

# Ireland's Competitiveness Scorecard 2014





## Introduction to the National Competitiveness Council

The National Competitiveness Council was established by Government in 1997. It reports to the Taoiseach and the Government, through the Minister for Jobs, Enterprise and Innovation on key competitiveness issues facing the Irish economy and offers recommendations on policy actions required to enhance Ireland's competitive position. Each year the NCC publishes two annual reports.

- Ireland's Competitiveness Scorecard provides a comprehensive statistical assessment of Ireland's competitiveness performance.
- Ireland's Competitiveness Challenge uses this information along with the latest research to outline the main challenges to Ireland's competitiveness and the policy responses required to meet them.

As part of its work, the NCC also publishes other papers on specific competitiveness issues. The work of the National Competitiveness Council is underpinned by research and analysis undertaken by Forfás - Ireland's policy advisory board for enterprise, trade, science, technology and innovation.

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## Taoiseach's Foreword



Since my government took up office in 2011, the economic and fiscal challenges confronting the country have been manifold. We have worked hard to restore Ireland's fiscal sovereignty, to help people get back into employment and to ensure that enterprise can access the credit it requires to grow.

While jobs and growth have been our mantra, competitiveness has been at the heart of everything we do. Only by ensuring that Irish based firms can compete successfully here and abroad can we create the employment and wealth necessary to improve the lives of all of our citizens.

This commitment to addressing and improving Ireland's competitiveness is evident in a range of actions contained in the most recent Action Plan for Jobs. Through in-depth engagement at Cabinet Committee level, a cross-departmental response has been developed to identify and address the competitiveness challenges facing enterprise. This benchmarking report is a key input into that process. The analysis it contains will help us to focus our discussions on those areas most in need of policy action.

While the path of economic recovery was always going to be a long and difficult one, we can take heart from the fact that we are going in the right direction. Our programme of fiscal consolidation is paying dividends, the labour market has returned to growth and Irish companies continue to perform strongly in overseas markets.

And the international community has taken note of our efforts too. Our international reputation has been restored. Our traditional strengths remain - Ireland is a good place to do business, with a well-educated workforce, a responsive and responsible regulatory system, and a pro-enterprise environment. Many of these factors are reflected in Ireland's improved performance in the various international competitiveness rankings - for example, in the IMD's World Competitiveness Yearbook we have improved from 24<sup>th</sup> position in 2011 to 15<sup>th</sup> this year. Our journey, however, is not yet complete. If Ireland is to really become the best small country in the world in which to do business, we must continue to tackle those factors which impact negatively on our competitiveness.

The National Competitiveness Council has highlighted five key areas for our attention - maintaining our fiscal probity; embedding skills and tackling structural unemployment; improving credit flows to enterprise; developing and broadening our base of firms; and relentlessly pursuing cost competitiveness. The cross-cutting nature of these areas emphasises the whole-of-Government response that is required.

In reiterating my Government's commitment to take the necessary action to improve Ireland's competitiveness, I would like to thank the Council for producing this highly valuable report which provides a solid analytical foundation for competitiveness policy development and delivery.

Enda Kenny, T.D.,  
Taoiseach

## Chairman's Preface

### *Ireland Cannot Ignore Lessons from History: Address Weaknesses Today to Protect Competitiveness and Jobs Tomorrow*



When the Council last published a benchmarking report in 2012 there were tentative indications that the Irish economy was emerging from the economic difficulties of the previous few years. Encouragingly, many of the indicators in this year's *Competitiveness Scorecard* point toward a further strengthening of Ireland's position during 2013. Improvement is most notable, for example, in our improved labour market performance and the downward trend in unemployment; our continued success in export markets; and the welcome but modest increase in consumer demand - the

first such increase in several years.

These factors combined with the restoration of the State's borrowing capacity on financial markets and our improving fiscal situation provide for a degree of comfort as we look to the future. They also speak of a job well done (if not yet complete) in terms of renewing Ireland's competitiveness and putting us on a sound footing for growth. Indeed, this sense of opportunity is reinforced by the generally positive global economic outlook, particularly among the world's most advanced economies that represent Ireland's most important trading partners.

Ultimately, Ireland's economic and social progress depends on the ability of our exporting enterprises. It is essential, therefore, that we maintain our traditional strengths (for example, in areas such as the attraction of foreign direct investment and domestic sectors such as agri-food) whilst simultaneously addressing areas of concern including the increasing cost of doing business. The *Scorecard* focuses attention on those areas of performance most susceptible to policy action. This year, based on a comprehensive analysis of 120 indicators, the National Competitiveness Council has identified five challenges which must be addressed if we are to enhance Ireland's international competitiveness performance.

Firstly, at the macro-economic level, we must continue our hitherto successful programme of fiscal consolidation. In the absence of stable, healthy public finances competitiveness suffers, productivity enhancing investment is delayed, investor confidence is damaged and capital markets are adversely affected. The commentary around a country's macroeconomic performance also shapes perceptions and reputations. A sound fiscal base, therefore, is a prerequisite if Ireland is to be viewed internationally as a good place in which to do business. We need to guard against a tendency to be complacent about the public finances notwithstanding the considerable successes achieved to date in implementing corrective actions. Our public debt levels continue to be exceptionally high. Servicing the debt claims over 14 per cent of tax revenues. Additionally our high debt levels leave us very vulnerable to any adverse developments in international financial markets. Secondly, despite the fall in unemployment, labour market issues continue to detract from Ireland's competitiveness performance. Sustained high levels of structural unemployment coupled with falling participation rates erode our skills base. The human and social costs of high levels of unemployment, particularly long term unemployment, are an affront to a civilised society. The financial cost of large scale unemployment also places a significant burden on already over-stretched public finances. From a demand-side perspective, a number of skills deficits persist despite the large numbers of unemployed workers. Addressing this skills availability challenge is an



essential part of enhancing the international view of Ireland as an ideal location in which to invest in high tech sectors with a plentiful supply of high skilled workers.

Thirdly, Ireland's enterprise base must continue to evolve. While the resilience of our exporting sector has been one of the economy's greatest strengths since the onset of the recession, this does not obviate the need to develop a more sustainable, broad-based enterprise base. The challenge is to grow new sectors, expand into new markets and produce new products. This will require an enterprise environment that supports continued foreign investment and increases the export capacity of indigenous firms. Greater integration of Irish firms into global value chains, enhanced levels of entrepreneurship and productivity as well as mechanisms to facilitate greater investment in early stage ventures will all be key elements in any strategy to grow the enterprise base.

Fourthly, notwithstanding recent improvements, the whole area of credit for enterprise requires further attention. While demand for credit has remained sluggish in Ireland, limited access to credit, and the associated high costs, is acting as a drag on the enterprise sector, inhibiting investment and growth, particularly amongst start-ups and SMEs. Limited credit flows in the economy damage the environment for entrepreneurship and limit the scope of firms to expand their operations. New and expanding firms are the primary employment creators in the economy and are major generators of revenue for the State. They are also key drivers of productivity and are important sources of technological and process innovation. Through spillovers, these innovations ultimately benefit the wider economy. A number of initiatives that aim to address these issues are in place such as Microfinance Ireland and the Seed Capital Scheme, while further actions are scheduled to be launched shortly. The need to monitor the uptake and effectiveness of these schemes, and identify further areas for action if required should remain an ongoing part of the agenda of Irish policymakers.

Finally, the Council is once again highlighting the need for vigilance with regard to cost competitiveness. A range of indicators suggest Ireland has already begun to slip in terms of our relative cost competitiveness, following a period of improvement during the recession (e.g. recent increases in labour costs, energy, business services, health, education and other public service costs, and house prices). There is a risk that a lack of corrective action now will result in lost cost competitiveness.

To reap the benefits of the nascent recovery, we must remain vigorous and alert in our drive to enhance Ireland's international competitiveness. While many of the indicators benchmarked in this report suggest that we are once again moving in the right direction, we cannot afford to ignore the lessons from previous mistakes. A return to economic growth in the present should not blind us to the longer term challenges which persist and which are highlighted throughout this report. Failure to address similar constraints and to heed warning signs during the last decade directly contributed to Ireland's recent economic difficulties. Only through the vigilant monitoring of all aspects of Ireland's competitiveness performance, can we develop the policy responses necessary to safeguard Ireland's economic wellbeing.

This report provides the evidential base to assist policy makers to identify the key challenges confronting Irish enterprise. The Council will discuss these issues and put forward proposals to address them in its annual policy document Ireland's Competitiveness Challenge which will be published later this year.



I would like to conclude by thanking the Council members and advisers and to recognise their valuable contributions throughout the development of this report. I would also like to acknowledge the invaluable work of Forfás staff members in preparing this report.

Dr Don Thornhill

Chairman, National Competitiveness Council

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# Chapter 1

## Overview of Ireland's Competitiveness

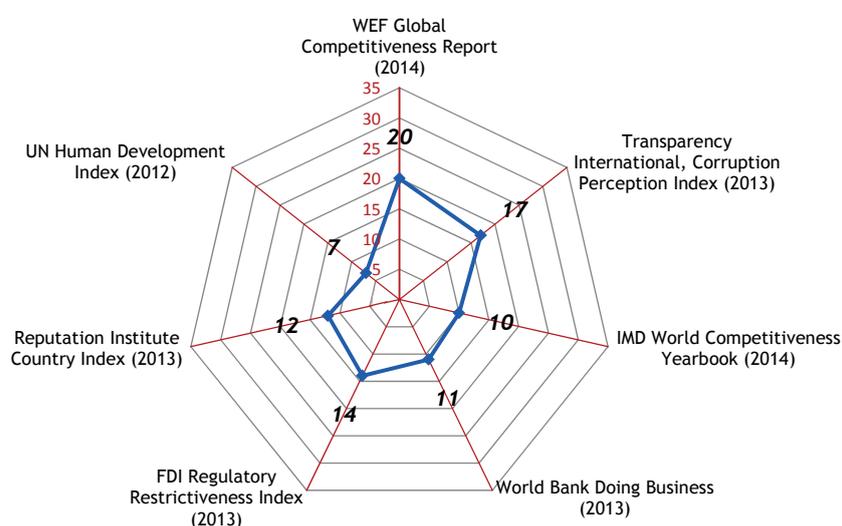
# 1. Overview of Ireland's Competitiveness

## International Competitiveness Comparisons

Competitiveness is a complex concept incorporating a myriad of interlinked and interdependent factors. This is reflected in the fact that Ireland's Competitiveness Scorecard analyses over 120 indicators. These indicators measure a range of inputs, outputs and outcomes. Given the disparate nature of these indicators, the National Competitiveness Council does not attempt to create a single quantifiable measure of competitiveness - rather, each indicator is examined individually. Thereafter, taking a birds-eye view of all the data collected, the Council can draw the various straws of analysis together to present a comprehensive picture of Ireland's international competitiveness performance.

There are, however, a range of international bodies operating in the competitiveness space that do attempt to measure and condense all of the complexity of competitiveness into a single metric or ranking. While methodologies differ, they can provide a useful insight into how external observers view Irish performance vis-à-vis our key trading partners and competitors. Figure 1.1 presents Ireland's ranking from amongst the 32 OECD member states (excluding Mexico and Turkey) across a range of international indices, while Figure 1.2 examines how Ireland's ranking has evolved in recent years in three of the most high profile and competitiveness-relevant indices. In Figure 1.1 a ranking of 1 (i.e. close to the centre of the chart) implies that Ireland is deemed to be the most competitive in the OECD.

Figure 1.1: Overview of Ireland's international competitiveness rankings amongst the OECD

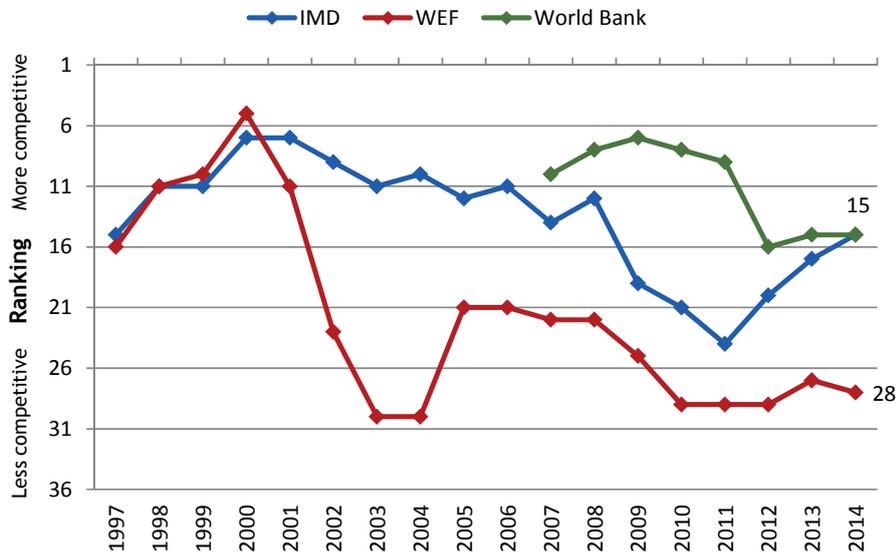


These indices cover a number of policy areas - some based on directly measurable aspects of policy (e.g. the World Bank Doing Business Index); others measure softer, more subjective issues such as reputation; indices such as the IMD and WEF competitiveness indices capture a mixture of both. In general, Ireland is a mid-table performer across all of the indicators. Only in the UN's Human Development Index does Ireland break into the top tier of performers.

As shown in later sections, Ireland's macroeconomic performance declined markedly with the collapse of our property bubble and the onset of the global financial crisis and ensuing international recession. From the unparalleled highs of the Celtic Tiger era to the large scale unemployment and growing debt burden of the recession, the Irish economy has endured massive fluctuations. These

macroeconomic weaknesses have had a significant impact upon Ireland’s standing in several international competitiveness rankings.

Figure 1.2: Ireland’s international competitiveness rankings: Change in global rankings, 1997-2014



All three indices included in Figure 1.2 illustrate the impact of the recession on Ireland’s international ranking - reflecting in the case of both the IMD and WEF the importance attached to outcomes-focused macroeconomic indicators. Over the last two years, however, Ireland’s performance has improved.

While these rankings are interesting and useful overviews of competitiveness, as noted, they can provide an over-simplified view of competitiveness - one that can miss the subtleties which appear from a closer examination of the various components of competitiveness.

The remainder of this chapter, therefore, builds on the Council’s Competitiveness Pyramid (Figure 1.3) to analyse the various factors that combine to determine a country’s competitiveness. Chapters 3, 4 and 5 examine the individual competitiveness indicators.

Figure 1.3: The NCC Competitiveness Pyramid



## Overview of Ireland's Competitiveness: Sustainable Growth

The indicators measured under the “sustainable growth” reflect the impact of policies targeting a range of policy inputs affecting the business environment, the stock of physical infrastructure and the supply of knowledge and human capital. These are also partially determined by the fluctuations of the international economy. Performance is also a reflection of the outcome on incomes and quality of life arising from a range of previous decisions across a host of policy areas.

### The long awaited return to growth<sup>1</sup>

After an extended period of recession, the Irish economy is once again growing: In 2012, eurostat data shows that GDP per capita grew by 1.9 per cent while GNP per capita grew by 3.5 per cent in PPP terms (Figure 3.2). The data for 2013 is somewhat mixed, with a slight decline (-0.4 per cent) recorded in GDP and a continued strong performance evident in GNP (3.3 per cent).

This data, allied to the restoration of the State's borrowing capacity and improved public finance sustainability, the downward trend in unemployment (see section 4.4) and the continued strength of the export sector (section 4.1) provides a clear indication that the Irish economy is on a more positive trajectory than at any stage since the beginnings of the international downturn and bursting of the Irish property bubble.

Table 1: Overview of Forecasts for Ireland, 2013-2015

	ESRI			D/Finance			Central Bank		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
<b>GDP</b>	-0.4%	2.6%	3.5%	-0.3%	2.1%	2.7%	-0.3%	2.0%	3.2%
<b>GNP</b>	3.3%	3.5%	3.7%	3.4%	2.7%	2.3%	3.4%	2.7%	2.6%
<b>Exports</b>	0.1%	3.7%	4.0%	0.2%	2.1%	3.2%	0.1%	3.0%	5.0%
<b>Unemployment</b>	13.1%	11.4%	10.1%	13.0%	11.5%	10.5%	13.1%	11.3%	10.4%

Source: ESRI, Quarterly Economic Commentary, Spring 2014; Department of Finance, Ireland's Stability Programme Update, April 2014; Central Bank of Ireland, Quarterly Bulletin, Q2 2014

Further, growth is becoming more balanced - whereas in recent years, net exports was the only positive contributor to growth, 2013 saw a resumption in consumer demand, whilst government investment held constant (Figure 3.3). The elimination of the current account deficit (Figure 3.4) also illustrates the progress made in rebalancing the economy, even though this is partly due to depressed imports and the size of the 2012 external surplus reported being exaggerated by the re-domiciling of some foreign companies to Ireland.

On the international front, global economic activity strengthened in the second half of 2013 and is expected to improve further in 2014-15; much of the impetus for growth is expected to come from advanced economies - a change from recent years when developing economies were the primary

engines of global growth. According to the IMF, growth in the euro area is expected to turn positive (particularly in Germany), driven primarily by supportive monetary policy conditions, reductions in the pace of fiscal tightening and an improved contribution from net exports. Restrictive credit conditions and the high corporate debt burden, however, will continue to act as a drag on growth. The US is expected to perform strongly in 2014, aided by a recovery in the domestic real estate market. In the UK, growth of almost 3 per cent is forecast for 2014. Overall, as an extremely open and trade-dependent economy (section 4.1), the health of the Irish economy is heavily determined by the performance of the wider global economic environment, and particularly by the strength of UK and US demand.

Table 2: European Commission GDP Forecasts

	2013	2014	2015
Global	3.0%	3.6%	3.9%
Advanced economies	1.3%	2.2%	2.3%
Euro area	-0.5%	1.2%	1.5%
US	1.9%	2.8%	3.0%
Emerging and developed economies	4.7%	4.9%	5.3%

Source: IMF, World Economic Outlook, April 2014

Despite the positive signs, however, concerns persist and the Irish economy remains fragile. First and foremost, the economy remains beset by a heavy debt burden. While significant improvements have been achieved in the public finances, a deficit of 7.2 per cent of GDP was recorded in 2013 (Figure 5.1). This is forecast to reduce further to 4.8 per cent of GDP in 2014. In 2014 in Exchequer terms, a primary deficit of about €1 billion is forecast, while in General Government terms, a primary deficit of €75 million is forecast<sup>2</sup>. The General Government balance is forecast to return to surplus in 2015<sup>3</sup>.

Nevertheless, general government debt remains amongst the highest in both the euro area and OECD (Figure 3.5). At 124 per cent of GDP in 2013, the European Commission believe that debt has peaked and a small reduction is expected in 2014. The high levels of non-financial corporation (business debt) and household debt pose a two-fold risk to the economy (Figures 3.7 and 3.8); as well as dampening both consumption and investment, there is a risk that further bank capitalisation will be required if SME and household arrears are to be comprehensively addressed - as illustrated in Figure 5.16, Ireland has the second highest “non-performing loan” (NPL) ratio in the OECD.

As will be discussed in greater detail in section 4.3, threats are also emerging in relation to the enterprise cost base. Despite recent cost improvements, Ireland remains a high cost location for a number of key business inputs (Figure 4.16). The economy is now at a turning point in terms of cost competitiveness, with overall relative cost competitiveness disimproving and a series of upward cost pressures emerging (Figure 4.18).

Finally, the labour market - despite the continuing reduction in unemployment - poses serious challenges with the ongoing risk that cyclical unemployment will evolve into structural unemployment. Concerns in relation to youth unemployment (Figure 4.36) and former construction workers appear most pressing at this juncture.

## The impact of the recession on quality of life and the environment

Ultimately, efforts to enhance competitiveness aim at delivering an improved environment for enterprise so that incomes increase and the quality of life improves for all of the country's residents. The quality of life measures included herein, therefore, complement more traditional measures of GDP.

Despite the severity of the recession, Ireland's strong welfare system has cushioned the impact of poverty to a degree. The proportion of people at risk of poverty after social transfers actually fell between 2007 and 2011 (Figure 3.10). Different family types have experienced contrasting fortunes - while the proportion of households with two employed adults being classified as at-risk-of poverty has declined in Ireland, the proportion of at-risk-of poverty single employed people has increased. Such relative measures of poverty, however, can mask the real impact of the recession - according to the OECD, while relative poverty did not increase in Ireland, "anchored" poverty increased between 2007 and 2010, reflecting reductions in disposable income amongst poorer households (i.e. anchored poverty measures poverty against a benchmark "anchored" to half the median real incomes observed in 2005 - keeping constant the value of the 2005 poverty line). In Ireland, households with youths aged between 18 and 25 years of age have been most adversely affected by the recession. In contrast, those aged over 65 have on average suffered the least impact in terms of increased poverty.

Looking at the impact of these developments on society, Ireland continues to perform well in terms of social cohesion (Figure 3.11) and in measures of life satisfaction (Figure 3.12).

The quality of a natural environment and the commitment to environmentally sustainable policies is a key determinant of quality of life. In this regard, Ireland has made some progress in decoupling its environmental footprint from economic growth - although per capita CO<sub>2</sub> emissions are still amongst the highest in the OECD (Figure 3.15). While the share of renewable energy production has grown (albeit from a low base), Ireland remains heavily dependent on oil (48%) to meet its energy consumption needs. Green energy (hydroelectric and renewables) accounted for 10 per cent of Irish energy consumption in 2012 compared to 16 per cent for the OECD-27 average, reflecting our high dependence on imported fossil fuels and very limited hydro potential. Waste generation per capita is amongst the highest in the OECD and there is a high reliance on landfills (Figure 3.17)<sup>4</sup>.

## Business Performance - Encouraging signs but embedded vulnerabilities remain

The performance of the business sector is critical to growing incomes and employment levels in Ireland. It also plays a crucial role in determining the stability of government finances and is a major source of government revenue - essential if the State is to continue to fund public services. Business performance is assessed under the themes of investment and trade.

Investment is a particularly important determinant of competitiveness - the propensity to which the State invests in infrastructure and the private sector invests in capital is directly related to the medium term productivity performance of the economy. The collapse in investment has been a particularly visible trend in recent years (Figure 4.1). Total investment (i.e. public and private) fell by 71 per cent between 2008 and 2013, the second largest decline in the euro area. While it is encouraging to note that there has been some growth since 2011, the recovery remains fragile, held back in part by the high debt levels amongst non-financial corporations (Figure 3.7). The dichotomy within the enterprise base between foreign-owned and indigenous firms in terms of their investment and trading performance represents one potential area for policy focus in the future.

Foreign Direct Investment has been a primary driver of Ireland's productivity and innovation performance for several decades, as well as a source of employment. As such, Ireland's attractiveness for FDI is closely related to its international competitiveness. Ireland continues to be an attractive location for foreign direct investment (FDI), and in terms of both FDI stock (Figure 4.2) and return on investment (Figure 4.3) we rank among the top three performers in the OECD. While some of the advantages that allowed Ireland to win initial investments from abroad during the 1980s and 1990s have been eroded (i.e. we are no longer a low cost location), many advantages remain. As noted throughout this report, it is vital that corrective action is taken where required to ensure that Ireland's business environment remains attractive to investors; issues of particular importance to the FDI sector include the development of the national innovation system; increasing the supply of highly educated workers; and successfully leveraging the agglomeration benefits offered by already established clusters<sup>5</sup>. Our ability to overcome challenges to Ireland's competitiveness in key areas such as business costs (including labour and energy costs etc.) and corporate tax structures (i.e. maintaining international competitiveness in relation to our corporate rate, reputation and regime through, for example, continued proactive engagement with the OECD's Base Erosion and Profit Shifting (BEPS) project) will also be crucial in enabling us to sustain and build upon the successful FDI performance to date. Ultimately, Ireland's attractiveness to investors (both foreign and indigenous) is shaped by a combination of factors which determine the environment for enterprise and our international competitiveness.

From a regulatory perspective, Ireland performs well in the OECD's FDI Regulatory Restrictiveness Index and is ranked 14th out of 32 countries (Figure 1.1). Based on the most recent data, the primary FDI restrictions in Ireland relate to equity restrictions<sup>6</sup>. However, as a significant proportion of Irish service exports are generated via Irish firms establishing foreign affiliates, the regulatory restrictiveness of other countries directly impacts upon the ability of such firms to pursue this business model. This highlights the importance to Irish enterprises of initiatives such as the EU-US Transatlantic Trade and Investment Partnership and other EU trade and investment negotiations.

At first glance Ireland's recent performance with regard to outward direct investment looks healthy, with stock levels as a percentage of GDP tripling in the five years to 2012 (Figure 4.4). However, a significant proportion of this growth can be accounted for by an increase in the number of corporate inversions to Ireland, as foreign-owned firms are redomiciled here<sup>7</sup>. As the recovery continues, it will be important that Irish-based firms expand their global footprint through material investment abroad in order to realise growth opportunities.

## A trading economy

For a small open economy like Ireland, generating export-led growth is the only sustainable strategy to secure long term growth and prosperity. Our ability to export successfully represents one of the key indicators of competitiveness. At the same time, the growth in trade which accrues through strong international competitiveness offers the opportunity to expand our enterprise base and grow incomes on a sustainable basis.

In the face of difficult global market conditions, Ireland's overall trade performance has remained largely positive since the recession, although a number of structural weaknesses need to be addressed to ensure sustainable longer-term competitiveness.

Ireland is one of the most open economies in the EU in terms of international trade (Figure 4.6). As well as substantial intra-EU trade, Ireland has significant trading links outside of the EU. Further

expansion into new markets and a deepening of trade links with the world's leading developing economies is required, again with sustainability in mind (Figure 4.7).

Ireland's share of world markets is a key measure of our international competitiveness and while Ireland has been successful in expanding its share of the world's services market, it is of concern to the Council that our share of the global merchandise market (and consequently our share of total world trade) has decreased (Figure 4.8). Some of this decline can be attributed to the one-off impact of the patent cliff<sup>8</sup>.

The concentration of our exports in a small number of sectors (Figure 4.10) and the domination of foreign-owned firms in Ireland's trading activities (Figure 4.11) creates additional vulnerabilities in our trading profile. FDI is largely responsible for Ireland's high participation in global value chains (Figure 4.13), and despite some impressive successes in the agri-food sector, domestic inputs to third country exports remain well below the OECD average, reducing the positive spill-overs into the economy. Developing greater linkages between domestic firms and multinationals based here, as well as increasing trade from domestic firms to foreign markets, is dependent on the ability of Irish-owned firms to enhance their competitiveness and outperform rival firms from overseas.

## **Productivity Growth - A prerequisite for employment creation and sustainable growth**

In the long run, an economy's productivity performance is the ultimate determinant of success. In a time of austerity and reduced demand, productivity offers significant potential to enhance competitiveness and living standards as it allows for sustainable pay increases without eroding cost competitiveness.

While Irish productivity levels improved considerably between 2008 and 2013 (Figure 4.14), previous NCC analysis showed that much of Ireland's performance during this period arose from changes in the composition of employment in Ireland during the recession (for example a collapse in the numbers employed in the labour intensive construction sector), rather than broad based productivity growth<sup>9</sup>. While it is encouraging to note that Ireland is one of the few benchmarked countries to demonstrate positive total-factor productivity since 2010 (a measure of an economy's long term technological dynamism) (Figure 4.15), tackling barriers to investment in high growth sectors is vital to support real and sustainable productivity growth leading to increased employment.

The ramping up of world trade as we emerge from the global economic crisis presents the potential for Ireland's productivity performance to be boosted by the increased competition and the diffusion of technology and skills. However, a range of domestic challenges remain to be tackled to ensure Ireland can achieve its productivity potential, for example enhancing the weak growth levels in net capital stock (Figure 5.24) particularly with regard to investment in machinery and equipment (Figure 5.25). It is encouraging to note that the ESRI has forecast a 2.5 per cent increase in the volume of machinery and equipment investment for 2014<sup>10</sup>. Since 2008, Ireland has seen a large fall-off in infrastructure investment. Given the ongoing programme of budget consolidation, sustained under-investment in infrastructure has the potential to act as a limiting factor with regard to future productivity growth. It is noted, however, that in relation to next generation broadband significant commercial investment is now taking place, and that further investment is planned, in the provision of high speed fixed line and mobile broadband services and that the Government has committed to a fibre based intervention to address areas where there is no commercial case for investment. Delivery of these initiatives is critical given Ireland's current performance (Figure 5.31).

The productivity of the labour force could also be boosted by improving Ireland's performance with regard to lifelong learning (Figure 5.45) and the maths and reading proficiency of the adult population (Figure 5.46).

### **Prices and Costs - A turning point for the economy's competitiveness**

While in the long run, productivity performance determines success, cost performance plays an important role in determining a country's ability to compete in international markets. A high cost environment weakens competitiveness in a number of ways - making Ireland less attractive in terms of foreign direct investment; making firms which rely on domestically sourced inputs less competitive when they are selling into foreign markets; and adversely impacting upon the cost of living with knock-on implications for wage demands. For this reason, the Council has given significant consideration to cost competitiveness in its annual Costs of Doing Business reports.

Ireland's cost base has improved across a range of metrics over the last number of years making Irish firms more competitive internationally and making Ireland a more attractive location for firms to base their operations. Particularly strong medium-term cost improvements are evident in the property sector (office rents) for example (Figure 4.25). However, despite low levels of inflation in recent years, Ireland remains a high cost location (Figure 4.16).

Despite the positive trend since the beginning of the recession, analysis from the Council earlier this year noted that the economy is now at turning point in terms of cost competitiveness<sup>11</sup>. The latest data shows that overall relative cost competitiveness has begun to disimprove and a series of upward cost pressures are emerging: the harmonised competitiveness indicators show that Ireland's relative cost competitiveness is now deteriorating vis-à-vis our main competitors (Figure 4.18); labour costs are rising again following a number of years decline - wage growth can boost domestic demand; from a competitiveness perspective, it is vital, however, that such growth is underpinned by productivity improvements (Figure 4.20); industrial electricity prices are above the euro area average and have increased since the global increase in gas prices from 2010 and the ending of the rebate for large energy users (Figure 4.27)<sup>12</sup>; and an upward trend is evident across a range of business service costs (Figure 4.30).

At present, weak economic growth continues to moderate inflation in Ireland, notwithstanding this a number of product groups stand out as having higher inflation rates than the euro area average - namely education, insurance and administered prices (Figure 4.17). Tight fiscal policy will continue to constrain inflation, while recent structural reforms (e.g. changes to sectoral wage-setting mechanism, revisions to the Retail Planning Guidelines, legal services reform, the Haddington Road Agreement) will also help to support cost competitiveness. Low rates of inflation (or possible deflation) across the whole euro area increase the difficulty of extending improvements in cost competitiveness through price reductions (i.e. the differential between Irish inflation and the euro area is negligible). As previously emphasised by the Council, further structural or policy induced changes are necessary to ensure that prices do not escalate and erode competitiveness as the Irish economy returns to stronger rates of growth.

## Employment and Labour Supply - Avoiding structural unemployment

Ireland's labour market evolution closely mirrors the evolution of the economy. Following an unprecedented expansion in both the labour force and in employment (and a parallel decline in unemployment), Ireland is once again confronted by large scale unemployment, long term unemployment, emigration and a host of related labour market challenges.

Following an extended period of rising unemployment, by mid-2012 the early signs of a recovery in employment were apparent. In 2013, this recovery ramped up with an annual increase of 3.3 per cent in the number in employment (Figure 4.33). As a result of strong employment growth, increased emigration (Figure 4.46) and a decrease in labour market participation (Figure 4.40), the numbers unemployed have decreased by 22.9 per cent since the unemployment peak in Q3 2011.

While the turnaround in employment trends is welcome, the high rate of long term unemployed (Figure 4.33) remains a significant challenge: as well as the risk of deskilling the individual (which can occur as a result of disengagement from the labour market), and the cost to the State of income maintenance, long term unemployment damages competitiveness in other ways, reducing the growth potential of the economy, damaging consumer confidence and resulting in a lower level of consumer demand. At the same time, however, the increased availability of labour - and more specifically the availability of skilled labour, combined with lower churn rates - can represent a competitive advantage.

The need to alleviate long term unemployment was noted by the OECD in its review of the Action Plan for Jobs. Having noted significant successes to date in achieving employment targets, the review warned that *"unless more is done to help the long-term unemployed find jobs ...there is a risk that some of the cyclical increase in unemployment may become structural"*<sup>13</sup>. While the Irish exchequer spends a significant amount on labour market programmes compared to the OECD average, expenditure on active labour market programmes remains low by international standards - the majority of Irish expenditure is related to passive programmes such as income maintenance (Figure 4.45). The OECD also highlighted the high rate of youth unemployment as a cause for concern. Unemployment amongst 15-24 year olds stood at 26.8 per cent in 2013, double the level in 2008 (Figure 4.36). Among the unemployed youth population, 43.8 per cent are considered long term unemployed (i.e. unemployed for more than one year). The cohort of young people not in employment, education or training (NEET) is also notably high in Ireland (16.7%) compared to the OECD average of 11.8 per cent (Figure 4.37).

Labour market participation rates have also declined from a peak of 64 per cent in 2007 to 60.4 per cent in 2013 (Figure 4.39). This reflects greater labour market inactivity. While the female participation rate remained relatively stable, the male participation rate - driven by the rise in unemployment amongst construction sector workers - has fallen from 74 per cent to 67.9 per cent.

As a consequence of the massive loss of employment and weak economic prospects, large scale emigration has returned as a feature of the Irish labour market. Emigration continued to increase in Ireland in the year to April 2013, up 2.2 per cent on the previous year (Figure 4.46). If these departures become permanent, there are significant risks for the long term growth potential of the economy as it reduces the size of the labour force and exacerbates the impact of an ageing society (Figure 4.47). Outward migration of Irish nationals is estimated to have increased significantly, and now accounts for 57.2 per cent of emigrants. The number of immigrants to Ireland in the year to April 2013 also increased, resulting in total net outward migration remaining broadly constant with the previous twelve month period. The growth in the number of immigrants, albeit at a much slower

rate than prior to the recession, reflects a combination of a shortage of appropriate skills to meet labour market needs in specific areas (Figure 4.38) and also inadequate work incentives in some sectors of the economy, despite the high rate of unemployment.

Social welfare policies impact on labour demand and supply and if poorly designed can weaken incentives to work. It is important that appropriate incentives exist to encourage participation in the labour market. While most Irish replacement rates are structured to incentivise the take-up of employment opportunities, replacement rates for the long-term unemployed in Ireland (i.e. including housing benefits) are significantly higher than the OECD average for both single earners and married couples with children (Figure 4.42). Figure 4.44 examines the implicit tax on returning to work. Ireland performs well in terms of the additional cost of social contributions, income tax and the decrease in benefits which result from a previously unemployed individual commencing employment. The cost of childcare, however, is a significant additional cost where it applies, and acts as a major disincentive in Ireland. This is reflected in Figure 4.43 which shows that childcare costs in Ireland are among the highest in the OECD. High childcare costs are a particular disincentive to work for lone parents.

## **Business Environment - Key Messages**

The inputs (the bottom row of the competitiveness pyramid) represent the foundation stones of the economy and are the primary drivers of competitiveness. The NCC believes that it is within these particular areas that policymakers can have the greatest impact on competitiveness.

### **Taxation - Traditional strengths facing increased competition**

Ireland has traditionally espoused a pro-enterprise approach towards taxation. Based on competitive tax rates and long-standing policy certainty and stability, Ireland remains an attractive location from which to do business.

Overall, State revenue and expenditure levels in Ireland are lower than the euro area average (Figure 5.1). The State, however, collects a higher proportion of its tax revenue through direct taxation (43.4%) than the euro area average of 30.5 per cent (Figure 5.2). The percentage of revenue raised through direct taxation in Ireland has also increased over the course of the recession (from approximately 37 per cent in 2008). In part this is a reflection of the reduction in receipts from indirect taxation as a result of the property collapse.

Looking at the types of taxes levied in Ireland, income tax and VAT continue to be the primary sources of Government revenue (Figure 5.3). Looking in more detail at income tax, it is clear that while Ireland remains competitive, marginal and average income tax rates have increased since 2008 (Figures 5.6-5.8). Such developments have adverse impacts upon labour market participation and damage Ireland's attractiveness to internationally mobile high skilled workers.

In terms of corporation tax, Ireland is maintaining a competitive offering, although many competitor locations are reducing their rates. Transparency in corporate tax matters remains an important determinant of competitiveness. In this regard, Ireland's ongoing engagement in the OECD's Base Erosion and Profit Shifting (BEPS) exercise remains crucial. The efficiency of our tax compliance structures also represents a significant competitive advantage (Figure 5.23).

## Finance for Business - Creating affordable credit flows

The supply of credit is a critical determinant of the enterprise sectors ability to operate successfully and expand. Significant challenges persist in this space. On the supply side, funding conditions for the State and the banks have improved, benefitting from international developments. The availability and cost of credit for enterprise, however, continues to be a cause for concern (Figures 5.11, 5.17 and 5.18). Loan rejection rates are also high (Figure 5.15). Further, two thirds of new SME lending is just rollover of existing loans.

On the other side of the equation, demand for credit in Ireland remains among the lowest in the euro area (Figure 5.14). While 57 per cent of Irish firms did not apply for finance because they have sufficient funds, 13 per cent of firms did not submit an application for fear of rejection, compared with an EU average of just six per cent<sup>14</sup>.

There is also a sense that many issues in relation to credit remain unresolved with potentially serious implications for the SME sector of any attempted clean-up of the banks' loan books. Ireland has the second highest Non-Performing Loan (NPL) ratio in the OECD which is undoubtedly hindering the return of banks to health (Figure 5.16) - raising the cost of market funding and draining resources that could be used for new lending. Mortgage loans are a large part of the NPL problem - according to the IMF, 41 per cent of non-performing loans in Ireland relate to commercial real estate loans, 34 per cent to mortgages and 19 per cent to business and SME loans<sup>15</sup>.

## Making it easier to do business

A competitive product market environment that allows new firms to challenge incumbents, efficient firms to grow, and inefficient ones to exit, can help boost economic growth and living standards. In order to minimise costs and to ensure that Irish-based firms are in the best possible position to compete with international competitors, it is necessary to ensure that the regulatory environment does not impose unnecessary regulatory burdens. In parallel, however, sound corporate governance practices are required to support sustainable growth.

While Ireland has a strong international reputation as a good place in which to do business, there are a number of areas where performance could be improved. Overall, Ireland is a mid-table performer in terms of the World Bank's Doing Business index - ranked 11th out of 32 OECD countries (Figure 5.19)<sup>16</sup>. The index includes a range of measures where Ireland's performance is particularly good - for example, we are ranked 1st in terms of paying taxes; 3rd in relation to protecting investors; 4th in terms of the ease of starting a business. On the other hand, performance is weak in relation to dealing with construction permits (30th in the OECD 32), getting electricity (27th), enforcing contracts (26th), and registering property (21st). While the World Bank report has been used by many Governments to promote and measure reform - mostly aimed at enhancing economic competitiveness - it also influences international perceptions about investment locations.

Based on OECD statistics, Ireland is also ranked mid-table in relation to product market regulation (Figure 5.20). Elements of Ireland's environment for entrepreneurship are weak - particularly in terms of the complexity of regulatory procedures associated with start-up companies (Figure 5.22). This is a significant issue given the vital role that start-up firms play in terms of employment creation. The cost of insolvency, although not picked up directly in the data, is also a common concern expressed by firms.

Looking at the regulation of professional services, Figure 5.21 clearly illustrates that regulatory restrictions persist in the legal profession - in terms of overall professional service regulation Ireland

is ranked 11th out of 29 OECD countries; in relation to the legal profession, Ireland is ranked 23rd. The poor performance with regard to the restrictiveness of the legal profession reflects a range of poor scores across indicators measuring “inter-professional cooperation”, “compulsory chamber membership” and “regulations of the form of business”. Many of these regulatory barriers arise as a result of the current system of self-regulation rather than from regulations imposed by the State.

### **Physical infrastructure - the building blocks of a dynamic economy**

Infrastructure quality directly impacts on the ability of enterprises to conduct their business. Inadequate or inefficient infrastructure adds to costs, creates delays and generally makes it more difficult to conduct business, undermining the competitiveness of firms and ultimately the competitiveness of the economy. Irish public investment levels have dramatically between 2008 and 2013, falling from 5.3 per cent of GNP to 1.8 per cent of GDP (Figure 4.1). This shows both the high level of Government investment pre-crisis and the scale of the cutbacks - by comparison euro area gross fixed capital formation fell from 2.6 per cent to 2.1 per cent over the same period. Government investment in capital programmes is likely to continue to be restricted by ongoing fiscal challenges for the foreseeable future. This is a particular challenge given Ireland’s low scores in relation to the perception of overall infrastructure quality (Figure 5.27) and the need to continue to invest in essential infrastructures such as broadband<sup>17</sup> (Figure 5.31) and water, and to maintain and develop infrastructure already in place (e.g. roads).

### **Knowledge infrastructure - embedding skills to support enterprise and enhance employability**

Ireland’s education system has been a key contributor to economic growth and improvements in living standards in recent years and the quality of education outcomes remains central to national competitiveness.

Overall, the data on Ireland’s education performance are positive and improving - attainment levels, particularly amongst younger cohorts are rising, with above average proportions attaining third level education (Figure 5.33). Graduation rate at upper secondary level have also improved over recent years (Figure 5.37), resulting in a lower proportion of early school leavers amongst 18 to 24 year olds (Figure 5.38).

On the downside, while both primary (Figure 5.36) and secondary (Figure 5.42) school students clock up relatively long days in the classroom, less time is dedicated to key subjects such as mathematics and science than is the norm across the OECD. Likewise, Irish secondary school students spend less time studying modern foreign languages than the OECD average (10 per cent of total compulsory hours in Ireland compared with 14 per cent in the OECD). Given the importance of foreign language skills, this is a cause for concern - a recent report from the Expert Group on Future Skills Needs noted that language skills are a prerequisite requirement to fill a large share of current vacancies. The report noted the “importance of foreign languages as an integral part of the skills portfolio of candidates across a range of occupational groups in areas such as business analysts, technical support engineers, fraud analysts, sales, customer service/sales administration and credit control”<sup>18</sup>.

In terms of the abilities of students, the Programme for International Student Assessment (PISA) shows that Irish performance has improved since 2009 and that average test scores are above the OECD average across all three traditionally-tested disciplines of maths, reading and science (Figure 5.39). Overall, while the variance in PISA scores is relatively low in Ireland, Figure 5.40 indicates

that few students in Ireland are achieving mathematics scores in the top two levels in the PISA tests<sup>19</sup>.

Irish scores are slightly lower than the OECD average in relation to the problem solving abilities of students - this in an important new measurement conducted by PISA: changes in society and the workplace mean that the content of applicable knowledge evolves rapidly; adapting, learning, daring to try out new things and always being ready (and able) to learn are among the keys to future success (Figure 5.41).

Looking at the third level system, in 2010, Irish third level funding was on a par or exceeded many of our peers (Figure 5.34). Since this data was collated by the OECD, however, funding in Ireland has fallen over the course of the recession - total current expenditure on higher education by the State has fallen from approximately €1,887 million in 2008 to an estimated €1,449 million in 2014. The student contribution has risen rapidly in recent years and will reach around €3,000 by 2015.

Moving beyond the formal education system, it is clear that many challenges remain. Participation in lifelong learning remains low (Figure 5.46) and this poses a particular problem given the need to tackle embedded structural unemployment. Specific issues in this regard include the need to retrain former construction workers, many of whom are young and who are unlikely to find future employment in a more knowledge-intensive economy. As discussed in Chapter 4, while levels of expenditure on labour market programmes in Ireland are high, much of this relates to passive income maintenance schemes and some of the spending on active measures, such as Community employment, has had little effect in helping participants to re-enter the labour market (Figure 4.45).

Assessments of the competency of adults in terms of literacy and numeracy highlight the importance of embedding these essential basic skills across all cohorts of the adult population - the OECD's Programme for the International Assessment of Adult Competencies finds that overall Irish adults were slightly below the survey average in terms of literacy (Figure 5.47). In terms of numeracy, Ireland's performance is also below average, while the proportion of Irish adults deemed to have lower (i.e. weak) problem solving skills was broadly in line with the international average (although the number of adults scoring at higher levels in these skills was below average).

## Research, Development and Innovation - Investing in our future

Over the course of the last decade or so, Ireland's commitment to research, development and innovation has expanded significantly, both in terms of the level of investment (Figure 5.48) and the human resources engaged in R&D activity (Figure 5.49). Relative to the business and higher education sectors, direct government expenditure on R&D remains relatively low.

While Ireland has made good progress towards building up its scientific capabilities, innovation capacity remains weaker than in leading small advanced OECD countries, Denmark, Sweden and Switzerland (Figure 5.54). Innovation levels tend to be higher in industrial sectors than service sectors (Figure 5.55) and previous results from the Community Innovation Survey show that innovation is more concentrated in larger firms<sup>20</sup>. Perhaps not unsurprisingly, multinational firms show a greater propensity innovate - nearly three quarters (the highest share in the OECD) of business enterprise spending on R&D in Ireland is carried out by foreign-owned firms (Figure 5.50). According to the OECD, Irish-owned firms need to become more knowledge driven with a greater focus on technical innovation. Investment in knowledge-based capital (KBC), a broad measure including computerised information, innovative intellectual property and economic competencies,

has grown over time, as in other countries, but remains in the lower half of the 18 OECD countries for which data are available (Figure 5.56).

## Ireland's competitiveness performance - the policy challenges

Despite (or indeed as a result of) the challenges which have beset the Irish economy over recent years, international competitiveness has improved. As evidenced through trade and investment flows, Ireland remains open for business and indeed, offers an attractive location from which to do business. Costs have been reduced and a number of structural reforms introduced. Many of the competitiveness gains achieved in recent years, however, have arisen as a result of cyclical factors. These gains could be quickly eroded as economic conditions improve - this risks a repeat of the Irish experience in the mid-2000s when much of Ireland's international competitiveness was quickly eroded by the impact of rapid (unsustainable) economic growth.

It is important that we do not become complacent about the need for continued reform and that we focus our efforts on improving competitiveness in areas that are subject to domestic policy control. The key findings from this report highlight the range of challenges which are either outstanding or will require further work. These include:

- **Continued steady fiscal consolidation:** The fiscal deficit is still high and public debt will remain elevated for the foreseeable future. Further consolidation is needed in coming years to put debt firmly on a declining path, to ensure public funds are spent in a productive and efficient manner and to safeguard Ireland's return to market financing. Stable and sustainable public finances are a prerequisite for competitiveness: high deficits limit the scope for growth and productivity enhancing investments, have adverse impacts on consumer and investor confidence. Fiscal consolidation is supported by growing the economy and by managing debt levels - this is a challenging balance in the short term between downward fiscal adjustments and supporting recovery in domestic demand;
- **Supplying essential skills to enterprise and reducing unemployment:** Taking action to address high levels of unemployment (particularly structural unemployment amongst particular cohorts where it exists) must remain a priority. Falling participation rates and high levels of outward migration reduce labour supply, while continuing high levels of inward migration indicate that there are issues either in relation to the supply of skills available in Ireland, or in relation to the incentives to take up employment. In order to address these challenges, the return on exchequer spending on labour market programmes must be maximised, equipping individuals with marketable and employable skills. In this regard, it is also vital that welfare traps are eliminated to the extent possible and that employment is made as attractive an option as possible - marginal tax rates play a key role here. Likewise, as a primary driver of productivity and long term competitiveness, a focus on skills development across all levels of the education system must be a priority;
- **Developing a more sustainable enterprise base:** A number of challenges remain to be addressed in order to create a stronger, more dynamic enterprise base. To ensure Ireland remains an attractive base for foreign direct investment, ongoing challenges to our competitiveness in areas such as labour costs and corporate tax structures must be managed. Strengthening the productivity and trading profiles of Irish-based firms must be prioritised to enhance their participation in global value chains and reduce Ireland's reliance on the activities



of small number of firms in niche sectors exporting to a narrow range of markets. In addition, we must ensure that business conditions here nurture greater entrepreneurship and investment. In this regard, actions that enhance the ease of doing business are important contributors to growth. Likewise it is vital that Ireland's corporate governance and data protection regimes evolve - in particular ensuring that Ireland has a world class data protection regime will be a key element in growing Ireland's enterprise base in the area of big data and data analytics;

- **Enhancing access to finance:** The twin factors of limited credit availability and the relatively high cost of credit where it is available are significant limiting factors on growth and competitiveness. Addressing mortgage arrears and completing bank repairs is an essential element of ensuring that sufficient credit is available for enterprise investment. Such investment is absolutely necessary for firms to improve their productivity, expand their operations and ultimately grow the economy for the benefit of all;
- **Maintaining cost competitiveness:** Against a backdrop of modest recovery, cost pressures are already emerging across a range of sectors. Particular focus is required to address domestically-influenced cost factors in the energy, legal and health sectors. Likewise, the current rapid increases in house prices and residential rents have the potential to produce adverse knock-on consequences in terms of prices and wage expectations across the entire economy. Such adverse cost developments put all of the recent hard-won cost competitiveness gains at risk.

*Ireland's Competitiveness Scorecard* does not propose the answers to these challenges. Many of these issues will be revisited in more detail in the Council's annual policy document *Ireland's Competitiveness Challenge* which will be produced in the second half of 2014.



# Chapter 2

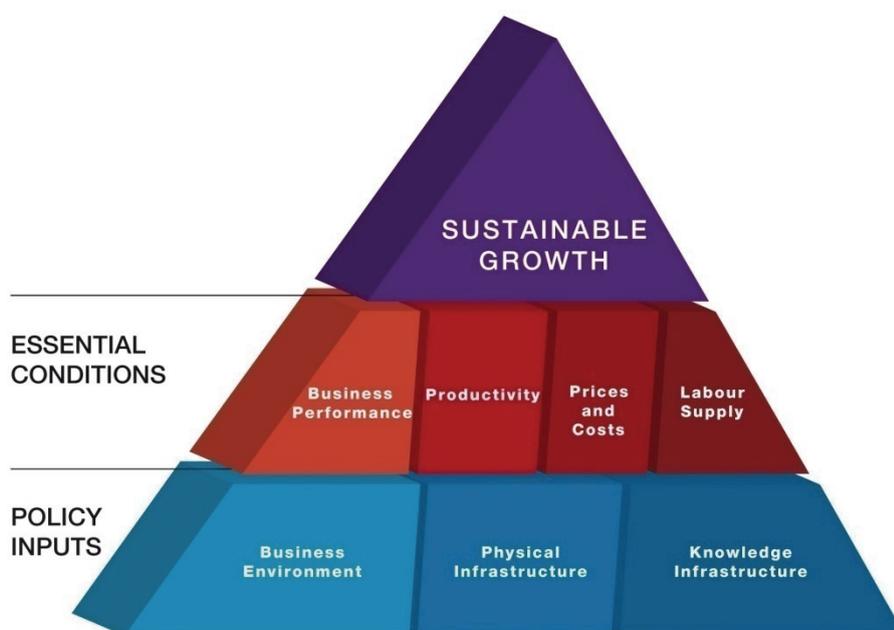
## Methodology

## 2. Methodology

Competitiveness refers to the ability of firms to compete in markets. Ireland's national competitiveness refers to the ability of the enterprise base in Ireland to compete in international markets. The NCC uses a competitiveness pyramid to outline the framework within which it assesses Ireland's competitiveness (Figure 2.1).

At the top of the pyramid is sustainable growth in living standards - the fruit of past competitiveness success. Below this are the essential conditions for achieving competitiveness, including business performance (such as trade, investment, and business sophistication), productivity, prices and costs and labour supply. These can be seen as the metrics of current competitiveness. Lastly, there are the policy inputs covering three pillars of future competitiveness, namely the business environment (taxation, regulation, finance and social capital), physical infrastructure and knowledge infrastructure.

Figure 2.1 The NCC Competitiveness Pyramid



Source: National Competitiveness Council

### 2.1 How to read this report

The rest of this report is divided into three main sections - sustainable growth (Chapter 3), essential conditions for competitiveness (Chapter 4) and policy inputs (Chapter 5) - which correspond to the segments of the competitiveness pyramid.

This report uses internationally comparable metrics, with the OECD, the EU, the UN, IMF and the WTO as the sources for the majority of indicators. Indicators from specialist international competitiveness bodies (e.g. from the World Bank's Doing Business report, the World Economic Forum's Global Competitiveness Report and the Institute for Management Development's World

Competitiveness Yearbook) are also used. Where further depth is of benefit, national sources such as Forfás, the Central Bank, the CSO, and the ESRI are used.

Subject to data availability, Ireland's performance is benchmarked against 19 other countries. Countries have been chosen to provide a mix of euro area members (Finland, France, Germany, Italy, the Netherlands and Spain), other non-euro area European countries (Denmark, Sweden, Switzerland and the UK), and two newer EU member states (Hungary and Poland). Seven non-European countries which are global leaders or are of a similar size or pace of development to Ireland are also included. These countries are Brazil, China, Japan, South Korea, New Zealand, Singapore, and the US. This allows for a detailed comparison between Ireland and many of its closest trading partners and competitors. Ireland is also compared to a relevant peer group average - either the OECD or the euro area average<sup>1</sup>.

Benchmarking competitiveness is useful - it informs the policymaking process and raises awareness of the importance of national competitiveness to Ireland's wellbeing. Nonetheless, there are limitations to benchmarking:

- While every effort is made to ensure the timeliness of the data, there is a natural lag in collating comparable official statistics across countries. There are also factors that are difficult to benchmark (e.g. the benefit of being in the GMT time zone or of speaking English fluently);
- Secondly, given the different historical contexts and economic, political and social goals of various countries, and their differing physical geographies and resource endowments, it is not realistic or even desirable for any country to seek to outperform other countries on all measures of competitiveness. There are no generic strategies to achieve national competitiveness as countries face trade-offs; and
- Finally, it is important to note that trade and investment between countries is not a zero-sum game; economic advances by other countries can, in aggregate terms, lead to improvements in living standards for the Irish population.

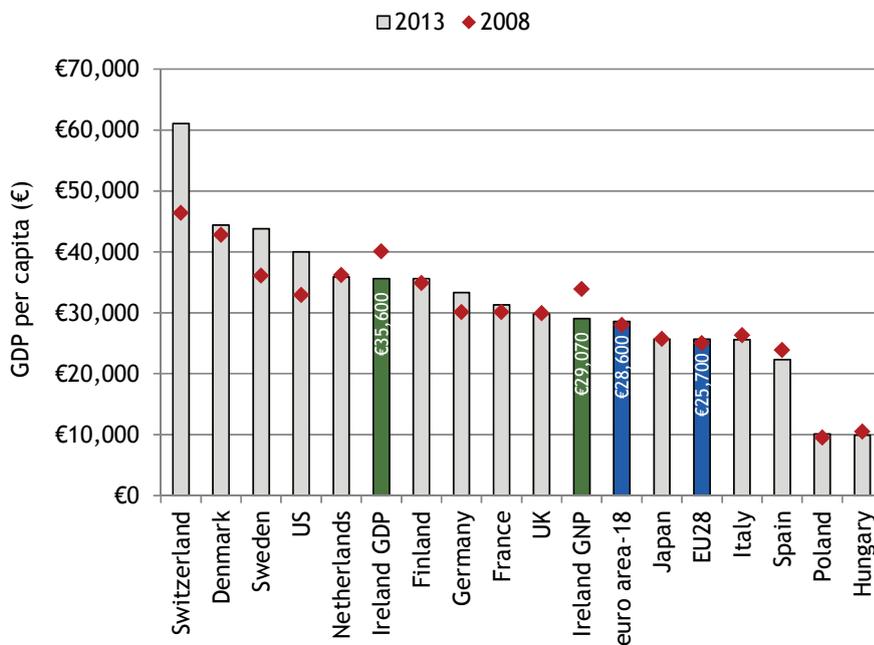
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<sup>1</sup> OECD rankings and averages are based on a maximum of 32 countries. Turkey and Mexico are not included in the analysis, in part due to how their size and income levels affect averages and in part due to data availability. The OECD-32 countries are as follows: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia Spain, Sweden, Switzerland, UK and the US. The euro area is comprised of 18 countries. They are as follows: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia and Spain. Where the sample is incomplete for the comparator group due to data availability, the countries omitted are detailed in the endnotes.

## 2.2 Interpretation of the charts

We have endeavoured to ensure that all charts are self-explanatory. However, with reference to the sample chart that follows, the following points may be of value when interpreting the charts:

Figure 3.1: Gross domestic product at market prices, € per inhabitant, 2012<sup>21</sup>



Despite the negative impact of the recession on the entire Irish economy, Ireland's GDP per capita remains well above the euro area average. However when measured in terms of GNP per capita (i.e. with the impact of the foreign owned sector removed) Ireland ranks just marginally ahead of the euro area-17 average. Since their peak in 2007, both GDP and GDP per capita have declined by just under 20 per cent.

### Euro area-18 Ranking:

GDP: 4<sup>th</sup> (↓2)

GNP: 8<sup>th</sup> (↓6)

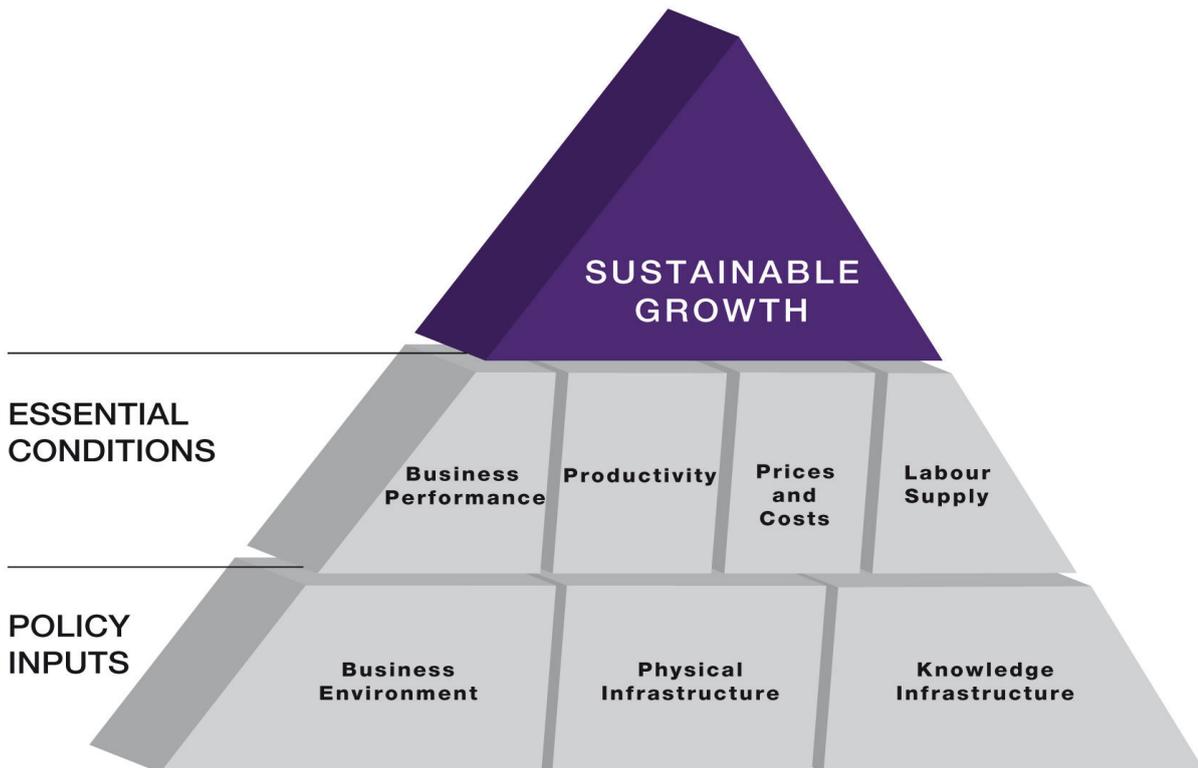
Source: Eurostat

- The majority of chart titles are given a traffic light colour, green, orange or red, in order to provide a general indication of Ireland's performance. Green indicates a strong performance (top third of OECD, euro area, or comparator group), orange signals an average performance, while red means that Ireland is ranking within the bottom third of the comparator group. Certain indicators, which are not ranked, are also given a traffic light colour, in which case the colour is determined (somewhat subjectively) based on Ireland's performance over time, or vis-à-vis a peer group average.
- Rankings are provided where appropriate, but in a number of charts, it is not possible to designate a best performer. In charts with both GDP and GNP performance for Ireland, rankings are provided for both sets of data.
- In interpreting the ranking for each indicator, a low ranking (i.e. close to 1<sup>st</sup>) implies a healthy competitiveness position, while a high ranking implies an uncompetitive position.
- Changes in rankings refer to the change in Ireland's position since either the previous year, or in the case of charts displaying more than one year of data, since the oldest data displayed. Exceptions to this are highlighted in endnotes. (↑) refers to an improvement in Ireland's competitive position, so ↑4 means an improvement of four places in Ireland's ranking. (-) means that there has been no change in Ireland's ranking, while (↓) refers to a fall in ranking.



# Chapter 3

## Sustainable Growth



## Sustainable Growth

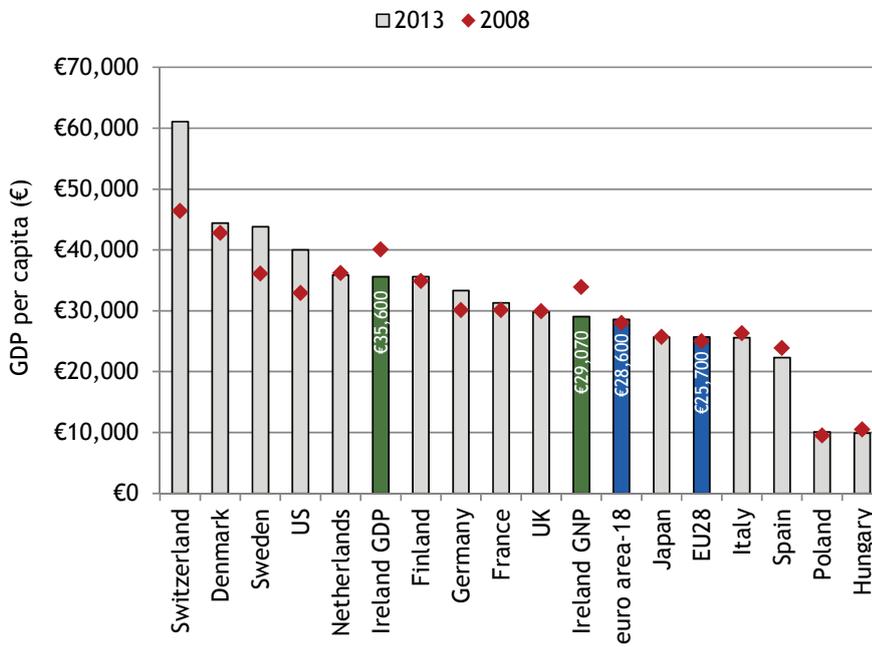
Competitiveness is not an end in itself, but is a means of achieving sustainable improvements in living standards and quality of life. This section benchmarks Ireland's performance under three headings: macroeconomic sustainability, quality of life and environmental sustainability.

- **Macroeconomic Sustainability (Section 3.1):** The indicators in this section cover the level, growth and drivers of Ireland's national income. From a sustainability perspective, the indicators examine Ireland's current account performance and Ireland's debt dynamics.
- **Quality of Life (Section 3.2):** Nations and regions do not pursue competitiveness merely for the sake of trade. Competitiveness supports living standards and ultimately contributes to the quality of life of citizens. In measuring quality of life, the Scorecard examines indicators on income levels, poverty and health.
- **Environmental Sustainability (Section 3.3):** The essence of environmental sustainability is a stable relationship between human activities and the natural world. To be truly sustainable, development must respect the core pillars of sustainability: the environment, the economic and the social. This section examines Ireland's broad environmental performance and focuses specifically on energy, carbon emissions and waste management.

Ireland's performance under each of these headings is influenced by our performance across a range of factors measured elsewhere in the report.

### 3.1 Macroeconomic Sustainability

Figure 3.1: Gross domestic product at market prices, € per capita, 2013<sup>22</sup>

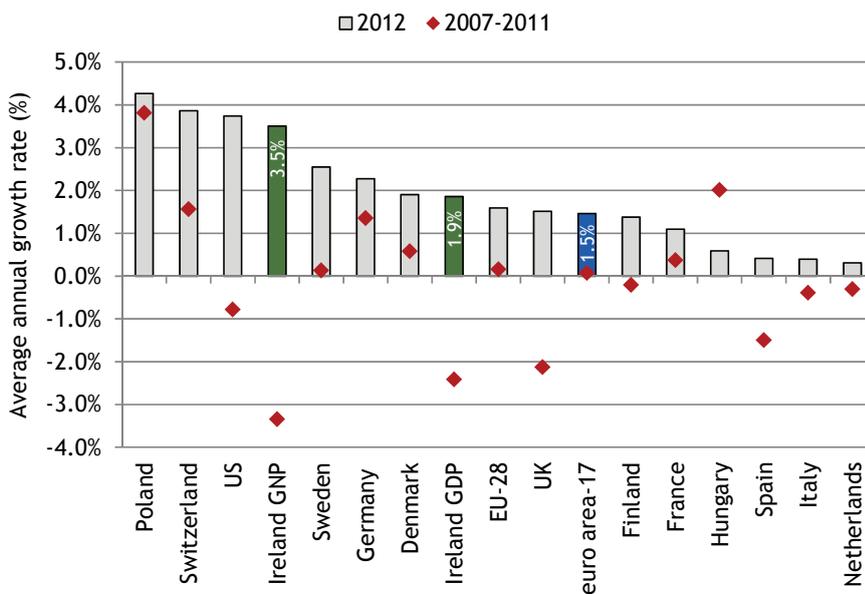


Despite the negative impact of the recession on the entire Irish economy, Ireland’s GDP per capita remains well above the euro area average. However when measured in terms of GNP per capita (i.e. with the impact of the foreign owned sector removed) Ireland ranks just marginally ahead of the euro area-17 average. Since their peak in 2007, both GDP and GDP per capita have declined by just under 20 per cent.

**Euro area-18 Ranking:**  
 GDP: 4<sup>th</sup> (↓2)  
 GNP: 8<sup>th</sup> (↓6)

Source: Eurostat

Figure 3.2: Average annual growth rate in gross domestic product at market prices per capita (Purchasing power standard), 2012

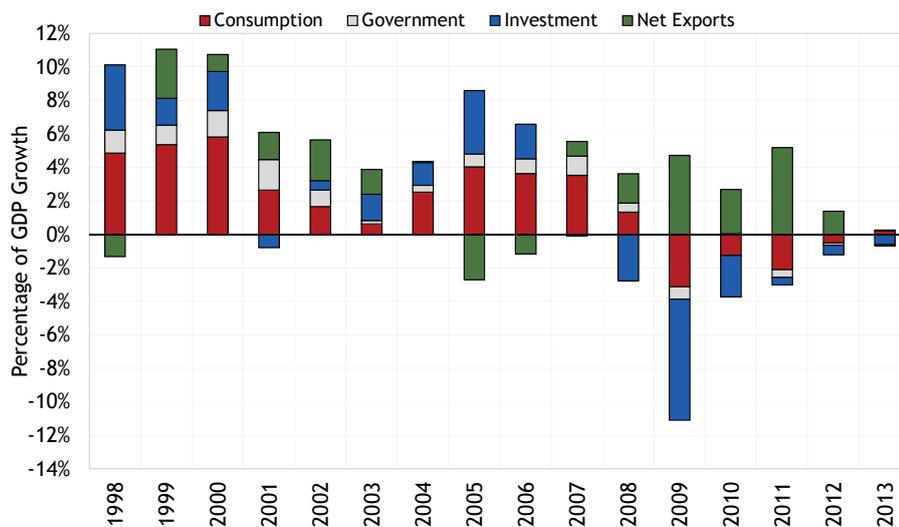


Between 2007 and 2011, an average annual decline of 2.4 percent in GDP was recorded (-3.3% in GNP terms). In 2012, however, Ireland experienced GDP growth of 1.9% (and 3.5% in GNP terms). The GDP growth rate, while largely reflecting the activities of MNCs in our economy, has been somewhat less volatile than the GNP growth rate.

**Euro area-18 Ranking:**  
 GDP: 6<sup>th</sup> (↑12)  
 GNP: 3<sup>rd</sup> (↑15)

Source: Eurostat

Figure 3.3: Components of Irish economic Growth (GDP), 1998-2013

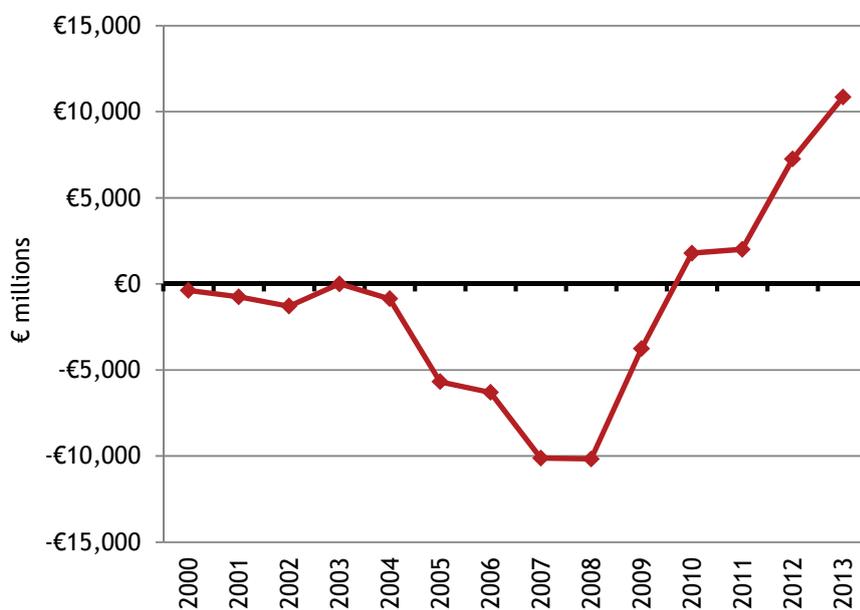


Over the course of the recession, net exports (the value of a country's total exports minus the value of its total imports) were the only positive factor contributing to Irish growth. In 2013, however, net exports actually made a marginally negative contribution. On the other hand, consumption growth was positive for the first time in a number of years, while the government contribution was flat. Investment, whilst negative, showed signs of stabilisation.

Ranking: n/a

Source: CSO National Accounts

Figure 3.4: Balance of payments, current account balance (€millions), 2000-2013

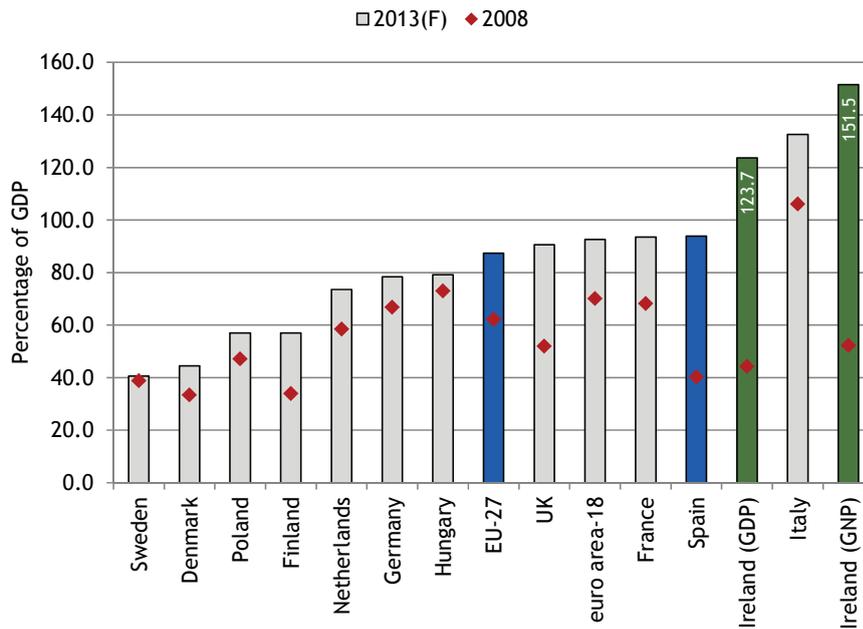


The current account balance measures earnings from merchandise and services net exports plus net factor income and other transfers. Since 2008, the current account has moved from deficit to surplus, reflecting improved cost competitiveness, allied to reduced consumer demand for imported goods and services. The impact of the 'patent cliff' has reduced net factor incomes in 2012 and 2013. The impact of re-domiciled plcs also reduces the current account surplus<sup>23</sup>.

Ranking: n/a

Source: CSO Balance of Payments / National Accounts

Figure 3.5: General government gross debt (% GDP), 2013(f)<sup>14</sup>

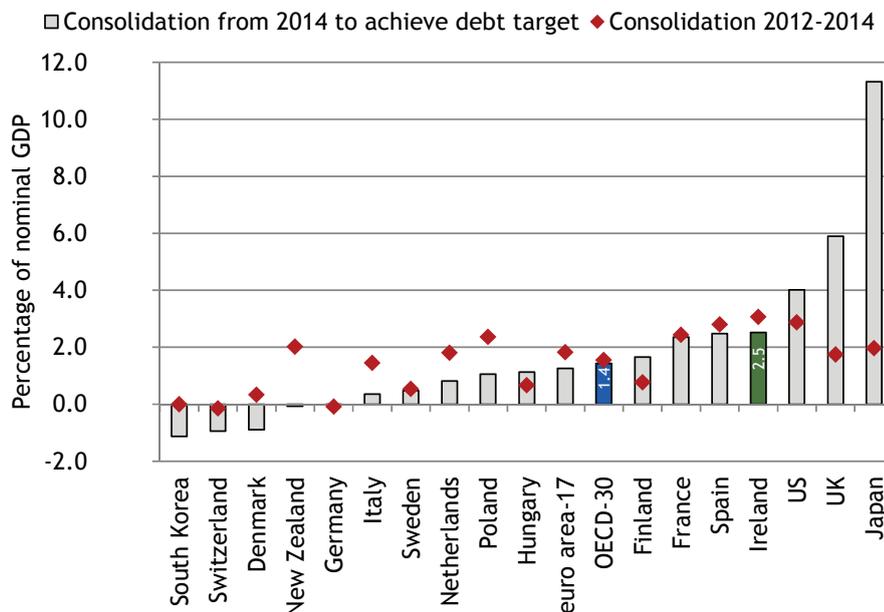


In recent years, Ireland's general consolidated debt as a percentage of GDP dramatically increased - partly as a result of the cost of the significant capital support provided by the State to several financial institutions, and partly due to the Exchequer running large deficits for several consecutive years. The European Commission forecasts that the Irish debt to GDP ratio has peaked in 2013 (at 123.7% of GDP). A reduction is forecast in 2014 (to 120.3%).

**Euro area -18 Ranking:**  
 GDP: 15<sup>th</sup> (↓7)  
 GNP: 17<sup>th</sup> (↓8)

Source: Eurostat / European Commission Economic Forecasts, Spring 2014

Figure 3.6: Required improvement in underlying primary fiscal balance to achieve debt targets, 2012-2030<sup>15</sup>



Debt exceeds 60% of GDP in two-thirds of OECD countries. Figure 3.6 illustrates the average consolidation beyond 2014 required to achieve a 60% debt target by 2030. At 2.5% of GDP, Ireland is ranked with a group of countries (e.g. France, Iceland and Spain) which require average consolidation of between 1% and 3% of GDP. All of these countries have front-loaded consolidation so that the average requirement beyond 2014 is less than one-third of the required post-crisis consolidation.

**OECD-30 Ranking:** 25<sup>th</sup>

Source: OECD Economic Outlook, Volume 2013 Issue 1 - No. 93

Figure 3.7: Composition of debt (% GDP), 2012

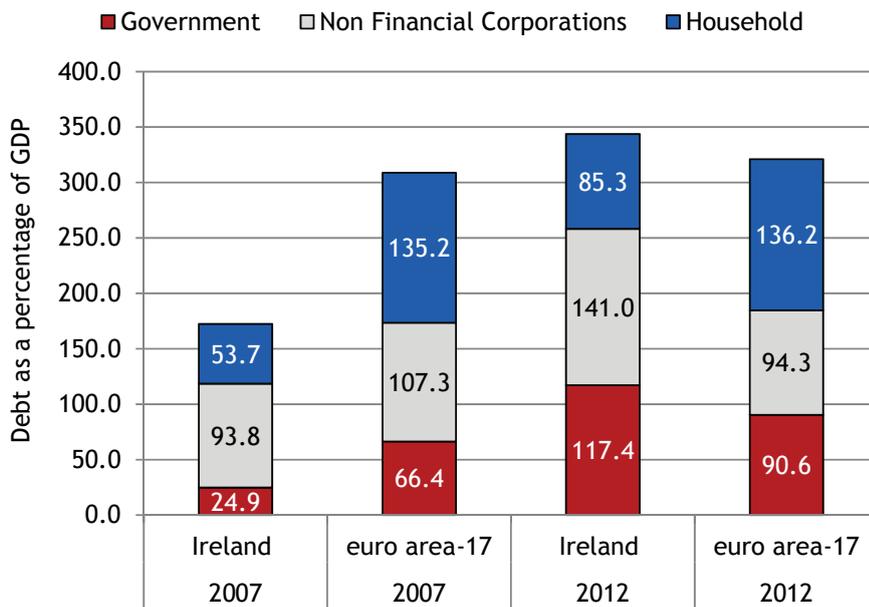
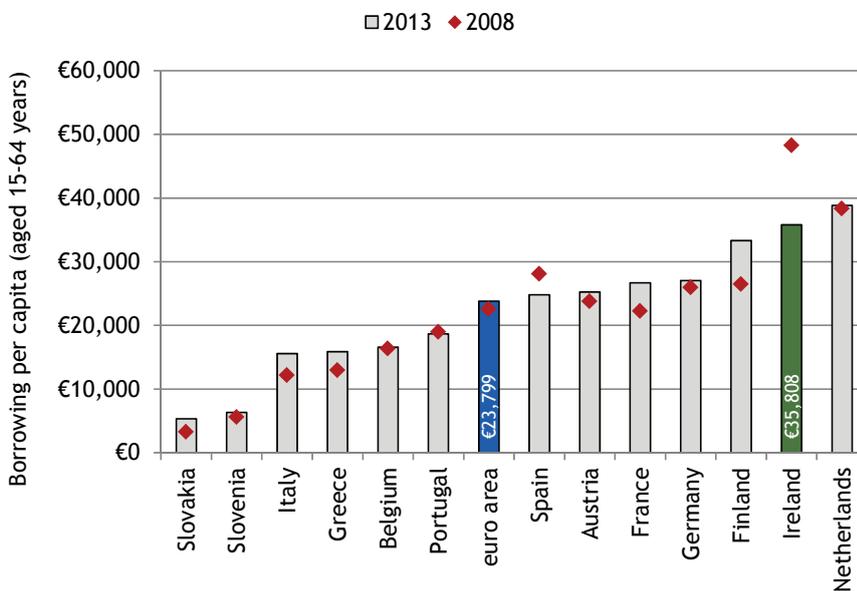


Figure 3.7 illustrates how much is owed by different sectors of the economy (excluding the debt of financial corporations). The data includes all loans and fixed-income securities of households, corporations, and government. It is clear from this data that all sectors of the Irish economy have significant debt levels as a percentage of GDP - in particular, the Government and Business sectors.

**Euro area-18 Ranking:**  
13<sup>th</sup> (↓9)

Source: Eurostat

Figure 3.8: Household borrowing per capita (Population aged 15-64) (€), 2013



Personal debt levels increased substantially over the last decade as Ireland became one of the most personally indebted countries in the euro area. However since the peak in 2008 (€48,241 per person aged 15-64 years), average debt levels have declined (to €35,808 in 2013). Despite this, high borrowing levels mean that Ireland's ranking has not improved dramatically. The household debt-to-income ratio in Ireland is almost 200% - twice the euro area average.

**Euro area-18 Ranking:**  
15<sup>th</sup> (↑1)

Source: European Central Bank / Eurostat

### 3.2 Quality of Life

Figure 3.9: In work-at-risk-of poverty by household type, 2012<sup>26</sup>

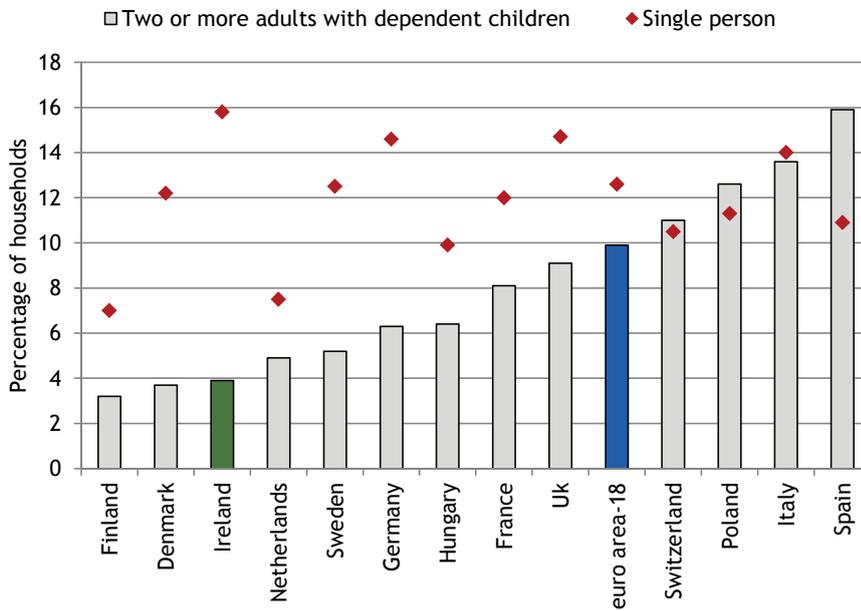


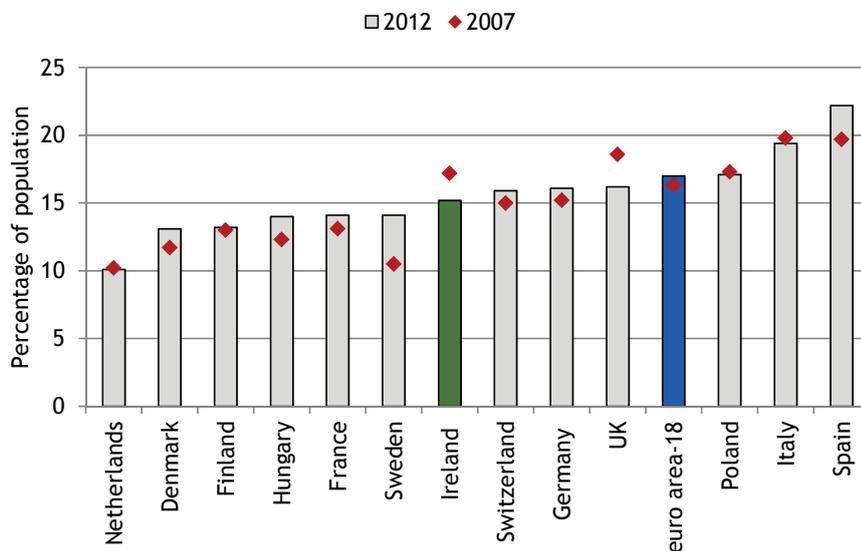
Figure 3.9 examines the risk of in-work poverty for working households. While the percentage of working households with two adults and two children at risk of poverty has fallen from 6.9% in 2008 to 3.9% in 2011, there has been an increase in the percentage of single working households at risk of poverty from 10.7% to 15.8% in the same period.

**Euro area-18 Ranking:**  
Two or more adults: 3<sup>rd</sup> (↑3)

Single person: 17<sup>th</sup> (↓7)

Source: Eurostat

Figure 3.10: At-risk of poverty after social transfers (% population), 2012<sup>27</sup>

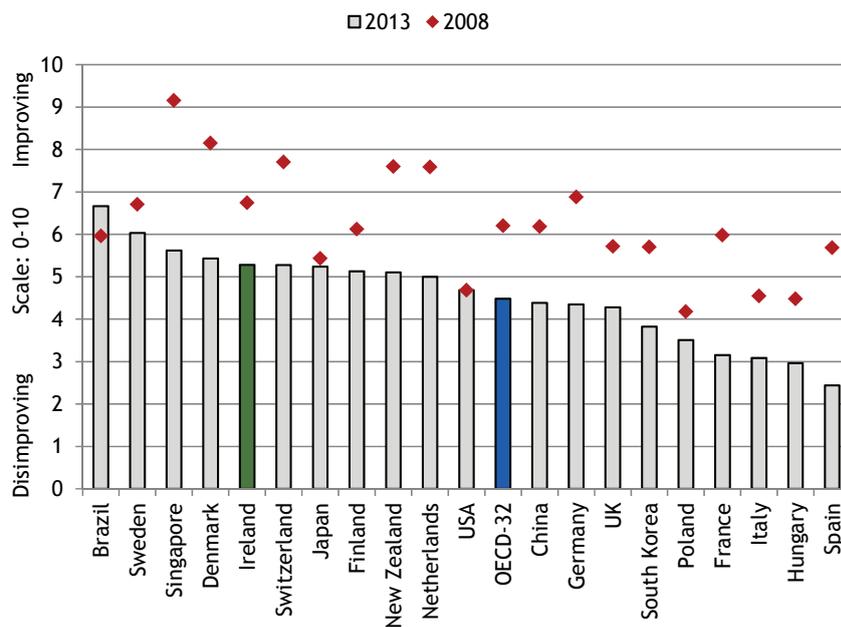


Risk of poverty is determined by those with less than 60% of the national median's disposable income after social transfers. Ireland's performance has improved since 2007 when 17.2% of the population was at-risk-of-poverty after social transfers. In 2011 this figure was 15.2% compared to a euro area-18 average of 17%.

**Euro area-18 Ranking:**  
9<sup>th</sup> (↑3)

Source: Eurostat

Figure 3.11: Perception of Social Cohesiveness, 2013

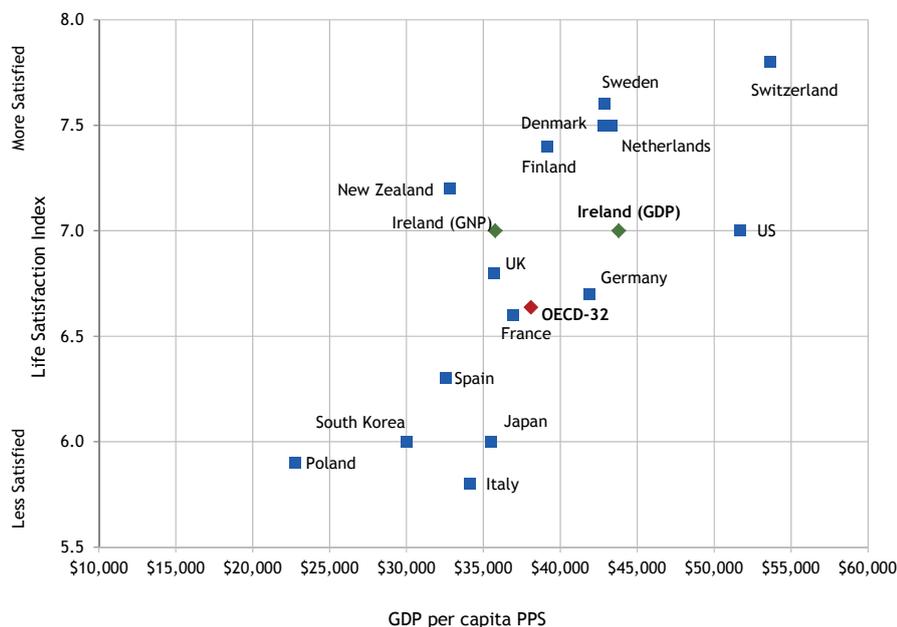


The OECD defines a society as cohesive if “it works towards the well-being of all its members, fights exclusion and marginalization, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward social mobility.” While perceptions of social cohesion have declined in Ireland since 2008, Ireland still scores well above the OECD-32 average and has improved its rankings during this period.

**OECD-32 Ranking: 7<sup>th</sup> (↑5)**

Source: IMD, World Competitiveness Yearbook, 2014

Figure 3.12: OECD better life index and GDP per capita (PPP), 2013



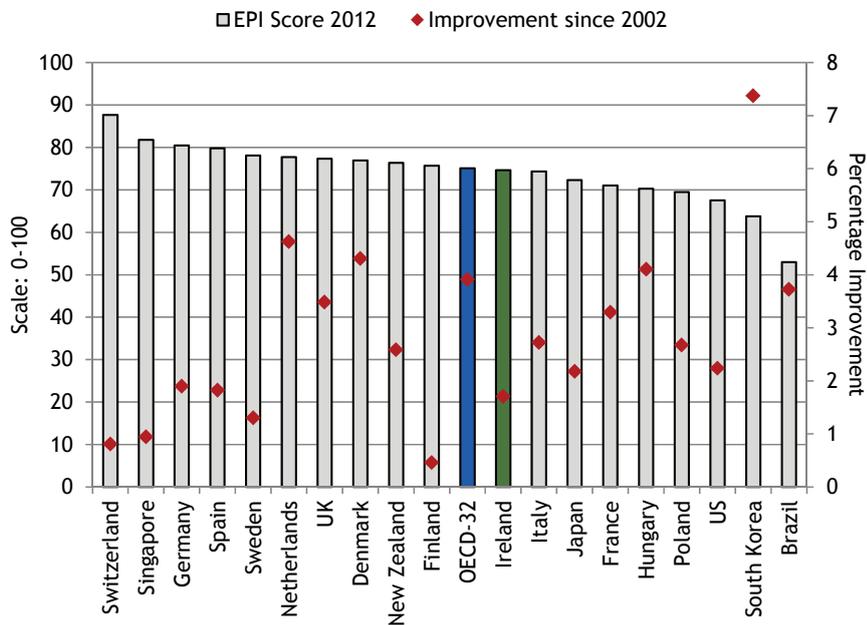
The OECD Better Life Index compares well-being across countries across 11 topics (including housing, community, education, life satisfaction and work-life balance). The graph plots life satisfaction against GDP per capita at purchasing power parity (which adjusts GDP for differences in the cost of living across countries). While Irish GNP per capita is below the OECD-32 GDP average, life satisfaction in Ireland (7) is above the OECD-32 average (6.6).

**OECD-32 Ranking: Life Satisfaction: 13<sup>th</sup>**

Source: OECD

### 3.3 Environmental Sustainability

Figure 3.13: Environmental performance index (Scale 0-100), 2012<sup>28</sup>

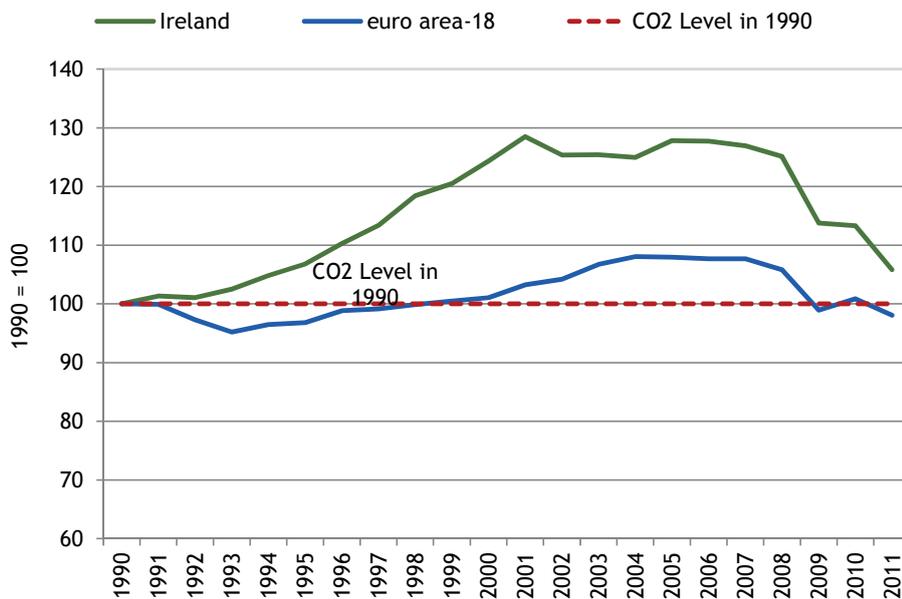


The EPI ranks countries on 20 performance indicators which assess environmental health and ecosystem vitality. While Ireland has improved its performance by 1.7% since 2002, average improvement across the OECD-32 has been much higher at 3.9%. Ireland performs well on indicators relating to health impacts and air quality but performs poorly in relation to biodiversity and protection of habitats.

**OECD-32 Ranking:**  
EPI score: 18<sup>th</sup>

Source: Yale Centre for Environmental Law and Policy

Figure 3.14: Greenhouse gas emissions (Indexed to 1990), 1990-2011

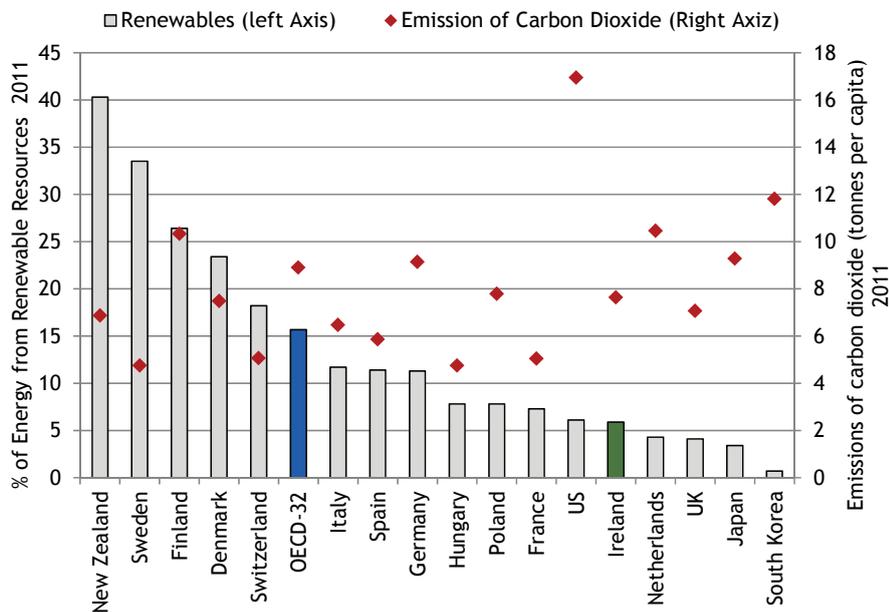


Ireland's emission level peaked in 2001 at 28.5% above 1990 levels. Following the onset of recession in 2008, Ireland's emissions have fallen year-on-year and in 2011 were 5.8% above the 1990 level and at their lowest point since 1994. The gap between Ireland and the euro area-18 has narrowed recently; however, euro area-18 emissions peaked in 2004 at just 8% above the 1990 level and fell to -1.9% the 1990 level in 2011.

**Euro area-18 Ranking:**  
13<sup>th</sup> (↑3)

Source: Eurostat

Figure 3.15: Percentage of energy from renewable sources and per capita carbon dioxide emissions from fuel combustions, 2011<sup>29</sup>

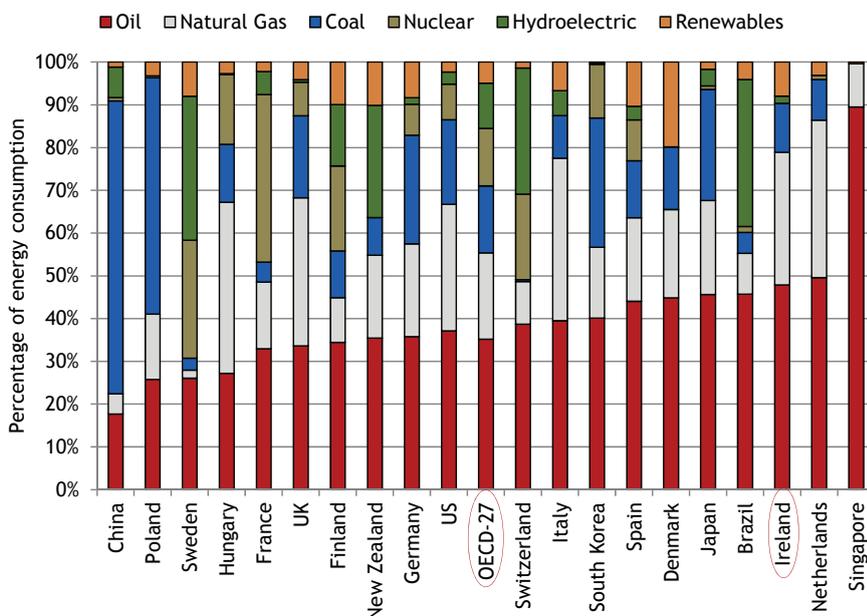


Renewable sources accounted for 5.9% of Ireland's energy consumption in 2011. This is considerably below the OECD-32 average of 15.7%. Ireland's level of CO<sub>2</sub> emissions has declined in recent years and in 2011 was 26% below the 2006 level. Ireland has had some success in decoupling its environmental footprint from economic growth. CO<sub>2</sub> emissions fell by 0.6% while GDP increased by 2.7% between 2000 and 2010.

**OECD-32 Ranking:**  
 Renewables: 25<sup>th</sup> (↑3)  
 CO<sub>2</sub> emissions: 16<sup>th</sup> (↑8)

Source: International Energy Agency

Figure 3.16: Components of energy consumption per capita, 2012<sup>10</sup>

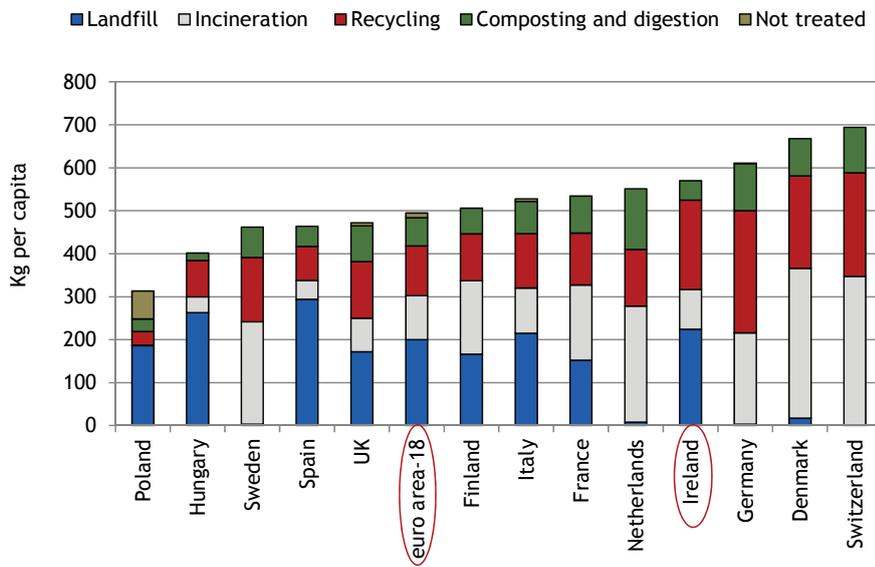


Ireland is heavily dependent on oil (48%) to meet its energy consumption needs and has a much higher reliance on this fuel type than the OECD-27 average (38%). Green energy (Hydroelectric and renewables) accounted for 10% of Irish energy consumption in 2012 compared to 16% for the OECD-27 average.

**OECD-27 Ranking:** Oil dependency: 22<sup>nd</sup>

Source: BP Statistical Review of World Energy 2013

Figure 3.17: Municipal waste generated and treatment, 2012<sup>11</sup>



Waste generated in Ireland peaked in 2006. By 2012, the amount of waste generated had reduced to 570 kg per person, a fall of 28%. Ireland still generates significantly more waste per capita than the euro area-18 average (484 kg in 2012). In terms of waste treatment options, Ireland makes greater use of recycling than the euro area-18 average and less use of composting and incineration.

**Euro area-18 Ranking:**  
14<sup>th</sup> (↑3)

Source: Eurostat





# Chapter 4

## Essential Conditions



### 3. Essential Conditions

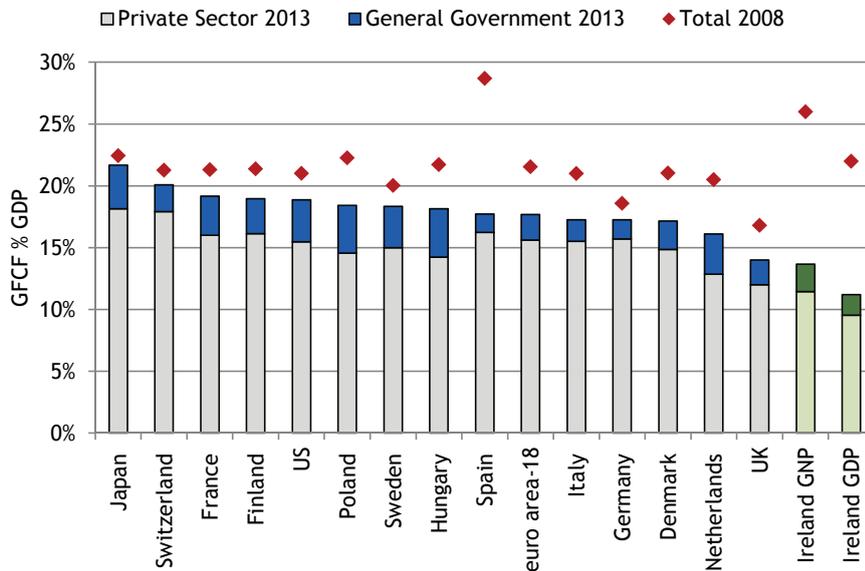
Ireland's national competitiveness is founded on certain key conditions to support a conducive and sustainable economic environment. These indicators connect the government's policy inputs (indicators in chapter five) with improvements in sustainable growth (indicators in chapter three). This section benchmarks Ireland's performance regarding four essential conditions:

- **Business Performance (Section 4.1):** The performance of the business sector is critical to growing incomes and employment levels in Ireland. The performance of the business sector also plays a crucial role in determining the stability of government finances and is a major source of government revenue - essential if the State is to continue to fund public services. This section assesses business performance in Ireland under the headings of trade and investment (including entrepreneurship).
- **Productivity (Section 4.2):** Higher productivity is the agent which sustains high living standards and competitiveness. The indicators in this section examine Ireland's overall productivity performance.
- **Prices and Costs (Section 4.3):** Cost competitiveness is one of the most visible and tangible elements of overall national competitiveness. High costs, which are not justified by productivity etc. adversely impact all sectors of the economy and weaken international competitiveness. This section examines the overall level and rate of change in Ireland's prices and costs, as well as a considering a range of specific business pay and non-pay costs.
- **Labour Market Performance and Labour Supply (Section 4.4):** The scale of unemployment resulting from the bursting of the construction and property bubble make it more critical than ever that we understand the Irish labour market. The analysis in this section looks firstly at key employment and unemployment trends and then examines a series of indicators relating to labour supply.

## 4.1 Business Performance

### 4.1.1 Business Investment

Figure 4.1: Gross fixed capital formation at current prices (General Govt and Private Sector) (% of GDP), 2013

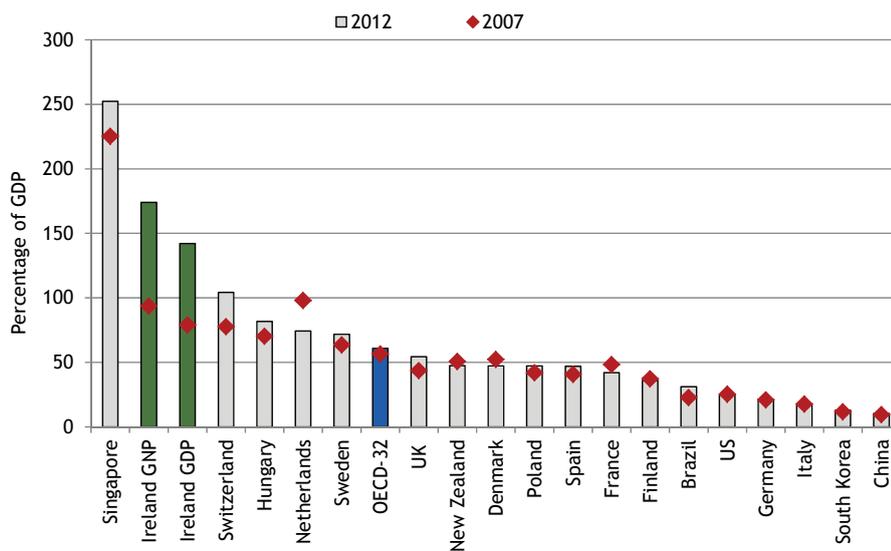


Irish investment almost halved between 2008 and 2013, falling from 26% to 13.7% in GNP terms and 22% to 11.2% in GDP terms. This compares unfavourably with the euro area average which declined by 18% during the same period. In Ireland private investment has declined from 16.7% of GDP to 9.5% while Government spend has fallen from 5.3% of GDP in 2008 to 1.7% in 2012.

**Euro area-18 Ranking:**  
 GDP 18 (↓8)  
 GNP 16 (↓9)

Source: European Commission, AMECO Database

Figure 4.2: FDI inward stock (% GDP), 2012<sup>32</sup>

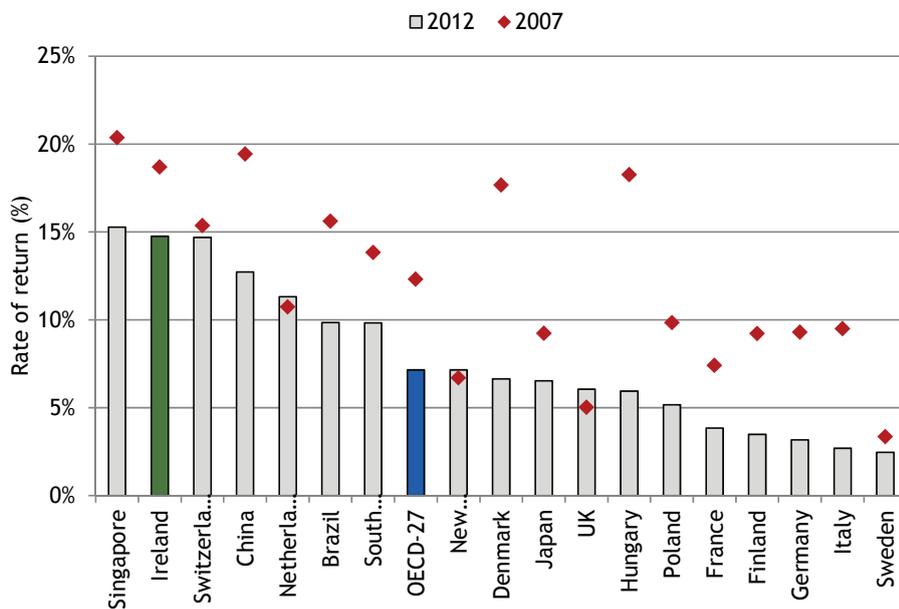


Irish's stock of inward investment, at 142% of GDP, remains amongst the highest in the OECD, illustrating the significant underpinning provided by foreign direct investment to the Irish economy. Employment in foreign owned companies, perhaps a more tangible indicator of activity, was 140,382 in 2012 compared to 148,527 in 2007.

**OECD-32 Ranking :** 3 (↑2)

Source: UNCTAD World Investment Report 2013

Figure 4.3: Rate of return to US-owned companies on their investments in foreign countries (%), 2012<sup>33</sup>

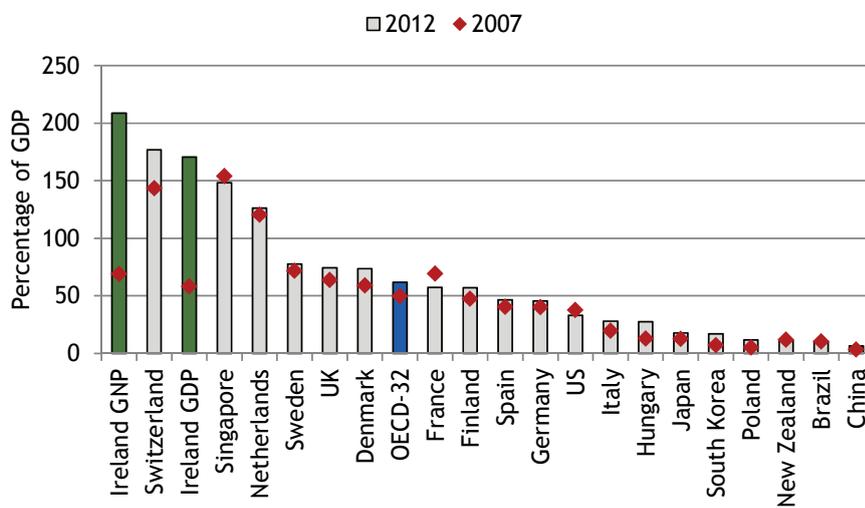


While the reported income of US companies as a proportion of the amount invested in Ireland, declined from 18.7% per cent in 2007 to 14.7 per cent in 2012, Ireland continues to be one of the most attractive investment locations within the OECD and the most attractive location within the euro area.

**OECD-27 Ranking: 2<sup>nd</sup> (↑1)**

Source: US Bureau of Economic Analysis / Forfás Calculations

Figure 4.4: FDI outward stock (% GDP), 2012<sup>34</sup>



Levels of outward direct investment from Ireland by Irish MNCs and foreign MNCs based here increased from 68.9% of GDP in 2007 to 208.9% in 2012. Much of this increase can be attributed to foreign-owned companies being redomiciled in Ireland to avail of advantageous tax structures.

**OECD-32 Ranking:**

GDP: 4<sup>th</sup> (↑6)

GNP: 3<sup>rd</sup> (↑5)

Source: UNCTAD World Investment Report 2013

Figure 4.5: Net business population growth, 2011<sup>35</sup>

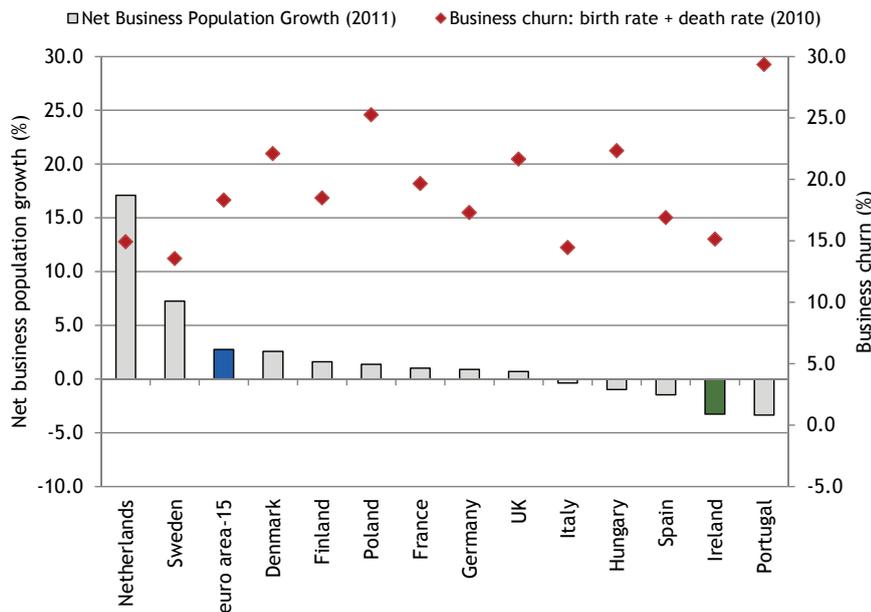


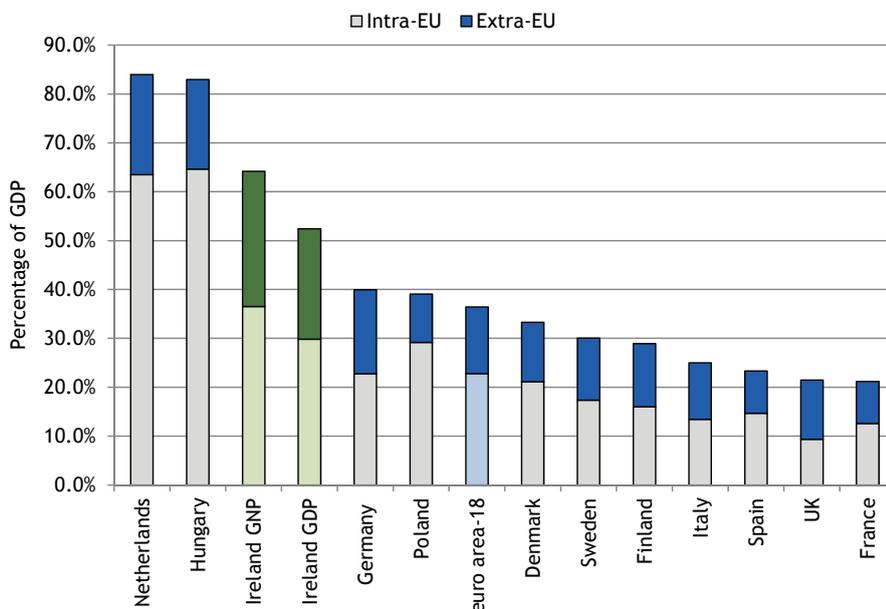
Figure 4.5 is a measure of entrepreneurship and reflects the number of new businesses being created. In 2011 in Ireland, more businesses closed than were created, resulting in net business population growth of -3.3%. Business churn considers the total number of firm births and deaths as a proportion of the enterprise population. Ireland had one of the lowest churn rates in the euro area in 2010.

**Euro area-15 Ranking**  
(net business growth):  
14<sup>th</sup>

Source: Eurostat

### 4.1.2 Trade

Figure 4.6: Exports of goods, intra-EU and extra-EU (% GDP), 2013<sup>36</sup>

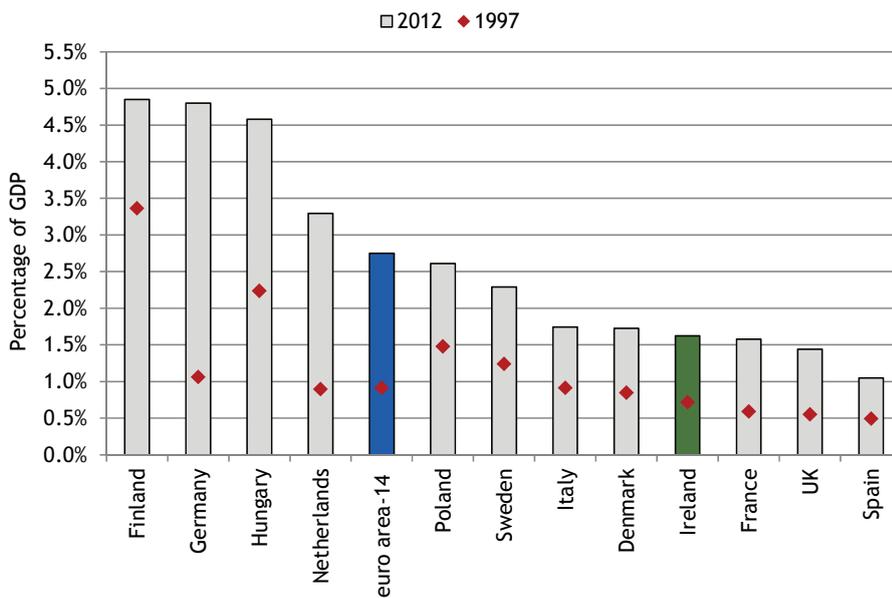


Ireland continues to be one of the most open countries to trade in the EU. The value of Irish merchandise in 2013 exported to the EU-28 amounted to 30% of GDP. Ireland also has significant trading links with non-euro area countries - a particular challenge given recent fluctuations in the value of the euro. The majority of non-euro trade is conducted in US dollars.

**Euro area-18 Ranking:**  
GDP: 6<sup>th</sup> (-)  
GNP: 6<sup>th</sup> (↓1)

Source: Eurostat

Figure 4.7: Exports to emerging markets (% GDP), 2012<sup>17</sup>

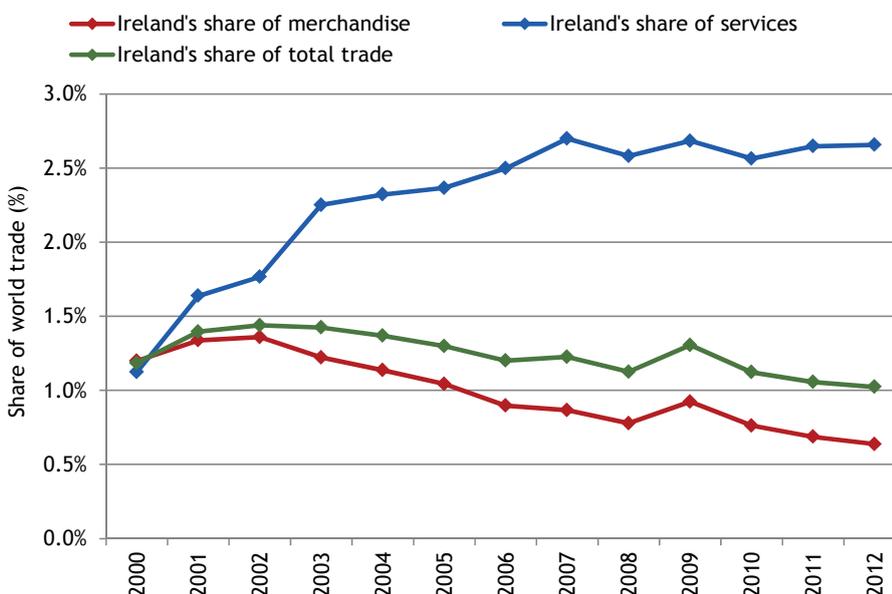


As alluded to in Figure 4.6, the majority of Irish exports go to the US (19.9%) and UK (16.6%). Looking at crucial developing markets, Ireland's total exports to Brazil, Russia, India and China (BRIC) have increased almost fivefold since 1997 in value terms. Expressed as a percentage of GDP, exports to the BRICs has grown from 0.7% to 1.6%. Other countries have also increased the value of their exports to these markets; as a result Ireland's euro area ranking remains unchanged.

**Euro area-14 Ranking:**  
10<sup>th</sup> (-)

Source: OECD

Figure 4.8: Ireland's share of world trade: overall, merchandise and services (%), 2012

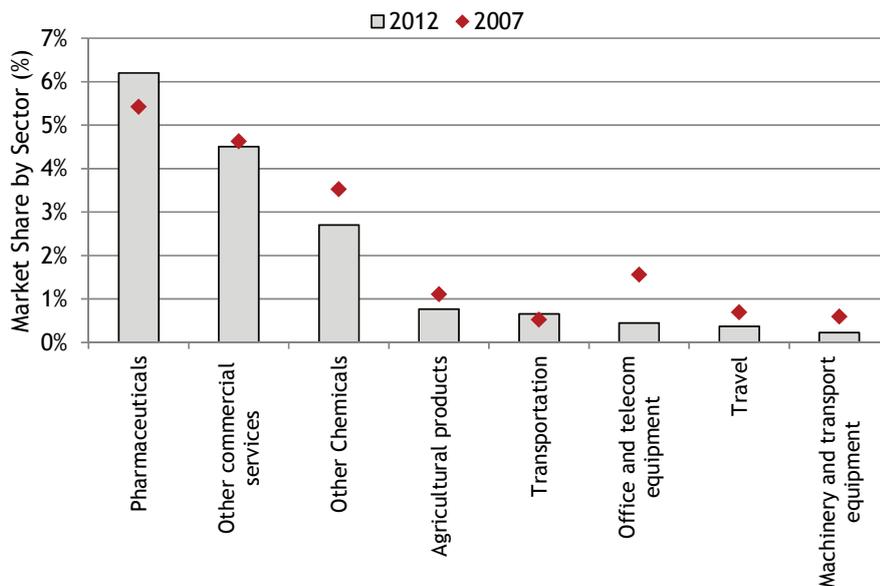


Ireland has had been successful in expanding its share of the world's services market in recent years, reaching 2.7 per cent in 2012, up from 1.1% in 2000. However, Ireland's share of the merchandise and total world markets has declined since their 2002 peak of 1.4%. In 2012 Ireland's market share stood at 0.6 per cent and 1 per cent of merchandise and world trade respectively.

**Ranking:** n/a

Source: World Trade Organisation

Figure 4.9: Ireland's world market share by sector (%), 2012

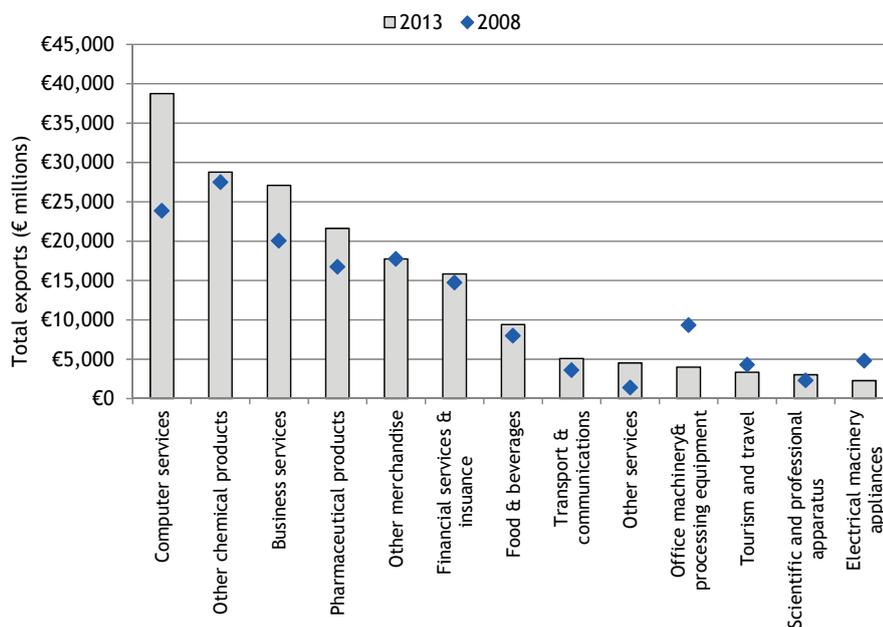


This indicator measures Ireland's share of world exports at a sectoral level. Ireland gained market share in pharmaceuticals and transportation between 2007 and 2012, however, Ireland has lost significant market share in office and telecom equipment as well as machinery and transport equipment and travel.

Ranking: n/a

Source: World Trade Organisation

Figure 4.10: Total goods and services exports by sector from Ireland (€million), 2013

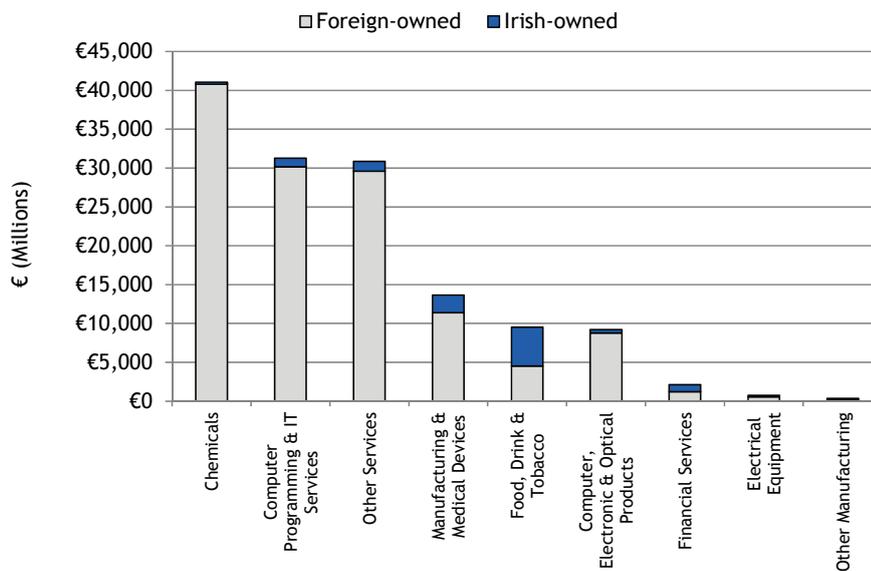


Average annual growth in total exports between 2008 and 2012 was 3.7%. Despite remaining a significant driver of exports the value of exports from the pharmaceutical sector in Ireland has seen a notable decline in recent years due to the impact of the patent cliff. Since the peak in 2011, exports from this sector are down 18.1%.

Ranking: n/a

Source: CSO, External Trade

Figure 4.11: Enterprise agency client exports from Ireland by sector and firm ownership, 2011

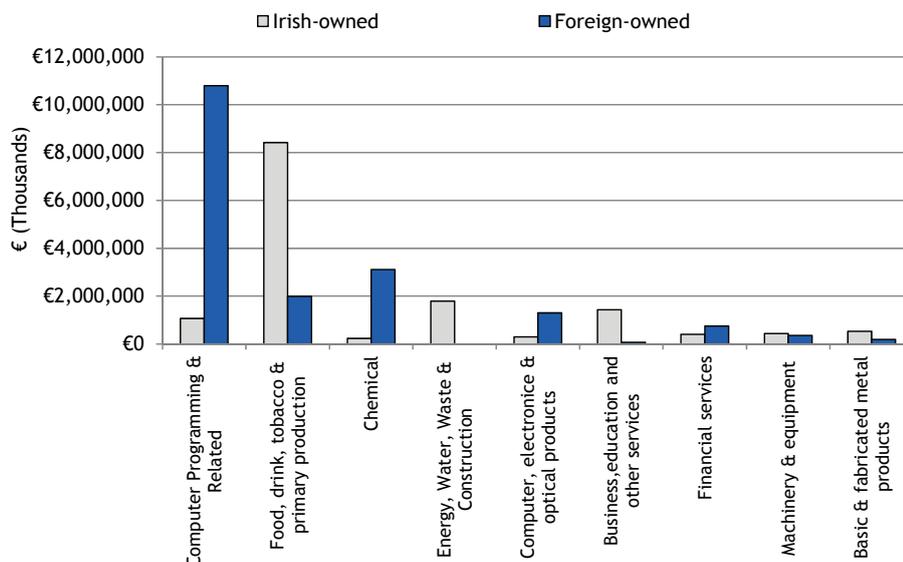


Irish-owned companies account for 9.2% of total agency client exports. Indigenous companies dominate “Food and Drink” and “Utilities and construction” related exports. Foreign-owned firms account for more than 90% of exports from each of the top three sectors. Within the foreign owned dominated sectors, exports are often driven by a small number of large firms.

Ranking: n/a

Source: Forfás, Annual Business Survey of Economic Impact 2012

Figure 4.12: Direct expenditure in the economy by sector, 2011

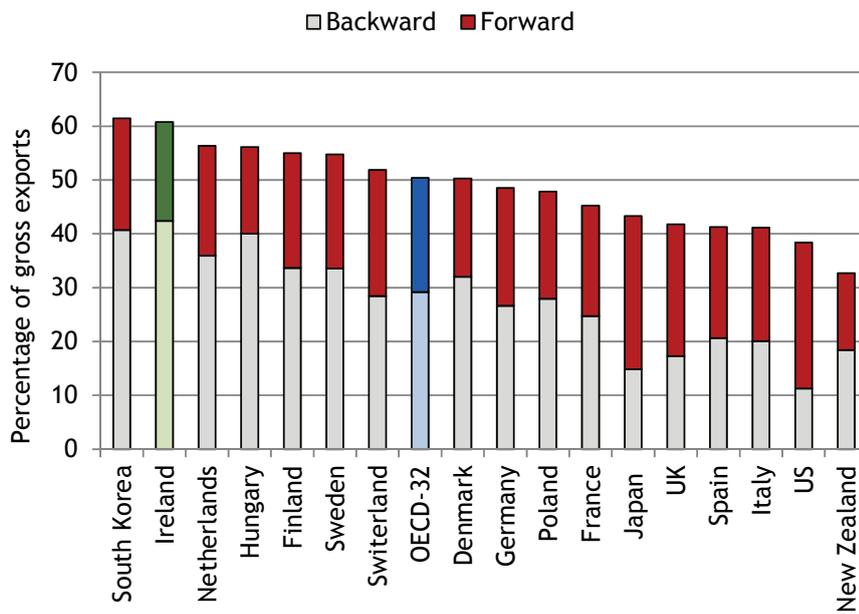


The export intensity of sectors does not correlate to the value of direct expenditure in the Irish economy by Enterprise Agency client companies. While Food, Drink and Tobacco accounted for 6.7% of total exports from Agency client companies, the sector accounted for 26.5% of direct expenditure in the Irish economy.

Ranking: n/a

Source: Forfás, Annual Business Survey of Economic Impact 2011

Figure 4.13: Participation in Global Value Chains, 2009<sup>38</sup>



FDI is largely responsible for Ireland's high participation in global value chains (GVCs). The high overall GVC ranking is due to the extensive use of foreign inputs in Irish exports (backward participation) as opposed to Irish inputs being used in third country exports (forward participation). Participation in GVCs is strong in food, finance, pharmaceuticals, and business services.

**OECD-30 Ranking:**

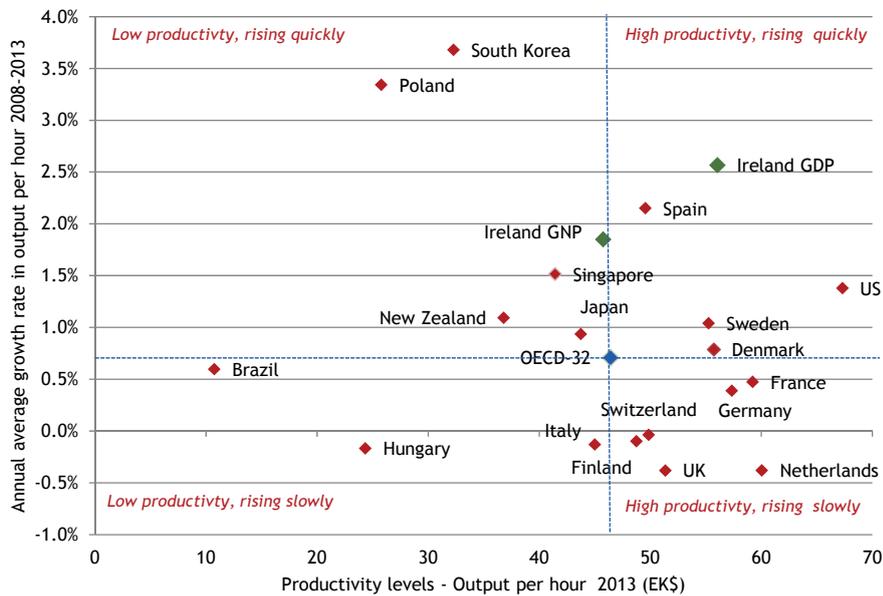
Backward: 3<sup>rd</sup>

Forward: 24<sup>th</sup>

Source: OECD

## 4.2 Productivity

Figure 4.14: Productivity levels and growth rates, 2013<sup>39</sup>



Irish productivity levels improved considerably between 2008 and 2013 with average annual growth of 2.6% in GDP terms. In GNP terms, average annual growth of 1.85% was recorded. GDP productivity levels now exceed the OECD-32 average, although in GNP terms they continue to remain slightly below average. Previous NCC analysis showed that much of Ireland's performance arose from changes in the composition of employment during the recession rather than broad based productivity growth.

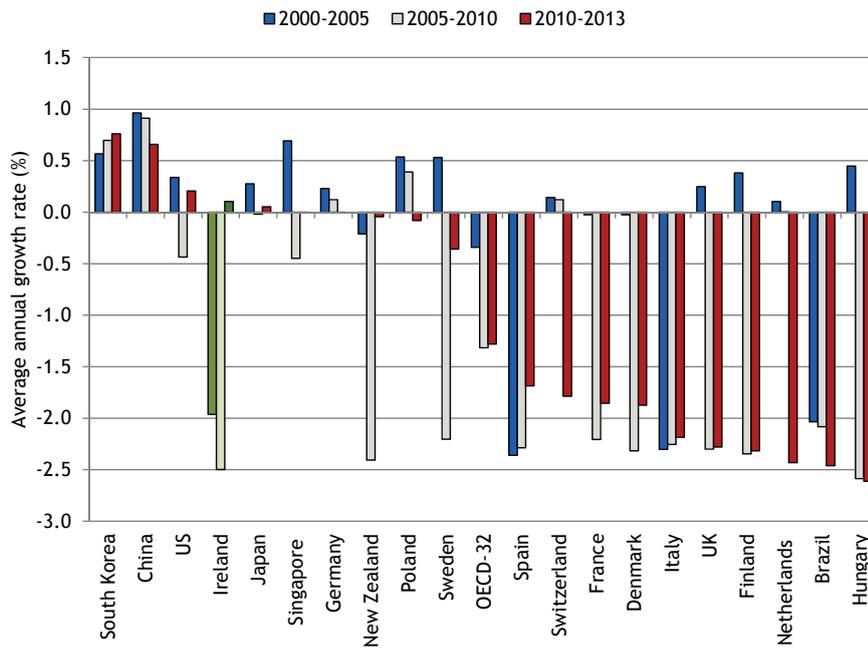
**Euro area-18 Ranking:**

GDP level: 6<sup>th</sup> (↑1)

GNP level: 9<sup>th</sup> (↑1)

Source: The Conference Board Total Economy Database

Figure 4.15: Growth in total factor productivity (%), 2000-2013



Total-factor productivity (TFP), also called multi-factor productivity, accounts for effects in total output not caused by traditionally measured inputs of labour and capital. TFP can be taken as a measure of an economy's long-term technological change or technological dynamism. While performance was poor in earlier periods, since 2010, Ireland is one of the few countries to demonstrate positive TFP.

**OECD-32 Ranking:**  
2010-2013: 5<sup>th</sup> (↑22)

Source: The Conference Board Total Economy Database

## 4.3 Prices and Costs

### 4.3.1 Prices

Figure 4.16: Consumer price levels and inflation, 2008-2012<sup>40</sup>

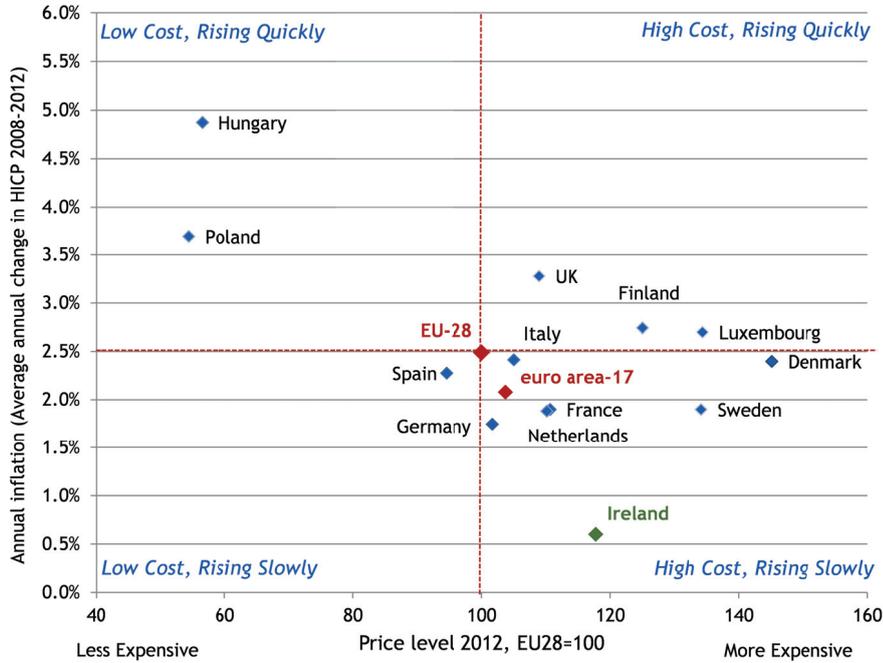


Figure 4.16 illustrates changes in prices (inflation) during the 2008-2012 period and 2012 price levels. Ireland's current price level and inflation profile can be described as high cost but rising slowly. Ireland's average annual inflation for the period was 0.6% compared to a euro area-18 average of 2.1%. However price levels in 2012 were 13.6% above the euro area average.

#### Euro area-18 Ranking:

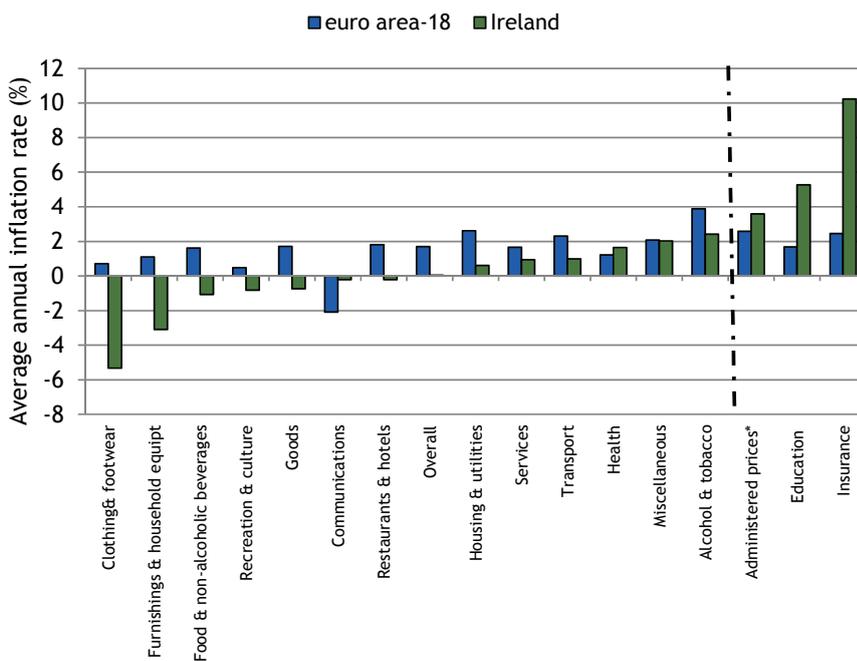
Price Levels: 15<sup>th</sup>

Average Annual

Inflation: 1<sup>st</sup>

Source: Eurostat

Figure 4.17: Average annual inflation rate by commodity group, Ireland and euro area, 2008-2013

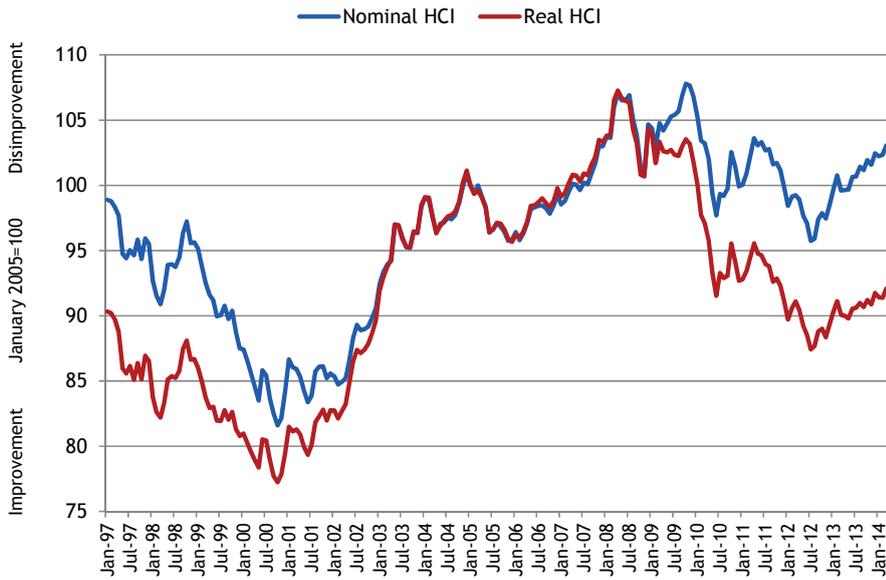


While average annual inflation in Ireland (0.1%) was significantly below the euro area-18 average (1.7%) for the period 2008-2013, inflation for a number of commodities was higher in Ireland. Administered prices (3.6%), education (5.3%) and insurance (10.2%) inflated more quickly in Ireland than for the euro area-18 average.

Ranking: n/a

Source: Eurostat

Figure 4.18: Harmonised competitiveness indicator for Ireland (HCI), January 1997 - April 2014



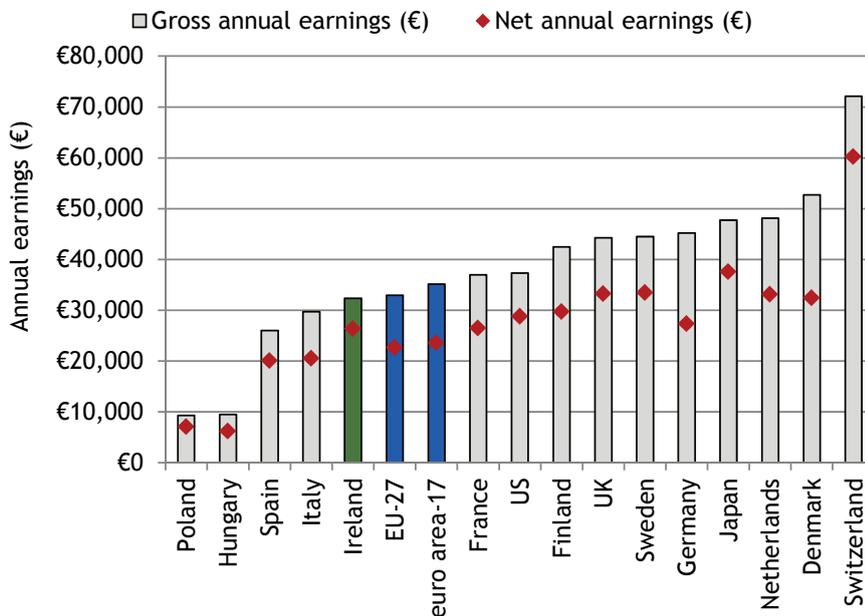
Since the onset of the recession, Ireland's real HCI improved significantly compared to our trading partners. Since August 2012, however, cost competitiveness has deteriorated by just over 7% in nominal terms. Taking account of inflation, the real HCI has deteriorated by 4.6%, suggesting that while exchange rates are driving the deterioration in relative cost competitiveness this has been partially offset by lower price increases in Ireland than in our trading partners.

Ranking: n/a

Source: Central Bank of Ireland

### 4.3.2 Pay Costs

Figure 4.19: Average annual gross and net earnings, 2013<sup>41</sup>



Gross wages include wages, taxes on income and employer and employee social security contributions. Ireland has the 8<sup>th</sup> highest gross and net wage level in the euro area-17. While gross earnings are 8% below the euro area average, net earnings are 11.6% above the euro area average, partly a result of the relatively small gap between before and after-tax wages in Ireland.

**Euro area-17 Ranking:**

Gross earnings: 8<sup>th</sup> (-)

Net earnings: 8<sup>th</sup> (↓5)

Source: Eurostat

Figure 4.20: Annual growth in labour costs, 2001-2013

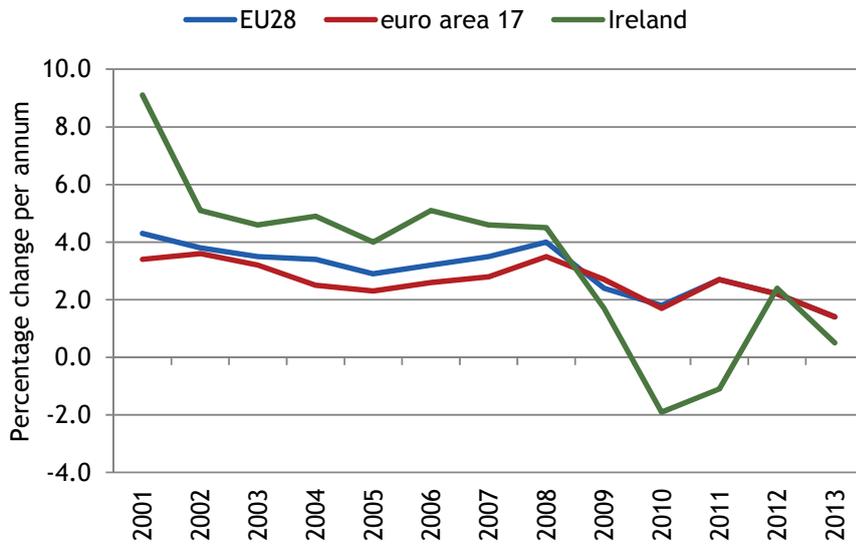
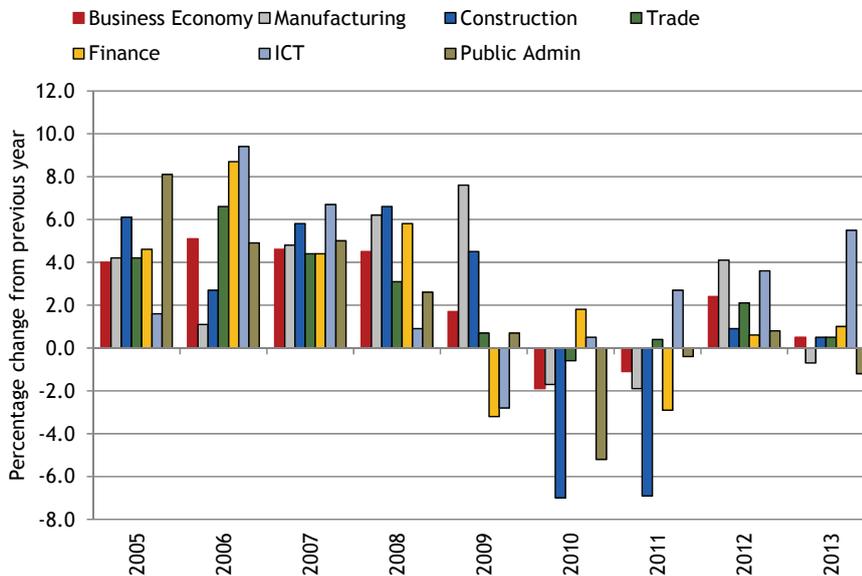


Figure 4.20 compares trends in labour costs in Ireland with the euro area-17 and EU-28. From a high of 9.1% growth in 2001, Irish labour costs fell in both 2010 (-1.9%) and 2011 (-1.1%). In 2012, labour costs rose by 2.4% in Ireland - slightly above the EU and euro area averages (2.2%). In 2013, while wage growth in Ireland was positive (0.5%), the rate of growth slowed and was less than the both the euro area and EU (1.4%).

Ranking: n/a

Source: Eurostat

Figure 4.21: Average growth rate in labour costs in Ireland by sector, 2005-2013

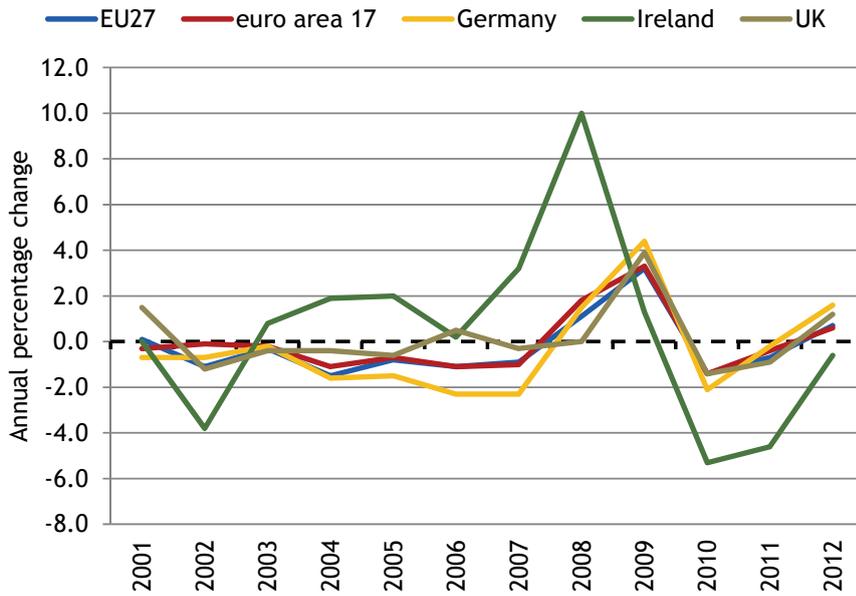


In 2010 and 2011, average growth rates in labour costs fell across most sectors in Ireland. In 2012, growth in labour costs resumed, particularly in the manufacturing (+4.1%) and trade sectors (+2.1%). In 2013, the sectoral data demonstrates a large degree of variation between sectors - for example while labour costs in ICT increased by 5.5%, labour costs fell in manufacturing (-0.7%), and public administration (-1.2%).

Ranking: n/a

Source: Eurostat

Figure 4.22: Annual change in real unit labour costs, 2001-2012<sup>42</sup>

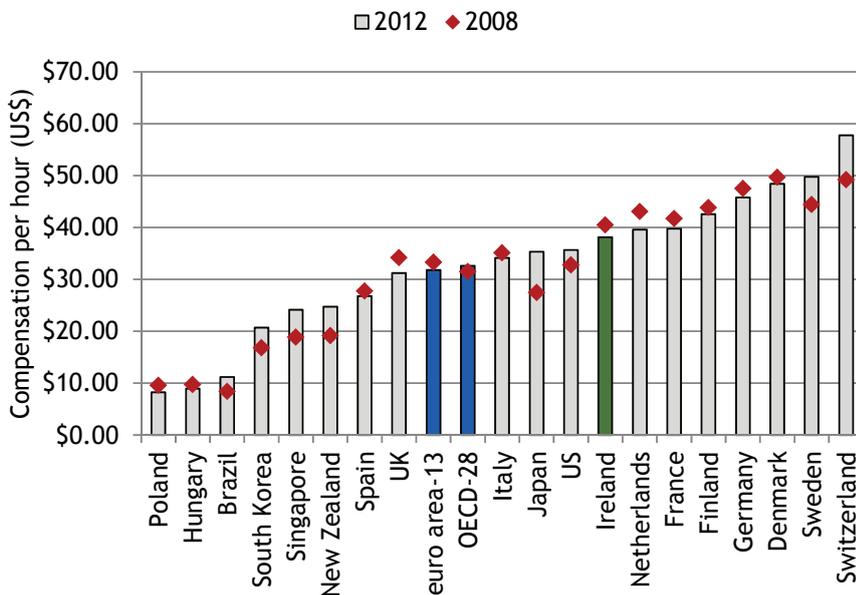


Between 2002 and 2008, higher annual increases in Irish ULC's were generally recorded compared with EU and euro area averages. Conversely, real Irish ULC's fell by 5.3% in 2010 and 4.6% in 2011, with a more modest reduction of 0.6% recorded in 2012. Data from the Central Bank of Ireland shows that Irish ULCs increased by 1.4% in 2013, and are projected to increase by 0.3% and 0.2% in 2014 and 2015 respectively.

Ranking: n/a

Source: Eurostat

Figure 4.23: Hourly compensation costs in manufacturing (US\$), 2012<sup>43</sup>

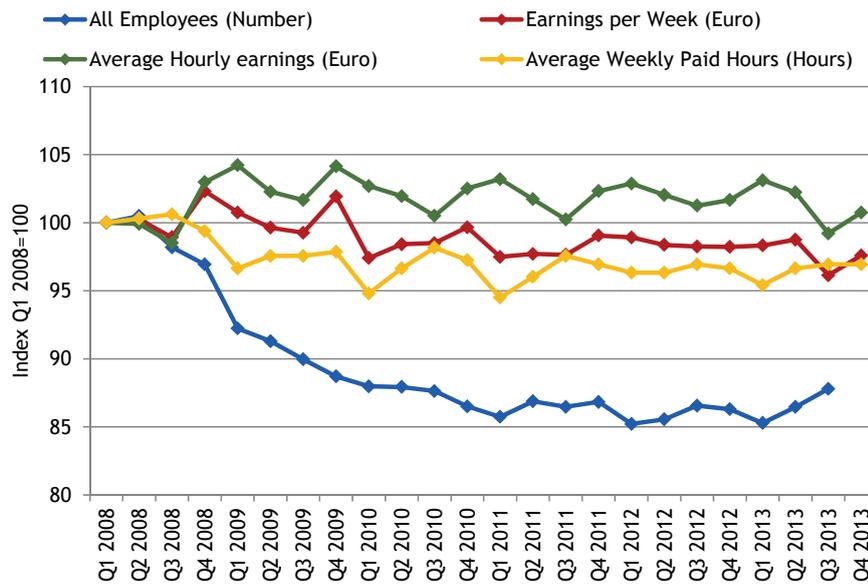


Compensation costs include direct pay, social insurance expenditures, and labour-related taxes. Hourly compensation costs in manufacturing in 2012 in Ireland (\$38.17) were higher than in the euro area-13 (€31.84), OECD-28 (\$32.67) and the US (\$35.67). Since 2008, hourly compensation costs in Ireland have fallen by 5.8%.

OECD-28 Ranking: 17<sup>th</sup> (↑1)

Source: US Bureau of Labour Statistics

Figure 4.24: Earnings per week, earnings per hour and hours worked, 2008-2013



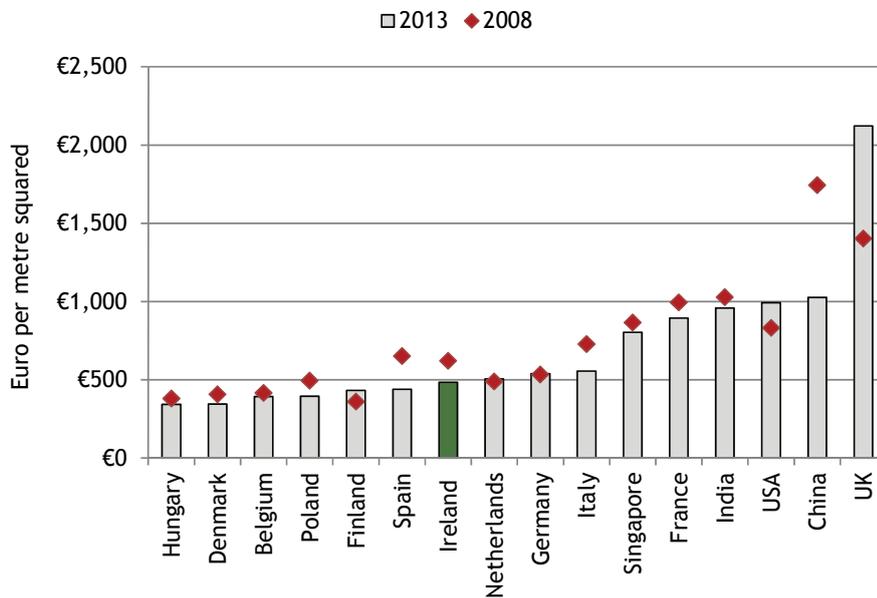
Firms can control labour costs in a number of ways. Figure 4.24 tracks average hourly and weekly earnings and hours worked, as well as total employment since 2008. Over the course of recession, employment declined dramatically. In terms of wages, average hourly earnings actually increased marginally over the entire period analysed, while average weekly wages declined. This reflects the reduction in weekly paid hours, from 32.7 hours per week in Q1 2008 to 31.7 hours in Q4 2013.

Ranking: n/a

Source: CSO, Earnings, Hours and Employment Costs Survey

### 4.3.3 Non-Pay Costs

Figure 4.25: Cost (per m<sup>2</sup>) to rent a prime office space, 2013

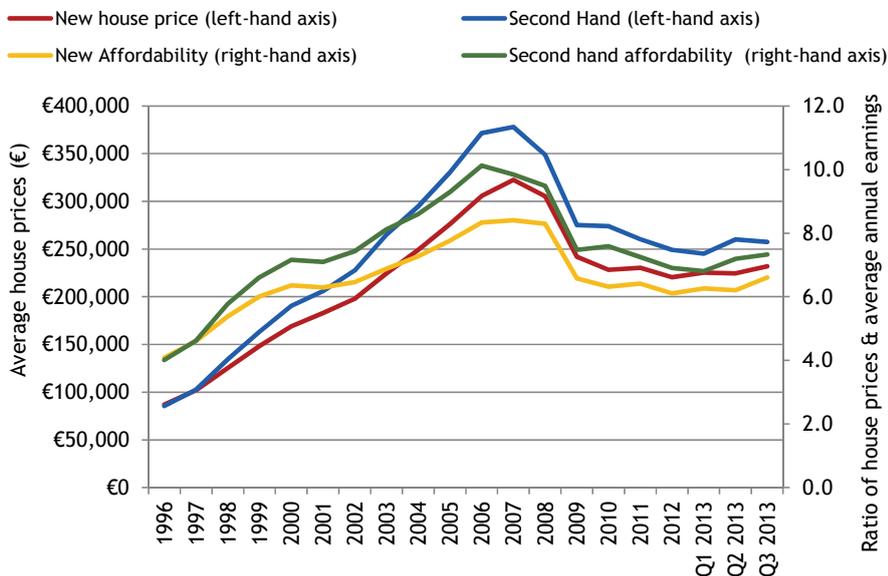


Office rents in Dublin on new leases fell by 28% between 2008 and 2013 considerably improving the cost competitiveness of high spec commercial rental vis-à-vis other international cities. However, between 2012 and 2013, new office rents rose by 10.5%, the first increase since the downturn, reflecting a shortage of well located, high quality premises.

Ranking out of 16:7<sup>th</sup> (↑1)

Source: Cushman & Wakefield, Office Rents Around the World 2008-2013

Figure 4.26: Affordability of Irish house prices, 1996-Q3 2013

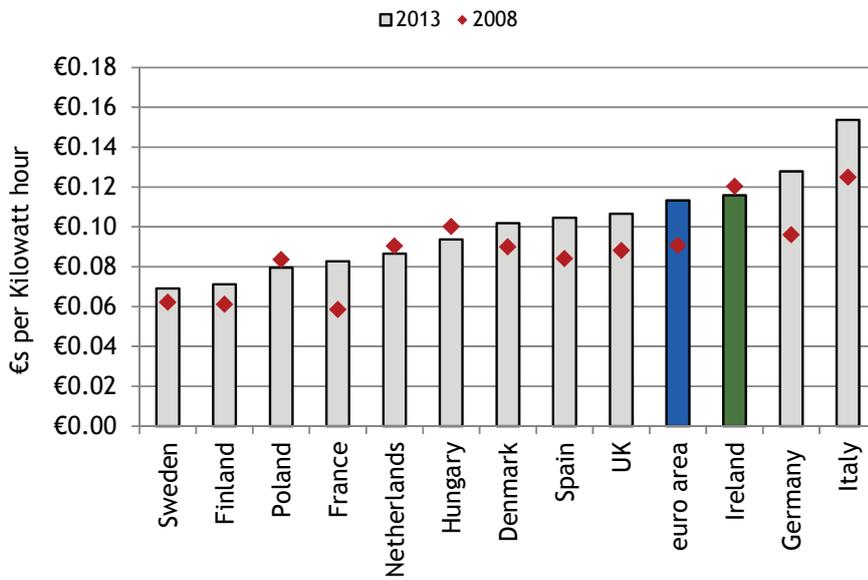


Since the end of the construction and housing bubble, house prices have experienced a major downward adjustment - in Q3 2013, house prices (on a non-mix adjusted basis) were approximately 30% below 2007 peak levels, notwithstanding emergent upward pressures<sup>44</sup>. This has resulted in improved affordability - albeit at levels significantly elevated when compared with the mid-1990s.

Ranking: n/a

Source: Department of Environment Community and Local Government / CSO Earnings, Hours and Employment Costs Survey

Figure 4.27: Industrial electricity prices (excluding VAT), 2013<sup>45</sup>



Electricity prices for large industrial users fell by 9% in Ireland between the end of 2008 and the end of 2013. Electricity costs in Ireland are 3% above the euro area average and Ireland is the 5<sup>th</sup> most expensive location within the euro area behind Cyprus, Malta, Italy and Germany. Between 2009 and 2012 a rebate on energy charges for large users contributed to lower prices in Ireland. Since the rebate ended in 2012 and with increasing global gas prices, electricity prices have increased.

**Euro area-17 Ranking:**  
14<sup>th</sup> (↑1)

Source: Eurostat

Figure 4.28: Business DSL and Cable Basket (>10 Mbps), € per month excluding VAT, December 2013<sup>46</sup>

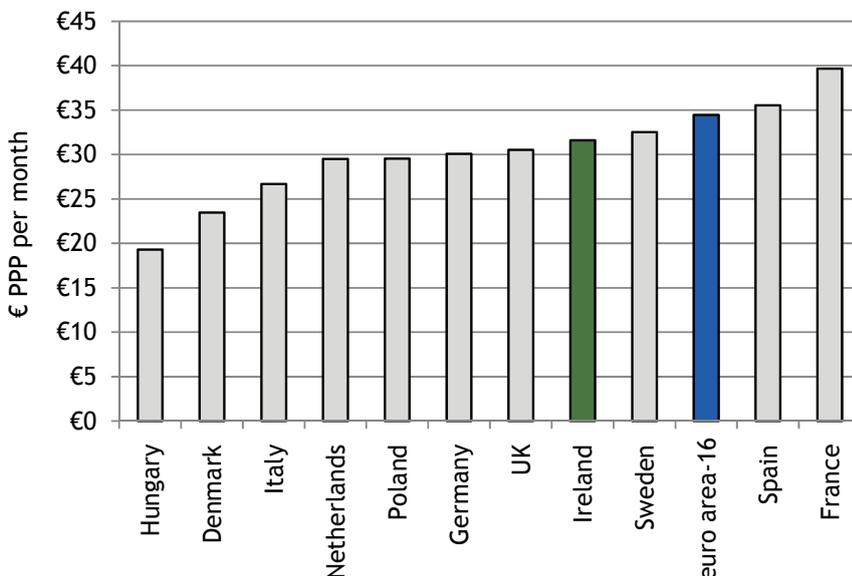


Figure 4.28 shows the lowest monthly business pricing for DSL and cable in the >10 Mbps speed category. The Irish cost of €31.60 is 8.3% below the euro area-16 average but is more expensive than a range of other competitor locations including the UK, Germany, Poland and the Netherlands.

**Euro area-16 Ranking:**  
7<sup>th</sup>

Source: ComReg Quarterly Key Data Report, Q4 2013 / Teligen

Figure 4.29: Water costs for industrial users (per cubed metre), 2012

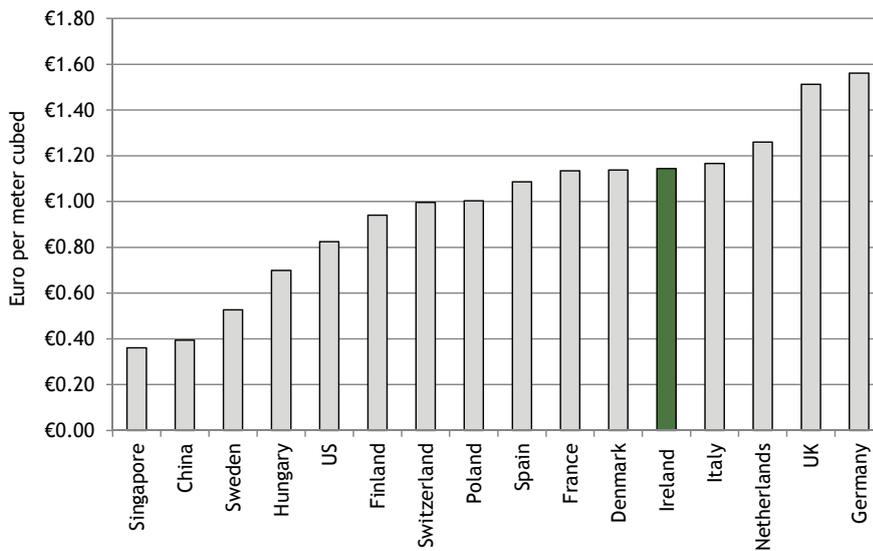


Figure 4.29 examines water costs for industrial users (but does not include the cost of waste water services). Given the complexities and inconsistencies in how water costs data is collected internationally, caution should be used when drawing inferences from this data. The average cost of water per meter cubed in Ireland is €1.15.

Ranking out of 16: 12<sup>th</sup>

Source: Economic Intelligence Unit

Figure 4.30: Services Price Index, Q1 2006-Q3 2014

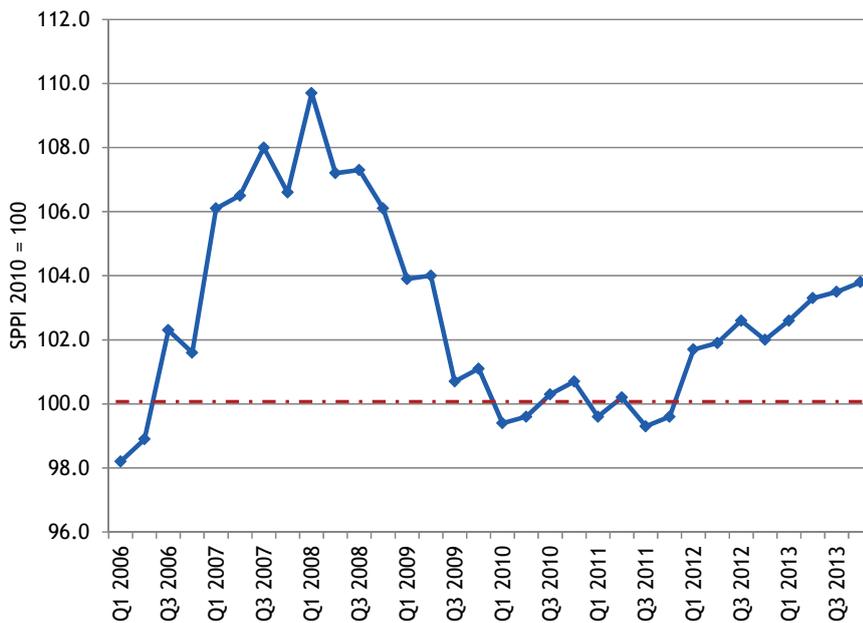
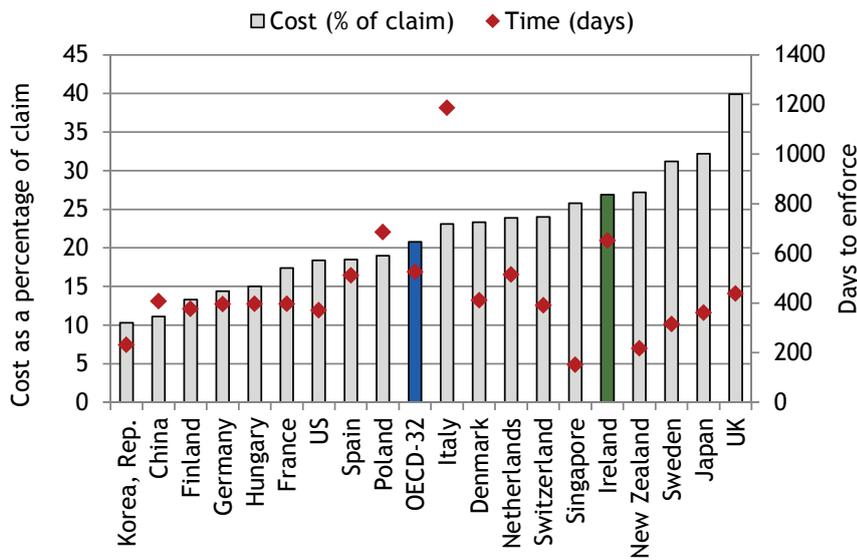


Figure 4.30 shows that throughout 2012 and 2013, the price of a range of business services has generally been increasing. This follows a period of significant price declines over the course of the recession. In Q4 2013, prices are 3.3% above 2010 levels. At a sectoral level, the most notable changes in 2013 were: Sea and Coastal Transport (+10.8%), Air Transport (+9.1%), Advertising, Media Representation and Market Research (+4.1%) and Warehousing, Storage and Cargo Handling (-6.1%).

Ranking: n/a

Source: CSO, Services Producers Price Index

Figure 4.31: Legal fees - enforcing a contract (% of total claims), 2013



Ireland is an expensive location to enforce a business contract. The World Bank estimates that the total cost of contract enforcement in Ireland amounts to 26.9% of a claim, compared with 21% in the OECD. Attorney fees account for 70% of the reported cost of enforcing a business contract in Ireland. It also takes significantly longer in Ireland to enforce a contract than in most of the OECD.

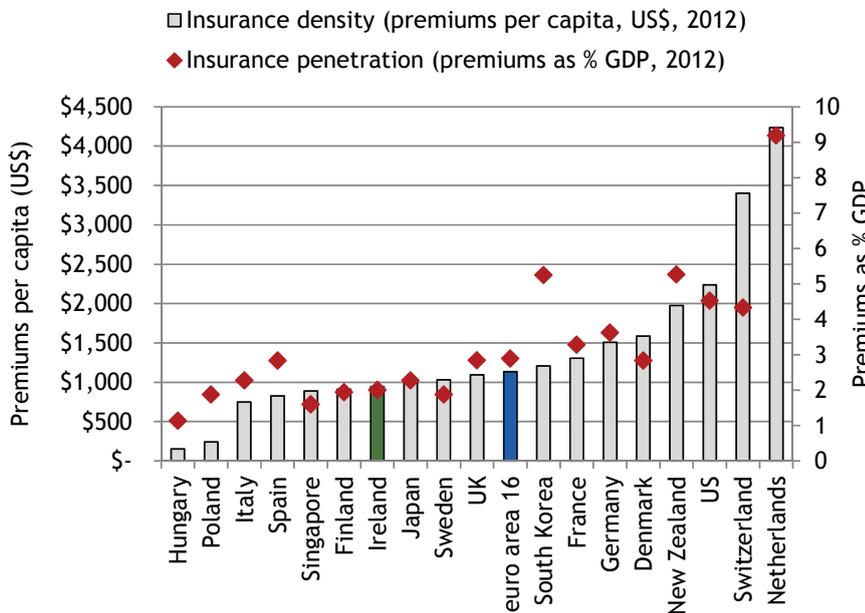
**OECD-32 Ranking:**

Cost: 24<sup>th</sup>

Time: 26<sup>th</sup>

Source: World Bank Doing Business

Figure 4.32: Non-life insurance density and penetration, 2012



High insurance density (premiums per capita) can be a function of both high insurance costs and the requirement for high coverage levels. Non-life insurance relates to motor, property, employer's liability, public liability, travel and other business insurance. The density of non-life insurance in Ireland (\$943) is below that of the euro area 16 (\$1,133). At 2% of GDP, insurance penetration in Ireland is relatively low.

**Ranking out of 16:**

Density: 7<sup>th</sup>

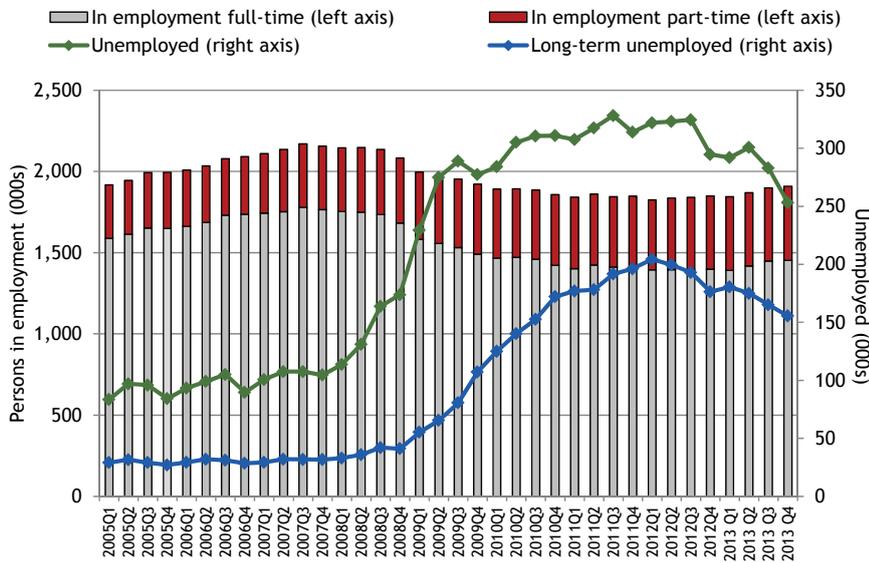
Penetration: 6<sup>th</sup>

Source: Swiss Re

## 4.4 Employment and Labour Supply

### 4.4.1 Employment and Unemployment

Figure 4.33: Employment, unemployment & long term unemployed (000's), 2005-2013

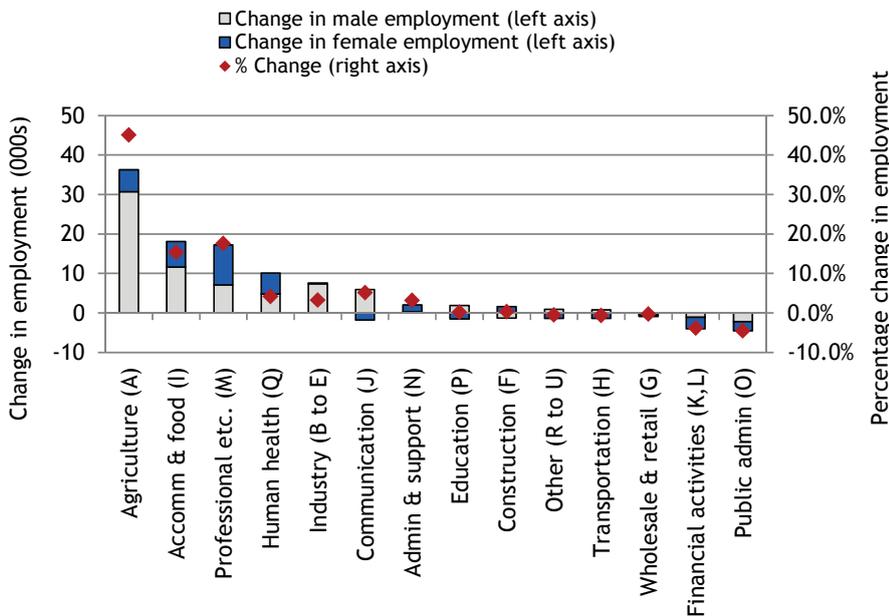


Following several years of decline and stagnation, in mid-2012, the labour market showed the beginnings of recovery. There was an annual increase in employment of 0.1% in the year to Q4 2012, followed by an annual increase of 3.3% in the year to Q4 2013, bringing total employment to 1,909,800. There are currently over 253,000 people unemployed, down from a peak of 328,000 in Q3 2011. Of these, 61% are long-term unemployed.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.34: Change in employment in Ireland by sector and gender, 2012-2013<sup>47</sup>

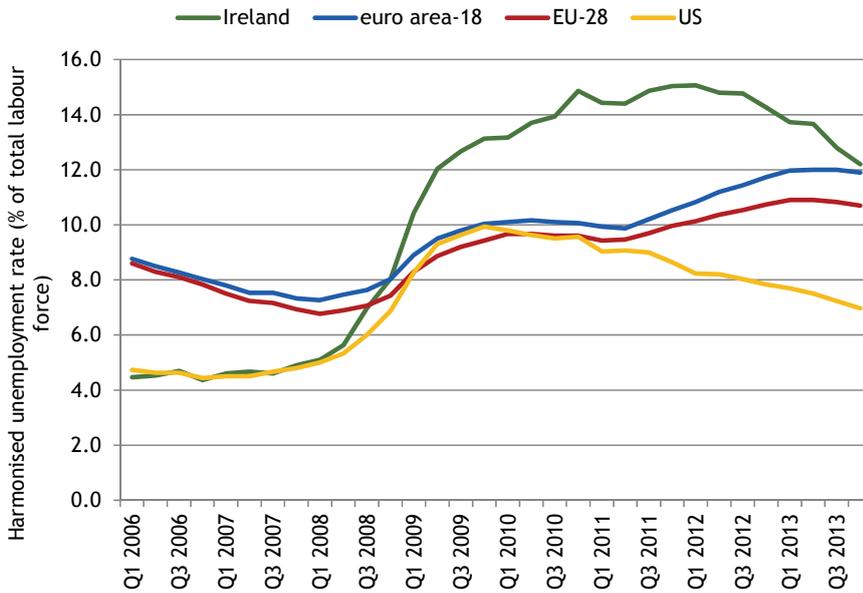


An additional 84,800 people are in employment in Q4 2013 compared with Q1 2012. Figure 4.34 shows that employment growth has been particularly strong in the agriculture, accommodation & food, and professional sectors. Growth in male employment has been especially strong in the agriculture sector. A number of sectors have continued to lose employment over this period, including the public, financial services and retail sectors.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.35: Unemployment (standardised rates), Q1 2006-Q4 2013<sup>48</sup>

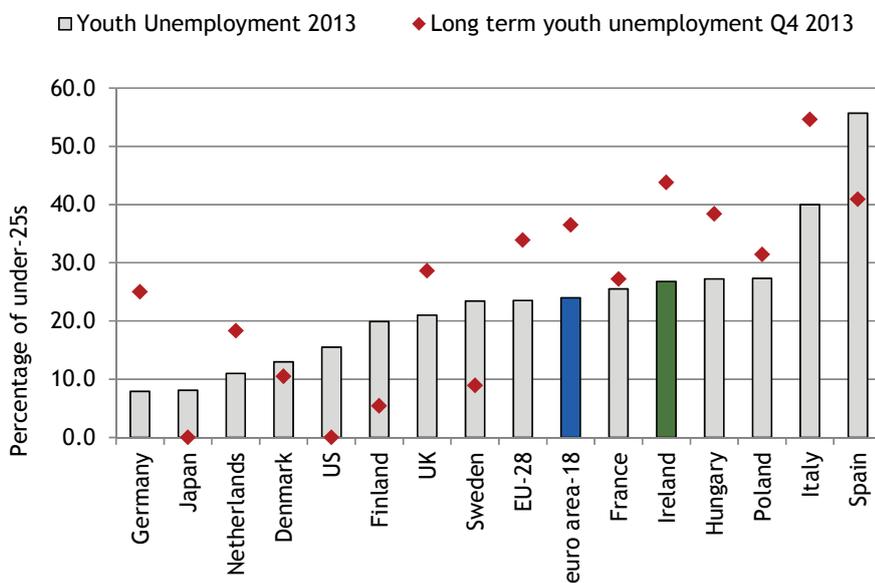


The standardised rate of unemployment in Ireland has declined from a peak of approximately 15% in 2010 and 2011 to 12.2% in Q4 2013. This compares with a rate of 11.9% in the euro area-18 and 10.7% in the EU-28. The performance of the US has been much stronger.

**Euro area-15 Ranking:**  
10<sup>th</sup> (↑1)

Source: OECD

Figure 4.36: Youth unemployment and long term youth unemployment rate, 2013



Unemployment amongst those aged 15-24 years doubled between 2008 and 2013 in Ireland and stood at 26.8% in 2013. Of these, 43.8% are considered long-term unemployed (i.e. unemployed for 12 months or more). By comparison, the youth unemployment rate in the euro area was 24%; of these, 36.5% are long term unemployed.

**Euro area-18 Ranking:**  
Youth: 12<sup>th</sup> (↓4)  
Long-term: 14<sup>th</sup>

Source: Eurostat

Figure 4.37: Young people not in employment, education or training, Q4 2012

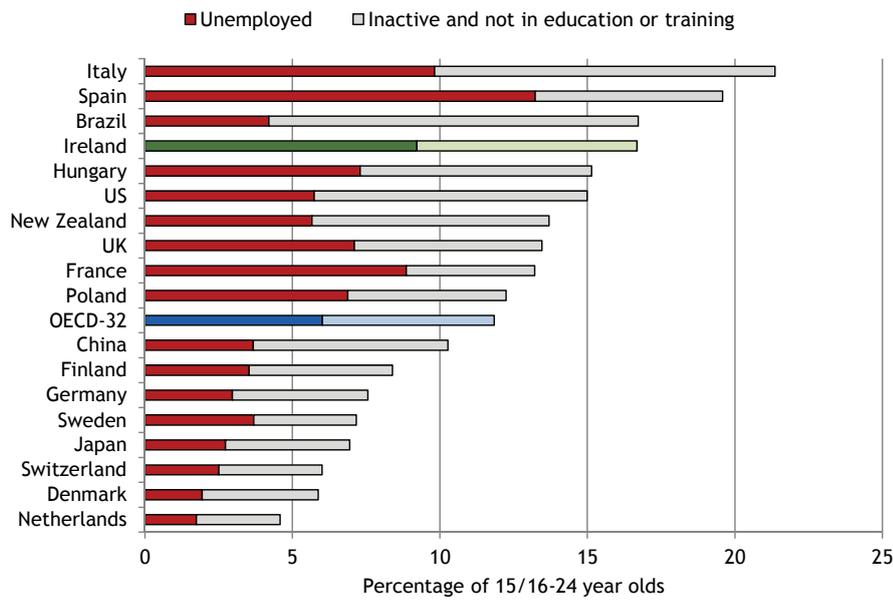
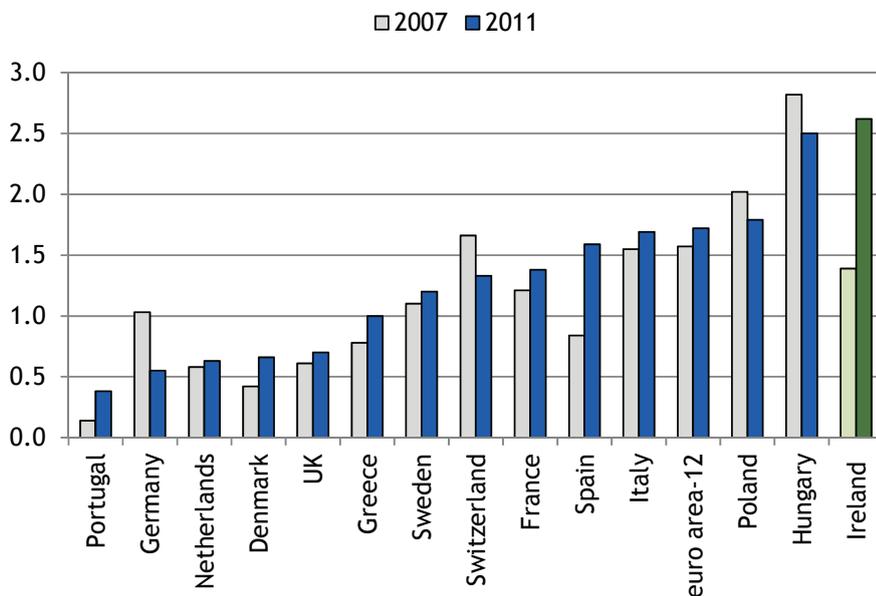


Figure 4.37 extends the analysis of youth unemployment to capture data on the proportion of the 15-24 years age cohort who are not in employment, education or training (NEET). Ireland performs poorly under this indicator with high levels of youth unemployment combined with high levels of inactivity amongst this cohort. The Irish NEET rate (16.7%) exceeds the OECD average (11.8%).

**OECD-32 Ranking:**  
 Total NEET: 25<sup>th</sup>  
 Unemployed: 24<sup>th</sup>  
 Inactive: 22<sup>nd</sup>

Source: OECD, Society at a Glance 2014

Figure 4.38: Skills Gap index, 2011<sup>13</sup>

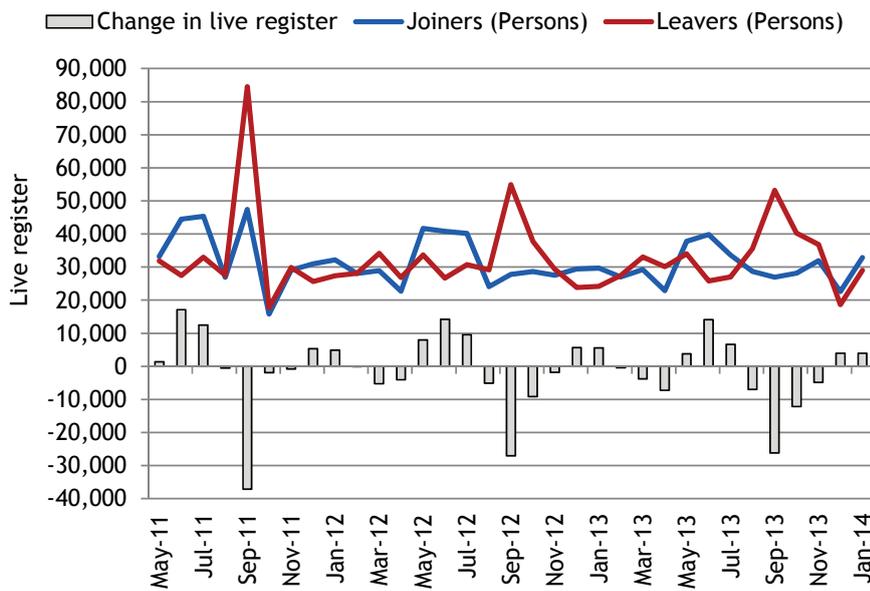


The skills gap index measures the gap between the proportion of the low, medium and high skilled in the working population and the corresponding proportion in employment. Between 2007 and 2011, the gap between the skills in the working population and the skills of those in employment widened in Ireland, suggesting a mismatch between skills that are available within the labour force and the skills that demanded by enterprise.

**Euro area-12 Ranking:**  
 12(↓3)

Source: OECD, Economic Survey of Ireland 2013

Figure 4.39: Live register flow analysis, May 2011-January 2014<sup>50</sup>



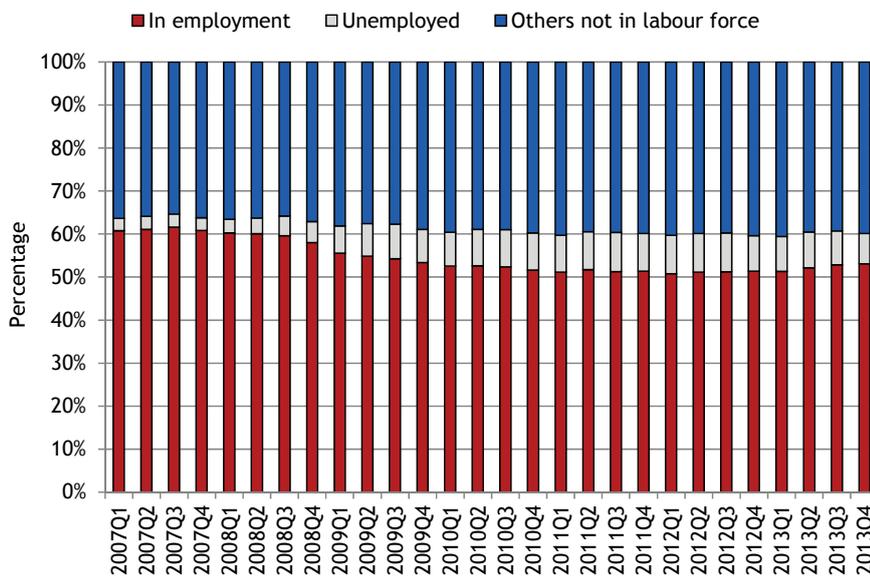
Even during the depths of the recession, there was a significant degree of activity in the labour market as individual's lost and found employment. Each month, between 5-10% of those signing on leave the Live Register. Nevertheless, the number of long-term claimants on the Live Register in March 2014 was 179,335. There were also 79,811 casual and part-time workers on the Register in March 2014, representing 20.4% of the total claimants.

Ranking: n/a

Source: CSO, Live Register

#### 4.4.2 Labour Supply Characteristics

Figure 4.40: Labour market participation rates, 2007-2013

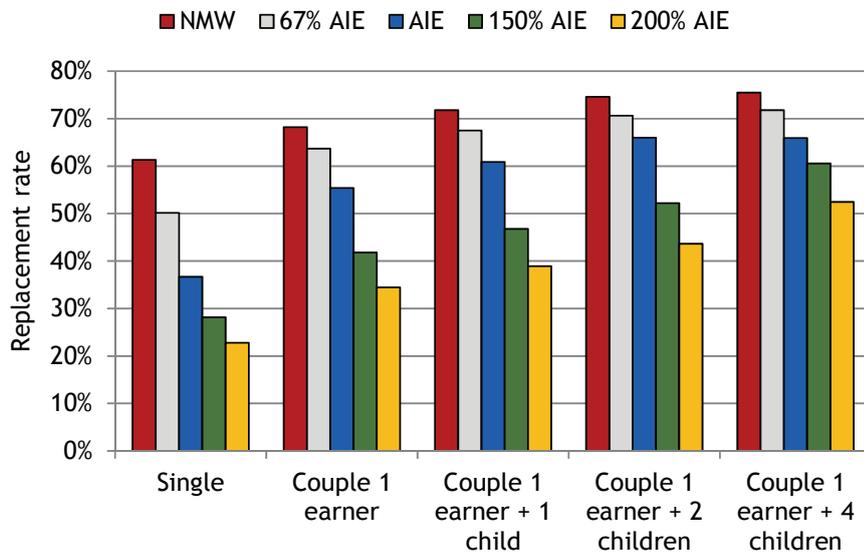


The Irish labour market experienced declining participation rates (employment plus unemployed) during the recession. From a peak of over 64% in 2007, participation rates fell to 59% in 2012 before recovering slightly to 60.4% in Q4 2013. While the female participation rate remained relatively stable, the male participation rate - driven by the construction sector - has fallen from 74% to 67.9%, reflecting a loss of labour supply.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.41: Replacement rates in Ireland at the national minimum wage (NMW) and percentages of the average industrial wage (AIE), 2013

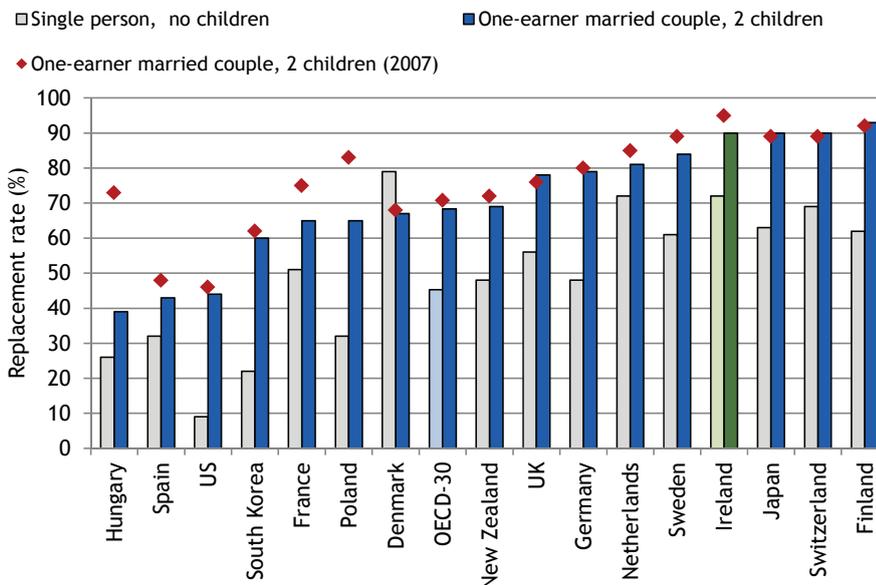


Replacement rates (excluding housing benefits) tend to be lower for single people than for married couples - for example a couple with 2 children and 1 earner on the average wage has a replacement rate of 66% compared with a replacement rate of 37% for single individuals earning the same amount. The inclusion of housing benefits has an adverse impact on results pushing several recipient types above the 70% threshold, particularly those earning less than the average wage.

Ranking: n/a

Source: Department of Social Protection

Figure 4.42: Net replacement rates for long term unemployed, 2012<sup>21</sup>



Irish replacement rates for the long-term unemployed were significantly higher than the OECD average for both single earners and one-earner married couples with 2 children (earning 67% of the average wage). These replacement rates apply to a small subset of those in receipt of jobseekers supports in Ireland (i.e. the long-term unemployed who receive Rent Supplement).

OECD-30 Ranking:

Single: 28<sup>th</sup> (↑1)

Married: 24<sup>th</sup> (↑5)

Source: OECD

Figure 4.43: Childcare costs as a % of net income for two parents and lone parent, 2012<sup>52</sup>

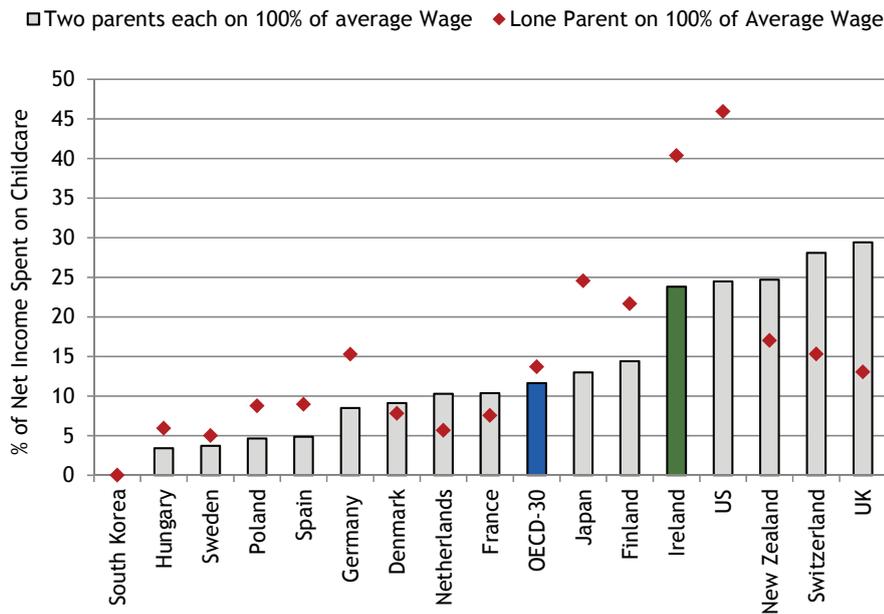


Figure 4.43 shows the cost of full time formal childcare as a percentage of income for two household types. Ireland is an expensive location for formal childcare services. For a household with two adults both on 100% of the average wage, childcare costs amount to 23.8% of net income, compared to an OECD average of 11.6%. For lone parents on the average wage, childcare costs amount to 40.4% of net income compared to 13.7% for the OECD.

**OECD-30 Ranking:**

Two parent: 26<sup>th</sup>

Lone parent: 29<sup>th</sup>

Source: OECD

Figure 4.44: Implicit tax on a second earner returning to work, (Net transfers and childcare fees for households with two children aged 2 and 3, 67% of average earnings), 2008<sup>53</sup>

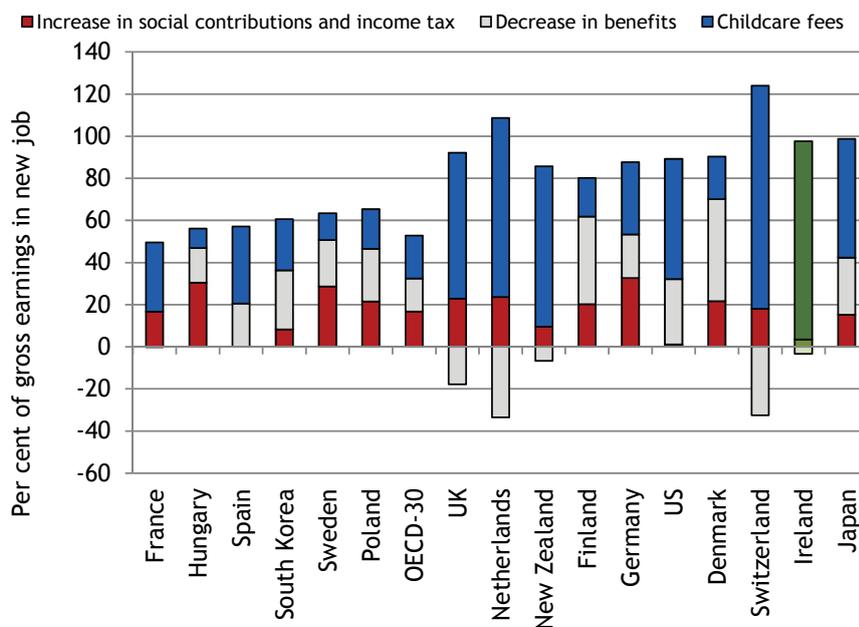


Figure 4.44 examines the cost of returning to work, taking into account childcare fees and changes in taxes and benefits in the case of a transition to a job. Ireland is competitive in relation to the additional cost of social, contributions, income tax, and the decrease in benefits. The cost of childcare, however, significantly increases the cost of work.

**OECD-30 Ranking:**

Total cost: 29<sup>th</sup>

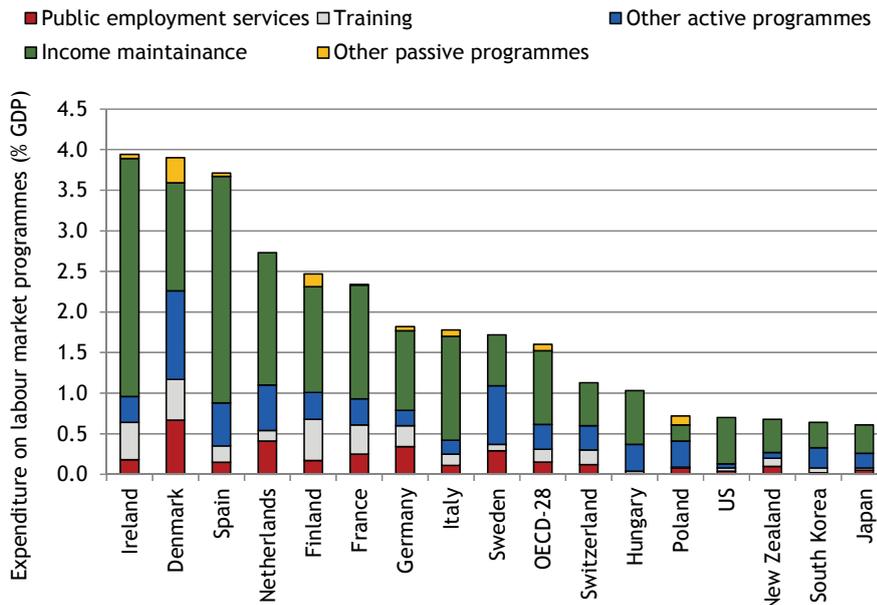
Benefits: 3<sup>rd</sup>

Contributions & tax: 9<sup>th</sup>

Childcare: 30<sup>th</sup>

Source: OECD

Figure 4.45: Public expenditure on active and passive labour market programmes (% GDP), 2011<sup>14</sup>



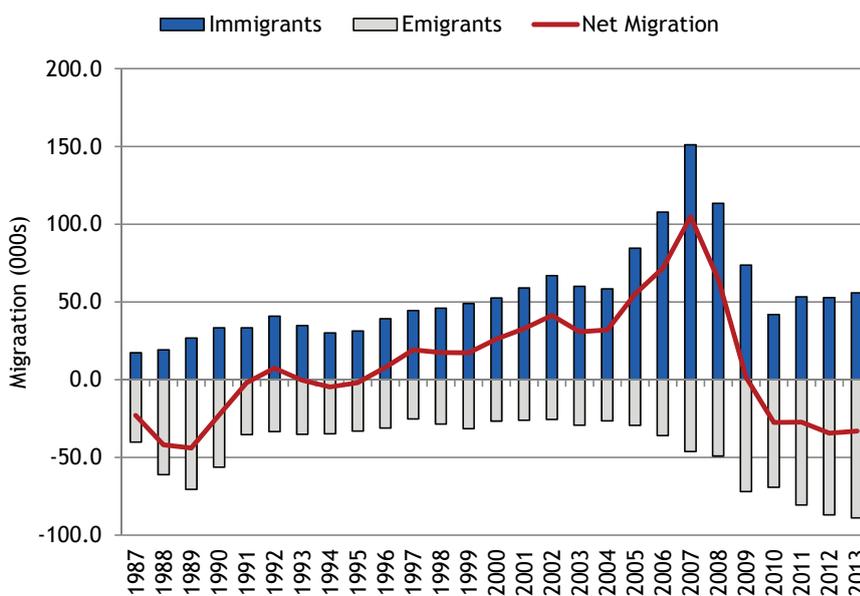
In 2011, the Irish exchequer spent almost 4% of GDP on labour market programmes, compared with an OECD average of 1.6%. Over 75% of Irish expenditure was spent on passive labour market programmes - primarily related to income maintenance (i.e. social welfare). In contrast, countries such as Sweden (63.4%) and Denmark (57.8%) spent a much larger proportion of their labour market programme budgets on active measures such as employment services and training.

**OECD-30 Ranking:**

% Spend on Active LMPs: 24<sup>th</sup>

Source: OECD

Figure 4.46: Net migration (000s), 1987-2013

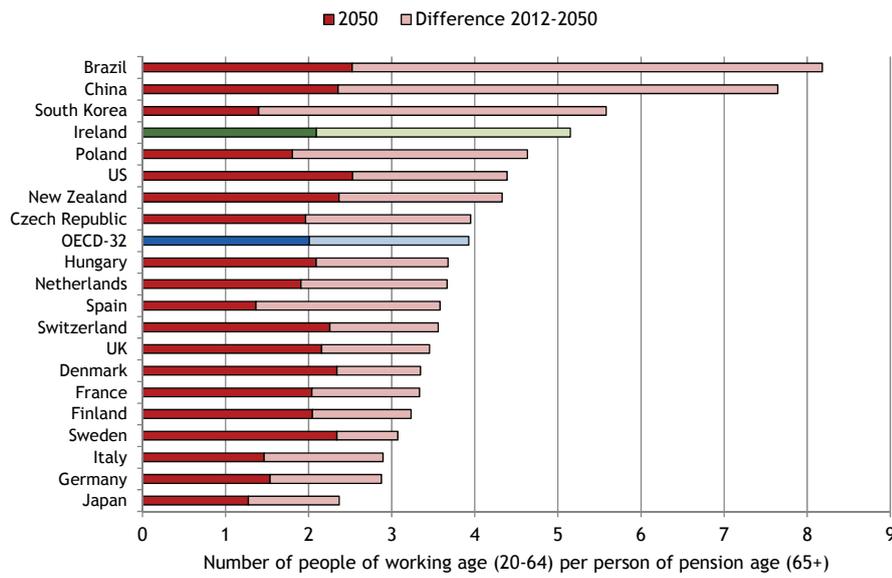


Total emigration from Ireland in the year to April 2013 is estimated to have increased to 89,000. The number of immigrants also increased to 55,900, resulting in total net outward migration remaining broadly constant with the previous twelve month period. Amongst Irish nationals, net outward migration is estimated to have increased significantly, rising from 25,900 to 35,200. This represents a significant loss of skills.

**Ranking:** n/a

Source: CSO, Population Estimates

Figure 4.47: Number of persons of work-age per dependent & change, 2012-50<sup>55</sup>



This chart highlights the scale of the challenge confronting most developed economies as a result of ageing over coming decades. At present, there are 5.15 people of working age (20-64 years) in Ireland for everyone of pension age (65+ years). By 2050 this will have declined to 2.09 people of working age (roughly in line with the OECD average).

**OECD-32 Ranking:**

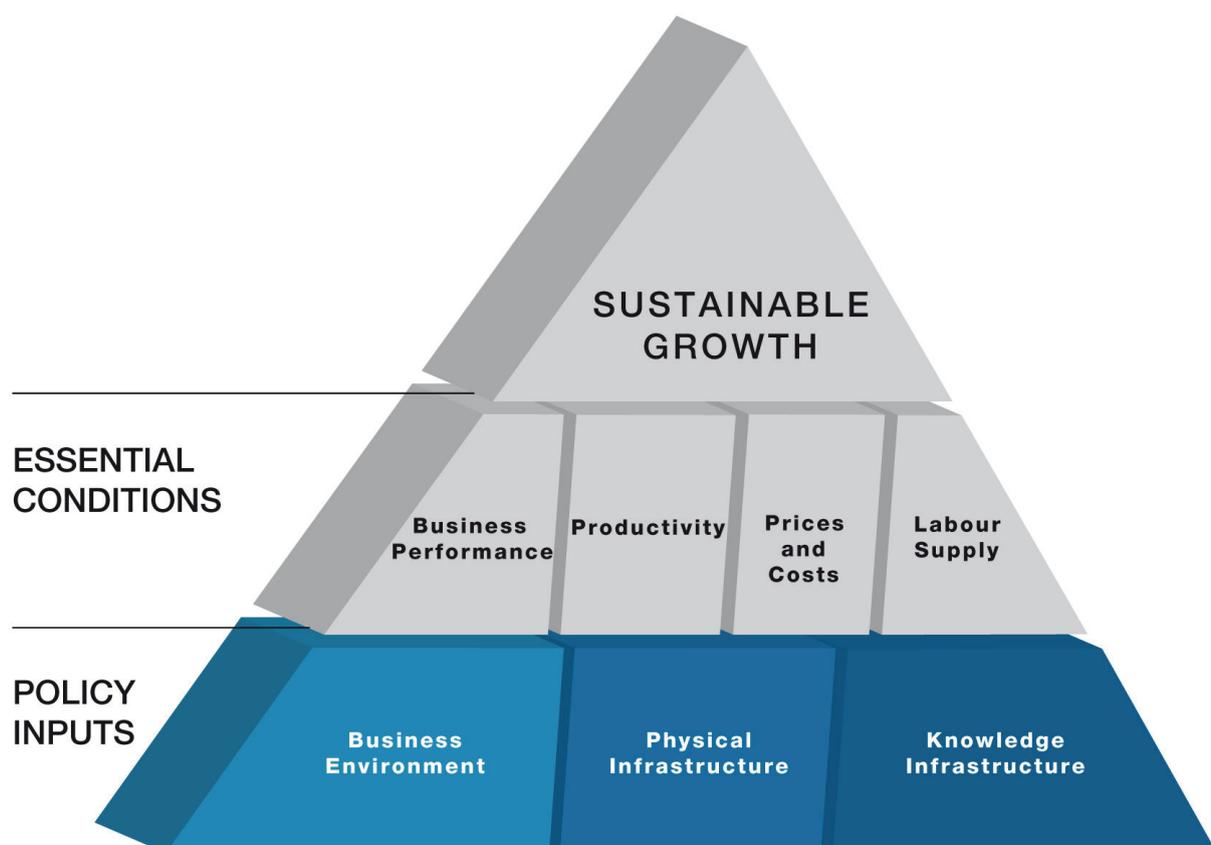
Ratio in 2012: 5<sup>th</sup>

Ratio in 2050: 15<sup>th</sup>

Source: OECD

# Chapter 5

## Policy Inputs



## 4. Policy Inputs

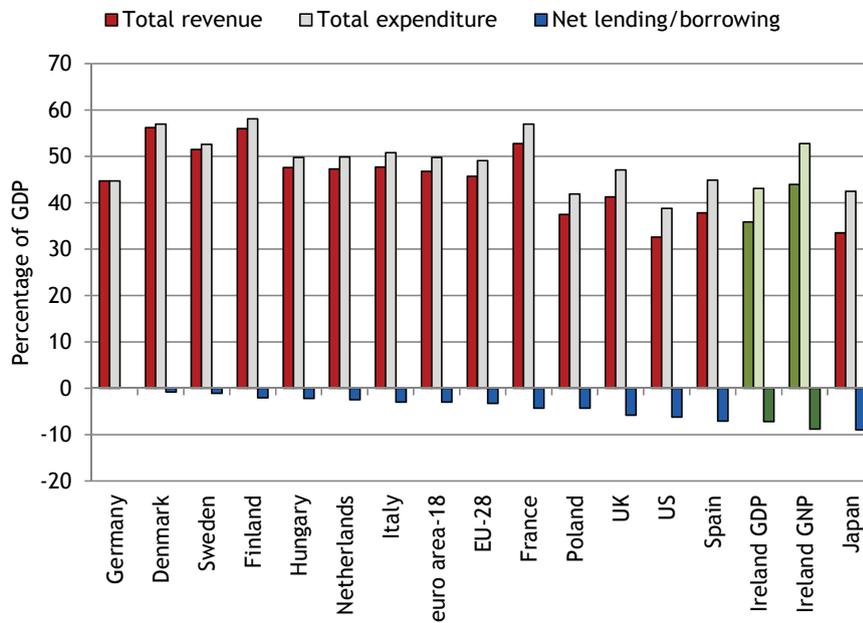
The inputs (the bottom row of the competitiveness pyramid) represent the foundation stones of the economy and are the primary drivers of competitiveness. The NCC believes that it is within these particular areas that policymakers can have the greatest impact on competitiveness. It is very important to measure Ireland's competitiveness at the input level and then benchmark it in relation to Ireland's economic peer group. This allows policymakers to identify weaknesses and opportunities and thus design specific policies to address these concerns.

- **Business Environment (Section 5.1):** The business environment relates to the immediate conditions facing enterprises. For enterprises to compete successfully in international markets, the business environment must be as competitive as possible, ensure certainty and high standards, and should not impose unnecessary restrictions or costs on firms. This section analyses performance in the areas of taxation, finance, regulation and competition. Taxation must be considered as both an essential revenue generator for the Government and a cost for business which must be levied in a sustainable manner that supports competitiveness. Finance and access to credit is necessary for the day-to-day running of a business as well as longer term investments in capital and other productivity enhancing measures. Finally, regulation and competition policy play vital roles in delivering a stable and supportive environment for enterprise. The regulatory framework must ensure that necessary and proper standards are upheld while encouraging innovation and facilitating free entry into and exit from markets. The regulatory framework also goes a long way to determining how a country is viewed by its peers.
- **Physical and Economic Infrastructure (Section 5.2):** Infrastructure quality directly impacts on the ability of enterprises to conduct their business - regardless of whether they are a service or manufacturing firm. Infrastructure quality impacts upon many aspects of a firm's ability to do business - it determines the ease with which goods can be moved and the efficiency of delivering services remotely. The quality of a country's infrastructure also affects the mobility of labour and quality of life. Finally, the stock and quality of infrastructure can affect the attractiveness of the country in the eyes of investors and potential high skilled migrants. In this section, a range of indicators benchmarking Ireland's relative performance are grouped under three headings: Investment in Physical Infrastructure; Transport, Energy and Environmental Infrastructure; Information and Communications Technology Infrastructure.
- **Knowledge Infrastructure (Section 5.3):** As noted in early chapters, productivity will be the key determinant of economic growth in Ireland in the years ahead. Productivity can primarily be driven either by improved capital allocation or through the enhancement of the skills of the workforce. A workforce that is better educated and trained can produce higher value goods and services, and is more likely to be innovative. Employers, employees and the economy as a whole benefit from investments in education and training. It is, therefore, important to ensure that the educational system is aligned with the needs of enterprise. This section includes indicators on pre-primary and primary education; the performance of the secondary and tertiary education systems; lifelong learning; and Ireland's performance in relation to research, development and innovation.

## 5.1 Business Environment

### 5.1.1 Taxation

Figure 5.1: Gap between total general government revenue and expenditure, 2013<sup>56</sup>

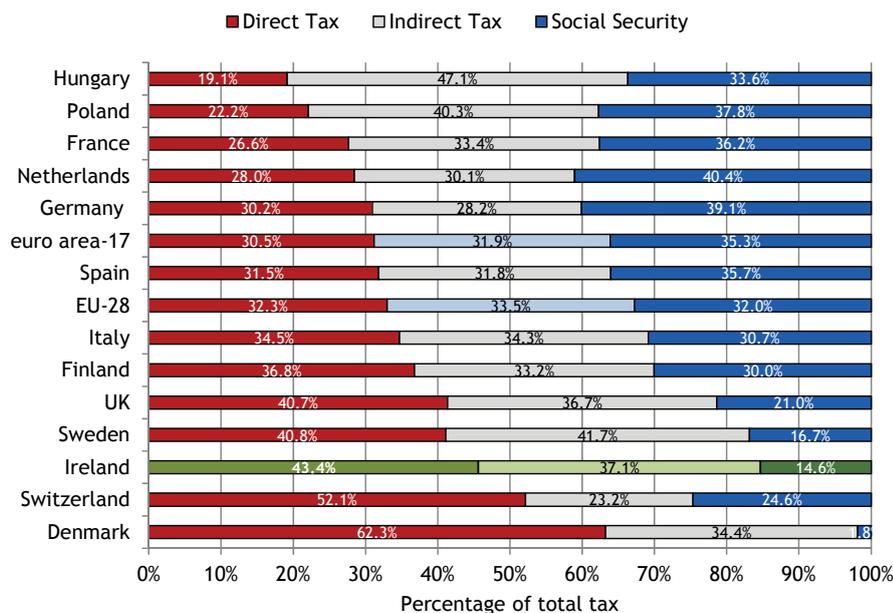


In 2013, Irish Government revenue amounted to 35.9 per cent of GDP (44% of GNP). Expenditure of 43.1 per cent of GDP (52.8% of GNP) resulted in a deficit of 7.2 per cent of GDP (8.8% of GNP). By comparison, the average euro area-18 deficit amounted to 3% of GDP in 2013. In 2014, the Irish deficit is forecast to continue its downward trajectory to a deficit of 4.8 per cent of GDP.

**Euro area-18 Ranking:**  
Deficit: 16<sup>th</sup> (↓3)

Source: European Commission, Spring Forecast

Figure 5.2: Breakdown of tax revenue, 2012<sup>57</sup>



Direct taxation in Ireland represents the largest category of tax revenue (accounting for 43.4 per cent of total revenue). Indirect taxation accounts for 37.1 per cent of revenue. Social security contributions (14.6%) account for significantly less than the euro area average (35.3%). It is important to note, however, that such revenue measures do not take account of the benefits which accrue as a result of these payments.

**Ranking:** n/a

Source: Eurostat

Figure 5.3: Tax revenue by category in Ireland, 2013

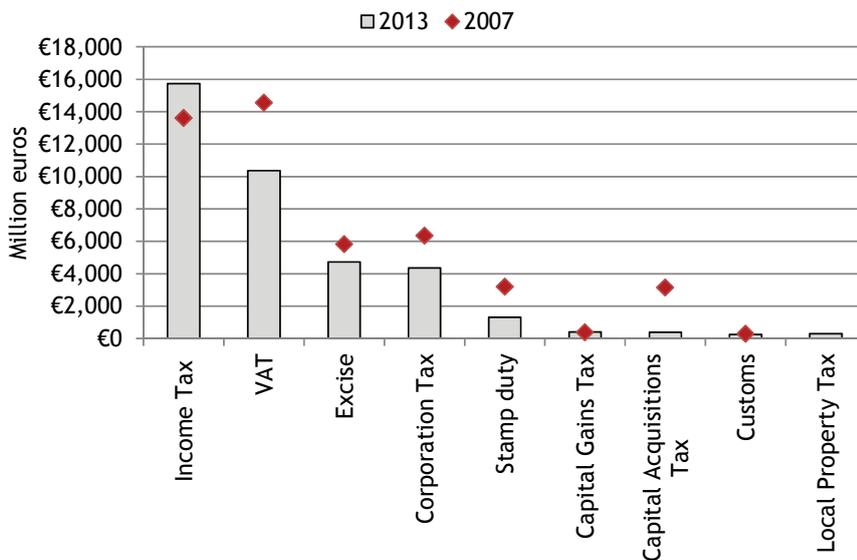
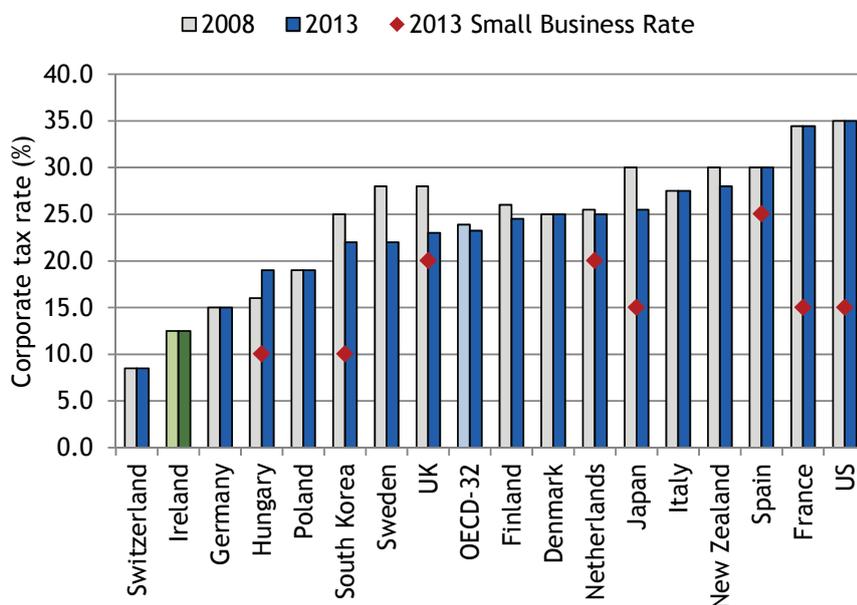


Figure 5.3 compares Irish tax revenues in 2013 with 2007 - the last full year of the construction boom. Overall, revenues have declined by €9.5bn, with the largest declines recorded in VAT (-€4.2bn), corporation tax (-€2bn) and stamp duty (-€1.9bn). On the other hand, income tax receipts - reflecting the broadening of the tax base - have increased by €2.1bn. Revenue in 2014 is expected to increase by €2.2bn to over €40bn, primarily driven by increases in income tax and VAT.

Ranking: n/a

Source: Department of Finance

Figure 5.4: Central government corporate income tax rate (%), 2013<sup>58</sup>

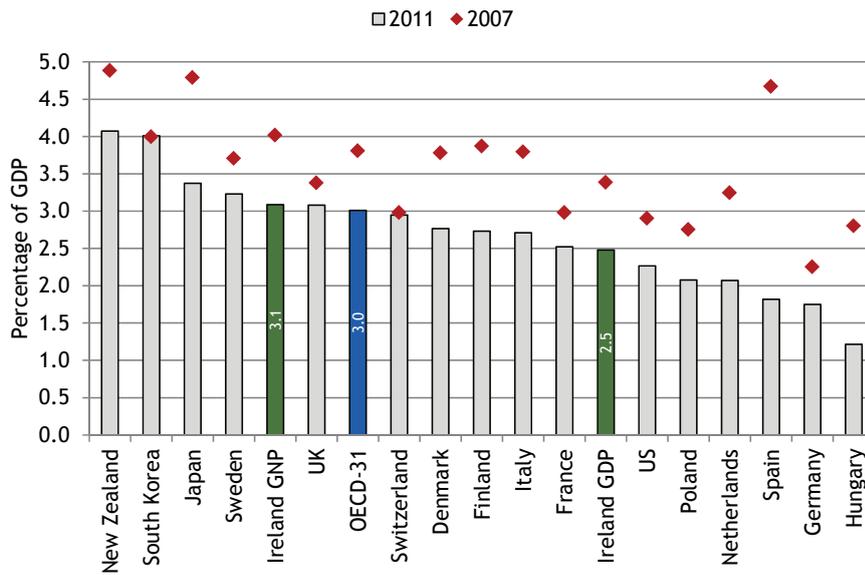


Ireland's corporation tax rate remains internationally competitive at 12.5%. While Ireland's rate has remained consistent over recent years, many of our key competitors have reduced their rates - the UK rate, for example now stands at 23%. This chart reflects central statutory rates - effective rates in many countries can be significantly lower.

OECD-32 Ranking: 2<sup>nd</sup>  
(-)

Source: OECD Tax Database

Figure 5.5: Corporation tax receipts (% GDP), 2011<sup>59</sup>



Corporation tax receipts in Ireland accounted for 2.5% of GDP (3.1% of GNP) in 2011, compared with an OECD-31 average of 3%. Since 2007, corporation taxes as a proportion of national income have fallen across most countries. Corporation tax in Ireland (8.9%) accounts for a similar proportion of total tax receipts as the OECD-32 average (8.8%).

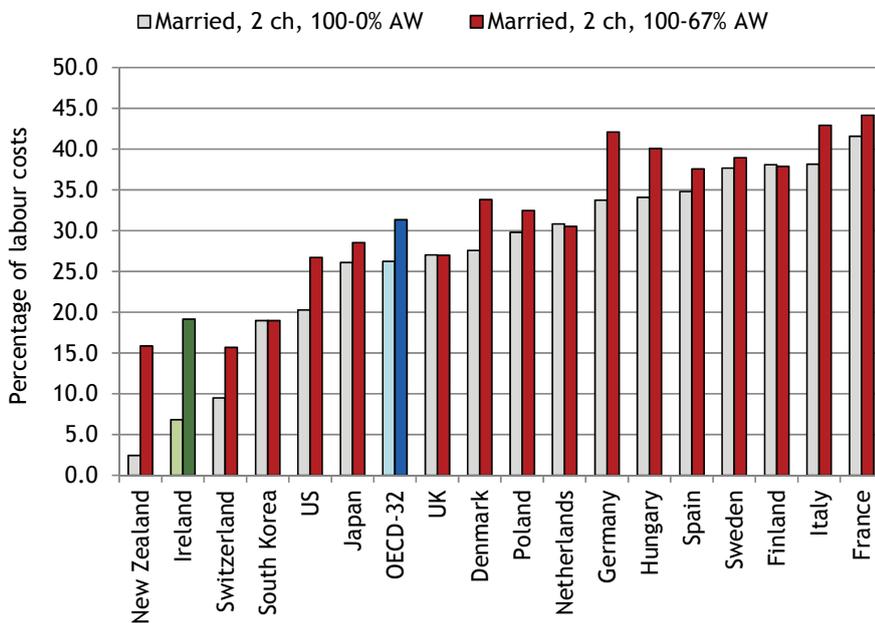
**OECD-31 Ranking:**

GDP: 19<sup>th</sup> (↓2)

GNP: 12<sup>th</sup> (↓3)

Source: OECD Tax Database

Figure 5.6: Income tax plus employee contributions (% of gross wage earnings) (Married, 2 CD, 100% & 167% AW), 2013



Ireland remains competitive in terms of the levels of income tax and employee and employer social security contributions as a proportion of total labour costs. The gap between gross and net pay has, however, risen since 2008. For a married couple with 2 children on a combined income of 167% of the average wage (i.e. a 2 earner family), the difference is 19.2%, up from 14% in 2008.

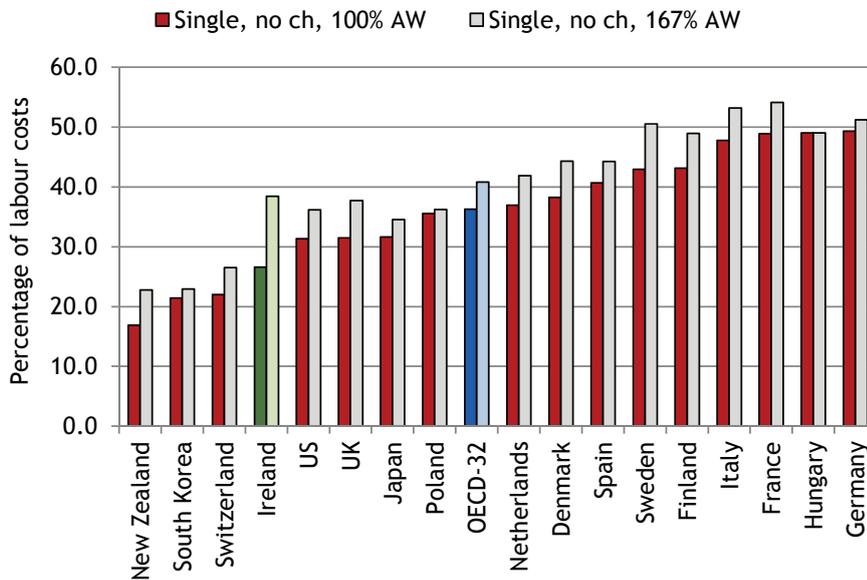
**OECD-32 Ranking:**

100% AW: 2<sup>nd</sup> (-)

167% AW: 6<sup>th</sup> (↓5)

Source: OECD Taxing Wages

Figure 5.7: Income tax plus employee contributions (% of gross wage earnings) (Single, 100% & 167% AW), 2013<sup>60</sup>

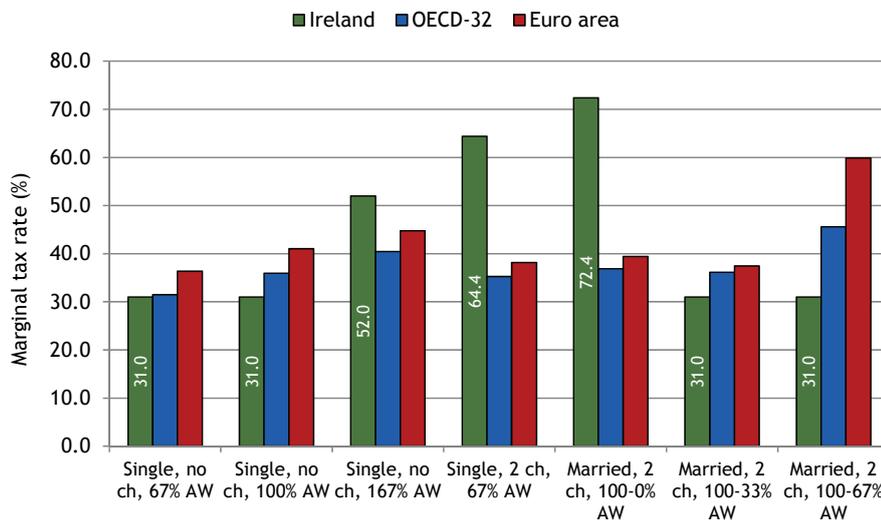


For a single person with no children on either 100% or 167% of the average wage, the difference between what the employer pays and what the employee receives has increased since 2008. At the average wage, the difference in 2012 was 26% (up from 22.9% in 2008). At 167% of average wages, the difference in 2012 was 38.2% up from 34% in 2008.

**OECD-32 Ranking:**  
 100% AW: 6<sup>th</sup> (↓3)  
 167% AW: 13<sup>th</sup> (↓4)

Source: OECD Taxing Wages

Figure 5.8: Marginal rate of income tax plus employee contributions less cash benefits (% of gross wage earnings), 2012 - classified by marital status, number of children (ch) and wages relative to the average wage (AW)<sup>61</sup>

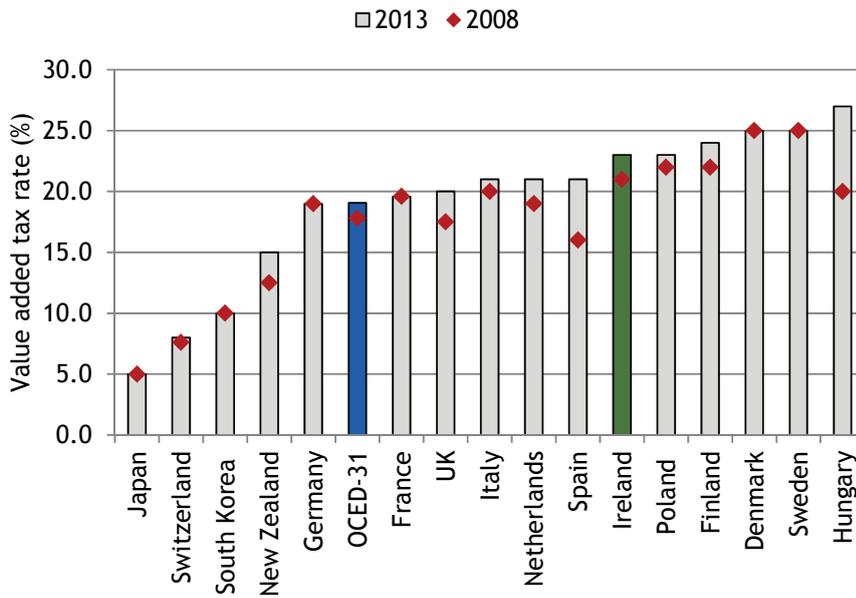


Marginal rates (i.e. the percentage of tax and social contributions paid on each additional unit of income) have increased in Ireland since 2008 for all family and income categories. Marginal rates are particularly high for individuals earning 167% of the AW; for individuals with 2 children earning 67% of the AW; and for married couples with 2 children earning 100% of the AW.

**OECD-32 Ranking:**  
 Single, no ch, 100% AW: 9<sup>th</sup> (↓6)  
 Married, 2 ch, 100% AW: 30<sup>th</sup> (↓24)

Source: Source: OECD Taxing Wages

Figure 5.9: Value added tax (standard rate) (%)

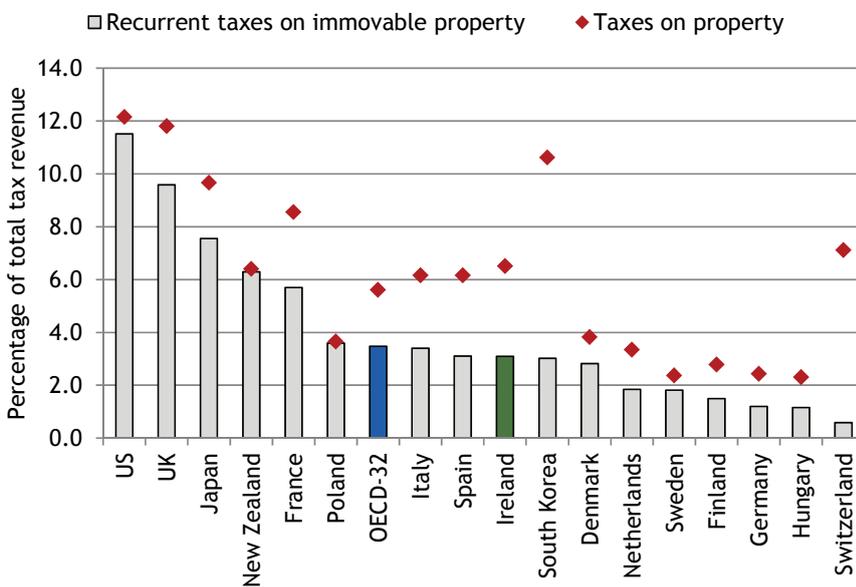


VAT is the primary source of indirect tax revenues for all countries. VAT is a tax on consumption and can be regressive. It is, however, generally regarded as having a less harmful impact on economic growth than corporate and income taxes. The Irish VAT rate (23%) is higher than the OECD average (19.1%). Between 2008 and 2011 consumption taxes as a percentage of GDP in Ireland fell from 10.2% to 8.9%, reflecting weaker consumer demand<sup>62</sup>.

**OECD-31 Ranking: 22<sup>nd</sup>**  
(↑1)

Source: OECD Tax Database

Figure 5.10: Recurrent and total property tax receipts, 2012<sup>63</sup>



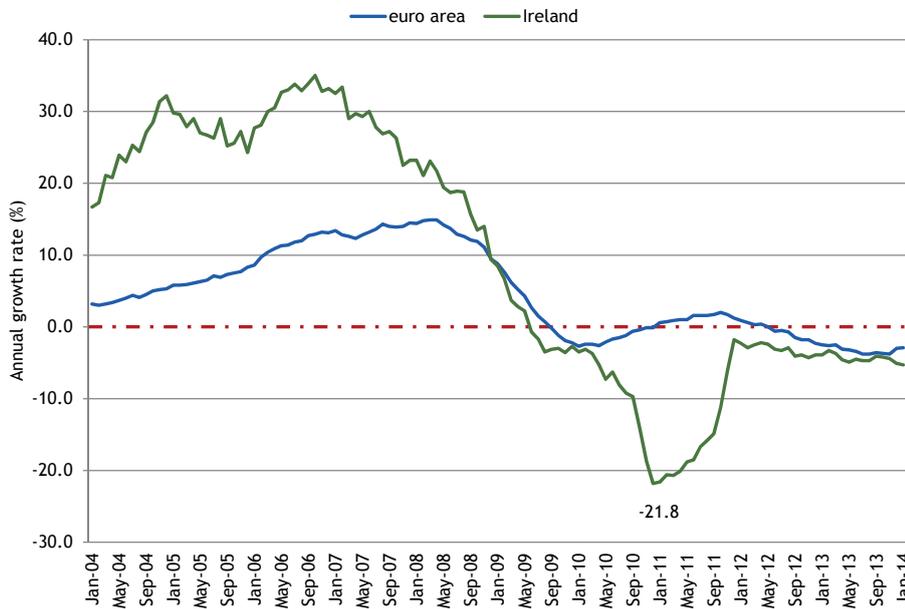
Total taxes on property include several different headings (e.g. recurrent taxes on immovable property, recurrent taxes on net wealth, estate, inheritance and gift taxes, etc.). Prior to the introduction of the local property tax in 2021, Ireland generated a relatively low proportion of revenue through the use of recurrent taxes (3.1% of total tax revenue, compared with 9.6% in the UK). In 2013, the LPT raised €300m; in 2014 it is expected to raise €550m.

**OECD-32 Ranking:**  
Recurrent: 13<sup>th</sup> (↓4)  
Total property: 13<sup>th</sup> (↓2)

Source: OECD Tax Database

## 5.1.2 Finance

Figure 5.11: Annual growth rate in outstanding credit, January 2004-January 2014

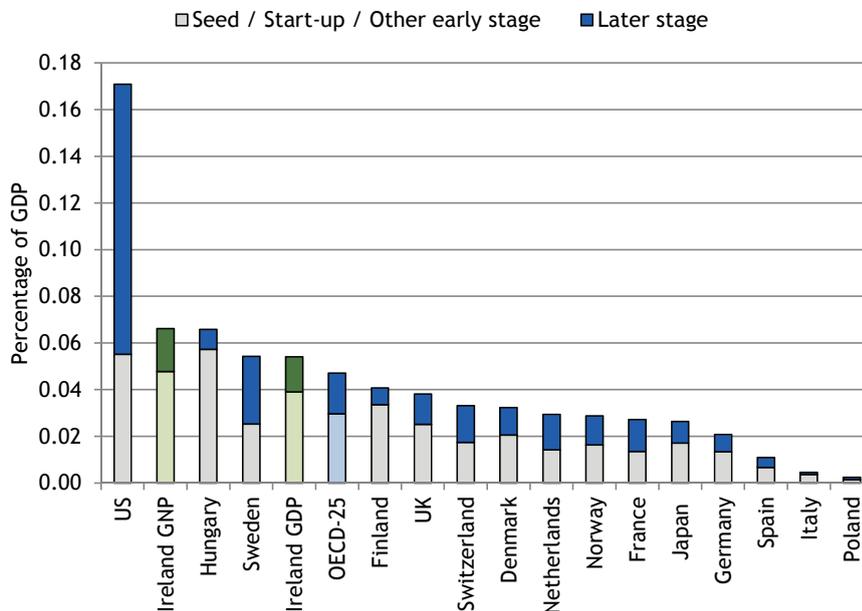


Annual growth rates in the stock of credit in Ireland have been negative since June 2009, reflecting in part the scale of debt repayment. While the rate of decline has slowed since 2012, Ireland stock of credit continues to shrink more quickly than the euro area average.

Ranking: n/a

Source: European Central Bank

Figure 5.12: Venture Capital Investment as a % of GDP, 2012<sup>64</sup>



Venture capital (VC) is private capital typically provided to high-growth companies. Ireland intensity of VC investment is slightly above the OECD average. However, a greater portion of VC in Ireland is attributed to early stage investments (0.04% of GDP) than is for the OECD average (0.03%).

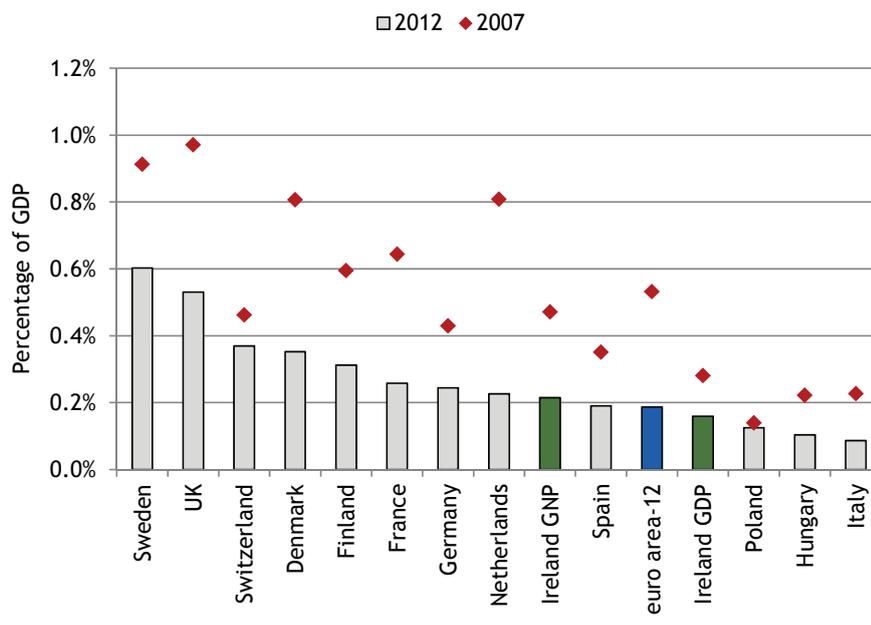
OECD-25 Ranking:

GDP: 6<sup>th</sup>

GNP: 4<sup>th</sup>

Source: OECD, Science, Technology and Industry Scorecard

Figure 5.13: Private equity investment (as a % of GDP)<sup>65</sup>

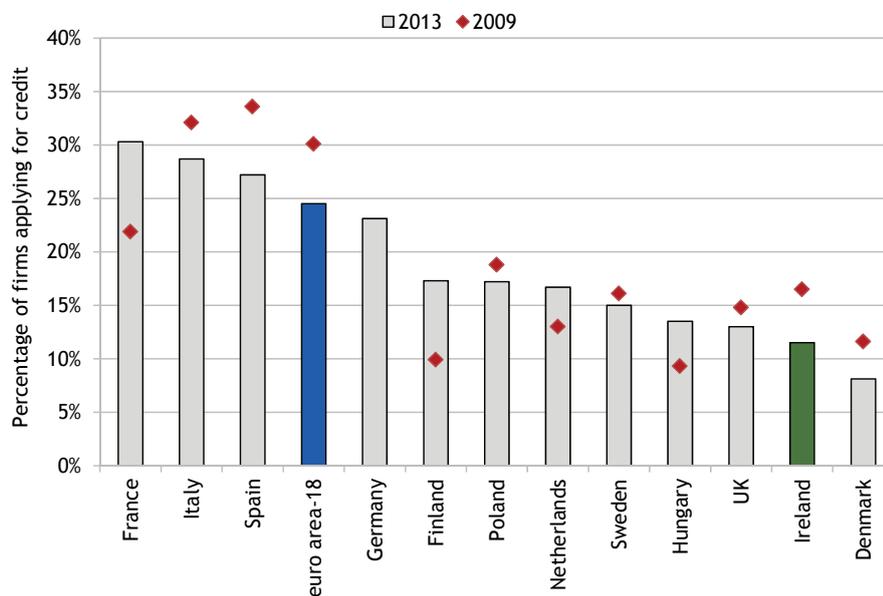


Private equity, which comprises all stages of financing (seed, start-up, expansion, replacement capital and buyouts), decreased in Ireland between 2007 and 2012, as it did across all benchmarked countries during the period. Private equity now accounts for 0.16% of GDP (down from 0.28% in 2007) and is below the euro area average of 0.19%.

**Euro area-12 Ranking:**  
 GDP: 7<sup>th</sup> (↑2)  
 GNP: 6<sup>th</sup> (-)

Source: European Private Equity & Venture Capital Association

Figure 5.14: Demand for credit: Percentage of firms applying for a bank loan (new or renewal; excluding overdraft and credit lines) over previous six months, 2013

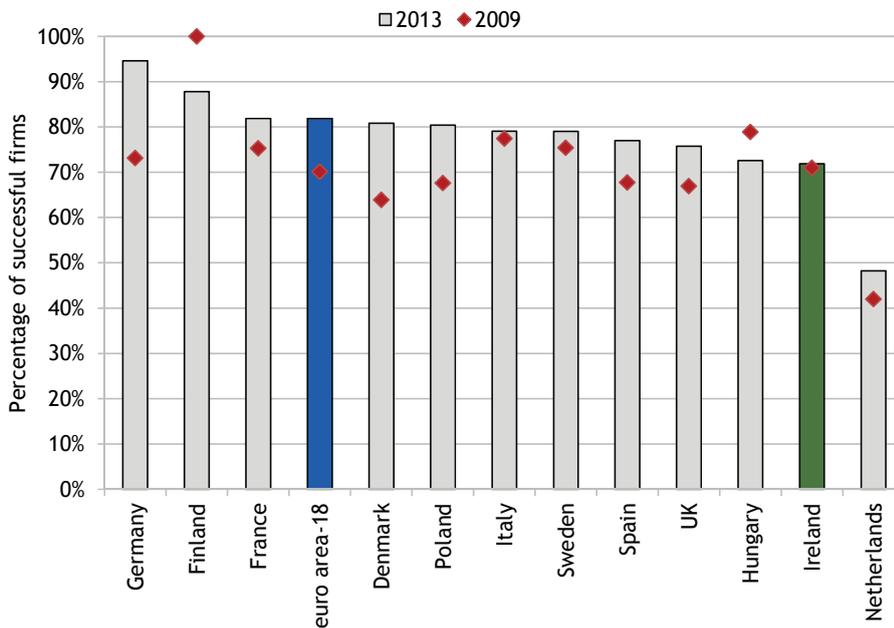


The number of firms in Ireland seeking credit declined from 16.5% in 2009 to 11.5% in 2013. This amounts to a 30% decline in demand in Ireland over the period compared to a 19% decline across the euro area. Within the euro area, only Estonia and Latvia have lower credit demand among enterprise.

**Euro area-18 Ranking:**  
 16<sup>th</sup> (↓5)

Source: Eurostat, Structural Business Statistics

Figure 5.15: Success in accessing credit: Percentage of successful firms that applied for a bank loan (new or renewal excluding overdraft and credit lines), 2013

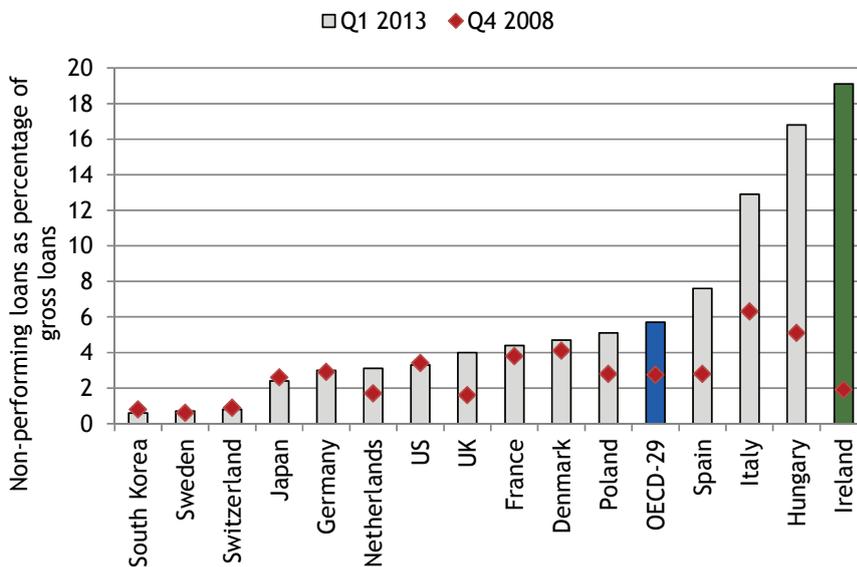


In 2013, Irish firms had a success rate of 71.9% in applying for bank loans, up slightly from 71% in 2009. Ireland has one of the lowest success rates within the euro area, and is significantly below the euro area average of 81.9%. Relative to other euro area countries, Ireland's performance has deteriorated since 2009.

**Euro area-18 Ranking:** 15<sup>th</sup> (↓4)

Source: Eurostat, Structural Business Statistics

Figure 5.16: Ratio of non-performing loans to total gross loans, 2013<sup>th</sup>

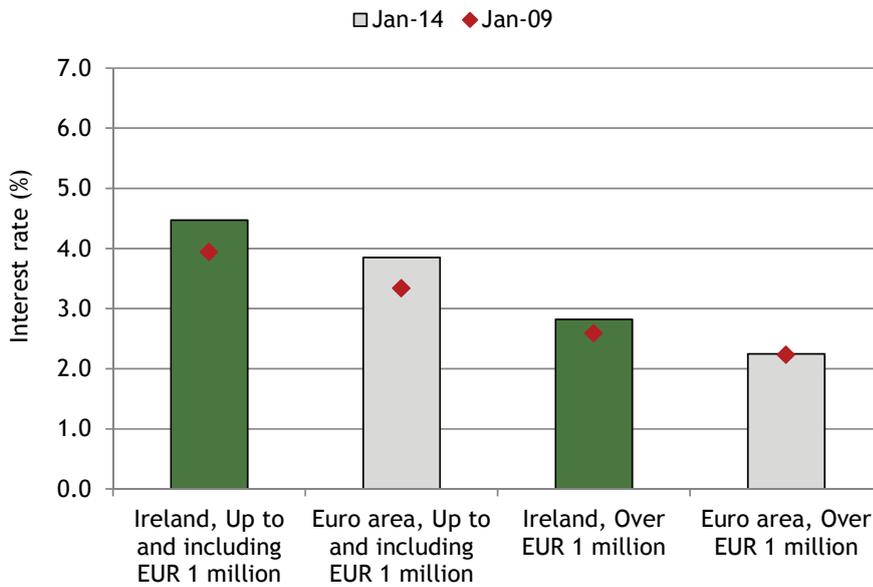


Non-performing loans (this includes all lending, not just business lending) make up 19.1% of gross loans in Ireland. This compares to an OECD-29 average of 5.7%. In 2008 non-performing loans accounted for just 1.9% of Irish loans. Ireland's performance deteriorated by more than any OECD country during the intervening period.

**OECD-29 Ranking:** 28<sup>th</sup> (↓16)

Source: OECD

Figure 5.17: Interest rates for non-financial corporations by loan size (new business), January 2014

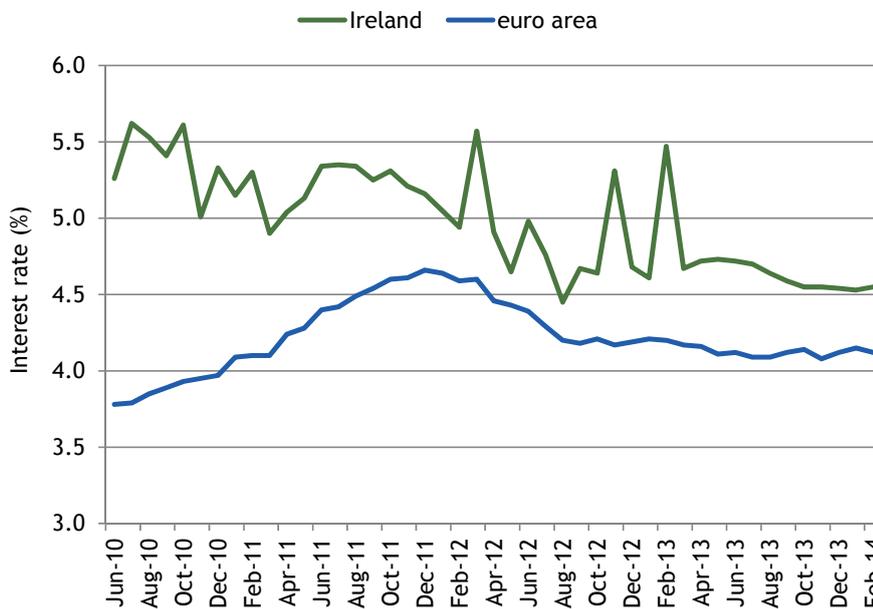


Interest rates in Ireland remain higher than the euro area average across a range of credit types. Between January 2009 and January 2014, while the difference in interest rates between the euro area average and Ireland narrowed slightly from 18% to 16% for loans of up to €1 million, the gap has increased significantly for loans over €1 million euro from 16% to 25%.

Ranking: n/a

Source: European Central Bank

Figure 5.18: Revolving loans and overdraft interest rates for non-financial companies, June 2010-February 2014



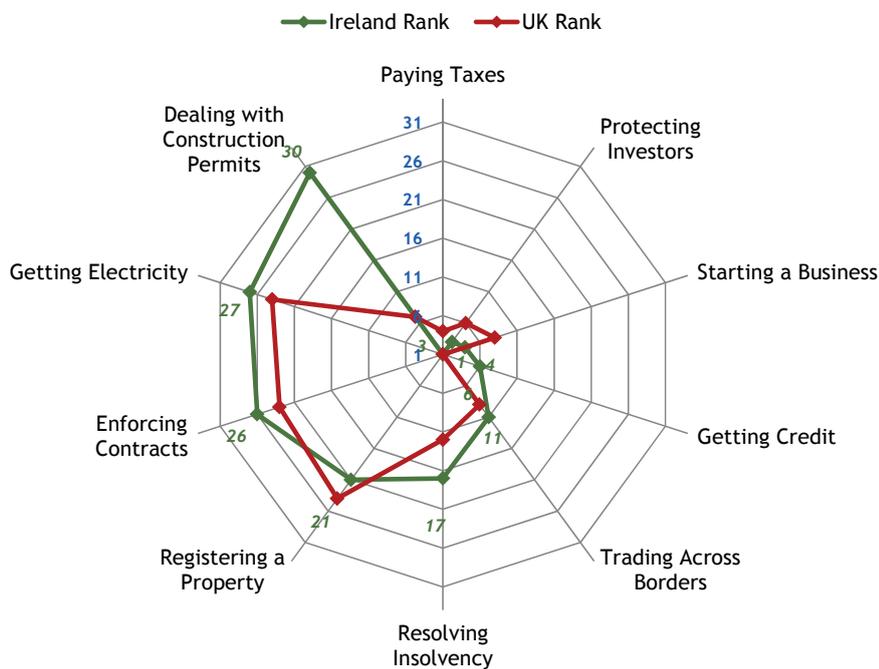
Interest rates for revolving loans and overdrafts in Ireland have remained elevated above that of the euro area average but the gap has narrowed over recent years. As of February 2014, however, Irish interest rates revolving loans and overdraft facilities were 10.4% above the euro area average.

Ranking: n/a

Source: European Central Bank

### 5.1.3 Regulation and Competition

Figure 5.19: Ease of doing business, 2013<sup>67</sup>

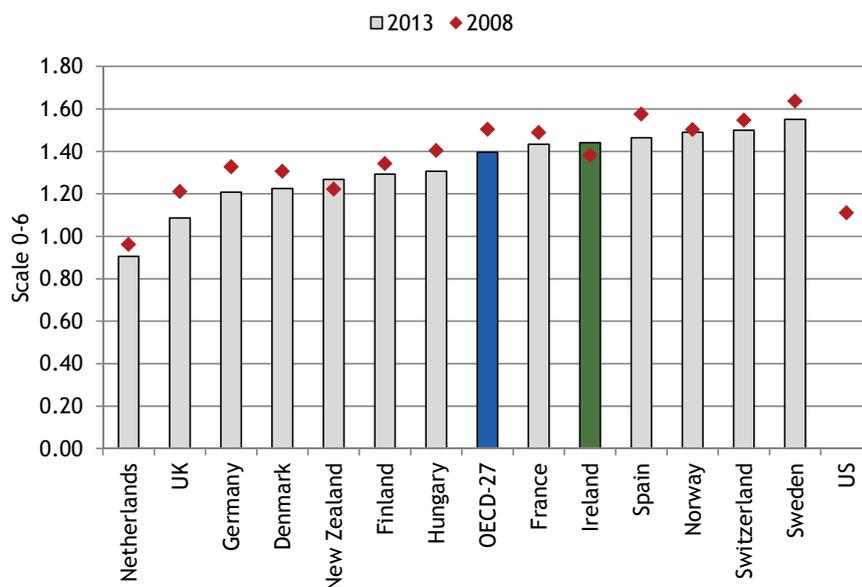


This figure ranks Ireland's performance across ten different "Doing Business" metrics relative to the OECD-32. A direct comparison is provided with the UK's performance. While Ireland performs very strongly in terms of paying taxes (1<sup>st</sup>), protecting investors (3<sup>rd</sup>) and starting a business (4<sup>th</sup>), our performance is weak in relation to dealing with construction permits (30<sup>th</sup>), getting electricity (27<sup>th</sup>), enforcing contracts (26<sup>th</sup>) and registering property (21<sup>st</sup>).

**OECD-32 Ranking:**  
Doing Business: 11<sup>th</sup> (↓6)

Source: World Bank, Doing Business 2014

Figure 5.20: Product market regulation (Scale 0-6), 2013<sup>68</sup>



The OECD Indicators of Product Market Regulation are a comprehensive set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. While Ireland's score is comparable to the OECD average, our ranking has disimproved.

**OECD-27 Ranking:** 17<sup>th</sup> (↓7)

Source: OECD Product Market Indicators

Figure 5.21: Regulation of professional services, 2013<sup>69</sup>

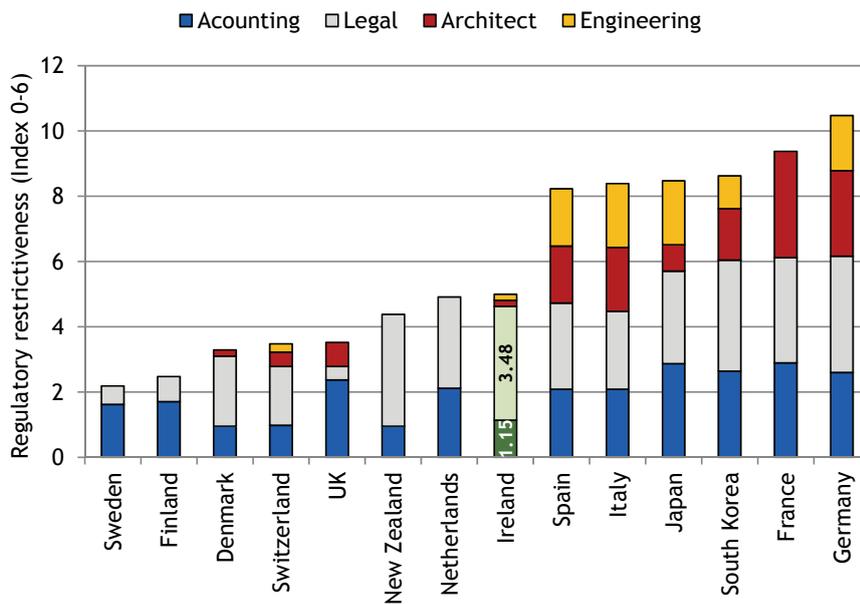
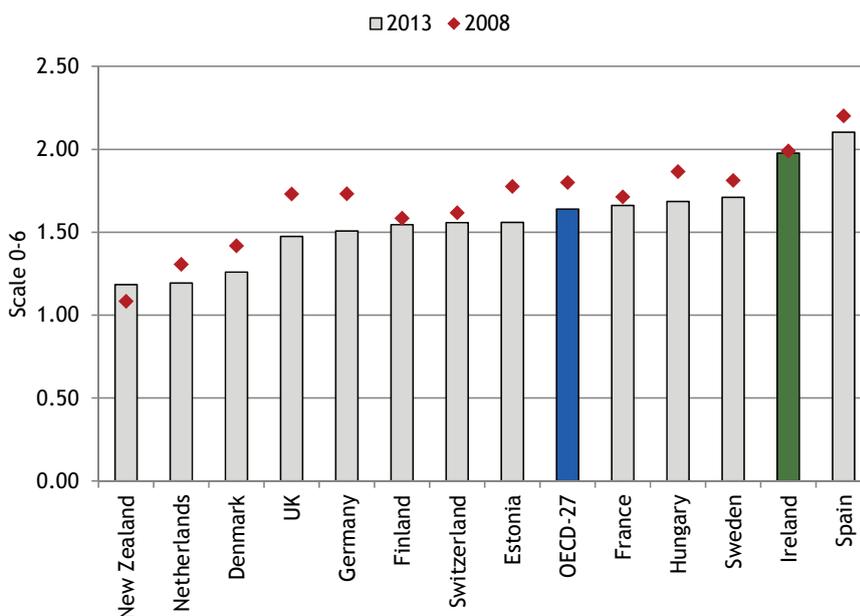


Figure 5.21 compares the level of regulatory restrictions which exist in professional services (specifically market entry and conduct regulations). In Ireland, both accounting and legal services are more heavily regulated than engineering and architectural services. Ireland's poor performance with regard to the legal profession (which to date is largely self-regulated) reflects poor scores in relation to inter-professional cooperation, compulsory chamber membership, and regulations on the form of business.

**OECD-29 Ranking:**  
 Overall: 11<sup>th</sup> (↓3)  
 Legal services: 23<sup>rd</sup> (↓4)

Source: OECD Product Market Indicators

Figure 5.22: Barriers to entrepreneurship (Scale 0-6), 2013<sup>70</sup>



This indicator measures the complexity of regulatory procedures, the administrative costs placed on start-ups, and the regulatory protection of incumbents. Ireland scores relatively poorly in this indicator - scores are particularly poor in relation to the complexity of regulatory procedures and the burden imposed by licensing and permits system.

**OECD-27 Ranking:** 22<sup>nd</sup> (↓2)

Source: OECD Product Market Indicators

Figure 5.23: Time to comply with tax payments (hours per year), 2013<sup>71</sup>

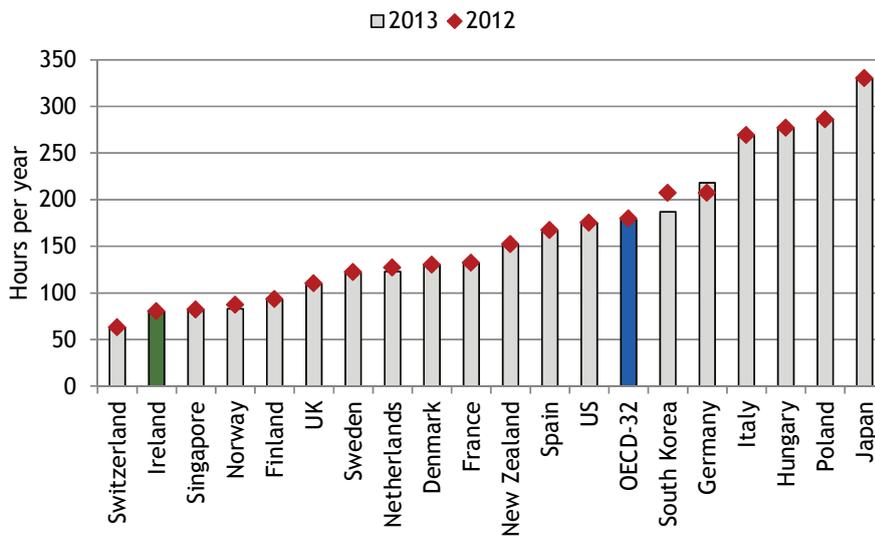
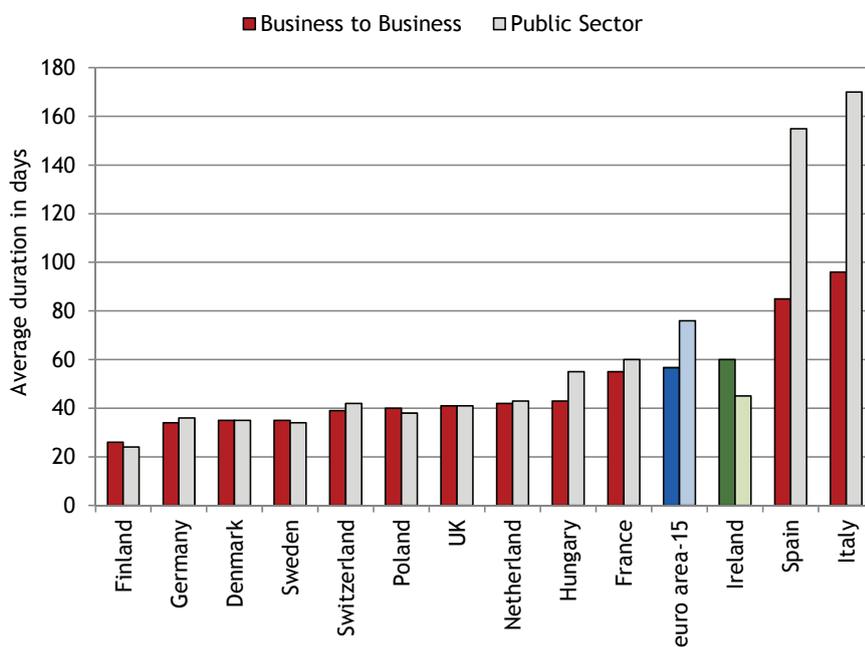


Figure 5.23 measures the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are captured - these include time taken to prepare the tax figures, complete and file the tax returns, and paying the taxes. Ireland performs strongly in this indicator.

OECD-32 Ranking: 3<sup>rd</sup> (-)

Source: World Bank/PWC, Paying Taxes

Figure 5.24: Average payment duration for settling an invoice (days), 2013<sup>72</sup>



The average time taken to settle an invoice is 45 days for public authorities and 60 days for businesses. The euro area average is 76 days and 57 days respectively. While public authorities have shortened the time taken in recent years, there is room to improve further to match leading countries such as Finland (24) and Sweden (34).

**Euro area-15 Ranking:**  
Public Authorities: 7<sup>th</sup> (↑1)

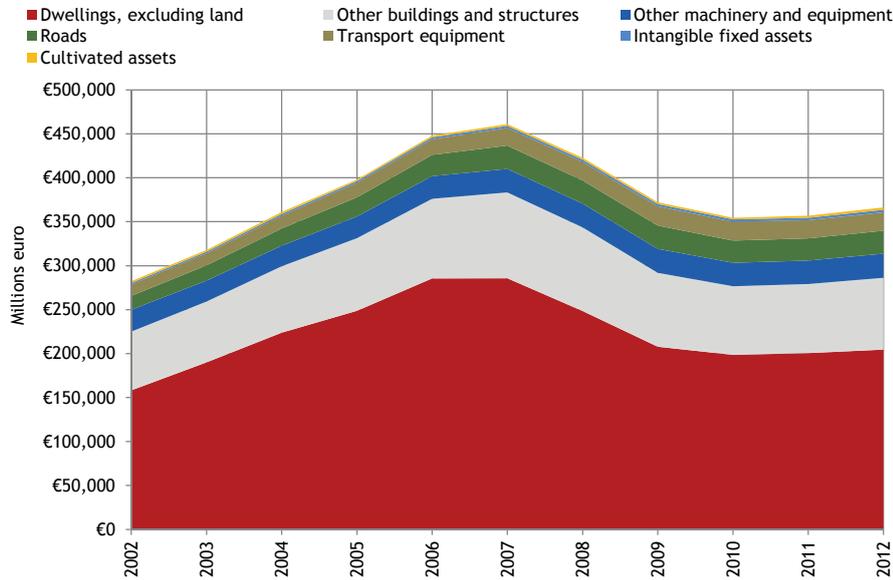
Business-to-Business: 9<sup>th</sup> (↓1)

Source: European Payment Index, Intrum Justitia

## 5.2 Physical and Economic Infrastructure

### 5.2.1 Investment in Physical Infrastructure

Figure 5.25: Net capital stock (Ireland) (€ millions, 2009 prices), 2002-2012



The value of the stock of fixed assets in Ireland peaked in 2007 but had declined by 23% by 2011. 2012 saw a slight increase in net capital stock reducing the gap with the 2007 value to 21%. The largest decline in asset values has been in Dwellings which in 2012 were 28% below the 2007 levels.

Ranking: n/a

Source: CSO, Estimates of the Capital Stock

Figure 5.26: Average annual growth in net capital stock (Ireland), 2002-2012

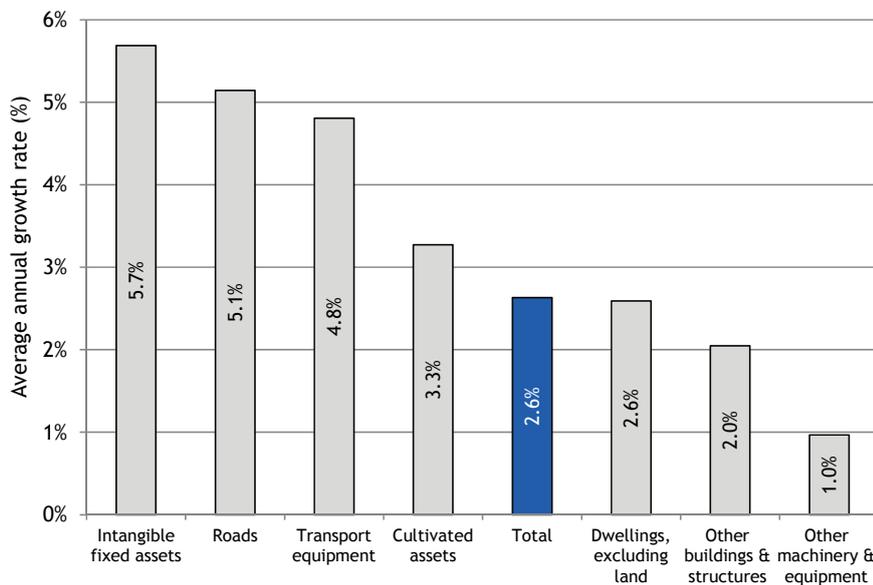
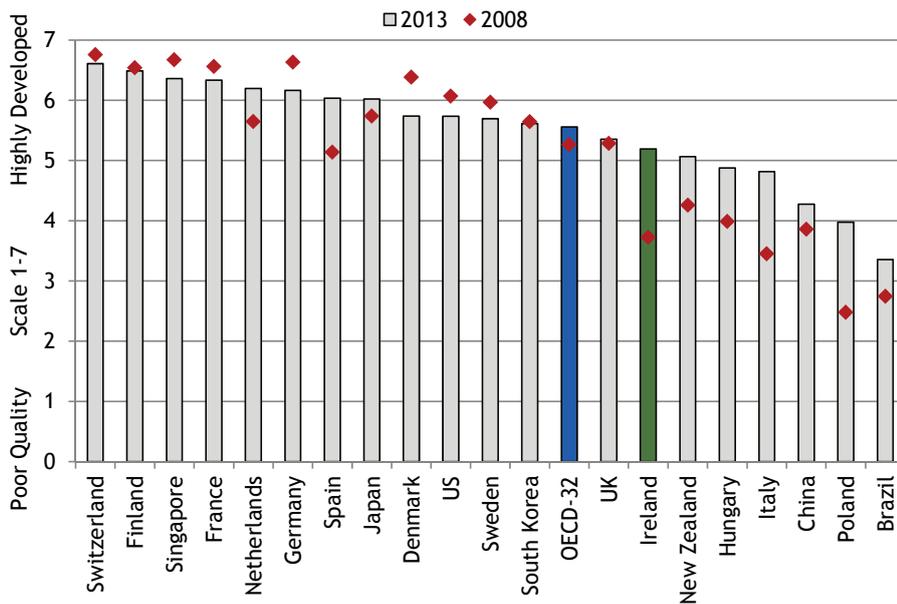


Figure 5.25 illustrates the average annual growth rate in the value of Ireland's fixed assets between 2002 and 2012. Overall, net capital stock grew by 2.6% per annum. Intangible assets and roads have experienced the most rapid growth over the period. Cultivated assets (39%) and intangible fixed assets (10%) have grown most rapidly in the past two years.

Ranking: n/a

Source: CSO, Estimates of the Capital Stock

Figure 5.27: Perception of overall infrastructure quality (Scale 1-7), 2013



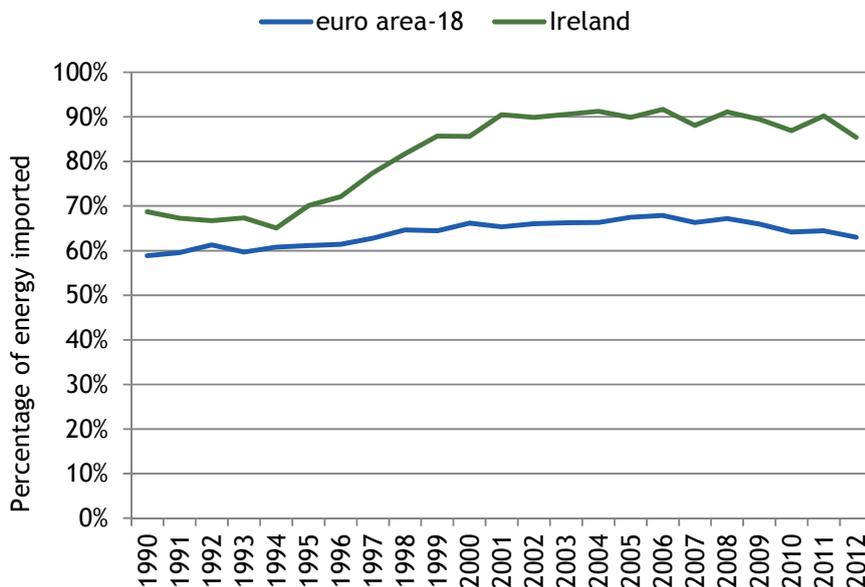
This chart shows executives' perceptions regarding the overall quality of infrastructure in an economy. Despite a strong improvement in perception since 2008, Ireland's score remains below the OECD average despite significant investments in infrastructure over recent decades.

OECD-32 Ranking: 24 (↑6)

Source: World Economic Forum

## 5.2.2 Transport, Energy and Environmental Infrastructure

Figure 5.28: Energy import dependency, Ireland and EU, 2012

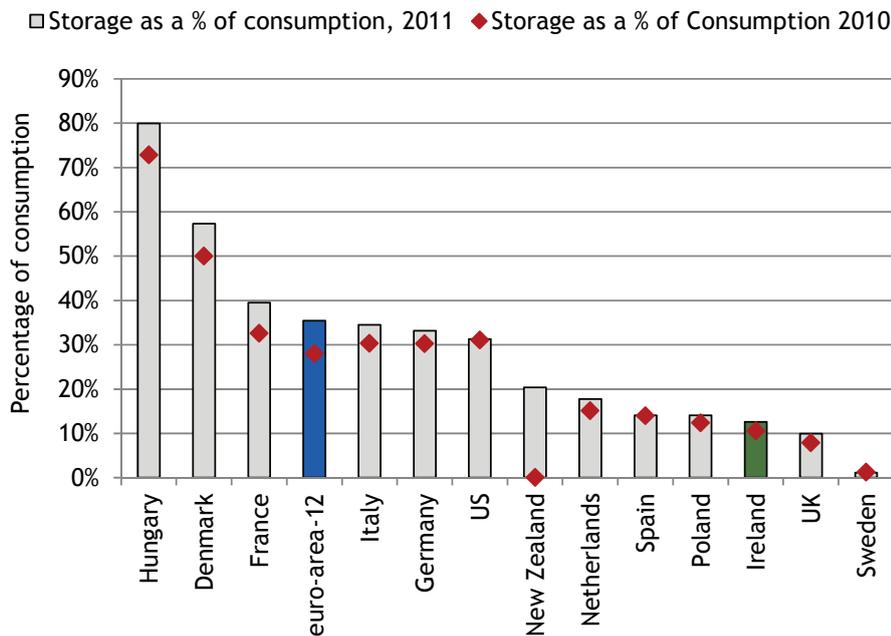


In the period 1994 to 2002, import dependency grew significantly in Ireland due to an increase in energy use, a decline in indigenous natural gas production and a decrease in peat production. Ireland's overall import dependency reached 92% in 2006 but has decreased to 85% in 2012. This emphasises the importance of having good interconnection and storage capacity in place to ensure energy reliability in Ireland. The EU is also highly dependent on imported fuel (euro area-18 average of 63%).

Ranking: n/a

Source: Eurostat

Figure 5.29: Natural gas storage capacity (% consumption), 2011<sup>73</sup>



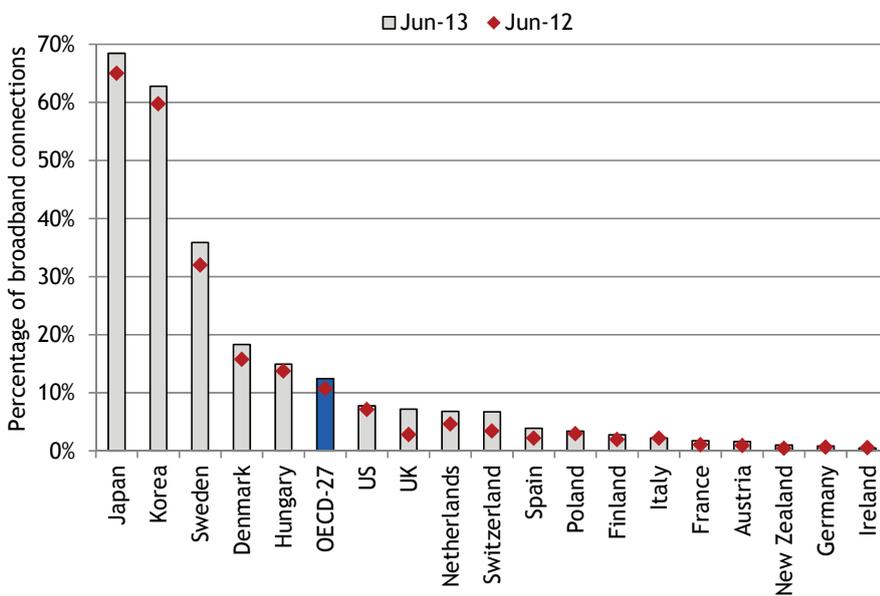
Natural gas is the dominant fuel in electricity generation in Ireland. Ireland's gas storage capacity (12.6%), however, is significantly below the euro area average (35.4%). Development of the Corrib field will improve import dependency in the short term. A number of prospective storage facility projects have been proposed and if delivered upon would improve storage capacity.

**Euro area-12 Ranking: 9 (-)**

Source: International Energy Agency

### 5.2.3 Information and Communication Technology Infrastructure

Figure 5.30: Fibre connections as a percentage of total broadband connections, June 2013<sup>74</sup>



Ireland ranks poorly in terms of fibre connections and significantly lags leading countries in terms of upgrading the local broadband access network to fibre. In Ireland only 0.5% of connections are over fibre connections compared to 69% in Japan and almost 63% in South Korea (where high population density make fibre a more attractive commercial option). Ireland remains significantly behind the OECD average (12.4%).

**OECD-27 Ranking: 25<sup>th</sup> (↓1)**

Source: OECD Broadband Statistics

Figure 5.31: Access to next generation broadband (as % of Household), 2013

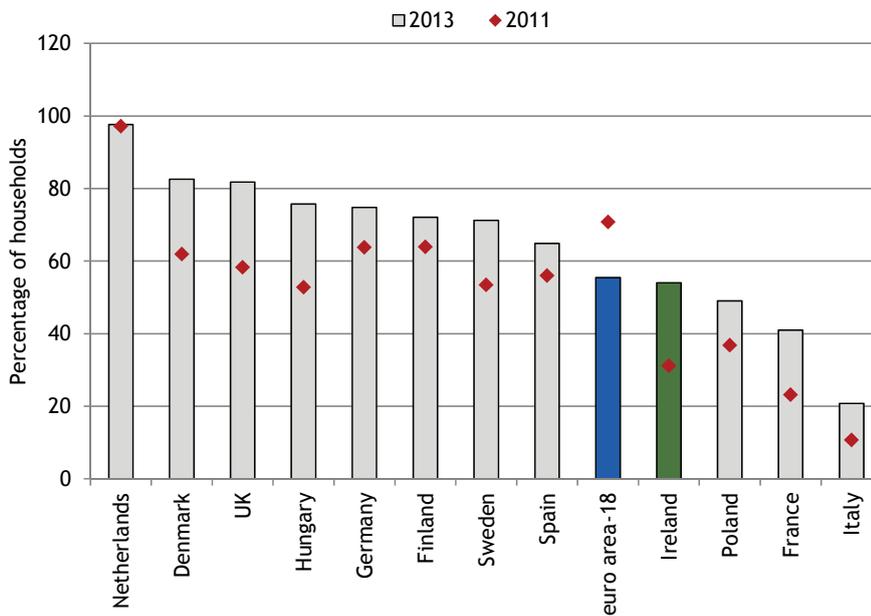
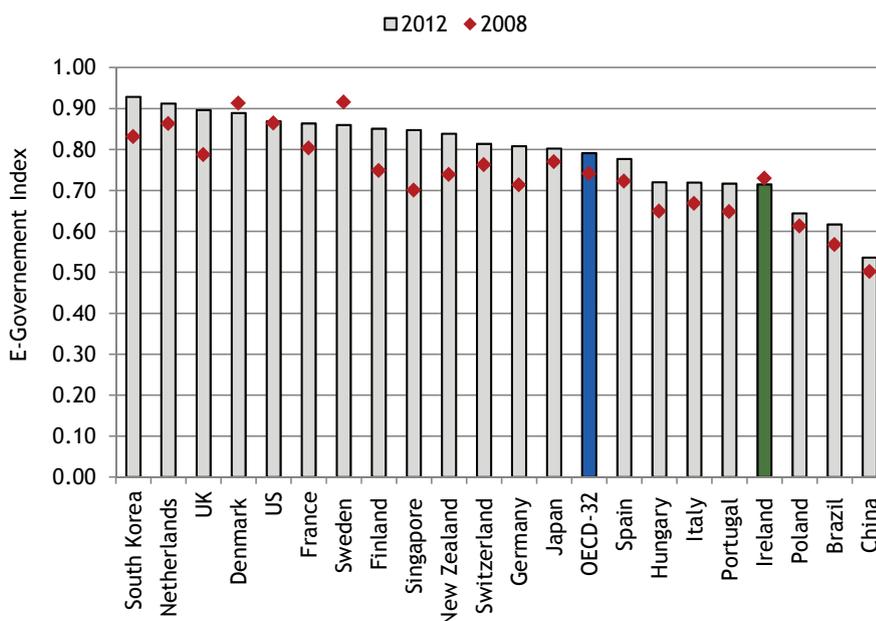


Figure 5.31 measures the percentage of households in areas with access to broadband of speeds of at least 30Mbps. Despite increasing coverage from 31% in 2011 to 42% in 2012 and to 54% in 2013. Ireland remains slightly behind the euro area average. In December 2013, take-up (subscriptions as a percentage of population) of fixed broadband in Ireland was 26.3%, below the euro area-18 average of 29.2%; the share of high speed connections (at least 30 Mbps), however, was higher than average (35.1% compared to euro area average of 22%).

**Euro area-18 Ranking:**  
15<sup>th</sup> (↓1)

Source: European Commission, Digital Scorecard 2012

Figure 5.32: Global e-Government development index, 2012<sup>77</sup>



The UN Global E-Government Development Index presents a composite measurement of the capacity and willingness of countries to use e-government for ICT-led development. Ireland's performance is significantly below the OECD-32 average and has deteriorated marginally since 2008.

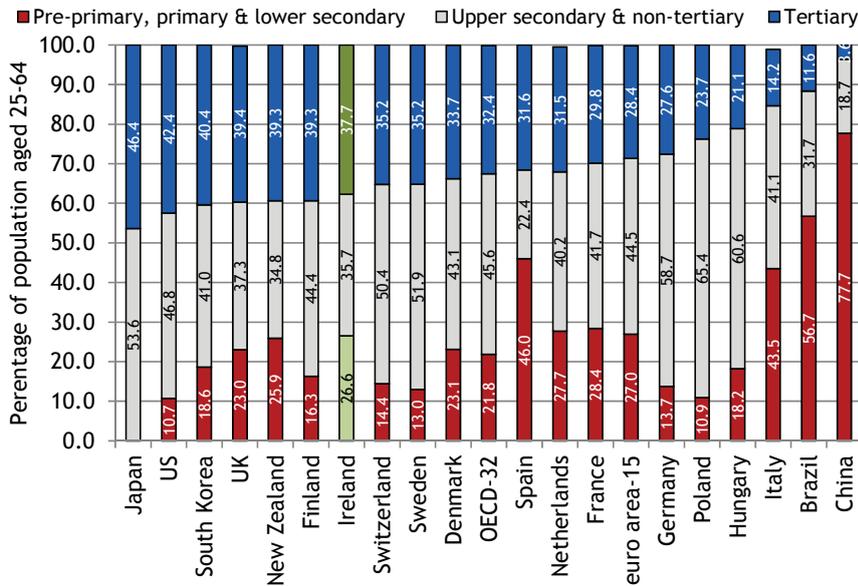
**OECD-32 Ranking:**  
27<sup>th</sup> (↓8)

Source: UN E-Government Survey 2013

## 5.3 Knowledge Infrastructure

### 5.3.1 Overview of Education

Figure 5.33: Educational attainment of population aged 25-64 by highest level of education (%), 2011<sup>76</sup>

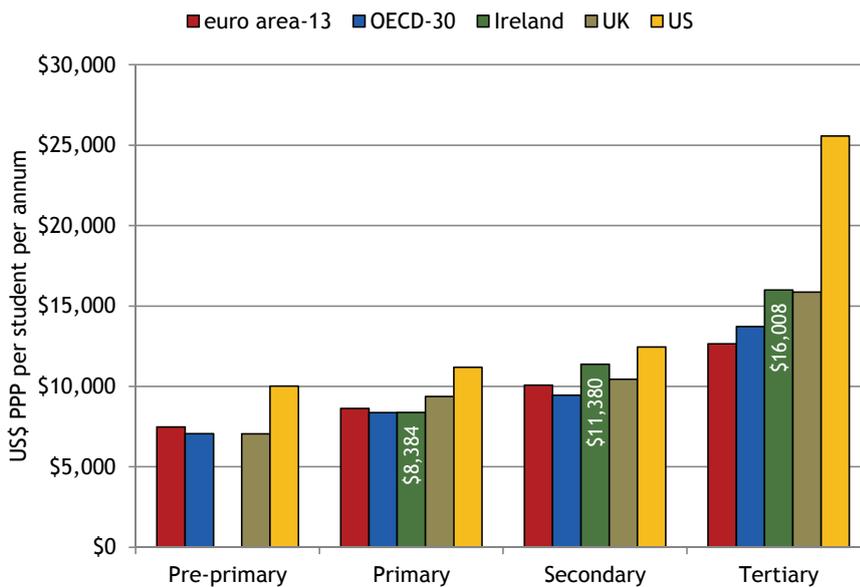


This chart graphs educational attainment in order of the population which has attained third level education. Average educational attainment in Ireland has improved significantly over the last two decades. The proportion of the working age population with tertiary level education has increased from 26% in 2003 to 36% in 2009 and to 37.7% in 2011.

**OECD-32 Ranking (tertiary): 11<sup>th</sup> (-)**

Source: OECD, Education at a Glance 2013

Figure 5.34: Annual expenditure on educational institutions, per student (\$US PPP), 2010<sup>77</sup>



Expenditure is not the only determinant of educational quality. It is, however, a key input metric. In 2010, Ireland spent more than the OECD average per student at primary, secondary and tertiary levels. The gap between euro area and US expenditure is particularly noticeable at third level. Since 2010, Irish third level institutions have come under renewed funding pressure.

**OECD-30 Ranking:**

Primary: 14<sup>th</sup> (↓2)

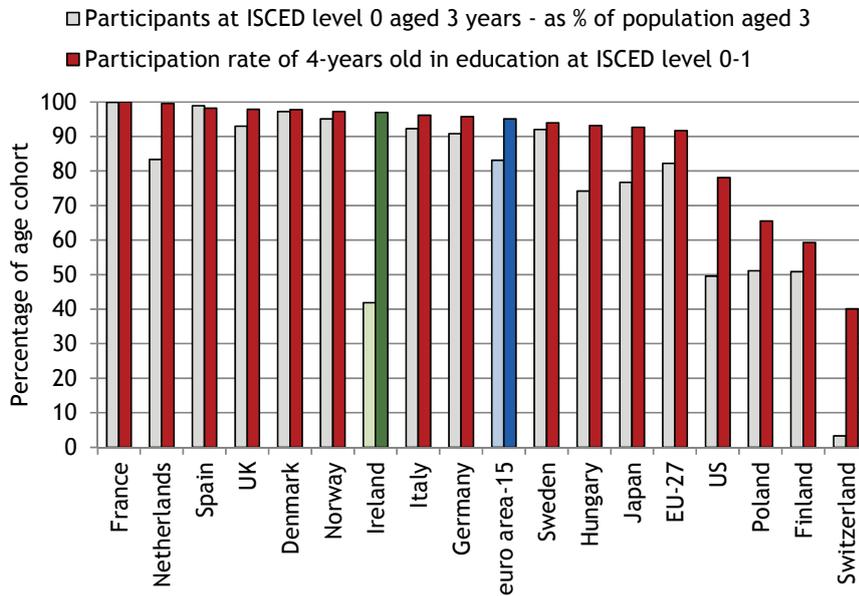
Secondary: 8<sup>th</sup> (↓1)

Tertiary: 10<sup>th</sup> (↓2)

Source: OECD, Education at a Glance 2013

### 5.3.2 Pre-Primary and Primary Education

Figure 5.35: Participation of 3 and 4 year olds in education (as a % of population age cohort), 2012<sup>78</sup>



This chart examines the participation of children aged 3 years in ISCED level 0 programmes and participation of 4 year olds in ISCED level 0-1 programmes. There is a significant jump between the participation of 3 and 4 year olds in Ireland. Legally, children can be enrolled at primary school from the age of 4 upwards - as a result, much of what is regarded as early childhood education in other countries is included in the Irish primary school system.

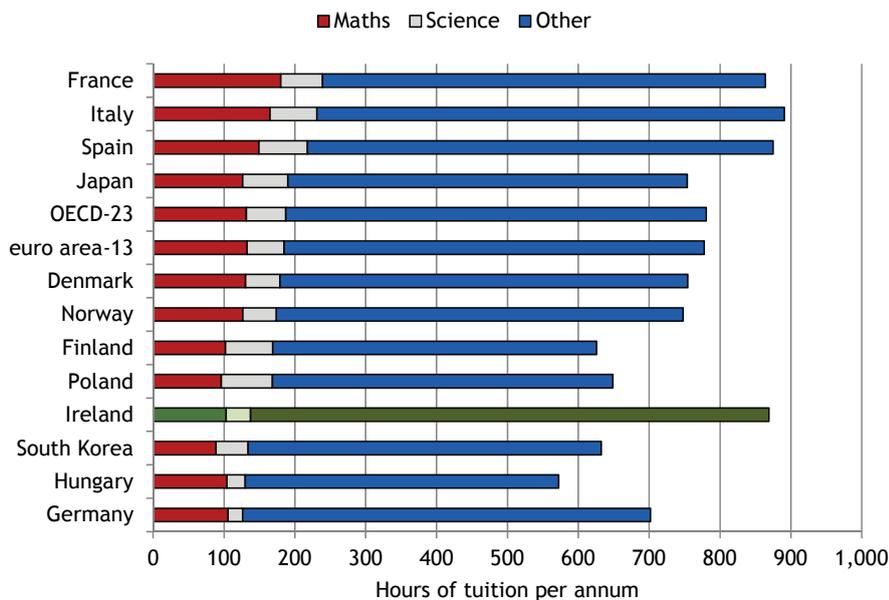
**Euro area-17 Ranking:**

3 yr. olds: 16<sup>th</sup> (↓1)

4 yr. olds: 6<sup>th</sup> (↑11)

Source: Eurostat

Figure 5.36: Average annual hours of tuition by subject in primary school, 2011<sup>79</sup>



In 2011, Irish primary school students received fewer hours of tuition in maths and science than students in most other OECD countries. Despite the limited time spent on maths and science tuition, Irish students spent more compulsory time in the classroom than the OECD average.

**OECD-23 Ranking:**

Maths hours: 19<sup>th</sup>

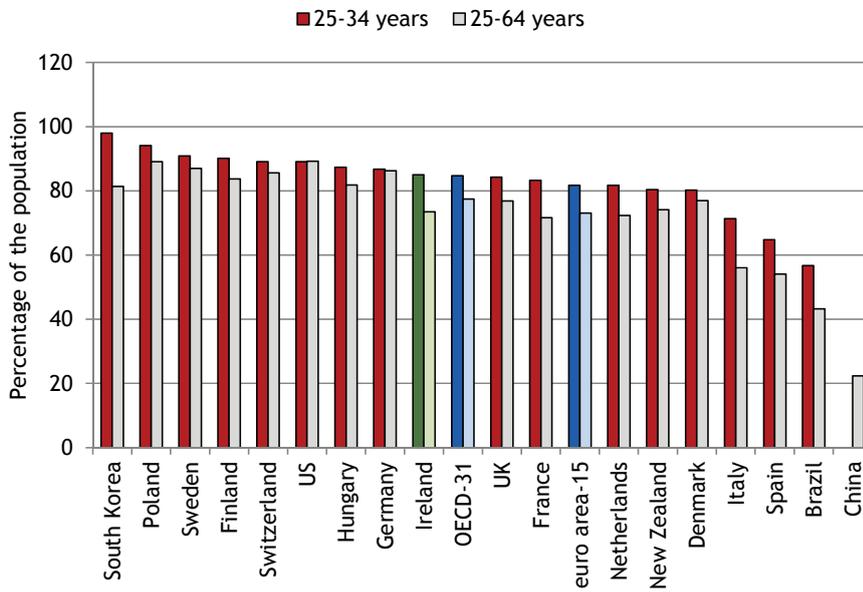
Science hours: 19<sup>th</sup>

Total hours: 8<sup>th</sup>

Source: OECD, Education at a Glance 2013

### 5.3.3 Secondary Education

Figure 5.37: Percentage of population that has at least upper secondary education, 2011<sup>NSI</sup>



73% of 25-64 year olds had attained at least upper secondary education in Ireland in 2011. 85% of 25-34 year olds had at least this level of education. While Ireland marginally lags OECD average attainment for those aged 25-64, this gap is rapidly narrowing as a result of high levels of attainment amongst younger cohorts. In all countries, more females complete secondary education than males.

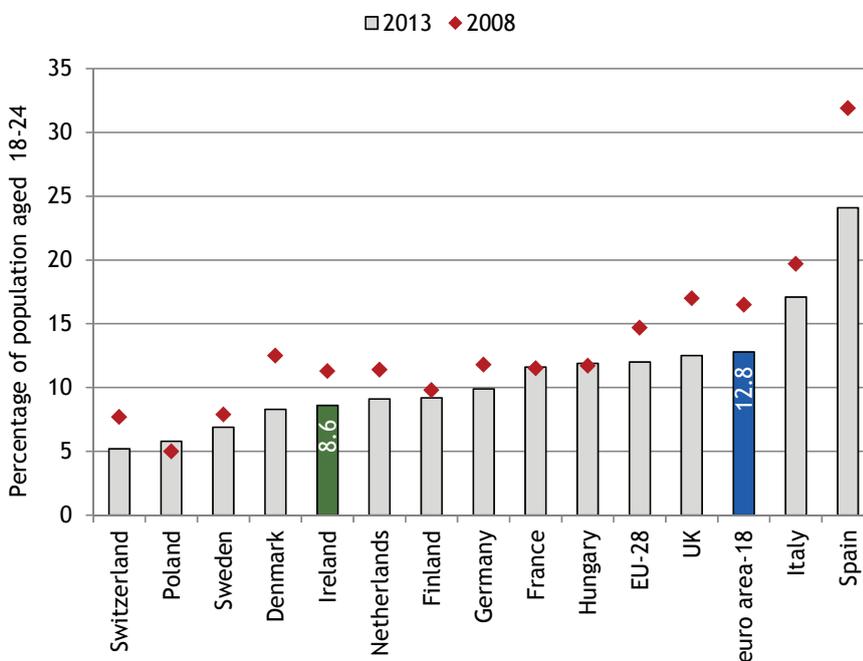
**OECD-31 Ranking:**

25-34 yr. olds: 17<sup>th</sup> (↓1)

25-64 yr. olds: 22<sup>nd</sup> (-)

Source: OECD, Education at a Glance 2013

Figure 5.38: Early school leavers as a percentage of population aged 18-24, 2013



This indicator measures the percentage of population aged between 18 and 24 who have attained, at most, lower secondary education. In 2013, 8.6% of this age cohort were considered early school leavers, compared to 11.3% in 2008, reflecting higher retention rates in secondary education. This is less than the euro area average (12.5%). The early school leaving rate for males also fell from 14.5% to 10.2% - below the euro area average of 14.6%.

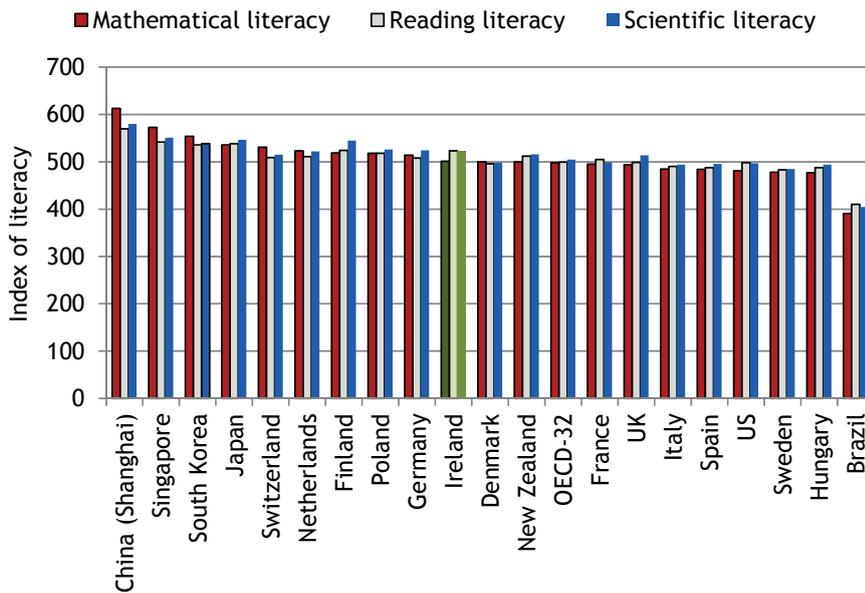
**Euro area-18 Ranking:**

Total: 5<sup>th</sup> (-)

Male: 5<sup>th</sup> (↑4)

Source: Eurostat, Structural Indicators

Figure 5.39: Scientific, mathematical and reading literacy of 15 year olds, 2012



Compared with 2009, Irish PISA scores for maths, reading and science have all improved. On average, Irish students score above the OECD-32 in all 3 categories. Scores in math in particular, however, lag the leading performers. Males outperformed females in maths in all PISA cycles since 2003. In 2012 Irish males performed better than females in terms of science but Irish females performed better in terms of reading.

**OECD-32 Ranking:**  
 Maths: 13<sup>th</sup> (↑13)  
 Reading: 4<sup>th</sup> (↑13)  
 Science: 8<sup>th</sup> (↑7)

Source: OECD, PISA Database

Figure 5.40: Percentage of students at each proficiency level on the mathematics scale, 2012

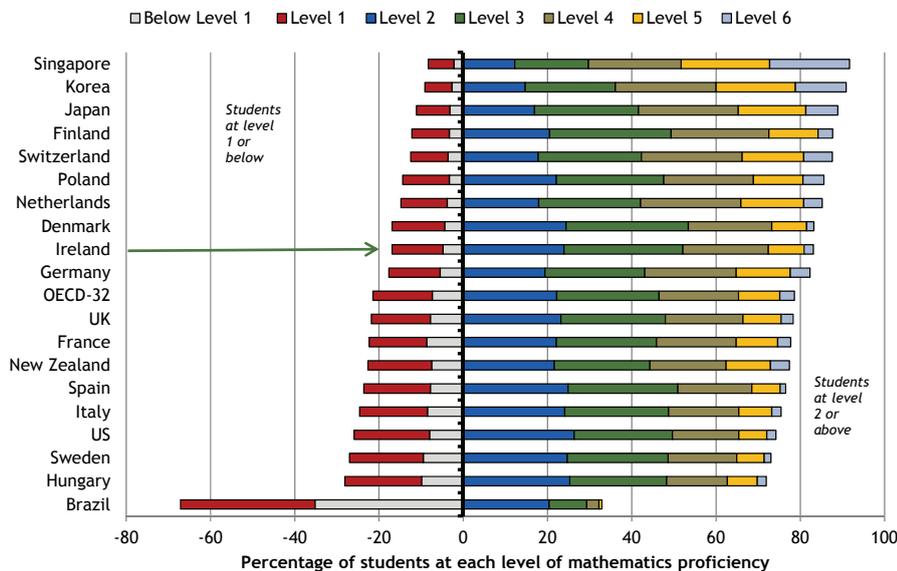
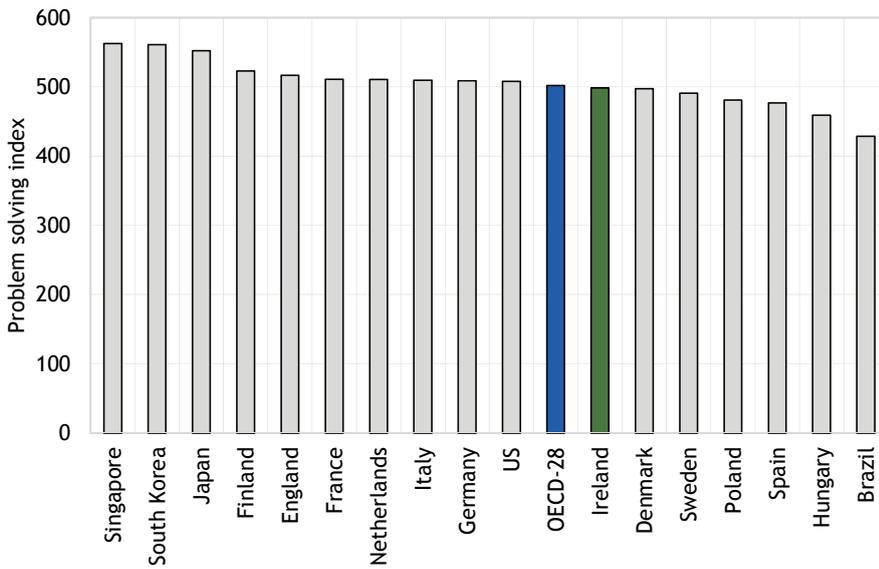


Figure 5.39 examines the distribution of scores in mathematics across the various competency levels. Ireland has a lower proportion of students scoring in the top 2 levels than the OECD average. On the other hand, there are fewer students in Ireland scoring at level 1 or below than is the case in the OECD.

**OECD-32 Ranking:**  
 Percentage achieving level 2-6: 11<sup>th</sup>

Source: OECD, PISA Database

Figure 5.41: Problem solving abilities of 15 year olds, 2012<sup>81</sup>

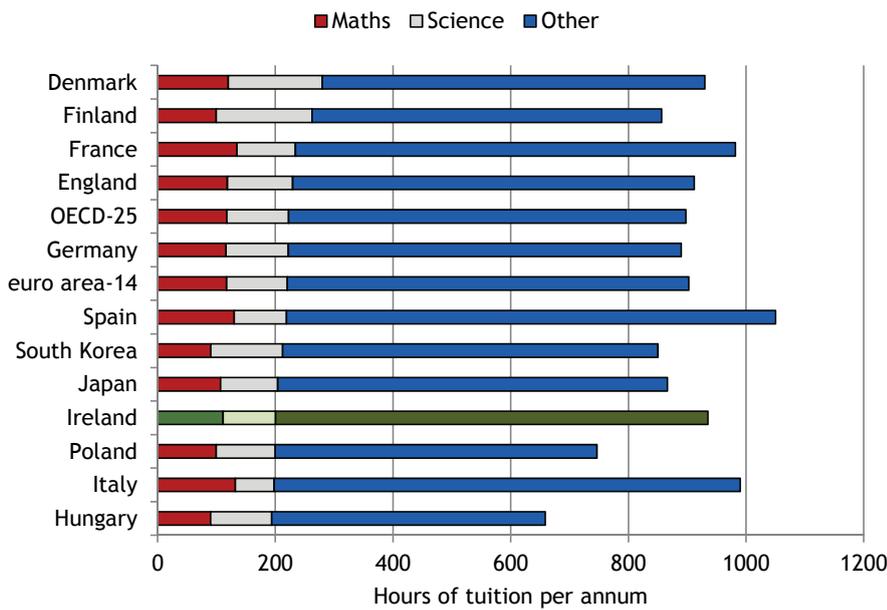


The problem solving assessments in PISA focus on general cognitive processes involved in problem solving rather than on the ability to solve problems in particular school subjects. Irish students (498) scored just below the OECD average (502). In line with OECD trends, Irish boys (501) performed slightly better than girls (496).

**OECD-28 Ranking: 17<sup>th</sup>**

Source: OECD, PISA Database

Figure 5.42: Average annual hours of tuition by subject in lower secondary education, 2011<sup>82</sup>



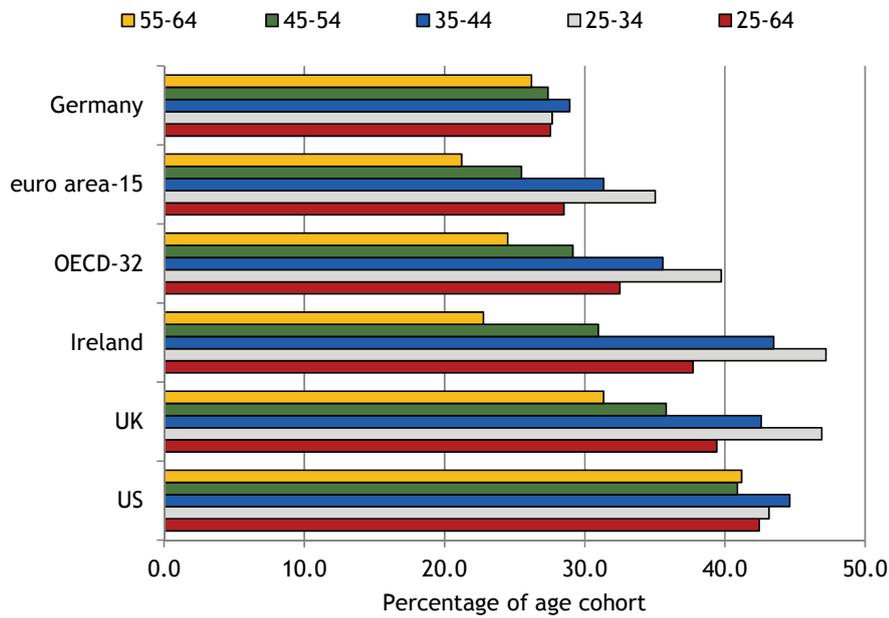
Similar to the situation in primary school, Irish students (935 hours) spend more time in school per year than the OECD average (898 hours). Less time is dedicated, however, to maths (111 hours) and science (89 hours) than in the OECD (117 hours and 103 hours respectively). Less time (just 10% of total hours) is spent on foreign languages in Ireland than in the OECD (14%).

**OECD-25 Ranking:**  
 Maths hours: 17<sup>th</sup>  
 Science hours: 19<sup>th</sup>  
 Total hours: 9<sup>th</sup>

Source: OECD, Education at a Glance 2013

### 5.3.4 Tertiary Education

Figure 5.43: Population by age cohort that has at least third level education, 2011<sup>83</sup>

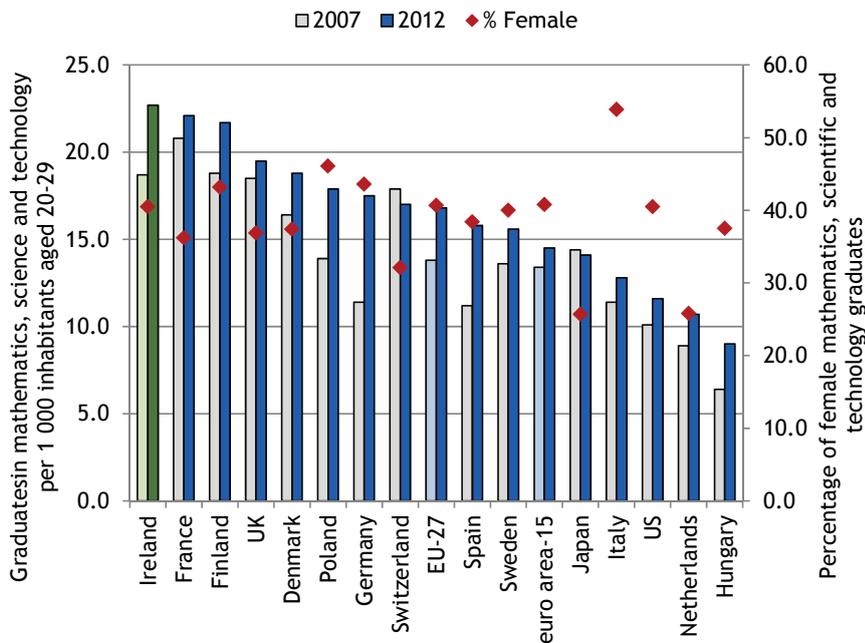


There is significant inverse correlation in Ireland between educational attainment and age; while a lower proportion of 55-64 year olds have attained tertiary education than the OECD average, a greater proportion of 25-34 years olds in Ireland have a third level qualification than is the case in the OECD. Overall, 37.7% of 25-64 year olds in Ireland had a third level qualification in 2011 compared with 32.4% in the OECD.

**OECD-32 Ranking:**  
 25-64 yrs: 11<sup>th</sup> (↑1)  
 25-34 yrs.: 4<sup>th</sup> (-)

Source: OECD, Education at a Glance 2013

Figure 5.44: Maths, Science and Technology graduates (per 1,000 population aged 20-29 years), 2012<sup>84</sup>

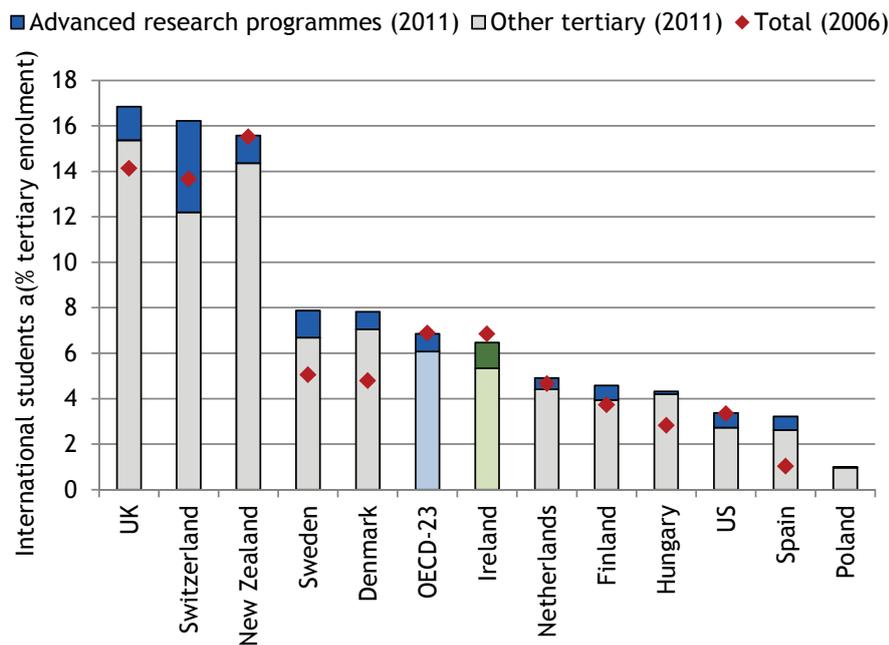


Ireland had 22.7 maths, science and computing graduates per 1,000 of the population aged 20-29, which compares very favourably with the euro area average (14.5 per 1,000). The proportion of maths, science and technology graduates in Ireland has increased from 18.7 per 1,000 in 2007. In terms of the proportion of female MST graduates in Ireland (40.5%), Ireland is on a par with the euro area average.

**Euro area-15 Ranking:**  
 Total: 1<sup>st</sup> (↑2)

Source: Eurostat, Population and Social Conditions

Figure 5.45: International students (as a % of all students in tertiary education), 2011<sup>85</sup>



International enrolments reflect a combination of factors including cost and reputation. In 2011, international students comprised 6.5 % of Irish tertiary enrolments - behind other English speaking jurisdictions such as the UK (16.9%) and New Zealand (15.6%). In terms of advanced research programmes, 25.7% of enrolments in Ireland were accounted for by international students, more than the OECD average but below leading countries.

**OECD-23 Ranking:**

Total: 10<sup>th</sup>

Research: 9<sup>th</sup>

Source: OECD, Education at a Glance 2013

### 5.3.5 Life Long Learning

Figure 5.46: Lifelong learning (as a percentage of 25-64 year olds) , 2012<sup>86</sup>

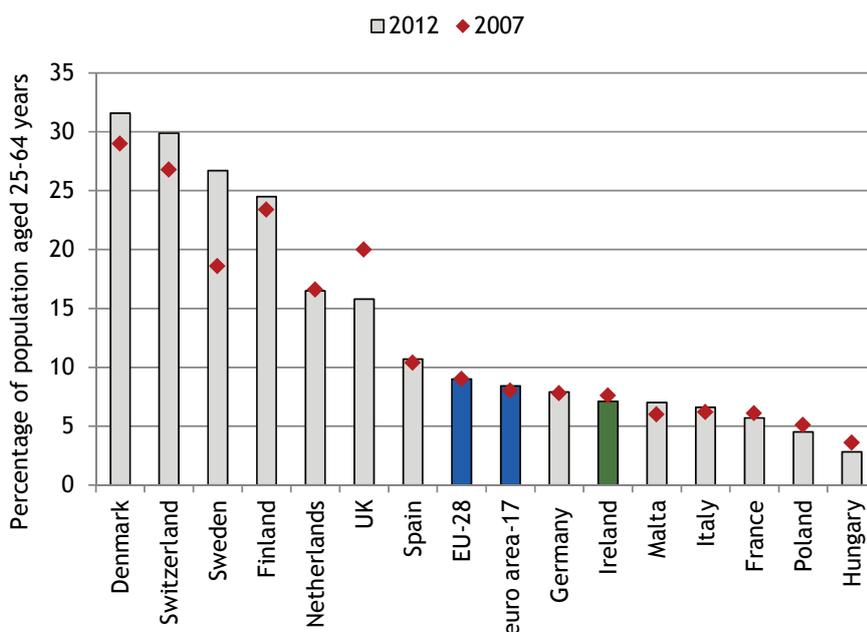
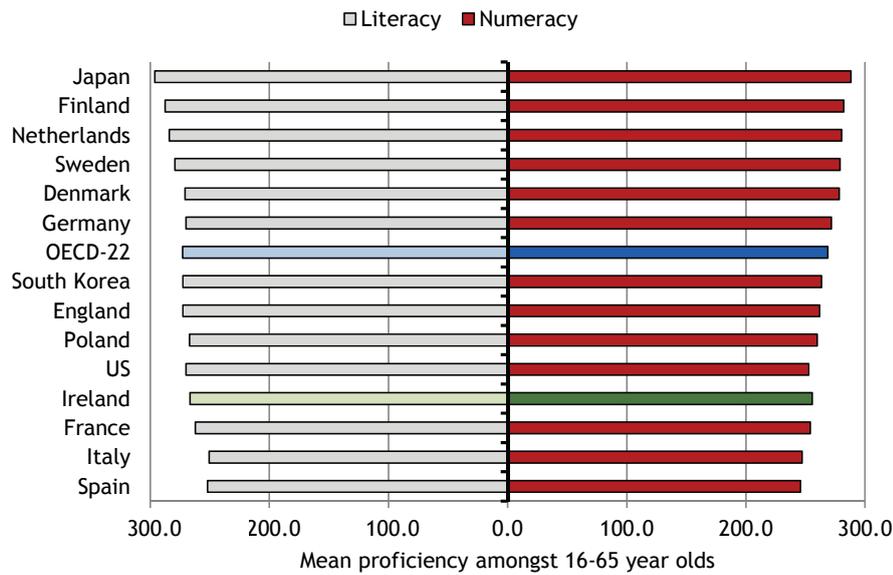


Figure 5.45 illustrates the percentage of people aged 25-64 in receipt of education (both formal and non-formal) in the four weeks prior to the survey. Ireland (7.1%) ranks below the euro area average (8.4%) and participation has declined since 2007 despite the rise in unemployment. Irish females (7.4%) have higher participation rates than males (6.7%) and younger age cohorts also tend to have higher participation rates.

**Euro area-17 Ranking: 11<sup>th</sup>**  
(↓3)

Source: Eurostat

Figure 5.47: PIACC Indicator: Proficiency in maths and reading (16-65 year olds), 2012



The OECD's Programme for the International Assessment of Adult Competencies finds that overall Irish adults were slightly below the survey average in terms of literacy - the numbers of people scoring at lower literacy levels, however has dropped since the 1990s. In terms of numeracy, Ireland's performance is below average.

**OECD-22 Ranking:**

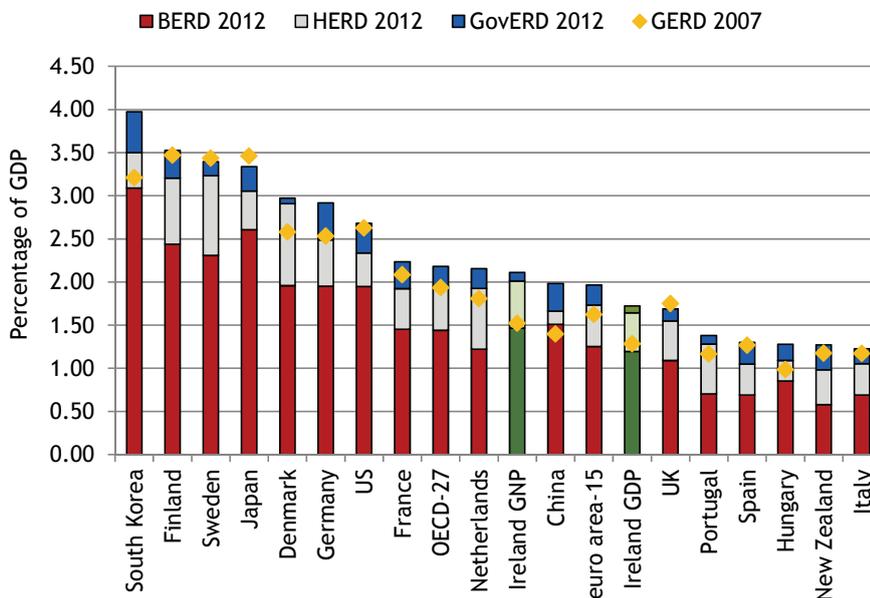
Literacy: 19<sup>th</sup>

Numeracy: 18<sup>th</sup>

Source: OECD, Programme for the International Assessment of Adult Competencies

### 5.3.6 Research, Development and Innovation

Figure 5.48: Expenditure on R&D as a percentage of GDP (Business, Higher Ed, Govt), 2012<sup>87</sup>



In 2012 Irish expenditure on R&D accounted for 1.72% of GDP (2.11% of GNP). Business expenditure on R&D (BERD) accounted for 1.2%, while the higher education sector (HERD) and government sector (GovERD) accounted for 0.45% and 0.08% respectively. Government Budget Appropriations or Outlays on R&D (GBAORD) accounted for 0.46% of GDP (or €760 million).

**Euro area-15 Ranking:**

Gross: 9<sup>th</sup> (-)

BERD: 9<sup>th</sup> (-)

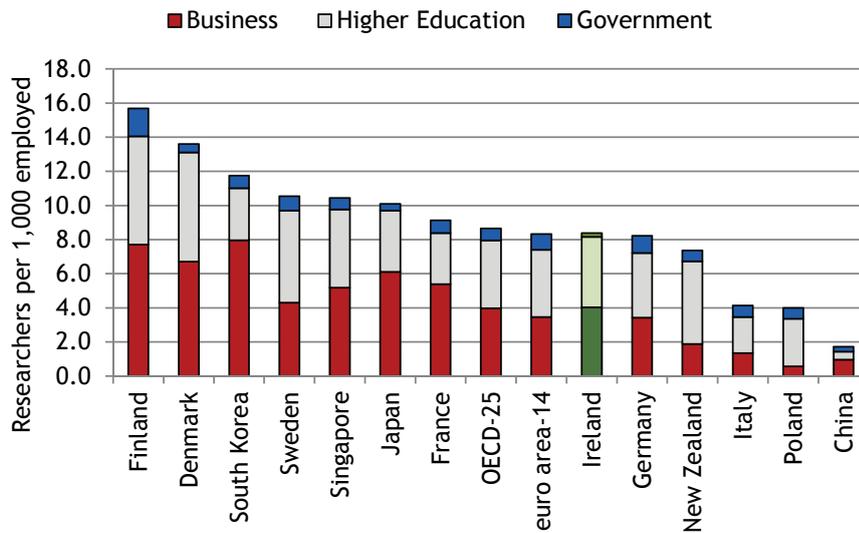
HERD: 9<sup>th</sup> (-)

GovERD: 15<sup>th</sup> (-)

GBAORD: 13<sup>th</sup> (↓1)

Source: OECD

Figure 5.49: Researchers per 1,000 in total employment, 2011<sup>88</sup>



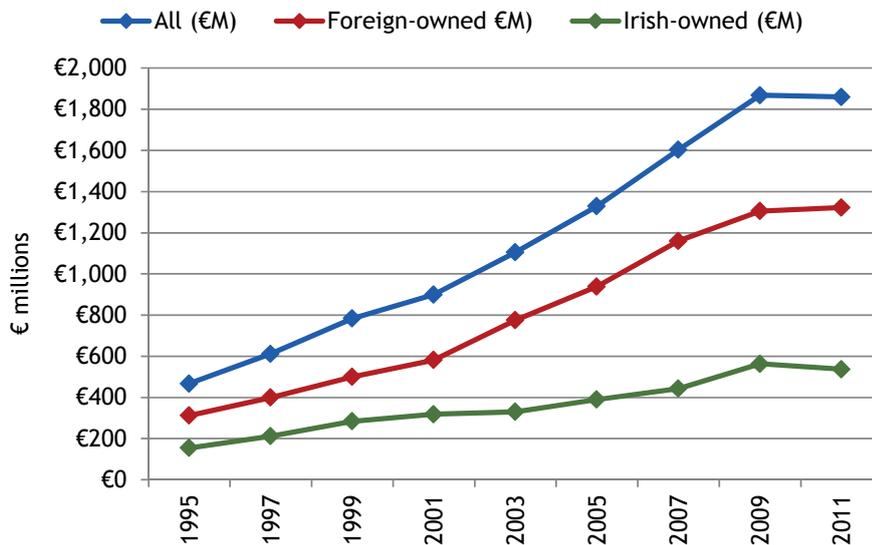
In 2011, 8.38 researchers were employed in Ireland for every 1,000 people in employment - in line with the euro area-14 average of 8.42, but less than the OECD average of 8.74. Overall, 22,131 researchers were employed, a third of whom are female. Higher education accounted for 49% of researchers, while business and Government accounted for 48% and 2.7% respectively.

**Euro area-14 Ranking:**

- Total: 7<sup>th</sup>
- Business: 6<sup>th</sup> ;
- Higher Ed: 7<sup>th</sup> ;
- Government: 14<sup>th</sup>

Source: OECD

Figure 5.50: Business sector R&D expenditure by firm type, 1995-2011

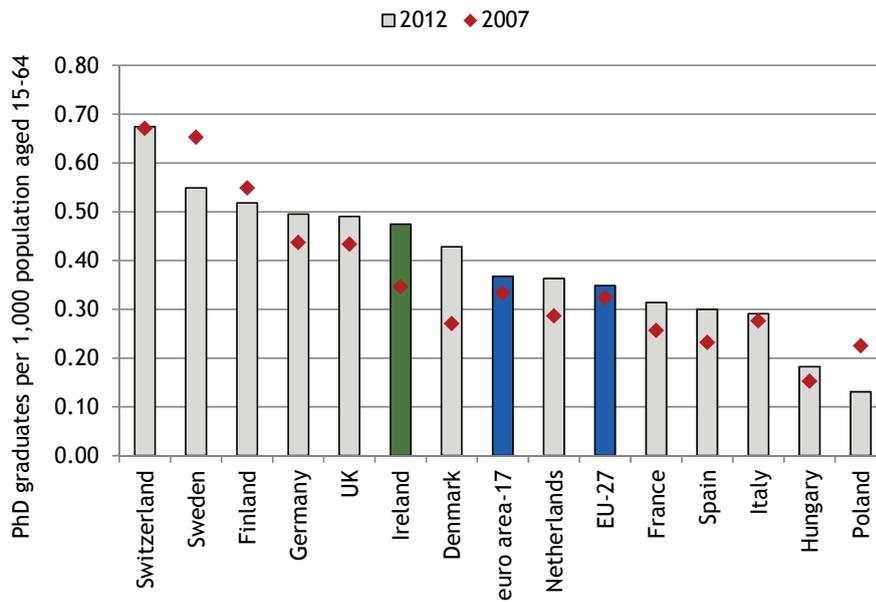


Foreign owned companies in Ireland spent over €1.32 billion on R&D in Ireland in 2011, accounting for 71% of business expenditure on R&D. By comparison, indigenous firms spent €536 million on R&D in 2011. The majority of research expenditure was on experimental and development research (71.4%), with smaller proportions dedicated to applied (23.9%) and basic research (4.6%).

Ranking: n/a

Source: Forfás / Central Statistics Office

Figure 5.51: PhD graduates per 1000 of population (aged 15-64), 2012<sup>89</sup>

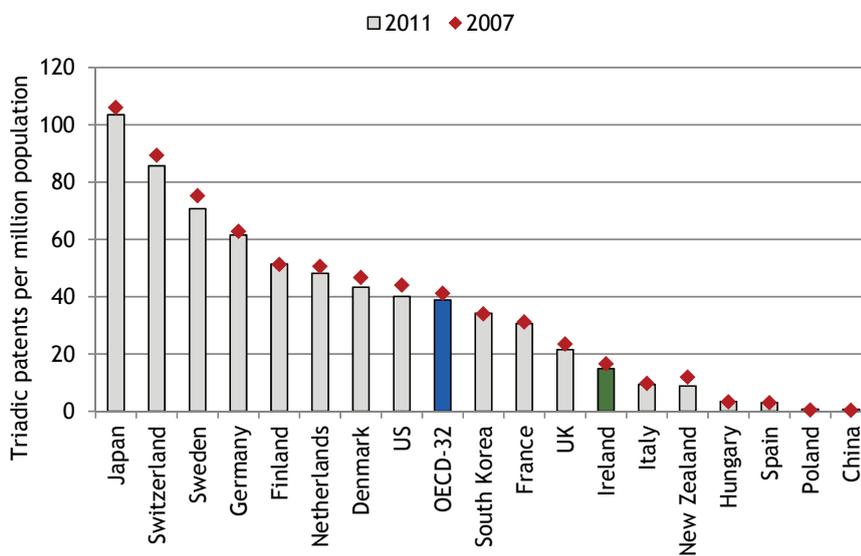


In 2012, Ireland had 0.475 PhD graduates per 1,000 population - above the euro area average of 0.368. In 2007, 1,035 students graduated in Ireland with PhDs - this increased to 1,447 in 2012. There were slightly more male PhD graduates (50.8%) than female graduates (49.2%). Ireland has consistently had one of the largest proportions of ISCED level 6 science, mathematics, computing, engineering, manufacturing and construction graduates in the EU.

**Euro area-17 Ranking:**  
4<sup>th</sup> (↑2)

Source: Eurostat

Figure 5.52: Triadic patents per million population, 2011

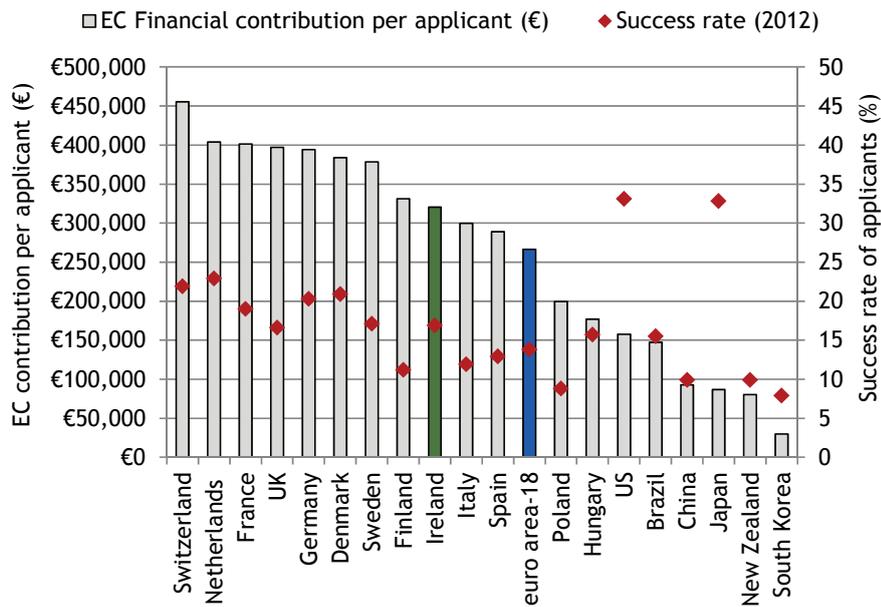


Triadic patents refer to patents granted at European, Japanese and US patent offices. Patents can be seen as a proxy for a country's inventive activity. Ireland performs well below the OECD average on this measure, with 14.9 patents per million population compared with an OECD average of just over 38.9 per million. Japan, with 103.6 patents per million population is the leading performer under this metric.

**OECD-32 Ranking:** 17<sup>th</sup>  
(-)

Source: OECD

Figure 5.53: EU research funding (€ per applicant, 2013 and success rate, 2012)<sup>90</sup>

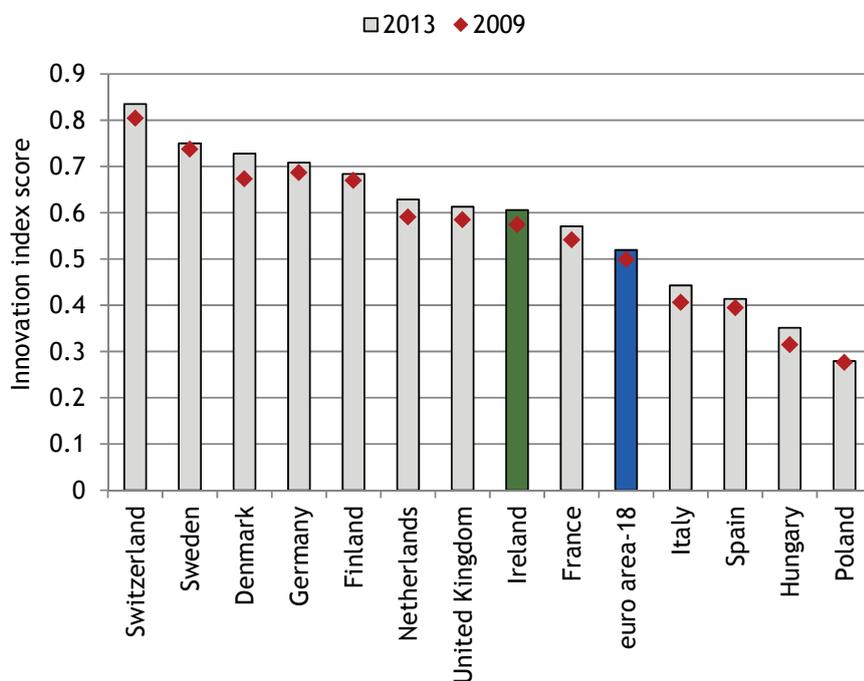


Under the 7<sup>th</sup> Framework Programme for EU R&D, Irish researchers were more likely to be successful (16.9%) than the euro area average (13.8%) in their applications for competitive funding. Irish researchers also attracted more funding per applicant than the euro area average but less than leading countries such as the Netherlands, France, the UK and Germany.

**Euro area-18 Ranking:**  
 € per Applicant: 7<sup>th</sup>  
 Success Rate: 6<sup>th</sup>

Source: European Commission

Figure 5.54: Summary innovation index, 2013<sup>91</sup>

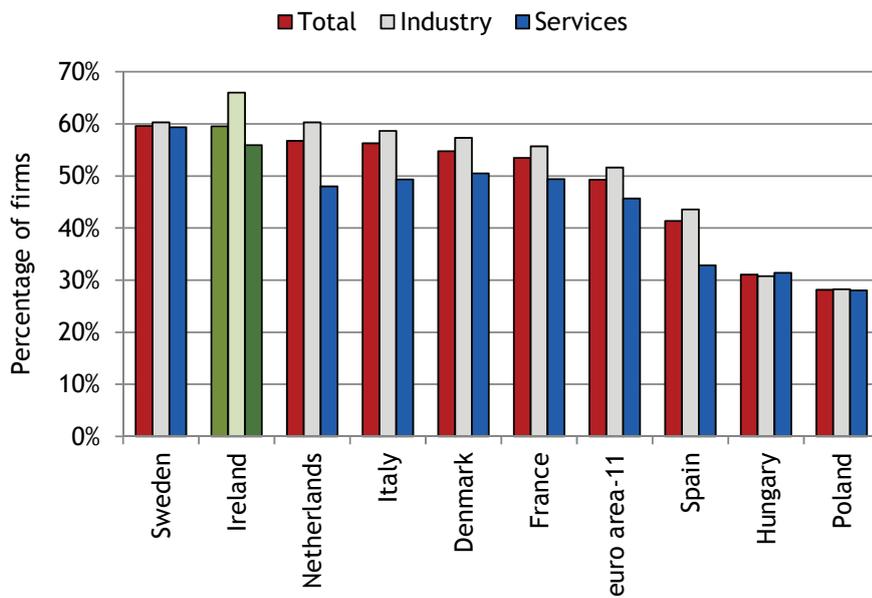


The Innovation Union Scoreboard 2014 provides a comparative assessment of innovation performance. The index distinguishes between 3 main types of indicators and 8 innovation dimensions, capturing 25 different indicators. Ireland is classed as an innovation follower with an above average performance. Relative strengths are in “human resources” and “economic effects”. Relative weaknesses are in “finance and support”, and “firm investments”.

**Euro area-18 Ranking:**  
 6<sup>th</sup> (↑1)

Source: Innovation Union Scoreboard 2014

Figure 5.55: Percentage of firms engaged in innovative activity, 2010<sup>92</sup>



This chart shows the percentage of firms which reported that they engage in innovative activity. Firms in Ireland were more likely to be innovative (56.7%) compared to the euro area-11 average (49.2%). In all countries, industry firms are more likely to be innovative than services firms - 60.3% of firms in industry in Ireland were engaged in innovation compared to 48% of service firms.

**Euro area-11 Ranking:**

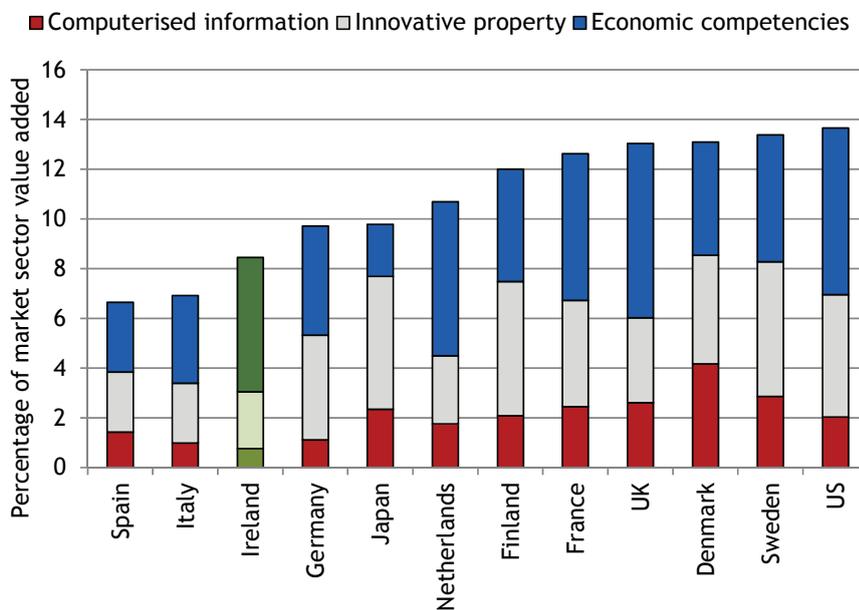
Total: 3<sup>rd</sup>

Industry: 2<sup>nd</sup>

Services: 3<sup>rd</sup>

Source: Community Innovation Survey

Figure 5.56: Investment intensity in knowledge-based capital (% market sector value added), 2010



Investment in knowledge-based capital (KBC) is a broad measure which includes investment in computerised information, innovative intellectual property and economic competencies. Such investment has grown over time in Ireland, as in other countries, but Ireland remains in the lower half of the 18 OECD countries for which data are available.

**OECD-18 Ranking:**

Computerised information: 17<sup>th</sup>

Innovative property: 17<sup>th</sup>

Economic competencies: 6<sup>th</sup>

Source: OECD

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## Endnotes

1 The outlook for the Irish economy has been well documented in a series of recent assessments. While not intending to repeat these reports, it is useful to briefly set out the overarching economic context within which Ireland's competitiveness continues to evolve. Sources include the Central Bank, Quarterly Bulletin April 2014; ESRI, Quarterly Economic Commentary, Spring 2014; Irish Fiscal Advisory Council, Fiscal Assessment Report, November 2013; Department of Finance, Ireland's Stability Programme Update (Draft), April 2014; OECD Economic Outlook, November 2013; European Commission, European Economic Forecast, European Economy 2/2014, Winter 2014; and IMF, World Economic Outlook, April 2014

2 The Exchequer balance is the domestic budgetary aggregate which measures the net surplus or deficit position (the difference between cash inflows and outflows) of central government's main treasury account. The General government balance is an EU national accounting aggregate which measures the net surplus or deficit position of all arms of Government, i.e. central government, Local Authorities, Vocational Education Committees and Non-commercial State sponsored bodies, as well as funds such as the Social Insurance Fund and the National Pensions Reserve Fund which are managed by Government agents.

3 Department of Finance, Ireland's Stability Programme , April 2014

4 Government waste management policy aims to virtually eliminate landfill by the year 2020. Diverting waste from landfill is an important element of national and EU policy to reduce the environmental impacts of waste management and to increase the exploitation of waste as a resource. The application of the landfill levy is a strategic economic instrument to reduce landfill and promote the development of other waste management infrastructure in the higher tiers of the waste hierarchy (recycling /other recovery) and thus help achieve national waste policy objectives and EU Directive targets.

5 Crafts, N., Ireland's Medium Term Growth Prospects: A Phoenix Rising?, CAGE University of Warwick, 2014

6 The FDI Index gauges the restrictiveness of a country's FDI rules by looking at the four main types of restrictions on FDI: foreign equity limitations; screening or approval mechanisms; restrictions on the employment of foreigners as key personnel; and operational restrictions, such as restrictions on branching and on capital repatriation or on land ownership. The FDI Index is not a full measure of a country's investment climate. A range of other factors come into play, including how FDI rules are implemented. Entry barriers can also arise for other reasons, including state ownership in key sectors. A country's ability to attract FDI will be affected by factors such as the size of its market, the extent of its integration with neighbours and even geography. Nonetheless, FDI rules are a critical determinant of a country's attractiveness to foreign investors. Furthermore, unlike geography, FDI rules are something over which governments have control.

7 FitzGerald, J., The Effect of Redomiciled Plcs on GNP and the Irish Balance of Payment", ESRI, Dublin, 2013

8 The clustering of a number of patented drugs going off patent in quick succession, including the global bestseller in 2011, which is assumed to be produced in a small number of locations including Ireland, is having an impact on pharma-chem output in Ireland. Both output and exports are down from their mid-2012 peaks, although the headline impact is likely to be offset to an (uncertain)

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extent by reduced imports of royalties. Ireland is likely to continue to feel the impact of the patent cliff as drugs being produced in Ireland continue to come off patent. However, the magnitude is unlikely to be as great as has been felt in 2012 as drugs due to expire and are produced in some part in Ireland are of less value than those that have already come off patent to date. The impact on employment is unlikely to be as large as suggested by the fall in aggregate demand. For further detail see Enright, S. and Dalton, M, The Impact of the Patent Cliff on Pharma-Chem in Ireland, Department of Finance, Working Paper No.1, 2013

9 National Competitiveness Council, Ireland's Productivity Performance 1980-2011, Forfás, April 2012

10 ESRI, Quarterly Economic Commentary, Spring 2014, Dublin

11 National Competitiveness Council, Cost of Doing Business in Ireland 2014, Forfás, April 2014

12 In addressing energy costs, it is important to differentiate between controllable costs which can be influenced by domestic policymakers and non-controllable costs which are determined globally. For example, according to the CER, approximately 60 per cent of the average business electricity bill is made up of generation costs, a large part of which is accounted for by fuel. See CER, Pass-Through Costs for Business Electricity Customers from 1st October 2013 (CER 13/229), October 2013; also a recent report from Forfás on sectoral regulation includes an assessment of the drivers of costs (controllable and non-controllable) in the energy sector. For more detail, see Forfás, Sectoral Regulation: study to identify changes to sectoral regulation to enhance cost competitiveness, April 2013

13 OECD, Ireland's Action Plan for Jobs: a preliminary review, Paris, 2014

14 European Central Bank, Survey on the access to finance of small and medium-sized enterprises in the euro area, October 2013 to March 2014

15 IMF, Ireland Twelfth Review under the Extended Arrangement and Proposal for Post-Programme Monitoring, Country Report No. 13/366, December 2013

16 The Doing Business project looks at domestic, primarily small and medium size companies and measures the regulations applying to them through their life cycle. Based on standardized case studies, it presents quantitative indicators on business regulation that can be compared across 180+ economies and over time. The assumptions used to develop the case studies allow global coverage and enhance comparability. But they come at the expense of generality.

17 It is notable that the telecommunications industry in Ireland has accelerated investments since 2012 and that speeds well in excess of 30mbps are now more widely available. While the take-up rate for fixed broadband in Ireland is below the EU average, the share of high speed connections (at least 30 Mbps), however, was higher than average (35.1 per cent compared to euro area average of 22 per cent). The Government has committed to an investment in high speed broadband in areas that the commercial market cannot serve.

18 Expert Group on Future Skills Needs, Vacancy Overview, May 2014

19 The variance components in mathematics, sciences and reading were estimated for all students in participating countries with data on socio-economic background and study programmes. The variance in student performance is calculated as the square of the standard deviation of PISA scores in reading, mathematics and science for the students used in the analysis. For data, see <http://dx.doi.org/10.1787/888932984668>

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20 The CIS data is reproduced in Figure 2.5 “Innovation rates by size of enterprise in 2010” in OECD, Economic Surveys of Ireland, September 2013. See <http://dx.doi.org/10.1787/888932894418>

21 Most recent data for Japan is for 2011; most recent data for Greece and Romania is for 2012

22 Most recent data for Japan is for 2011; most recent data for Greece and Romania is for 2012

23 Duffy, D., FitzGerald, J. Timoney, K., and Byrne, D., Quarterly Economic Commentary, ESRI, Winter 2013

24 EU27 excludes Croatia

25 The measure of average consolidation is taken as the difference between the underlying primary balance in the initial year (2014) and the average of the underlying primary balance in each year between 2015 and 2013 (except for those countries for which the debt target is only achieved after 2030, in which case the average is calculated up until the year that the debt target is achieved). OECD-30 excludes Chile, Mexico, Norway and Turkey; Euro area-17 excludes Cyprus, Latvia and Malta

26 Data for Ireland is from 2011. Change in rankings refers to the period between 2007 and 2011. Traffic light based on two or more adults

27 Data for Ireland is from 2011. Change in rankings refers to the period between 2007 and 2011

28 Change in ranking refers to the period between 2006 and 2011

29 Change in ranking refers to the period between 2006 and 2011; data on decoupling of emissions from economic growth between 2000 and 2010 is taken from Eurostat.

30 OECD-27 excludes Estonia, Iceland, Israel, Luxembourg, Mexico, Slovenia and Turkey

31 Change in ranking refers to the period between 2008 and 2012

32 Changes in ranking refers to the period between 2007 and 2012. Data on employment in foreign-owned firms from the Forfás, Annual Business Survey of Economic Impact 2012, 2014

33 OECD-27 excludes Iceland, Estonia, Mexico, Slovakia, Slovenia, Turkey and US

34 Changes in ranking refers to the period between 2007 and 2012

35 Euro area-15 excludes Cyprus, Greece and Malta

36 Change in ranking refers to the period between 2007 and 2012.

37 Euro area-14 excludes Latvia, Luxembourg, Cyprus and Malta. Data for the share of Ireland’s goods exports received by the UK and US refers to 2012 (CSO, External Trade).

38 The Participation in Global Value Chains indicator measures foreign inputs and domestically-produced inputs used in third economies’ exports, as a share of gross exports. The traffic light colour reflects the fact that Ireland performs strongly in terms of “backward participation” but poorly in terms of “forward participation”.

39 Values are quoted in US\$ using EKS purchasing power parities. EKS (Éltető-Köves-Szulc) is a method for calculating a multilateral per capita quantity index from disaggregated price and quantity data.

40 The orange traffic light reflects the fact that while inflation in Ireland is low, prices remain elevated.

41 Euro area-17 excludes Cyprus. Data refers to 2013 or latest year

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42 Unit labour costs (ULC) measure the average cost of labour per unit of output. ULCs represent a direct link between productivity and the cost of labour used in generating output. Nominal unit labour costs are defined as total wage compensation per unit of output. This is equal to the nominal wage rate per worker divided by labour productivity. Between 2009 and 2011, nominal ULCs in Ireland recorded substantial annual falls, before flattening out in 2012. Real unit labour costs are derived by dividing nominal unit labour costs by the price level and are therefore identical with the wage share in GDP. Irish forecast data are taken from Central Bank of Ireland, Quarterly Bulletin Q1 2014, January 2014

43 Euro area-13 excludes Cyprus, Latvia, Luxembourg, Malta and Slovenia; OECD-28 excludes Chile, Iceland, Luxembourg, Mexico, Slovenia and Turkey

44 The Department of the Environment, Community and Local Government (DECLG) compile average house prices per quarter, whereas the CSO produce a price index. The principal conceptual difference is that the latter is mix-adjusted. Based on data from DCELG, prices for new houses are down 28 per cent on their peak, while second hand house prices have fallen by 32 per cent. According to CSO data, the national Residential Property Price Index in December 2013 was 46.4 per cent lower than its highest level in 2007.

The CSO's Residential Property Price Index (RPPI) is designed to track the evolution in prices for the exact same set of properties month-on-month. However, in reality, the same properties are not sold month after month. Every property sold is unique (and, therefore, a 'fixed basket of properties' cannot be created). To resolve this problem, the CSO use econometric modelling techniques to strip out the different price effects of size, location, etc. every month to produce a price change of fixed notional property types. This process is known as mix-adjustment.

The interpretation of the difference between the two measures is that the quality (in terms of size, location, etc.) of the properties transacted since the crash has improved (i.e. more proportionately more 'premium' properties are being sold).

45 Electricity prices shown reflect large energy users. Large energy users are based on an annual consumption of 2,000 to 20,000 MWh. Prices are half-yearly and taken from the 1st half of the year. References to SME users are based on an annual consumption of 500 to 2,000 MWh.

46 Euro area-16 excludes Cyprus and Finland

47 After each Census of Population the sample of households for the QNHS is updated to ensure the sample remains representative. The new sample based on the 2011 Census of Population has been introduced incrementally from Q4 2012 to Q4 2013. This change in sample can lead to some level of variability in estimates, particularly at more detailed levels and some caution is warranted in the interpretation of trends over the period of its introduction. In the case of the Agriculture, forestry and fishing sector it can be noted that estimates of employment in this sector have shown to be sensitive to sample changes over time. Particular caution is warranted in the interpretation of the trend in this sector at this time.

48 Eurostat produces harmonised unemployment rates for individual EU member states, the euro area and the EU, based on the International Labour Organisation (ILO) recommended definition and using the results of a harmonised source, the European Union Labour Force Survey (LFS). The change in ranking is based on a comparison between Q4 2008 and Q4 2013. Ranking data relates to the Euro area-15 which excludes Cyprus, Latvia and Malta

49 Euro area-12 excludes Cyprus, Finland and Malta

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50 The Live Register is not designed to measure unemployment. It includes part-time workers (those who work up to three days a week), seasonal and casual workers entitled to Jobseeker's Benefit (JB) or Jobseeker's Allowance (JA). In Ireland, unemployment is measured by the Quarterly National Household Survey.

51 Net replacement rate refers to the replacement rate for a long term unemployed individual or one-earner family, qualifying for cash housing assistance or social assistance top ups if available (67% of average wage). OECD-30 excludes Chile, Israel, Mexico and Turkey

52 OECD-30 excludes Chile, Italy, Mexico and Turkey

53 OECD-30 excludes Chile, Italy, Mexico and Turkey

54 OECD-28 excludes Greece, Iceland, Mexico, Norway, Turkey and UK. Data for Ireland is for 2010

55 Green traffic light based on 2012 data

56 Change in ranking compares deficit in 2013 with the average annual deficit between 2005-2009

57 Euro area-17 excludes Estonia

58 This indicator refers to the central government statutory (flat or top marginal) corporate income tax rate, exclusive of surtaxes.

59 OECD-31 excludes Chile, Mexico and Turkey

60 Green traffic light based on earning 100 per cent of the average wage.

61 Green traffic light based on a single individual with no children earning 100 per cent of the average wage.

62 A number of reduced rates apply in Ireland to designated goods and services. For example, a rate of 13.5% applies to items including fuel (coal, heating oil, and gas), electricity, veterinary fees, building and building services, agricultural contracting services, short-term car hire, cleaning and maintenance services; and a rate of 9 per cent currently applies for tourism-related activities including restaurants, hotels, cinemas, hairdressing and newspapers.

63 Recurrent property taxes relate to taxes levied regularly in respect of the use or ownership of immovable property (i.e. taxes levied on land and buildings). Such taxes can be in the form of a percentage of an assessed property value based on rental income, sales price, or capitalised yield; or in terms of other characteristics of property, (e.g. size or location ) from which a presumed rent or capital value can be derived. Recurrent taxes can be levied on proprietors, tenants, or both. Change in rankings compares 2007 with 2012.

64 OECD-25 excludes Chile, Estonia, Iceland, Slovenia, Slovakia, South Korea, New Zealand, Mexico and Turkey.

65 Euro area-12 excludes Cyprus, Estonia, Malta, Slovakia and Slovenia

66 The definition for impaired loan classification is not entirely standardised across countries. Many, including Ireland, are loans overdue for more than 90 days. OECD-29 excludes, Finland, Iceland, Mexico New Zealand and Turkey

67 Change in ranking compares 2013 with 2008. For comparison purposes, rankings relate only to OECD-32 rather than the full set of countries included in Doing Business. In terms of "Getting Electricity", ESNB have stated that the number of days it takes to get an electricity connection should be reduced from 205 to 80, and the number of procedures should be reduced from 5 to 4; if

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these actions are reflected in subsequent World Bank data, Ireland's ranking under this topic should improve.

68 OECD-27 excludes Italy, Japan, Luxembourg, Mexico, Poland, South Korea and Turkey

69 OECD-29 excludes Luxembourg, Mexico, Poland, Turkey and US

70 OECD-27 excludes Italy, Japan, Luxembourg, Mexico, Poland, South Korea and Turkey

71 Change in rankings refers to the period between 2012 and 2013

72 Euro area-15 excludes Luxembourg, Malta and Slovenia. Change in rankings refers to the period 2008 to 2013.

73 Storage capacity is calculated as working storage capacity/natural gas consumption (in million standard cubic metres). Euro area-12 excludes Cyprus, Estonia, Malta, Slovakia and Slovenia. For details of proposed storage facilities see GasLink, Network Development Plan, 2013.

74 OECD-27 excludes Chile, Estonia, Israel, Mexico, Slovenia, Slovenia and Turkey. Data includes fibre-to-the-home (FTTH) and fibre-to-the-building (FTTB or apartment LAN) connections. In relation to advertised download speeds (Mbit/s), in September 2012 Ireland was ranked 30th out of the OECD-32 in terms of the average advertised download speed and 19th along with a group of 8 other countries including Germany, the UK and South Korea) in terms of fastest advertised speed.

75 Change in ranking refers to the period between 2008 and 2012.

76 Change in ranking compares 2011 with 2009.

77 Euro area-13 excludes Cyprus, Germany, Greece, Latvia and Malta; OECD-30 excludes Germany, Greece, Mexico and Turkey. No pre-primary expenditure data is available for Ireland. Change in ranking compares 2010 with 2008.

78 Ranking for 3 year olds compares 2010 with 2012; ranking for 4 year olds compares 2008 with 2012. Red traffic light is based on 3 year olds in education.

79 OECD-23 excludes Australia, Belgium, Czech Republic, Mexico, Netherlands, New Zealand, Slovenia, Sweden Turkey, UK and US; euro area 13 excludes Belgium, Cyprus, Netherlands, Malta, Slovenia

80 OECD-31 Excludes Japan, Mexico and Turkey; euro area 15 excludes Cyprus, Latvia and Malta

81 PISA 2012 defines problem-solving competence as "...an individual's capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious. It includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen". OECD 28 excludes Iceland, Luxembourg, Mexico New Zealand, Switzerland and Turkey

82 OECD-25 excludes Australia, Belgium, Czech Republic, Mexico, Netherlands, New Zealand, Sweden Turkey and US; Euro area-14 excludes Cyprus, Latvia, Malta & Netherlands

83 Change in ranking relates to 2009

84 Data for France, EU-27euro area-15, Japan, Italy, Sweden and US is for 2011. EU-27 excludes Croatia; Euro area-15 excludes Cyprus, Estonia and Malta

85 OECD-23 excludes Czech Republic, France, Germany, Greece, Israel, Italy, Japan, Luxembourg, Mexico, South Korea, and Turkey

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86 OECD-22 excludes Chile, Greece, Hungary, Iceland, Israel, Luxembourg, Mexico, New Zealand, Portugal, Slovenia, Switzerland and Turkey. As this is the first time the PIACC survey has been undertaken, results should be treated with some caution.

87 Note that Business Expenditure on R&D refers to R&D performed in the business sector and includes both publicly and privately funded R&D. Similarly, Higher Education Expenditure on R&D refers to R&D performed in the higher education and includes both publicly and privately funded R&D. Government Expenditure on R&D refers to R&D performed in the Government sector. Government Budget Appropriations or Outlays on R&D (GBAORD) measures total public investment in R&D. Euro area-15 excludes Cyprus, Latvia and Malta; OECD-28 excludes Australia, Chile, Iceland, Mexico, Switzerland and Turkey

88 OECD-25 excludes Australia, Canada, Chile, Israel, Luxembourg, Mexico, Switzerland, Turkey and US; Euro area-14 excludes Cyprus, Latvia, Luxembourg and Malta

89 An ISCED level 6 qualification consists of research oriented content and requires the submission of a thesis or dissertation. ISCED level 6 is designed to prepare graduates for faculty and research posts. Euro area-17 excludes Luxembourg.

90 Orange traffic light Based on € per applicant.

91 Orange traffic light based on classification as Innovation Follower.

92 Industry refers to NACE B-E, services refer to NACE G-N; Total refers to all core NACE activities. Euro area-11 excludes Austria, Estonia, Finland, Germany, Greece, Luxembourg and Slovenia







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