

# Ireland's Competitiveness Scorecard 2012

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## Introduction to the National Competitiveness Council

The National Competitiveness Council was established by Government in 1997. It reports to the Taoiseach 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** is a collection of statistical indicators of Ireland's competitiveness performance in relation to 18 other economies and the OECD or EU average.
- **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



It is over a year since my government came to power and since then we have taken important steps in restoring Ireland's competitiveness and improving Ireland as a location in which to do business.

*Ireland's Competitiveness Scorecard* provides a useful analysis of the many attributes the country possesses and also identifies areas where we can work harder to improve our performance. Overall, despite recent economic turbulence, Ireland is still attracting world class investments across a range of sectors. We have maintained and indeed enhanced Ireland's attractiveness as a location in which to do business by undertaking difficult but necessary measures to restructure our economy and to put in place the foundations to support future growth.

As a small open economy we must continue to strive for a dynamic and competitive business environment that will attract new foreign direct investment and grow indigenous industry. It is my intention that, by 2016, Ireland will be recognised internationally as the best small country in the world in which to do business. We have already set out on that journey. This report shows that the business environment in Ireland remains conducive to enterprise and growth. Our core strengths including our talent, our track record and our tax regime remain intact.

Internationally, external elements pose real risks to the pace of Ireland's recovery. Against a very difficult international economic backdrop, we must do all we can domestically to protect ourselves against the effects of factors outside our control. This will require an on-going process of reform - and enhancing our country's international competitiveness must remain at the centre of this reform process. The Action Plan for Jobs which was published earlier this year sets ambitious goals for our economy. It contains over 270 actions designed to enhance the operating environment for enterprise. Through the vigorous delivery and implementation of these recommendations - and through other important measures such as Pathways to Work - we can maximise our competitiveness and our country's growth prospects into the future. The 2012 Action Plan for Jobs is not a one off. It is part of rolling series of annual plans that will ensure that we maintain our focus on achieving structural reform that delivers real competitiveness gains, economic growth, and ultimately employment.

I therefore welcome this report, which provides a solid analytical foundation for competitiveness policy development and formulation. On behalf of the Government I would like to thank the Council in producing this highly valuable report and I am pleased to introduce *Ireland's Competitiveness Scorecard*.

Enda Kenny, T.D.,  
Taoiseach

## Chairman's Preface

*Despite recent improvements in Ireland's international competitiveness, failure to address structural issues in our economy will undermine growth prospects.*



2011 was another very challenging year for Irish businesses. While there were some signs of stabilisation in the labour market, employment continued to fall and unemployment continued to increase. The situation was exacerbated by extremely weak consumer demand, a shortage of credit for enterprise, and uncertainties about the future.

Internationally, the global economic outlook is uncertain. While many observers believe that a global recovery still remains the most likely scenario, there are substantial downside risks. The fallout from the sovereign debt crisis of the last few years continues, with weak growth prospects across most of the developed world. The euro area in particular has been severely buffeted by economic and political uncertainties and the currency crisis.

Ireland has made some gains in international competitiveness terms recently - our cost competitiveness has improved, exports have proven relatively resilient and significant consolidation has been achieved in the public finances. Many of these gains, however, have arisen as a result of cyclical effects - rising unemployment and falling demand created a period of deflation - and could be quickly eroded without urgent policy action.

In order to achieve sustainable, long-lasting competitiveness gains, Ireland must maintain focus on implementing a range of structural reforms across all sectors of the economy. Such reforms will encompass policies relating to the labour market, competition policy, taxation, education and skills. At the same time, we must ensure that our banking system is appropriately structured to provide an adequate supply of credit for enterprise. Structural reforms are necessary to stimulate enduring competitiveness gains which are all the more necessary in a difficult economic environment.

Finally, I would like to thank the Council members and advisers for their valuable contributions throughout the development of this report. I would also like to acknowledge the work of Forfás in preparing this report.

Dr. Don Thornhill

Chairman, National Competitiveness Council

## Table of Contents

<b>1. Chapter 1 Overview of Ireland's Competitiveness</b>	<b>8</b>
<b>2. Chapter 2 Methodology</b>	<b>18</b>
<b>3. Chapter 3 Sustainable Growth</b>	<b>23</b>
3.1 Macroeconomic Sustainability	28
3.2 Quality of Life	34
3.3 Environmental Sustainability	36
<b>4. Chapter 4 Essential Conditions</b>	<b>39</b>
4.1 Business Performance	43
4.1.1 Business Investment	43
4.1.2 Trade	45
4.2 Productivity and Innovation	53
4.2.1 Productivity	53
4.2.2 Innovation	56
4.3 Prices and Costs	62
4.3.1 Prices	62
4.3.2 Pay Costs	64
4.3.3 Non-Pay Costs	68
4.4 Employment and Labour Supply	77
4.4.1 Employment and Unemployment	77
4.4.2 Labour Supply Characteristics	81
<b>5. Chapter 5 Policy Inputs</b>	<b>85</b>
5.1 Business Environment	91
5.1.1 Taxation	91
5.1.2 Finance	96
5.1.3 Regulation and Competition	100
5.2 Physical and Economic Infrastructure	107
5.2.1 Investment in Physical Infrastructure	107
5.2.2 Transport, Energy and Environmental Infrastructure	108
5.2.3 Information and Communication Technology Infrastructure	110
5.3 Knowledge Infrastructure	117
5.3.1 Overview of Education	117
5.3.2 Pre-Primary and Primary Education	118
5.3.3 Secondary Education	119
5.3.4 Tertiary Education	123
5.3.5 Life Long Learning	124
5.3.6 Research and Development Infrastructure	125



# Chapter 1

## Overview of Ireland's Competitiveness



# 1. Overview of Ireland's Competitiveness

## Macroeconomic outlook and the implications for Irish competitiveness<sup>1</sup>

In 2011, the Irish economy grew for the first time since 2007, fuelled primarily by a relatively strong export performance. Despite global economic difficulties, Irish export performance has proved quite resilient. Building upon this bright spot in our economic landscape, evidence from the labour market suggests that the Irish economy may have reached the bottom of the economic cycle; unemployment has stabilised, and while there has been no pick up in employment, forecasters expect the unemployment rate to remain static in 2012, with a marginal improvement expected in 2013<sup>2</sup>. Stabilisation, however, does not equate to recovery, and significant risks remain - both internationally and domestically.

Domestically, on-going austerity measures will continue to have a negative impact on domestic demand. Budget 2012 involved a consolidation package of €3.8 billion; further corrections of €3.5 billion in 2013, €3.1 billion in 2014 and €2.0 billion in 2015 are envisaged (i.e. a €12.4 billion adjustment to be achieved through €7.8 billion of expenditure measures and €4.6 billion in additional taxes). This is in addition to the €21 billion adjustment (approximately 13 per cent of GDP) achieved up to the end of 2011<sup>3</sup>.

The reforms have had a positive impact on the exchequer finances, albeit with painful consequences for the rest of the economy<sup>4</sup>. Similar adjustments are occurring across the economy. Ireland's current account balance has moved back into surplus for the first time in a number of years, suggesting that the economy is now living more within its means. This sets us apart from many other heavily indebted economies such as Greece, Italy, Spain and Portugal, all of whom recorded significant current account deficits in 2011. Indeed, both Greece and Portugal recorded deficits in excess of 8 per cent of GDP<sup>5</sup>.

Given our debt dynamics, Ireland cannot depend on exchequer spending to provide the necessary stimulus to encourage growth. Looking at the other components of growth, exports are forecast to increase in both 2012 and 2013, although at a slower pace than recent years, reflecting a difficult international trading environment<sup>6</sup>. Consumption and investment are expected to remain weak reflecting both uncertainty about the future and the reduced disposable income available to spend in the economy. Continued improvements in competitiveness will be essential to growing exports and investment.

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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 2012, Irish Fiscal Advisory Council, Fiscal Assessment Report April 2012, OECD Economic Outlook, May 2012, ESRI, Quarterly Economic Commentary, (Winter 2011/Spring 2012 and Summer 2012).

2 Central Bank, Quarterly Bulletin April 2012

3 National Treasury Management Agency, Ireland: On Recovery Path, March 2012

4 ESRI, Quarterly Economic Commentary, Winter 2011/Spring 2012

5 IMF, World Economic Outlook, April 2012

6 ESRI, Quarterly Economic Commentary, Summer 2012

Table 1 Overview of GDP, GNP and Unemployment Projections for Ireland 2011-2013, Annual Percentage Change

	ESRI			Central Bank		
	2011	2012	2013	2011	2012	2013
<b>GDP</b>	0.7%	0.6%	2.2%	0.7%	0.5%	2.1%
<b>GNP</b>	-2.5%	0.0%	0.5%	-2.5%	-0.7%	1.0%
<b>Unemployment</b>	14.4%	14.9%	14.7%	14.4%	14.4%	14.0%

Source: ESRI Quarterly Economic Commentary, Summer 2012; Central Bank of Ireland, Quarterly Economic Bulletin, Q2 2012

Looking at the international economy, growth in the global economy slowed in the second half of 2011 and although there have been some signs of stabilisation since then, global economic conditions remains fragile<sup>7</sup>. Across the globe there has been something of a dichotomy in terms of economic performance, with advanced economies (i.e., our key trading partners) experiencing weak growth and emerging markets enjoying more robust growth. Overall, the IMF concludes that the global recovery has solidified over recent quarters - financial conditions are improving and commodity prices are resurgent. While the risks are smaller, on balance, they remain on the downside and challenges relating to unemployment and investment persist.

Table 2 Overview of GDP Projections 2011-2016, Annual Percentage Change

	2011	2012	2016
World	4.4%	4.5%	4.7%
Advanced Economies	2.4%	2.6%	2.4%
Euro Area	1.6%	1.8%	1.7%
US	2.8%	2.9%	2.7%
Japan	1.4%	2.1%	1.2%
Emerging & Developing Economies	6.5%	6.5%	6.8%

Source: IMF, World Economic Outlook, April 2012

Closer to home, the latest European Commission forecasts warn that the EU is in danger of slipping back into a technical recession in the first half of 2012. Against the backdrop of waning growth momentum and continued low confidence, real GDP is expected to stagnate in the EU and to shrink by 0.3 per cent in the euro area in 2012<sup>8</sup>.

Given the openness of the Irish economy, we are particularly exposed to the vagaries of international macroeconomic conditions. Thus while the economy has taken some positive steps towards growth for the first time in several years, a number of obstacles remain. Again, domestic

<sup>7</sup> European Commission, European Economic Forecast - Spring, May 2012, Central Bank, Quarterly Bulletin April 2012

<sup>8</sup> European Commission, European Economic Forecast - Spring, May 2012, Financial Times, Weak Eurozone Data Point to Recession, March 22nd 2012

reforms that enhance our competitiveness can, to some extent, shield us from negative international developments in the short term and position us for growth in the medium/long term.

### **Debt overhang continues to undermine our competitiveness capacity**

*High levels of debt are not just adversely impacting on the Government's ability to fund public services - debt has repercussions for the competitiveness of all sectors of the economy and for wider society.*

Significant attention has been accorded to the scale of public debt in Ireland. Similarly, the difficulties being experienced by private individuals as a result of the collapse of the housing boom - negative equity, high levels of outstanding mortgage debt and falling incomes - have also been covered on a consistent basis in the media. To understand the full implications of debt, it is necessary to consider the cumulative level of debt in the Irish economy.

At approximately 400 per cent of GDP (Figure 3.8), the cumulative debt in the Irish economy, encompassing all of the debts owed by enterprise, households and government to both domestic and international lenders (but excluding the debts associated with financial corporations), represents the single greatest challenge facing Irish policymakers. Excessive levels of debt act as a major constraint on economic growth and negatively impact on all economic sectors.

From the perspective of the Government, high levels of debt have a number of direct consequences - reduced expenditure on government services, reduced funds for capital investment, higher taxation and increased debt servicing costs.

In order to close the gap between income and expenditure, Governments have had to implement a series of tough budgets. The scale of the savings achieved to date was referenced previously. As a result, progress is being made and the government deficit is reducing (Figure 5.1). There is, however, a long way to go in order to stabilise the public finances and to return to a more sustainable level of debt (Figure 3.7) which is a basic factor required to restore certainty and enterprise development.

As a consequence of the budgetary corrections, capital expenditure has been reduced, and a range of taxes have increased. At the same time, the cost of servicing the national debt has increased; in 2011, the costs of servicing the national debt increased by over €1 billion to reach close to €5.4 billion. It is estimated that interest payments will almost double to €10.2 billion by 2015 reflecting the cost of financing accumulated Budget deficits<sup>9</sup>. While stronger prioritisation and more efficient delivery of infrastructure investment can deliver more from less, reductions in capital investment limit our potential to upgrade of productive capacity (e.g. education and training, R&D, transport and ICT infrastructure, etc.). Data suggests that despite improvements, perceptions of the quality of Irish infrastructure remain poor (Figure 5.27).

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<sup>9</sup> Fiscal Advisory Council, Fiscal Assessment Report, April 2012

The debt crisis has had a major impact on firms also. Many firms are over indebted and need to restructure. For growing firms, the cost and availability of credit continues to be a significant constraint. Investment in productivity enhancing capital is essential if Irish firms are to compete internationally. As shown in Figure 4.1, however, private sector investment, albeit driven by the collapse in domestic construction, has declined catastrophically in recent years. Given the importance of capital as a driver of economic growth, and the need to maximise productivity in order to allow Irish companies to compete successfully in international markets, it is vital that growing and viable firms have access to capital at competitive costs.

From the perspective of the private household, the debt crisis has a number of direct consequences. As illustrated in Figure 3.9, the level of household borrowing per capita in Ireland at €28,383 is second highest in the euro area. To meet the costs of servicing this debt and to continue the deleveraging process, households are spending less and saving more - evidenced, for example through the increase in precautionary savings (Figure 3.10)<sup>10</sup>. While moves to reduce outstanding debts are necessary and welcome, there are costs associated. As a result of both increased debt repayment and increased savings rates, household expenditure has declined with severe impacts on the domestic economy. The increased taxes required to close the Government's budget deficit have also had an impact on consumers - changes to tax bands have resulted in higher taxes on incomes and reduced take home pay; increases in consumption taxes such as VAT have increased the cost of goods and services. These factors have combined to reduce consumer demand and ultimately have led to a fall in the consumption of goods and services. Weak consumption represents a major drag on economic growth. Whereas excessive domestic consumption in the second half of the last decade - most evident in the mania for property - was a significant contributory factor in undermining Irish competitiveness and was unsustainable, the pendulum has now swung in the opposite direction (Figure 3.3).

### **Costs competitiveness has improved but further cost reductions are required**

*In part due to cyclical effects, Ireland's cost competitiveness has improved. There is a risk, however, that costs could increase rapidly again in future without structural reform.*

The recent history of the Irish economy tells us a lot about our competitiveness. In the late 1990s and early 2000s growth was primarily driven by increasing net exports (Figure 3.3). Relatively high levels of productivity (Figure 4.14) allowed goods and services to be produced in Ireland and exported to global markets at cost competitive prices. Taking our eye off the ball in the middle of the last decade, domestic policies combined with cheap international credit to fuel a consumption and property boom. As a result, costs in Ireland rose dramatically for a range of inputs and international competitiveness declined. For a time, Irish firms and consumers were protected from the impact of declining competitiveness by the continuation of the domestic asset bubble. The safety net of property based wealth, however, turned out to be an illusion. With the onset of the global economic recession, the weaknesses inherent in the Irish economy were laid bare, and the effects of the world-wide downturn compounded domestic mistakes.

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<sup>10</sup> The most recent Nationwide UK / ESRI Savings Index increased by 18 points in May to 111 and suggests that people in Ireland are continuing to save, mainly as a precaution for unexpected future events. See Nationwide UK / ESRI Savings Index, June 2012

Since 2008, the Irish economy has undergone significant adjustment. Most obviously, incomes and living standards have declined sharply as we confront a new economic reality. In particular, unemployment grew dramatically (Figure 4.41). However, some of the imbalances in our economic structure which emerged during the boom years have begun to correct. As a result of reduced demand and collapsing property prices (Figures 4.32-4.33), Ireland has become significantly more cost competitive. Despite these welcome cost improvements, causes for concern remain. Despite the reductions in costs, Ireland remains a high cost location. In particular, many existing businesses find it difficult to benefit from a range of recent cost reductions (e.g. companies with long term leases may not benefit from reductions in commercial rents; similarly reductions in labour costs that might be expected to follow on from high levels of unemployment may not materialise or can be difficult for firms to capture)<sup>11</sup>.

We are concerned that the gains achieved in terms of cost over the past four years could be quickly eroded by inflation (Figure 4.24). We have already seen an end to the period of deflation and a resumption of inflation, albeit at a lower rate than in many of our competitors<sup>12</sup>. As growth resumes, inflation and pent-up wage pressures will increase. In part, wage pressures may increase in future as workers seek to offset reductions in net pay as labour taxes have increased (Figures 5.6 & 5.7). Bearing this in mind, it is important that policymakers continue to focus on taking the necessary actions to reduce enterprise and consumer costs. In this regard the focus on maximising competition and removing barriers to competition in sheltered sectors is paramount. Similarly the range of actions designed to achieve cost reductions outlined in the Action Plan for Jobs are vital to the competitiveness agenda<sup>13</sup>.

## **Exports have supported growth to date but Ireland's market share remains at pre-recession levels**

*Exports are a key driver of growth but we must diversify our export base in order to protect and grow market share.*

Notwithstanding the concerns referenced above, Ireland's improved cost competitiveness has been rewarded through a good export performance and through strong inward investment. On the trade side, net exports have resumed their role as the dominant driver of growth - indeed, since 2008, net exports have been the only positive contributor to growth (Figure 3.3). Ireland's strong export performance throughout the course of the recession is in marked contrast to the decline in exports experienced by many of our competitors in 2009-2010, before they enjoyed some resurgence in

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<sup>11</sup> Despite economic theory suggesting that pay levels should fall to enable the labour market to clear, the available evidence in Ireland and internationally suggests that economy wide wage levels rarely fall. While it is easier for new enterprises and existing troubled enterprises to lower wage levels, the majority of businesses are reluctant to lower hourly wage rates. Detailed interview based research with firms suggests that firms prefer layoffs to pay cuts, do not favour wage reductions that merely take advantage of labour market conditions, and remain reluctant to hire overqualified people or new staff at significantly lower pay rates than existing staff. For a more detailed discussion, see Bewley, Truman F., *Why Wages Don't Fall During a Recession*, 1999, Harvard University Press, 527 pp. ISBN 0-674-95241-3

<sup>12</sup> According to the CSO, the Harmonised Index of Consumer Prices (HICP) increased by 1.6 per cent in the year to February 2012 in Ireland. By comparison, increases of 2.7 per cent and 3 per cent were recorded for the euro area and EU27 respectively. CSO, Consumer Price Index, March 2012

<sup>13</sup> The Action Plan contains a range of recommendations directly related to the costs of doing business, including recommendations designed to reduce costs relating to energy (Action 1.14), Government charges (Action 1.15), legal services (Action 1.16) and exporting (Action 1.29). For further details, see Action Plan for Jobs 2012, February 2012.



2011. In terms of investment, Ireland continues to offer an attractive location in which to do business (Figure 4.3) and remains a high achiever in terms of our stock of foreign investment (Figure 4.2). A supportive, pro-enterprise regulatory environment represents a further positive (Figures 5.18-5.24).

The importance of export growth to the Irish economy is a well-accepted fact. With a small domestic market, expansion into other markets is a prerequisite for growth. While the value of exports has increased, Ireland's share of world trade remains at pre-recession levels and has declined over the past decade (Figure 4.8). Given our improving cost competitiveness and the greater availability of productive capacity (e.g. labour (Figure 4.43), infrastructure (Figure 5.25), etc.), one might have expected a more substantial increase in exports.

In addition, while exports have proved resilient over recent years, there remains a need to diversify our export base.

- We remain heavily dependent on overseas owned multinational corporations for exports - foreign owned companies accounted for over 90 per cent of exports from agency assisted companies in 2010 (Figure 4.12)<sup>14</sup>.
- Irish exports are also heavily reliant on a small number of sectors (Figures 4.9-4.10). For instance, the chemical sector accounted for 58.5 per cent of merchandise trade in 2010, while on the services side, 38 per cent of services exports were derived from the computer service sector.
- As well as diversifying the sectors from which we export, Ireland also needs to diversify the countries into which we sell. In particular, we cannot rely so heavily on traditional markets. As noted previously, the developing world is expected to be the real engine of growth in the years ahead. This means that emerging economies such as Brazil, Russia, India and China will continue to grow both in size and importance. While Irish exports to these 'BRIC' countries have increased significantly over the last decade or so (Figure 4.07), Ireland is losing market share in these markets as other countries, particularly developing countries, increase their presence to a greater degree in these markets.

While cost competitiveness is an important determinant of export competitiveness, it is not the only factor worth considering. As illustrated in Figure 4.11, a significant proportion of Ireland's exports are classified as complex goods or services (i.e. high value added). The degree of complexity apparent in Ireland's export profile differentiates Ireland from other peripheral EU economies which export a larger proportion of less complex goods and services. Such countries are, as a result, more reliant on achieving a low cost base as a determinant of competitiveness. While it is essential for Irish competitiveness to continue to pursue cost efficiencies in all sectors of the economy, it is also vital that we continue to develop the exporting capabilities of high value, complex sectors and their supply base. To support this, it is essential that Ireland continues to make progress in upgrading its human, ICT and Research and Development capacity. Despite progress, Ireland's ICT (Figure 5.32)

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<sup>14</sup> It should be noted, however, that this overstates the impact of the foreign owned sector on the local economy - in terms of employment and direct expenditure on goods and services within the local economy by firms supported by the Development Agencies, the contribution of indigenous and foreign owned sectors is broadly similar. See Forfás, Annual Business Survey of Economic Impact 2010, June 2012

and R&D (Figure 5.51) capacity lags that of other countries that are targeting similar high-tech goods and services.

## Skills mismatches persist despite high unemployment

*Long-term unemployment and youth employment are on the rise in Ireland and pose significant threats to competitiveness.*

Particular challenges persist in relation to the labour market. During the last decade, labour (as well as capital) was sucked into the construction sector, driving up wages artificially and leading to skills shortages in other sectors of the economy. The consequences of this are now being felt. The bursting of the construction and property bubble has left Ireland with a major skills imbalance - an excess of individuals qualified to work in sectors no longer demanding labour, and a dearth of individuals equipped with the necessary skills to work in growth sectors.

These structural issues, combined with the collapse in demand have resulted in large scale unemployment - Ireland has the third highest unemployment rate in the euro area (Figure 4.42). Long term unemployment (Figure 4.41) and youth unemployment (Figure 4.44) are both on the rise, even as the labour market stabilises. In addition to the huge personal and social costs of unemployment, the competitiveness impacts are significant as motivation to work and skills levels can deteriorate.

Despite improving economic growth prospects, labour market challenges and related skills issues will not be overcome quickly. To tackle unemployment there is a need to both upskill and reskill those currently in the labour force. As well as enhancing employability for the individual, investment in the skills of the labour force can have a potentially significant impact on aggregate productivity. Irish productivity levels (Figure 4.14) and growth rates (Figure 4.15) have held up comparatively well over the course of the recession. Following negative productivity growth in 2008, Irish productivity growth has rebounded and Ireland experienced growth in output equivalent to 2.2 per cent of GDP in 2010. Much of this improvement, however, was actually a result of the loss of employment in lower productivity sectors<sup>15</sup>.

As illustrated in Figure 4.50, the State currently dedicates significant resources to various labour market programmes<sup>16</sup>. In terms of participation rates in lifelong learning, however, Ireland's performance was relatively poor in 2010 - just 6.7 per cent of Irish adults were engaged in education or training in 2010, compared with a euro area average of 9.5 per cent (Figure 5.49).

In the longer term, the education system is the primary formal source of new skills. There is a need to ensure that the formal education system is fit for purpose and produces a flow of graduates at appropriate skill levels and with skills of relevance to enterprise. Overall, Ireland performs relatively well in terms of education attainment (Figure 5.35). There is a tendency, however, to overstate the quality of our education system and this can lead to complacency. Ireland's performance is below average across a range of indicators relating to all levels of the education

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<sup>15</sup> NCC, Ireland's Productivity Performance 1980-2011, Forfás, May 2012

<sup>16</sup> It is important that these programmes are carefully targeted; embed industry-relevant skills; and deliver tangible labour market outcomes. See Kelly, E., McGuinness, S., and O'Connell, P.J (2011), "What can active labour market policies do?"

system; for example, the proportion of children enrolled in pre-primary education is low (Figure 5.37); the OECD's Programme for International Student Assessment finds that Irish students literacy in mathematics is significantly below levels in the best performing countries (Figures 5.41-5.43); at third level, while a higher proportion of 25-34 year olds complete tertiary education in Ireland than in the OECD (Figure 5.46), Ireland dedicates less financial resources to the third level sector than is the case in other countries (Figure 5.36).

Finally, in order to facilitate labour market adjustment, policymakers must be cognisant of the impact of taxation and social welfare policies on labour demand and supply. In time, as demand for labour improves, it is important that appropriate incentives exist (and that disincentives are minimised) to encourage entry into the labour market. In this regard, replacement rates for the long term unemployed were significantly higher than the OECD average in 2010 (Figure 4.49). However, because of recent policy initiatives, it is likely that the Irish rates have declined. On the other hand, while taxes on labour in Ireland remain competitive compared with taxes across the OECD, average and marginal rates have increased over recent years (Figures 5.6-5.7) increasing the cost of labour for employers and risking the creation of disincentives to work. Average tax rates have increased more for high earners than for workers on lower earnings.

### **Access to credit is essential for enterprises to compete**

*Unless access to credit improves, firms will be unable to make the productivity-enhancing investments that are necessary if they are to compete successfully in international markets.*

Credit is necessary for the day-to-day functioning of business; without a ready supply of affordable credit, the world of commerce can grind to a halt. In the longer term, credit is essential to allow firms to undertake expensive but vital investments.

An over-supply of credit during the boom years supported the development of the construction and property bubble. The sectors most closely associated with the bubble (Real Estate, Construction, Hotels and Restaurants) are now bearing the brunt of reductions in credit supply - new lending flows to these sectors have been disproportionately reduced while deleveraging is occurring at a higher rate than elsewhere in the economy. Current credit stock levels indicate that further sectoral diversification is necessary in order to ensure that credit allocation is sustainable<sup>17</sup>. The process of deleveraging must continue, and there can be no attempt to return to the lending environment which prevailed in the early 2000's. This should not, however, preclude viable companies from gaining access to the credit they require for investment and growth. Research by the Central Bank has found that SMEs in Ireland are currently subject to credit supply conditions tighter than any other Eurozone country, even when controlling for falls in output and increases in borrower riskiness<sup>18</sup>.

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17 Central Bank, (2012) SMEs in Ireland: Stylised facts from the real economy and credit market, Quarterly Bulletin Quarter 2 2012

18 Lawless, M. and F. McCann (2011), Credit Access for Small and Medium Firms: Survey evidence for Ireland, Central Bank of Ireland Research Technical Paper 11/RT/11, Central Bank, (2012), The Irish SME lending market - a snapshot, December 2010, Economic Letter 2012, Vol. 3



The NCC has frequently drawn attention to the importance of investment in capital as a means of achieving economic growth. Indeed, much of Ireland's economic growth since the 1990s can be attributed to rapid growth in the capital stock<sup>19</sup>. On-going and sustainable investment is, therefore, essential if we are to improve future living standards.

Public investment, while falling sharply, remains above the euro area average. By contrast, private investment over the course of the recession has declined dramatically (Figure 4.1). While this primarily reflects weak economic conditions, the cost and availability of credit for private enterprise continues to be an area of concern, as mentioned above. On the demand side, almost 36 per cent of firms in Ireland sought credit in Ireland in 2010 - above the euro area average. The proportion of firms who are successful in obtaining credit, however, has fallen, reflecting in part tighter credit standards (Figure 5.13)<sup>20</sup>. Credit is also more expensive in Ireland than the euro area average for most new loan categories (Figures 5.10-5.11).

## Conclusions


Ireland's economy has experienced unprecedented turmoil since the collapse of the property bubble and the onset of the global financial crisis and subsequent recession. On balance, the economy now appears to be stabilising although the consequences of the recession will be felt for a long time to come, particularly in relation to the labour market and national debt.

Having weathered the storm, Ireland is now in a phase of transition and restructuring. In rebuilding our economy, we are also rebuilding our international reputation. Many of our traditional strengths survived the recession intact - our pro-business enterprise regime, our supportive tax regime and our productive workforce. Ireland remains open for business and indeed, offers an attractive location for investment and trading. Competitiveness is improving. Improvements driven by the recession (e.g. costs, labour availability) will fade, however, as the economy returns to forecasted low or modest economy growth. To prosper, therefore, and regain some of the ground lost we must tackle the competitiveness weaknesses highlighted in this report.

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<sup>19</sup> NCC, Ireland's Productivity Performance 1980-2011, Forfás, May 2012

<sup>20</sup> John Threthrowen has noted that traditional prudent cash flow lending policies are currently being rigidly applied, which potentially could result in some viable businesses being unable to access the credit that they need. For further detail, see Credit Review Office, Sixth Quarterly Report, November 2011



# Chapter 2

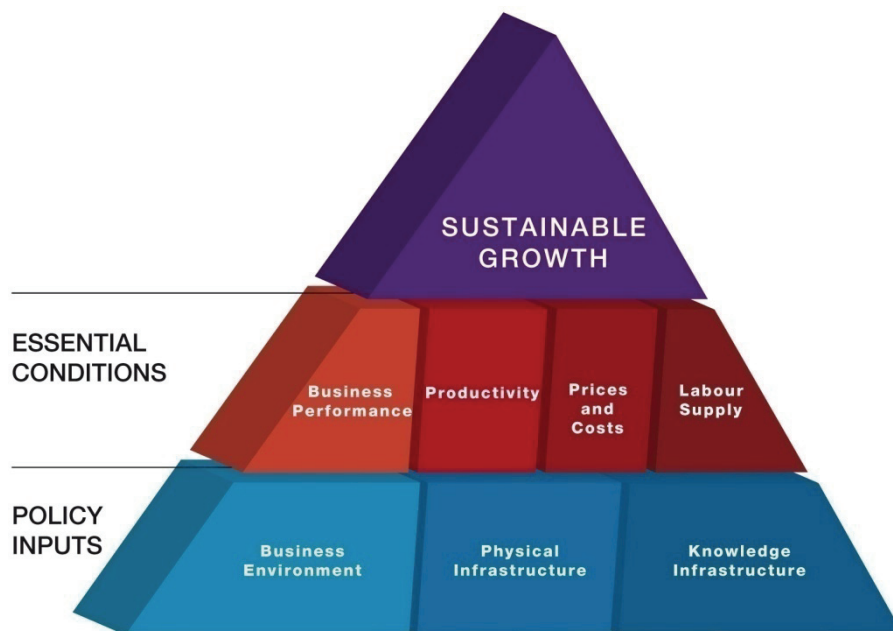
## Methodology

## 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 18 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). Six 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 China (limited data availability), 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<sup>21</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 the selected 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. There are no generic strategies to achieve national competitiveness; 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.

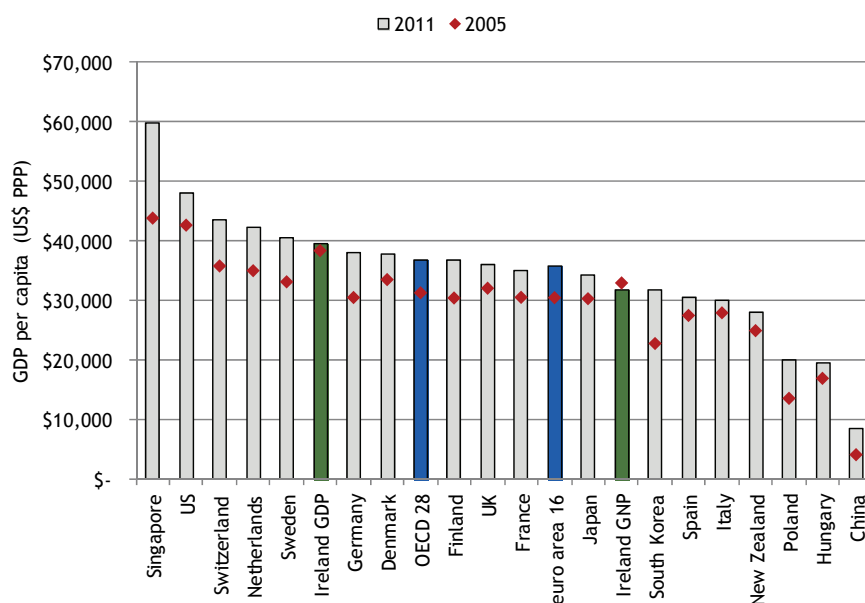
## 2.2 Interpretation of the charts

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:

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<sup>21</sup> Where the sample is incomplete for the comparator group due to data availability, the countries omitted are detailed in the footnotes. OECD rankings and averages are based on a maximum of 28 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-28 countries are as follows: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, UK and the US. In a small number of cases, data is also included for China, where available and appropriate.

Figure 3.1 GDP per capita current prices (\$000 PPPs), 2011



Ireland continues to remain one of the wealthiest countries in the OECD when measured in terms of GDP per capita. However when measured in GNP per capita (i.e. with the impact of the foreign owned sector removed) Ireland ranks well below the OECD-28 and euro area-16 average.

**OECD-28 ranking:**


GDP: 10<sup>th</sup> (↓6)

GNP: 18<sup>th</sup> (↓4)

Source: IMF, World Economic Outlook, September 2011

- 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-28, euro area, or comparator group), orange signals an average performance, while red means that Ireland is ranking within the bottom third of the OECD-28, euro area, or 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. Where appropriate, charts are colour coded according to Ireland's GNP ranking.
- Rankings are provided where appropriate, but in a limited 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 footnotes.
- (↑) 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.
- Summary charts are also placed at the start of each major section. These charts standardise Ireland's ranking - because different indicators are ranked in relation to the OECD-28, the euro area-16 or other grouping, standardisation allows all indicators to be displayed together<sup>22</sup>. This

<sup>22</sup> Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15\*100); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e. 14/15\*100).

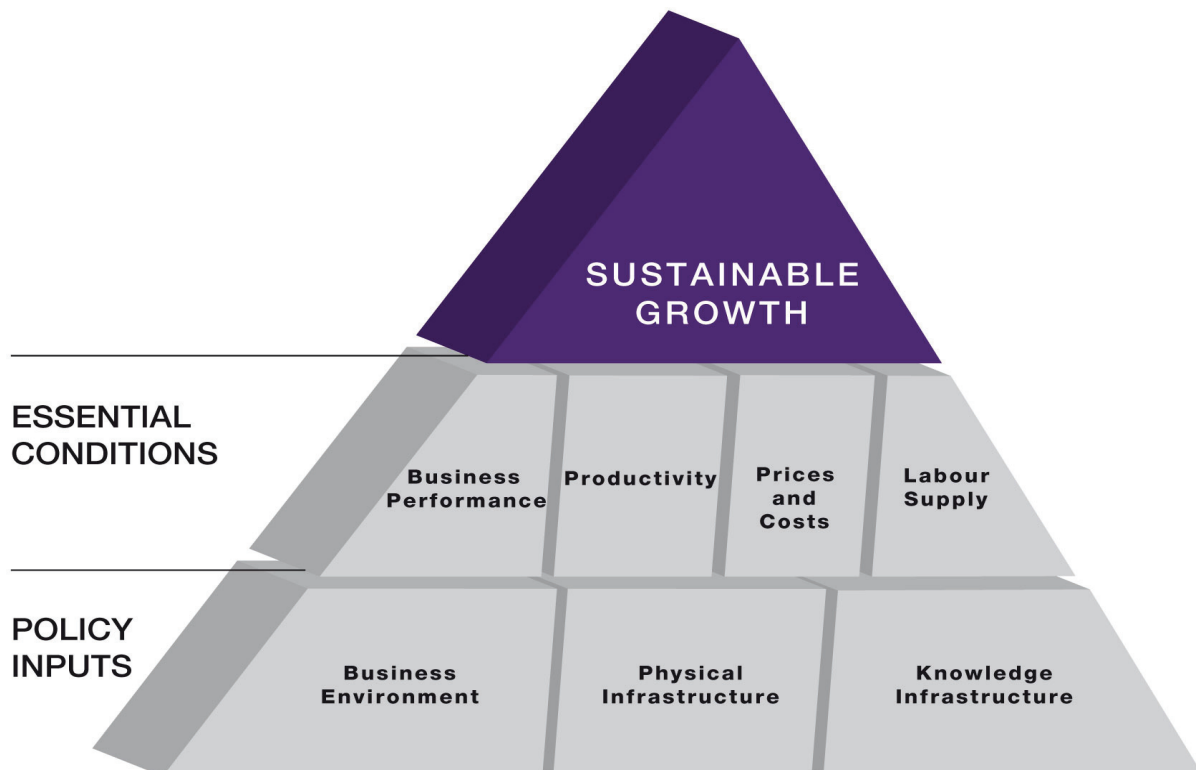


provides an instant overview of performance. Indicators in the summary charts are colour coded in the same manner as the traffic light system discussed above.



# Chapter 3

## Sustainable Growth



## 3. 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. 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

The indicators in this section cover the level, growth and drivers of Ireland's national income, as well as a number of related topics, all of which are used to assess overall macroeconomic performance.

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. Macroeconomic weaknesses have had a significant impact upon Ireland's standing in several international competitiveness rankings, reflecting the fact that weaker macro prospects adversely impact on growth prospects for companies.

Despite the instability of recent years, and the undoubted negative impact that the recession has had on personal incomes, Ireland's remain amongst the highest in the OECD when measured in terms of GDP per capita - the standard measure used internationally (Figure 3.1). However when measured in GNP per capita terms (which is a more accurate reflection of living standard), Ireland ranks well below the OECD-28 and euro area-16 average. Between 2008 and 2010, GDP per capita fell by 8.8 per cent and GNP per capita by almost 11 per cent (Figure 3.2). In 2011, GDP per capita increased by 0.37 per cent. GNP per capita, however, continued to decline (by 2.85 per cent). The IMF is forecasting growth in real GDP of 0.5 per cent for 2012<sup>23</sup>.

This return to growth (albeit at rates much lower than previously) has been facilitated through a relatively strong export performance, which may in part be a result of an improvement in cost competitiveness. Whereas the contribution of net exports to economic growth was small or negative during the period 2004 to 2007, since 2009, however, net exports have made an increasing contribution to growth (Figure 3.3). Indeed, net exports are the only component of GDP that has contributed positively to GDP in 2009, 2010 and 2011. The collapse in private consumption which fuelled much of Ireland's growth over recent years is particularly noticeable, as is the collapse of investment (in this case reflecting the bursting of the property bubble).

Figure 3.4 compares the various factors contributing to Irish growth with the factors contributing to growth in both the UK and Germany in 2011. Exports continue to account for a larger proportion of

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<sup>23</sup> IMF, World Economic Outlook: Growth Resuming, Dangers Remain, April 2012. It is important to note that as a result of the contraction in the Irish economy over recent years, indicators calculated as a proportion of GDP and GNP may appear higher than in previous years (i.e. if expenditure is reduced by less than the reduction in GDP, expenditure as a share of GDP will have increased).



growth in Ireland than in the UK and Germany in 2011. This reflects in part Ireland's greater dependence upon exports for growth, whereas Germany and the UK both have large domestic markets. This reinforces the urgency of restoring Ireland's international competitiveness.

The current account of the balance of payments reflects net earnings on exports, factor income and cash transfers (Figure 3.5). Ireland's current account deficit has recently moved into surplus. This was facilitated by improved cost competitiveness - reflected in higher exports of goods. The ESRI have forecast that the current account balance will continue to improve out to 2013, driven largely by weak domestic demand and growth in exports<sup>24</sup>.

As a result of the combined weight of the global recession, the global financial crisis and domestic banking difficulties, Ireland has experienced a dramatic escalation in sovereign debt. As illustrated in Figure 3.6, Ireland's general consolidated debt as a percentage of GDP has increased significantly since 2007. This is due to the significant capital support provided by the State to a number of financial institutions, and by the Exchequer running large deficits over the last three years. The European Commission expect Irish Government debt to peak at just over 120 per cent of GDP in 2013. The European Union fiscal treaty sets a target of a debt to GDP ratio of 60 per cent (where debt exceeds the 60 per cent reference level, the Treaty requires Member States to reduce it at an average rate of one twentieth per year). The scale of Ireland's debt poses substantial challenges in managing the Exchequer finances. Ireland needs to achieve a 17.3 per cent improvement in the primary balance to return debt to 60 per cent of GDP and a 21.4 per cent improvement to return to pre-crisis debt levels by 2026 (Figure 3.7)<sup>25</sup>.

While much of the focus has been on the level of Government debt, it is important to note that other parts of society have also accrued large amounts of debt over recent years (Figure 3.8). Reflecting these findings, it is clear from Figure 3.9 that personal debt levels in Ireland increased substantially over the last decade. Ireland is now one of the most personally indebted countries in the euro area. However, since the peak of personal indebtedness in 2008, there has been a decline of approximately 21 per cent. Ireland's household savings rate increased from 4.2 per cent between 2005 and 2010 to 8.5 per cent in 2011 (Figure 3.10). As well as repaying outstanding debt, households appear to be increasing precautionary savings<sup>26</sup>. While the reduction in excessive personal debt is welcome, it has a negative effect on consumption and GDP growth in the short term.

In terms of household assets, households' net worth has declined by 35 per cent since Q2 2007 - reflecting primarily the on-going decline in the value of housing assets, and to a lesser extent, the decline in the value of financial assets<sup>27</sup>. Households' net worth (as of Q3 2011) is estimated by the

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24 ESRI, Quarterly Economic Commentary, Winter 2011 / Spring 2012

25 The OECD defines the primary balance as government net borrowing or net lending, excluding interest payments on consolidated government liabilities.

26 According to the most recent ESRI Quarterly Economic Commentary, debt repayments exceeded new borrowing by €14.16 billion over the period 2009-2011. The ESRI expect deleveraging combined with increased precautionary savings to continue in 2012 and 2013. ESRI, Quarterly Economic Commentary, Winter 2011 / Spring 2012

27 Households' net worth is calculated as the sum of households' housing and financial assets minus their liabilities. See Central Bank of Ireland, Quarterly Financial Accounts (QFA) for Ireland Q3 2011, February 2012

Central Bank at €470 billion or €104,737 per capita, while liabilities are estimated at €190.5 billion or €42,848 per capita.

Finally, looking to the longer term, Figure 3.11 examines the likely cost of an ageing population. The OECD estimate that, on average, offsets of 3 per cent of GDP will have to be found over the coming 15 years to meet spending pressures arising from Ireland's ageing population. Although the costs of meeting age related expenditure in Ireland will occur a number of years after other EU and OECD states, the costs of meeting these demands is higher than most other countries examined. This is in addition to the budgetary adjustment required to bring the public finances into balance in the short term.

## 3.2 Quality of Life

As noted above, 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.

While national income in Ireland is relatively high by international standards, many members of society are considered to live below the poverty line, or are at risk of dropping below the poverty line. Figure 3.12 considers the risk of in-work poverty for working households. Under this measure, Ireland's performance deteriorated in 2010. The proportion of households with two or more adults with dependent children and at risk of poverty increased from 6.8 per cent in 2005 to 8.7 per cent in 2010, level with the euro area average. The proportion of single households at risk has increased sharply from 10.6 per cent to 15.1 per cent, significantly above the euro area average (10.4%).

Figure 3.13 looks at the risk of poverty across the entire population (i.e. not just those in employment). The risk of poverty is determined by those with less than 60 per cent of the national median's disposable income after social transfers. Ireland has improved under this metric since 2005 when 20 per cent of the population were at risk. In 2010 Ireland was ranked just below the euro area-16 average with 15 per cent of the population at risk.

Quality of life extends beyond measurements of income. Health is a particularly important factor in determining one's well-being. Most OECD countries conduct regular health surveys which allow respondents to report on different aspects of their health. Despite the subjective nature of the question, indicators of perceived general health have been found to be a good predictor of people's future health care use and mortality. Nevertheless, cross-country differences in perceived health status are difficult to interpret because responses may be affected by the formulation of survey questions and responses, and by social and cultural factors. Figure 3.14 indicates that the majority of Irish people have a positive perception of their health status.

Finally, it is necessary to consider a broader range of factors which impact upon quality of life. The OECD Better Life Index compares well-being across countries using 20 different indicators across 11

topics (Figure 3.15). These topics include housing, community, education, life satisfaction and work-life balance. The graph plots the headline Better Life Index against GDP per capita at purchasing power parity (which adjusts GDP for differences in the cost of living across countries). Ireland scores consistently well across many of the Better Life metrics and scores highly in many of the factors measured (e.g. particularly in areas related to work-life balance, life satisfaction, and health).

### 3.3 Environmental Sustainability

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.

The 2012 Environmental Performance Index is a composite indicator based on 22 performance indicators which assess environmental health and ecosystem vitality (Figure 3.16). Ireland's performance is marginally below the OECD average.

Focusing on energy, while Ireland's share of energy (i.e. power, transport, and heat) derived from renewable resources, is growing, it still remains well below the OECD average (Figure 3.17). This is a reflection of our high dependence on imported fossil fuels and limited hydro potential. Ireland's share of electricity produced from non-hydro is above the OECD average<sup>28</sup>.

Carbon dioxide (CO<sub>2</sub>) emissions fell by 5 million tonnes in 2009 - possibly as a result of reduced economic activity due to the recession - but Ireland remains among the highest CO<sub>2</sub> emitters in the OECD on a per capita basis. CO<sub>2</sub> is just one of a number of different greenhouse gases. On a per capita basis, Ireland's greenhouse gas emissions were the second highest in the EU in 2009<sup>29</sup>. Such emissions have fallen since then. In 2010, total national greenhouse gas emissions are estimated to be 61.3 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>eq). This is 0.7 per cent lower (0.43 Mt CO<sub>2</sub>eq) than emissions in 2009<sup>30</sup>. Energy (22%), agriculture (30%), and transport (19%) accounted for just over 70 per cent of Ireland's greenhouse gas emissions in 2010. Ireland is amongst the countries most dependant on oil as a source of energy consumption (Figure 3.18). This is primarily driven by consumption of oil by the transport sector, where oil accounts for 97.9 per cent of energy consumed<sup>31</sup>. In the OECD, Greece is the country most reliant on oil as a source of energy consumption.

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28 Hydroelectric power is dependent on natural geographies - this explains the small role it plays in Ireland. Wind, which is not included in the Eurostat definition of primary energy consumption, is making an increasing contribution to Ireland's electricity generation capacity. In 2010, 14.8 per cent of electricity needs in Ireland were met by renewables; the national 2010 target was 15 per cent.

29 The CSO has recently published a new report examining a range of environmental data. The intention is to publish this report on a biennial basis. Initially, the publication includes a total of 92 indicators covering nine separate domains and most of the indicators are presented in a time-series format for Ireland, while the international context is shown by comparing Ireland with other EU Member States for the latest year for which data are available. The nine domains cover areas as diverse as greenhouse gases, waste, and biodiversity. For more information, see CSO, Environmental Indicators for Ireland 2012, March 2012

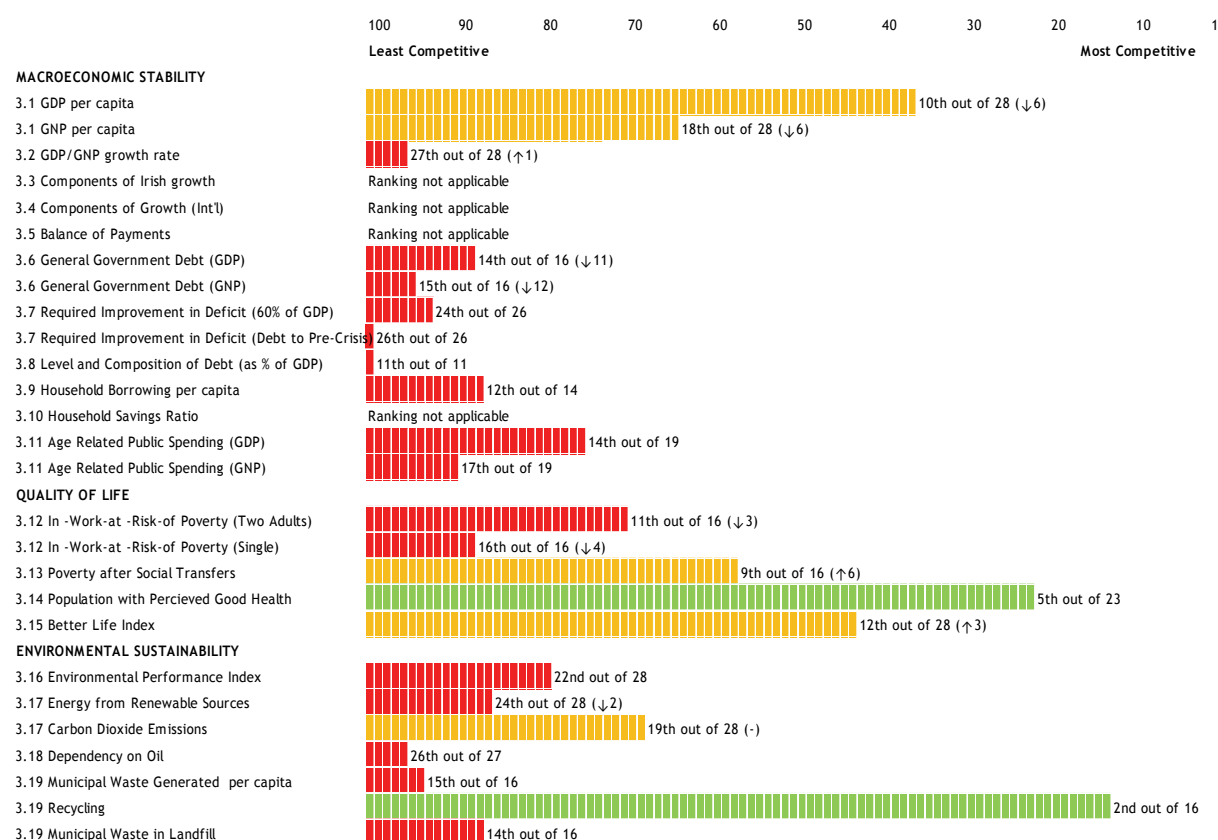
30 Environmental Protection Agency, Ireland's Greenhouse Gas Emissions in 2010, March 2012

31 SEAI, Energy in Ireland 1990 - 2010, 2011

Finally, Figure 3.19 examines the amount of waste generated in Ireland. Municipal waste generated in Ireland was at its highest in 2007, when there were 3.4 million tonnes, compared with 2.7 million tonnes in 2001. It has fallen each year since 2007 and there were just over 2.8 million tonnes generated in 2010<sup>32</sup>. Despite reductions, 636 kg of waste per person was generated in Ireland in 2010 compared to the euro area average of 543kg. On a positive note, Ireland recycles 34.6 per cent of its waste, compared with 23.7 per cent in the euro area. However, 57 per cent of our waste went in to landfill - significantly more than the euro area average (43.9%), reflecting Ireland's limited incineration capacity.

A summary of Ireland's performance across all of the sustainable growth indicators is provided below.

### Summary of Standardised Sustainable Growth Indicators<sup>33</sup>

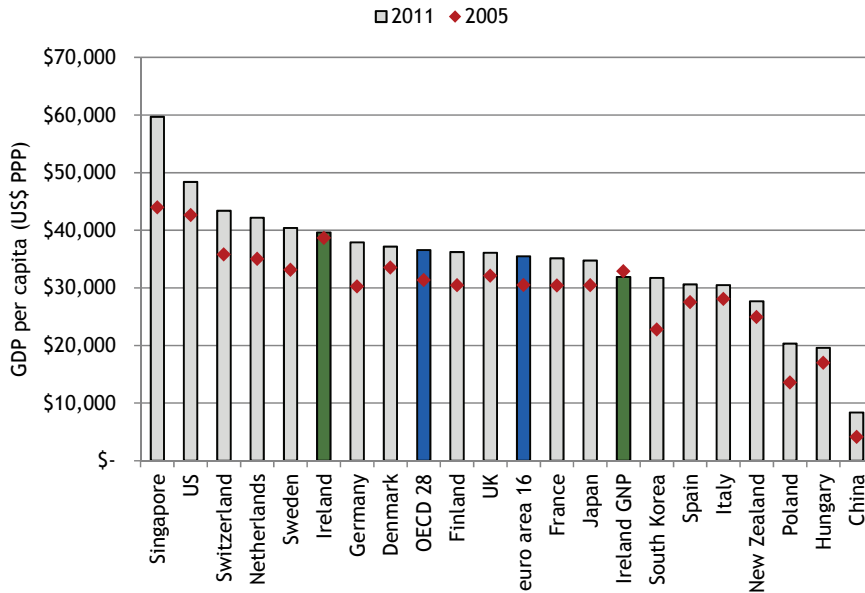


32 CSO, Environmental Indicators for Ireland 2012, March 2012

33 Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15\*100); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e. 14/15\*100).

### 3.1 Macroeconomic Sustainability

Figure 3.1 GDP per capita, current prices (\$000 PPPs), 2011

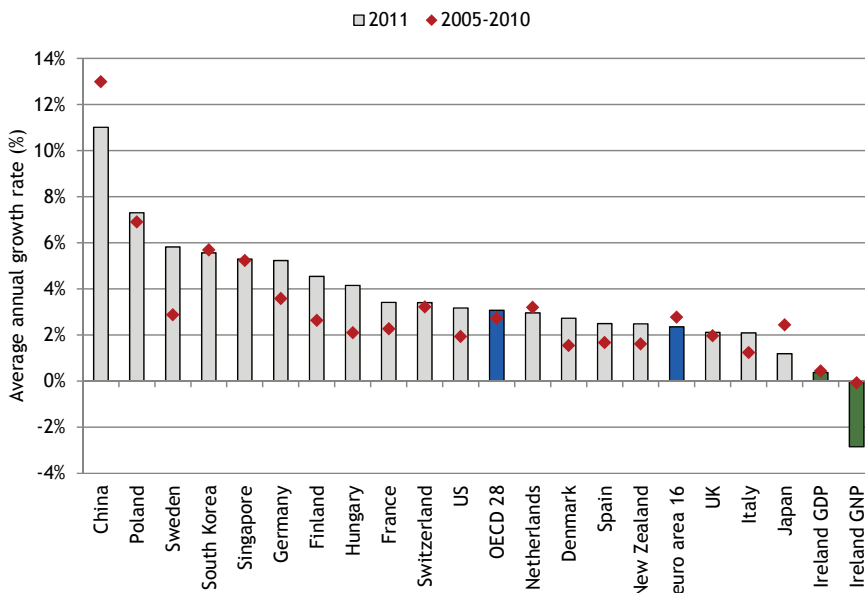


Despite recent declines, Ireland continues to rank highly in terms of GDP per capita when compared with other OECD countries. However when measured in terms of GNP per capita (i.e. with the impact of the foreign owned sector removed) Ireland ranks below the OECD-28 and euro area-16 average.

**OECD-28 ranking:**  
 GDP: 10<sup>th</sup> (↓6)  
 GNP: 18<sup>th</sup> (↓6)

Source: IMF, World Economic Outlook, April 2012

Figure 3.2 Average Annual Growth Rates (%) in GDP per capita (\$ PPPs), 2011

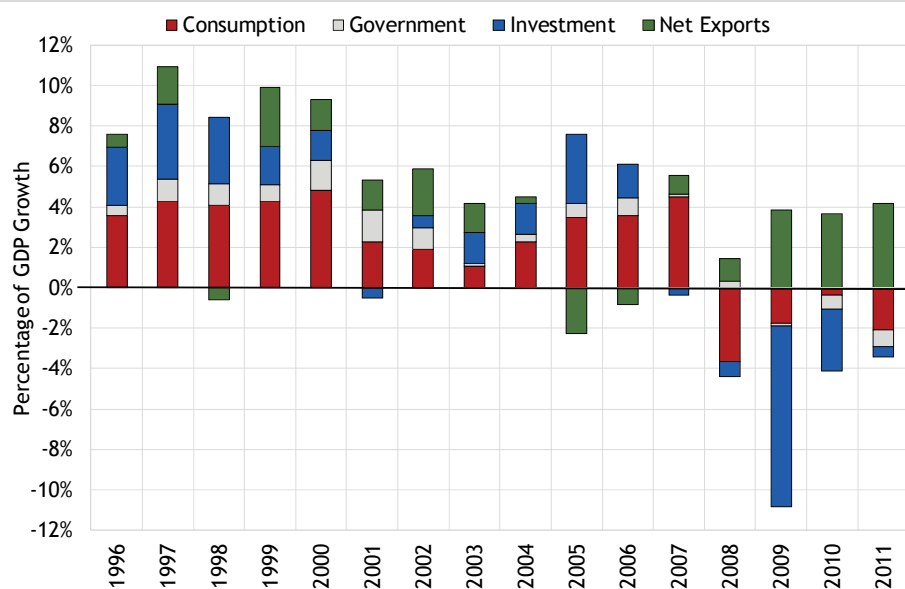


Ireland enjoyed increasing living standards up until 2007. Between 2008 and 2010, however, GDP per capita fell by 8.8% and GNP per capita by almost 11%. GDP per capita increased by 0.37% in 2011. GNP per capita, however, continued to decline (by 2.85%). The IMF is forecasting real GDP growth of 0.5% for 2012.

**OECD-28 ranking:**  
 GDP: 27<sup>th</sup> (↑1)  
 GNP: 27<sup>th</sup> (↑1)

Source: IMF, World Economic Outlook, April 2012

Figure 3.3 Components of Irish Economic Growth (GDP), 1999-2011



The contribution of net exports<sup>34</sup> to economic growth was small or negative during the period 2004 to 2007. Since 2009, however, net exports have made an increasing contribution to growth. Indeed, net exports are the only component of GDP that has contributed positively to GDP growth in 2009, 2010 and 2011. The Irish Central Bank forecasts a continuation of strong export performance into 2012 and 2013.

Ranking: n/a

Source: CSO National Accounts

Figure 3.4 Components of Economic Growth (GDP<sup>35</sup>) 2010-2011, Ireland, UK and Germany

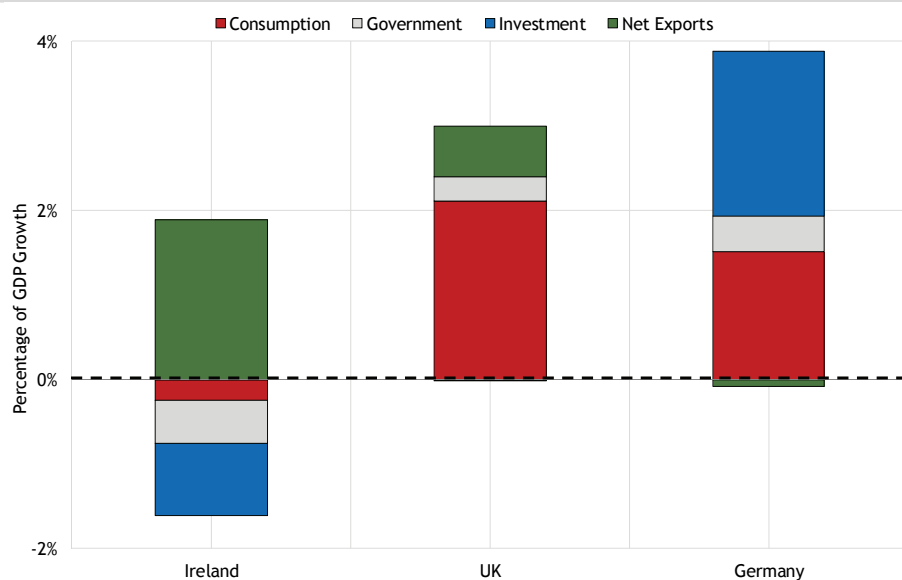


Figure 3.4 examines the make-up of economic growth in 2011 in Ireland, the UK and Germany. Irish exports continue to account for a larger proportion of growth than in the UK and Germany in 2011. Ireland is more dependent on exports as a source of growth than Germany and the UK, both of whom have large domestic markets which traditionally account for a greater share of economic growth.

Ranking: n/a

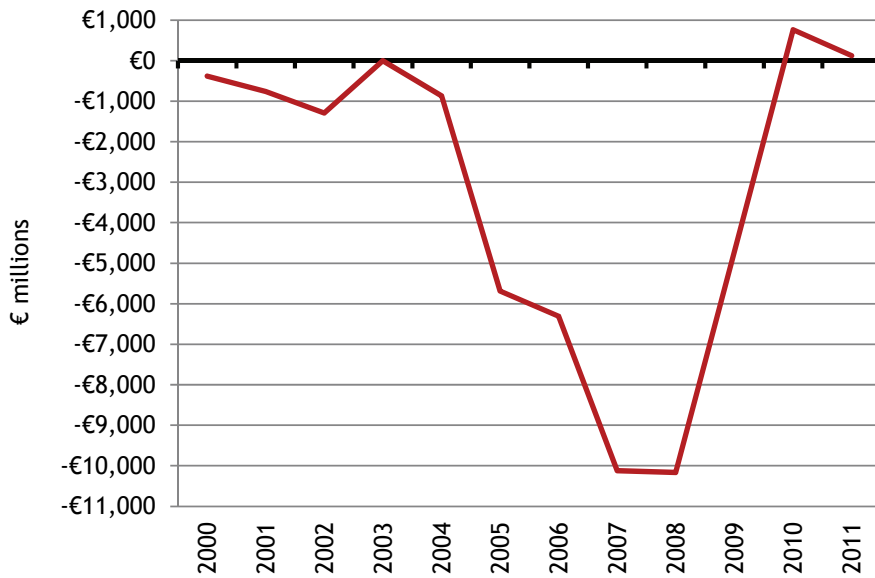
Source: National Accounts

<sup>34</sup> Net exports measure the value of a country's total exports minus the value of its total imports.

<sup>35</sup> Note that Figure 3.3 uses constant prices, whereas Figure 3.4 uses current market prices.



Figure 3.5 Balance of Payments, Current Account Balance (€ millions), 2000-2011

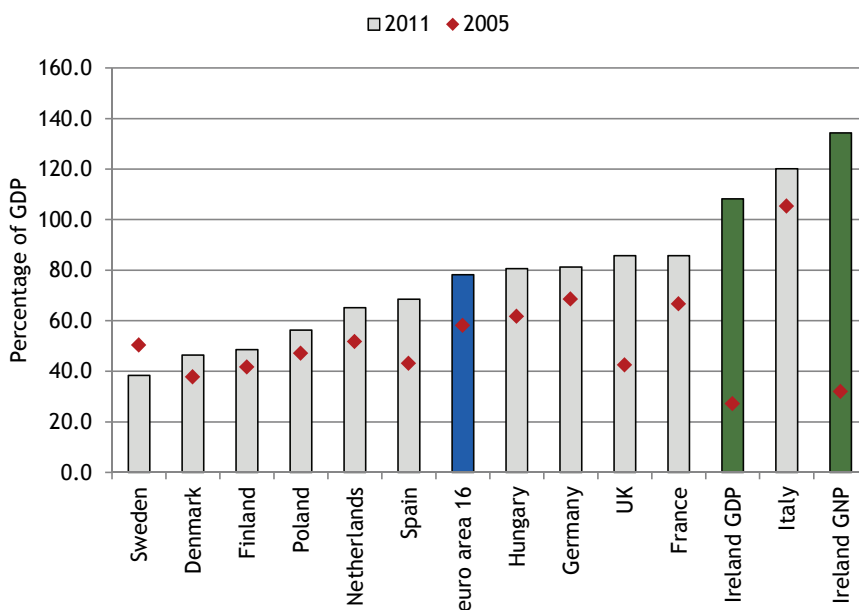


The current account balance reflects net earnings on exports, factor income and cash transfers. Ireland's current account deficit has recently moved into surplus - facilitated by improved cost competitiveness. The current account returned to positive territory in 2010, this trend is forecast to continue out to 2013, driven largely by weak domestic demand and growth in exports<sup>36</sup>.

Ranking: n/a

Source: CSO Balance of Payments

Figure 3.6 General Government Consolidated Debt as % of GDP, 2011(F)



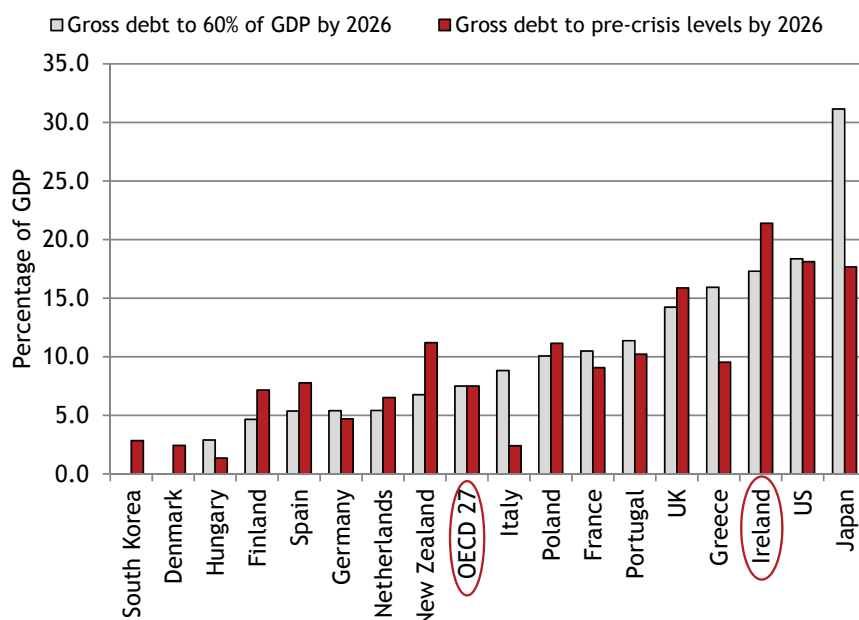
Since 2007 Ireland's general consolidated debt as a percentage of GDP has dramatically increased. This is due to the cost of the significant capital support provided by the State to a number of financial institutions, and the Exchequer running large deficits over the last three years. The European Commission expect Irish Government debt to peak at 120.2% of GDP in 2013.

euro area-16 ranking:  
 GDP: 14<sup>th</sup> (↓11)  
 GNP: 15<sup>th</sup> (↓12)

Source: European Commission, Spring 2012 Forecasts

36 ESRI, Quarterly Economic Commentary, Winter 2011 / Spring 2012

Figure 3.7 Required Improvement in the Underlying Primary Balances to Achieve Debt Targets, 2010

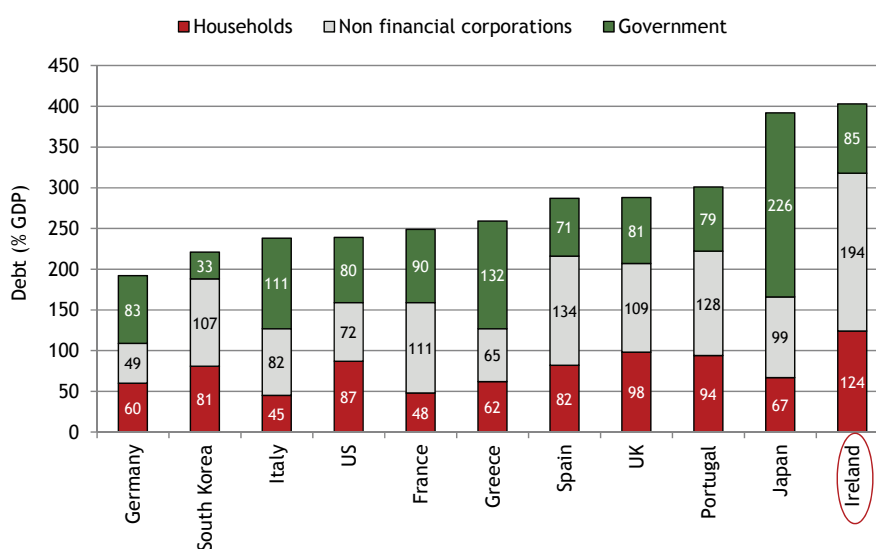


This figure shows the cumulative improvement in primary balances<sup>37</sup> required from 2010 to reduce debt either to pre-crisis (2007) levels or to 60% of GDP by 2026<sup>38</sup>. Ireland needs to achieve a 17.3% improvement in the primary balance to return debt to 60% of GDP and a 21.4% improvement to return to pre-crisis debt levels.

**OECD-26 ranking<sup>39</sup>:**  
 Debt to 60% of GDP: 24<sup>th</sup>  
 Debt to pre-crisis levels: 26<sup>th</sup>

Source: OECD Economic Outlook No. 89, 2011/1

Figure 3.8 Composition of Debt (% GDP), Q2 2011



This chart 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. To date, much of the attention in Ireland has been on Government debt. It is clear from this data, however, that all sectors of the economy have significant debt levels.

**Ranking: 11<sup>th</sup> out of 11**

Source: Haver Analytics; Bank for International Settlements; National Central Banks; McKinsey Global Institute

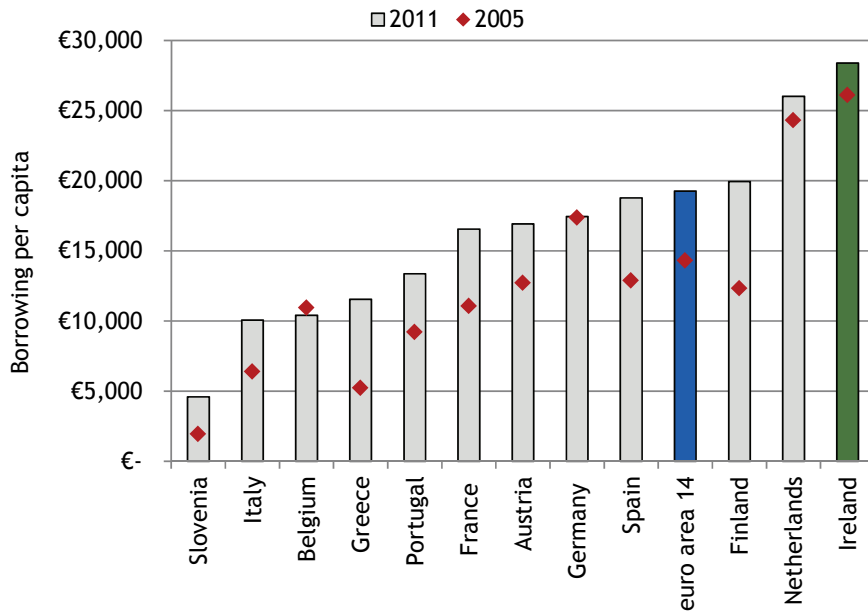
37 The OECD define the primary balance as Government net borrowing or net lending excluding interest payments on consolidated government liabilities.

38 The OECD assume a constant improvement in the underlying primary balance each year between 2013 and 2025, calculated so as to achieve the debt target in 2025 and based on the improvement projected in each country between 2010 and 2012.

39 OECD 26 excludes Chile, Estonia, Iceland, Israel, Mexico, Norway, Slovenia and Turkey



Figure 3.9 Household Borrowing per capita, 2011

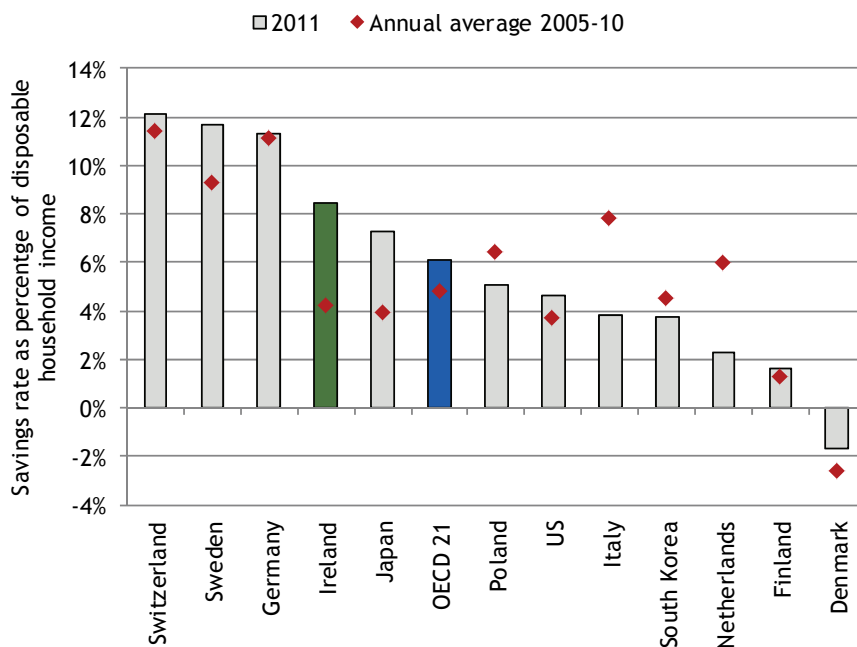


Personal debt levels increased substantially over the last decade as Ireland became one of the most personally indebted countries in the euro area. However since the peak in 2008 (€35,985 per capita), there has been a decline of approximately 21% in average debt levels. For every person resident in the state in 2011, there was an average outstanding household debt of €28,383.

euro area-14 ranking<sup>40</sup>: 12<sup>th</sup> (-)

Source: ECB Aggregated Balance Sheet of euro area monetary financial institutions

Figure 3.10 Household Savings Ratio<sup>41</sup>, 2011



Between 2005 and 2010 savings in Ireland averaged 4.2% of disposable household income. In 2011 Ireland's savings rate was 8.5%, significantly above the OECD average. Households are focussing on repaying outstanding debt and are increasing precautionary savings which can have a negative effect on consumption and GDP growth in the short term.

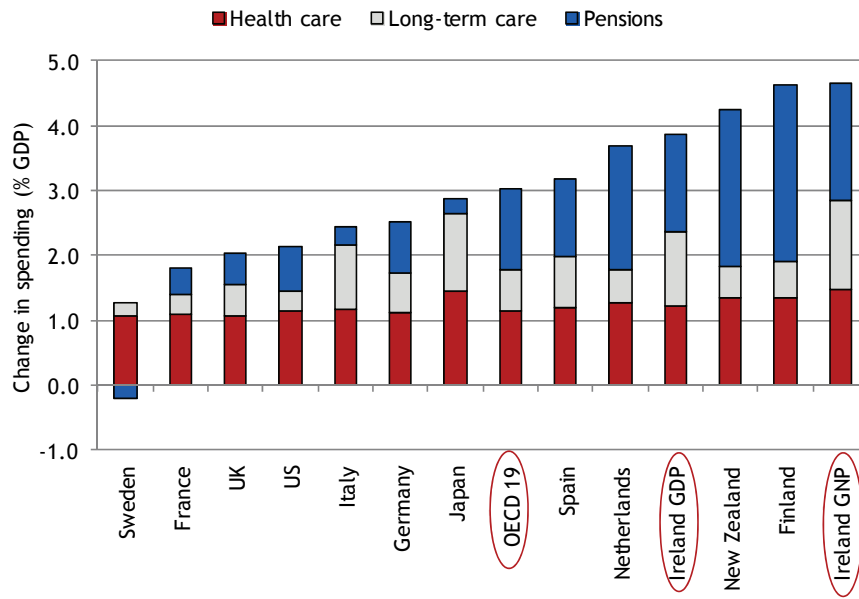
OECD-21 ranking: n/a

Source: OECD Economic Outlook 90 database

40 Euro area 14 excludes Cyprus, Estonia and Malta

41 The household saving rate is calculated as the ratio of household saving to household disposable income. OECD 21 excludes France, Iceland, Luxembourg, Portugal, Slovenia, Spain, and the UK

Figure 3.11 Projected Changes in Ageing Related Spending (% GDP), 2010-2025



The OECD estimate that, on average, offsets of 3% of GDP will have to be found across the OECD over the coming 15 years to meet spending pressures arising from ageing, representing an additional cumulative consolidation requirement of about 0.3% of GDP per annum<sup>42</sup>. Although the costs of meeting age related expenditure in Ireland will occur a number of years after other EU and OECD states, the costs of meeting these demands is higher than most other countries examined.

**OECD-19 ranking<sup>43</sup>:**

GDP: 14<sup>th</sup>

GNP: 17<sup>th</sup>

Source: OECD Economic Outlook 88

42 OECD projections for increases in the costs of health and long-term care have been derived assuming unchanged policies and structural trends.

43 OECD 19 excludes Czech Republic, Denmark, Hungary, Iceland, South Korea, Norway, Poland, Slovak Republic, and Switzerland

### 3.2 Quality of Life

Figure 3.12 In-work at-risk of poverty by Household Type, 2010

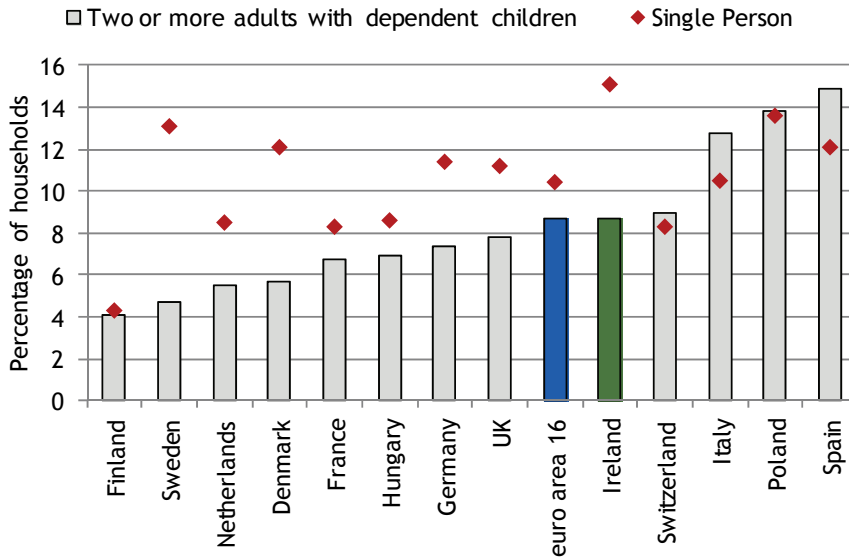
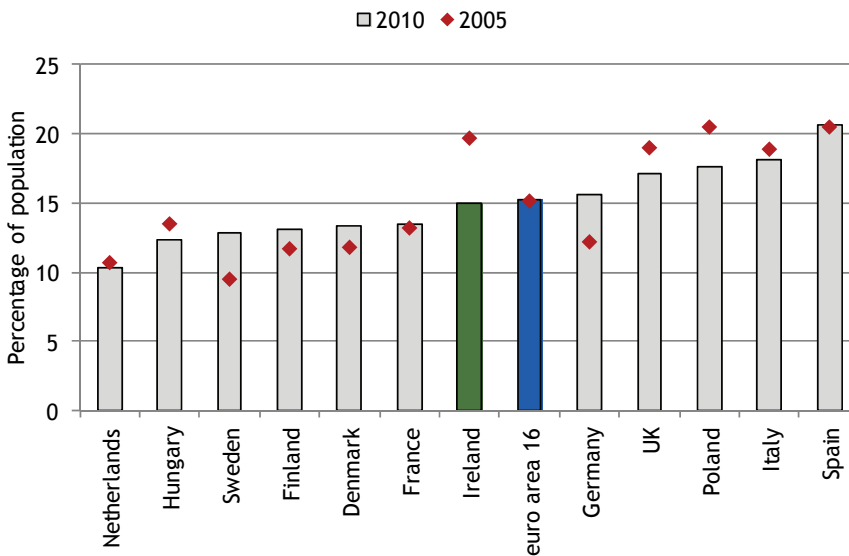


Figure 3.12 examines the risk of in-work poverty for working households. Ireland's performance deteriorated in 2010. The proportion of households at risk of poverty increased in 2010 to 8.7%, level with the euro area average. The proportion of single person households at risk has increased to 15.1%, significantly above the euro area average (10.4%).

**euro area-16 ranking<sup>44</sup>:**  
 Two or more adults: 11<sup>th</sup> (↓3)  
 Single person: 16<sup>th</sup> (↓4)

Source: Eurostat, Structural Indicators

Figure 3.13 At-Risk-of-Poverty after Social Transfers (% Population), 2010



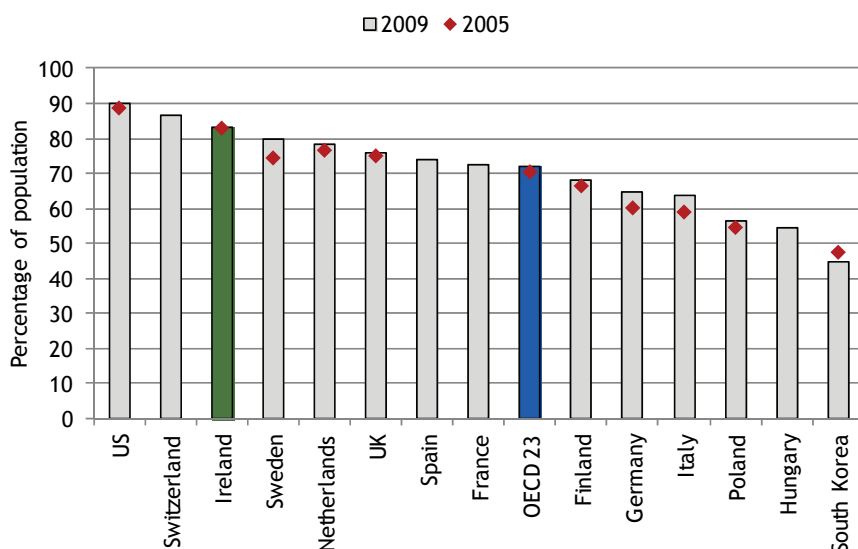
Risk of poverty is determined by those with less than 60% of the national median's disposable income after social transfers. Ireland has improved since 2005 when 20% of the population were at risk. In 2010 Ireland was ranked just below the euro area-16 average with 15% of the population at risk.

**euro area-16 ranking:**  
 9<sup>th</sup> (↑6)

Source: Eurostat, Structure Indicators

<sup>44</sup> Change in rankings refers to the period between 2005 and 2010

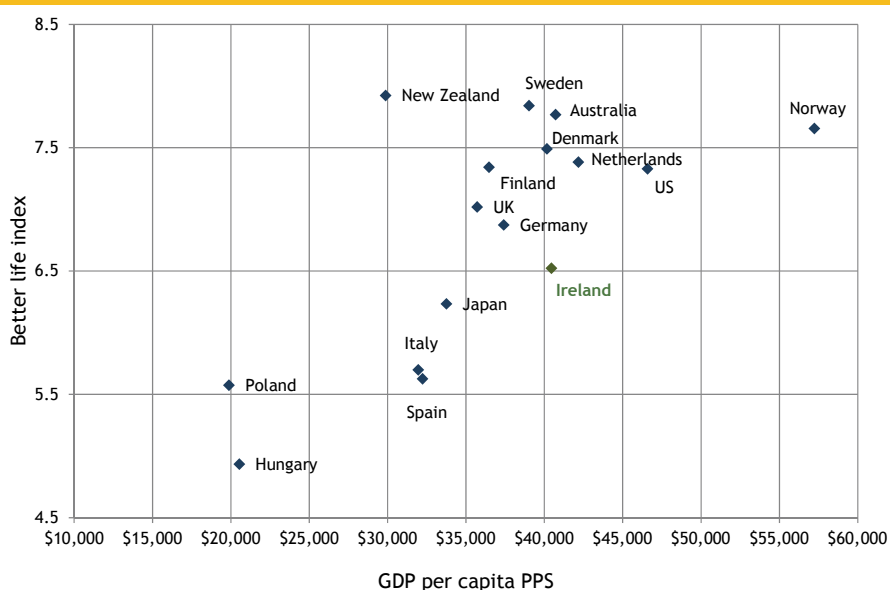
Figure 3.14 Percentage of Population with Perceived Good Health, 2009



Most OECD countries conduct regular health surveys which allow respondents to report on different aspects of their health. Despite the subjective nature of the question, indicators of perceived general health have been found to be a good predictor of people's future health care use. The majority of Irish people have a positive perception of their health status. **OECD-23 ranking<sup>45</sup>: 5<sup>th</sup>**

OECD, Health Data 2011

Figure 3.15 OECD Better Life Index and GDP per Capita PPP, 2011



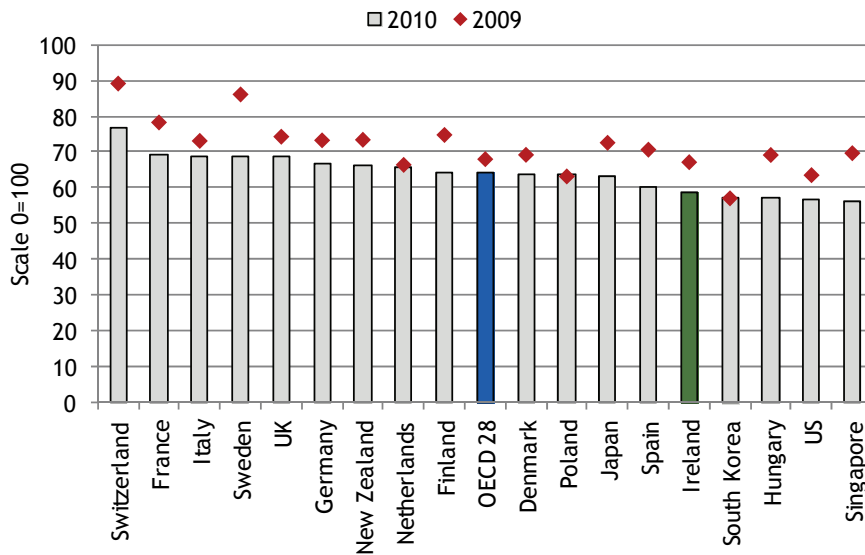
The OECD Better Life Index compares well-being across countries using 20 different indicators across 11 topics (including housing, community, education, life satisfaction and work-life balance). The graph plots the headline Better Life Index against GDP per capita at purchasing power parity (which adjusts GDP for differences in the cost of living across countries). There is a strong correlation between this index and the level of income per capita. **OECD-28 ranking: 12<sup>th</sup> (↑3)**

Source: OECD Better Life Index, OECD Stats Extracts National Indicators

45 OECD 23 excludes Austria, Chile, Denmark, Estonia, Japan, Israel, Mexico, New Zealand, Portugal, Slovenia and Turkey. Note in 2005 Ireland was ranked 3rd out of 16 OECD countries for which data was then available.

### 3.3 Environmental Sustainability

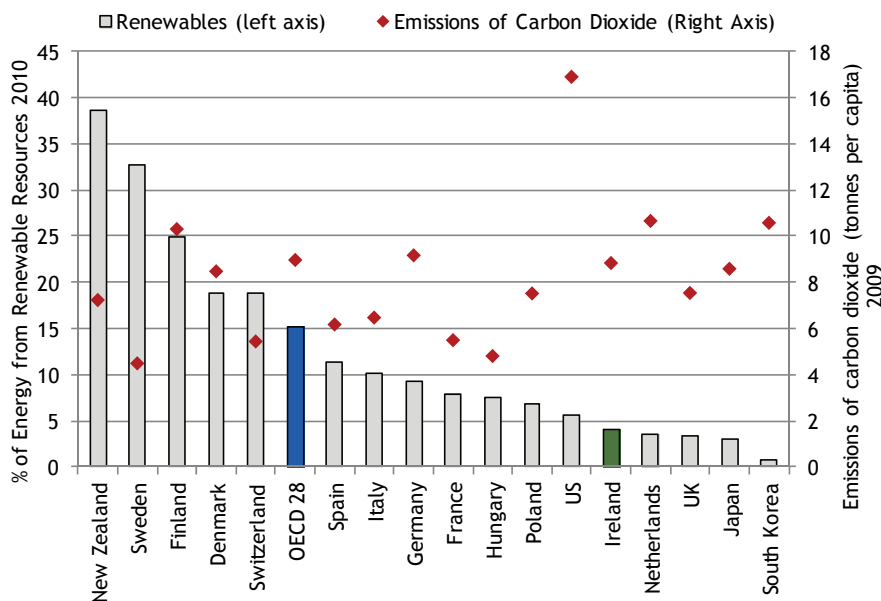
Figure 3.16 Environmental Performance Index (EPI), 2012, Scale (0-100)



The 2012 EPI ranks countries on 22 performance indicators which assess environmental health and ecosystem vitality. Ireland's performance is below the OECD average. Recently published CSO data, however, suggests that Ireland's environmental performance has improved on a number of fronts including air quality, emissions, and waste generation<sup>46</sup>.  
**OECD-28 Ranking<sup>47</sup>: 22<sup>nd</sup>**

Source: Yale Centre for Environmental Law and Policy

Figure 3.17 Percentage of Energy from Renewable Sources (2010) and Per Capita Carbon Dioxide (CO<sub>2</sub>) Emissions from Fuel Combustion (2009)



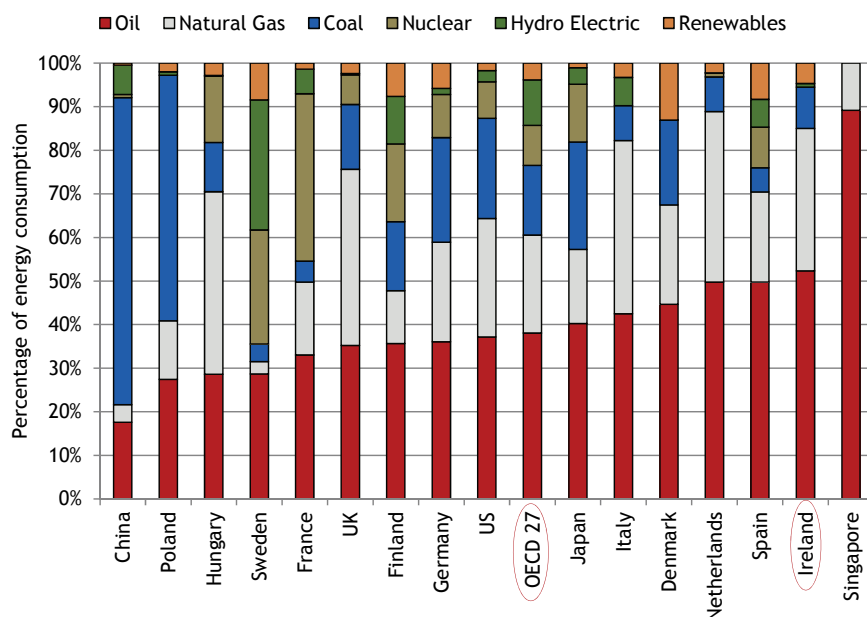
Ireland's share of energy derived from renewable resources, while growing, remains approximately a third of the OECD average, reflecting high dependence on imported fossil fuels and limited hydro potential. Ireland's share of electricity produced from non-hydro is above average. While CO<sub>2</sub> emissions fell by 5 million tonnes in 2009, Ireland remains among the OECD's highest per capita emitters of CO<sub>2</sub>.  
**OECD-28 ranking:**  
 Renewables: 24<sup>th</sup> (↓)  
 CO<sub>2</sub> emissions: 19<sup>th</sup> (-)

Source: IEA, CO<sub>2</sub> Emissions from Fuel Combustion, 2011/IEA, Energy Balances of OED Countries, 2011

46 CSO, Environmental Indicators Ireland 2012, March 2012

47 Scores and rankings for the 2012 EPI cannot be compared with scores and rankings from earlier releases of the EPI owing to changes in data and methodology. However, consistent time series of EPI scores from 2000-2010 are available on to downloads at [www.epi.yale.edu](http://www.epi.yale.edu).

Figure 3.18 Components of Energy Consumption per capita<sup>48</sup>, 2010

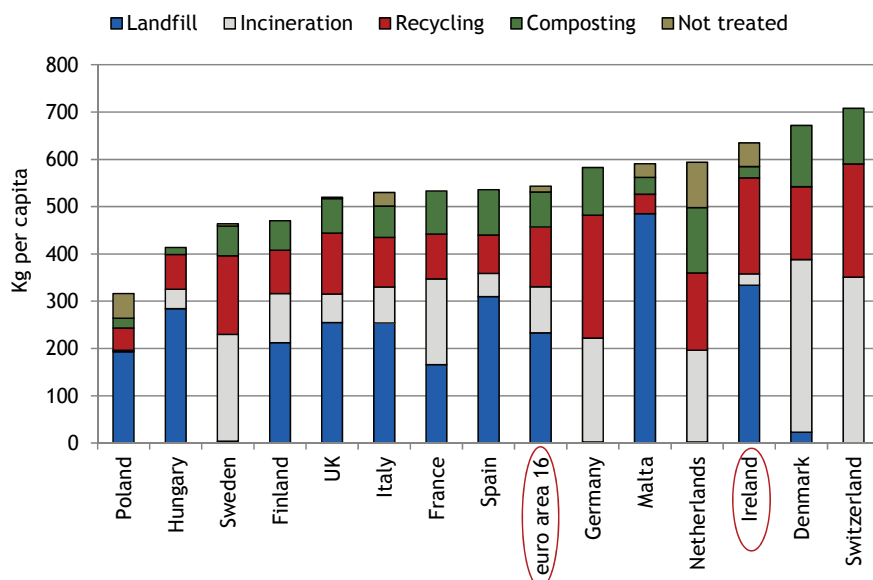


In terms of energy consumption, Ireland is one of the most oil dependent countries in the OECD. Only Greece is more reliant on oil. Transport which accounted for 40% of Ireland's final energy consumption is the primary consumer of oil. Residential demand (27%), industry (16%), services (14%) and agriculture (2%) account for the remainder<sup>49</sup>.

OECD-27 ranking (Oil Dependency)<sup>50</sup>: 26<sup>th</sup>

Source: BP Statistical Review of World Energy, Total Economy Database

Figure 3.19 Municipal Waste Generated and Treatment Method, 2010



In 2010, 636kg of waste per person was generated in Ireland. This is above the euro area average (543kg). Ireland recycles 34.6% of its waste, compared with 23.7% in the euro area. 57% of waste in Ireland went to landfill - significantly more than the euro area average (43.9%).

euro area-16 ranking:  
Waste generated: 15<sup>th</sup>  
Recycling: 2<sup>nd</sup>  
Landfill: 14<sup>th</sup>

Source: Eurostat, Structural Indicators, Environment

48 Primary energy comprises commercially traded fuels only. Excluded, therefore, are fuels such as wood, peat and animal waste which, though important in many countries, are unreliably documented in terms of consumption statistics. Wind, geothermal and solar power generation are also excluded.

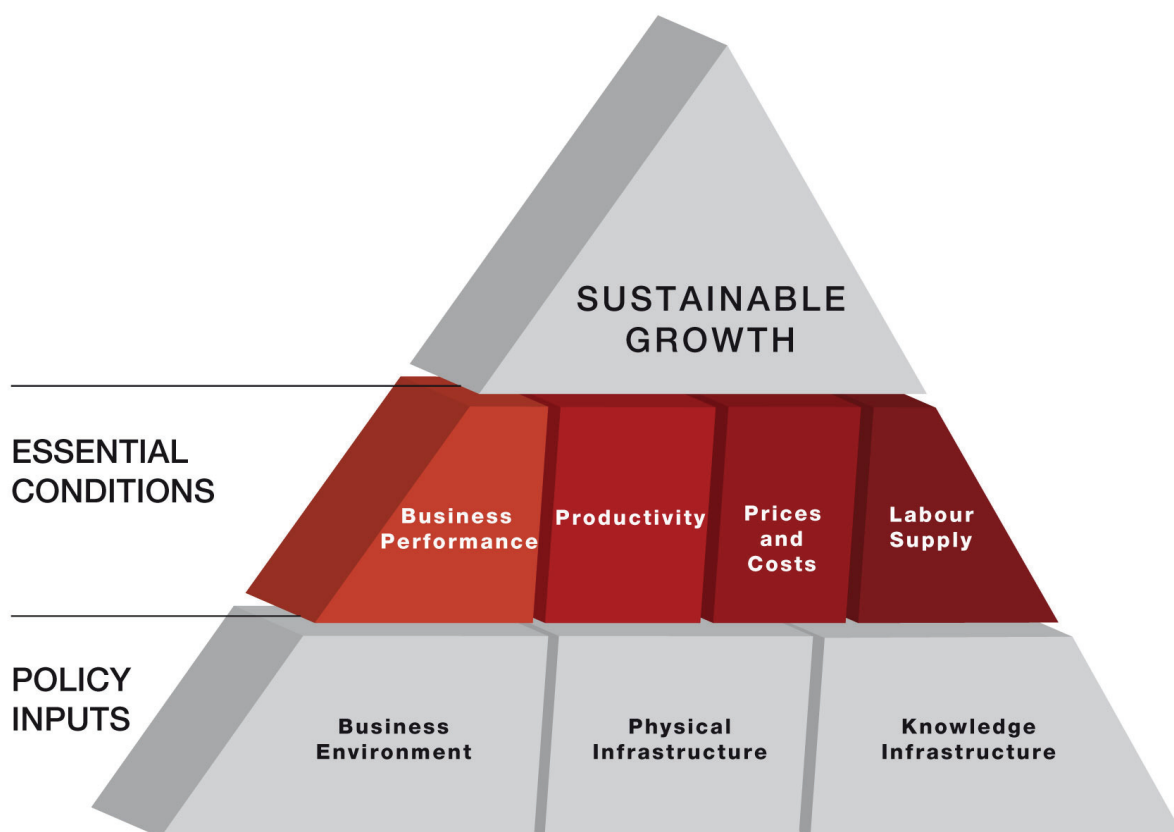
49 CSO, Environmental Indicators Ireland 2012, March 2012

50 OECD 27 excludes Iceland. Figures for Belgium and Luxembourg are aggregated.



# Chapter 4

## Essential Conditions





## 4. 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:

- The performance of Ireland's businesses in terms of investment, trade and business sophistication,
- Ireland's productivity and innovation performance,
- Ireland's prices and costs structure, and
- Labour supply.

### 4.1 Business Performance

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 investment and trade.

#### 4.1.1 Business Investment

The recession has had a very significant impact upon investment in the economy. The combination of reduced demand and uncertainty about the future has had a particularly severe impact upon private investment. Since 2005, Irish private investment declined dramatically from over 23 per cent of GDP to 7 per cent in 2011 (Figure 4.1). This compares unfavourably with the euro area average of almost 17 per cent of GDP. On the other hand, Government investment has proved quite resilient in the face of the recession and at 3.3 per cent of GDP in 2011 remains above the euro area average (2.3%)<sup>51</sup>. Much of the decline in investment is a result of weak construction activity and investment remaining subdued in productive market services<sup>52</sup>. The ESRI forecast that investment will fall further in 2012, albeit at a much more moderate pace than that witnessed in 2011. The slowdown in the pace of the decline reflects increased investment in agriculture, aviation and manufacturing sector<sup>53</sup>.

Looking to the future, some positive news is evident - whereas private investment in 2011 fell by approximately 8 per cent on the previous year, overall it is expected to grow by 4.5 per cent in 2012 supported by increased expenditure on machinery and equipment. Given the important role played by capital investment in driving productivity in Ireland over recent decades, this is a welcome development<sup>54</sup>.

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<sup>51</sup> Public capital expenditure peaked at €9 billion in 2009. This is due to be reduced to €3.95 billion in 2012, to €3.37 billion in 2013, and to €3.25 billion per annum thereafter until 2016. Department of Public Expenditure and reform, Infrastructure and Capital Investment 2012-16: Medium Term Exchequer Framework, November 2011 Medium Term Exchequer Framework.

<sup>52</sup> ESRI, Quarterly Economic Commentary, Winter 2011/Spring 2012.

<sup>53</sup> ESRI, Quarterly Economic Commentary, Winter 2011/Spring 2012.

<sup>54</sup> NCC, Ireland's Productivity Performance 1980-2011, Forfás, May 2012



While the indigenous sector will continue to be a key source of both economic growth and employment in the coming decades, foreign direct investment (FDI) remains critically important to the Irish economy. Inward investment levels remain amongst the highest in the OECD (Figure 4.2). Strong FDI flows are facilitated by Ireland's general openness to inward investment. The OECD's FDI Restrictiveness Index<sup>55</sup> highlights that Ireland has relatively few equity restrictions, has an efficient screening and approval procedure for investment, and does not impose restrictions on key personnel.

That Ireland remains an attractive location for foreign investors is evidenced in Figure 4.3 - this indicator measures income of US companies as a proportion of the amount invested in a particular country - a proxy for rate of return. While the rate of return in Ireland has fallen, it remains the highest within the euro area. In general rates of return have decreased in many countries as a result of the global economic difficulties.

Ireland is evolving as an economy. We are no longer solely an importer of investment. Irish and foreign owned businesses based in Ireland are now major investors in foreign markets (Figure 4.4). Outward direct investment from Ireland increased from 51.6 per cent of GDP in 2005 to over 171 per cent in 2010. This is significantly higher than the OECD average (40.9%). According to the CSO, FDI flows abroad in 2010 were €13.4bn, down from the 2009 peak of €19.2bn. By the end of 2010, Irish stocks (positions) of direct investment abroad reached €261 billion<sup>56</sup>. According to the Central Bank, a significant portion of direct investment income earned is attributable to multinational non-financial corporations (NFCs) who have established their headquarters in Ireland, with the remaining income related to foreign earnings of Irish-owned multinational NFCs<sup>57</sup>.

Finally, Figure 4.5 measures entrepreneurship and reflects the number of new businesses being created. In 2009, more businesses closed than were created in Ireland, resulting in net business population growth of -1.9 per cent. Given the importance of new firms to job creation and innovation, it is a concern that the business churn rate in Ireland (the total number of firm births and deaths as a proportion of the enterprise population) was one of the lowest in the euro area in 2008.

#### 4.1.2 Trade

As a small economy, Ireland has limited potential to grow domestic markets. Ireland's economic success depends to a large degree, therefore, on international markets and thus, on our ability to trade internationally. Export growth will continue to be one of the key drivers of Ireland's economic recovery and Ireland continues to be one of the most open economies in the OECD<sup>58</sup>.

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55 Kalinova, B., A. Palerm and S. Thomsen, OECD's FDI Restrictiveness Index: 2010 Update, OECD Working Papers on International Investment, 2010/03, OECD, 2010

56 CSO, Foreign Direct Investment 2010, September 2011

57 Central Bank of Ireland, Quarterly Bulletin Q1 2012, January 2012

58 According to the Global Innovation Policy Index, Ireland is ranked amongst the upper tier of countries in terms of trade and FDI facilitation. Ireland generally performs strongly across a range of "open market access" and "trade facilitation" indicators collated. Specific individual indicators relate to tariff barriers, non-tariff barriers, customs services and the administrative burden imposed on importers. For further

In the midst of the recession, some exporting sectors continued to perform strongly. The total value of merchandise exports from Ireland increased by 2.9 per cent per annum between 2005 and 2010. Significant increases were recorded in merchandise exports from the pharmaceutical sector. Exports of office machinery and processing equipment, however, fell sharply. On the services side, computer services, business services and financial and insurance services all recorded significant growth (Figure 4.10)<sup>59</sup>. Looking at Ireland's share of world markets, Ireland's share of merchandise trade has fallen gradually since 2002, while our share of services (a smaller but growing part of world trade) has grown significantly over the same period; total service exports increased from €67.1bn in 2009 to €73.8bn in 2010 (Figure 4.8).

Looking at Ireland's exports in more detail, Figure 4.9 measures Ireland's share of world exports at a sectoral level. Ireland has continued to increase its share of the commercial services market. Conversely, Ireland has lost significant market share across a number of other sectors between 2005 and 2010 (particularly office and telecom equipment).

Figure 4.11 examines export composition based on the complexity of the products being exported. Germany sets the benchmark with the highest proportion of complex exports. Ireland's profile illustrates a concentration in complex exports also - 39 per cent of Irish exports belong to the most complex product category. While the classification of products by complexity is challenging, it is notable that many other peripheral economies' exports are concentrated in lower complexity categories. For any country to boost competitiveness it is necessary but not sufficient to boost cost-competitiveness or reduce unit labour costs; they must also focus on moving towards the production of more complex, higher value added goods and services<sup>60</sup>. Ireland's success in producing and exporting high value added products is further illustrated in the European Commission's analysis of Revealed Comparative Advantage (RCA)<sup>61</sup>. RCA measures and compares the composition of exports of one country to a certain market with the composition of total exports that are absorbed by the market. A country is considered to have a revealed comparative advantage in a certain type of services or goods if a value of the RCA index for this sector is higher than 1. Not surprisingly, Ireland's strengths are to be found in Chemicals, Pharmaceuticals, and IT services.

An examination of the countries which buy Irish exports is also revealing. The majority of Irish merchandise exports in 2010 were destined for EU member states (Figure 4.6). Ireland also has significant trading links with non-euro area countries - a particular challenge given recent fluctuations in the value of the euro. Emerging markets offer potentially valuable sources of export growth given their growth projections. Ireland's total exports to Brazil, Russia, India and China have increased fivefold since 1995 in value terms. When expressed as a percentage of GDP, however, the increase is not as impressive - doubling over the period. In 2010 Irish exports to BRIC countries in

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detail, see Atkinson, R.D., Ezell, S.J. & Stewart, L.A., The Global Innovation Policy Index, Information Technology and Innovation Foundation/Kauffman Foundation, March 2012

<sup>59</sup> In certain internationally trading sectors, this data may reflect the returns from R&D, marketing and management practices undertaken by multinationals in other countries.

<sup>60</sup> Felipe, J. & Kumar, U, Unit Labour Costs in the Eurozone: The Competitiveness Debate Again, Levy Economics Institute of Bard College, Working Paper No. 651, February 2011

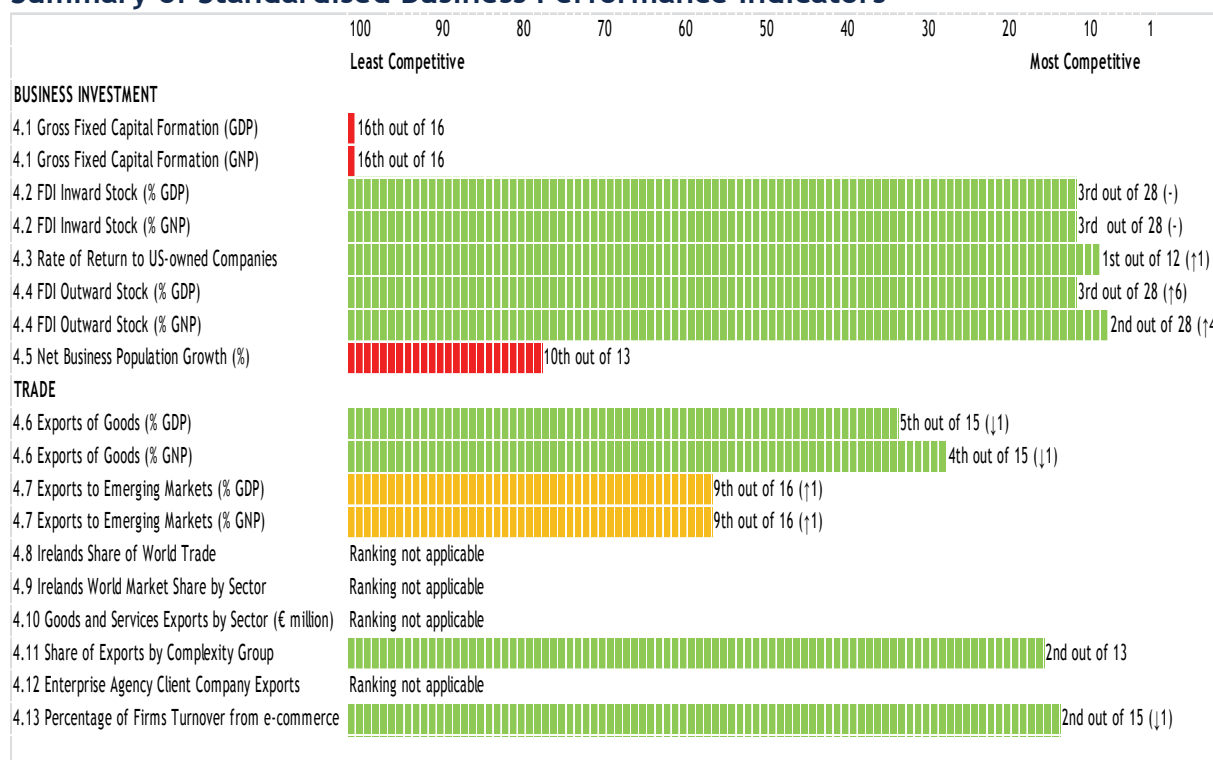
<sup>61</sup> The revealed comparative advantage is an index used to calculate the relative advantage or disadvantage of a country in a certain class of goods or services as evidenced by trade flows. For further details and data, see Tables 7.9 and 7.10 in European Commission, Enterprise and Industry, European Competitiveness Report 2011.

both GDP and GNP terms were below the euro area-16 average (Figure 4.7), and based on UNCTAD trade data, Ireland is losing market share in these markets: between 2001 and 2010, the market share of Irish imports fell in Brazil from 0.44 per cent to 0.32 per cent, in Russia from 0.4 per cent to 0.31 per cent, and in India from 0.22 per cent to 0.06 per cent. In China, however, market share held relatively steady (a marginal decline from 0.25 per cent to 0.24 per cent was recorded). This downward is not confined to Ireland. There has been a general decline amongst other advanced economies share of the BRICS imports in recent years. Over the same period however there has been a marked increase in the level of inter-BRICS trade<sup>62</sup>.

Figure 4.12 considers the breakdown in exports by sector and firm ownership for firms that are assisted by IDA Ireland and Enterprise Ireland. In 2009, 9.7 per cent of total agency client exports come from indigenous companies - a decline from 2001 when they accounted for 10.3 per cent of exports from total agency supported firms<sup>63</sup>. Within the 'other services' and 'food drink and tobacco' sectors, exports from indigenous firms predominate and account for 60.2 per cent and 58.3 per cent of exports respectively. Foreign-owned firms dominate the three largest export sectors (computer services, chemicals and computer and electronic products).

A summary of all Business Investment and Trade indicators is provided on the next page.

### Summary of Standardised Business Performance Indicators<sup>64</sup>



62 These figures are based on UNCTAD trade data and Forfás calculations.

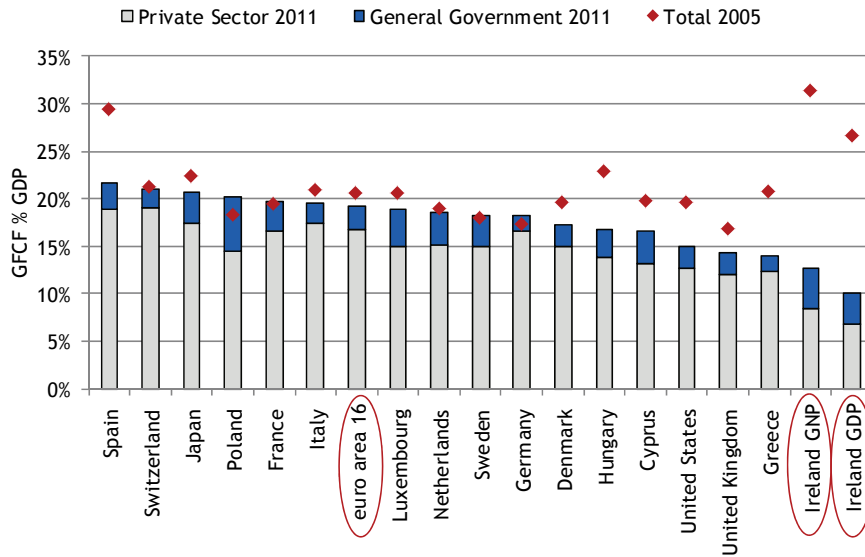
63 Forfás, Annual Business Survey of Economic Impact 2010, June 2012

64 Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15\*100); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e. 14/15\*100).

## 4.1 Business Performance

### 4.1.1 Business Investment

Figure 4.1 Economy-wide Gross Fixed Capital Formation (GFCF) at Current Prices (% GDP), 2011

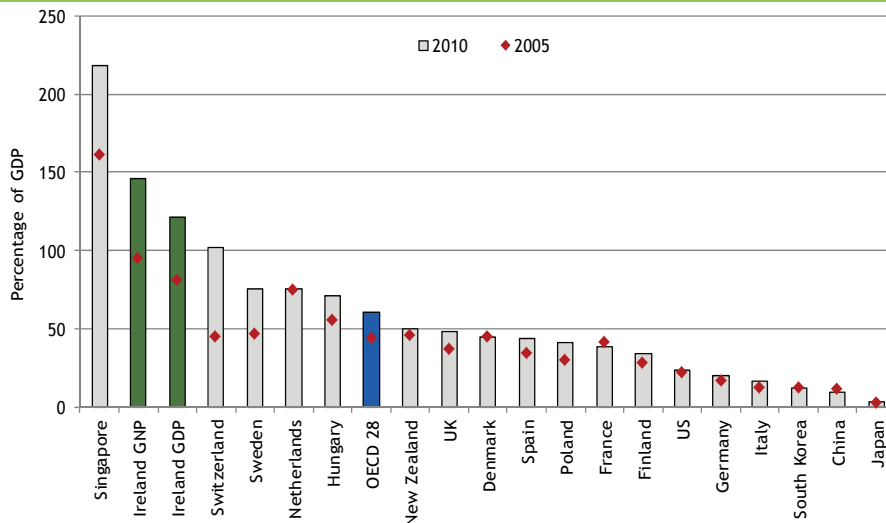


Irish private investment declined dramatically from over 23% of GDP in 2005 to 7% of GDP in 2011. This compares unfavourably with the euro area average of almost 17% in 2011. Government spend has proved relatively resilient (3.3%) in comparison by remaining above the euro area average (2.3%). Total investment between 2010 and 2011 fell by approximately 12%.

**euro area-16 ranking:**  
16<sup>th</sup>

Source: European Commission, AMECO Database

Figure 4.2 FDI Inward Stock (% GDP), 2010

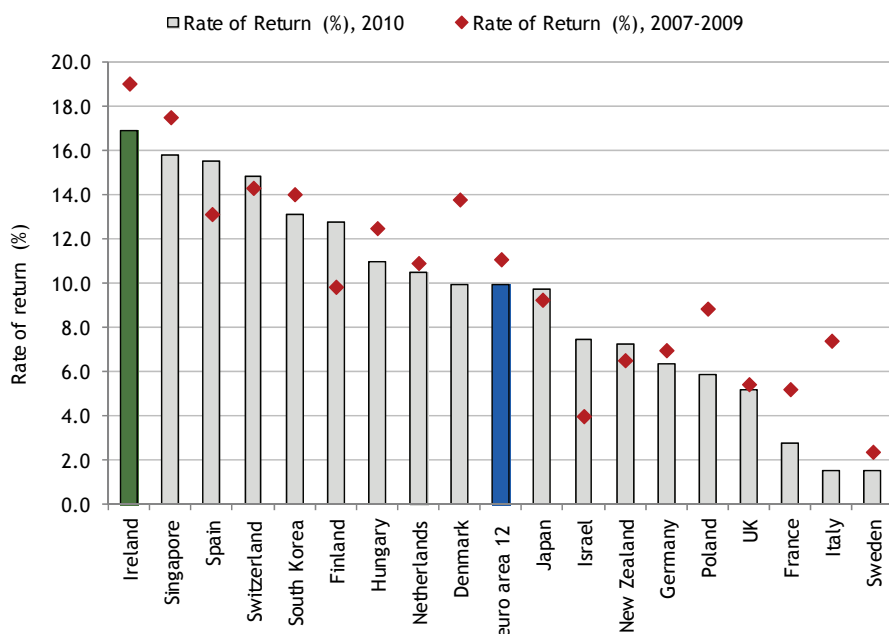


Inward investment levels, relative to the size of the economy, remain amongst the highest in the OECD. Employment in foreign owned companies, perhaps a more tangible indicator of activity, was 138,488 in 2011 compared to 151,041 in 2006.

**OECD-28 Ranking:**  
GDP: 3<sup>rd</sup> (-)  
GNP: 3<sup>rd</sup> (-)

Source: UNCTAD World Investment Report, 2011

Figure 4.3 Rate of Return to US-owned Companies on Investments in Foreign Countries<sup>65</sup>, 2010

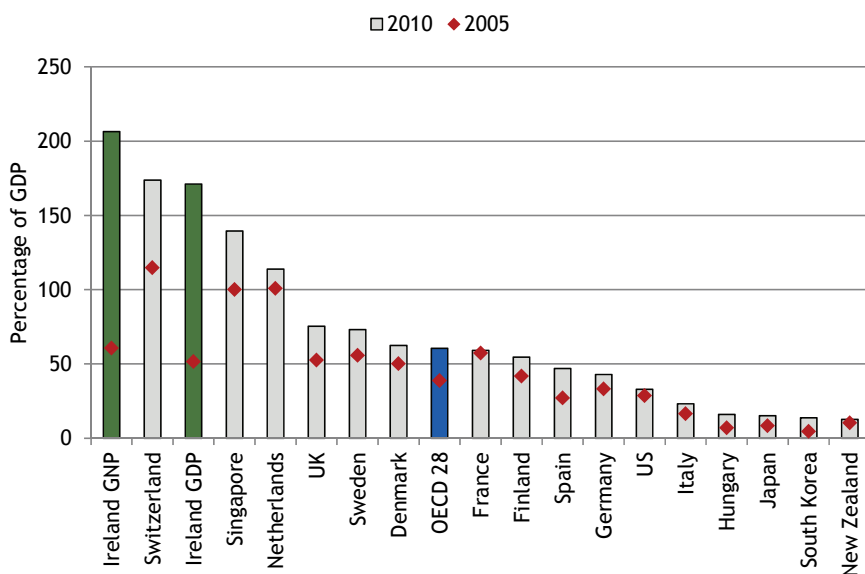


This indicator measures income of US companies as a proportion of the amount invested in a particular country - a reasonable proxy for rate of return. While the rate of return in Ireland has fallen, it remains the highest within the euro area. In general rates of return have decreased in many countries.

euro area-12 ranking<sup>66</sup>: 1st (↑1)

Source: US Bureau of Economic Analysis, Forfás calculations

Figure 4.4 FDI Outward Stock as a Percentage of GDP, 2010



Levels of outward direct investment from Ireland by Irish MNCs and foreign MNCs based here increased from 51.6% of GDP in 2005 to 171.1% in 2010. This is significantly higher than the OECD average of 40.9%. According to the CSO, FDI flows abroad in 2010 were €13.4bn, down from the 2009 peak of €19.2bn.

OECD-28 ranking:  
GDP: 3<sup>rd</sup> (↑6)  
GNP: 2<sup>nd</sup> (↑4)

Source: UNCTAD World Investment Report, 2011

65 Rate of return is calculated using US Bureau of Economic Analysis data on US Direct Investment Position Abroad on a Historical-Cost Basis and data on US Direct Investment Abroad: Income without current-cost adjustment.

66 Euro area 12 excludes Cyprus, Slovenia, Malta and Slovakia

Figure 4.5 Net Business Population Growth, 2009

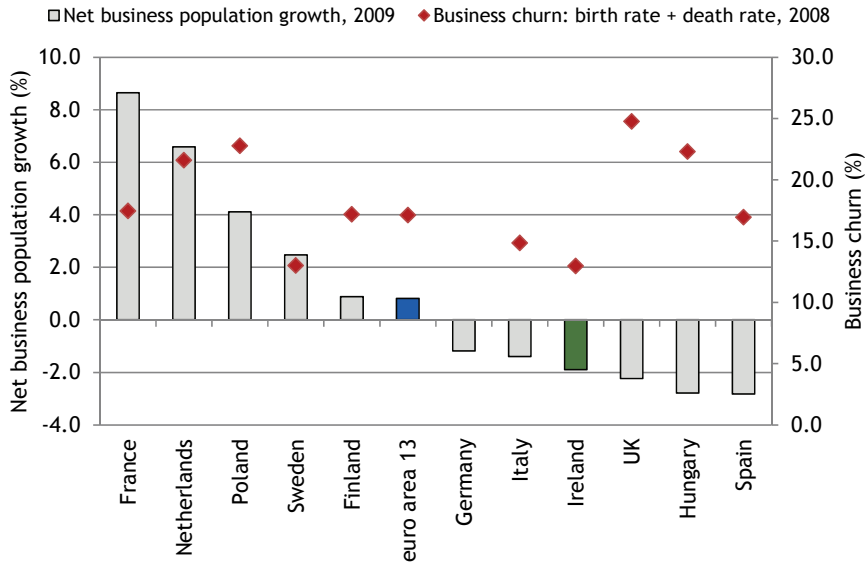


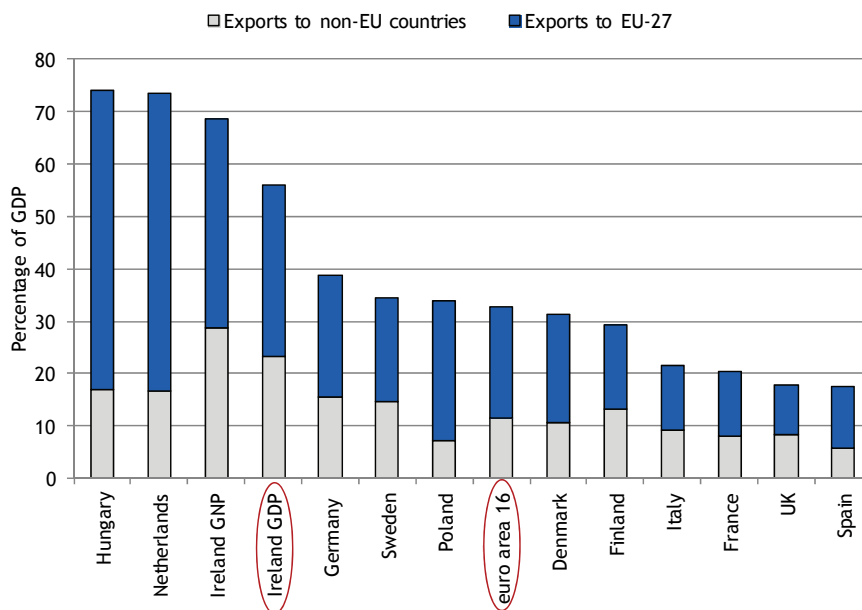
Figure 4.5 is a measure of entrepreneurship and reflects the number of new businesses being created. In 2009 in Ireland, more businesses closed than were created, resulting in net business population growth of -1.9%. Business churn considers the total number of firm births and deaths as a proportion of the enterprise population. Ireland had one of the lowest churn rates in the euro area in 2008.

euro area-13 ranking (net business)<sup>67</sup>: 10<sup>th</sup>

Source: Eurostat, European Business Demography Statistics

#### 4.1.2 Trade

Figure 4.6 Exports of Goods, intra-EU and extra-EU (% of GDP), 2010



Ireland continues to be one of the most open countries to trade in the EU. The majority of Irish merchandise exports in 2010 were exported to the EU-27. 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-15 ranking<sup>68</sup> (by total exports):

GDP: 5<sup>th</sup> (↓1)

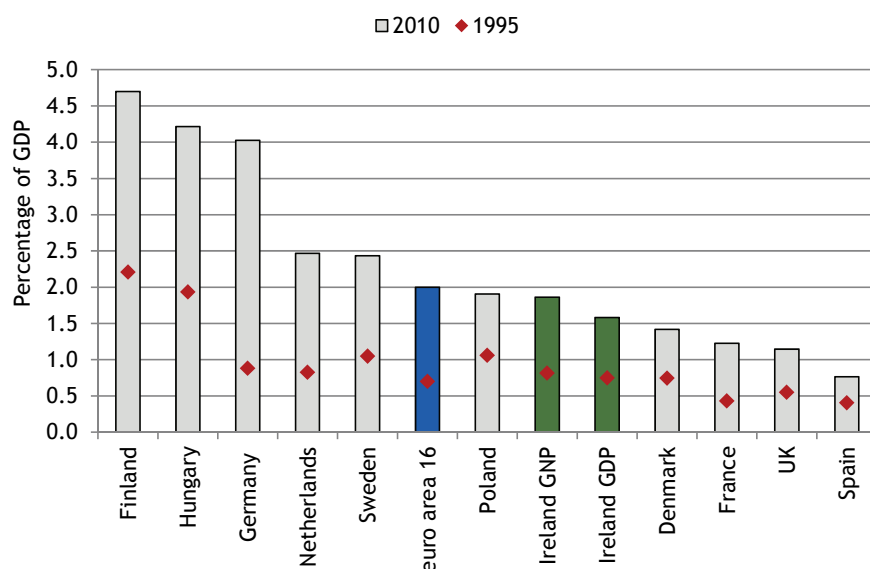
GNP: 4<sup>th</sup> (↓2)

Source: Eurostat, External Trade

67 Euro area 13 excludes Estonia, Greece, Malta and Slovenia. No churn data is available for Germany.  
68 Euro area 15 excludes Estonia and Slovakia. Ranking refers to total trade.



**Figure 4.7 Exports to Emerging Markets as a Percentage of Exporting Country GDP, 2010**

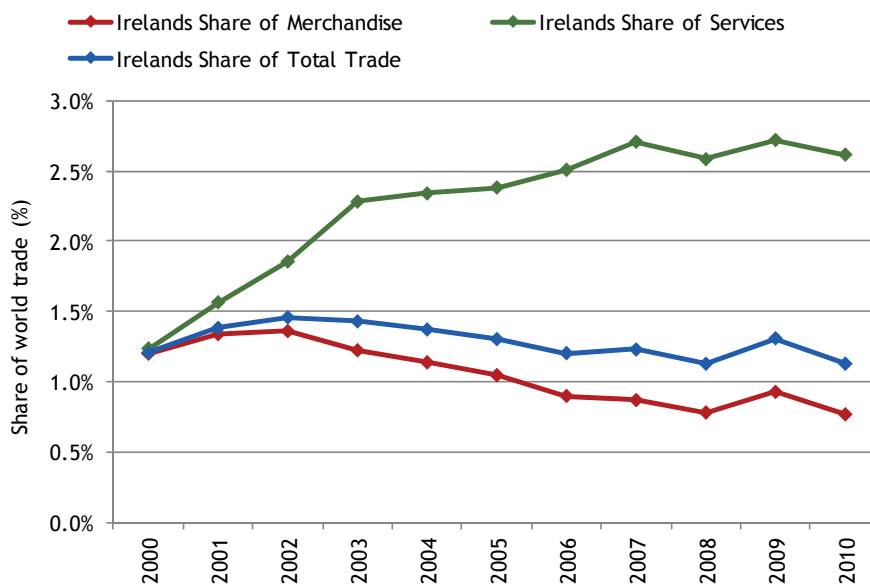


Ireland's total exports to Brazil, Russia, India and China (BRIC) have increased fivefold since 1995 in value terms. When expressed as a percentage of GDP, exports doubled over the period. However, in 2010 Irish exports to BRIC countries in both GNP and GNP terms were below the euro area-16 average. While Irish exports to these markets have increased, UNCTAD data shows that Ireland is losing market share in each of these markets.

**euro area-16 ranking:**  
 GDP: 9<sup>th</sup> (↑1)  
 GNP: 9<sup>th</sup> (↑1)

Source: OECD Stat Extracts

**Figure 4.8 Ireland's Share of World Trade, 2000-2010**



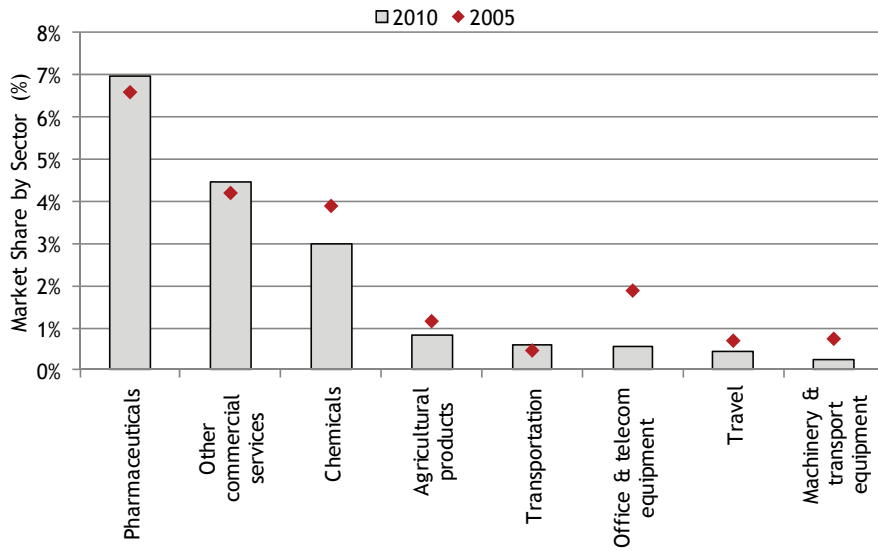
Ireland's share of merchandise trade has fallen gradually since 2002, while our share of services trade (a smaller but growing part of world trade) grew significantly up to 2007, and has remained relatively stable since then. However while total service exports increased from €67.1bn in 2009 to €73.8bn in 2010, our share of world service trade fell by 0.1%.

**Ranking:** n/a

Source: World Trade Organisation, Online



Figure 4.9 Ireland's World Market Share by Sector (%<sup>69</sup>), 2010

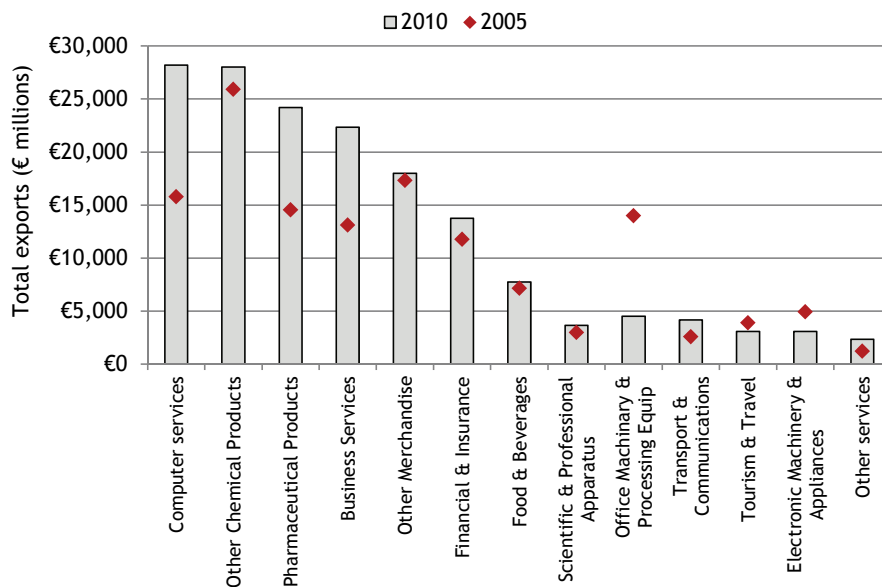


This indicator measures Ireland's share of world exports at a sectoral level. Ireland has continued to increase its share of the commercial services market. Ireland has lost significant market share in a number of other sectors between 2005 and 2010, particularly office and telecom equipment, and chemicals.

Ranking: n/a

Source: World Trade Organisation, Online

Figure 4.10 Total Goods and Services Exports by Sector from Ireland (€ million), 2010



The total value of merchandise exports from Ireland increased by 2.9% per annum between 2005 and 2010. Merchandise trade includes food and drink exports, a sector dominated by indigenous enterprise. Significant increases were recorded in merchandise exports from the pharmaceutical sector. On the services side, computer services, business services and financial and insurance services all recorded significant growth.

Ranking: n/a

Source: CSO, Database Direct, External Trade

<sup>69</sup> Note that pharmaceuticals are a subset of chemicals, and telecoms are a subset of machinery and transport equipment'

Figure 4.11 Share of Exports by Complexity, 2001-2007

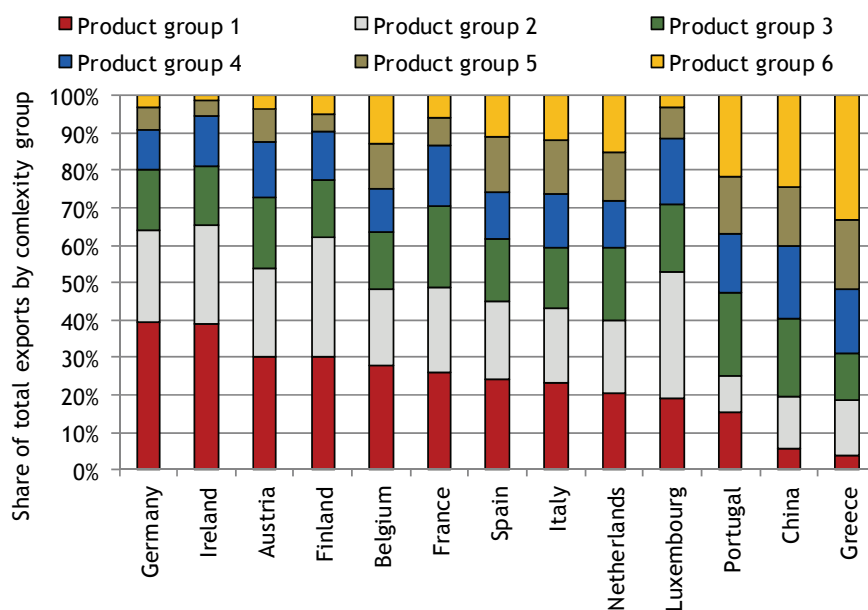
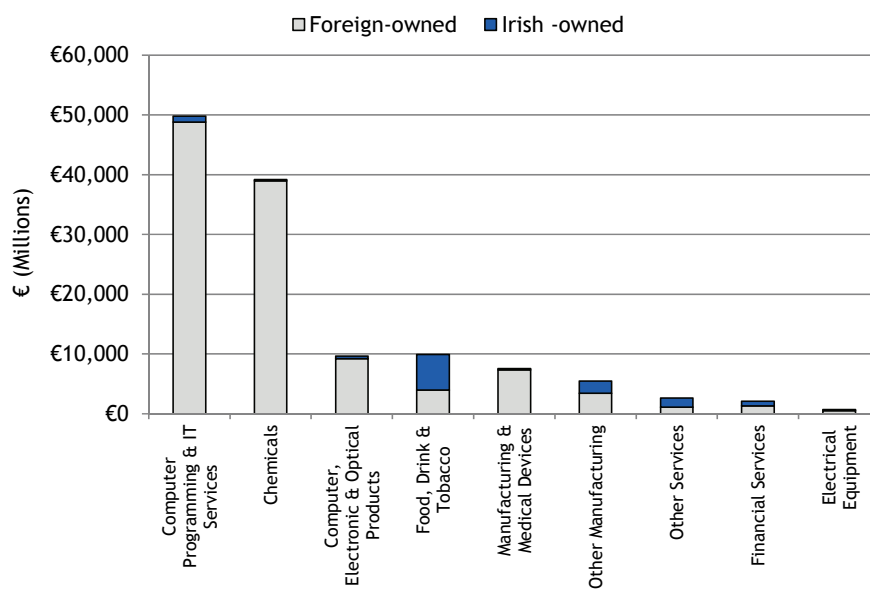


Figure 4.10 divides exports into 6 different groups based on complexity (group 1 being the most complex, 6 being the least). Germany has the highest proportion of highly complex exports amongst the countries analysed. Ireland, unlike many other peripheral EU countries, has significant concentration of highly complex exports.

**Group ranking of exports in complexity category 1: 2<sup>nd</sup> out of 13**

Source: Levy Economics Institute

Figure 4.12 Enterprise Agency Client Company Exports from Ireland by Sector and Firm Ownership, 2010

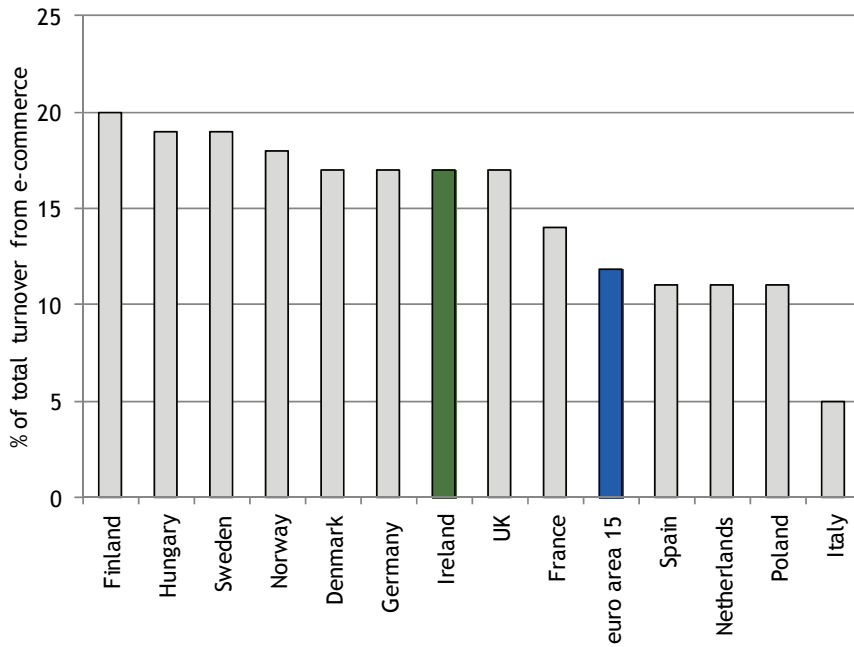


This indicator shows the value of exports of goods and services by sector and firm ownership for agency assisted firms. 9.7% of total agency client exports come from indigenous companies. Within the 'other services' and 'food drink and tobacco' sectors, exports from indigenous firms predominate and account for 60.2 per cent and 58.3 per cent of exports respectively. Foreign-owned firms dominate the three largest export sectors.

**Ranking: n/a**

Source: Forfás, Annual Survey of Economic Impact

Figure 4.13 Percentage of Firms Total Turnover from e-commerce, 2011



Ireland remains above the euro area-13 average regarding the proportion of enterprises total turnover generated from e-commerce. This is due to Ireland's strong services export performance and good international telecommunications connectivity.

euro area-15 ranking<sup>70</sup>: joint 2<sup>nd</sup> (↓1)

Source: Eurostat

<sup>70</sup> Euro area 15 excludes Estonia and Luxembourg

## 4.2 Productivity and Innovation

Higher productivity is the agent which sustains high living standards and competitiveness. The indicators in this section examine Ireland's overall productivity performance and innovation performance, which is a key driver of productivity.

### 4.2.1 Productivity

Per hour productivity levels in Ireland, measured in terms of GDP per hour are above the OECD average but still behind the best performing locations such as the US and Netherlands (Figure 4.14). In GNP terms - a more realistic measure for Ireland given the prevalence of multinational corporations located here, Irish productivity levels are lower but still equal to the OECD average. Ireland experienced positive growth in productivity in both GDP and GNP terms in 2010, growing by 2.2 per cent and 2.9 per cent respectively (Figure 4.15).

Figure 4.16 considers productivity growth over a longer time period. While productivity is traditionally measured in terms of output (GDP) per hour worked, Figure 4.16 also provides a wider measure of productivity (i.e. multi-factor productivity), taking into account both capital and labour inputs<sup>71</sup>. Using this measurement, it is clear that Ireland made strong productivity improvements between 1995 and 2000. Since then, however, multi-factor productivity growth has slowed significantly. Recent NCC analysis concludes that, notwithstanding the slowdown in productivity growth in Ireland, productivity growth rates still compare favourably with key competitors. Some of this performance, however, is derived from changes in the composition of employment in Ireland as a result of the recession (i.e. below average productivity workers in for example, the labour intensive construction sector, have been removed from the calculation of national productivity, increasing aggregate productivity levels)<sup>72</sup>. It is estimated that up to a third of Ireland's labour productivity growth since 2007 has arisen as a result of a reduction in hours worked in the economy. Ireland cannot - nor should not - depend on a repetition of such factors in the future to drive productivity growth.

Given the large proportion of employment accounted for by the public sector, and the need to ensure value for money in government expenditure, the productivity of the public sector is an important factor influencing national competitiveness. Measuring productivity in the non-market economy is particularly difficult. Figure 4.17 examines expenditure on the public sector and also provides a comparison of public sector performance for a range of OECD countries. While expenditure levels (as a proportion of GDP) on the public sector are broadly similar across countries, there is considerable variation in the performance achieved. In terms of both expenditure levels and outcomes achieved, Ireland performs close to the OECD 26 average.

It should be noted, however, that these figures relate to 2009, and that the impact of staff reductions and savings which have occurred since then in Ireland have not been captured.

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<sup>71</sup> The term Multifactor Productivity (MFP) is often used interchangeably with Total Factor Productivity (TFP) by economists. Distinctions: Multi Factor Productivity = Total Outputs or Value-Added Combined number of inputs; Total Factor Productivity = Output / Capital + Labour  
<sup>72</sup> NCC, Ireland's Productivity Performance 1980-2011, Forfás, May 2012

Health and education are predominantly delivered through the public sector. The OECD has measured the potential impact of a range of structural reforms that can impact directly upon productivity and can directly improve national fiscal positions. Their analysis suggests that while education services in Ireland are generally relatively productive, there is significantly more scope for reform in the delivery of health services; the OECD estimate that based on implementation of OECD recommendations, Ireland could save up to 4.8 per cent of GDP through reform of the health care system or deliver significantly improved outcomes from the same expenditure (Figure 4.18).

#### 4.2.2 Innovation

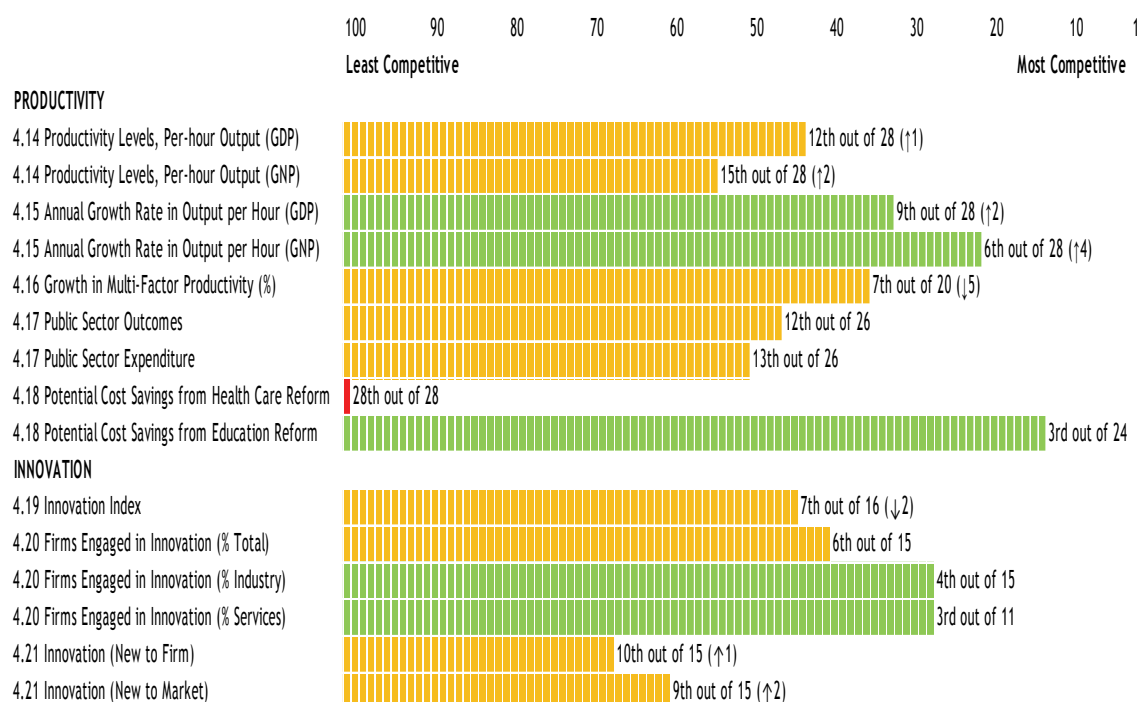
The summary innovation index is a composite of 25 indicators across a range of innovation dimensions (Figure 4.19). Ireland's performance, while above the euro area-16 average, has remained relatively static since 2007. Ireland is deemed an innovation follower by the EU - behind innovation leaders such as Switzerland and the Scandinavians. Ireland performs strongly in dimensions relating to human resources, research systems and the economic effects of innovation, but is weaker in terms of the finance and support available to support innovation and in terms of intellectual assets (i.e. metrics related to patent applications, trademarks and design).

Figure 4.20 examines innovation at the level of the firm and examines the percentage of firms which engage in innovative activity either by changing products or processes. Irish firms are more likely to be innovative (45%) compared to the euro area-15 average (40%). Industrial firms (52%) in Ireland are more likely to engage in innovation than service firms (41%).

There are many benefits for firms undertaking innovation including greater responsiveness to customer demands, faster turnaround times, reduced waste levels and improvements in product design/quality. Such benefits should ultimately help to increase a firm's turnover. Notwithstanding higher reported levels of innovation, Ireland performed below the euro area average in terms of both 'new to firm' and 'new to market' innovation in 2008, accounting for 4.9 per cent and 6.1 per cent of turnover respectively (Figure 4.21).

The chart that follows provides a summary of Ireland's performance across all of the productivity and innovation indicators.

## Summary of Standardised Productivity and Innovation Indicators<sup>73</sup>

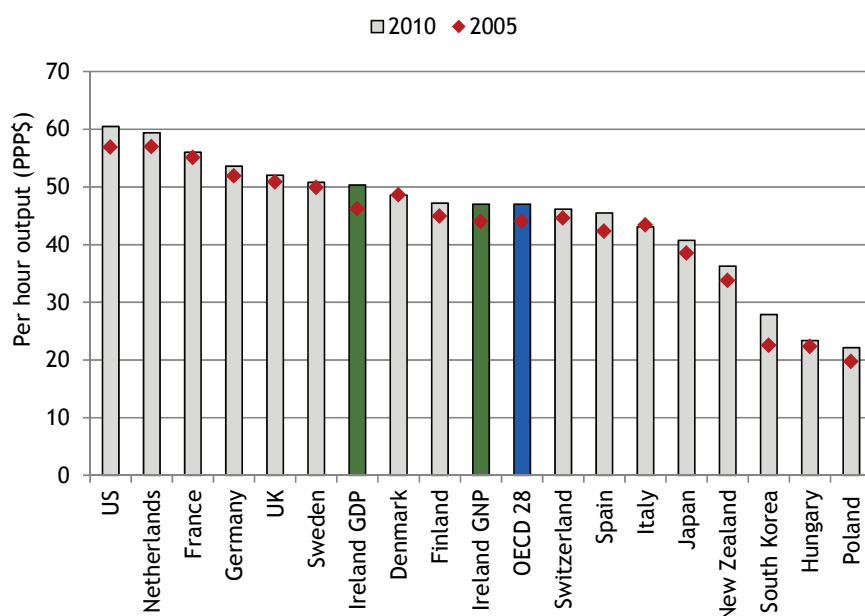


<sup>73</sup> Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e.  $3/15 \times 100$ ); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e.  $14/15 \times 100$ ).

## 4.2 Productivity and Innovation

### 4.2.1 Productivity

Figure 4.14 Productivity Levels, Per-hour Output (EK\$)<sup>74</sup>, 2010

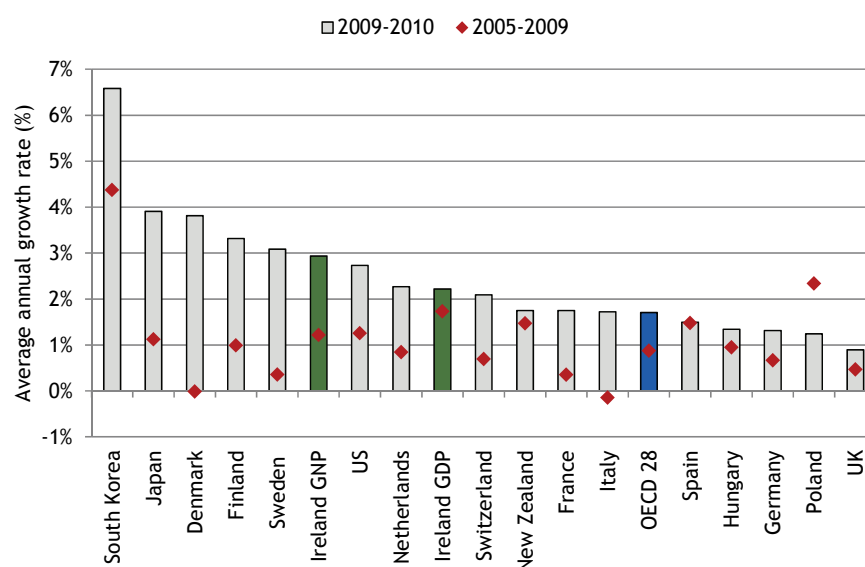


GDP per hour worked indicates that Irish productivity levels are above the OECD average. Using GNP, which is a more realistic measure for Ireland, Irish productivity is equal to the OECD average.

**OECD-28 ranking:**  
 GDP: 12<sup>th</sup> (↑1)  
 GNP: 15<sup>th</sup> (↑2)

Source: The Conference Board, Total Economy Database

Figure 4.15 Annual Average Growth Rate in Output per Hour Worked, 2005-2010



Ireland experienced growth in productivity in both GDP and GNP terms in 2010, (2.2% and 2.9% respectively). While Ireland's rankings have improved, NCC research indicates that a third of the growth in productivity since 2007 is a result of the loss of employment in lower productivity sectors.

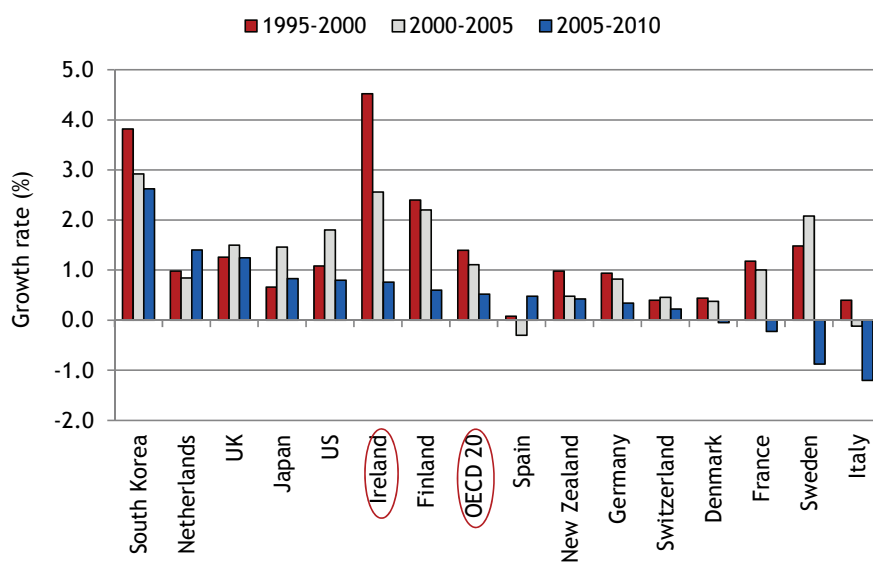
**OECD-28 ranking:**  
 GDP: 9<sup>th</sup> (↑2)  
 GNP: 6<sup>th</sup> (↑4)

Source: The Conference Board, Total Economy Database

<sup>74</sup> 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.



Figure 4.16 Growth in Multi-Factor Productivity (%) 1995-2010

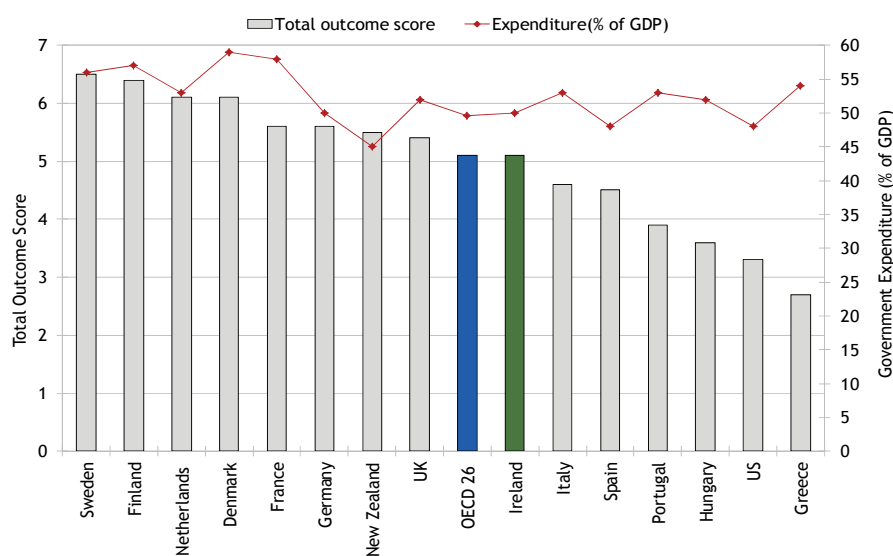


Productivity is traditionally measured in terms of output (GDP) per hour worked. This indicator provides a wider measure of productivity, taking into account both capital and labour inputs. Using this measurement, it is clear that Ireland made strong productivity improvements between 1995 and 2000. Since then, multi-factor productivity growth has slowed significantly.

**OECD-20 ranking<sup>75</sup>:**  
2005-2010: 7<sup>th</sup> (↓5)

Source: OECD Productivity Stat.Extracts

Figure 4.17 Public Sector Performance, 2009



Ireland performs close to the OECD 26 average both in terms of public sector performance and expenditure. Expenditure levels on the public sector are largely consistent across the OECD. In contrast, there is considerable variation in the outcome scores achieved. Figures relate to 2009 and do not take into account the impact of the reductions in staff and savings achieved in Ireland since then.

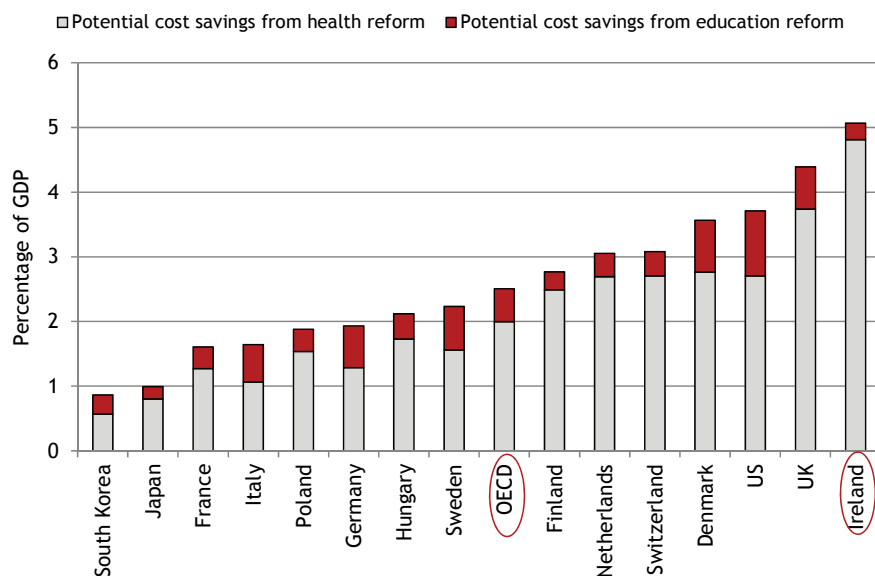
**OECD 26<sup>76</sup> ranking:**  
Outcome: 12<sup>th</sup>  
Expenditure: 13<sup>th</sup>

Source: The Netherlands Institute for Social Research

75 OECD average for 2000-2005 and 2005-2010 refers to OECD-20 and excludes Chile, Czech Republic, Estonia, Greece, Hungary, Iceland, Israel, Luxembourg, Norway, Poland, Slovakia and Slovenia. OECD average for 1995-2000 also excludes Belgium and New Zealand.

76 OECD 28 excluding Iceland and Luxembourg. Nine areas of the public sector are examined and their performance is standardised into a total score. These nine sectors equate to an average of 97% of all expenditure on the public sector. The nine sectors are social protection; economic affairs and infrastructure; environmental protection; recreation, culture and participation; public administration; education; health; social safety and housing.

Figure 4.18 Potential Cost Savings from Efficiency Gains in Primary & Secondary Education<sup>77</sup>, and in Health Care System<sup>78</sup>



The OECD has measured the potential impact of a range of structural reforms that can impact directly upon productivity and can directly improve national fiscal positions while maintaining current outcomes. This analysis suggests that Ireland could save up to 0.25% of GDP through educational reform, and more significantly, 4.8% of GDP through reform of the health care system.

**OECD ranking<sup>79</sup>:**

Health: 28<sup>th</sup> (of 28)

Education: 3<sup>rd</sup> (of 24)

Source: OECD, Going for Growth 2011

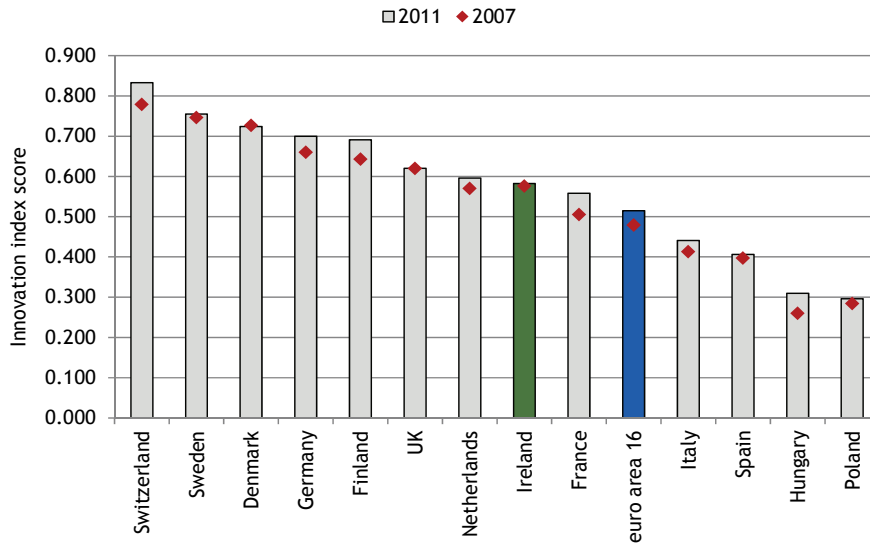
77 Potential savings represent the difference between a no-reform scenario and a scenario where all schools in each country would become on average as efficient as those in the best performing country. Reforms in this area may include inter alia allowing pupils to choose between schools, increased use of performance objectives and increased use of performance measurement. Estimates of efficiency are based on DEA analysis at the national level with two outputs (average Programme for International Student Assessment - PISA score and homogeneity of PISA score) and two inputs (teachers per 100 students and socio-economic background of students). OECD calculations; OECD (2005), Education at a glance, OECD indicators 2005

78 Potential savings represent the difference between (i) a scenario where public spending and life expectancy gains would increase at the same pace over the next decade as over the decade 1997-2007 and (ii) a scenario where countries would achieve similar health improvements with lower public spending by moving towards the efficiency levels of best-performing countries. See Chapter 6; OECD estimates based on Joumard et al. (2008), "Health Status Determinants: Lifestyle, Environment, Health Care Resources and Efficiency", OECD Economics Department Working Papers, No 627.

79 OECD average for costs savings in education refer to OECD 24 and excludes Belgium, Canada, Chile, Estonia, Iceland, Israel, Mexico, New Zealand, Slovenia and Turkey.

## 4.2.2 Innovation

Figure 4.19 Summary Innovation Index<sup>80</sup> (Scale 0-10), 2011

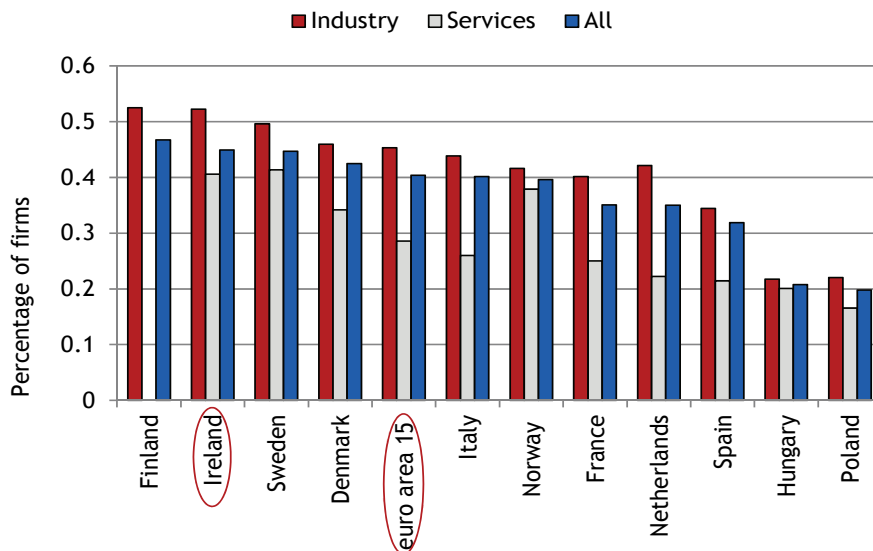


The indicator is a composite of 25 indicators including measures of human resources, financial support and entrepreneurship. Ireland's performance, while above the euro area-16 average, has remained relatively static since 2007. Ireland is deemed an innovation follower, behind innovation leaders such as Switzerland and the Scandinavians.

**euro area-16 ranking:**  
7<sup>th</sup> (↓2)

Source: Innovation Union Survey 2010

Figure 4.20 Percentage of Firms Engaged in Innovative Activity, 2006-2008



This chart shows the percentage of firms which reported that they engage in innovative activity. Firms in Ireland were more likely to be innovative (45%) compared to the euro area-15 average (40%). 52% of firms in industry in Ireland were engaged in innovation compared to 41% of service firms<sup>81</sup>. **euro area-15 ranking<sup>82</sup>:**  
Total: 6<sup>th</sup>  
Industry: 4<sup>th</sup>  
Services<sup>83</sup>: 3<sup>rd</sup>

Source: Eurostat Community Innovation Survey 2006-2008

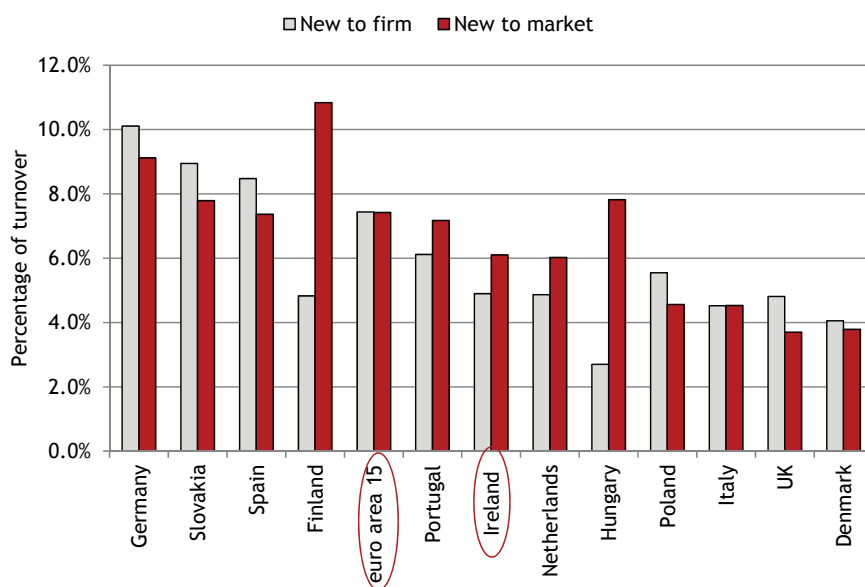
80 The Innovation Union Scoreboard (IUS) is used to monitor the implementation of the Europe 2020 Innovation Union initiative by providing a comparative assessment of the innovation performance of the EU 27 Member States and the relative strengths and weaknesses of their research and innovation systems. The scoreboard consists of 25 indicators.

81 Based on recently published national data from the 2008-2010 Community Innovation Survey, the proportions of Irish firms engaged in innovative activity have increased since the previous survey: 66 per cent of industrial firms, 55.9 per cent of selected services firms and 59.5 per cent of all firms are engaged in innovative activity. Internationally comparable data for the 2008-10 period is not yet available. See CSO, Community Innovation Survey 2008-2010, April 2012

82 Euro area 15 excludes Greece. In relation to services, data are provided for euro area 11 because no data is available for Germany, Finland, Luxembourg and Austria and Greece. Industry refers to NACE B-E, services refer to NACE G-N; Total refers to all core NACE activities.

83 Ireland's ranking for the percentage of services firms engaged in innovative activity is out of 11 euro area countries, as data for Germany, Finland, Luxembourg and Austria is not available.

Figure 4.21 Percentage of Turnover attributed to Innovative Activity, 2008



Looking at the impact of innovation, in 2008 Ireland's performance was below the euro area average in terms of both 'new to firm' and 'new to market' innovations. Since then Ireland's performance has weakened. National data for the 2008-2010 survey indicate that 'new to firm' innovations accounted for 4.4% of turnover while 'new to market' innovations accounted for 4.9% of turnover<sup>84</sup>.

**euro area-15 ranking:**  
 New to firm: 10<sup>th</sup> (↑1)  
 New to market: 9<sup>th</sup> (↑2)

Source: Eurostat. Community Innovation Survey 2006-2008

84 CSO, Community Innovation Survey 2008-2010, April 2012

## 4.3 Prices and Costs

Cost competitiveness is one of the most visible and tangible elements of overall national 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.

### 4.3.1 Prices

Despite recent price falls, Ireland remains a relatively high cost location (Figure 4.22). In 2010, price levels in Ireland were the third highest in the euro area. In order to address this issue, prices in Ireland must either reduce, or at least increase at a slower rate than prices in competitor locations. Inflation continued to rise quickly relative to other euro area members until September 2008. In 2009 and 2010 Ireland experienced a period of deflation as the cost of consumer goods and services declined, reflecting the collapse in demand as a result of the recession. Prices began to rise again, however, in January 2011, albeit at a slower rate than the euro area average.

These trends are also reflected in Figure 4.23. Between 2005 and 2011, annual inflation in the euro area (2%) grew faster than in Ireland (1.1%). Goods inflation in the euro area (2%) outpaced Ireland (0.1%). Growth in the costs of services in Ireland (2.1%), however, was marginally ahead of the euro area (2%) over the same period. Irish inflation rates in health, education and insurance were significantly above the euro area average.

While it can be difficult to compare prices across borders, changes in cost competitiveness can be measured through harmonised competitiveness indicators (HCIs) (Figure 4.24). Ireland experienced a 7.7 per cent loss in cost competitiveness (real HCI) between January 2005 and April 2008 reflecting the appreciation of the euro against the currencies of our trading partners (nominal HCI) and higher price inflation. Since then Ireland has regained some of its competitiveness as a result of falls in relative prices and favourable exchange rate movements: from April 2008 to April 2012, the nominal HCI fell by 7.6 per cent and the real HCI fell by almost 15.25 per cent.

### 4.3.2 Pay Costs

Ireland has the 14<sup>th</sup> highest total labour costs level in the OECD - total labour costs are 2 per cent higher than the OECD average, and are 6 per cent higher than the euro area average (Figure 4.25). Looking at after-tax wages, Ireland has the 10<sup>th</sup> highest net wage level in the OECD, over 20 per cent above the OECD average. This is in part a result of the relatively small gap between before and after-tax wages in Ireland. As a result of changes introduced in recent budgets, however, this gap is widening (i.e. largely as a result of reductions in personal tax credits).

Figure 4.26 shows the trend in nominal labour cost growth in Ireland compared with the euro area and EU. The rate of growth in Irish labour costs has fallen from a high of 9.1 per cent in 2001 to -1.7 per cent in 2011. Wage rates across the EU and euro area continue to increase; leading in relative terms, to an improvement in Ireland's cost competitiveness. The slowdown in wage growth varies according to sector (Figure 4.27). In 2011, the average growth rates in labour costs fell across

all industrial sectors. The biggest declines occurred in the construction sector (-7%) and in manufacturing (-2.4%).

Unit labour costs (ULCs) take account of both costs and productivity (Figure 4.28) by measuring the average cost of labour per unit of output. Up to and including 2009, real Irish ULC's increased significantly in comparison with EU and euro area averages - indicating a loss of competitiveness. Conversely, real Irish ULC's fell by 4.6 per cent in 2010 (6.9 per cent in nominal terms). The European Commission expects this trend to continue out to 2013, with real declines of between 1.9 per cent and 2.1 per cent forecast for 2012 and 2013. This contrasts with the moderate increases forecast for EU and euro area ULC's and represents a significant competitiveness gain for Ireland. Figure 4.29 examines Irish ULCs at a sectoral level. While construction, manufacturing, industry, trade, transport and communications and the business sector experienced reductions in unit labour costs in 2011, financial and business and market services witnessed increases.

Ireland's manufacturing sector has come under pressure from lower cost locations over recent decades, and wages are a major determinant of overall costs in manufacturing - in fact, labour costs account for 52 per cent of total location sensitive costs<sup>85</sup>. In 2010, hourly compensations costs in manufacturing in Ireland (\$36.30) were more expensive than the OECD average (\$32.22), euro area-11 average (\$35.41) and the US (€34.74). Costs in Ireland, however, were lower than in the Netherlands, Germany, and the Scandinavian countries (Figure 4.30).

Since the onset of the recession, firms across all sectors have sought to control their costs through (i) reductions in total employment; (ii) reductions in hours worked; and (iii) reductions in hourly wages. Figure 4.31 examines the degree to which these strategies have been pursued. Since 2008 levels of employment have declined dramatically. As of Q4 2011, average earnings per week have declined by 2.1 per cent and the average number of weekly hours worked has fallen by 3.4 per cent, while average hourly earnings have increased by 1.4 per cent, suggesting that reductions in headcount have been the primary avenue used by firms to reduce labour costs.

### 4.3.3 Non-Pay Costs

One of the most obvious results of the recession has been the bursting of the property bubble and the subsequent reduction in property costs. Since property prices peaked in Ireland in 2007, industrial rents have fallen significantly (-36.7%). While rents remain relatively expensive for prime industrial sites, Ireland is now cheaper than France, the US and Singapore, and is almost on a par with Germany (Figure 4.32). Rental costs for prime office space have also fallen significantly in Ireland since 2007 (Figure 4.33) and prime office rents are now almost 46 per cent lower than at their peak. As a result, Ireland has improved its competitive position in this area and is now the sixth cheapest location to rent a prime office space<sup>86</sup>.

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<sup>85</sup> NCC, Costs of Doing Business in Ireland, Forfás, June 2011

<sup>86</sup> The rents reported by Cushman and Wakefield refer to consistently achievable prime rents within each market. One-off transactions that may occur are, therefore, excluded. As a result, data are closer to the advertised rent rather than the final lease value because of aspects such as rent free periods, etc. which would reduce the rental figure within the final lease value.



The reduction in property prices is not just confined to the commercial sector. In the year to February 2012, residential property prices fell by 17.8 per cent nationally, while in Dublin residential property prices fell by 20.3 per cent (Figure 4.34). Residential prices nationally are 49 per cent lower than at their highest level in early 2007, and are 57 per cent lower in Dublin. As a result housing affordability for those in employment has fallen back to just under five times the average annual earnings.

In terms of utility costs, between 2008 and 2010, the gap between electricity costs in Ireland and in the EU-27 narrowed significantly. However, between the first half of 2010 and the first half of 2011, the cost of industrial electricity for large energy users in Ireland increased by 4.2 per cent (Figure 4.35). Despite these increases, Ireland remains the 6<sup>th</sup> cheapest in the euro area. In terms of electricity costs for SMEs, Ireland remains the fifth most expensive location in the euro area. Ireland ranks mid-table in terms of the fastest download speeds available to business (Figure 4.36). However the cost of package is the second highest amongst the countries benchmarked and higher speeds are available at a cheaper cost in a number of other European countries. Finally, water costs for industrial users in Ireland were the 6<sup>th</sup> most expensive amongst the 15 countries benchmarked but did remain relatively stable between 2007 and 2010.

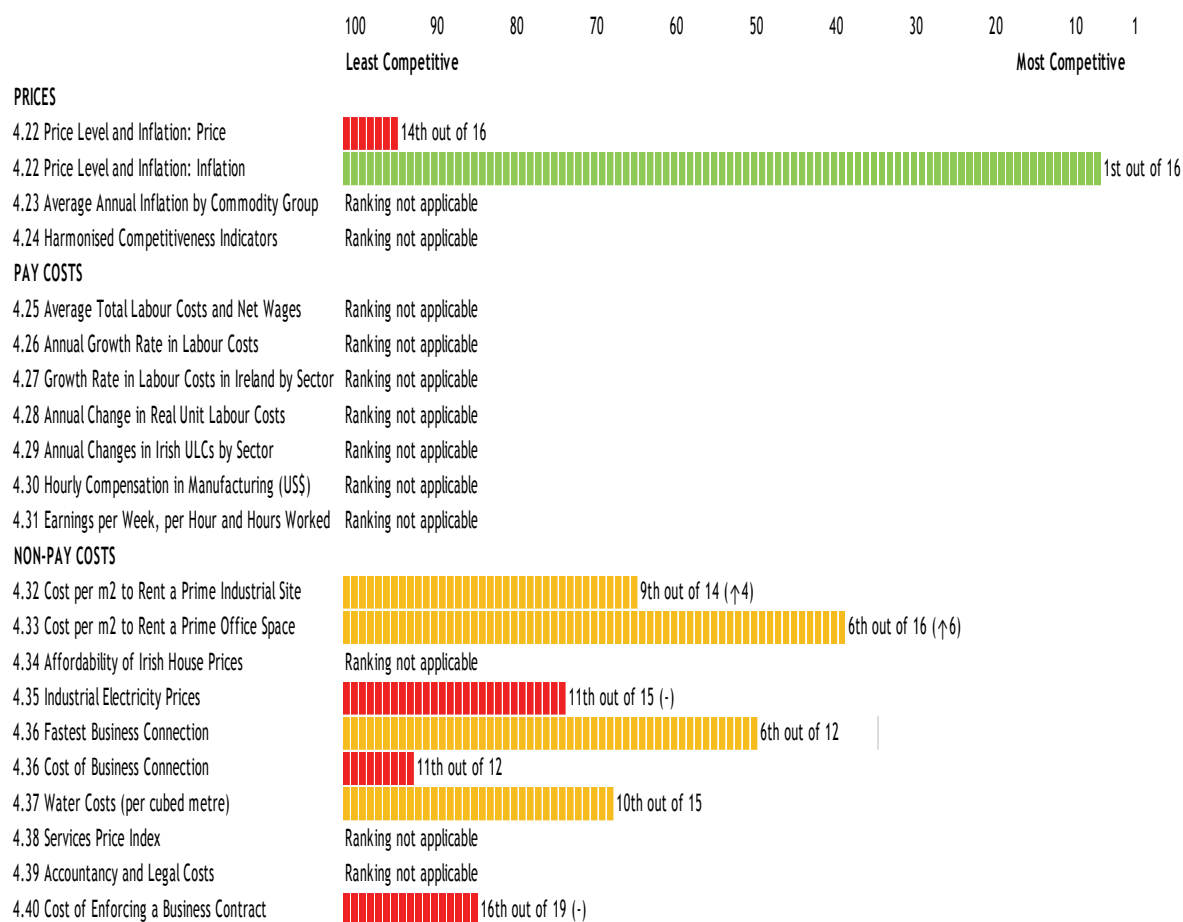
Service prices have traditionally been one of the primary drivers of inflation in Ireland, often due to the fact that in many cases they are less tradable than goods and so are protected from the forces of international competition. The Services Producer Price Index (SPPI) is an experimental survey from the CSO which measures changes in the average prices charged by domestic service producers to other businesses for a selected range of services. As illustrated in Figure 4.38 price adjustment has occurred at different rates across the various services sub-sectors. Since the beginning of the index in Q1 2007 to Q4 2011, the greatest price reductions have been seen in architecture, engineering and technical testing (-11.8%), computer programming and consultancy (-4.8%), and advertising, media and market research (-4.7%). By contrast, the price of the 'legal, accounting, PR and business consultancy' category increased by 1.5 per cent over the same period.

Separating legal and accountancy costs, Figure 4.39 shows that whereas accountancy costs have fallen sharply over the course of the recession, legal costs remain more than 12 per cent higher than they were in 2006. The data indicates that legal costs have remained stable throughout 2010 and 2011. Data from the World Bank (Figure 4.40) supports these findings. Based on the costs of enforcing a contract, legal costs are shown as a percentage of the total claim and are broken down into attorney, court and enforcement fees. Legal costs in Ireland (25.8% of the claim) are significantly more expensive than the overall OECD average cost (19.7%) the making it the fourth most expensive location benchmarked, unchanged from 2010. World Bank data suggests that this is driven by relatively high attorney fees.

The chart that follows summarises Ireland's performance across the full range of prices and costs indicators.



## Summary of Standardised Prices and Costs Indicators<sup>87</sup>

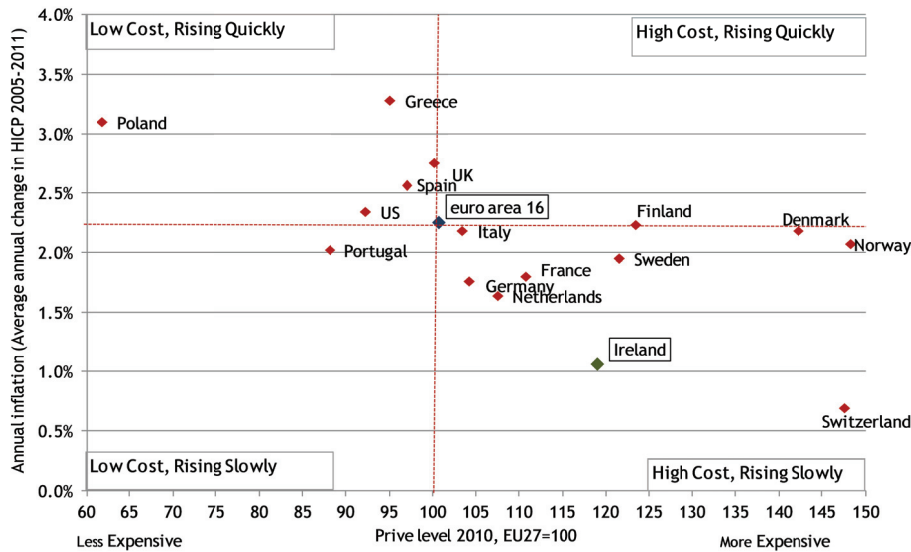


<sup>87</sup> Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e.  $3/15 \times 100$ ); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e.  $14/15 \times 100$ ).

## 4.3 Prices and Costs

### 4.3.1 Prices

Figure 4.22 Consumer Price Levels (2010) and Inflation (2005-2011)

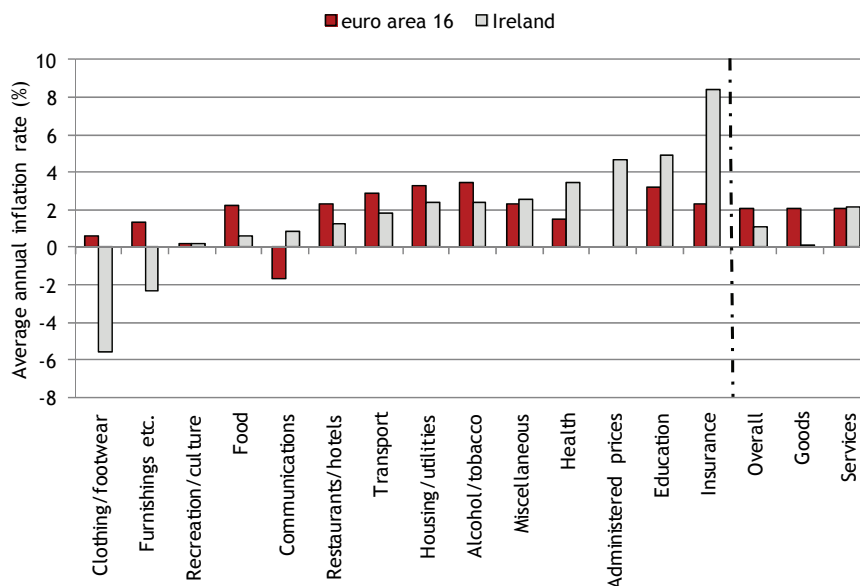


Ireland's price levels have fallen from being the highest in the euro area in 2005 to third highest in 2010. Inflation continued to rise relative to other euro area members until September 2008. In 2009 and 2010 Ireland experienced a deflationary period. Prices began to rise again, however, in January 2011, albeit at a slower rate than the euro area average. Despite recent price falls, Ireland remains a high cost location.

**euro area-16 ranking:**  
Price level: 14<sup>th</sup>  
Inflation: 1<sup>st</sup>

Source: Eurostat

Figure 4.23 Average Annual Inflation Rate by Commodity Group, Ireland and euro area<sup>88</sup>, 2005-2011



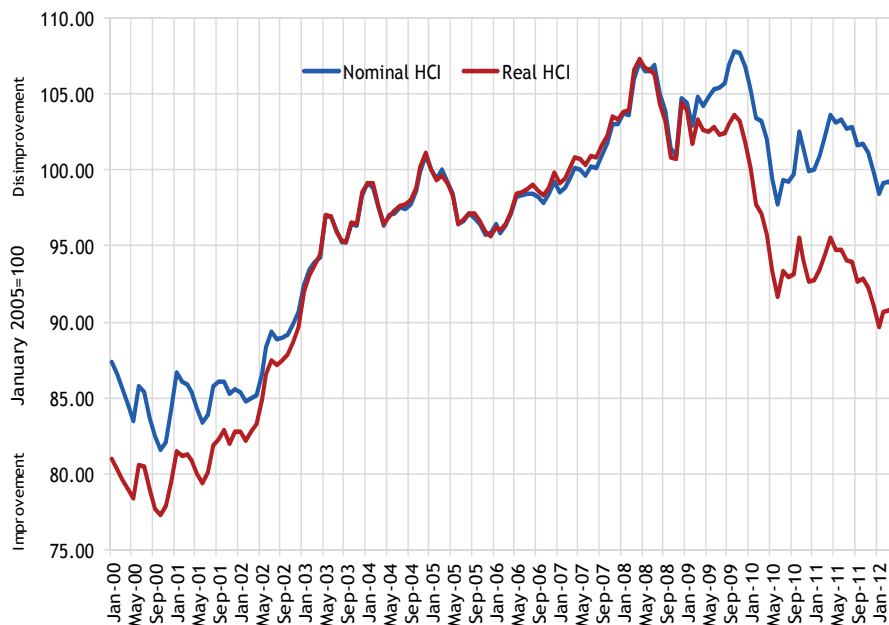
Between 2005 and 2011, annual inflation in the euro area (2%) grew faster than in Ireland (1.1%). Goods inflation in the euro area (2%) outpaced Ireland (0.1%). Growth in the costs of services in Ireland (2.1%), however, was marginally ahead of the euro area (2%) over the same period. Irish inflation rates for health, education and insurance were significantly above average.

**Ranking:** n/a

Source: Eurostat

<sup>88</sup> Administered price data not available for the euro area

Figure 4.24 Harmonised Competitiveness Indicators for Ireland<sup>89</sup>, January 2000 - March 2012 (2005=100)



Ireland experienced a 7.7% loss in cost competitiveness (real HCI) between January 2005 and April 2008 reflecting an appreciation of the euro against the currencies of our trading partners (nominal HCI) and higher price inflation. Since then Ireland has regained some of its competitiveness as a result of falls in relative prices and favourable exchange rate movements: from April 2008 to April 2012, the nominal HCI fell by 7.6%. The real HCI fell by almost 15.25%.

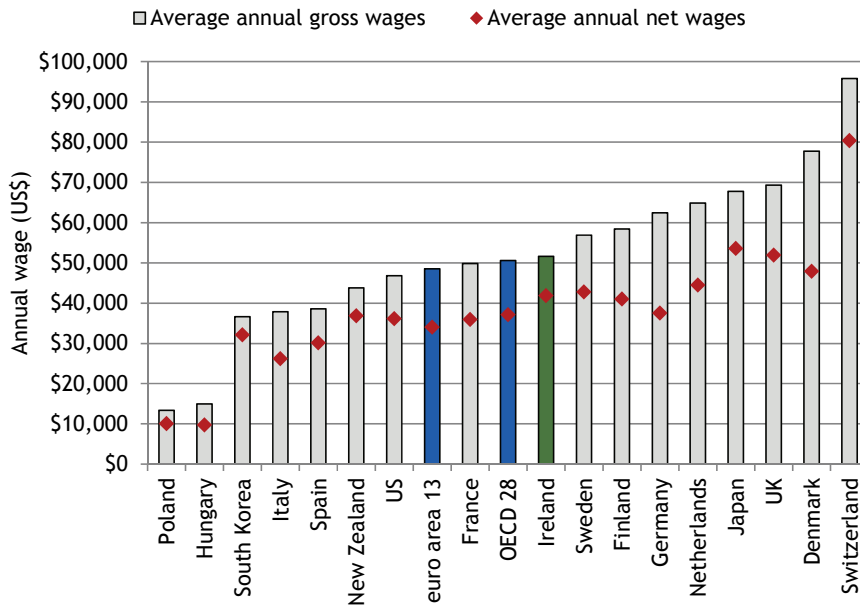
Ranking: n/a

Source: Central Bank of Ireland, Forfás calculations

<sup>89</sup> The nominal Harmonised Competitiveness Index (HCI) is a nominal effective exchange rate for the Irish economy that reflects, on a trade weighted basis, movements in the exchange rate vis-à-vis 56 trading partners. The real HCI (deflated by consumer prices) takes into account relative price changes along with exchange rate movements.

### 4.3.2 Pay Costs

Figure 4.25 Average Total Labour Costs and Net Wages, 2011

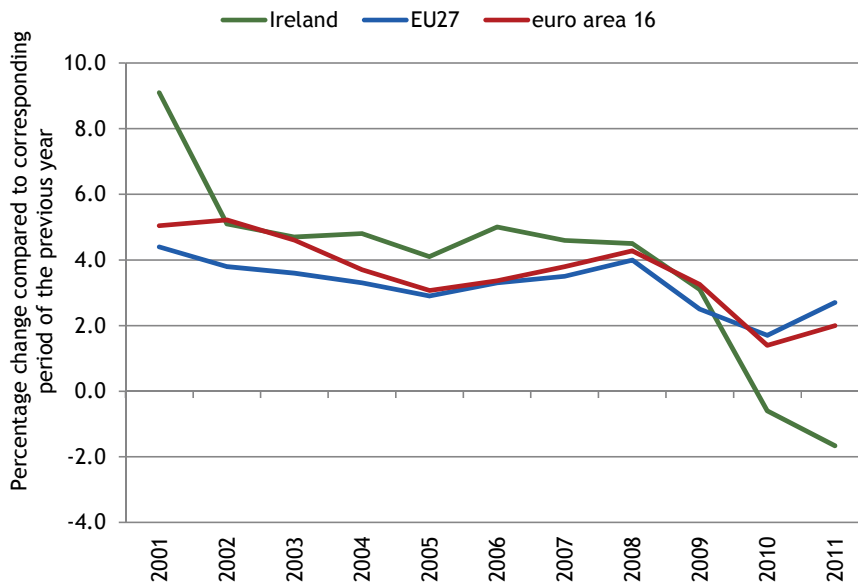


Total labour costs include wages, taxes on income and employer and employee social security contributions. Ireland has the 14<sup>th</sup> highest total labour costs level in the OECD<sup>90</sup>. The chart also shows average net wage levels. Ireland has the 10<sup>th</sup> highest net wage level in the OECD-28 (almost 13% above the OECD average). This is partly a result of the relatively small gap between before and after-tax wages in Ireland.

Ranking: n/a

Source: OECD Taxing Wages 2011, OECD Comparative Price Levels 2012, Forfás Calculations

Figure 4.26 Annual Growth Rate in Labour Costs<sup>91</sup>, 2001-2011



This indicator shows the trend in labour cost growth in Ireland compared with the euro area-15 and EU-27. From a high of 9.1% growth in 2001, Irish labour costs have fallen in both 2010 (-0.6%) and 2011 (-1.7%). This represents a significant gain in cost competitiveness as labour costs continue to rise throughout the EU and euro area.

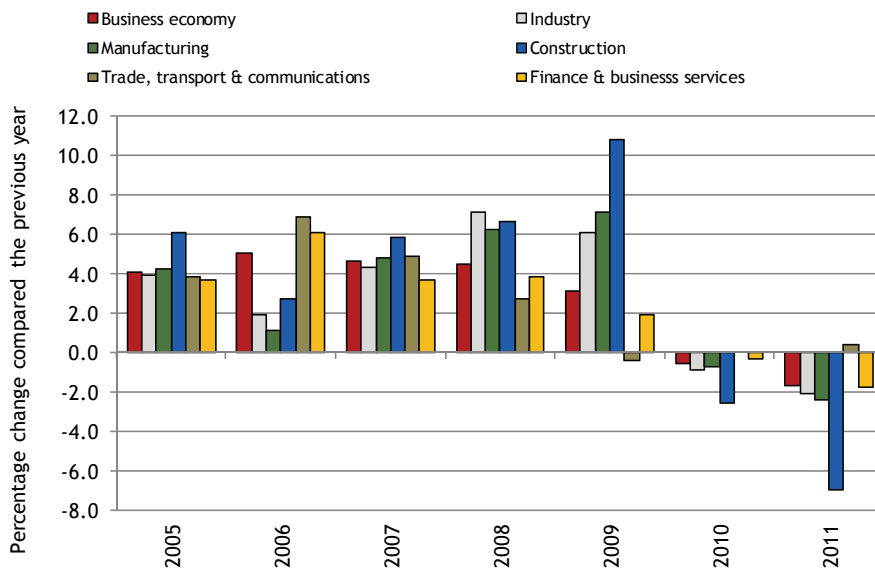
Ranking: n/a

Source: Eurostat, Labour Cost Index Annual and Quarterly Data

90 The Universal Social Charge which came into effect on 1st January 2011 is for the first time included in the Irish data.

91 Euro area 16 excludes Estonia. Euro area data from Q1 2011 also excludes Finland due to lack of available data. Labour costs refer to the business economy (NACE B-N). Quarterly data from 2011 is adjusted by working days but not seasonally. Note that since last year's Scorecard was published, the base year used for this data has changed from 2000 to 2008.

Figure 4.27 Average Growth Rate in Labour Costs in Ireland by Sector, 2005-2011

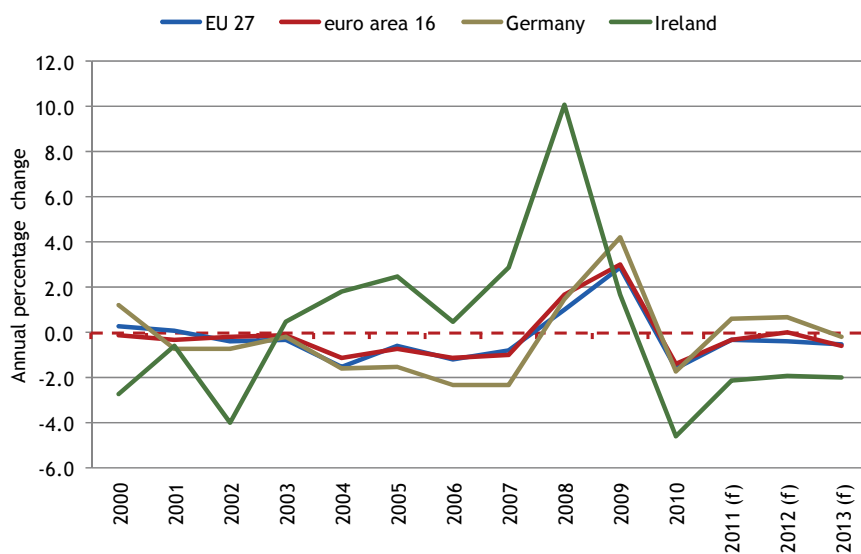


Following on from falls across most sectors in 2010, in 2011, the average growth rates in labour costs fell across all industrial sectors. The biggest declines occurred in construction (-7%) and manufacturing (-2.4%). There was marginal wage growth in the trade, transport and communications sector in 2011.

Ranking: n/a

Source: Eurostat, Labour Cost Index Annual and Quarterly Data

Figure 4.28 Annual Change in Real Unit Labour Costs, 2001-2013 (f)

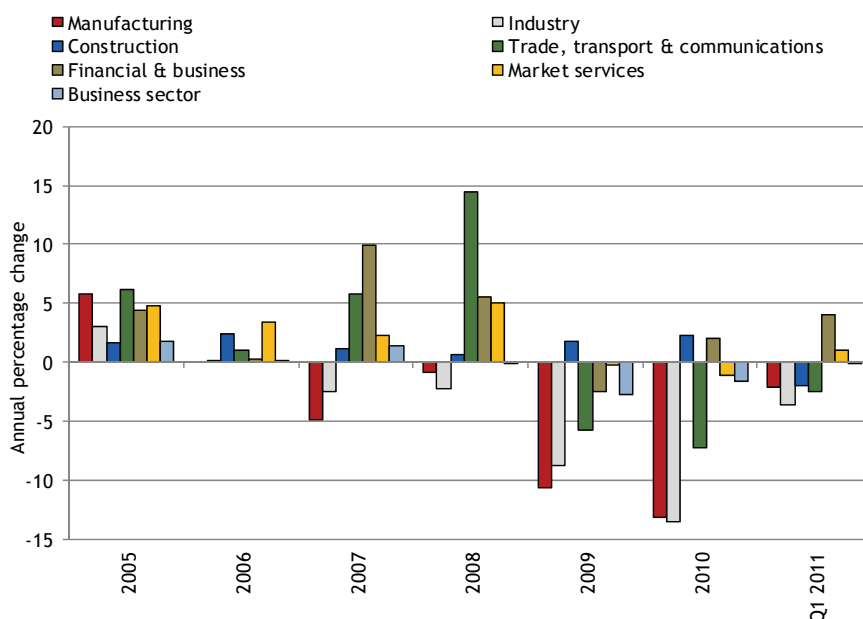


Unit labour costs (ULC) measure the average cost of labour per unit of output. Up to and including 2009, significant annual increases in Irish ULC's were recorded compared with EU and euro area averages. Conversely, real Irish ULC's fell by 4.6% in 2010 and the European Commission expects this trend to continue out to 2013. This contrasts with the moderate increases forecast for EU and euro area ULC's and represents a competitiveness gain for Ireland.

Ranking: n/a

Source: Eurostat, Unit Labour Costs Annual Data

Figure 4.29 Annual Changes in Irish Unit Labour Costs (ULC) by Sector, 2005-Q1 2011

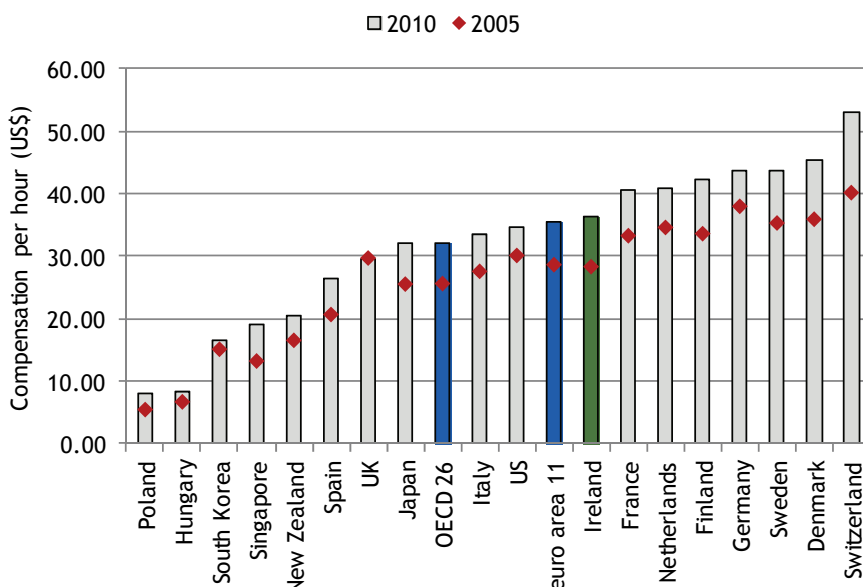


While construction, manufacturing, industry, trade, transport and communications experienced a decline in ULCs in 2011, financial and business services, and market services witnessed increases. Compositional dynamics are influencing ULCs. The change in industrial sectoral composition (i.e. the continued shift towards high value-added sectors) was an important explanatory factor behind the sharp fall in unit labour costs across the economy<sup>92</sup>.

Ranking: n/a

Source: OECD, Unit Labour Costs Annual and Quarterly Data

Figure 4.30 Hourly Compensation Costs in Manufacturing<sup>93</sup> (US\$), 2010



In terms of hourly compensation costs in manufacturing in 2010, Ireland (\$36.30) was more expensive than the OECD average, euro area-11 average and the US (€34.74). These costs were lower in Ireland than in the Netherlands, Germany, and the Scandinavian countries. Costs in Ireland have fallen since they peaked in 2008 (\$38.32).

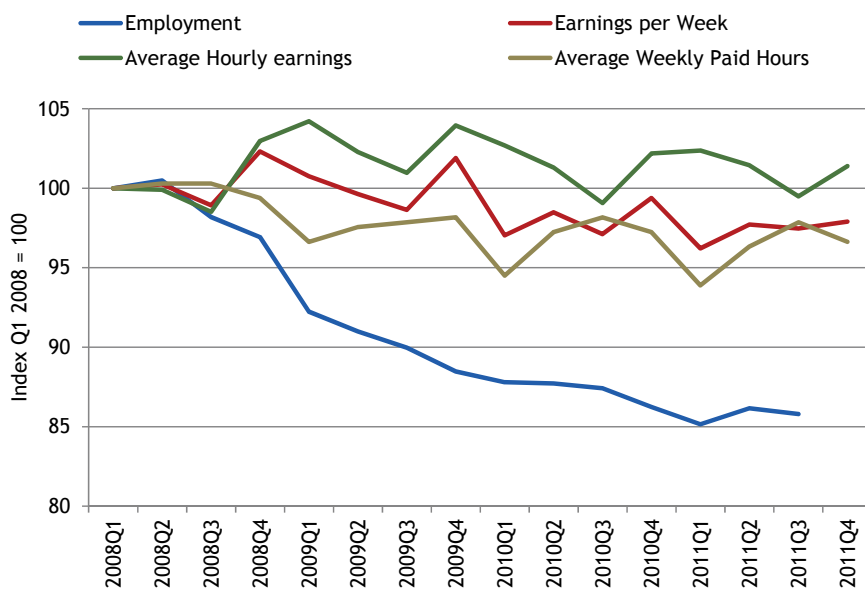
Ranking: n/a

Source: U.S. Bureau of Labor Statistics

92 For a detailed discussion on the impact of compositional changes on ULC's see Box A: Compositional Effects in Recent Trends in Irish Unit Labour Costs by Derry O'Brien in Central Bank of Ireland, Quarterly Economic Bulletin Q1 2011, January 2011

93 Compensation costs relate to all employees in manufacturing and include (1) direct pay, (2) employer social insurance expenditures and (3) labour-related taxes. OECD 26 excludes Iceland and Luxembourg; euro area 11 excludes Cyprus, Estonia, Luxembourg, Malta, Slovakia and Slovenia.

Figure 4.31 Earnings per Week, Earnings per Hour and Hours Worked, Q1 2008-Q4 2011



Firms can control labour costs in a number of ways. This chart tracks average earnings and hours worked, as well as total employment since 2008. Since 2008, levels of employment have declined dramatically. However, as of Q4 2011 earnings per week have declined by 2.1% and the average number of weekly hours worked has fallen by 3.4%, while average hourly earnings have increased by 1.4%.

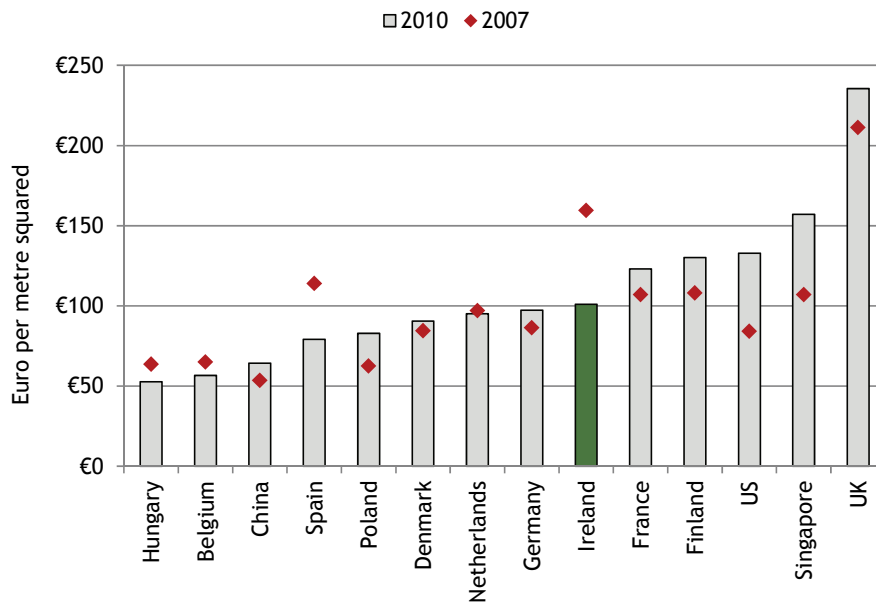
**Ranking:** n/a

Source: CSO, EHECS Earnings Hours and Employment Costs Survey



### 4.3.3 Non-Pay Costs

Figure 4.32 Cost per m<sup>2</sup> to Rent a Prime Industrial Site, 2007-2010

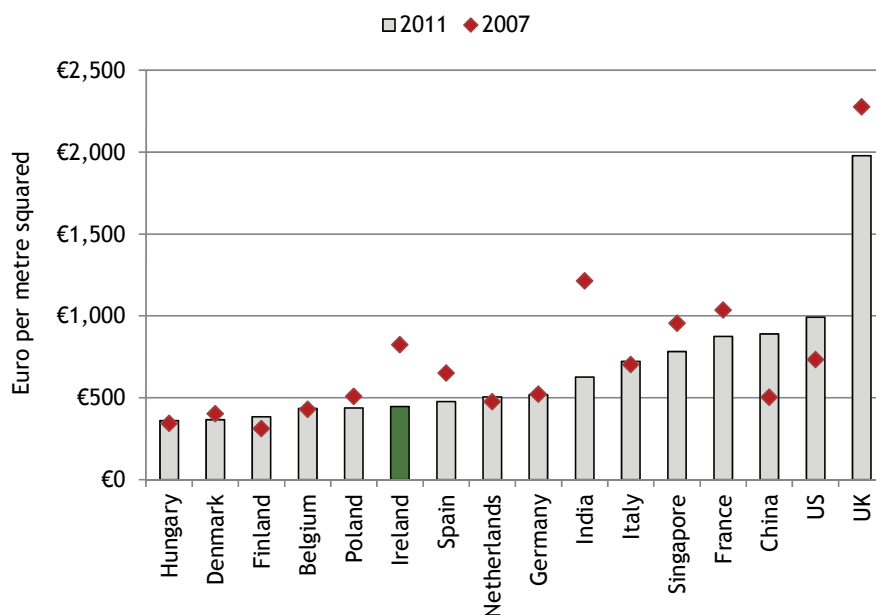


Since property prices peaked in Ireland in 2007, industrial rents have fallen significantly (-36.7%). While rents remain relatively expensive for prime industrial sites, Ireland is now cheaper than the France, the US and Singapore, and is almost on a par with Germany.

Group ranking (out of 14): 9<sup>th</sup> (↑4)

Source: Cushman and Wakefield, Industrial Rents Around the World, 2011

Figure 4.33 Cost per m<sup>2</sup> to Rent a Prime Office Space, 2007-2011

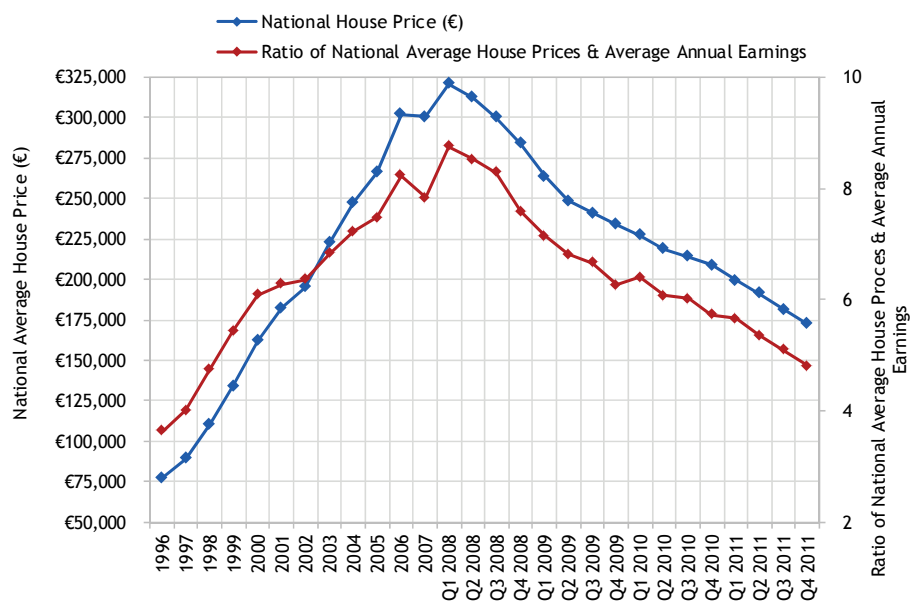


Rental costs for prime office space have fallen significantly in Ireland since prices peaked in 2007. As a result of the property crash and economic recession, prime office rents have fallen by 45.7% since their peak. As a result, Ireland has improved its competitive position in this area and is now the sixth cheapest location to rent a prime office space.

Group ranking out of 16: 6<sup>th</sup> (↑6)

Source: Cushman and Wakefield, Office Rents Around the World, 2012

Figure 4.34 Affordability of Irish House Prices, Q4 2011

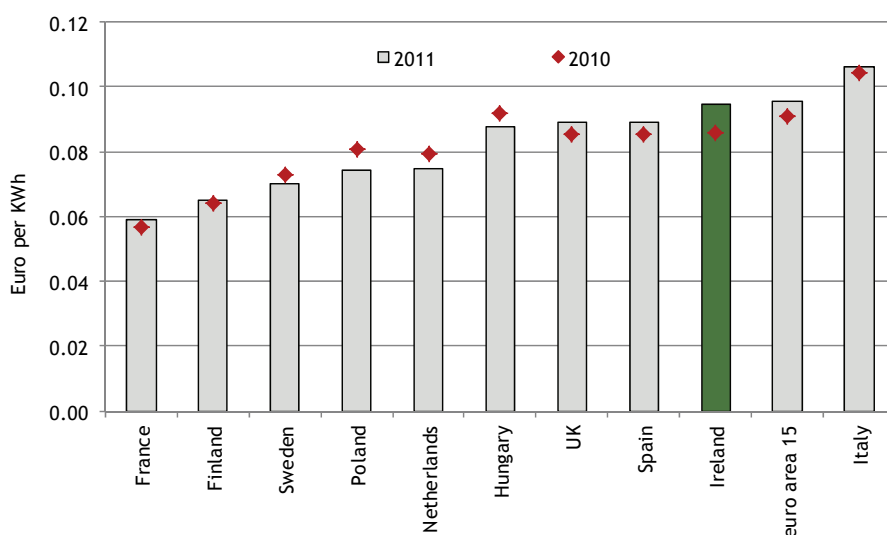


Average prices for houses nationally fell by 17% from Q4 2010 to Q4 2011. As a result, housing affordability for those in employment has fallen back to just under five times the average annual earnings. However according to a recent Goodbody study, when accounting for auction sales, house prices may have fallen by 68% from the peak overall<sup>94</sup>.

Ranking: n/a

Source: Bank of Ireland Irish Residential Property Review, CSO EHECS Survey

Figure 4.35 Industrial Electricity Prices<sup>95</sup> (Excluding VAT but including all other taxes)



After a number of price reductions over recent years, the cost of industrial electricity for large energy users in Ireland increased by 10% between the second half of 2010 and 2011. As a result of these increase Ireland is the 5<sup>th</sup> most expensive in the euro area. In terms of electricity costs for SMEs, Ireland remains the 3<sup>rd</sup> most expensive location in the euro area.

euro area-15 ranking<sup>96</sup>: 11<sup>th</sup> (-)

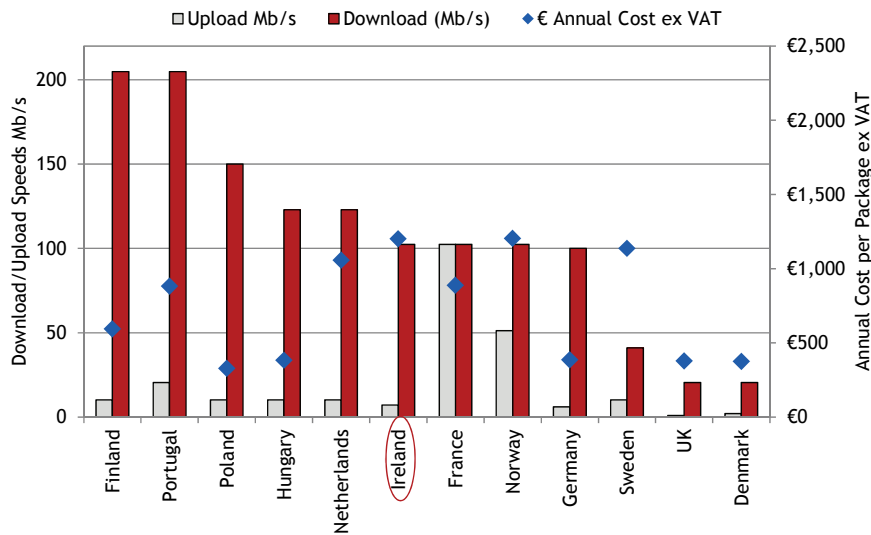
Source: Eurostat, Environment and Energy

94 Goodbody and Allsop Space, Irish Housing Market, 2012

95 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 2nd half of 2010 and 2011 respectively. References to SME users are based on an annual consumption of 500 to 2,000 MWh.

96 Euro area 15 excludes Austria.

Figure 4.36 Fastest Advertised Business Connection<sup>97</sup> and Annual Cost per Package, 2012

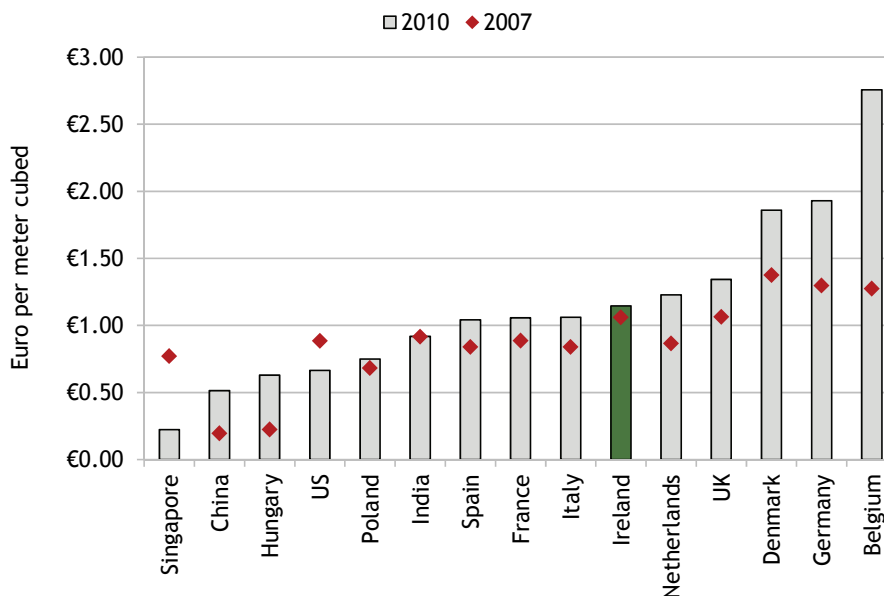


This indicator shows the fastest download speed available to business, the accompanying upload speed provided and the annual cost per package (excluding VAT). In 2012, the cost of the fastest package available to business in Ireland was the second highest out of the twelve countries benchmarked. Ireland had the fifth quickest download speed (102.4 Mb/s) and fourth slowest upload speed (7.2 Mb/s).

**Ranking out of 12:**  
 Cost: 11<sup>th</sup>  
 Download speed: 6<sup>th</sup>

Source: Teligen

Figure 4.37 Water Costs for Industrial Users (per cubed metre)



This chart examines water costs for industrial users but does not include the cost of waste water services. While Ireland is the 6<sup>th</sup> most expensive location, the cost of water for industrial users in Ireland remained relatively static since 2007. In 2010, the average cost of water per meter cubed for industrial users in Ireland was €1.14<sup>98</sup>.

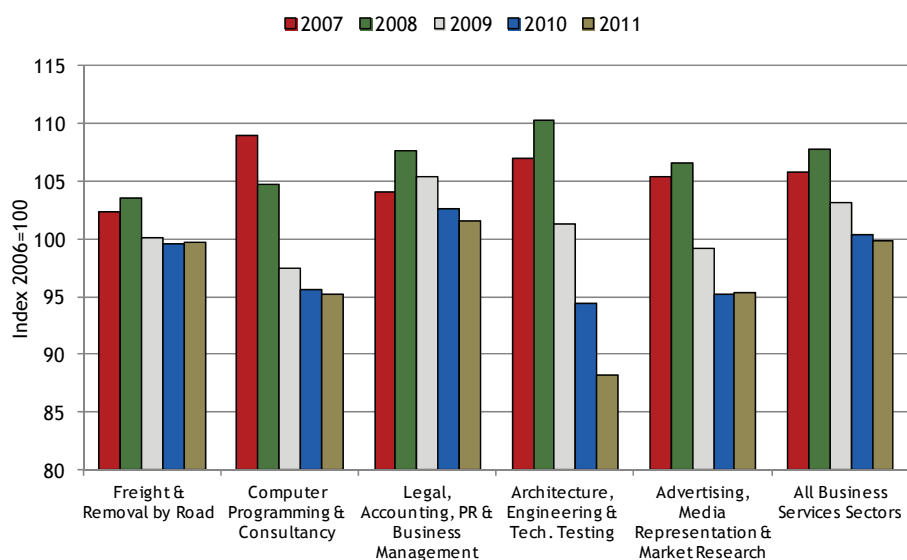
**Group ranking (out of 15):** 10<sup>th</sup>

Source: EIU /World Investment Services /Office for Local Authority Management

<sup>97</sup> This data reflects advertised business connections only. They do not take into account connections which may be provided to business arising from direct negotiations with service providers.

<sup>98</sup> For methodological reasons, Irish data sourced from the Office for Local Authority Management has been substituted for EIU data. The average cost of waste water services (not included in figure 4.37) in Ireland in 2010 was €1.24 in 2010, bringing the average consolidated water services charge per metre cubed to €2.37.

Figure 4.38 Services Price Index<sup>99</sup>, 2006-2011 (2006=100)

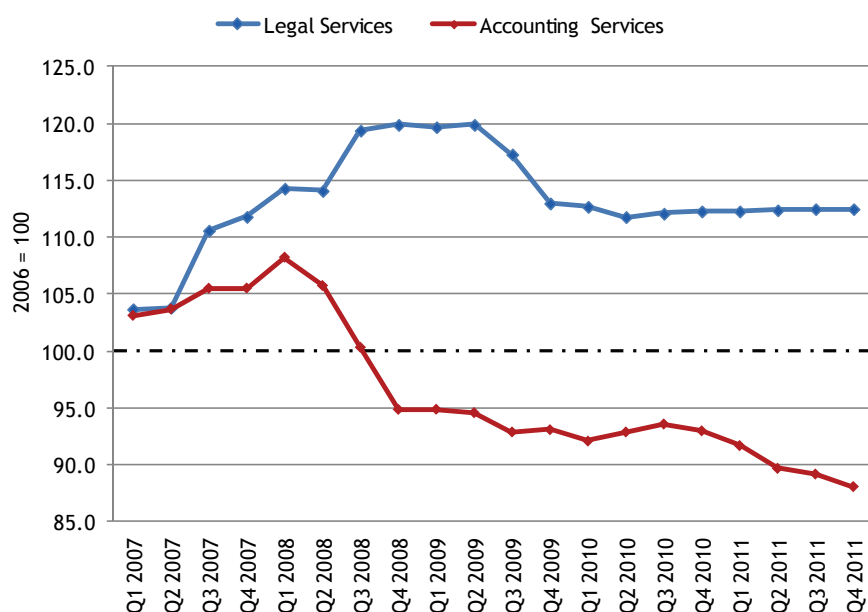


Price adjustment has occurred at different rates in each sector. Between Q1 2007 and Q4 2011, the greatest price reductions have occurred in architecture, engineering and technical testing (-11.8%), computer programming and consultancy (-4.8%), and advertising, media and market research (-4.7%). By contrast, the price of legal, accounting, PR and business consultancy increased by 1.5% over the same period.

Ranking: n/a

Source: CSO, Services Producer Price Index

Figure 4.39 Accountancy and Legal Costs, Q1 2007-Q4 2011 (2006=100)<sup>100</sup>



Separating legal and accountancy costs, Figure 4.39 shows that while accountancy costs have fallen sharply over the course of the recession, legal costs remain more than 12% higher than they were in 2006.

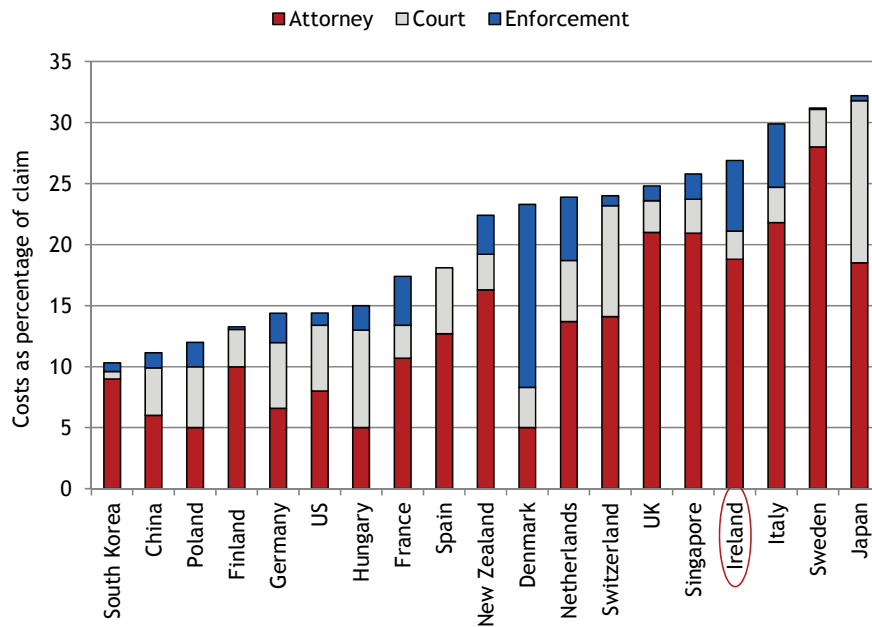
Ranking: n/a

Source: CSO, Services Producer Price Index

99 The SPPI is an experimental survey by the CSO which measures changes in the average prices charged by domestic service producers to other businesses for a selected range of services. In most cases these services are provided to business customers only and so individual price indices should not be considered indicative of more general price trends in the economy. The index covers transaction costs from business to business and excludes consumers who are covered in the Consumer Price Index (CPI).

100 Data on legal services is based on responses received from 18 companies (and 112 price observations), the majority of whom employ between 10 and 49 employees. The survey does not include data on prices for barrister services. Given the small sample size, caution should be used when interpreting the results.

Figure 4.40 Legal Fees, Cost of Enforcing a Business Contract, 2011



Costs are shown as a percentage of the total claim and are broken down into attorney, court and enforcement fees. Ireland (25.8%) is significantly more expensive than the overall OECD average cost (19.7%) the making it the fourth most expensive location benchmarked, unchanged from 2010. This is driven by relatively high attorney fees.

**Ranking (out of 19):**  
16<sup>th</sup> (-)

Source: World Bank, Doing Business 2012

## 4.4 Employment and Labour Supply

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, increasing long term unemployment, a resumption of emigration and a host of related labour market challenges. As well as the risk of deskilling (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 - fewer people at work generally results in lower disposable incomes and hence, lower demand. At the same time, however, the increased availability of labour - and more specifically the availability of skilled labour, combined with lower churn rates - represents a competitive advantage. This section looks firstly at some employment and unemployment trends and then examines a series of indicators relating to labour supply.

### 4.4.1 Employment and Unemployment

Employment peaked in Q3 2007 when almost 2,150,000 people were employed (Figure 4.41). From Q3 2008 unemployment increased rapidly and by Q4 2011 had reached 302,000 (averaging 14.4 per cent in 2011). Long term unemployment rose significantly from Q4 2008 and by Q4 2011 accounted for 60 per cent of those unemployed, posing a particular challenge for the individual involved and policymakers<sup>101</sup>.

Overall, employment has declined by approximately 15 per cent from its peak<sup>102</sup>. The recession, however, has impacted upon some sectors more than others (Figure 4.42). For example, employment in construction has declined by 60 per cent (158,500) and there have also been significant declines in industry (-62,600), and wholesale and retail (-41,400). As a result, Ireland's standardised rate of unemployment is now amongst the highest in the EU (Figure 4.43). Indeed in 2011 in the euro area, only Spain (21.6%) and Greece (17.7%) had higher standardised rates of unemployment than Ireland (14.4%). Looking ahead, unemployment is forecast to average 14 per cent in 2012 and 13.7 per cent in 2013<sup>103</sup>.

As mentioned above, the make-up of Ireland's unemployment poses particular challenges for policy makers. In order to target interventions, it is necessary to understand the characteristics of those unemployed. Figure 4.42, for example, tells us that males (-20.5%) have experienced a larger decline in employment than females (-8.4%). Youth unemployment is a particular issue for Ireland (Figures 4.44 and 4.45). Unemployment in Ireland amongst those aged 15-24 years (28.9%) is

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101 This issue is recognised in the Pathways to Work Initiative. The Government has set a target of getting 75,000 people who are currently long-term unemployed back to work and to reduce the average time spent on the live register from 21 months to less than 12 months by the end of 2015. Department of the Taoiseach, Pathways to Work: Government Policy Statement on Labour Market Activation, 2012

102 It is important to differentiate between data sourced from the Quarterly National Household Survey and data from the Live Register: the QNHS results measure unemployment and use ILO (International Labour Office) labour force classifications; the Live Register is not designed to measure unemployment. As a result of these methodological differences, results vary according to the source referenced. For example, while long term unemployment according to the QNHS measure accounts for 60 per cent of the unemployed, the Live Register data classifies 42 per cent of the unemployed as long term unemployed.

103 Employment is forecast to decline, alongside further falls in participation and continued outward migration. ESRI, Quarterly Economic Commentary, Winter 2011/Spring 2012

exceeded only by Spain, Slovakia, Greece and Portugal in the euro area. Another worrying feature is the degree of long term unemployment amongst this cohort - according to Eurostat, 41.5 per cent of youth unemployment in Ireland is classified as long term in nature. Given the importance of an individual's first job for kick-starting their careers, this is an issue with potential long term costs if it is not successfully addressed. Furthermore, high levels of long term youth unemployment increase the likelihood of emigration.

In addition to age, educational attainment is closely correlated with the propensity of being unemployed (Figure 4.46). Unemployment has increased most rapidly for those with lower levels of educational attainment. Between 2007 and 2011, unemployment increased from 7.3 per cent to 23.9 per cent for those with lower secondary education. In contrast, unemployment rates for those with third level education remain much more modest (7.6%), emphasising the importance of school completion and progression to further and higher level education.

Finally, it is important to note that despite the recession and the prolonged period of high unemployment, some employment opportunities are available. Jobs are constantly being created and destroyed (Figure 4.47). In 2011 over 568,000 new registrants and 563,000 outflows were recorded from the Live Register, yielding a net increase of 5,200 over the year. CSO data on 'job churn' also highlights the amount of movement in the labour market: job creation increased from 9 per cent in 2009 to 12 per cent in 2010. Job destruction fell from 28 per cent to 18 per cent over the same period<sup>104</sup>.

#### 4.4.2 Labour Supply Characteristics

While the rise in unemployment is primarily a result of weak demand, it is also important to ensure that the supply of labour is operating efficiently - both in terms of the numbers of people available for work, and in terms of ensuring that the skills of the work force match the needs of employers.

Replacement rates seek to measure the ratio between the income a person receives when unemployed and the income they would receive if employed. Higher replacement rates increase the disincentive to take up offers of employment. In Ireland, replacement rates tend to be lower for single people compared with married couples - for example a couple with two children and one earner on the average industrial wage has a replacement rate of 67 per cent compared with a replacement rate of 38 per cent for a single individual earning the same amount (Figure 4.48). In international terms (and relying on 2010 data - the most recent year for internationally comparable data), Irish replacement rates for the long term unemployed were significantly higher than the OECD average for both single earners and one-earner married couples (Figure 4.49). It is important to compare initial replacement rates with long term replacement rates: Ireland is something of an outlier in this regard: whereas in most countries, replacement rates decline over time, in Ireland they generally increase (i.e. the longer an individual is out of work, the higher the level of benefits

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<sup>104</sup> The CSO Job Churn 2010 publication measures job creation and job destruction in the business economy (NACE Rev2 sectors B-N excluding 642). The Job Churn statistical product is currently considered experimental in nature.



they receive)<sup>105</sup>. A series of recent and planned policy initiatives combined with changes to social welfare rates introduced in recent budgets will significantly reduce Irish replacement rates. For example, the introduction of additional exemptions from the universal social charge for people with an income below €10,036 in Budget 2012 will increase net incomes and widen the differential between Jobseekers Benefit and net take home pay. Elsewhere, the change from a six to a five day basis for the calculation of Jobseekers Benefit (planned from July 2012) will increase the attractiveness of part-time work, while the proposed introduction of a single social assistance payment for people of working age should ultimately bring Ireland into line with best practice in the EU and OECD<sup>106</sup>.

Labour market programmes - which include public employment services, training, hiring subsidies and direct job creations in the public sector, as well as unemployment benefits - are a particularly important policy tool for Ireland given current challenges. In 2009, the Irish exchequer spent almost 3.5 per cent of GDP on such programmes (Figure 4.50). Of this, the vast majority (75%) was spent on passive labour market programmes - primarily related to income maintenance (i.e. social welfare payments). In contrast, countries such as Sweden and the UK spent a larger proportion of the labour market programme budgets on active measures such as employment services and training. The Pathways to Work policy statement sets out a planned series of reforms designed to deliver a more proactive, engaged system of labour market activation to address this issue<sup>107</sup>.

Labour supply is also affected by the numbers of people of working age living in the country. According to CSO Census 2011 data, there were 224,000 more people aged 25-64 years resident in Ireland in 2011 than in 2006<sup>108</sup>. These numbers, in turn, are impacted by both migration patterns and participation rates. Net outward migration has not substantially increased between 2010 and 2011 (Figure 4.51). While emigration is estimated to have reached 76,400 in the year to April 2011, an increase of 11,100 on the previous year, immigration also increased over the same period, resulting in overall net outward migration of 34,100 - unchanged from the previous 12 months. Emigration among Irish nationals, however, continued to increase sharply from 27,700 to 40,200 over the 12 months to April 2011, with net migration amongst Irish nationals increasing from 14,400 to 23,100.

In terms of participation rates, a relatively small decrease of 0.2 per cent in the participation rate was recorded in the year to Q4 2011 (Figure 4.52). The level of change varied according to age group. The largest decreases were recorded for the 20-24 and 45-54 age groups. Overall, since 2007, the largest reductions in participation rates have occurred amongst younger cohorts - primarily a

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105 This is based on a comparison of OECD data on "Net Replacement Rates for six family types: initial phase of unemployment" and "Net Replacement Rates for six family types: long-term unemployment". For example, the replacement rate for a single worker with no children earning 67 per cent of the average wage declines from 61 per cent in the initial phase of unemployment to 47 per cent in long term unemployment in Germany. By contrast in Ireland, the replacement rate increases from 51 per cent to 77 per cent between the initial and long term phase. Note also that the OECD take any available household benefits into account when calculating their figures; in reality, however, only approximately 15 per cent of claimants in receipt of Jobseekers Benefit / Jobseekers Assistance (and receiving payment for a full week) are entitled to rent/mortgage supplements.

106 NESC, Developmental Welfare State, 2005

107 Pathways to Work - Government Policy Statement on Labour Market Activation, 2012

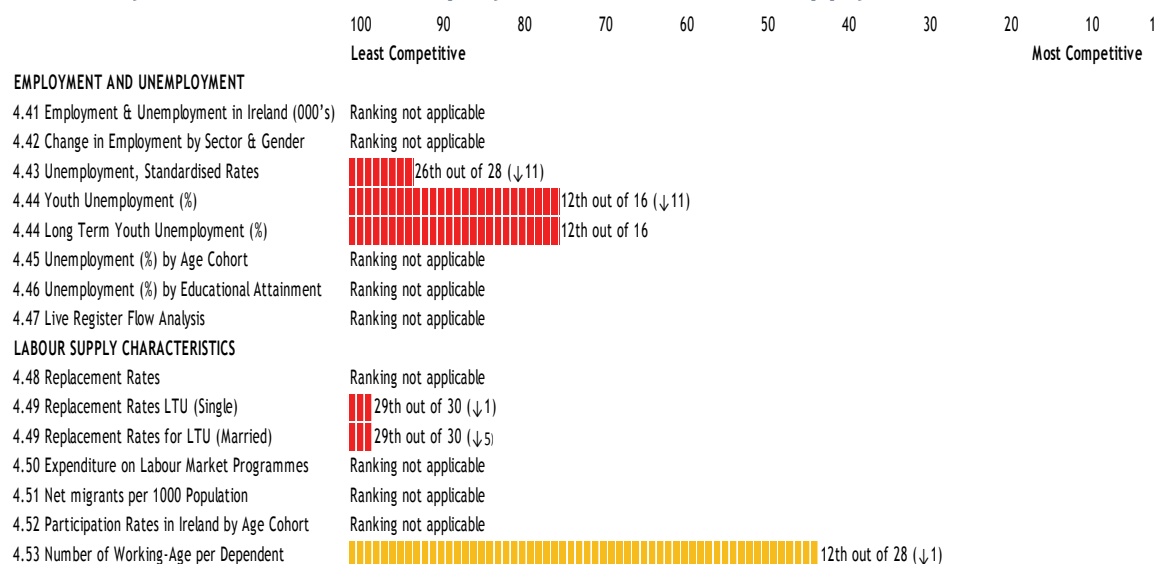
108 CSO, This is Ireland: Highlights from Census 2011, Part 1, March 2012

result of these cohorts returning to education<sup>109</sup> which will support competitiveness in the longer term.

Finally, the dependency ratio takes a more long term view of labour supply and provides an indication of level of social services that will be required to meet the needs of society over coming decades (Figure 4.53). In 2010 Ireland had the highest fertility rate in the EU, and its population was increasing at a higher rate than in any other EU country<sup>110</sup>. The dependency ratio is forecast to decline slightly by 2030. A more serious deterioration is forecast by 2060, with significant implications for the funding of pensions - according to the Department of Social Protection, for every pensioner in Ireland, there are currently approximately six people at work to support them; by 2060 that figure will be less than two<sup>111</sup>.

Many of the indicators in this section are not compared internationally and so cannot be ranked. Those that are, however, are summarised below.

### Summary of Standardised Employment and Labour Supply Indicators<sup>112</sup>



109 Conefrey, T., Unemployment and Labour Force Participation during the Recession, Economic Letters, Central Bank of Ireland, Vol. 2011(4), June 2011

110 CSO, Measuring Ireland's Progress 2010, September 2011

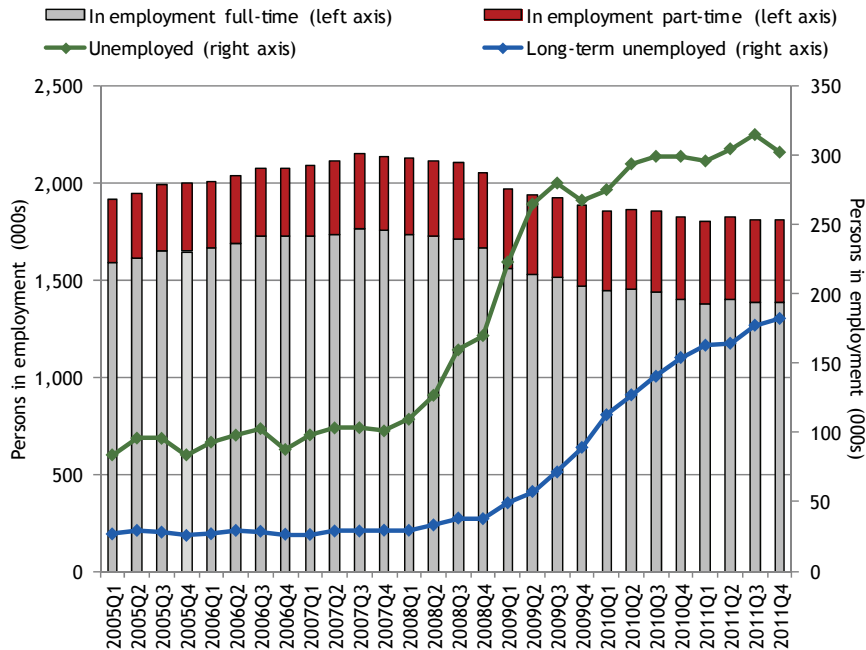
111 Department of Social Protection, National Pensions Framework, March 2010

112 Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15\*100); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e. 14/15\*100).

## 4.4 Employment and Labour Supply

### 4.4.1 Employment and Unemployment

Figure 4.41 Employment & Unemployment in Ireland (000's), Q1 2005-Q4 2011

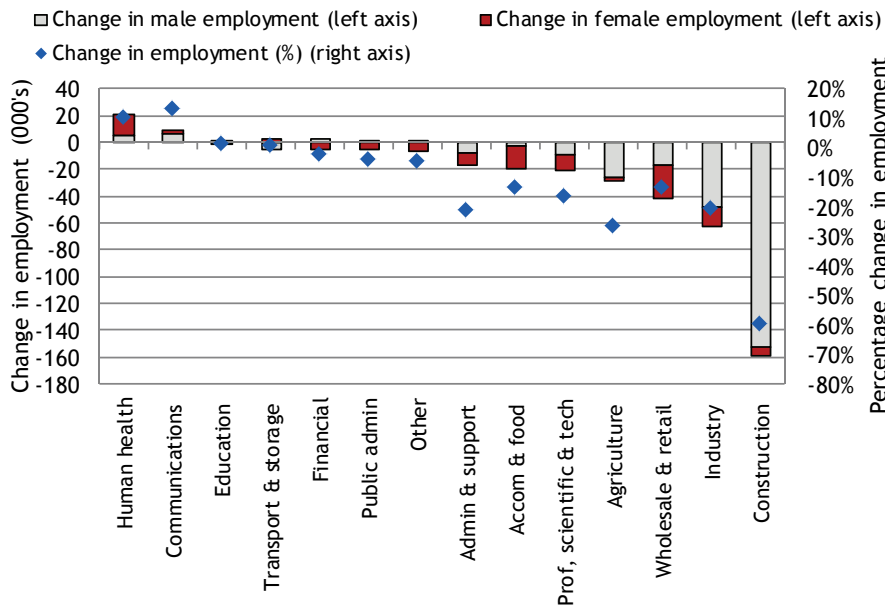


Employment peaked in Q3 2007 when almost 2,150,000 people were employed. From Q3 2008 unemployment increased rapidly and by Q4 2011 had reached 302,000 (averaging 14.4% in 2011). Long term unemployment rose significantly from Q4 2008 and by Q4 2011 accounted for 60% of those unemployed. Unemployment is forecast to average 14% in 2012 and 13.7% in 2013<sup>113</sup>.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.42 Change in Employment in Ireland by Sector & Gender, Q3 2007-Q4 2011



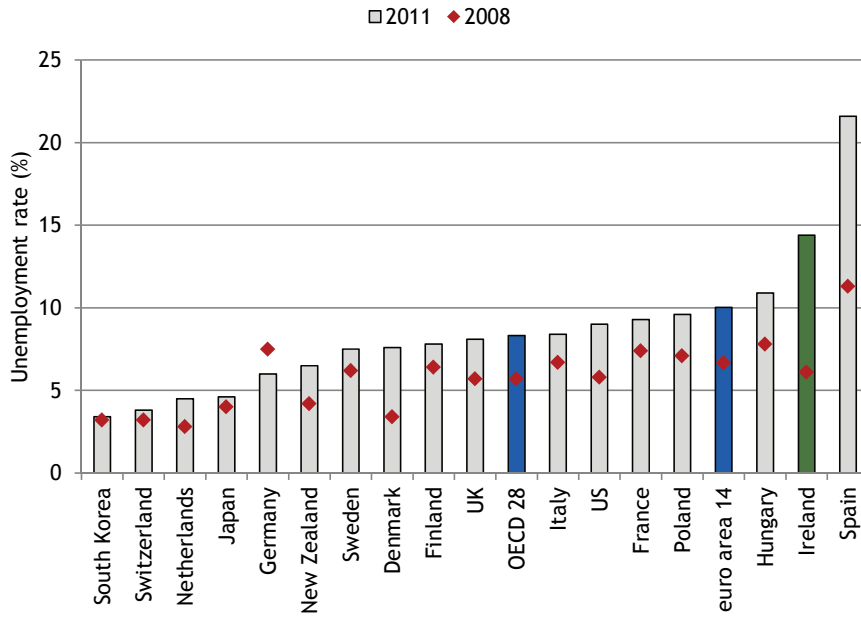
The recession has impacted upon some sectors more than others. While total employment over the period has declined by 15%, employment in construction has declined by 60% (-158,500). There have also been significant declines in industry (-62,600), and wholesale and retail (-41,400). Males (-20.5%) have experienced a larger decline in employment than females (-8.4%).

Ranking: n/a

Source: CSO, Quarterly National Household Survey

113 Employment is forecast to decline, alongside further falls in participation and continued outward migration. ESRI, Quarterly Economic Commentary, Winter 2011/Spring 2012

Figure 4.43 Unemployment, Standardised Rates, 2011



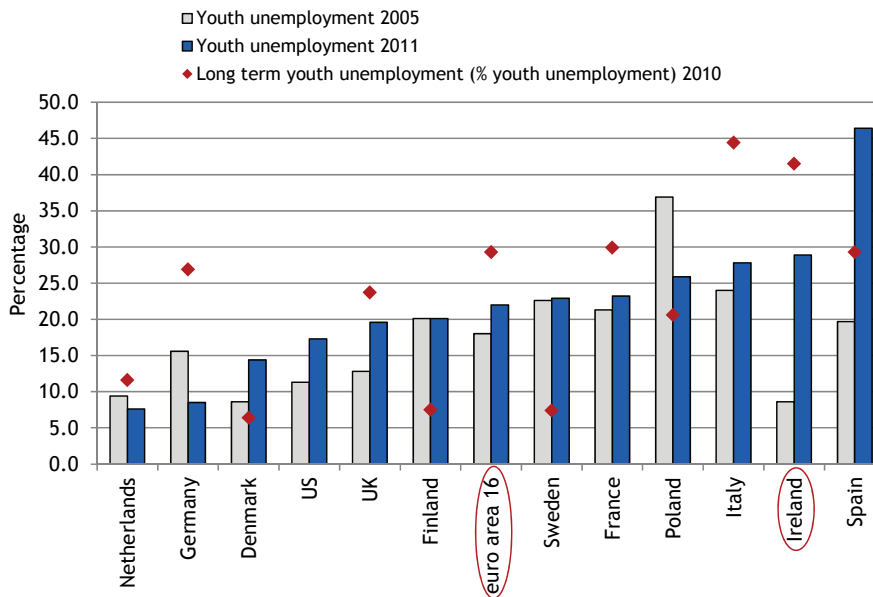
In the OECD in 2011 only Spain (21.6%) and Greece (17.7%) had higher standardised rates of unemployment than Ireland (14.4%). Ireland's rate represents a substantial increase from the 6.1% recorded in 2008.

**OECD-28 ranking: 26<sup>th</sup>**  
(↓11)

**euro area-14<sup>114</sup>: 12<sup>th</sup>**  
(↓7)

Source: OECD Labour Force Statistics

Figure 4.44 Youth Unemployment (% 2005 and 2011) and Long Term Youth Unemployment (% Youth Unemployment, 2010)



Unemployment amongst those aged 15-24 years grew by over 300% in Ireland between 2005 and 2011. It now stands at 28.9%, exceeded only by Spain, Slovakia, Greece and Portugal in the euro area. 41.5% of youth unemployment in Ireland is classified as long term in nature. Only Italy has a higher proportion of long term unemployment amongst this cohort.

**euro area-16 ranking<sup>115</sup>:**

Youth: 12<sup>th</sup> (↓11)

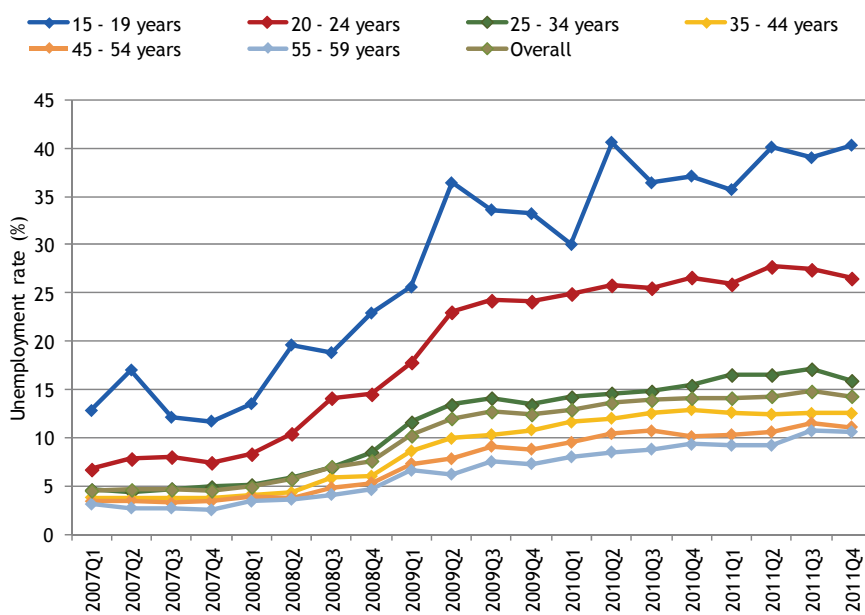
Long term: 12<sup>th</sup>

Source: Eurostat

114 Euro area 14 excludes Cyprus, Estonia and Malta

115 Youth unemployment data for Italy, Greece and UK is from 2010. Long term youth unemployment euro area average refers to euro area-14 and excludes Luxembourg and Malta.

Figure 4.45 Unemployment (%) by age cohort, Q1 2007-Q4 2011

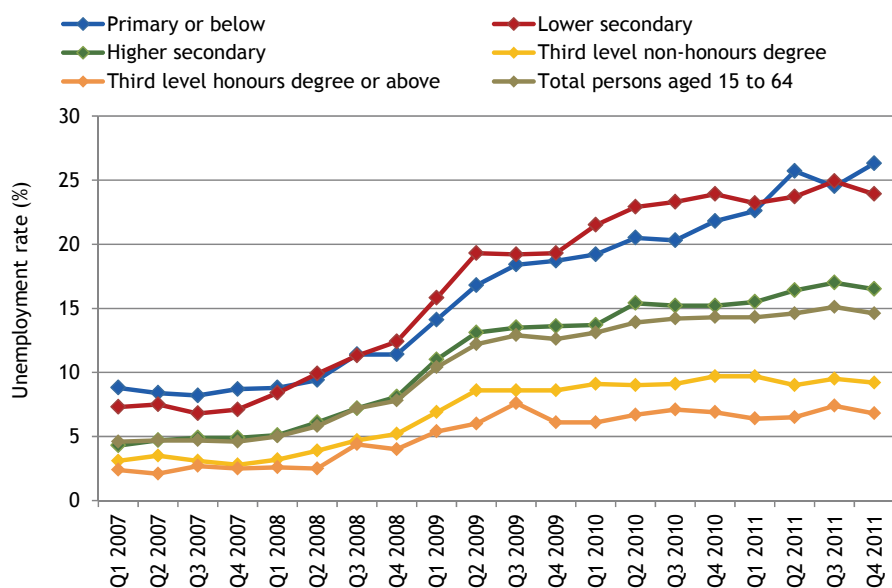


Younger age cohorts have experienced higher levels of unemployment relative to older, more experienced workers. Workers aged 15-19 years of age, for example are experiencing an unemployment rate of 40.3% compared to the national average of 14.3%. Data for this age category also appears to be impacted by seasonal fluctuations. Not surprisingly, reductions in employment over recent quarters have also impacted younger cohorts most severely.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.46 Unemployment (%) by educational attainment, Q1 2007- Q4 2011



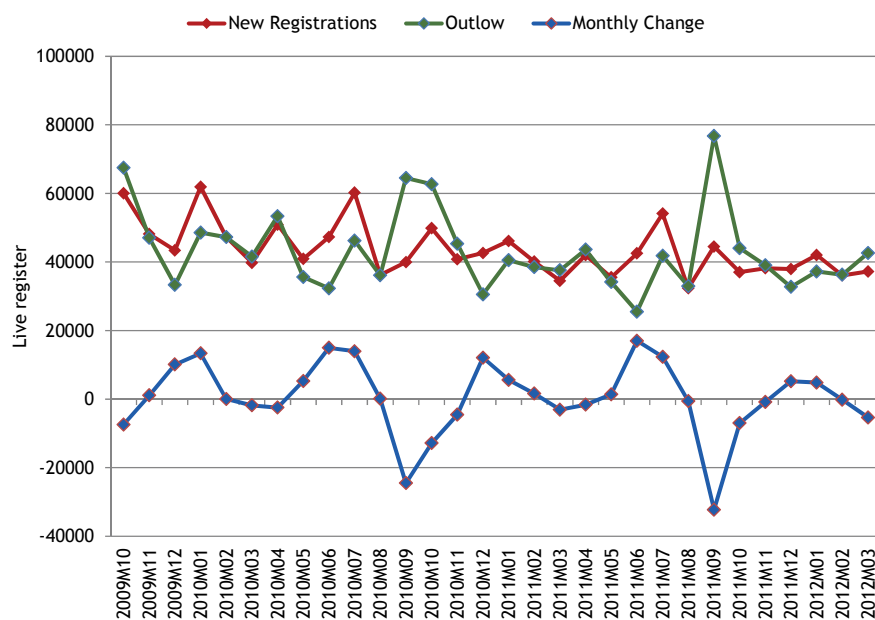
Educational attainment has a significant impact upon an individual's likelihood of being unemployed. Unemployment has increased more rapidly for those with lower levels of educational attainment. Between 2007 and 2011, unemployment increased from 7.3% to 23.9% for those with lower secondary education. In contrast, unemployment rates for those with third level education remain more modest (7.6%)<sup>116</sup>.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

116 According to CSO analysis of QNHS data, those with postgraduate qualifications are less likely to be unemployed (5%) than those with third level qualifications. CSO, Quarterly National Household Survey, Educational Attainment Thematic Report 2011, December 2011

Figure 4.47 Live Register Flow Analysis<sup>117</sup>, October 2009-March 2012



The labour market is constantly in a state of flux. There were 36,102 new registrants on the Live Register in February 2012, 56.7% of whom were male. At the same time, 36,269 registrants left the Live Register. Looking at annual data, in 2011 over 568,000 new registrants and 563,000 outflows were recorded, yielding a net increase of 5,200 over the year. CSO data on 'job churn' also highlights the amount of movement in the labour market: job creation increased slightly from 9% in 2009 to 12% in 2010. Job destruction fell from 28% to 18% over the same period<sup>118</sup>.

Ranking: n/a

Source: CSO, Live Register

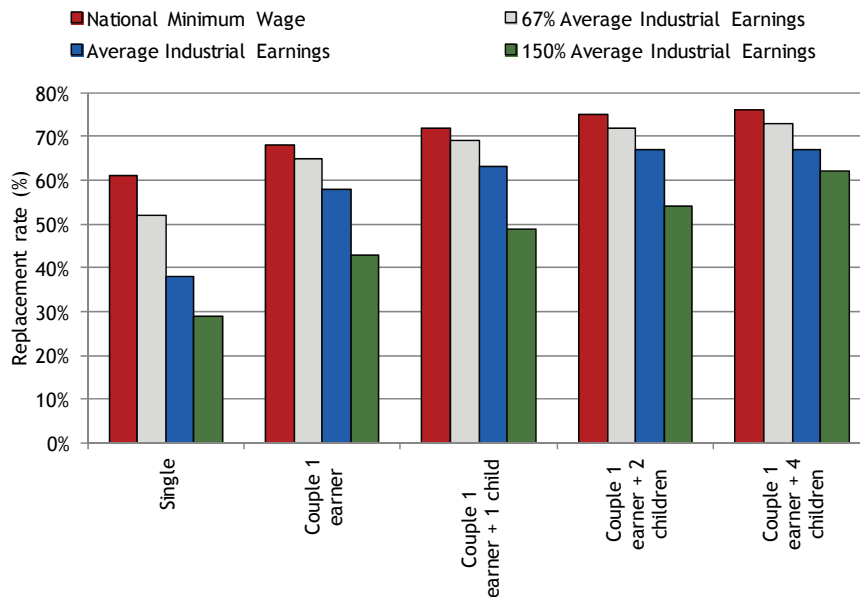
117 Flow analysis: inflows and outflows published in this table do not take account of inter-scheme activity within the Live Register. For example, if a claimant exhausts his/her entitlement to JB and opens a new JA claim this is counted as an outflow in JB and an inflow in JA. New registrations in February 2012 consisted of 16,950 JB claims, 17,389 JA claims and 1,763 'Other Registrants'. Large outflows are evident in September of each year: these may be associated with the start of the academic year.

118 The CSO Job Churn 2010 publication measures job creation and job destruction in the business economy (NACE Rev2 sectors B-N excluding 642). The Job Churn statistical product is currently considered experimental in nature.



## 4.4.2 Labour Supply Characteristics

Figure 4.48 Replacement Rates<sup>119</sup>, February 2012

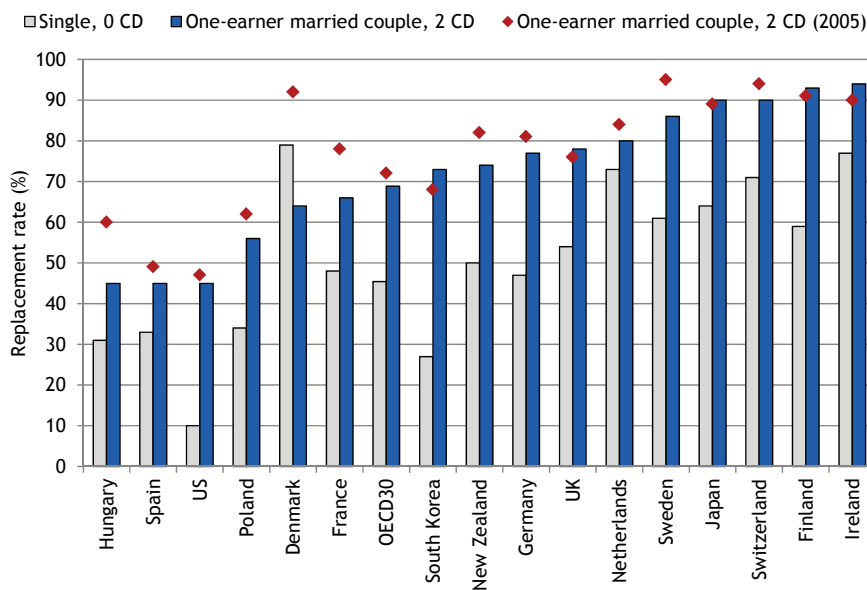


Higher replacement rates increase the disincentive to take up offers of employment. Replacement rates tend to be lower for single people compared with married couples - for example a couple with two children and one earner on the average industrial wage has a replacement rate of 67% compared with a replacement rate of 38% for a single individual earning the same amount.

Ranking: n/a

Source: Department of Social Protection

Figure 4.49 Net Replacement Rates for Long Term Unemployment (67% of Average Wage), 2010



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 (CD) (earning 67% of the average wage). Given recent initiatives, it is likely that Irish rates have declined<sup>120</sup>.

OECD-30 ranking<sup>121</sup>:

Single: 29<sup>th</sup> (↓1)

One earner, married, 2 CD: 29<sup>th</sup> (↓5)

Source: OECD, Tax-Benefit Models, Online Database

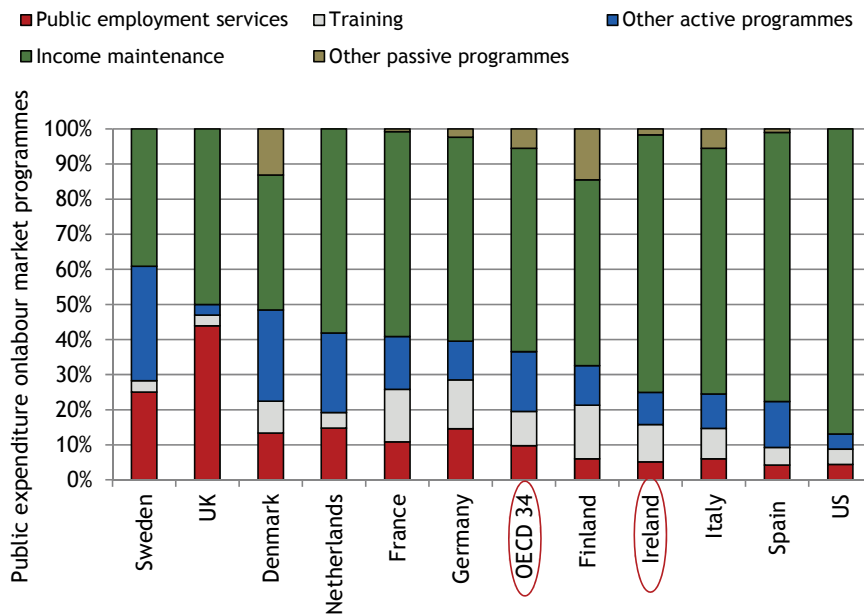
119 Replacement rates measure the ratio between the income a person receives when unemployed to the income they would receive if employed. The replacement rates for various examples of family types shown in the chart should be used for indicative purposes only as family circumstances can vary substantially. While there is no definitive optimum replacement rate, it is important to note the interaction between replacement rates, and control and activation measures - the more efficient the control and activation measures a country has in place, the higher the replacement rate it can sustain without creating unemployment traps.

120 This measurement doesn't take account of the incidence of replacement rates (i.e. the proportion of people that fall into each category).

121 OECD 30 excludes Chile, Israel, Mexico, Turkey



Figure 4.50 Public Expenditure on Labour Market Programmes, 2009

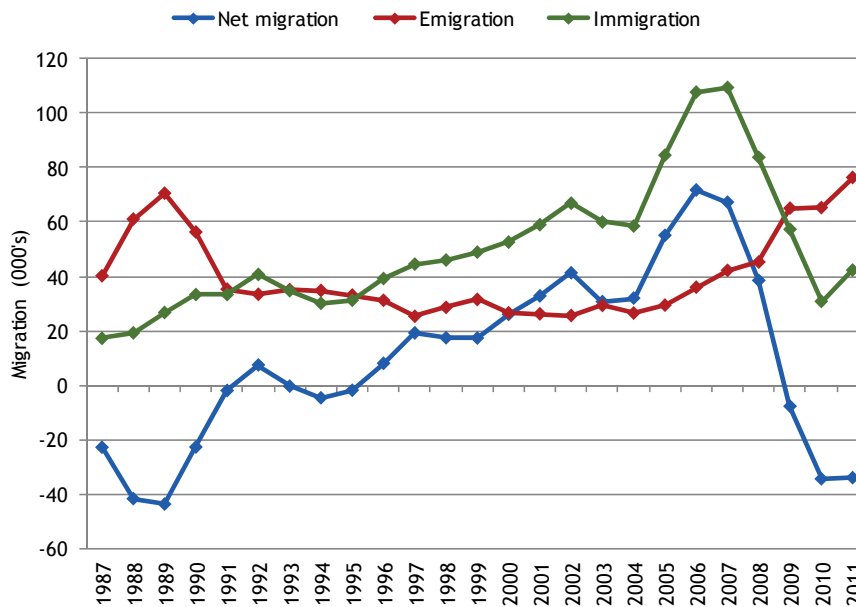


In 2009, the Irish exchequer spent almost 3.5% of GDP on labour market programmes, compared with an average of 1.65% in the OECD. The vast majority of this (75%) was spent on passive labour market programmes - primarily related to income maintenance (i.e. social welfare payments). In contrast, countries such as Sweden and the UK spent a larger proportion of their labour market programme budgets on active measures such as employment services and training.

Ranking: n/a

Source: OECD, Employment Database

Figure 4.51 Net migrants per 1000 of Total Population, 1987-2011

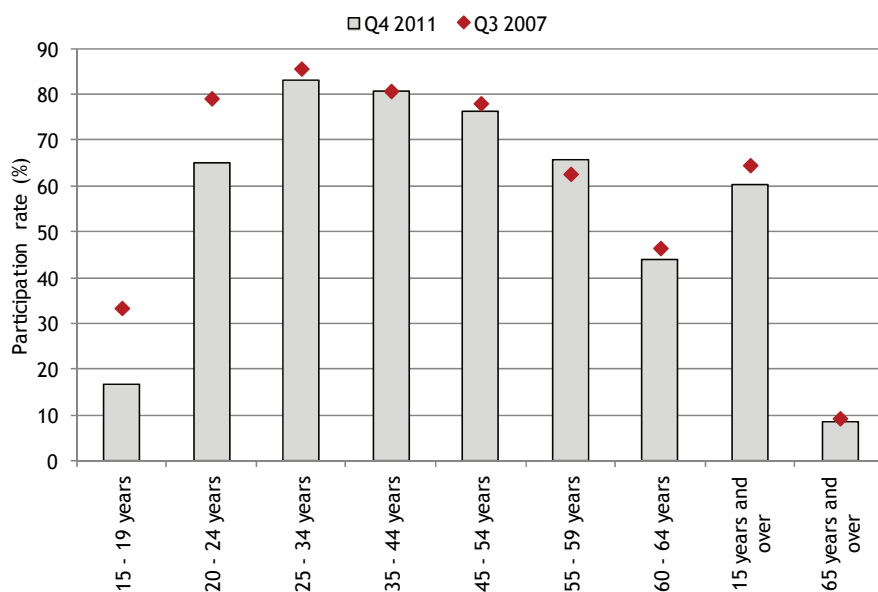


Emigration reached 76,400 persons in the year to April 2011, an increase of 11,100 on the previous year. Immigration also increased over the same period, resulting in overall net outward migration of 34,100 (unchanged from the previous 12 months). Emigration among Irish nationals increased sharply from 27,700 to 40,200 over the 12 months to April 2011, with net migration amongst Irish nationals increasing from 14,400 to 23,100.

Ranking: n/a

Source: CSO, Population Estimates

Figure 4.52 Participation Rates in Ireland by Age Cohort, 2011



While a relatively small decrease in the participation rate was recorded overall in the year to Q4 2011 (falling by 0.2% to 60.2%), the level of change varied according to age group. The largest decreases were recorded for the 20-24 and 45-54 age groups. Overall, since 2007, the largest reductions in participation rates have occurred amongst younger cohorts - primarily a result of these cohorts returning to education<sup>122</sup>.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.53 Number of Persons of Working-Age per Dependent, 2011 and 2030

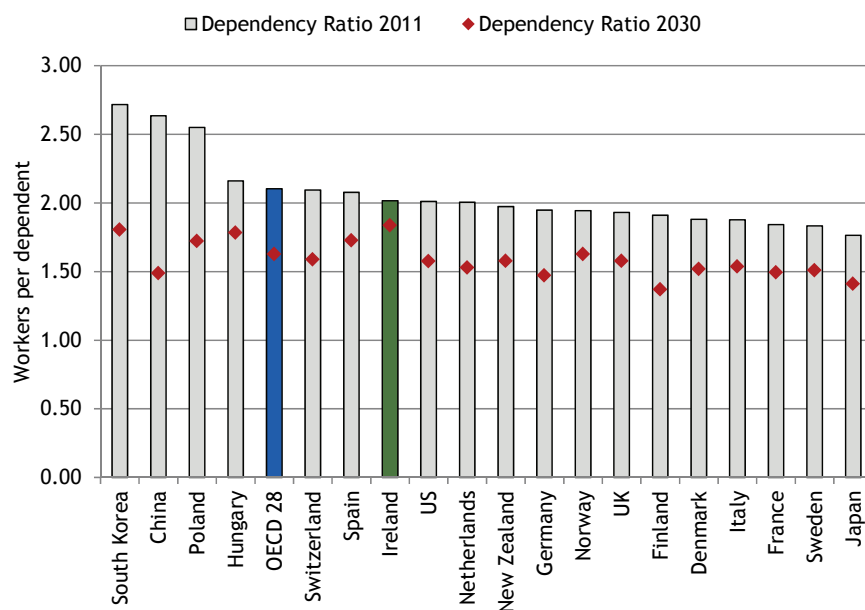


Figure 4.53 provides an indication of level of social services that will be required to meet the needs of society over coming decades. According to the CSO, in 2010 Ireland had the highest fertility rate in the EU, and its population was increasing at a higher rate than in any other EU country<sup>123</sup>. The dependency ratio is forecast to decline slightly by 2030.

OECD-28 ranking: 12<sup>th</sup> (↓1 from 2010)

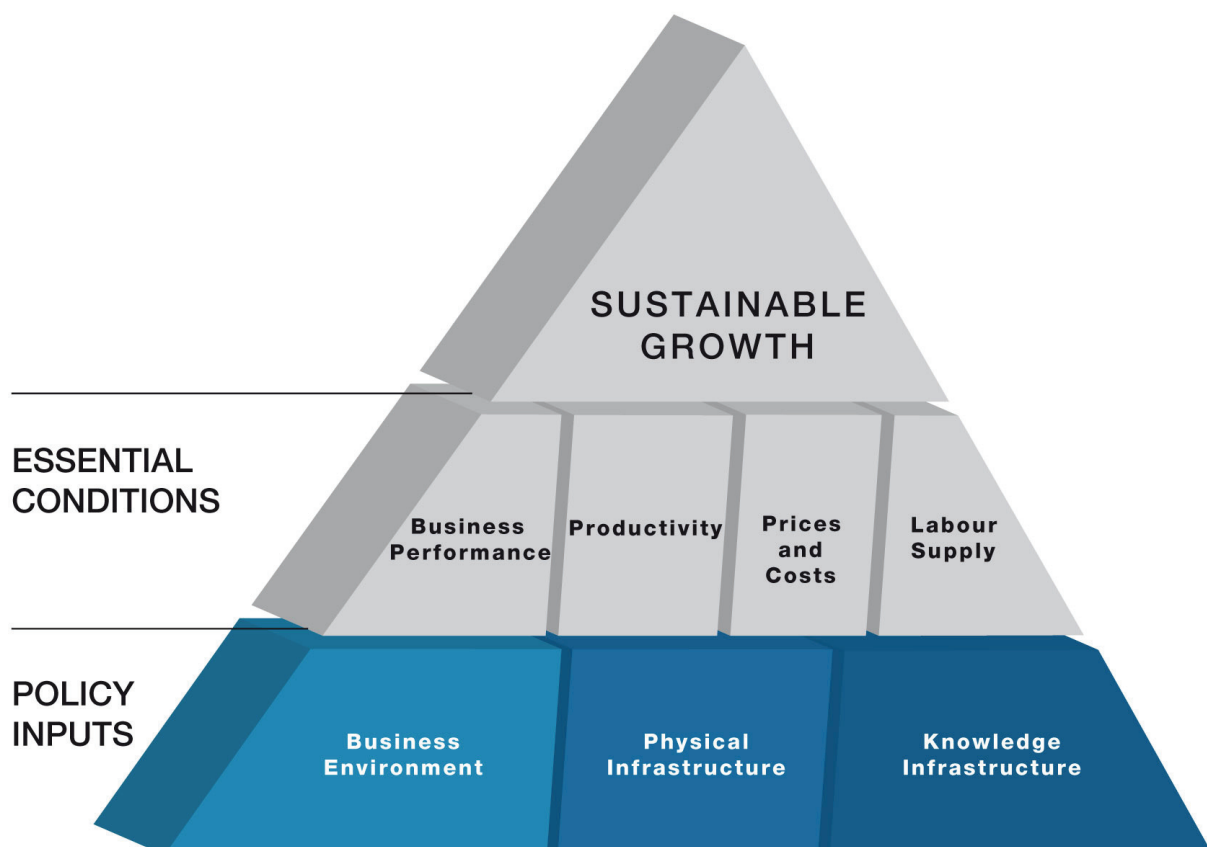
Source: OECD Stat.Extracts, Labour Force Statistics

122 Conefrey, T., Unemployment and Labour Force Participation during the Recession, Economic Letters, Central Bank of Ireland, Vol. 2011(4), June 2011

123 CSO, Measuring Ireland's Progress 2010, September 2011

# Chapter 5

## Policy Inputs



## 5. Policy Inputs

### 5.1 Business Environment

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 should not impose unnecessary restrictions or costs on firms. This section analyses performance in the areas of taxation, finance, regulation and competition.

#### 5.1.1 Taxation

The recession has been marked by the stark deterioration of government finances. On the revenue side, Ireland's total forecast tax revenue for 2012 is €35.6 billion (Figure 5.3). While this is an increase from 2011 (€34 billion), it remains significantly behind the peak revenue of €47.1 billion achieved in 2007. The sharpest declines among the tax heads in percentage terms have been in capital taxes (-81%), stamp duties (-56%) and corporation tax (-45%). In monetary terms, however, the largest decline has been in VAT receipts (-€4.7bn), reflecting the slowdown in consumer spending. Looking at the most recent quarterly exchequer returns (from the end of March 2012), tax revenue has increased and is up €1,216 million (16.2%) year-on-year. This is €809 million (10.2%) ahead of target<sup>124</sup>.

As a result of declining revenue and despite moves to curtail expenditure, Ireland is running a significant exchequer deficit (Figure 5.1). Irish Government expenditure is forecast to account for 44.1 per cent of GDP and 54.8 per cent of GNP in 2012, resulting in an estimated deficit of -8.3 per cent of GDP and -10.3 per cent of GNP. This contrasts with the euro area-14 average deficit of -3.9 per cent of GDP for 2012.

Looking in more detail at the sources of government revenue, Figure 5.2 shows that social security contributions in Ireland constitute a smaller proportion of overall tax revenue (19.5%) than in most euro area economies (average of 31.8%) which lowers the relative costs of employing people in Ireland. The remaining elements of Ireland's revenue stream are almost evenly split between indirect (39.3%) and direct taxation (36.6%).

The corporation tax rate is viewed by industry as one of the country's key competitiveness strengths (Figure 5.4). At 12.5 per cent, Ireland has the second lowest headline rate in the OECD-28. It is also worth noting that several countries have a differentiated rate for SMEs and that the effective rate is usually lower than the headline rate in the countries surveyed, which can reduce Ireland's perceived competitiveness. In terms of the proportion of revenue raised through corporation taxes, Ireland's corporation tax receipts amounted to 3.01 per cent of GNP (2.56% of GDP) compared to an OECD average of 2.76 per cent of GDP in 2010. Such revenues have fallen in recent years, both in

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<sup>124</sup> There are two important factors driving this performance which must be taken into account - firstly, €251 million in corporation taxes owed in December 2011 were only received in early January 2012; secondly, a technical reclassification of receipts from PRSI to income tax was carried out by Revenue - the amount reclassified is currently estimated at approximately €207 million. Adjusting for these factors, tax revenues are €351 million (4.4%) ahead of target. See Department of Finance & Department of Public Expenditure and Reform, End-March 2012 Exchequer Returns, April 2012

Ireland and in general across the OECD, presumably as a result of weaker economic circumstances and increasing tax competition.

Turning to labour taxes, Figures 5.6 and 5.7 measure the gap between total labour costs and what the employee receives. As a result of increased taxes on labour, the gap between labour costs and net pay has risen considerably since 2008. For a married couple with two children on a combined income of 100 per cent of the average wage, the difference is 11.4 per cent, up from 6.7 per cent in 2008. For a married couple with two children on a combined income of 167 per cent of the average wage (i.e. a two earner family), the difference is 19 per cent, up from 14 per cent in 2008. The gap is wider for higher income workers - a potential disadvantage for firms seeking to attract highly skilled, internationally mobile talent. As a result of changes in taxes, both average and marginal rates on income have also been increasing which can reduce incentives to work and increase the cost of labour for employers. Reductions in net take home pay are also likely to lead to demands for offsetting pay rises.

Sales tax or Value Added Tax is the primary source of indirect tax revenues for all countries - globally, VAT accounts for 30 per cent of tax revenues<sup>125</sup> (Figure 5.8). VAT is a tax on consumption and can be regressive<sup>126</sup>, although VAT is generally viewed as having a less harmful impact on economic growth than corporate and income taxes<sup>127</sup>. Already amongst the highest in the OECD in 2011, Ireland increased its standard rate of VAT from 21 per cent to 23 per cent in Budget 2012 (which was projected to yield approximately €0.6 billion in 2012). Exchequer return data from March 2012 showed that VAT receipts in the first quarter of 2012 were ahead of target<sup>128</sup>. Recent analysis undertaken by the Fiscal Council suggests that the Budget's projections for VAT - and the impact of the increases upon consumer behaviour - were broadly appropriate<sup>129</sup>.

Finally, property taxes are currently the subject of much attention and deliberations are currently underway to consider how a property tax will be levied in Ireland from 2013. 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.). Ireland currently generates a relatively low proportion of revenue through the use of recurrent taxes (3.2 per cent of total tax revenue, compared with 9.8 per cent in the UK, and 12.4 per cent in the US) (Figure 5.9). Annual taxes on property are the most conducive tax in terms of supporting economic growth and competitiveness.

## 5.1.2 Finance

National and international research suggests that a lack of access to credit poses a major challenge to enterprise and threatens to undermine any recovery<sup>130</sup>. 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. There is a risk of a 'creditless recovery' occurring unless the credit issue is addressed.

125 Ernst and Young, Tax Policy and Controversy Outlook Europe, Middle East, India and Africa (EMEIA), 2012

126 In Ireland, most basic consumer products are on lower rates of VAT and were therefore unaffected by the recent increase in the upper rate from 21 per cent to 23 per cent.

127 OECD, Tax Policy Reform and Economic Growth, 2010

128 Department of Finance & Department of Public Expenditure and Reform, End-March 2012 Exchequer Returns, April 2012

129 Irish Fiscal Advisory Council, Fiscal Assessment Report 12/02, April 2012

130 The Irish Enterprise Funding Environment, Forfás, April 2012. Abiad et al., Creditless Recoveries, IMF Working Paper 11/58, 2011

Creditless recoveries are on average substantially weaker than normal recoveries and take longer to recover from; output growth is on average one third lower. Economic recovery is particularly constrained by weaker growth in investment (e.g. property, machinery and equipment, etc.) and to a lesser degree by weaker growth in consumption on final goods and services<sup>131</sup>.

Annual growth rates in the stock of credit have been negative since June 2009 (Figure 5.12). This is in contrast to the boom period of previous years with excessive annual growth in credit of 20-30 per cent. Since January 2011, the rate of decline in credit growth has eased significantly. While there is clearly a need to reduce the debts accumulated during the boom/bubble (Figure 3.8), significant concerns exist that a lack of credit is restraining growth in productive sectors of the economy. In reaction to the recession and financial crisis, Irish banks tightened credit standards more aggressively than euro area banks from 2007 onwards (Figure 5.13). Since mid-2010, however, Irish standards appear to have moved in line with average euro area standards.

As well as examining the availability of credit, it is important also to consider the cost of credit. Credit in Ireland has tended to be expensive, relative to many of our competitors - in terms of interest rates available to non-financial companies; loans of up to €1 million (often used as a proxy for the rate applying to loans to SMEs<sup>132</sup>) were more expensive in Ireland in February 2012 than the euro area average (Figure 5.10) and loans over a million were also more expensive than the euro area average. Irish businesses have also faced consistently higher interest rates than the euro area average for overdraft facilities since 2005 (Figure 5.11). In February 2012, Irish firms paid 4.9 per cent on an overdraft compared to the euro area average of 4.4 per cent. Efforts required by the banks to rebuild their balance sheets and limited competition in the market suggest that costs will remain an issue.

Bank finance, while important, is only one source of finance. Other sources are particularly important for high growth companies.

- Venture capital (VC) is private capital provided by specialised firms acting as intermediaries between primary sources of finance (e.g., insurance, pension funds, banks) and private start-up or high-growth companies (whose shares are not freely traded on any stock market). While VC represents a small share of economy wide funding, its impact is significant. VC is very sensitive to market cycles. Ireland has a relatively high intensity of VC investment (0.07% of GDP) compared with the OECD average (0.04%). The majority of VC in Ireland is invested in later stage projects (Figure 5.14).
- Private equity, which comprises all stages of financing (seed, start-up, expansion, replacement capital and buyouts) fell sharply across the EU between 2007 and 2010; the euro area average declined from 0.41% of GDP to 0.15% (Figure 5.15). The fall in private equity in Ireland has been particularly sharp over the period, declining from 0.3 per cent of GDP to 0.03 per cent.
- The European Investment Bank provides funding through financial intermediaries in recipient countries to support credit lines to enterprise in that country. The value of credit lines financed by the EIB in Ireland between 2006 and 2011 remains significantly below the euro area average and represents a potentially important and under-utilised source of finance (Figure 5.16).

131 Abiad et al., Creditless Recoveries, IMF Working Paper 11/58, 2011

132 Central Bank, Retail Interest Rate Statistics, Information Release, April 2012



As well as considering supply, in order to fully understand the financing environment for enterprise we must also consider the demand for credit. Figure 5.17 reflects the reported demand rate from businesses. Demand for credit in Ireland is relatively high, with almost 36 per cent of firms reportedly seeking credit, compared with a euro area average of 29 per cent. The proportion of firms who are successful in obtaining credit in Ireland has fallen significantly from 97 per cent in 2007 to 53 per cent in 2010, reflecting the tightening of credit standards and increased risk averseness amongst lenders.

### 5.1.3 Regulation and Competition

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. Following significant lapses in recent years, ensuring that Ireland has a credible and appropriate regulatory regime in place is, therefore, a vital element in rebuilding Ireland's reputation as a great place to do business.

Figure 5.18 shows both the financial costs of meeting the regulations to establish a business and the number of procedures involved. Ireland ranks favourably under both measures and is regarded, therefore, as a relatively easy location to start a business.

In relation to property, while the number of procedures required to register a property in Ireland is similar to the OECD average, costs - which comprise official costs required by law, including fees, transfer taxes, stamp duties and any other payments<sup>133</sup> - are considerably higher (Figure 5.19). Since this data was collected however, changes were introduced in Budget 2012 to stimulate the commercial property market; the rate of stamp duty on non-residential property has been reduced from a top rate of 6 per cent (on transfers exceeding €80,000) to a flat rate of 2 per cent. This will have improved Ireland's cost competitiveness as shown in the revised figure for Ireland in Figure 5.19.


Ireland performs well in terms of our competition policy framework. Irish regulations governing product markets generally promote choice and competition (Figure 5.20). Barriers to product market competition declined in Ireland like most other OECD countries between 2003 and 2008. The EU/ECB/IMF agreement with Ireland promotes greater competition in a range of sectors (e.g. legal, medical, retail, etc.)<sup>134</sup>.

Figure 5.21 measures barriers to entrepreneurship (regulatory and administrative opacity, administrative requirements for start-ups and barriers to competition). While Ireland performs relatively well overall, we have only improved marginally since 2003. Ireland's performance is

<sup>133</sup> Other payments are payments to the property register, notaries, public agencies and lawyers. Other taxes such as capital gains tax or value added tax are excluded from the cost measure. Both costs borne by the buyer and those borne by the seller are included.

<sup>134</sup> EU/IMF Programme of Financial Support for Ireland, December 2010. Concerns have been expressed, however, that policies that may result in reduced competition are also present in the agreement (e.g., banking consolidation, groceries code, etc.). For more detail, see Gorecki, P., *Troubled Times: What Role for Competition and Regulatory Policy?* ESRI Economic Renewal Series 010, April 2012; Presented at the ESRI on 18 April 2012





weakest in terms of regulatory and administrative opacity which includes measurements relating to the licensing and permits system, and the communication and simplification of rules and procedures.

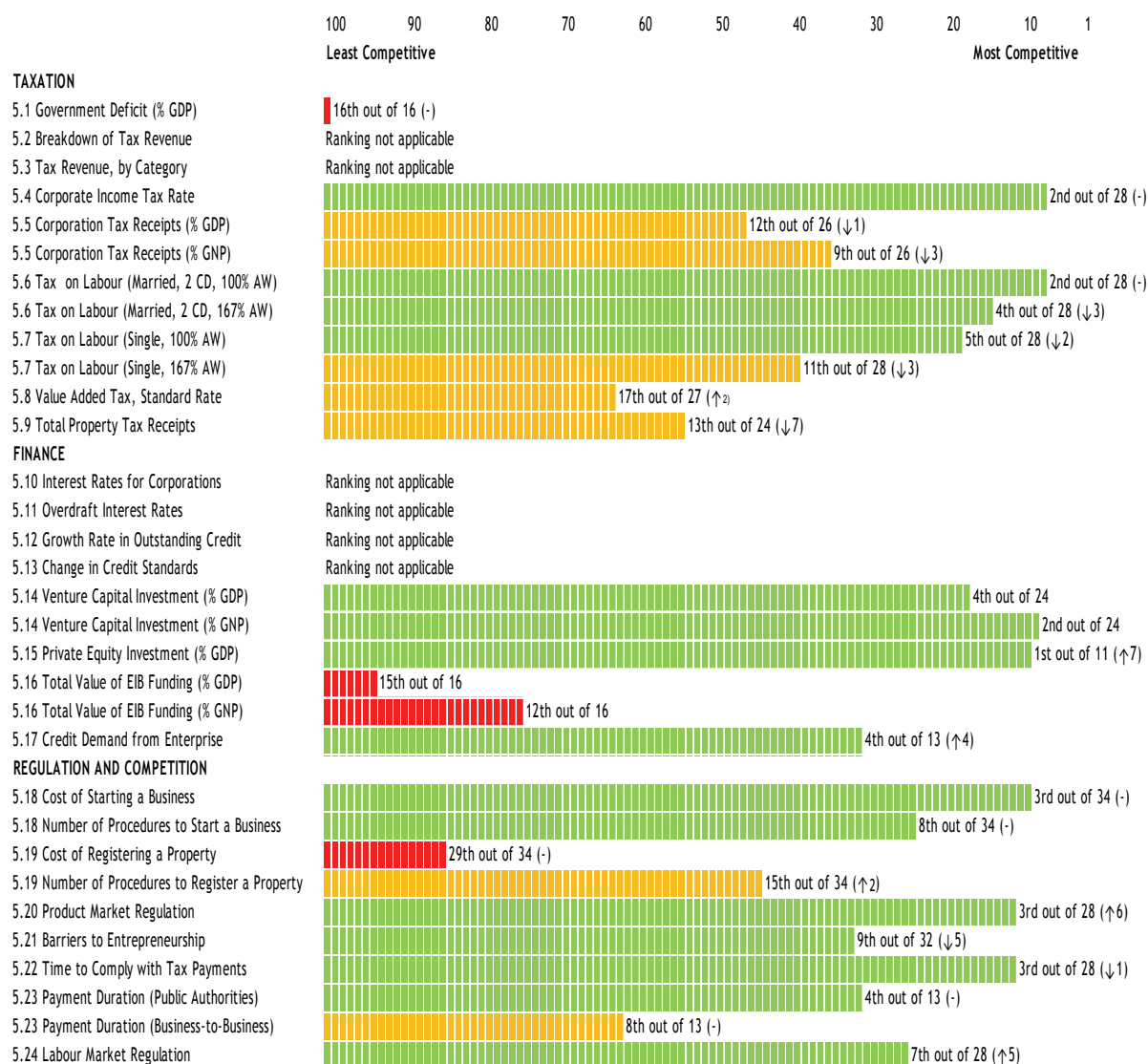
As well as the costs associated with the regulatory requirements measure above, firms are also faced with other administrative costs. Figure 5.22 considers the time it takes firms to meet all of their tax compliance responsibilities. Compliance activities relating to corporate, labour and consumption 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 under this indicator.

Notwithstanding room for improvement, Ireland also performs relatively well in relation to the time taken to settle an invoice: on average, it takes 49 days for public authorities and 65 days for businesses to do so in Ireland (Figure 5.23). By comparison, the euro area average is 86 days for public authorities and 66 days for businesses.

Finally, Ireland's employment framework is less rigid than the OECD average (Figure 5.24). The Rigidity of Employment index is calculated by the World Bank and represents a simple average of data measuring difficulty of hiring, rigidity of hours and difficulty of firing indices.

The chart that follows on the next page summarises Ireland's performance across the full range of Business Environment indicators.

## Summary of Standardised Business Environment Indicators<sup>135</sup>

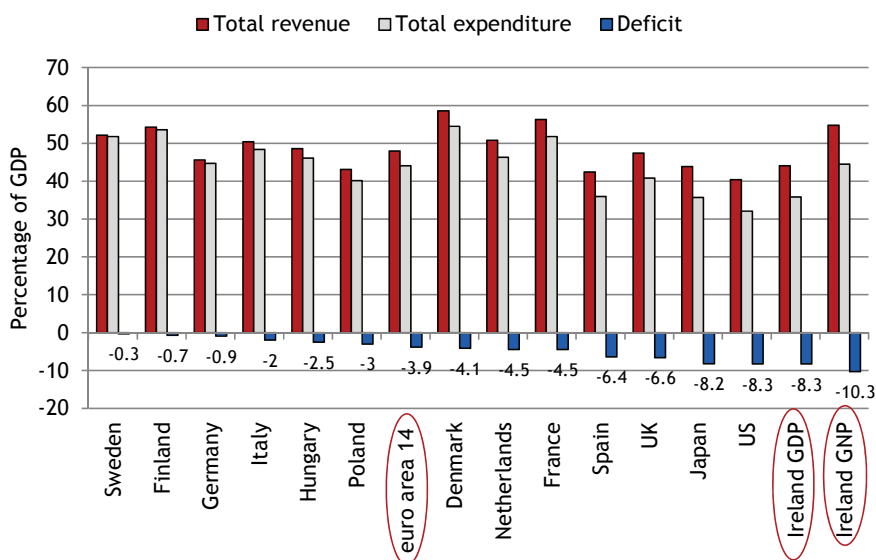


135 Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e.  $3/15 \times 100$ ); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e.  $14/15 \times 100$ ).

## 5.1 Business Environment

### 5.1.1 Taxation

Figure 5.1 Gap Between Total General Revenue and Expenditure (as a % of GDP), 2012F

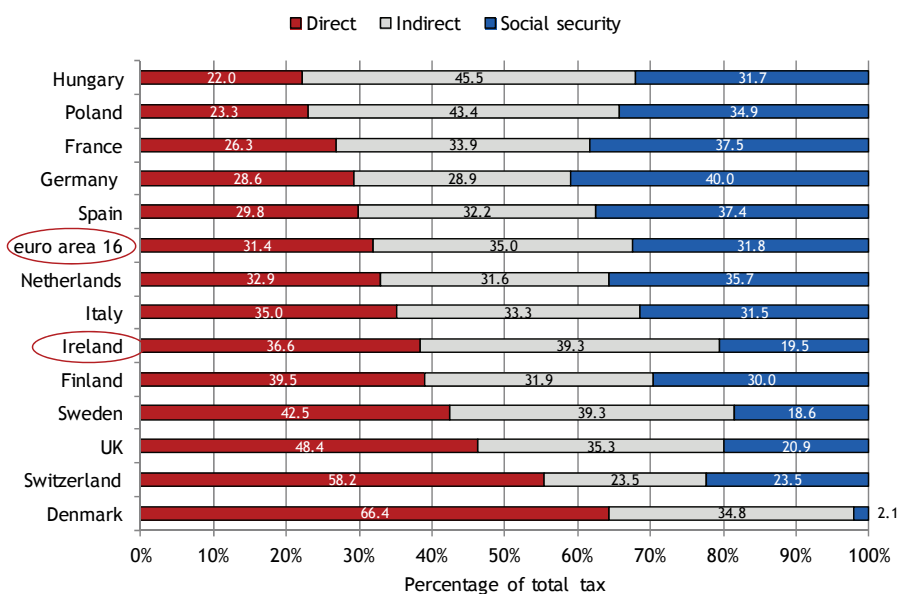


Irish Government expenditure is forecast to account for 44.1% of GDP and 54.8% of GNP in 2012. Compared to revenue, this results in an estimated deficit of -8.3% of GDP and -10.3% of GNP. This contrasts with the euro area-14 average deficit of -3.9% of GDP for 2012. The share of Government expenditure in the economy has increased as a result of decreased activity in the other sectors of the economy<sup>136</sup>.

**euro area-16 ranking:**  
**Deficit: 16<sup>th</sup> (-)**

Source: European Commission, Economic Forecasts, Autumn 2011

Figure 5.2 Breakdown of Tax Revenue, 2010



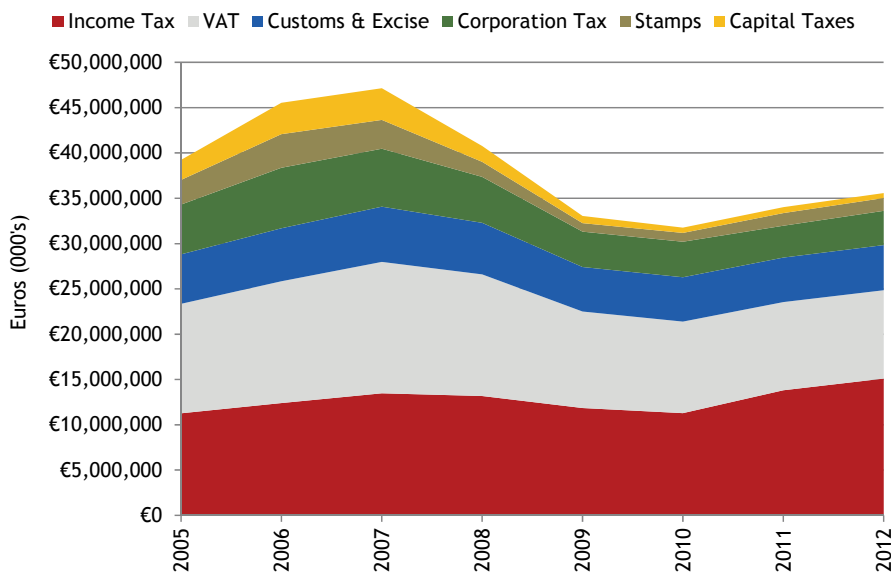
Social security contributions in Ireland constitute a smaller proportion of overall tax revenue (19.5%) than in most euro area economies (average of 31.8%). It is important to note that such data does not consider the levels of benefits which accrue as a result of these payments. The remaining elements of Ireland's revenue stream are almost evenly split between indirect (39.3%) and direct taxation (36.6%).

**Ranking: n/a**

Source: Eurostat, Economy and Finance Indicators

<sup>136</sup> The terms of the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (the Fiscal Stability Treaty) state that general government budgets shall be balanced or in surplus, and that the annual structural deficit must not exceed 0.5% of nominal GDP.

Figure 5.3 Tax Revenue, by Category, 2005-2012F

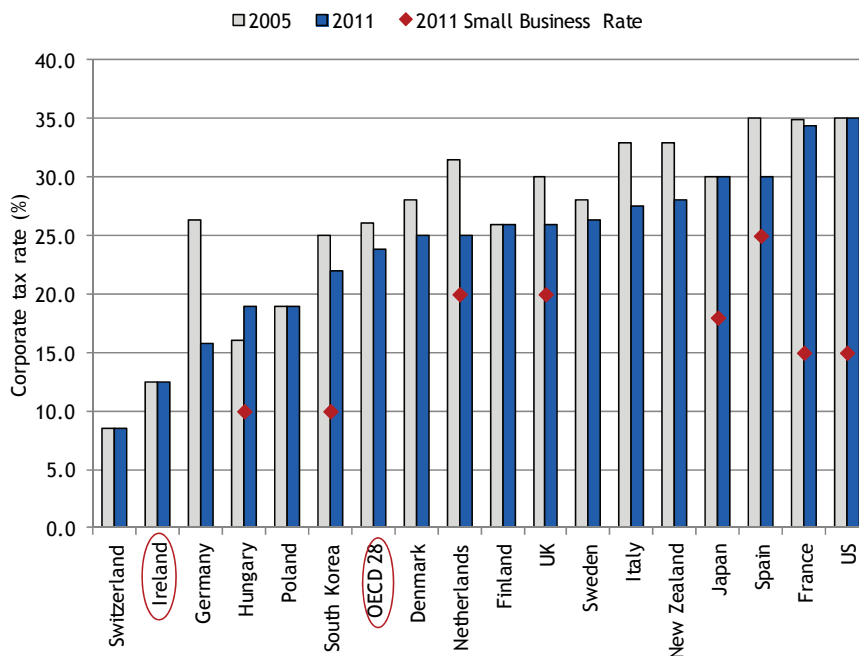


In 2012, Ireland's total forecast tax revenue is €35.6bn. While this is an increase from 2011 (€34bn) it remains significantly behind the peak revenue of €47.1bn achieved in 2007. The sharpest declines among the tax heads between 2007 and 2011 in percentage terms have occurred in capital taxes (-81%), stamp duties (-56%) and corporation tax (-45%). In monetary terms the largest decline has been in VAT receipts (-€4.7bn), reflecting the slowdown in consumer spending.

Ranking: n/a

Source: Department of Finance, Exchequer Statements, Estimates of Receipts and Expenditures, Budget 2012

Figure 5.4 Central Government Corporate Income Tax Rate, 2011

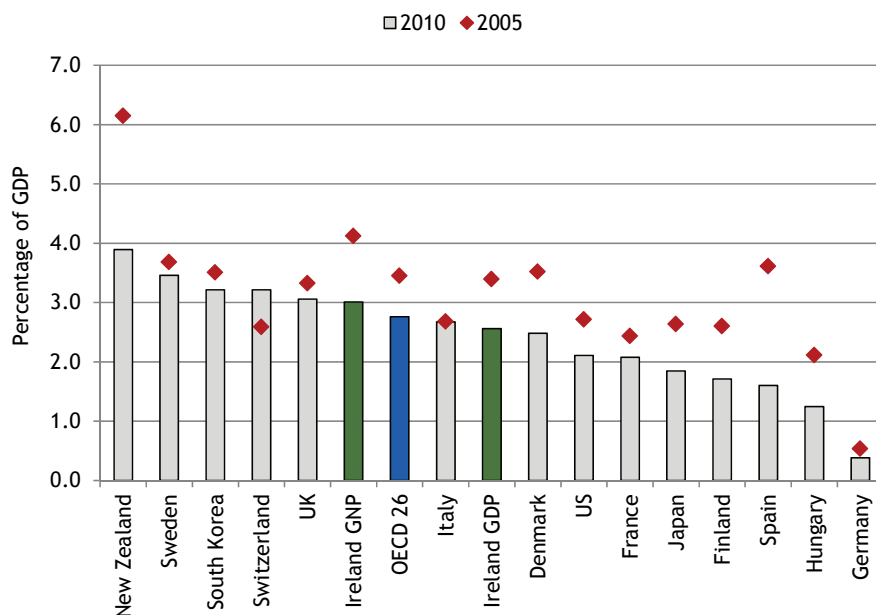


Ireland's corporation tax rate remains one of the country's key competitiveness strengths. At 12.5% Ireland has the second lowest headline rate in the OECD-28. There is a noticeable downward trend in corporation tax rates globally - the UK, for example, has announced its intention to further reduce corporate tax to 23% by 2014. It is also worth noting that effective tax rates across countries can be lower and that several countries have a differentiated rate for SMEs.

OECD-28 ranking: 2<sup>nd</sup> (-)

Source: OECD Tax Database 2012

Figure 5.5 Corporation Tax Receipts (as a % of GDP), 2010



Revenue raised through corporation taxes (as a proportion of GDP) has fallen in recent years, both in Ireland and in general across the OECD. In 2010, Ireland's corporation tax receipts amounted to 3.01% of GNP (2.56% of GDP) compared to an OECD average of 2.76% of GDP.

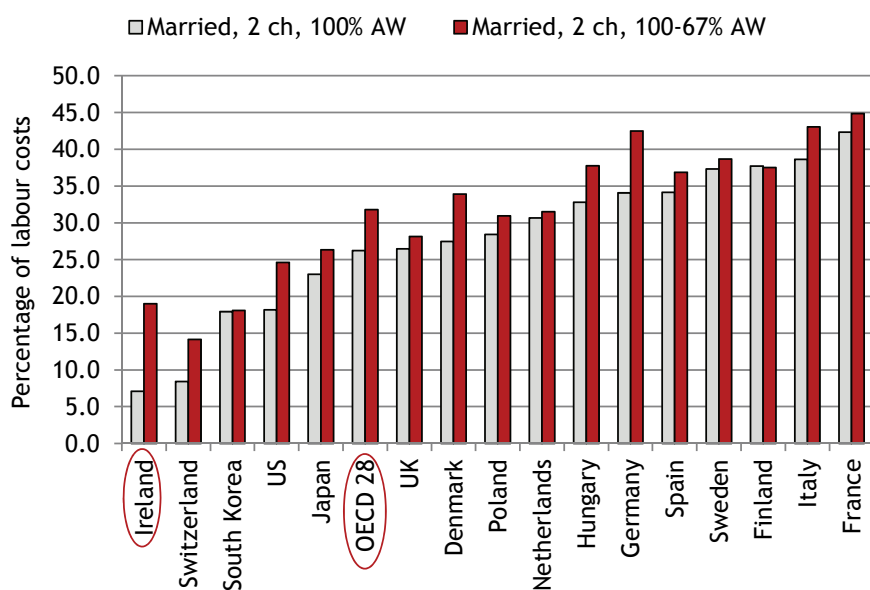
**OECD-26 ranking<sup>137</sup>:**

% GDP: 12<sup>th</sup> (↓1)

% GNP: 9<sup>th</sup> (↓3)

Source: OECD, Tax Database 2012

Figure 5.6 Income tax plus Employee and Employer Contributions less Cash Benefits (% of Labour Costs), 2011 (Married)



This figure illustrates the cost of income tax and employee and employer social security contributions as a proportion of total labour costs. While Ireland remains competitive, the gap between gross and net pay has risen since 2008. For a married couple with two children on a combined income of 167% of the average wage (i.e. a two earner family), the difference is 19%, up from 14% in 2008.

**OECD-28 ranking:**

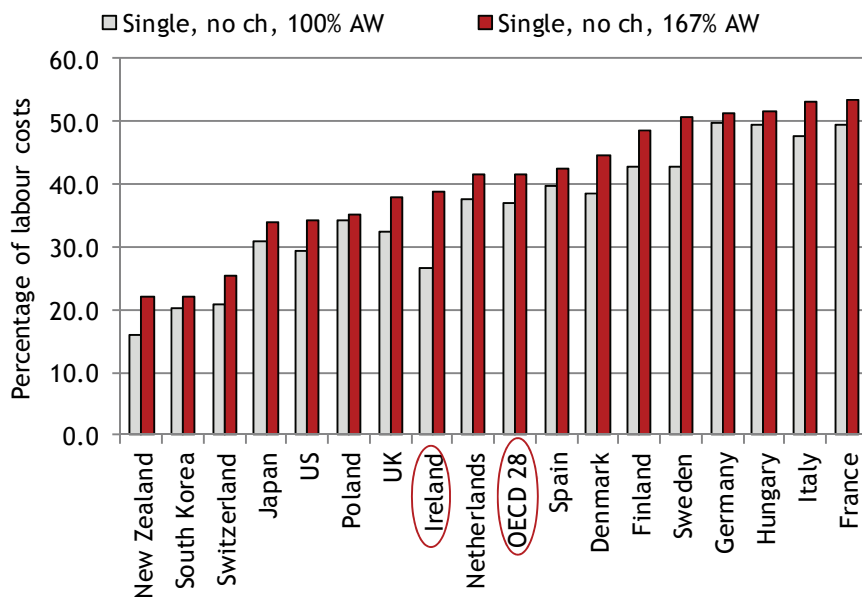
100% AW: 2<sup>nd</sup> (-)

167% AW: 4<sup>th</sup> (↓3)

Source: OECD, Taxing Wages 2011

137 Most recent data for Australia, Greece, Netherlands and Poland is from 2009

Figure 5.7 Income tax plus Employee and Employer Contributions less Cash Benefits (% of Labour Costs), 2011 (Single)

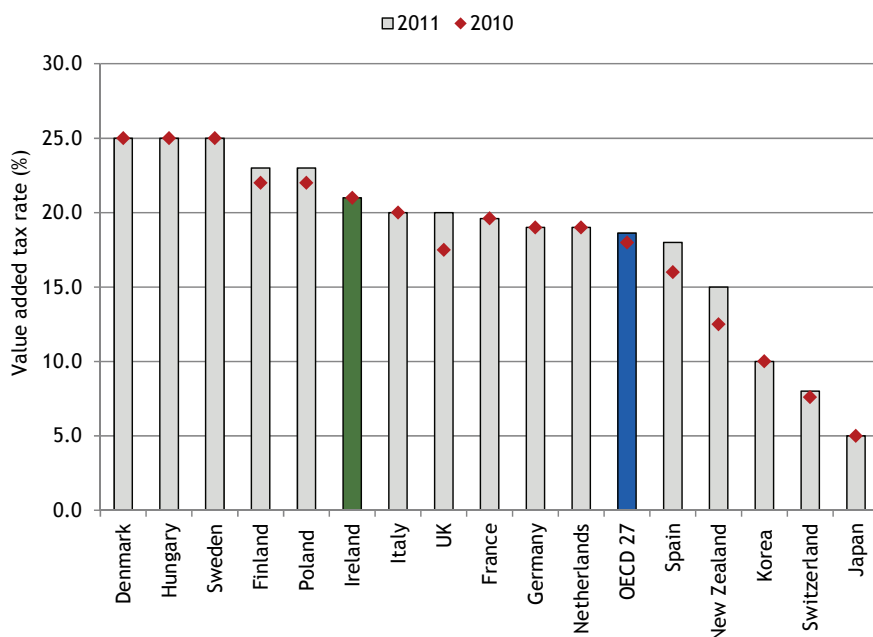


For a single person with no children on either 100% or 167% of the average wage, the difference between what the employer pays and what the employee receives has increased since 2008. At average wages, the difference in 2011 was 26.8% (up from 22.9% in 2008). At 167% of average wages, the difference in 2011 was 38.7% up from 34% in 2008. Marginal tax rates have also increased.

**OECD-28 ranking:**  
 100% AW: 5<sup>th</sup> (↓2)  
 167% AW: 11<sup>th</sup> (↓3)

Source: OECD, Taxing Wages 2010

Figure 5.8 Value Added Tax, Standard Rate, 2011



Value Added Tax is the primary source of indirect tax revenues for all countries. VAT is a tax on consumption and can be regressive. VAT, however, is generally viewed as having a less harmful impact on economic growth than corporate and income taxes, according to the OECD<sup>138</sup>. Ireland increased its standard rate of VAT to 23% in Budget 2012.

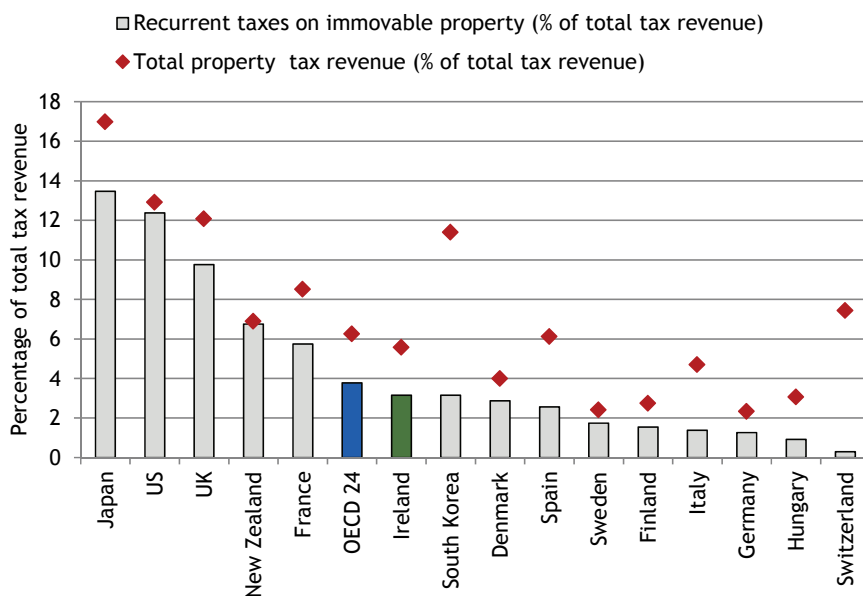
**OECD-27 ranking<sup>139</sup>:**  
 17<sup>th</sup> (↑2)

Source: OECD, Tax Database 2012

138 High VAT rates can weaken the competitiveness of the tourism sector. Notwithstanding general increases, VAT rates for the hospitality sector have been reduced in Ireland.

139 OECD-27 excludes the US

Figure 5.9 Recurrent<sup>140</sup> and Total Property Tax Receipts as % of Total Tax Revenue, 2010



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.). Ireland generates a relatively low proportion of revenue through the use of recurrent taxes (3.2% of total tax revenue, compared with 9.8% in the UK, and 12.4% in the US). Deliberations are currently underway to consider how a property tax will be levied in Ireland from 2013.

**OECD-24 ranking<sup>141</sup>:**

Recurrent taxes: 8<sup>th</sup> (↓1)

Total property tax: 13<sup>th</sup> (↓7)

Source: OECD, Stat.Extracts

140 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.

141 OECD-24 excludes Australia, Greece, Mexico and Netherlands due to lack of available data for 2010



## 5.1.2 Finance

Figure 5.10 Interest Rates Available to Non-Financial Corporations by Loan Size and Duration, January 2006 / February 2012

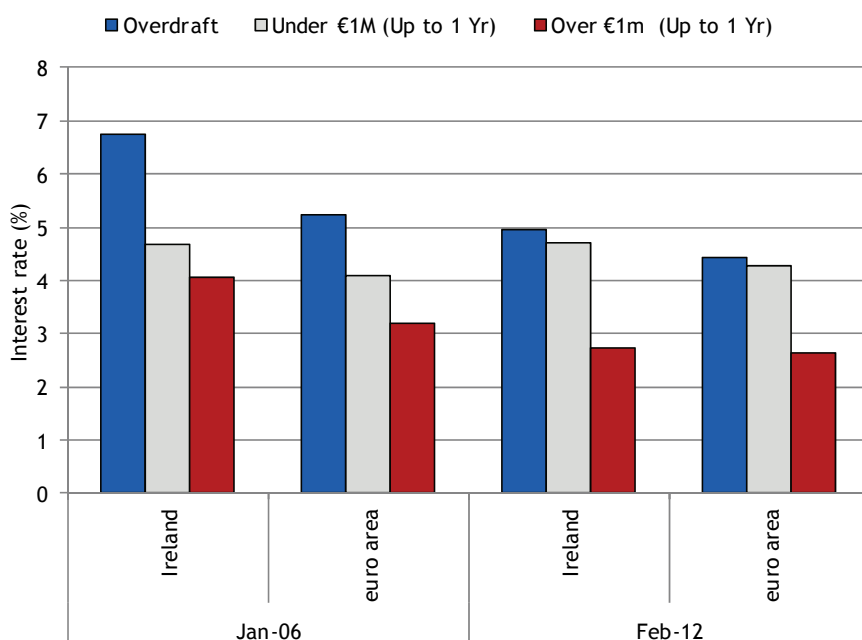
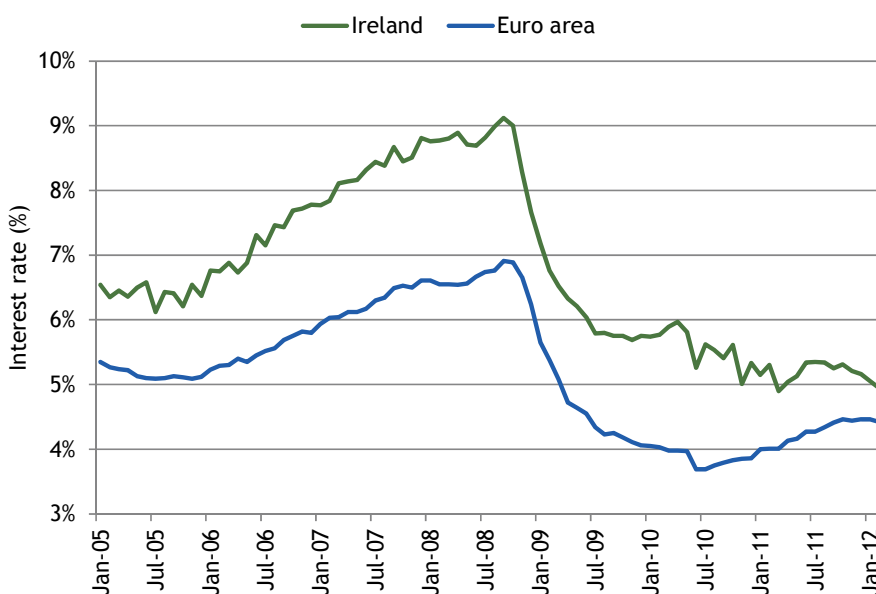


Figure 5.10 shows average interest rates available to non-financial companies in Ireland and the euro area. These credit lines were more expensive in Ireland than the euro area average in February 2012. It is important to note that the interest rates in the chart are in relation to new loan agreements only<sup>142</sup>.

Ranking: n/a

Source: European Central Bank

Figure 5.11 Overdraft Interest Rates to Non-Financial Corporations<sup>143</sup>, 2005 - 2012



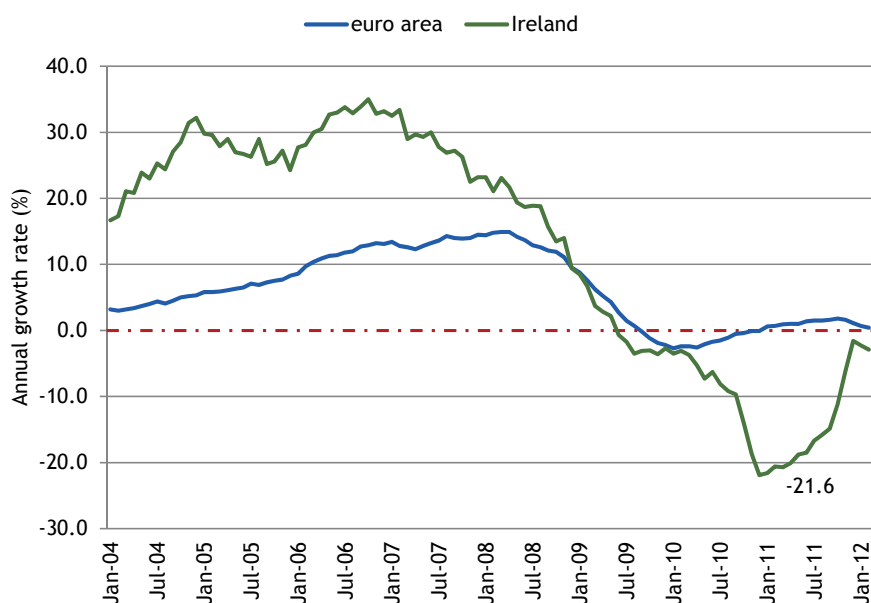
This chart shows interest rates available to non-financial companies for overdraft facilities in Ireland and the euro area. Irish businesses have faced consistently higher interest rates than the euro area average for overdraft facilities since 2005. In February 2012, Irish firms paid 4.9% on an overdraft compared to the euro area average of 4.4%.

Ranking: n/a

Source: European Central Bank, February 2012

142 Loans under €1 million and loans over €1 million accounted for €1.4 billion worth of new business, compared with a total stock of €88.7 billion in outstanding loans in Ireland in December 2011. For further details, see Forfás, The Irish Enterprise Funding Environment, April 2012  
 143 Interest rates expressed are for overdrafts include bank overdrafts, revolving loans, convenience and extended credit card debt. These statistics refer to new business only, which accounts for a small proportion of total outstanding overdrafts.

Figure 5.12 Annual Growth Rate in Outstanding Credit to Non-Financial Corporations, February 2012

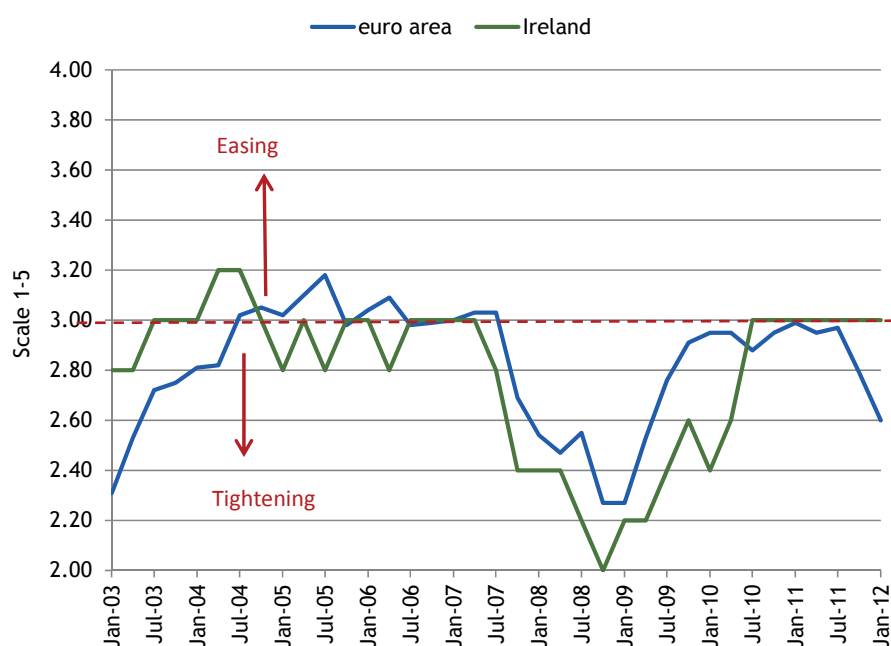


Annual growth rates in the stock of credit have been negative since June 2009, reflecting in part the scale of debt repayment. Since January 2011, the rate of decline in credit growth has eased significantly. The value of credit outstanding to companies declined from a peak of €193.6 billion in November 2008 to €99.4 billion in February 2012<sup>144</sup>.

Ranking: n/a

Source: European Central Bank

Figure 5.13 Change in Credit Standards for Loans to Enterprises (Scale 1-5), January 2012



Irish banks tightened credit standards more aggressively than euro area banks from 2007 onwards<sup>145</sup>. Since mid-2010, Irish standards appear to have moved in line with average euro area standards. In January 2012, for the third successive quarter, credit standards in Ireland were unchanged in relation to loans to enterprise. Respondents reported heightened levels of risk perception and weakening economic prospects.

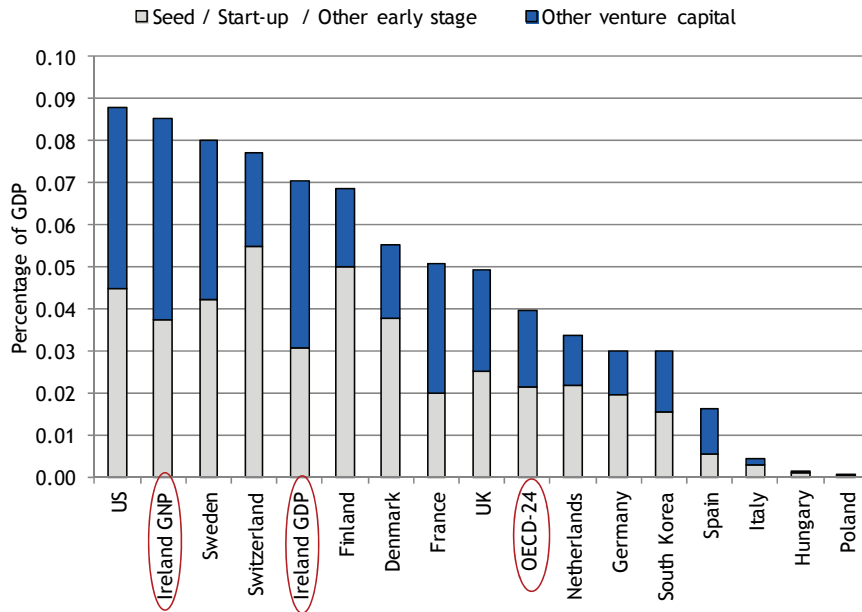
Ranking: n/a

Source: European Central Bank

144 According to the Central Bank of Ireland, the total amount of credit outstanding to Irish private-sector enterprises on the balance sheet of resident credit institutions excluding property-related and financial sectors was €40.3 billion at the end of December 2011.

145 This chart should be interpreted with caution as the data is reported by bank lending officers and as there are a small number of people reporting in Ireland. Apart from interest rates, banks also impose non-price conditions on their lending activity. These conditions are usually given priority over price conditions, as borrowers must first fulfil the criteria before price is negotiated (e.g. collateral requirements and minimum loan-to-value ratios). Instead of raising interest rates in order to curtail lending demand, lenders are more likely to change lending conditions in order to make it more difficult for borrowers to access credit.

Figure 5.14 Venture Capital Investment as a % GDP, 2009



Venture capital (VC) is private capital typically provided to high-growth companies. Ireland has a relatively high intensity of VC investment (0.07% of GDP) compared with the OECD average (0.04%). The majority of VC in Ireland is invested in later stage projects. As VC is very sensitive to market cycles, investment rates are likely to have weakened since 2009.

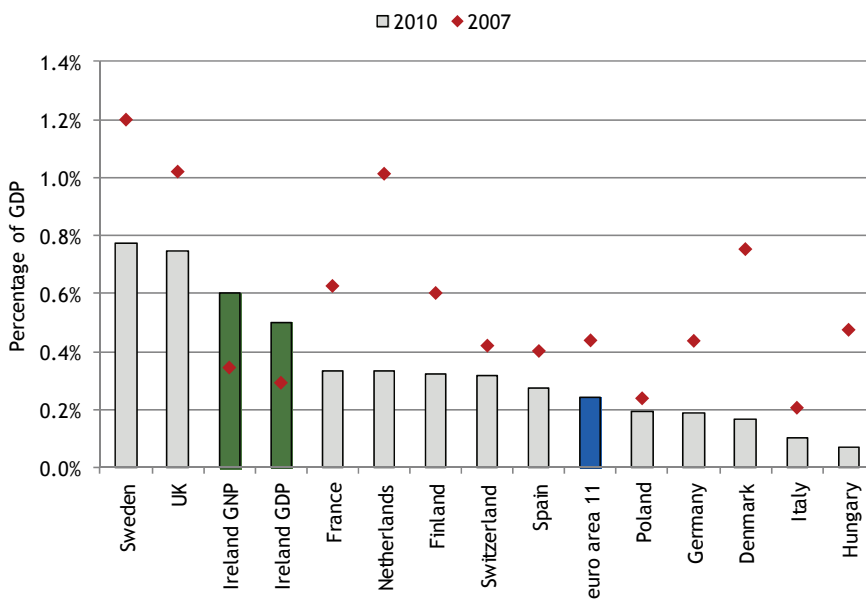
**OECD-24 ranking<sup>146</sup>:**

GDP: 4<sup>th</sup>

GNP: 2<sup>nd</sup>

Source: OECD Science, Technology and Industry Scoreboard 2011

Figure 5.15 Private Equity Investment (as a % GDP), 2010



Private equity, which comprises all stages of financing (seed, start-up, expansion, replacement capital and buyouts), increased in Ireland between 2007 and 2010, despite general declines across the euro area. Private equity now accounts for 0.5% of GDP (up from 0.29% in 2007) and exceeds the euro area average of 0.25%.

**euro area-11 ranking<sup>147</sup>:**

GDP: 1<sup>st</sup> (↑7)

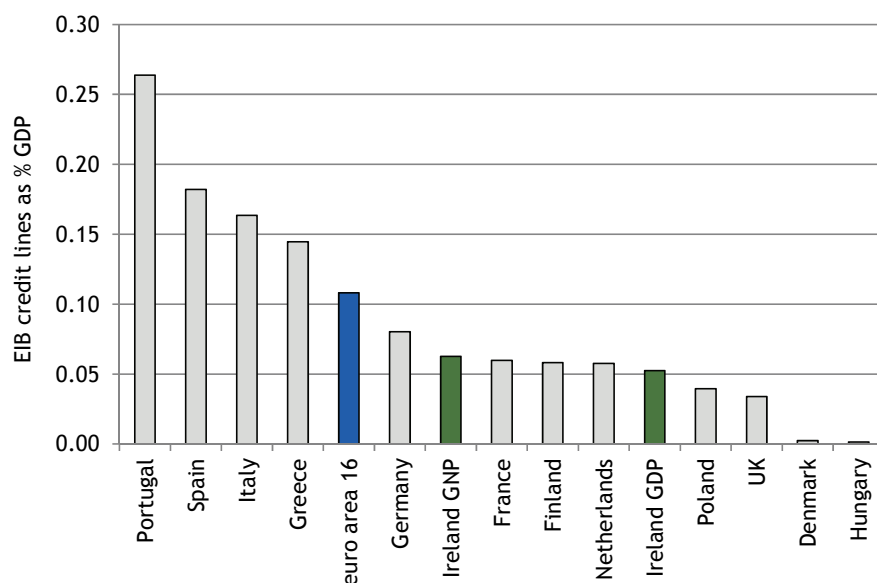
GNP: 1<sup>st</sup> (↑6)

Source: European Private Equity & Venture Capital Association

146 OECD-24 excludes Iceland, Japan, New Zealand and Slovakia. Note that methodological changes in the construction of this indicator mean that it is not possible to compare performance over time.

147 Euro area 11 excludes Cyprus, Estonia, Luxembourg, Malta, Slovakia and Slovenia.

Figure 5.16 Total Value of EIB Funding for Credit Lines to Enterprise 2006-2011 as a % Average GDP 2006-2011



The European Investment Bank provides funding through financial intermediaries in recipient countries to support credit lines to enterprise in that country. The value of credit lines financed by the EIB in Ireland between 2006 and 2011 as a proportion of GDP remains significantly below the euro area average.

**euro area-16 ranking<sup>148</sup>:**  
 GDP: 15<sup>th</sup>  
 GNP: 12<sup>th</sup>

Source: European Investment Bank

Figure 5.17 Credit Demand from Enterprise, 2010

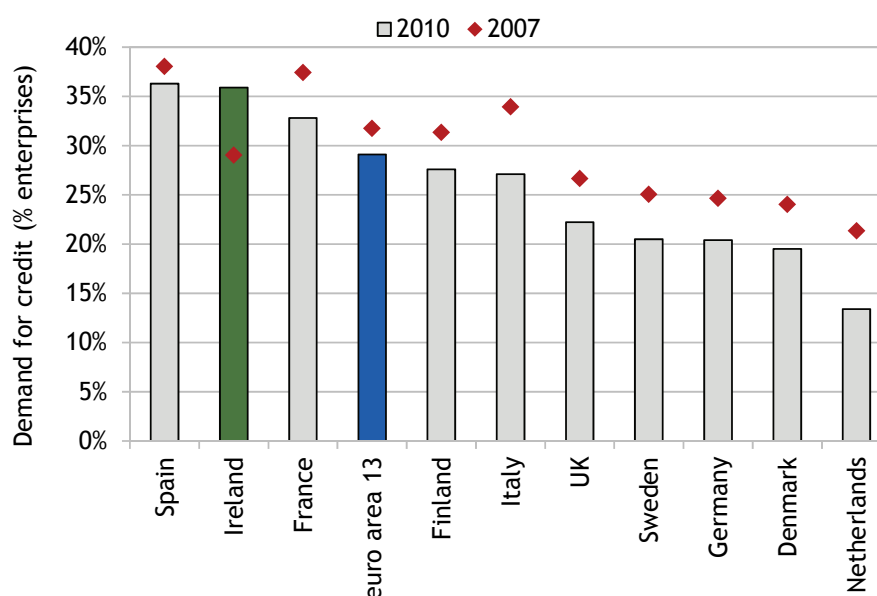


Figure 5.17 reflects the demand rate from businesses (not including financial and insurance activities) seeking loan finance from banks. Demand in Ireland is relatively high, with almost 36% of firms reportedly seeking credit (compared with a euro area average of 29%). The proportion of firms who are successful in obtaining credit in Ireland has fallen significantly from 97% in 2007 to 53% in 2010<sup>149</sup>.

**euro area-13 ranking<sup>150</sup>:** 4<sup>th</sup> (↑4)

Source: Eurostat, Access to Finance Survey

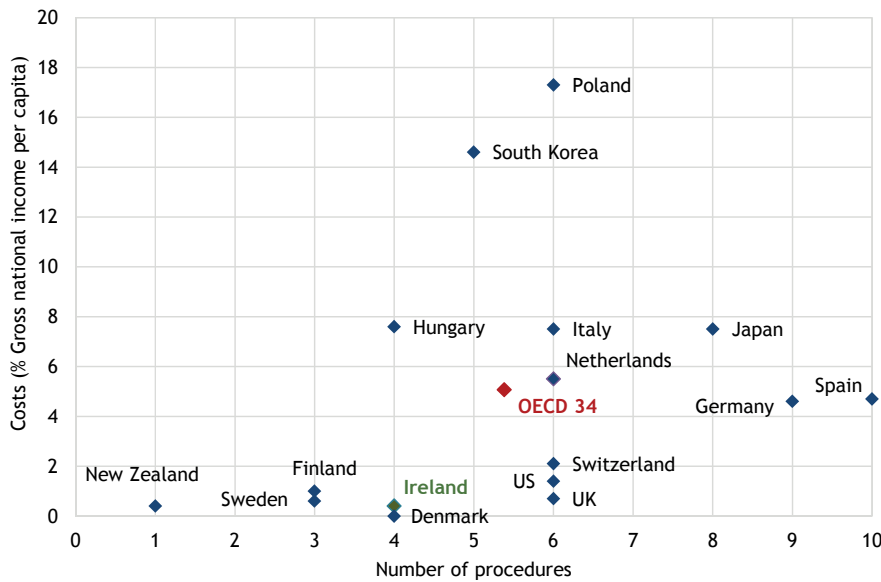
148 Euro area 15 excludes Estonia and Malta

149 Successful relates to firms who are fully successful - that the amounts requested were obtained, on substantially the desired terms (for example the period over which the loan has to be paid back, or the interest rate charged).

150 Euro area 13 excludes Austria, Estonia, Portugal, and Slovenia

### 5.1.3 Regulation and Competition

Figure 5.18 Cost of Starting a Business and Number of Procedures Involved, 2012



This chart shows both the financial costs of meeting the regulations to establish a business and the number of procedures involved. Ireland ranks favourably under both measures. Ireland also performs relatively strongly in terms of the number of days it takes to start a business (13), but remains behind leading countries such as New Zealand (1) and Singapore (3).

**OECD-34 ranking:**  
 Costs: 3<sup>rd</sup> (-)  
 Procedures: 8<sup>th</sup> (-)

Source: World Bank, Doing Business 2012

Figure 5.19 Cost of Registering a Property and Number of Procedures Involved, 2012

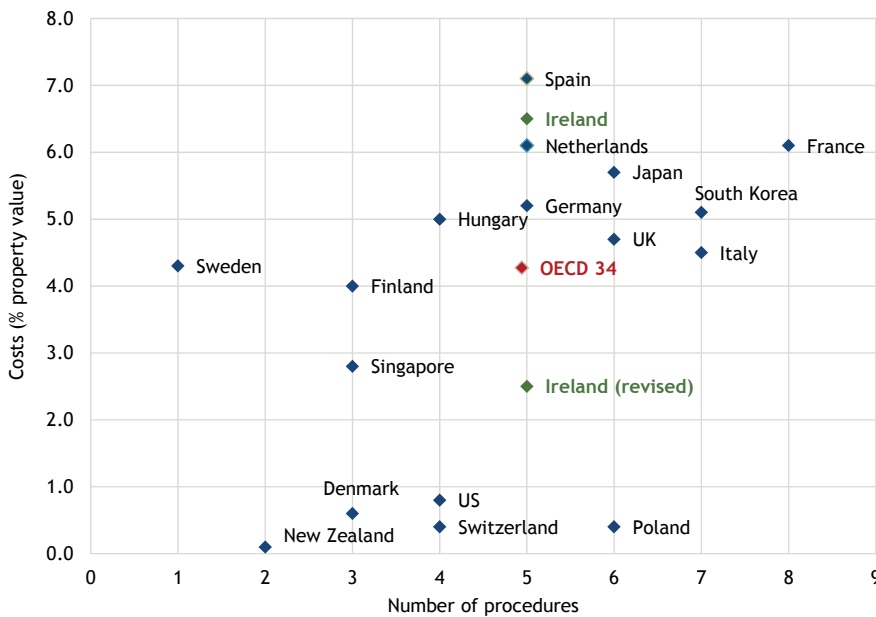


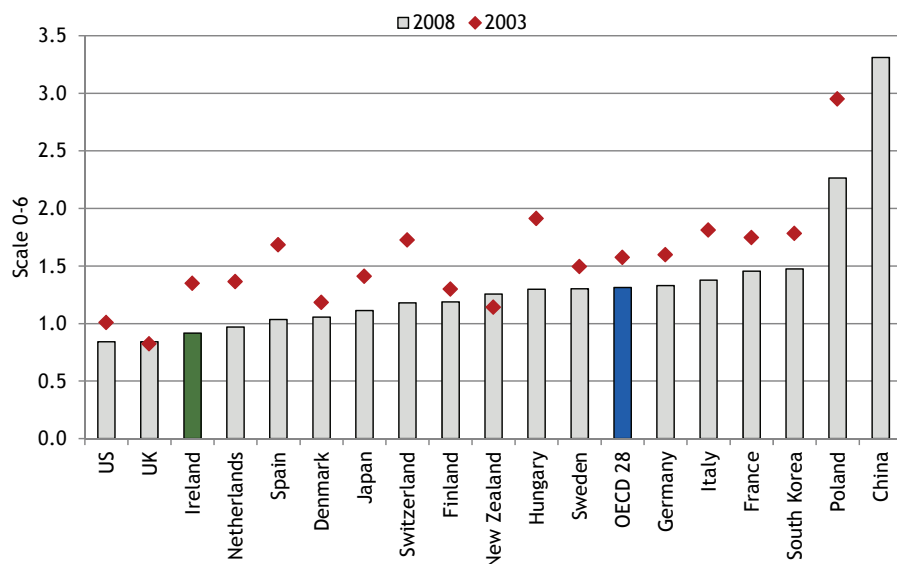
Figure 5.19 shows the financial costs of registering a property<sup>151</sup> and the number of procedures involved. While the number of procedures in Ireland is similar to the OECD average, costs were considerably higher, prior to the recent reduction in stamp duty. The estimated impact of the reduction is illustrated by the revised Irish data point.

**OECD-34 ranking:**  
 Cost (non-revised) : 29<sup>th</sup> (-)  
 Procedures: 15<sup>th</sup> (↑2)

Source: World Bank, Doing Business 2012

<sup>151</sup> Property costs (recorded as a percentage of property value) comprise official costs required by law, including fees, transfer taxes, stamp duties and any other payments (e.g. payments to the property register, notaries, public agencies and lawyers). Other taxes such as capital gains tax or value added tax are excluded. Costs borne by the buyer and by the seller are included. In Budget 2012, the rate of stamp duty on non-residential property was reduced from a top rate of 6 per cent (on transfers exceeding €80,000) to a flat rate of 2 per cent.

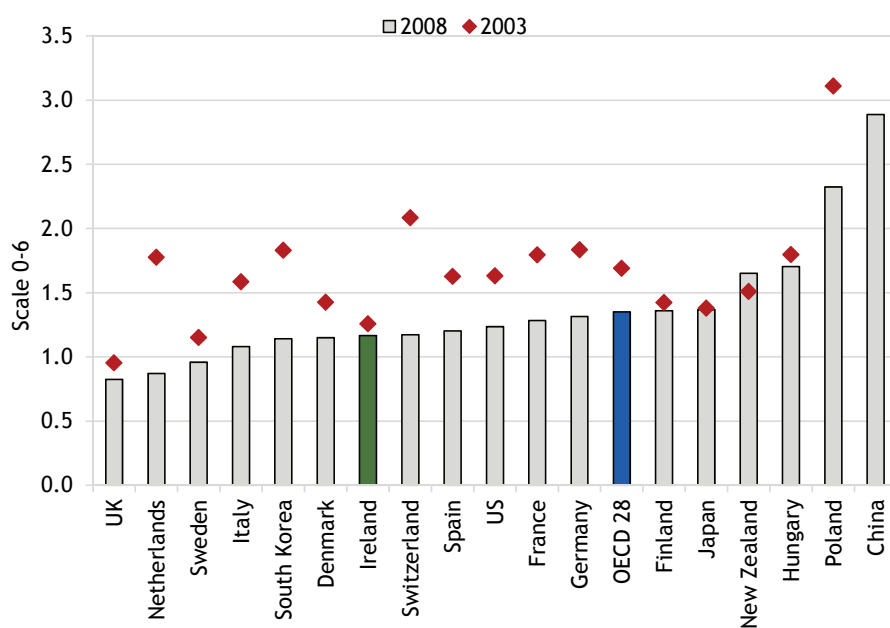
Figure 5.20 Product Market Regulation<sup>152</sup>, (Scale 0-6), 2008



The degree to which policies promote or inhibit competition in product markets is measured by this indicator. Ireland performs well in this indicator as regulations promote choice and competition. Barriers to product market competition declined in Ireland, mirroring most other OECD countries between 2003 and 2008. **OECD-28 ranking: 3<sup>rd</sup> (↑6)**

Source: OECD Product Market Indicators

Figure 5.21 Barriers to Entrepreneurship, (Scale 0-6), 2008



This indicator measures regulatory and administrative opacity, administrative requirements for start-ups and barriers to competition. Ireland performs relatively well but our score has only improved marginally since 2003. Ireland's performance is weakest in terms of regulatory and administrative opacity, which contains measurements relating to the licensing and permits system, and the communication and simplification of rules and procedures. **OECD-28 ranking: 9<sup>th</sup> (↓5)**

Source: OECD Product Market Indicators

152 The OECD Indicators of Product Market Regulation are a comprehensive and internationally-comparable set of indicators that measure the degree to which policies promote or inhibit competition in areas of product markets where competition is viable. They measure the economy-wide regulatory and market environments in 30 OECD countries (and a selection of non-OECD countries in (or around) 1998, 2003 and 2008.

Figure 5.22 Time to Comply with Tax Payments (hours per year)<sup>153</sup>, 2011

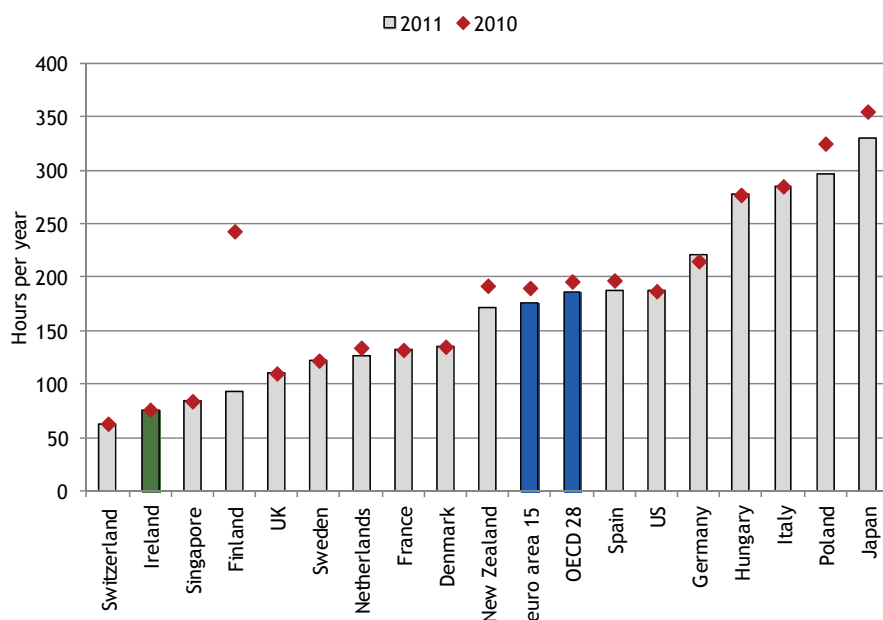
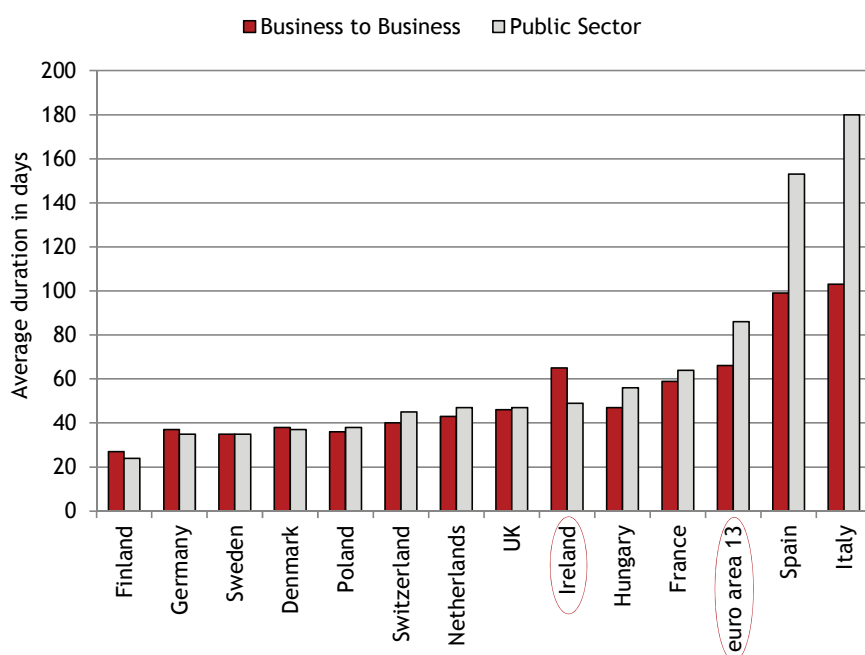


Figure 5.22 measures the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are captured - these include time taken to prepare the tax figures, complete and file the tax returns, and paying the taxes. Ireland performs strongly in this indicator.

OECD-28 ranking: 3<sup>rd</sup>  
(↓1)

Source: World Bank/ Price Waterhouse Coopers, Paying Taxes, 2012

Figure 5.23 Average Payment Duration for Settling an Invoice (Days), 2011



The average time taken to settle an invoice is 49 days for public authorities and 65 days for businesses. The euro area average is 86 days and 66 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 (35)<sup>154</sup>.

euro area-13 ranking<sup>155</sup>:

Public Authorities: 4<sup>th</sup> (-)  
Business-to-Business: 8<sup>th</sup> (-)

Source: European Payment Index 2011, Intrum Justitia

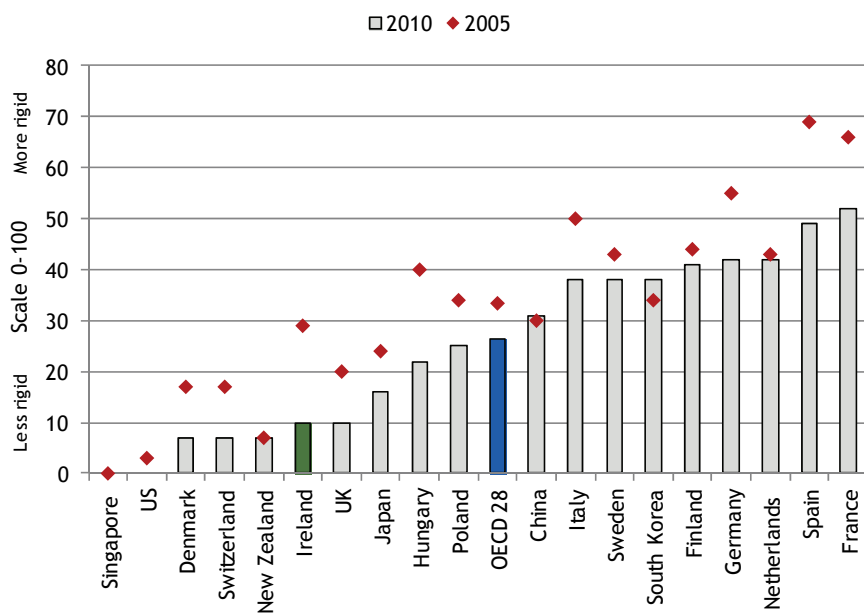
<sup>153</sup> Euro area 15 excludes Estonia and Malta.

<sup>154</sup> The reduction in the payment period from 30 to 15 days came into effect from 15 June 2009 for central Government Departments. With effect from 1 July 2011, the 15 day requirement was extended to the Health Service Executive, the local authorities and all other public sector bodies (excluding commercial Semi-State bodies), meaning that all valid invoices should be paid within 15 days of receipt.

<sup>155</sup> Euro area 13 excludes Estonia, Luxembourg, Malta and Slovenia.



Figure 5.24 Labour Market Regulation: Rigidity of Employment Index (Scale 0-100), 2010



The 'Rigidity of Employment' index is calculated represents a simple average of data measuring 'Difficulty of Hiring', 'Rigidity of Hours' and 'Difficulty of Firing' indices. The index varies between 0 and 100, with higher values for more rigid regulation. Ireland's employment framework is less rigid than the OECD average and significantly less rigid than countries such as Spain and France.

**OECD-28 ranking<sup>156</sup>: 7<sup>th</sup> (↑5)**

Source: World Bank Doing Business 2010 / 2005

<sup>156</sup> OECD average for 2005 is calculated for OECD 26 and excludes Iceland and Luxembourg.

## 5.2 Physical and Economic Infrastructure

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

### 5.2.1 Investment in Physical Infrastructure

The value of the stock of fixed assets in Ireland declined in 2010, primarily as a result of falling asset values for new dwellings and other buildings. It is estimated that almost 82 per cent of the decline in net asset stocks over the period 2007-2010 is accounted for by declining values for private dwellings (Figure 5.25).

Figure 5.26 illustrates the average annual growth rate in the value of Ireland's fixed assets between 2000 and 2010. Overall, net capital stock grew by 4.9 per cent per annum. Transport equipment and roads have experienced the most rapid growth over the period, reflecting the significant investment in the Irish road network over the past decade.

Despite the significant investment referenced above, perceptions regarding the overall quality of infrastructure in Ireland remain poor and Ireland performs significantly below the OECD average (Figure 5.27). Perceptions about the quality of Ireland's energy infrastructure remain particularly poor despite significant investment in generating capacity and network infrastructure. Potentially reflecting the investment referenced above, perceptions relating to transport infrastructure have improved substantially - from 4.48 in 2005 to 7.96 in 2011.

### 5.2.2 Transport, Energy and Environmental Infrastructure

Figure 5.28 examines Dublin's performance under two indices - under the first (which measures how Dublin's transports system performs), Dublin is ranked last, reflecting the dispersed nature of the city and limited alternatives to private car transport. This data, however, does not capture more recent developments such as the introduction of the "Dublin Bikes" scheme, the development of cross-city cycle lanes and the rollout of integrated public transport ticketing (the "Leap" card), which may impact positively on Ireland's performance in future years. Under the second index (relating to water and which takes account of a range of factors including annual water consumption per capita, amount of water lost in the distribution system, and policy measures to improve the water use), Dublin ranks 16<sup>th</sup> out of 30 international cities. It is worth noting that Dublin performs above average in a number of other indicators including air quality, for example (driven by the ban on smoky coal and the phase-out of leaded petrol).

Security of energy supply is a vital consideration in any energy policy formulation. Since the mid-1990s, import dependency has grown significantly in Ireland due to an increase in energy use, a decline in indigenous natural gas production and a decrease in peat production (Figure 5.29). Ireland's overall import dependency peaked at 90 per cent in 2006 but has decreased to 86 per cent in 2010, which compares unfavourably with the EU-15 average of 57 per cent. The margin of electricity supply capacity over peak demand has improved considerably in recent years with associated benefits for electricity security of supply. The East-West electricity interconnector to Great Britain is on schedule to become operational in Q3 2012<sup>157</sup>.

Natural gas is the dominant fuel in electricity generation in Ireland and accounts for 55 per cent of electricity generation<sup>158</sup>. Ireland's gas storage capacity, however, is low (3.5 per cent of annual consumption) compared with the euro area average of 21 per cent (Figure 5.30). Ireland's reliance on gas as a primary fuel source for electricity generation is likely to continue in the medium to longer term. The proposed new gas supply infrastructure at Corrib and plans for gas storage facilities (including LNG) will help mitigate the issue as they will increase the diversity of Ireland's gas supply<sup>159</sup>.

### 5.2.3 Information and Communication Technology Infrastructure

As evidenced in section 4.1.2, services exports are becoming an increasingly important part of the Irish economic development. It is vital, therefore, that if we are to continue to grow our traded services sectors that the necessary supporting infrastructure is in place. Given that many such services are delivered remotely, ICT infrastructures are essential and increasingly important component of national competitiveness. From an enterprise perspective, the timely availability of advanced broadband services in the main cities and towns is the top infrastructure priority<sup>160</sup>.

Figure 5.31 examines expenditure on information and communications technology (ICT). Expenditure on ICT accounted for 5.6 per cent of GDP in 2010, ahead of the euro area average of 5 per cent. Irish expenditure, however, still lags Sweden and the UK, both of whom spend 6.9 per cent of GDP on ICT.

Ireland ranks poorly in terms of fibre connections and significantly lags leading countries in terms of upgrading the local broadband access network to fibre (Figure 5.32). In Ireland only 0.5 per cent of connections are over fibre connections compared to 61 per cent in Japan, and almost 57 per cent in South Korea. Ireland is making progress, however, in terms of the proportion of fixed broadband connections in Ireland with speeds at or above 10 Mbps; in 2008 just 0.7 per cent of connections in

<sup>157</sup> For further information, see <http://www.eirgrid.com/eastwest>

<sup>158</sup> SEAI, Energy in Ireland - Key Statistics, 2009

<sup>159</sup> According to the 2011 Joint Gas Capacity Statement, the feasibility of developing salt cavity storage in the Larne area of Northern Ireland and salt cavern storage in the Kish Bank Basin off the east coast is being looked at. It is expected that the gas storage in Larne will commence commercial operations in 2015/16 and the Kish Bank facility in 2018/19. Source: Joint Gas Capacity Statement 2011, CER and the Northern Ireland Utility Regulator, August 2011. See also Forfás, Review of Energy Competitiveness Issues and Priorities for Enterprise, December 2011

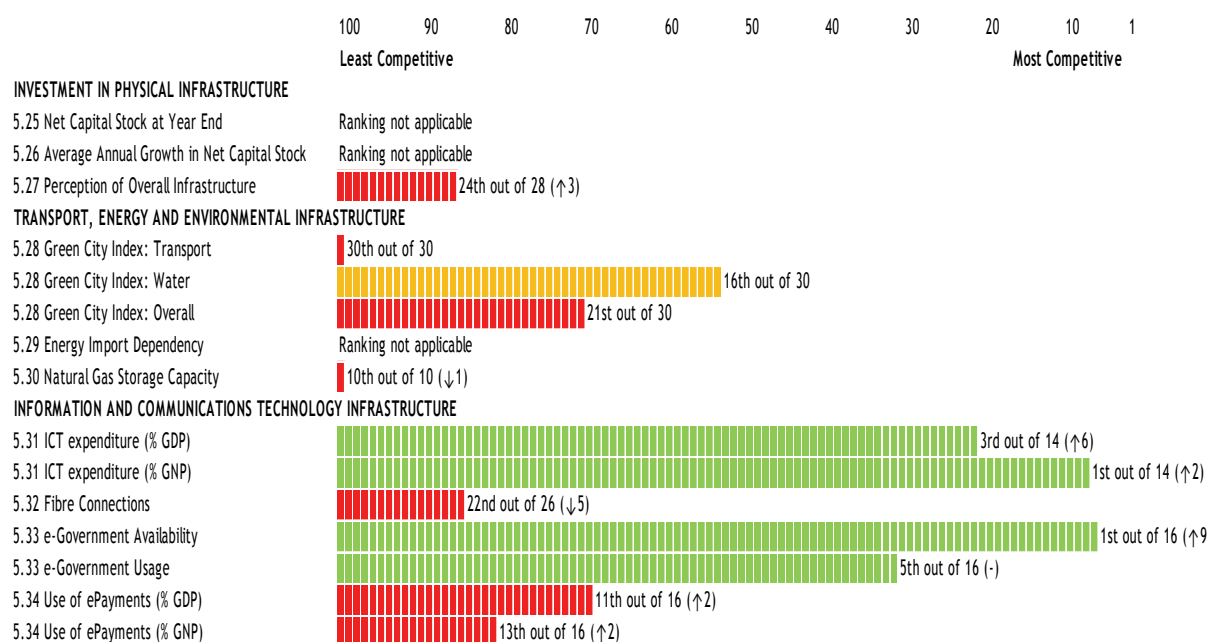
<sup>160</sup> According to the 2011 Forfás report, while the advanced broadband needs of ICT-intensive enterprises are generally well met in the large urban centres, businesses, particularly SMEs, outside the main urban centres have significantly less choice and less access to good quality services. Forfás defines advanced broadband services as services offering download speeds of 100 Mbps or more, with significantly higher upload capability (including the widespread availability of symmetric services for enterprise) and low latency (speed of response of the system to the user). For further detail, see Forfás, Ireland's Advanced Broadband Performance and Policy Priorities, November 2011

Ireland were over 10 Mbps but this had increased to 10.8 per cent in 2010 and 19.3 per cent in 2011<sup>161</sup>. This remains below the EU average (29.2%), and far behind leading countries (e.g. Netherlands with 57%)<sup>162</sup>.

In some areas, Ireland has proven to be a leader - for instance, in relation to the online availability of 20 basic public services for which it is possible to carry out full electronic case handling (Figure 5.33). Ireland has made significant progress over recent years and in 2010, 100 per cent of services examined were available electronically<sup>163</sup>.

Finally, the degree to which people use ICT in daily life is mirrored in Figure 5.34 which measures the use of e-payments. Ireland continues to rely more on cash transactions for payment for goods and services than most other euro area countries. Whereas cash withdraws accounted for 10.1 per cent of GDP in the euro area, in Ireland cash withdrawals accounted for 14.3 per cent of GDP and 17.3 per cent of GNP in 2010. Ireland's performance across all of the Physical and Economic Infrastructure indicators is summarised below.

### Summary of Standardised Physical and Economic Infrastructure Indicators<sup>164</sup>



161 Data on connections reflects both availability/supply of services and take-up/demand for such services. According to the Next Generation Broadband Taskforce report, approximately 610,000 homes (about one third of all homes) will have access to headline speeds of 100 Mbps at the end of 2012, mainly via the upgraded cable network. For further information, see Enabling a Connected Society, Report of the Next Generation Broadband Taskforce, May 2012

162 European Commission Information Society: Digital Agenda Scoreboard, 2011

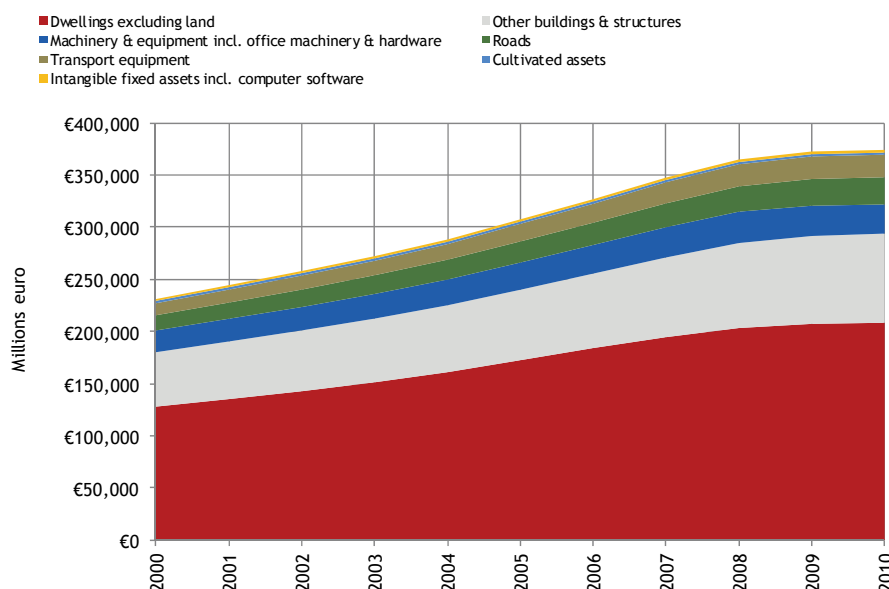
163 For details of the Department of Public Expenditure and Reform's plans to enhance delivery of a range of public services using e-Government, see Department of Public Expenditure and Reform, Supporting Public Service Reform: e-Government 2012-2015, April 2012.

164 Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e.  $3/15 \times 100$ ); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e.  $14/15 \times 100$ ).

## 5.2 Physical and Economic Infrastructure

### 5.2.1 Investment in Physical Infrastructure

Figure 5.25 Net Capital Stock at Year End, 2000-2010 (millions of Euro in constant 2009 prices)<sup>165</sup>



The value of the stock of fixed assets declined in 2010, primarily as a result of falling asset values for new dwellings and other buildings. In 2010, the value of dwellings in the State accounted for €208 billion, other buildings and structures for €111.5 billion (of which roads accounted for €26 billion), transport equipment for €21.6 billion and other machinery and equipment €27.8 billion.

Ranking: n/a

Source: CSO, Estimates of the Capital Stock of Fixed Assets

Figure 5.26 Average Annual Growth Rate in Net Capital Stock at Year End, 2000-2010

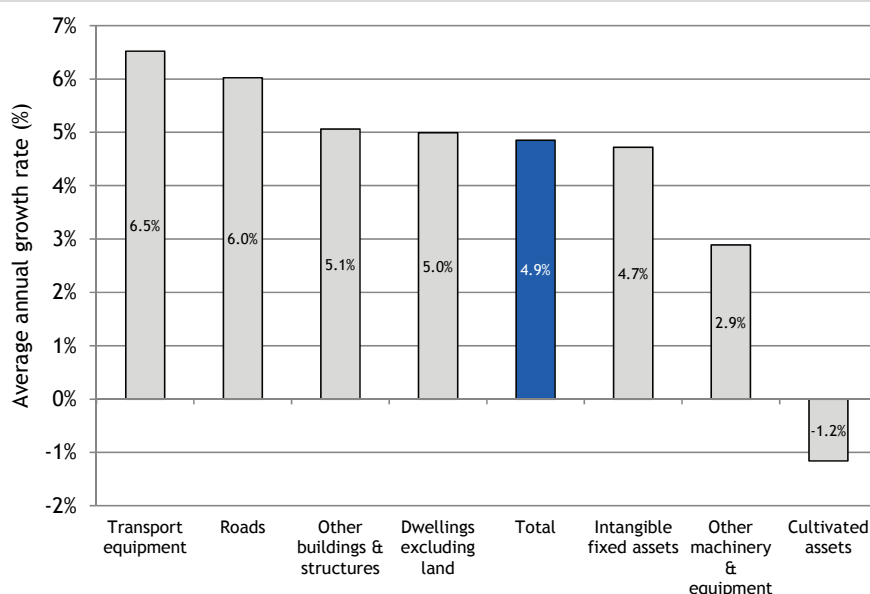


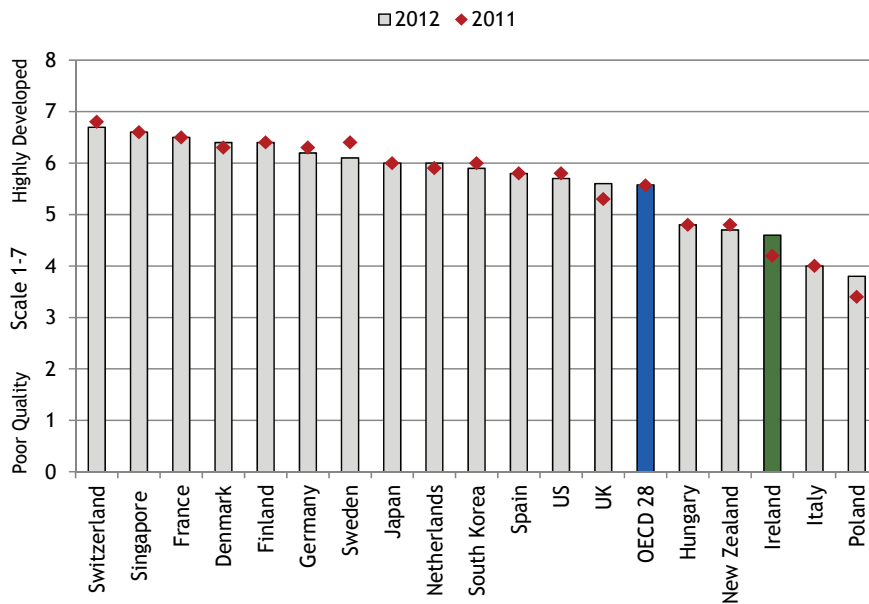
Figure 5.26 illustrates the average annual growth rate in the value of Ireland's fixed assets between 2000 and 2010. Overall, net capital stock grew by 4.9% per annum. Transport equipment and roads have experienced the most rapid growth over the period. Growth in enterprise related categories has been weaker.

Ranking: n/a

Source: CSO, Estimates of the Capital Stock of Fixed Assets

<sup>165</sup> This indicator measures produced fixed assets which excludes natural assets such as land, mineral deposits etc. Fixed assets decline in value over time due, for example, to wear and tear and obsolescence. Taking this declining value into account together with retirement of capital yields the net value of the stock of fixed assets which is shown in the chart.

Figure 5.27 Perception of Overall Infrastructure (Scale 1-7), 2011



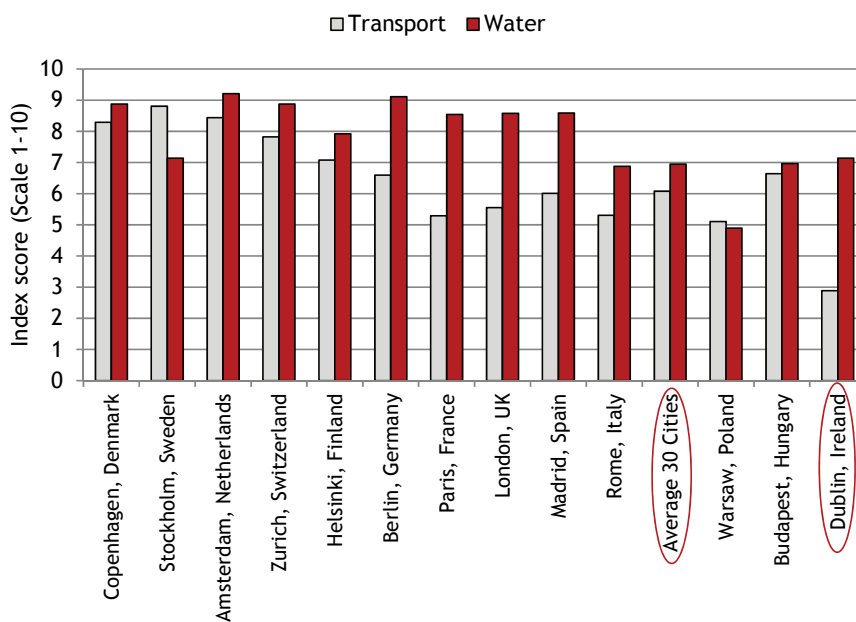
This chart shows executives' perceptions regarding the overall quality of infrastructure in an economy. Ireland's score remains significantly below the OECD average despite significant investments in infrastructure over recent decades.

**OECD-28 ranking: 24<sup>th</sup> (↑3)**

Source: World Economic Forum 2011/2012

### 5.2.2 Transport, Energy and Environmental Infrastructure

Figure 5.28 Green City Index<sup>166</sup>, Transport & Water Scores (Scale 0-10), 2009



Dublin is ranked last in the Green City transport index, reflecting the dispersed nature of the city and more limited alternatives to car transport<sup>167</sup>. This data does not reflect recent developments (such as the introduction of the "Dublin Bikes" scheme), which may have some positive impact. In the water index, Dublin ranks 16<sup>th</sup> out of 30 cities.

**Ranking (out of 30):**  
 Transport: 30<sup>th</sup>  
 Water: 16<sup>th</sup>  
 Overall: 21<sup>st</sup>

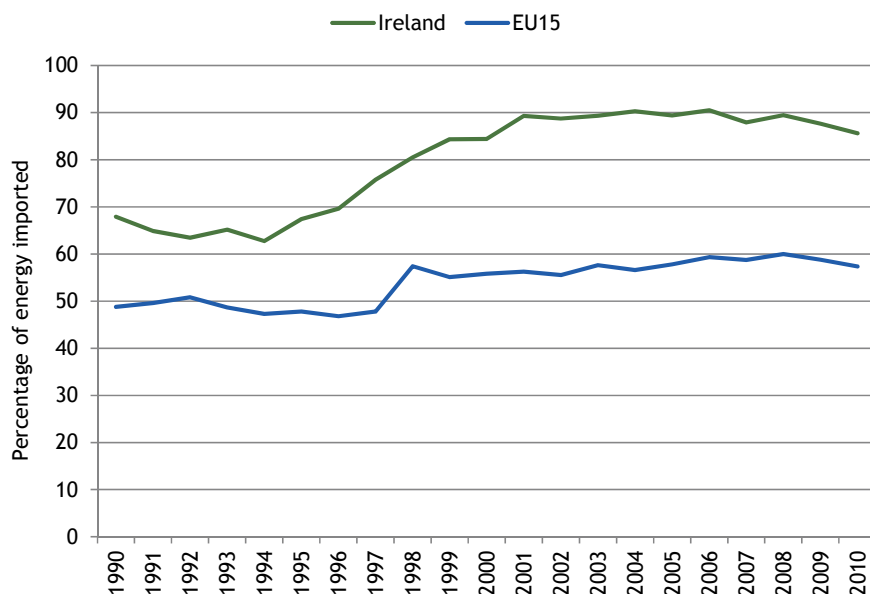
Source: Siemens/Economist Intelligence Unit, European Green City Index, December 2009

166 The European Green City Index measures and rates the environmental performance of 30 European cities from 30 European countries. It takes into account 30 individual indicators per city, touching on a wide range of areas, from environmental governance and water consumption to waste management and greenhouse gas emissions. The transport index measures performance in terms of the use of non-car transport, length of cycle lanes/public transport networks and congestion policies. The water index takes account of a range of factors including annual water consumption per capita, amount of water lost in the distribution system, and policy measures to improve the water use.

167 The proportion of people taking public transport to work (20%) in Dublin, the length of the public transport network and the extent of cycle lanes are well below the euro area average.



Figure 5.29 Energy Import Dependency<sup>168</sup>, Ireland and the EU 15, 1990-2010

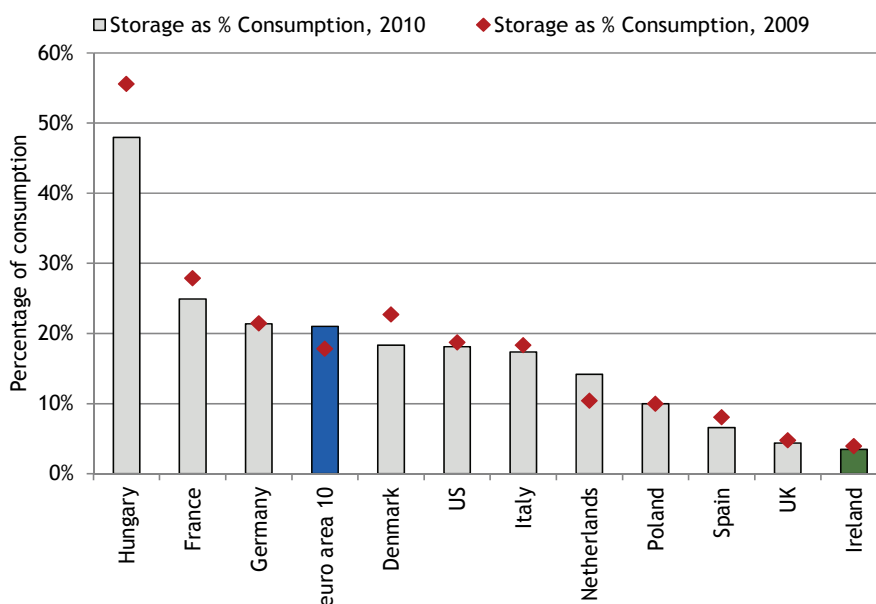


In the period 1994 to 2002, import dependency grew significantly in Ireland due to an increase in energy use, a decline in indigenous natural gas production and a decrease in peat production. Ireland's overall import dependency reached 90% in 2006 but has decreased to 86% in 2010, which compares unfavourably with the EU-15 average of 57%.

Ranking: n/a

Source: Eurostat, Environment and Energy Indicators

Figure 5.30 Natural Gas Storage Capacity as a Percentage of Annual Consumption, 2010



Natural gas is the dominant fuel in electricity generation in Ireland<sup>169</sup>. Ireland's gas storage capacity, however, is significantly below the euro area average (21%)<sup>170</sup>. Development of the Corrib field will improve import dependency in the short term. In the medium term, the planned development of salt cavity storage facilities and a Liquefied Natural Gas terminal could improve storage capacity<sup>171</sup>.

euro area-10 ranking<sup>172</sup>: 10<sup>th</sup> (↓1)

Source: International Energy Agency, Natural Gas Information 2011

168 Import dependency is calculated as follows: (Imports - Exports - Non Energy Consumption) / (Primary Energy Supply - Non Energy Consumption + Marine Bunkers)

169 In 2008, 55 per cent of electricity generation in Ireland relied on natural gas. SEAI, Energy in Ireland - Key Statistics, 2009

170 Calculated as working storage capacity/natural gas consumption (in million standard cubic metres)

171 Forfás, Review of Energy Competitiveness Issues and Priorities for Enterprise, December 2011

172 Euro area 10 excludes Cyprus, Estonia, Finland, Greece, Luxembourg and Slovenia



### 5.2.3 Information and Communication Technology Infrastructure

Figure 5.31 ICT expenditure as % of GDP, 2010

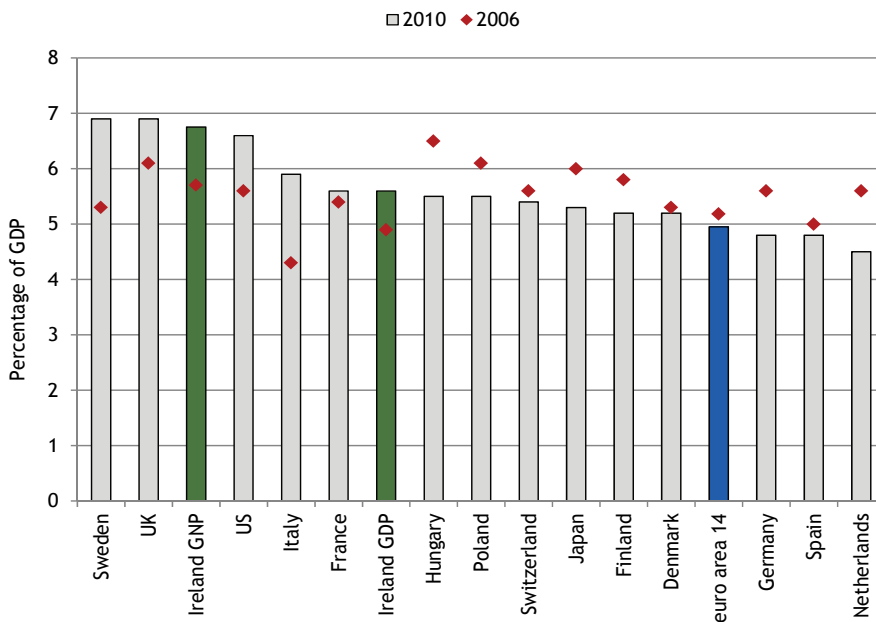
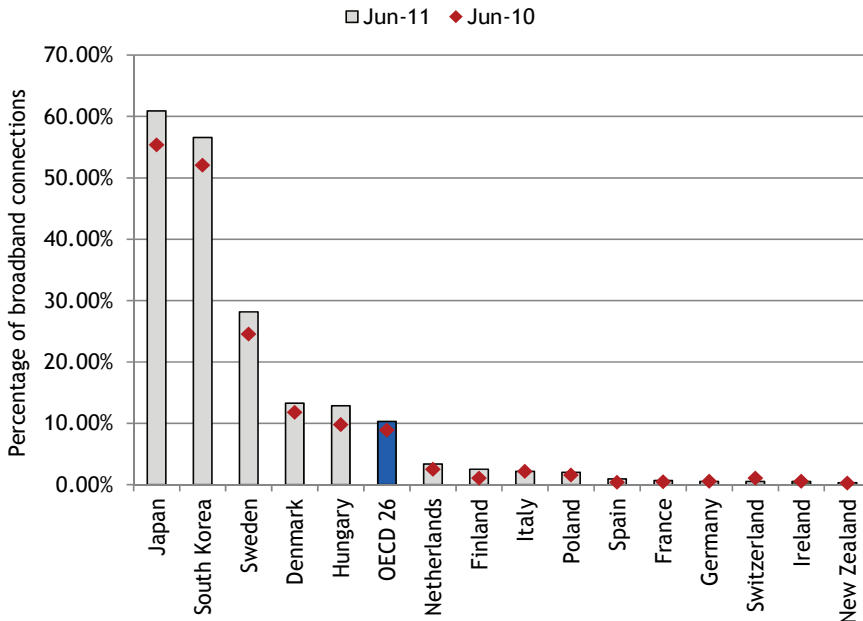


Figure 5.31 examines expenditure on information technology and communications<sup>173</sup>. ICT is essential to modern enterprise. Ireland's investment in ICT was 5.6% of GDP in 2010, ahead of the euro area average of 5%.

**euro area-14 ranking<sup>174</sup>:**  
 GDP: 3<sup>rd</sup> (↑6)  
 GNP: 1<sup>st</sup> (↑2)

Source: Eurostat, Structural Indicators

Figure 5.32 Fibre Connections as a Percentage of Total Broadband Connections, June 2011



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 61% in Japan, and almost 57% in South Korea. Ireland remains significantly behind the OECD average (10.3%).

**OECD-26 ranking<sup>175</sup>:**  
 22<sup>nd</sup> (↓5)

Source: OECD, Broadband Statistics

<sup>173</sup> Information technology includes all expenditure on IT hardware, equipment, software and other services, while communications includes all expenditure on telecommunication hardware, equipment, software and other services. In Ireland, expenditure is split equally between information technology and communications (i.e. 2.8% of GDP per annum on each).

<sup>174</sup> Euro area 14 excludes Cyprus, Estonia and Malta

<sup>175</sup> OECD-26 excludes UK and US.

Figure 5.33 e-Government Availability, 2010

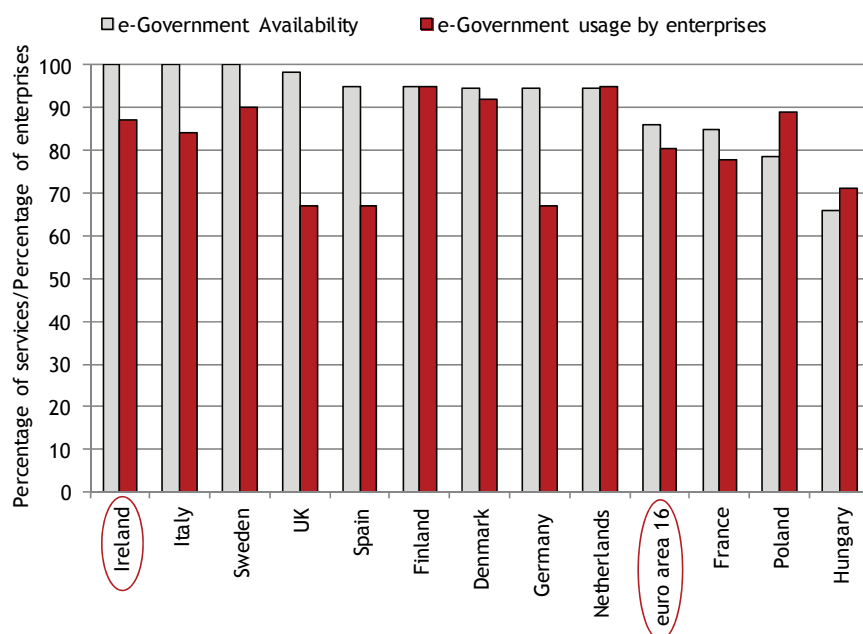
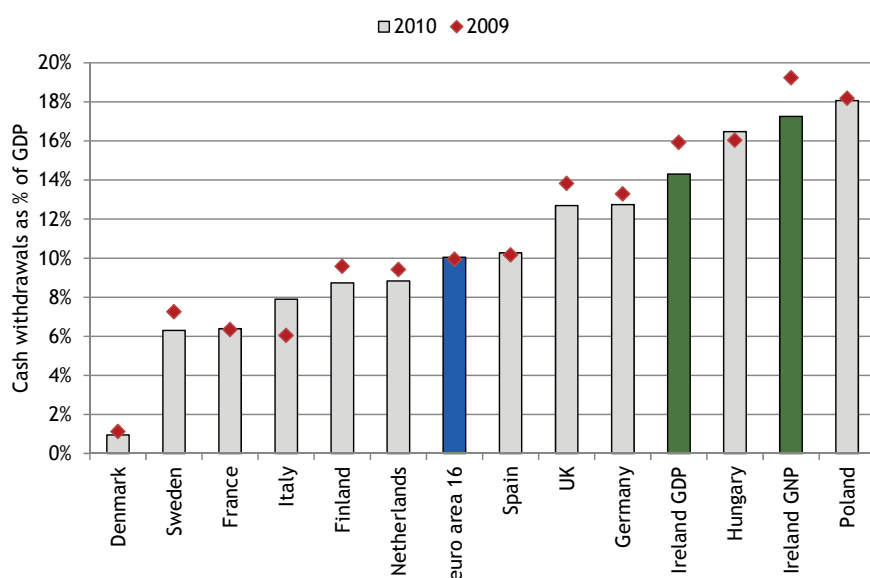


Figure 5.33 ranks countries in terms of the online availability of 20 basic public services for which it is possible to carry out full electronic case handling. Ireland's position has improved significantly in recent years and in 2010 100% of services examined electronically while usage performance by enterprise is somewhat weaker.

**euro area-16 ranking:**  
 Availability: 1<sup>st</sup> (↑9)  
 Usage: 5<sup>th</sup> (-)

Source: Eurostat, Information Society

Figure 5.34 Use of ePayments: Value of Cash Withdrawals (% GDP), 2010



Use of e-payments in Ireland is less common than in most other euro area countries. This is demonstrated by Ireland's reliance on cash for payments. Electronic and card payments are far more efficient than cash in terms of transactions costs. Whereas cash withdrawals accounted for 10.1% of GDP in the euro area, in Ireland cash withdrawals accounted for 14.3% of GDP and 17.3% of GNP in 2010.

**euro area 16 ranking:**  
 GDP: 11<sup>th</sup> (↑2)  
 GNP: 13<sup>th</sup> (↑2)

Source: European Central Bank, AMECO database

## 5.3 Knowledge Infrastructure

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. Combined with good incentives to work, productivity, therefore, depends to a large extent on education and training. 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.

### 5.3.1 Overview of Education

As illustrated in Figure 5.35, 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 per cent in 2003 to 36 per cent in 2009.

Although expenditure is not the only determinant of educational quality, it remains a key input metric. In 2008, Ireland spent more than the OECD average per student at primary, secondary and tertiary levels, but less than the average at pre-primary level (Figure 5.36)<sup>176</sup>. The US spends significantly more than Ireland and the euro area average on third level education<sup>177</sup>.

### 5.3.2 Pre-Primary and Primary Education

Pre-primary education includes programmes designed for children at least 3 years old and not older than 6 years (Figure 5.37). Ireland ranks significantly below the euro area average in terms of the participation of 3 year olds in education. Ireland is also the lowest ranked country in the euro area-15 in terms of the participation rate of 4-years old in education at ISCED level 0-1. The Irish data, it should be noted, do not currently include enrolment in the Early Childhood Care and Education (ECCE) Scheme<sup>178</sup>.

Maths and science are key subjects, both in terms of their relevance for enterprise, but also as bedrocks for the creation of a knowledge society. It is important, therefore, to ensure that adequate teaching time is allocated to such subjects. In 2009, Irish 9-11 year old students (i.e. primary level) receive fewer hours of tuition in maths and science than students in most other OECD countries (Figure 5.38). Despite the limited time spent on maths and science tuition, Irish students spent more compulsory time in the classroom than any of their peers<sup>179</sup>.

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176 The Comprehensive Expenditure Report 2012-2014 outlines measures that have been introduced over recent years to reduce expenditure on education. Further reductions and efficiency measures are planned for the period 2012-2014.

177 According to the OECD, in 2008 62.6 per cent of tertiary expenditure in the US came from private sources, compared with 17.4 per cent in Ireland. This gap has narrowed somewhat since 2007.

178 The Early Childhood Care and Education (ECCE) Scheme provides a free year of early childhood care and education for children of pre-school age. In general, children are eligible for the ECCE scheme if they are aged between 3 years 2 months and 4 years 7 months on 1 September of the year that they will be starting. The State pays a capitation fee to participating playschools and day care services. In return, they provide a pre-school service free of charge for a set number of hours over a set period of weeks.

179 A recent circular from the Department of Education and Skills states that "pending the adjustments to the existing recommended timeframe by the NCCA and with effect from January 2012 all primary schools will be required to increase the time spent on mathematics by 70 minutes per week to 3 hours and 25 minutes per week for infants with a shorter day, and to 4 hours and 10 minutes per week for students with a full day". Department of Education and Skills, Circular Letter 0056/2011

### 5.3.3 Secondary Education

As noted above, educational attainment in Ireland is improving. Despite significant progress, there is still a significant share of the working age population with low levels of formal education. Whereas 86 per cent of 25-34 year olds had attained at least upper secondary education in Ireland in 2009, just 72 per cent of 25-64 year olds had at least this level of education. Ireland marginally lags OECD average attainment for those aged 25-64, although this gap is rapidly narrowing as a result of high levels of attainment amongst younger cohorts. In all countries including Ireland, more females complete secondary education than males.

In order to further boost the stock of adults having completed secondary education, it is necessary to address the issue of early school leaving. Figure 5.40 measures the percentage of population aged between 18 and 24 who have attained, at most, lower secondary education (junior certificate level). In Ireland in 2010, 10.5 per cent of this age cohort was considered early school leavers compared to 12.5 per cent in 2005, reflecting higher retention rates in secondary education. The early school leaving rate for males has also fallen from 15.4 per cent to 12.6 per cent, reflecting the reduced employment opportunities in many sectors of the labour market, and the resultant increasing attractiveness of remaining in education.

It is possible to examine the performance of Irish 15 year olds in mathematics, science and reading. The OECD's Programme for International Student Assessment (PISA) in 2009 found that in maths and reading, Irish students performed poorly, and that their proficiency in both subjects declined sharply compared with results from 2006 (Figure 5.41). Irish students scored above the OECD average in terms of science. Given that mathematical literacy is a key driver of economic development, Figure 5.42 examines Ireland's performance in the PISA maths tests in more detail. Ireland has a lower percentage of high scoring students in the PISA mathematical literacy tests than the OECD average. An additional PISA report on digital literacy found that Irish 15-year-olds achieved above average scores in a digital reading assessment<sup>180</sup>.

While performance is not entirely necessarily dependent on the hours spent teaching a particular subject - the quality of the curriculum and the quality of teaching is also relevant - Figure 5.43 finds that the number of hours dedicated to science tuition for 12-14 year olds in Ireland in 2009 was significantly lower than the OECD average (71.6 hours compared with 104 hours per year). The amount of time allocated to maths was broadly in line with the OECD average.

Class size does not necessarily determine how effective an education system is - some of the better performing countries have relatively large classes combined with more resources for teacher training and development and better school facilities. It does, however, provide an alternative measure of resources dedicated to education. At primary level, Ireland has a higher ratio of students to teachers (15.9) than the OECD average (14.9). This is also the case at second level where Ireland's ratio (13.0) is higher than the OECD average (12.4) (Figure 5.44). Budget 2012 announced plans to increase the pupil/teacher ratios in 2, 3 and 4 teacher primary schools. When implemented, this would naturally impact upon the Irish data.

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<sup>180</sup> OECD, PISA 2009 Results: Students On Line: Digital Technologies and Performance (Volume VI), June 2011

In order to boost educational outcomes, it is important to monitor and evaluate the manner in which education is delivered. According to the OECD, 57 per cent of teachers in Ireland work in schools where no external evaluations have been conducted in the 5 years prior to the survey (Figure 5.45). Amongst the 23 participant countries, only Italy and Austria have higher percentages.

### 5.3.4 Tertiary Education

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 (Figure 5.46).

Looking again at the disciplines of particular importance to growing high tech sectors, Figure 5.47 finds that Ireland had 17.2 maths, science and computing graduates per 1,000 of the population aged 20-29, which compares favourably with other euro area states (although the numbers have declined since 2005).

The number of foreign students in tertiary education is an important reputation measure - foreign students are attracted to universities and countries deemed leaders in their fields (Figure 5.48). In 2009, international students comprised 7.1 per cent of total students enrolled at tertiary level in Ireland - significantly behind other English speaking jurisdictions such as New Zealand (26.5%), and the UK (20.7%). In the most recent Times Higher Education World University Rankings, there is no Irish university ranked amongst the top 100 globally - Trinity College Dublin (117<sup>th</sup>) and University College Dublin (159<sup>th</sup>) were the only two Irish institutions to make the top 300<sup>181</sup>.

### 5.3.5 Lifelong Learning

Figure 5.49 considers lifelong learning and shows the percentage of persons aged 25-64 in receipt of education in the four weeks prior to the survey. This measure includes both formal and non-formal education. Ireland (6.7%) ranks significantly below the euro area average (9.5%) and its performance under this measure has declined since 2005. Females in Ireland (7.2%) have higher participation rates than males (6.3%), whilst younger cohorts - those with the highest levels of formal education - are also more likely to participate. As highlighted earlier in Figure 4.50, 75% of state expenditure on labour market policies primarily related to income maintenance. Countries such as Sweden and the UK spent a larger proportion of their labour market programme budgets on active measures such as employment services and training.

### 5.3.6 Research and Development Infrastructure

In 2010 Irish expenditure on R&D was 1.79 per cent of GDP (2.16% of GNP) (Figure 5.50). By comparison, average OECD expenditure amounted to 2.16 per cent of GDP. The majority of this expenditure was accounted for by business expenditure on R&D (1.17%), while the higher education

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<sup>181</sup> It is important to note, however, that a number of the indicators used to develop these rankings are based on surveys measuring reputational factors, and as such are subjective in nature.

sector and government sector accounted for 0.51 per cent and 0.05 per cent respectively. The foreign owned sector was the primary source of business expenditure - amounting to €1.25 billion in 2010 and accounting for over 68 per cent of business expenditure on R&D in Ireland (Figure 5.52).

Looking at the numbers of people engaged in R&D as a result of this expenditure, in 2010, 7.8 researchers were employed in Ireland for every 1,000 people in employment. This is less than the OECD average of 8.9 (Figure 5.51). Overall, 21,393 researchers were employed. The majority of researchers were employed in higher education institutes (55.6%).

Figure 5.53 considers the supply of potential researchers. In 2009, Ireland had 0.27 PhD graduates per 1,000 population - slightly above the OECD average. In 2005, according to Eurostat, 810 students graduated with PhDs - this increased to 1,211 in 2009.

Having examined the funds spent on R&D and the numbers engaged as researchers, we next consider the results of this activity. While no perfect metrics exists, patents can be seen as a proxy for a country's inventive activity. Triadic patents refer to patents granted at European, Japanese and US patent offices. Ireland performs well below the OECD average on this measure, with 16.5 patents per million population compared with an OECD average of just over 34 per million (Figure 5.54). In part, this may reflect the number of multinational corporations in Ireland undertaking process innovation in Ireland but not patenting it. The importance of the software sector to Ireland's economy may also be impacting upon patent figures as this sector is less likely to patent innovations than other sectors.

Finally, under the 7th Framework Programme for EU R&D, Irish researchers were marginally more likely to be successful (19%) than the euro area average (18%) in their applications for competitive funding. Irish researchers, however, attracted significantly less funding per applicant than leading countries such as Germany, the Netherlands and Denmark (Figure 5.55). Of the funding won to date, 25 per cent went to companies (74 per cent of whom were SMEs), 61 per cent went to higher education institutions, and the remaining 13 per cent went to public bodies and research performing organisations<sup>182</sup>. Performance to date suggests that Ireland is on course to achieve the national target of winning €600m in EU R&D funding by 2013.

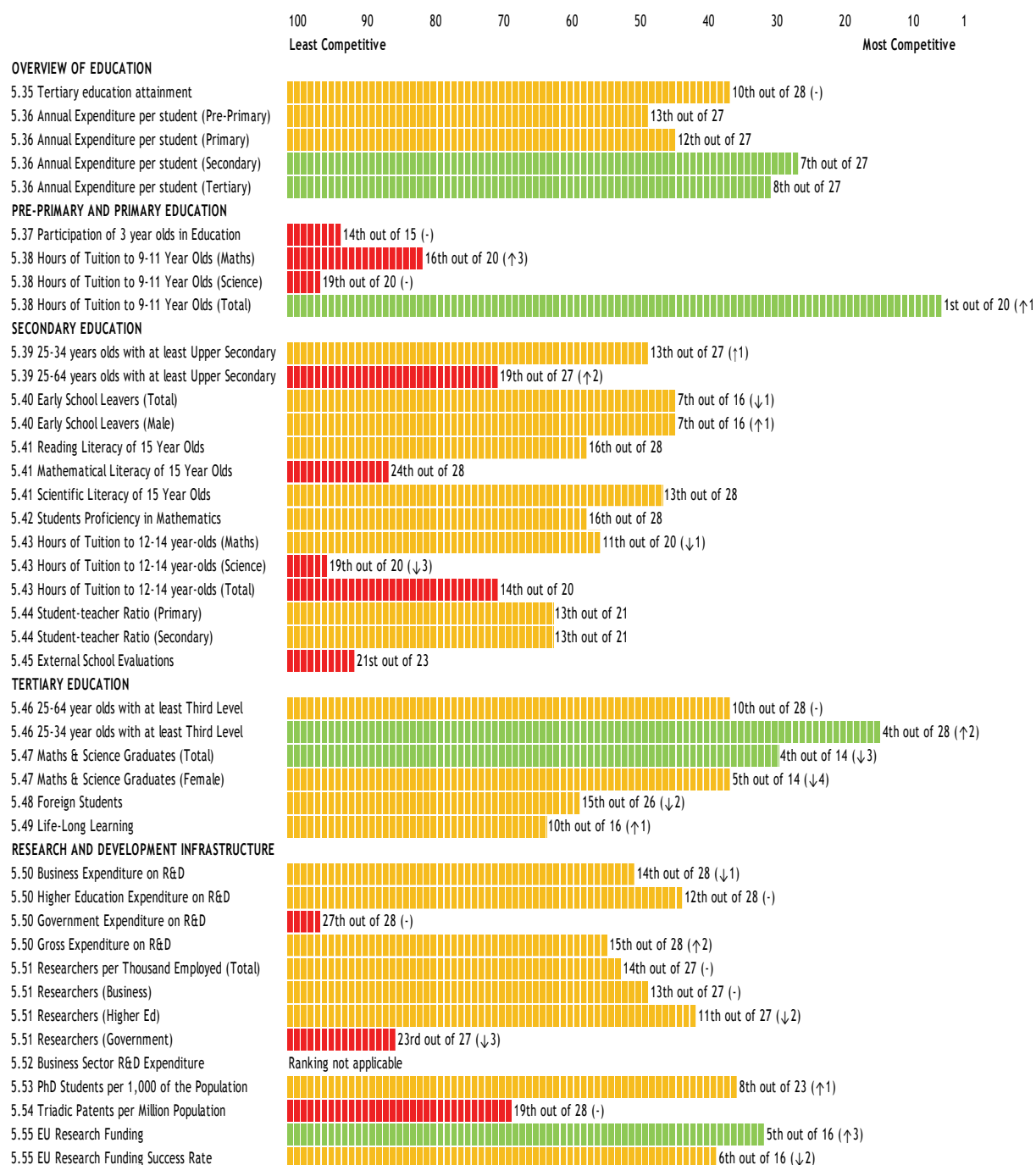
The chart that follows summarises Ireland's rankings for all of the Knowledge Infrastructure indicators.

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<sup>182</sup> Interim report of Irish involvement in FP7



## Summary of Standardised Knowledge Infrastructure Indicators<sup>183</sup>



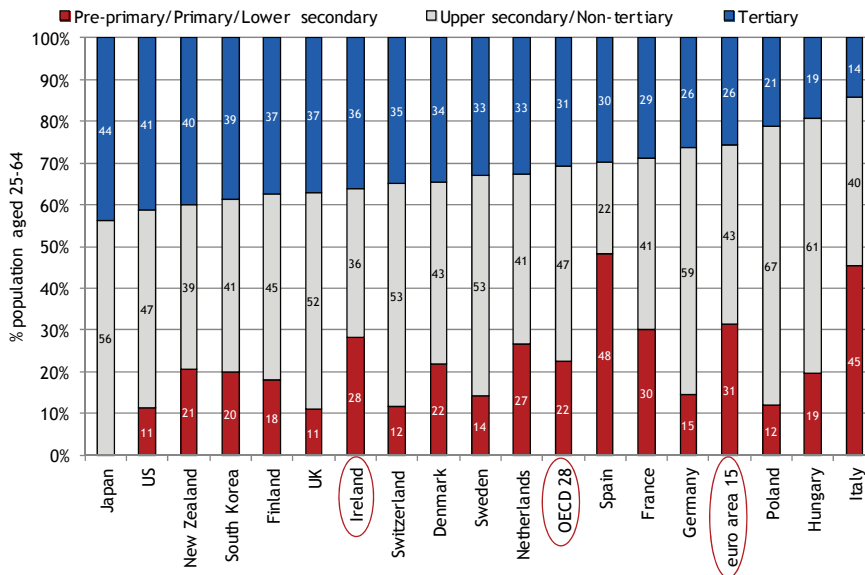
<sup>183</sup> Ireland's performance under each indicator is standardised out of 100 - a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e.  $3/15 \times 100$ ); where Ireland is ranked 14th out of 15, this gives a score of 93 (i.e.  $14/15 \times 100$ ).



## 5.3 Knowledge Infrastructure

### 5.3.1 Overview of Education

Figure 5.35 Educational Attainment of Population aged 25-64 by Highest Level of Education, 2009

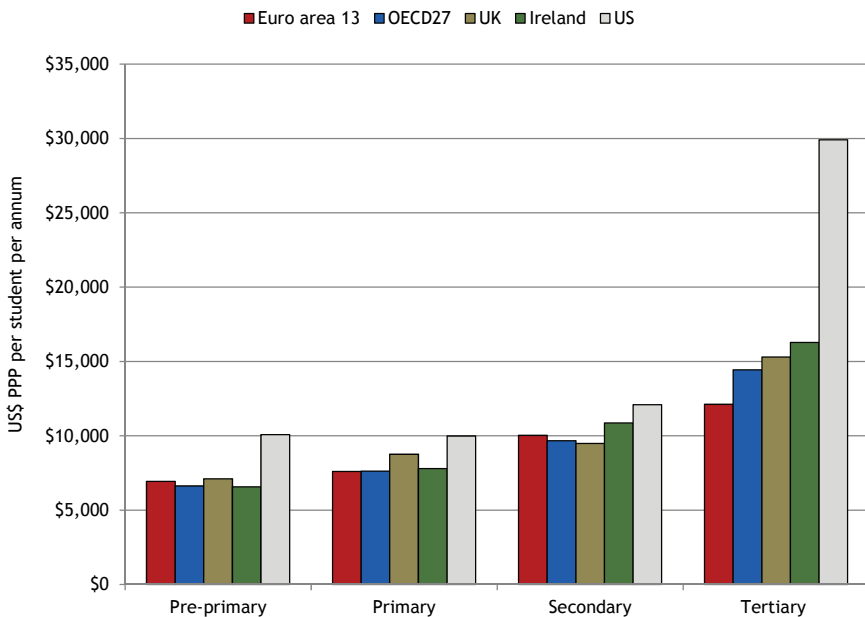


Average educational attainment in Ireland has improved significantly over the last two decades. The proportion of the working age population with tertiary level education has increased from 26% in 2003 to 36% in 2009.

OECD-28 ranking by tertiary: 10<sup>th</sup> (-)

Source: OECD, Education at a Glance, 2011

Figure 5.36 Annual Expenditure on Educational Institutions per Student (US\$ PPP), 2008



While expenditure is not the only determinant of educational quality, it remains a key input metric. In 2008, Ireland spent more than the OECD average per student at primary, secondary and tertiary levels, but less than the average at pre-primary level. The gap between euro area and US expenditure is particularly noticeable at third level.

OECD-27 ranking<sup>184</sup>:

Pre-primary: 13<sup>th</sup>

Primary: 12<sup>th</sup>

Secondary: 7<sup>th</sup>

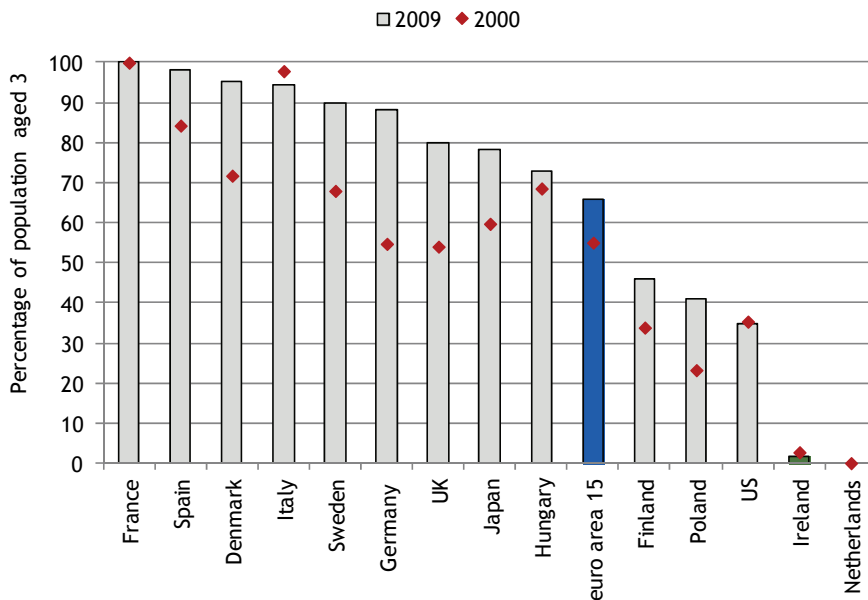
Tertiary: 8<sup>th</sup>

Source: OECD, Education at a Glance, 2011

184 OECD 27 excludes Chile, Estonia, Greece, Israel, Mexico, Slovenia and Turkey. Euro area 13 excludes Cyprus, Estonia, Greece and Malta. No tertiary data was available for Luxembourg. Pre-primary data for Ireland is from 2006.

### 5.3.2 Pre-Primary and Primary Education

Figure 5.37 Participation of 3 year olds in Education (% Population aged 3), 2009

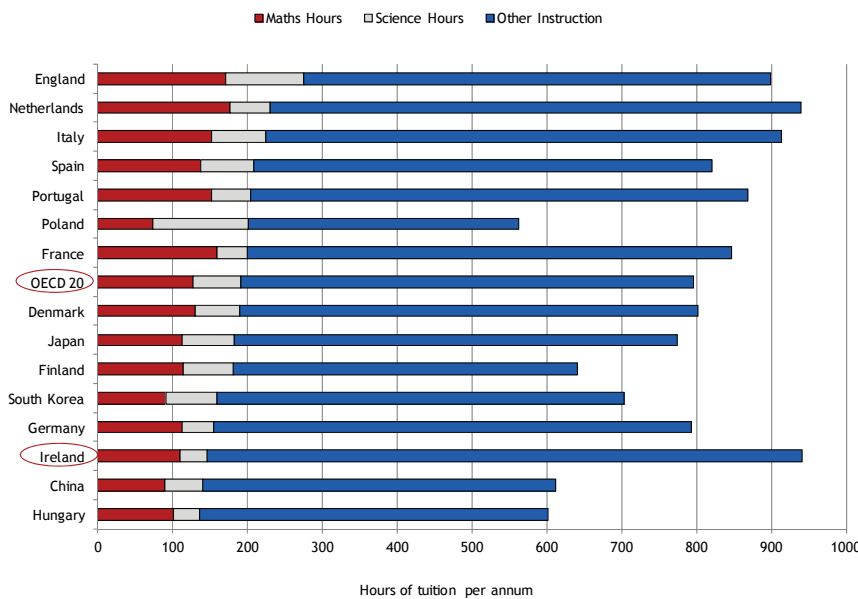


Pre-primary education includes programmes designed for children at least 3 years old and not older than 6 years. Ireland is significantly below the euro area average in terms of the participation of 3 year olds in education, and is also the lowest ranked country in the euro area-15 in terms of the participation rate of 4-years old in education at ISCED level 0-1<sup>185</sup>.

**euro area-15 ranking<sup>186</sup>: 14<sup>th</sup> (-)**

Source: Eurostat, Population and Social Conditions,

Figure 5.38 Average Annual Hours of Tuition to 9-11 Year Olds, by Subject, 2009



In 2009, Irish 9-11 year old students (i.e. primary level) 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 any of their peers.

**OECD-20 ranking<sup>187</sup>:**  
 Maths hours: 16<sup>th</sup> (↑3)  
 Science hours: 19<sup>th</sup> (-)  
 Total hours: 1<sup>st</sup> (↑1)

Source: OECD, Education at a Glance, 2011

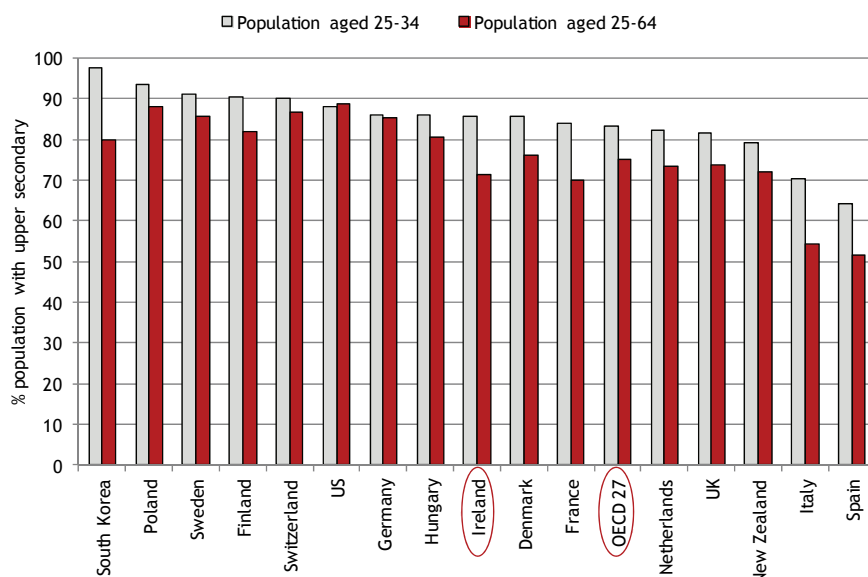
<sup>185</sup> In part, Ireland's low ranking under this indicator is due to a lack of available data - the Irish figures do not include enrolment in the Early Childhood Care and Education (ECCE) Scheme. Future reporting to both Eurostat and the OECD on pre-primary education participation will include data on enrolment in the ECCE scheme.

<sup>186</sup> Euro area 15 excludes Greece and Estonia

<sup>187</sup> OECD 20 excludes Australia, Belgium, Chile, Czech Republic, Estonia, Israel, Mexico, New Zealand, Slovenia, Sweden, Turkey and US

### 5.3.3 Secondary Education

Figure 5.39 Population aged 25-34 and 25-64 with at least Upper Secondary Education, 2009



72% of 25-64 year olds had attained at least upper secondary education in Ireland in 2009. 86% 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.

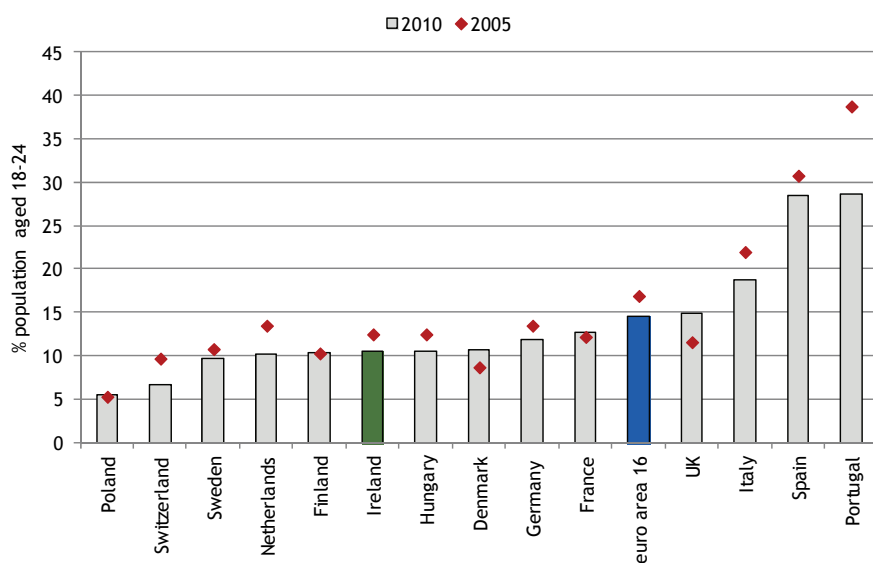
**OECD-27 ranking<sup>188</sup>:**

25-34 year olds: 13<sup>th</sup> (↑1)

25-64 year olds: 19<sup>th</sup> (↑2)

Source: OECD, Education at a Glance, 2011

Figure 5.40 Early School Leavers (as % of Population aged 18-24), 2010



This indicator measures the percentage of population aged between 18 and 24 who have attained, at most, lower secondary education. In 2010, 10.5% of this age cohort was considered early school leavers compared to 12.5% in 2005. This reflects higher retention rates in secondary education. The early school leaving rate for males has also fallen from 15.4% to 12.6%.

**euro area-16 ranking:**

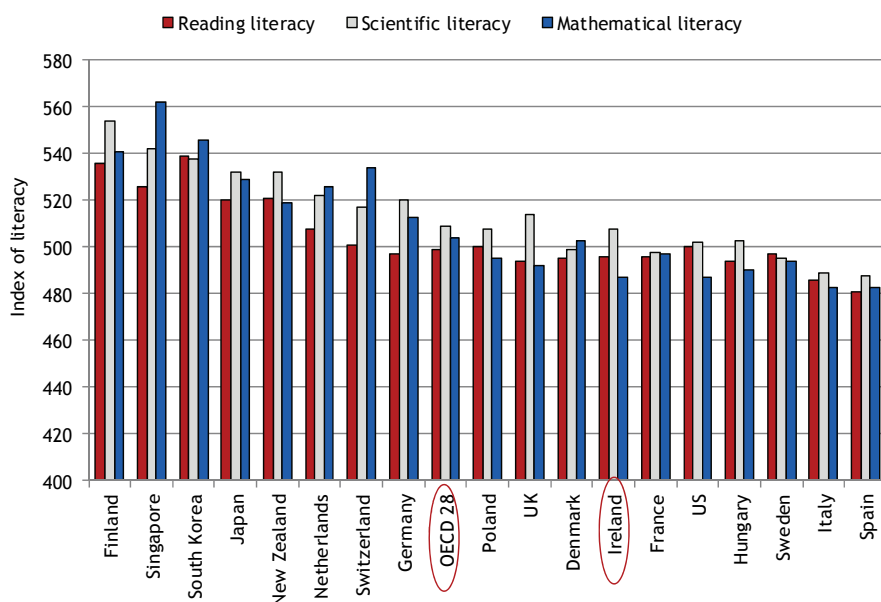
Total: 7<sup>th</sup> (↓1)

Male: 7<sup>th</sup> (↑1)

Source: Eurostat, Structural Indicators

188 OECD 27 excludes Chile, Estonia, Israel, Japan, Mexico, Slovenia and Turkey

Figure 5.41 Scientific, Mathematical and Reading Literacy of 15 Year Olds, 2009



Irish 15 year olds performed poorly in the 2009 PISA tests in maths and reading but scored above the OECD average in terms of science. Irish proficiency in reading and maths declined sharply compared with results from 2006<sup>189</sup>. Girls in Ireland outperformed boys in reading and science, whereas boys achieved a higher mean score in maths.

**OECD-28 ranking:**

Reading: 16<sup>th</sup>

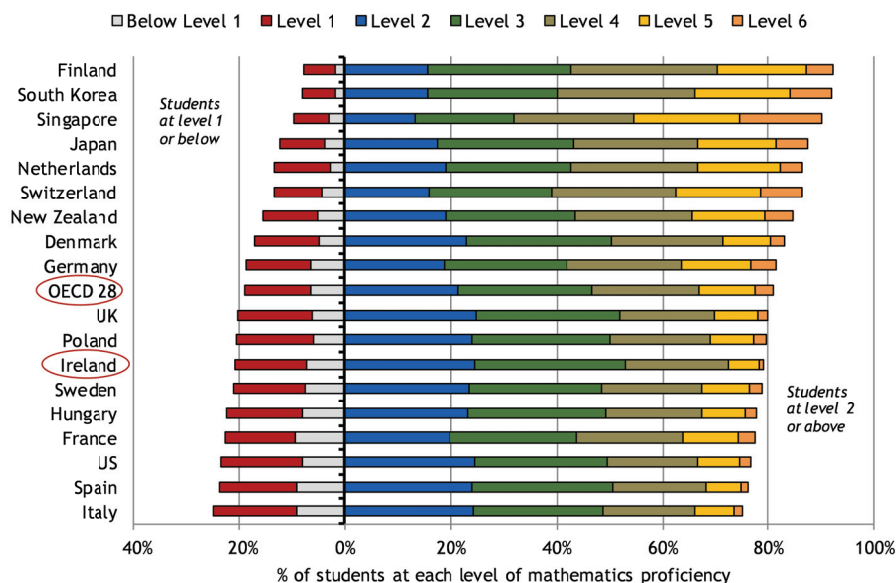
Science: 13<sup>th</sup>

Maths: 24<sup>th</sup>

Source: OECD, PISA 2009 Results

189 PISA is the OECD's Programme for International Student Assessment. Ireland's mean score in reading in 2009 was 31 points lower than in 2000 - the largest decline across all 39 countries that participated in both PISA 2000 and PISA 2009. Ireland's mean mathematics score declined by 16 points between 2003 and 2009 - the 2nd largest of any country participating in both years. Ireland's mean score in science was 508 in both 2006 and 2009. A new in-depth report by the Education Research Centre on PISA 2009 (published April 2012), suggests that student engagement with the test, as distinct from student ability, may have been an important factor in the decline. See OECD, PISA 2009 Technical Report, April 2012.

Figure 5.42 Percentage of Students at each Proficiency Level on the Mathematics Scale<sup>190</sup>

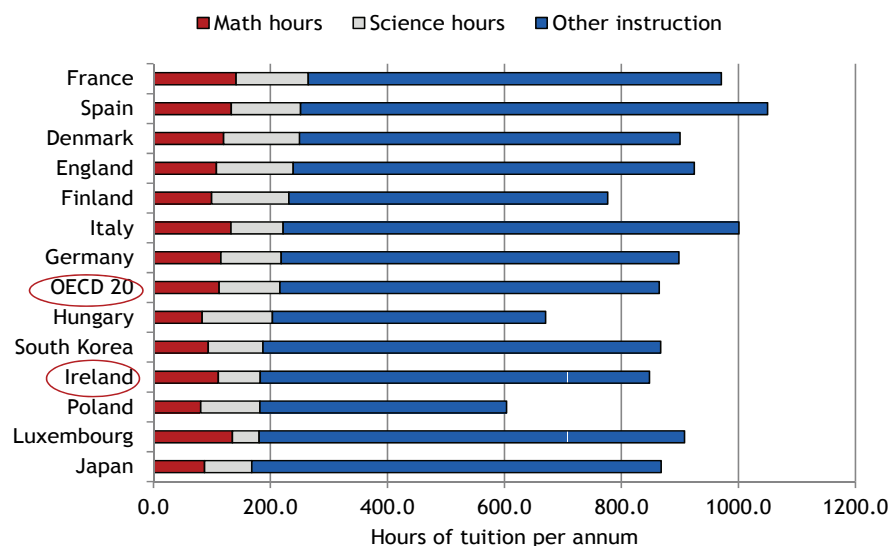


Mathematical literacy is a key driver of economic growth<sup>191</sup>. In particular, it is vital for growth that a country has a supply of high achieving maths graduates. According to the OECD, however, Ireland has a lower percentage of high scoring students in the PISA mathematical literacy tests than the OECD average.

**OECD-28 ranking:** (% achieving level 2-6): 16th

Source: OECD, PISA 2009 Results

Figure 5.43 Average Annual Hours of Tuition to 12-14 year-olds dedicated to Science and Maths, 2009



The number of hours dedicated to science tuition for 12-14 year olds in Ireland in 2009 was significantly lower than the OECD average (71.6 hours compared with 104 hours per year). The amount of time allocated to maths was broadly in line with the OECD average<sup>192</sup>.

**OECD-20 ranking:**

Maths hours: 11<sup>th</sup> (↓1)

Science hours: 19<sup>th</sup> (↓3)

Total hours: 14 (-)

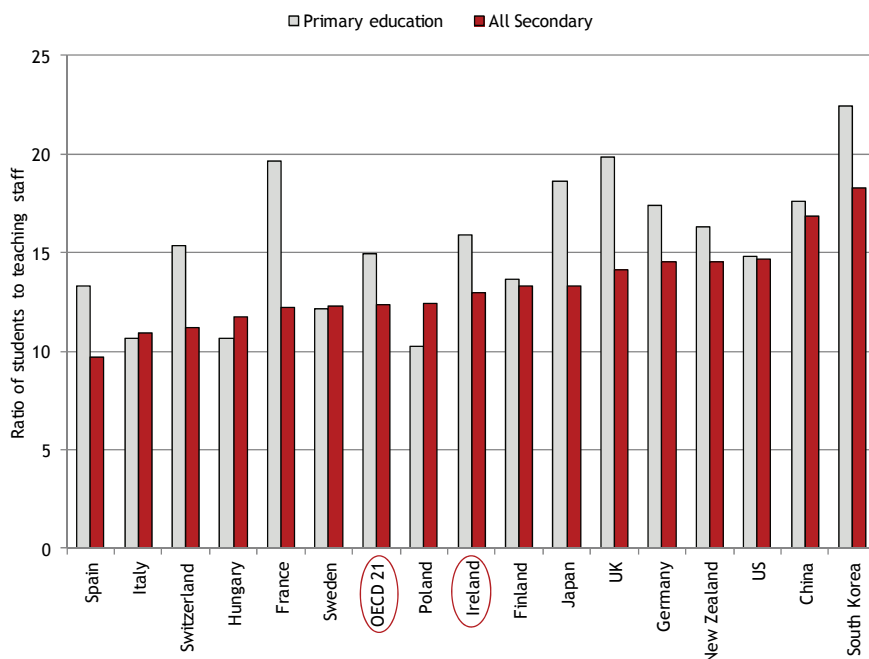
Source: OECD, Education at a Glance, 2011

190 Countries are ranked in descending order of the percentage of students at levels 1-6 on the PISA mathematics literacy tests. PISA has established a range of levels associated with the scores which explain what a student can typically be expected to achieve at each level. For example, students at level 6 (the highest level) are capable of advanced mathematical thinking and reasoning, and can conceptualize, generalize, and utilize information based on their investigations and modelling of complex problem situations. At level 1 (the lowest level), students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. They are able to identify information and to carry out routine procedures according to direct instructions in explicit situations.

191 The OECD has found a direct link between student performance in cognitive tests and GDP growth. See OECD, The High Cost of Low Educational Performance: The Long-Run Economic Impact of Improving PISA Outcomes, January 2010

192 A recent circular from the Department of Education and Skills urged post-primary schools "to make every effort to ensure that students have access to a mathematics class every day, particularly in junior cycle, from the earliest possible date". Department of Education and Skills, Circular Number 0058/2011, September 2011. Note that OECD 20 excludes Australia, Canada, Chile, Czech Republic, Estonia, Israel, Netherlands, Mexico, Slovenia, South Korea, Sweden, Switzerland, Turkey and US.

Figure 5.44 Ratio of Students to Teaching Staff in Educational Institutions, 2009

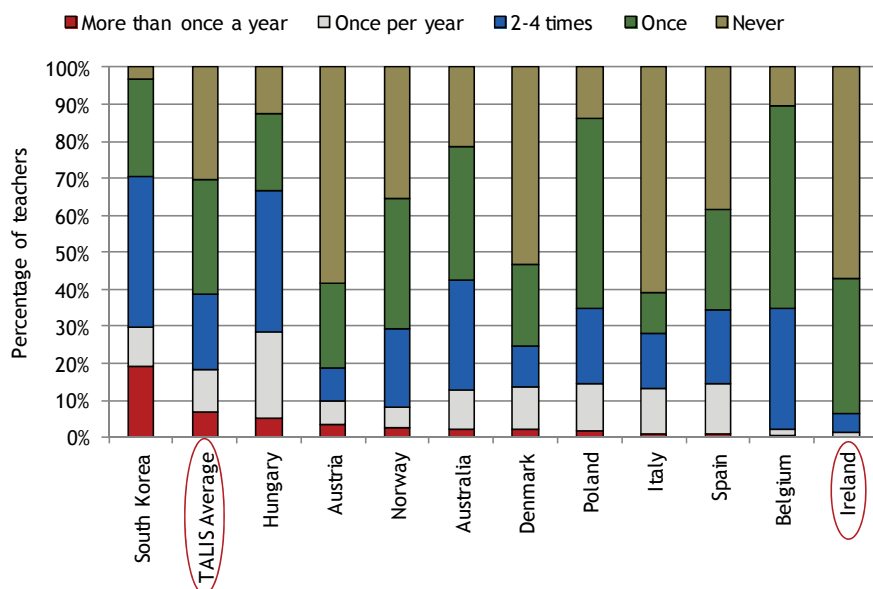


Class size does not necessarily determine how effective an education system is. Nevertheless, at primary level, Ireland has a higher ratio of students to teachers (15.9) than the OECD average (14.9). This is also the case at second level where Ireland's ratio (13.0) is marginally higher than the OECD average (12.4).

OECD-21 ranking<sup>193</sup>:  
 Primary: 13<sup>th</sup>  
 Secondary: 13<sup>th</sup>

Source: OECD, Education at a Glance, 2011

Figure 5.45 Percentage of Lower Secondary Teachers Working in Schools where External School Evaluations were Conducted over the Previous Five Years, 2008



According to the OECD's Teaching and Learning International Survey (TALIS)<sup>194</sup>, 57% of teachers in Ireland work in schools where no external evaluations have been conducted in the 5 years prior to the survey. Amongst the 23 participants, only Italy and Austria have higher percentages.

Group ranking: 21<sup>st</sup> out of 23

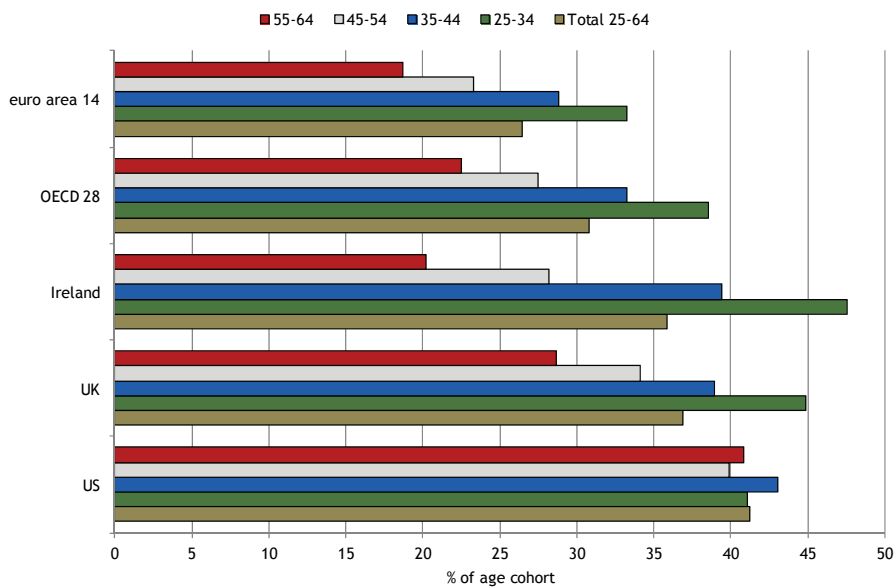
Source: OECD, TALIS Database

193 OECD 21 excludes Australia, Canada, Denmark, Iceland, Luxembourg, Greece and Netherlands. Secondary data for Ireland sourced from Department of Education and Skills, Education Statistics 2009/2010.

194 TALIS provides the first internationally comparative perspective on the conditions of teaching and learning, based on data from over 70,000 teachers and school principals who represent lower secondary teachers in the 23 participating countries. TALIS examines important aspects of professional development; teacher beliefs, attitudes and practices; teacher appraisal and feedback; and school leadership.

### 5.3.4 Tertiary Education

Figure 5.46 Population by Age Cohort (years) that has at least Third Level Education, 2009

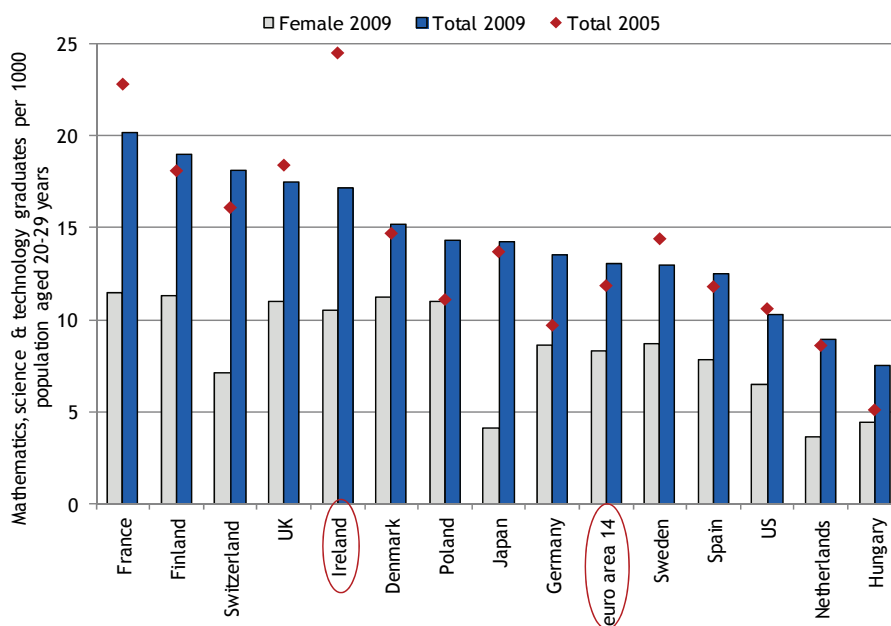


There is significant inverse correlation in Ireland between educational attainment and age; while a lower proportion of 55-64 year olds have attained tertiary education than the OECD average, a greater proportion of 25-34 years olds in Ireland have a third level qualification than is the case in the OECD. In Ireland, 59.5% of tertiary qualifications were awarded to women<sup>195</sup>.

**OECD-28 ranking:**  
 25-64 years: 10<sup>th</sup> (-)  
 25-34 years: 4<sup>th</sup> (↑2)

Source: OECD, Education at a Glance, 2011

Figure 5.47 Maths, Science and Technology Graduates (per 1,000 population aged 20-29 years), 2009



Ireland had 17.2 maths, science and computing graduates per 1,000 of the population aged 20-29, which compares favourably with other euro area states. According to CAO data, the number of 1<sup>st</sup> preference 2011 CAO applications for NFQ Level 8 computing courses is the highest in four years<sup>196</sup>.

**euro area-14 ranking<sup>197</sup>:**  
 Total: 4<sup>th</sup> (↓3)  
 Female: 5<sup>th</sup> (↓4)

Source: Eurostat, Population and Social Conditions

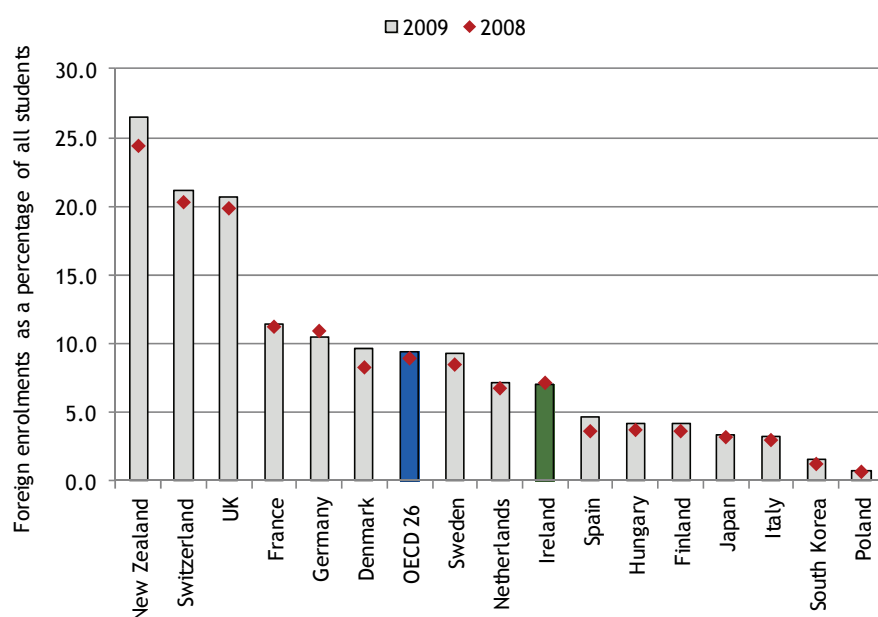
<sup>195</sup> Refers to type-A tertiary and advanced research programmes

<sup>196</sup> Overall, the number of acceptances for high level ICT computing / software skills courses has increased by 29 per cent over the last three years. These will start to graduate from 2012 onwards. For further details, see EGFNSN, Addressing High-Level ICT Skills Recruitment Needs - Research Findings, Forfás, January 2012

<sup>197</sup> Euro area 14 excludes Estonia, Italy and Luxembourg. Latest data for Greece and Italy is from 2008



Figure 5.48 Foreign Students (as % of all Students in Tertiary Education), 2009



The number of foreign students in tertiary education is an important reputation measure. In 2009, international students comprised 7.1% of total students enrolled at tertiary level - significantly behind other English speaking jurisdictions such as New Zealand (26.5%) and the UK (20.7%).

OECD-26 ranking<sup>198</sup>:  
15th (↓)

Source: OECD, Education at a Glance, 2011

### 5.3.5 Life Long Learning

Figure 5.49 Life-Long Learning (as a % of 25-64 year olds), 2010

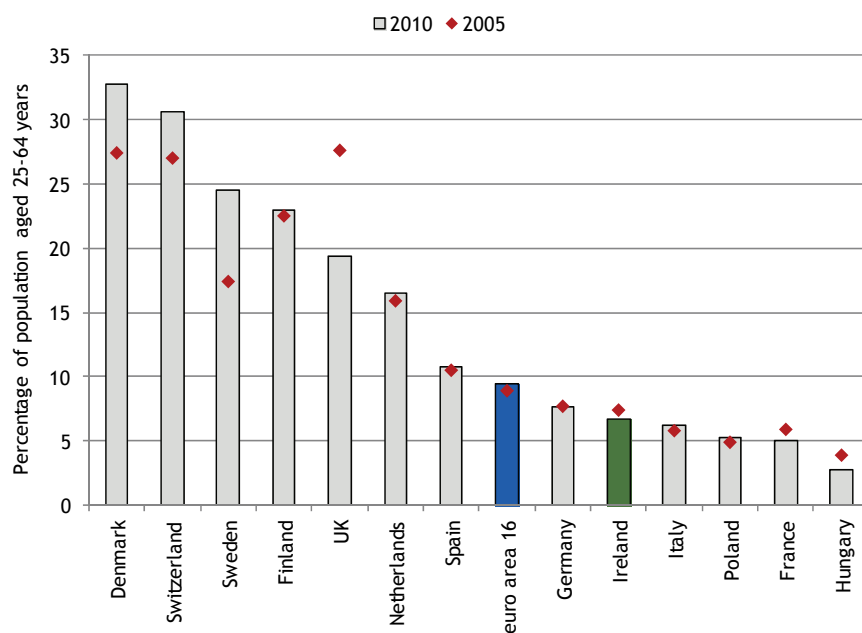


Figure 5.49 shows the percentage of persons aged 25-64 in receipt of education in the four weeks prior to the survey and includes both formal and non-formal education. Ireland (6.7%) ranks below the euro area average (9.5%) and its performance under this measure has declined since 2005. Females in Ireland (7.2%) have higher participation rates than males (6.3%), whilst younger cohorts are also more likely to participate.

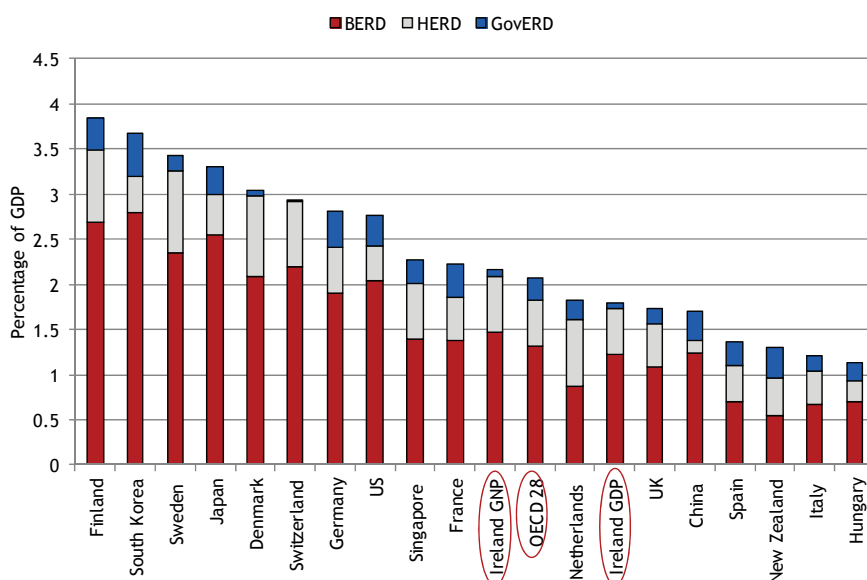
euro area-16 ranking:  
10<sup>th</sup> (↑)

Source: Eurostat, Structural Indicators

198 OECD 26 excludes Estonia, Greece, Israel, Italy, Luxembourg, Mexico, Slovenia and Turkey

### 5.3.6 Research and Development Infrastructure

Figure 5.50 Expenditure on R&D as % GDP (Business, Higher Education, Government), 2010



In 2010 Irish expenditure on R&D was 1.79% of GDP (2.16% of GNP). Business expenditure on R&D (BERD) in Ireland accounted for 1.17%, while the higher education sector (HERD) and government sector (GovERD) accounted for 0.51% and 0.05% respectively.

**OECD-28 ranking:**

BERD: 14<sup>th</sup> (↓1)

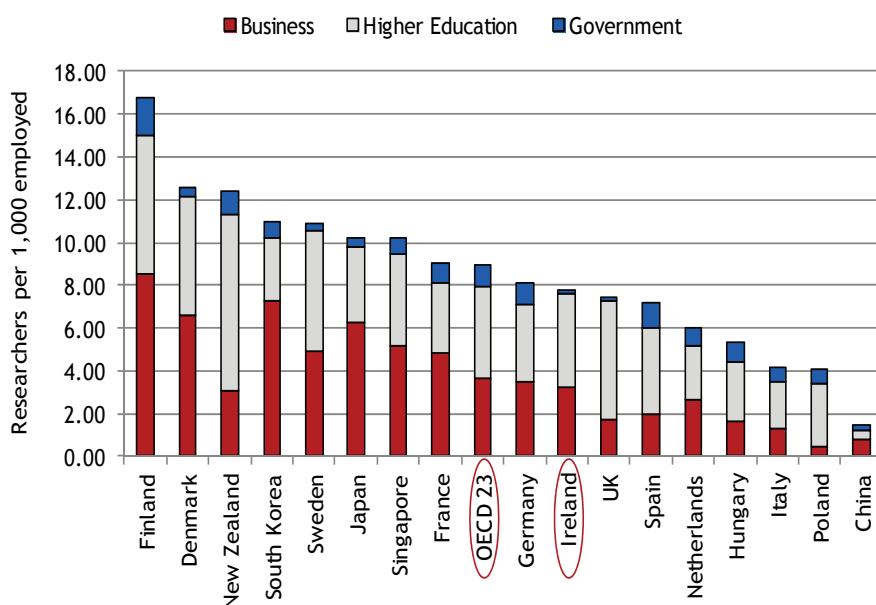
HERD: 12<sup>th</sup> (-)

GovERD: 27<sup>th</sup> (-)

GERD: 15<sup>th</sup> (↑2)

Source: OECD, Stat.Extracts

Figure 5.51 Total Researchers per Thousand Total Employment, 2010



In 2010, 7.8 researchers were employed in Ireland for every 1,000 people in employment - less than the OECD average of 8.9. Overall, 21,393 researchers were employed, a third of whom are female. The majority of researchers were employed in higher education (55.6%), while the business and Government sectors accounted for 41.9% and 2.4% respectively.

**OECD-27 ranking<sup>199</sup>:**

Total: 14<sup>th</sup> (-)

Business: 13<sup>th</sup> (-)

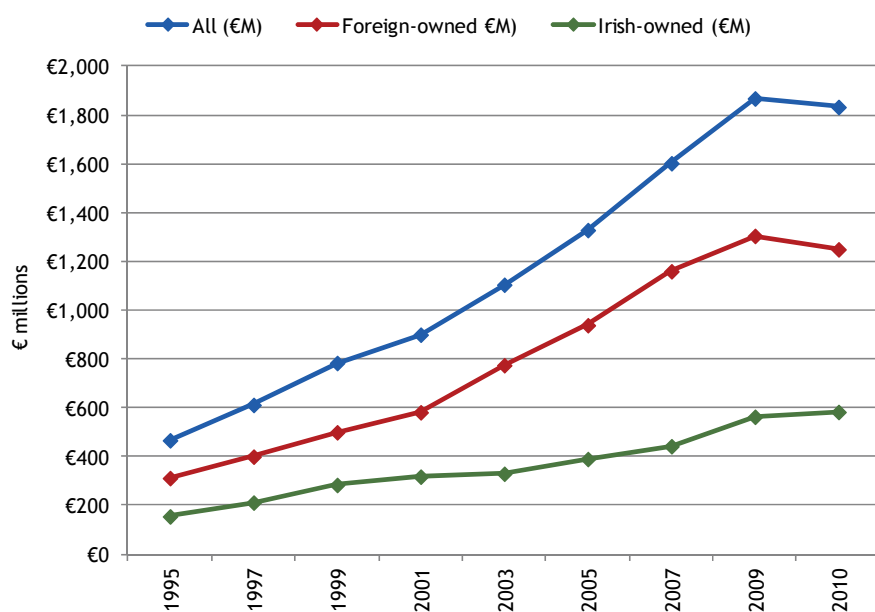
Higher Ed: 11<sup>th</sup> (↓2)

Government: 23<sup>rd</sup> (↓3)

Source: OECD, Stat.Extracts

<sup>199</sup> OECD 27 excludes the US. Data for Singapore and China is from 2009. Note that in full time equivalents (FTE) terms, 14,437 researchers were employed in Ireland in 2010.

Figure 5.52 Business Sector R&D Expenditure by Firm Type, 1995-2010

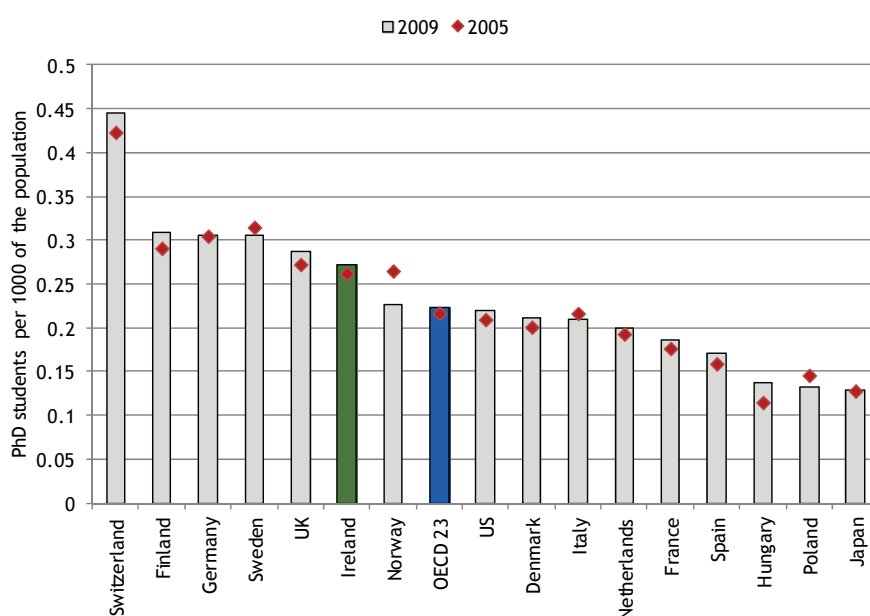


Foreign owned companies in Ireland spent over €1.25 billion on R&D in Ireland in 2010, accounting for over 68% of business expenditure on R&D. The Irish Strategy for Science, Technology and Innovation 2006-2013 has set a target for business expenditure on R&D in indigenous firms to grow to €825 million by 2013. Indigenous firms spent €583 million on R&D in 2010.

Ranking: n/a

Source: CSO, StatBank, Business Expenditure on Research and Development

Figure 5.53 PhD Students per 1,000 of the Population, 2009



In 2009, Ireland had 0.27 PhD graduates per 1,000 population - slightly above the OECD average. In 2005, according to Eurostat, 810 students graduated with PhDs - this increased to 1,211 in 2009. Only France and Cyprus had higher proportions of ISCED level 6 science, mathematics, computing, engineering, manufacturing and construction graduates than Ireland<sup>200</sup>.

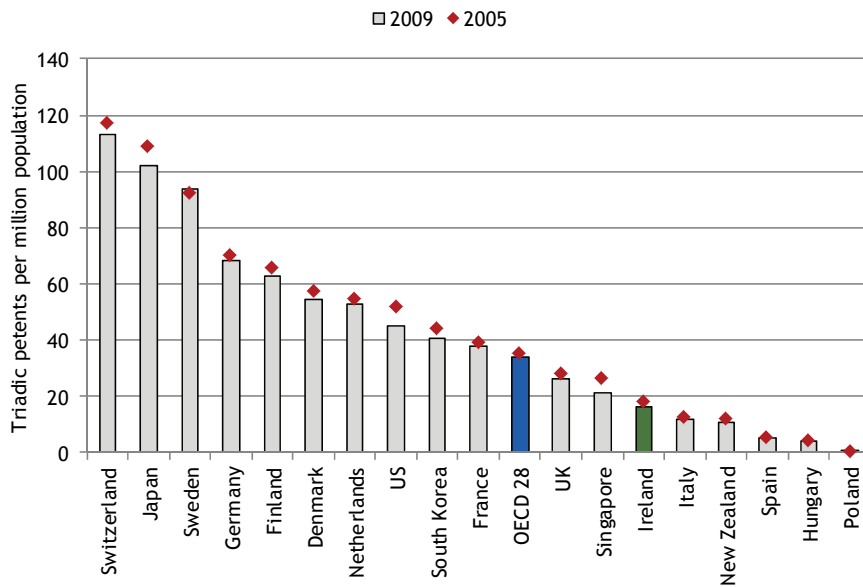
OECD-23 ranking<sup>201</sup>: 8<sup>th</sup> (↑1)

Source: Eurostat, Population and Social Conditions

200 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. Data on science, mathematics, computing, engineering, manufacturing and construction graduates is also sourced from Eurostat's Population and Social Conditions database.

201 OECD 23 excludes Australia, Canada, Luxembourg, New Zealand and South Korea

Figure 5.54 Triadic Patents per million population, 2009

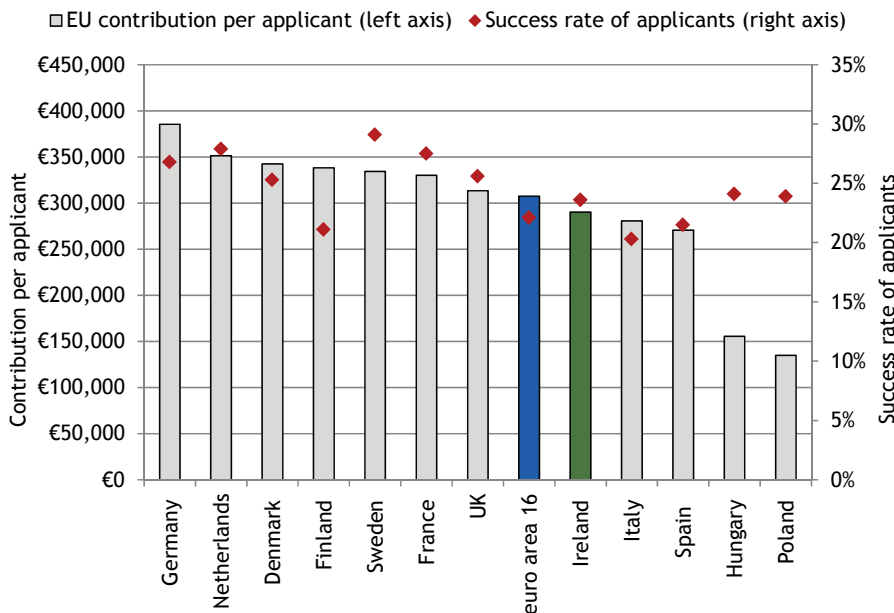


Triadic patents refer to patents granted at European, Japanese and US patent offices. Patents can be seen as a proxy for a country's inventive activity. Ireland performs well below the OECD average on this measure, with 16.5 patents per million population compared with an OECD average of just over 34 per million.

**OECD-28 ranking: 19<sup>th</sup>**  
(-)

Source: OECD, Stat.Extract

Figure 5.55 EU Research Funding (€ per applicant and success rate), 2010



Under the 7th Framework Programme for EU R&D, Irish researchers were marginally more likely to be successful (23.6%) than the euro area average (22.1%) in their applications for competitive funding. Irish researchers, however, attracted significantly less funding per applicant than leading countries such as Germany, the Netherlands and Denmark. As of November 2011, Ireland has drawn down 1.49% of the total available budget ahead of our national target of 1.25% (or €600 million).

**euro area-16 ranking:**  
€ per Applicant: 5<sup>th</sup> (↑3)  
Success Rate: 6<sup>th</sup> (↓2)

Source: European Commission, DG Research, Framework 7 Monitoring Program



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