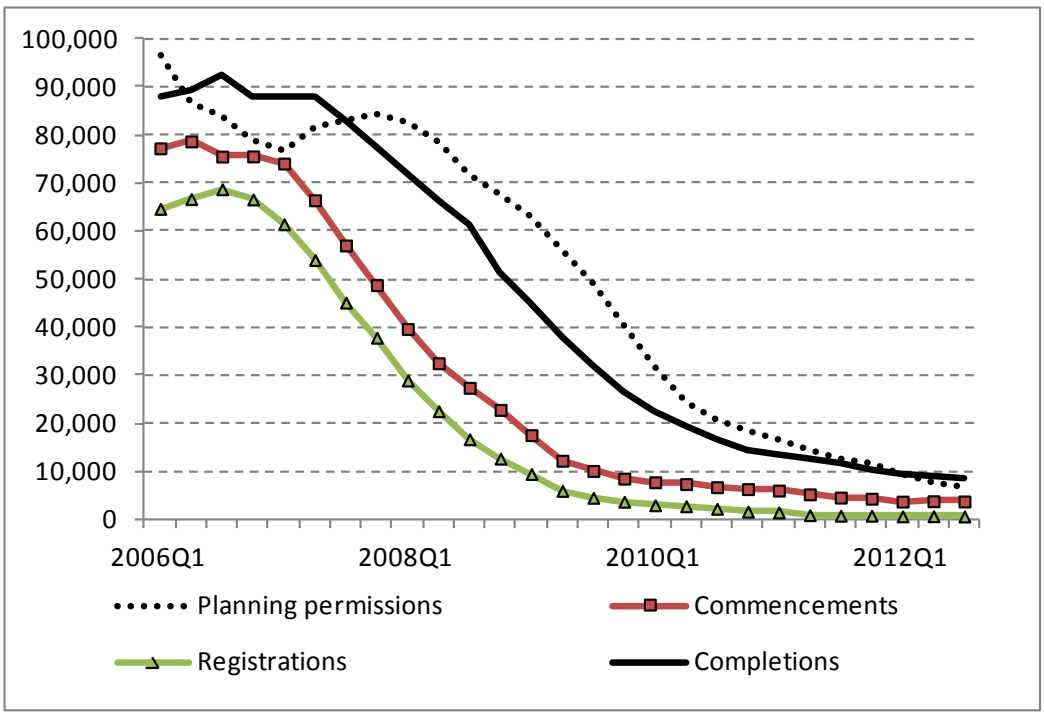
Note: Value of total exports of goods and services includes FISM adjustment.
Source: Central Statistics Office and ESRI Forecasts.

3

Investment

The quarterly national accounts show that the volume of investment was broadly unchanged in the first nine months of 2012, when compared with the same period in 2011, while the value of investment increased by a marginal 0.6 per cent. In part the stabilisation of investment can be explained by increased investment in aeroplanes, while other investment remains weak. Available housing statistics suggest the volume of residential construction is likely to have fallen by approximately 20 per cent in 2012, so we estimate an overall decline in building and construction of 12.7 per cent in 2012. Imports of capital goods in the first eight months of 2012 are broadly unchanged from the same period in 2011. The registration of goods vehicles was also lower in 2012, down by over 3 per cent. When this is combined with an estimated increase in investment in machinery and equipment of 7 per cent, we are expecting that total investment will have contracted by 3.9 per cent in volume terms in 2012.

FIGURE 2 Housing Market Indicators



Given the low base to which investment has declined, any small upturn is likely to see this component make a positive contribution to growth in 2013 and 2014, following five years of contraction. There are some indications that activity in the

housing market is beginning to stabilise, see Figure 2, while house prices, as measured by the CSO, recorded some growth in the second half of the year. Some increase in the volume of commercial and industrial building is also likely, on the basis of the Foreign Direct Investment announcements for 2012 and the expectation that Ireland continues to be successful in attracting such flows. As outlined in the previous *Commentary*, the government's stimulus package and spending by NAMA should also contribute to an increase in activity levels. In addition, some major public sector construction projects will increase construction activity over the forecast period. Partly driven by the number of projects, but also reflecting an improvement in the economic outlook we expect that investment in machinery and equipment will continue to grow in 2013 and 2014. On the basis of the forecast for the components of investment, shown in Table 2, we are projecting that overall investment will grow by approximately 3 per cent in 2013 and by 3.6 per cent in 2014.

TABLE 2 Gross Fixed Capital Formation, % Change in Volume

	2011	2011	2012	2013	2014
	Value	Volume Change			
	€ billion	%	%	%	%
Housing	3.9	-11.9	-20.3	1.8	1.8
Other Building	4.9	-18.7	-6.6	4.7	5.9
Total Building and Construction	**8.8**	**-15.8**	**-12.7**	**3.5**	**4.2**
Machinery and Equipment	7.3	-8.3	7.1	2.8	3.0
Total	**16.1**	**-12.6**	**-3.9**	**3.1**	**3.6**

Source: Central Statistics Office and ESRI Forecasts.

4

Incomes, Prices and Consumption

Incomes

The CSO's advance estimate for 2012 shows income from agriculture falling by close to 9 per cent. When income in forestry and fishing is included the fall is estimated at approximately 8 per cent. Non-agricultural earnings data for the first nine months of 2012 increased marginally. However, the fall in overall employment means that we estimate aggregate non-agricultural earnings stabilised in 2012. With overall employee numbers forecast to remain unchanged in 2013 we are anticipating that aggregate non-agricultural earnings will increase by approximately 1.3 per cent. In 2014, we expect some growth in aggregate employment and average earnings to result in an increase of 2.3 per cent for non-agricultural wages. Taking account of changes in other non-agricultural income and current transfers, gross personal income is forecast to grow by 1 per cent this year and by a further 1.7 per cent in 2014.

When account is taken of our forecasts for personal disposable income and consumption, and data for the first nine months on personal savings from the *Quarterly Institutional Sector Accounts*, it seems likely that there was a small rise in personal savings in 2012. However, our view remains that households continue to be resource constrained and that in the current environment consumption is being maintained at the expense of savings. Thus, we expect the savings ratio to decline in 2013 to 5.3 per cent and to 5.1 per cent in 2014.

Consumer Prices

The annual average increase in the consumer price index for 2012 was 1.7 per cent. The overall rate of consumer price inflation is likely to rise again in 2013. Given the continued weakness in domestic demand and the open nature of the Irish economy the rise in inflation will primarily be the result of our expectation that import prices will remain strong. However, we expect inflation in 2013 or 2014 will remain around 2 per cent, and it could be less if there are some gains in administrative prices, e.g. pharmaceutical prices, see Box 1.

TABLE 3 Inflation Measures

	2011	2012	2013	2014
	Annual Change			
	%	%	%	%
Consumer Price Index	2.6	1.7	1.8	2.0
Personal Consumption Deflator	1.5	1.4	1.6	1.6
HICP	1.1	2.0	1.7	2.0

Source: Central Statistics Office and ESRI Forecasts.

Box 1: Behind the Headlines: Will Drug Prices Fall?

Paul K. Gorecki

Drug prices attract a lot of attention. Recent headlines vary from 'New drug deal worth €400 million over three years,' to 'Bill promotes use of cheaper generic drugs by doctors' to 'The scandalous rise in drug costs needs to be tackled.' Will drug prices fall to help hard pressed consumers and assist the HSE in reducing its drug budget?

Let us start by dividing drugs into two broad categories: first, new drugs, subject to patent protection; and second, old drugs that no longer have patent protection. New drugs are typically sold by the patent owner (or a licensee), while older drugs, especially if they are big sellers, are likely to also be sold by generic firms.

The ex-factory price of a **new drug** in Ireland is the average price charged in a basket of nine other Member States, including some higher and some lower priced countries, in which the drug is available. Since Ireland tends to be an earlier adopter and any given new drug is often only available in a limited number of higher priced Member States, the initial price for a new drug in Ireland is usually high. As the drug becomes available in lower priced Member States in the basket, such as Spain, the price in Ireland drops.

In ESRI research commissioned by the HSE[6] it was suggested that new drug prices could be lowered by setting price equal to the *lowest priced* Member State in the basket of nine as the benchmark rather than the *average*. The evidence suggested this approach would lead to a reduction of between 20 to 25 per cent in new drug prices.

Under the three year agreement between the Department of Health/HSE and the representative body for firms selling new drugs, which came into effect in November 2012, new drugs continue to be priced as the average of price across nine Member States. This suggests little change in the ex-factory price of new drugs.

6 Paul K Gorecki, Anne Nolan, Aoife Brick and Seán Lyons, 2012. *Delivery of Pharmaceuticals in Ireland. Getting a Bigger Bang for the Buck*. Research Series No. 24. Dublin: Economic and Social Research Institute.

Turning now to the setting of the price of **old drugs**, where generic competition might be expected, the Health (Pricing and Supply of Medical Goods) Bill 2012 promises to radically reform the price setting process by:

(a) Charging the Irish Medicines Board with establishing a list of interchangeable pharmaceutical products. In other words, generic and patentee brands can be certified as interchangeable with one another.

(b) Permitting the pharmacist to substitute a cheaper generic equivalent when a more expensive product has been prescribed. At present pharmacists must dispense the brand prescribed.

(c) Establishing a single common reference price for a group of interchangeable drug products, which will be used as the reimbursement price for the HSE.

(d) Patients may pay extra for a drug product that is priced above the reference price if they wish to do so.

The critical issue in determining whether the price of old drugs with generic competition will fall is the reference price. In the ESRI research, it was suggested that for high volume old drugs where there was generic competition, a tendering process should be used to set the reference price with the winner supplying the market. Successful examples operate in New Zealand and the Canadian province of Saskatchewan.

An alternative approach to setting the reference price is to request firms to quote prices to the HSE and then select the average or the lowest to set the reference price. The basis of the quote could be the usual and customary price charged by the firm or its actual selling price net of all discounts or its best available price. However, the disadvantage with this process is that drug firms have an incentive to quote prices to the HSE that are too high and then discount off this price to the pharmacist so as to obtain market share.

The reference price could also be capped at a certain percentage of the originator's price immediately prior to the loss of patent protection. The price cap could be based on the price decline experienced in jurisdictions with well functioning markets that are able to take advantage of generic competition. In Greece and Portugal, as part of their EU-IMF bailout packages, price caps of 40 and 50 per cent have been set. Under recent agreements with industry in Ireland price caps have been set at 50 per cent, which is likely to lead to lower priced generics.[7]

It is not yet clear how the reference price will be set. No details have been given in the Health (Pricing and Supply of Medical Goods) Bill 2012, the accompanying

[7] This applies to the agreement between the generic manufacturers and the Department of Health and HSE, while in the agreement between the representative body of suppliers of new drugs and the Department of Health and the HSE, once a new drug comes off patent after November 2012, the patent owner will reduce price by 30 per cent immediately, a year later by 50 per cent of the original price. It should also be noted that under this agreement there will be a price review of patent protected medicines available under the HSE Community Drug Schemes prior to 2006.

Explanatory Memorandum or the prior Regulatory Impact Analysis. Some of the factors to be taken into account in determining the reference price are listed in the Bill, but this does not address the issue of the reference price setting mechanism. Hence, whether prices of old drugs subject to generic competition will fall due to the enactment of the Health (Pricing and Supply of Medical Goods) Bill 2012 cannot be predicted without information on the reference price setting mechanism.

In summary, recent policy changes leave unchanged the method for determining the ex-factory price of new drugs. For old drugs where there is generic competition, while the Health (Pricing and Supply of Medical Goods) Bill 2012 is a radical move in the right direction, without knowing more about the reference price setting mechanism it is not possible to say whether prices will fall more than they otherwise would under recently negotiated agreements with industry.

TABLE 4 Personal Disposable Income

	2011	2012	2013	2014
	€bn	€bn	€bn	€bn
Agriculture, etc.	3.2	3.0	3.2	3.5
Non-Agricultural Wages	67.8	68.0	68.9	70.5
Other Non-Agricultural Income	11.5	12.8	13.6	14.5
Total Income Received	82.5	83.8	85.7	88.5
Current Transfers	25.8	26.2	25.3	24.9
Gross Personal Income	108.4	110.0	111.0	113.4
Direct Personal Taxes	22.4	22.9	23.9	25.0
Personal Disposable Income	85.9	87.1	87.1	88.4
Consumption	81.3	81.6	82.5	83.4
Personal Savings	4.6	5.5	4.5	4.9
Savings Ratio	5.4	6.3	5.2	5.6
Average Personal Tax Rate	20.7	20.9	21.5	22.1

Source: Central Statistics Office and ESRI Forecasts.

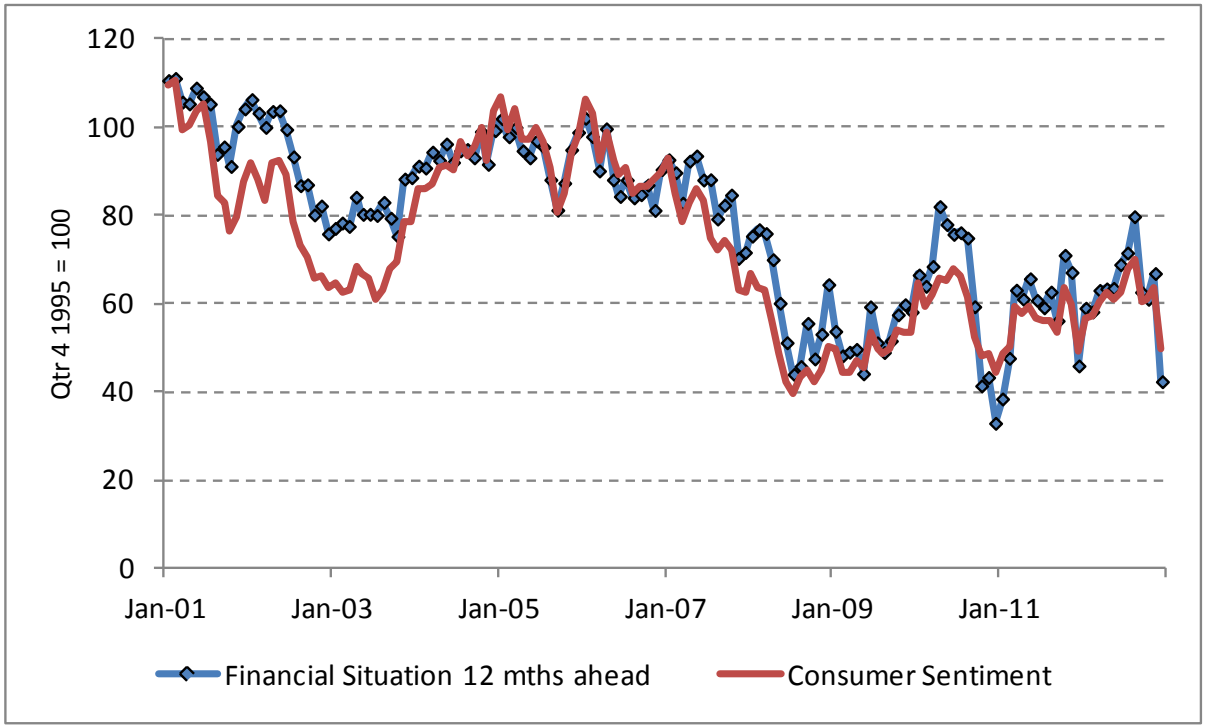
Personal Consumption

The *Quarterly National Accounts* for the first nine months of 2012 show that the volume of personal consumption has continued to decline, down by 1.3 per cent compared with the same period in 2011. The value of personal consumption was marginally higher, although the increase, at 0.5 per cent was modest. The personal consumption deflator grew by 1.8 per cent.

In 2012 retail sales in value terms fell by 0.7 per cent compared to 2011, while the volume decline was just over 1 per cent. New car registrations were over 12 per cent lower in 2012 than in 2011. Although it remains weak, consumer sentiment in

2012 improved when compared with the previous year, with particularly weak levels in December, a feature of sentiment patterns in recent years, possibly reflecting a budget impact (see Figure 3). However, the index usually shows some recovery the following month, driven in part by the January sales. These short-term indicators coupled with unemployment remaining high result in our estimate of personal consumption contracting again, although the decline will not be as great as we have seen in recent years. We now expect that, in volume terms, personal consumption will have declined by 1 per cent in 2012. Allowing for an estimated personal consumption deflator of 1.4 per cent means that growth in the value of personal consumption of 0.4 per cent is estimated for 2012.

FIGURE 3 Consumers' Perception of Future Financial Situation and Consumer Sentiment

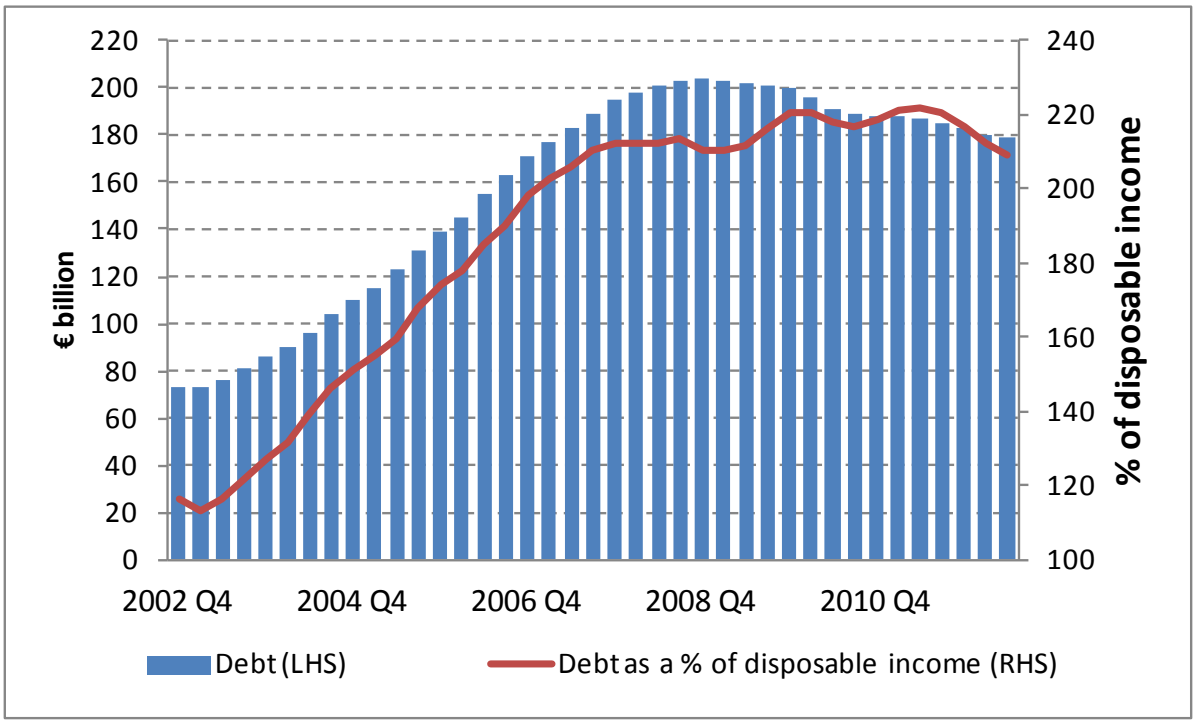


Source: KBC Bank/Economic and Social Research Institute.

In 2013 we continue to forecast a weak labour market, and data from the Central Bank show ongoing deleveraging households (shown in Figure 4). Data for the second quarter of 2012 show outstanding loan liabilities of €179 billion (€38,900 per capita), down from a peak of €204 billion (€45,400 per capita) in late 2008. This coupled with the impact of planned fiscal consolidation measures, means that we expect that personal consumption will contract again in 2013, although at 0.5 per cent this contraction will be much more modest than the declines of recent years. If we are correct in this expectation then personal consumption will have contracted for three consecutive years and for five out of the six years between 2008 and 2013. As is shown in the accompanying Research Note

(O'Connell *et al.*) the fall in per capita consumption in Ireland from peak to date has been the most severe amongst both crisis and non-crisis countries.

FIGURE 4 House Debt, Level and a Percentage of Personal Disposable Income



Source: Based on data from Central Bank of Ireland and Central Statistics Office.

With economic growth prospects strengthening, accompanied by some improvements in the labour market and a continuation in the gradual climb of consumer confidence, we would expect to see a return to annual growth in personal consumption in 2014. However, additional budget consolidation measures to be introduced in December 2013 mean we are forecasting the volume of personal consumption will contract again by 0.5 per cent in 2014.

5

Public Finances

The final exchequer returns for 2012 show a healthier public finance position than at budget time, mainly due to a better than anticipated revenue performance, particularly with respect to corporation tax and income tax receipts.

For the year as a whole, overall tax revenue performed well. Despite the contraction in personal consumption, VAT revenue grew by 4.4 per cent, and although the labour market remained weak, income tax and universal social charge receipts increased by 10 per cent. Government expenditure in 2012 was broadly in line with budget targets, over-running by approximately €500 million. Over-runs in health and social protection, higher expenditure on debt servicing and a shortfall in PRSI receipts were also partially offset by under-spends in other areas.

TABLE 5 Exchequer Finances

	2011	2012	2013	2014
	Outcome €bn	Estimate €bn	Forecast €bn	Forecast €bn
Net current expenditure	48.0	49.6	50.0	49.0
Net voted expenditure	41.4	41.5	40.3	38.7
Non-voted expenditure	6.6	8.1	9.7	10.3
Current Revenue	36.8	39.4	40.5	42.2
Tax revenue	34.0	36.6	38.2	40.4
Non-Tax revenue	2.8	2.8	2.3	1.8
Current Budget Balance	-11.2	-10.1	-9.4	-6.8
Capital Resources	2.5	2.3	2.0	1.6
Capital Expenditure	16.2	7.1	7.8	7.2
Capital Expenditure – Voted	4.3	3.5	3.1	2.9
Capital Expenditure - non voted	11.9	3.6	4.7	4.3
Capital Budget Balance	-13.7	-4.8	-5.8	-5.6
Exchequer Balance	-24.9	-14.9	-15.2	-12.4
as % of GDP	-15.7	-9.1	-9.1	-7.0
General Government Balance	-20.2	-12.9	-12.6	-9.1
as % of GDP	-12.7	-7.9	-7.5	-5.1

Source: Department of Finance and own forecasts.

Budget 2013 continues the fiscal consolidation begun in 2008. The budget was less progressive than previous budgets but overall the series of austerity budgets have been progressive[8].

Based on our estimate of nominal GDP for the year, the general government balance (the key indicator for the bailout programme) is estimated to be €12.9 billion, or 7.9 per cent of GDP. This is well within the target deficit of 8.6 per cent.

At this point in time it seems unlikely that this performance will be repeated in 2013. Although an improvement in economic growth and labour market stabilisation will result in higher tax revenues, our expectation is that it will continue to be difficult to reduce expenditure levels in 2013 to the extent sought by government. However, there could be sufficient momentum in changes sought in the current Croke Park negotiations to provide a significant carryover into 2014. On the other hand, the ending of the interest payment holiday on the promissory notes will add substantially to national debt interest. The proceeds of the sale of the State's €1 billion holding of Contingent Capital Notes in Bank of Ireland will reduce the Exchequer Borrowing Requirements (EBR) but does not affect the general government balance. The underlying position, once special receipts are discounted, is difficult so that the realisation of sustainable gains depends heavily on the successful completion of the current Croke Park negotiations. If these are successful then while the position this year, when one-off and special factors are discounted, may not be ideal, the stage will be set for realising the 2014 targets.

8 "Austerity Was Toploaded In Earlier Budgets", Tim Callan, Claire Keane, Michael Savage and John R. Walsh, *The Irish Times*, Friday, December 7, 2012.

6

Population and the Labour Market

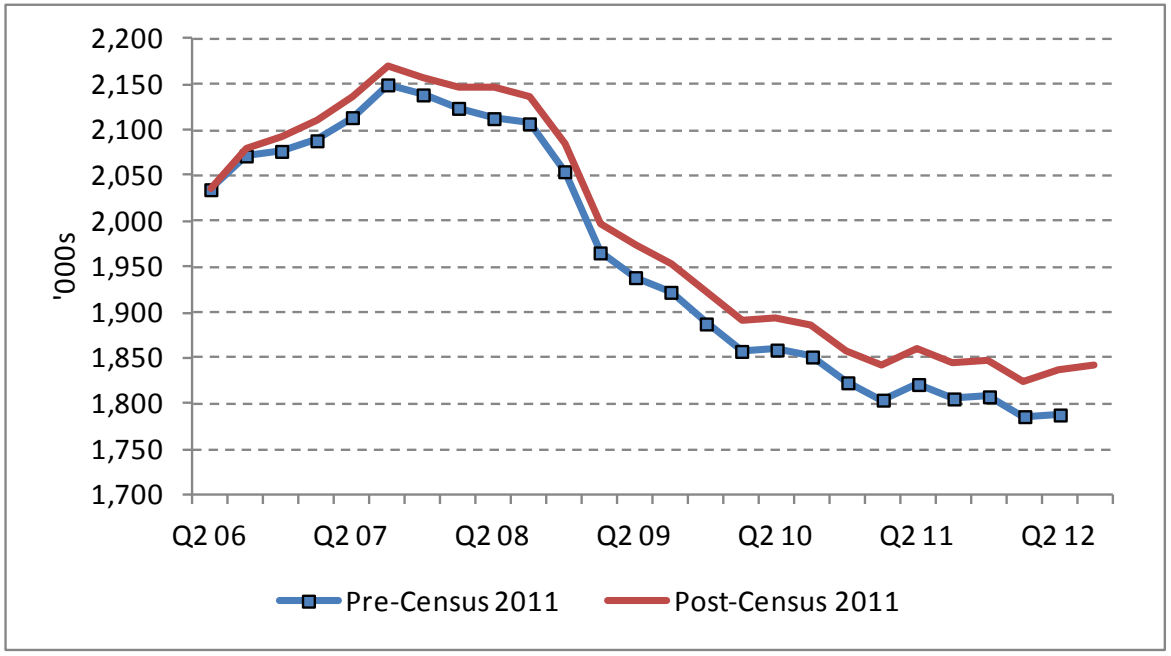
The recent *Quarterly National Household Survey (QNHS)* includes revisions based on the results of *Census 2011* as well as containing data for the third quarter of 2012. Based on the Census results the population estimate for 2011 was revised upwards by 90,600 to 4.57 million. The new *QNHS* shows that the difference is concentrated in age groups more likely to migrate – the revisions are discussed in detail in the accompanying Research Note (Timoney, 2013). Table 6 shows the population aged 15 years and over in quarter 2, 2011 broken down by age group. Most of the change is concentrated in the 20-24 (+48,900) and the 35-44 (+24,400) year age groups, with an additional increase of 11,900 in the 15-19 year old age group.

TABLE 6 Working age population by age group, quarter 2, 2011, pre- and post-Census 2011

	Pre-Census	Post-Census	Change	% Change	Proportion of total Pre-Census	Proportion of total Post-Census
	'000's	'000's	'000's	%	%	%
Age, Years						
15-19	269.2	281.1	11.9	4.4	7.7	7.8
20-24	249.8	298.7	48.9	19.6	7.1	8.3
25-34	752.4	756.4	4.0	0.5	21.5	21.0
35-44	668.2	692.6	24.4	3.7	19.1	19.2
45-54	576.6	578.0	1.4	0.2	16.5	16.1
55-59	243.9	243.5	-0.4	-0.2	7.0	6.8
60-64	218.4	217.2	-1.2	-0.5	6.2	6.0
65+	524.2	531.6	7.4	1.4	15.0	14.8
All	3,502.7	3,599.1	96.4	2.8	100.0	100.0

QNHS labour market estimates have been revised to take account of the new population-based weights. While there is a noticeable impact on the level of employment and unemployment there is relatively little difference in rates. Revised employment numbers are shown in Figure 5. Employment is now estimated to be higher than the previously published results. The previously published employment estimate for the second quarter of 2012 was 1,787,900. The new estimate is 48,300 higher, putting employment at 1,836,200.

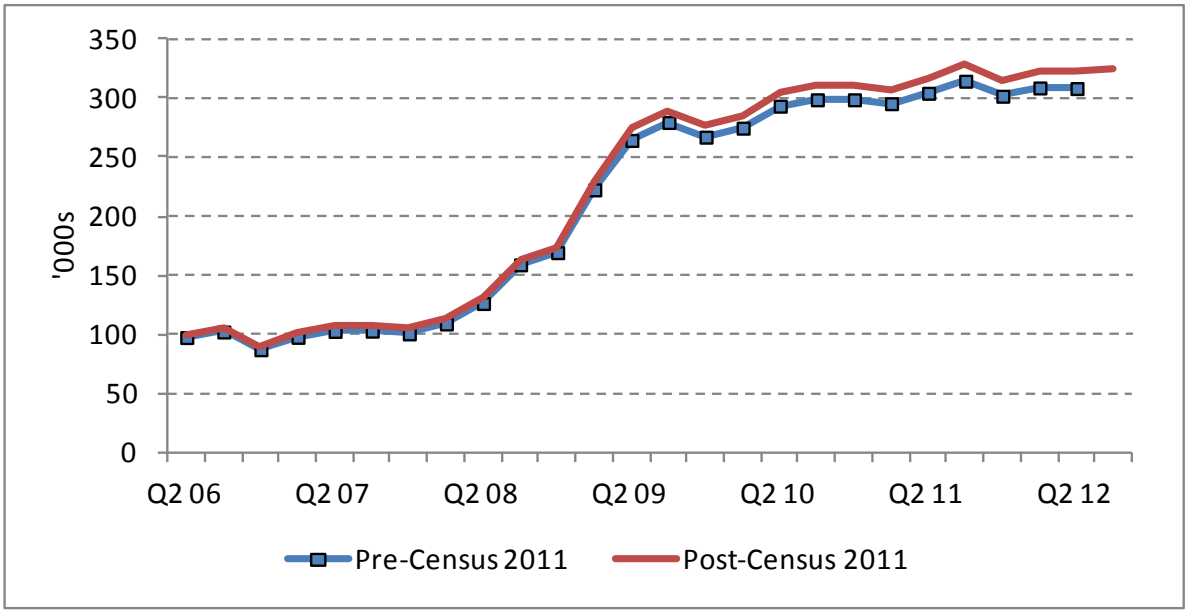
FIGURE 5 Employment Level, 000s, Pre- and Post-Census 2011 Revisions



Source: Based on CSO data.

Similarly, the overall number of persons unemployed was higher due to the higher population total. Unemployment in quarter 2, 2012 is now estimated at 323,000, having previously been estimated at 308,500.

FIGURE 6 Unemployment Level, 000s. Pre- and Post-Census 2011 Revisions



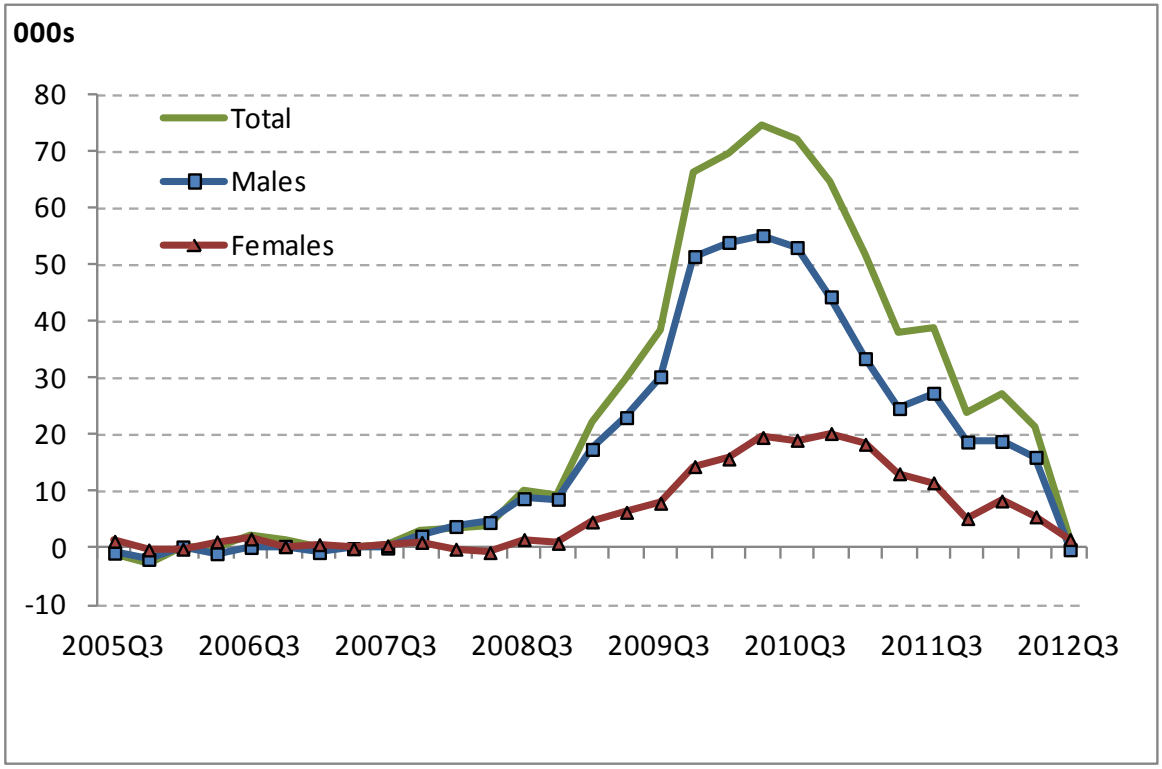
Source: Based on CSO data.

The latest QNHS shows continued stabilisation of the labour market in 2012, with decreases in employment and the labour force considerably more moderate than those seen in the previous three years. In the third quarter, unemployment fell by 3,400 on a seasonally adjusted basis compared to the same period in 2011, which is the first such decline since the first quarter of 2005. Unlike eight years ago, however, there is no concurrent rise in employment, labour force participation and net inward migration. Employment for 2012 is expected to have fallen by 16,800, while the participation rate fell to 59.9 per cent in the second and third quarters of 2012, a low not seen since the second quarter of 2003. Net emigration, at 34,400, was 7,000 higher in the year to April 2012 than for the previous year.

Following *Census 2011* revisions to population and labour market statistics, the measured unemployment rate stood at 15.0 per cent in the first quarter of 2012. Since then there have been tentative improvements, and in the third quarter there were 318,300 unemployed, corresponding to an unemployment rate of 14.8 per cent. The Live Register standardised unemployment rate has ranged between 12 and 15 per cent for the past 44 months. Data for the remaining three months of 2012 point to a decrease in unemployment for the final quarter, and we are forecasting modest improvements to 14.6 per cent in 2013 and 14.3 per cent in 2014. The falls in unemployment are not expected to reflect significant increases to employment, instead relating to on-going net outward migration. As discussed further in a Research Note in this *Commentary,* (Morgenroth, 2013), there is considerable variation in regional unemployment rates. The unemployment rate for all regions excluding Dublin and the South West was 16.4 per cent in the first quarter of 2012.

The construction, transport and industrial sectors registered the biggest job losses in 2012, partially offset by gains in services other than financial services. Industrial production levels declined towards the end of 2012, largely attributable to the expiry of patents for pharmaceuticals. Combining this with an external environment that is expected to remain challenging during 2013 and 2014, reflected in falling goods exports, the outlook for employment expansion in the industrial sector has weakened somewhat. Following five years of contraction, employment in construction is forecast to be stable in 2013 and rising modestly in 2014, with positive contributions expected to arise from the planned investment stimulus and NAMA development projects. Further falls are foreseeable in financial services and in public administration and defence, while employment in many other sectors will show broad stability.

FIGURE 7 Change in Long-term Unemployment (quarterly data, annualised)



Source: Central Statistics Office.

The share of long-term unemployment in total unemployment has more than doubled since the second quarter of 2009, and currently stands at 59 per cent. Recent trends have shown signs of stabilisation for the measure, owing to high emigration and the slowdown of employment contraction that has taken place during 2012. Figure 7 shows the movement for this measure since 2005. The third quarter of 2012 saw an increase of 1,300 compared to the same period in 2011. This was the smallest annual increase in five years, while male long-term unemployment fell for the first time since the first quarter of 2007, possibly due to emigration.

Table 7 reflects revisions to labour market data post-Census 2011, with an additional 39,000 total at work in 2011 than previously estimated. The accompanying Research Note (Timoney, 2013) details the main adjustments made to the demographic profile for the inter-censal period. Following an estimated fall for 2012 of 16,800, employment is forecast to be flat for 2013, before increasing by 6,700 for 2014. In contrast the labour force is expected to continue to decline, with the labour force participation rate is expected to remain below 60 per cent. The fall in unemployment, seen in the third quarter of 2012, is forecast to continue on an annual average basis for both 2013 and 2014; annual unemployment has not decreased since 2001 (when unemployment stood at 71,600).

TABLE 7 Employment and Unemployment

	Annual Averages, 000s			
	2011	2012	2013	2014
Agriculture	83	84	84	84
Industry	348	334	335	340
of which: Construction	108	101	101	104
Services	1,414	1,413	1,412	1,415
Total at work	1,849	1,832	1,832	1,839
of which: non-agri. employees	1,534	1,520	1,524	1,536
self-employed	293	288	285	280
Unemployed	317	322	314	307
Labour Force	2,166	2,154	2,146	2,146
Unemployment Rate, %	14.6	14.9	14.6	14.3
Participation Rate, %	60.4	60.0	59.9	59.9

Source: Central Statistics Office.

7

Imports and the Balance of Payments

Imports

Imports of goods remained flat for most of 2012. For the first nine months goods imports were running 2 per cent in volume terms below their level in the corresponding period of 2011. Preliminary figures for October and November suggest continued weakness in the fourth quarter so that the volume of goods imports could be down by 1 per cent for the year.

Services' imports are now running at twice the level of goods imports, and are dominated by payments to parent companies arising from the very substantial service exports, primarily in the broad IT sector. Total services expenditure in volume terms increased by under 1 per cent in the first nine months of 2012 compared with the same period in 2011. The number of Irish tourists holidaying abroad was virtually unchanged between 2011 and 2012, but we expect expenditure to have declined as people sought less expensive holidays.

TABLE 8 Imports of Goods and Services, Percentage Change, Volume

	2011	2011	2012	2013	2014
	Value,	Volume Change			
	€bn	%	%	%	%
Merchandise	48.3	-2.3	-1.0	3.0	4.2
Tourism	5.0	-7.2	-0.5	-2.0	-4.0
Other Services	78.2	1.4	0.6	5.5	5.0
Imports of goods and services	131.9	-0.3	0.0	4.3	4.4

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

Turning to 2013 and 2014 the continued weakness in domestic demand will keep imports of goods fairly flat. It is still difficult to gauge the car market, depreciation of much older vehicles associated with the surge in sales in 2000 suggests replacement needs will lead to increased sales in the near future, but the timing is uncertain. So far registrations seem to have been weak, although that could also reflect the change in the registration system. Aircraft purchases are also extremely volatile and it is difficult to forecast the extent to which aircraft purchases originating with Irish and Irish based companies will take place. These are now more driven by international markets than by domestic tourism activity.

Other aspects of domestic demand will remain weak so that imports of consumer goods will remain subdued, although the growth we are forecasting for merchandise exports will lead to an increase in material imports. Overall goods' imports are forecast to increase by 3 per cent in volume terms in 2013 and by 4.5 per cent in 2014.

Imports of services are expected to increase sharply in 2013 and 2014. While tourism may remain fairly flat, and well below previous peak levels, other service imports will reflect the growth in service exports. Thus, we are forecasting that overall growth in imports of goods and services will amount to 4.3 per cent in 2013 and by a similar amount in 2014.

Balance of Payments

The balance of payments surplus is now estimated at €7.8 billion in 2012. The surplus overstates the fundamental underlying situation as the data are distorted by the inflow of profits from overseas multinationals which relocated their Head Office to Ireland, but not any of their productive activities. Their worldwide profits are treated as an inflow of factor payments to Ireland but these firms pay no profit tax in Ireland as a result of double tax agreements with other countries where their productive activities are located. These foreign earnings are to varying extents not distributed to shareholders of the companies and the effect of this is to artificially raise GNP and also Gross National Income (GNI) – the measure which is used to determine Ireland's payments to EU funds. A similar set of transactions took place in the second half of 2010, and this was mostly unwound in 2011. This time the profit inflows occurred in the second and third quarters of 2012. The reasons for these book transactions appear to be fears of additional taxes in other jurisdictions.

The effect of these transactions is to make the current account look stronger in the period when the transaction takes place and to worsen it when or if the positions are unwound. Measures of GNP are also distorted. We have argued previously that GNP is a more accurate measure of the experience of the Irish economy than GDP, but both measures must be treated with caution at present and the same types of transactions could take place in the future. The gap between GDP and GNP is widening, when allowance is made for the distortion referred to above. Transfer pricing by multinationals operating in Ireland remains an issue, making interpretation of an aggregate figure difficult.

Thus the figure for net factor payments is artificially low in 2012. In 2013 we forecast that net factor payments increase slightly, as we are assuming that there are no additional corresponding inflows from foreign multinationals and that they

will repatriate some of the inflows from 2012. In addition, national debt interest payments are set to rise sharply, as detailed in the section on the public finances, and to increase further in 2014.

In spite of the caveat about the data, the underlying balance of payments surplus in 2012 is substantial, reflecting the continued growth in exports from multinationals in both goods and services. Our forecasts for 2013 and 2014 see the underlying surplus remaining high, with the payments surplus amounting to 3.3 per cent of GDP by 2014. Finally, it is worth noting that while the patent cliff has led to a reduction in the value of exports (and also a reduction in the volume of output as the wholesale price of such drugs is unchanged while the value of their sales and output falls) the effect on the balance of payments is slight, as the fall in the value of sales is reflected in a reduction in profits and hence net factor payments.

TABLE 9 Balance of Payments

	2011	2012	2013	2014
	€bn	€bn	€bn	€bn
Exports of goods and services	166.8	176.9	188.0	203.6
Imports of goods and services	131.9	136.8	145.6	155.1
Net factor payments	-31.8	-31.1	-36.9	-40.4
Net transfers	-1.2	-1.2	-1.2	-1.2
Balance on current account	1.9	7.8	4.3	6.9
As a % of GNP	1.4	5.9	3.3	5.0

Source: Central Statistics Office and ESRI Forecasts.

8

Monetary Sector Developments

Bank Funding

Persistent stresses in the eurozone banking system moved centre stage again during the summer, with developments in Spain and Greece aggravating an already tense environment. These tensions have eased largely as a result of a timely intervention by the European Central Bank (ECB). Analysis of the domestic banking sector data, however, suggests that bank funding on the deposit side has fared better than might have been expected. While progress towards generating improved financial performance in the Irish banks has been slow to date, there have been some encouraging signs recently and moves by the European Commission to implement a single supervisory mechanism by end-2013 should also help to support access to market funding.

Deposit funding at the covered Irish banks showed some resilience during 2012, partly reflecting restored confidence in the system.[9] By December 2012, customer deposits (resident and non-resident) had risen by just over €16 billion from a trough of €140 billion in August 2011, with longer term deposits well represented.[10] Indicative data suggest that roughly one-tenth of the near €9 billion increase since December 2011 has been due to exchange rate revaluations. Data from the Central Bank suggest that deposits from resident businesses, Irish and non-Irish, made up the majority of the increase in the first three quarters of the year, although households also increased savings having declined in the same period of each of the previous three years.[11] Attracting deposits has proven relatively more costly for Irish banks, although the costs associated with deposit funding have begun to improve of late (see Figure 8). Data available to November 2012 show that the weighted average interest rate reported by Irish resident banks on term deposits placed by households and Non-Financial Corporations (NFCs) fell by 32 basis points from a recent peak of 3.39 per cent in April. From January to November 2012, Irish resident banks were paying close to 66 basis points per annum more than their eurozone counterparts on household and NFC term deposits. This gap had narrowed to 51 basis points by November, but remains costly.

9 The Covered Banks include AIB Group (including EBS Building Society), Bank of Ireland Group, permanent tsb and Irish Bank Resolution Corporation.

10 Note that these data come from the value series published by the Department of Finance. They exclude NTMA deposits held prior to re-capitalisation and AIB's Polish operations, while they include the acquisition of Northern Rock deposits by permanent tsb.

11 These figures adjust for changes in non-transaction related effects such as changes in reporting populations, revaluations and exchange rates by analysing cumulative transactions data.

FIGURE 8 Average Household and NFC Deposit Rates*

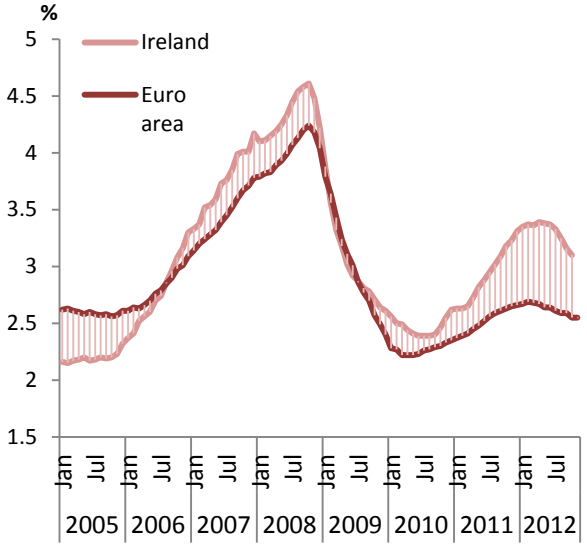
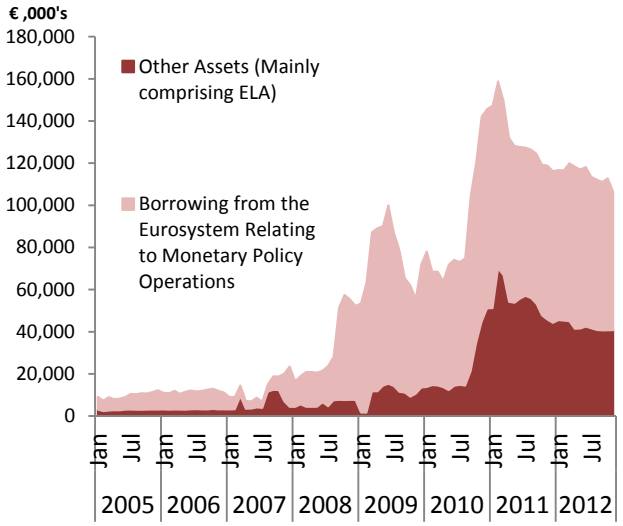


FIGURE 9 Emergency Liquidity Measures



* Average for deposits outstanding with agreed maturity.

Source: ECB Bank Lending Survey 2012.

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

Recent forays into more conventional market funding by Irish banks and the sovereign represent significant milestones in the road towards a return to more sustainable funding, and a reduced dependence on emergency borrowings from international monetary authorities. This access has been helped by ECB decisions to loosen certain collateral requirements and by the increased availability of liquidity prompted by central bank interventions throughout advanced economies. The reliance on Emergency Liquidity Measures (ELM) continues to decline at the covered banks (see Figure 9). Total Eurosystem borrowing is currently €106 billion, more than a third lower than the €159 billion early 2011 peak, while emergency liquidity assistance from the Central Bank of Ireland is down over 40 per cent from a peak in the same period. Improved balance of payments surpluses, representing net lending to the rest of the world, are the counterpart of large Eurosystem borrowing. However, wholesale funding in June 2012 represented a much lower share of bank funding than in previous years. Currently the equivalent to one-third of domestic credit institutions' total assets, this share stood at 55 per cent in December 2008. As such, it is still difficult to envisage a significant re-engagement in lending to the domestic economy by domestic banks without a sustained improvement in funding conditions that is not derailed by further escalations in eurozone tensions.

Other tentative signs of progress in reducing costs aside from those related to wholesale funding channels have been visible in the covered banks. The amount of liabilities covered by the costly Eligible Liabilities Guarantee Scheme (ELG) are steadily declining and net interest margins, while still very tight, are likely to

improve on the back of attempts to reduce deposit costs and increase charge rates on loans. On-going reductions in operating costs are also progressing and deleveraging targets look likely to be met in 2013.

Non-performing loans and rising mortgage arrears, in particular, remain a challenge to bank profitability, albeit the pace of the increase in the latter appears to have slowed more recently. Reduced downward pressure on employment and average earnings will have some bearing on slowing the pace of growth in arrears, although this is unlikely to result in a stabilisation in the near term given the force of momentum already built up. Furthermore, after-tax incomes are still likely to be hit in forthcoming Budgets, which will partly offset positive developments in earnings and employment.

The priority remains getting the domestic banking system to a point where it can support the recovery. Achieving this goal is likely to be met only on a very gradual basis, however. While recent progress domestically has been somewhat favourable, further planned deleveraging across European banks in 2013 is likely to dampen prospects of obtaining renewed access to private sector funding channels at significant levels.[12] While efforts by the ECB to relieve funding pressures on eurozone banks have slowed the pace of deleveraging, further progress is required to reduce perceived risks in the European financial system so that credit institutions can be put back on a stable path without the need for such large-scale asset reductions. Indeed, the European Commission's proposals for a unified banking supervisory mechanism to be put in place by end-2013 represent a step in the right direction towards restoring confidence in the financial system. These proposals should be seen as one element in a suite of reforms required to improve the sustainability of the banking system. Commitments to remove the link between sovereigns and banking systems by enabling the direct recapitalisation of eurozone banks through the ESM should also be pursued, as should common deposit protection and a single bank resolution mechanism. The precise form these arrangements will take needs to be closely evaluated and monitored. Suggestions of complacency or of backsliding with respect to these necessary reforms are discouraging, in particular in light of the recent respite in markets.

Recent Lending Developments

Accounting for non-transaction related effects (relating to valuation/exchange rate changes and reclassifications), net lending to households can be seen to have continued to decline sharply during the first 11 months of 2012, falling by an average of 3.8 per cent, year-on-year. The annual decline in loans for house

12 IMF Global Financial Stability Report, October 2012.

purchases slowed to 1.6 per cent in November, representing the slowest pace of decline in this category since early 2011.[13] Net lending (also excluding non-transaction related effects) for buy-to-let properties fell by over €90 million in the third quarter of 2012, while lending directed towards principal dwellings contracted by €187 million, less than half of the €489 million fall in the second quarter. The effect of the 2012 year-end expiry of mortgage interest relief applicable to principal dwellings saw some reduction in the decline of such lending transactions. Consumer credit continues to register sharp declines, falling 11.4 per cent on average from January to November of 2012, with the pace of these moderating very slowly. Reflecting ongoing balance sheet repair and the fall in bank lending, household debt continues to decline. On average, total household loan liabilities have fallen by slightly more than €2 billion every quarter since early 2010.

Data on lending to Irish resident Small and Medium Enterprises (SMEs) show continued reductions for each of the first three quarters of 2012. The most recent data registered a faster contraction of 2.7 per cent year-on-year, following a fall of 1.7 per cent in the second quarter. 'Core' lending, to sectors outside of financial intermediation, construction and real estate activities, fell faster than the total once again, with a 4.9 per cent fall in the third quarter of 2012. These figures show a slowing pace of decline relative to the falls seen in 2011 for which data are available, but the picture remains one of continuing decline in SME lending activity. Transactions data for 12 of the main 'core' subsectors show that the only subsectors with an increase in net lending (i.e. gross new lending less repayments) in the first three quarters of 2012, when compared to the end of 2011, came in the form of modest increases for agriculture (€9 million), manufacturing (€5 million), the electricity, gas, steam and air conditioning supply subsector (also €5 million) and education (€13 million). By contrast, the remaining 'core' subsectors recorded a substantial net decrease in lending of some €959 million since the end of 2011 with the contraction in existing SME lending continuing to overshadow gross new lending.

[13] These growth rates adjust for changes in non-transaction related effects such as changes in reporting populations, revaluations and exchange rates.

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

	Irish Household Lending				Small and Medium Enterprise Lending		
	End-Month	All Lending	For House Purchases	Consumer Credit	Total	Total excl. Financial Intermediation	Total excl. Financial Intermediation & Property Related Sectors
2010	Mar	-2.0	0.6	-10.6	-	-	-
	Jun	-3.1	-0.1	-11.7	-	-	-
	Sep	-3.7	-0.9	-12.7	-	-	-
	Dec	-4.7	-1.4	-19.9	-	-	-
2011	Mar	-4.2	-2.0	-13.7	-8.8	-11.3	-9.2
	Jun	-3.9	-2.2	-14.4	-9.1	-12.5	-10.6
	Sep	-4.0	-2.5	-13.7	-5.4	-8.2	-8.9
	Dec	-3.6	-2.5	-6.9	-3.0	-5.4	-6.2
2012	Mar	-3.9	-2.4	-11.6	-3.9	-4.9	-6.3
	Jun	-3.7	-2.2	-11.1	-1.7	-2.9	-4.6
	Sep	-3.7	-2.0	-10.7	-2.7	-4.1	-4.9
	Oct	-3.7	-1.9	-11.0			
	Nov	-3.6	-1.6	-11.7			

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

Qualitative data on supply and demand conditions offer some insight as to the probable drivers behind lending developments. The results from the *October 2012 Bank Lending Survey* suggest that Irish households' demand for loans for house purchases expanded slightly in the third quarter, partly reflecting more upbeat prospects for the housing market as the mortgage interest relief scheme came to an end, yet credit standards attached to such lending showed further tightening during the same period.[14] Further qualitative data released since the last *Commentary* came in the form of the ECB's *Survey on the Access to Finance of SMEs in the Euro Area* (*SAFE*) covering the period April to September of 2012, and the Red C conducted *SME Credit Demand Survey* published by the Department of Finance. These reports include responses from a sample of Irish SMEs concerning their financing, through bank loans, overdrafts, trade credit, debt securities and equity. The findings of the two surveys are somewhat contrasting; for example, the ECB survey portrayed a more negative picture with respect to the quantity of loan applications made than the Red C survey showed. However, it should be noted that the sample size is much larger in the Red C survey. There were minor improvements to perceptions of availability for all categories of external financing, according to the ECB's *SAFE*. Overall, large lending constraints remain,

[14] The ECB's *Eurozone Bank Lending Survey* gives some impression of banks' willingness to lend, showing changes in their credit standards and in terms and conditions attached to lending. It is addressed to senior lending officers in participating banks, 5 of whom are from Ireland. Changes in credit standards over the past three months are examined, with respondents indicating to what extent they feel that credit standards have deteriorated or eased over the recent quarter.

with the reported cost of financing higher as banks attempt to improve net margins.

One-third of the SMEs that applied for loans during the recent survey period said that they received the entire loan amount, down from half in the previous six month period; however, there is a large share of "Don't Know" responses in the more recent survey. When those are excluded, this proportion rises to 44 per cent. The decline is larger for those receiving at least a partial approval, down from 70 per cent previously to 48 per cent in the current survey. Consistent with these changes, the share of firms that applied for loans but were rejected increased from 17 per cent to 23 per cent. A similar pattern was found for overdraft applicants, whereby a higher share of applications were rejected and a lower share approved. Despite these adverse developments, firm perceptions of deteriorated credit availability were effectively unchanged, and the share citing banks' willingness to lend as a factor behind these perceived deteriorations remained at 38 per cent. The share of firms actually applying for bank loans over the period also declined (down from 22 per cent to 16 per cent). Of those that did not apply, the share that reported not having done so due to possible rejection (15 per cent) was effectively unchanged. Instead more firms reported not applying for such lending during this period due to reported availability of sufficient internal funds and other reasons. The funding position of SMEs may improve with the support of the new Strategic Investment Fund.

The perceived cost of financing may have been another issue, with more SMEs surveyed reporting higher interest rates and other costs as well as reduced loan maturities. However, the share of firms that applied for and refused credit afterwards due to the cost being too high was relatively small (up from 3 per cent to 5 per cent). It is more likely that firms have reduced their need for loans due to other reasons such as weaker demand conditions. For example, the share of Irish SMEs reporting an increase in their need for bank loans was unchanged from the last six month period (18 per cent), yet a larger share of firms reported decreased needs (up from 9 per cent to 12 per cent). By contrast, the Red C survey pointed to a small increase of demand for bank finance, with 39 per cent of the surveyed SMEs submitting applications, and 60 per cent obtaining either full or partial approval.

9

General Assessment of the Irish Economy

Economic Outlook

Against the backdrop of continued uncertainty regarding the European debt crisis and slowing international economic growth, particularly in Europe and the UK, the Irish economy is estimated to have grown by approximately 1 per cent in real GDP in 2012 and to have achieved a significant improvement in the public finances. As in recent years, growth has been driven by the performance of the external sector of the economy, particularly services, while domestic demand continues to contract in the face of high unemployment, austerity measures and deleveraging.

Although many of the uncertainties remain, it is likely that the Irish economy will continue to grow modestly in 2013 and 2014. Our present forecast is for an increase in real GDP of 1.4 per cent in 2013 and 1.7 per cent in 2014. The terms of trade are expected to improve by 2014, following several years of deterioration. The modest growth will continue to be driven primarily by the external sector, although our expectation is that some recovery in domestic demand is likely to contribute to growth over the forecast period. If our forecasts are broadly correct then the period 2011-2014 will represent the first period of annual consecutive growth in GDP since the commencement of the crisis.

In recent years the GNP measure of the Irish economy has been distorted by the movement of profits by UK domiciled multinationals, as outlined in our discussion of the balance of payments (Section 7). GNP is set to have increased by 3 per cent in 2012, but is due to fall back by 2 per cent in 2013, before growth of 1.4 per cent in 2014. The underlying change in GNP between 2012 and 2014 is about 0.5 per cent each year.

Our forecasts indicate that the fiscal targets set for 2013 could be difficult to meet. The revenue figures are realisable, but the expenditure targets may be more challenging. The sale of the contingent capital holding in Bank of Ireland is sufficiently large to ensure that the overall EBR target is met. In the short term one-off receipts can be used to keep the outturn within the targets, but a more sustainable set of measures is needed for the medium term. Faster growth in the world economy would ease the situation, but policy cannot be predicated on an assumption of this. A deal on the promissory notes would also ease the situation, but there would still be much to do. The promissory note situation has been

extensively analysed by Whelan (2012).[15] He concluded that the best approach would be a long delay in promissory note repayment and a slower pace of ELA repayment, agreed with the ECB. This may be the best that can be hoped for. A potential solution we have argued for in previous *Commentaries* is a monetising of the debt associated with Anglo Irish Bank and the Irish Nationwide Building Society and the debt associated with the recapitalisation of the covered banks.

Unemployment

The rate of unemployment remains above 14 per cent and while some reduction is forecast over the next two years, the driving force behind this is net outward migration. The scale of the unemployment crisis is further masked by a reduced participation rate where discouraged workers opt out of the labour force when jobs are difficult to hold and to get. The rate of long-term unemployment has continued to increase. Long-term unemployment is a particular problem because of deskilling both in relation to specific skills and in relation to work practices. It also has intergenerational consequences. Even if there is no immediate prospect of employment, the potential current and future costs are sufficiently large both from a personal and societal perspective to consider what measures might help to maintain peoples' contact with the labour market. This issue has been extensively covered in ESRI papers, in relation to the 1980s crisis and the current one[16]. The research has indicated some guiding principles: activation should begin as soon as a person becomes unemployed and should be given to all of working age who are not working; people's attempts to obtain work should be monitored regularly; and finally non-compliance should be met by sanctions. The newly introduced Intreo service offers a comprehensive approach to help jobseekers, but the service needs to be expanded rapidly, as it is currently being rolled out on a phased basis.

Adjustment in the Economy

As the economy faces into the fifth year of the Great Recession, there are no obvious signs that the major European economies are pulling out of recession. Indeed, the fear is that the recession may be gathering pace and that eurozone output could contract in 2013 under the continued impact of austerity measures now introduced widely across Europe. This will render Ireland's task of correcting the public finances, restoring balance to private debt levels, reducing

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15 Whelan, Karl., "ELA, Promissory Notes and All That: The Fiscal Cost of Anglo Irish Bank". *The Economic and Social Review,* Vol. 43 No. 4, Winter 2012, pp.653-673.

16 McGuinness, S., P.J. O'Connell and E. Kelly (2011). "One Dummy Won't Get it: The Impact of Training Programme Type and Duration on the Employment Chances of the Unemployed in Ireland", *ESRI Working Paper 410*. Dublin: Economic and Social Research Institute.
Kelly, E., S. McGuinness and P.J. O'Connell (2011). "What Can Active Labour Market Policies Do?" *ESRI Economic Renewal Series 001*. Dublin: Economic and Social Research Institute.

unemployment and returning to a stable long-run growth profile much more difficult. The economy has some experience of adjustment in the past. In the late 1950s the shift from inward looking to outward looking policies was a policy induced adjustment, while in the mid-1980s the shift to exports was made possible, not just by a favourable international climate, but also by market-driven changes which reduced wage inflation. In both cases the adjustment involved major changes for some groups in society. While the earlier adjustment is now seen through rose-tinted glasses, there were significant losers as well as gainers. The adjustment that took place resulted in the demise of many firms whose existence was due to the protectionism of the previous quarter century. The firms, owners and workers displaced by the removal of protection did not step easily into new activities. In the mid-1980s workers suffered real income declines and very high levels of unemployment before the adjustment got underway, and the rewards, in the form of full employment, took nearly a decade to realise. An important part of adjustment is the acceptance that there are potential losers, usually readily identifiable, while the potential winners are unknown and uncertain. Where adjustment is policy-driven a significant constraint policymakers face is the resistance to change by potential losers in an attempt to maintain their position.

For example, if there are significant market distortions which keep the price level too high then tackling these distortions will help lead to a lower price level. Some progress has already been made on this front. Since the crisis began Irish price levels have come down from 122 per cent of the EU average in 2008 to 109 per cent in 2011.[17] The Troika have identified legal and medical services as two areas where restrictions on entry and competition have resulted in relatively high prices facing consumers and business. Domestic pricing relationships can also be a source of prices that are too high. Prescription drugs are a case in point (Box 1). The level of Irish prices on average in 2012 was just under 3 per cent higher than in 2007, using both the CPI and the HICP as the measure. The price level remains high, though competition has forced down prices in some retail areas. Furthermore, the continued expansion of grocery discounters could help to reduce margins and prices in the grocery trade.

Changes in pay and conditions of work would be more palatable if accompanied by a lower price level. Public sector pay remains high relative to private sector pay. Research shows the overall public sector pay premium has reduced (CSO, 2012; Kelly *et al.,* 2013, this issue). However, the premium is still positive, though not identical across the public service earnings distribution, nor across all sectors

17 Eurostat data on comparative price levels

of the public service (Kelly *et al.* 2009, CSO, 2012).[18] The proposed extension to the Croke Park Agreement represents an attempt to deal with the pay issue, within the context of the need for further sustainable fiscal adjustment. As we understand it, the proposals encompass: pay cuts, longer working hours, changing increments, a cut in overtime rates, and changes in work practices. In previous *Commentaries* we have argued in favour of cutting pay rather than numbers as a means of reducing the overall cost of services while seeking to preserve the level of services. The original agreement excluded further pay cuts as an option. Hence in the last *Commentary* we argued that if pay levels were sacrosanct, then to maintain services it would be necessary to increase the output per person in the public sector. The reported proposals may go some way to realising both approaches, payroll cost reductions and more output per person.

Controlling payroll costs is particularly important where the level of expenditure is to some extent demand driven, for example, in health services. Hospitals do not have the option of turning away seriously ill people. Where payroll costs are managed through delaying procedures for non-life-threatening illness, the consequence are borne by those requiring treatment. Without adjustment in the public sector, it is difficult to see how the expenditure targets can be met without a major cost in terms of service reduction.

[18] Central Statistics Office, 2012. *National Employment Survey 2009* and *2010 Supplementary Analysis*, October.
Kelly, E., S. McGuinness and P. O'Connell, 2009. "The Public-Private Sector Wage Gap in Ireland: What Lies Beneath?", ESRI Working Papers, No. 321.
Kelly, E., S. McGuinness and P. O'Connell, 2012. "Comparing Public and Private Sector Pay in Ireland: Size Matters", Research Note, ESRI *Quarterly Economic Commentary*, this issue.

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	84.9	2.4	2.7	86.9	4.9	1.8	91.1	7.6	3.5	98.0
Tourism	3.3	1.9	4.0	3.3	4.7	3.0	3.5	5.2	3.5	3.7
Other Services	78.2	10.2	7.9	86.2	7.7	6.0	92.8	9.1	6.3	101.2
Exports Of Goods and Services	166.3	6.1	5.1	176.4	6.2	3.9	187.4	8.3	4.9	202.9
FISM Adjustment	0.5			0.5			0.6			0.6
Adjusted Exports	166.8	6.1	5.1	176.9	6.2	3.9	188.0	8.3	4.9	203.6

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	3.9	-18.7	-20.3	3.2	3.8	1.8	3.3	3.8	1.8	3.4
Other Building	4.5	-6.3	-7.3	4.2	5.7	4.7	4.5	6.7	5.7	4.8
Transfer Costs	0.4	2.0	-0.0	0.4	6.1	5.0	0.4	9.1	8.0	0.4
Building and Construction	8.8	-11.4	-12.7	7.8	5.0	3.5	8.2	5.7	4.2	8.6
Machinery and Equipment	7.3	6.4	7.1	7.8	2.1	2.8	7.9	2.2	3.0	8.1
Total Investment	16.1	-3.3	-3.9	15.6	3.5	3.1	16.1	3.9	3.6	16.8

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	-8.0	-0.3	3.0	7.5	0.2	3.2	8.5	0.3	3.5
Non-Agricultural Wages	67.8	0.4	0.3	68.0	1.3	0.9	68.9	2.3	1.6	70.5
Other Non-Agricultural Income	11.5	11.0	1.3	12.8	6.3	0.8	13.6	6.5	0.9	14.5
Total Income Received	82.5	1.5	1.3	83.8	2.3	1.9	85.7	3.2	2.8	88.5
Current Transfers	25.8	1.6	0.4	26.2	-3.7	-1.0	25.3	-1.4	-0.3	24.9
Gross Personal Income	108.4	1.6	1.7	110.0	0.9	0.9	111.0	2.2	2.4	113.4
Direct Personal Taxes	22.4	2.3	0.5	22.9	4.2	1.0	23.9	4.6	1.1	25.0
Personal Disposable Income	85.9	1.3	1.2	87.1	0.0	0.0	87.1	1.5	1.3	88.4
Consumption	81.3	0.4	0.3	81.6	1.1	0.9	82.5	1.1	0.9	83.4
Personal Savings	4.6	18.3	0.8	5.5	-17.3	-0.9	4.5	8.8	0.4	4.9
Savings Ratio	5.4			6.3			5.2	7.2		5.6
Average Personal Tax Rate	20.7			20.9			21.5	2.4		22.1

FORECAST TABLE A4 Public Finances, Exchequer

	2010	2011	2012	2013	2014
	Outcome, €bn	Outcome, €bn	Estimate, €bn	Forecast, €bn	Forecast, €bn
Net Current Expenditure	47.0	48.0	49.6	50.0	49.0
Net Voted Expenditure	40.5	41.4	41.5	40.3	38.7
Non-Voted Expenditure	6.5	6.6	8.1	9.7	10.3
Current Revenue	34.4	36.8	39.4	40.5	42.2
Tax Revenue	31.8	34.0	36.6	38.2	40.4
Non-Tax Revenue	2.7	2.8	2.8	2.3	1.8
Current Budget Surplus	-12.6	-11.2	-10.1	-9.4	-6.8
Capital Resources	1.8	2.5	2.3	2.0	1.6
Capital Expenditure	8.0	16.2	7.1	7.8	7.2
Capital Expenditure – Voted	5.9	4.3	3.5	3.1	2.9
Capital Expenditure - Non Voted	2.0	11.9	3.6	4.7	4.3
Capital Borrowing	-6.2	-13.7	-4.8	-5.8	-5.6
Exchequer Balance	-18.7	-24.9	-14.9	-15.2	-12.4
as % of GDP	-12.0	-15.7	-9.1	-9.1	-7.0
General Government Balance	-48.4	-20.2	-12.9	-12.6	-9.1
as % of GDP	-30.9	-12.7	-7.9	-7.5	-5.1

FORECAST TABLE A5 Public Finances, National Accounts

	2010	2011	2012	2013	2014
	€bn	€bn	€bn	€bn	€bn
Total Receipts : Current	49.8	50.5	52.3	53.4	55.4
Total Receipts : Capital	0.8	1.4	2.1	1.9	1.8
Total Receipts - Current And Capital	50.6	51.9	54.4	55.3	57.2
Total Expenditure – Current	61.7	61.2	62.3	63.5	62.5
Total Expenditure – Capital	37.3	10.7	4.9	4.4	3.8
Total Expenditure - Current And Capital	99.0	71.9	67.2	67.9	66.3
General Govt. Balance	-48.4	-20.2	-12.9	-12.6	-9.1
As % of GDP	-30.9	-12.7	-7.9	-7.5	-5.1

FORECAST TABLE A6 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	4.4	-1.0	50.4	5.6	3.0	53.2	6.8	4.2	56.8
Tourism	5.0	2.5	-0.5	5.2	0.5	-2.0	5.1	-1.6	-4.0	5.0
Other Services	78.2	3.4	0.6	80.9	7.4	5.5	86.8	6.9	5.0	92.8
Imports of Goods and Services	131.5	3.7	0.0	136.4	6.4	4.3	145.2	6.6	4.4	154.7
FISM Adjustment	0.3			0.4			0.4			0.4
Adjusted Imports	131.9	3.7	0.0	136.8	6.4	4.3	145.6	6.6	4.4	155.1

FORECAST TABLE A7 Balance of Payments

	2011	2012	2013	2014
	€bn	€bn	€bn	€bn
Exports of Goods and Services	166.8	176.9	188.0	203.6
Imports of Goods and Services	131.9	136.8	145.6	155.1
Net Factor Payments	-31.8	-31.1	-36.9	-40.4
Net Transfers	-1.2	-1.2	-1.2	-1.2
Balance on Current Account	1.9	7.8	4.3	6.9
As a % of GNP	1.4	5.9	3.3	5.0

FORECAST TABLE A8 Employment and Unemployment, Annual Average

	2011	2012	2013	2014
	000s	000s	000s	000s
Agriculture	83	84	84	84
Industry	348	334	335	340
Of which: Construction	108	101	101	104
Services	1414	1413	1412	1415
Total at Work	1849	1834	1833	1840
Unemployed	317	322	314	307
Labour Force	2166	2156	2146	2147
Unemployment Rate, %	14.6	14.9	14.6	14.3

Research Notes

Tax and Taxable Capacity: Ireland in Comparative Perspective

T. Callan, M. Savage

Introduction

What role can increases in tax revenue be expected to play in Ireland's transition to a new long-run fiscal equilibrium? Ireland is widely perceived as having had a low tax regime through the boom and bubble period. Tax increases have featured strongly as part of Ireland's economic adjustment programme. How much scope is there for further increases? Has Ireland come close to the limits of tax revenue from incomes? In this note, we provide some international perspectives on these issues. We build on the approach proposed by the Irish Fiscal Advisory Council – a hybrid measure of GDP and GNP to represent Ireland's taxable capacity – to provide more meaningful comparisons of tax ratios in Ireland and in other EU countries.

Measuring Taxable Capacity

GDP is commonly used as a broad indicator of taxable capacity in international comparisons, with ratios of tax revenue to GDP indicating the extent to which that capacity is used. For most countries, levels of GDP and GNP are quite similar. Table 1 shows that Ireland and Luxembourg are outliers in the EU-27, with GDP more than 20 per cent higher than GNP. The difference between the two is net factor payments, outflows which are largely due to the repatriation of profits by multinational companies. For the other 13 countries in the EU-15 group the ratio of GDP to GNP is close to unity (within the range 97 per cent to 104 per cent).

TABLE 1 Ranking of EU 27 Countries by Ratio of GDP to GNP, 2011

Country	GDP to GNP ratio
Luxembourg	*1.39*
Ireland	*1.24*
Czech Republic	1.08
Malta	1.07
Estonia	1.05
Hungary	1.05
Poland	1.05
Lithuania	1.04
Portugal	*1.04*
Greece	*1.03*
Bulgaria	1.03
Slovakia	1.02
Spain	*1.02*
Slovenia	1.01
Austria	*1.01*
Romania	1.01
Italy	*1.01*
Cyprus	1.00
Latvia	0.99
Finland	*0.99*
Netherlands	*0.99*
United Kingdom	*0.99*
Belgium	*0.99*
Sweden	*0.98*
Germany	*0.98*
France	*0.98*
Denmark	*0.97*

Source: European Commission website, http://ec.europa.eu/economy_finance/ameco/ series UVGD (Gross Domestic Product) and UVGN (Gross National Income)

Note: EU-15 countries are in italics.

McCarthy (2004, 2010) has argued that the lower potential tax yield from net factor outflows means that, faced with a choice between GDP and GNP as a measure of taxable capacity, it is GNP which should be preferred. The Irish Fiscal Advisory Council (IFAC, 2012) reconsidered these arguments and came to the view that

> *Taking either of the extremes of GDP or GNP is problematic. GDP is problematic as a measure of fiscal capacity because a euro of the excess of GDP over GNP (which is dominated by multinational profits) is likely to provide less revenue capacity than a euro of GNP. On the other hand, going to the other extreme of using just GNP puts zero weight on the revenue potential of the excess component. This suggests the value of a hybrid measure, where an appropriate relative value is placed on a euro of the excess component relative to a euro of GNP.*

Econometric analysis by IFAC suggests that a hybrid measure, using all of GNP and 40 per cent of the excess of GDP over GNP (i.e., 40 per cent of net factor

outflows) may provide a useful alternative measure of fiscal capacity. In our view this hybrid measure is better than either GNP or GDP alone, and the conclusions we draw from this approach are valid for a range of values around the central estimate.[1]

One interpretation of these results is that the estimates reflect the low rates of corporation tax which have been in force in Ireland for many years. In principle, it could be argued that the taxable capacity of net factor outflows (what IFAC terms the excess of GDP over GDP) is greater than that estimated on this basis. There are, however, three considerations which suggest that the future taxable capacity of net factor income from abroad may be no higher than that estimated from the past.

1. The highest effective tax rates on corporate profits are found in the five largest EU economies (Germany, France, the UK, Italy and Spain) and also in Malta. For almost all other EU countries, the effective rates are between 10 and 25 per cent. (Elschner and Vanborren, 2009, using the Devereux-Griffith approach to identifying the effective average tax rate on corporate profits – see Devereux and Griffith, 2003, for details of the approach.)
2. Work by Conefrey and FitzGerald (2011) finds that a cut in corporation profits tax led to a rise in activity; a rise in tax would therefore be expected to reduce the base to which the profits tax applied.
3. Moves towards a common consolidated corporation tax base, using such metrics as sales or employment, would tend to apportion more of corporation tax receipts to larger countries.

For these reasons we assume, in what follows that the effective tax rate applying to the profits of multinational companies operating in Ireland remains close to current levels.

International Comparisons

To date, comparisons of Ireland's tax to national income ratio with those of other countries have been based largely on OECD statistics, which use GDP as the denominator for all countries. For the reasons set out above, we argue that this is not an appropriate measure in the Irish context. Here we present results on the basis of the hybrid measure proposed by IFAC (Table 2). When this correction for the effective size of the tax base is used, Ireland's tax to national income ratio is 4

[1] Net factor outflows are net of Irish tax paid by multinationals. In principle, it would be preferable to estimate a regression based on total multinational profits, and the remainder of GDP; but the broad import of the results for present purposes would be similar.

percentage points higher than the tax/GDP ratio commonly used. Ireland remains a relatively low tax country – but is no longer an outlier; instead it has a slightly higher tax to income ratio than Spain, Greece and Portugal in the EU-15. The severity of the recession in Ireland makes it likely that an economic upturn will tend to raise Ireland's tax ratio relative to countries currently experiencing less severe downturns.

TABLE 2 Total Taxes as a Proportion of National Income, EU-15 countries, 2011

Country	Percentage of National Income
IRELAND–GDP	28.5
Greece	31.2
Portugal*	31.3
Spain	31.6
IRELAND–hybrid GDP and GNP	32.5
United Kingdom	35.5
Germany	37.1
Luxembourg	37.1
Netherlands*	38.7
Austria	42.1
Italy	42.9
Finland	43.4
Belgium	44.0
France	44.2
Sweden	44.5
Denmark	48.1

Source: OECD *Revenue Statistics*, www.oecd.org

Notes: Taxes on individual income constructed from OECD categories 1100 (Taxes on Income, Profits and Capital Gains of individuals) plus Social Security Contributions (category 2000, including contributions by employees, employers and self-employed). Income tax and capital gains taxes on corporations are not included.

* Indicates that 2010 is the latest available year.

Even within the EU-15 countries, there is a wide range of tax to GDP ratios – from 31 or 32 per cent in Spain, Greece and Portugal to 48 per cent in Denmark. There is therefore, considerable variation between countries in the set of government provided services and redistributive transfers that these societies are willing to finance. (For a historical perspective, see the ESRI Geary lecture by Besley, 2012).

Next we focus on taxes relating to individual income. Broad measures of income taxes tend to include income taxes and capital gains taxes paid by corporations, but these are excluded here, as the factors driving them are quite different. In Table 3 we use the detailed OECD statistics to include income tax and social security contributions, excluding corporate income taxes. Net factor outflows from repatriated profits do not form part of the base for such income taxes: GNP is a more appropriate measure. Thus, for Ireland, we present a figure based on

GDP (as commonly shown in international comparisons) and a figure based on GNP, which we argue gives a more appropriate comparison.

TABLE 3 Taxes on income of individuals as a proportion of national income, 2011

Country	Percentage of National Income
Ireland–GDP	13.8
Portugal*	14.6
Greece*	15.3
United Kingdom	16.8
Ireland–GNP	17.3
Spain	19.2
Luxembourg	19.2
Sweden	22.4
Netherlands*	22.7
Germany	23.5
France	24.3
Austria	24.4
Italy	24.5
Finland	25.3
Belgium	26.5
Denmark	27.6

Source: OECD *Revenue Statistics*, www.oecd.org.

Notes: Taxes on individual income constructed from OECD categories 1100 (Taxes on Income, Profits and Capital Gains of individuals) plus Social Security Contributions (category 2000, including contributions by employees, employers and self-employed). Income tax and capital gains taxes on corporations are not included.

* Indicates that 2010 is the latest available year.

As with the overall tax ratio, Ireland emerges as one of a group of low tax rate countries, rather than the very lowest. Using the more appropriate GNP-based figure, Ireland's income tax to national income ratio is 17.3 per cent – about 3½ per cent higher than the GDP based figure. This is slightly higher than in the UK, and above the levels in Greece and Portugal – whereas the GDP based figures suggest that Ireland has the lowest rate in the EU-15.

Similar average tax rates may have quite different implications for the marginal tax rates faced by individuals – much depends on the extent of exclusions from the tax base and the rate structure of the income-related taxes. Detailed microsimulation analysis is needed to assess the impact of different tax systems on the effective marginal tax rates faced by individuals in different countries. There has been limited cross-country analysis on this topic (Immervoll, 2004, is one such study, but the data and policies in this analysis are from the mid-1990s). However, recent studies by Adam and Browne (2010) for the UK and by Callan *et al.* (2011) for Ireland suggest that there may be scope for a bilateral comparison, based on models which have a very similar framework.

Taxes on expenditure vary much less across the EU. This may be partly due to the introduction of explicit harmonization, but competitive pressures may also contribute to this result. For 11 out of the EU-15 countries, including Ireland, the share of such taxes in GDP was between 10 and 12½ per cent in 2010. Higher values of between 13 and 15 per cent are recorded in Finland, Sweden and Denmark. Thus, the gap between the Irish tax ratio and that in the highest taxed countries is much less for this form of tax.

Conclusions

In the diagnosis of Ireland's public finance crisis, there has been a widespread perception of Ireland as having become a "low tax" economy over the boom and bubble period, with income taxes in particular cut to low levels while stamp duties and capital gains taxes sustained the public purse. There is a great deal of truth in this diagnosis. However, international comparisons based on GDP give rise to an exaggerated picture. Taxes on corporate profits tend to be lower than average tax rates on GNP in all EU 15 countries; and the size of the flow of repatriated profits from Ireland is particularly large. The hybrid measure examined by IFAC provides a useful approach in adjusting the size of the estimated tax base. When this is done Ireland's tax ratios are significantly higher than GDP-based figures would suggest.[2] They place Ireland in a group of low tax rate countries that includes Spain, Greece and Portugal. Similar remarks apply when focusing on individual income tax and social security contributions, where Ireland had a slightly higher tax ratio than the UK in 2011. Comparisons of marginal effective tax rates, based on detailed microsimulation analysis, would be of value and possible approaches to this are being examined.

[2] By the same token, calculations of expenditure to national income ratios would also show higher figures in relation to the hybrid construct.

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Comparing Public and Private Sector Pay in Ireland: Size Matters

Elish Kelly, Seamus McGuinness and Philip O'Connell (UCD Geary Institute)

The issue of public sector pay levels has been to the fore since the current economic downturn began in 2008, in the context of efforts aimed at reducing the public sector pay bill as a means of reducing Ireland's fiscal deficit. The issue is topical again given the current negotiations between the trade unions and the government on a possible extension of the Croke Park agreement. In negotiating this extended agreement, the government is seeking to reduce its public service pay and pensions bill by a further €1 billion between 2013 and 2015. The options available to achieve this saving are relatively limited and, consequently, discussions are likely to centre on changes to existing work practices, public service numbers and levels of public sector pay.

In relation to the earnings of public sector workers, a number of empirical studies have been carried out over the past decade (Boyle *et al.*, 2004; Ernst & Young and Murphy, 2007; Kelly *et al.*, 2009a and 2009b; Foley and O'Callaghan, 2010), all of which have reported a pay premium to public sector workers. However, there has been much debate regarding the magnitude of the gap. The most recent analysis was published by the Central Statistics Office (CSO) in October 2012[1], using data for 2009 from the National Employment Survey (NES) and data for 2010 from combining the 2009 NES with administrative records from Revenue. This analysis suggested that the public-private sector pay gap ranged between 6.1 per cent and 18.9 per cent in 2010. The report also showed that the premium fell between 2009 and 2010, which is to be expected given the substantial public sector wage cuts implemented in 2010. The CSO report showed that, on average, public sector workers earned over 26 per cent more per week, and 40 per cent more per hour, than employees in the private sector in 2010. However, as the CSO report notes, much of this differential is due to differences between public and private sector workers in terms of education, experience and other factors that influence pay. Thus, while the average hourly pay of public sector workers might be 40 per cent higher, if half of this were attributable to superior experience and education levels of public sector workers, then the estimated public sector pay premium (i.e. the part that cannot be explained by differences in the characteristics of the workers) would be 20 per cent. Given this, it is crucial when attempting to

1 Central Statistics Office, 2012. *National Employment Survey 2009 and 2010 Supplementary Analysis.* Cork: Central Statistics Office.

estimate the unexplained gap between public and private sector workers' wages to ensure that the analysis is underpinned by assumptions that reflect the way pay is determined in each sector. If the component of the pay gap related to characteristics is over/under-estimated, this will result in an under/over-estimate of the public-private pay gap by a similar amount.

The recent extensive analysis of the public sector pay gap for 2010 by the CSO is important and welcome.[2] In CSO (2012), the statisticians took an approach to estimating the wage gap that encompassed a very wide range of possible variables that might be included to explain the gap, thereby generating a wide range of estimates of the gap. They did this on the basis that '*any attempt to present a single, definitive, public-private pay differential would be subject and prone to over simplification'* (CSO, 2012, 3-4).[3]

As labour market researchers, we take a different view to the CSO on this issue. We hold that, on the basis of the theoretical and empirical literature in this area, it is possible to choose between the different variables that might be included and the specifications that should be adopted. From our perspective, we believe firstly that the preferred specification is one where the only variable that should be used to measure organisation size is one that captures size at the establishment (plant) level. We believe that using the size variable measured at enterprise level, as is captured within the NES, is not appropriate and that including it has the impact of understating the wage gap. Secondly, we believe that weighted regressions should be used to generate the estimates. The alternatives of using enterprise size and un-weighted regressions have a major impact on the size of the gap estimated. While presenting a very wide range of estimates, the CSO indicates that its preference is for a specification that includes enterprise as a wage determining characteristic, while acknowledging in the Report that there is no international agreement on this issue.

To illustrate the impact of both enterprise size and the use of weights, Table 1 replicates the Ordinary Least Square (OLS) estimates from the 2012 CSO publication based on a sample of full-time permanent employees aged between 25 and 59 years.[4] It shows clearly the sensitivity of the measured gap to the assumptions made – including enterprise size leads to a halving of the estimated

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2 Issues in relation to the choice of variables arise in the case of all the CSO estimation techniques, e.g., i.e., the quantile regressions and the Blinder-Oaxaca decomposition.

3 The methodology applied in the current report is similar to that in an earlier paper by CSO statisticians using NES 2007 data.

4 The issues involved in the estimation strategy used by the CSO were extensively debated previously at a meeting of the *Statistical and Social Inquiry Society of Ireland* in November 2009. For more details, see Foley and O'Callaghan (2010).

differential and the used of un-weighted regressions has a smaller but significant impact on the gap .

TABLE 1 Estimates of the Public-Private Pay Differential Taken from the CSO *Supplementary Analysis*[5]

Model Specification	Estimated Differential	
	Weighted	*Un-weighted*
Including Organisational Size	8.5	6.3
Excluding Organisational Size	17.0	12.6

Note: The organisational size variable used here is at enterprise level.

In the remainder of this note, we set out our reasons for holding that the organisational size at enterprise level should be omitted and that weighted regressions should be estimated.

Organisational Size as an Explanatory Variable

From the perspective of the labour market economics literature, there are a number of central arguments that seek to explain why larger firms pay more than smaller firms and, thus, form a basis for including organisational size in any models attempting to either explain or measure pay. First, larger firms tend to hire relatively more qualified and skilled workers as complements to their more capital intensive operations (Hamermesh, 1980). However, such differences in human capital attributes (e.g. educational attainment, experience, etc.) are fully captured in the models estimated in the CSO *Supplementary Analysis*, as the estimates control for differences in both levels of educational attainment and labour market experience of employees between establishments[6]. Consequently, as such effects are explicitly measured within the estimated specifications it is not necessary to include an organisational size variable to proxy for such impacts[7].

A second prominent explanation for higher wages in larger firms relates to the efficiency wage theory, which argues that monitoring costs are higher in larger organisations and consequently large firms pay more in order to discourage shirking (Eaton and White, 1983; Shapiro and Stiglitz, 1984). If the efficiency wage argument is to provide a theoretical basis for including an organisational size control, then the variable should reflect each organisation's monitoring costs. However, the measurement of organisational size in the NES does not permit this

5 These estimates relate to all permanent full-time employees aged between 25 and 59, and are taken from Table C.3 in the *2012 Supplementary Analysis*.

6 See page 24 of the *Supplementary Analysis*.

7 We cannot deal with unobserved heterogeneity i.e., unobserved differences between public and private sector workers (e.g. motivation). However, sensitivity checks in Kelly *et al.* (2009b) suggests that unobserved heterogeneity is unlikely to be an important factor with regard to estimates of the public-private sector pay gap in Ireland.

to be done as it measures the number of employees at the enterprise rather than the establishment level. For example, in the NES 2006 data, the organisational size measure for each employee in the primary school sector was 34,084 because all employees in primary schools were recorded as having a single employer. Similarly, organisation size was measured as 17,168 in the secondary school sector; and 12,954 in the Garda. A similar issue arises in the case of some large private sector entities, e.g., banks and supermarkets.[8]

However, the scale of these organisational size differences is not similar across the two sectors. In fact, in the 2006 NES almost 95 per cent of public sector workers were measured as being employed in organisations of at least 500 employees[9], compared with just 24 per cent in the private sector. The importance of size as a factor is illustrated very clearly in the CSO estimates of the pay gap based on the 2007 NES (Foley and O'Callaghan, 2010), where employees in very large organisations were estimated to earn a premium of about 24 per cent compared to workers in small organisations. Therefore, by including enterprise size, a substantial proportion of public sector pay is attributed to working in much larger organisations relative to the bulk of private sector employees. The application of this organisational size premium in such a universal fashion gives rise to difficulties given that most schools, Garda stations, etc., do not in fact employ very large numbers of people. Moreover, while wage bargaining is undertaken at enterprise level, that variable is captured by the inclusion of the trade union membership. In the latest CSO report, we can see that the inclusion of the enterprise measure of organisational size leads to a reduction in the estimated pay gap by half, i.e., between 6.3 and 8.5 percentage points (Table 1).

Furthermore, the theoretical literature has authoritatively argued that only variables that can be treated as broadly fixed characteristics, such as, for example, educational qualifications, should be included in models attempting to measure the public-private pay differential (Gregory and Borland, 1999). However, the measurement approach used in the NES is such that the organisational size variable cannot be treated as a fixed characteristic that will remain unchanged should workers switch between sectors.

Finally, the theoretical literature also suggests that pay may be higher in larger firms, reflecting higher profits generated by monopoly rents (Oswald, 1993;

8 We are grateful to the CSO for drawing this to our attention.

9 This arises because, within the NES the organisational size variable is collected at the level of the enterprise as opposed to the establishment. The CSO make reference to the study of Boyle *et al.*, (2004) with regards to an Irish study that incorporates a control for organisational size. However, as demonstrated in the vote of thanks to Foley and O'Callaghan (2010) it is clear that the data used within the Boyle *et al.*, (2004) were collected at the level of the establishment.

Hildreth and Oswald, 1997; Blanchflower *et al.*, 1996). However, given that public sector organisations do not operate in a competitive products/services market, this rationale would seem to have little relevance to studies of the public-private sector pay differential.

CSO (2012) presents estimates both with and without the enterprise size variable included. This demonstrates the important difference that including a size variable makes in the context of the analysis of the NES data. On the basis of the theoretical arguments above, we favour those estimates that exclude the enterprise size measure.

The Weighting Decision

It is also obvious from Table 1 that the size of the estimated public-private pay differential is heavily influenced by whether or not the data are weighted. Un-weighted estimates lie between 4.4 and 2.2 percentage points below the comparable weighted estimates. In relation to its approach, the CSO states that there are numerous problems associated with the use of weights in regression models, while at the same time stating that "...greater emphasis is placed on weighted data" in reporting the pay gap results (CSO, 2012, p. 4). Nevertheless, in support of the decision to present un-weighted estimates, the CSO refers to three papers (Fazio *et al.*, 2006; Gelman, 2007; and Winship and Radbill, 1994). These papers argue that it is sufficient to estimate un-weighted regressions provided that models include variables relevant to the weighting strategy as additional independent variables. We agree that this is a perfectly legitimate argument under normal circumstances where the impact to be estimated relates specifically to the population that the sampling strategy attempts to replicate.

However, with respect to the NES, the sampling stratification is designed to generate a data representation of the distribution of firms within the economy and not the distribution of employees. Therefore, an un-weighted regression that includes key weighting variables (such as sector and organisational size) as additional controls will generate an acceptable estimate of the difference in pay between a worker in a representative private sector firm and his/her counterpart in a representative public sector organisation. However, as workers are not randomly distributed across firms and sectors, the un-weighted estimate will not relate to the difference in pay between representative private and public sector workers. This suggests that the literature cited in the *Supplementary Analysis* is not relevant in this context. The key conversion from a representative sample of firms to a representative sample of workers requires the data to be transformed in a manner not consistent with the initial survey design, which implies that the use of un-weighted data is not an appropriate option in such circumstances.

CSO (2012) contains estimates using both weighted and un-weighted data. This demonstrates clearly the difference that weighting makes to the estimates. Again, on the basis of the arguments above, our preference is for those estimates that are based on weighted data.

Summary

Given the importance of the current debate on public sector pay, we believe it is important to recognise the significance of the issues discussed in this Note. We suggest that, among the many estimates published in CSO (2012), greater emphasis should be placed on the results generated from equations containing the weighted estimates and excluding organisational size, since it cannot be measured at establishment level.[10] On the basis of the above arguments, we hold the view that pay-gap estimates that are based on organisational size measured at enterprise level, or un-weighted data, are understating the extent of the wage gap. We believe that the data at hand require that estimates should be based on a specification that excludes organisational size as a control and that the data should be weighted to ensure that it is representative of the population of employees in employment. We note that the IMF has taken a similar view on this issue in its recent discussion of public sector pay levels in Ireland in the December 2012 country report[11]. Consequently, we are of the view that the average public-private pay gap in Ireland in 2010 was likely to have been close to 17 per cent.

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[10] In this regard, we differ from CSO (2012) which indicates a preference, among its many specifications, for those that include the enterprise size variable, while stressing that there is not universal agreement on this point. .

[11] http://www.imf.org/external/pubs/ft/scr/2012/cr12336.pdf

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The Regional Dimension of the Unemployment Crisis

Edgar Morgenroth

Introduction

The economic crisis in Ireland has been subject to much commentary and different components of Ireland's economic crisis have been analysed in a range of papers. For example the impact of the recession on foreign direct investment and exports has been investigated (Barry and Bergin, 2012, Godart *et al* 2011), job creation and destruction was analysed by Lawless (2012) and the labour market consequences of the crisis have been outline in Barrett and McGuinness (2012). However, one aspect that has not received much attention is the spatial dimension of the crisis. This is surprising as national averages tend to mask considerable heterogeneity across regions. Thus one would expect different parts of the country are likely to have been impacted in different ways[1].

One reason why there has been no systematic analysis of the regional dimension of the crisis is that data availability and particular availability of up to date data is more limited at the regional level. For example while Quarterly National Accounts are available for the third quarter of 2012, the most recent regional accounts are for 2009. Nevertheless up to date labour market data are available at the regional level from the Quarterly National Household Survey with the most recent publication referring to the third quarter of 2012[2]. The Census 2011 also has some relatively up to date data on labour market variables at a very disaggregated spatial scale.

This paper focuses on the regional dimension of the unemployment crisis. In particular it considers the evolution of the unemployment rate during the crisis and analyses the components that determine the change in the numbers unemployed. It also considers unemployment at the micro-spatial level.

The Change in Regional Unemployment

The national unemployment rate remained below 5 per cent for the period between the fourth quarter of 1999 and the fourth quarter of 2007. From that

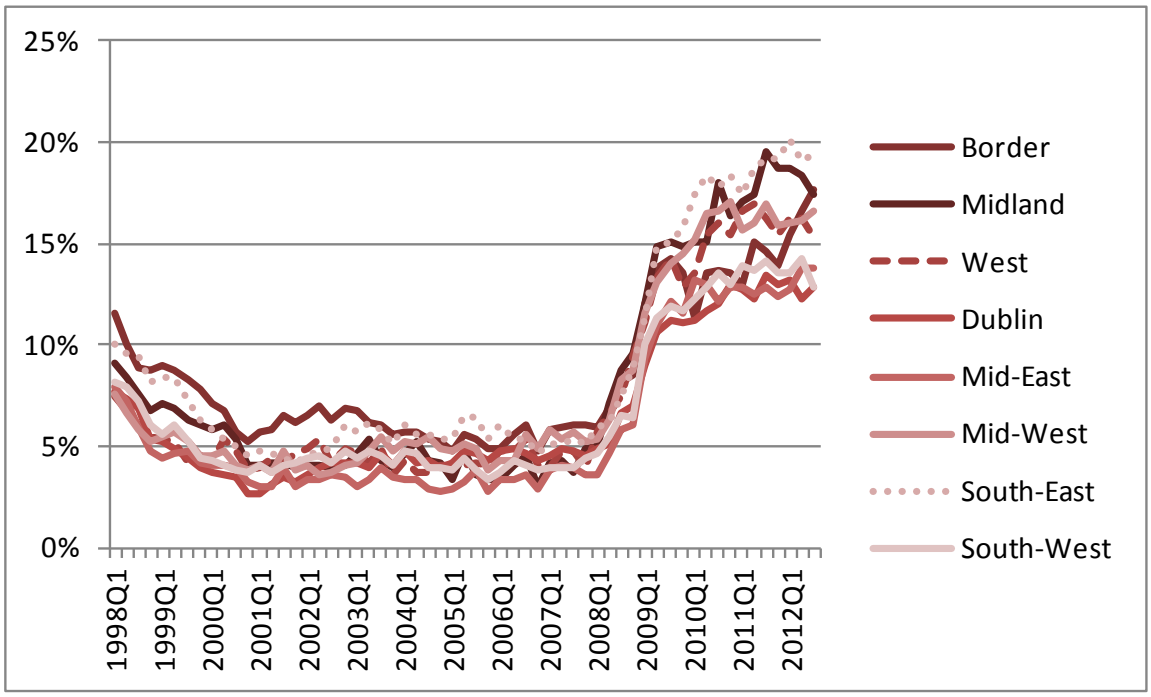
1 An exception is Morgenroth (2010) which outlined the broad impact of the crisis at the regional level up to 2009, but did not carry out the more detailed analysis provided in this paper.

2 That release also revises the series in light of the Census 2011 results.

level it trebled in a very short period and has been relatively stable at about 15% for a number of quarters. The evolution of regional unemployment rates is shown in Figure 1, which broadly corresponds to the national trends. However the graph also shows some important differences across the regions. For example at the start of 1998 unemployment rates were still at over 10% in the Border and South-East regions, while the West region had the lowest rate at 7.4%. All regions experienced a drop in unemployment rates and there was also convergence in unemployment rates across the regions during the boom, so that the difference between the regions reduced. However, the recession has not only resulted in a substantial rise in unemployment rates in all regions but has also led to divergence in unemployment rates across the regions (see Figure 1 and Table 1).

In 2012 the highest unemployment rate is found in the South-East (19.4%) followed by the Border (17.7%) and Midlands (17.4%) regions. The Midlands and the South-East also experienced the most significant rise in the unemployment rate. The lowest rates are recorded for Dublin (12.9%), South-West (12.9%) and Mid East (13.8%) regions, which are economically stronger regions with higher levels of income and output. The three regions with the highest unemployment rates in 1998 also have the highest rates in 2012, indicating a strong persistence of the differences that is likely to be due to underlying structural factors.

FIGURE 1 Regional Unemployment Rates 1998 to 2012



Source: CSO Quarterly National Household Survey.

In order to identify the impact of the crisis one needs to decide on a base period against which the current level of unemployment can be compared with. As employment peaked in the third quarter of 2007 in six out of eight regions this quarter is taken as the baseline quarter against which the impact of the recession is measured. Table 1 shows both the unemployment rate and the total number of unemployed persons in the third quarter of 2007 and 2012 respectively. While the unemployment rate more than trebled nationally between these points, there is considerable heterogeneity across regions. For example the unemployment rate in the Midlands region is now 4.7 times that seen in 2007. On the other hand Dublin and the Mid-West experienced less than a trebling in unemployment rates. The absolute changes are also very striking with almost 325,000 people classified as unemployed compared to just under 108,000 in 2007. In the Midlands region the number of unemployed was as low as 4,900 in 2007 but now stands at 17,300. Since the crisis started the gap between the highest and lowest unemployment rate has increased significantly from 2 per cent to 7 per cent.

TABLE 1 Unemployment Rate and Absolute Number of Unemployed for Q3 2007 and Q3 2012

	Unemployment Rate Q3 2007	Unemployment Rate Q3 2012	Number of Unemployed Q3 2007 (000s)	Number of Unemployed Q3 2012 (000s)	Change in Unemployment (000s)
	%	%			
Border	6.0	17.7	14.1	37.2	23.1
Midlands	3.7	17.4	4.9	22.2	17.3
West	4.7	15.3	10.3	32.8	22.5
Dublin	4.7	12.9	31.7	81.3	49.6
Mid-East	3.9	13.8	10.5	35.9	25.4
Mid-West	5.7	16.6	10.4	30	19.6
South-East	5.3	19.4	12.5	44.3	31.8
South-West	3.9	12.9	12.9	40.8	27.9
State	4.7	15.0	107.5	324.5	217.2

Source: CSO Quarterly National Household Survey.

Components of Unemployment Change

The unemployment rate is a function of the number of persons in employment and the size of the labour force[3]. Changes in unemployment are thus due to changes in employment and the labour force, which are shown in Table 2. The first column of Table 2 shows the change in the numbers unemployed, the second shows the change in the numbers employed and the third column shows the change in the size of the labour force. Subtracting the change in employment

3 Number Unemployed = Labour Force – Number Employed

from the change in the labour force yields the change in unemployment[4]. Overall the Border region suffered the most significant decline in employment (-22 per cent), followed by the South East (-19 per cent) and the Midlands (-18 per cent). Employment contracted by between 12 per cent and 14 per cent in the other regions, with the West region faring best.

While the Border region suffered the most dramatic employment contraction it also experienced the most significant contraction in the labour force (-11 per cent) which significantly dampened the increase in the numbers unemployed. For both the Border and Dublin the reduction in the labour force accounted for close to half the decline in employment. In contrast, the labour force hardly changed in the West region.

The labour force is a function of the number of persons of working age (here taken to be the population aged over 15 years) and the labour force participation rate in the labour force, and therefore changes in the labour force are a function of changes in these two variables, which are also shown in Table 2[5]. Most striking is the very significant decrease in the participation rate in the Border region (-13 per cent) and to a lesser extent in the Midlands (-9 per cent) and Mid-East (-8 per cent) regions. Also striking is the strong growth of the population aged 15 and over in the Midlands (6 per cent) and the Mid-East (5 per cent). Overall, while the population increased, participation rates have fallen so that these two components have opposite effects on unemployment i.e. the increase in the population has increased unemployment while the reduction in participation rates has decreased unemployment.

Given the multiplicative relationship between these two factors calculating the contributions of each to unemployment requires a slightly more difficult decomposition[6]. The results of the total decomposition are shown in Figure 2 which shows the contribution of changes in employment, population and participation rate to total unemployment. It should be noted that the change in population is shown as a negative impact as it has the effect to increase the unemployment rate. The graph shows that the drop in employment was made the largest contribution to the increase in unemployment in all regions. It also

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4 Formally $\Delta U = \Delta LF - \Delta E$ where Δ denotes the change in the variable and U, LF and E denote unemployment, the labour force and employment respectively. For the Border region the calculation is -26.4 - (-49.5) = -26.4 + 49.5 = 23.1.

5 Labour Force = Working Age Population x Labour Force Participation Rate.

6 $\Delta LF = PR_0 * \Delta Pop - \Delta PR * Pop_0 + \Delta PR * \Delta Pop$, where Δ refers to a change, Pop refers to the population, PR to the participation rate and the subscript 0 refer the starting point Q3 2007. The first term yields the pure population effect, the second term gives the pure participation effect and the third term represents a second order interaction effect which is found to impact only marginally on unemployment (see Fuchs et al, 2008).

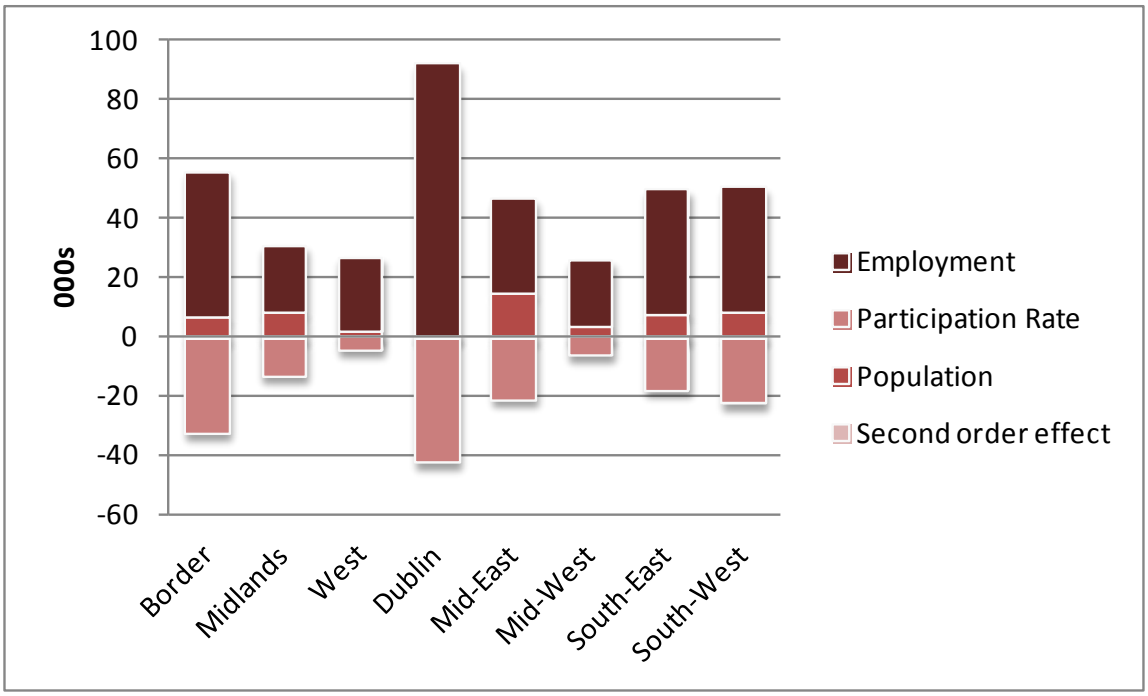
clearly shows the significant heterogeneity across regions regarding all components.

TABLE 2 Components of the Unemployment Change between Q3 2007 and Q3 2012

	Change in Unemployment (000s)	Change in Employment (000s)	Change in the Labour Force (000s)	Change in the Population (aged over 15) (000s)	Change in Participation Rate (%)
Border	23.1 (164%)	-49.5 (-22%)	-26.4 (-11%)	10.1 (3%)	-13%
Midlands	17.3 (353%)	-22.4 (-18%)	-5.0 (-4%)	13.0 (6%)	-9%
West	22.5 (218%)	-25.3 (-12%)	-2.8 (-1%)	2.6 (1%)	-2%
Dublin	49.6 (156%)	-92.1 (-14%)	-42.5 (-6%)	-1.5 (0%)	-6%
Mid-East	25.4 (242%)	-32.1 (-13%)	-6.7 (-3%)	21.2 (5%)	-8%
Mid-West	19.6 (188%)	-22.5 (-13%)	-2.9 (-2%)	5.4 (2%)	-3%
South-East	31.8 (254%)	-42.1 (-19%)	-10.3 (-4%)	12.2 (3%)	-7%
South-West	27.9 (216%)	-42.5 (-13%)	-14.7 (-4%)	12.5 (2%)	-7%
State	217.2 (202%)	-328.5 (-15%)	-111.3 (-5%)	75.6 (2%)	-7%

Source: CSO Quarterly National Household Survey.

FIGURE 2 Components of the Unemployment Change between Q3 2007 and Q3 2012

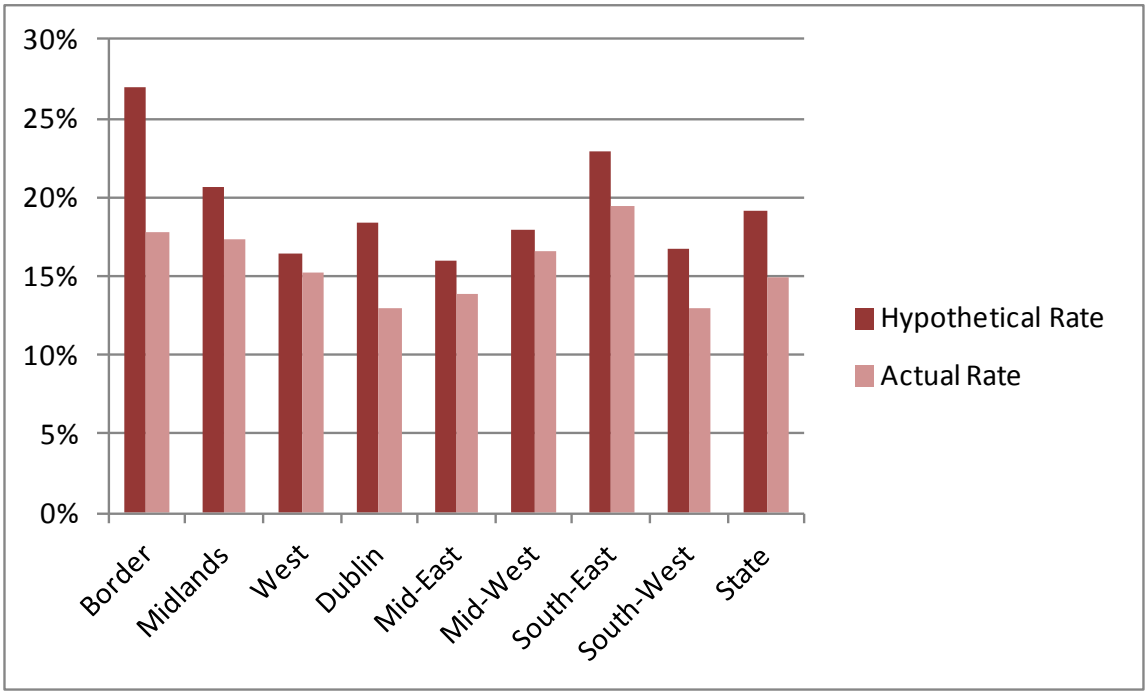


Source: Own calculations. The second order effects are very small and therefore barely noticeable. They are included here for completeness.

Having considered the components of change in unemployment it is also interesting to consider what the unemployment rate had been if the

demographic and participation changes had not occurred[7]. This calculation is easily done by dividing the numbers unemployed in 2012 by the labour force of 2007, which is shown in Figure 3 below. This shows that in the Border region in particular, the drop in participation rate of 13.5 per cent significantly dampened the rise in the unemployment rate, which could otherwise have reached 27 per cent. Dublin would also have experienced a significantly higher unemployment rate of 18 per cent instead of 13 per cent. However in the West the difference would have been quite modest (1 per cent) as the participation rate declined only slightly, as shown in Table 2.

FIGURE 3 Actual and Hypothetical Unemployment Rate holding the Population and Participation at 2007 Levels



Source: Own calculations and CSO Quarterly National Household Survey.

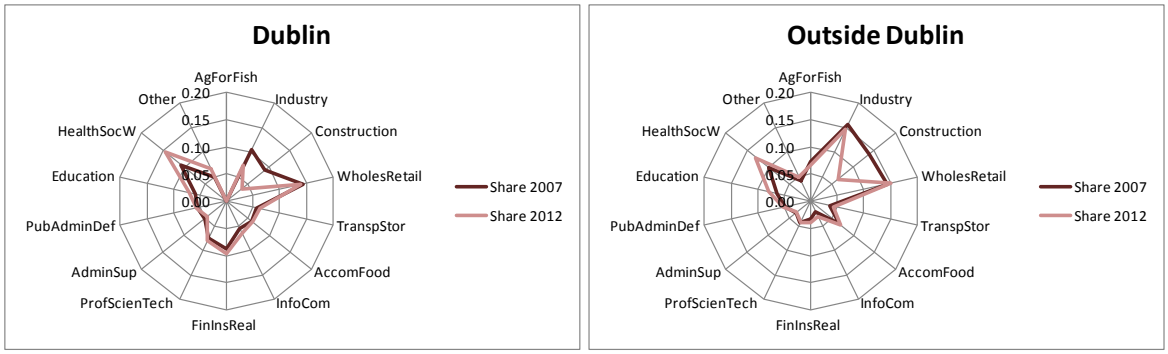
Employment Change

In the decomposition above total employment change was considered. However, it is well known that there are substantial differences in the sectoral composition of employment across regions (see Morgenroth 2009). Dublin in particular differs from the rest of the country in that it has a higher concentration of employment in services and particularly public services, which is shown in Figure 4 for 2007 and 2012. Dublin has a lower employment share in Agriculture, Industry and Construction and a higher share in Health and Social Work, Public Administration

7 The impact of migration could not be considered here as regional migration figures for the period considered are not available.

and Defence, Financial Services Insurance and Real Estate, Professional, scientific and technical services. A sharp reduction in the share of employment accounted for by the construction sector can be seen in Figure 4, for both Dublin and outside of Dublin. Also notable is the fact that Health and Social Work and Public Administration increased their share of employment, reflecting the fact that both are largely public sector activities. Interestingly, the share of employment in industry in Dublin declined significantly during the crisis, while in the rest of the country this share remained almost unchanged.

FIGURE 4 Sectoral Employment Shares in Dublin and the Rest of the Country Q3 2007 to Q3 2012



Source : CSO Quarterly National Household Survey[8].

While Figure 4 clearly shows the differences in industrial structure, it is more difficult to identify the changes in employment by sector, which is more readily achieved in tabular form (see Table 3). Sectors that grew in all or all but one regions include Information and Communications, Education, and Health and Social Work. Other sectors declined but the level of change varies considerably across regions. The table clearly shows that employment in industry declined particularly strongly in the Dublin region. The accommodation and food services sector contracted particularly strongly in the Border and Midlands regions. Professional, scientific and technical sector employment declined by more than two fifth in the Midlands region. The West region benefitted from a 25 per cent increase in employment in education which constitutes 5 times the national average. The table shows that construction employment contracted by 63 per cent nationally, with a regional range between 69 per cent (West) and 55 per cent (Mid-East). Overall the change in construction employment is more uniform than the change in employment in any other sector, which suggests that the heterogeneity in the change in total employment is largely driven by changes in other sectors.

8 *AgForFish* refers to Agriculture, forestry and fishing**,** *WholesRetail* refers to Wholesale and retail trade; repair of motor vehicles and motorcycles *TranspStor* refers to Transportation and storage, *AccomFood* refers to Accommodation and food service activities, *InfoCom* refers to Information and communication, *FinInsReal* refers to Financial, insurance and real estate activities, *ProfScienTech* refers to Professional, scientific and technical activities, *AdminSup* refers to Administrative and support service activities, *PubAdminDef* refers to Public administration and defence; compulsory social security, *HealthSocW* refers to Human health and social work activities and *Other* refers to Other NACE activities

TABLE 3 Employment Change by Sector and Region between Q3 2007 and Q3 2012

Sector	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
	%	%	%	%	%	%	%	%	%
Agriculture, forestry and fishing	-14	-23	-30	0	-27	-22	-18	-36	-24
Industry	-33	-18	-8	-41	-26	-26	-17	-14	-25
Construction	-63	-68	-69	-67	-55	-57	-66	-57	-63
Wholesale, retail trade; repair of motor vehicles and motorcycles	-17	5	-10	-17	-10	-15	-19	-3	-12
Transportation and storage	16	-4	27	-6	-4	-1	-16	-6	-3
Accommodation and food service	-30	-25	-17	-12	-10	7	-1	-4	-11
Information and Communication	-33	32	58	2	78	52	20	9	16
Financial, insurance and real estate	0	-20	15	-7	3	38	-12	-12	-4
Professional, Scientific, technical activities	-16	-43	-5	-9	-10	-8	-16	-22	-13
Administrative and support services	-34	0	-9	-26	-21	-31	-2	-12	-20
Public administration, defence; social security	-13	-14	-12	-10	-3	14	-10	-3	-8
Education	-1	7	25	4	3	5	2	1	5
Human health, social work	1	17	10	16	10	11	5	20	12
Other NACE	-8	-2	19	15	0	5	-4	-7	4
Not stated	0	0	0	0	0	0	0	0	-46
Total	-22	-18	-12	-14	-12	-13	-18	-13	-15

Source: CSO Quarterly National Household Survey.

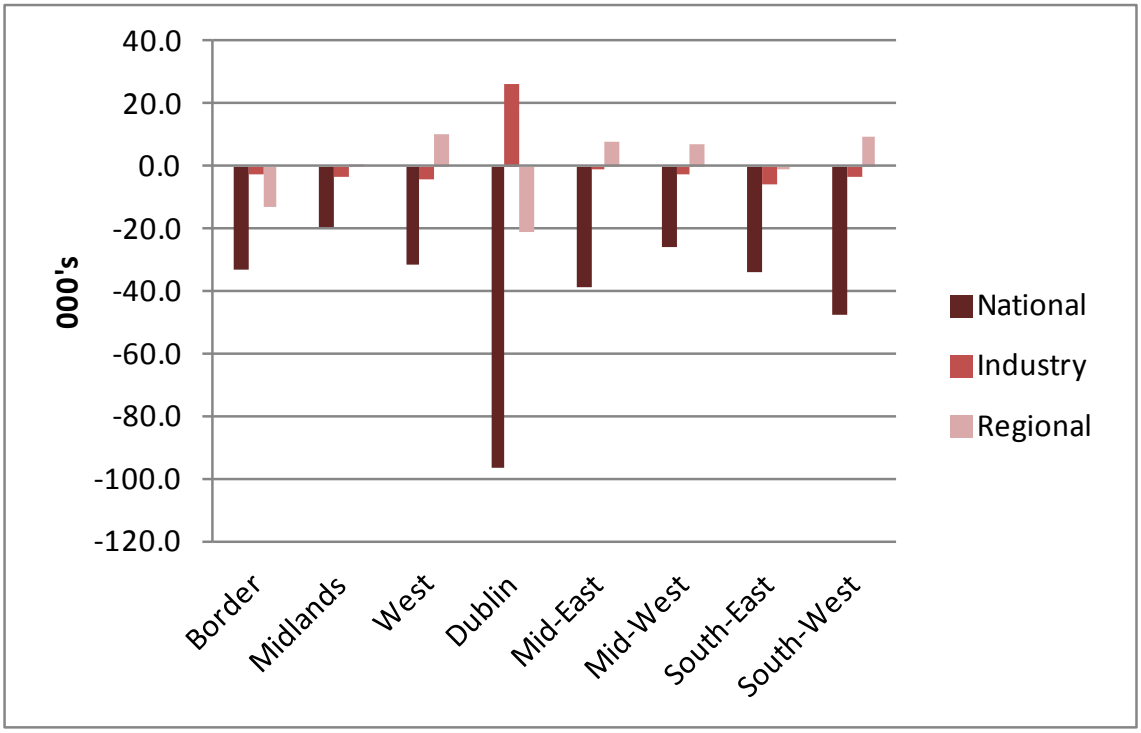
Given the considerable difference in economic geography between the regions and the very different growth performance of individual sectors, it is useful to consider how these compositional differences have impacted on employment change. Shift-share analysis has a long tradition as a method of analysis for this purpose.

Shift-share analysis decomposes the change in employment into a national component, an industry component and a regional component (Thirlwall, 1967, Jones, 2012). The national component identifies the change in employment had the national rate of change applied in the region, the industry component identifies the change in employment that is due to the employment trends in

each industry and the regional component measures employment change that is due to region specific factors.

The results of the shift-share analysis are shown in Figure 5 below. The most notable feature is that Dublin benefitted from the industrial mix present, while suffering more than other regions from the national trend which is not surprising given that Dublin significantly contributes to the overall national trend. Also notable is that the West, Mid-East, Mid-West and South-West had a positive regional component which implies that aspects specific to these regions had a positive impact on employment while such region specific factors had a negative impact on employment on the remaining regions. Overall the analysis suggests that the national trend contributed most to employment change in all regions. The region specific factors were also very important in all regions except the Midlands and the South-East.

FIGURE 5 Shift-Share Components of Employment Change by Region Q3 2007 to Q3 2012



Source: Own calculations based on QNHS data.

Micro-spatial Analysis

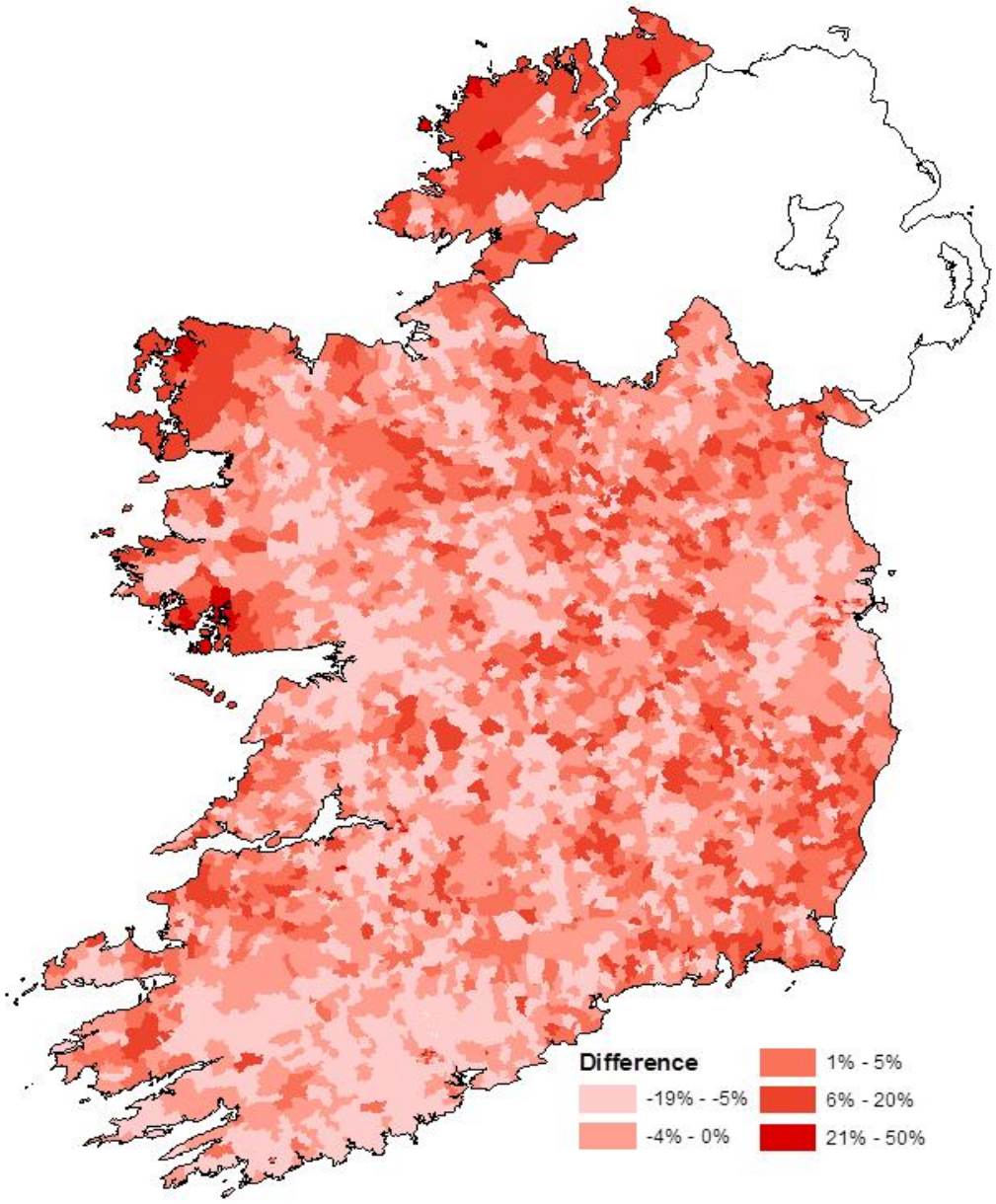
The analysis above has shown that there is significant heterogeneity across regions with respect to the unemployment rate and its underlying components. Such heterogeneity tends to be greater within regions than between regions and it is therefore also useful to consider unemployment at the micro-spatial level. This is possible using data from the CSO Census of Population, which provides

data for electoral districts as part of the Small Area Population Statistics (SAPS), which is available for census years[9]. Electoral districts are the smallest administrative units in Ireland. The SAPS gives details for just over 3,400 electoral divisions and they range in area from 5 hectares to just under 13,000 hectares and in population from 73 persons to just over 36,000 persons. Map 1 shows the deviation of the unemployment rate in each Electoral Division from the national average. An interesting spatial pattern can be observed, in that the hinterlands of Dublin, Cork and Galway and to a lesser extent Limerick, Sligo and Athlone have lower than average unemployment. Some of the most peripheral areas of Donegal, Galway and Mayo have substantially higher unemployment rates than the national average, but this is also the case in some urban areas in particular in Dublin, Cork and Waterford.

It is possible to consider some of the underlying drivers of the heterogeneity. The spatial pattern of the unemployment is highly persistent, as the correlation of unemployment rates between 2006 and 2011 is 0.67. However, the correlation between the unemployment rate in 2011 and 1991 is even higher at 0.74. The map gives an impression that more peripheral regions in general experience higher unemployment, and this is confirmed by the correlation between the unemployment rate and the average distance from an ED to all other EDs which is a measure of peripherality which is positive (0.13). However, the correlation between the unemployment rate and the agriculture share of employment which is a measure of the rurality of an ED is negative (-0.25). This may be due to some absorption of unemployed workers back into agricultural activities. Also interesting is that ED with a higher population density have a higher unemployment rate (correlation coefficient of 0.18). This basic analysis suggests that the differences are not simply reflecting an urban rural divide but are due to persistent underlying factors that have not been altered by the boom.

9 In Ireland a full census is taken every 5 years and the most recent census was taken in 2011.

MAP 1 Deviation of the Local Unemployment Rate from the National Average 2011.



Source: CSO Census of Population, Small Area Population Statistics (SAPS).

Summary and Conclusions

This paper has considered the regional dimension of the unemployment crisis. The analysis shows significant heterogeneity across regions. The unemployment rate in the region with the highest rate is 6.5 per cent higher than in the region with the lowest rate. Thus, national level statistics hide the fact that there are areas with considerably higher unemployment rates than the average and other with considerably lower rates.

A contraction in the labour force dampened the increase in the numbers unemployed, particularly in the Border and Dublin regions. In the Border region the unemployment rate would have reached 27 per cent if there had not been a very significant drop in the participation rate. As is well known, there are significant differences regarding the industrial specialisation across regions, with Dublin in particular having a very different industrial structure than the rest of the country. In addition the regions have been subject to differences in employment changes by sector. Nevertheless, national trends are responsible for significant proportion of the employment change, but regional factors also play a role. The analysis at the micro-spatial level shows that the heterogeneity at this level is significantly larger than even at the regional level.

The persistence of unemployment differentials suggests that there are underlying structural differences across regions. From a policy perspective this is important as national policies are unlikely to address these region and location specific factors. Indeed the persistence of the patterns suggests that past policies were ineffective at dealing with these structural differences.

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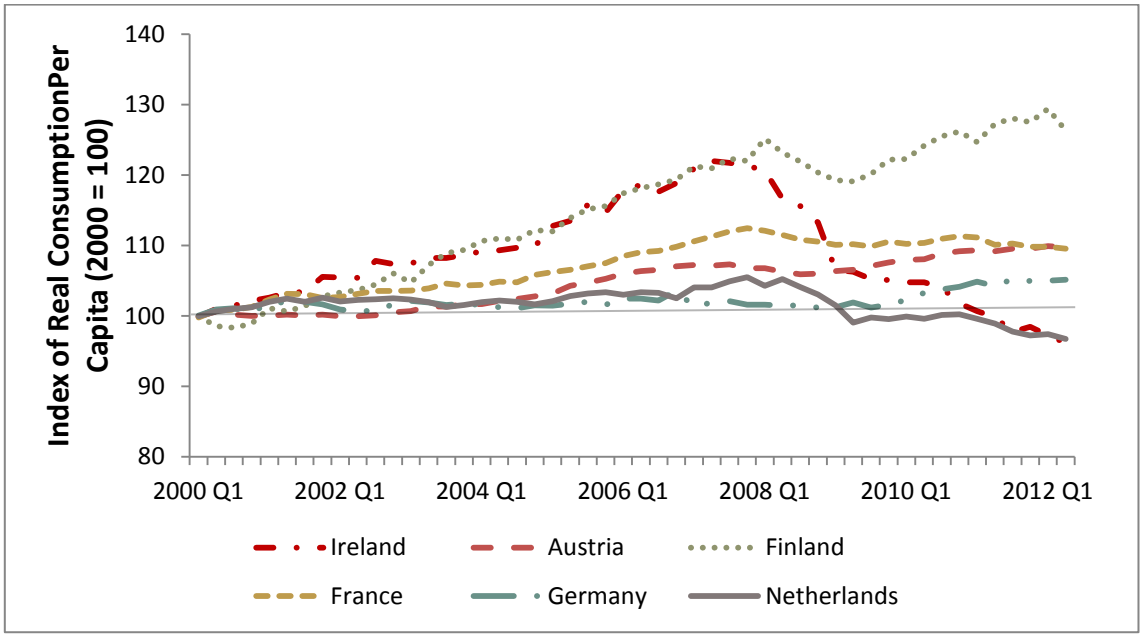
Trends in Consumption since the Crisis: Ireland in Context

Brian O'Connell, Conor O'Toole and Nuša Žnuderl

Introduction

Household consumption is the single largest component of GDP: it represented nearly 60 per cent of GDP in euro area economies on average over the period 2000 to 2012.[1] Therefore, in light of the contraction in GDP experienced during the crisis in many European countries, movements in consumption represent a key economic indicator and it is important to understand their determinants. This note examines these movements in both the non-crisis countries (Germany, France, Austria, Netherlands, Finland) and the crisis countries (Portugal, Italy, Ireland, Greece, Spain) of Europe during the ongoing financial upheaval. It then provides an analysis of the main drivers of these changes, before finally comparing the path of consumption in Ireland to some historical examples.

FIGURE 1 Real Per-Capita Consumption in the Non-crisis Countries and Ireland (Relative to 2000 Levels)



Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF and the United Nations.
Note: Data obtained from international sources may not be entirely consistent with data from national sources.

[1] *Source*: Eurostat.

Trends in Consumption since the Crisis

As illustrated in Figures 1 and 2, the beginning of the last decade saw a positive trend in real private per capita consumption[2] across Europe. The almost universal growth in consumption in the early years of the decade was part of "the great moderation" period as articulated by Bernanke (2004) and the "NICE" (Non-Inflationary, Consistently Expansionary) period described by King (2003), which brought consistent growth across the developed world during the 1990s and early 2000s. However, the divergence in the path of consumption between the non-crisis and crisis nations after the onset of the financial crisis is stark. This analysis attempts to place Ireland's per capita consumption in context with its peers in the non-crisis and crisis economies of Europe.

Consumption in the Non-Crisis Economies

The non-crisis nations, while generally believed to have weathered the crisis well, nevertheless experienced declines in consumption of varying degrees during the period from late 2007-2008. Germany was first to record a small decline in consumption in 2007 Q1. The path of consumption amongst the non-crisis nations is illustrated in Figure 1, with Ireland's consumption included for contrast. All the non-crisis nations suffered a dip of some sort in their levels of per capita consumption. However, for the most part, the core nations have seen consumption level out after their dips and have returned to growth, though at a lower trajectory than pre-crisis. The Netherlands is the only non-crisis nation with per-capita consumption at less than 2000 levels as of 2012 Q2.

Consumption in the Crisis Countries

As Figure 2 demonstrates, the crisis nations have experienced much larger falls than any of the non-crisis nations. Additionally, as of 2012 Q2, they have also failed to demonstrate the flattening out of consumption levels or the return to growth seen in the non-crisis nations. The onset of the decline in Ireland's per-capita consumption coincides with the beginning of both Italy and Spain's fall but comes slightly sooner than the slumps in Greece and Portugal. Ireland, Italy and Portugal have all seen falls in per capita consumption to levels below those experienced in 2000. Data for Greece is only available to 2011 Q1, but given developments since then and the previous trajectory of Greek consumption, it is reasonable to expect that Greece too is now close, if not already below, 2000 levels of personal consumption.

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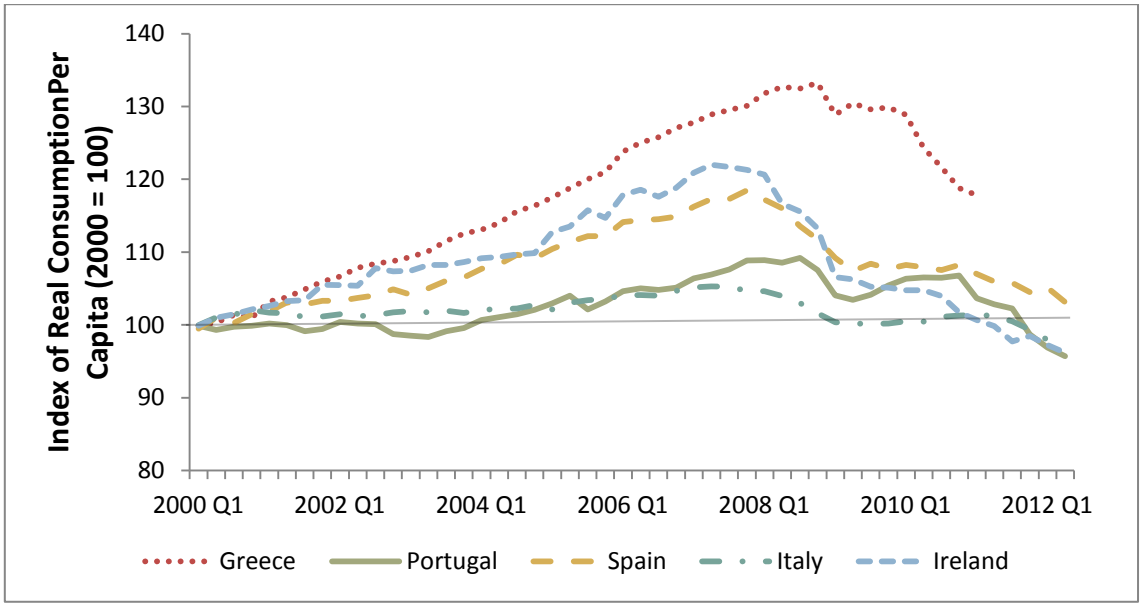
[2] Defined as: total final consumption expenditure data from the OECD, put into real terms using inflation data from the IMF and given in per capita terms by dividing by population figures from the United Nations.

FIGURE 2 Real Per-Capita Consumption in the Crisis Countries (Relative to 2000 levels)



Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF and the United Nations.

Note: Data obtained from international sources may not be entirely consistent with data from national sources.

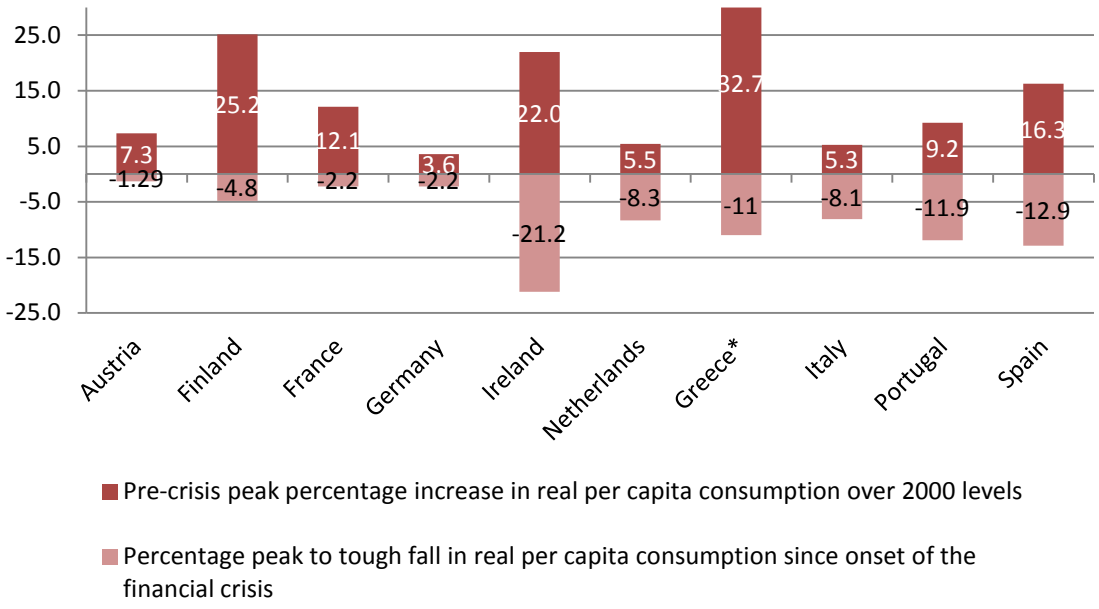
While the non-crisis nations are generally seeing recovery in per-capita consumption in recent quarters, the position is much more strained in the crisis nations. In these economies, the general level of uncertainty and weakness in the household sector does not appear conducive to a sustained recovery in consumption.

Consumption in Ireland in Context

Ireland's private consumption began its slide in mid-2007, but dramatic declines began only in 2008 Q1. Ireland's decline in consumption was beyond anything experienced in the non-crisis nations and was also the most rapid of the crisis nations, with Ireland being the first country to fall below 2000 levels of personal consumption in mid-2011.

As well as this, Figure 3 shows that Ireland had the largest fall in personal consumption from peak to trough of 21.2 per cent. However, it is not inconceivable that Greece, having already experienced an 11 per cent fall by early 2011 and given its economic performance in the last year, may have overtaken Ireland's total decline in consumption. Additionally, Figure 3 shows a remarkable symmetry across the crisis nations between the pre-crisis gains and post-crisis losses in consumption that only Greece has yet to demonstrate.

FIGURE 3 Pre-Crisis Gains in Per-Capita Consumption since 2000 and Post-Crisis Declines from Peak



Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF and the United Nations.

In the context of the non-crisis nations, Finland is perhaps the starkest contrast to Ireland given their similar pre-crisis trajectory of per-capita consumption growth, as illustrated in Figure 1. Per-capita consumption in Finland fell from a pre-crisis peak of 125 per cent of 2000 levels to a trough of 119 per cent in mid-2009 but has since returned to around 128 per cent of 2000 consumption as of mid-2012. By contrast, per-capita consumption in Ireland has fallen to 96 per cent of 2000 levels as of 2012 Q2. These contrasting declines in consumption in the crisis are demonstrated in Figure 3.

The fall in personal per-capita consumption in Ireland during the crisis has thus far outstripped anything seen amongst the non-crisis nations of Europe and has, given available data, constituted the largest and fastest fall amongst the crisis nations. In fact, historically, the consumption collapse in Ireland is comparable to that experienced by the United States during the Great Depression, when personal consumption expenditure fell by 27.2 per cent[3] between 1929 and 1933.

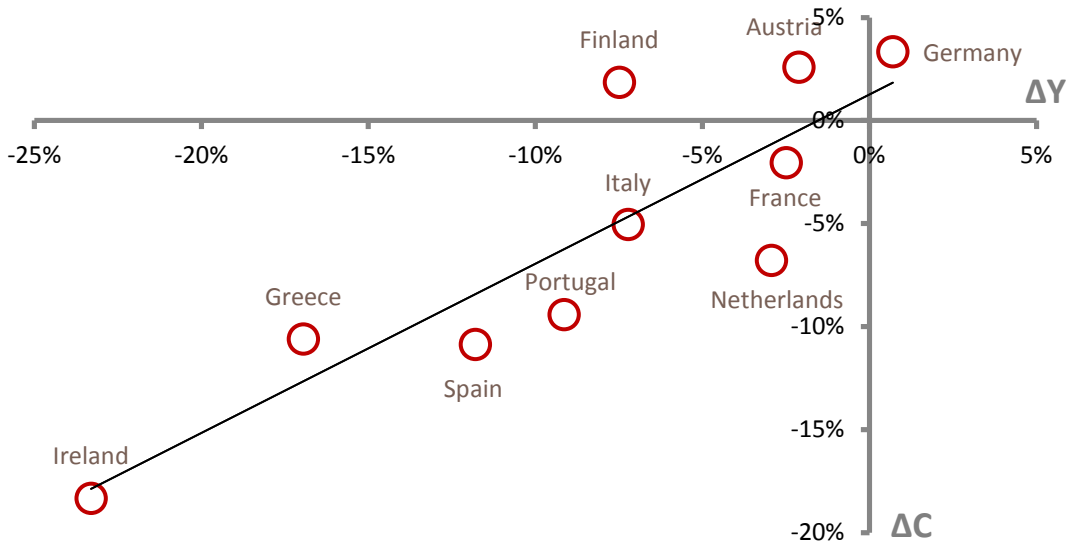
Drivers of Consumption Changes since the Onset of the Financial Crisis

In this section we attempt to explain changes in aggregate household consumption since the onset of the financial crisis by considering trends in three

3 *Source*: Authors' calculations using data from the US Bureau of Economic Analysis.

key variables: income, wealth and credit. In particular, for the set of non-crisis and crisis European economies used in the previous section, we relate the changes in real household consumption per-capita between 2008 Q1 and 2011 Q4[4] to changes over the same time period in real per-capita personal disposable income, changes in household wealth as measured by changes in real house prices and changes in credit availability.

FIGURE 4 Change in Real Consumption Per-Capita and Real Personal Disposable Income Per-Capita between 2008 Q1 and 2011 Q4 in Non-Crisis and Crisis Economies



NOTE:

ΔC – Change in real household consumption per-capita over the period 2008 Q1 and 2011 Q4, except for Greece where the change in real household consumption per-capita is measured over the period 2008 Q1 to 2011 Q1 because of data availability issues.

ΔY – Change in real personal disposable income per-capita over the period 2008 Q1 and 2011 Q4, except for Greece where the change in real personal disposable income is measured over the period 2008 Q1 to 2011 Q1 because of data availability issues.

Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF and the United Nations.

[4] The period 2008 Q1 to 2011 Q4, with respect to which changes in consumption, income and house prices were calculated for the purposes of this section, excludes observations for 2012. This is because data for 2012 was available only for a select number of countries, while for each country in the sample we want to analyse changes in these variables over the same time period. The exception is Greece, where due to data availability issues we examine the relationship between changes in consumption, income and housing wealth over the period 2008Q1 to 2011 Q1. A longer time period was considered when describing trends in consumption in the previous section, and therefore the quoted changes in variables in this section might not be identical to those quoted in the previous section.

The Relationship between Consumption and Income

The relationship between changes in real personal disposable income per-capita and changes in real consumption per-capita for the set of non-crisis and crisis economies since the onset of the financial crisis in 2008 until 2011 Q4[5] is shown in Figure 4. Generally, this relationship is positive: declines in real personal disposable income per-capita are associated with declines in real consumption per-capita.

This positive relationship could have occurred because consumers revised income expectations downwards, faced credit constraints, which prevented them from offsetting the decline in income through borrowing, experienced an increase in personal taxes and/or engaged in increased precautionary savings in the face of an uncertain economic outlook and in anticipation of increased future tax bills. Moreover, consumption of those who rely on state transfers is also held back due to reductions in social spending. Such an increased tax burden and lower state transfers have been common features across both sets of countries examined in this note. However it is not surprising that declines in income and consumption per capita were larger in crisis economies, given the greater severity of the financial crisis.

Compared to other economies in the sample, data suggest that over the period 2008 Q1 to 2011 Q4 Ireland experienced the largest decline in both real personal disposable income (-23 per cent) and real consumption per capita (-18 per cent).

Consumption and Household Wealth

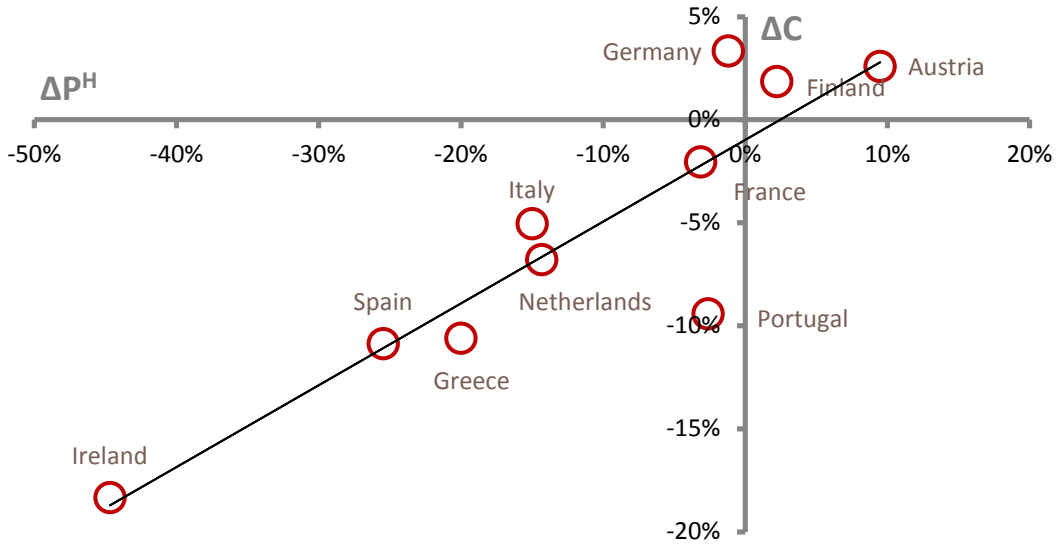
Household wealth consists of financial assets and housing assets. Because real-estate prices played a major role in the domestic crises in several of the worst affected economies, in this section we omit financial wealth and analyse the relationship between changes in consumption and changes in housing wealth since the onset of the crisis.

We use changes in real house prices over the period 2008Q1 to 2011Q4 as an indicator of changes in housing wealth of households. We plot these changes in house prices against changes in household consumption per-capita in Figure 5. The relationship between changes in consumption and housing wealth is positive: declines in housing wealth since the recession were associated with declines in consumption. This positive relationship could be interpreted as consumers recognising the previous expansion in housing wealth as being the result of a bubble and thus unlikely to be regained in the near future. Consumers thus may

5 For Greece the data on consumption and income were only available until 2011 Q1. Consequently, for Greece the relationship between these variables is examined with respect to changes over the period 2008 Q1 to 2011 Q1.

be expecting the decline in housing wealth to be permanent and are adjusting their consumption accordingly.

FIGURE 5 Changes in Real Consumption Per-Capita and Real House Prices between 2008 Q1 and 2011 Q4 in Non-crisis and Crisis Economies



NOTE:

ΔC – Change in real household consumption per-capita over the period 2008Q1 and 2011Q4, except for Greece where the change in real household consumption per-capita is measured over the period 2008Q1 to 2011Q1 because of data availability issues

ΔP^H– Change in real house prices over the period 2008Q1 and 2011Q4, except for Greece where the change in real house prices is measured over the period 2008Q1 to 2011Q1 because of data availability issues

Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF, the United Nation, BIS, and CSO.

Unsurprisingly, all crisis economies experienced declines in house prices and consumption over the period 2008 Q1 to 2011 Q4. Ireland experienced the largest decline in house prices (-45 per cent) and consumption (-18 per cent) during this period. The next largest declines in housing wealth occurred in Greece (-20 per cent), Italy (-15 per cent) and Spain (-25 per cent). These were associated with declines in consumption of 11 per cent in Greece and Spain, and a 5 per cent decline in consumption in Italy.

Germany is exceptional in that its consumption and wealth did not display a positive relationship: a modest decline in house prices (-1 per cent) was associated with an increase in consumption of 3 per cent. However, over the same period of time Germany experienced an increase in income of 1 per cent,

which could have potentially overpowered the negative impact of the decline in housing wealth, thereby resulting in an increase in consumption over the period.

The Role of Credit in Consumption

In the previous sections we considered two major drivers of consumption: income and wealth. However, there certainly exist other factors which have affected consumption since the onset of the financial crisis, such as the supply of credit.

FIGURE 6 Change in Real Consumption Per Capita and Credit Levels between 2008 Q1 and 2011 Q4 in Non-crisis and Crisis Economies

***NOTE*:**

ΔC – Change in real household consumption per capita over the period 2008 Q1 and 2011 Q4, except for Greece where the change in real household consumption per capita is measured over the period 2008Q1 to 2011Q1 because of data availability issues.

ΔCr – Change in the supply of private credit over the period 2008 Q1 and 2012 Q1, except for Greece where the change in the supply of private credit is measured over the period 2008 Q1 to 2011 Q1 because of data availability issues.

Source: Authors' calculations using data from the OECD, Eurostat, National Accounts, the IMF, the United Nation, BIS, and CSO.

Many household purchases are completed via credit as consumers use financial markets to draw on future earnings and smooth consumption over their lifecycles. There was considerable credit growth from 2004 onwards in many countries, with particularly large increases in both Ireland and Spain. Since 2009, there has been a downward trend in credit in three of the crisis countries (Ireland, Spain and Portugal), with either continued growth or stability in the other economies

considered.[6] While a full evaluation of the contribution of credit to the evolution of European economies is outside the scope of this note, these trends raise a number of concerns.

First, given the scale of the banking sector difficulties in Ireland, Spain and other crisis economies, households may find it increasingly difficult to access new credit to engage in consumption smoothing and continue to purchase goods and services in the face of temporary income reductions. If such credit constraints exist, this may act as a drag on consumption until such time as financial markets return to normality.

Figure 6 demonstrates a positive relationship between credit and consumption growth. This relationship suggests that the decreases in credit in Ireland, Spain and Portugal since 2009 could be restraining consumption expenditure.

The second concern relates to the stock of outstanding credit. The level of household indebtedness can influence consumption. More highly indebted households tend to restrict consumption more than less heavily indebted households (Dynan, 2012). Given the very considerable increase in household debt in the pre-crisis period in Ireland, the requirement for balance sheet repair will force households to continue to allocate significant resources to cover debt servicing costs and the repayment of principle. Reducing household debt balances may be necessary from a financial stability and long-term sustainability perspective but it may also dampen and slow any recovery in consumption.

Consumption Recoveries Following Financial Crises

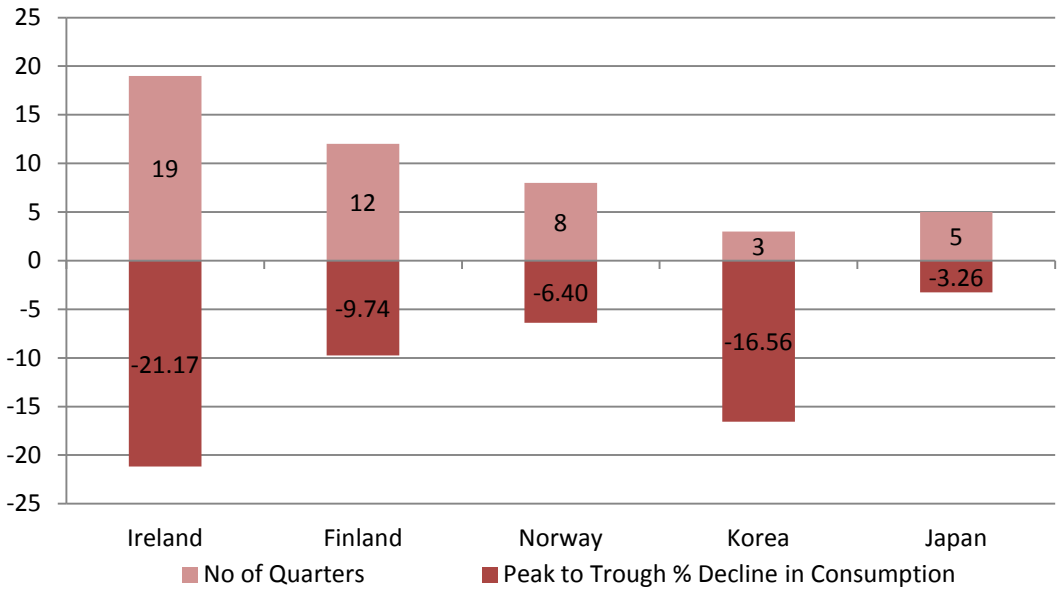
Having provided a comparative perspective of the trends in, and determinants of, consumption expenditure since the crisis, it is useful to benchmark Ireland's experience relative to other countries which have suffered financial crises. In this section, we compare Ireland to four specific crisis episodes: Finland (1993-1995), Norway (1986-1988), Korea (1997-1998), and Japan (1995-1997).[7] Our comparison focuses on three indicators: i) the peak to trough fall in consumption in crisis periods, ii) the number of quarters taken to reach the crisis trough and iii), the number of quarters taken to recover to the pre-crisis peak.

6 *Source*: Authors' calculations using data from BIS, the IMF, the United Nations, and CSO.

7 Crisis episodes are taken as systemic banking crises with the timing and definition given by Laeven and Valencia (2012). These country-episodes were chosen because the crises suffered in these economies were precipitated by a domestic credit bubble and subsequent bank failures. While it would have been also interesting to evaluate the crisis in Sweden in the early 90s (as in Woods and O'Connell (2012)), our dataset uses quarterly data and no official Quarterly National Accounts are available for Sweden prior to 1993 Q1, which is the midpoint of their crisis. For this reason, we do not include Sweden.

Figure 7 outlines the first two indicators. To date, per-capita consumption in Ireland has fallen by approximately 20% from its peak. With the peak to trough fall amounting to 10% in Finland, 6% in Norway and 17% in Korea, the scale of the fall in consumption in Ireland is greater than any of the crisis episodes considered. In terms of the number of quarters taken to reach the trough, the decline in consumption to date in Ireland has lasted 18 quarters. The closest comparator considered is Finland, where it took 12 quarters to reach the trough, with all other crises being considerably shorter. This highlights the protracted and engrained nature of the fall in consumption in the Irish economy.

FIGURE 7 Peak to Trough Declines in Consumption with Time Taken to Reach Trough



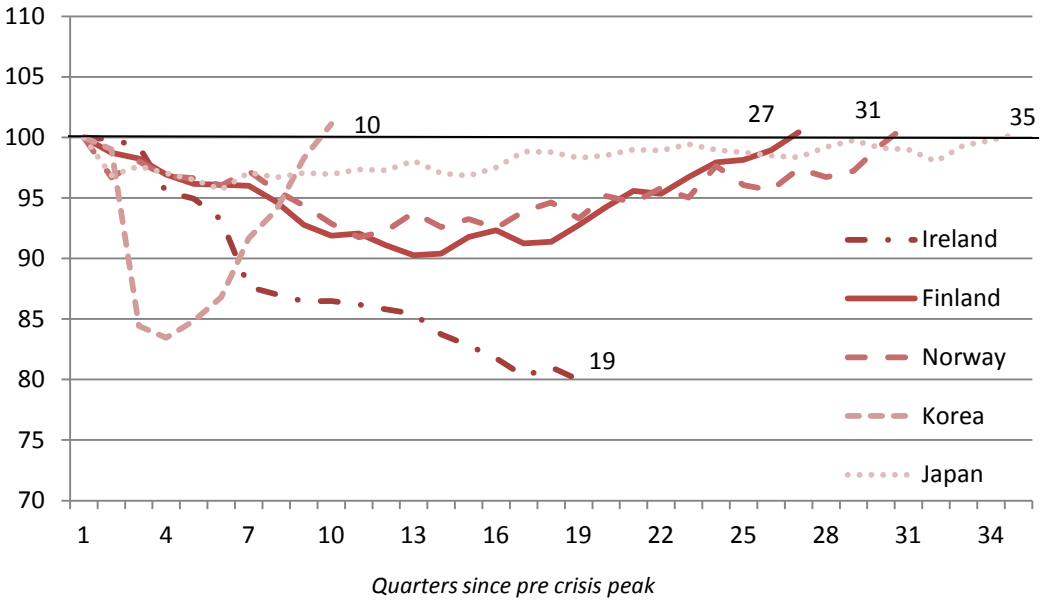
Source: Authors analysis of National Accounts, IMF and OECD data.

To inform the debate concerning potential recovery paths for consumption in Ireland, it is useful to review the time taken to recover to the pre-crisis peak in the selected comparison episodes. Figure 8 presents timelines for the recovery path of consumption to pre-crisis peak values. Korea experienced the quickest recovery with only 10 quarters passing before the pre-crisis peak was achieved. Finland and Norway shared similar recovery paths at 27 and 31 quarters respectively. With the expiry of 19 quarters since the peak in consumption in Ireland, and given the scale of the peak to trough decline, the time to recovery could be expected to exceed those experienced by other countries.

This brief comparison finds that the scale of the decline in consumption in Ireland since the onset of the financial crisis is much greater than that experienced in other crisis episodes. Many of the previous crises occurred against a backdrop of

continued buoyancy and growth in the international economy, as well as a more flexible monetary and exchange rate policy environment. The challenging external context faced by Ireland could go some way to explaining why the length and depth of the Irish crisis stands out from previous episodes.

FIGURE 8 Timeline Indices of Recovery to Pre Crisis Peak



Source: Authors analysis of National Accounts, IMF and OECD data.

Conclusion

This note has illustrated the diverging paths of real per capita consumption across the non-crisis and crisis nations of Europe in the wake of the financial crisis. The non-crisis nations saw relatively small falls in consumption at the outset of the crisis but have almost universally returned to growth. The crisis nations, however, have seen much more dramatic collapses in real per-capita consumption levels with no evidence of a return to growth. Ireland has experienced the largest and fasted decline in consumption to date.

This illustration of consumption trends was then followed by examination of the determinants of consumption: income and wealth, as well as a brief examination of credit. The crisis nations have all experienced larger falls in real per capita income than the non-crisis nations, with Ireland again experiencing the largest decline. As expected, during a financial crisis when credit constraints bind and income expectations get revised downward, the path of income changes matches quite closely the movements in consumption. Ireland also saw the greatest fall in

house prices, where the trend again is for crisis nations to have experienced larger declines than the non-crisis.

Finally, the note examined the performance of Ireland relative to historical examples of financial crises. Ireland's experience stands out as constituting a larger decline in consumption and a longer recovery period than is the historical norm.

The findings of this research serve to highlight the severity of the economic contraction experienced by Ireland in the context of other European economies. To date, we have observed that Ireland has experienced the largest and fastest falls in real per capita consumption, real per capita income and housing wealth.

Looking ahead, recent data suggest that house prices are ceasing to fall, the unemployment rate is stabilising and Ireland is projected to experience stronger growth than the other crisis nations by the European Commission (2012). However, given the continued difficulties in the domestic economy, the strained and uncertain European and global outlooks, and the requirement for household balance sheet repair in Ireland, growth in per capita consumption is likely to remain weak.

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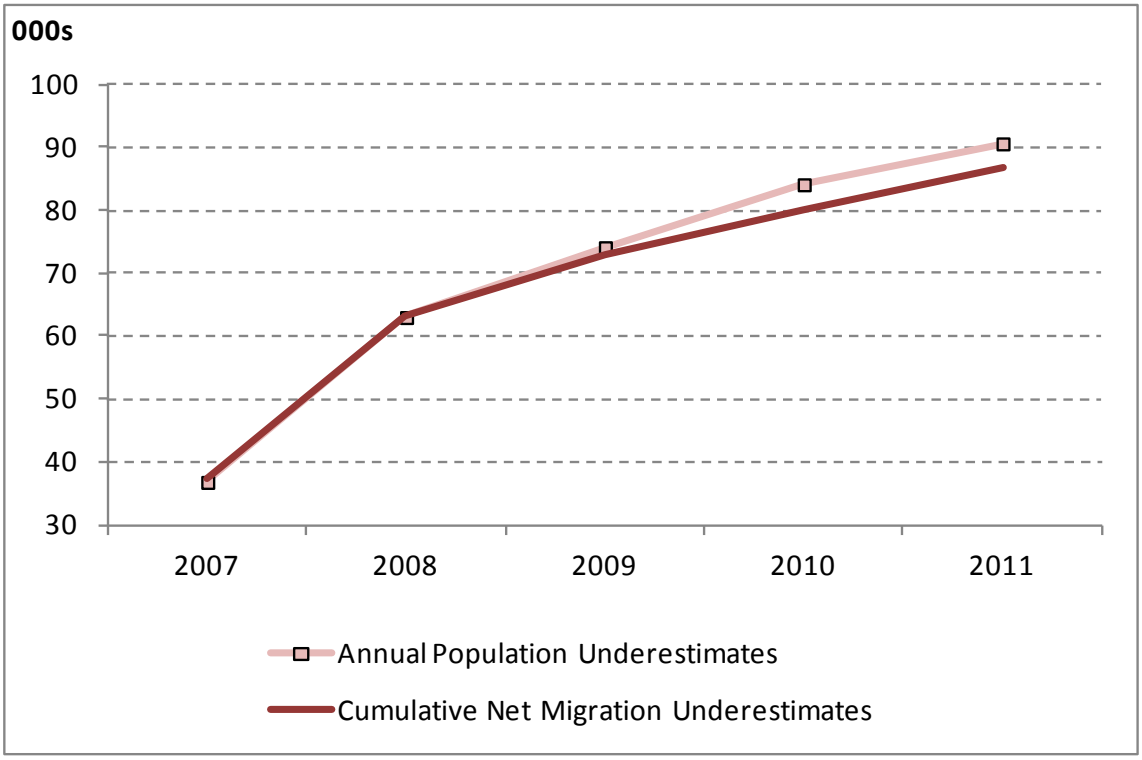
Revisions to Population, Migration and the Labour Force, 2007-2011

Kevin Timoney

Census 2011 has led to substantial revisions to the inter-censal population estimates published by the Central Statistics Office (CSO). These revisions are attributed mainly to the underestimation of migration flows for the years 2007-2011; data from the previous *Census* from 2006 were not revised. Adjusted natural increases for the period (based on vital statistics) accounted for the remaining differences between revisions to annual population and cumulative migration. Figure 1 shows the annual population underestimations for 2007-2011, mainly comprising cumulative net migration. In total, the April 2011 population was revised upwards in *Census 2011* by 90,600.

FIGURE 1 Underestimates of Population and (Cumulative) Net Migration, 2007-2011



Sources: CSO (2011, 2012a).

Revisions to immigration

While there were revisions to both outward and inward migration levels, the change was more dramatic for immigration. In particular for the period 2007-2009, the number of people migrating to Ireland under the age of 25 was 76,900

higher than previously estimated. Changes to the methodology for inter-censal estimation of immigration are documented by the CSO (2012a), whereby the *Quarterly National Household Survey (QNHS)* data were complemented with population-wide statistical databases, such as Personal Public Service (PPS) numbers and social welfare records. The technique for estimating emigration was also updated to account for the number of work permits issued, and the amount of UK National Insurance numbers issued to Irish nationals.

Closer examination of the revised gross migration flows reveals the unprecedented volume of inward migration seen during the early inter-censal years. Table 1 reveals the nationality of these immigrants as mainly "EU-12" (member states joining the EU since May 2004), and returning Irish nationals. Immigration was previously underestimated for 2007-2011 by 65,800 for EU-12 citizens, and 30,000 for Irish nationals. Gross immigration of Irish, EU-12 and all other nationalities are also shown. Since 2009, returning Irish nationals have outnumbered immigrants from EU-12 countries.

TABLE 1 Immigration, Revisions and Gross Data by Origin, 2007-2011

	2007	2008	2009	2010	2011	Total 2007-2011
	Revisions to Immigration by Origin, 000s					
Irish	10.7	7.6	4.6	4.6	2.5	30.0
EU-12	32.6	21.0	7.6	3.5	1.1	65.8
Rest of World[1]	-1.8	1.1	4.1	3.1	7.3	13.8
Total	41.5	29.7	16.3	11.2	10.9	109.6
	Immigration by Origin, 000s					
Irish	30.7	23.8	23.0	17.9	19.6	115.0
EU-12	85.3	54.7	21.1	9.3	10.1	180.5
Rest of World[1]	35.1	35.0	29.5	14.7	23.6	137.9
Total	151.1	113.5	73.6	41.9	53.3	433.4

[1] All countries excluding Ireland and EU-12.

Sources: CSO (2011, 2012a), *Population and Migration Estimates*.

Revisions to Emigration

Unlike immigration, the revisions to emigration for Irish and EU-12 nationals were small, with a combined 1,100 fewer leaving Ireland according to *Census 2011*. However, as detailed in Table 2, emigration by all other nationalities for 2007-2011 was underestimated by 23,800. Gross emigration data shows emigrating Irish nationals as a share of total emigrants rose to 53 per cent during the year to April 2012; this is above the average share of 40 per cent for the period since *Census 2006*. The recent trend of large annual increases to emigration by Irish nationals has not been replicated amongst the non-Irish nationalities.

TABLE 2 Emigration, Revisions and Gross Data by Origin, 2007-2011

	2007	2008	2009	2010	2011	Total 2007-2011
	Revisions to Emigration by Origin, 000s					
Irish	-0.2	-0.3	0.8	1.2	1.8	3.3
EU-12	-1.8	-1.6	0.4	-0.1	-1.3	-4.4
Rest of World[1]	6.1	5.7	5.6	2.8	3.6	23.8
Total	4.1	3.8	6.8	3.9	4.1	22.7
	Emigration by Origin, 000s					
Irish	12.9	13.1	19.2	28.9	42.0	116.1
EU-12	12.6	17.2	30.5	19.0	13.9	93.2
Rest of World[1]	20.8	18.7	22.3	21.3	24.7	107.8
Total	46.3	49.0	72.0	69.2	80.6	317.1

[1] All countries excluding Ireland and EU-12

Source: CSO (2011, 2012a)

Overall, the underestimation of net migration for 2007-2011 was 26,700 for Irish nationals, 70,200 for EU-12 countries (both net inward migration) and 10,000 net outward migration of all other nationalities, combining to 86,900 net inward migration for the period. 2010 and 2011 saw net outward migration of 27,400 and 27,300 respectively, and preliminary CSO estimates for 2012 suggest this has widened further to 34,400. The vast majority of net emigrants are Irish nationals, estimated at 25,900 in 2012. Since peaking at 247,700 in 2008, the revised population of EU-12 citizens living in Ireland has fallen to an estimated 229,400 for 2012. As a share of the total population, EU-12 nationalities comprised 5.5 per cent in 2008, compared to 5 per cent in 2012.

Revisions to the Labour Force

The labour force data based on the *QNHS* have also been revised for the inter-censal period. The definitions of indicators used in the survey were updated to align with those of the EU Commission, and the weighting procedure was further refined (CSO, 2012b). The weighting adjustment aims to rectify previous limitations which considerably underestimated the non-Irish national population.

Table 3 details the 2011 population by age group, with the change of population since *Census 2006* and the post-census revisions also shown. As noted by the CSO (2012b), those aged 20-24 have an above-average unemployment rate, which stood at 29 per cent for the third quarter of 2012.

Although the sizes of most age cohorts have increased since 2006, falling fertility rates during the 1980s and higher net emigration have decreased the number of

young adults in Ireland during the inter-censal period. The reduced age cohorts were for those aged 15-19, 20-24 and 25-29, falling by 9,900, 48,900 and 12,300 respectively.

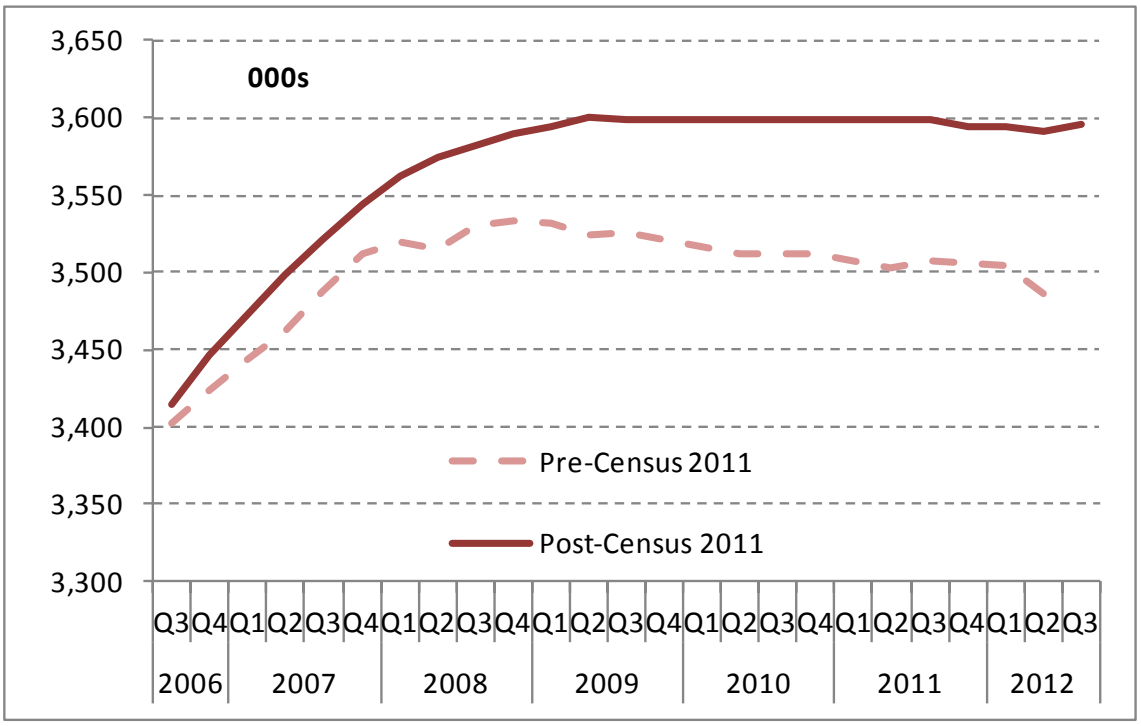
TABLE 3 Population by Age Group in 2011, Post-census Revisions and Change Since 2006

	Population According to *Census 2011*	Revisions to *Population and Migration Estimates 2011*	Change of Population, *Census 2006-2011*
Age		000s	
0-4	356.0	*-11.0*	53.7
5-9	319.6	3.1	31.1
10-14	301.0	1.9	26.8
15-19	281.0	11.9	*-9.9*
20-24	298.6	49.1	*-48.9*
25-29	362.9	*-1.0*	*-12.3*
30-34	393.4	5.2	45.5
35-39	363.1	15.5	42.7
40-44	329.3	8.9	29.5
45-49	304.1	0.5	30.3
50-54	273.7	0.8	27.3
55-59	243.4	*-0.4*	19.5
60-64	217.1	*-1.3*	37.3
65-69	172.1	1.6	30.9
70-74	130.1	3.1	12.6
75-79	101.4	3.2	10.0
80-84	69.8	2.0	5.4
85+	58.2	*-2.4*	10.4
Total	4,574.9	90.6	341.9

Source: CSO (2006, 2011, 2012).

Following *Census 2011* the working-age population (those aged 15 and over) for the second quarter of 2011 was revised upwards by 96,400, to 3,599,100 (an increase of 2.8%). Overall, the population aged under 45 was revised upwards by 89,200, and by 7,200 for those aged 45 and above. Figure 2 shows the working-age population since the third quarter of 2006; the latter half of the year were revised as *Census 2006* was conducted in April. The rate of decline is shown to be smaller than was previously estimated, remaining broadly stable at 3,600,000 since the second quarter of 2009.

FIGURE 2 Working-Age Population (Aged 15 Years and Over), Q3 2006-Q3 2012



Sources: CSO (2012b).

Based on the revised series for working-age population, the estimates of both employment and unemployment have been adjusted upwards. For employment, the differences range from 20,300 (1 per cent) in 2007 to 39,400 (2.2 per cent) in 2011. Due to the concentration of some of the population revisions in age groups at high risk of unemployment, there are higher estimates for both the unemployment level and rate. For the second quarter of 2012, revisions estimated an additional 14,500 adults that were unemployed in the country, while the seasonally adjusted unemployment rate increased to 14.9 per cent from 14.8 per cent previously published (CSO, 2012b and 2012c). The revisions also show that the seasonally adjusted participation rate fell below 60 per cent in the second and third quarters of 2012, representing a nine-year low.

Conclusion

Revisions to the annual *Population and Migration Estimates* for 2007-2011 have highlighted the extent of gross inward migration flows that took place in the latter stages of the expansionary years. In total, 109,600 (more than a quarter of all immigrants for 2007-2011) were previously absent from population estimates. The underestimation of emigration was far less pronounced. The labour force implications are higher estimates of employment, unemployment and the unemployment rate over the revisions horizon, and a broadly stable working-age population over the past three years. The revisions were largely concentrated in age groups characterised by high unemployment and emigration levels. Given the

broadly static labour market prospects alluded to in this *Commentary*, high flows of net outward migration are likely to persist for several years to come.

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Research Bulletins

Maternal Smoking During Pregnancy and Child Well-Being: A Burning Issue

*Cathal McCrory and Richard Layte[1]

It is well established that smoking can damage your health. Nonetheless, around one third of the Irish population continue to smoke. Irish research (Brugha *et al*., 2009) suggests that most smokers want to give up and half will have tried in the last year but nicotine is a notoriously addictive substance. One measure of its addictiveness can be gleaned from the fact that around 18 per cent of pregnant women smoke at some point during their pregnancy and 13 per cent continue to smoke right through. A positive message to emerge from recent research is that the rate of smoking in pregnancy in Ireland has fallen over time. Data from the *Growing Up in Ireland* study show that whilst 28 per cent of mothers whose children were born between 1997 and 1998 reported that they smoked during pregnancy, this had fallen to 18 per cent of mothers whose children were born in 2007. This is a decrease of over 35 per cent in the proportion of women smoking during pregnancy. Evidence from the Slán Survey (Brugha *et al.,* 2009) suggests that smoking rates among women under 45 have declined by less than 5 per cent over the same period, suggesting an increasing sensitivity to the dangers of smoking during pregnancy.

Cigarettes contain a harmful cocktail of compounds including nicotine, sulphides, cyanide, cadmium and a host of carcinogenic hydrocarbons that are known to be toxic to foetal development. Smoking in pregnancy is the most important determinant of low birth weight in developed countries but there is now increasing evidence that it is also associated with longer term physical and neurobehavioral development. A number of international studies have suggested that smoking in pregnancy is associated with an increased risk of childhood behavioral problems, particularly externalizing disorders such as conduct problems and attention deficit and hyperactivity disorder. Evidence had already shown that exposure to nicotine led to heightened tremors and startles and to more irritability in early infancy and results from the Millennium Cohort Study in the UK (Hutchinson *et al*., 2010) and the Early Childhood Longitudinal Study in the US (Boutwell & Beaver 2010) have also found that foetal exposure to cigarette smoke is associated with a significantly higher risk of behavioral problems in later childhood.

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An obvious challenge for research in this area is that smoking during pregnancy is also strongly associated with social disadvantage and deprivation, which are themselves independently associated with behavioral problems among children. It is not ethical to expose children to cigarette smoke in pregnancy to test this relationship as part of a scientific experiment so the UK and US research studies mentioned above followed a sample of children over time to observe whether externalizing problems are more likely to emerge after exposure to cigarette smoke whilst statistically adjusting for measures of social disadvantage.

The *Growing Up in Ireland* study provides an excellent opportunity to look at this relationship for Ireland as it has information on maternal smoking in pregnancy as well as a wide range of other measures. These allow us to examine whether smoking conveys an increased risk for behavioral problems when we take account of these social factors. Importantly, the study collected information on the mother's level of smoking in pregnancy and this provides us with an important additional tool with which to corroborate the causal relationship between exposure to cigarette smoke in the womb and behavioral problems at age 9. If the strength of the relationship between smoking and behavioral problems increases with the level of maternal smoking, this is more persuasive than a simple association.

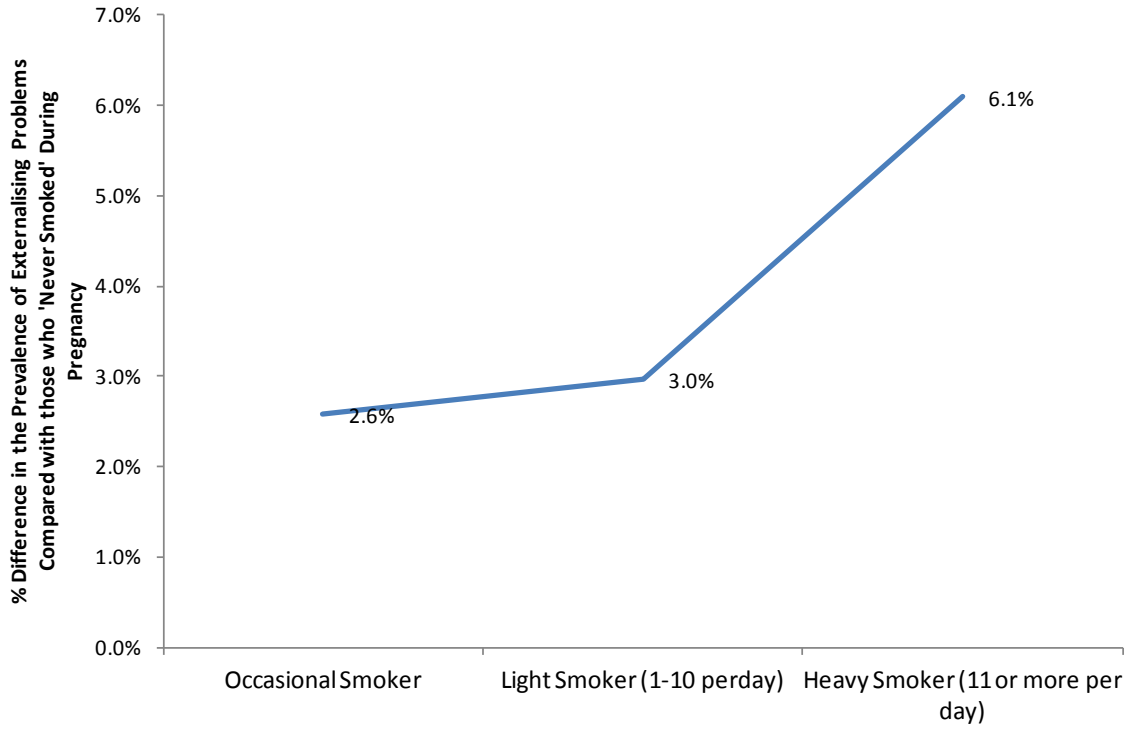
In a paper recently published in the Journal of *Abnormal Child Psychology*, Cathal McCrory and Richard Layte (McCrory & Layte 2012) did just this. They showed that the risk of the child being reported by his/her teacher as having conduct, attention or hyperactivity problems at age 9 was significantly related to whether the mother smoked during pregnancy and, moreover, that the risk increased with the number of cigarettes smoked during pregnancy. The relationship is shown graphically in Figure 1.

This evidence adds further weight to existing findings from both cohort studies of children and from clinical studies of the impact of cigarette smoke on brain development in the womb (Shea & Steiner 2008) and its relationship to child behavioral problems. Smoking is already an important contributor to social inequalities in health and mortality, but this research suggests that it may also damage the life chances of children whose mothers smoked during pregnancy. Research by the same authors (Layte & McCrory 2012) has shown that behavioral problems reduce educational development, which may compromise life-time opportunities open to those children.

The drop in smoking during pregnancy observed over the last decade or so is a positive development for public health policy and reflects growing awareness

among women that smoking is hugely damaging both for the mother and her baby. However, the fall in smoking is not evenly spread and is increasingly heavily concentrated among mothers from more disadvantaged backgrounds. Research shows that these mothers tend to smoke more heavily on average and are more likely to live with other smokers, with the consequence that they find it far harder to quit. Research from the UK also suggests that a complex interplay of factors, including social disadvantage, dysfunctional relationships, and poor maternal mental health is implicated in maternal smoking during pregnancy (Graham *et al*. 2006; Wakefield *et al*. 1993). These factors need to be recognized when designing interventions to help women reduce smoking during pregnancy, perhaps by involving partners and family members in the process of quitting and increasing awareness of the potentially damaging effects of smoking on the psychological health and life chances of children.

FIGURE 1 Difference in the Percentage of 9-year-olds Scoring Above the 90th Percentile on the Externalising Dimension (Conduct problems and Attention problems) of the SDQ by Level of Maternal Smoking during Pregnancy (*Teacher-Report*)



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The Macro-Economic Effects of Raising Revenue through Different Taxes

John FitzGerald*

All taxes have negative effects on the economy, but some taxes have particularly harmful effects on employment and GNP. A recently published article[1] considers the impact on the economy of raising revenue through three different tax instruments: a carbon tax, a lump sum tax (similar to a flat property tax) and taxes on income.[2] In the article each of the three taxes were increased by a similar amount, so as to reduce government borrowing, ex ante, by around 0.5 per cent of GDP. This means that the macro-economic effects of each tax change can be directly compared. The article then analysed the medium-term macro-economic effects of these three different tax changes using the ESRI's *HERMES* model of the Irish economy. In each case the results of the tax increase is compared to a "no policy change" scenario.

The key factor affecting differences in the macro-economic effects of the taxes was how they affected the labour market. With a very elastic supply of labour – a distinctive aspect of the Irish labour market – a tax on income tends to be passed on as higher wages in the medium term as labour supply is reduced. For example, spouses of many current employees face high marginal tax rates, which may discourage some of them from working; young workers may be attracted to other labour markets with lower taxes.

Because the manufacturing sector is a price taker on the world market, an increase in labour costs adversely affects its international competitiveness and it is likely to result in a significant reduction in employment. At times of high unemployment, such as today, the pass through of taxes to higher wages may be attenuated, but in the medium term employees, many of whom are mobile, will continue to bargain in terms of real after tax wages. The results in the article suggest that, in the medium term, the rise in taxes on income would reduce GNP by nearly 0.4 per cent and employment by 0.6 per cent (Table 1).

In the case of a lump sum tax (flat property tax) there is no direct change in work incentives. For example, the benefits of paid employment for spouses are unaffected by the tax. All of the initial impact of the tax is on personal income so that there are negative effects on consumption. However, as shown in the Table,

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the effects on employment are more moderate than for a tax on income (-0.1 per cent) and, hence, the negative impact on GNP is also lower at -0.2 per cent.

In the case of a carbon tax the bulk of the incidence falls on capital, not labour and it has much more limited negative effects on employment than a tax on income. While there is some loss of output, it is more concentrated in energy intensive than in employment intensive sectors. As well as having less negative effects on GNP and employment than taxes on income, a carbon tax would result in a significant reduction in emissions of greenhouse gases (Table 1). A carbon tax has a more limited impact on consumption than a lump sum tax and, as a result, it has a less damaging effect on economic activity. Whatever the full economic impact of a carbon tax in the long run, it is still the cheapest way to reduce emissions. Other policy instruments may achieve similar or larger emission reductions, but necessarily at a higher cost.

The analysis in the article is valid for changes in taxation of the kind undertaken during the current episode of fiscal adjustment. However, if the increase in the carbon tax were very large, the negative competitiveness effects could be magnified. This is particularly the case if the price of carbon in Ireland were to be significantly different from that in neighbouring countries.

This article found that a key channel through which tax changes affect the economy is through changes in the international competitiveness of manufacturing and services. In the article it was suggested that if a carbon tax was increased and the revenue used to reduce taxes on income there would be a real “double dividend” for Ireland – higher growth (and employment) and lower greenhouse gas emissions. While there is, today, no scope for reducing any taxes, these results do suggest how the tax system of the future could be made more employment friendly.

TABLE 1 Medium-Term Effects of Tax Changes, Percentage Change from Baseline

	Carbon Tax	Income Tax	Lump Sum
GDP, volume	-0.21	-0.60	-0.27
GNP, volume	0.07	-0.37	-0.20
Output			
Market services, volume	-0.24	-0.76	-0.35
Manufacturing, gross volume	-0.34	-0.61	0.03
Employment	-0.07	-0.59	-0.10
Wage rate, non-agriculture	0.20	1.06	-0.06
Consumption, constant prices	-0.26	-0.88	-0.93
Balance of payments, % of GNP	0.35	-0.33	0.41
CO_2 excl. electricity & aviation	-2.02	-0.50	-0.35
Tax incidence, %			
Capital, domestic	39	23	20
Capital, foreign	38	14	1
Labour	12	46	5
Other personal income	12	16	74

[1] Conefrey, T., J. FitzGerald, L. Malaguzzi Valeri, R. S J. Tol, 2012. "The Impact of a Carbon Tax on Economic Growth and Carbon Dioxide Emissions in Ireland", Journal of Environmental Planning and Management, pp 1-19. DOI:10.1080/09640568.2012.709467.

[2] Similar details of the macro-economic effects for other public finance public finance measures are given in: Bergin, A., T. Conefrey, J. FitzGerald and I. Kearney, 2010, "The Behaviour of the Irish Economy: Insights from the HERMES Macro-Economic Model", ESRI Working Paper 287, Dublin: Economic and Social Research Institute.

Telecommunications Consumers: A Behavioural Economic Analysis[1]

Pete Lunn*

The digital revolution offers opportunities for communication and entertainment that previous generations would doubtless have envied. Yet telecommunications markets, especially those for broadband internet and mobile, have become the subject of rising customer complaints in recent times. Offerings have become increasingly innovative, complex and difficult to compare. The majority of consumers remain reluctant to shop around and a large proportion fail to choose the best deals. Behavioural economics offers insights into how modern telecoms consumers make these decisions, and what might be done to help them.

Telecoms markets have four properties that, in combination, are unique. First, broadband internet and mobile products are effectively four products bundled into one: hardware, software, network and tariff structure. Consequently, judgements of overall product quality are highly complex. Second, the ultimate value to the consumer depends on the experiences the product offers access to, such as social interaction, instant information and online entertainment, rather than what the company itself provides. Third, the rapid development of new digital technology means that each time the consumer returns to the market, it has changed. Fourth, unlike any other product, mobile devices mean that consumers make purchase decisions numerous times throughout the day. In effect, telecoms consumers now sign up for always-on consumption of a variety of immediate experiences at zero-interest credit.

The upshot of these four properties of the modern telecommunications market is that consumers find it difficult to assess the benefits of different offerings accurately. Such assessment requires consumers to judge complex products, to choose between services and devices with features that are new to them, to predict their own future usage and, then, to stick to that usage. Thus, the decision-making environment faced by modern telecoms consumers is very challenging.

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This analysis may help to explain the low rates of switching found in the market. Reluctance to switch providers in search of better value is often put down to some kind of "irrational" loyalty to the present provider, or merely to hassle or inertia. Yet an alternative possibility is that many consumers do not feel competent to decide on which package, from among the very many alternatives, offers best value. Behavioural economic research shows that when decision-makers do not feel competent in any domain they become particularly risk-averse, reacting to the possibility of making a costly mistake. If so, then the standard advice to consumers to shop around in search of value may not be appropriate, or could even backfire by making mistakes more likely.

Indeed, international evidence suggests that a large proportion of telecoms consumers, even in choices between just three or four offerings, choose the wrong option for their usage pattern. The value lost can be large: estimates suggest that providers make around twice as much profit from those consumers who pick the wrong tariff.

Behavioural research offers insights into why many consumers fail to choose tariffs that match their usage. The likely culprits are lack of self-control and overconfidence. Most of us find it hard to resist immediate temptations for which we pay a price at a later stage. Regarding internet and mobile use, self-control problems are likely to be compounded by services and content that may be partly addictive, such as gambling opportunities, gaming, social networking, shopping or pornography. Behavioural research also shows that people are overconfident in how accurately they can predict future outcomes, underestimating the likelihood of extreme outcomes. Aware of the dangers of building up large bills, some consumers seek pre-commitment strategies to constrain or insure against their own future behaviour, e.g. pre-pay, flat-rates, usage limits, etc.

These behavioural phenomena help to explain the popularity of "three-part tariffs", where consumers pay a standing charge, a flat rate for a bundle of usage allowances, then penalty rates if they exceed an allowance. These tariffs are attractive both to consumers who are trying to constrain their usage and to those who are confident in their ability to predict and control it. In the event, however, a high proportion of consumers of broadband and mobile phone services choose the wrong three-part tariff, either suffering penalty rates or, more commonly, paying for ongoing levels of service that they do not use. The losses to consumers appear to be substantial.

What might be done to protect telecoms consumers and to help them to make better decisions? One possibility is simply to place regulatory limits on penalty

rates for exceeding allowances. A less interventionist approach is to mandate certain forms of feedback to consumers. Providers could be required to make certain disclosures when consumers choose between tariffs, such as the percentage of consumers who exceed the allowances each month. Since they already trade on a sophisticated range of interactive services, providers could be mandated to give one-click access to easily interpretable data on remaining minutes, texts and megabytes, just as consumers can observe remaining power in a mobile phone battery. Or warning texts to consumers could be required at the point they are about to exceed allowances.

Digital communications technology is providing us with ever more entertainment and helping us to achieve routine tasks more easily. It can also help us to make better decisions about which communications services to use and how much to pay for them.

[1] This article presents a summary of: Lunn, P.D., 2012. "Telecommunications Consumers: A Behavioural Economic Analysis"*, Journal of Consumer Affairs*, published online, 30 November, 2012. The research forms part of the ESRI's Programme of Research in Communications, which is supported by the Department of Communications, Energy and Natural Resources and the Commission for Communications Regulation (ComReg).

The Impact of Foreign Direct Investment to China on Foreign Direct Investment to Other Countries

Laura Resmini and Iulia Siedschlag*

China has recently become a leading destination for foreign direct investment (FDI). The surge of FDI to China has followed its opening to the world economy and selective easing of capital controls. While the main motivation driving the increased inflows of foreign investment to China has been the availability of a large pool of low-cost labour, in recent years there has been a shift of inward FDI in China towards high-tech industries and services.

The success of China in attracting FDI has raised concerns that it may have come about at the expense of FDI to other countries and regions.

In a recently published paper[1], we provide empirical evidence to answer these concerns. This paper addressed the following key research questions: To what extent and how have FDI inflows to China affected FDI inflows to other countries, particularly the EU countries? Have these effects changed over time? Do these effects differ for market-seeking and efficiency-seeking FDI? Do these effects differ across existing host countries?

Using a theory-based gravity model and data over the period 1990-2004, the analysis indicates that, on average, over the analysed period, other things equal, FDI inflows to China have been complementary to FDI flows to other countries. However, this FDI creation effect has varied across country groups, being less strong in European countries than in the other host countries. Within the European Union, Central and Eastern Europe (CEE) countries have benefited less from this complementary effect. This result suggests that the geographic proximity of the CEE countries to the sources of FDI in Western Europe has not been sufficient to offset the attractiveness of China as a FDI destination. In addition, this research found that this complementary effect of FDI to China to FDI to other countries has decreased over time.

Furthermore, this research uncovered that increased FDI to China has encouraged both market-seeking and efficiency-seeking FDI to other countries.

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Again, these effects have varied across country groups. It appears that in the case of more advanced EU economies, in comparison with non-EU countries, the FDI creation effect has been less strong in the case of market-seeking FDI and stronger in the case of efficiency-seeking FDI.

A more in-depth analysis of country specific effects found that, on average, the FDI creation effect prevailed. However, there were a number of cases in which FDI to China diverted FDI from other host countries. For example, while, over the analysed period, FDI to China has complemented FDI to Italy, Spain and Sweden, it has substituted bilateral FDI flows between Austria, Germany, Belgium, France, the Netherlands, the United Kingdom and between Greece and Portugal. Furthermore, it appears that FDI to China has substituted bilateral FDI flows between the Baltic countries (Estonia, Latvia, Lithuania), and between Poland, Hungary and the Slovak Republic.

In the case of Ireland, this analysis showed that, on average, over the analysed period, the FDI to China has fostered FDI to Ireland. It appears that the FDI to China has led to less FDI to Ireland from Belgium and France. However, this substitution effect has been weak.

This empirical evidence suggests that while the FDI to China has fostered FDI to other countries located all over the world, FDI to China has substituted FDI among similar countries located in the same geographic area.

Taken together, this research suggests that future effects of FDI to China on FDI to other countries are likely to foster as well as substitute FDI to other countries. To the extent that China's high growth rates will persist, China is likely to attract more market-seeking FDI and less efficiency-seeking FDI. While the effects of FDI to China on FDI to other countries are likely to persist over time, country specific effects will change depending on the evolution of international production networks.

[1] Laura Resmini and Iulia Siedschlag, "Is Foreign Direct Investment to China Crowding Out Foreign Direct Investment to Other Countries?", *China Economic Review*, Published online on 20 December 2012, http://dx.doi.org/10.1016/j.chieco.2012.12.003.

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