

# Annual Competitiveness Report 2010

Volume 1  
Benchmarking  
Ireland's Performance





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## Volume 1: Benchmarking Ireland's Performance

## Introduction to the NCC

The National Competitiveness Council was established in 1997 as a Social Partnership body. It reports to An Taoiseach on key competitiveness issues facing the Irish economy, together with recommendations on policy actions required to enhance Ireland's competitive position.

Each year the NCC publishes the two-volume Annual Competitiveness Report.

- Volume One, *Benchmarking Ireland's Performance*, is a collection of statistical indicators of Ireland's competitiveness performance in relation to 17 other economies and the OECD or euro area average.
- Volume Two, *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 NCC is underpinned by research and analysis undertaken by Forfás - Ireland's policy advisory board for enterprise, trade, science, technology and innovation.

This report is Volume 1, *Benchmarking Ireland's Performance*. This report analyses Ireland's competitiveness performance using 135 competitiveness indicators. These range from measures of the successes of past competitiveness, such as economic growth and quality of life, to the policy inputs that will drive future competitiveness, such as the education system and the delivery of infrastructure. Drawing primarily on data from international sources (e.g. OECD, Eurostat, UN etc.) this report benchmarks Ireland's performance, comparing and ranking it to that of our economic peer group and tracing its evolution over time.

The National Competitiveness Council hopes that this report will, as a reference document, stimulate further debate and discussion on the competitiveness challenges that face Ireland.

Our next publication, Volume 2: *Ireland's Competitiveness Challenge*, examines the challenges facing Ireland, and in particular our exporting sectors in more detail. It will highlight policy directions that will promote Ireland's competitiveness.

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Donal Byrne	Chairman, Cadbury Schweppes Ireland Limited
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## Foreword by the Taoiseach




We live in one of the most dynamic and challenging times in economic history. It is a time defined by great change and upheaval not just in Ireland but also throughout Europe and across the world. Over the past year, the Government has taken significant steps to return the economy to sustainable growth. This strategy includes re-establishing public and international confidence, repairing the banking system, regaining competitiveness, supporting enterprises to create and retain jobs and building the innovation or ideas component of the economy.

Confidence in Ireland is rising and the decisive action we are taking means our economic outlook has improved. The European Commission is predicting that Ireland will grow at double the euro area average next year. However, that does not mean we should be complacent as we face major challenges in the period ahead. The global economy has undergone a seismic change. The lesson from recent events is that we are in a very competitive global market-place and we need to continue to adopt brave and ambitious solutions if we are to provide the basis for sustainable growth, job creation and improvements in living standards.

Growing our exports and raising productivity across the economy is the only sustainable path to reducing unemployment and securing long term prosperity. Significant opportunities exist to grow export markets if we can provide a competitive business environment that allows Irish exporters to compete successfully in difficult global markets. We are continuing to make significant investment in infrastructure which increases the productive capacity of the economy and generates jobs. This year we will invest €6.5 billion, which is in the region of five per cent of GNP, proportionately one of the largest capital programmes in the EU.

We also need to be more productive in all areas of the economy - as set out in our Framework for Economic Renewal: Building Ireland's Smart Economy. The Smart Economy is relevant to everyone, not just those in high-tech employment. It applies to small indigenous firms as well as high-tech multi-nationals. It means being open to new ideas and new ways of doing things, and building links between the education system and the wider economy. It is about the public sector as well as the private sector. We have already made significant progress in implementing the Smart Economy Framework and are currently placing particular emphasis on 'building the ideas element of the economy'.

This innovation strategy aims to make Ireland the best place in Europe to turn research and knowledge into products and services; the best place to start and grow an innovative company or to relocate, expand and scale a small business; and the best place for research-intensive multinationals to collaborate with each other and with clusters of small companies. This is an ambitious plan but by working together in a positive spirit I have no doubt that it can be achieved if we can press ahead with the structural and competitiveness adjustments required.



Although our economy is turning a corner, we need to acknowledge that the international outlook is not yet as secure as we might like. That is why we must keep a clear focus on those factors that are ours to control. The National Competitiveness Council continues to make an important contribution to our understanding of a rapidly changing global environment and to identify those areas where Ireland needs to concentrate its efforts. I would like on behalf of my colleagues in Government, to thank the Council for its important work and am pleased to introduce Benchmarking Ireland's Performance 2010.

Brian Cowen TD  
Taoiseach

## Chairman's Preface



While the Irish economy has contracted very considerably in the past two years, we continue to have significant competitiveness strengths and opportunities. Ireland's trade performance remains resilient which has offset some of the sharp impact of the domestic recession. This report highlights that our international competitiveness is improving in a range of areas. Enhancing our competitiveness is a necessary part of our recovery strategy - irrespective of the prevailing conditions in the world economy.


Competitiveness is underpinned by stable public finances, a working banking system and a broad vision for the economy and society. We have made significant progress in improving our competitiveness in the past 18 months. Costs have fallen, skills availability has improved and the pressures on infrastructure have eased. Developing an inclusive vision for the economy and society is critical.

Continuing action to repair the public finances and restore the solvency of our banking system must be matched by an ambitious agenda of reform to enhance competitiveness. Robust economic growth is necessary to fix the public finances and banking system. Solutions cannot be viewed in isolation - by prioritising actions to support the enterprise base to compete in increasingly competitive global markets we will go a long way towards resolving our fiscal and banking challenges.

The economy is burdened by very high levels of private debt and growing levels of public debt which will continue to limit the degree to which the domestic economy can ignite a return to sustainable economic growth. Improving Ireland's attractiveness as a location to do business and export from are vital to restore confidence in our economic prospects and reverse the severe decline in domestic consumption and investment since 2008. Improving the competitiveness of the domestic economy will also be critical for our future economic prospects for two reasons - its recovery is essential to reduce unemployment and create jobs and its costs impinge on the exporting sectors.

Cost competitiveness is beginning to improve, but for the most part, recent price falls here have been a cyclical response to the severe Irish and international recession rather than to structural and sustainable changes in the cost of doing business. Continued, focused action is required to reduce the costs of doing business in Ireland and enable Irish exporters to compete successfully in difficult global markets.

Given different historical contexts and economic, political and social goals of various countries, and their differing physical geographies and resource endowments, it is not realistic for any country to seek to outperform other countries in all areas. However, improving living standards requires that we excel in areas that impact upon international competitiveness. Being average only works when you want average living standards. Government structures and policies must be supportive of investment, entrepreneurship, competition and innovation at all levels. We need to foster a culture



of innovation across the entire economy. Higher productivity is the glue which sustains prosperity, high living standards and competitiveness. Improving productivity growth across all sectors of the economy - private and public, locally and internationally trading, manufacturing and services, indigenous and foreign owned - is central to our future success. We must also bring essential infrastructures up to world class standards - e.g. education, research, broadband, energy and public transport. While the crisis in the public finances necessitates cuts in capital expenditure, it is critical that capital expenditure is not excessively reduced to avoid difficult decisions on current expenditure and taxation.

This report provides an assessment of Ireland's competitiveness performance against 17 other countries across a range of competitiveness factors, using 135 indicators. It provides a comprehensive evidence base to determine the policy priorities to enhance competitiveness. If we can build on the strengths and address the weaknesses identified, we are well placed to ensure that the nascent recovery gathers momentum and delivers on Ireland's considerable potential as a location for enterprise.

I would like to thank Council members and advisors from the relevant Government departments for their work on this report. I would also like to acknowledge the Forfás Secretariat for the work that they have done in preparing material for consideration by the Council.

Don Thornhill

*Chairman, National Competitiveness Council*



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# Chapter 1

## Overview of Ireland's Competitiveness

# 1. Overview of Ireland's Competitiveness

## 1.1 Introduction

Ireland is experiencing one of the deepest recessions in the developed world - economic activity has slumped (Fig. 3.02), unemployment has risen sharply (Fig. 4.45), government borrowing is increasing rapidly (Fig. 3.05) and private household debt remains very high (Fig. 3.07). However, the rate of contraction is slowing as the economy adjusts to the recent domestic and international crises; while GNP declined by 11.3 per cent in 2009, the ESRI predicts that it will decline by 0.5 per cent in 2010 and grow by 2.25 per cent in 2011<sup>1</sup>. Nonetheless, the OECD expects our domestic adjustment will be prolonged and the economic recovery weak given the significant gap in the public finances, growing national debt, high and increasing unemployment, falling disposable incomes and weak household consumption<sup>2</sup>.

Growing exports and raising productivity across the economy is the only sustainable path to reducing unemployment and securing long term economic growth and prosperity. Supported by moderating prices, Ireland's exporting sectors performed relatively well in 2009 compared to other developed economies. During 2009, total exports fell by 1.8 per cent in Ireland compared with 13.6 per cent in the OECD<sup>3</sup>. Export growth in Ireland (1.1 per cent) is expected to be weak in 2010 and to lag the OECD average (six per cent), as OECD exports bounce back from steep declines in 2009<sup>4</sup>. Irish productivity levels (GNP-based) are lower than the OECD average and average annual Irish productivity growth rates were significantly below the OECD average over the period 2005-2009.

Exports are likely to be the main driver of economic growth as the retrenchment in private and public consumption and investment continues to depress economic activity and employment in Ireland. The pace of recovery in our key trading partners will be critically important for Ireland's future export performance. Although the latest forecasts from the IMF suggest that the world economy is recovering from the global crisis better than expected, the speed of that recovery varies across the world. World economic output is now expected to increase by 4.6 per cent in 2010. Growth in the euro area (one per cent) and the UK (1.2 per cent) is expected to lag other developed economies, such as the US (3.3 per cent) and developing economies like China (10.5 per cent), India (9.4 per cent) and Brazil 7.1 per cent<sup>5</sup>. While it is good news for Irish exporters that our main markets are gradually returning to growth, the extent of recovery remains fragile and significant risks remain. Many of our main trading partners are tackling large government budget deficits and are seeking to unwind generous monetary and fiscal stimulus measures without damaging the fledgling recovery. The euro area faces particular challenges in restoring growth and reducing public and private debt levels.

As a small open economy, Ireland is well placed to benefit from an international recovery - if we are competitive. While increasing exports will not provide a panacea for all the challenges facing the

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1 ESRI, Quarterly Economic Commentary, July 2010.

2 OECD, OECD Economic Outlook, May 2010.

3 Export growth for Ireland is sourced from the CSO - External Trade, March 2010 (merchandise exports) and Balance of Payments, March 2010 (services exports). The OECD figure is from the OECD Economic Outlook, November 2009.

4 OECD, OECD Economic Outlook, November 2009. The ESRI forecasts export volume growth of five per cent for Ireland in 2010.

5 IMF, World Economic Outlook, July 2010.

Irish economy, improving Ireland's attractiveness as a location to do business and export from will be important for restoring the levels of confidence necessary to halt the decline in domestic consumption and investment seen since 2008. Improving the competitiveness of the domestic economy will also be critical for our future economic prospects for two reasons - its costs impinge on the exporting sectors and its recovery is essential to reduce unemployment and create jobs. The remainder of this chapter sets out the key messages in *Benchmarking Ireland's Performance, 2010*.

## 1.2 Domestic adjustment is underway but significant debt challenges loom

Although Ireland is experiencing one of the deepest recessions in the developed world, the rate of contraction is slowing and the current account balance of payments improved significantly in 2009, suggesting that Ireland is paying back borrowings by reducing investment and consumption and growing net exports (exports less imports). A current account surplus of 0.5 per cent is forecast in 2010 and 1.5 per cent in 2011 (Fig. 3.04).

However, Ireland is facing a major debt challenge. The economy is burdened by very high levels of private debt (Fig. 3.07) and growing levels of public debt (Fig. 3.05). High levels of private debt are being slowly unwound as net saving rates have increased significantly but with three quarters of household debt mortgage-related, this adjustment will take some time (Fig. 3.08). With steep falls in house prices (Fig. 4.35) and reduced incomes arising from growing unemployment levels (Fig. 4.45), debts held by householders are increasingly distressed - a trend that is likely to be accentuated as euro area interest rates rise in future with further implications for bank stability and consumer demand. Irish banks are also particularly reliant on funding from international wholesale markets and emergency liquidity funding from the European Central Bank.

Public debt levels (Fig. 3.05) have grown significantly as a result of a very sharp decline in exchequer tax revenues (from a peak of €47 billion in 2007 to €33 billion in 2009) arising from the collapse in the construction sector (i.e. falling revenue from property transaction related taxes) and the general recession (falling revenue from taxes on incomes and sales) while government expenditure has continued to increase - albeit more slowly (Fig. 5.01)<sup>6</sup>. In addition to dealing with the current debt crises, Ireland needs to prepare for the longer term, with pension expenditure as a percentage of GDP forecast to double to 10.5 per cent by 2050 as Ireland's working population ages (Fig. 3.09 and Fig. 3.10).

Actions to support the banks will greatly increase the State's liabilities but they have not caused the current government deficit. The full implications of the measures taken to resolve the banking crisis for the public finances and the taxpayer remain unclear. Spreads on the costs of servicing government bonds remain high and volatile (Fig. 3.06). We also face significant interest payments over the medium term. Debt servicing costs amounted to €2.5 billion in 2009<sup>7</sup>. This means that about one in every €12 collected in tax went to service the national debt in 2009. By the end of 2014, the Department of Finance estimates that more than €1 in every €5 collected in tax will be required to pay the interest on Ireland's debt. Containing our public debt levels is critical to

<sup>6</sup> Department of Finance, Exchequer Statements (various).

<sup>7</sup> The Department of Finance estimates the cost of interest on the national debt will be €4.5 billion in 2010, €6.5 billion in 2012 and €7.75 billion in 2014. Stability Programme Update, December 2009.

ensuring fiscal stability and supporting ongoing investment in economic and social infrastructure (e.g. transport, energy, environmental and ICT infrastructure, education, research and health) which enhance our national competitiveness.

### 1.3 Mixed fortunes for Ireland's exporting sectors

Although strong growth in the domestic economy replaced exports as the key driver of economic growth in recent years, Ireland remains a major trading nation. While GDP declined sharply in 2009, net exports contributed positively by 4.9 percentage points to GDP<sup>8</sup>. The increased contribution of net exports to GDP is primarily driven by a sharp fall in imports (Fig. 4.07). The decline in Ireland's exports (1.8 per cent) in 2009 was modest compared to the sharp declines experienced by other countries (Fig. 4.08). Exports fell by 14.1 per cent in the euro area and by 13.6 per cent in the OECD<sup>9</sup>.

World trade growth is recovering following a sharp decline in late 2008 and early 2009, led by a strong rebound in trade volumes in many Asian economies. This has particularly helped trade in OECD economies with strong trading links with Asia while the pick-up in trade in many European countries has been more sluggish than elsewhere. A weak euro will support exports to countries outside of the euro area. The pace of recovery in Europe is critically important for Ireland's export performance given that almost two thirds of our exports are to markets within the EU (Fig. 4.06). Stronger growth in the volume of exports is predicted in 2010 for the OECD (8.7 per cent) and the euro area (7.9 per cent) than for Ireland (3.6 per cent) but this needs to be seen in the context of significantly larger declines in trade in 2009 in the OECD and the euro area than in Ireland<sup>10</sup>. The ESRI forecasts a 5.25 per cent increase in Irish exports in 2011 as global demand improves.

Ireland's world share of goods has declined but the share of services has continued to grow (Fig. 4.09). Overall Irish exports declined by 1.8 per cent to €152 billion in 2009 with merchandise exports contributing 55 per cent and services exports 45 per cent<sup>11</sup>. While services exports increased marginally (0.2 per cent), merchandise exports declined by 3.4 per cent. Within merchandise exports, medical and pharmaceutical products now make up 23 per cent of total merchandise exports, having grown by 17 per cent in 2009 to €19.6 billion. Other chemical products (€27.7 billion) accounted for 33 per cent of merchandise exports in 2009. The largest declines in goods exports were in electrical machinery (-31 per cent) and computer equipment (-29 per cent). In terms of services exports, business services exports increased by 12 per cent while tourism and travel declined by 18 per cent and financial services by 11 per cent<sup>12</sup>.

While Ireland's trade performance has offset some of the sharp impact of the domestic recession, it is a concern that our export success is largely based on the performance of a small number of sectors and that our export performance is dominated by foreign owned firms (Fig. 4.13). While foreign owned companies accounted for almost 90 per cent of total Irish exports in 2008, this

8 CSO, Quarterly National Accounts, March 2010.

9 Figure for Ireland is based on actual data for 2009 while the comparative figures are based on based on OECD estimates for 2009. The OECD has estimated that exports in Ireland declined by 2.2 per cent in 2009.

10 OECD, OECD Economic Outlook, May 2010.

11 CSO, External Trade, March 2010 (merchandise exports) and CSO, Balance of Payments, March 2010 (services exports).

12 Ibid.

overstates their economic impact. The contribution of indigenous and foreign owned trading sectors to employment and direct expenditure on goods and services within the local economy is similar.

In terms of export performance, there are some sectoral variations; Irish owned companies make up a significant share of the agriculture, food, drink and tobacco sector (53 per cent), business, financial and other services sectors (46 per cent) and traditional manufacturing (41 per cent). The destination markets also vary by ownership. Exports from Irish owned companies are more concentrated in the UK, while over half of foreign owned companies' exports go to EU markets other than the UK<sup>13</sup>. Overall, Irish exporters are more exposed to exchange rate risks (euro - sterling, euro - dollar) than exporters in other euro area economies. Outward direct investment from Ireland remains strong (Fig. 4.05).

Given our reliance on foreign direct investment, it is of concern that, in spite of Ireland's continued success as a location for foreign investment, a range of indicators suggest that our performance is weakening - the rates of return on US investment here have fallen (Fig.4.04) and other countries have aggressively targeted new overseas investment (Fig. 4.02 and Fig. 4.03). In light of our export dependence, and particularly our reliance on exports of foreign owned companies, restoring investment levels in productive capacity (rather than property) and maintaining our attractiveness as a location for inward investment are major challenges. Ireland retains important strengths as a location for foreign direct investment - including a long track record as a successful location for overseas investors, a modern internationally trading enterprise base and growing levels of research and development activity

#### **1.4 Cost competitiveness is improving - but not enough**

Ireland experienced a significant loss in cost competitiveness (real harmonised competitiveness indicator (HCI)) over the past decade reflecting a combination of an appreciation of the euro against the currencies of many of our trading partners and higher price inflation in Ireland (Fig. 4.23). Since January 2008, Ireland has regained some of its competitiveness as domestic inflation remains below that of our main trading partners and the euro weakened - in May 2010, Ireland's real HCI had fallen 6.1 per cent below its January 2005 position. However, Ireland's real HCI is still 16 per cent above its 2000 level.

Improving our relative cost competitiveness requires the cost of doing business in Ireland to fall relative to that of our trading partners. Although prices in Ireland have moderated in the past year, particularly property and energy prices, a range of key business inputs in Ireland remain relatively expensive. The data suggests that prices have remained high in sectors that are not exposed to international competition and are sheltered from the full rigours of domestic competition (e.g. administered prices such as waste water costs, legal fees, education and health costs).

Ireland has the tenth highest total labour costs level in the OECD and is in line with a number of western European countries. Ireland has the fifth highest net wage level in the OECD-28, 35.5 per

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<sup>13</sup> Forfás, Annual Business Survey of Economic Impact 2008, January 2010.

cent above the OECD-28 average. This is due, in part, to Ireland's low tax wedge on labour (Fig. 4.24). Labour cost growth rates show the change in the cost of employing workers over time. Ireland's growth rates exceeded the euro area average between 2004 and 2007. However, growth rates in Irish labour costs slowed significantly in 2008 and the first half of 2009 and were lower than the EU-27 and euro area-16 average (Fig. 4.25).

Unit labour costs measure the average cost of labour per unit of output. Declining unit labour costs mean that productivity has increased faster than earnings - thus indicating an improvement in competitiveness. While the rate of growth in Irish unit labour costs significantly exceeded the OECD and euro area averages between 2005 and 2008, unit labour costs in Ireland fell by 1.5 per cent during the first three quarters of 2009. Meanwhile, average OECD and euro area unit labour costs continued to grow, albeit slowly - the OECD average grew by 0.2 per cent and the euro area average rose 0.8 per cent (Fig. 4.26). Therefore, at an economy wide level, Irish labour wage rates - when adjusted for productivity - are becoming more cost competitive. Again, the data highlights that unit labour costs are improving fastest in the internationally trading manufacturing sector rather than more closed sectors of the economy (Fig. 4.27).

There have been significant declines in the cost of constructing or renting a prime industrial site or prime office space in Ireland since 2008. While the cost of renting prime office space in Ireland is relatively competitive (Fig. 4.34), other property related costs remain among the highest of the benchmarked countries (Fig. 4.31 - Fig. 4.33).

Ireland's cost competitiveness performance on utilities is mixed. The gap between the industrial price of electricity in Ireland and the euro area average has narrowed significantly in 2009; it is now five per cent above the euro area average. This downward adjustment is largely due to the steep decline in global fuel prices (gas and coal) and temporary rebates for large business users which are to be phased out by the end of 2012 (Fig. 4.36).

The cost of water services in Ireland compares favourably with our main trading partners. Comparative data is not available for waste water services but Ireland's waste water services costs increased by 18.8 per cent during 2009 (Fig. 4.40).

The cost of the most widely available (fixed) broadband service in Ireland compares favourably with the EU average. However, it offers relatively low speeds. Where higher speeds are available, the costs compare poorly with the EU-14 average (Fig. 4.38). The challenge for Ireland is to increase the quality of broadband services. In 2008, Irish businesses faced the highest waste costs (landfill) of the benchmarked locations (Fig. 4.39). Although market prices in Ireland have fallen recently due to the recession, international data is not available to ascertain whether our relative cost competitiveness has improved. The Eunomia review of waste policy noted that it is extremely difficult to reconcile the costs of providing the service with the charges levied, unless one assumes very high levels of inefficiency, or high levels of profit<sup>14</sup>.

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14 A consortium of consultants (led by Eunomia Research and Consulting) was commissioned to undertake a review of Irish waste policy in 2008. Their report, which was published in November 2009, is available at: <http://www.environ.ie/en/Environment/Waste/ReviewofWasteManagementPolicy/>

Based on experimental data from the CSO, the cost of accounting services fell significantly from their Q1 2008 peak<sup>15</sup>. There have only been marginal declines in legal fees in Ireland during 2009 (Fig. 4.42). While it is difficult to accurately compare legal fees internationally because of different national legal systems, based on the cost of enforcing a contract following a commercial dispute, Ireland ranks fourth most expensive (Fig. 4.43).

For the most part, recent price falls in Ireland are a cyclical response to the Irish and international recession (e.g. reduced demand leading to spare capacity, falling interest rates, falling international fuel and food prices) rather than a response to structural changes in the Irish economy.

## 1.5 Significant room for improvement in Ireland's productivity performance

In spite of moderating price levels, Ireland remains an expensive country in terms of the costs of doing business. A reduction in our cost base can play an important role in restoring our competitiveness but we also need to increase productivity across the economy.

Using the more appropriate GNP per hour measure, Irish productivity levels remain below the OECD average (Fig. 4.15). In addition to the weak performance on productivity levels, Ireland's productivity growth rates are also a cause for concern (Fig. 4.16). Not only were average annual Irish GNP-based productivity growth rates significantly below the OECD average over the period 2005-2009, they had fallen considerably from the earlier period, 2001-2005. Ireland ranked 24<sup>th</sup> in the OECD in terms of GNP-based productivity growth between 2008 and 2009.

Innovation is critical to improving our productivity performance. In terms of innovation performance (based on a composite indicator which includes knowledge intensive exports as a percentage of total exports, and levels of business R&D and IT expenditure), Ireland ranks above the euro area average. However there has been little change in Ireland's score since 2005 (Fig. 4.17). Meanwhile most other countries with which we compete in international markets have improved their performance. The percentage of turnover attributed to innovative activity in Ireland declined between 2006 and 2008 (Fig. 4.19).

Investment in technology and better use of technology can also play a key role in enhancing productivity across the economy. Ireland's investment in ICT was 5.7 per cent of GNP (and five per cent of GDP) in 2008 which is ahead of the euro area average (five per cent) but behind leading countries such as the UK (6.9 per cent of GDP), US (6.6 per cent) and Japan (6.3 per cent) (Fig. 5.35). A greater proportion of enterprises' total turnover is generated from ecommerce in Ireland than the euro area average (Fig. 4.14).

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<sup>15</sup> Given the small sample size used to create the sub-indices for accountancy and legal costs caution should be used when analysing the results. CSO, Services Producer Price Index, March 2010.



## 1.6 Tackling unemployment/creating jobs is the most pressing challenge

Nowhere is the severity of the recession more evident than in the huge numbers of people who have lost their jobs. Unemployment has risen sharply and is now a key challenge (Fig. 4.45). Outward migration is growing (Fig. 4.53) and participation rates in the labour force are falling (Figs. 4.55 and 4.56) - potentially a result of a lack of job opportunities and in part the disincentive effect of the increase in Ireland's tax wedge on labour. More positively, it could indicate that people are returning to education. From a competitiveness perspective, skills availability is a growing strength.

While almost all countries are experiencing high unemployment, in May 2010, Ireland has the third highest unemployment rate in the OECD at 13.3 per cent (Fig. 4.47). The unemployment rate in the OECD-28 averaged 8.5 per cent in May 2010, while it was 9.7 per cent in the US, 7 per cent in Germany and 5.2 per cent in Japan. The UK had an unemployment rate of 7.9 per cent in Q1 2010<sup>16</sup>. The ESRI forecasts that unemployment in Ireland will increase to 13¼ per cent by the end of 2010, which means that about a quarter of a million people will have lost their jobs between 2007 and 2010<sup>17</sup>.

While the steep rise in unemployment has affected people across society, those with lower educational attainment are more likely to be unemployed (Fig. 4.50). In Q1 2010, 21.5 per cent of people with no more than lower secondary education were unemployed compared to 6.1 per cent of those with a third level degree or above. Unemployment rates are also higher among younger workers (Fig. 4.49). Almost one third of 15-19 year olds and one quarter of 20-24 year olds were unemployed in Q1 2010 compared to the national rate of 12.9 per cent<sup>18</sup>. According to Eurostat, youth unemployment (under 25's) in Ireland in Q1 2010 was higher (26 per cent) than the euro area average (22.5 per cent) (Fig. 4.48). The increase in long-term unemployment is also of concern - it accounted for 41 per cent of total unemployment in Q1 2010 compared with 22.2 per cent a year earlier<sup>19</sup>.

In addition to higher unemployment among younger workers, Ireland is also seeing a steeper drop in participation rates among younger workers (Fig. 4.56). The decline in participation levels in the under-25 age groups was much steeper than the fall in total participation rates between Q3 2007 and Q1 2010. This is likely to be due to those who left school/college early during the boom years returning to full time education or to outward migration. The percentage of 21 years olds in education increased from 27 per cent in Q3 2007 to 36 per cent in Q3 2009 while CAO applications are up ten per cent in 2010. Returning to education has the potential to boost long term national competitiveness as people re-skill. Outward migration is also expected to increase significantly - the ESRI estimates net outward migration of 70,000 people in 2010<sup>20</sup>.

According to the OECD, countries in which there has been an unusually large downward adjustment in hours, but relatively little adjustment in employment levels, employment growth will likely be

16 OECD, Labour Force Statistics, June 2010.

17 ESRI, Quarterly Economic Commentary, July 2010.

18 CSO, Quarterly National Household Survey, Q1 2010, June 2010.

19 CSO, Quarterly National Household Survey, Q1 2010, June 2010.

20 ESRI, Quarterly Economic Commentary, July 2010.

more subdued as activity recovers as there will be considerable scope for expanding hours worked per employee. Relatively fast employment growth in the recovery phase might be expected in countries in which there have been unusually large employment losses, but a less pronounced downturn in hours worked<sup>21</sup>. Ireland falls into the latter category as up to Q2 2009 (latest data available), the decline in hours worked was less than three per cent. While there are risks of workers disengaging from the labour force as they enter long term unemployment, the quantity and quality of people available for work provides significant potential for recovery if we can enhance our competitiveness.

## 1.7 Access to and cost of credit remains a major concern

The availability of credit has become more restrictive in Ireland than internationally and it remains more expensive across most loan/credit categories. As credit growth in Ireland falls from the unsustainable levels of recent years, it is critical that viable businesses do not face obstacles to access credit through the tightening of credit standards or the high cost of capital. Developing new lending products and practices (e.g. software/IP based companies) to support exporting SMEs is a particular challenge.

Access to finance and its cost are critical issues for enterprise as international markets return to growth and exporters require greater access to credit - especially at a time when euro area interest rates are likely to increase. Irish borrowers continue to pay more for lending services than their euro area counterparts. Interest rates for loans to non-financial companies fell in Ireland during 2009, but they also declined by a similar amount in the euro area (Fig. 5.09). Irish companies also face consistently higher interest rates for overdraft facilities than the euro area average (Fig. 5.10). In addition, credit standards in Irish banks remain tighter than for their euro area counterparts (Fig. 5.12). The tightening of credit standards have been attributed to increases in the costs of funds for the banks and balance sheet constraints.

Access to early stage finance and venture capital is essential to enable the development of new businesses. Ireland performs well in terms of the amount of venture capital investment as a percentage of GDP in 2008; it ranked seventh in the OECD (Fig. 5.13). In terms of total private equity investment as a percentage of GDP, Ireland ranks 14th of the EU-14, reflecting the limited sources of private equity available for businesses in Ireland outside of venture capital (Fig. 5.14).

## 1.8 Prioritising investment to support the smart economy is critical

Ireland has made significant progress in terms of improving our physical, educational and research infrastructure. Despite progress, we remain behind leading countries on a range of important metrics. It is a major challenge to maintain progress in the context of significant but tightening public investment levels. In 2009, direct capital expenditure by Government amounted to €7.22 billion. This is set to fall to €6.45 billion in 2010 and €5.5 billion per annum for the years 2011-2013 which represents a significant reduction on funding allocations set out in the National Development Plan 2007-2013<sup>22</sup>. The distribution of the reduction in capital spending is not yet clear.

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21 OECD, OECD Economic Outlook, November 2009.

22 Department of Finance, Stability Programme Update, December 2009.

Although Ireland invested heavily in infrastructure in the past decade, perceptions of the overall quality of infrastructure remain poor (Fig 5.28)<sup>23</sup>. The upgrading of the main urban routes from Dublin to the other main cities is leading to reduced journey times and safer journeys on our busiest roads. Nonetheless, Ireland continues to face a range of infrastructure challenges. For example, there are significant weaknesses in terms of broadband speeds, distribution infrastructure, public transport and cycle lanes, water and waste infrastructure and natural gas storage capacity.

Advanced communications networks and services are essential to support the development of the smart economy. In spite of significant progress in recent years on coverage and take-up, Ireland still lags other developed economies in terms of the price (Fig. 4.38) and quality/speed of service available (Fig. 5.36 and Fig. 5.37). The proportion of broadband connections above 10 megabits per second in Ireland increased from five per cent in July 2009 to nine per cent in January 2010, but this is still significantly lower than the leading EU countries such as Portugal (61 per cent), Belgium (41 per cent) and Denmark (35 per cent) (Fig 5.36). Ireland remains behind leading countries in terms of upgrading to fibre and offering very fast broadband speeds - only 0.6 per cent of connections in Ireland are fibre compared to 11.3 per cent in the OECD-28 (Fig. 5.37).

Ireland's waste management performance compares poorly to other countries. Irish businesses have more limited waste infrastructure options (e.g. there are no commercial incineration facilities available) compared to their international competitors (Fig. 3.17).

In terms of broader environmental performance, although Ireland has made strong progress in the share of renewable electricity despite limited hydro opportunities (Fig. 5.32), the overall share of energy from renewables remains low and Ireland is among the highest carbon emitters in the OECD (Fig. 3.16). Dublin ranked 16<sup>th</sup> among 30 European cities in terms of a composite index of 'green' water performance and 30<sup>th</sup> in terms of 'green' transport (Fig. 5.33).

Ireland's younger population is considerably better qualified than older workers, with 44 per cent of the 25-34 age cohort possessing a third level qualification compared to the OECD average of 39 per cent (Fig. 5.49). Ireland produces significantly more maths, science and computing graduates per 1,000 of population aged 20-29 than the euro area average (Fig. 5.51). However, in Ireland science and computing dominate this category which means that Ireland is producing a limited supply of mathematics graduates.

Although there has been a significant increase in R&D activity in recent years in terms of R&D expenditure and number of researchers, Ireland continues to lag competitor countries. The recently published Europe 2020 Strategy sets a target for EU countries to invest three per cent of GDP in R&D by 2020 (Box 1 below). Irish R&D expenditure as a percentage of GNP was 1.7 per cent in 2008 compared to an OECD average of 2.4 per cent of GDP (Fig. 5.54). The number of researchers per 1,000 in employment in Ireland in 2008 was six which remains substantially below the OECD-27

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<sup>23</sup> This may be more a reflection of the shortcomings of using a perception based indicator to measure infrastructure quality but alternative quantitative indicators are not available.

average of 8.5 (Fig. 5.55). Data is not available on the rates of return on R&D investment across countries.

## 1.9 Conclusions

Ireland has made significant and real economic progress in recent decades. Broader measures of quality of life have also improved markedly. Despite the bursting of the property bubble and its hugely damaging implications for the wider economy, Ireland remains a relatively wealthy country with significant competitiveness strengths and opportunities. Exporting sectors are already contributing to the turnaround in the economy. While dealing with the economic and social ramifications of the collapse in the property bubble, Ireland must remain 'open for business' by improving the competitiveness of both the exporting sector and the domestic economy which is essential to restoring economic growth and jobs.

### Box 1. EU Competitiveness Priorities<sup>24</sup>

The main objectives of the Europe 2020 Strategy are to:

- develop an economy based on knowledge and innovation;
- promote a more resource efficient, greener and more competitive economy; and
- foster a high-employment economy delivering social and territorial cohesion.

To achieve these objectives, the European Commission proposes five specific targets:

- invest three per cent of EU GDP in R&D;
- increase labour participation to 75 per cent;
- reduce the early school dropout rate to ten per cent and ensure at least 40 per cent of 30 - 34 year olds have tertiary education;
- reduce greenhouse gas emissions by at least 20 per cent, increase the share of renewable energy to 20 per cent of energy consumption and increase energy efficiency by 20 per cent; and
- reduce the number of Europeans living below the national poverty lines by 25 per cent.

Ireland performs relatively well on the early school dropout rate (11.3 per cent) and the percentage of 25 - 34 year olds with a tertiary degree is also significantly higher in Ireland (43.9 per cent) than in the euro area (29.7 per cent). Ireland's environmental performance is mixed - we are one of the highest carbon emitters on a per capita basis but we are on target to meet our 2010 renewable energy target. Ireland's labour market participation is considerably lower than the EU 2020 target as is the percentage of GDP Ireland invests in R&D.

<sup>24</sup> Europe 2020 Strategy: <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf> The EU 2020 strategy targets were adopted at the EU Council summit on June 17<sup>th</sup>.



# Chapter 2

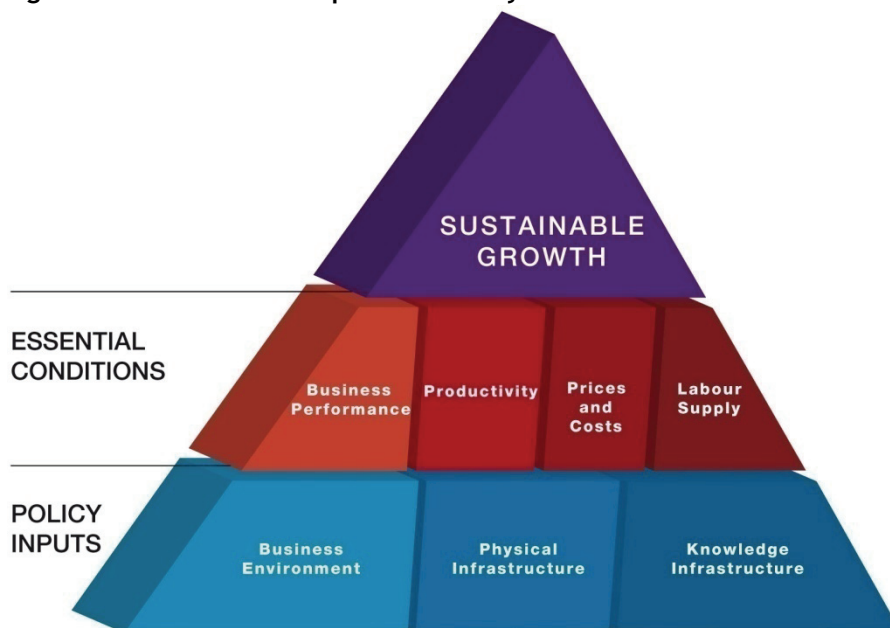
## Methodology

## 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 2.01).

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 and investment), 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 2.01 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 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 the Central Bank, the CSO, the ESRI and Forfás are used.

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 Israel (where data is available) Japan, South Korea, New Zealand, Singapore, 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, the OECD-28, or the euro area-16 average where possible or else compared to as wide a group of countries as possible<sup>25</sup>. Averages are weighted by each country's population or GDP average where relevant.

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.

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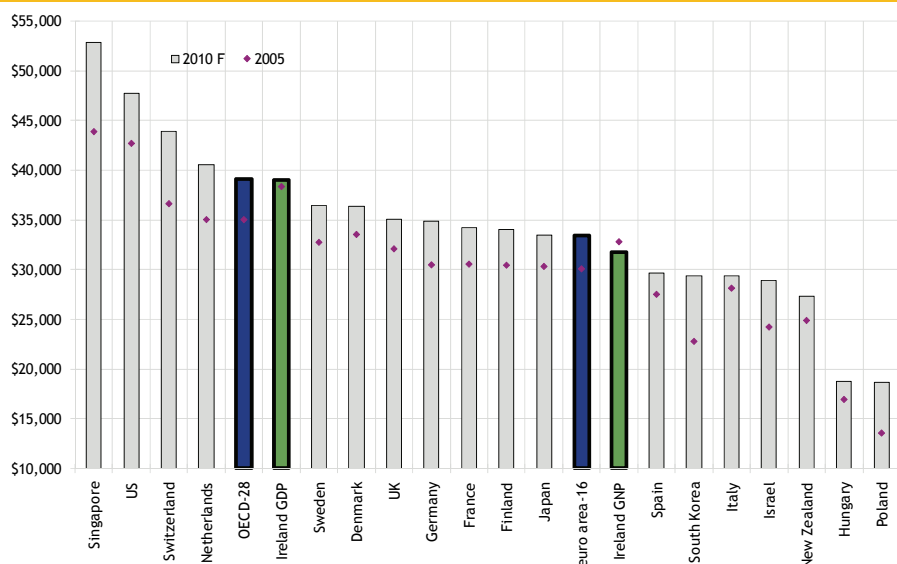
<sup>25</sup> The OECD is the preferred comparator group. However, in some cases depending on data availability, rankings are provided relative to the group of countries shown or to the EU-15. Where the sample is incomplete for the comparator group due to data availability, the countries omitted are 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.

## 2.2 Interpretation of the charts

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

Figure 3.01: Sample Chart

Fig. 3.01 Levels of GDP per capita in constant prices (US\$ PPP), 2010F<sup>26</sup>



In terms of GDP per capita, Ireland ranks as one of the wealthiest countries in the OECD. In terms of GNP per capita, a better measure of Irish living standards, Ireland ranks below the OECD-28 average and is close to the euro area-16 average. Irish GNP per capita is forecast to fall by 3.3% between 2005 and 2010 by this measure.

OECD-28 ranking:  
GDP: 9<sup>th</sup> (↓5)  
GNP 18<sup>th</sup> (↓7)

Source: IMF, *World Economic Outlook*, April 2010

- The best performing country is located at the left of the chart (in vertical bar charts) or at the top of the chart (in horizontal charts). In a limited number of charts, it is not possible to designate a best performer.
- In charts that assess output/income or other factors relative to these, Irish figures are provided in GDP and GNP terms. GDP (national output) is significantly greater than GNP (national income) in Ireland due to the repatriation of profits and royalty payments by multinational firms based here. Other countries are assessed in GDP terms.
- The text at the right of the chart provides additional information and commentary on Ireland's performance across each indicator.
- 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.
- Rankings are provided where appropriate, but in a limited number of charts, it is not possible to designate a best performer - these chart titles are coloured grey. In charts with both GDP and

<sup>26</sup> F denotes forecast for 2010.

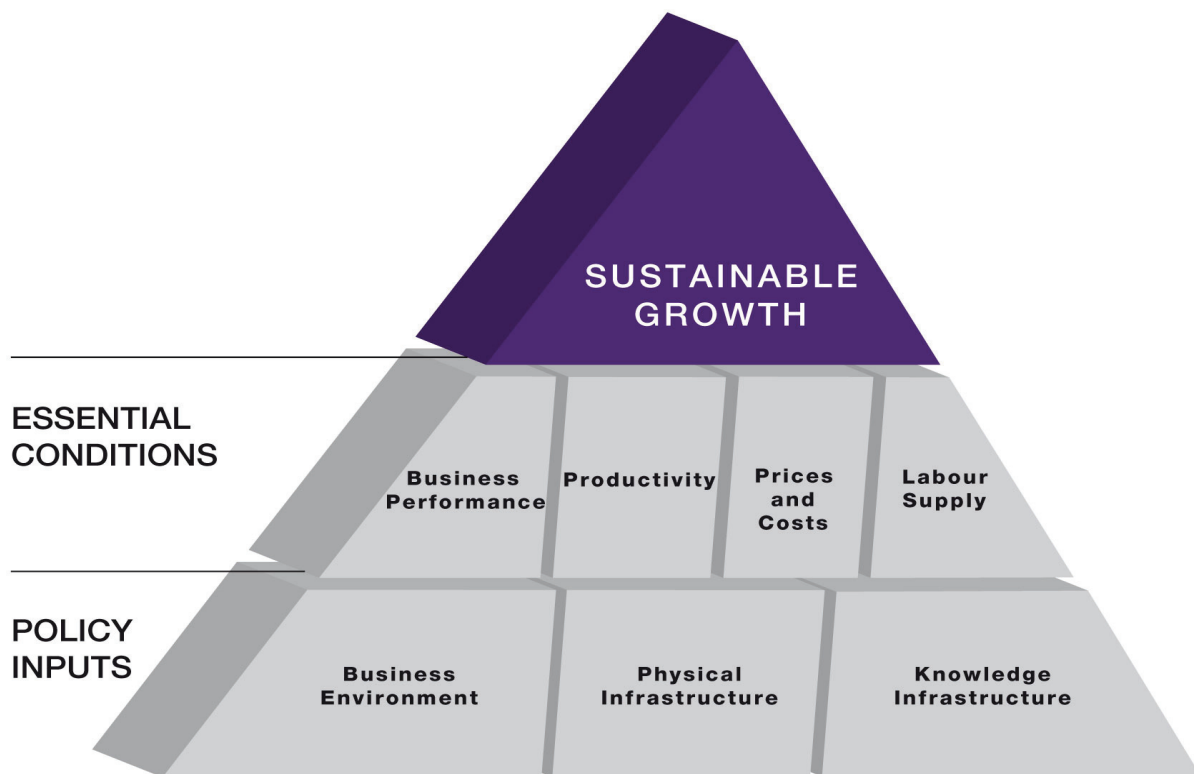


GNP performance for Ireland, Ireland's ranking is based on the GNP ranking, with the exception of tax related indicators which are based on the GDP ranking.

- 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, generally since 2005. Exceptions to this base year 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. They follow the same principles as above with respect to rankings and the traffic light system.

# Chapter 3

## Sustainable Growth

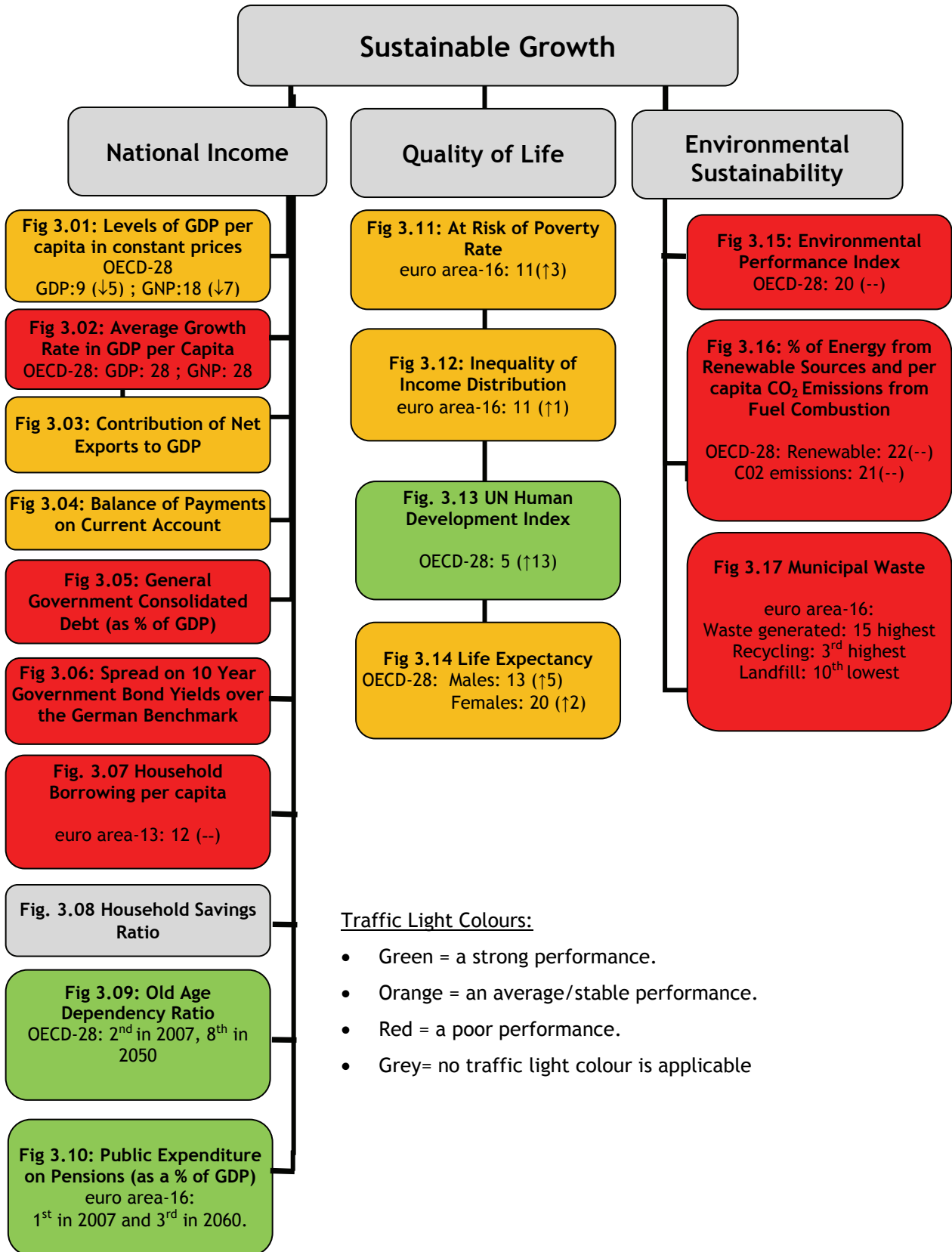




### 3. Sustainable Growth

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: national income, quality of life and environmental sustainability. Chart 3.A summarises the indicators that are benchmarked.

Chart 3.A



## National Income

Good living standards are a key measure of the success of national competitiveness. The indicators in this section cover the level, growth and drivers of Ireland's national income.

Irish living standards have fallen significantly, but in terms of GNP per capita (the most relevant measure of living standards) Ireland remains close to the euro area average. Ireland experienced a severe contraction in GNP per capita in 2008 (-2.6 per cent) and 2009 (-10.5 per cent) and Irish living standards in 2010 will have fallen back to 2004 levels. Despite the severe recession, Ireland remains a relatively high-income country (Fig. 3.01). The ESRI forecasts GNP per capita (in constant prices) to rise by 0.25 per cent in 2010 and 2.5 per cent in 2011<sup>27</sup>.

It is also important to consider the drivers of economic growth. Investment collapsed in 2008 and 2009 and consumption has also declined sharply leading to severe declines in GDP/GNP. While the collapse of the construction bubble has reduced Irish income levels, growth in net exports in 2009 and Q1 2010 (exports minus imports) has offset some of this collapse. The growth in net exports has been primarily driven by a sharp fall in imports (Fig. 3.03). The ESRI forecasts a 4.75 per cent rise in the value of exports of goods and services in 2010 and a 5.25 per cent increase in 2011 as global demand recovers<sup>28</sup>. Ireland's current account performance improved significantly in 2009 - the deficit narrowed from 6.1 per cent of GNP in 2008 to 3.7 per cent in 2009. The sharp reduction in the balance of payments on the current account indicates that Ireland is paying back borrowings by reducing investment and consumption and growing net exports (Fig. 3.04). The ESRI forecasts that the current account will move into balance in 2010 and that there will be a surplus of 0.25 per cent of GNP in 2011 which suggests that, while painful, the country is better placed to return to sustainable economic growth<sup>29</sup>.

While very high private debt levels in Ireland are beginning to fall, there has been a very significant increase in government debt due to the sharp decline in revenues arising from the collapse in the construction sector (i.e. falling revenue from property taxes) and the general recession (falling revenue from taxes on incomes, sales and profits). Ireland's general government debt as a percentage of GDP has risen sharply from 25 per cent at the end of 2007 to an estimated 64.5 per cent at the end of 2009. Irish government debt as a percentage of GDP is converging rapidly on the euro area average and is expected to reach 87 per cent by the end of 2011 (Fig. 3.05). The cost of borrowing for the Irish Government remains at a significant premium over German levels (Fig. 3.06). The risk premium on Irish bonds reflects uncertainty about the sustainability of public finances at European level as well as ongoing uncertainty internationally over Ireland's ability to restore the public finances to stability and the economy to the growth levels required to repay our borrowings.

Ireland is the second most indebted euro area country in terms of private household debt<sup>30</sup>. Ireland's household debt per capita peaked at €37,464 in 2008 but has since moderated to €33,760 by the end of March 2010 as households reduce consumption, increase savings and pay back debt

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<sup>27</sup> ESRI, *Quarterly Economic Commentary*, July 2010.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

<sup>30</sup> euro area minus Cyprus, Malta and Slovak Republic.

(Fig. 3.07). Over the 2005-2008 period the annual average household savings rate in Ireland was 4.6 per cent. In 2009, the savings rate was 12.3 per cent in Ireland which is significantly higher than the OECD average (Fig. 3.08).

In addition to the current challenges Ireland must face, we also need to be aware of longer term challenges. Ireland is currently benefiting economically from a relatively young population but will face significant population ageing in the decades to come. To maintain current living standards in the future means that we need to start planning for this now. Population ageing will put upward pressure on public expenditure on pensions in many developed countries. Dependency ratios measure the number of people over 65 relative to the number of working age. Ireland had a favourable demographic position with a dependency ratio of 17.4 per cent in 2007 compared with the OECD average of 26 per cent (Fig. 3.09). In Ireland, public expenditure on pensions is set to rise to 10.5 per cent of GDP by 2050 (up from 5.2 per cent in 2007) which will put pressure on the public finances (Fig. 3.10).

## Quality of Life

A key objective of competitiveness is to support a high quality of life, which is broader than material living standards or measures of national income.


At risk of poverty rates and income inequality levels in Ireland have improved and are converging on the euro area average (Fig. 3.11). In 2008, those in the top 20 per cent of the income distribution earned 4.5 times more than those in the bottom 20 per cent (Fig. 3.12). While the recession has lowered material living standards in Ireland significantly, data is not yet available on the impact of the recession across income groups. From an employment perspective, young men with low levels of educational attainment are most likely to be at risk of unemployment (Fig. 4.51 and Fig. 4.52).

To capture multifaceted quality of life, the United Nation's Human Development Index measures economic, educational and health outcomes globally. Ireland is ranked among the highest countries in 2007 (fifth in the world), indicating a high quality of life (Fig. 3.13). Average life expectancy for Irish males and females was 77.4 and 82.1 years respectively in 2007. Life expectancy in Ireland has increased by five years over 1990 levels and is now similar to the OECD average (Fig. 3.14).

## Environmental Sustainability

The essence of environmental sustainability is a stable relationship between human activities and the natural world which does not diminish the prospects for future generations to enjoy a quality of life at least as good as our own. This section examines Ireland's broad environmental performance and also focuses specifically on energy, carbon emissions and waste management.

Ireland's environmental performance is mixed. The composite environmental performance indicator ranks Ireland 20<sup>th</sup> in the OECD-28 (Fig. 3.15). Despite significant progress in recent years, Ireland's share of energy derived from renewable resources is approximately half that of the OECD average,



reflecting our high dependence on imported fossil fuels and very limited hydro potential<sup>31</sup>. In 2008 3.9 percent of Ireland's energy consumption (this includes electricity generation, transport and heating) came from renewable sources<sup>32</sup>. Ireland will have to meet 16 per cent of total energy needs from renewable energy sources by 2020. Ireland is among the highest carbon emitters in the OECD on a per capita basis in part due to our transport and agriculture sectors (Fig. 3.16). In 2008, greenhouse gas emissions in Ireland were 67.44 Mt CO<sub>2</sub> equivalent - a reduction of 0.3 per cent on 2007 but still significantly above the 62.84 Mt CO<sub>2</sub>-equivalent annual average target for the 2008-2012 period under the Kyoto Protocol.

Ireland generates significantly more waste than the euro area average. In 2008, Ireland landfilled 62 per cent of municipal waste which compares poorly with the euro area average of 32 per cent (Fig. 3.17). Ireland recycles 32 per cent of waste compared to the euro area average of 25 per cent.

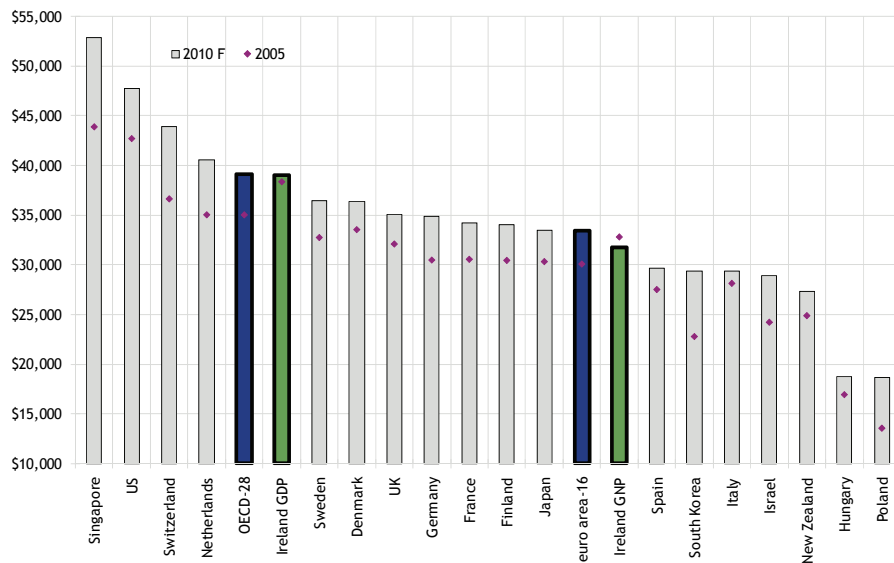
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<sup>31</sup> Fig. 5.32 shows the share of renewable energy technologies in electricity generation.

<sup>32</sup> According to provisional data for 2009, the share of renewables in Ireland's gross final energy consumption was 4.7 per cent. Sustainable Energy Authority of Ireland, Renewable Energy in Ireland, May 2010.

### 3.1 National Income

**Fig. 3.01 Levels of GDP per capita in constant prices (US\$ PPP), 2010F**

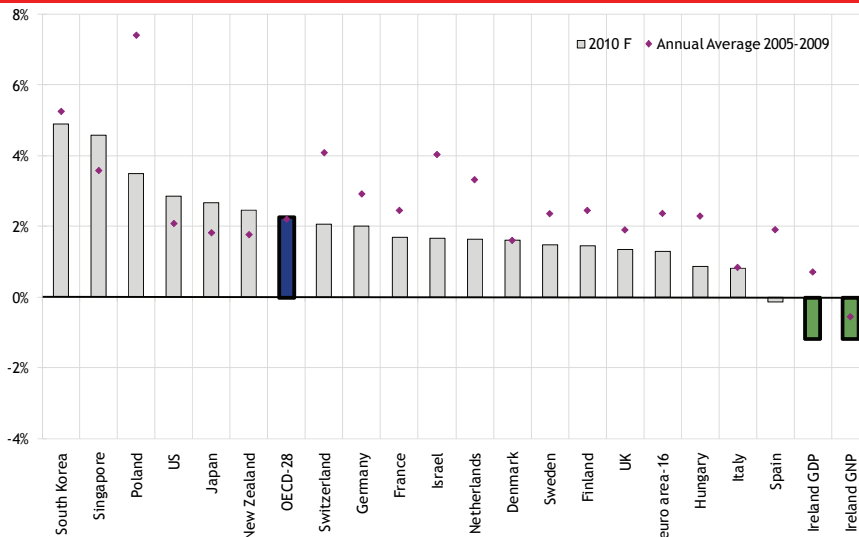


In terms of GDP per capita, Ireland ranks as one of the wealthiest countries in the OECD. In terms of GNP per capita, a better measure of Irish living standards, Ireland ranks below the OECD-28 average and is close to the euro area-16 average. Irish GNP per capita is forecast to fall by 3.3% between 2005 and 2010.

OECD-28 ranking:  
 GDP: 9<sup>th</sup> (↓5)  
 GNP: 18<sup>th</sup> (↓7)

Source: IMF, World Economic Outlook, April 2010

**Fig. 3.02 Average Annual Growth Rates in GDP per capita (\$ PPP), 2010F<sup>33</sup>**



This chart shows the average annual growth rate in GDP per capita for the period 2005-2009 and the latest forecast for 2010. Ireland experienced a long period of rising living standards until 2007. However, there was a severe contraction in GNP per capita in Ireland in 2008 (-2.6%), 2009 (-10.5%) and 2010F (-1.2%). As a result, Irish living standards in 2010 will have fallen back to 2004 levels.

OECD-28 ranking<sup>34</sup>:  
 GDP: 28<sup>th</sup>  
 GNP: 28<sup>th</sup>

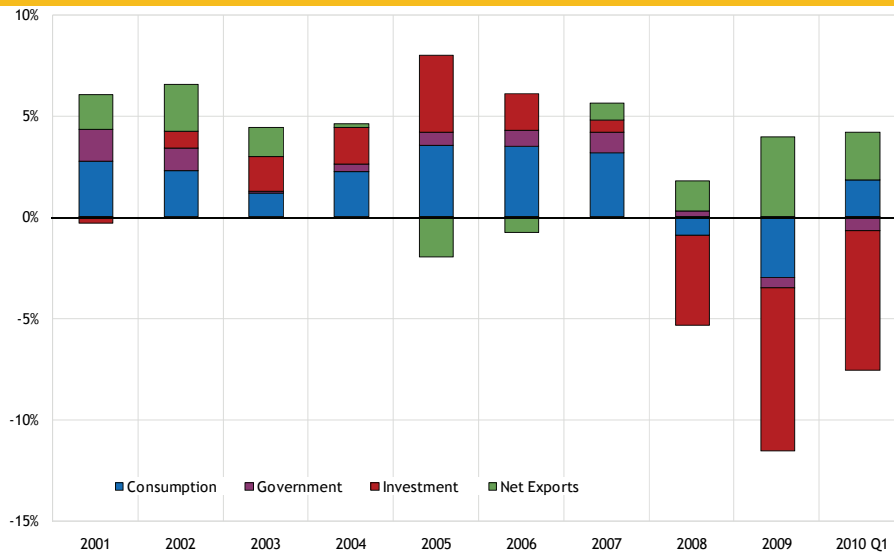
Source: IMF, World Economic Outlook, April 2010

<sup>33</sup> Growth rates are calculated based on gross domestic product per capita in purchasing-power-parity (PPP) adjusted in international dollar terms.

<sup>34</sup> Base year for ranking change is 2010 relative to 2005.



**Fig. 3.03 Contribution of Net Exports to GDP 2001-2010 Q1**

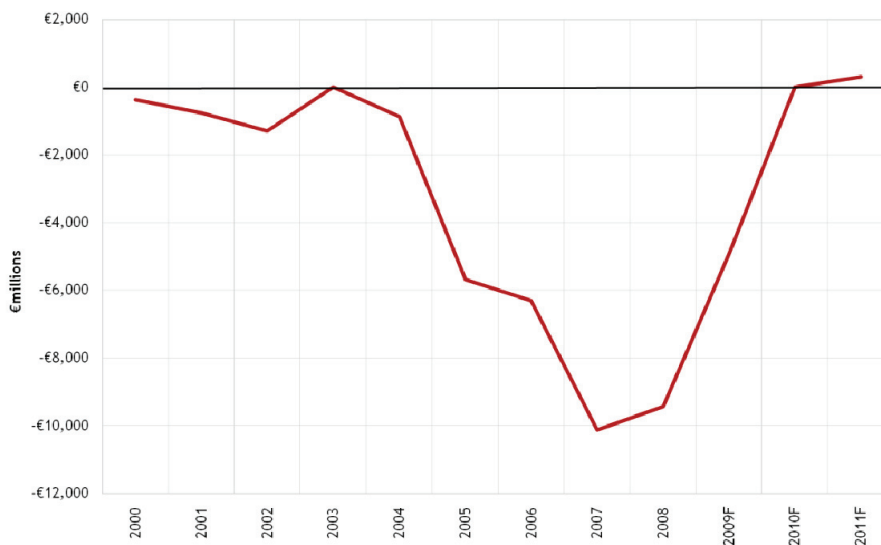


The contribution of net exports (exports minus imports) to economic growth on a year-on-year basis was small or negative during the 2004-2007 period. Net exports however increased in 2008 and 2009, driven mainly by growth in services. Investment collapsed in 2008 and 2009 which has resulted in sharp declines in GDP and living standards. The contribution of net exports has improved in 2009 and Q1 2010, primarily driven by a steep fall in imports.

Ranking: N/A

Source: Forfás calculations, CSO National Accounts.

**Fig. 3.04 Balance of Payments, Current Account Balance, (€millions), 2000-2011F**

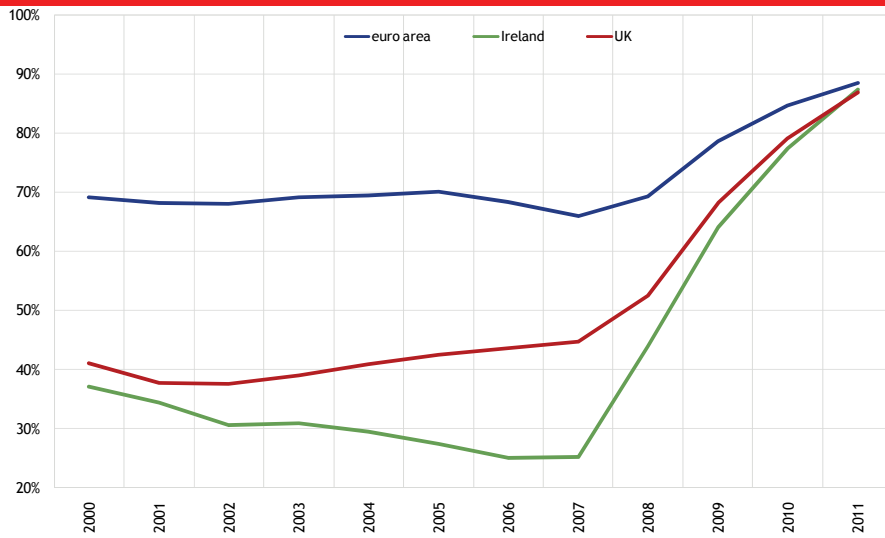


The current account balance is a measure of national income less expenditure. Ireland's current account performance improved significantly in 2009 - the deficit narrowed from 6.1 per cent of GNP in 2008 to 3.7 per cent in 2009. The sharp reduction in the current account balance suggests that Ireland is paying back borrowings by reducing investment and consumption and growing net exports. The ESRI forecasts that the current account will move into balance in 2010 and that there will be a surplus of 0.25% of GNP in 2011.

Ranking: N/A

Source: Central Statistics Office; ESRI, Quarterly Economic Commentary, July 2010.

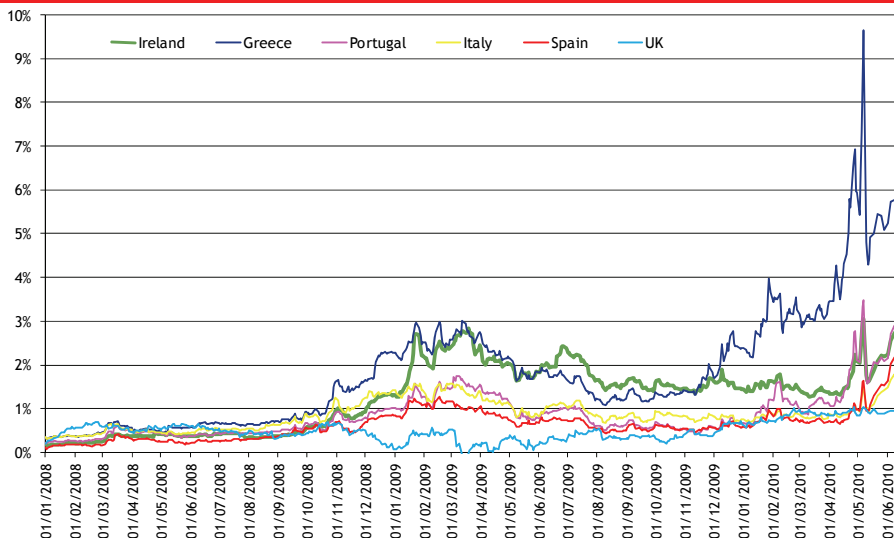
**Fig. 3.05 General Government Consolidated Debt (as a % of GDP), 2000-2011F**



Ireland's gross general government consolidated debt as a percentage of GDP has risen sharply since 2007 to an estimated 64.5% at the end of 2009<sup>35</sup>. Irish government debt as a percentage of GDP is converging rapidly on the euro area average and is expected to reach 87% of GDP by the end of 2011. The Government has taken measures to curtail spending in an effort to restore the stability of the public finances. However the Department of Finance forecasts a budget deficit of 11.6% in 2010<sup>36</sup>.

Source: Eurostat, *Economy and Finance*; and European Commission, *Autumn Economic Forecasts December 2009*

**Fig. 3.06 Spread on 10 Year Government Bond Yields over the German Benchmark, January 2008 - June 2010**



This indicator measures the cost of borrowing for governments relative to the German benchmark level<sup>37</sup>. Bond yields in several euro area countries have been high and volatile recently reflecting market concerns regarding fiscal sustainability in the euro area. The cost of borrowing for the Irish Government remains at a significant premium over German levels.

Ranking: N/A

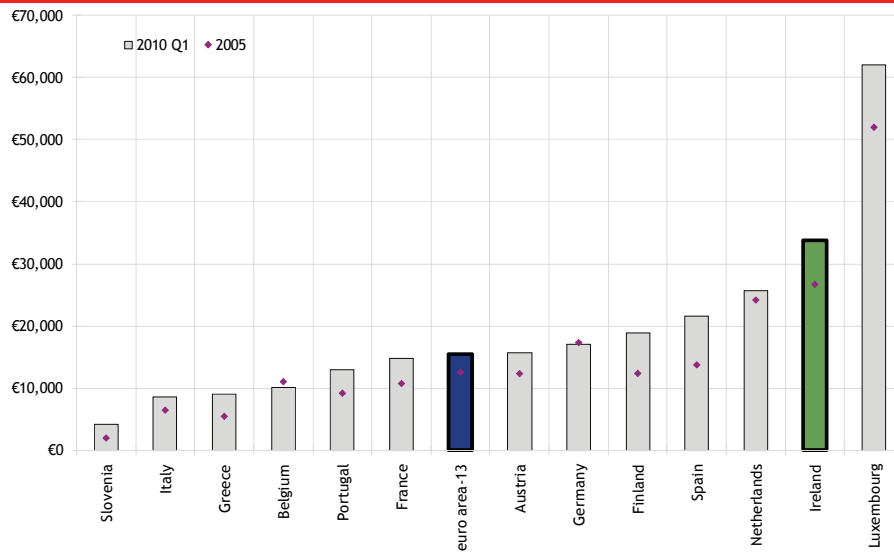
Source: Bloomberg

<sup>35</sup> Department of Finance, *Monthly Economic Bulletin*, April 2010.

<sup>36</sup> Department of Finance, *Stability Programme Update*, December 2009.

<sup>37</sup> Bond markets require greater yields (effective interest rates for government debt) on assets perceived to be risky.

**Fig. 3.07 Household Borrowing Per Capita, 2010 Q1**

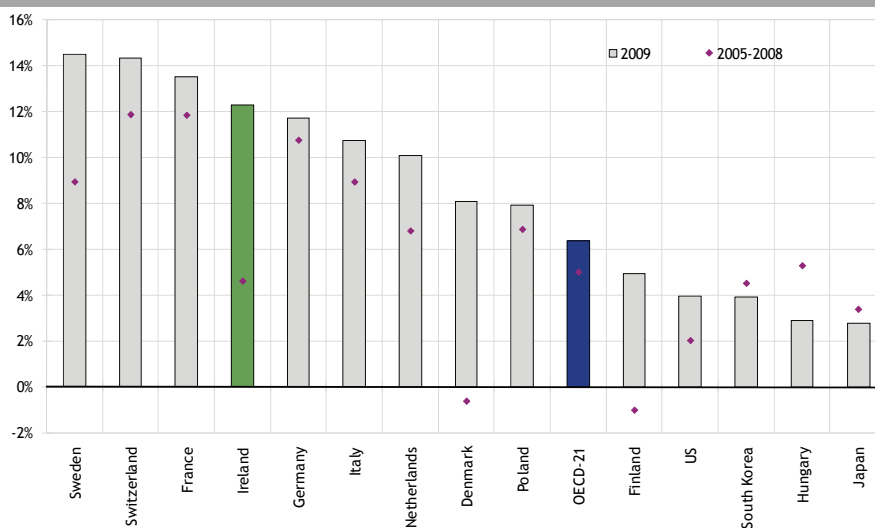


Ireland's debt per capita increased rapidly in recent years and Ireland is the second most indebted euro area country<sup>38</sup>. Ireland's debt per capita peaked at €37,464 in 2008 but has since moderated to €33,780 as households reduce consumption, increase savings and pay back debt. 73% of household debt in Ireland is mortgage debt and 15% is consumer credit.

**euro area-13 ranking: 12<sup>th</sup> (--)**

Source: European Central Bank, Aggregated Balance Sheet of euro area Monetary Financial Institutions

**Fig. 3.08 Household Saving Ratio, 2009<sup>39</sup> & 2005-2008<sup>40</sup>**



The savings ratio is measured as a percentage of household net disposable income. Over the 2005-2008 period the annual average savings rate in Ireland was 4.6%. In 2009, the savings rate was 12.3% in Ireland which is significantly higher than the OECD average. This consolidation of household balance sheets is necessary given high levels of borrowing but is having a negative impact on consumption, GDP and business confidence.

**Ranking: N/A**

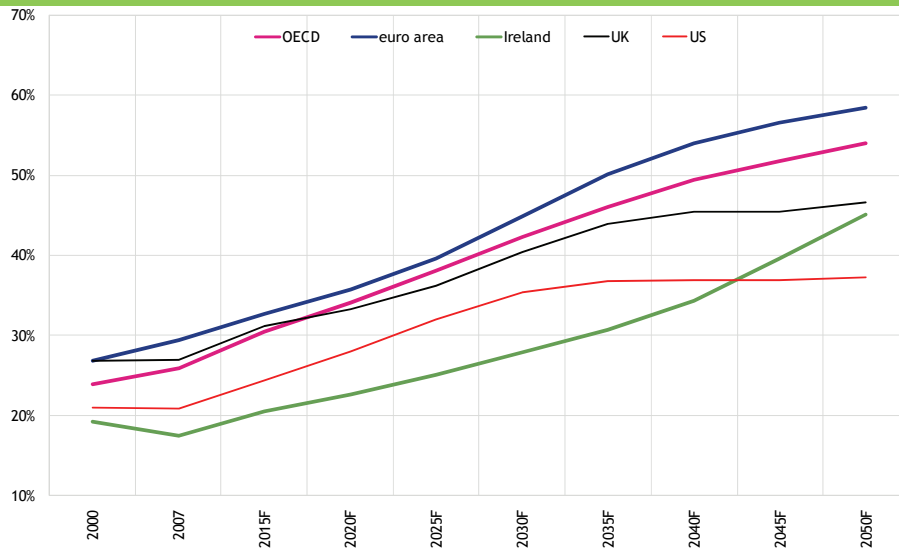
Source: OECD, Economic Outlook Database 86, December 2009.

<sup>38</sup> euro area minus Cyprus, Malta and Slovak Republic.

<sup>39</sup> OECD-21 average minus Greece, Iceland, Luxembourg, New Zealand, Portugal, Spain and the UK as data is unavailable.

<sup>40</sup> The household saving rate is calculated as the ratio of household saving to household disposable income. Saving rates may be measured on either a net or a gross basis. Net saving rates are measured after deducting consumption of fixed capital (depreciation) in respect of assets used in enterprises operated by households and in respect of owner-occupied dwellings from saving and from the disposable income of households, so that both saving and disposable income are shown on a net basis.

**Fig. 3.09 Old-Age Dependency Ratios, 2000-2050F<sup>41</sup>**

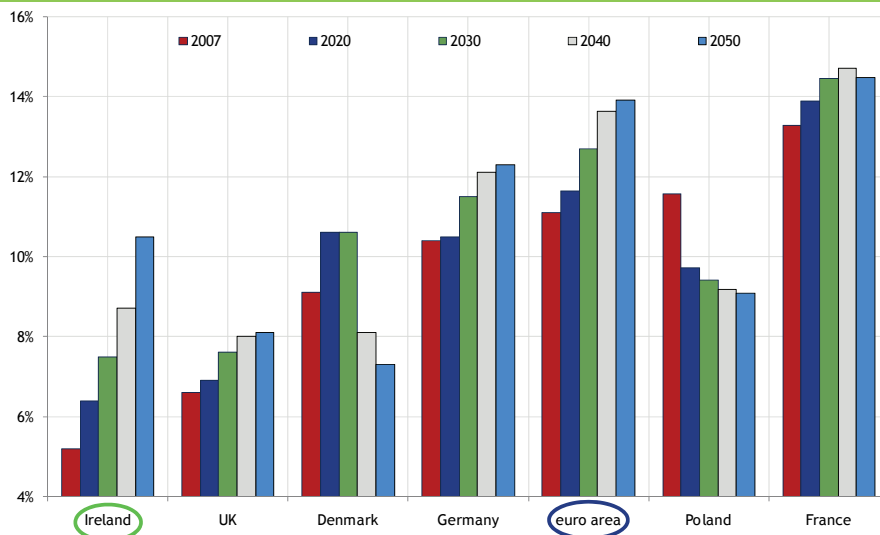


Dependency ratios measure the number of people over 65 relative to the number of working age. Ireland has a favourable demographic position with a ratio of 17.4% in 2007 compared with the OECD average of 26%. Dependency ratios are influenced by mortality rates, fertility rates and migration. Many developed societies are forecast to experience population ageing - the Irish dependency ratio is forecast to rise to 45% by 2050.

**OECD-28 ranking:**  
2<sup>nd</sup> in 2007; 8<sup>th</sup> in 2050

Source: OECD, *Pensions at a Glance*, 2009

**Fig. 3.10 Gross Public Expenditure on Pensions (as a % of GDP), 2007-2050**



In 2007 the Irish Government spent 5.2% of GDP on old-age pensions and occupational pensions of public sector employees. This compares favourably with the euro area average of 11%. Population ageing will put upward pressure on public expenditure on pensions in many developed countries. In Ireland, public expenditure on pensions is set to rise to 10.5% of GDP by 2050 which will put pressure on the public finances.

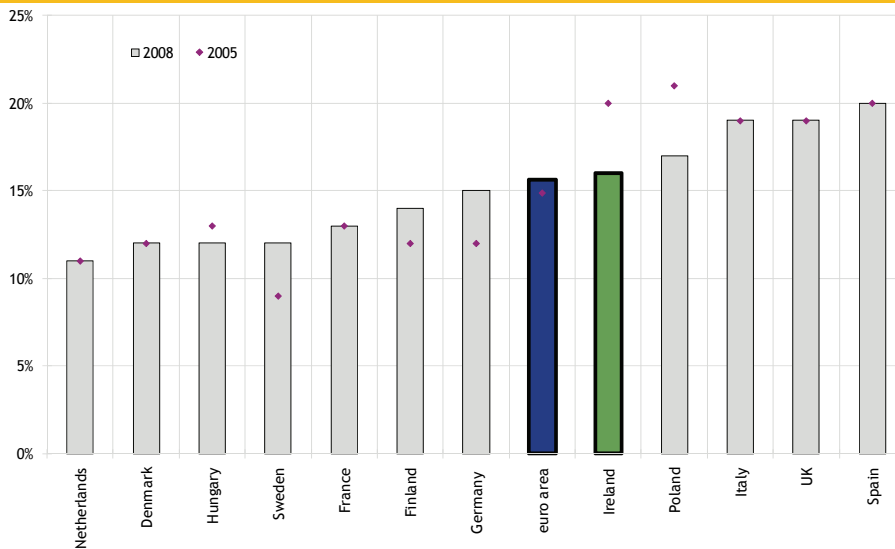
**euro area ranking:**  
1<sup>st</sup> in 2007; 3<sup>rd</sup> in 2060.

Source: European Commission, *DG EcoFin, Pension schemes and pension projections in the EU-27 members*, October 2009.

<sup>41</sup> euro area-15 minus Slovenia. Results for 2015-2050 are weighted by 2009 population.

## 3.2 Quality of Life

**Fig. 3.11 At-risk-of-poverty rate after social transfers (% of population), 2008**

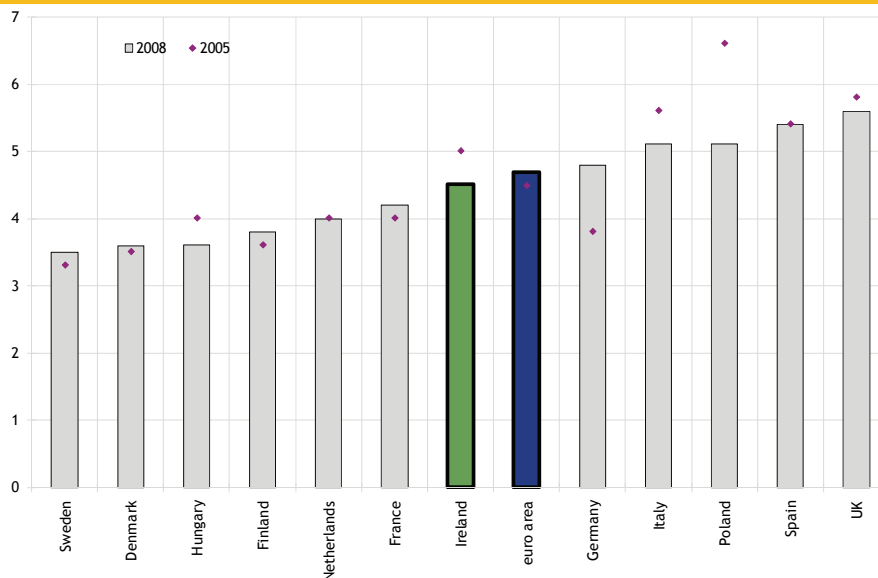


This indicator is a widely used measure of income inequality. It shows the share of persons with disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median (after social transfers). Despite significant improvements in recent years, Ireland's population is slightly more at risk of poverty than the euro area average.

**euro area ranking:**  
11<sup>th</sup> in 2008 (↑3)

Source: Eurostat, Structural Indicators

**Fig. 3.12 Inequality of Income Distribution (80/20 Income Quintile Share Ratio), 2008**

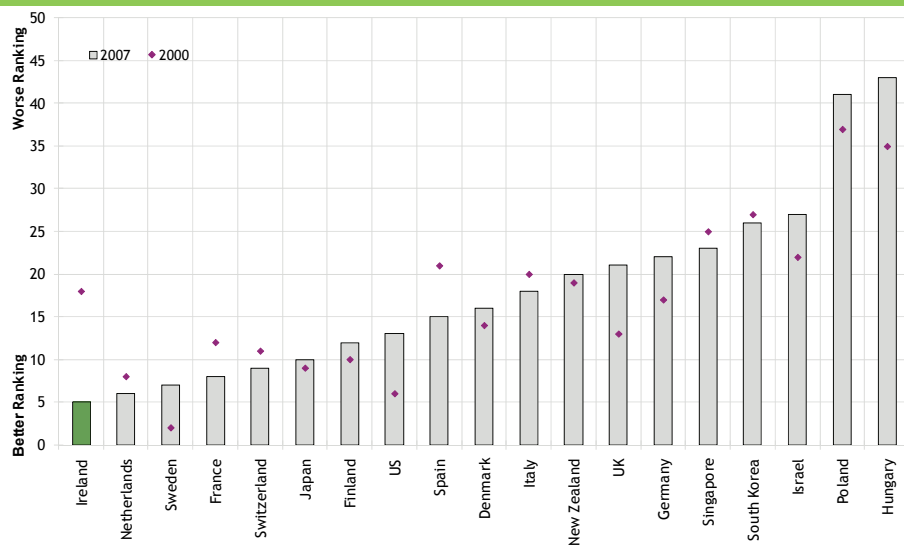


This indicator compares the incomes of the bottom 20% of the population with the top 20% in terms of income distribution. In 2008, those in the top 20% in Ireland earned 4.5 times more income than those in the bottom 20%. Income equality in Ireland has improved in recent years. However the impact of the economic crisis and rising unemployment may adversely affect inequality.

**euro area-16 ranking:**  
11<sup>th</sup> in 2008 (↑1)

Source: Eurostat, Income and Living Conditions

**Fig. 3.13 Ranking in the United Nations Human Development Index, 2007**

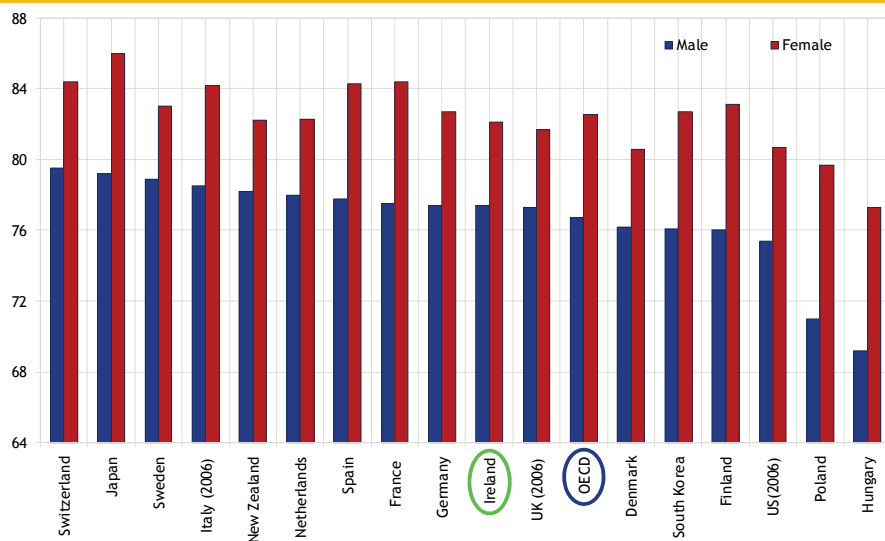


The UN Human Development Index combines measures of education, health and GDP per capita. Ireland's ranking improved strongly between 2000 and 2007. Ireland is ranked among the highest countries (5<sup>th</sup> overall in both the world and the OECD), indicating a high quality of life.

**OECD ranking:**  
5<sup>th</sup> (↑13)

Source: UN Human Development Indices, A Statistical Update, 2009

**Fig. 3.14 Life Expectancy in Years, by Gender, 2007**



Life expectancy can be used as a simple indicator of health and wellbeing. Average life expectancy for Irish males and females was 77.4 and 82.1 years respectively in 2007. Life expectancy in Ireland has increased by five years over 1990 levels and is now similar to the OECD average.

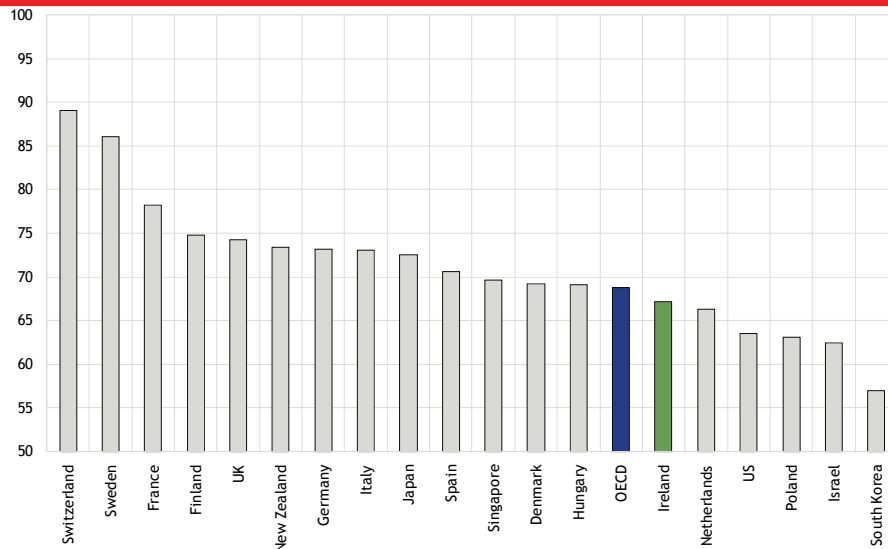
**OECD-28 ranking<sup>42</sup>:**  
Males: 13<sup>th</sup> (↑5)  
Females: 20<sup>th</sup> (↑2)

Source: OECD.Stat Extracts, Health Data, 2009

42 Base year for ranking change is 1990 compared to 2007.

## 3.2 Environmental Sustainability

**Fig. 3.15 Environmental Performance Index 2010, Scale (0-100)**

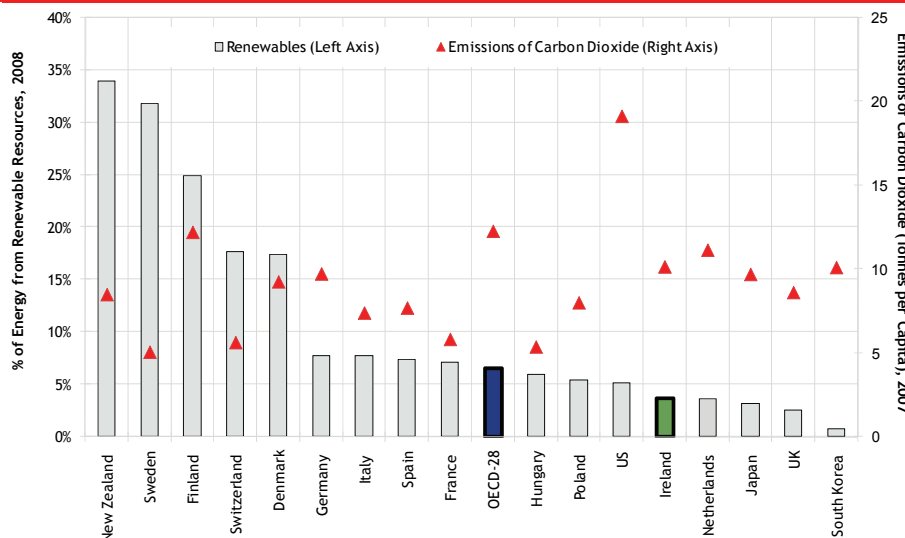


This index aggregates 25 environmental indicators relating to health, air quality, water resources, productive natural resources, biodiversity and habitat, sustainable energy and climate change. Ireland's performance is below the OECD average.

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

Source: Yale Centre for Environmental Law and Policy

**Fig. 3.16 Proportion of Energy From Renewable Sources (2008) & Per Capita Emissions of Carbon Dioxide from Fuel Combustion (2007)**



Ireland's share of energy derived from renewable resources, while growing quickly, (left axis) is approximately half that of the OECD average<sup>43</sup>, reflecting our high dependence on imported fossil fuels and very limited hydro potential<sup>44</sup>. Ireland is among the highest carbon emitters in the OECD on a per capita basis (right axis), driven by significant increases in transport emissions. In 2008 emissions in Ireland were 0.3% lower than in 2007<sup>45</sup>.

**OECD ranking<sup>46</sup>:**  
Renewables: 22<sup>nd</sup> (--)  
CO2 emissions: 21<sup>st</sup> (--)

Source: International Energy Agency, CO2 Emissions from Fuel Combustion, 2009; International Energy Agency, Renewables Information, 2009.

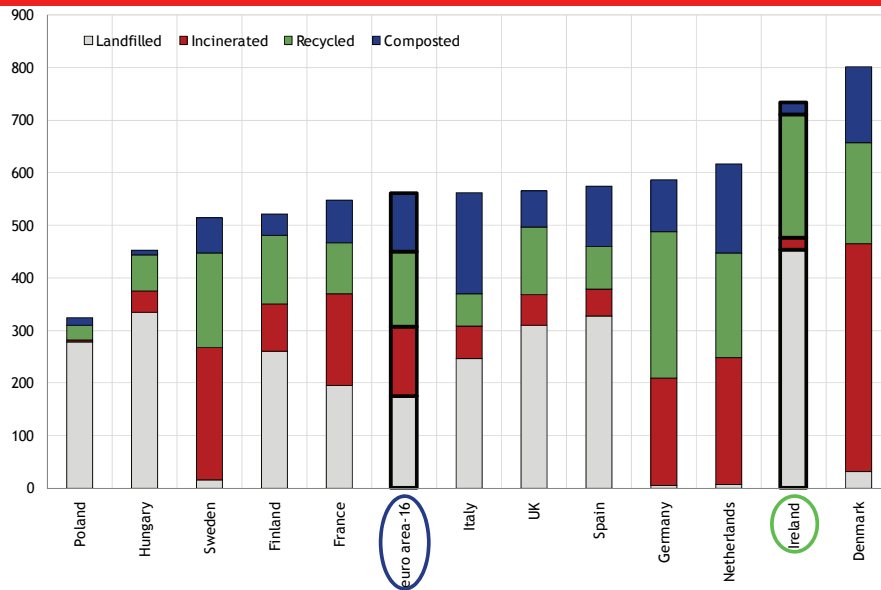
43 In 2008, the share of renewables in Ireland's gross final energy consumption, which includes electricity generation, transport and heating, was 3.9 per cent. Provisional data from the SEAI for 2009 indicates that this has increased to 4.7 per cent. Ireland is required to meet 16 per cent of total energy needs from renewable energy sources by 2020.

44 Fig. 5.32 shows the share of electricity generation from renewable energy technologies. Ireland's share of electricity produced from non-hydro renewable sources is above the OECD average.

45 Environmental Protection Agency, Ireland's Greenhouse Gas Emissions in 2008, April 2010.

46 Base year for ranking change is 2000 relative to 2008.

**Figure 3.17 Municipal Waste Generated (kg per person) and Treatment Method, 2008**



Ireland generates more waste (733 kg/person) than the euro area average (560 kg/person)<sup>47</sup>. Ireland recycles 32% of waste compared to the euro area average of 25%. Ireland landfilled 62% of municipal waste in 2008 which compares poorly with the euro area average of 32%. It is notable that Ireland has limited incineration capacity (3%) compared to the euro area average (24%)<sup>48</sup>.

**euro area-16 ranking:**  
Waste generated: 15<sup>th</sup> highest  
Recycling: 3<sup>rd</sup> highest  
Landfill: 10<sup>th</sup> lowest

Source: Eurostat, Environment Indicators

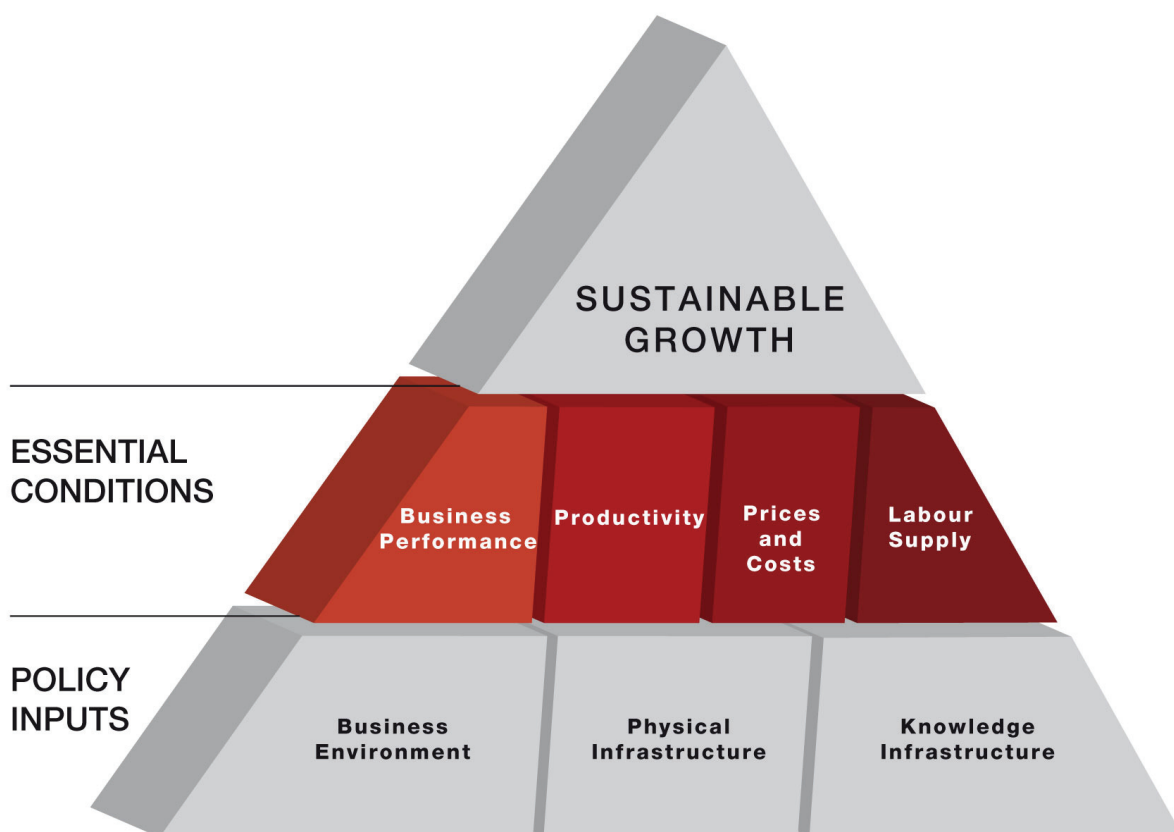
<sup>47</sup> Municipal waste generation in Ireland includes both household waste and commercial waste. While this definition is used by most of the benchmarked countries/ regions in this report, there is still need for caution when comparing municipal waste generation in Ireland with other countries due to differences in definition. In particular, the extent to which commercial waste is included can vary across some countries.

<sup>48</sup> While none of the commercial waste incinerators which have received planning permission are currently operational, a small amount of non-hazardous waste was used as a fuel (primarily wood, refuse derived fuels and edible oils and fats). This is counted as incineration by Eurostat.



# 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 intermediate 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 and trade,
- Ireland's productivity and innovation performance,
- Ireland's prices and costs structure, and
- Labour supply.

### Business Performance

The performance of the business sector is critical to maintaining incomes and employment levels in Ireland. Its strength is also essential to rebuilding government finances and maintaining spending on public services. This section assesses business performance in Ireland under the headings of investment and trade.

#### Business Investment

Investment in the economy has fallen dramatically due to the property collapse and the prolonged drop in consumer and business confidence. From a competitiveness perspective, the moderation in the decline in investment in machinery and equipment is welcome. Restoring investment levels in productive assets (rather than property) is a major challenge.

Private sector investment (including households) in Ireland was the lowest in the euro area in 2009, representing a significant decline since 2005 (Fig. 4.01). Foreign direct investment remains critically important for Ireland. While Ireland continues to attract a large number of greenfield investment projects, it is of concern that Ireland's relative stock of foreign direct investment and employment in overseas companies is on a downward trajectory (Fig. 4.02 and Fig. 4.03). While there has been a decline in the rate of return since 2005, relative to other locations investors continue to earn a relatively high rate of return in Ireland (Fig. 4.04). The stock of outward direct investment from Ireland has grown significantly in recent years as Irish companies seek to gain access to markets in Europe and the US. As a result, Irish stocks of outward direct investment are among the highest in the OECD in 2008 (Fig. 4.05).

#### Trade

Ireland continues to be one of the most open economies in the OECD in terms of our trade performance. While the majority of Ireland's exports in 2009 were destined for other EU member states, Ireland exports a larger proportion of its goods to non-EU countries than most other member states (Fig. 4.06). Ireland's decline in imports and exports in 2009 was modest compared to the significant decreases experienced by the OECD and the euro area. In 2010, the OECD forecasts that Ireland's import and export performance will lag the growth rates expected in the OECD and the

euro area but this needs to be seen in the context of significantly larger declines in 2009 in the OECD and the euro area than in Ireland (Fig. 4.06 and Fig. 4.07).

Between 2005 and 2008, Ireland's share of merchandise trade has fallen gradually, while our share of services (a smaller but growing component of world trade) continues to grow (Fig. 4.09). Despite losing global market share during this period, a number of key sectors, such as pharmaceuticals, chemicals, agricultural products and travel, have continued to increase in value terms (Fig. 4.10 - Fig. 4.12). In 2008, services exports accounted for 44.5 per cent of total Irish exports compared to 21 per cent in 2000.

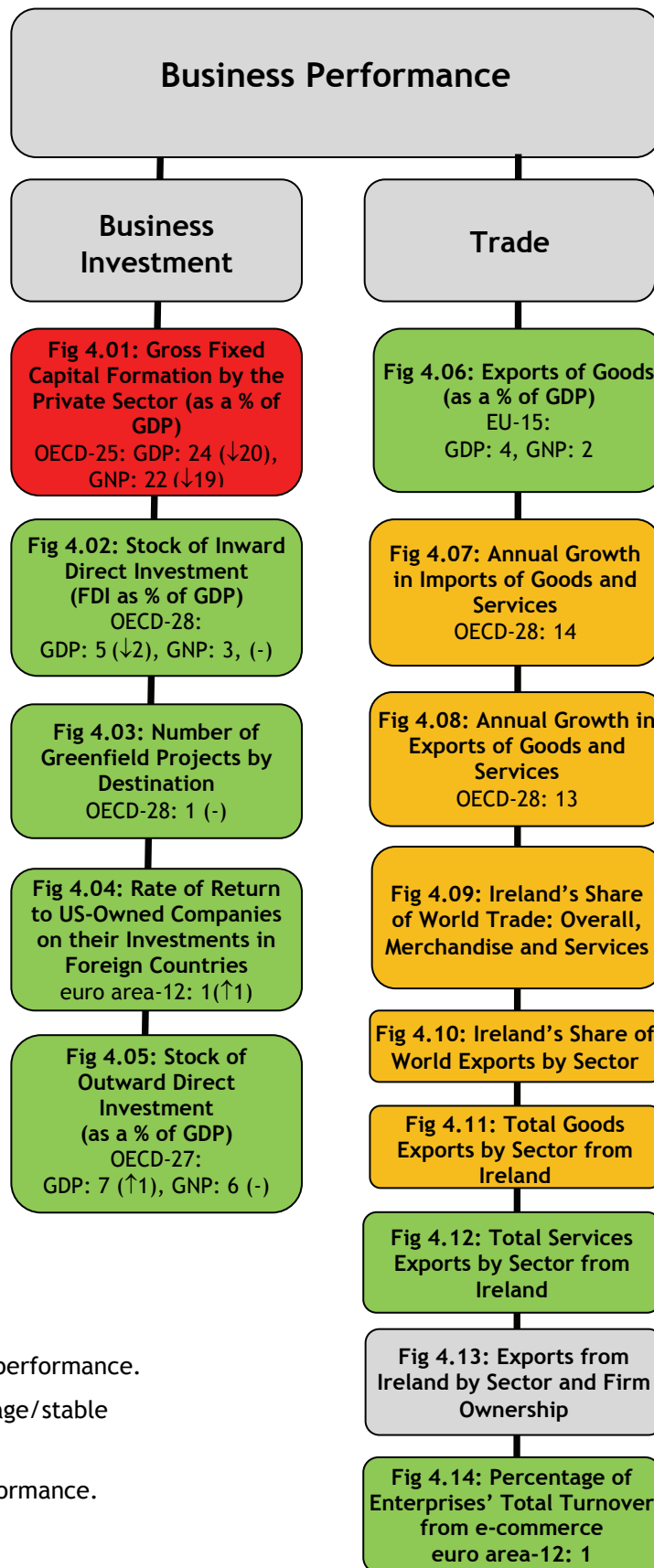
The majority of Irish exports are concentrated in a small number of sectors. Foreign-owned firms dominate the three largest export sectors (computer services, pharmaceuticals and computer hardware), the fast growing medical devices sector and the shrinking electrical equipment sector (Fig. 4.13). Just 10.9 per cent of total exports come from indigenous companies which are concentrated in the food and drink sector which recorded a static export performance over the period 2005-2009. Foreign owned companies' dominance of Irish exports overstates their economic impact. The contribution of indigenous and foreign owned trading sectors to employment and direct expenditure on goods and services within the local economy is similar. Indigenous exporters employ 132,500 people while foreign owned exporting companies employ 139,500 people<sup>49</sup>. Foreign owned exporting companies spent €21 billion on goods and services in the Irish economy in 2008 compared to €19 billion by indigenous exporters.

A greater proportion of total turnover for enterprises is generated from ecommerce in Ireland than the euro area average (Fig. 4.14). This is likely a reflection of the openness of the Irish economy and Ireland's good international telecommunications connectivity.

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<sup>49</sup> Forfás, Annual Employment Survey 2009, March 2010.

Chart 4.A



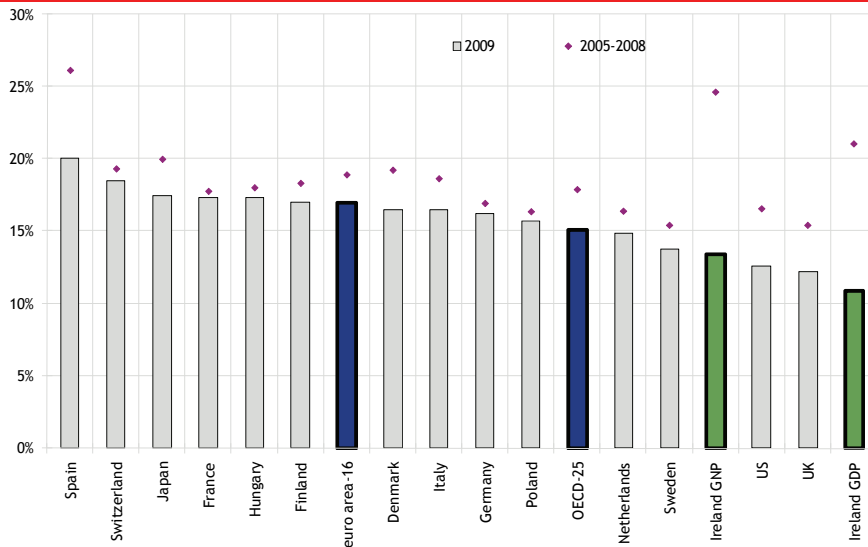
Traffic Light Colours:

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.

## 4.1 Business Performance

### 4.1.1 Business Investment

**Figure 4.01 Gross Fixed Capital Formation by the Private Sector (as a per cent of GDP), 2009**



The private sector in Ireland has experienced a dramatic decline in investment from an average of 24.6% of GNP over the 2005-2008 period to 13.4% in 2009. This compares poorly with the OECD-25 average of 15 percent<sup>50</sup>. Following a fall in the value of construction and building investment of 42% in 2009, the ESRI forecasts a further decrease of 36% in 2010. Investment in machinery and equipment fell by 15% in 2009 and is forecast to fall by a further 9.5% in 2010<sup>51</sup>.

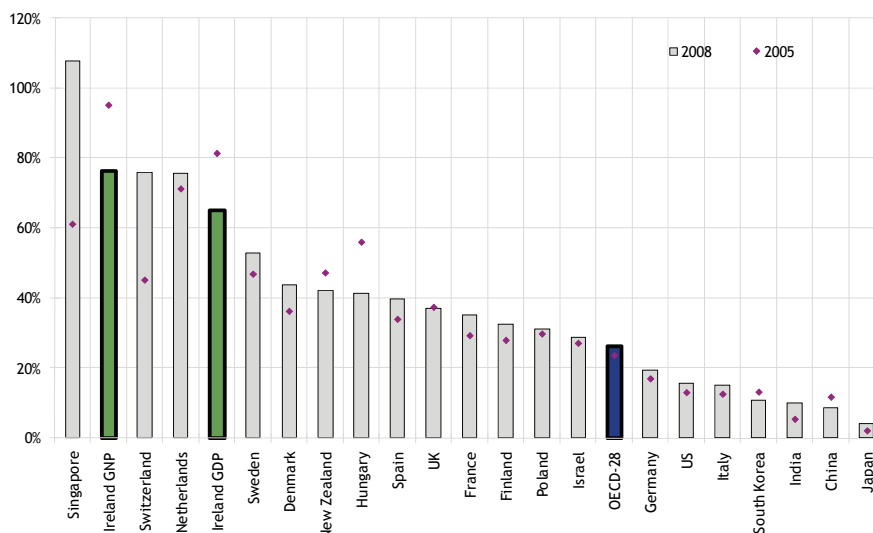
**OECD-25 Ranking:**

GDP: 24<sup>th</sup> (↓20)

GNP: 22<sup>nd</sup> (↓19)

Source: European Commission, AMECO Database

**Figure 4.02 Stock of Inward Direct Investment (FDI, as % of GDP), 2008**



FDI remains critically important to the Irish economy. While the stock of inward investment in Ireland as a percentage of both GDP and GNP has declined significantly since 2005, inward investment levels remain among the highest in the OECD. Employment in foreign-owned IDA Ireland supported companies was 139,457 in 2009 compared to 153,273 in 2005<sup>52</sup>.

**OECD-28 ranking:**

GDP: 5<sup>th</sup> (↓2)

GNP: 3<sup>rd</sup> (-)

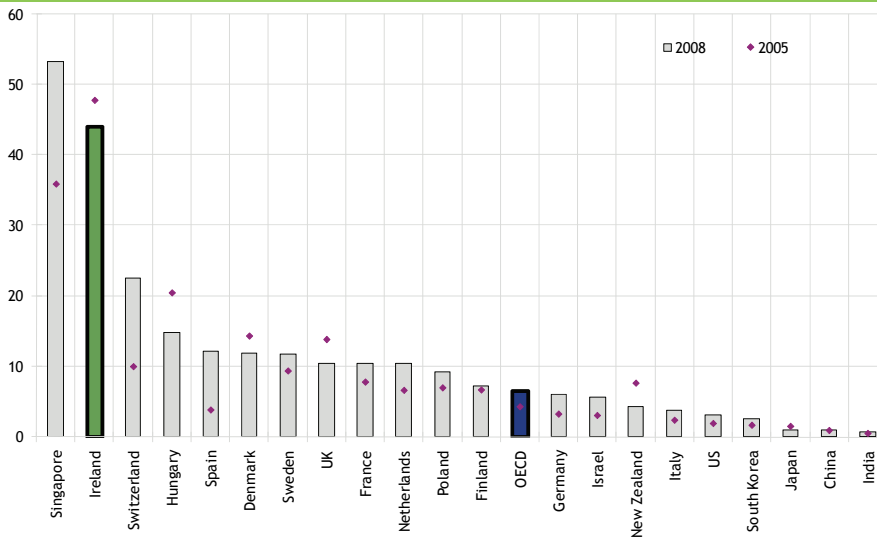
Source: Forfás Calculations, UNCTAD World Investment Report, 2009

<sup>50</sup> OECD-28 minus Australia, New Zealand and South Korea.

<sup>51</sup> ESRI, Quarterly Economic Commentary, July 2010.

<sup>52</sup> Forfás, Annual Employment Survey 2009, March 2010.

**Figure 4.03 Number of Greenfield Projects by Destination (per Million of Population), 2008**

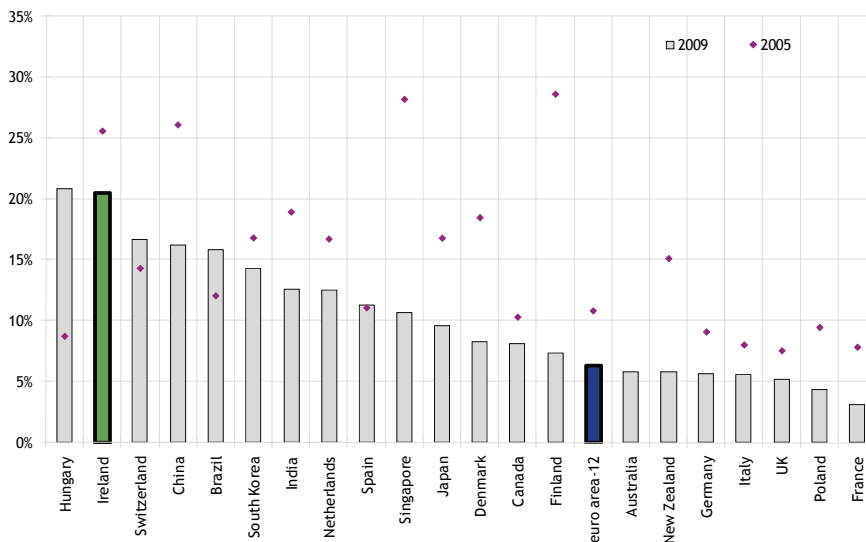


Ireland continues to attract a large number of greenfield investment projects, relative to its size. Only Singapore attracted more greenfield projects per capita in 2008. In 2009, the number of foreign owned firms investing in Ireland for the first time increased by 11% compared with the previous year<sup>53</sup>.

**OECD-28 ranking:**  
1<sup>st</sup> (-)

Source: Forfás Calculations, UNCTAD World Investment Report, 2009

**Figure 4.04 Rate of Return to US-Owned Companies on their Investments in Foreign Countries (%), 2009**



This indicator measures income earned by 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 remains high within the euro area, it has fallen significantly since 2005. While rates of return have decreased in many countries, they have increased in Hungary and Switzerland - countries which we compete with for FDI projects.

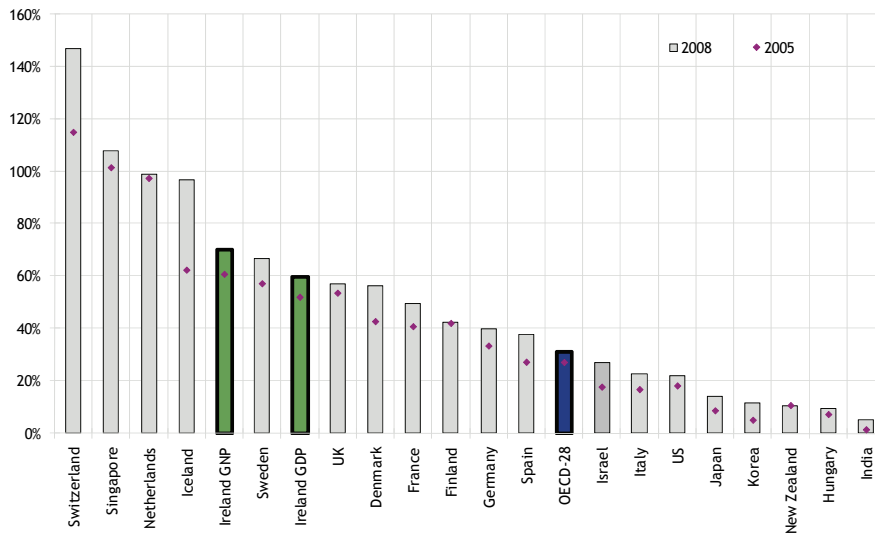
**euro area 12 ranking<sup>54</sup>:**  
1<sup>st</sup> (1)

Source: US Bureau of Economic Analysis

53 IDA, End of Year Statement, 2009.

54 euro area average minus Cyprus, Malta, Slovakia and Slovenia.

**Figure 4.05 Stock of Outward Direct Investment (ODI as a % of GDP), 2008**



Ireland's levels of outward direct investment increased from 51.9% of GDP in 2005 to 59.7% of GDP in 2008. According to the CSO, on an annual basis Ireland's stock of direct investment abroad increased by 21 percent between 2007 and 2008. 51.3% of direct investment was to EU member states, mainly the UK, while the bulk of the remainder was to the Americas<sup>55</sup>.

**OECD - 28 ranking:**

GDP: 7<sup>th</sup> (↑1)

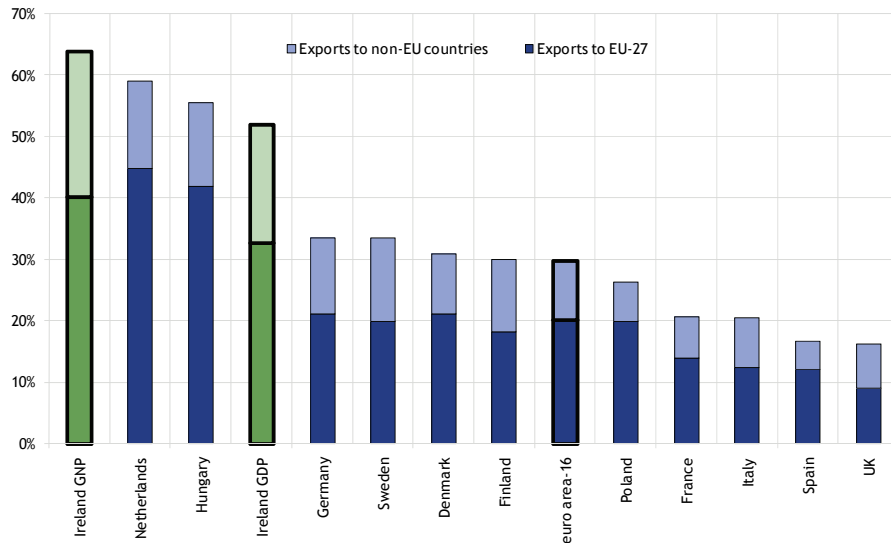
GNP: 6<sup>th</sup> (-)

Source: UNCTAD World investment Report 2009

55 CSO, Foreign Direct Investment, 2009

## 4.1.2 Trade

**Figure 4.06 Exports of Goods, intra-EU and extra-EU (as a % of GDP), 2009**

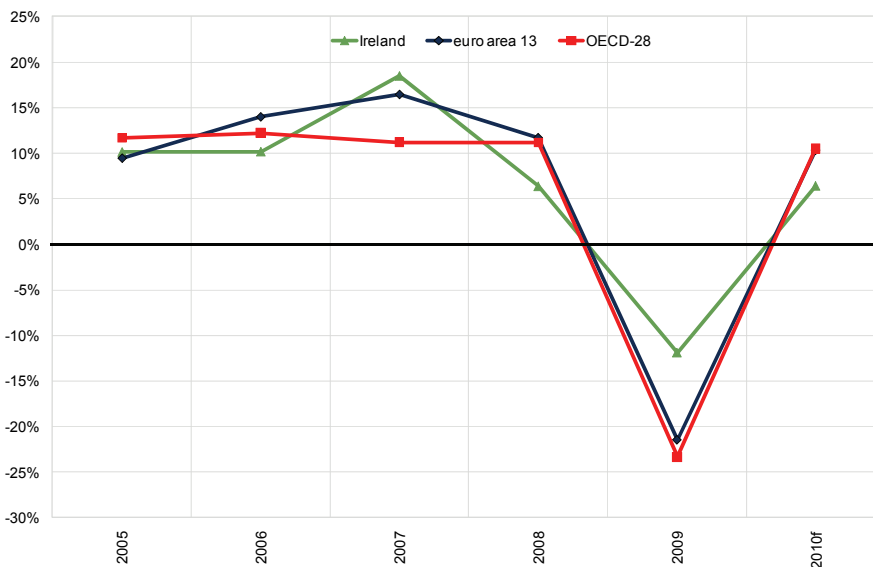


Ireland continues to be one of the most open countries to trade in the EU. The majority of merchandise exports in 2009 were destined for EU member states. Ireland also has significant trading links with non-eurozone countries - a particular challenge given the strength of the euro in recent years.

**EU-15 Ranking:**  
(Ranked by total exports)  
GDP: 4<sup>th</sup>  
GNP: 2<sup>nd</sup>

Source: Eurostat, External Trade

**Figure 4.07 Annual Growth in Imports Goods and Services (%), 2005- 2010F**



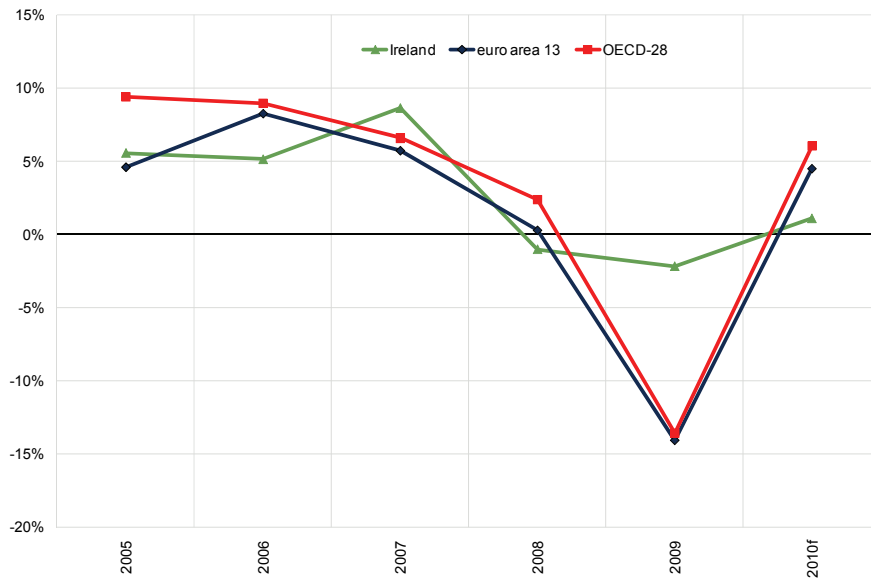
Ireland's import growth rate peaked in 2007 (18.5%), above the OECD and euro area average. The fall in the value of imports in Ireland in 2009 (-11.9%) was the lowest among the OECD members - potentially due to strong exporting sector which required inputs. However, in 2010 Ireland's import growth rate (6.4%) is forecast to lag growth within the OECD (10.5%) and the euro area (10.3%).

**OECD-28 ranking:**  
14<sup>th</sup>

Source: OECD Economic Outlook 86, December 2009



**Figure 4.08 Annual Growth in Exports Goods and Services (%), 2005- 2010F**

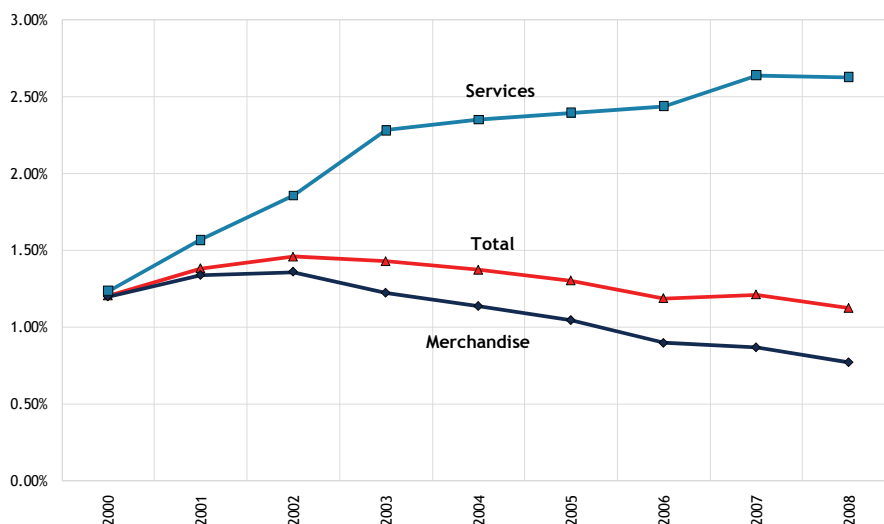


Ireland's decline in exports in 2009 (-2.2 percent) was mild compared to the average decline in the euro area (-14.1%) and the OECD (-13.6%). This was driven by the performance of key sectors including chemical and pharmaceuticals, medical devices and computer services. However, in 2010 Ireland's export growth rate (1.1%) is forecast to lag growth within the OECD (6%) and euro area (4.5%).

**OECD-28 ranking:**  
13<sup>th</sup>

Source: OECD Economic Outlook 86, December 2009

**Figure 4.09 Ireland's Share of World Trade: Total, Merchandise and Services (%), 2000-2008**



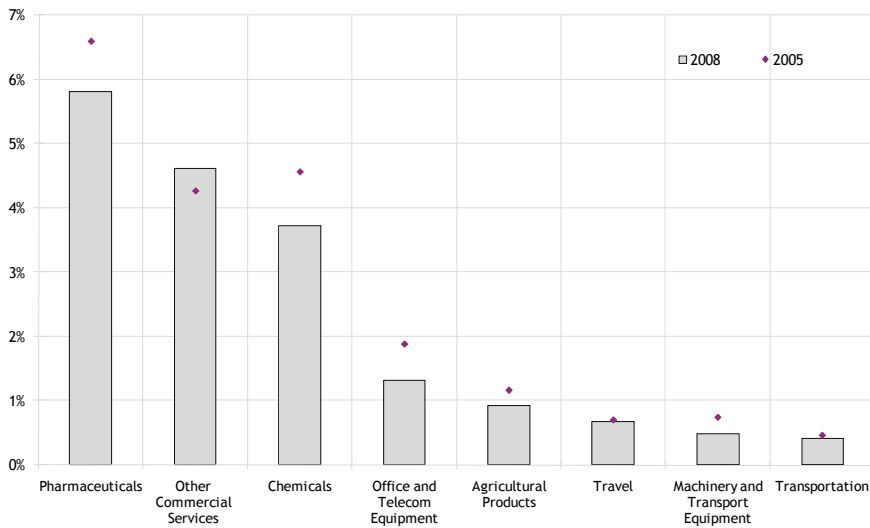
Ireland's share of merchandise trade has fallen gradually while our share of services (a smaller but growing component of world trade) continues to grow. In 2009 services exports accounted for 45.4% of total Irish exports compared to 21% in 2000<sup>56</sup>.

**Ranking:** N/A

Source: World Trade Organisation

<sup>56</sup> CSO Balance of Payments March 2009

**Figure 4.10 Ireland's Share of World Exports by Sector (%) 2008**

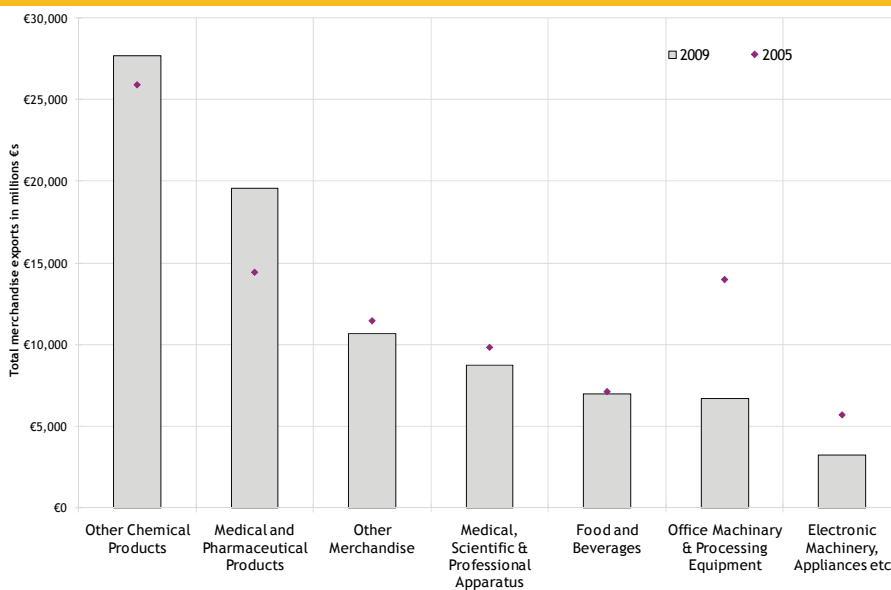


This indicator measures Ireland's share of world exports at a sectoral level. Ireland has continued to increase its share of the commercial services market. Despite losing market share across a number of other key sectors between 2005 and 2008, export values have continued to increase in pharmaceuticals, chemicals, agricultural products and travel<sup>57</sup>.

**Ranking: N/A**

Source: World Trade Organisation

**Figure 4.11 Total Goods Exports by Sector from Ireland, 2009<sup>58</sup>**



The total value of merchandise exports from Ireland decreased by 5.6% between 2005 and 2009. The value of exports from the office machinery sector fell by 52.3% during this period, while electronic machinery exports fell by 43.4%. Significant export growth occurred in the medical and pharmaceutical sector (up 35.6%).

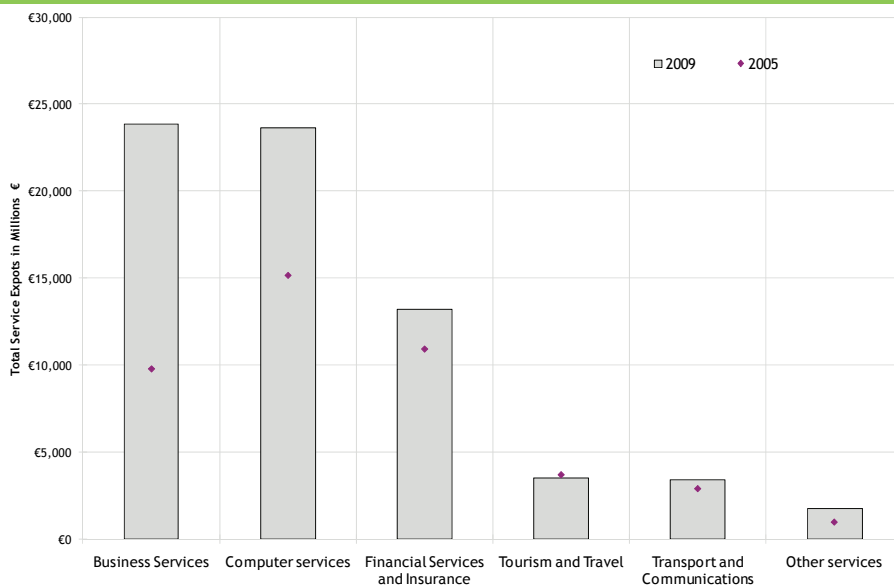
**Ranking: N/A**

Source: CSO, External Trade

<sup>57</sup> CSO, External Trade and Balance of Payments, 2008.

<sup>58</sup> Traffic Light based on decrease in total merchandise exports between 2005 and 2009.

**Figure 4.12 Total Services Exports by Sector from Ireland, 2009<sup>59</sup>**

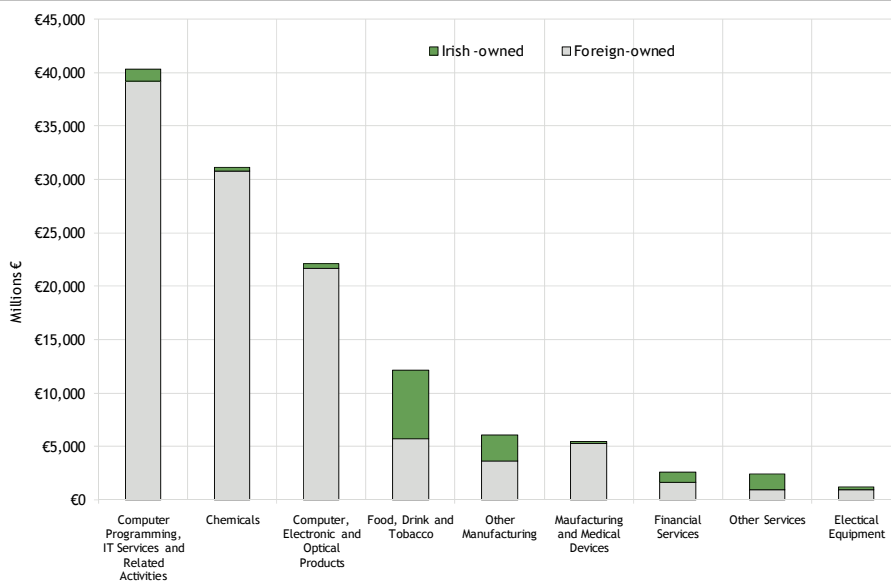


The value of total services exports from Ireland increased by 60.1% between 2005 and 2009. Business services exports grew by 144.6% during the period. 'Other services' which include royalties and licenses grew by 82%, while computer services (56%) and financial services (21%) also experienced significant growth. The value of tourism exports fell by 4.6% over the period.

**Ranking:** N/A

Source: CSO, Balance of Payments

**Figure 4.13 Exports from Ireland by Sector and Firm Ownership, 2008**



This indicator shows the value of exports of goods and services by sector and firm ownership<sup>60</sup>. 10.9% of total exports come from indigenous companies. Irish-owned firms account for 60% of exports from the 'other services' sector and 53% of exports from the food, drink and tobacco sector. Foreign-owned firms dominate the three largest export sectors, the fast growing medical devices sector and the shrinking electrical equipment sector.

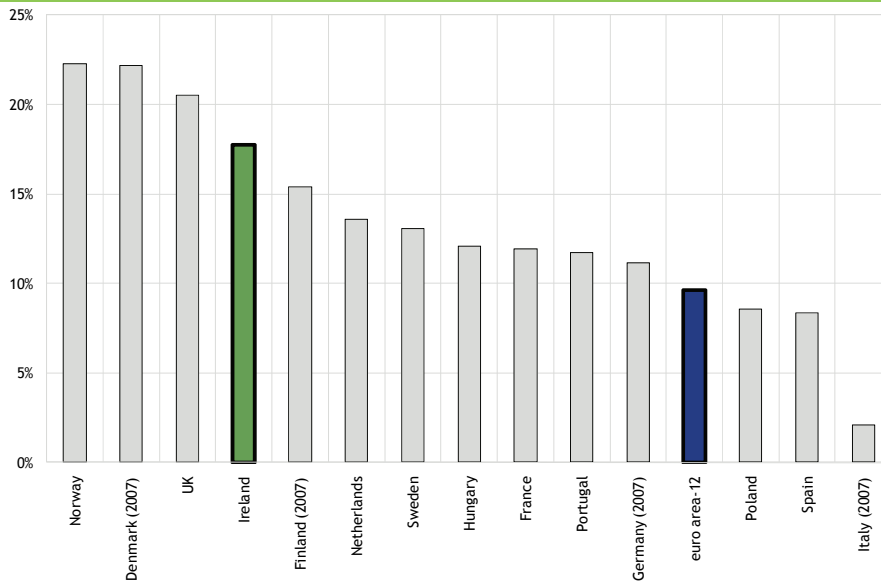
**Ranking:** N/A

Source: Forfás, Economic Impact Survey, 2010

<sup>59</sup> Traffic Light based on a significant increase in total services exports between 2005 and 2009.

<sup>60</sup> The contribution of indigenous and foreign owned trading sectors to employment and direct expenditure within the economy is similar. Indigenous exporters employ 134,000 people while foreign owned exporting companies employ 125,000 people. Foreign owned exporting companies spent €21 billion on goods and services in the Irish economy in 2008 compared to €19 billion by indigenous exporters.

**Figure 4.14 Percentage of Enterprises' Total Turnover from e-commerce, 2008**



A greater proportion of enterprises' total turnover is generated from ecommerce in Ireland than the euro area average<sup>61</sup> - 17.8% in Ireland compared to less than 10% in the euro-area. This is likely a reflection of the openness of the Irish economy. Ireland's good international telecommunications connectivity may also be a contributing factor.

**euro area -12 ranking:**  
1<sup>st</sup>

Source: OECD, ICT database and Eurostat, Community Survey on ICT usage in enterprises, May 2009.

61 euro area minus Cyprus, Luxembourg, Malta and Slovenia.

## Productivity and Innovation

In the long run, a country's standard of living depends on its productivity performance. The indicators in this section examine Ireland's overall productivity performance and innovation performance, which is a key driver of productivity. The indicators are summarised in Chart 4B.

### Productivity

Ireland's productivity levels in GDP terms are above the OECD average. However, Ireland's productivity levels in GNP terms, a better measure of economy wide productivity, are significantly below the OECD average (Fig. 4.15). Growth rates of productivity, rather than levels are vital to ensuring wage increases are sustainable and in this regard Ireland performed poorly between 2005 and 2009 (Fig. 4.16). However, since 2009, unit labour costs in Ireland have been improving (Fig. 4.28). The significant differences between productivity levels and growth rates in GDP and GNP terms indicates that economy wide productivity levels and growth rates are significantly lower than those reported by overseas owned companies operating from Ireland.

Productivity might be expected to increase during a recovery phase following a recession. Firms may initially meet rising demand through productivity gains and increases in the working hours of existing employees. In addition, the construction sector, which has had an unusually large share of total employment in Ireland in recent years, is typically a low productivity sector and this has depressed economy wide productivity. However, this situation is likely to be reversed given that construction employment has fallen much faster than total employment (Fig. 4.46). The ESRI expects GDP-based productivity expected to grow by 3.75 per cent in 2010 and by 2.75 per cent in 2011, which would be positive for competitiveness<sup>62</sup>.

### Innovation

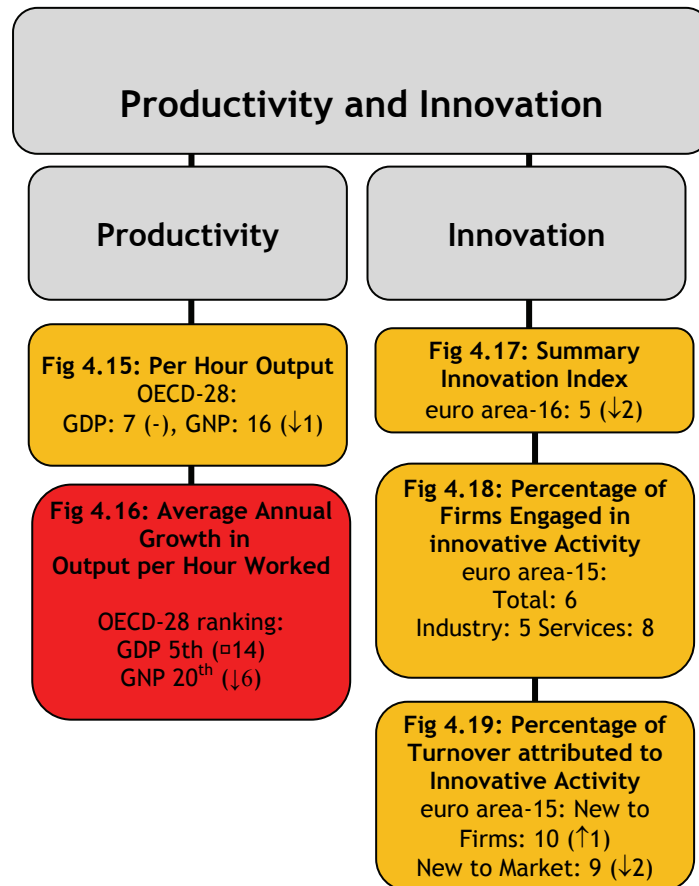
The 2009 summary innovation index is a composite of 29 indicators including knowledge intensive services exports as a percentage of total exports and business R&D and IT expenditure. Ireland ranks fifth in the euro area 16 on this index - a fall of two places since 2005. While Ireland's score has not changed markedly since 2005; most other countries have improved their performance (Fig. 4.17)

Data from the EU Community Innovation Survey for 2008 suggests that Irish firms were slightly less likely to engage in innovative activity (either by changing products or processes) than the euro area-15 (Fig. 4.18). In terms of achieving commercial results from innovation, the percentage of Irish firms' turnover attributed to innovation is markedly below the euro area average for both 'new to firm' and 'new to market' innovation (Fig. 4.19).

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<sup>62</sup> ESRI, Quarterly Economic Commentary, April 2010.

Chart 4.B

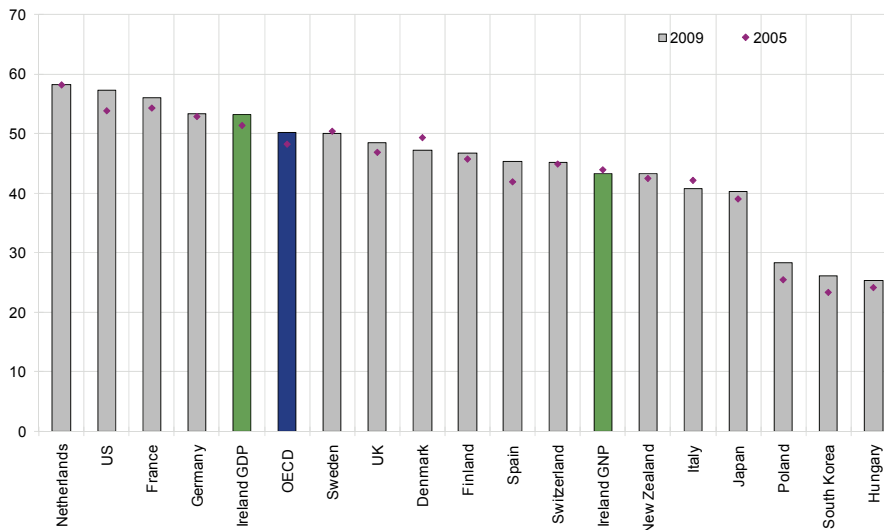


Traffic Light Colours:

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.

## 4.2.1 Productivity

**Figure 4.15 Productivity Levels, Per Hour Output, (EKS PPP\$) 2009<sup>63</sup>**

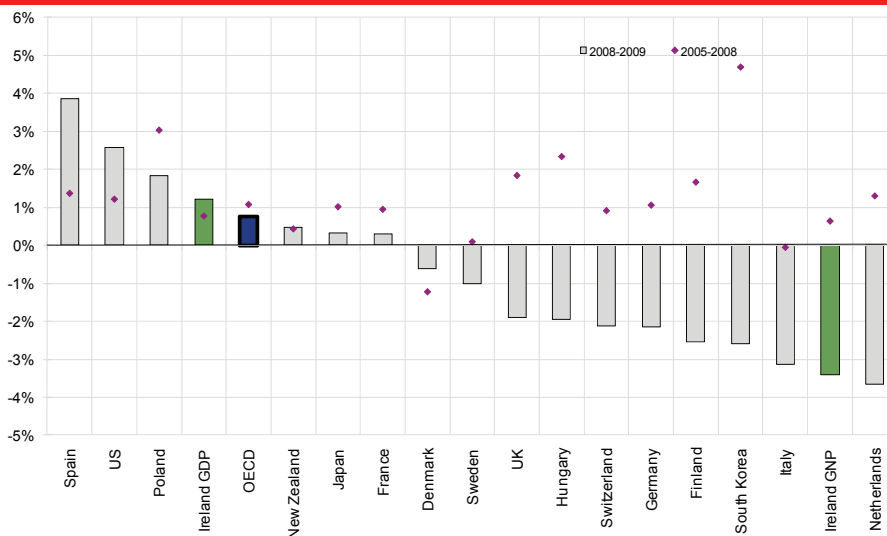


GDP per hour worked indicates that Irish productivity has been among the highest in the OECD. Using GNP, a more realistic measure, Irish productivity levels remain below the OECD average.

**OECD-28 ranking:**  
 GDP 7<sup>th</sup> (-)  
 GNP 16<sup>th</sup> (↓1)

Source: Groningen Growth & Development Centre, Total Economy Database, January 2010

**Figure 4.16 Average Annual Growth in Output per hour Worked, 2005 -2009<sup>64</sup>**



Irish productivity growth rates in GDP and GNP terms were below the OECD average over the period 2005-2008. Between 2008 and 2009 Ireland's productivity growth performance in GDP terms (1.2%) improved and was fifth highest in the OECD. In GNP terms, however Ireland's productivity growth rate fell in 2009 (-3.39%).

**OECD-28 ranking:**  
 2008-2009:  
 GDP 5<sup>th</sup> (↑14)  
 GNP 20<sup>th</sup> (↓6)

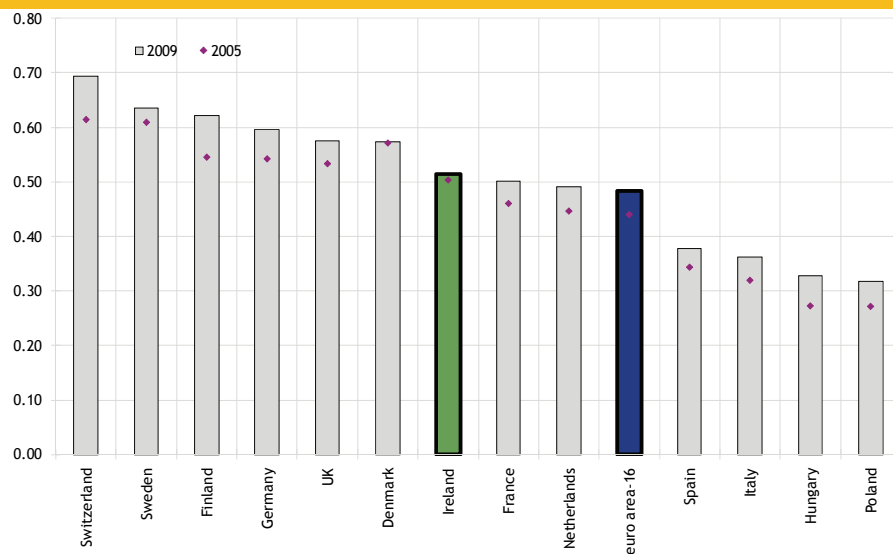
Source: Groningen Growth & Development Centre, Total Economy Database, January 2010

63 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. Traffic-light colour determined based on Ireland's GNP ranking in the OECD-28.

64 Traffic-light colour determined based on Ireland's GNP ranking in the OECD-28.

## 4.2.2 Innovation

**Figure 4.17 Summary Innovation Index, 2009<sup>65</sup>**

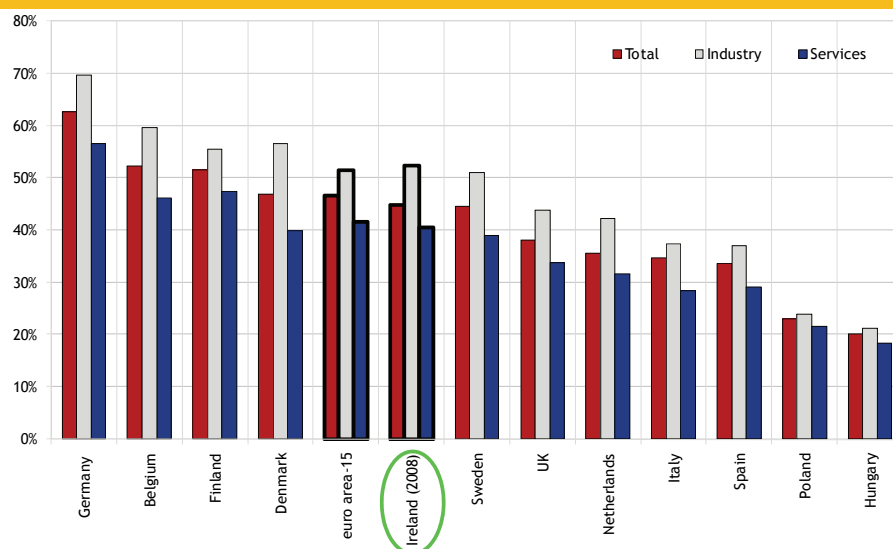


The summary innovation index is a composite of 29 indicators including knowledge intensive services exports as a percentage of total exports and business R&D and IT expenditure. Ireland performs above the euro area average on this index. However, it is notable that Ireland's score has not improved markedly since 2005; while most other countries have improved their performance. Switzerland, Sweden, Finland, Germany, the UK and Denmark, are classified as innovation leaders.

**euro area-16 Ranking:**  
5<sup>th</sup> (↓2)

Source: European Commission, European Innovation Scoreboard, 2009, Comparative Analysis of Innovation Performance, March 2010

**Figure 4.18 Percentage of Firms Engaged in Innovative Activity, 2006**



This chart shows the percentage of firms which engage in innovative activity either by changing products or processes. Overall, Irish firms (45%) are slightly less likely to be innovative compared to the euro area-15 (46.7%). 52% of Irish firms in industry were engaged in innovation compared to 40.6% for services firms.

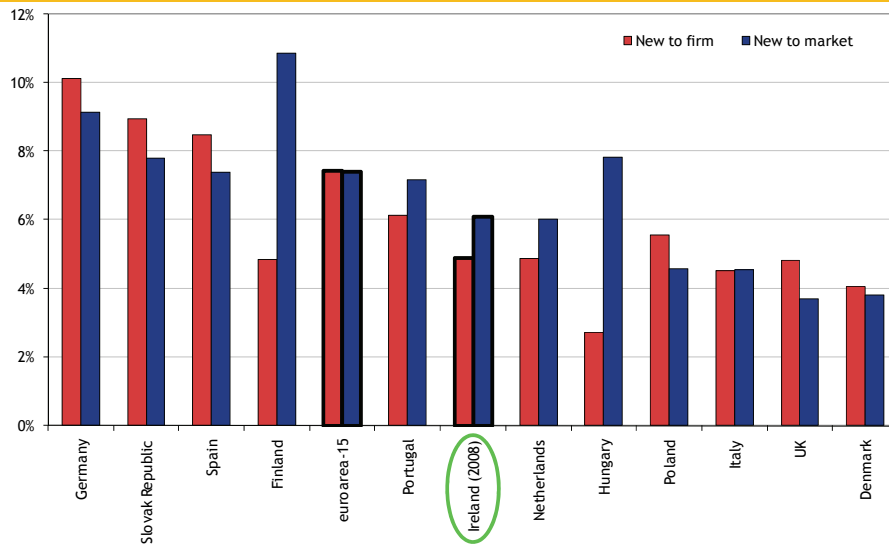
**euro area-15 ranking:**  
Total: 6<sup>th</sup>  
Industry: 5<sup>th</sup>  
Services: 8<sup>th</sup>

Source: Eurostat, Community Innovation Study 2004-2006; CSO/Forfás, 2009, Community Innovation Study 2006-2008 First Findings.

<sup>65</sup> Note: The Summary Innovation Index (SII) is a composite of 29 indicators going from a lowest possible performance of 0 to a maximum possible performance of 1. The 2009 SII reflects performance in 2007/2008 due to a lag in data availability. Base year for ranking change is 2005 compared to 2009.



**Figure 4.19 Percentage of Turnover attributed to Innovative Activity, 2006**



This indicator shows how the introduction of new/improved products to firms and to new markets contributes to turnover. Ireland's performance is below the euro area average in terms of both 'new to firm' (4.9%) and 'new to market' innovation (6.1%) in 2008. The contribution of innovative activity to turnover in Ireland fell between 2006 and 2008.

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

Source: Eurostat, Community Innovation Study 2004-2006; CSO/Forfás, 2009, Community Innovation Study 2006-2008 First Findings.

## 4.1 Prices and Costs

Cost competitiveness is critical to ensuring that companies based in Ireland have the ability to compete successfully in international markets. This section examines the overall level and rate of change in Ireland's prices and business costs, across both pay and non-pay indicators. The relevant indicators are summarised in Chart 4.C.

### 4.3.1 Prices

Price competitiveness will only improve if prices fall faster here than in competitor countries. Irish inflation rates increased steadily up until September 2008 but since then, inflationary pressures have eased and Irish prices, although still at a high level, have fallen (Fig. 4.20).

Ireland's overall inflation rate between 2005 and 2009 was below the euro area average. Furthermore certain commodities in Ireland (clothing and furniture) experienced deflation during this period, while their prices continued to increase for the euro area (Fig. 4.21).

Ireland has experienced a significant loss in cost competitiveness (real harmonised price competitiveness indicator (HCI)) over the past decade reflecting a combination of an appreciation of the euro against the currencies of many of our trading partners and higher price inflation. Since January 2008, Ireland has regained some of its cost competitiveness. In May 2010, Ireland's real HCI was 6.1 per cent below the January 2005 value as a result of falls in relative prices and favourable exchange rate movements vis-à-vis our key trading partners (Fig. 4.22). Looking at exchange rate movements indicates that Ireland's trade-weighted exchange rate appreciated by 10.3 per cent between 2005 and 2009, meaning that Irish goods and services were more expensive in international markets in 2009 than they were in 2005. The weakness of the euro in recent months is reversing this trend.

### 4.3.2 Pay Costs

Ireland has the tenth highest total labour costs level in the OECD and is in line with a number of western European countries. Ireland has the fifth highest net wage level in the OECD-28, 35.5 per cent above the OECD-28 average. This is due, in part, to Ireland's low tax wedge on labour (Fig. 4.24). Annual wage costs for unskilled and skilled production operatives working in internationally trading business in Ireland are close to the euro area average (Fig. 4.28). While Irish wage levels remain significantly below those of other high income countries like Germany and Denmark, they remain a multiple of wage levels in Poland and Hungary.

Labour cost growth rates show the change in the cost of employing workers over time. Ireland's growth rates exceeded the euro area average between 2004 and 2007. However, growth rates in Irish labour costs slowed significantly in 2008 and the first half of 2009 and were lower than the EU-27 and euro area-16 average (Fig. 4.25).

Unit labour costs (ULC) express the ratio of changes in productivity to earnings. A decline in ULC means that productivity has increased faster than earnings and indicated an improvement in

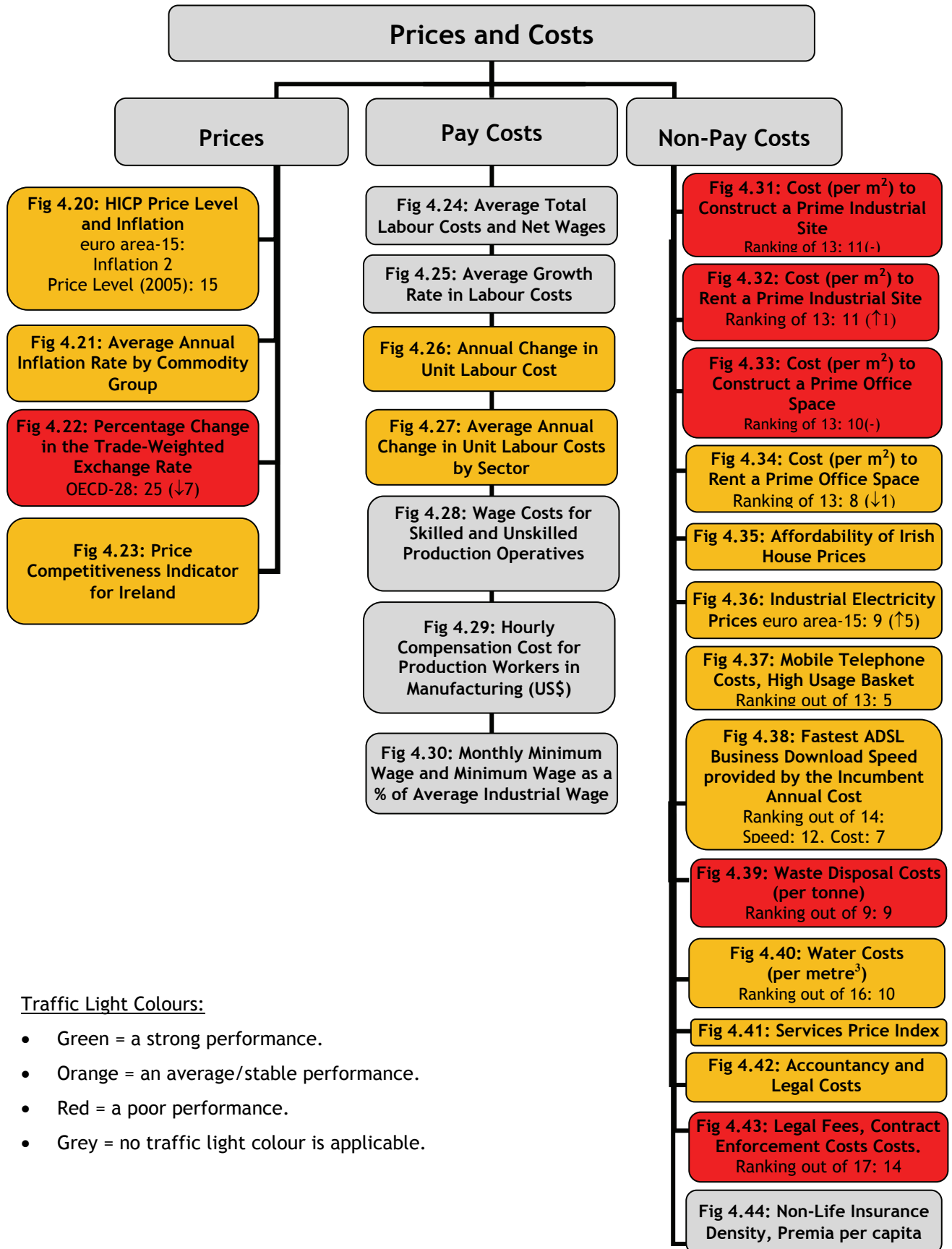
competitiveness. In 2005, the annual change in ULC in Ireland was 5.2 per cent, significantly ahead of both the euro area and OECD averages. In the first three quarters of 2009, the unit labour cost in Ireland fell by 1.5 per cent, while the OECD and euro area averages increased by 0.2 per cent and 0.8 per cent respectively (Fig. 4.26). During the first three quarters of 2009, ULCs in the manufacturing sector decreased by 4.2 per cent. However, the average annual rate of ULC increase in Ireland for the financial and business services was considerably higher than the OECD and euro area averages during this period, negatively impacting Ireland's competitiveness (Fig. 4.27).

### 4.3.3 Non-Pay Costs

Ireland has improved its competitiveness performance across a number of non-pay costs in recent years including office rental costs (Fig. 4.34), industrial electricity costs (Fig. 4.36), and mobile phone costs (Fig. 4.37). However, despite significant decreases in the cost of constructing industrial and office sites and in the cost of renting industrial sites, Ireland remains among the most expensive locations (Fig. 4.31 - 4.33). Ireland also remains an expensive location for legal services (Fig. 4.42 - 4.43). In 2008, Irish businesses faced the highest waste costs of the benchmarked locations (Fig. 4.39). While market prices have fallen recently due to the recession, international data is not available to ascertain whether our relative cost competitiveness has improved. Limited data exists nationally and internationally to benchmark the costs of professional services. New experimental data from the CSO indicates that inflation in the services sector grew quickly until 2008. Although, prices fell by 4 per cent across business services in the year to Q1 2010, the rate of decline is not uniform. Computer services had the largest decrease in prices, falling by 16.1 per cent between 2007 and 2009, while the combined category of legal, accounting, PR and business management consultancy services recorded the smallest decrease among the featured sectors (down five per cent) from its peak in Q2 2008. Looking at legal fees separately, they peaked in Q2 2009 but took longer to respond to the recession, experiencing only marginal price falls in the second half of 2009 (-3.1 per cent). In an international context, legal fees (defined as the cost of enforcing a standard commercial contract) in Ireland are the fourth most expensive of the 17 countries benchmarked (Fig. 4.43).

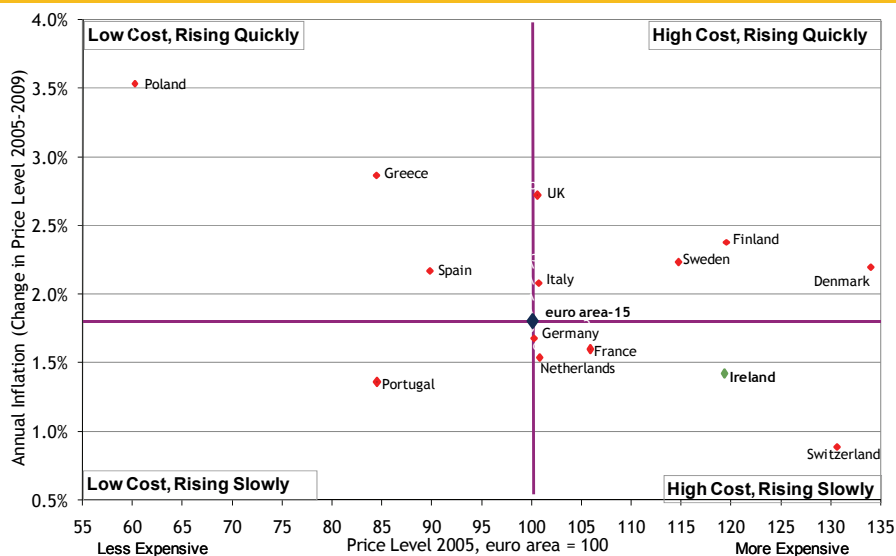
There are increasing concerns over the costs of insurance in Ireland. Data is available to measure the value of non-life insurance premia (motor, property, employer's liability, public liability, travel and other business insurance) per capita. High insurance density can reflect both high insurance costs and a requirement for high coverage levels. Among the benchmarked locations, Ireland has the fifth highest density of non-life insurance per capita but is below the euro area average (Fig. 4.44).

Chart 4C



### 4.3.1 Prices

**Figure 4.20 Price Level<sup>66</sup> (2005) and Inflation (2005 - 2009), EU Member States**

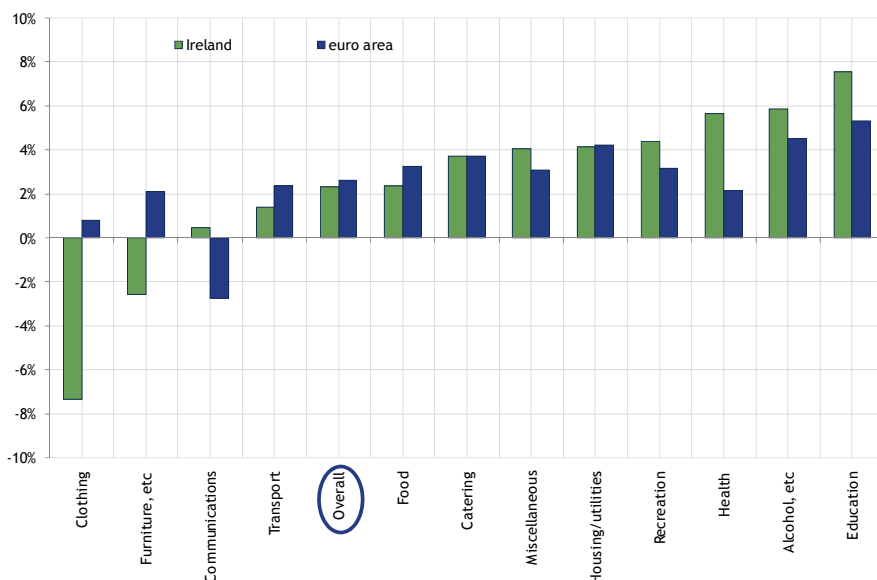


Consumer prices and the rate of change in prices are key indicators of competitiveness. Price levels in Ireland were the highest in the euro area in 2005. Inflation continued to rise quickly relative other euro area members until September 2008. Since then, inflationary pressures have eased and Irish inflation over the 2005-2009 period has fallen below the euro area average.

**euro area-15 ranking<sup>67</sup>:**  
 Price level 2005: 15<sup>th</sup>  
 Inflation: 2<sup>nd</sup>

Source: Eurostat, Economy and Finance Indicators

**Figure 4.21 Average Annual Inflation rate by Commodity Group, Ireland and the euro area 2005-2009<sup>68</sup>**



This chart shows inflation in key sectors of the Irish and euro area economies. Between 2005 and 2009, overall prices grew slightly faster in the euro area (2.6%) than in Ireland (2.3%). However, Irish inflation in the health, alcohol and tobacco, and education sectors is significantly higher than the Irish economy average and that in comparable euro area sectors.

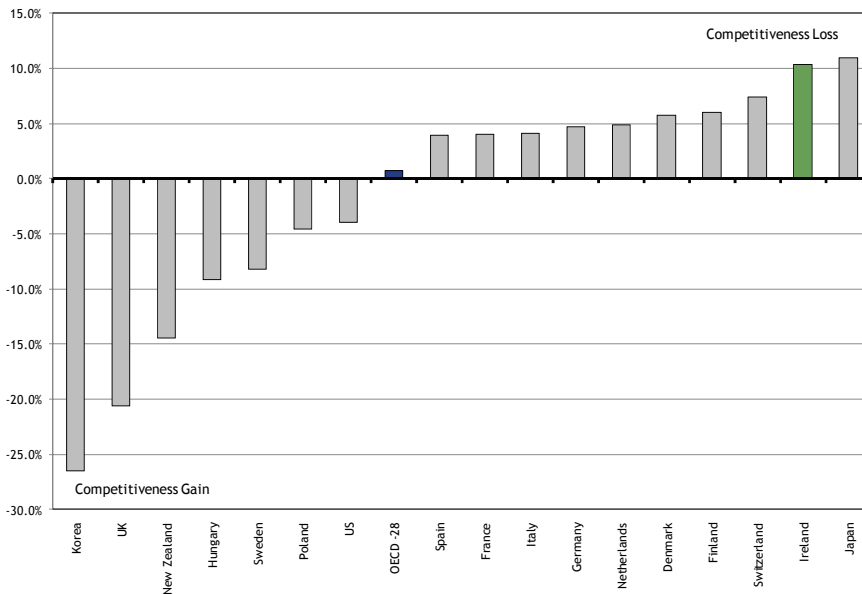
Source: Eurostat, Economy and Finance Indicators

<sup>66</sup> HICP: Harmonised Index of Consumer Prices.

<sup>67</sup> Traffic light determined based on Ireland's inflation ranking. euro area-15 excludes Cyprus.

<sup>68</sup> Traffic light determined based on Ireland's overall inflation rate being below the euro area average.

**Figure 4.22 Percentage Change in the Trade-Weighted Exchange Rate, 2009, (2005=100)**

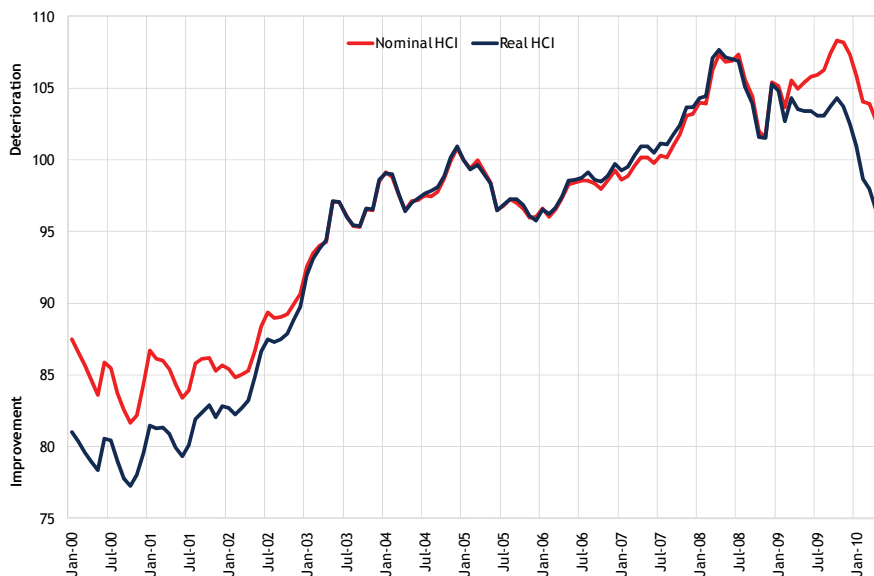


This chart measures the change in a country's exchange rate weighted by the importance of trade with other countries and provides an indication of the change in a country's aggregate external price competitiveness. Ireland's trade-weighted exchange rate appreciated by 10.3% between 2005 and 2009, meaning that Irish goods and services were more expensive in international markets in 2009. However, it also means that imports were cheaper.

OECD-28 ranking: 25<sup>th</sup>

Source: Forfás calculations, OECD, Economic Outlook, No 86, December 2009

**Figure 4.23 Price Competitiveness Indicator for Ireland (Harmonised Competitiveness Indicators)<sup>69</sup>, 2000 - May 2010 (January 2005 = 100)**



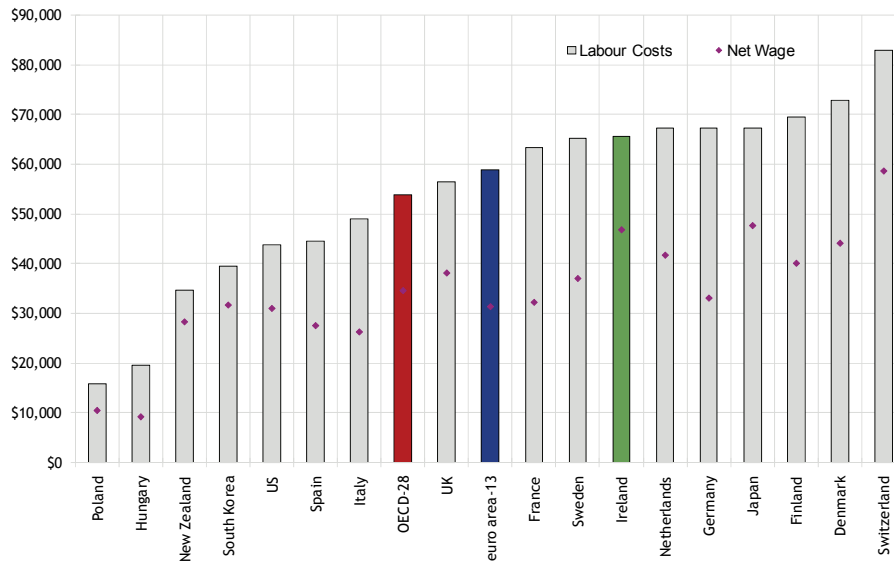
Ireland experienced a 7.7% loss in cost competitiveness (real HCI) between January 2005 and April 2008 reflecting a combination of an appreciation of the euro against the currencies of many of our trading partners (nominal HCI) and higher price inflation. Ireland has regained some of its competitiveness since then as a result of falls in relative prices and favourable exchange rate movements vis-à-vis key trading partners. In May 2010, Ireland's real HCI was 6.1% below the January 2005 value.

Source: Forfás calculations, Central Bank of Ireland

69 The nominal HCI is a nominal effective exchange rate for the Irish economy that reflects, on a trade-weighted basis, movements in the exchange rates 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 4.24 Average Total Labour Costs and Net Wages, 2009



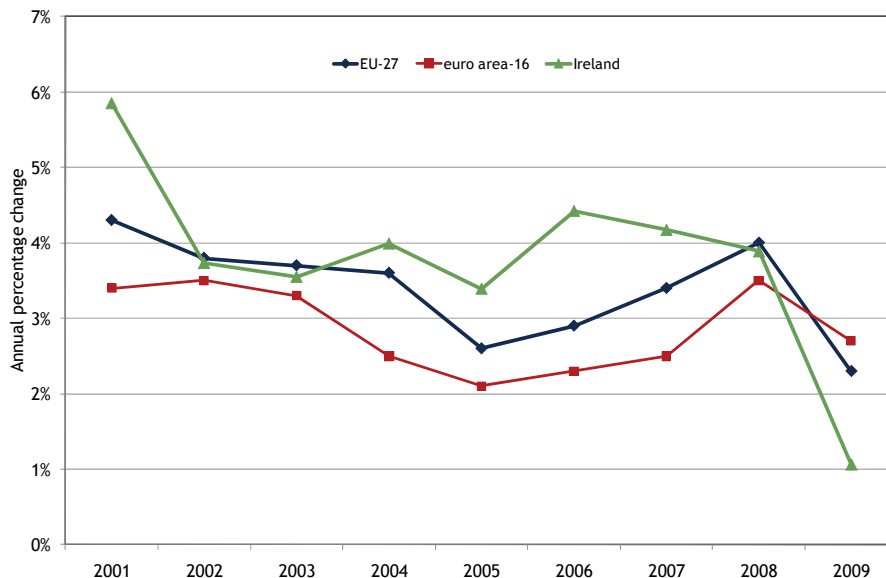
Total labour costs include wages, taxes on income and employer and employee social security contributions. Ireland has the tenth highest total labour costs level in the OECD and is in line with a number of western European countries.

The chart also shows average net wage levels. Ireland has the fifth highest net wage level in the OECD-28, 35.5% above the OECD-28 average. This is due, in part, to Ireland's low tax wedge<sup>70</sup> on labour.

Ranking: N/A

Source: OECD, *Taxing Wages 2009*, OECD, *Comparative Price Levels March 2009*, Forfás calculations

Figure 4.25 Average Growth Rate in Labour Costs, 2004-2008



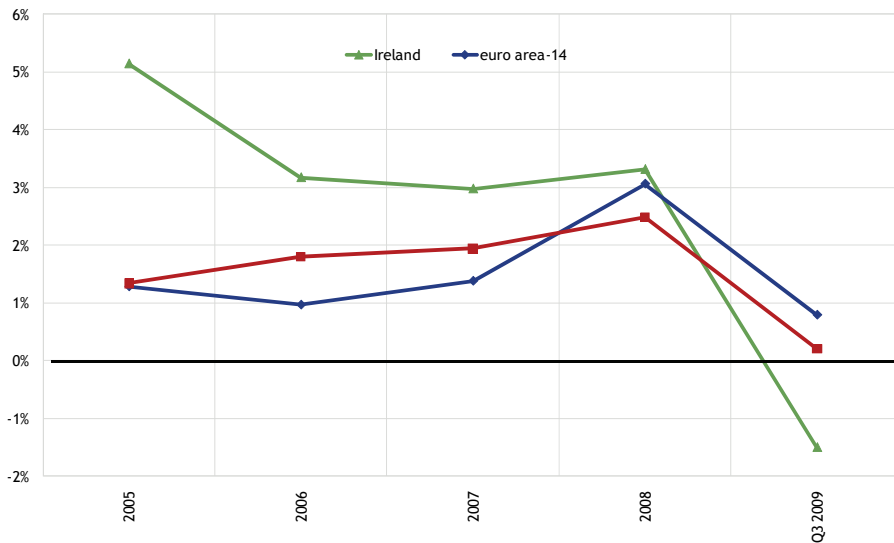
This indicator shows the trend in labour cost growth in Ireland compared with the euro area-16 and EU-27. Data for the euro area-16 and EU-27 is provided to the end of 2009, while the most recent data for Ireland is to Q2 2009<sup>71</sup>. The rate of growth in Irish labour costs has fallen from a high of 5.9% in 2001 to 1.1% at the end of Q2 2009. In 2009, the euro area-16 and EU-27 growth rates declined by 1.7% and 0.8% respectively, while within the first six months of 2009 Irish labour costs fell by 2.8%. Ranking: N/A

Source: Eurostat, *General and Regional Indicators*

<sup>70</sup> The labour tax wedge is the difference between what the employer pays and what the employee receives.

<sup>71</sup> Quarterly data is not available for the EU-27 and euro area 16 group

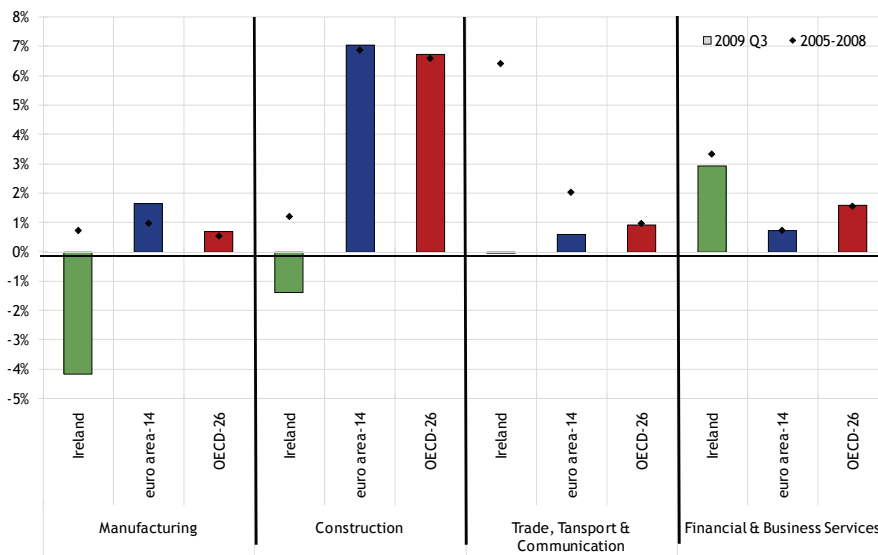
**Figure 4.26 Annual Change in Unit Labour Cost, 2005 - Q3 2009**



Unit labour costs (ULC) reflect relative changes in productivity and earnings. Falling ULC enhance Irish cost competitiveness. In 2005, ULCs in Ireland increased by 5.2% compared to an average of 1.3% in both the OECD and the euro area. Following a period of steep decline, ULCs fell by 1.5% in the first three quarters of 2009 in Ireland, compared to an increase of 0.2% in the OECD and 0.8% in the euro area.

Source: OECD, Unit Labour Cost, Quarterly Indicators

**Figure 4.27 Average Annual Change in Unit Labour Costs by Sector, 2005 - 2009<sup>72</sup>**



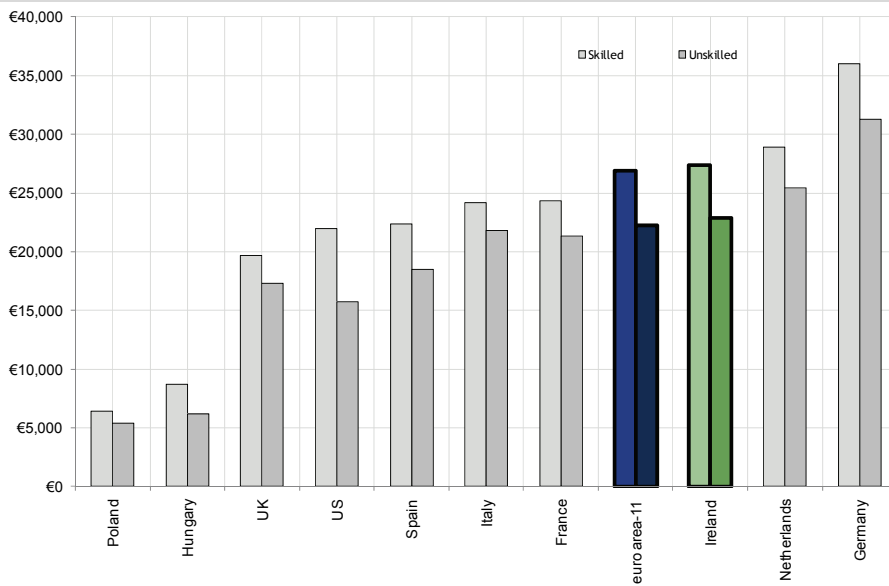
Between 2005 and 2008, average ULC growth in Ireland exceeded the OECD-26 and euro area-14 for trade, transport and communication (6.4%) and financial and business services (3.3%). In the first nine months of 2009, there was no change in ULCs for trade, transport & communication, however, Irish ULC growth for financial and business services remained relatively high (2.9%). ULCs for manufacturing (-4.17%) and construction (-1.4%) declined during the same period, indicating an improvement in competitiveness for Ireland in these sectors.

Source: OECD, Unit Labour Cost, Quarterly Indicators

<sup>72</sup> OECD-26 is OECD-28 minus Switzerland and Iceland. euro area-14 is euro area minus Malta and Portugal.



**Figure 4.28 Wage Costs for Skilled and Unskilled Production Operatives<sup>73</sup>, 2010**



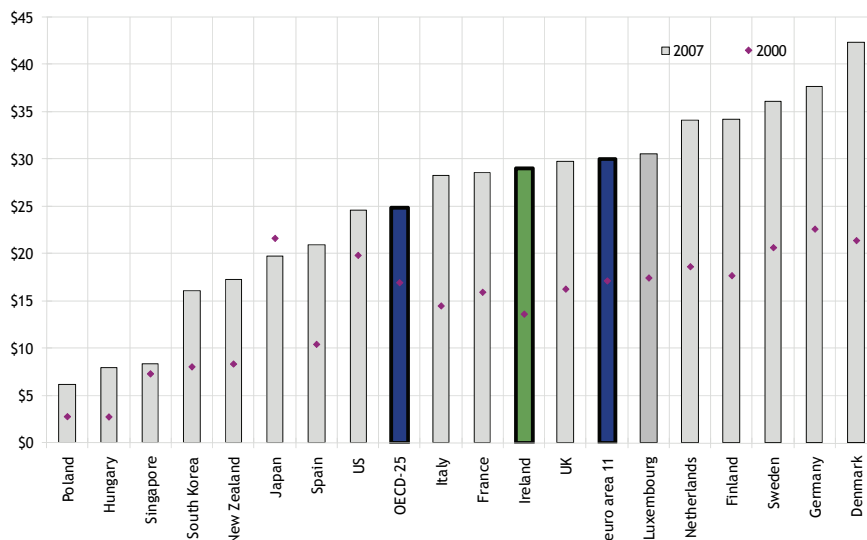
The annual wage cost for an unskilled production operative in Ireland is (2.8%) above the euro area average. Also, the wage cost for a skilled production operative is (1.8%) above the euro area average<sup>74</sup>.

The wage cost differential between skilled and unskilled production operatives is 17.1% in Ireland compared to an average of 16.3% in the euro area.

Ranking: N/A

Source: Towers Watson Wyatt, Global 50 Remuneration Report 2009/2010

**Figure 4.29 Hourly Compensation Cost for Production Workers in Manufacturing (US\$), 2007**



This indicator measures employee pay, employers' social insurance and other labour taxes per hour worked. In 2007 Ireland was more expensive than the OECD average and the US on this measure. However, the cost of employing a manufacturing worker in Ireland was below the euro area average and significantly below that in Germany and Denmark.

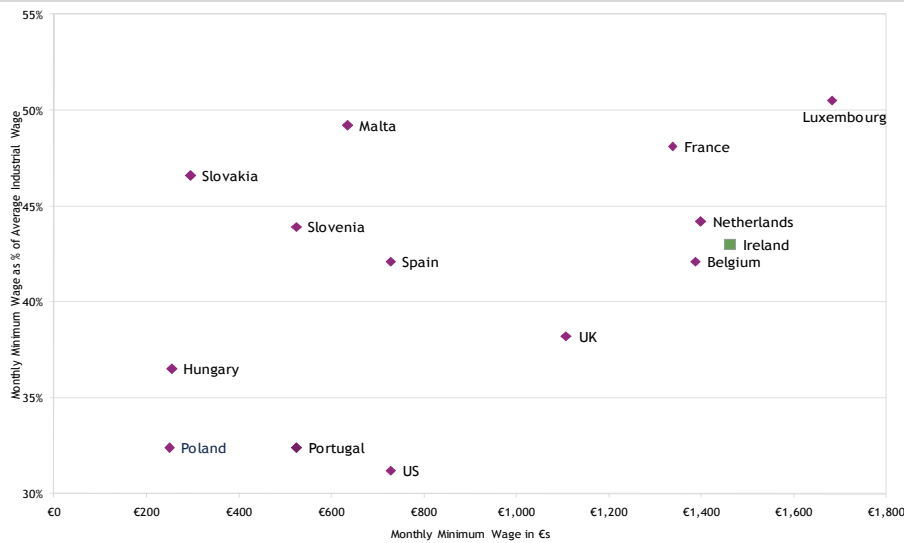
Ranking: N/A

Source: US Bureau of Labour Statistics

<sup>73</sup> Towers Watson Wyatt defines grade five production operatives as skilled workers. The wage costs of unskilled operatives are captured using the data for grade three positions. Grade three operatives require assistance from more senior positions in order to contribute to the organisation.

<sup>74</sup> As the Towers Watson Wyatt database does not provide data for unskilled workers in Cyprus, Finland, Luxembourg, Malta and Slovenia these countries are excluded from the euro area average.

**Figure 4.30 Monthly Minimum Wage<sup>75</sup>, 2010**

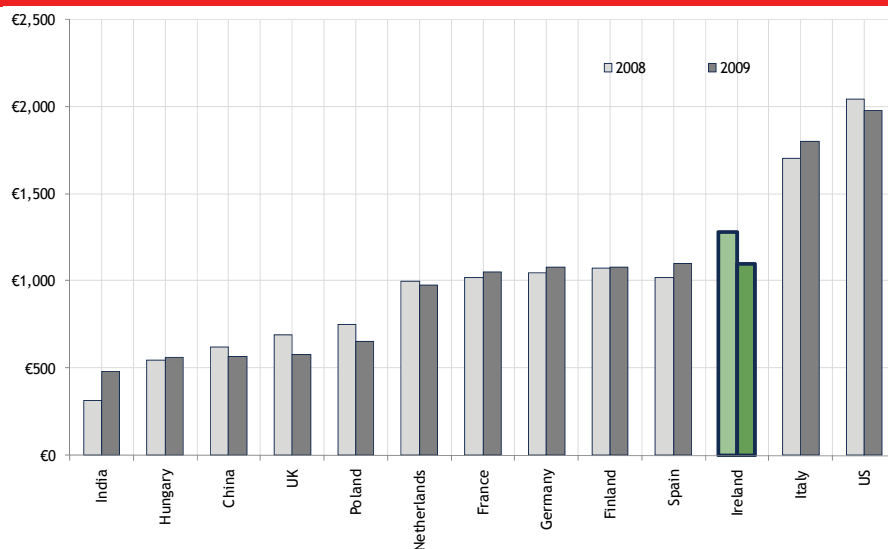


This indicator measures statutory monthly minimum wages and minimum wage as a percentage of the average industrial wage. Ireland has the second highest statutory monthly minimum wage (€1,462). A number of EU member states<sup>76</sup> operate non-statutory minimum wage rates on a sectoral basis and have rates which are significantly higher than Ireland's. When measured as a percentage of the average industrial wage, the minimum wage in Ireland is the seventh highest within the EU. **Ranking: N/A**

Source: Eurostat, Populations and Conditions and Minimum Wage 2009

### 4.3.2 Non-Pay Costs

**Figure 4.31 Cost (per m<sup>2</sup>) to Construct a Prime<sup>77</sup> Industrial Site, 2008 -2009**



The cost to construct a prime industrial site in Ireland declined by 14% in 2009. Of the benchmarked group only the UK had a larger decline (-17%) in 2009. Despite the relatively large decline in construction prices, Ireland remains the third most expensive location. Following prices rises elsewhere in Europe, however, Irish construction costs are now on par with Spain and 2% above Germany and Finland.

**Group ranking of 13 cities: 11<sup>th</sup> (-)<sup>78</sup>**

Source: Gardner and Theobald International Construction Costs Survey 2010 and 2009

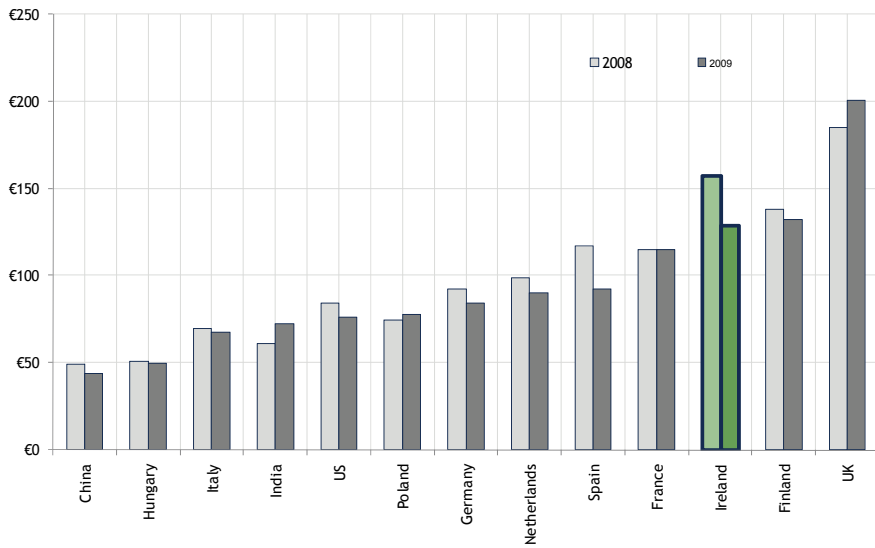
<sup>75</sup> Towers Watson Wyatt defines grade five production operatives as skilled workers. The wage costs of unskilled operatives are captured using the data for grade three positions. Grade three operatives require assistance from more senior positions in order to contribute to the organisation. The euro area-14 is the euro area-16 minus Malta and Cyprus.

<sup>76</sup> These include Denmark, Finland and Sweden.

<sup>77</sup> Prime sites refer to those in the most expensive location within each country. Irish figures refer to prime location sites in Dublin

<sup>78</sup> Ranking compared to 2008.

**Figure 4.32 Cost (per m<sup>2</sup>) to Rent a Prime<sup>15</sup> Industrial Site, 2008 -2009**

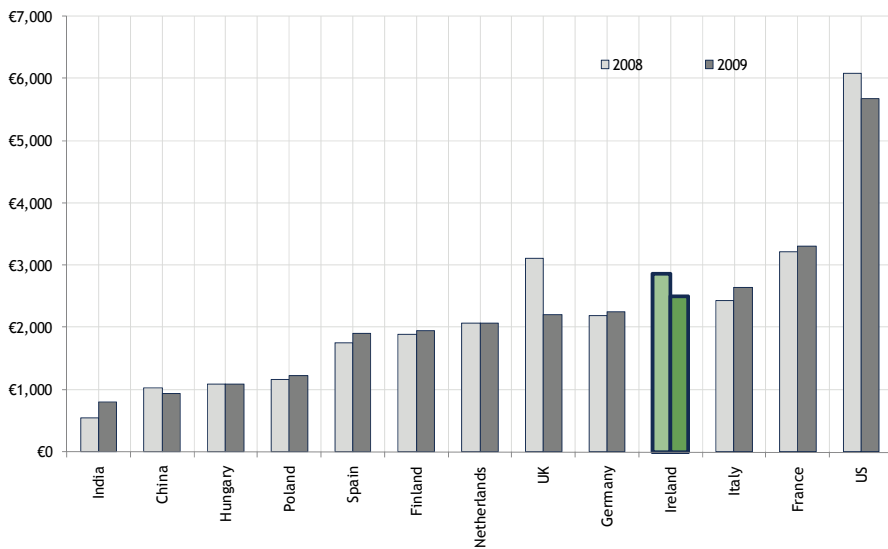


Rental costs for industrial sites fell by 18% in Ireland in 2009. Of the benchmarked group only Spain (-21%) had a larger decline in 2009. Rental costs fell in 11 of the 13 benchmarked locations in 2009. Ireland is the third most expensive location for renting a prime industrial site.

**Group ranking of 13 cities: 11<sup>th</sup> (↑)**

Source: Cushman and Wakefield, *Industrial Rents Around the World 2010 and 2009*

**Figure 4.33 Cost (per m<sup>2</sup>) to Construct a Prime Office Space, 2008 -2009<sup>79</sup>**



The cost of constructing a prime office space fell by 12.9% in 2009 in Ireland. The UK had a significantly greater decrease during this period (-29.3%), and is now a cheaper location for building prime office sites. Construction costs in the United States remain significantly higher than those in Europe and Asia.

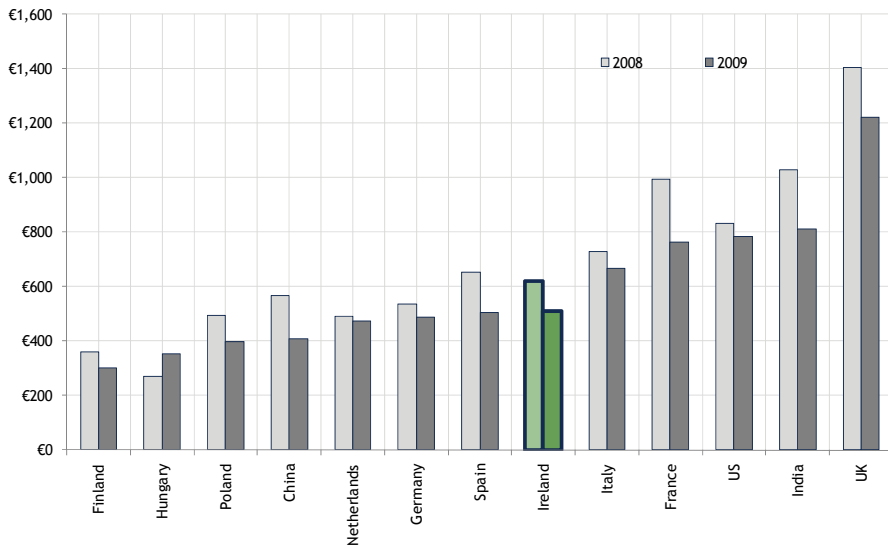
**Ranking of 13: 10<sup>th</sup> (-)<sup>80</sup>**

Source: Gardner and Theobald *International Construction Costs Survey, 2010*

<sup>79</sup> Prime sites refer to those in the most expensive location within each country. Irish figures refer to prime location sites in Dublin.

<sup>80</sup> Ranking compared to 2008.

**Figure 4.34 Cost (per m<sup>2</sup>) to Rent a Prime<sup>17</sup> Office Space, 2008 -2009<sup>81</sup>**

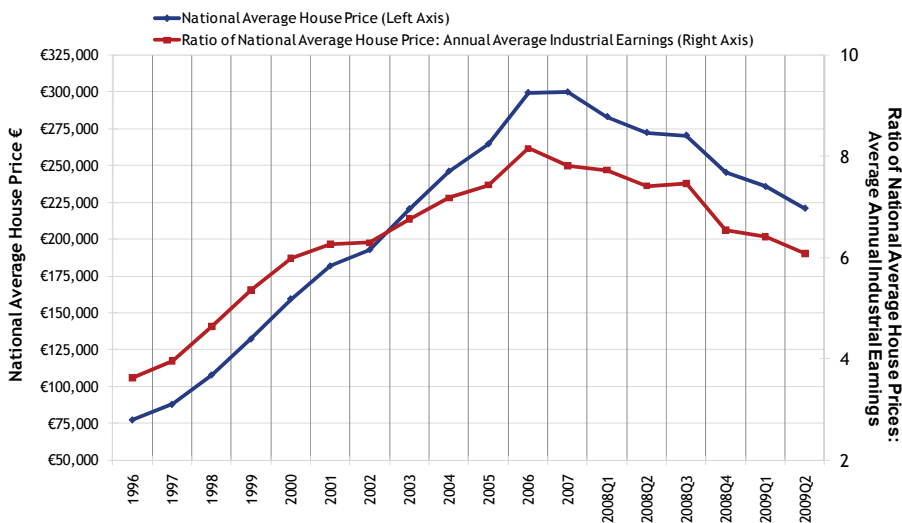


In 2009, with the exception of Hungary, there was a decline in office rental costs across all of the benchmarked locations. While the cost of office rental fell by 18% in Ireland in 2009, the relative cost advantage to Ireland is limited as a range of competitor countries also experienced significant falls.

Ranking of 13: 8<sup>th</sup> (↓)<sup>82</sup>

Source: Cushman and Wakefield, Office Rents Around the World, 2010

**Figure 4.35 Affordability of Irish House Prices, 1996 - 2009 Q2**



In 2007 the average nationwide price for a house peaked at nearly €300,000 or more than eight times average industrial earnings. The average national house price fell by 26% between 2007 and the Q2 2009. As a result housing affordability for those in employment has returned to levels last experienced in the year 2000.

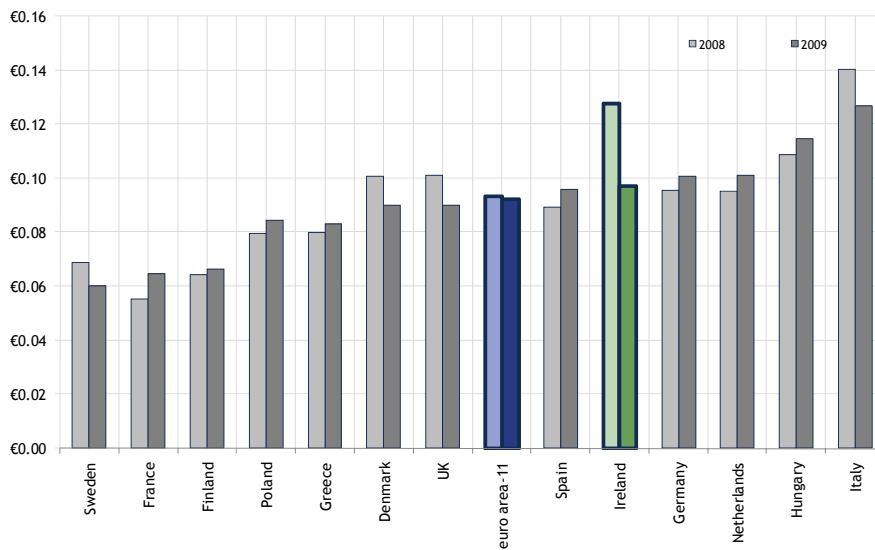
Ranking N/A

Source: ESRI Permanent TSB House Price Index, CSO, Earnings

81 Prime sites refer to those in the most expensive location within each country. Irish figures refer to prime location sites in Dublin.

82 Ranking compared to 2008.

**Figure 4.36 Industrial Electricity Prices (excluding VAT but including all other taxes), 2009<sup>83</sup>**

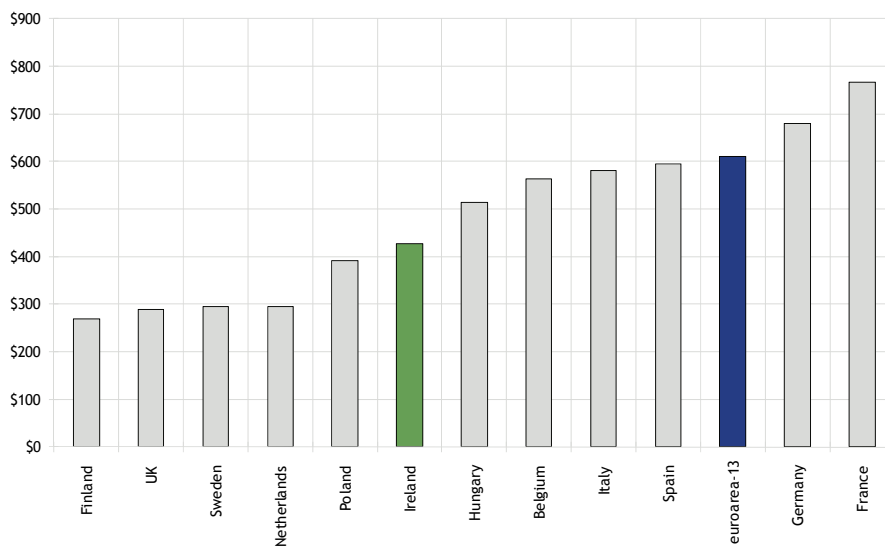


In 2009, the cost of industrial electricity in Ireland decreased by 24% - more than in any other benchmarked location. Although Ireland remains more expensive than the euro area average, the gap has narrowed to 5% which represents a significant improvement since the second half of 2008 when Irish electricity prices were 37% higher than the euro area average.

**euro area-15 ranking<sup>84</sup>:**  
9<sup>th</sup> (↑5)

Source: Eurostat, Energy and Environment

**Figure 4.37 Mobile Telephone Costs, High Usage Basket, excluding VAT, 2009<sup>85</sup>**



This indicator measures the monthly cost charged for a high usage basket of mobile calls including VAT. Ireland ranks seventh cheapest of the 13 benchmarked locations and is 30% cheaper than the euro area average. Average revenues per customer in Ireland at €37.20 per month are the highest of 16 European countries benchmarked and are significantly higher than the euro area average (€22.70)<sup>86</sup>.

**euro area-13: 5th**

Source: Teligen

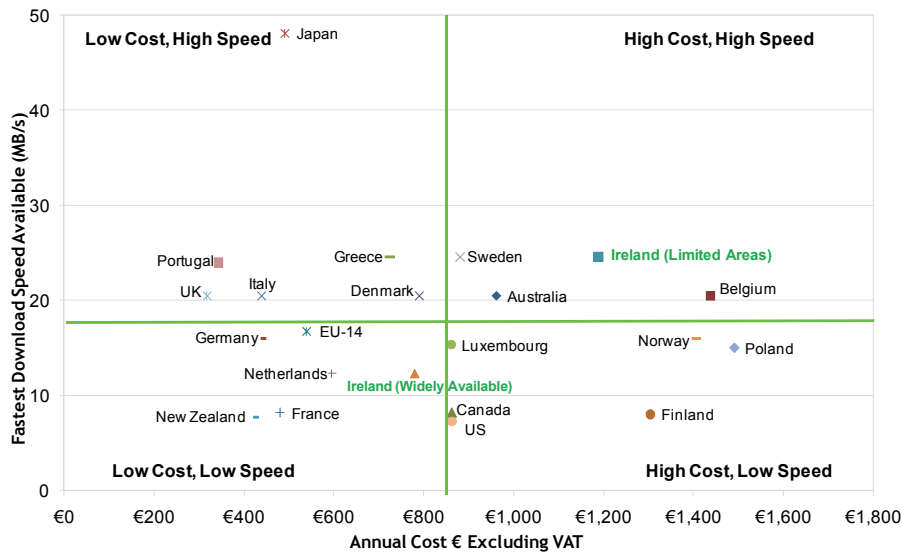
<sup>83</sup> Based on an annual consumption of 2,000 -20,000 kWh. Data refers to the second half of 2009, with the exception of France, Greece, and Italy where data refers to first half of 2009.

<sup>84</sup> euro area-15 is euro area-16 minus Austria. Ireland ranks ninth most expensive of the EU-27 countries.

<sup>85</sup> euro area-13 is the euro area 16 minus Cyprus, Malta and Slovenia

<sup>86</sup> ComReg Quarterly Key Data Report, Q4 2009.

**Figure 4.38 Fastest ADSL Business Download Speed Available by the Incumbent and Annual Cost 2009(excl. VAT, € PPP)**

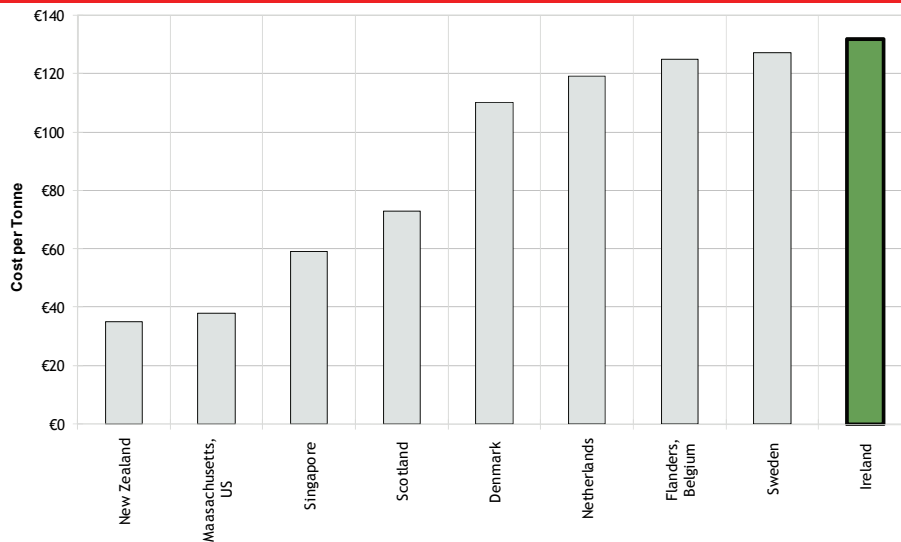


In Ireland, the incumbent operator, eircom, offers a 24 Mb/s service at a cost of €1,188. The speed offered compares well with the EU-14 average of 17 Mb/s<sup>87</sup>. The cost of this connection compares poorly with the EU-14 average of €540. This service is only available in a limited number of locations in Irish cities. In Ireland 12 Mb/s connections are more widely available to businesses in most parts of the country at a cost of €780.

**EU-14 Ranking: Widely Available Service:**  
 Speed 12<sup>th</sup>  
 Cost 7<sup>th</sup>

Source: Forfás, Ireland's Broadband Performance and Policy Actions 2010; Teligen, September 2009

**Figure 4.39 Waste Disposal Costs (per tonne), 2008**



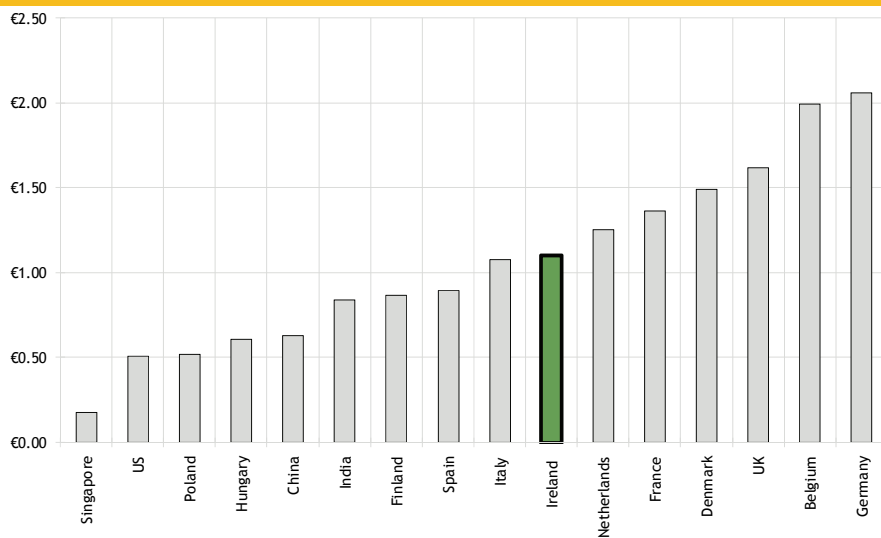
Waste disposal costs measure the cost of disposing of a tonne of non-hazardous waste into landfill. The costs shown include taxes. In 2008, Ireland was the most expensive of the locations benchmarked. It should be noted that costs in Ireland vary significantly by local authority and that the market prices have fallen significantly recently due to the recession.

**Group ranking of 9: 9<sup>th</sup>**

Source: Forfás, 2009, Waste Management in Ireland: Benchmarking Analysis and Policy Priorities

<sup>87</sup> The incumbent's fastest speed is a relevant metric, as it is the most widely available service to enterprises. EU-15 minus Spain.

**Figure 4.40 Water Costs per Metre Cubed 2008/ 2009<sup>88</sup>**

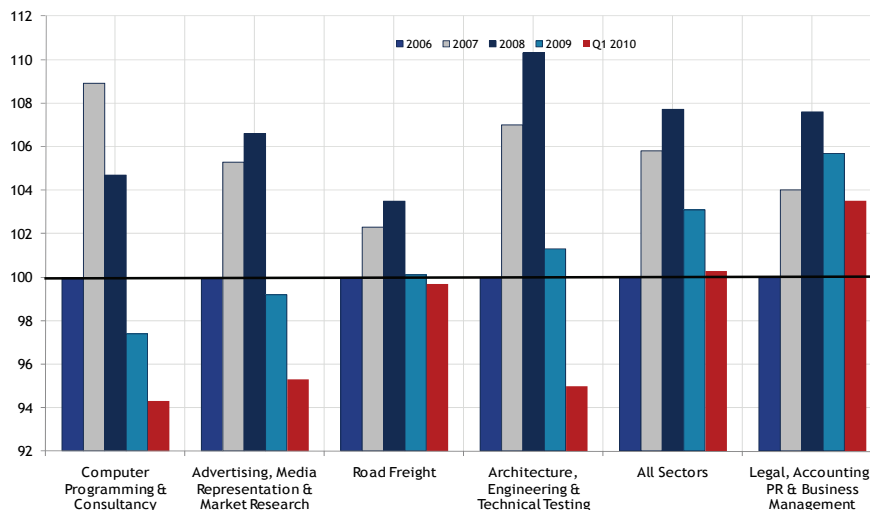


Ireland ranks as the tenth least expensive location for water. Water costs measure the cost for industrial users per metre cubed but does not include the cost of waste water services. The average cost of waste water services in Ireland in 2009 was €1.20 in 2009, bringing the average consolidated water services charge per metre cubed to €2.29, an increase of 10.5% on 2008.

**Group ranking of 16:**  
10<sup>th</sup>

Source: Economist Intelligence Unit, World Investment Services, Department of Environment, Heritage and Local Government

**Figure 4.41 Services Price Index, 2006 -Q1 2010, (2006 =100)**



Based on experimental CSO data, this indicator shows the change in prices of key business services. The index shows a total reduction of 4% across services in the year to Q1 2010.

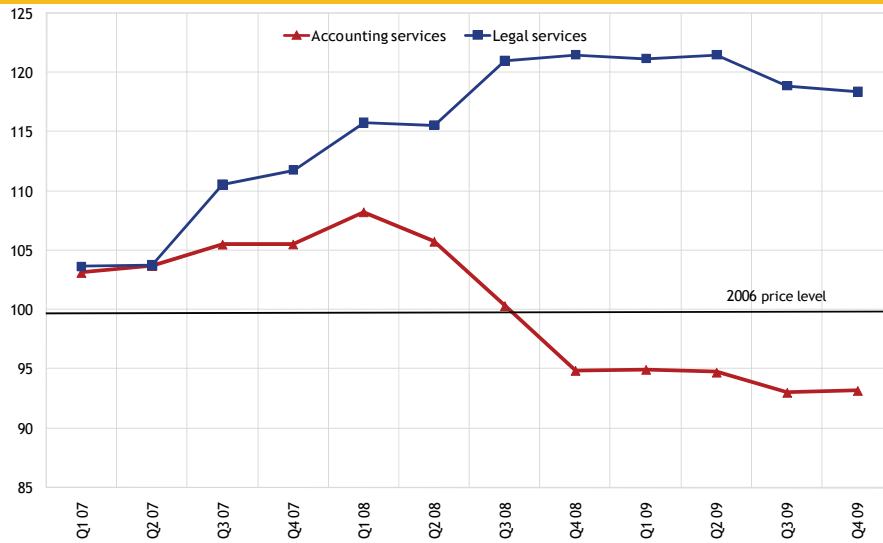
Computer services had the largest decrease in prices, falling by 16.1% since their peak in Q3 2007. Legal, accounting, PR and business management consultancy had declined the least, peaking in Q2 2008. By the end of Q1 2010 prices in this sector had fallen 5% from the peak but remained 3.5% above 2006 levels.

**Ranking N/A**

Source: CSO, Services Producer Price Index 2009

<sup>88</sup> Data for Ireland refers to water service prices in 2009, data for other locations refers to 2008 prices.

**Figure 4.42 Accountancy and Legal Costs, 2007 -2009, (2006 = 100)<sup>89</sup>**

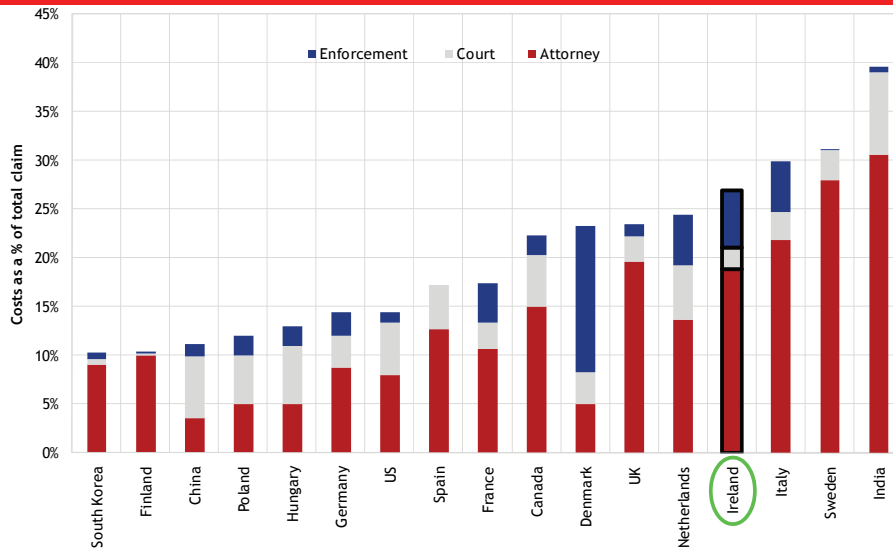


This indicator shows the quarterly change in accountancy and legal services costs since Q1 2007. The cost of accounting services peaked in Q1 2008. Since then costs have fallen significantly and by the end of 2009 were 6.8% lower than the average price for accounting services in 2006. Legal fees, having peaked in Q2 2009, took longer to respond to the recession and experienced marginal price falls in the second half of the year (-3.1%).

**Ranking N/A**

Source: CSO, Services Producer Price Index

**Figure 4.43 Legal Fees, 2009**



It is difficult to accurately compare legal costs due to differences in national legal systems. This indicator measures the cost of enforcing a contract following a commercial dispute relation to a sale of goods by one firm to another. The costs are shown as a percentage of the total claim and are broken down into attorney, court and enforcement fees. Ireland is the fourth most expensive location benchmarked. This is driven by relatively high attorney fees.

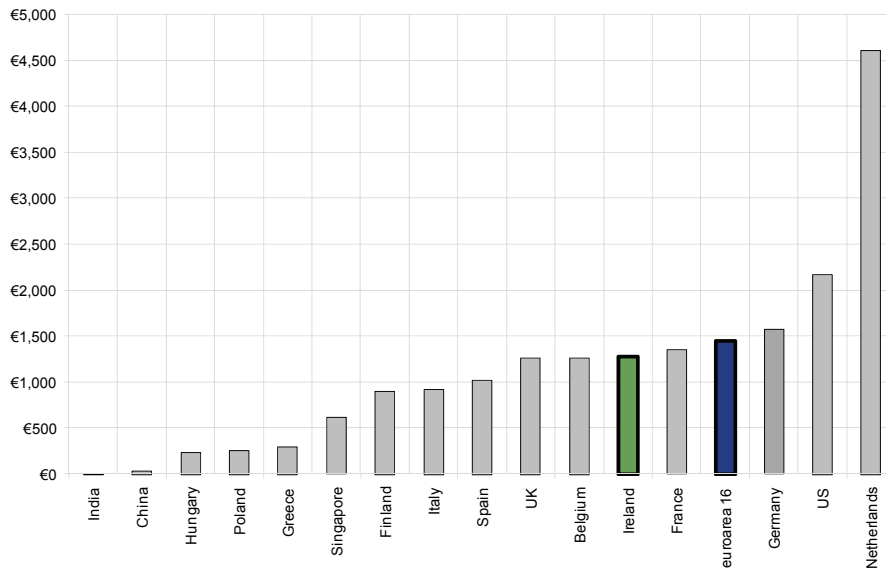
**Ranking of 17: 14<sup>th</sup>**

Source: World Bank, Doing Business 2010

<sup>89</sup> It is difficult to measure professional services costs. The Services Producer Price Index is an experimental publication from the CSO. Given the small sample size used to create the sub-indices for accountancy and legal costs caution should be used when analysing the results.



**Figure 4.44 Non-Life Insurance Density, Premia per capita in US\$**



This indicator shows the value of non-life insurance premiums per capita. It includes motor, property, employer's liability, public liability, travel and other business insurance.

High insurance density can reflect both high insurance costs and a requirement for high coverage levels. Among the benchmarked locations, Ireland has the fifth highest density of non-life insurance per capita (\$1,278) but is below the euro area average (\$1,455).

Source: Swiss Re, Sigma No 3, Appendix, 2009

## 4.4 Employment and Labour Supply

Growth in labour supply has played a key role in Ireland's economic development over the past decade. This section looks at the important trends in Ireland's employment and labour supply performance, as illustrated in Chart 4.D.

While the numbers unemployed are showing signs of stabilisation in the second half of 2009, this should be considered in conjunction with declining in labour force participation (Fig. 4.45). Between the peak in employment in Q4 2007 and 2009 Q4, overall employment has declined by 13.6 per cent - driven by significant declines in the construction, wholesale and retail trade, industry and agriculture sectors (Fig. 4.46).

Ireland's standardised unemployment rate is 13.3 per cent which compares poorly with the OECD average of 8.5 per cent. While unemployment has risen in many OECD countries, Ireland has experienced the second sharpest increase in unemployment in the OECD since 2005. The ESRI forecasts unemployment to rise to 13.25 per cent or 286,000 people in 2010 (Fig. 4.47). While youth unemployment is increasing in many European countries, it has increased very rapidly in Ireland (26 per cent) which compares poorly with the euro area average (22.5 per cent) (Fig. 4.48). Younger workers in the Irish labour force have experienced more rapid increases in unemployment compared to older, more experienced workers (Fig. 4.49). Unemployment has also increased more rapidly for those with lower levels of educational attainment (Fig. 4.50). It is a serious concern that the level of long-term unemployment has risen rapidly to 112,600 in Q1 2010. Long-term unemployment accounted for 41 per cent of total unemployment in Q1 2010 compared with 22 per cent a year earlier<sup>90</sup>.

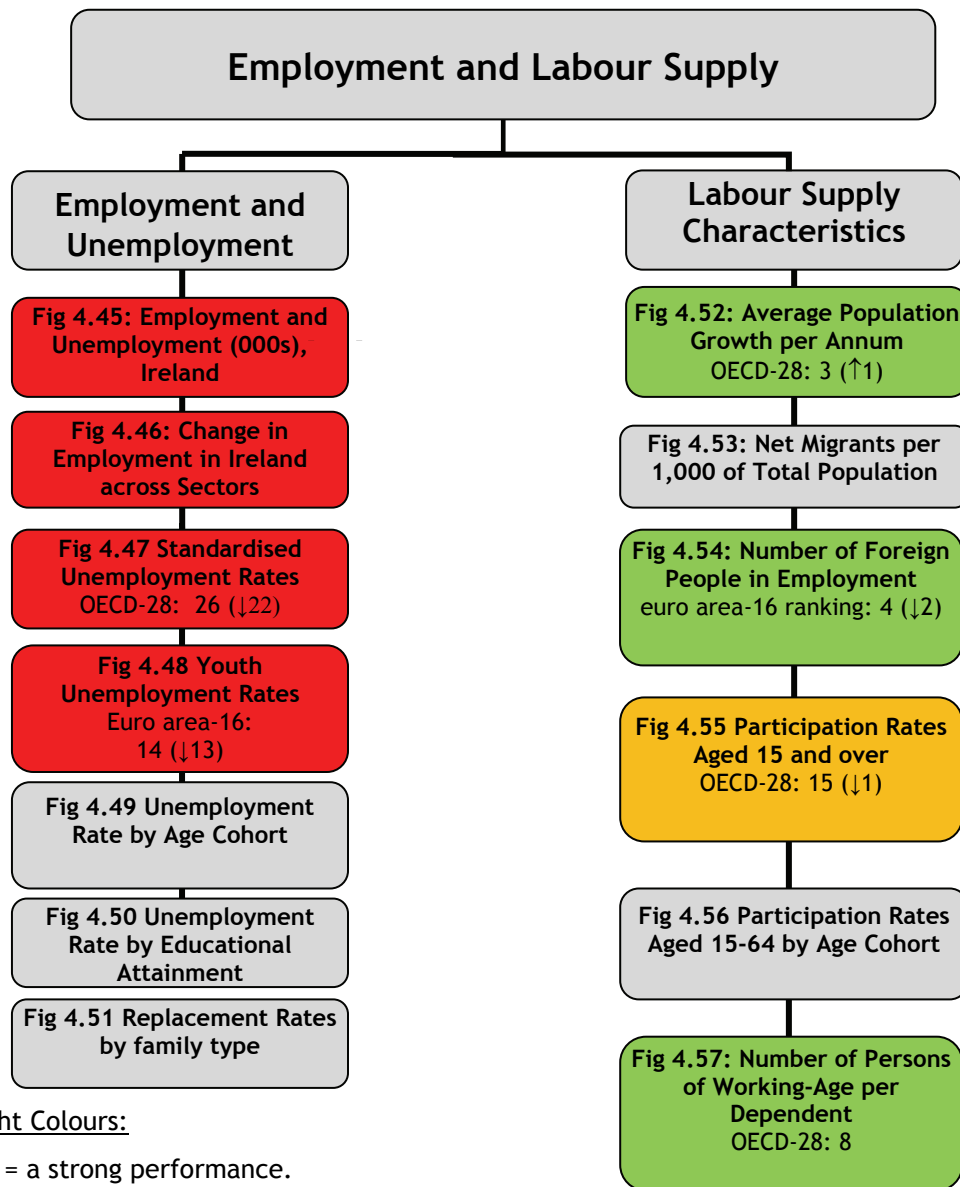
Over the longer term, a growing labour force is a competitive strength. Ireland's population continues to grow at a faster rate than the US, OECD and other European countries (Fig. 4.52). Ireland's labour force has also grown in recent years, driven by both natural increases in the Irish-born population and inward migration. Since 2007 there has been a dramatic fall in net migration, driven by rising unemployment. In the year to April 2009 there was net outward migration of 7,800 people. The ESRI forecasts net outward migration of 70,000 in 2010 and a further 50,000 in 2011 (Fig. 4.53). Foreign workers comprise 13.5 per cent of the total number of people in employment in Ireland in Q4 2009. This has fallen from 16.5 per cent in Q1 2008 however remains high relative to the euro area average of eight per cent (Fig. 4.54).

Irish participation rates for people aged over 15 are close to the OECD average in 2009. However, the increasing number of people unemployed since unemployment began to rise sharply in 2008 is contributing to a fall in participation rates - of 3.9 percentage points since the end of 2007 (Fig. 4.55). This is driven by declining participation rates among the under-25 age cohort which indicates that the youngest members of working age population appear to be choosing to stay in or return to education (Fig. 4.56). While Ireland's demographic position is among the most favourable in the OECD, Ireland will also face an ageing population into the future (Fig. 4.57).

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<sup>90</sup> CSO, Quarterly National Household Survey, Q1 2010.

Chart 4.D

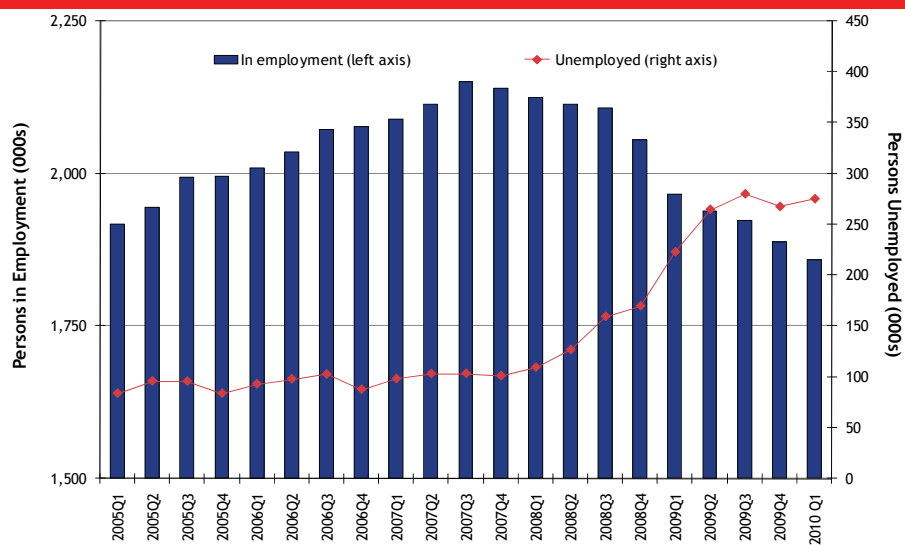


Traffic Light Colours:

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.
- Grey= no colour is applicable

## 4.4.1 Employment and Unemployment

**Figure 4.45 Employment and Unemployment (000's), Ireland 2005 Q1-2010 Q1**

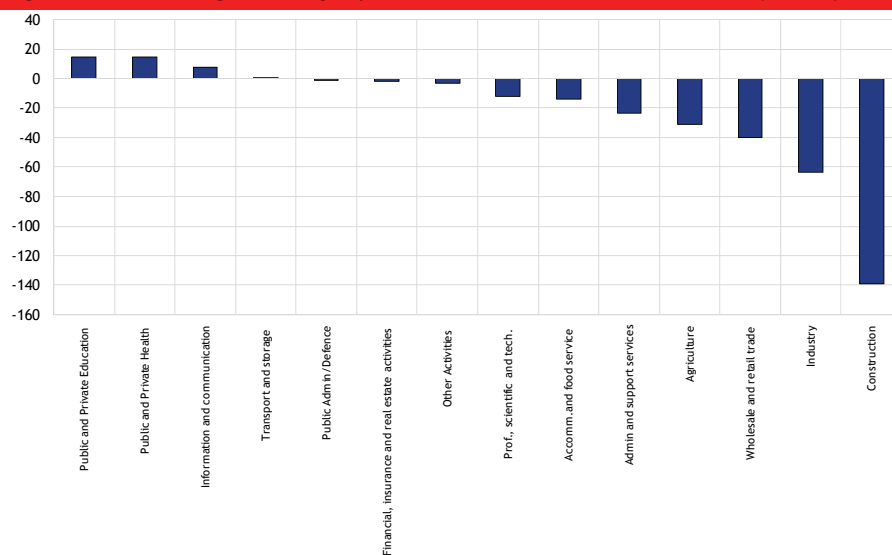


The numbers in employment (left axis) peaked at 2,149,800 in Q3 2007. Numbers unemployed (right axis) began to increase rapidly in Q1 2008 and stood at 275,000 by the end of 2009. The ESRI forecasts unemployment of 286,000 (13.25%) people and the numbers employed to fall to 1,857,000 by the end of 2010<sup>91</sup>. While the numbers unemployed may be showing signs of stabilisation in the second half of 2009, this should be read in conjunction with declining labour force participation.

Ranking: N/A

Source: CSO, Quarterly National Household Survey

**Figure 4.46 Change in Employment in Ireland across sectors (000's) Q3 2007 - Q1 2010**



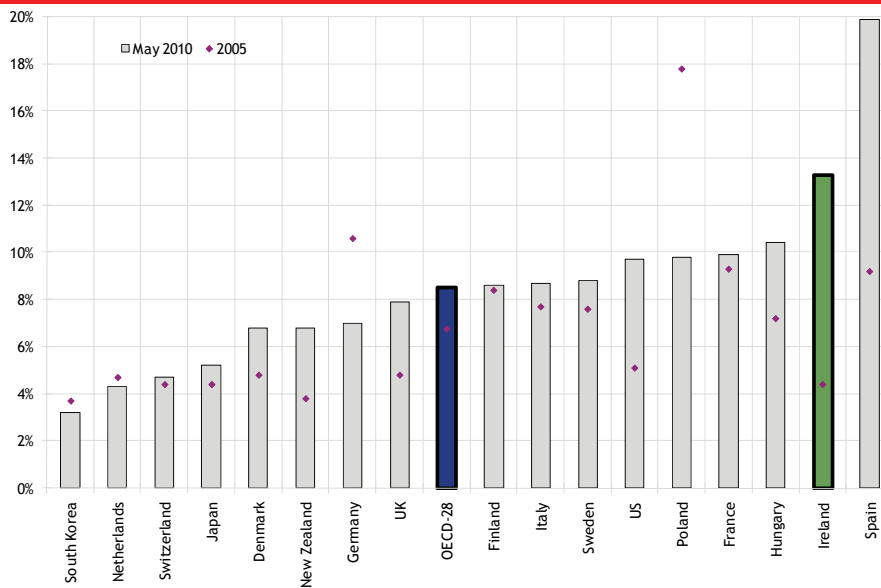
Between the peak in employment in Q3 2007 and 2010 Q1, overall, employment has declined from 2,149,800 to 1,857,600 in Q4 2009 which is a 13.6% decline. Employment in construction has declined by 139,100 or 52%. There have also been significant declines in the industry (-63,200), wholesale and retail trade (-40,100) and agriculture (-31,100) sectors.

Ranking: N/A

Source: CSO, Quarterly National Household Survey

91 ESRI, Quarterly Economic Commentary, July 2010.

**Figure 4.47 Unemployment, Standardised Rates, May 2010<sup>92</sup>**

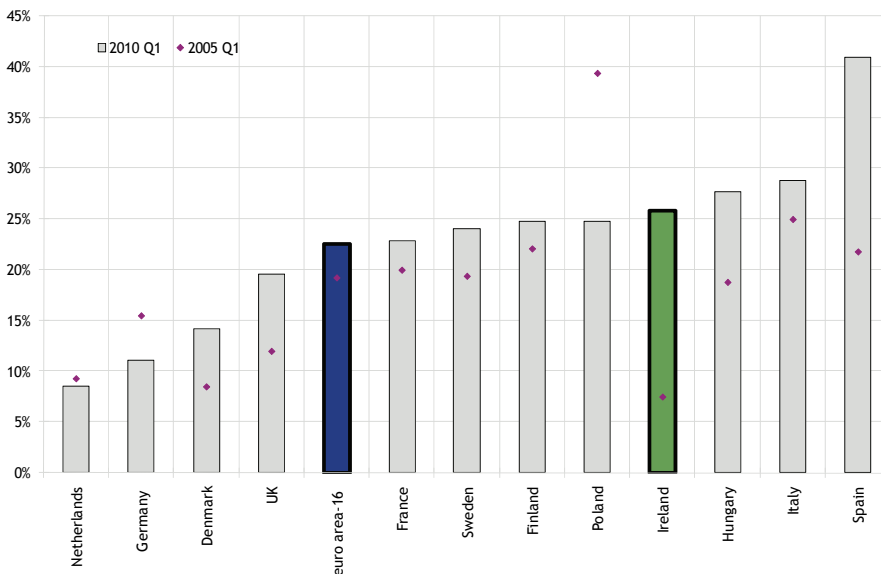


The standardised unemployment rate in Ireland is 13.3%. This compares poorly with the OECD average of 8.5%. While unemployment has risen in many OECD countries, Ireland has experienced the second sharpest increase in unemployment in the OECD since 2005. The ESRI forecasts unemployment to rise to 13.25% in 2010 (286,000 people)<sup>93</sup>.

**OECD-28 Ranking:**  
26<sup>th</sup> (↓22)

Source: OECD Stat.Extracts, Labour; CSO QNHS

**Figure 4.48 Youth Unemployment, 2010 Q1**



Youth unemployment is typically higher than economy wide unemployment. While the unemployment rate for people aged 15-24 is increasing in many European countries, it has increased very rapidly in Ireland (26%) and compares poorly with the euro area average (22.5%). The dramatic decline in labour force participation rates for under-25's in the past year has prevented this rate rising even further.

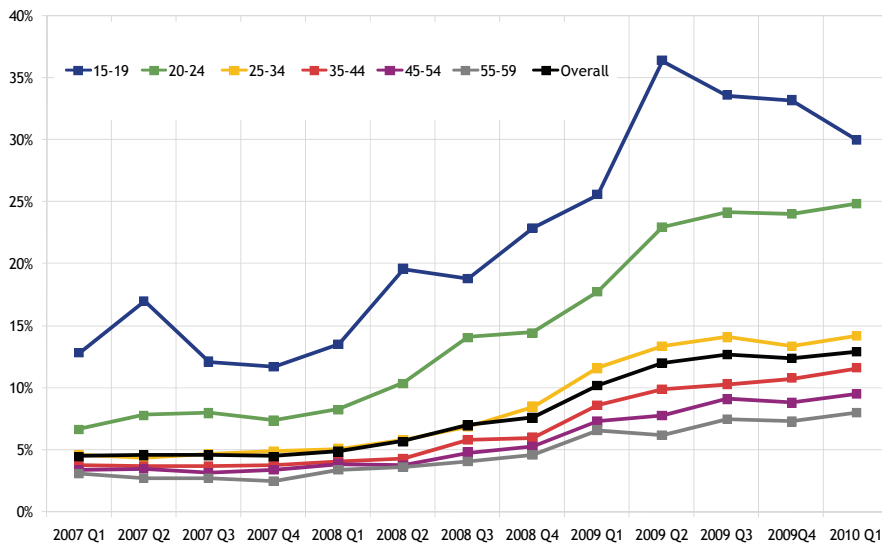
**euro area-16 Ranking:**  
12<sup>th</sup> (↓11)

Source: Eurostat, Education and Training Indicators

<sup>92</sup> Data for Greece, New Zealand, Norway, Switzerland and the UK refers to Q3 2009 due to data availability.

<sup>93</sup> ESRI, Quarterly Economic Commentary, July 2010.

**Figure 4.49 Unemployment (%) by Age Cohort Q1 2007 - Q1 2010**

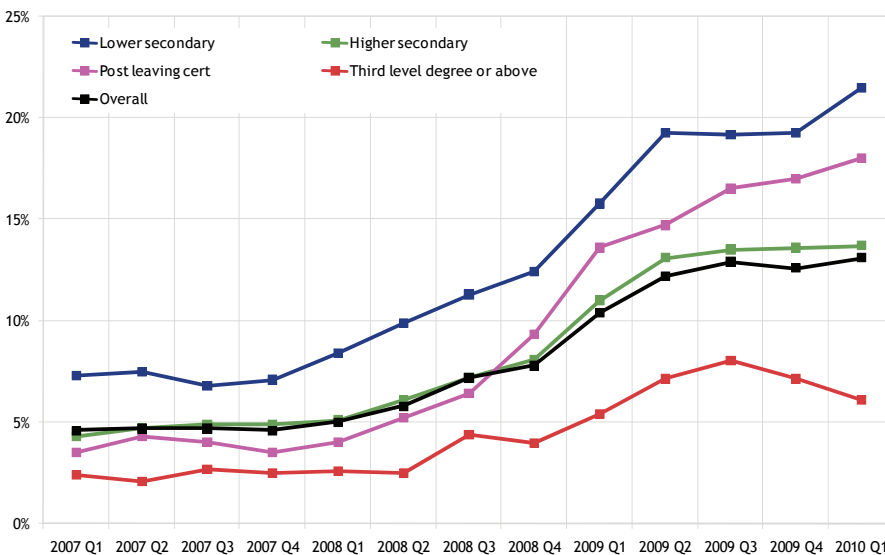


Younger workers in the Irish labour force have experienced more rapid increases in unemployment compared to older, more experienced workers. The unemployment rate more than doubled across all categories between Q1 2007 and Q1 2010.

Ranking: N/A

Source: CSO, Quarterly National Household Survey

**Figure 4.50 Unemployment (%) by Educational Attainment Q1 2007 - Q1 2010**

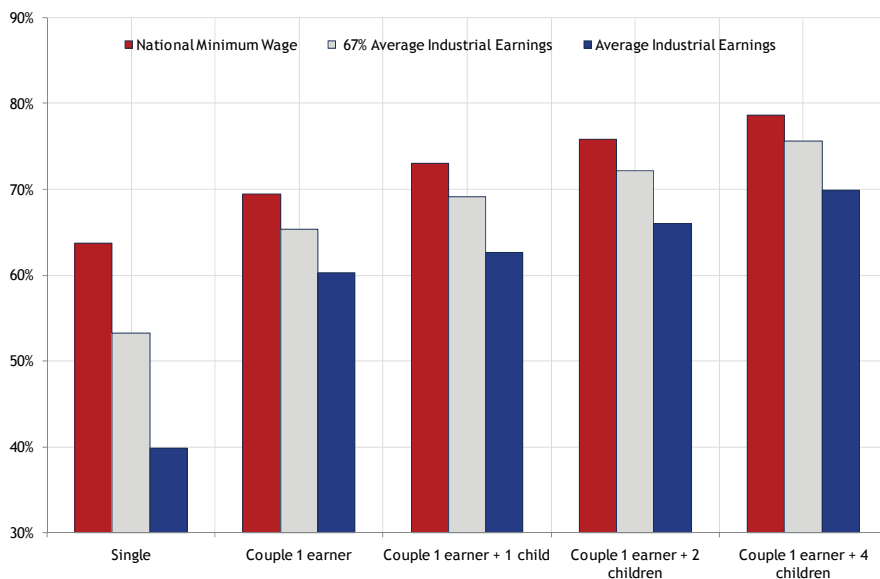


The unemployment rate has increased more rapidly for those with relatively lower levels of educational attainment. Between Q1 2007 and Q1 2010 unemployment increased from 7.3% to 21.5% for those with lower secondary education. For those with third level education unemployment increased from 2.4% to 6.1%.

Ranking: N/A

Source: CSO, Quarterly National Household Survey

Figure 4.51 Replacement Rates<sup>94</sup>, April 2010



Replacement rates measure the ratio between a person's income when unemployed to the income they would receive if employed. The higher the replacement rate the greater the potential disincentive to take up offers of employment. For example, a couple with one child with one income equal to the average industrial earnings has a replacement rate of 63% - this means that the family's disposable income on social welfare is 63% of what they can earn in employment.

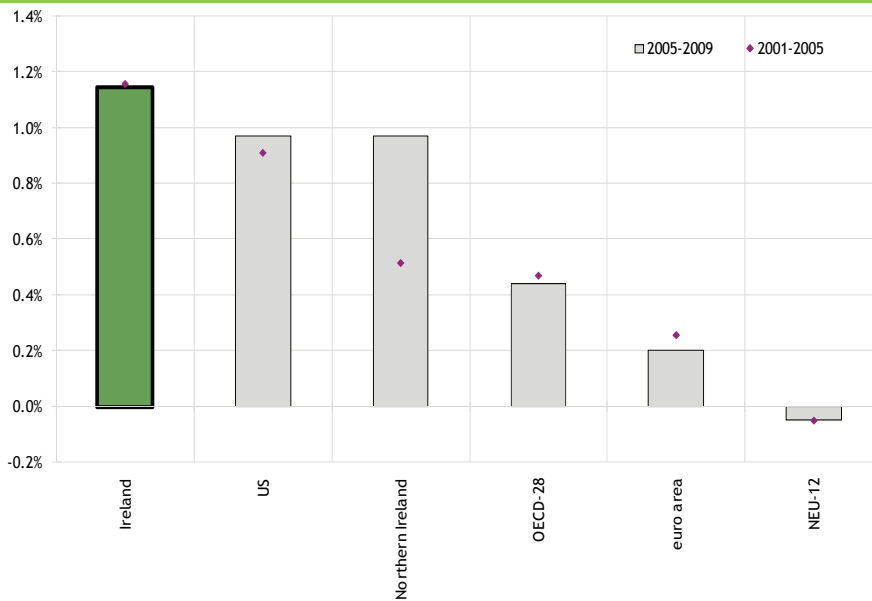
Ranking: N/A

Source: Department of Social Protection

94 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. Replacement rates are calculated as follows = 100 x out of work family disposable income/ In work family disposable income. Included in the calculations of in-work income, where appropriate, are entitlement to Child Benefit, Family Income Supplement and spouse/partner's residual entitlement to an unemployment payment. Entitlement to either Rent Allowance or Mortgage Interest Relief is not included as this is subject to household and regional variations - however some 15 per cent of people on the Live Register receive one of these income supports. 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.

## 4.4.2 Labour Supply Characteristics

**Figure 4.52 Average Population Growth per Annum, 2001-2009**

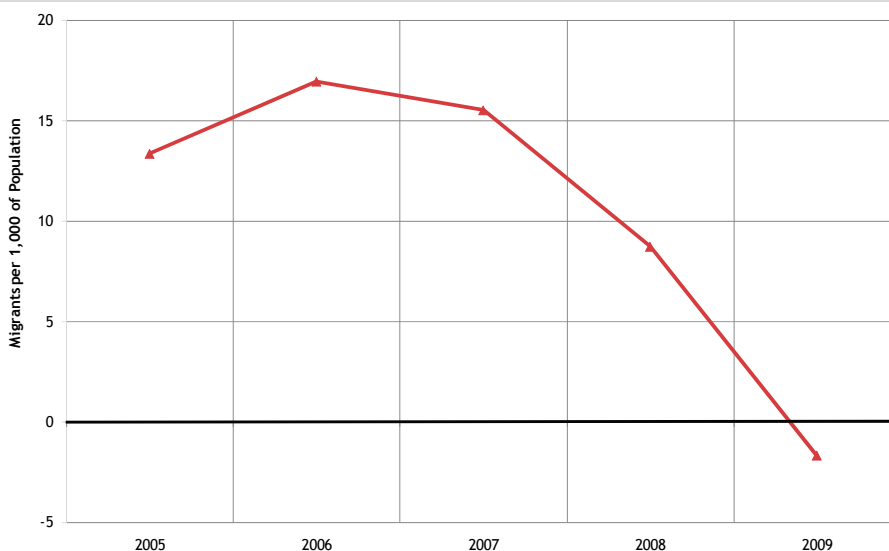


Ireland's population continues to grow at a fast rate. The euro area population is growing at a slower rate, while the population in the 12 new EU member states is falling. Population growth in Northern Ireland has increased significantly over the period.

**OECD-28 Ranking:**  
3<sup>rd</sup> (↑1)

Source: Forfás calculations; Groningen Growth & Development Centre, Total Economy Database, Northern Ireland Statistics and Research Agency

**Figure 4.53 Net Migrants per 1,000 of Total Population, 2005-2009**



Ireland experienced a high rate of net inward migration until 2006. However, since 2007 there has been a dramatic fall in net migration, driven by rising unemployment. The latest CSO figures for the year ended April 2009 show that there was net outward migration of 7,800 people. The ESRI forecasts net outward migration of 70,000 in 2010 and a further 50,000 in 2011<sup>95</sup>.

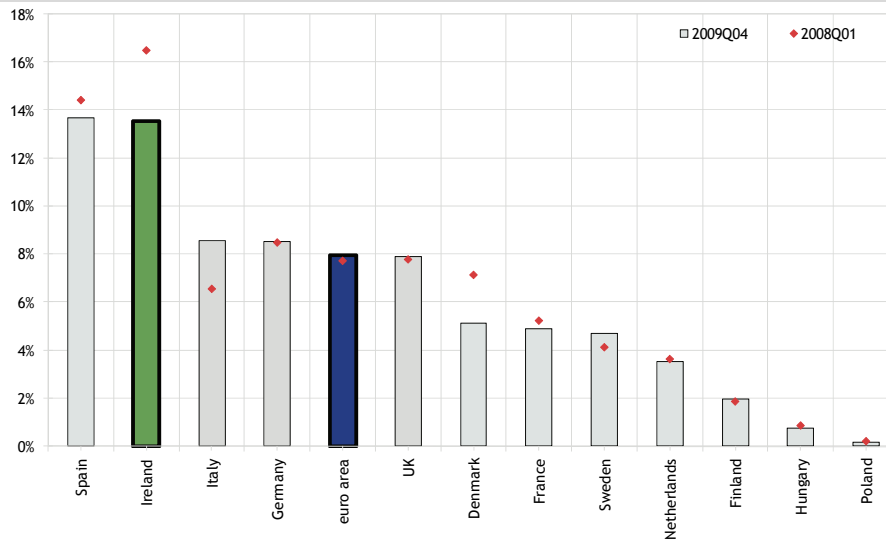
**Ranking: N/A**

Source: CSO Population Estimates and Census Data

95 ESRI, Quarterly Economic Commentary, July 2010.



**Figure 4.54 Number of Foreign People in Employment as a % of Total Employed, Q4 2009**

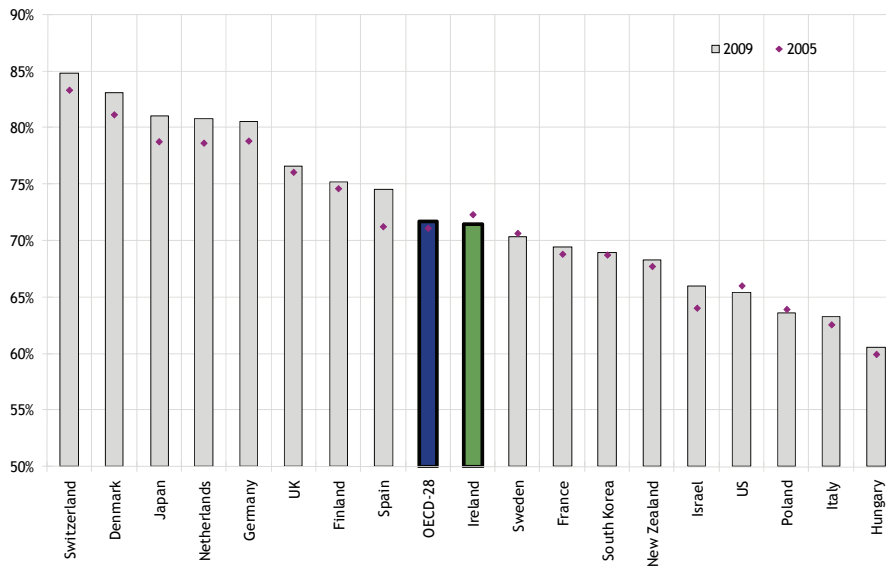


Foreign workers comprise 13.5% of the total number of people in employment in Ireland in Q4 2009<sup>96</sup>. This has fallen from 16.5% in Q1 2008. However, it continues to remain high relative to the euro area average of 8%. 255,200 non-Irish nationals were in employment in Q4 2009 representing a decrease of 50,100 (-16.4%) since Q4 2008. A further 47,900 were unemployed, an increase of 16,500 in the year to Q4 2009<sup>97</sup>.

**Euroarea-16 ranking:**  
4<sup>th</sup> (↓2)

Source: Eurostat, Labour Force Survey

**Figure 4.55 Participation Rates, Aged 15 and over, 2009**



Irish participation rates for persons over the age of 15 are close to the OECD average in 2009. The increasing number of people unemployed since 2008 should be considered in conjunction with the fall in participation rates of 2.6 percentage points since the end of 2007<sup>98</sup>. There is a considerable gap between female participation in Ireland and leading countries such as Sweden and Denmark<sup>99</sup>.

**OECD-28 Ranking:**  
14<sup>th</sup> (↑1)

Source: OECD, Economic Outlook 86, December 2009

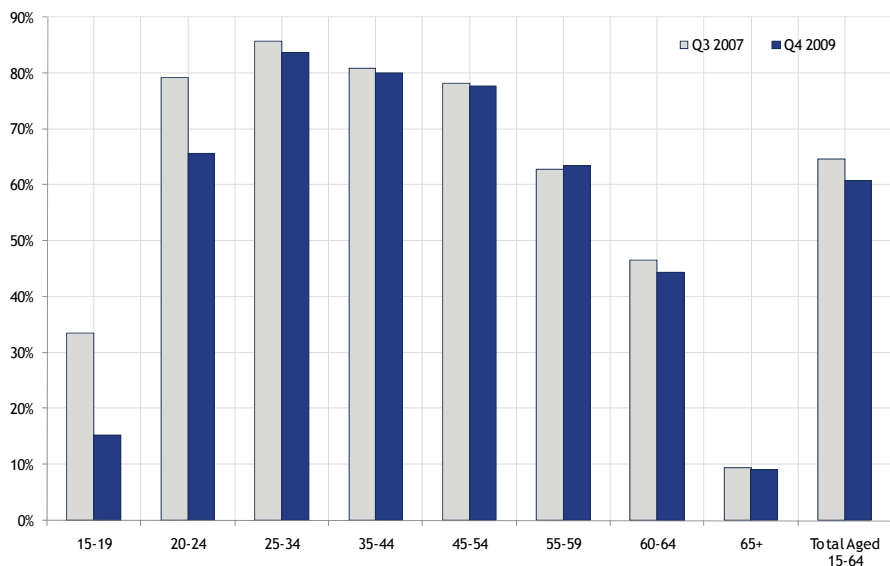
<sup>96</sup> While almost 30 percent of the native population had third level education in 2003, the corresponding figure for non-nationals was 54 percent. Barrett, A., A. Bergin, and D. Duffy, 2006, The Labour Market Characteristics and Labour Market Impacts of Immigrants in Ireland.

<sup>97</sup> CSO, Quarterly National Household Survey, March 2010.

<sup>98</sup> CSO, Quarterly National Household Survey.

<sup>99</sup> OECD, Employment Outlook, 2009.

**Figure 4.56 Participation Rates Aged 15-64, by age cohort, Q1 2010**

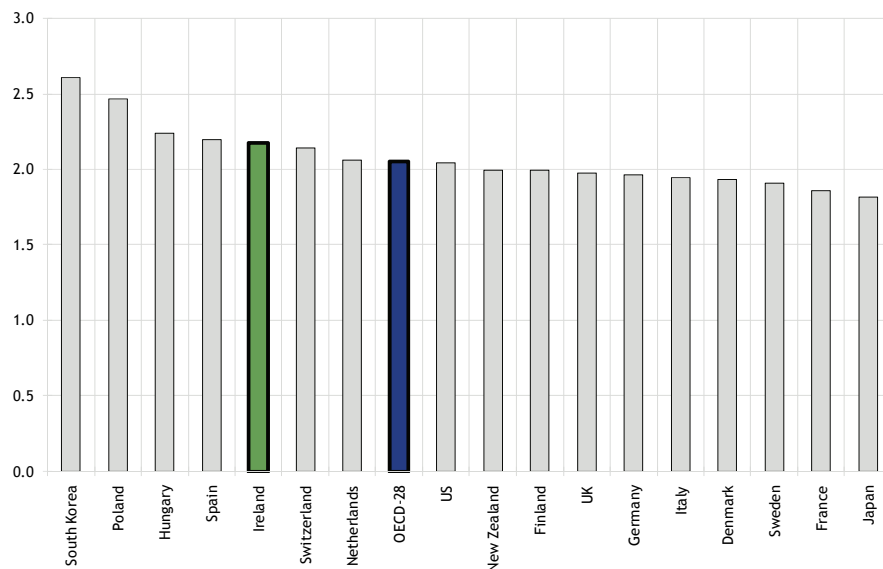


For people aged 15-64, the participation rate in Ireland is 60.7% in Q1 2010 - a significant decline since Q3 2007 when participation was 64.6%. The decline among 15-19 year olds and 20-24 year olds was much steeper than the fall in total participation rates - falling from 33.4% to 15.3% for the 15-19 year olds and from 79.2% to 65.5% for 20-24 year olds. This is likely to be due to those who left school/college early during the boom years returning to full time education or to outward migration.

Ranking: N/A

Source: CSO, Quarterly National Household Survey, June 2010

**Figure 4.57 Number of Persons of Working-Age per Dependent, 2008**



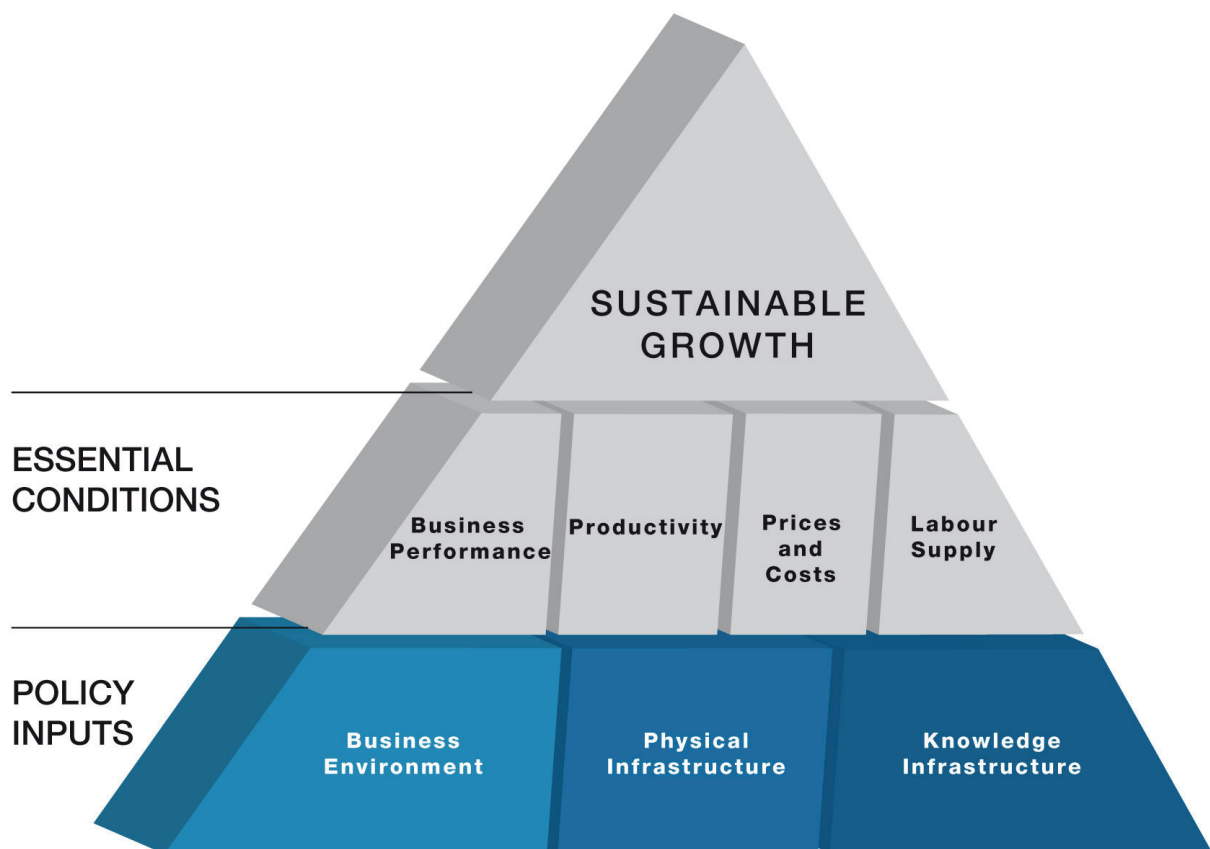
Economies with a higher ratio of workers to dependants (children and retirees) are able to fund their social services more easily. Ireland's population is favourably structured, due to a peak in births in 1980. Projections for the number of people over 65 relative to the number of working age suggest there is likely to be a slight decline in this ratio by 2015 (See Fig. 3.09)

OECD-28 Ranking: 8<sup>th</sup>

Source: OECD Stat.Extracts, Labour Force Statistics

# Chapter 5

## Policy Inputs



## 5. Policy Inputs

### 5.1 Business Environment

The business environment has a significant impact on a country's economic performance and competitiveness. In this section, indicators that illustrate Ireland's relative performance on taxation, finance, regulation and competition and social capital are assessed. Chart 5.A provides an overview of Ireland's recent performance in terms of key business environment indicators.

#### 5.1.1 Taxation

In the decade to 2007, Irish tax revenues exceeded government expenditure by a significant amount. Since 2008 government revenues have declined dramatically due to the property collapse and the economy wide recession while government expenditure continues to increase. In absolute terms, Ireland's total tax revenue was €33 billion in 2009 which is substantially lower than tax revenue in 2007 of €47.3 billion. A further decrease to €31.9 billion is forecast in 2010<sup>100</sup>. Irish Government expenditure is forecast to account for 47.1 per cent of GDP in 2010 compared to total revenue of 35.4 per cent of GDP (Fig. 5.01). Expenditure as a percentage of GDP has increased significantly since 2007 because of the sharp declines in GDP and increases in expenditure on social welfare and interest payments. In 2009, expenditure on social welfare was €20.4 billion - €5 billion (or 36 per cent) higher than in 2007. Interest payments in 2009 amounted to €2.55 billion which is 57 per cent above the 2007 levels<sup>101</sup>. While all tax heads have decreased since 2007, the sharp decline in tax revenue has been driven by particularly steep falls in stamp duties, capital taxes and VAT (Fig. 5.03).

Ireland's tax structure is less dependent on social security contributions than other euro area countries. There is a relatively even split between direct and indirect taxes, reflecting policies to reduce taxes on factors of production (i.e. workers and firms) that promote competitiveness (Fig. 5.02). Although Ireland earned less in corporation tax receipts as a percentage of GDP than the OECD average in 2007, corporation tax receipts as a percentage of GNP were greater than the OECD average. Corporate tax receipts for 2008 and 2009 have fallen significantly (Fig. 5.04 and 5.05). Ireland's tax wedge on labour for a married couple with two children on a combined income of 167 per cent of the average wage rose from 14 per cent in 2008 to 19.8 per cent in 2009 as a result of increases in income and health levies (Fig. 5.06)<sup>102</sup>. At 39 per cent, the tax wedge is also significantly higher for higher income earners - a potential disincentive for highly skilled internationally mobile workers (Fig. 5.07).

The main source of indirect tax revenues for all countries is a sales or value added tax on consumption. While these taxes are less likely to affect incentives to work or invest (except the tourism sector), they are regressive. Irish VAT rates are among the highest in the OECD, which affects consumer prices and tourism (Fig. 5.08).

100 Department of Finance, Estimates of Receipts and Expenditure, Budget 2010

101 Department of Finance, End of Year Exchequer Statement, December 2009.

102 The tax wedge is the gap between what the employer pays and what the employee receives.

## 5.1.2 Finance

Encouraging investment in productive enterprise is a major challenge. There are serious concerns that the turmoil in global financial markets and the exposure of Irish banks to bad loans in the declining property sector is affecting Irish firms in terms of their ease of access to finance and its cost. Access to finance and its cost are likely to become even more serious issues for Irish firms. As international markets return to growth, exporters will require greater access to credit at a time when euro area interest rates are likely to be increasing.

For a variety of loan types in terms of size and duration, businesses in Ireland generally pay higher interest rates than the euro area average (Fig. 5.09). Irish businesses have consistently faced higher interest rates for overdraft facilities since 2005 (Fig. 5.10). The recent financial crises do not appear to have affected this trend.


Having unsustainably exceeded the euro area average for many years, Irish credit growth has contracted at a faster rate than the euro area average since March 2009 on a year on year basis. The value of loans outstanding to Irish companies has declined from a peak of €193.4 billion in August 2008 to €167.3 billion in January 2010 (Fig. 5.11). Irish banks have tightened the terms and conditions for lending more than euro area banks since late 2007 (Fig. 5.12). However, it is not possible to determine from the information available the relative impact on credit flows of issues such as the banking crisis and the deterioration in the attractiveness of borrowers due to the recession.

In addition to bank finance, access to early stage finance and venture capital is essential to support the development of high potential start-up firms. Ireland has a relatively high level of venture capital intensity compared to other countries (Fig. 5.13) but private equity investment is not as well developed in Ireland as in other countries (Fig. 5.14). The value of contracts signed by the European Investment Bank in Ireland increased significantly in 2009 to €1 billion or 0.62 per cent of GDP (Fig. 5.15).

## 5.1.3 Regulation and Competition

Many of Ireland's most important internationally trading sectors (e.g. pharmaceuticals, medical devices, fund administration, software) depend on an effective regulatory environment. Although it is not possible to benchmark, the importance of having a reputable regulatory regime is critical. Ireland's regulatory regime for products such as pharmaceuticals and medical devices is excellent which is a significant competitive advantage. While not unique to Ireland, recent developments in Ireland's domestic financial services sector have damaged our international reputation.

Ireland is generally a relatively easy place to do business from a regulatory perspective. For example, the financial and administrative costs of starting a business in Ireland and the number of procedures involved are favourable compared to other countries (Fig. 5.16 and 5.19). In terms of regulatory barriers to product market competition, Ireland is one of the least restrictive countries in the OECD (Fig. 5.18). The time required to pay various taxes in Ireland is also low (Fig. 5.20).



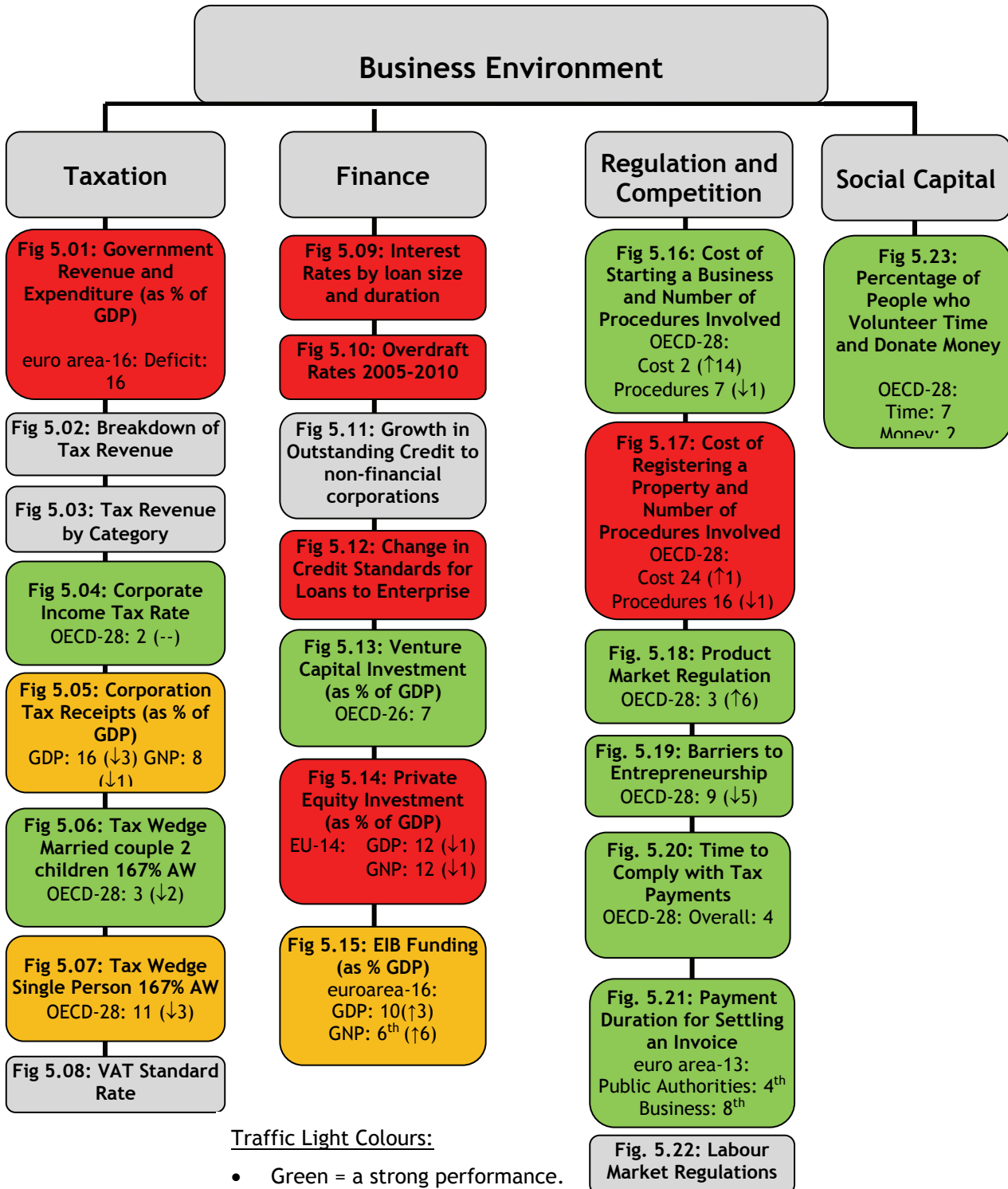
The performance of Ireland's public authorities in processing payments swiftly has improved in recent years but remains behind leading countries (Fig. 5.21). In terms of labour market regulation, Ireland's employment framework is less rigid than most OECD countries (Fig. 5.22). However, the cost of registering a property is high in Ireland (Fig. 5.17). The cross-government target to reduce the administrative burden of business regulation by 25 per cent by 2012 should further reduce the costs to business associated with regulation.

From a competition perspective, as noted above, it is relatively easy to establish a new business in Ireland. Regulatory barriers to entrepreneurship and product market regulations are also conducive to promoting competition. However, as highlighted in the Chapter 4, high prices in many locally traded sectors of the economy suggest that domestic competition remains underdeveloped.

#### **5.1.4 Social Capital**

Social capital is difficult to define and adequately measure. The number of people who donate time and money to organisations is one measure of societal cohesiveness. Ireland ranks well in terms of the number of people who volunteer time and donate money to an organisation (Fig. 5.23). In Ireland 35 per cent of people surveyed volunteered time and 73 per cent donated money which compares favourably with the OECD average. As indicators which track trust in various institutions are quite dated and do not reflect recent developments, they are not included.

Chart 5 A

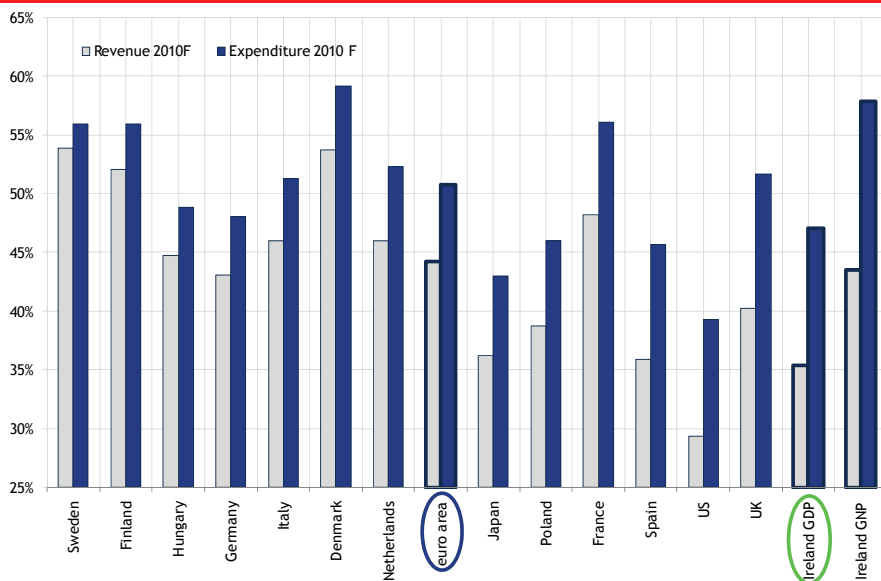


Traffic Light Colours:

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.
- Grey = no traffic light colour is applicable.

## 5.1.1 Taxation

**Figure 5.01 Total General Government Revenue and Expenditure (as a % of GDP), 2010F**

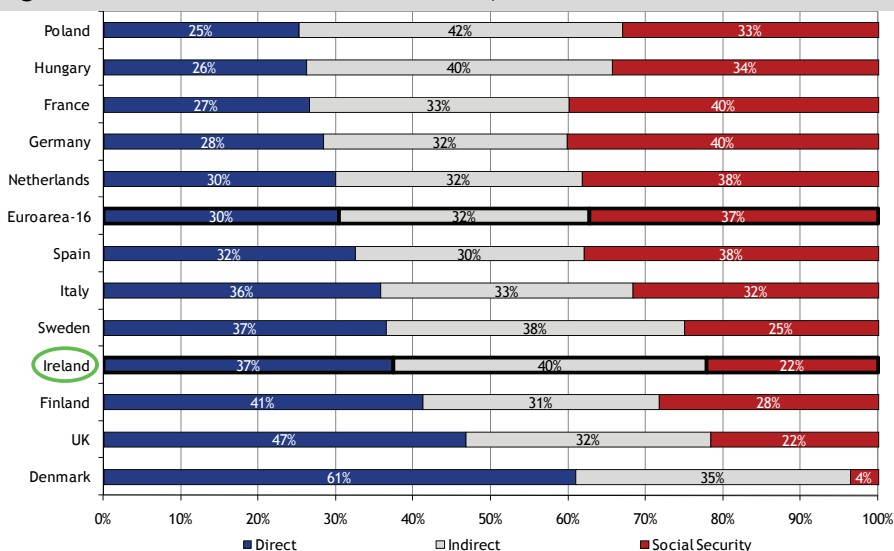


Irish Government expenditure is forecast to account for 47.1% of GDP in 2010 compared to total revenue of 35.4% of GDP. This would leave Ireland with the largest deficit in the EU (11.7% of GDP) compared to the euroarea-16 average of 6.6%. Expenditure as a percentage of GDP has increased since 2007 because of the sharp declines in GDP levels and increases in expenditure on social welfare (up 36% between 2007 and 2009) and interest payments (up 57%).

**Euroarea-16 ranking: Budget Deficit: 16<sup>th</sup>**

Source: European Commission, DG EcoFin, Spring Economic Forecasts, May 2010

**Figure 5.02 Breakdown of Tax Revenue, 2008**



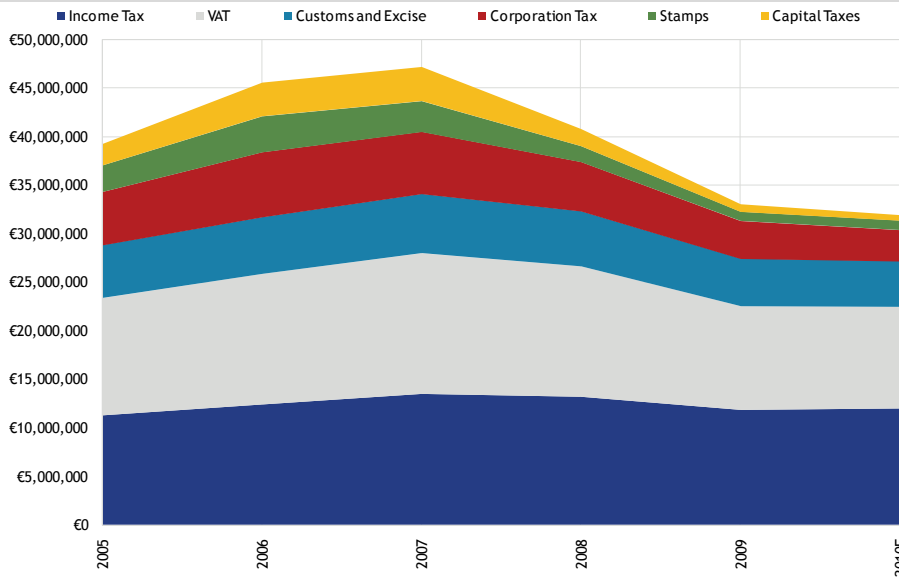
Ireland's tax structure is less dependent on social security contributions than other euro area economies. In Ireland there is a relatively even split between direct (37%) and indirect taxes (40%) as a source of revenue.

**Ranking: N/A**

Source: Eurostat, Economy and Finance Indicators



**Figure 5.03 Tax Revenue, by Category 2005-2010F**

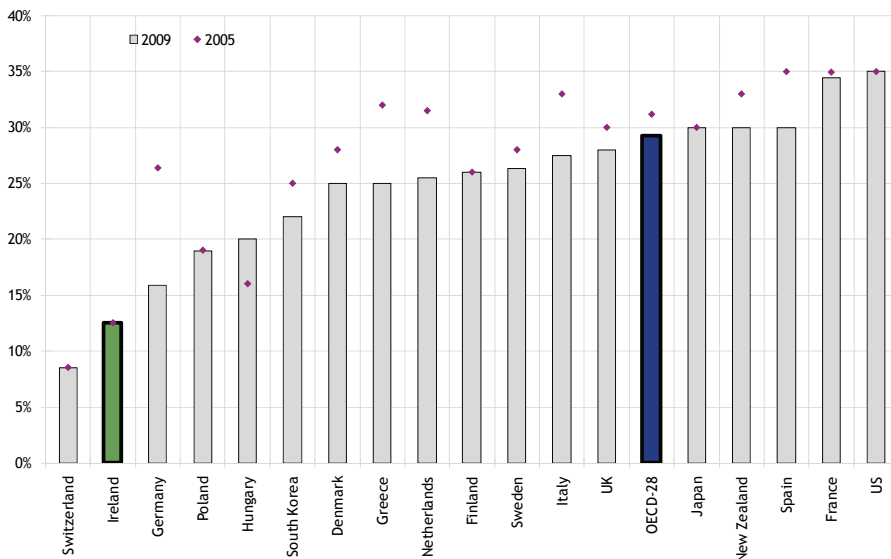


Ireland's total tax revenue was €33 billion in 2009 which is substantially lower than tax revenue in 2007 of €47.25 billion. A further decrease to €31.9 billion is forecast in 2010. While all tax heads have decreased since 2007, the sharp decline in tax revenue has been driven by particularly steep falls in stamp duties, capital taxes and VAT<sup>103</sup>.

Ranking: N/A

Source: Department of Finance, Exchequer Statements; and Estimates of Receipts and Expenditure, Budget 2010.

**Figure 5.04 Central Government Corporate Income Tax Rate, 2009**



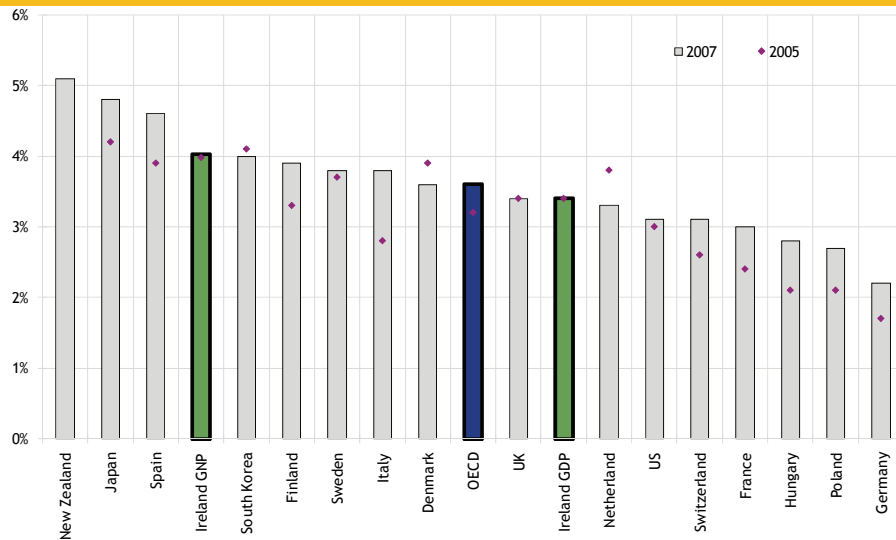
The rate of corporation tax has declined in many OECD countries since 2005 as economies seek to create an attractive investment environment. At 12.5%, Ireland has the second lowest rate in the OECD-28.

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

Source: OECD Tax Database

103 Capital taxes comprise capital gains tax and capital acquisitions tax.

**Figure 5.05 Corporation Tax Receipts (as a % of GDP), 2007**

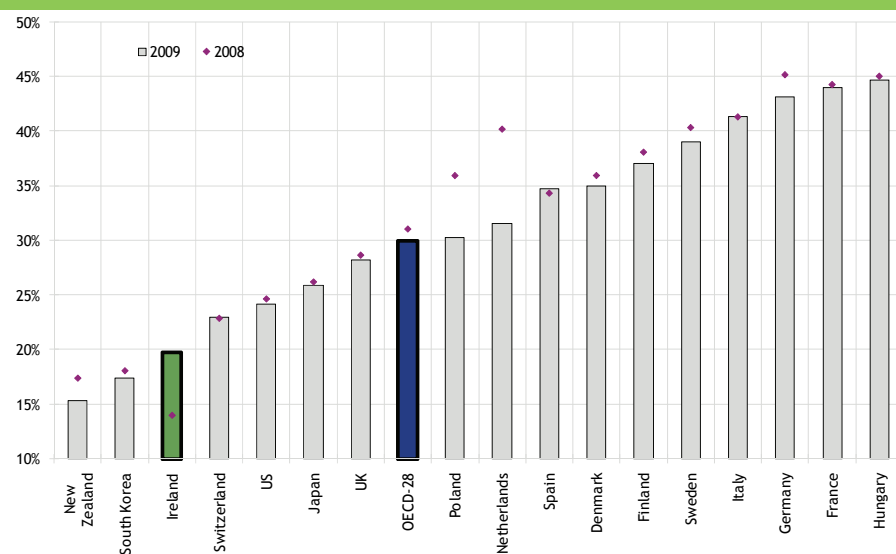


Ireland's corporation tax payment receipts, as a percentage of GDP, were similar to the OECD average in 2007. However, Irish corporation tax receipts have fallen from €6.3 billion in 2007 to €5 billion in 2008 and €3.9 billion in 2009<sup>104</sup>.

**OECD-28 ranking:**  
 GDP: 16<sup>th</sup> (↓3)  
 GNP: 8<sup>th</sup> (↓1)

Source: OECD, Revenue Statistics 1965-2008

**Figure 5.06 Total Tax Wedge on Labour (as a % of Average Earnings), 2009<sup>105</sup>**



Ireland's tax wedge on labour, i.e. the gap between what the employer pays and what the employee receives has risen significantly since 2008. For a married couple with two children on a combined income of 167% of the average wage the tax wedge is 19.8% in 2009 - an increase from 14% in 2008. While Ireland still ranks as one of the most competitive countries by this measure, the tax wedge in most OECD countries is unchanged or falling since 2008.

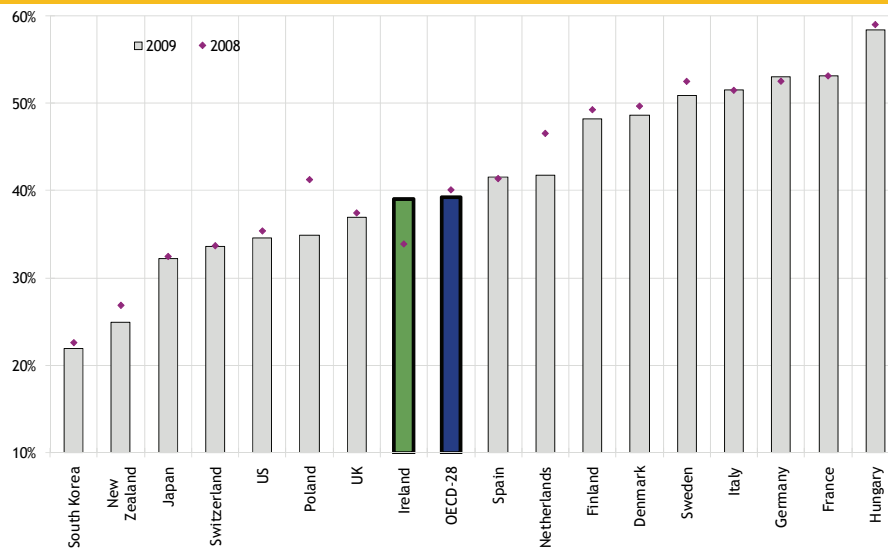
**OECD-28 ranking:**  
 3<sup>rd</sup> (↓2)

Source: OECD, Taxing Wages, 2009

104 Department of Finance, End Year Exchequer Statement, 2009.

105 Data based on a married couple with two children on a combined income of 167 per cent of the average wage.

**Figure 5.07 Total Tax Wedge on Labour (as a % of Average Earnings), 2009<sup>106</sup>**

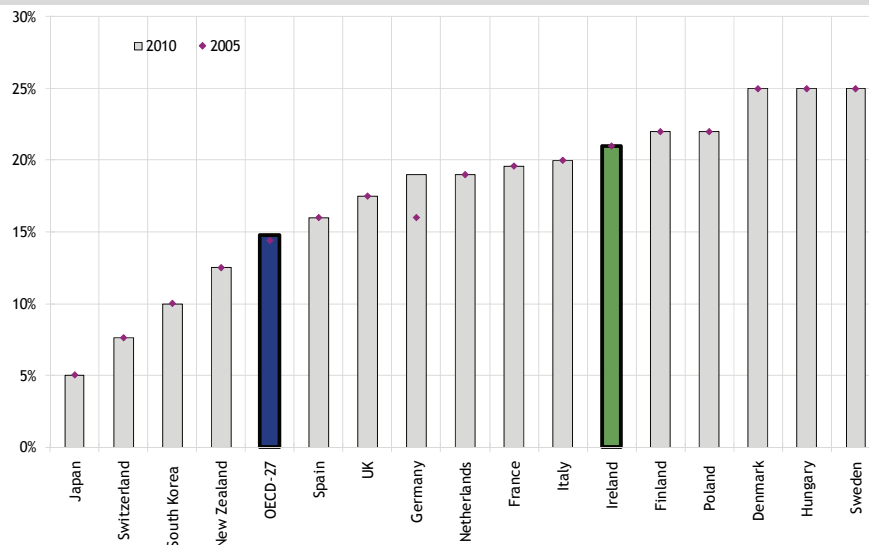


Ireland's tax wedge on labour, i.e. the gap between what the employer pays and what the employee receives has risen since 2008. For a single person with no children on 167% of the average wage, the tax wedge is 39% in 2009 (up from 34% in 2008). This is a potential disincentive for highly skilled internationally mobile workers.

**OECD-28 ranking:**  
11<sup>th</sup> (↓3)

Source: OECD, Taxing Wages, 2009

**Figure 5.08 Value Added Tax, Standard Rate, 2009<sup>107</sup>**



The main source of indirect tax revenues for all countries is a sales or value added tax on consumption. While these taxes are less likely to affect incentives to work or invest, they can be regressive. Irish VAT rates are amongst the highest in the OECD. The VAT rate was increased to 21.5% in 2009 but the rate was reduced back to 21% in Budget 2010.

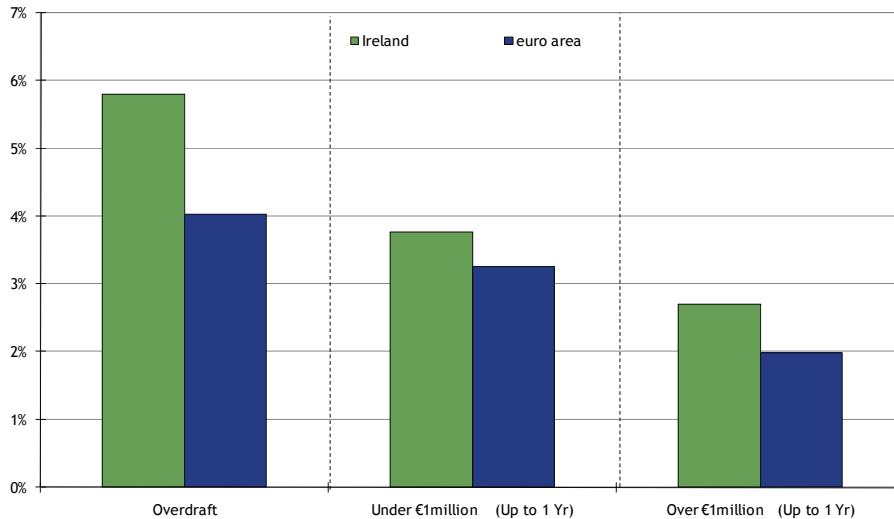
**Ranking:** N/A

Source: OECD, Tax Database, 2009

<sup>106</sup> Data based on a single person with no children on 167 per cent of the average wage.  
<sup>107</sup> OECD-28 average minus US.

## 5.1.2 Finance

**Figure 5.09 Interest Rates Available to Non-Financial Corporations by Loan Size and Duration, Q1 2010**

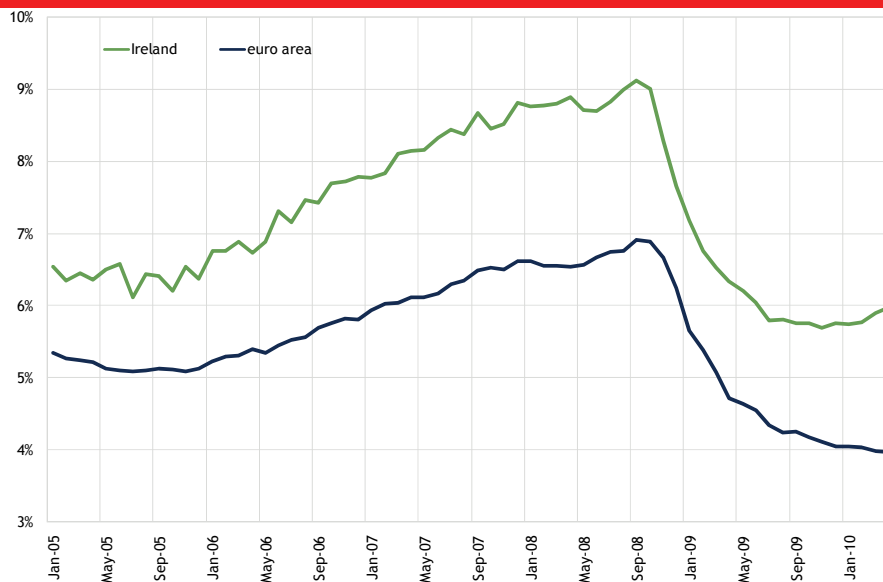


This chart shows average interest rates available to non-financial companies in Ireland and the euro area. All loan types in Ireland are more expensive than the euro area average in Q1 2010. Although interest rates in Ireland and the euro area have fallen between Q1 2009 and Q1 2010, the gap between Irish and euro area interest rates has not narrowed.

Ranking: N/A

Source: European Central Bank, Central Bank of Ireland

**Figure 5.10 Overdraft Interest Rates Available to Non-Financial Corporations, 2005 - April 2010**

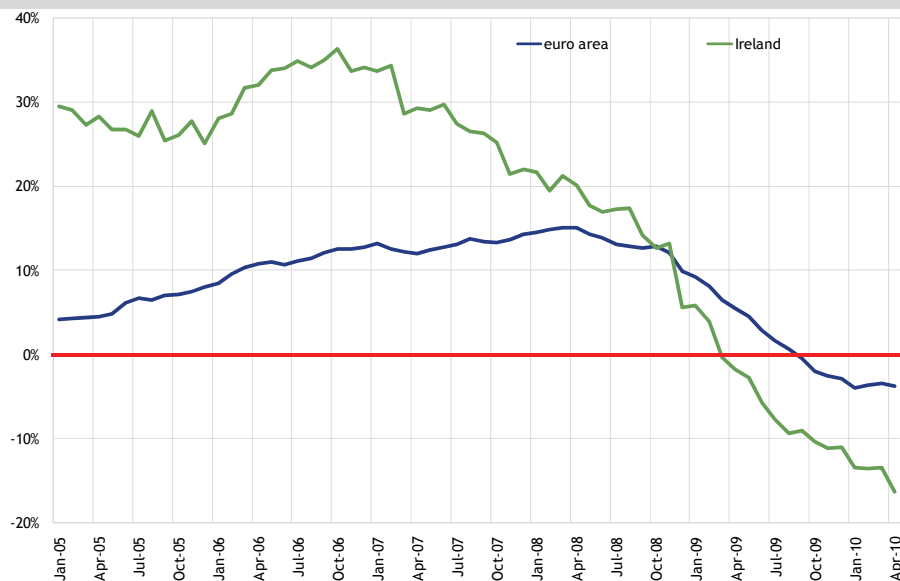


This chart shows interest rates available to non-financial companies for overdraft facilities in Ireland and the euro area. Irish businesses have faced consistently higher interest rates than the euro area average for overdraft facilities since 2005. In April 2010, Irish firms paid 5.97% on an overdraft compared to the euro area average of 3.97%. As the euro area returns to economic growth, euro area and Irish interest rates are likely to increase.

Ranking: N/A

Source: European Central Bank, MFI Interest Rate Statistics

**Figure 5.11 Annual Growth Rate in Outstanding Credit to Non-Financial Corporations, 2005 - April 2010**

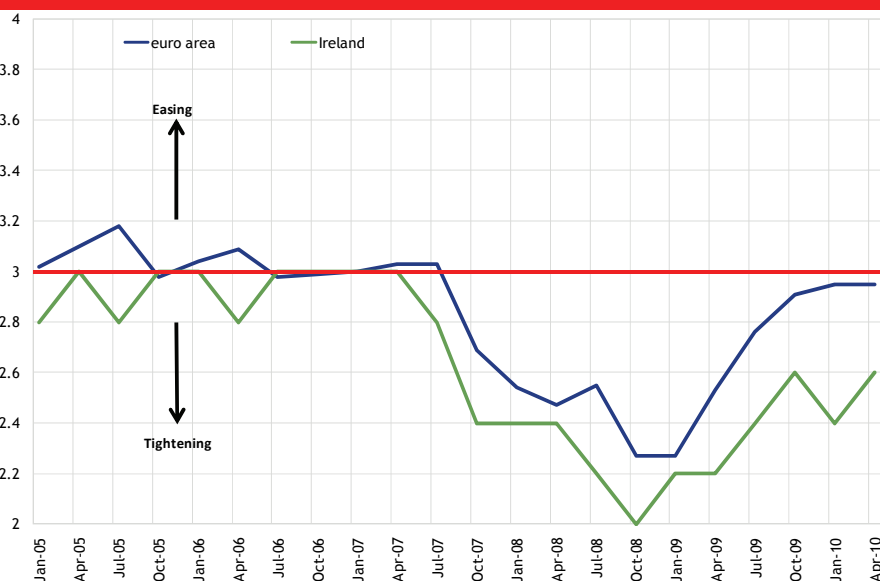


Annual growth rates in the stock of credit outstanding to non-financial corporations<sup>108</sup> in Ireland were very high throughout 2005 and 2006. Irish credit growth began to decline in early 2007 and has contracted at a faster rate than the euro area average since March 2009 on a year on year basis. The value of credit outstanding to companies declined from a peak of €193.6 billion in November 2008 to €151.3 billion in April 2010.

Ranking: N/A

Source: European Central Bank

**Figure 5.12 Change in Credit Standards for Loans to Enterprise (scale 1-5)<sup>109</sup>, 2005 - April 2010**



As reported by bank loan officers<sup>110</sup>, Irish banks have tightened credit standards more aggressively than euro area banks since 2007. By this measure, credit standards in Ireland are tighter than for euro area banks. An increase in banks' cost of funds, balance sheet constraints and increased risk perceptions were the main factors cited by Irish banks for the tightening of credit standards.

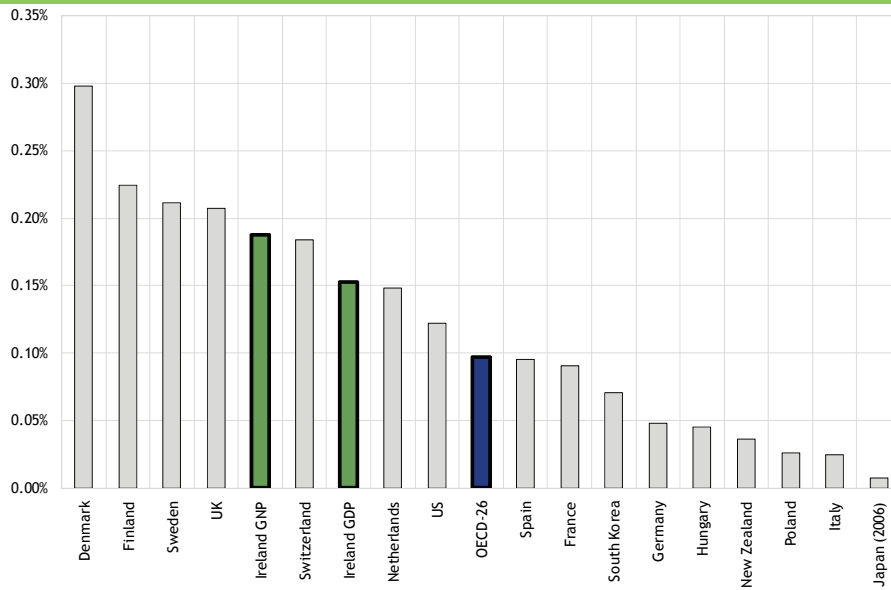
Source: Central Bank of Ireland, European Central Bank, Euro area Bank Lending Survey

<sup>108</sup> This data includes outstanding loans made by credit unions and money market funds to businesses.

<sup>109</sup> A response less than three reflects a tightening of credit standards, a response equal to three indicates unchanged credit standards, and a response greater than three corresponds to an easing of credit standards.

<sup>110</sup> 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 (LTV) 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 5.13 Venture Capital Investment (as % of GDP) , 2008**

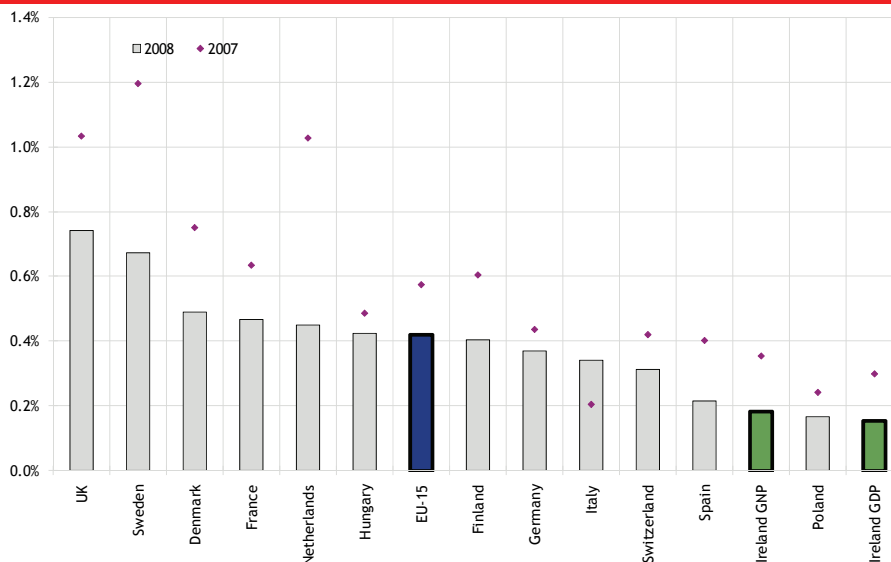


Venture capital (VC) is a source of seed, start-up and expansion capital for new and growing firms. Ireland has a relatively high intensity of VC investment (0.152% of GDP). This amounted to \$285 million in 2008. In absolute terms the US is by far the largest VC market with \$17.3 billion invested in venture capital in 2008 followed by the UK with \$4.6 billion. VC is very sensitive to economic downturns. For example, in the US, VC investment declined by 60% in Q1 2009 compared to Q1 2008.

OECD-26 ranking<sup>111</sup>:  
7<sup>th</sup>

Source: OECD, Science, Technology and Industry Scorecard, 2009

**Figure 5.14 Private Equity Investment (as % of GDP), 2008**



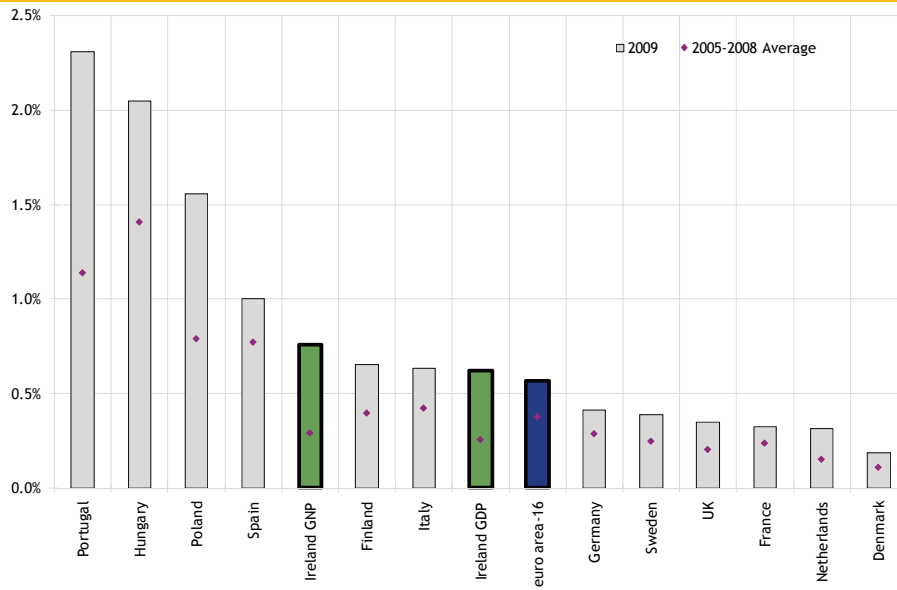
Private equity comprises all stages of financing: seed, start-up, expansion, replacement capital and buyouts. Private equity declined sharply across the EU in 2008. Ireland is lagging the EU-14 average in terms of private equity investment as a percentage of GDP (0.155%).

EU-14 ranking:  
GDP: 12<sup>th</sup> (↓1)  
GNP: 12<sup>th</sup> (↓1)

Source: European Private Equity and Venture Capital Association

111 OECD-28 minus Iceland and Slovak Republic.

**Figure 5.15 Value of European Investment Bank Funding (as % of GDP), 2009**



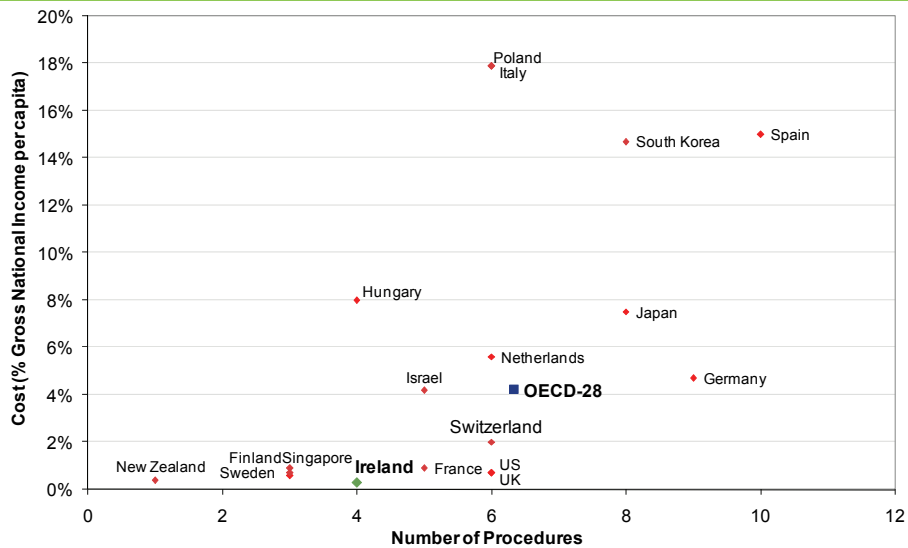
The value of contracts signed by the EIB in Ireland increased significantly in 2009 to €1 billion or 0.62% of GDP. Over the period 2005-2008 Ireland received a relatively low level of EIB funding but now receives more than the euro area average. There has been a significant increase in EIB funding in most countries since the crisis in international financial markets began in late 2007.

**euro area-16 ranking:**  
 GDP: 10<sup>th</sup> (↑3)  
 GNP: 6<sup>th</sup> (↑6)

Source: European Investment Bank

### 5.1.3 Regulation and Competition

**Figure 5.16 Cost of Starting a Business and Number of Procedures Involved, 2010**

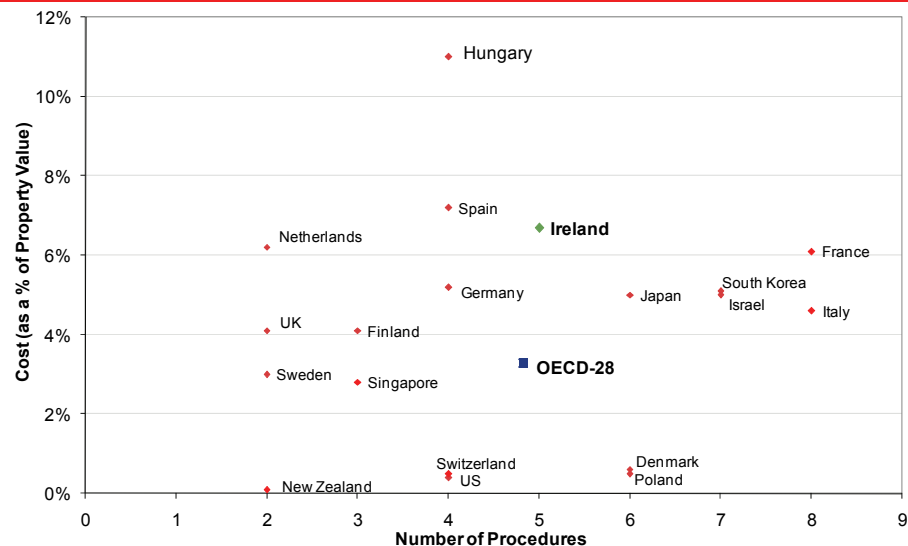


This chart shows both the financial costs of meeting the regulations to establish a business and the number of procedures involved. Ireland ranks favourably on both measures, particularly in terms of the costs of establishing a new business.

OECD-28 ranking<sup>112</sup>:  
Cost: 2<sup>nd</sup> (↑14)  
Procedures: 7<sup>th</sup> (↓1)

Source: World Bank, *Doing Business*, 2010

**Figure 5.17 Cost of Registering a Property and Number of Procedures Involved, 2010<sup>113</sup>**



This chart shows both the financial costs of registering a property and the number of procedures involved. Property costs, recorded as a percentage of the property value, comprise official costs required by law, including fees, transfer taxes, stamp duties and any other payments<sup>114</sup>. Ireland ranks poorly on the cost measure, but has a similar number of procedures as the OECD average.

OECD-28 ranking<sup>115</sup>:  
Cost: 24<sup>th</sup> (↑1)  
Procedures: 16<sup>th</sup> (↓1)

Source: World Bank, *Doing Business*, 2010

112 Base year for ranking change is 2005 compared to 2010.

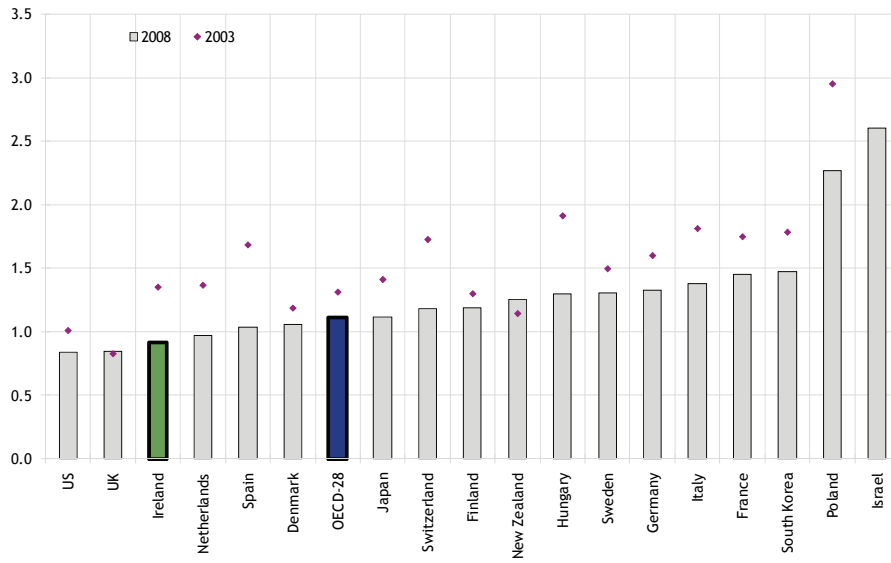
113 Traffic light colour determined based on Ireland's cost performance of starting a new business.

114 Other payments are payments to the property registry, notaries, public agencies or 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.

115 Base year for ranking change is 2005 compared to 2010.



**Figure 5.18 Product Market Regulation (Scale 0-6), 2008**

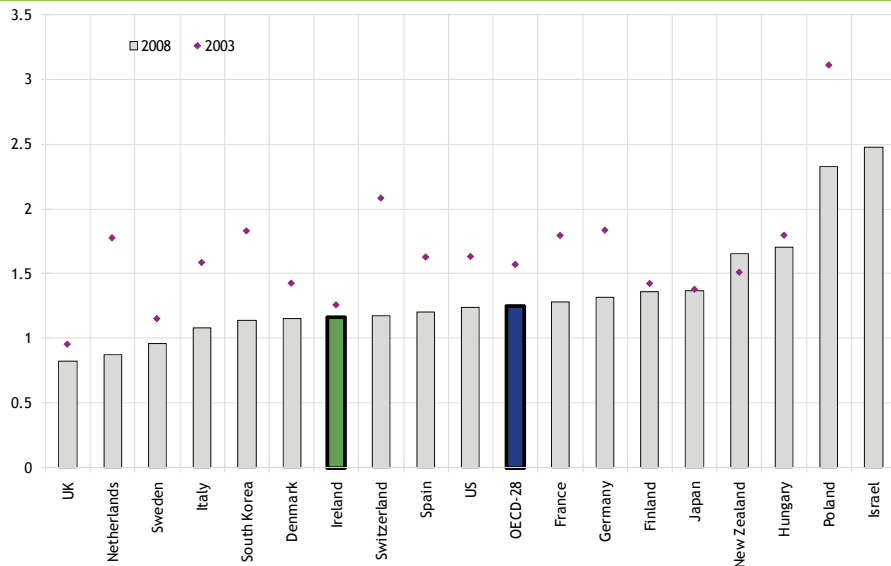


This indicator measures the degree to which policies promote or inhibit competition in product markets - for example state control of enterprises, barriers to international trade and investment and barriers to entrepreneurship. Ireland's regulatory environment is one of the least restrictive in the OECD by this measure. Regulatory barriers to product market competition declined throughout the OECD between 2003 and 2008.

**OECD-28 ranking<sup>116</sup>:**  
3<sup>rd</sup> (↑6)

Source: OECD, Product Market Indicators

**Figure 5.19 Barriers to Entrepreneurship (Scale 0-6), 2008**



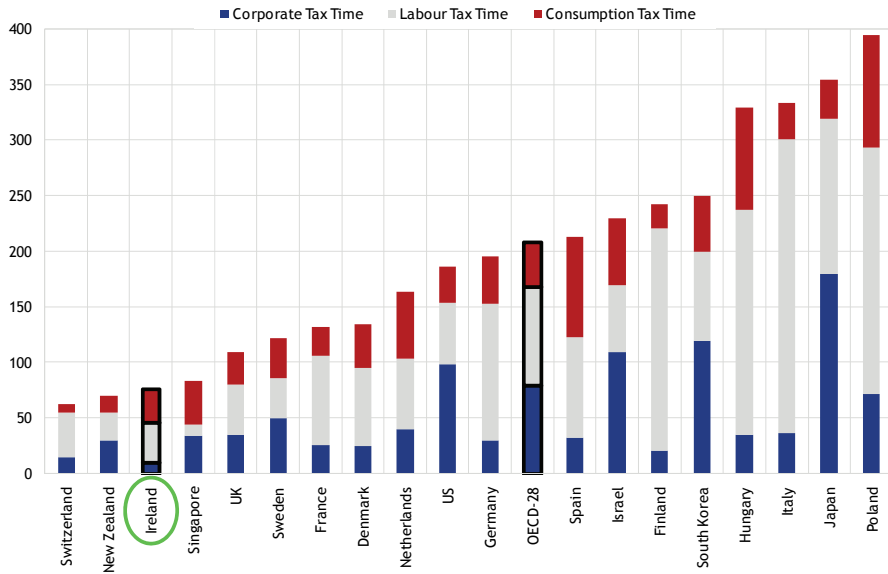
This indicator measures regulatory and administrative opacity, administrative requirements for start-ups and barriers to competition. While Ireland performs relatively well, we have only improved marginally since 2003. Ireland's performance is weak in terms of regulatory and administrative opacity and the licensing and permits system. The process for simplifying of rules and procedures is also a barrier to entrepreneurship.

**OECD-28 ranking<sup>117</sup>:**  
9<sup>th</sup> (↓5)

Source: OECD, Product Market Indicators

116 Base year for ranking is 2003 relative to 2008.  
117 Base year for ranking is 2003 relative to 2008.

**Figure 5.20 Time to Comply with Tax Payments (hours per year), 2009**

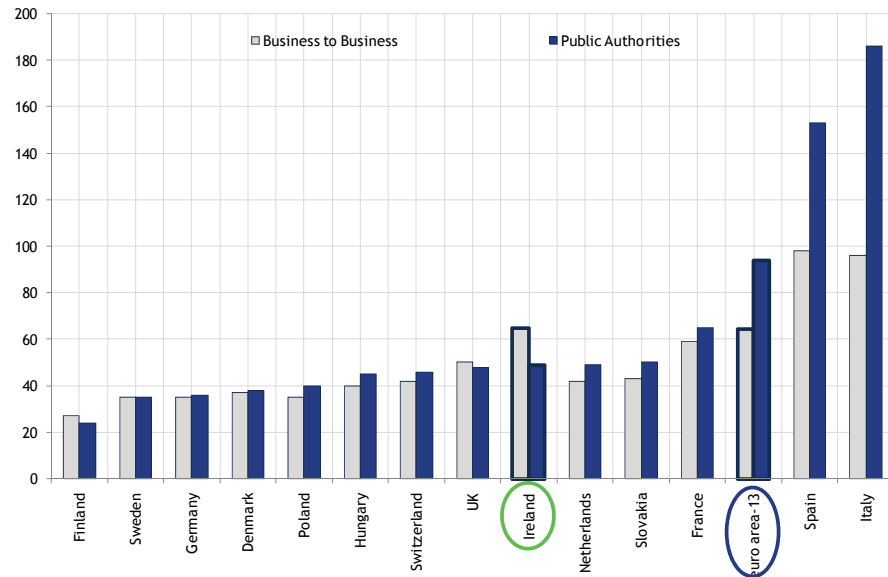


This indicator measures the number of hours per year required (for a case study company) to prepare, file and pay corporate taxes, labour taxes and consumption taxes. Ireland's performance is strong across all three categories as the time taken to comply with tax payments is one of the lowest in the OECD across all categories.

**OECD-28 ranking:**  
 Overall: 4<sup>th</sup>  
 Corporate tax: 1<sup>st</sup>  
 Labour tax: 5<sup>th</sup>  
 Consumption tax: 6<sup>th</sup>

Source: World Bank/Price Waterhouse Coopers, *Paying Taxes, 2010*

**Figure 5.21 Average Payment Duration for Settling an Invoice (days), 2010**

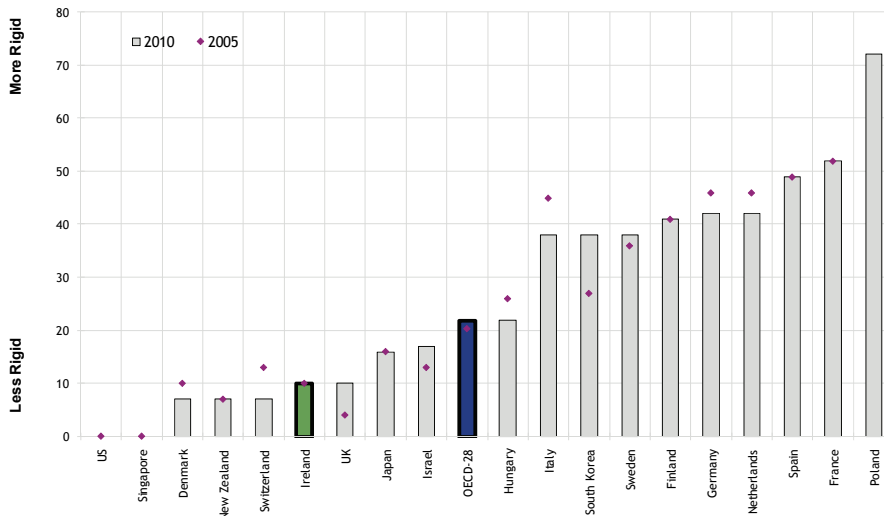


In Ireland, the average time taken to settle an invoice is 49 days for public authorities and 65 days for businesses. The euro area-13 average is 94 days for public authorities and 67 for businesses. The performance of Ireland's public authorities has improved in recent years but remains behind leading countries such as Finland (24 days), Sweden and Germany (35 days).

**euro area-13:**  
 Public Authorities: 4<sup>th</sup>  
 Business to Business: 8<sup>th</sup>

Source: European Payment Index 2010, Intrum Justitia

**Figure 5.22 Labour Market Regulation (Scale 0-100), 2010**



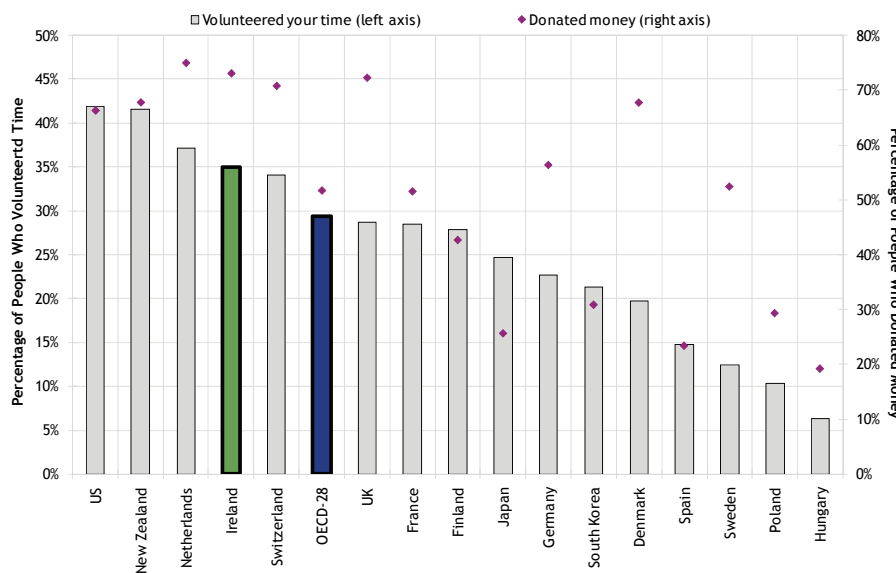
This index measures the flexibility of employment regulation. Higher values indicate more rigid employment regulation. Ireland's employment framework is less rigid than the OECD average and significantly less rigid than countries such as Spain, France and Poland.

**Ranking:** N/A

Source: World Bank, *Doing Business*, 2010

### 5.1.4 Social Capital

**Fig. 5.23 Percentage of People Who Volunteered Time and Donated Money to an Organisation, 2008**



The number of people who donate time and money to organisations is one measure of societal cohesiveness. Ireland ranks well in terms of the proportion of people who reported that they volunteered time (left axis) or donated money (right axis) to an organisation in the month preceding the survey. In Ireland 35% volunteered time and 73% donated money which compares favourably with the OECD average.

**OECD-28 Ranking:**  
 Volunteered time: 7<sup>th</sup>  
 Donated money: 2<sup>nd</sup>

Source: OECD Factbook, 2009, *Quality of Life Indicators*

## 5.2 Physical and Economic Infrastructure

The level of infrastructure in a country affects competitiveness in a number of ways. Well developed infrastructure can increase mobility of workers and goods, reduce congestion and increase productivity. This not only affects existing firms, but also affects a country's attractiveness as an investment location and general quality of life. In this section, indicators that illustrate Ireland's relative performance are grouped under three headings:

- Investment in Physical Infrastructure
- Transport, Energy and Environmental Infrastructure
- Information and Communications Technology Infrastructure

Chart 5.B provides an overview of Ireland's recent performance in terms of key infrastructure indicators.

### 5.2.1 Investment in Physical Infrastructure

Ireland has made significant investment in physical infrastructure in recent years under successive national development plans. In 2009 direct capital expenditure by Government amounted to €7.22 billion. This is set to fall to €6.45 billion in 2010 and €5.5 billion per annum for the years 2011-2013 which represents a significant reduction on the funding allocations set out in the National Development Plan 2007-2013<sup>118</sup>. The distribution of the reduction in capital expenditure is not yet clear.

The value of fixed assets in Ireland has risen from €321 billion in 2000 to €504 billion at the end of 2008 in constant prices (Fig. 5.24). The average growth rate for all fixed assets was 5.8 per cent per annum over the period 2000-2008. Transport equipment and roads have displayed the strongest growth rates, reflecting the significant investment in developing the road network between Dublin and the other main cities. Investment in machinery and equipment and intangible fixed assets such as software has been relatively weak over the period (Fig. 5.25). While Ireland does not have a formal stimulus plan, capital investment by the State in 2009 amounted to 5.8 per cent of GNP (4.7 per cent of GDP) compared to the OECD-25 average of 2.9 per cent (Fig. 5.26). In absolute terms, investment by the Irish State amounted to €7.22 billion in 2009 compared to €9 billion in 2008 and €5.7 billion in 2005. Despite major investment in physical infrastructure in recent years, perceptions of the overall quality of infrastructure in Ireland remain significantly below the OECD average (Fig. 5.27).

While public investment in physical infrastructure remains relatively strong, there has been a major collapse in private investment in gross fixed capital formation. As noted above (Fig. 4.01), the private sector in Ireland has experienced a dramatic decline in investment from an average of 24.6 per cent of GNP over the 2005-2008 period to 13.4 per cent in 2009. This compares poorly with the OECD-25 average of 15 per cent and is having a negative impact on economic activity and employment. Following a fall in the value of construction and building investment of 42 per cent in

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<sup>118</sup> Department of Finance, December 2009, Stability Programme Update.

2009, the ESRI forecasts a further decrease of 36 per cent in 2010. Investment in machinery and equipment fell by 15 per cent in 2009 and is forecast to fall by a further 9.5 per cent in 2010<sup>119</sup>.

### 5.2.2 Transport, Energy and Environmental Infrastructure

Access to markets is critical to support the competitiveness of Irish exporters. In spite of the significant improvements in transport infrastructure, particularly the development of the inter-urban road network and the modernisation of the rail fleet, the perception of the quality of Ireland's distribution infrastructure (road, rail, air and sea) is poor. The perceived quality of Ireland's air and water transport infrastructure has improved in recent years but remains behind the OECD average. Perceptions of the quality of energy infrastructure are relatively poor in many countries, including Ireland (Fig. 5.28). Dublin ranks poorly compared to other European cities in terms of the length of the public transport network, the extent of cycle lanes and the proportion of people taking public transport to work (Fig. 5.29).

Ensuring a secure, environmentally sustainable and economically competitive energy supply is a major global challenge. Ireland's overall energy import dependency was 89 per cent in 2008 which compares unfavourably with the EU-15 average of 56 per cent (Fig. 5.30). Ireland also maintains very limited storage capacity - for example natural gas storage capacity is four per cent of annual consumption which is very low compared to the euroarea-10 average of 18.3 per cent (Fig. 5.31). Renewable energy offers some potential to reduce our dependency on imported fuel sources. While Ireland has limited hydro resources, significant progress is being made in growing non-hydro renewable energy sources. In 2008, Ireland produced 12.3 per cent of its electricity from renewable sources (wind 8.9 per cent; hydro 3.4 per cent) (Fig. 5.32). At the end of 2009, 14.4 per cent of Ireland's electricity was produced from renewable sources (wind 10.5 per cent; hydro 3.2 per cent)<sup>120</sup>.

In the context of climate change, water management is becoming increasingly important. Ireland (Dublin) compares relatively poorly to other European cities on a composite index which includes total annual water consumption (cubic meters per capita), the percentage of water lost in the distribution system and policy measures to improve the efficiency of water use (Fig. 5.33). Dublin has the highest water consumption per capita in the euro area-13. Many other countries charge their residents for the delivery of treated water which provides an incentive to consume water more efficiently (Fig. 5.34). It is noted that the roll-out of charges for domestic users in Ireland is proposed to commence in 2011.


### 5.2.3 Information and Communication Technology Infrastructure

Better use of technology can play a key role in enhancing productivity across the economy. Ireland's investment in ICT was five per cent of GDP in 2008 which is equal to the euro area average but behind leading countries such as the US, UK and Japan (Fig. 5.35).

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119 ESRI, Quarterly Economic Commentary, July 2010.

120 Sustainable Energy Authority of Ireland, Renewable Energy in Ireland, May 2010.



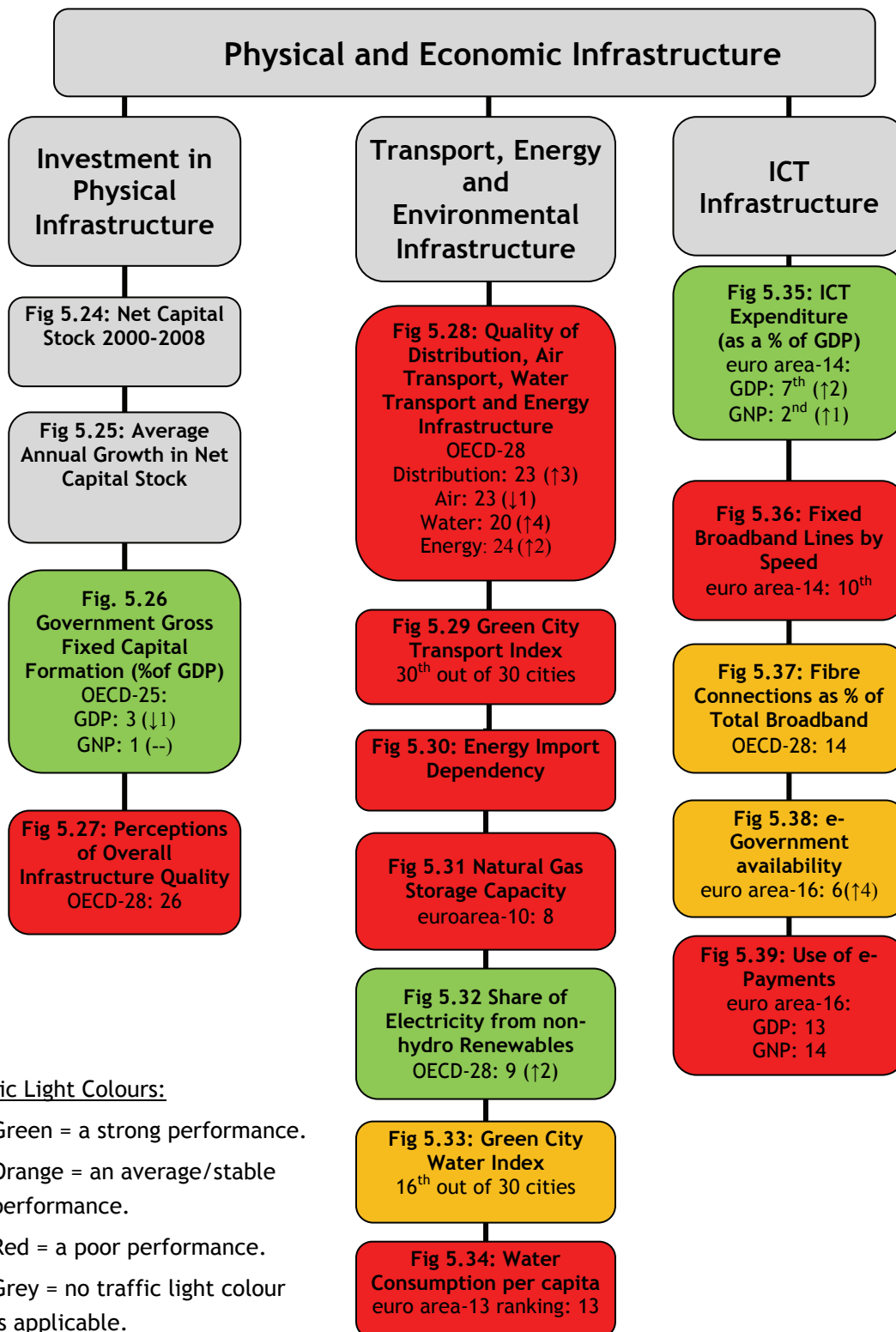
While significant progress has been made in terms of broadband take-up and basic broadband coverage through the National Broadband Scheme, Ireland's broadband infrastructure continues to lag that of most other countries. The availability of world class advanced broadband networks and services is essential to support the effective use of technology. Across most EU countries (including Ireland), the majority of broadband connections offer speeds between 2-10 Megabits/second. However, a higher proportion of fixed connections are below 2 Megabits/second in Ireland (31 per cent)<sup>121</sup>. The proportion of broadband connections above 10 Megabits/second in Ireland increased from five per cent in July 2009 to nine per cent in January 2010, but this is still significantly lower than the leading EU countries such as Portugal (61 per cent), Belgium (41 per cent) and Denmark (35 per cent) (Fig. 5.36). In Ireland, only 0.6 per cent of connections are over fibre compared to 11.3 per cent of connections in the OECD-28 (Fig. 5.37). Ireland's performance in terms of the availability of basic public services online has improved since 2006 (Fig. 5.38).

Ireland is one of the most reliant countries in the EU on cash and cheques for payments which is inefficient in terms of transactions costs (Fig. 5.39). It also suggests that Ireland is not fully exploiting the significant potential of electronic systems to increase productivity.

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<sup>121</sup> If mobile broadband connections are included, the percentage of connections above 2 Megabits/second increases from 69 per cent to 79 per cent. ComReg, Quarterly Market Report, June 2010.

Chart 5B

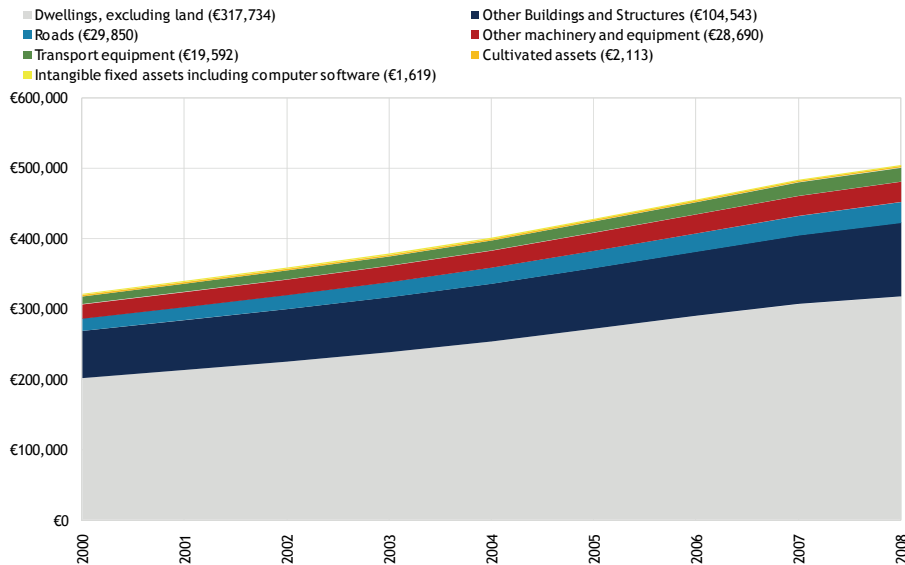


Traffic Light Colours:

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.
- Grey = no traffic light colour is applicable.

## 5.2.1 Investment in Physical Infrastructure

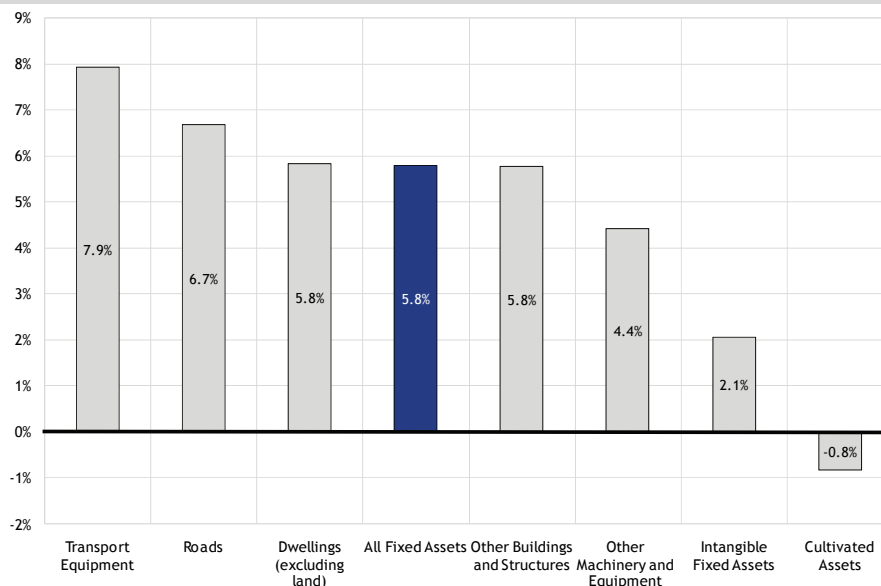
**Fig. 5.24 Net Capital Stock at Year End, 2000-2008 (millions of Euro in constant 2007 prices)<sup>122</sup>**



The value of Ireland's fixed assets has risen from €321 billion in 2000 to €504 billion at the end of 2008. Dwellings account for €317.7 billion, other buildings and structures for €104.5 billion, roads for €29.9 billion, transport equipment for €19.5 billion, other machinery and equipment for €28.7 billion, intangible assets including software for €1.6 billion and cultivated assets such as livestock for €2.1 billion.

Source: Central Statistics Office, *Estimates of the Capital Stock of Fixed Assets*

**Fig. 5.25 Average Annual Growth Rate in Net Capital Stock at Year End, 2000-2008**



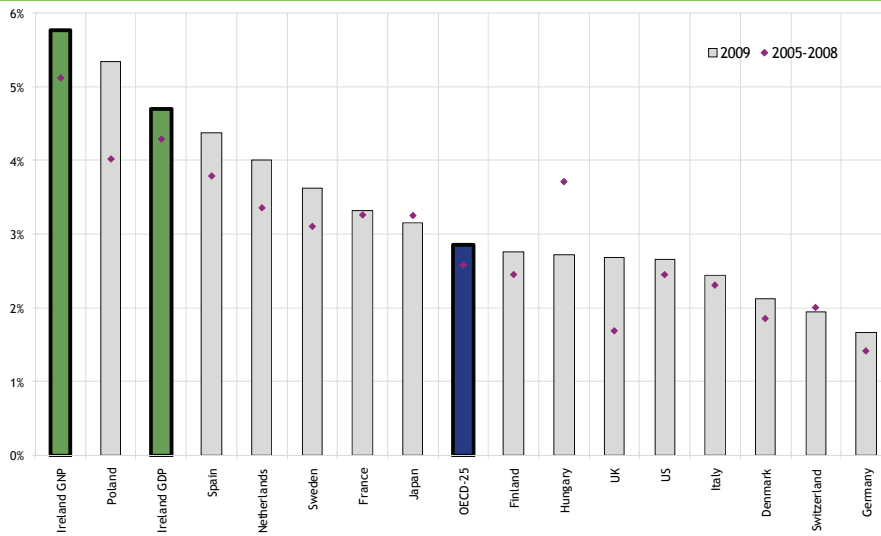
This figure shows the average annual growth rate in the value of Ireland's fixed assets over the period 2000-2008. The average growth rate for all fixed assets was 5.8% between 2000 and 2008. Transport equipment and roads have displayed the strongest growth rates. Investment in machinery and equipment and intangible fixed assets such as software has been relatively weaker over the period.

Source: Central Statistics Office, *Estimates of the Capital Stock of Fixed Assets*

<sup>122</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 to e.g. 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.



**Fig. 5.26 General Government Gross Fixed Capital Formation (as a % of GDP), 2009**

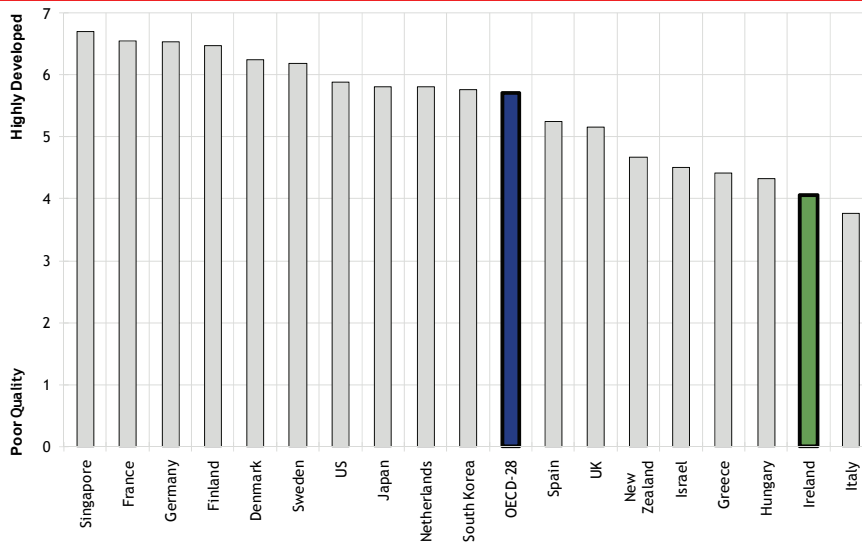


Ireland ranks above the OECD-25 average in terms of both GDP and GNP on this indicator<sup>123</sup>. Capital investment by the State in 2009 amounts to 5.8% percent of GNP and 4.7% of GDP compared to the OECD-25 average of 2.9%. In cash terms, investment by the Irish government amounted to €7.2 billion in 2009 compared to €8.2 billion in 2008. This is set to fall to €6.45 billion in 2010 and €5.5 billion for the years 2011-2013<sup>124</sup>.

**OECD-25 Ranking:**  
 GDP: 3<sup>rd</sup> (↓1)  
 GNP: 1<sup>st</sup> (--)

Source: European Commission, AMECO Database, May 2010

**Figure 5.27 Perceptions of Overall Infrastructure Quality, (Scale 1-7) 2009**



Measuring the quality of infrastructure across countries is difficult. 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 in the past decade.

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

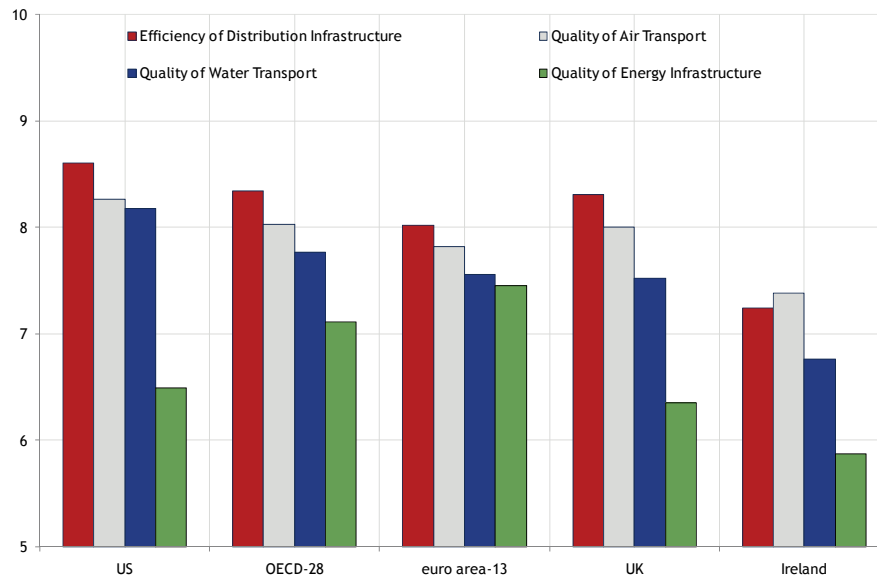
Source: WEF Global Competitiveness Report 2008/09

123 OECD-28 minus Australia, New Zealand and South Korea.

124 Department of Finance, Stability Programme Update, December 2009.

## 5.2.2 Transport, Energy and Environmental Infrastructure

**Figure 5.28 Perceptions of the Quality of Distribution, Air Transport, Water Transport and Energy Infrastructure (Scale 0-10), 2010**

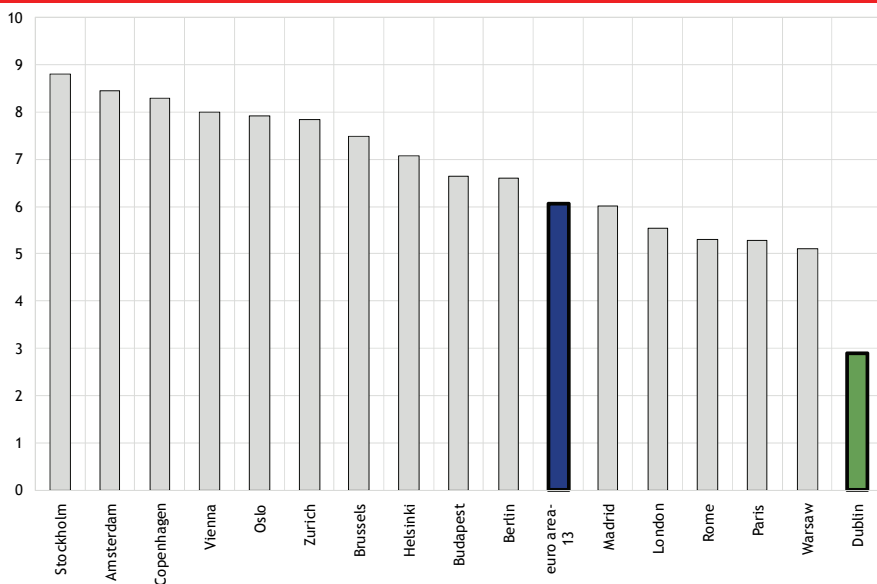


Ireland's distribution infrastructure - including road, rail, air and sea transport - ranks poorly. Ireland's score in air and water transport infrastructure has improved in recent years but remains behind the OECD average. Perceptions of the quality of Ireland's energy infrastructure also rank poorly.

**OECD-28 Ranking:**  
 Distribution: 23<sup>rd</sup> (↑3)  
 Air: 23<sup>rd</sup> (↓1)  
 Water: 20<sup>th</sup> (↑4)  
 Energy: 24<sup>th</sup> (↑2)

Source: IMD World Competitiveness Yearbook, May 2010

**Fig. 5.29 Green City Index, Transport Score (Scale 0-10), 2009**

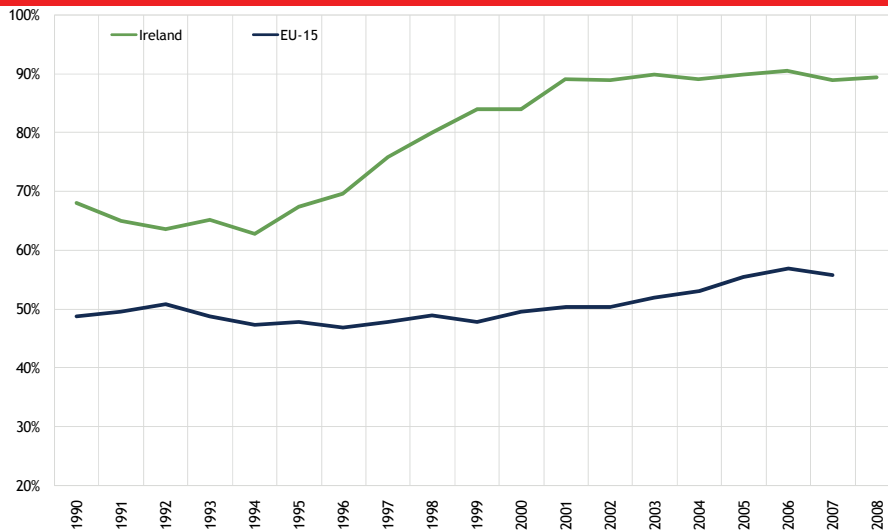


This index measures the performance of European cities in terms of the use of non-car transport, length of cycle lanes and public transport network per square meter and policies to reduce congestion. Dublin is ranked last, reflecting the dispersed nature of the city and a lack of alternatives to car transport in some areas. 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.

**Group ranking:**  
 30<sup>th</sup> out of 30 cities

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

**Figure 5.30 Energy Import Dependency of Ireland and the EU-15, 1990-2008<sup>125</sup>**

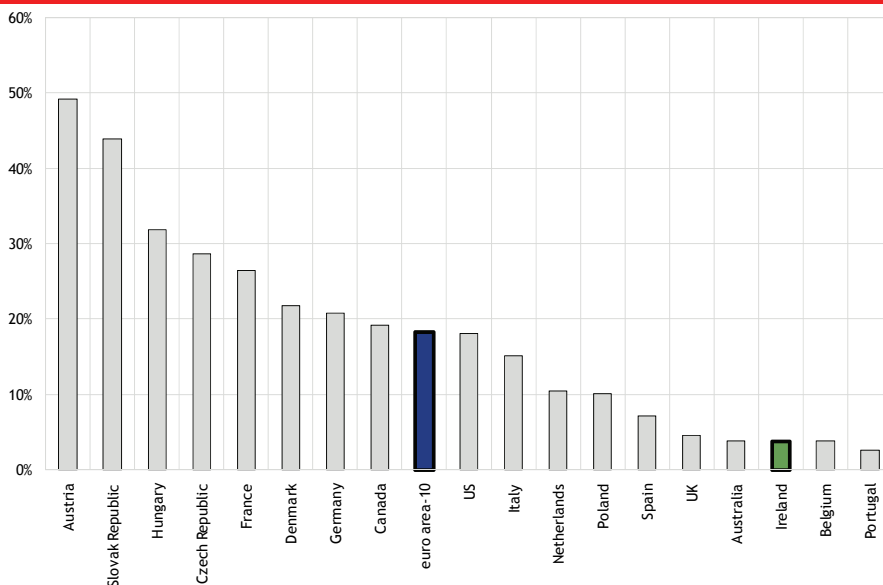


Since the mid 1990s import dependency has grown significantly in Ireland due to an increase in energy use, a decline in indigenous natural gas production and a decrease in peat production. Ireland's overall import dependency was 89% in 2008 which compares unfavourably with the EU-15 average of 56%.

Ranking: N/A

Source: Sustainable Energy Ireland, *Energy in Ireland 1990-2008*; Eurostat, *Environment and Energy Indicators*

**Figure 5.31 Natural Gas Storage Capacity as a Percentage of Annual Consumption, 2008**



Ireland's storage capacity is low at 4% of consumption<sup>126</sup>. Given Ireland's location on the edge of the European gas network and dependence on gas for 65% of electricity generation, security of supply is a concern. Increased storage capacity in the UK, development of the Corrib field, a potential new storage facility at Larne and a Liquefied Natural Gas terminal may alleviate this shortage of storage capacity.

euro area-10 ranking<sup>127</sup>: 8<sup>th</sup>

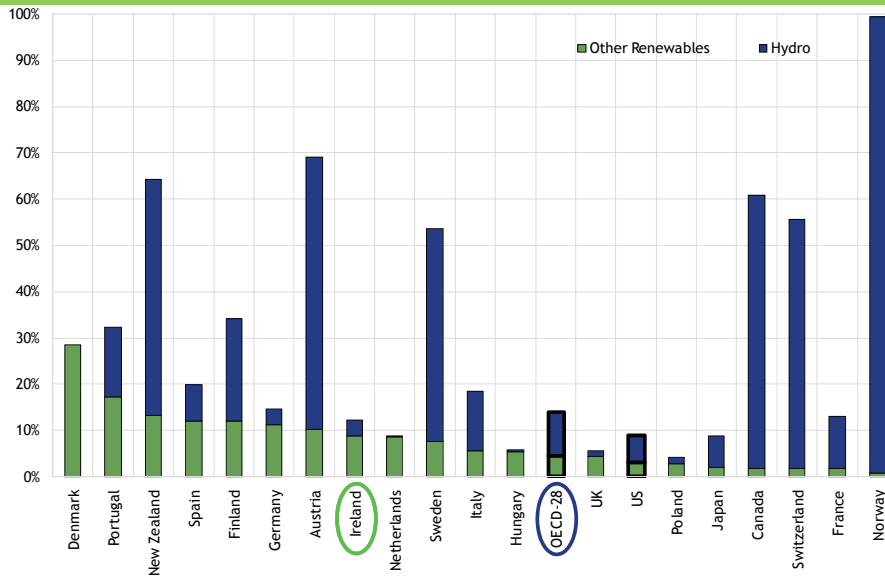
Source: International Energy Agency, *Natural Gas Information 2009*

<sup>125</sup> Import Dependency is calculated as follows: (Imports - Exports - Non Energy Consumption) / (Primary Energy Supply - Non Energy Consumption + Marine Bunkers).

<sup>126</sup> Calculated as working storage capacity/natural gas consumption (in million standard cubic metres).

<sup>127</sup> euro area-16 minus Cyprus, Malta, Luxembourg, Greece, Slovenia and Finland.

**Fig. 5.32 Share of Electricity Production from Renewable Sources, 2008**

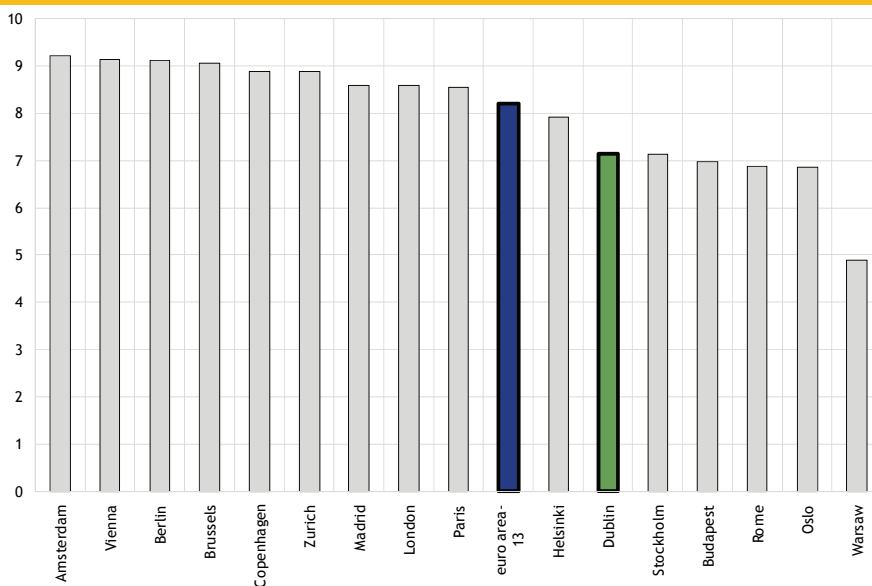


Ireland produced 12.3% of its electricity from renewable sources in 2008 (wind 8.9%; hydro 3.4%). Ireland has made strong progress in recent years in developing non-hydro renewable energy sources. As of the end of 2009, 14.4% of Ireland's electricity was produced from renewable sources. While Ireland has limited hydro resources, it does have potential to develop wind, wave and tidal resources as the technologies mature and costs fall.

**OECD-28 ranking:**  
Non-hydro renewables: 9<sup>th</sup> (↑2)

Source: International Energy Agency, Renewables Information 2009.

**Fig. 5.33 Green City Index, Water Score (0-10), 2009**



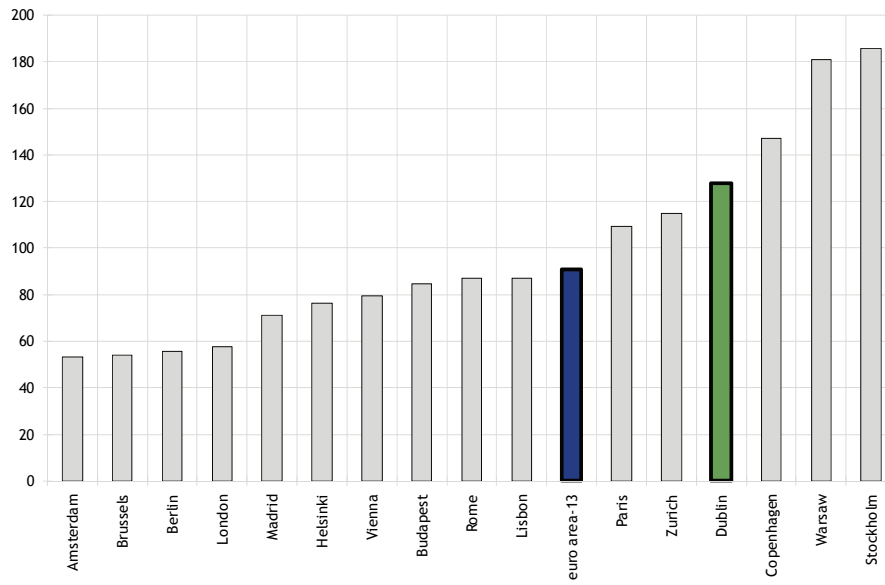
This index measures the aggregate performance of European cities across a range of factors including total annual water consumption per capita, percentage of water lost in the distribution system, percentage of dwellings connected to the sewerage system and policy measures to improve the efficiency of water use. Of the 30 European cities benchmarked, Dublin ranks 16th on this composite indicator.

**Group ranking:**  
16<sup>th</sup> out of 30 cities

**euro area-13 ranking:**  
10<sup>th</sup>

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

**Fig. 5.34 Annual Water Consumption (cubic metres per capita), 2009**



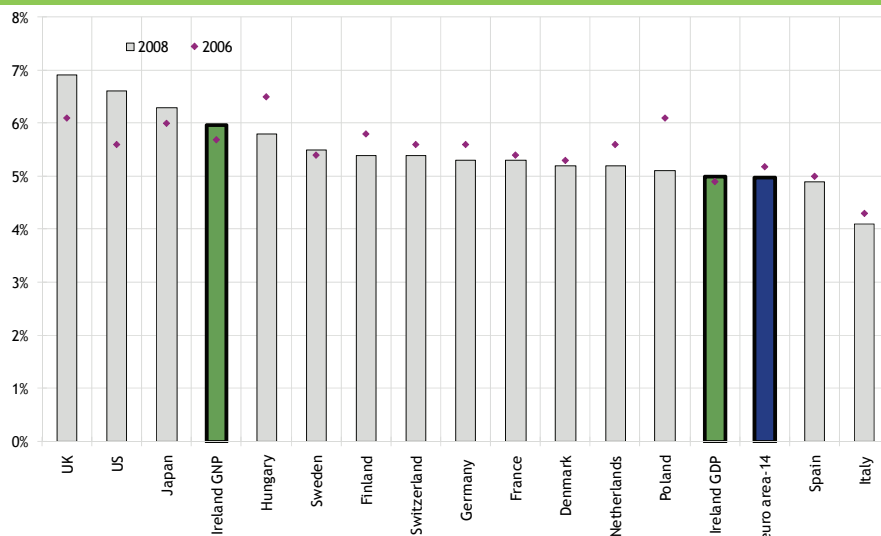
Dublin's residents each consume 128 cubic metres of water per capita annually, substantially above the euro area average of 91 cubic metres. Dublin has the highest consumption in the euro area-13. Many other countries charge their residents for the delivery of treated water which provides incentives to consume scarce water more efficiently.

**euro area-13 ranking: 13<sup>th</sup>**

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

## 5.2.3 Information and Communication Technology Infrastructure

Figure 5.35 ICT Expenditure (as a % of GDP), 2008

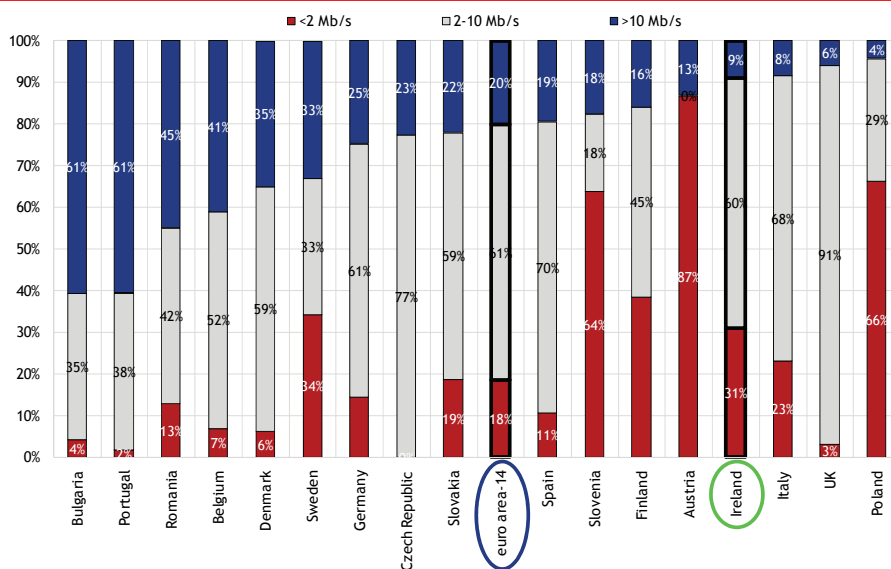


Information and communication technology (ICT) is essential to modern enterprise. Ireland's investment in ICT was 5% of GDP in 2008 which is equal to the euro area average but behind leading countries such as the US, UK and Japan. In 2008 this expenditure was split almost evenly between IT (2.4% of GDP) and communications equipment (2.6% of GDP).

euro area-14 ranking<sup>128</sup>:  
 GDP: 7<sup>th</sup> (↑2)  
 GNP: 2<sup>nd</sup> (↑1)

Source: Eurostat, Structural Indicators

Figure 5.36 Fixed Broadband Lines by Speed, January 2010



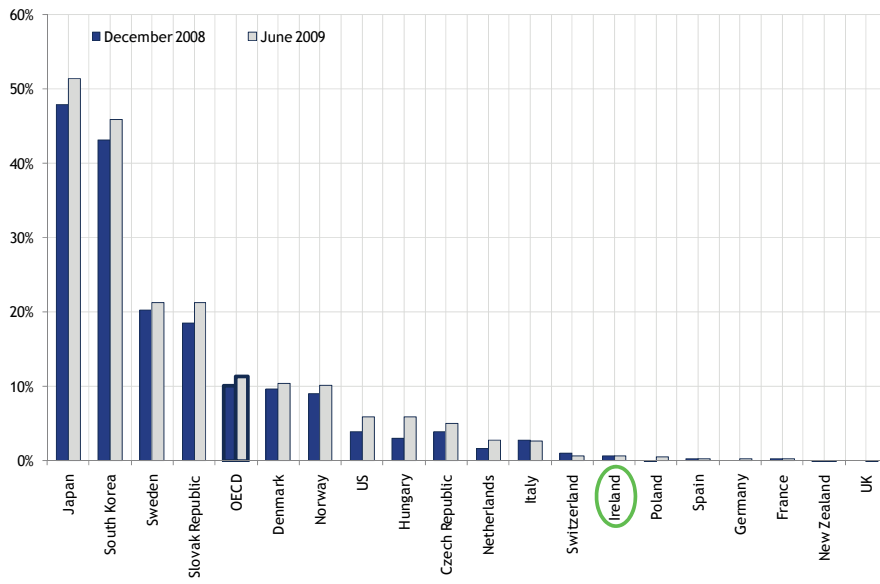
Across most EU countries (including Ireland with 69%), the majority of fixed broadband connections offer speeds between 2-10 Mb/s. However, a higher proportion of fixed connections are below 2 Mb/s in Ireland (31%) than in comparator countries. 20% of fixed connections in the euro area-14 are now above 10 Mb/s compared to only 9% in Ireland - a much lower proportion than leading EU countries such as Portugal (61%), Belgium (41%) and Denmark (35%).

euro area-14 ranking:  
 10<sup>th</sup>

Source: European Commission, Digital Competitiveness Report, May 2010

128 euro area minus Cyprus and Malta

**Figure 5.37 Fibre Connections as a Percentage of Total Broadband Connections, June 2009**

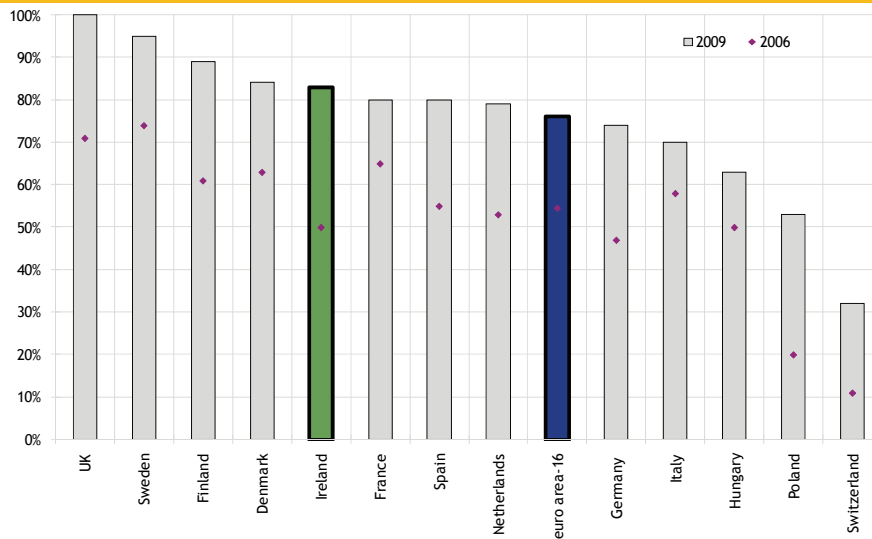


Ireland remains behind leading countries in terms of upgrading the local broadband access network to fibre and in offering very fast broadband speeds over fibre. In Ireland, only 0.6% of connections are over fibre compared to 51% in Japan, 46% in South Korea and 21% in Sweden. 11.3% of subscribers in the OECD-28 access broadband over fibre. Fibre connections are growing fast in Sweden, Denmark, Norway, the Slovak Republic, Hungary and the US.

OECD-28 ranking: 14<sup>th</sup>

Source: OECD, Broadband Statistics

**Figure 5.38 e-Government Availability, 2009**

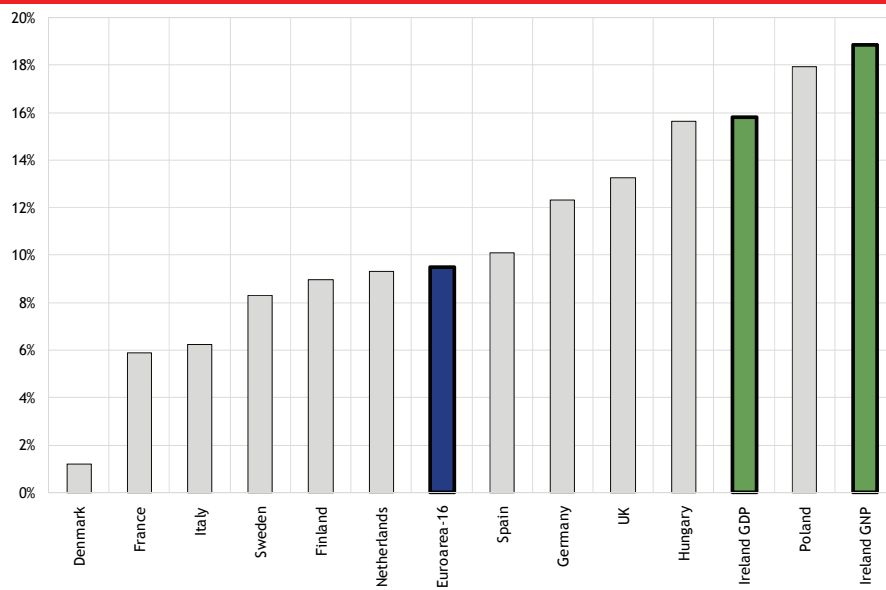


This indicator shows the online availability of 20 basic public services for which it is possible to carry out full electronic case handling. Ireland's position has improved significantly since 2006 but remains slightly behind leading countries such as the UK and Sweden.

euro area-16 Ranking: 6<sup>th</sup> (↑4)

Source: Eurostat, Information Society

**Figure 5.39 Use of ePayments: Value of Cash Withdrawals (as % of GDP), 2008**



This chart shows the value of cash withdrawals at ATMs (by cards issued in the country) as a percentage of GDP. Ireland is highly reliant on cash for payments<sup>129</sup>. Electronic and card payments are far more efficient than cash in terms of transactions costs. Aside from the direct costs, cash is also less secure and vulnerable to counterfeiting.

**euro area-16 Ranking:**  
 GDP: 13<sup>th</sup>  
 GNP: 14<sup>th</sup>

Source: European Central Bank, DG Ecofin, AMECO Database

<sup>129</sup> ECB data also shows that Ireland is among a small group of countries which still relies on a significant number of cheque transactions (16.6 per cent of the total number of non-cash transactions compared to the euro area average of 7.8 per cent).



## 5.3 Knowledge Infrastructure

It takes a long time to upgrade a country's knowledge base but it is widely agreed to be the single most important driver of national competitiveness. Education, training, skills development and research and development form key parts of a nation's infrastructure for generating knowledge and high value economic activity. This section assesses Ireland's performance in this area. Chart 5.C provides an overview of Ireland's recent performance in terms of key knowledge infrastructure indicators.

### 5.3.1 Education: Overview

Average educational attainment in Ireland has increased dramatically in the last two decades, with younger workers better qualified than their OECD counterparts. Older people in Ireland remain less qualified than the OECD average and a relatively large share of the working age population (32 per cent) has no more than lower secondary education (Fig. 5.40).

Expenditure on education is important but it is by no means the sole driver of educational performance (i.e. the proportion of students who complete their education and the quality of their courses). Ireland invests less public and private resources per student than the OECD-25 average at primary and tertiary level while pre-primary education is primarily privately funded, unlike in many other countries. Ireland spends slightly more per student than the OECD-25 average on second level education. It is notable that the gap between euro area expenditure on education and that of the US is considerable at all levels, particularly at third level (Fig. 5.41).

### 5.3.2 Pre-Primary and Primary Education

While participation at primary level is almost universal, 2007 data on participation in pre-primary indicates that Ireland performs poorly. Ireland's performance will improve following the introduction of a free year's pre-school education in 2009 (Fig. 5.42). While 9-11 year old students in Ireland receive more hours of tuition than most OECD countries, they receive less hours of tuition in the key skills of maths and science than in most other OECD countries (Fig. 5.43).

### 5.3.3 Secondary Education

70 per cent of the 25-64 age group in Ireland have attained at least upper secondary education, which is slightly above the euro area average (Fig. 5.44). In Ireland 11.3 per cent of the 18-24 age cohort were early school leavers in 2008 compared to the euro area average of 16.5 per cent (Fig. 5.45). Reducing this rate further would enhance competitiveness given the high personal and social costs of leaving school early.

Maths, science and technology skills are critical to the development of high value added economic activity. In the latest OECD PISA<sup>130</sup> study, Irish 15 year olds ranked well among OECD countries in terms of reading literacy (5<sup>th</sup>) but are average in terms of scientific literacy (14<sup>th</sup>) and mathematical literacy (16<sup>th</sup>) (Fig. 5.46). 12-14 year old students at secondary level in Ireland receive fewer hours

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130 Programme for International Student Assessment

of science tuition per year than in most other OECD countries (Fig. 5.47). A lower proportion of Irish students use computers for a range of activities including spreadsheets, word documents, browsing the internet and communication than the OECD average (Fig. 5.48).

### 5.3.4 Tertiary Education and Lifelong Learning

Ireland's younger population is considerably better qualified than older workers, with 44 per cent of the 25-34 age cohort possessing a third level qualification compared to the OECD average of 39 per cent (Fig. 5.49). While measuring the quality of third level education is difficult, university rankings are commonly used as a proxy for quality. The Times Higher Education University index identified Trinity College Dublin as Ireland's leading institution ranking it 43<sup>rd</sup> out of 200 institutions globally. UCD, the only other Irish institution in the top 100, is ranked 89<sup>th</sup>. By this measure, the performance of Irish higher education institutions has improved in recent years (Fig. 5.50).


Ireland produces significantly more maths, science and computing graduates per 1,000 of population aged 20-29 than the euro area average. However, in Ireland science and computing dominate this category which means that Ireland is producing a limited supply of mathematics graduates (Fig. 5.51). The ability to attract overseas students can also be judged as an indicator of quality (in addition to providing export earnings). Irish institutions are not as successful in attracting international students as their counterparts in other English-speaking countries such as Australia, New Zealand and the UK (Fig. 5.52).

Life-long learning is defined as all learning activity undertaken throughout life, with the aim of improving skills and competencies. Adult participation in lifelong learning activities is relatively low in Ireland (Fig. 5.53). The percentage of persons aged 25-64 years old in receipt of education in the four weeks prior to the survey was below the euro area average.

### 5.3.5 Research and Development Infrastructure

Investment in research and development is one important way of upgrading human capital and developing new products/processes/services for commercial markets. Unfortunately, output measures are not easily developed or readily available.

In 2008 expenditure on R&D was 1.71 per cent of GNP which is relatively low compared to the OECD average of 2.38 per cent of GDP and the three per cent target set by the EU 2020 Strategy. Ireland ranked 15<sup>th</sup> of 28 OECD countries in terms of total R&D expenditure, 13<sup>th</sup> for higher level education spend and 17<sup>th</sup> for business expenditure. In 2008 business expenditure on R&D (BERD) in Ireland was €1.69 billion which represents 64 per cent of total R&D expenditure (Fig. 5.54). Business R&D has grown significantly in Ireland in recent years. Most business expenditure on R&D in Ireland is undertaken by foreign owned companies (Fig. 5.56). The pressure on Exchequer resources is causing the Government to re-prioritise capital expenditure across all areas including public investment in research and development.



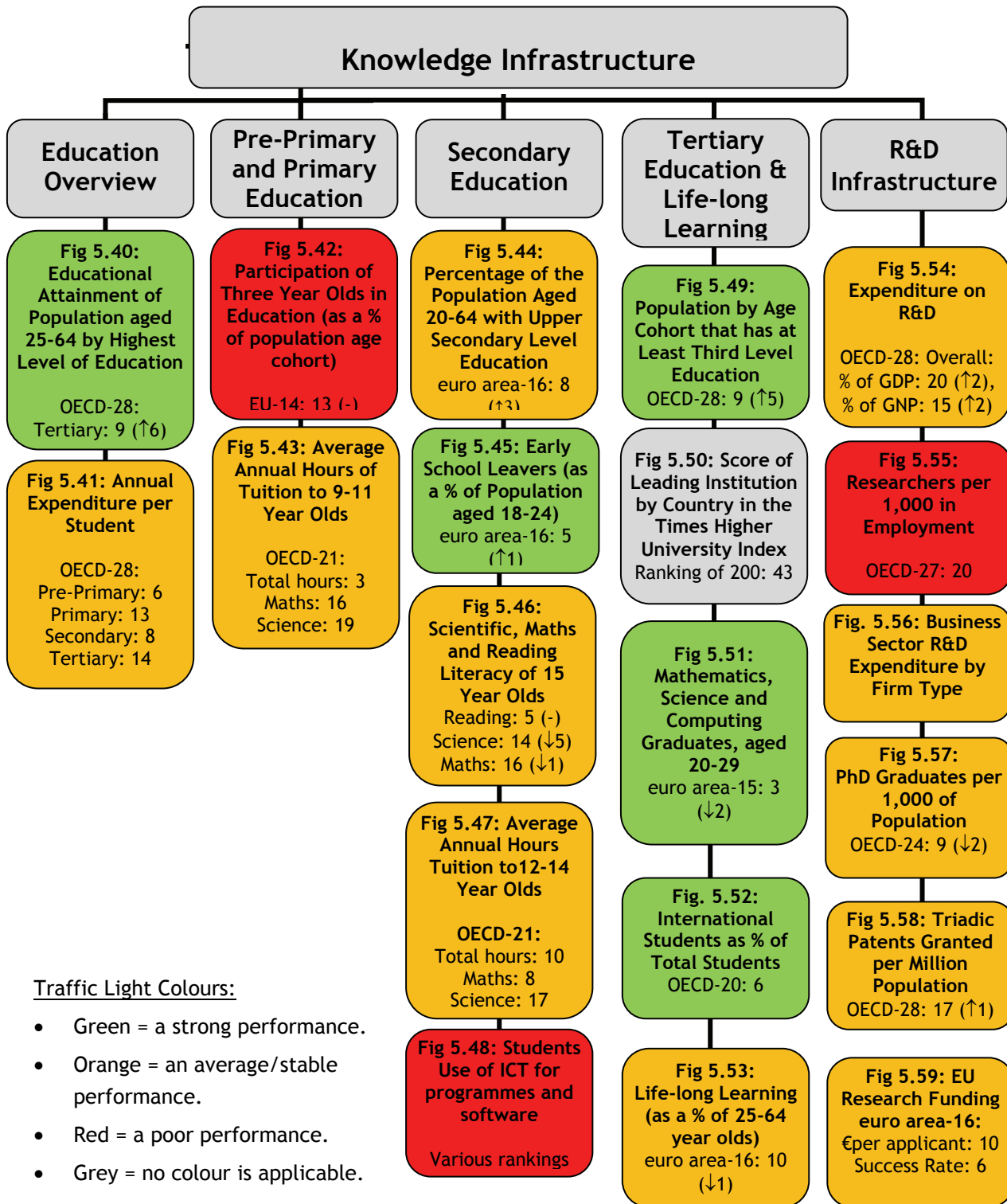
In terms of human resources, in 2007 there were 7,262 business researchers, 4,910 higher education researchers and 497 government researchers in Ireland. At six per 1,000 in employment, it remains significantly below our 2013 target of 9.3 and below the OECD average of 8.5 (Fig. 5.55). In 2008, Ireland produced 1,090 PhD graduates which is 28 per cent more PhD graduates per 1,000 of population than the OECD-24 average (Fig. 5.57).

Research and development output measures are poorly developed. Patents can be taken as a reflection of a country's inventive activity. Triadic patents are patents granted at European, Japanese and US patent offices. Ireland's performs well below the OECD average on this measure and has only improved marginally since 2005 (Fig. 5.58). A country's success in attracting competitive research funding can be used as a proxy for the quality of the research eco-system. Under the Seventh Framework Programme for research and technological development, Irish researchers attracted €14.70 per capita over the 2007-Q3 2009 period which is above the euro area-13 but significantly below leading countries such as Switzerland and Finland<sup>131</sup> (Fig. 5.59).

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<sup>131</sup> The Seventh Framework Programme for research and technological development provides EU funding for research projects over the period 2007 to 2013.

Chart 5C

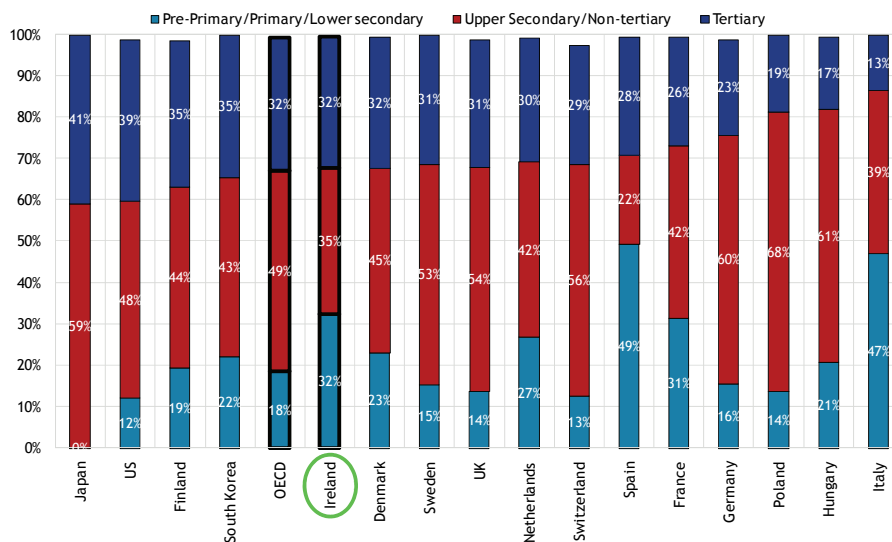


**Traffic Light Colours:**

- Green = a strong performance.
- Orange = an average/stable performance.
- Red = a poor performance.
- Grey = no colour is applicable.

### 5.3.1 Overview of Education

**Fig. 5.40 Educational Attainment of Population Aged 25-64 by Highest Level of Education, 2007**

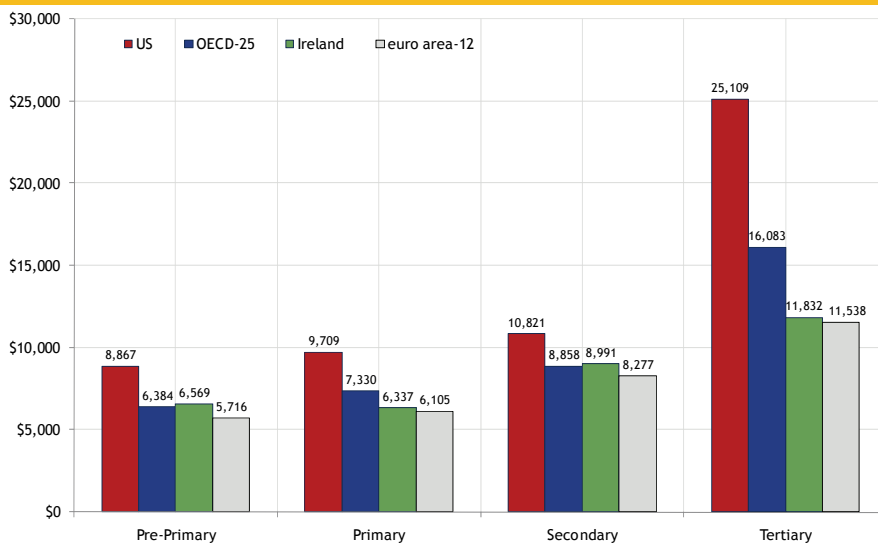


Average educational attainment in Ireland has increased dramatically in the last two decades. The proportion of the working age population with tertiary education has increased to 32%. However, older cohorts of Ireland's population aged 25-64 remain less qualified than the OECD average, and a relatively large share of the population aged 25-64 (32%) has no more than lower secondary education.

**OECD-28 Ranking<sup>132</sup>:**  
**Ranked by tertiary:**  
 9<sup>th</sup> (↑6)

Source: OECD, *Education at a Glance, 2009*

**Fig. 5.41 Annual Expenditure on Educational Institutions - per student (\$US PPP), 2006**



Ireland invests less public and private resources per student than the OECD-25 average at primary and tertiary level<sup>133</sup>. Ireland spend slightly more per student than the OECD-25 average on second level education. While higher spending does not necessarily equate with higher quality services, it is notable that the gap between the euro area and the US is considerable at all levels, particularly at third level<sup>134</sup>.

**OECD-28 Ranking:**  
 Pre-Primary: 6<sup>th</sup>  
 Primary: 13<sup>th</sup>  
 Secondary: 8<sup>th</sup>  
 Tertiary: 14<sup>th</sup>

Source: OECD, *Education at a Glance, 2009*

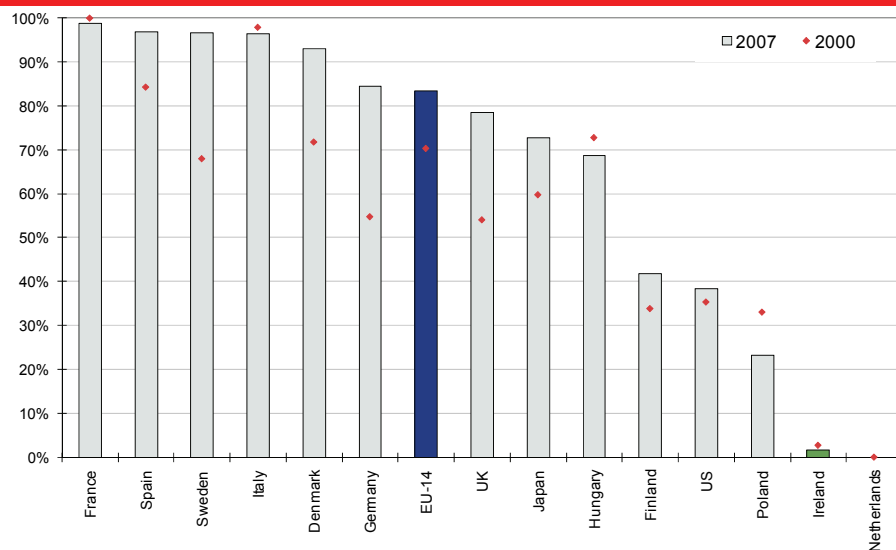
132 Base year for ranking change is 2003 compared to 2007

133 OECD average minus Canada, Greece and Luxembourg.

134 In 2006, 66 per cent of funding for tertiary level education in the US came from private sources. This is much higher than in most European countries (EU-19 average 18.9 per cent) and Ireland (14.9 per cent).

### 5.3.2 Pre-Primary and Primary Education

**Figure 5.42 Participation of Three Year Olds in Education (as a % of population age cohort), 2007<sup>135</sup>**

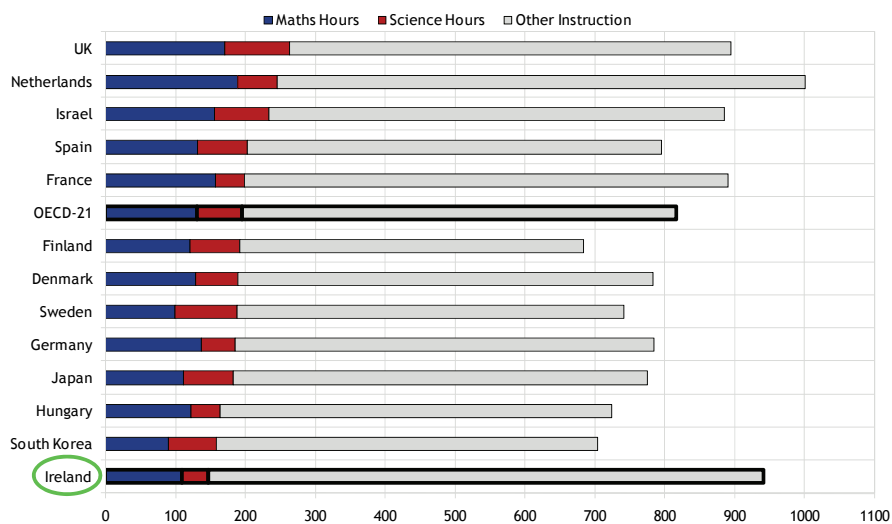


Pre-primary education includes programmes designed for children at least three years old and not older than 6 years. Ireland lags the EU-14 average by a considerable amount on this indicator. Pre-primary education, as distinct from childcare, is found to have significant individual and social returns<sup>136</sup>. In 2009 the Government announced plans to introduce a free year of pre-school education.

**EU-14 Ranking:**  
13 (--)

Source: Eurostat, *Population and Social Conditions*

**Figure 5.43 Average Annual Hours of Tuition to 9-11 Year Olds, by Subject, 2007**



9-11 year old students at primary level in Ireland receive fewer hours of tuition in maths and science than in most other OECD countries. Of the 21 countries surveyed, only two countries allocated less time to teaching science. Only 5 countries allocated less teaching time to maths than Ireland.

**OECD-21 ranking<sup>137</sup>:**  
Total hours: 3<sup>rd</sup>  
Maths ranking: 16<sup>th</sup>  
Science ranking: 19<sup>th</sup>

Source: OECD, *Education at a Glance, 2009*

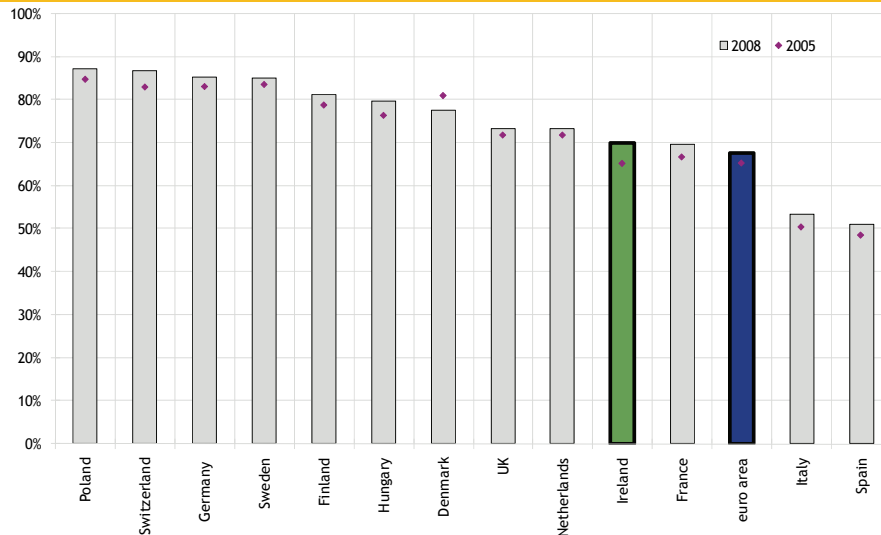
<sup>135</sup> EU-15 average minus Greece.

<sup>136</sup> NCC, *Statement on Education and Training, 2009*.

<sup>137</sup> OECD average minus Belgium, Canada, New Zealand, Poland, Switzerland, Slovakia and US.

### 5.3.3 Secondary Education

**Figure 5.44 Percentage of the Population Aged 25-64 with at least Upper Secondary Level Education, 2008**

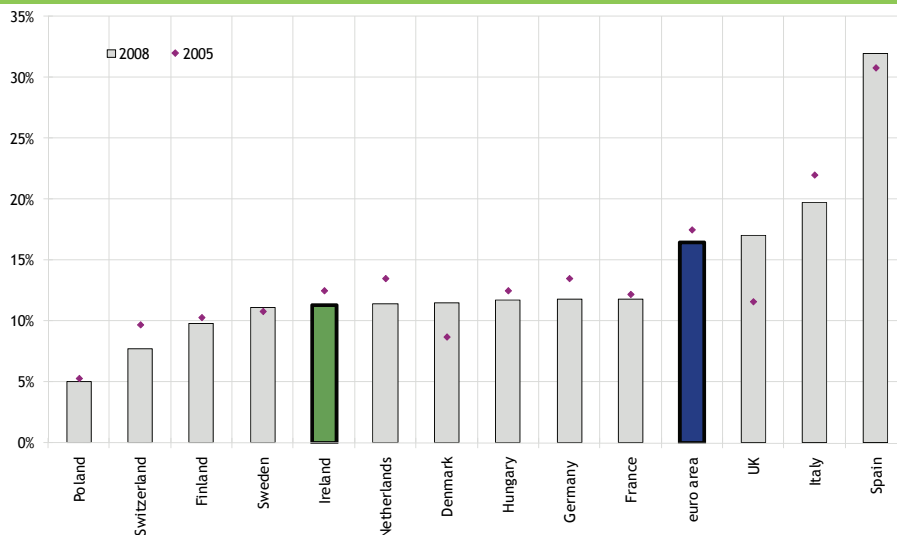


70% of the 25-64 age group in Ireland have attained at least upper secondary education, which is slightly above the euro area average and has improved since 2005. While improving, this figure remains below leading EU countries. Current high secondary level completion rates in Ireland will take a long time to raise the overall level of qualifications in the working age population.

**euro area-16 ranking:**  
8<sup>th</sup> (13)

Source: Eurostat, *Population and Social Conditions*

**Figure 5.45 Early School Leavers (as % of population aged 18-24), 2008**

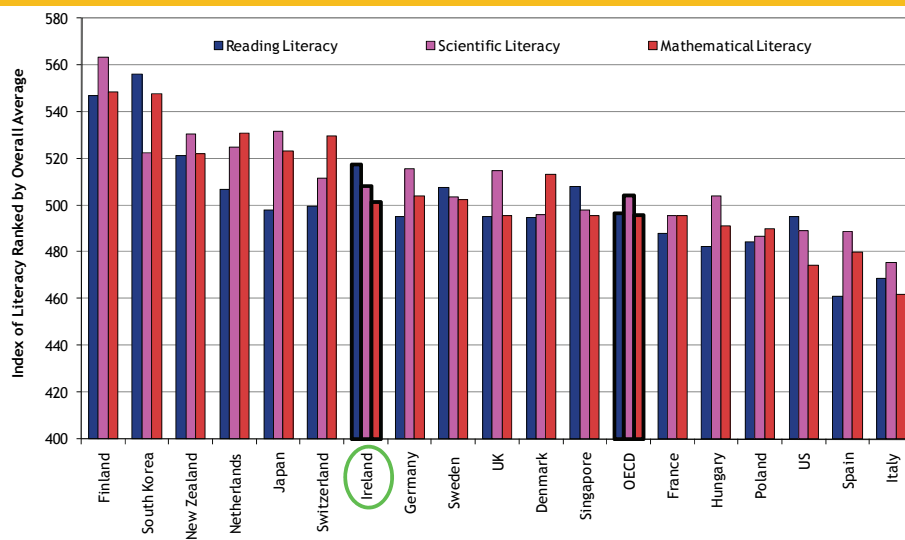


This indicator is defined as the percentage of the population aged 18-24 with at most lower secondary education who are not in further education or training. In Ireland 11.3% of this age cohort were early school leavers in 2008 compared to the euro area average of 16.5%.

**euro area ranking:**  
5<sup>th</sup> (11)

Source: Eurostat, *Structural Indicators, Social Cohesion*

**Figure 5.46 Scientific, Mathematical and Reading Literacy of 15 Year Olds, 2006<sup>138</sup>**

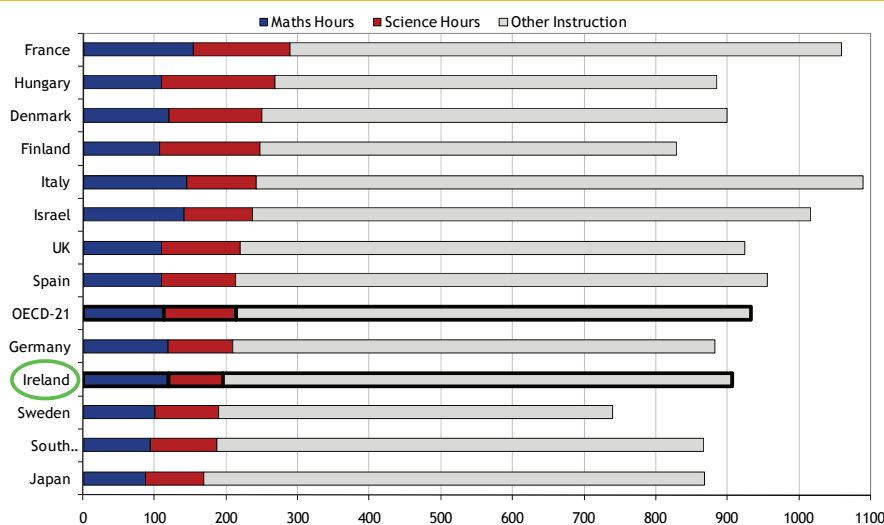


In the OECD 2006 PISA (Programme for International Student Assessment) study, Irish 15 year olds ranked comparatively well in terms of reading literacy but ranked less well for scientific and mathematical literacy. Small differences between countries should be interpreted with caution.

**OECD-28 ranking:**  
 Reading 5<sup>th</sup> (--)  
 Science 14<sup>th</sup> (↓5)  
 Maths 16<sup>th</sup> (↓1)

Source: OECD, PISA Database, 2006

**Figure 5.47 Average Annual Hours of Tuition to 12-14 Year Olds, by Subject, 2007**



12-14 year old students at secondary level in Ireland receive less hours of science tuition per year than in most other OECD countries. Time allocated to maths is similar to the OECD-21 average.

**OECD-21 ranking<sup>139</sup>:**  
 Total hours: 10<sup>th</sup>  
 Maths: 8<sup>th</sup>  
 Science: 17<sup>th</sup>

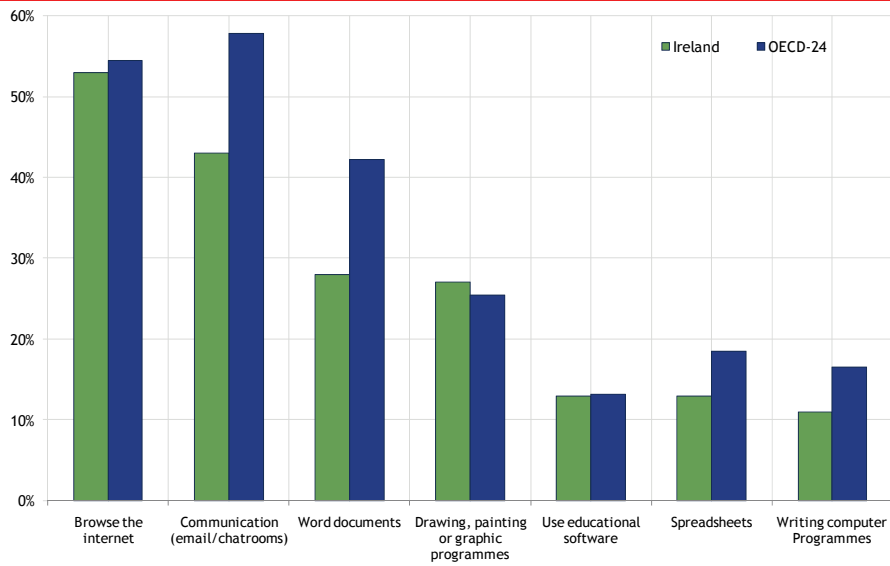
Source: OECD, Education at a Glance, 2009

138 2003 data used for US reading literacy due to data availability.

139 OECD average minus Canada, New Zealand, Netherlands, Poland, Switzerland, Slovakia and US.



**Fig. 5.48 Students Use of ICT for programmes and software, 2006**



This chart shows the purposes for which 15-year old students use computers. A lower proportion of Irish students use computers for a range of activities including spreadsheets, word documents, browsing the internet and communication.

**OECD-24 ranking<sup>140</sup>:**

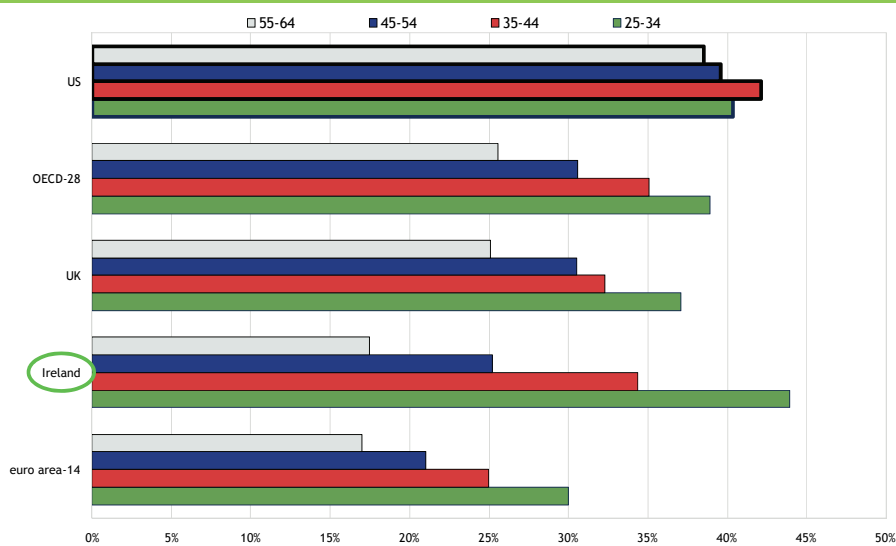
- Educational Software: 11<sup>th</sup>
- Computer Program: 19<sup>th</sup>
- Spreadsheets: 19<sup>th</sup>
- Graphics: 16<sup>th</sup>
- Word: 22<sup>nd</sup>
- Internet: 22<sup>nd</sup>
- Email: 22<sup>nd</sup>

Source: OECD, *Technology Use and Educational Performance in PISA 2006*, March 2010

140 OECD-28 minus France, Luxembourg, UK and US.

### 5.3.4 Tertiary Education and Life-Long Learning

**Fig. 5.49 Population by Age Cohort (years) that has at least Third Level Education, 2007**

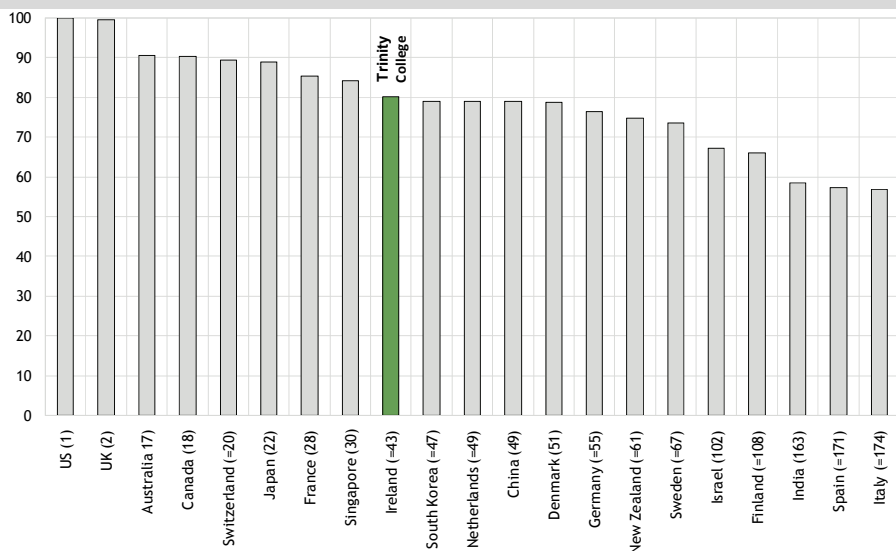


A breakdown of third-level graduates by age shows that Ireland's educational attainment varies much more by age than in other countries. While cohorts over 45 years old (in particular the 55-64 age group) have lower attainment rates than the OECD average, Ireland's 25-34 year olds have more formal qualifications than their OECD counterparts.

**OECD-28 ranking<sup>141</sup>:**  
(ranked by total 25-64 year olds) 9<sup>th</sup> (↑5)

Source: OECD, *Education at a Glance*, 2009

**Figure 5.50 Score of Leading Institution by Country in the Times Higher University Index (Scale 0-100<sup>142</sup>), 2009**



While somewhat subjective and difficult to measure, university rankings are commonly used as a proxy for quality. This index identified Trinity College Dublin as Ireland's leading institution ranking it 43<sup>rd</sup> out of 200 institutions. In 2005 Trinity College was ranked 111<sup>th</sup>. University College Dublin is ranked 89<sup>th</sup> in 2009.

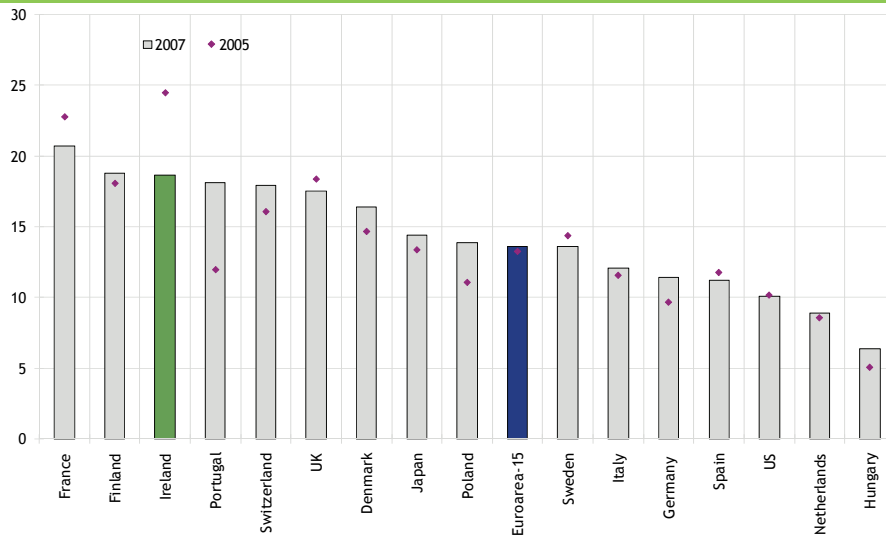
**Ranking of institution:**  
43<sup>rd</sup> (out of 200)

Source: *The Times Higher Education Supplement*, 2009

141 Base year for ranking change is 2001 compared to 2007. The euro area average excludes Cyprus and Malta due to data availability.

142 The scores are based on peer review and recruiter review assessments, number of citations, ratio of faculty to student numbers and success in attracting foreign students. The ranking of each country's top institutions is given in parentheses in the chart with "=" denoting a joint ranking.

**Figure 5.51 Maths, Science and Computing Graduates, 2007**

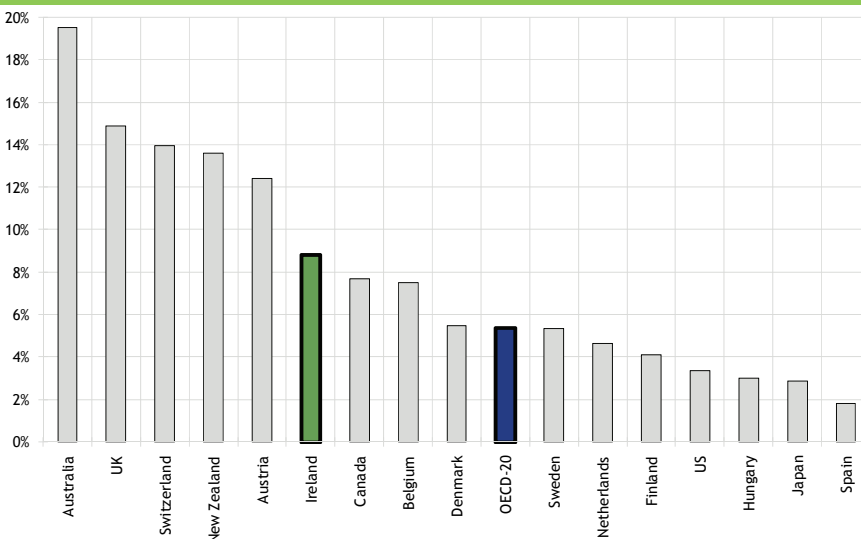


Ireland has 19 maths, science and computing graduates per 1,000 of population aged 20-29 which compares very favourably with the euro area-15 average. However, Ireland's strength on this indicator has weakened since 2005.

**euro area ranking:**  
3<sup>rd</sup> (↓2)

Source: Eurostat, Population and Social Conditions

**Figure 5.52 International Students (as a % of all Students in Tertiary Education), 2007**



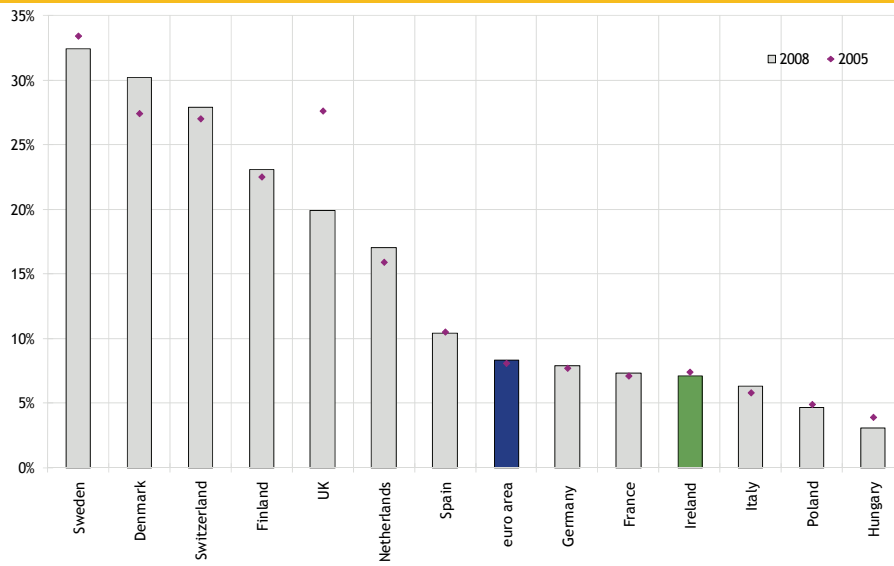
In 2007, international students comprised 8.8% of total students enrolled at tertiary level in Ireland. This compares favourably with the OECD-20 average of 5.4%.<sup>143</sup> Nonetheless, Irish institutions are not as successful in attracting international students as their counterparts in other English-speaking countries such as Australia (19.5%), New Zealand (13.6%) and the UK (15%).

**OECD-20 ranking:**  
6<sup>th</sup>

Source: Education at a Glance, 2009

143 OECD-28 minus France, Germany, Greece, Italy, Luxembourg, Poland, Portugal and South Korea.

**Figure 5.53 Life-long Learning (as a % of 25 to 64 year olds), 2008<sup>144</sup>**



Life-long learning is defined as all learning activity undertaken throughout life, with the aim of improving knowledge skills and competencies. This indicator measures the percentage of persons aged 25-64 years old in receipt of education in the four weeks prior to the survey and includes both formal and non-formal education. Ireland's score is below the euro area average.

**euro area-16 ranking:**  
10<sup>th</sup> (↓1)

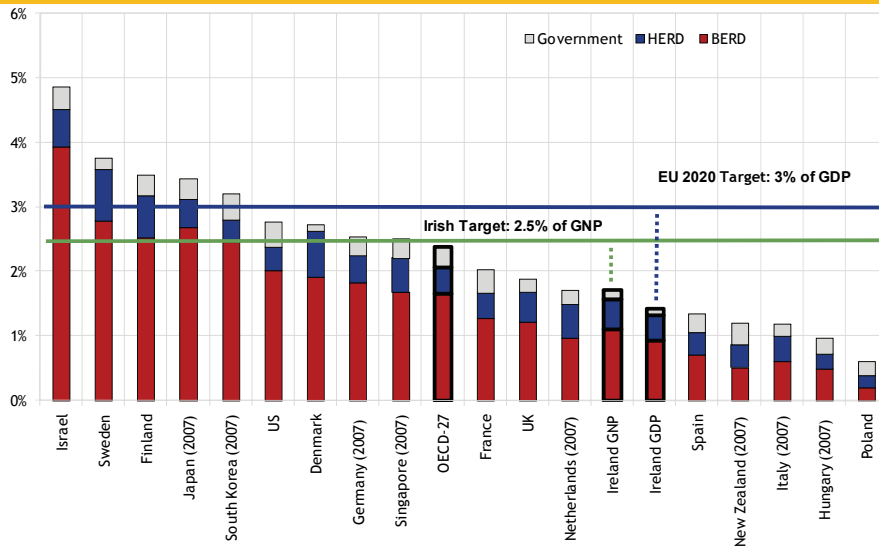
Source: Eurostat, Structural Indicators

<sup>144</sup> 2007 data used for Sweden as 2008 data is unavailable.

### 5.3.5 Research and Development Infrastructure

This section examines various measures of expenditure in research and development and the outputs achieved.

**Figure 5.54 Expenditure on R&D as a percentage of GDP (Business, Higher Education and Government), 2008**



The Irish Strategy for Science, Technology and Innovation 2006-2013 sets a target for R&D expenditure of 2.5% of GNP by 2013. In 2008 expenditure on R&D was 1.71% of GNP. In 2008 business expenditure on R&D (BERD) in Ireland was €1.69 billion while expenditure by higher education institutions was €713 million and Government was €200 million<sup>145</sup>.

**OECD-27 ranking<sup>146</sup>:**

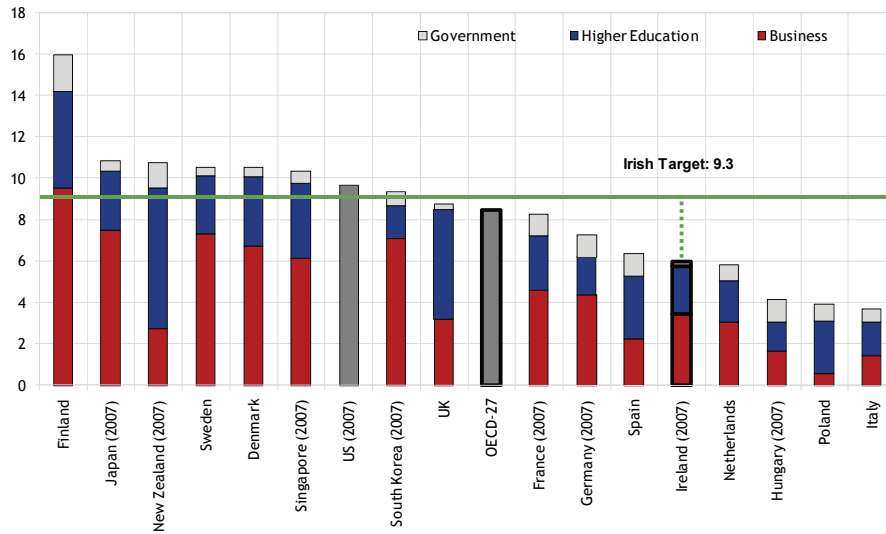
- Overall:
- GDP: 20<sup>th</sup> (↑2)
  - GNP: 15<sup>th</sup> (↑2)
- BERD: GDP: 17<sup>th</sup> (--)
- GNP: 17<sup>th</sup> (↑2)
- HERD: GDP: 16<sup>th</sup> (--)
- GNP: 13<sup>th</sup> (↑2)

Source: OECD, *Main Science and Technology Indicators, 2009/Issue 2*

145 2008 data for BERD is an estimate and may be subject to revision.

146 Rankings incorporate the latest available data for countries that are unavailable for 2008. GERD refers to Gross Expenditure on Research and Development, comprising business, higher education and government spending. OECD-28 minus Switzerland.

**Figure 5.55 Researchers per 1,000 Total Employment, 2008**

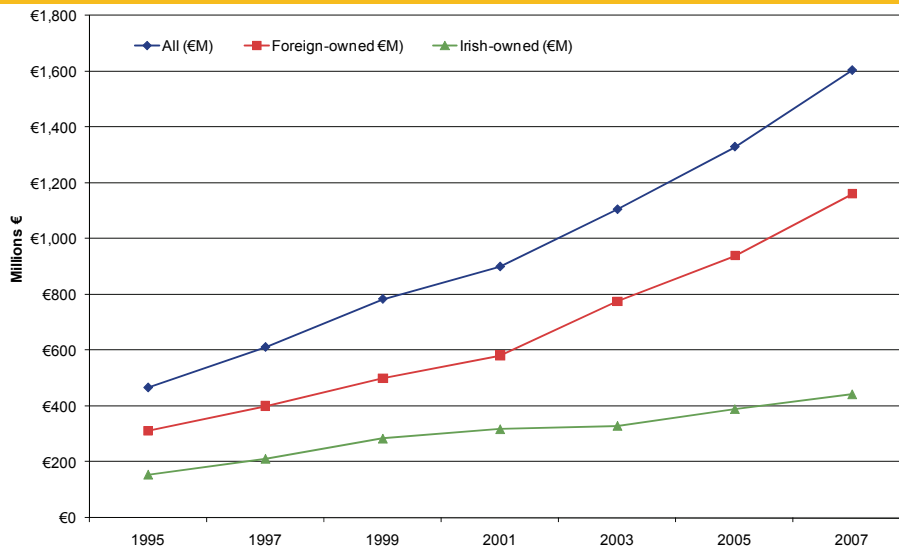


The number of researchers is 6 per 1,000 in employment in 2007 which remains substantially below the OECD-27 average of 8.5<sup>147</sup>. In 2007, in terms of full time equivalents, there were 7,262 business researchers, 4,910 higher education researchers and 497 government researchers in Ireland.

**OECD-27 ranking:**  
 Total: 20<sup>th</sup>  
 Business: 14<sup>th</sup>  
 Higher Education: 19<sup>th</sup>  
 Government: 26<sup>th</sup>

Source: OECD, Main Science and Technology Indicators, 2009/Issue 2

**Figure 5.56 Business Sector R&D Expenditure by Firm Type, 1995-2007**



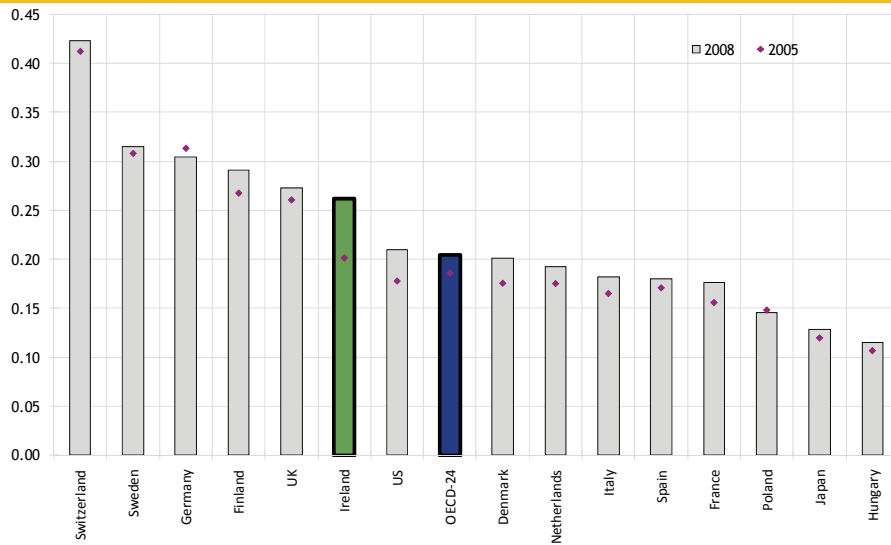
Foreign-owned companies undertake most business expenditure on R&D in Ireland (73%). The Irish Strategy for Science, Technology and Innovation 2006-2013 has set a target for business expenditure on R&D in indigenous firms to grow to €825 million by 2013. This is almost double the amount spent by Irish firms in 2007.

Ranking: N/A

Source: Forfás, Research and Development Performance in the Business Sector, 2005/06; CSO, Business Expenditure on Research and Development, 2007/2008

147 OECD-28 minus Switzerland. There is no breakdown available between business, higher education and government researchers for the US and OECD-27.

**Figure 5.57 PhD Students per 1,000 of Population, 2008<sup>148</sup>**

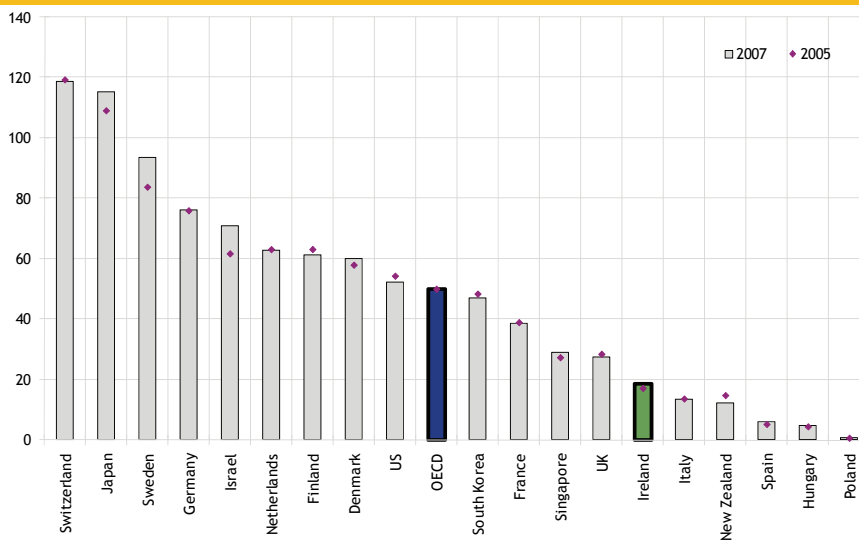


PhD graduates are central to the delivery of Ireland's Strategy for Science, Technology and Innovation. In 2008, Ireland produced 1,090 PhD graduates which is 28% more PhD graduates per 1,000 of population than the OECD-24 average<sup>149</sup>.

**OECD-24 ranking:**  
9<sup>th</sup> (↓2)

Source: Eurostat, Population and Social Conditions

**Figure 5.58 Triadic Patents per Million of Population, 2007**



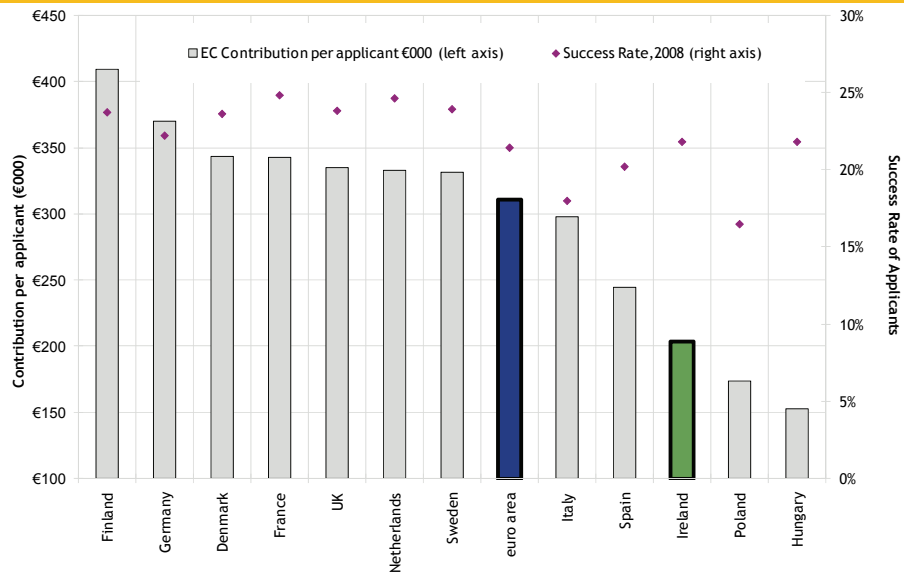
Patents can be taken as a reflection of a country's inventive activity. Triadic patents are patents granted at European, Japanese and US patent offices. Ireland performs well below the OECD average on this measure.

**OECD-28 ranking:**  
17<sup>th</sup> (↑1)

Source: OECD, Main Science and Technology Indicators, 2009/Issue 2

<sup>148</sup> Base year for ranking change is 2005 compared to 2008. OECD minus Australia, Canada, New Zealand and South Korea.

**Figure 5.59 EU Research Funding (€ per applicant and success rate of applications), 2007-2008**



Under the 7<sup>th</sup> Framework Programme for EU research and development, Irish researchers were as likely to be successful in their applications for competitive funding (21.8%) as the euro area average (21.4%)<sup>150</sup>. However, Irish researchers attracted significantly less funding<sup>151</sup> per applicant than leading countries such as Finland, Germany and Denmark. This may change as Irish researchers look to take on more leadership roles in future.

**euro area-16 ranking:**  
 € per applicant: 10<sup>th</sup>  
 Success Rate: 6<sup>th</sup>

Source: European Commission, DG Research, Framework Program 7 Monitoring Report, October 2009

150 The Seventh Framework Programme for research and technological development provides EU funding for research projects over the period 2007 to 2013.

151 The EC contribution per applicant is calculated as the average of 2007 and 2008 to smooth out fluctuations.





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