Ireland's Competitiveness Scorecard 2011

July 2011

Forfás

National Competitiveness Council

Ireland's Competitiveness Scorecard 2011

Introduction to the National Competitiveness Council

The National Competitiveness Council was established by Government in 1997. It reports to the Taoiseach on key competitiveness issues facing the Irish economy and offers recommendations on policy actions required to enhance Ireland's competitive position.

Each year the NCC publishes two annual reports.

- **Ireland's Competitiveness Scorecard** is a collection of statistical indicators of Ireland's competitiveness performance in relation to 17 other economies and the OECD or EU average.
- **Ireland's Competitiveness Challenge** uses this information along with the latest research to outline the main challenges to Ireland's competitiveness and the policy responses required to meet them.

As part of its work, the NCC also publishes other papers on specific competitiveness issues.

The work of the National Competitiveness Council is underpinned by research and analysis undertaken by Forfás – Ireland's policy advisory board for enterprise, trade, science, technology and innovation.

Council Members

Dr Don Thornhill	Chairman
Brendan Butler	Director of Strategy, Trade, EU and International Affairs, IBEC
Donal Byrne	Chairman, Cadbury Schweppes Ireland Limited
Shay Cody	General Secretary, IMPACT
Michael Delaney	Vice President for Development, Cork Institute of Technology
Pat Delaney	Director of Sectors and Regions, IBEC
Clare Dunne	Assistant Secretary, Department of Enterprise, Jobs and Innovation
Marcus Hewson	
Annette Hughes	Director, DKM Economic Consultants
Harry Lorton	Chairman, H & A Marketing and PR
Seán Murphy	Deputy Chief Executive, Chambers Ireland
Declan Purcell	Chairman, Competition Authority
Martin Shanahan	Chief Executive, Forfás
William Slattery	Executive Vice President and Head of European Offshore Domiciles, State Street International (Ireland) Limited
Paul Sweeney	Chief Economist, Irish Congress of Trade Unions
John Travers	Consultant and Founding Chief Executive Officer, Forfás and Science Foundation Ireland

Council Advisers

Paul Bates	Assistant Secretary, Department of Tourism, Culture and Sport
Mark Griffin	Assistant Secretary, Department of Environment, Community and Local Government
Kevin McCarthy	Assistant Secretary, Department of Education and Skills
Eamonn Molloy	Assistant Secretary, Department of Communications, Energy and Natural Resources
David Moloney	Assistant Secretary, Department of Finance
John Murphy	Assistant Secretary, Department of Transport
Liam Nellis	Chief Executive, InterTrade Ireland
Aidan O'Driscoll	Assistant Secretary, Department of Agriculture, Fisheries and Food

Research and Administration

Adrian Devitt
Conor Hand
Michelle Nic Gearailt

Forfás
Wilton Park House
Wilton Place
Dublin 2
Tel: 01 607 3000 Fax 01 607 3030 Email: ncc@forfas.ie
Web: www.competitiveness.ie

Taoiseach's Foreword

When my Government came to office, we pledged to return our economy to growth, restore order to our public finances and support the protection and creation of jobs. Regaining and enhancing our international competitiveness is crucial to achieving all of these objectives.

Despite the difficult challenges currently facing us, I firmly believe that Ireland is one of the best locations in the world to do business. We offer investors, both domestic and international alike, a young and skilled labour force, an impressive track record of success including in attracting FDI, and a strongly pro-enterprise environment. However, we can improve our competitiveness further.

That is why the Government acted decisively through our recent Jobs Initiative in which we reduced the rate of VAT on certain labour-intensive services, halved the lower rate of Employer's PRSI, reformed the visa system for entry to Ireland and increased investment in a number of important infrastructure projects.

Costs have fallen significantly in many areas and labour productivity has increased. By the end of 2011, we expect our exports to exceed our record, pre-recession level. I know, however, that further improvement is required in order to deliver upon the full potential of the Irish economy.

With that in mind, the Government is currently pursuing a range of additional policy initiatives specifically designed to boost Ireland's competitiveness including policies to increase competition in professional services, increase access to competitively priced Next Generation Networks and reduce labour and other business costs.

By acting now to remove barriers to competitiveness, we can ensure that as the domestic and global economies strengthen, Ireland will be in the best possible position to take advantage of more favourable market conditions. Furthermore, by acting now, we can avoid mistakes of the past whereby the gains from economic growth were quickly eroded.

Our policies must be informed by a thorough understanding of our competitiveness strengths and weaknesses as highlighted in this report. On behalf of the Government, I would like to express my gratitude to the Council for its work in producing this very valuable analysis of Ireland's competitive position which will help inform our future policies. I am pleased therefore to introduce *Ireland's Competitiveness Scorecard 2011*.

Enda Kenny, T.D.,

Taoiseach

Chairman's Preface

Competitiveness is improving but we can and must do better

Over the last 3 years Ireland has endured significant economic setbacks. Ironically, as a result of the intensity of the recession, something of a silver lining has emerged in competitiveness terms – costs have fallen, the mania for property has abated potentially freeing up resources for investment in more productive assets and overall, Ireland's international competitiveness has improved. The unsustainable nature of the domestically driven growth during the second half of the 2000's has brought home to us all the role of exports in delivering sustainable economic growth and has made us all aware of the central importance of competitiveness. Exports are currently the only source of economic growth – as investment and consumption expenditure growth are both negative. However, if we can sustain the recent improvements in export performance the positive effects on both the balance of payments and on domestic demand will over a two year period begin to produce positive effects in the domestic economy.

Looking at the results from *Ireland's Competitiveness Scorecard*, it is clear that our competitiveness performance in 2011 is mixed. Notwithstanding the problems associated with the banking sector, our enterprise sector is holding its own. Ireland's economic (and ultimately social) success depends to a large degree on the ability of our enterprises to trade internationally. Ireland's export sector is a significant competitiveness strength and was the sole source of economic growth last year – in 2010 export volumes and values increased, while Ireland's market share in world trade also grew. Growth in exports was facilitated and supported by the reductions in our cost base alluded to above, as well as improvements in productivity. As a consequence of lower costs and higher productivity, unit labour costs fell in 2010.

On the downside, however, Ireland's *Scorecard 2011* emphasises that many areas of our economy are underperforming, leaving substantial room for improvement. High public debt, rising unemployment and shortages of credit are all causes for concern. Despite the reduction in our cost base, Ireland remains an expensive country in which to do business. We simply have to embed structural change in many sectors of our economy if we are to protect recent competitiveness gains. A failure to do so will see these improvements eroded, competitiveness weaknesses amplified and, ultimately, our economic growth potential and recovery in the labour market dampened. Finally, a number of other worrying trends have emerged, even since the publication of last year's report: for example, the declining performance of our 15 year olds in the Programme for International Student Assessment is a major concern and must be reversed. When we add the array of external risks – the likelihood of rising interest rates as the global economy grows, increases in oil prices, the possibility of adverse exchange rate developments – to the domestic challenges identified in the *Scorecard 2011*, the imperative for action is clear.

There are some indicators which are more ambiguous. For instance, Ireland's household saving ratio has increased as individuals repay outstanding debt – this can be viewed as a positive development as consumers avoid excesses of the past and pay off debt. However, increased household savings is

also an indication of weak consumer confidence, the impact of which is clearly being seen in low levels of consumption. This has a direct impact on employment in the domestically traded economy. Indicators such as this highlight the difficulties facing policy makers - timing and phasing are vitally important.

Indicators such as these also emphasise the need to pause and reflect upon the data contained in the *Scorecard* – while each indicator is considered on its own merits, it is only by reviewing it against a whole-of-economy backdrop that we can fully understand its meaning and implications. It is up to all of us – Government, enterprises and citizens alike - to build upon the strengths Ireland possesses, to address the challenges that lie before us, and to seize the opportunity now before us to restore our international competitiveness, deliver sustainable growth, and enhance living standards for all.

This year's benchmarking publication has been rebranded and is now entitled *"Ireland's Competitiveness Scorecard"* – reflecting the Council's belief that Ireland should aim to be world class in everything that we do. Benchmarking our competitiveness performance is an essential exercise, and provides a statistical basis for observers to identify Ireland's competitiveness strengths and weakness. By comparing Ireland's performance across a range of 127 indicators against 17 of our key competitors, benchmarking also provides the Council with the analytical underpinning to formulate policy recommendations designed to maximise Ireland's international competitiveness. These policy recommendations will be published later this year in the Council's *Competitiveness Challenge* document.

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

Dr. Don Thornhill

Chairman, National Competitiveness Council

Table of Contents

Chapter 1

Overview of Ireland's Competitiveness

1. Overview of Ireland's Competitiveness

1.1 Introduction

For the past two and a half years, Ireland has been embroiled in the deepest economic recession since the late 1920's, and has experienced one of the sharpest drops in living standards among developed countries. Not surprisingly, this has impacted upon a whole range of economic indicators – GDP and GNP growth rates have deteriorated sharply and Irish living standards in 2011 have fallen back to 2005 levels (Figure 3.02), while government debt has increased rapidly (Figure 3.06). As well as the collapse in GDP and rising Government debt, one of the most visible affects of the recession has been upon the labour market – a collapse in employment in a number of sectors (Figure 4.43) has seen a parallel increase in unemployment (Figure 4.42).

1.2 Macroeconomic Sustainability

Amidst all of the doom and gloom, however, some light is visible at the end of the tunnel. In 2011 the Irish economy is expected to experience (weak) growth for the first time since 2007. The ESRI forecasts that GDP will grow by 2.0 percent in real terms in 2011 and by 3.0 percent in 2012. The corresponding figures for GNP are 0.5 percent in 2011 and 2.0 percent in 2012[1]. Mirroring the performance in recent years, it is expected that strong export growth will be offset by continued contractions in domestic demand[2]. At the same time, many of the world's leading economies experienced a strong recovery in 2010 and growth forecasts, despite some downside concerns, remain relatively strong.

1.3 Consumption

Looking at the various components of the Irish economy (Figure 3.03), domestic consumption remains weak. According to the CSO, the volume of retail sales (i.e. excluding price effects) decreased by 2.1 percent in May 2011 when compared with May 2010. These figures, however, are somewhat boosted by the continuing strong performance of the Motor Trades sector – when Motor Trades are excluded, the volume of retail sales decreased by 5.1 percent annually in the year to May 2011[3].

As a result of further austerity measures (and weak consumer confidence, related to expectations of more austerity measures to come[4]), consumer demand will remain weak 2011. The latest ESRI Quarterly Economic Commentary forecasts that consumer expenditure in 2011 will remain unchanged from 2010 before increasing by 2 percent in 2012. By contrast, the Central Bank has forecast that consumer expenditure will decline by a further 2.2 percent this year and will remain

[1] The corresponding Central Bank of Ireland forecasts are a little less positive – GDP is forecast to grow by 0.9 percent in 2011 and 2.2 percent in 2012. GNP declined in 2010 (reflecting the weak domestic economy) and according to the Central Bank's most recent Quarterly Bulletin (Q2 2011), GNP is expected to remain flat in 2011 and increase by 1.6 percent in 2012.
[2] ESRI, Quarterly Economic Commentary, Spring 2011
[3] CSO, Retail Sales Index, June 2011
[4] Not unexpectedly, Irish Consumer Sentiment weakened in April 2011. The KBC Bank Ireland/ESRI Consumer Sentiment Index dropped to 57.9 in April from 59.5 in March. This was a reversal of trends in the first quarter of 2011 which saw a degree of recovery in consumer confidence – albeit, KBC have concluded that confidence among Irish consumers remains at a relatively low ebb. KBC/ESRI Consumer Sentiment Index, April 2011

static in 2012[5]. Regardless of the result, weak consumer expenditure can be expected to impact negatively upon investment and employment prospects.

1.4 Business Investment

Business investment is a key indicator of competitiveness – investment by enterprises in productive assets allows them to undertake their operations in a more efficient and effective manner, and can lead to improved cost competitiveness and higher rates of productivity.

CSO statistics indicate that economy wide investment in 2010 represented just 14.1 percent of GNP, compared to an average of 25.5 percent in 2008[6]. Comparing Q1 2011 with Q1 2010, investment is down 13.4 percent – and Q1 2010 was 30.9 percent lower than Q1 2009. Over the past two years, significant reductions have been recorded in housing (dwellings and improvements), other building and construction, transport, and machinery and equipment.

The collapse in private sector investment in Ireland has largely been driven by the collapse in the demand for housing[7], as well as for machinery and equipment. While private investment in Ireland has declined by significantly more than in most of the euro area, the Government's spend has proved resilient in comparison, and at almost 4.5 percent of GDP remains above the euro area average (Figure 4.01). Looking to the future, construction is likely to continue to drag down performance. Nevertheless, boosted by increased spending on equipment on machinery, the decline in investment is forecast to moderate in 2011[8].

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 since 2005, inward investment levels remain among the highest in the OECD (Figure 4.02). Ireland continues to attract a large number of Greenfield investment projects, relative to its size. Only Singapore attracted more Greenfield projects per capita in 2009. In 2009, the number of foreign owned firms investing in Ireland for the first time increased by 11 percent compared with the previous year (Figure 4.03). This is a reflection of our long-standing track record as a prime location to do business, and more specifically the high rates of return on investment which still accrue in Ireland, notwithstanding our current difficulties (Figure 4.04), as well as a still-favourable business environment – our competitive corporate tax rate, for example remains a major selling point for Ireland (Figure 5.04).

[5] Central Bank of Ireland, Quarterly Bulletin Q2 2011, April 2011
[6] CSO, Quarterly National Accounts, Q1 2011
[7] The continuing weak demand for new housing units is illustrated by the decline in planning permission being granted. In the fourth quarter of 2010, planning permissions were granted for 2,949 dwelling units, compared with 4,964 units for the same period in 2009, a decrease of 40.6 percent. CSO, Planning Permissions Q4 2010, April 2011
[8] ESRI, Quarterly Economic Commentary Spring 2011, May 2011

1.5 Differentiating Between Public Debt and Enterprise Performance

Looking at the public finances, the ESRI forecast the general government deficit to be 10 percent of GDP in 2011 and 8.5 percent in 2012. The Exchequer Returns for December 2010 confirmed the pattern of tax revenues which has emerged since the middle of 2010, namely that tax revenues have finally stabilised. However, the stabilisation of this deficit has been overtaken by the costs of the bank bailout. With an estimated €31.4 billion additional funds included in the 2010 General Government Deficit as a result of the State's promissory notes to the various financial institutions, the measured headline deficit increased to 31.5 percent of GDP. This has in turn led to a significant jump in the Irish government debt burden, with gross government debt estimated at 96.5 percent of GDP for 2010. Excluding these bank bailout monies, the underlying deficit for 2010 was 11.8 percent of GDP. The increased cost of servicing this debt will put further pressure on Government finances. According to the most recent *Stability Programme Update* interest payments on the national debt in 2011 are expected to account for 15 percent of total tax revenue – by comparison, the figure in 2007 was 3.5 percent. The Department of Finance estimates that €5.2 billion will be spend on interest payments in 2011, €7.2 billion in 2012 and €8.0 billion in 2013[9].

While the General Government Deficit is expected to decline in 2011 and 2012 as a result of planned budgetary measures (i.e. cuts in expenditure, increases in taxation etc.), Gross Debt as a percentage of GDP is expected to continue to increase over the next two years, albeit at a slower rate than in 2010 (Figure 3.06).

Household debt also remains high (Figure 3.07) although it is clear that many households are attempting to deleverage some of this debt as net savings rates remain high (Figure 3.08). The level of credit outstanding to households has declined by almost €20 billion from its peak of €157 billion in May 2008 to just over €137 billion in October 2010, reflecting the on-going process of deleveraging underway in the household sector, as well as debt write off and the lack of new credit. Household's face significant challenges, however, in overcoming high levels of indebtedness. Stocks of wealth have declined – largely as a result of the depressed property market which has seen house prices plummet (Figure 4.32). Net incomes are also under pressure (Figure 4.22) as a result of high levels of unemployment (Figure 4.44) and higher direct taxation (Figure 5.06).

1.6 The International Outlook

Not surprisingly, there is a high degree of uncertainty surrounding the international economic outlook. Despite a generally strong global performance in 2010, many forecasting agencies have revised downwards their growth forecasts for 2011. Nevertheless, the fact remains that 2010 was a year that saw economic performance outperform many expectations. According to the OECD's *Economic Outlook No. 89*, output amongst OECD member states was expected to grow by 2.8 percent in 2010. Growth has been driven by a number of factors including increased consumer demand in the US and China, as well as some stabilisation in global financial markets. Emerging economies continued to perform strongly.

[9] Department of Finance, Ireland- Stability Programme Update, April 2011

Turning to the outlook for 2011 and beyond, despite the 2010 results, growth prospects in much of the OECD remain weak. The US economy faltered somewhat in the second half of last year. Elsewhere, downside risks are prevalent in many economies. High sovereign debt levels in many countries, concerns over the state of the property market in the US, and wide global imbalances could all yet undermine recovery. Added to this, the imposition of further austerity measures in some EU countries and consumer deleveraging represent further risks to growth. Combined, these factors have led the OECD to forecast growth of 2.4 percent next year and 3.0 percent in 2012.

Table 1: Summary of OECD GDP Growth Projections (%)

	2010	2011	2012
US	2.8	2.7	3.3
Japan	2.4	0.3	1.5
euro area	2.0	2.1	2.2
Total OECD	2.8	2.4	3.0

Source: OECD Economic Outlook No. 89 May 2011

1.7 Exporting our way to Economic Recovery?

Ireland's ability to sell goods and services into foreign markets is a key measure of our international competitiveness – only by ensuring that enterprises are able to operate in a business environment that facilitates efficiency and innovation and minimises cost can Ireland regain competitiveness vis-à-vis our key competitors.

When considering the performance of the Irish economy, it is necessary to differentiate between the type of headlines which have captured the attention of the global media and the experience and performance of the enterprise sector. On the one hand, the Irish economy appears to be struggling under the weight of public and private debt. Yet, on the other hand, many sectors of the economy are proving resilient.

As referred to above, the period of economic contraction appears to be coming to an end, with modest growth forecast for 2011 and 2012. Despite a major debt burden – an almost perfect storm of deteriorating public finances and asset price collapse, exacerbated by the increased cost of the bank recapitalisation – many elements of the economy are performing strongly.

In particular, as a small, open economy Ireland's exporting sector has reaped the benefits from the relatively strong global economy. Having fallen in 2008 and 2009, Irish exports enjoyed a vigorous recovery in 2010 (Figure 4.09). Indeed, recent years have seen exports assume the role as the primary driver of Irish economic growth - during the late 1990s and 2000s, export growth along with consumption growth were the main sources of growth (Figure 3.03). The Central Bank forecasts that exports will grow by 6.1 percent in 2011 and 5.9 percent in 2012[10].

[10] Central Bank of Ireland, Quarterly Bulletin Q2 2011, April 2011

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 Q4 2010, services exports accounted for 49.6 percent of total Irish exports compared to 21 percent in 2000 (Figure 4.07)[11]. A sustained recovery on exports, however, is heavily dependent on the pace of recovery in the EU – Ireland is particularly reliant on EU markets as a destination for our goods and services (Figure 4.06).

While Ireland's trade performance has provided some counterbalance to the negative impact of the global recession and our own domestic problems, much of our success is based on the performance of a small number of sectors (Figure 4.09) and is dominated by foreign owned firms (Figure 4.10). In 2010, foreign owned companies accounted for almost 90 percent of total Irish exports. It should be noted, however, that this overstates the impact of the foreign owned sector on the local economy – in terms of employment and direct expenditure on goods and services within the local economy by firms supported by the Development Agencies, the contribution of indigenous and foreign owned sectors is broadly similar. In considering the impact of individual sectors on Ireland's export performance, the role played by the tourism sector should not be overlooked. Tourism is a significant source of export earnings and has an important regional employment and distributive effect. CSO Overseas Travel figures for the first quarter of 2011 show that the total number of overseas trips to Ireland increased by 8.6 percent compared with 12 months previously - the first such quarterly increase since mid-2008[12].

Sales by Irish owned firms in 2009 showed a significant decrease of 13 percent on the previous year in a very difficult period for Irish enterprise[13]. Manufacturing sectors sales declined by over 15 percent while internationally traded services dropped by 3 percent. Despite the fall off in sales, service sector exports actually increased by over 7 percent in 2009. Looking at the foreign-owned sector, in 2009, both sales and exports decreased by 7 percent with manufacturing enterprise sales decreasing by 9 percent and services sales decreasing by 4 percent.

In terms of export performance, there are some sectoral variations; Irish owned companies make up a significant share of the agriculture sector, food, drink and tobacco sector (53 percent), business, financial and other services sectors (46 percent) and traditional manufacturing (41 percent). 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. Overall, Irish exporters are more exposed to exchange rate risks (euro – sterling, euro – dollar) than exporters in other euro area economies. The weakness of the euro over recent years (largely a result of the ongoing sovereign debt crisis) has, therefore, benefitted Irish exporters selling into non euro area markets.

1.8 Restoration of Cost Competitiveness

In many ways, the past twelve months have seen a continuation of trends alluded to in last year's report – a process of domestic adjustment is underway, but significant challenges remain. Fundamental to any recovery is a renewed focus on cost competitiveness.

[11] CSO, Balance of Payments, March 2011
[12] CSO, Overseas Travel Q1 2011, May 2011
[13] Forfás, Annual Business Survey of Economic Impact 2009, January 2011

Strong domestic growth, allied to international conditions in recent years created conditions which led to significant increases in the costs of doing business in Ireland. Key business inputs such as pay and incomes, rents, utilities and business services rose sharply for an extended period. Ireland experienced a 31 percent loss in cost competitiveness between February 2002 and April 2008 (Figure 4.21). This represents the peak of the boom in price levels. Since then, Ireland has regained some of its lost cost competitiveness as a result of falls in relative prices and favourable exchange rate developments vis-à-vis our key trading partners.

Notwithstanding the cost competitiveness gains made since 2008, further significant progress is required in order to ensure Irish enterprises can compete internationally as Ireland remains relatively expensive compared to other jurisdictions for a range of business inputs, including property costs, calls from landlines, and legal fees. A large number of these inputs arise in the locally traded sector.

Labour cost growth rates in Ireland slowed significantly since 2008. Over this period, growth rates were lower than the EU-27 and euro area-16 average growth rates and in the year to Q1 2011 labour costs in Ireland fell by 2.2 percent (Figure 4.23). Ireland has the 11th highest total labour costs level in the OECD and is in line with a number of western European countries (Figure 4.22). Ireland has the fourth highest net wage level in the OECD-28, 40 percent above the OECD-28 average. This is due, in part, to the fact that the gap between before-tax and after-tax wages in Ireland is low (but increasing).

Unit labour costs (ULC) measure the average cost of labour per unit of output and are calculated as the ratio of total labour costs to real output. In broad terms, ULCs represent a direct link between productivity and the cost of labour used in generating output. When interpreting ULC data, one must be cognisant, therefore that headline rates are impacted by both changes in the cost of labour and changes in productivity. During 2010, Ireland experienced a more pronounced decline in ULC (-4.4%) relative to the OECD-25 (-0.46%) and the euro area-14 (0.85%), indicating an improvement in competitiveness (Figure 4.24).

The value of commercial properties in Ireland peaked in Q4 2007. Since 2008, property prices have been in a steep decline. The value/ cost of retail properties fell by 29 percent, offices by 28 percent, and industrial premises by 27 percent between Q4 2008 and Q4 2009. The cost of constructing and renting both industrial and office units declined sharply in Ireland during 2010 (Figures 4.28-4.31). However, in relative terms, the impact of these decreases on Irish cost competitiveness has been reduced as there have also been significant cost decreases in many other countries.

Looking at utility costs in Ireland, the story is mixed. The cost of industrial electricity for large energy users in Ireland decreased significantly (-11%) in 2010. Ireland is now the sixth cheapest location in the euro area and costs are lower than the euro area average (Figure 4.33). These reductions, however, would appear to be temporary in nature – the phasing out of a temporary rebate for large users and global fuel price changes are likely to result in higher prices in the future.

With regard to telecommunications, speed, access and cost are essential in determining competitiveness. Ireland is the sixth most expensive location of the 15 countries benchmarked for a basket of business calls (Figure 4.34). In terms of broadband speed and cost, significantly faster speeds are available at lower prices in many comparator countries than is the case for Ireland (Figure 4.35).

Irish landfill gate fees are often lower than advertised fees as gate charges can be negotiated based on a wide range of factors[14]. In terms of waste costs, and based on 2010 survey data, the average price that could be negotiated for landfill fees in the Irish market ranged from €86 to €111 per tonne (including the levy). Singapore and New Zealand are the cheapest location for landfill (Figure 4.36). However, Ireland's cost competitiveness is likely to have improved as Irish prices have continued to fall sharply.

The average cost of treated water services in Ireland increased by 0.8 percent between 2010 and 2011. Based on the internationally comparable data (2009 is the most recent data available) Ireland is competitive with our main trading partners on this measure. Waste water service costs increased by 4.1 percent between 2010 and 2011. No internationally comparable data is available for waste water costs (Figure 4.37).

For many professional and business service sectors, only limited price data is available. The Services Producer Price Index (SPPI) shows that the costs of selected services in Ireland are now 0.7 percent above 2006 levels[15] (Figure 4.38). Over the course of the economic downturn, the costs for most business and professional services have decreased. Since 2006, however, the SPPI data indicates that legal services prices increased by 12 percent[16]. World Bank data also indicates that Irish legal costs compare poorly to those in other countries.

Looking forward, the Department of Finance expect Consumer Price Index (CPI) inflation to average 2.5 percent in 2011[17], and the Harmonised Index of Consumer Prices (HICP) to average 1.0 percent. These forecasts match ESRI forecasts for 2011. Looking forward to 2012, the ESRI expect CPI inflation of 1.5 percent and HICP inflation of 1.0, and are predicting that wages will increase modestly by 0.75 percent in both 2011 and 2012.

[14] Similar offers are likely to be available in other countries but it was not possible to source data for the negotiable prices in other countries/regions. Based on advertised fees, at an average of €142 per tonne (including the landfill levy), Ireland was the most expensive of the nine locations benchmarked in mid-2010. See Forfás' Waste Management in Ireland, Benchmarking Analysis and Policy Priorities - Update 2010 for a more in-depth discussion on waste costs.
[15] The Services Producer Price Index (SPPI) is an experimental survey by the CSO which measures changes in the average prices charged by domestic service producers to other businesses for a selected range of services. In most cases these services are provided to business customers only and so individual price indices should not be considered indicative of more general price trends in the economy. The index covers transaction costs from business to business and excludes consumers who are covered in the Consumer Price Index (CPI). The CSO note that 'the SPPI is experimental, under development and may be subject to methodological improvement'.
[16] SPPI Q4 2010 data on legal services is based on responses received from 18 companies and covers 118 price observations. The majority of firms that responded employ between 10 and 49 employees. The survey does not include data on prices for barrister services. Given the small sample size used to create the sub-indices for accountancy and legal costs caution should be used when analysing the results.
[17] Department of Finance, Monthly Economic Bulletin, June 2011

Even though many enterprise costs are decreasing in Ireland, this does not necessarily mean that we are experiencing significant improvements in relative cost competitiveness. The pace of correction (which can occur through cost reductions or increased in productivity) must outstrip that of our trading partners in order to close the gap. Where costs have decreased, these have largely been as a result of the cyclical rather than structural factors. There is a danger that if structural barriers preventing costs from adjusting are not removed, once an economic recovery kicks in, recent competitiveness gains will be rapidly eroded.

Reductions in the cost of living are essential if real incomes are to be maintained. While Ireland has already regained some cost competitiveness, further progress is required if Ireland is to return to strong economic and employment growth. There are also risks which threaten to undermine recent competitiveness gains – the CPI suggests that domestically driven inflation is on the rise, global oil prices have increased, EU interest rates seem certain to increase further over the coming months, and sterling is likely to remain weak for the foreseeable future.

1.9 Challenges to be Addressed

While much progress has been made over the past few years to restore Ireland's competitiveness, much remains to be done. In particular, action is required to address six priority issues:

i. **Productivity and Innovation:** In the long run, a country's standard of living depends on its productivity performance. Ireland needs to complement the reduction in costs which is currently underway with a renewed focus on enhancing productivity. At first glance, GDP per hour worked indicates that Irish productivity has been amongst the highest in the OECD (Figure 4.13). Using GNP which is a more appropriate measure, however, Irish productivity levels remain below the OECD average. Looking at productivity growth rates, employees in Ireland delivered positive growth, both in GNP and GDP terms in 2009 and 2010. This represents a reversal of the experience between 2005 and 2009 when below OECD average productivity growth was recorded (Figure 4.14). The ESRI forecast that for 2011, growth in GNP and GDP will be accompanied by continued employment falls as output growth is achieved through productivity growth.

   A country's (and indeed an enterprise's) level of innovation activity is closely linked with productivity performance. Innovation plays a critical role in creating competitive advantage, enhancing productivity, and ultimately, increasing profitability. While Irish firms are generally considered actively engaged in innovation (Figure 4.17), we must ensure that this activity translates into tangible outcomes - in terms of turnover attributed to new/improved products, Ireland's performance is below the euro area average (Figure 4.18).

ii. **Access to Credit:** The annual rate of change in lending to the non-financial corporate (NFC) sector has been negative since late 2009 and the contraction in lending to this sector has continued in recent months. The decline in lending to the NFC sector continues to be driven by the contraction in long-term loans with a maturity of over five years.

   The latest results of the euro area *Bank Lending Survey* (BLS) point to a continuing weakness in credit demand while credit supply remains restrictive. Credit standards on loans to

enterprises and households tightened substantially since 2008, and the Q3 2010 results of the BLS contain no evidence of an easing in credit supply standards[18].

Irish banks were forced to draw heavily on funding from both the European Central Bank and the Central Bank of Ireland. The crisis in banking is likely to lead to continued funding difficulties for the SME sector.

iii. **Labour Market Activation:** As noted previously, the impact on the labour market has been one of the most visible consequences of the recession. Unemployment (Figure 4.44), youth unemployment (Figure 4.45) and long term unemployment (Figure 4.42) have all increased substantially since 2007. Age (Figure 4.46) and educational attainment (Figure 4.47) are strong determinants of unemployment. However, the profile of those who are unemployed is more nuanced than any single characteristic. Those with the highest unemployment rates tend to combine several of the elements discussed above.

The ESRI expect that employment will average 1.82 million in 2011 (down 1.5 percent from 2010). Employment is also forecast to stabilise in 2012. The rate of unemployment is expected to average 14.5 percent in 2011 and 14 percent in 2012. Net outward migration is forecast to be 100,000 over the two year period April 2010 to April 2012.

iv. **Taxation Policy:** Social security contributions in Ireland constitute a smaller proportion of overall tax revenue than in other euro area economies. The remaining elements of Ireland's revenue stream are almost evenly split between indirect (37.1%) and direct taxation (38.4%) (Figure 5.02). Figure 5.03 illustrates the scale of decline in Ireland's tax take as a result of the recession. Maintaining a pro-enterprise taxation system while simultaneously broadening the tax base is central to repairing the public finances. Without measures to broaden the tax base, taxes on income would inevitably have to increase further, which would damage competitiveness. Higher taxes on income can be a disincentive to people to remain in or return to the labour market – Irish average and marginal taxes on labour have increased over recent years (Figure 5.06 and 5.07).

v. **Education:** Overall, average educational attainment in Ireland has improved significantly in the last two decades, although many older cohorts still have relatively low levels of attainment (Figure 5.36). Challenges persist at primary school level, with 9- 11 year old students receiving fewer hours of tuition in maths and science than most other OECD countries (Figure 5.39); at second level where the persistence of early school leaving (Figure 5.41) and Ireland's poor performance in the OECD's Programme for International Student Assessment (Figure 5.42) must be tackled; and at third level where funding issues remain (Figure 5.37).

vi. **Infrastructure:** Despite large scale investments over the past 15 or so years and significant improvements as a result, Ireland's perceived performance across several infrastructure areas ranks below the OECD and euro area averages (Figure 5.26). Ireland's distribution

[18] In May 2011, the CSO published *Access to Finance 2007 and 2010* which found that successful loan applications from enterprises had dropped from 90 percent in 2007 to 50 percent in 2010. At the same time, the proportion of enterprises applying for loans also fell.

infrastructure is perceived poorly and while Ireland's score in air and water transport has improved in recent years it remains below the performance of comparator countries. The quality of Ireland's energy infrastructure is also perceived to be weak. As a major modern service provider, a world class telecommunications infrastructure is vital to our ability to do business. Ireland ranks poorly in this regard and lags behind leading countries in terms of upgrading the local broadband access network to fibre and on offering very fast broadband speeds over fibre (Figure 5.33).

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 Forfás, the Central Bank, the CSO, and the ESRI 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, and the US. This allows for a detailed comparison between Ireland and many of its closest trading partners and competitors. Ireland is also compared to a relevant peer group average – either the OECD or the euro area[19].

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

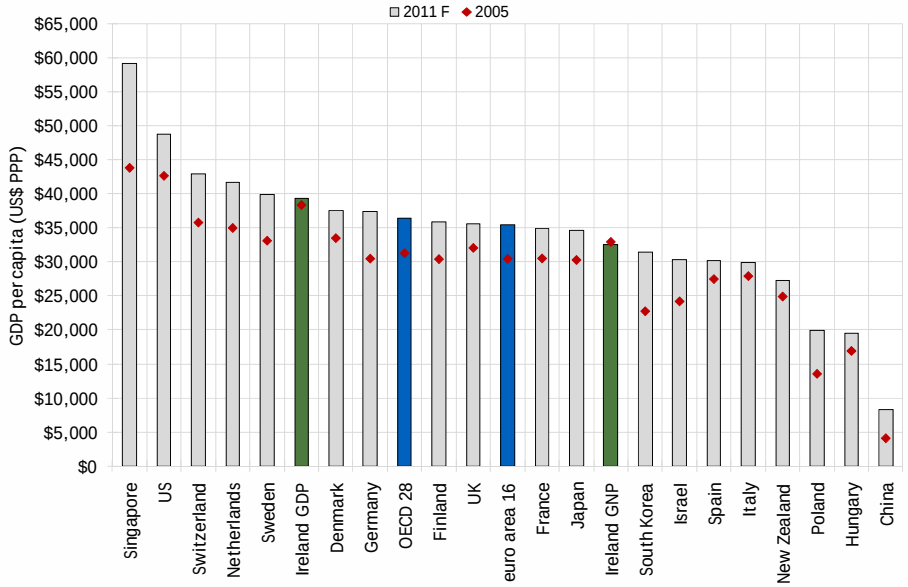
- While every effort is made to ensure the timeliness of the data, there is a natural lag in collating comparable official statistics across the selected countries. There are also factors that are difficult to benchmark (e.g. the benefit of being in the GMT time zone or of speaking English fluently);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

2.2 Interpretation of the charts

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

- [19] Where the sample is incomplete for the comparator group due to data availability, the countries omitted are detailed in the footnotes. OECD rankings and averages are based on a maximum of 28 countries. Turkey and Mexico are not included in the analysis, in part due to how their size and income levels affect averages and in part due to data availability. The OECD-28 countries are as follows: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, UK and the US. In a small number of cases, data is also included for China, where available and appropriate.

Sample Chart: Figure 3.01 Levels of GDP per capita (US$ PPP), 2011F



In GDP terms, despite the economic downturn, Ireland appears to be one of the wealthiest countries in the OECD. In terms of GNP per capita, however, which is a more accurate measure of Irish living standards, Ireland ranks below the OECD-28 and euro area-16 average.

OECD-28 ranking[20]:
GDP:10th (↓ 6)
GNP: 18th (↓ 4)

Source: IMF, World Economic Outlook, April 2011

- 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. It is also important to note that as a result of the contraction in the Irish economy over the past 2 years, indicators calculated as a proportion of GDP and GNP may appear higher than in previous years (i.e. if expenditure is reduced by less than the reduction in GDP, expenditure will appear to have increased).
- 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. Where appropriate, charts are colour coded according to Ireland's GNP ranking.

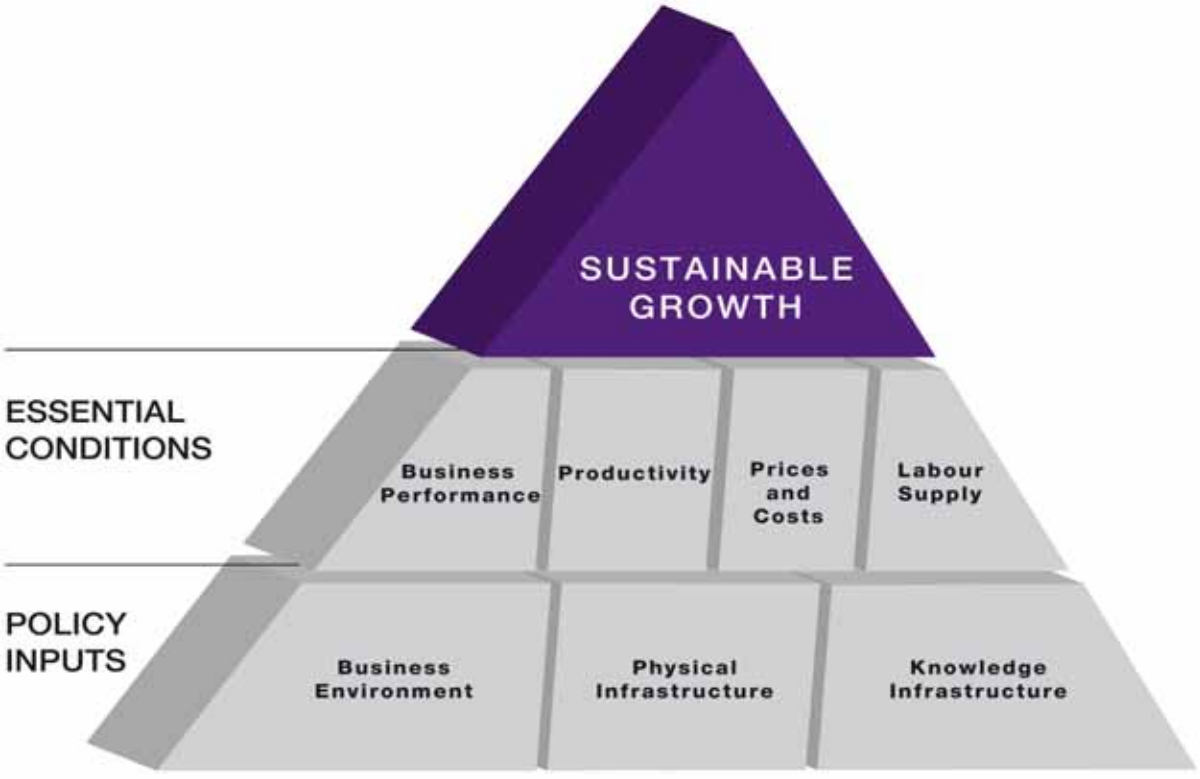
[20] OECD-28 and euro area averages are not weighted according to national income.

- Rankings are provided where appropriate, but in a limited number of charts, it is not possible to designate a best performer. In charts with both GDP and GNP performance for Ireland, rankings are provided for both sets of data.
- In interpreting the ranking for each indicator, a low ranking (i.e. close to 1st) implies a healthy competitiveness position, while a high ranking implies an uncompetitive position.
- Changes in rankings refer to the change in Ireland's position since either the previous year, or in the case of charts displaying more than one year of data, since the oldest data displayed. Exceptions to this are highlighted in footnotes.
- (↑) refers to an improvement in Ireland's competitive position, so ↑4 means an improvement of four places in Ireland's ranking. (-) means that there has been no change in Ireland's ranking, while (↓) refers to a fall in ranking.
- Summary charts are also placed at the start of each major section. These charts standardise Ireland's ranking – because different indicators are ranked in relation to the OECD-28, the euro area-16 or other grouping, standardisation allows all indicators to be displayed together[21]. This provides an instant overview of performance. Indicators in the summary charts are colour coded in the same manner as the traffic light system discussed above.

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

Chapter 3

Sustainable Growth



3. Sustainable Growth

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

3.1 Macroeconomic Sustainability

In order to facilitate increases in living standards and support a growing enterprise sector, the economy must be on a stable footing. Over recent years, Ireland's macroeconomic performance has fluctuated wildly – an era of almost unprecedented economic growth has given way to three years of economic decline, rising national debt and falling living standards. The indicators in this section cover the level, growth and drivers of Ireland's national income, as well as a number of related topics, all of which are used to assess overall macroeconomic performance.

Despite the economic downturn, Ireland is still ranked as one of the wealthiest countries in the OECD in terms of GDP per capita (Figure 3.01). In terms of GNP per capita, which is a more accurate measure of Irish living standards, Ireland ranks below the OECD-28 and euro area-16 average. The impact of the recession, however, is perhaps more clearly witnessed through the collapse in the annual economic growth rate. Figure 3.02 charts the average annual growth rate of GDP per capita in purchasing power parity terms for the period 2005-2010. Ireland experienced a rise in living standards until 2007. From 2008 to 2010 GDP per capita in Ireland decreased by 8 percent and GNP per capita decreased by 11 percent. As a result, Irish living standards in 2011 have fallen back to 2005 levels.

Changes in GDP levels and growth rates arise as a result of changes in the performance of the main components of the economy. The contribution of net exports (exports minus imports) to economic growth on a year-on-year basis was small or negative between 2004 and 2007 (Figure 3.03). In 2008, 2009, 2010 and Q1 2011, however, net exports increased, driven mainly by growth in services and a steep fall in imports. Private consumption, which had fuelled much of Ireland's economic performance over recent years collapsed between 2007 and 2008 and remains extremely week. Investment, which was driven by construction, also collapsed and has contributed to the sharp declines in GDP and living standards.

Figure 3.04 compares the components of economic growth in 2010 in the UK and Germany with Ireland. It is clear that exports have driven a larger proportion of Ireland's economic growth than is the case in either the UK or Germany in 2010. This is, in part a reflection of the fact that Ireland is more dependent on exports for economic growth than either Germany or the UK who both have large domestic markets.

The balance of payments summarises the economic transactions of the residents of Ireland with the rest of the world (Figure 3.05). The narrowing of the current account deficit in 2009 and 2010 was facilitated by improved competitiveness. This was reflected in higher exports of goods and services

and a weaker domestic economy, which resulted in reduced imports. The ESRI forecast that the current account balance will be in surplus for 2011.

Not surprisingly, much attention recently has been focused on Ireland's growing public debt problems. Ireland's general consolidated debt as a percentage of GDP has risen sharply since 2007 (Figure 3.06). The rapid increase in general government consolidated debt in Ireland is primarily due to the large Exchequer deficits that have emerged in the last three years and the capital support provided to a number of financial institutions in 2010. Ireland's debt as a percentage of GDP is forecast to remain above that of the euro area-16 average for 2011 and 2012 (forecast by the European Commission at 112 percent and 117.9 percent of GDP respectively[22]).

Much of Ireland's consumption boom was fuelled by increases in personal debt over the last number of years. In response to the recession, however, households are concentrating on repaying their outstanding debt and increasing their precautionary savings. This has implications for consumer spending as witnessed in Figure 3.03. Ireland is second in the euro area in terms of personal borrowing per capita (Figure 3.07). Debt per capita in Ireland peaked in 2008. Since then, debt per capita has declined by approximately 12 percent as individuals and households have begun repaying outstanding debt in response to the recession. For every person resident in the state in 2010, there was an average of €30,410 of personal outstanding debt.

On the savings side, consumers have become more cautious in the financial matters. The household saving rate is calculated as the ratio of household saving to household disposable income. Between 2005 and 2009 the household savings rate in Ireland on average was 4.9 percent (Figure 3.08). In 2010 the OECD estimated that the savings rate in Ireland was 11.1 percent, the third highest in the OECD after Belgium and Germany. Further evidence of this is the rise in household net financial wealth[23], which reached €22,125 per capita in Q4 2010. Net financial wealth has been on an upward trajectory since Q1 2009, rising by 70 percent over the period[24].

Ireland also has faces long term spending commitments. The OECD estimate that, for the average OECD member country, offsets of 3% of GDP will have to be found over the coming 15 years to meet spending pressures, representing an additional cumulative consolidation requirement of about 0.3% of GDP per annum. Although the costs of meeting age related expenditure in Ireland will occur a number of years after other EU and OECD states, the costs of meeting these demands is higher than most other countries examined (Figure 3.09). This will put pressure on the public finances.

3.2 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. Measuring quality of life encompasses indicators on income levels, healthcare, and social capital.

[22] European Commission, DG EcoFin, European Economic Forecast, Spring 2011
[23] Net financial wealth is defined as the difference between financial assets and liabilities. It should be noted that net financial wealth does not include housing and other non-financial assets.
[24] Central Bank, Quarterly Financial Accounts for Ireland, Q4 2010

While Ireland remains a wealthy country with a generally high standard of living despite the impact of the recession, many members of society remain at-risk-of-poverty. Figure 3.10 examines those who have employment but who are still deemed to be at-risk-of-poverty. 13 percent of single people in work in Ireland are at-risk-of-poverty - this is above the euro area-16 average, Ireland performs relatively well in terms of families with two or more adults and dependent children - 4.4 percent of families in this category are considered at risk of poverty compared with 9.5 percent in the euro area-16.

The risk of poverty is determined by those with less than 60 percent of the national median's disposable income after social transfers. Ireland has made significant improvements in this indicator since 2005, when 20 percent of the population were at risk of poverty after social transfers (Figure 3.11). In 2009, Ireland moved below the euro area-16 average with 15 percent of the population deemed to be at-risk-of-poverty. Figure 3.12 examines the degree of income inequality which exists across a range of countries. This indicator measures the ratio of total income received by the 20 percent of the population with the highest income (top quintile) to that received by the 20 percent of the population with the lowest income (lowest quintile). The level of inequality in Ireland declined between 2005 and 2009.

Figure 3.13: considers the health status of the population. This indicator shows that the vast majority of the Irish population consider themselves to be in good health. Only the US and Switzerland perform better than Ireland in this regard.

Finally, quality of life is also partly determined by a range of societal values which can be difficult to measure. Ireland has the joint second highest rate of volunteerism amongst all countries examined (Figure 3.14). However, even though a larger proportion of the Irish population volunteer relative to other countries, they devote a smaller amount of time per day than other countries. The final indicator in this section shows that, according to the OECD's Better Life Index, Irish people score very highly (Figure 3.15). Ireland performs very well in overall well-being, as shown by the fact that it ranks among the top ten countries in several topics in the Better Life Index.

3.3 Environmental Sustainability

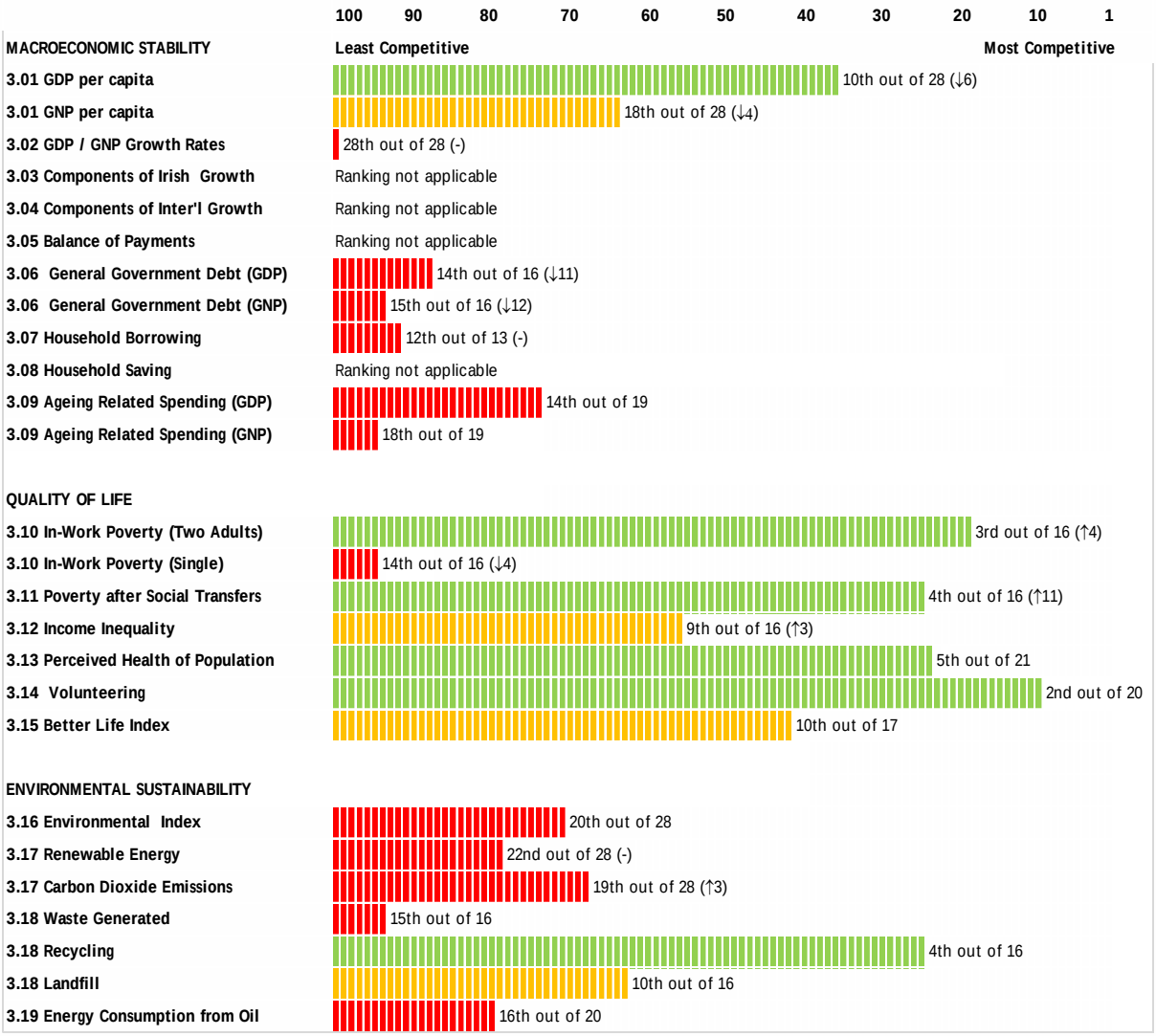
The essence of environmental sustainability is a stable relationship between human activities and the natural world which does not diminish the prospects for future generations to enjoy a quality of life at least as good as our own. This section examines Ireland's broad environmental performance and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

The Yale Centre for Environmental Law and Policy publish an index which ranks 163 countries on 25 performance indicators tracked across ten policy categories covering both environmental public health and ecosystem vitality (Figure 3.16). Ireland performs poorly and is ranked below the OECD average by the measure.

As well as measuring environmental health and sustainability, it is necessary to also consider other factors which impact upon the environment. Ireland generates more waste (742 kg per person) than

the euro area average (564 kg per person) (Figure 3.18). Ireland recycles 32 percent of waste compared to the euro area average of 22 percent. Ireland land filled 62 percent of municipal waste in 2009 which compares poorly with the euro area average of 46 percent. Figure 3.17 examines the share of energy derived from renewable resources. In Ireland, while growing quickly, the share of renewable energy is approximately a third of the OECD average. By contrast, Ireland is amongst the countries most dependent on oil as an energy source (Figure 3.19). Next to oil, natural gas is the most important energy source in Ireland.

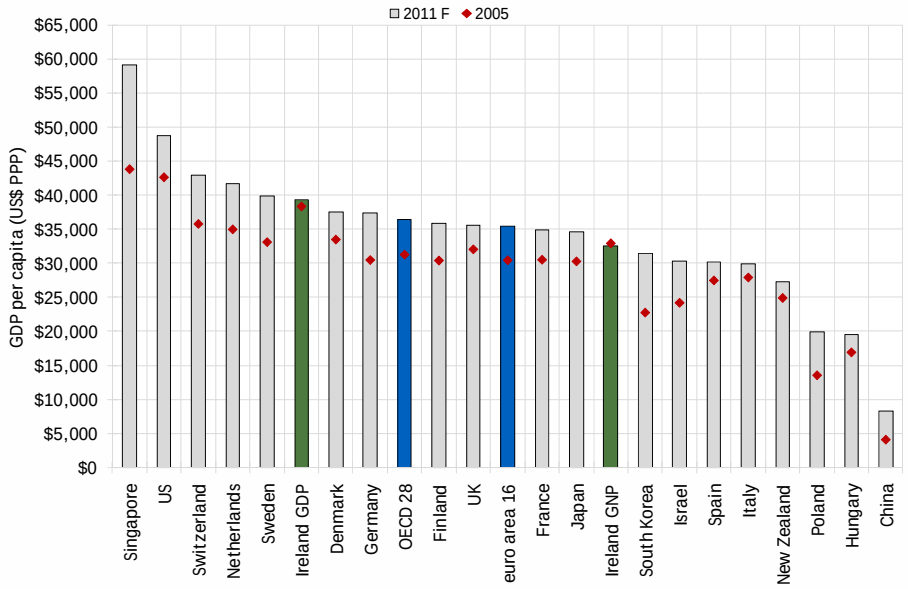
Summary of Standardised Sustainable Growth Indicators[25]



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

3.1 Macroeconomic Sustainability

Figure 3.01 Levels of GDP per capita (US$ PPP), 2011F

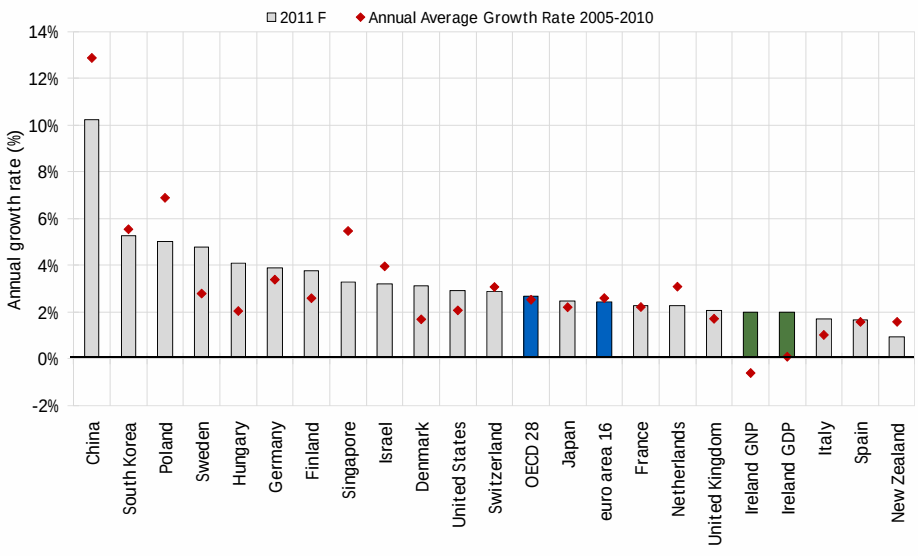


Source: IMF, World Economic Outlook, April 2011

In GDP terms, despite the economic downturn, Ireland appears to be one of the wealthiest countries in the OECD. In terms of GNP per capita, however, which is a more accurate measure of Irish living standards, Ireland ranks below the OECD-28 and euro area-16 average.

OECD-28 ranking[26]:
GDP:10th (↓ 6)
GNP: 18th (↓ 4)

Figure 3.02 Average Annual Growth Rates in GDP per capita ($ PPP), 2011F



Source: IMF, World Economic Outlook, April 2011

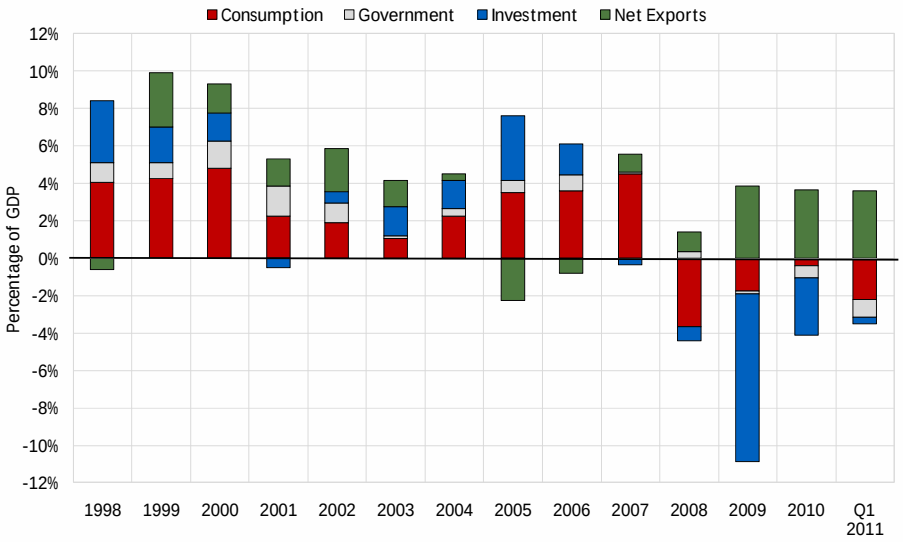
Figure 3.02 maps the average annual growth rate of GDP per capita in purchasing power parity terms for the period 2005-2011.

Ireland experienced a rise in living standards until 2007. From 2008 to 2010 GDP per capita in Ireland decreased by 8 percent and GNP per capita decreased by 11 percent. As a result, Irish living standards in 2011 will have fallen back to 2005 levels.

OECD-28 Ranking[27]:
GDP: 28th (-)
GNP: 28th (-)

[26] OECD 28 and euro area averages are not weighted according to national income.
[27] Ranking refers to 2005-2010 annual average growth rate. The ranking for 2011 (forecast) is provided in figure 3.01.

Figure 3.03 Components of Irish Economic Growth (GDP), 1998-2010



The contribution of net exports (exports minus imports) to economic growth on a year-on-year basis was small or negative between 2004 and 2007. Net exports however increased in 2009, driven mainly by growth in services and steep fall in imports. Investment collapsed in 2008 and 2009 which has resulted in sharp declines in GDP and living standards. Net exports are the only component of GDP that has contributed positively to growth in 2009, 2010 and Q1 2011.

Ranking: n/a

Source: CSO National Accounts

Figure 3.04 Components of Economic Growth (GDP)[28] 2010, Ireland, UK and Germany

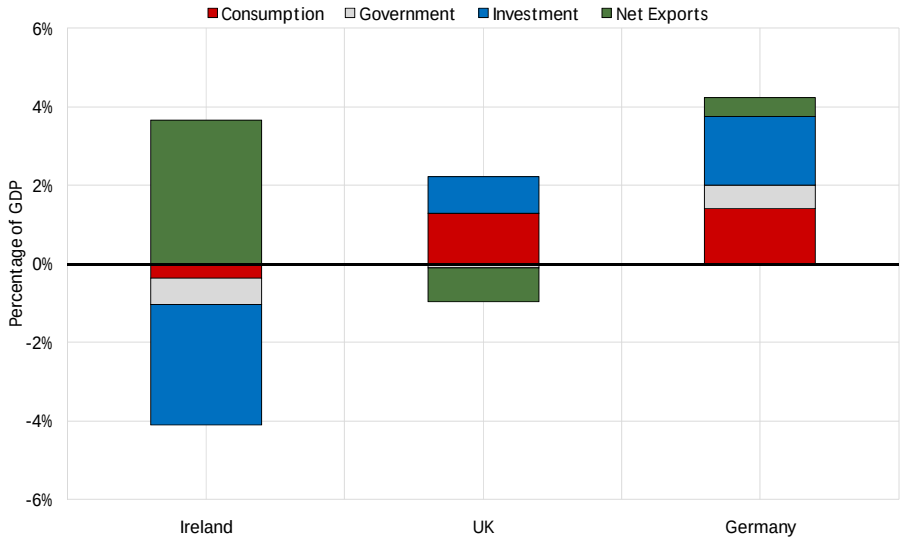


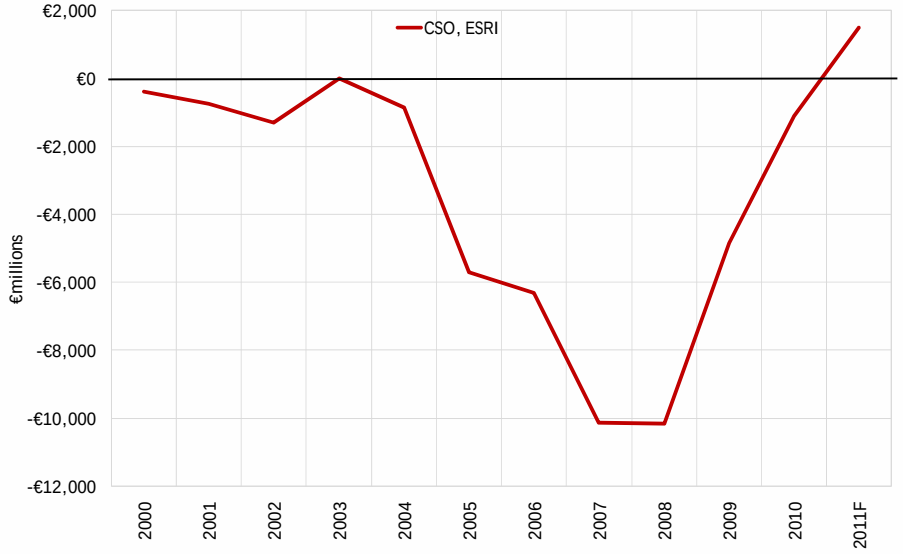
Figure 3.04 examines the make-up of economic growth in 2010 in the UK and Germany and compares this with Ireland. It is clear that exports have driven a larger proportion of Ireland's economic growth than is the case in either the UK or Germany in 2010. This is, in part a reflection of the fact that Ireland is more dependent on exports for economic growth than either Germany or the UK who both have large domestic markets.

Ranking: n/a

Source: National Accounts

[28] GDP at market prices

Figure 3.05 Balance of Payments, Current Account Balance (€ millions), 2000- 2011F

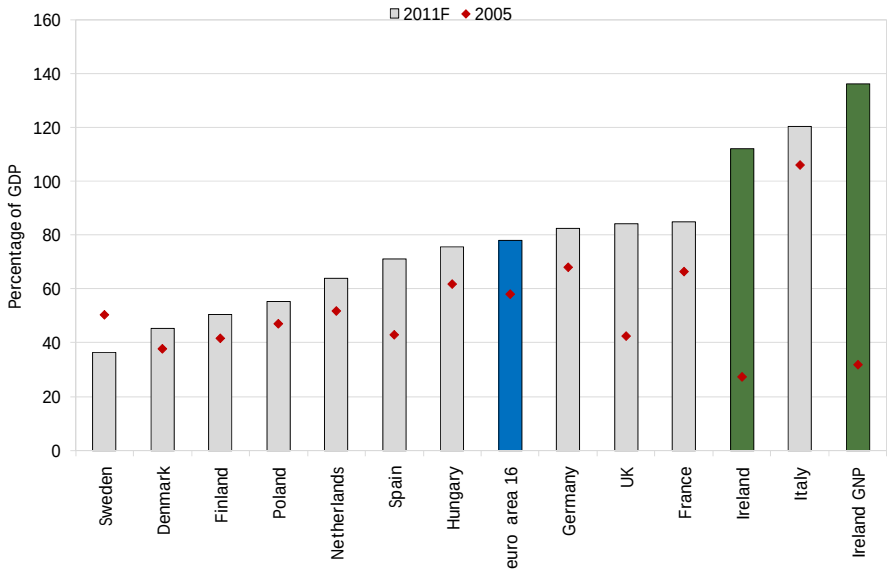


Source: CSO Balance of Payments, ESRI Quarterly Economic Commentary, Spring 2011

The current account balance is a measurement of national income less expenditure. Earnings on investments, both public and private, are also included in the current account. The narrowing of the current account deficit in 2009 and 2010 was facilitated by improved competitiveness. This was reflected in higher exports of goods and services and a weaker domestic economy, which resulted in reduced imports. The ESRI forecast that the current account balance will be in surplus in 2011.

Ranking: n/a

Figure 3.06 General Government Consolidated Debt as % of GDP, 2000-2012F

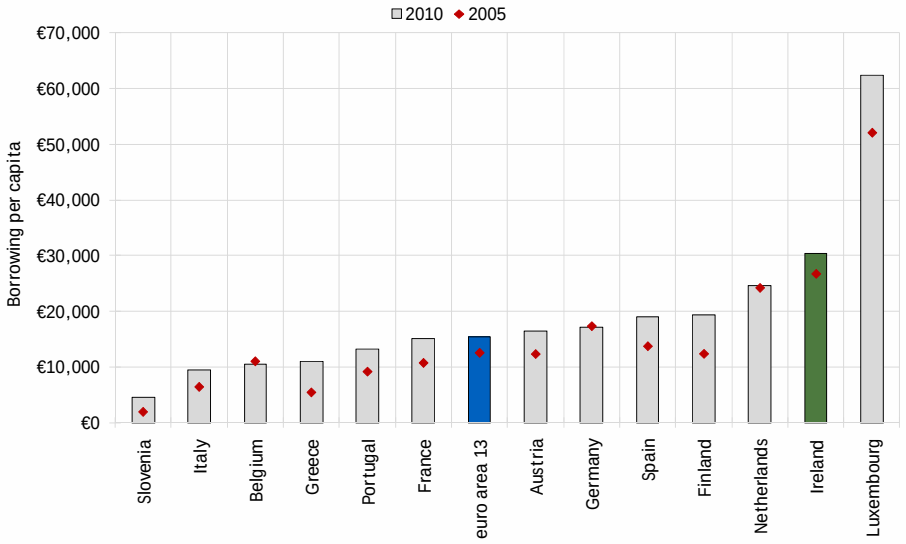


Source: European Commission, DG EcoFin, European Economic Forecast, Spring 2011

Ireland's general consolidated debt as a percentage of GDP has risen sharply since 2007. The rapid increase in general government consolidated debt in Ireland is primarily due to the large Exchequer deficits that have emerged in the last three years and the capital support provided to a number of financial institutions. Ireland's debt as a percentage of GDP is forecast to grow albeit at a slower pace in 2011 and 2012. The European Commission expect it to reach 112% of GDP in 2011 and 117.9% in 2012.

euro area-16 ranking:
GDP**:**14th **(**↓ 11)
GNP: 15th (↓12)

Figure 3.07 Household Borrowing per capita 2010

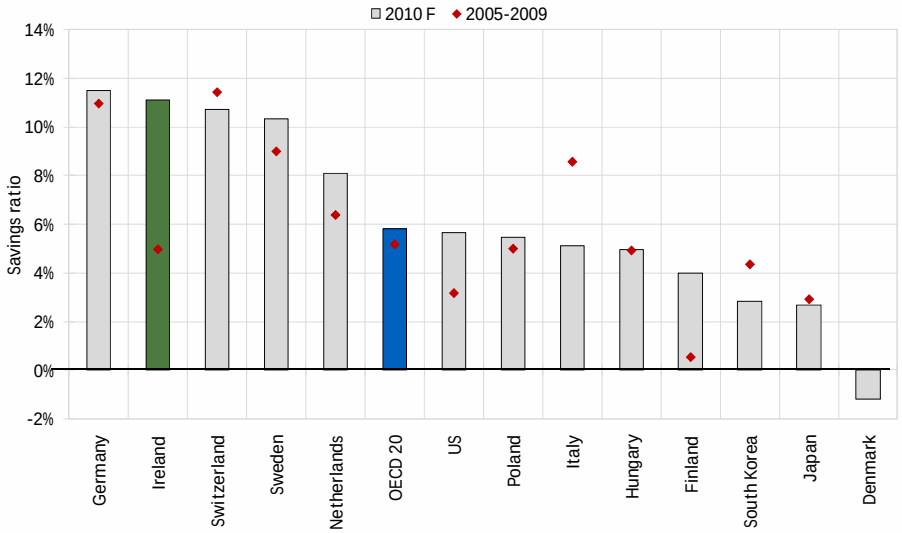


Personal debt grew significantly over the last number of years and Ireland is now the second most personally indebted country the euro area[29]. Debt per capita in Ireland peaked in 2008 and has since declined by approximately 12 percent. For every person resident in the state in 2010, there was an average of €30,410 outstanding household debt.

euro area-13 ranking:
12th (-)

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

Figure 3.08 Household Saving Ratio, 2010[30]



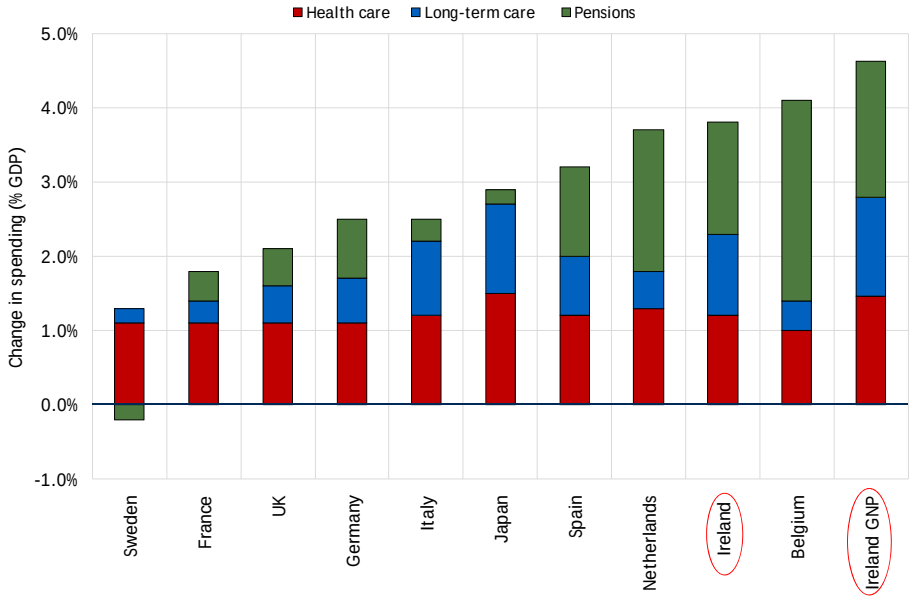
Between 2005 and 2009 the household savings rate in Ireland on average was 4.9 percent. In 2010 the OECD forecast that the savings rate was 11.1 percent, the third highest in the OECD after Belgium and Germany. Households are concentrating on repaying their outstanding debt and increasing their precautionary savings, which can have negative effects on consumption and GDP in the short term.

OECD-20 ranking:
n/a

Source: OECD Economic Outlook 88 Database, November 2010

[29] Euro area 16 minus Cyprus, Malta and Slovak Republic
[30] The household saving rate is calculated as the ratio of household saving to household disposable income. OECD 20 excludes France, Portugal, Spain, UK, New Zealand, Greece, Luxembourg, and Iceland

Figure 3.09 Projected Changes in Ageing - Related Public Spending (Change in 2010-2025, % of GDP)



The OECD estimate that, for the average OECD member country, offsets of 3% of GDP will have to be found over the coming 15 years to meet spending pressures arising from ageing, representing an additional cumulative consolidation requirement of about 0.3% of GDP per annum[31]. Although the costs of meeting age related expenditure in Ireland will occur a number of years after other EU and OECD states, the costs of meeting these demands is higher than most other countries examined.

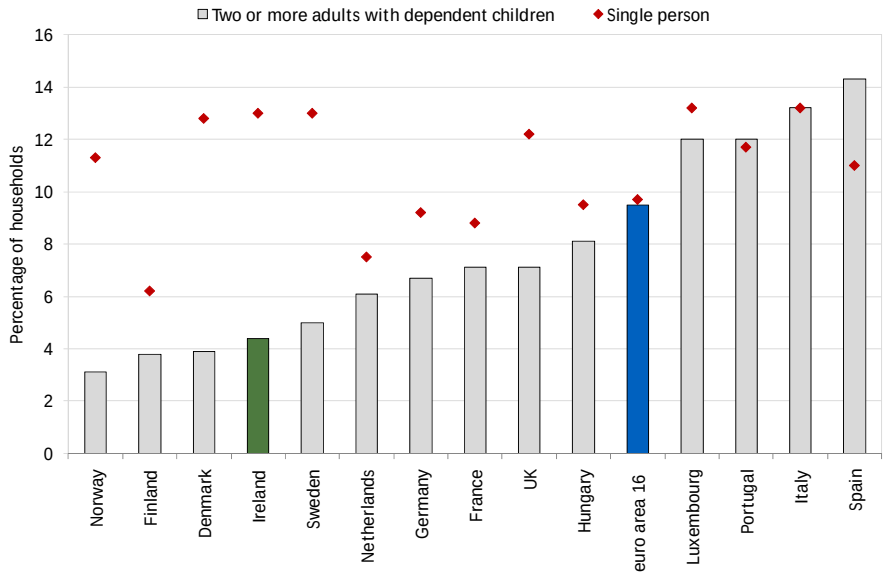
OECD-19 ranking[32]:
GDP: 14th
GNP: 18th

Source: OECD Economic Outlook, Volume 2010/2, No. 88

[31] OECD projections for increases in the costs of health care and long term care have been derived assuming unchanged policies and structural trends. OECD Economic Outlook, Volume 2010/2, No. 88
[32] OECD 19 excludes Czech Republic, Denmark, Hungary, Iceland, South Korea, Norway, Poland, Slovak Republic, and Switzerland

3.2 Quality of Life

Figure 3.10 In-Work at-Risk-of-Poverty by Household Type, 2009



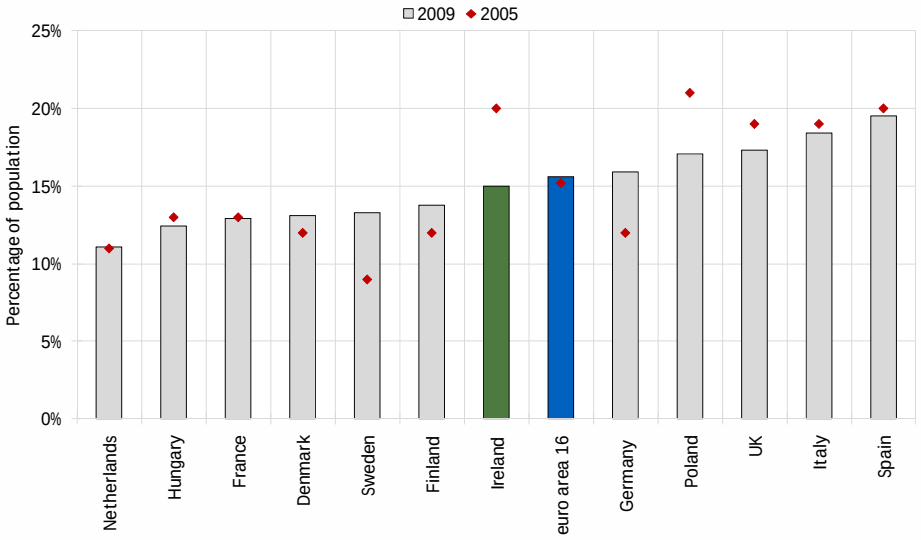
Source: Eurostat, Structural Indicators

Figure 3.10 examines the risk of in-work poverty for with two or more adults with dependent children. Ireland performs relatively well in terms of this indicator in; 4.4 percent of families in this category are considered at risk of poverty compared with 9.5 percent in the euro area-16.

The risk of poverty is also shown for a single person household. By contrast, 13 percent of single people in work in Ireland are at-risk-of-poverty. This is above the euro area-16 average (9.7%).

euro area-16 ranking:
Two or more adults: 3rd (↑4)
Single person: 14th (↓4)

Figure 3.11 At-Risk-of-Poverty after Social Transfers (% of Population), 2009

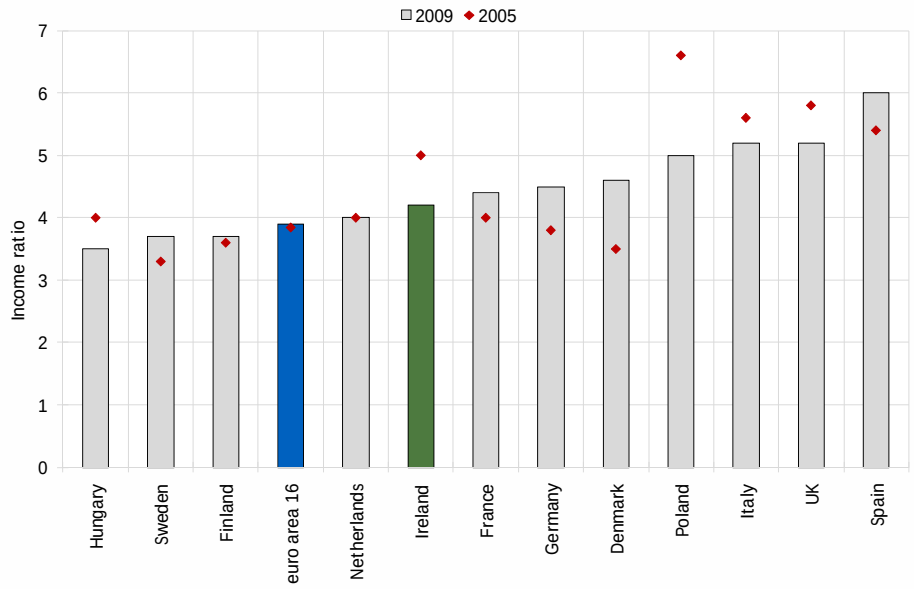


Source: Eurostat, Structural Indicators

This chart provides an indication of the progressivity of individual economies. The risk of poverty is determined by those with less than 60% of the national median's disposable income after social transfers. Ireland has made significant improvements in this indicator since 2005, when 20% of the population were at risk of poverty after social transfers. In 2009, Ireland moved below the euro area-16 average when 15% of the population were at risk.

euro area-16 ranking:
4th (↑11)

Figure 3.12 Inequality of Income Distribution (80/20 Income Quintile Share Ratio), 2009

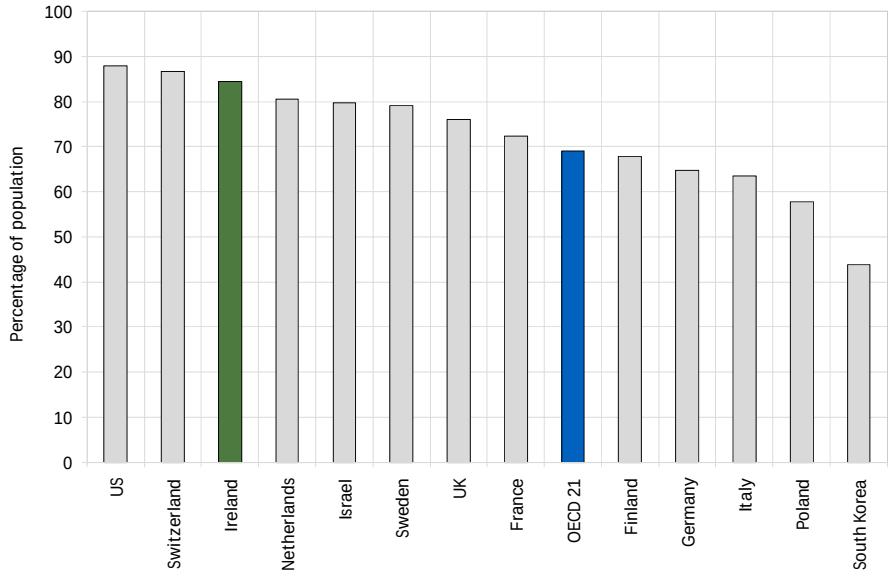


This indicator measures the ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile). In 2009, those in the top 20% in Ireland earned 4.2 times more income than those in the bottom 20%, a reduction from 2005 when the top 20 earned 5 times more income than the bottom 20%.

euro area-16 ranking: 9th (↑ 3)

Source: Eurostat, Structural Indicators

Figure 3.13 Percentage of Population with Perceived Good Health, 2008



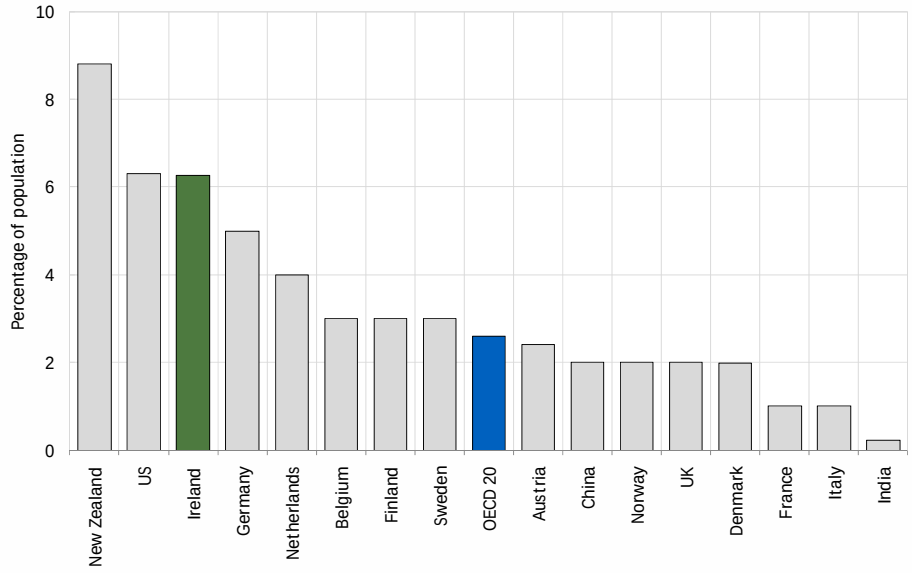
There is not yet full standardisation of the measurement of perceived health status across OECD countries. Nevertheless, this indicator shows that the vast majority of the Irish population consider themselves to be in good health.

OECD-21 ranking[33]: 5th

Source: OECD, Health Data 2010

[33] OECD 21 excludes Austria, Denmark, Hungary, Japan, New Zealand, Portugal, and Spain

Figure 3.14 Participation Rates in Volunteering, % of the Population[34], 2009

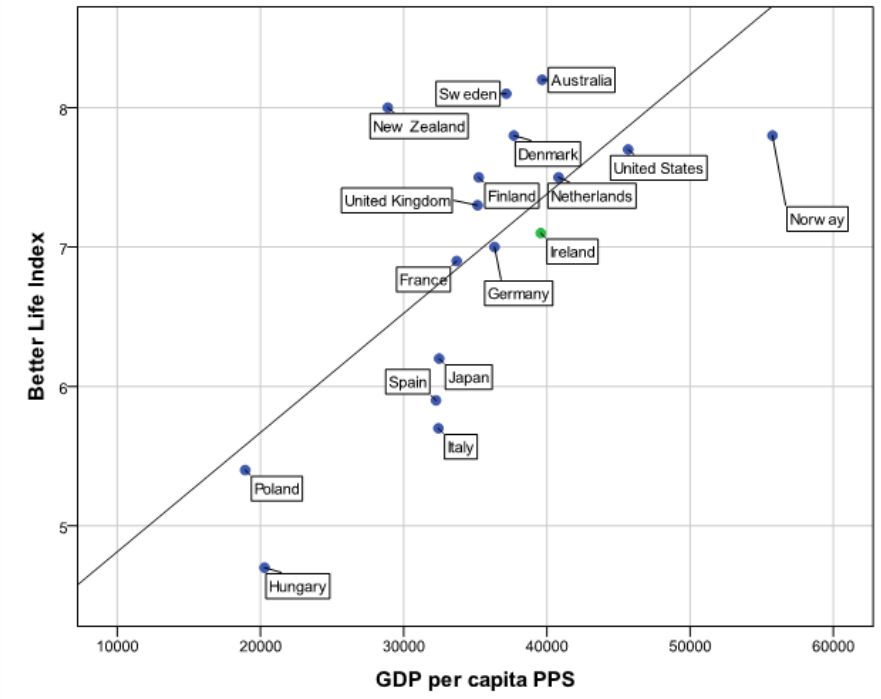


Ireland has the joint second highest participation rate amongst all countries examined. However, even though a larger proportion of the Irish population volunteer relative to other countries, they devote a smaller amount of time per day than other countries.

OECD-20 ranking: Participation rate: joint 2nd

Source: OECD Social, Employment and Migration Working Papers no. 116, Cooking, Caring and Volunteering: Unpaid Work Around the World

Figure 3.15 OECD Better Life Index and GDP per Capita PPP, 2010



The OECD Better Life Index compares well-being across countries, using 20 different indicators across 11 topics. These topics range from housing, community, education, life satisfaction, and work life balance. Figure 3.15 shows the results of the headline Better Life index plotted against GDP per person at purchasing-power parity (which adjusts GDP for differences in the cost of living across countries). There is a strong correlation between this index and the level of income per capita.

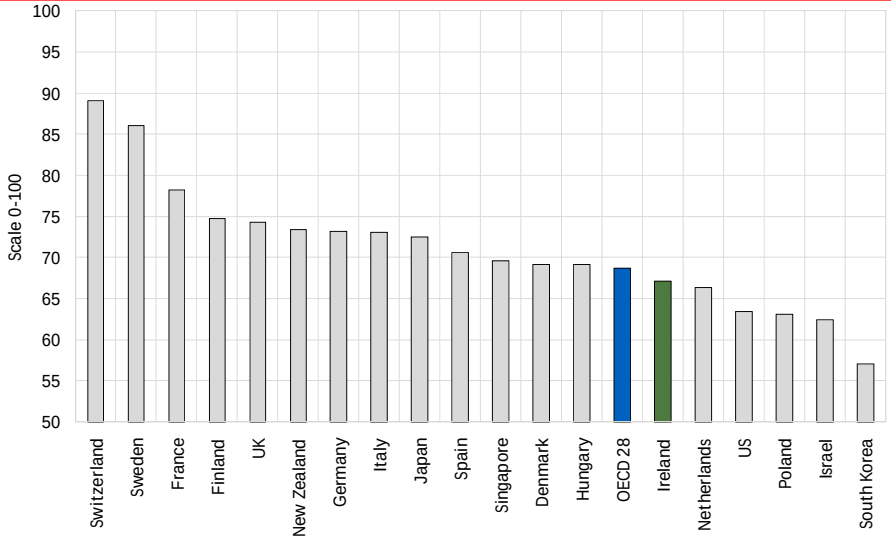
OECD-17 ranking: 10th

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

[34] Participation rates and time for the population aged 15-64 over the period 1998-2009. See working paper for country notes. OECD 17 excludes Australia, Czech Republic, Greece, Iceland, Luxembourg, Portugal, Slovak Republic, and Switzerland

3.3 Environmental Sustainability

Figure 3.16 Environmental Protection Index, 2010, Scale (0-100)

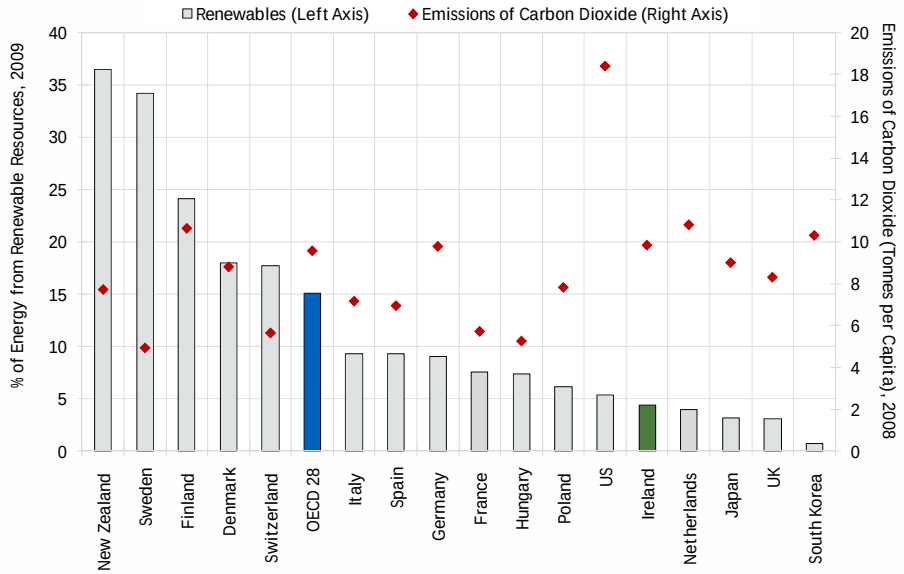


This index aggregates 25 environmental indicators relating to health, air quality, water resources, productive natural resources, biodiversity and habitat, sustainable energy and climate change. Ireland's performance is marginally below the OECD average. Due to methodological changes, it is not possible to compare the 2010 index with previous years.

OECD-28 ranking: 20th

Source: Yale Centre for Environmental Law and Policy

Figure 3.17 Percentage of Energy from Renewable Sources (2009) and Per Capita Carbon Dioxide Emissions from Fuel Combustion (2008)



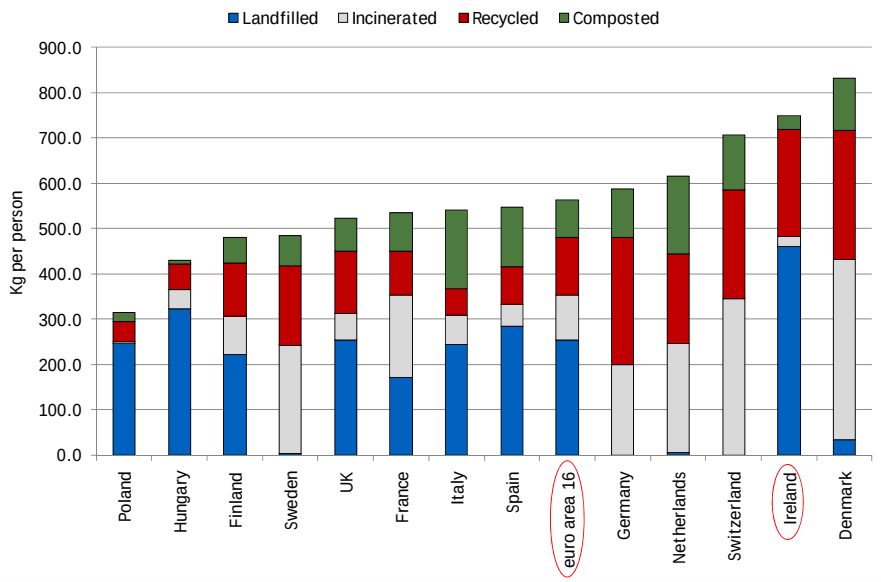
Ireland's share of energy derived from renewable resources, is growing, (left axis) but remains approximately a third of the OECD average[35], reflecting our high dependence on imported fossil fuels and very limited hydro potential. Ireland's share of electricity produced from non-hydro renewable sources is above the OECD average. Ireland is among the highest carbon emitters in the OECD on a per capita basis (right axis), driven by increases in transport emissions[36].

OECD-28 ranking:
Renewables: 22nd (-)
CO^2 emissions: 19th (↑3)

Source: International Energy Agency, CO^2 Emissions from Fuel Combustion, 2010 Edition

[35] In 2008, renewables accounted for 3.6 percent of Ireland's gross final energy consumption (which includes electricity generation, transport and heating). Of this, 0.5 percent was accounted for by hydro and 1.3 percent was accounted for by wind. Provisional data from the SEAI for 2009 indicates that this has increased to 4.4 percent. Ireland is required to meet 16 percent of total energy needs from renewable energy sources by 2020.
[36] Emissions in Ireland were 7.9 percent lower in 2009 than in 2008 - Environmental Protection Agency, Ireland's Greenhouse Gas Emissions in 2009, October 2010

Figure 3.18 Municipal Waste Generated and Treatment Method, 2009

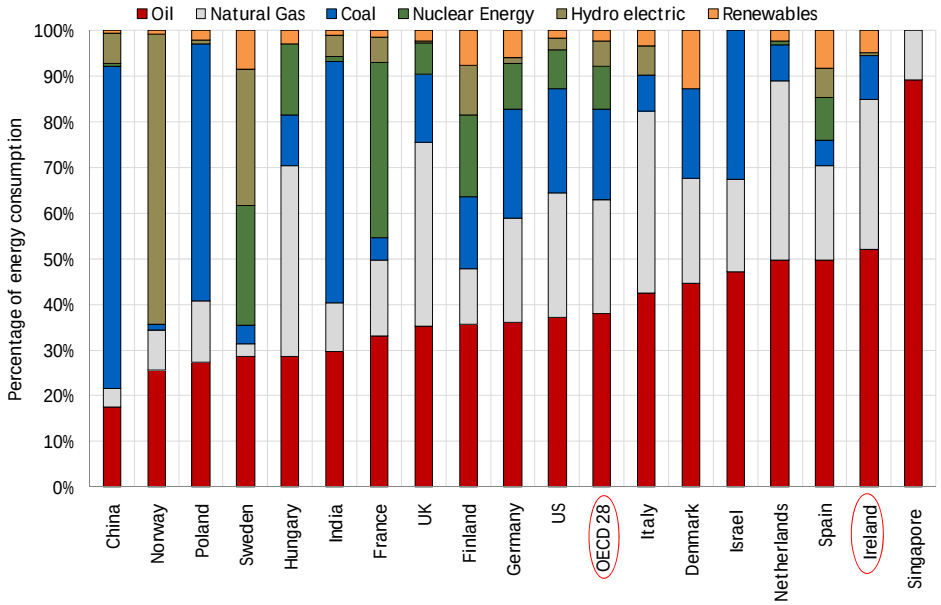


Source: Eurostat, Structural Indicators, Environment

Ireland generates more waste (742 kg per person) than the euro area average (564 kg/person)[37]. Ireland recycles 32% of waste compared to the euro area-16 average of 22%. Ireland land filled 62% of municipal waste in 2009 which compares poorly with the euro area-16 average of 46%. It is notable that Ireland has limited incineration capacity (3%) compared to the euro area average (17%)[38].

euro area-16 ranking:
Waste generated: 15th
Recycling: 4th
Landfill: 10th

Figure 3.19 Components of Energy Consumption per capita[39], 2009



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

Ireland is amongst the countries most dependent on oil as a source of energy consumption. Only Singapore consumes more energy generated through oil than Ireland. The use of hydro-electric power is clearly dependent on natural geographies. In addition our fuels are largely imported.

Ranking:
Oil Generated Energy: 16th out of 20

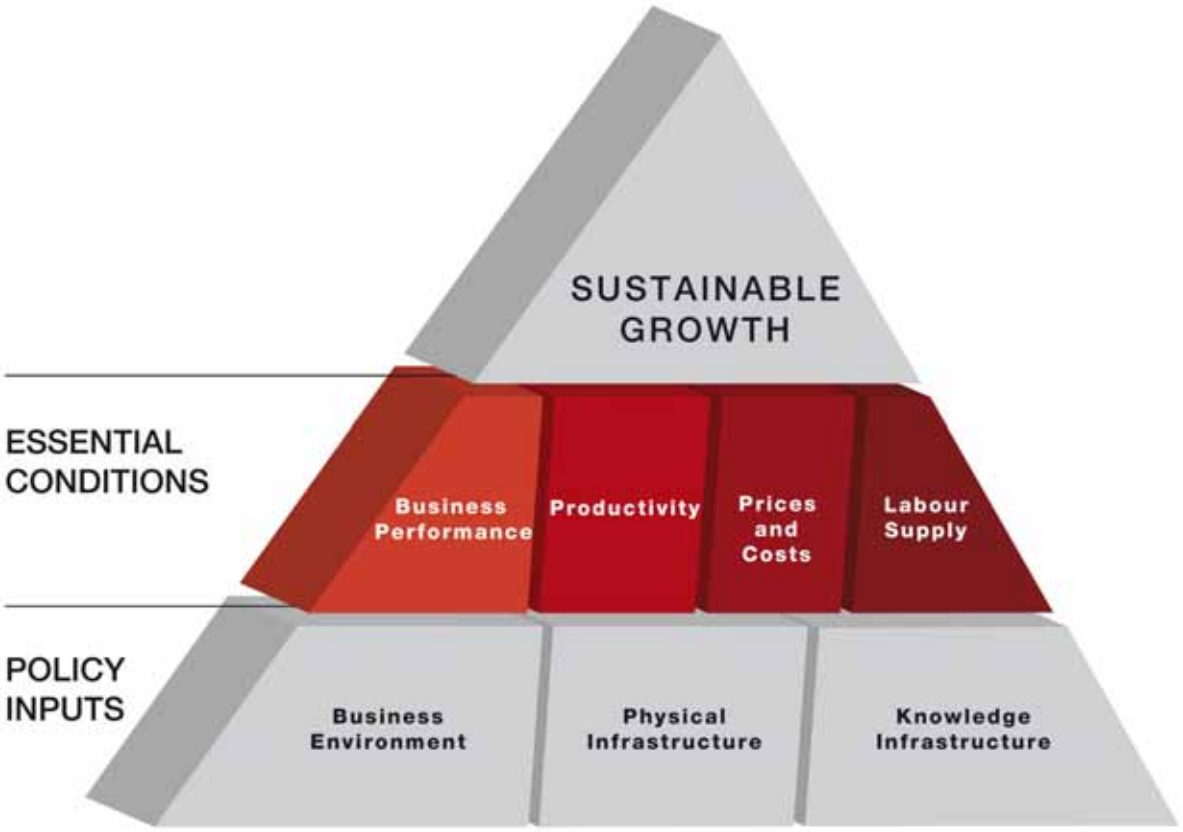
[37] Data from the Environmental Protection Agency suggests that municipal waste generation per capita fell substantially in Ireland between 2008 and 2009 from 730 kg per person to 660 kg per person. This has not yet been reflected in Eurostat figures. For further details see Environmental Protection Agency, National Waste Report 2009, 2011

[38] Euro area 16 excludes Estonia. Reported quantities of waste generated and treated do not match exactly for some Member States, for a number of reasons including: weight losses due to dehydration, double counts of waste undergoing two or more treatment steps, exports and imports of waste and time lags between generation and treatment.

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

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.

4.1 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.

4.1.1 Business Investment

As a result of the property collapse and the prolonged drop in consumer and business confidence, investment in the economy has fallen dramatically over the past number of years. From a sustainability perspective, the move away from an over reliance on property investment was inevitable. A renewed focus on more productive investment as evidenced by the forecast increases in investment in machinery and equipment is welcome.

The private sector in Ireland has experienced a dramatic decline in investment from over 26 percent of GDP in 2005 to 7.3 percent in 2010 (Figure 4.01). By contrast, the Government's spend has proved resilient in comparison, and at almost 4.5 percent of GDP remains above the euro area average.

While recognising the need to encourage domestic entrepreneurship and indigenous enterprise, FDI remains critically important to the Irish economy (Figure 4.02). While the stock of inward investment in Ireland as a percentage of GDP has declined since 2005, inward investment levels remain among the highest in the OECD. Foreign owned companies remain a major source of employment and value added. Indeed, despite the impact of the recession on both Ireland and the global economy, Ireland remains an attractive investment location and continues to attract a large number of Greenfield investment projects, relative to its size (Figure 4.03). In 2009, the number of foreign owned firms investing in Ireland for the first time increased by 11 percent compared with the previous year. Only Singapore attracted more Greenfield projects per capita in 2009.

One of the reasons Ireland continues to perform strongly in terms of FDI is that investments in Ireland deliver impressive returns. In general rates of return on US overseas investment have decreased in many countries as a result of global economic difficulties. While the rate of return in

Ireland has fallen over the last two years, it remains high compared with other locations within the euro area (Figure 4.04).

As the Irish economy has matured and evolved, outward FDI has assumed greater importance. Ireland's levels of outward direct investment increased from 51.6 percent of GDP in 2005 to 84.7 percent of GDP in 2009 (Figure 4.05). This is significantly higher than the OECD average of 57.2 percent. According to the CSO, during 2009 direct investment flows abroad increased by €4.3bn to €17.2bn compared with €12.9bn in 2008[40].

4.1.2 Trade

As noted elsewhere in this report, Ireland's economic success depends to a large degree on our ability to trade internationally. The importance of export growth for economic recovery is widely recognised[41], and as illustrated below, Ireland continues to be one of the most open economies in the OECD.

Ireland's global share of merchandise trade has fallen gradually while our share of services (a smaller but growing component of world trade) continues to grow (Figure 4.07). In Q1 2011, services exports accounted for 45.7 percent of total Irish exports compared to 21 percent in 2000[42]. This trend is even more visible in Figure 4.08 which examines Ireland's share of world exports at a sectoral level. Ireland has continued to increase its share of the commercial services market, while market shares for pharmaceuticals, chemical and a number of other manufacturing related products have declined somewhat. Ireland's market share in office, telecom equipment, agriculture products, and machinery has fallen sharply, suggesting a loss of sectoral competitiveness[43]. Despite this, export values have remained strong. According to the CSO, on an unadjusted basis, export values increased by almost 6 percent in the year from April 2010 to April 2011[44].

CSO data for Ireland shows that the total value of merchandise exports from Ireland increased by 2.9 percent between 2005 and 2010 (Figure 4.09). Significant increases were recorded in exports from the medical and pharmaceutical sector. On the services side, computer services, business services and financial and insurance services all recorded significant growth.

Looking at the breakdown between firm ownership among agency-assisted firms, 9.1 percent of total agency-assisted firm exports come from indigenous companies in 2009. Foreign-owned firms dominate the three largest export sectors, the fast growing medical devices sector and the shrinking electrical equipment sector (Figure 4.10).

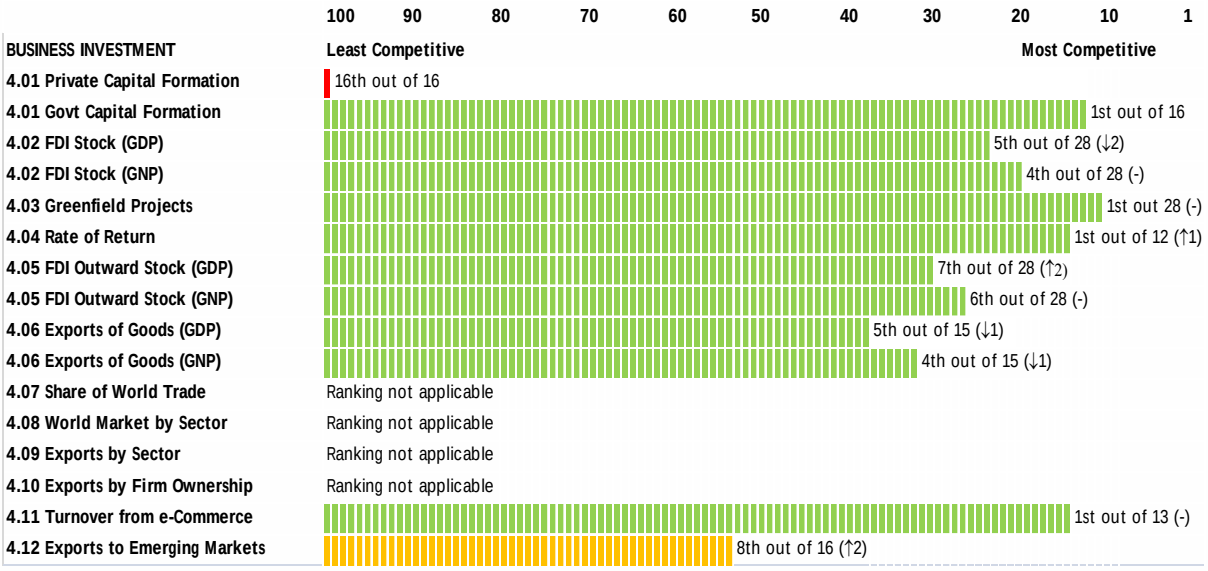
[40] CSO, Foreign Direct Investment 2009, October 2010
[41] Forfás, Making It Happen – Growing Enterprise for Ireland, October 2010
[42] For 2010, services exports accounted for 47.1 percent of total exports. See CSO, Balance of Payments Quarter 1 2011, June 2011
[43] The reduction in office equipment exports is partially a result of the closure of the Dell plant in Limerick in 2009 which produced computer systems.
[44] Comparing annual export values, in 2010 the value of exports from Ireland was €8.2 billion – up 16.6 percent from 2009. See CSO, External Trade, June 2011

The growing importance of e-commerce for Irish enterprises is illustrated in Figure 4.11. A greater proportion of total turnover is generated from ecommerce in Ireland than the euro area average. This is likely a reflection of the openness of the Irish economy. The openness of the Irish economy is also demonstrated in Figure 4.06 which shows that while the majority of Irish merchandise exports in 2009 were destined for EU member states, Ireland also has significant trading links with non-euro area countries.

Finally, Ireland's exports to emerging markets (Brazil, Russia, India and China) as a percentage of GDP are shown in Figure 4.12. Despite the fact that exports to these countries have increased fivefold from 1995-2009 in value terms, as a proportion of GDP and GNP remained below the euro area-16 average in 2009.

A summary of all Business Investment and Trade indicators is provided below.

Summary of Standardised Business Performance Indicators[45]

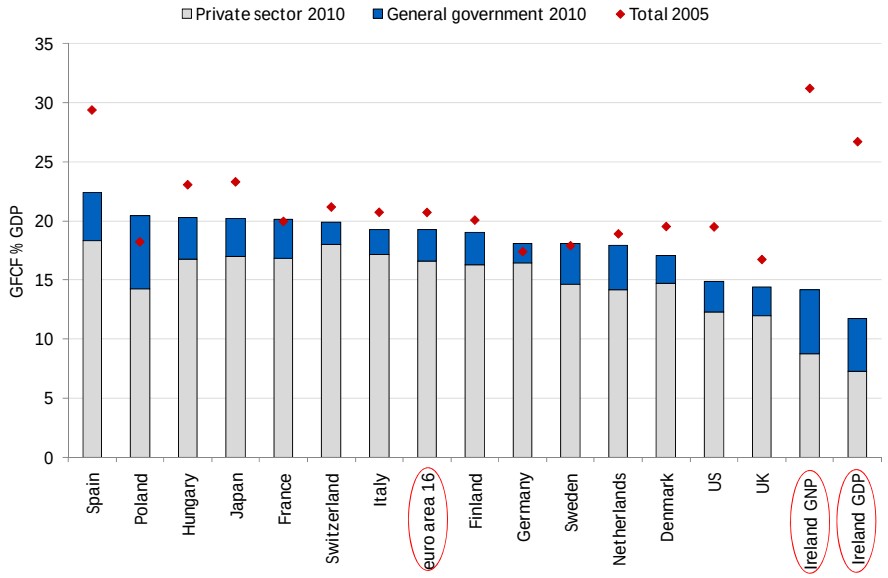


[45] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

4.1 Business Performance

4.1.1 Business Investment

Figure 4.01 Gross Fixed Capital Formation (GFCF) at Current Prices, 2010

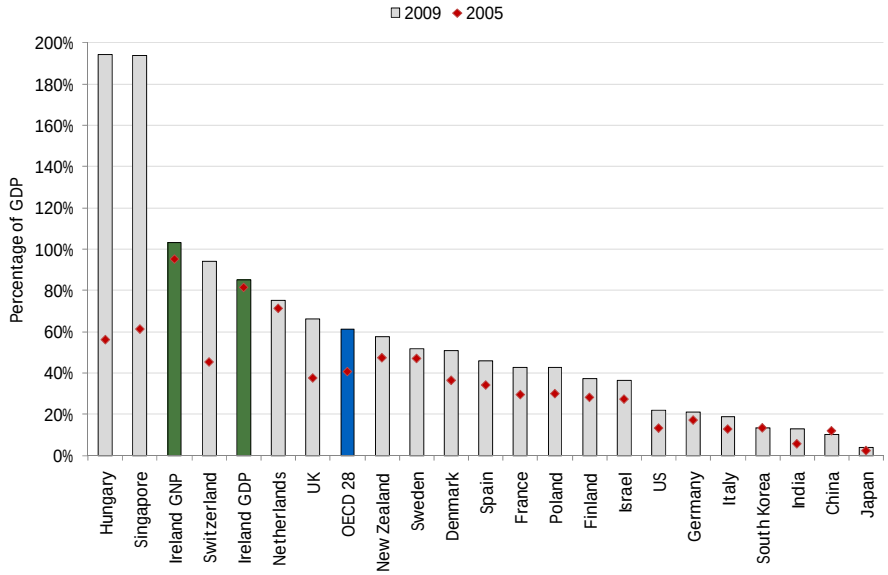


Source: European Commission, AMECO Database

The private sector in Ireland has experienced a dramatic decline in investment from over 26% of GDP in 2005 to 7.3% in 2010. This compares poorly with the euro area-16 average of almost 20% in 2010. Government spend has proved resilient in comparison (4.5%), remains above the euro area average.
As a result of weak construction activity, investment in 2011 is forecast to fall by a further 6%. In 2012, investment is expected to grow at over 3% as a result of increased expenditure on machinery and equipment.

euro area-16 ranking:
Private sector:
GDP/ GNP: 16th
General government
GDP/ GNP: 1st
Total GDP/GNP: 16th

Figure 4.02 FDI Inward Stock (% GDP), 2009

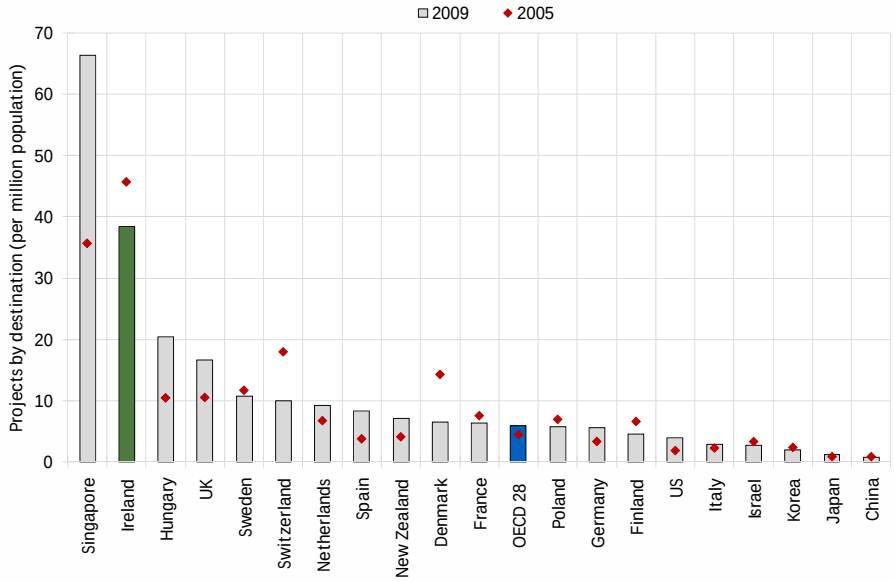


Source: UNCTAD World Investment Report 2010

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 since 2005, inward investment levels remain among the highest in the OECD. Full time employment in foreign owned companies was 139,308 in 2010 compared to 153,392 in 2005.

OECD ranking:
GDP: 5th (↓2)
GNP: 4th (-)

Figure 4.03 Number of Greenfield Projects by Destination (per million population), 2009

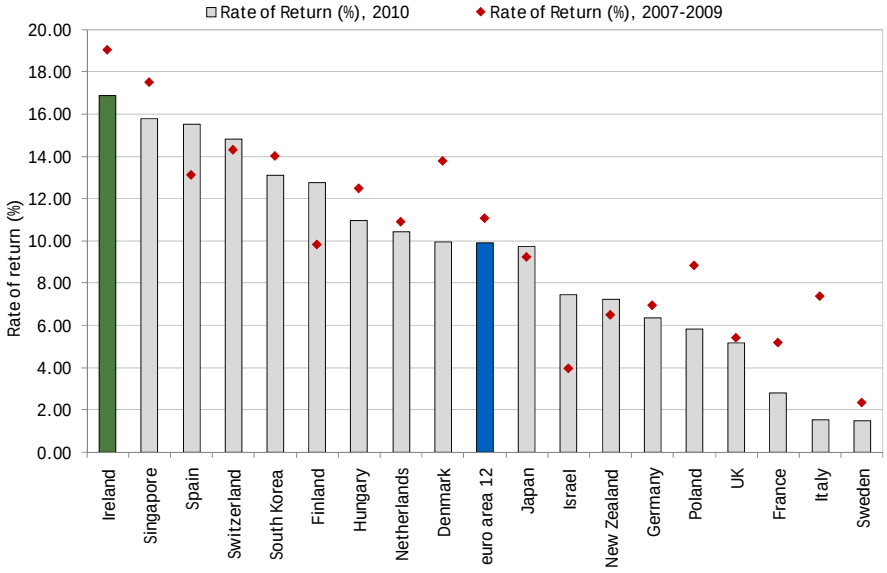


Ireland continues to attract a large number of Greenfield investment projects, relative to its size. Only Singapore attracted more Greenfield projects per capita in 2009.
In 2009, the number of foreign owned firms investing in Ireland for the first time increased by 11 percent compared with the previous year. One change worth noting, however, is that the average number of jobs created by each project is smaller than in previous years

OECD-28 ranking: 1st (-)

Source: UNCTAD World Investment Report 2010

Figure 4.04 Rate of Return to US-owned Companies on Investments in Foreign Countries[46], 2009



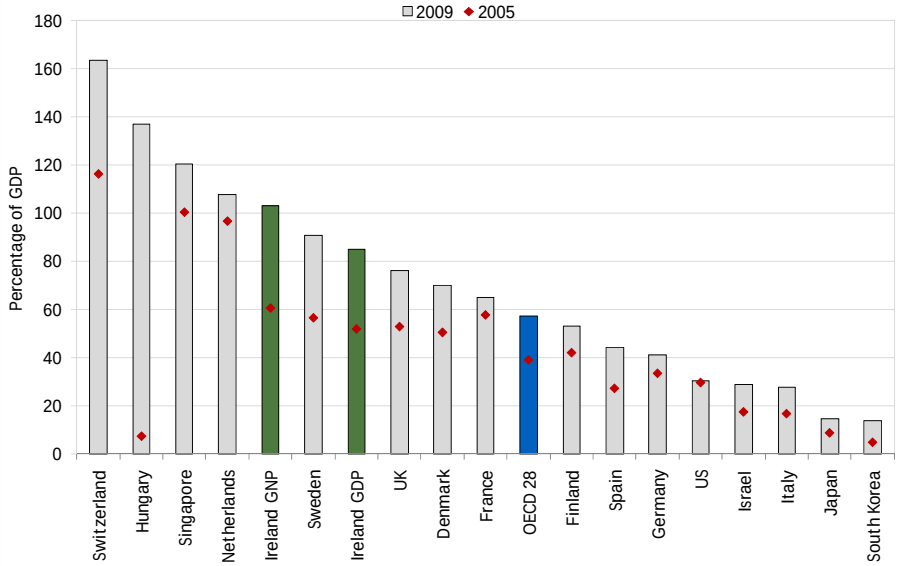
This indicator measures income earned by US companies as a proportion of the amount invested in a particular country – a proxy for rate of return. While the rate of return in Ireland has fallen, it remains the highest within the euro area. In general rates of return have decreased in many countries as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

euro area-12 ranking[47]: 1st (↑1)

Source: US Bureau of Economic Analysis, Forfás calculations

[46] Rate of return is calculated using US Bureau of Economic Analysis data on US Direct Investment Position Abroad on a Historical-Cost Basis and data on US Direct Investment Abroad: Income without current-cost adjustment.
[47] Euro area 12 excludes Cyprus, Slovenia, Malta and Slovakia

Figure 4.05 FDI Outward Stock as a Percentage of Gross Domestic Product, 2009



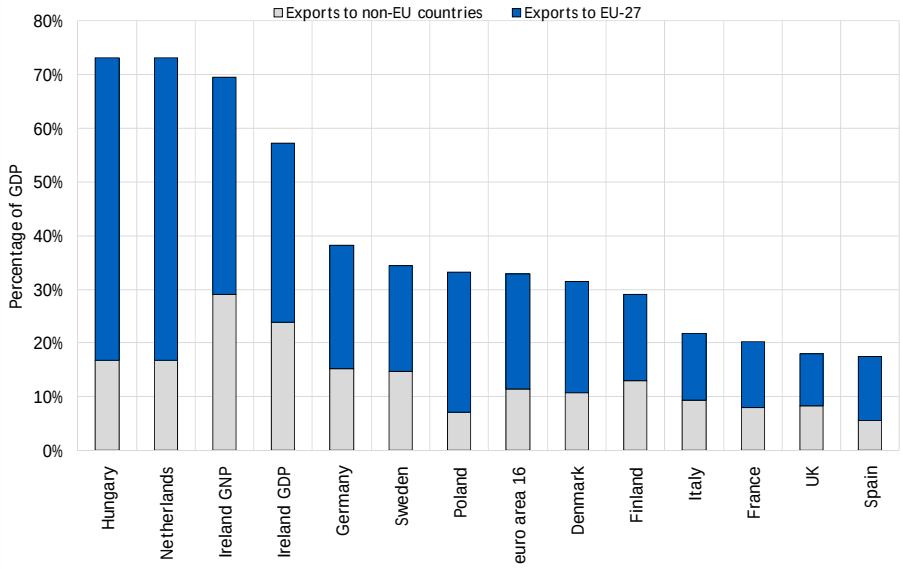
Source: UNCTAD World Investment Report 2010

Ireland's levels of outward direct investment increased from 51.6% of GDP in 2005 to 84.7% of GDP in 2009. This is significantly higher than the OECD average of 57.2%[48]. According to the CSO, during 2009 direct investment flows abroad increased by €4.3bn to €17.2bn[49]. Investment into European countries of €12.1bn accounted for 70% of the total investment during 2009, almost double the amount during 2008. In contrast, the amount invested in the US more than halved from €3.3bn in 2008 to €1.5bn in 2009.

OECD-28 ranking:
GDP: 7th (↑2)
GNP: 6th (-)

4.1.2 Trade

Figure 4.06 Exports of Goods, intra-EU and extra-EU (% of GDP), 2010



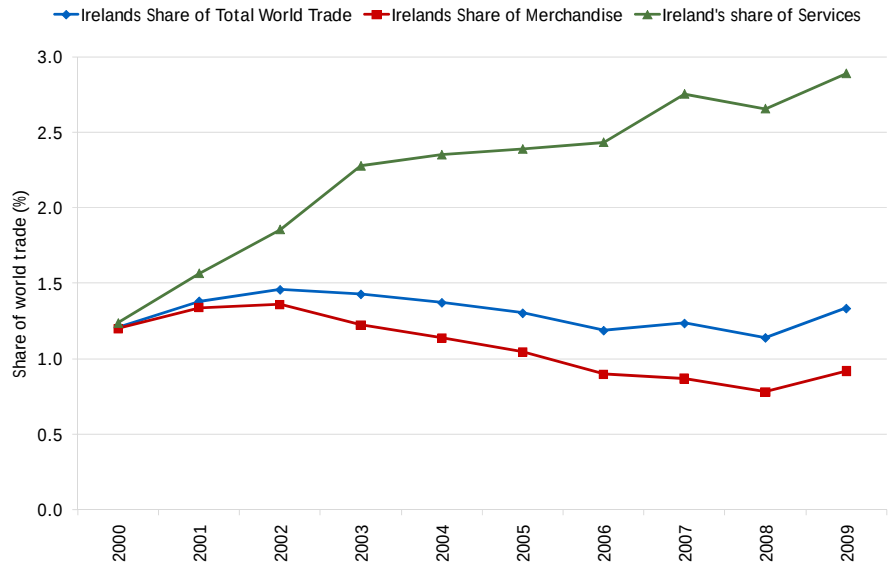
Source: Source: Eurostat, External Trade

Ireland continues to be one of the most open countries to trade in the EU. The majority of merchandise exports in 2010 were destined for EU member states. Ireland also has significant trading links with non-euro area countries – a particular challenge given the strength of the euro in recent years.

EU-15 ranking:
(Ranked by total exports)
GDP: 5th (↓1 from 2009)
GNP: 4th (↓2 from 2009)

[48] Note that the dramatic reduction in Ireland's GDP between 2008 and 2009 is likely to have inflated the rate of increase.
[49] CSO, Foreign Direct Investment 2009, October 2010

Figure 4.07 Ireland's Share of World Trade, 2000-2009

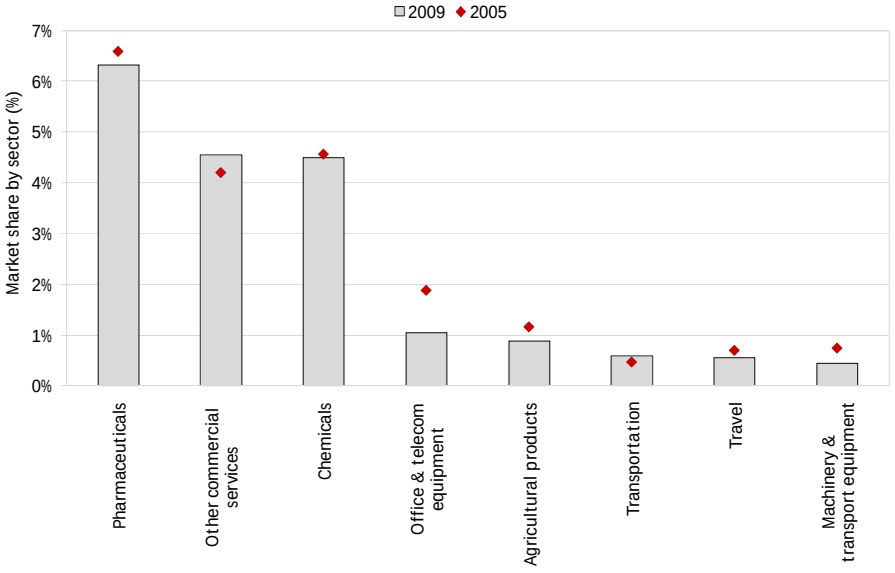


Ireland's share of merchandise trade has fallen gradually since 2002, while our share of services (a smaller but growing component of world trade) continues to grow.
In Q1 2011, services exports accounted for 45.7 percent of total Irish exports compared to 21 percent in 2000[50].

Ranking: n/a

Source: WTO Online

Figure 4.08 Ireland's World Market Share by Sector (%), 2009



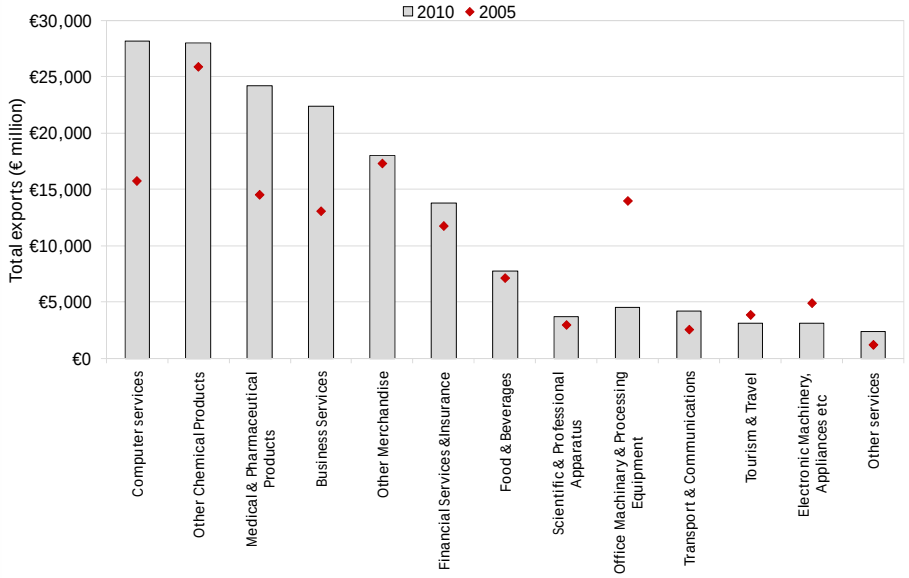
This indicator measures Ireland's share of world exports at a sectoral level. Ireland has continued to increase its share of the commercial services market.
Despite losing market share across a number of other key sectors between 2005 and 2009, particularly office and telecom equipment, export values have remained strong. While 2009 was an exceptionally tough year in international markets, according to the CSO, export values increased by over 16 percent between 2009 and 2010[51], and by 6 percent between April 2010 and April 2011.

Ranking: n/a

Source: WTO Online

[50] CSO, Balance of Payments Quarter 1 2011, June 2011
[51] CSO, External Trade, June 2011

Figure 4.09 Total Goods and Services Exports by Sector from Ireland[52] (€ million), 2010

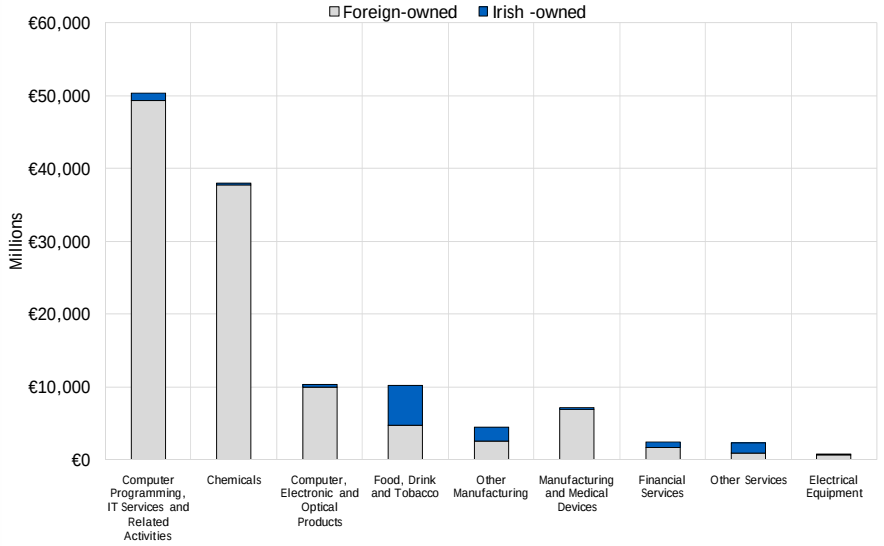


The total value of merchandise exports from Ireland increased by 2.9% between 2005 and 2010. Significant increased were recorded in exports from the medical and pharmaceutical sector. On the services side, computer services, business services and financial and insurance services all recorded significant growth.

Ranking: n/a

Source: CSO, Database Direct, External Trade

Figure 4.10 Enterprise Agency Client Company Exports from Ireland by sector and firm ownership, 2009



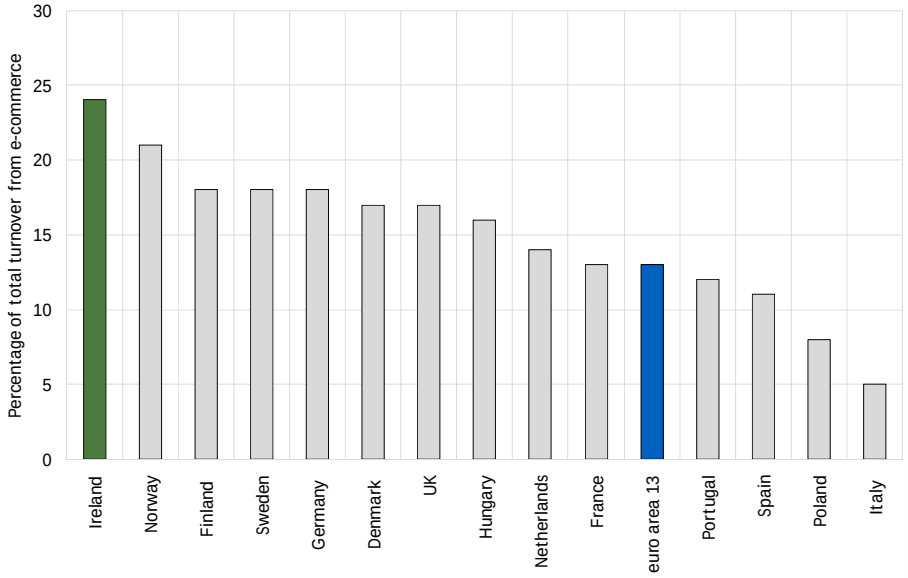
This indicator shows the value of exports of goods and services by sector and firm ownership for agency assisted firms[53]. 9.1% of total agency client exports come from indigenous companies. Irish-owned firms account for 64% of exports from the 'other services' sector and 53% of exports from the food, 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, Annual Survey of Economic Impact 2009

[52] Scientific and professional apparatus (SITC 87) in previous Benchmarking Ireland's Performance reports was classified as Medical, Scientific and professional apparatus and included (SITC 87, 88, and 89).
[53] As noted previously, the contribution of indigenous and foreign owned trading sectors in terms of employment and direct expenditure within the economy is similar.

Figure 4.11 Percentage of Firms' Total Turnover from e-commerce, 2009

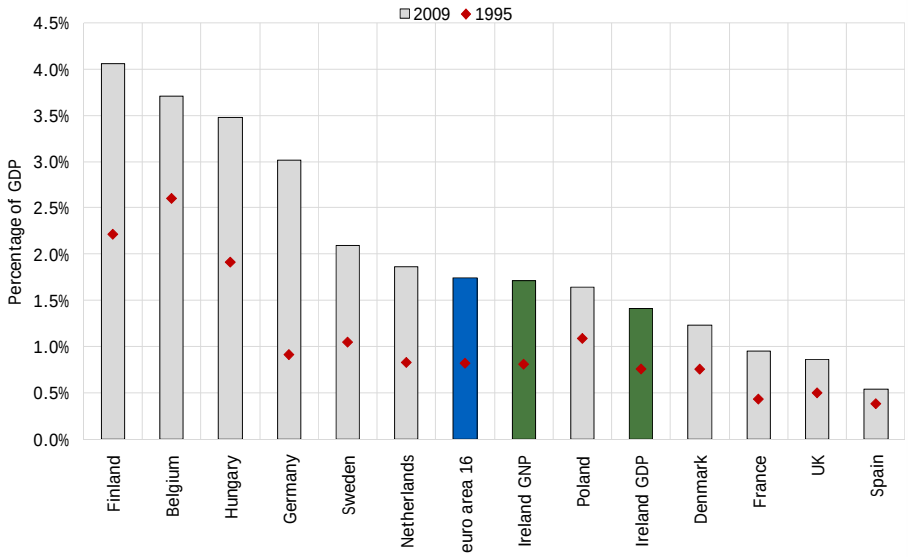


A greater proportion of enterprises' total turnover is generated from ecommerce in Ireland than the euro area average – 24 percent in Ireland compared to 13 percent in the euro area-13[54]. This is likely a reflection of the export dependence of Irish enterprise. Ireland's good international telecommunications connectivity may also be a contributing factor.

euro area-13 ranking: 1st (-)

Source: Eurostat, Data in focus, ICT uses in enterprise 2010

Figure 4.12 Exports to Emerging Markets as a Percentage of Exporting Country GDP



Ireland's total exports to Brazil, Russia, India and China have increased fivefold since 1995 in value terms. However when expressed a percentage of GDP the increase is not as large, only doubling over this 14 year period. In 2009 Irish exports to BRIC countries in both GNP and GNP terms was below the euro area-16 average.

euro area-16 ranking:
GDP: 8th (↑2 from 1995)
GNP: 8th (↑2 from 1995)

Source: UNCTAD, Eurostat Economy and Finance

[54] Euro area 13 excludes Luxembourg, Malta and Greece

4.2 Productivity and Innovation

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

4.2.1 Productivity

Irish productivity levels in GDP terms are above the OECD average (Figure 4.13). Using GNP, (which is a more suitable measure for Ireland), Irish productivity levels remain below the OECD average. In terms of growth rates, positive productivity growth was recorded both in GNP and GDP terms in 2009 and 2010 (Figure 4.14). This rebound in productivity growth follows negative growth in 2008-2009. In part, changes in composition of the work force may explain some of this growth – for example, the decline in construction employment (which has generally low rates of productivity) will have a positive impact on average productivity values. The ongoing rebalancing in the economy may lead to some overstatement of the underlying improvement in competitiveness. Looking forward, the Central Bank is forecasting annual growth in productivity (on a GDP basis) of 2.4 percent per annum for both 2011 and 2012[55]. It is difficult to source reliable internationally comparable, sectoral productivity data.

Productivity is traditionally measured in terms of output (GDP) per hour worked. Figure 4.15, however, encompasses a wider definition of productivity, and takes into account both capital and labour inputs. Ireland delivered strong productivity improvements between 1995 and 2005. Thereafter, multi-factor productivity growth slowed. This is likely to have occurred as a result of a combination of factors including the shift away from highly-productive manufacturing activities towards an over reliance on property investment; diminishing returns as Irish firms caught-up with international best practice; and Ireland's escalating cost base.

4.2.2 Innovation

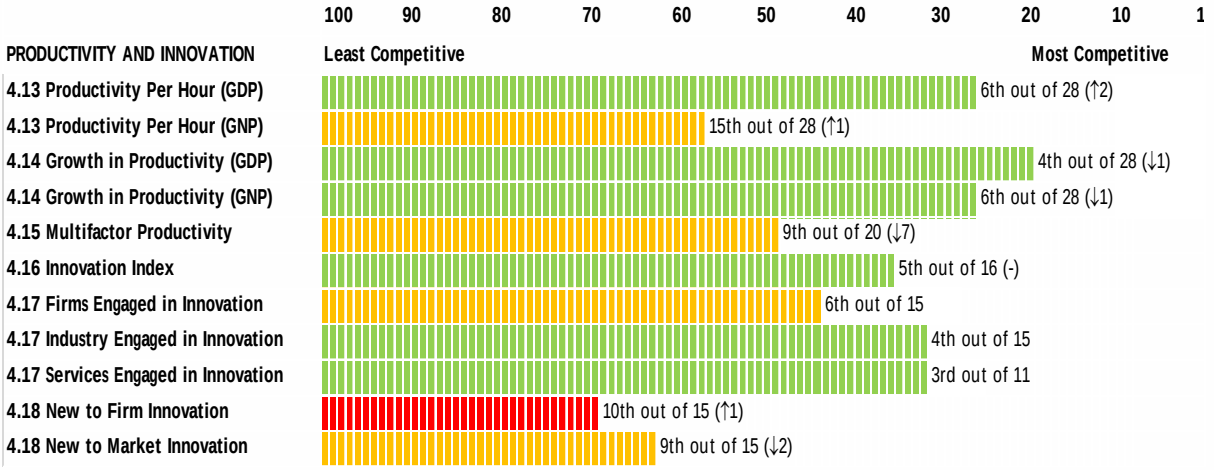
The summary innovation index is a composite of 25 indicators including international scientific co-publications per million population and employment in knowledge-intensive activities (Figure 4.16). Ireland's performance – while above the euro area-16 average - has remained relatively static since 2006.

Figure 4.17 shows the percentage of firms which engage in innovative activity either by changing products or processes. Irish firms are more likely to be innovative (45 percent) than firms in the euro area-15 (40 percent). According to Eurostat Community Innovation Survey data, 52 percent of Irish firms in industry were engaged in innovation compared to 41 percent of service firms. In terms of the proportion of turnover attributed to new/improved products, however, Ireland's performance is below the euro area average (Figure 4.18).

[55] Central Bank of Ireland, Quarterly Bulletin Q2 2011, April 2011

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

Summary of Standardised Productivity and Innovation Indicators[56]

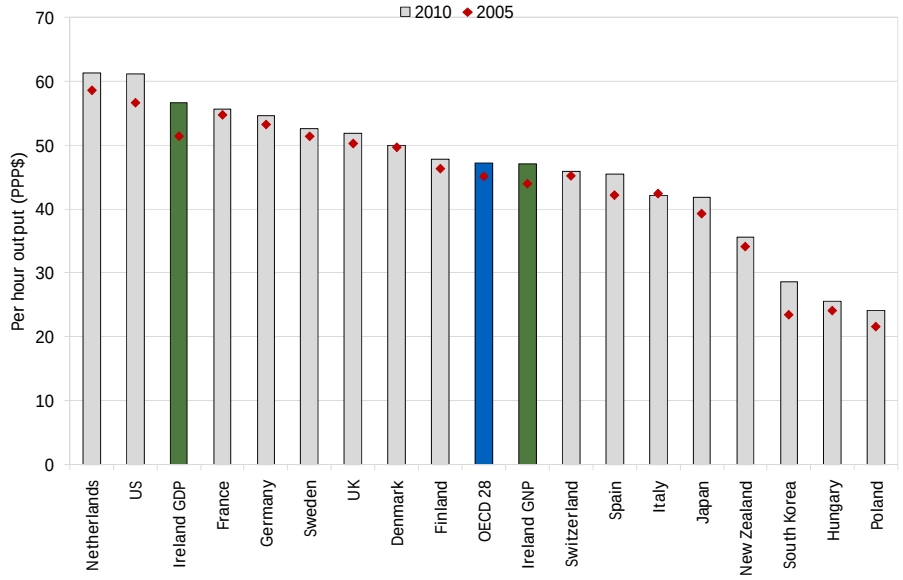


[56] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

4.2 Productivity and Innovation

4.2.1 Productivity

Figure 4.13 Productivity levels, Per-hour Output, 2010 (EKS$)[57]

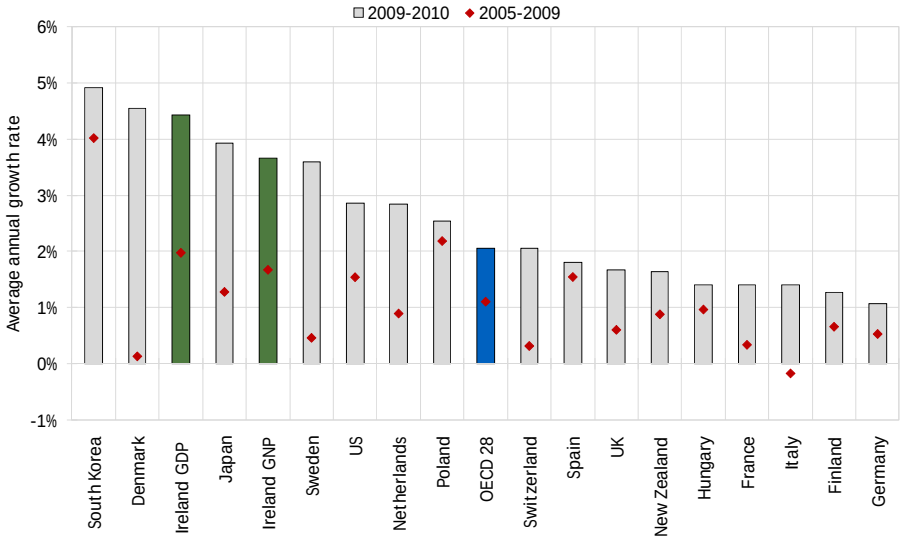


GDP per hour worked indicates that Irish productivity has been amongst the highest in the OECD. Using GNP, a more realistic measure for Ireland, Irish productivity levels remain below the OECD average.

OECD-28 ranking[58]:
GDP: 6th (↑2)
GNP: 15th (↑1)

Source: The Conference Board, Total Economy Database, January 2010

Figure 4.14 Annual Average Growth in Output per Hour Worked, 2005-2010



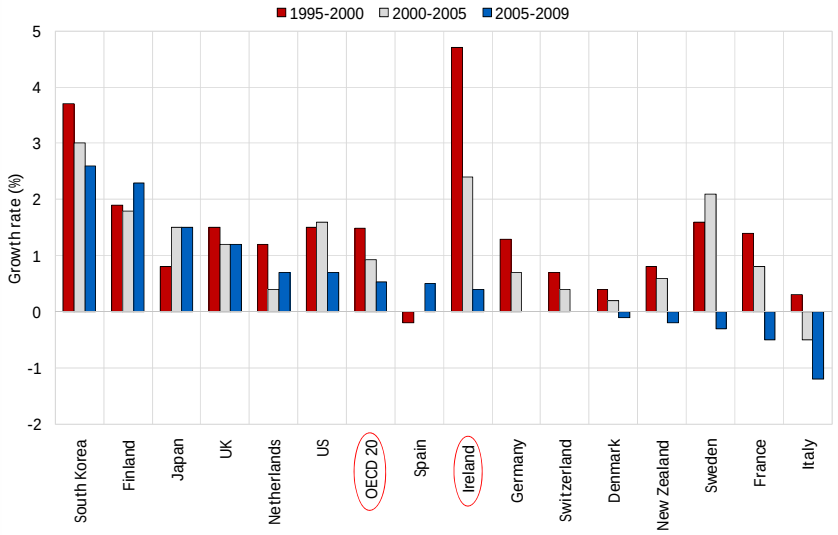
Irish productivity witnessed positive growth, both in GNP and GDP terms from 2009 and 2010. Following negative productivity growth in 2008-2009, Irish productivity growth in GNP terms witnessed a rebound in 2009-2010 and grew by almost 3.7 percent.

OECD-28 ranking: 2009-2010
GDP:4th (↓1)
GNP: 6th (↓1)

Source: The Conference Board, Total Economy Database, January 2010

[57] Values are quoted in US$ using EKS purchasing power parities. EKS (Éltetö-Köves-Szulc) is a method for calculating a multilateral per capita quantity index from disaggregated price and quantity data.
[58] Revised data for 2005 explains difference in 2005 ranking relative to last year's report

Figure 4.15 Growth in Multi-Factor Productivity[59] (%), 1995-2009



Source: OECD Productivity statistics

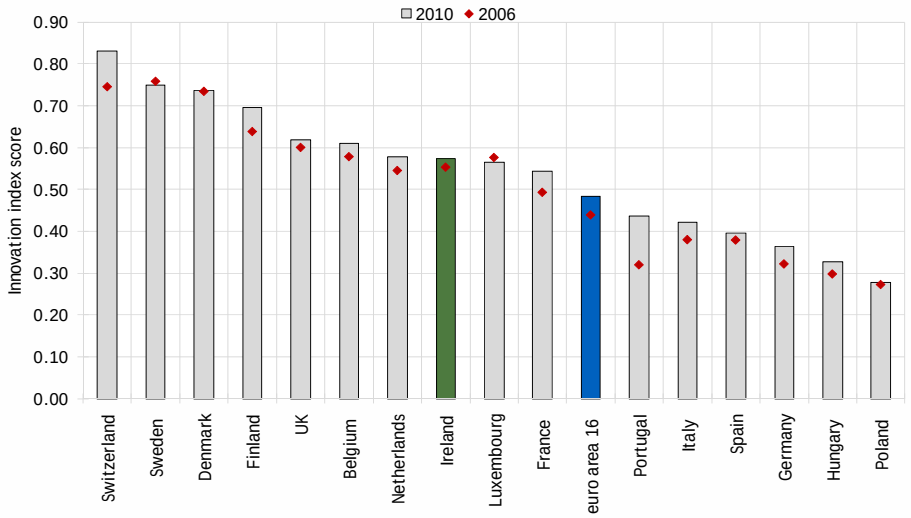
Productivity is traditionally measured in terms of output (GDP) per hour worked. This indicator provides a wider account of productivity, taking into account both capital and labour inputs. Using this measurement, it is clear that Ireland made strong productivity improvements between 1995 and 2005. Thereafter multi-factor productivity growth slowed significantly.

OECD-20 ranking[60]:
1995-2000: 1st
2000-2005: 2nd
2005-2009[61]: 9th (↓7)

[59] The change in multifactor productivity is computed as the difference between the rate of change of output and the rate of change of total inputs; shares of compensation of labour input and of capital inputs in total costs for the total economy measured at current prices (compensation of labour input corresponds to the compensation of employees and self-employed persons and compensation of capital input is the value of capital services); and total inputs calculated as volume indices of combined labour and capital inputs for the total economy.
[60] OECD 20 excludes Czech Republic, Greece, Hungary, Iceland, Luxembourg, Norway, Poland, and Slovak Republic
[61] Ranking for 2005-2009 is referring to ranking within OECD 20 minus Belgium and Portugal, as data is not available for these countries.

4.2.2 Innovation

Figure 4.16 Summary Innovation Index[62] (Scale 0-10), 2010

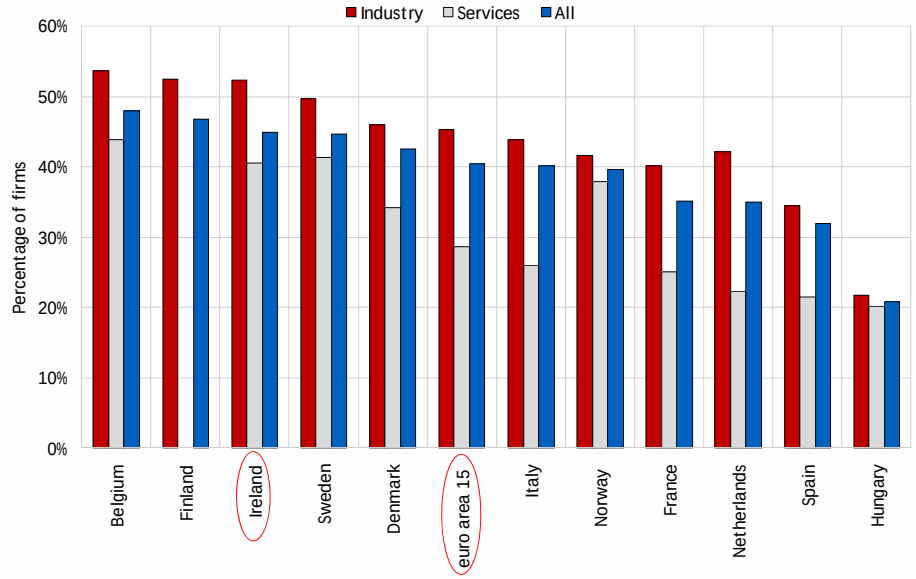


The summary innovation index is a composite of 25 indicators including international scientific co-publications per million population and employment in knowledge-intensive activities as % of the workforce. Ireland's performance, while above the euro area-16 average, has remained relatively static since 2006.

euro area-16 ranking:
5th (-)

Source: Innovation Union Survey 2010

Figure 4.17 Percentage of Firms Engaged in Innovative Activity[63],2008



This chart shows the percentage of firms which engage in innovative activity either by changing products or processes. Irish firms are more likely to be innovative (45%) compared to the euro area-15 (40%). 52% of Irish firms in industry were engaged in innovation compared to 41 percent of service firms.

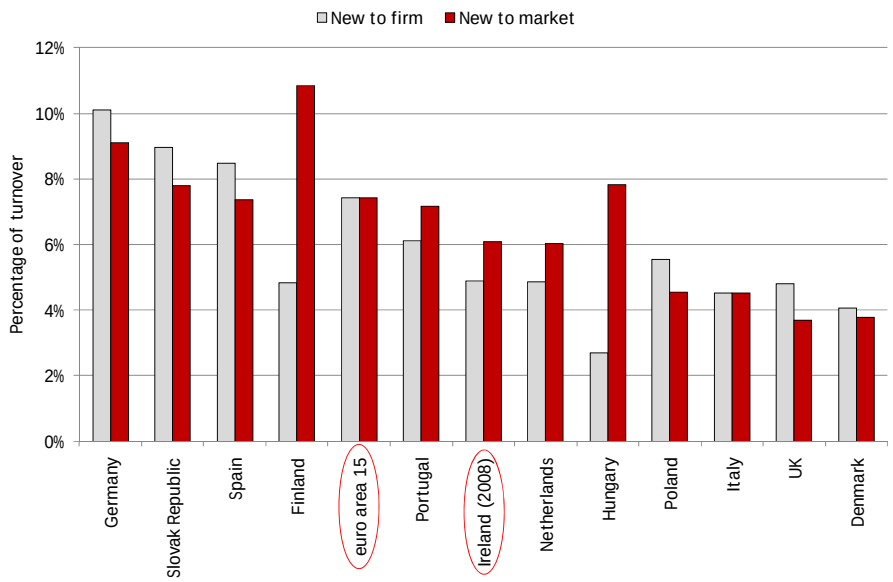
euro area-15 ranking:
Total: 6th
Industry: 4th
Services: 3rd

Source: Eurostat, CIS 2006-2008, CSO/Forfás First Findings

[62] The Innovation Union Survey replaces the European Innovation Survey (EIS) which also devised a summary innovation index (SII). The former list of 29 indicators in the EIS 2009 has been replaced with a new list of 25 indicators, which better capture the performance of national research and innovation systems considered as a whole. 19 of the previous 29 indicators have been carried over from last year's EIS edition, of which 12 indicators have not been changed, 2 indicators have been merged, and 5 indicators have been partly changed by using broader or narrower definitions or different denominators. For a complete explanation of the changes see Innovation Union Survey 2010. The 2010 SII reflects performance in 2008/2009 due to lag in data availability.

[63] Euro area 15 excludes Greece. In relation to services, figures are provided for euro area 11 because data has not yet been reported for Germany, Finland, Luxembourg and Austria and Greece. Industry refers to NACE B-E, services refers to NACE G-N, total refers to all core NACE activities.

Figure 4.18 Percentage of Turnover attributed to Innovative Activity, 2006



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

There are many benefits for firms undertaking innovation including greater responsiveness to customer demands, faster turnaround times, reduced waste levels and downtime and improvements in product design and quality. These benefits ultimately help to increase a firm's turnover. The proportion of turnover attributed to new/improved products is shown in this indicator. Ireland's performance is below the euro area average in terms of both 'new to firm' and 'new to market' innovation in 2008, with 4.9% and 6.1% of turnover coming from these products respectively.

euro area-15 ranking:
New to firm: 10th (↑1)
New to market: 9th (↓2)

4.3 Prices and Costs

Cost competitiveness is one element of overall competitiveness. This section draws on the recently published *Costs of Doing Business in Ireland 2011* report and examines the overall level and rate of change in Ireland's prices and business costs.

4.3.1 Prices

In order to enhance cost competitiveness, prices in Ireland must increase at a slower rate than prices in competitor countries. Price levels in Ireland were the highest in the euro area in 2005. Prices in Ireland continued to increase until September 2008. On an annual basis Ireland experienced deflation in 2009 and 2010 as the overall costs of consumer goods and services declined (Figure 4.19).

Over the 2005-2010 period, inflation in the euro area (2%) grew slightly faster than in Ireland (1.3%). Price inflation in certain sectors, however, was higher in Ireland – notably in the areas of health, education and insurance (Figure 4.20). Since January 2011, the period of deflation has come to an end and consumer prices have begun to rise again, albeit at a lower rate than the euro area average. According to the Central Bank, whereas the consumer price index declined by 4.5 percent in 2009 and a further 1.0 percent in 2010, prices are forecast to increase by 2.2 percent this year and by 1.3 percent in 2012[64]. The resumption of inflation is likely to be driven by increases in food[65] and energy prices which will offset decreases in non-energy goods prices.

Ireland experienced a 7.7 percent 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. Since then, Ireland has regained some of its lost cost competitiveness as a result of falls in relative prices and favourable exchange rate movements: between April 2008 and February 2011, Ireland's nominal HCI (which is a measure of Ireland's trade weighted exchange rate) depreciated by 5.5 percent. The real HCI (which also takes account of consumer price inflation) declined by over 12.3 percent (Figure 4.21).

4.3.2 Pay Costs

Ireland has the 11th highest total labour costs level in the OECD and is in line with a number of western European countries (Figure 4.22). In terms of net wage levels, however, Ireland has the fourth highest net wage level in the OECD-28, 40% above the OECD-28 average. This is due, in part, to the relatively small difference between before-tax and after-tax wages in Ireland.

[64] Central Bank of Ireland, Quarterly Bulletin Q2 2011, April 2011

[65] Price data relating to food is complex. High consumer prices for food do not necessarily reflect farm gate prices. Eurostat's Food Prices Monitoring Tool provides price data on commodity and producer prices as well as consumer prices for food. This data, however, needs to be interpreted with caution. For example, while an increase in commodity prices benefits those farmers producing commodities, other farmers must purchase those same commodities as inputs. Further, there is a complex relationship between commodity and producer prices. In order to fully understand the data, it is necessary to disaggregate the producer price index and examine its individual components.

Looking at growth rates in labour costs (Figure 4.23), there has been a significantly decline in Irish growth – the rate of growth in Irish labour costs has fallen from a high of 5.9 percent in 2001 to -2.2 percent at the end of Q1 2011.

Unit labour costs (ULC) measure the average cost of labour per unit of output. While industry, manufacturing, trade, transport and communication and the business sector experienced negative growth in unit labour costs in 2010, growth was recorded for the construction, financial and business services and market services sectors (Figure 4.24). When interpreting unit labour costs data, it is important to consider the impact of compositional effects. The changing sectoral composition in industry (i.e. the continuing shift towards high value-added sectors) is likely to have been an important explanatory factor behind the sharp fall in unit labour costs across the economy[66].

By way of international comparison in 2005, Irish ULC's increased by 6.15 percent compared to an average of 2.1 percent and 1.9 percent in the OECD-25[67] and the euro area-14 respectively (Figure 4.25). In 2008, ULC growth in Ireland was less than the euro area-14 average. During 2010, Ireland experienced a more pronounced decline in ULC (-4.4%) relative to the OECD-25 (-0.46%) and the euro area-14 (0.85%), indicating an improvement in competitiveness. Both the European Commission and the Central Bank[68] forecast that Irish ULC's will continue to decline in 2011 and 2012.

Finally, Figure 4.26 shows that while in 2008, the cost of employing a manufacturing worker in Ireland was above the OECD average, it was less than the cost in Denmark, Netherlands and Germany.

4.3.3 Non-Pay Costs

As well as declining unit labour costs, Ireland has experienced reductions in many non-pay costs also. For example, the cost of and renting both industrial and office units (Figures 4.28-4.31) declined sharply in Ireland since 2008. In relative terms, however, the impact of these decreases on Irish cost competitiveness has been reduced as there have also been significant cost decreases in many other countries. Looking at residential property, average prices for houses nationally fell by 10.8% from Q4 2009 to Q4 2010. As a result housing affordability for those in employment has returned to levels not witnessed since 1998/1999 (Figure 4.32).

In terms of utilities, the cost of industrial electricity for large energy users in Ireland decreased significantly (-11%) in 2010 (Figure 4.33). Ireland is now the sixth cheapest location in the Eurozone and costs are lower than the euro area average. Despite reductions also being recorded for electricity costs for SMEs in 2010, Ireland remains an expensive location. Reductions in cost, however, would appear to be temporary in nature – the phasing out of a temporary rebate for large users and global fuel price changes are likely to result in higher prices in the future.

[66] Central Bank, Quarterly Bulletin Q1 2011
[67] OECD 25 excludes Iceland and Switzerland and Portugal, and euro area 14 excludes Malta and Portugal.
[68] In their latest Quarterly Bulletin, the Central Bank cautiously project that ULCs in Ireland will decline by 2.5 percent in 2011 and 2012.

With regard to telecommunications, speed, access and cost are key in determining competitiveness. Ireland is the sixth most expensive location of the 15 countries benchmarked for a basket of business calls (Figure 4.34). Based on 2010 survey data, the average price that could be negotiated for landfill fees in the Irish market ranged from €86 to €111 per tonne (including the levy). Singapore and New Zealand are the cheapest location for landfill (Figure 4.36). However, Ireland's cost competitiveness is likely to have improved as Irish prices have continued to fall sharply.

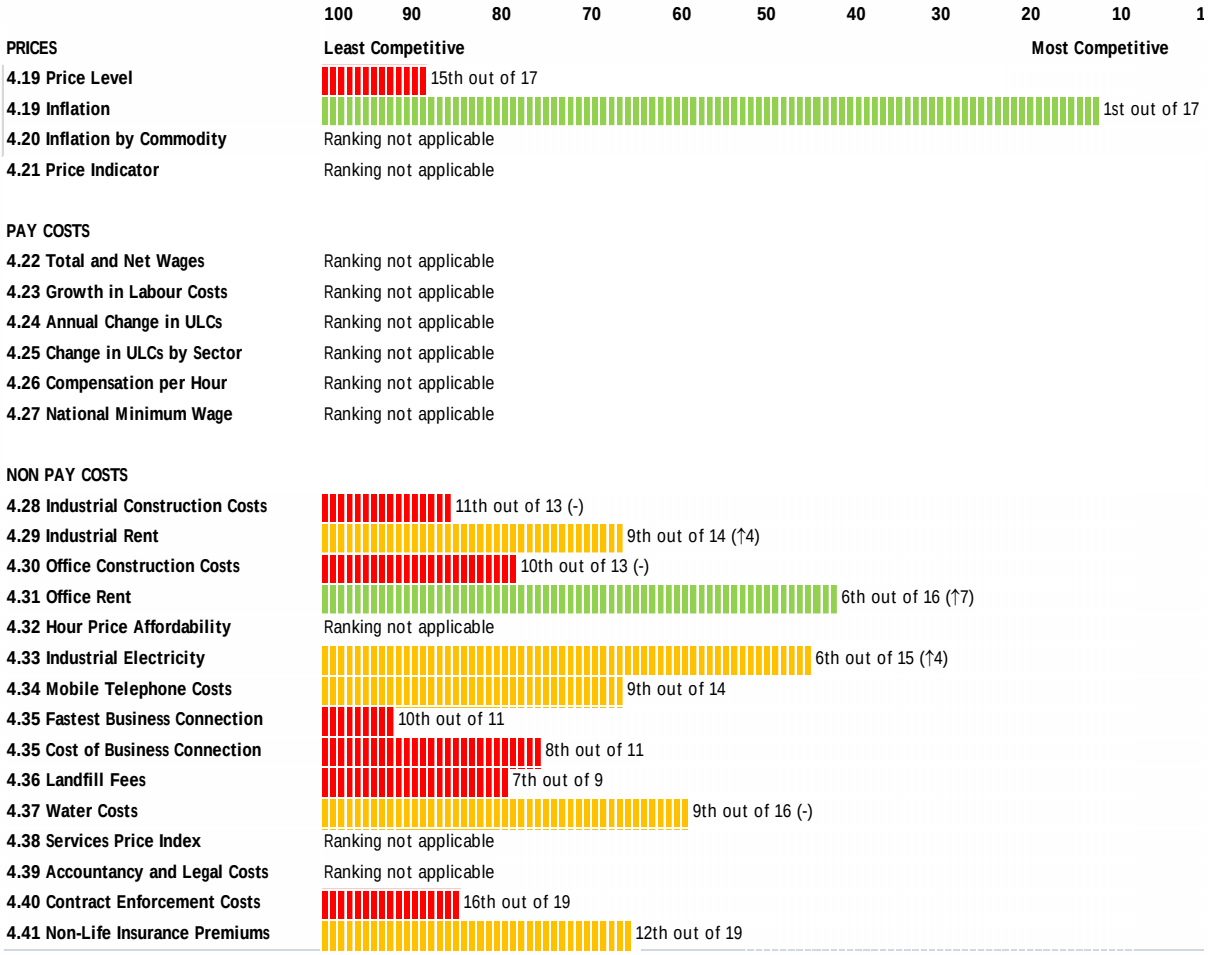
Between 2009 and 2011, the average cost of treated water services in Ireland increased only marginally by 0.9 percent 2011 (Figure 4.37). Based on the internationally comparable data (2008 is the most recent data available) Ireland is competitive with our main trading partners on this measure. The average cost of waste water services in Ireland in 2011 increased of 2.5 percent over the same period. This brought the average consolidated water services charge per metre cubed to €2.31.

Services inflation has long been one of the principle drivers of Irish inflation. Over the course of the economic downturn, four of the five business and professional sectors examined have shown substantial downward adjustment in prices (Figure 4.38). Since 2006, however, the index indicates that legal services prices increased by 12 percent (Figure 4.39)[69]. World Bank data also indicates that Irish legal costs compare poorly to those in other countries (Figure 4.40).

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

[69] SPPI Q4 2010 data on legal services is based on responses received from 18 companies and covers 118 price observations. The majority of firms that responded employ between 10 and 49 employees. The survey does not include data on prices for barrister services. Given the small sample size used to create the sub-indices for accountancy and legal costs caution should be used when analysing the results. The SPPI data, however, shows a similar pattern to previous analysis by the Competition Authority which demonstrated that inflation in legal fees arising from high court cases between 1984 and 2003 exceeded overall average services inflation – see Competition Authority, Competition in Professional Services - Solicitors and Barristers, December 2006 (Figure 2, Page 30) for more detail.

Summary of Standardised Prices and Costs Indicators[70]



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

4.3 Prices and Costs

4.3.1 Prices

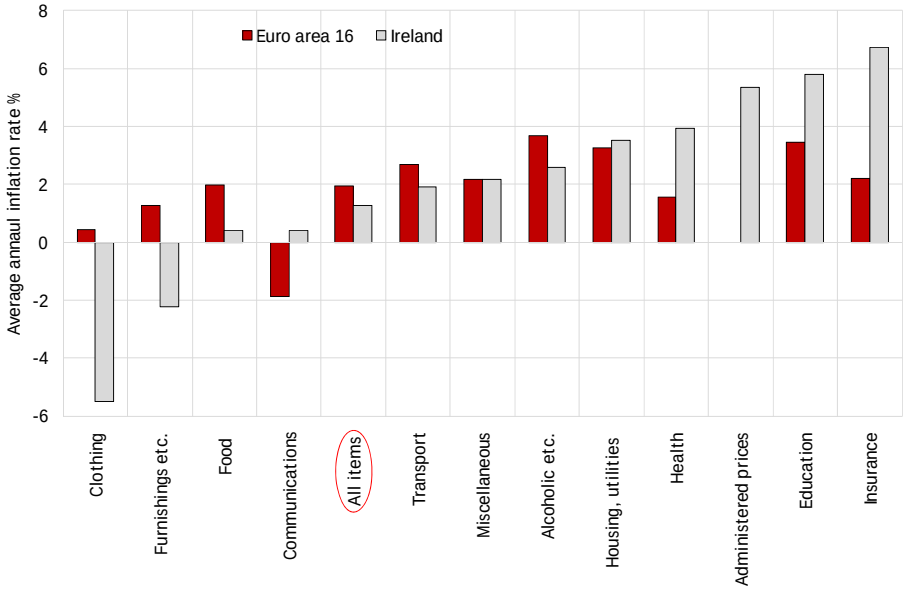
Figure 4.19 Price Level[71] (2005) and Inflation (2005-2010), EU Member States

Price levels in Ireland were the highest in the euro area in 2005. Inflation continued to rise quickly relative to other euro area members until September 2008. On an annual basis Ireland experienced deflation in 2009 and 2010 as the overall costs of consumer goods and services declined. However since the January 2011 consumer prices have begun to rise slowly.

Ranking (out of 17):
Price level 2005: 15th
Inflation: 1st

Source: Innovation Union Survey 2010

Figure 4.20 Average Annual Inflation Rate by Commodity Group, Ireland and the euro area 2005-2010[72]



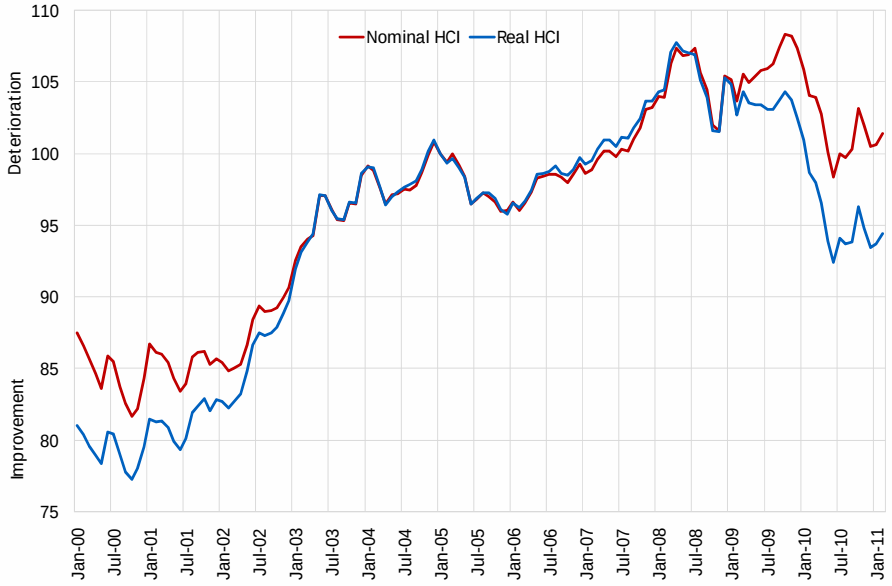
This figure shows inflation in key areas of consumer expenditure in the Irish and euro area economies. Over the 2005-2010 period, inflation in the euro area (2%) grew slightly faster than in Ireland (1.3%). Price inflation in the areas of health, education and insurance for Ireland over the period is elevated above the euro area average.

Ranking: n/a

Source: Eurostat, Economy and Finance Indicators

[71] HICP: Harmonised Index of Consumer Prices
[72] Administered price data not available for the euro area

Figure 4.21 Price Competitiveness Indicator for Ireland (HCI[73]), 2000- 2011 (January 2005=100)



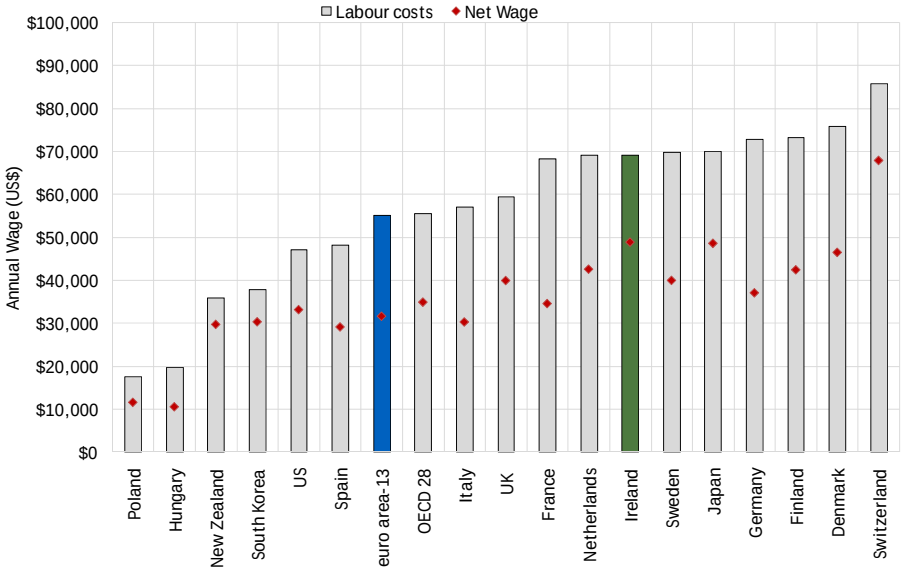
Source: Forfás calculations, Central Bank of Ireland

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. Since then, Ireland has regained some of its lost competitiveness as a result of falls in relative prices and favourable exchange rate movements: between April 2008 and February 2011, the nominal HCI depreciated by 5.5 percent. The real HCI declined by over 12.3%.

Ranking: n/a

4.3.2 Pay Costs

Figure 4.22 Average Total Labour Costs and Net Wages, 2010



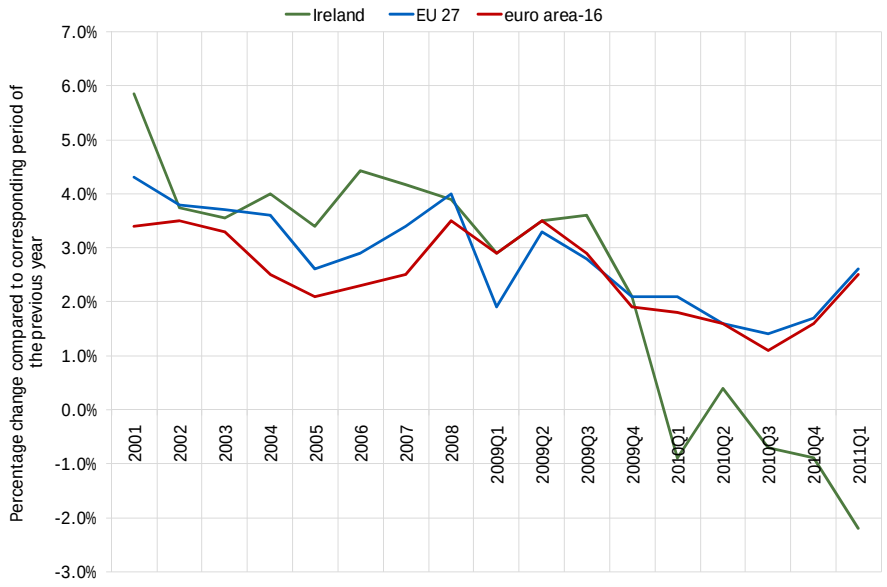
Source: OECD, Taxing Wages 2010, OECD, Comparative Price Levels, Jan 2011 (Forfás Calculations)

Total labour costs include wages, taxes on income and employer and employee social security contributions. Ireland has the 11th 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 fourth highest net wage level in the OECD-28, 40% above the OECD-28 average. This is due, in part, to the relatively small gap between before- and after-tax wages in Ireland.

Ranking: n/a

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

Figure 4.23 Average Growth Rate in Labour Costs, 2001- Q1 2011[74]

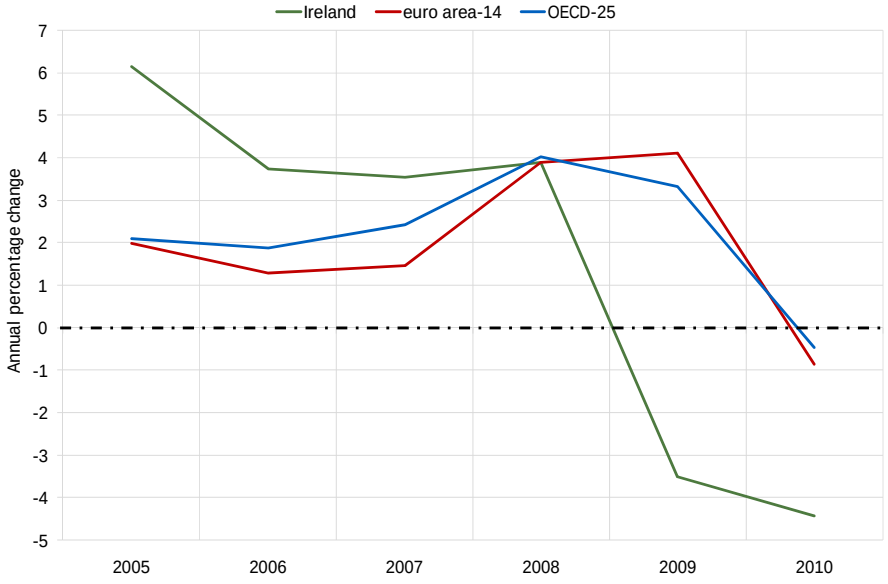


This indicator shows the trend in labour cost growth in Ireland compared with the euro area-16 and EU-27. The rate of growth in Irish labour costs has fallen from a high of 5.9% in 2001 to -2.2% at the end of Q1 2011.

Ranking: n/a

Source: Eurostat, Labour Cost Index Annual Data, and Quarterly Data

Figure 4.24 Annual Change in Unit Labour Cost, 2005-2010



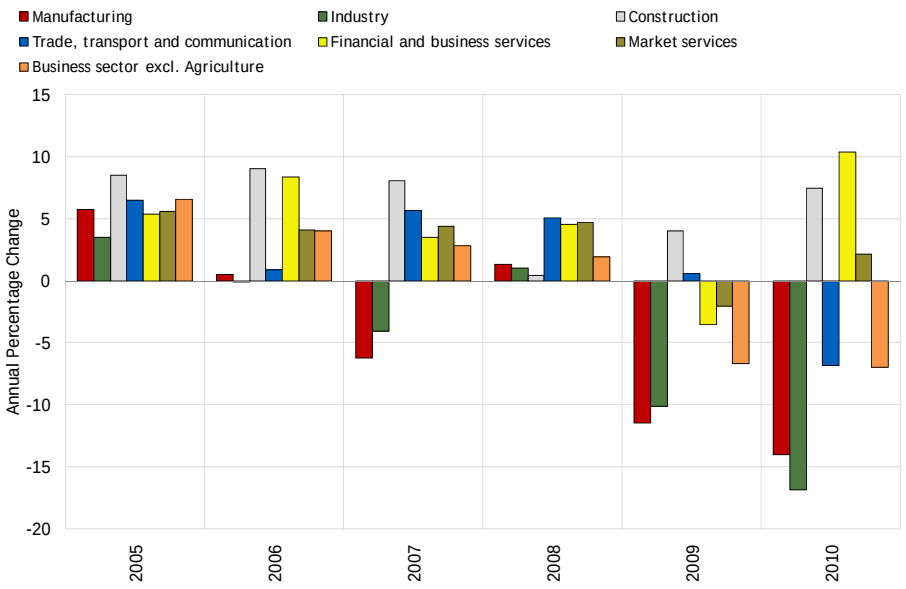
Unit labour costs (ULC) measure the average cost of labour per unit of output. In 2005, Irish ULC's increased by 6.15% compared to an average of 2.1% and 1.9% in the OECD-25[75] and the euro area-14 respectively. In 2008, the rate of ULC growth in Ireland fell below the euro area-14 average. During 2010, Ireland experienced a more pronounced decline in ULC (-4.4%) relative to the OECD-25 (-0.46%) and the euro area-14 (0.85%), indicating an improvement in competitiveness. The European Commission forecast that Irish ULC's will continue to decline in 2011 and 2012.

Ranking: n/a

Source: OECD, Unit Labour Costs, Annual Indicators

[74] Figures for Ireland are not adjusted. A break in the series from 2008 requires quarterly data to be used to compare Ireland, EU27 and EA16. Labour costs refer to the business economy (NACE B-N)
[75] OECD 25 excludes Iceland and Switzerland and Portugal, and euro area 14 excludes Malta and Portugal.

Figure 4.25 Annual Changes in Irish Unit Labour Cost by Sector, 2005-2010

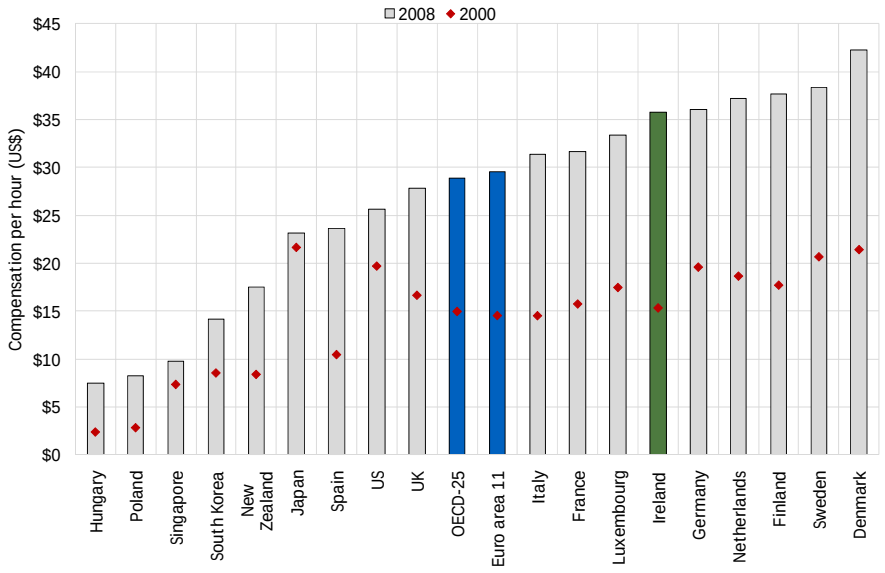


Source: OECD, Unit Labour Costs, Annual Indicators

While industry, manufacturing, trade, transport and communication and the business sector experienced negative growth in unit labour costs in 2010, growth was recorded for the construction, financial and business services and market services. Unit labour costs are also driven by compositional effects. Changing sectoral composition in industry (i.e. the continuing shift towards high value-added sectors) was an important explanatory factor behind the sharp fall in unit labour costs across the economy[76].

Ranking: n/a

Figure 4.26 Compensation Cost per Hour for Production Workers in Manufacturing (US$), 2008



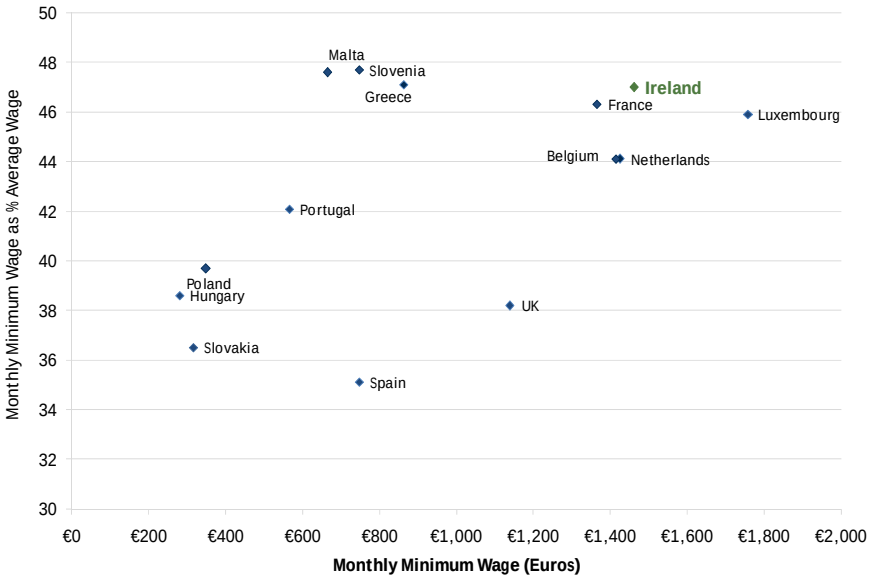
Source: US Bureau of Labour Statistics

This indicator measures employee pay, employers' social insurance and other labour taxes per hour worked. In 2008 Ireland was more expensive than the OECD average, euro area-11 average and the US on this measure. However, the cost of employing a manufacturing worker in Ireland was less than the cost in Denmark, Netherlands and Germany.

Ranking: n/a

[76] Central Bank, Quarterly Bulletin Q1 2011

Figure 4.27 Monthly Minimum Wage and Minimum Wage as a % of Average Wage[77], 2010



Source: Eurostat, Minimum Wages, CSO Earnings Hours and Employment Costs Survey, Forfás calculations

This indicator measures statutory monthly minimum wages and minimum wage as a percentage of the average wage. Ireland has the second highest statutory monthly minimum wage (€1,462). A number of EU states[78] operate non-statutory minimum wage rates on a sectoral basis and have rates which are significantly higher than Ireland's (e.g. Denmark). In terms of the purchasing power of the NMW, Ireland's ranking changes to 5th behind Netherlands, Luxembourg, Belgium, and France[79].

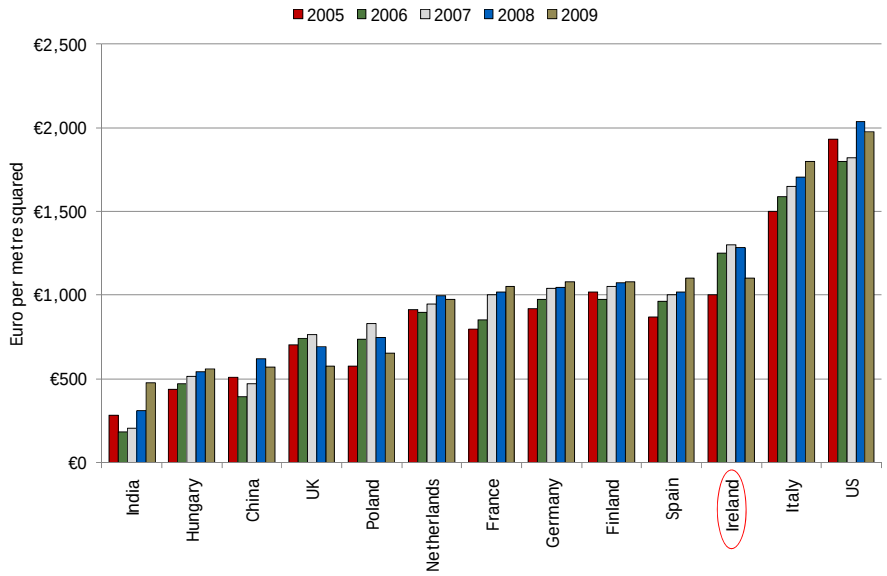
When measured as a percentage of the average wage, the minimum wage in Ireland is the fourth highest amongst the 15 countries benchmarked.

Ranking: n/a

[77] For countries where the national minimum wage is not set monthly (i.e. Ireland, France, Malta, UK and US where either hourly or weekly rates apply) rates are converted into monthly rates according to conversion factors directly supplied by the countries. For Ireland, the monthly minimum wage is calculated using the following formula: hourly rate x 39 hours x 52 weeks / 12 months. In addition, when the minimum wage is paid for more than 12 months per year (as in Greece, Spain and Portugal, where it is paid for 14 months a year), data have been adjusted to take these payments into account. The average monthly wage refers to the average monthly wage within industry, services and construction sectors (NACE section B to S).
[78] These include Denmark, Finland and Sweden. According to the European Industrial Relations Observatory (EIRO), under Denmark's collective agreement for the industry sector - which normally determines the level to be followed by other sectors - the minimum hourly pay was increased to approximately €13.19 March 2007 under a 2007–2010 agreement. Further increases of €0.34 were implemented on an annual basis over the next two years.
[79] Eurostat, Minimum Wage Statistics, January 2011. See http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Minimum_wage_statistics

4.3.3 Non-Pay Costs

Figure 4.28 Cost (per m^2) to Construct a Prime Industrial[80] Site, 2005- 2009

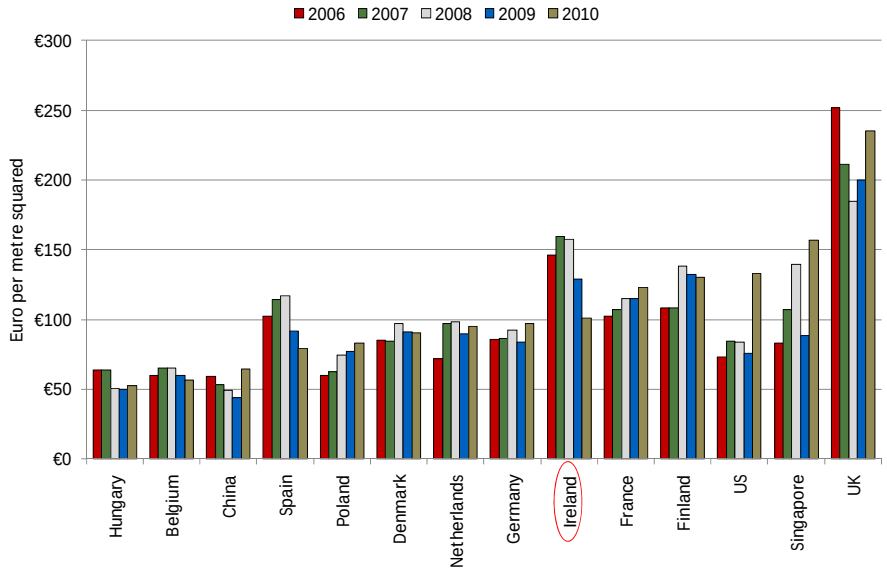


The cost to construct a prime industrial site in Ireland declined by 14% in 2009. Relative to their peak costs, it is now 15.6% cheaper to construct a prime industrial site in Ireland. However, these costs still remain 10% above 2005 costs and despite the decline Ireland remains the third most expensive location of countries benchmarked.

Group ranking out of 13[81]: 11th (-)

Source: Gardner and Theobald International Construction Costs Survey 2005-2010

Figure 4.29 Cost (per m^2) to Rent a Prime Industrial Site, 2005- 2010



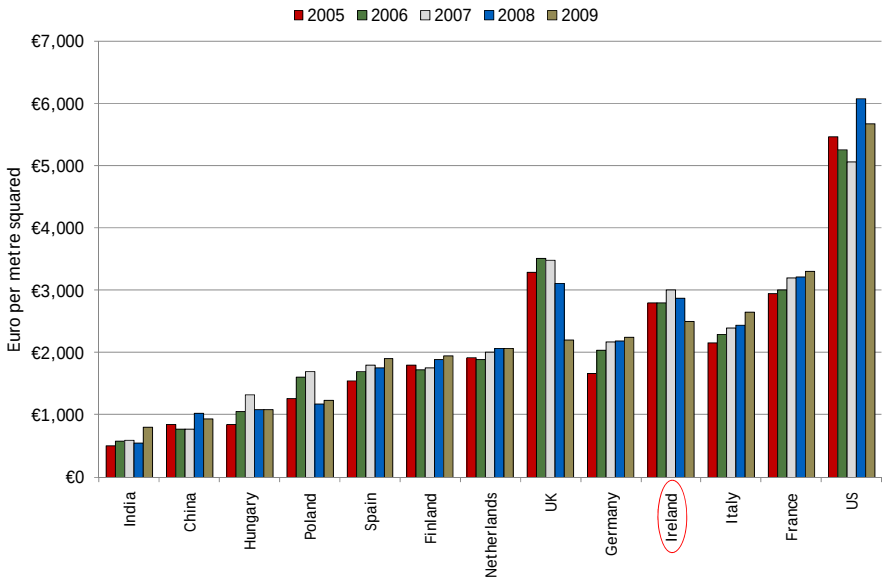
Rental costs declined in 4 of the 14 countries examined. Ireland experienced the largest annual decrease of all the countries benchmarked, as rental costs for industrial sites in Ireland fell by 22% in 2010. Despite these declines, Ireland remains the sixth most expensive location for renting a prime industrial site.

Group ranking out of 14 cities: 9th (↑4)

Source: Cushman and Wakefield, Industrial Space Around the World 2007-2011

[80] Prime sites refer to those in the most expensive location within each country. Irish figures refer to prime location sites in Dublin.
[81] Change in ranking is based on comparison with 2008

Figure 4.30 Cost (per m^2) to Construct a Prime Office Space, 2005- 2009

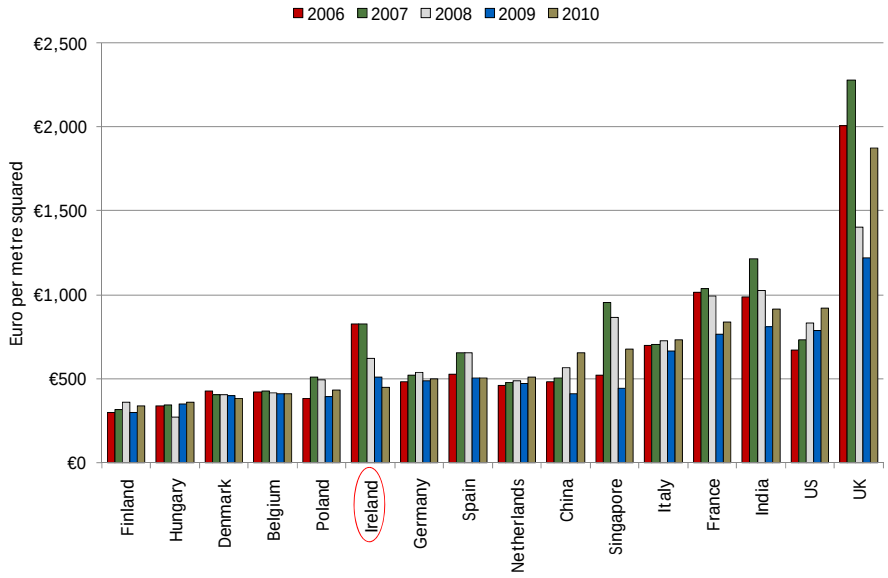


The cost of constructing a prime office space in Ireland fell by 12.9% in 2009. Significantly greater decreases were recorded in the UK during this period (-29.3%). Construction costs in the United States remain significantly higher than those in Europe and Asia.

Group ranking out of 13 cities: 10th (-)

Source: Gardner and Theobald International Construction Costs Survey 2005-2010

Figure 4.31 Cost (per m^2) to Rent a Prime Office Space, 2006- 2010



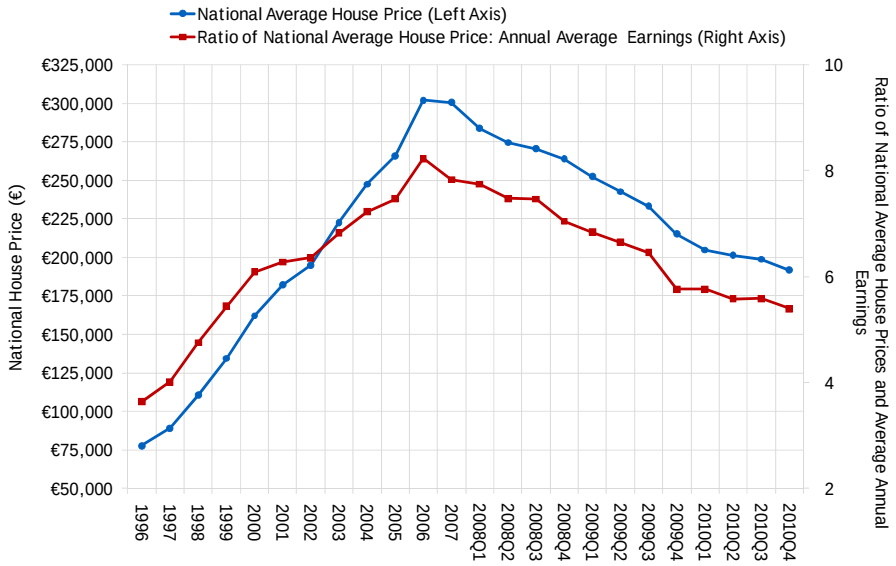
In 2010 Ireland experienced the largest decline (12.3%) in the rental costs of prime office spaces of the countries benchmarked. In fact, Denmark was the only other country to witness a decline in rents of prime office space. As a result, Ireland improved its competitive position in this area and now is the sixth cheapest location to rent a prime office space.

Group ranking out of 16 cities[82]: 6th (↑ 7)

Source: Cushman and Wakefield, Office Space Around the World 2007-2011

[82] Change in ranking is based on comparison with 2006

Figure 4.32 Affordability of Irish House Prices[83], 1996–Q4 2010

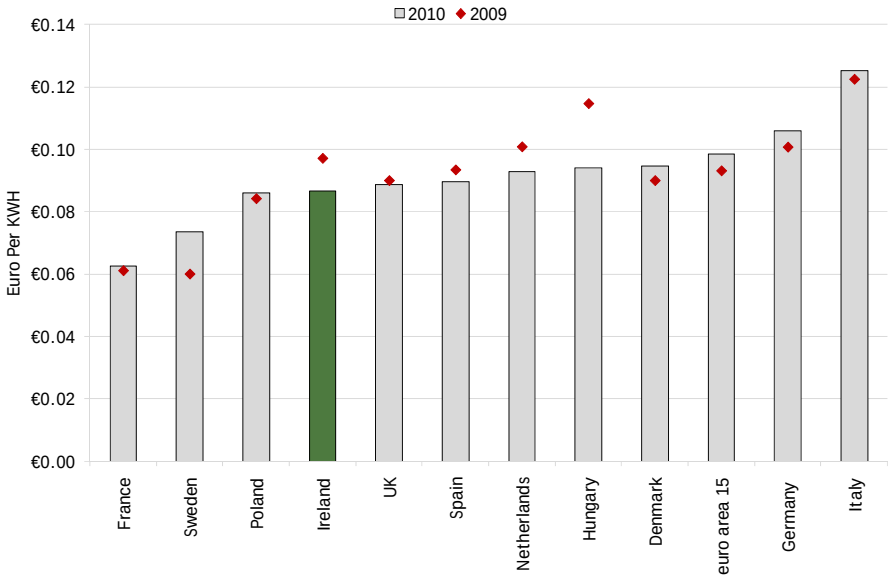


Average prices for houses nationally fell by 10.8% from Q4 2009 to Q4 2010. As a result, housing affordability for those in employment has returned to levels not witnessed since 1998/1999 – just over five times average annual earnings.

Ranking: n/a

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

Figure 4.33 Industrial Electricity Prices[84] (excluding VAT but including all other taxes)



The cost of industrial electricity for large energy users in Ireland decreased by almost 11% between the second half of 2009 and 2010. This followed on from significant decreases in the previous year also. Ireland is now the 6th cheapest in the euro area. Despite reductions in electricity costs for SMEs, Ireland remains the fifth most expensive location in the euro area.

euro area-15 ranking[85]: 6 (↑4)

Source: Eurostat – Environment and Energy

[83] Affordability of Irish house prices from 1996-2007 are expressed as a ratio of average industrial earnings, but as there was a break in the series they are reported as average earnings in the total economy thereafter.
[84] Electricity prices for large energy users are based on an annual consumption of 2,000 to 20,000 kilowatt hours. Prices are half-yearly and taken from the second half of 2010. SME users are based on an annual consumption of 500 to 2,000 kilowatt hours.
[85] Euro area 15 excludes Slovakia. Most recent data for Austria is from the second half of 2008.

Figure 4.34 Mobile Telephone Costs, High Usage Basket (300 calls), Including VAT, 2010[86]

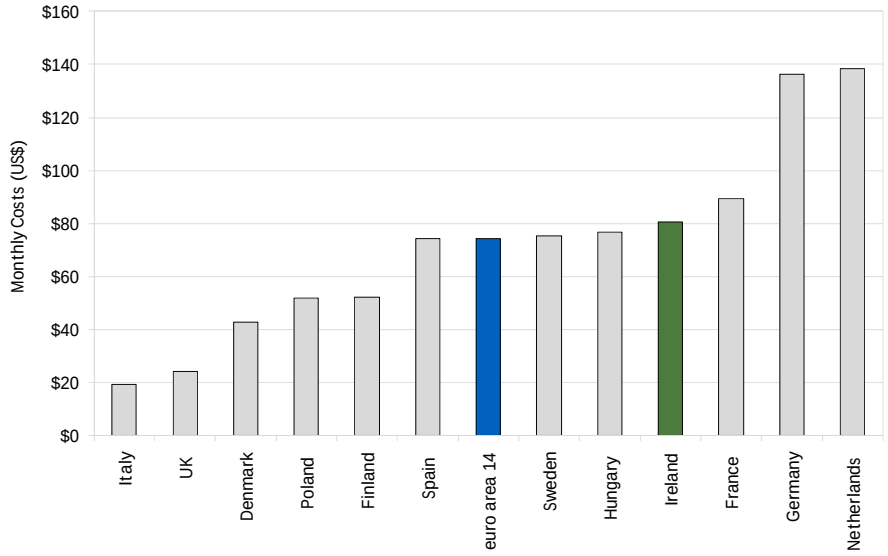
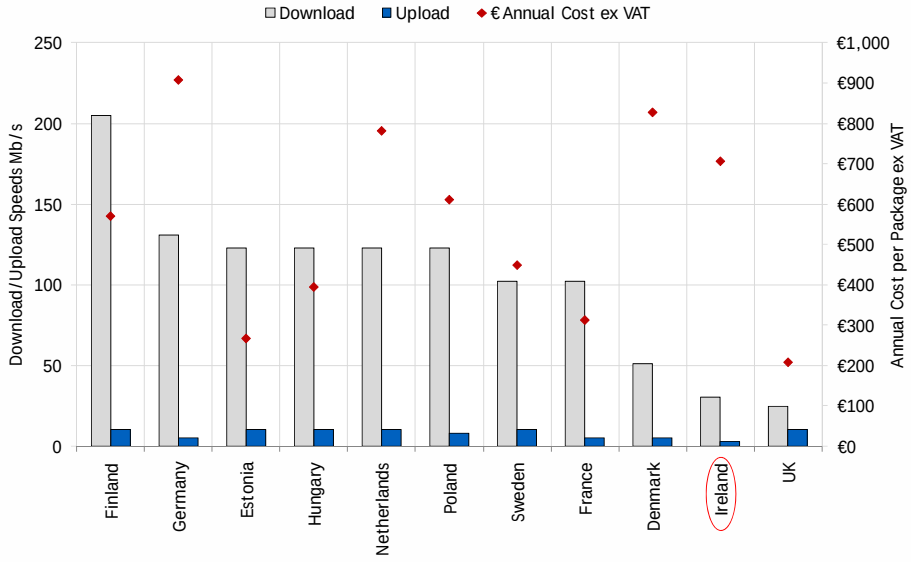


Figure 4.34 measures the costs of a business basket of calls including VAT. Ireland is almost 10 percent more expensive than the euro area average.

euro area-14 ranking:
9th

Source: Teligen

Figure 4.35 Fastest Business Connection and Annual Cost per Mb/s excluding VAT, 2010



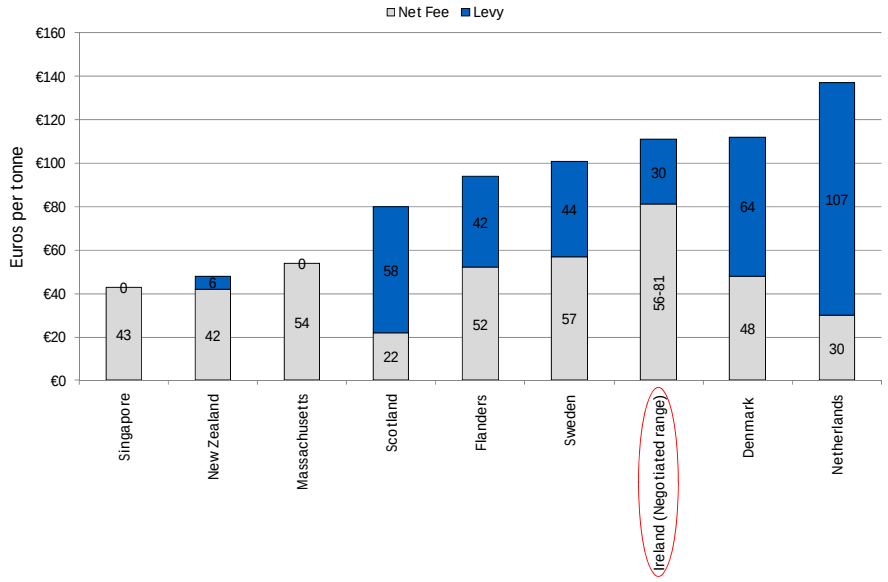
Source: Teligen

This indicator shows the fastest download speed available to business, the accompanying upload speed provided and the annual cost per package. Generally the fastest speeds tend to be available in the main urban centres. Ireland has the 2nd slowest download speed (30 Mb/s) and slowest upload speed (3 Mb/s) amongst the countries benchmarked. The fastest package in Ireland costs €706 (excluding VAT) per annum. Significantly faster speeds are available for less than this in many of the countries benchmarked.

Ranking out of 11:
Cost: 8th
Download Speed: 10th

[86] Euro area 14 is the euro area 16 minus Cyprus and Malta.

Figure 4.36 Negotiable Landfill Gate Fees in Ireland versus Advertised Gate fees in Benchmarked Countries (including Levy), 2010 (€ per tonne)



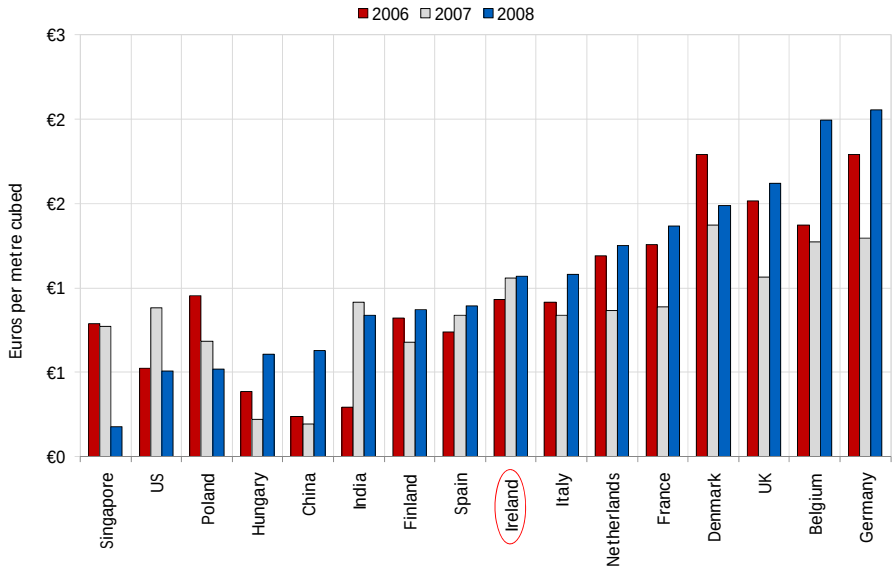
Source: Forfás, Annual Waste Benchmarking Analysis and Policy Priorities: Update 2010

The Irish landfill gate fee is often lower than the advertised fee as the gate charge can be negotiated based on a number of factors such as the volumes of waste offered, the source of the waste, commercial pressures on the landfill owner, credit rating of the supplier offering the waste, etc[87].

Since this data was published, further reductions have occurred, and in total since summer 2009, Irish gate fees have fallen sharply.

Ranking of 9: 7th

Figure 4.37 Water Costs per Metre Cubed, 2006-2009



Source: EIU, World Investment Service, Department of Environment, Community & Local Government

Water costs measure the cost for industrial users per metre cubed and do not include the cost of waste water services. While the average cost of water services rose by 2.8% in Ireland in 2009, since then prices have remained relatively unchanged – a slight increase of 0.9% was recorded in 2010, with no increase recorded in 2011[88]. The average cost of waste water services in Ireland in 2011 was €1.22, an increase of 2.5% on 2010. This brought the average consolidated water services charge per metre cubed to €2.31.

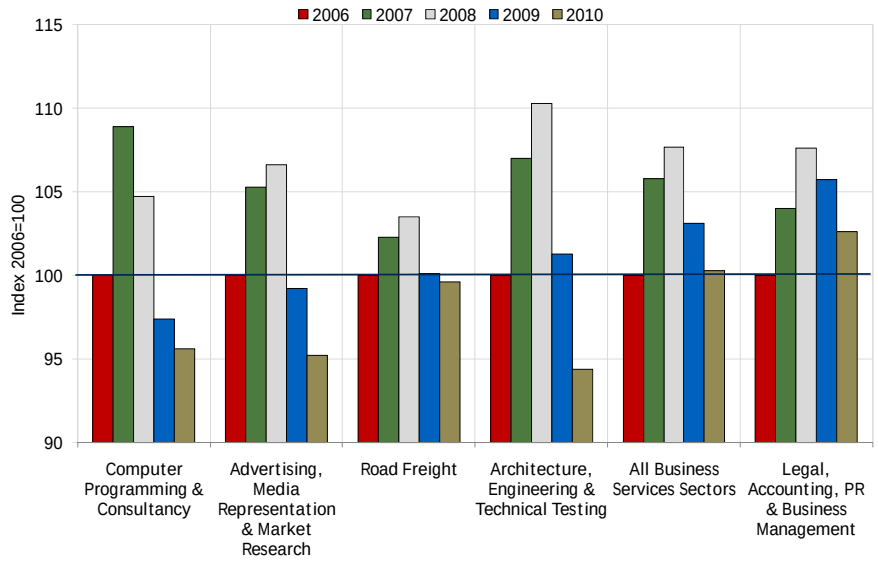
Ranking out of 16[89]: 9th (-)

[87] Similar offers are likely to be available in other countries but it was not possible to source data for the negotiable prices in other countries/regions. Based on advertised fees, at an average of €142 per tonne (including the landfill levy), Ireland was the most expensive of the nine locations benchmarked in mid-2010. See Forfás' Waste Management in Ireland, Benchmarking Analysis and Policy Priorities - Update 2010 for a more in-depth discussion on waste costs.

[88] Water costs data for Ireland for 2009, 2010 and 2011 is provided by the Department of the Environment, Community and Local Government.

[89] Change in ranking is based on comparison with 2006

Figure 4.38 Services Price Index[90], 2006-2010, 2006=100

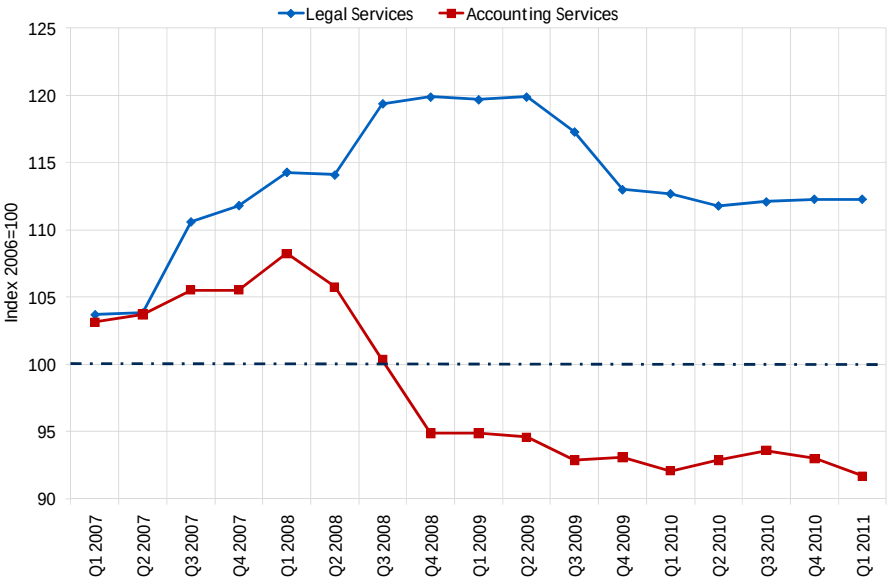


Price adjustment has occurred at different rates in each sector. Since the beginning of the index in Q1 2007 to Q4 2010, the greatest price reductions have been recorded in architecture, engineering and technical testing (-9.8%), computer programming and consultancy (-10.5%), and advertising, media and market research (-9.5%). By contrast, the price of legal, accounting, PR and business consultancy increased by 0.4 percent over the same time period.

Ranking: n/a

Source: CSO, Services Producer Price Index 2010

Figure 4.39 Accountancy and Legal Costs, Q1 2007-Q4 2010, (2006=100)[91]



Accountancy costs fell by 15% since Q1 2008 and now are 8.3% below 2006 prices. In contrast, while legal services have fallen from the peak in Q4 2008, they have remained at 12% above 2006 price levels since Q1 2010.

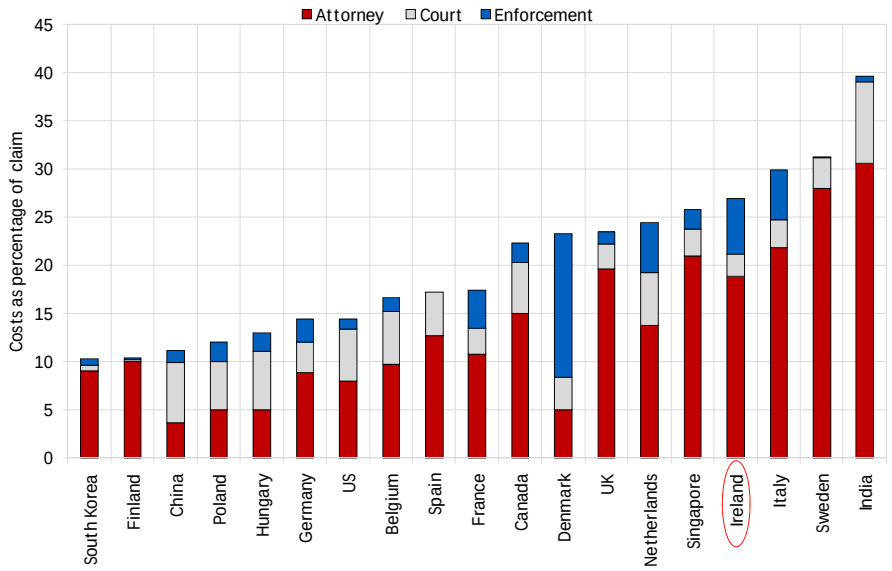
Ranking: n/a

Source: CSO, Services Producer Price Index 2010

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

[91] SPPI Q4 2010 data on legal services is based on responses received from 18 companies and covers 118 price observations. The majority of firms that responded employ between 10 and 49 employees. The survey does not include data on prices for barrister services. Given the small sample size, caution should be used when analysing the results.

Figure 4.40 Legal Fees, Cost of Enforcing a Business Contract, 2010

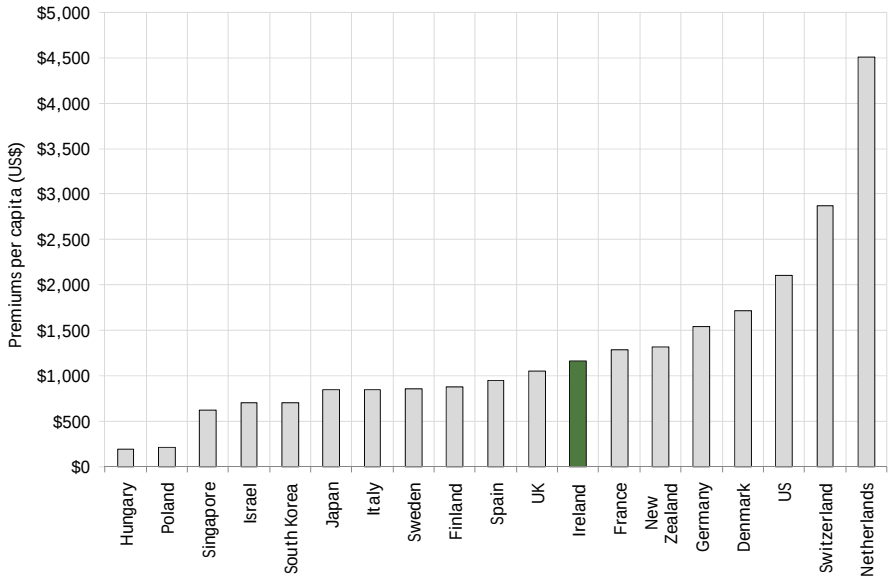


Costs are shown as a percentage of the total claim and are broken down into attorney, court and enforcement fees. Ireland is the fourth most expensive location benchmarked, unchanged from 2009. This is driven by relatively high attorney fees. Ireland's legal system is most comparable with the UK system, which has a lower cost of contract enforcement (23.4%) compared to Ireland (26.9%).

Ranking out of 19: 16th

Source: World Bank, Doing Business 2011

Figure 4.41 Non-Life Insurance Density, Premiums per Capita in US$, 2009



Limited data is available on insurance costs across countries. High insurance density (insurance spend per capita) can reflect both high insurance costs and a requirement for high coverage levels. Among the benchmarked locations, Ireland is ranked 12th out of 19 – that is, Ireland has the eighth highest density of non-life insurance (i.e. motor, property, employer's liability, public liability, travel and other business insurance) per capita.

Ranking out of 19: 12th

Source: Swiss Re, Sigma No.2, 2010

4.4 Employment and Labour Supply

Ireland's labour market performance closely parallels Ireland's economic development. An economy once characterised by high unemployment and mass emigration in the 1980s evolved into an economy enjoying full employment and dependent on significant immigration to meet skills needs in the late 1990s and 2000s. The wheel has almost turned full circle once more and Ireland now finds itself confronted by rising unemployment, a resumption of emigration and a host of labour market challenges. At the same time, however, the increased availability of labour – and more specifically the availability of skilled labour – represents a competitive advantage. This section looks firstly at some employment and unemployment trends and then examines indicators relating to labour supply which impact upon the future size and makeup of the labour force.

4.4.1 Employment and Unemployment

Employment in Ireland peaked in Q3 2007 when almost 2,150,000 people were employed (Figure 4.42). From Q1 2008, unemployment began to rapidly increase and by Q1 2011, over 295,000 people were unemployed. As a result of the length of the recession, long term unemployment as a proportion of total unemployment began to increase significantly from Q4 2008. In Q1 2011 more than half of those unemployed were considered long term unemployed (i.e. over one year) – this is the first time this has occurred since the 1990s. A notable feature of the recession has been the increase in part-time employment – an indication perhaps, of both changing work practices, changing work force composition and reduced working hours[92].

Looking ahead, the unemployment challenge is not likely to be resolved quickly – employment growth generally tends to lag economic growth. Both the ESRI and the Central Bank forecasts suggest that unemployment is unlikely to decline in 2011 – the ESRI suggest that the unemployment rate will increase from 13.6 percent to 14.5 percent[93], while the Central Bank forecast an increase in unemployment from 13.6 percent to 14.3 percent[94]. A modest improvement in the unemployment rate is forecast by both for 2012 (the ESRI are forecasting unemployment of 14 percent while the Central Bank are forecasting 14.1 percent).

Some sectors have been impacted more severely than others as a result of the recession. Not surprisingly, the construction sector has seen employment decline by 60 percent (or 160,900) between Q3 2007 to Q1 2011 (Figure 4.43). There have also been significant declines in industry (-24%, or 74,800), wholesale and retail trade (-15% or 45,200) and agriculture (-25% or 28,400). Males have experienced a larger decline in employment than females. This is largely a result of the decline in construction sector employment which is a predominantly male oriented sector.

[92] This is reflected in the CSO's Earnings and Labour Cost publication which shows that the average number of hours worked per week in Ireland has declined from 32.7 hours in Q1 2008 to 30.6 hours in Q1 2011.
[93] ESRI, Quarterly Economic Commentary Spring 2011, May 2011
[94] Central Bank of Ireland, Quarterly Bulletin Q2 2011, April 2011

Placing the Irish unemployment figures into an international context, the standardised unemployment rate in Ireland (14.1%) is the third highest amongst the countries benchmarked (Figure 4.44). This compares to the OECD-28 average of 8.1 percent and euro area-14 average of 8.4 percent.

In order to address the unemployment situation, it is necessary to understand the characteristics of those who are unemployed. Using the CSO's *Quarterly National Household Survey* it is possible to examine a number of important characteristics. Figure 4.46 looks at unemployment by age cohort and finds that unemployment rates among 15-24 year olds is higher than the overall unemployment rate in the economy. Youth unemployment in Ireland now stands at 27.8 percent and is substantially above the euro area-16 average of 20.6 percent (Figure 4.45). Educational attainment is also a key determinant of an individual's risk of being unemployed (Figure 4.47). The unemployment rate has increased more rapidly for those with relatively lower levels of educational attainment than those with higher attainment levels.

4.4.2 Labour Supply Characteristics

As a result of the recession, participation rates have fallen – partly as a result of young people remaining in education as a result of fewer job opportunities, but also a result of people withdrawing entirely from the labour market (Figure 4.51).

While the majority of future entrants into the labour force will come through the Irish education system, migration will continue to impact upon labour supply. As a small economy which is part of a much larger single European labour market, the Irish labour market is relatively open, facilitating entry and exit of workers as economic circumstances dictate. This provides access to a range of skilled workers and represents a competitiveness strength.

Ireland's migration story mirrors that of the overall labour market. Whereas Ireland was once a country of mass emigration, this changed with the onset of the Celtic Tiger. Between the late 1990s and 2007, Ireland experienced a high rate of inward migration (Figure 4.49). Since then, immigration decreased due to the economic downturn. At the same time, emigration began to increase - the CSO estimate that approximately 65,200 people left Ireland between April 2009 and April 2010[95]. As a result net migration turned negative in 2009 for the first time since 1991. The ESRI forecasts further outward migration of 75,000 in 2011 and 60,000 in 2012[96].

Looking at the number of non-Irish nationals employed in Ireland, Figure 4.50 shows that in Q4 2010 foreign nationals represented 12.3 percent of those employed in Ireland, down from 16.8 percent in Q1 2008. Despite the decline, this remains above the euro area average of 8.3 percent. According to the CSO, there were 202,900 non-Irish nationals in employment in Q1 2011 in Ireland. A further 44,800 were unemployed, accounting for 15.2 percent of unemployment. Overall, the non-Irish

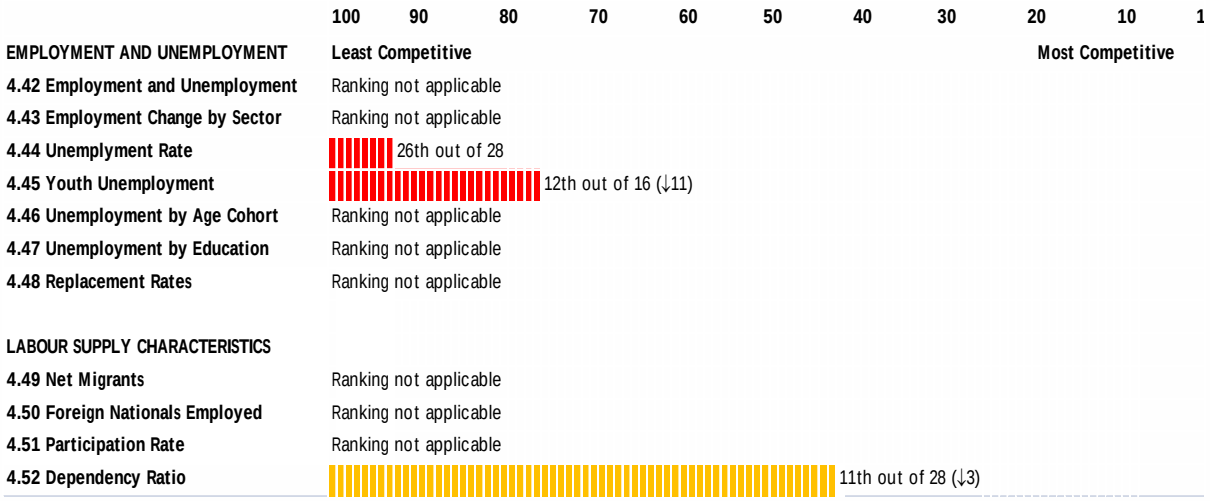
[95] Of these, 27,700 were Irish nationals, 10,400 were EU15 nationals, 19,100 were EU12 nationals (i.e. from the accession states), while the remainder were from the rest of the world. CSO, Population and Migration Estimates, April 2010
[96] ESRI, Quarterly Economic Commentary Spring 2011, May 2011

national population has declined by 45,100 in the year to Q1 2011 – in tandem with an employment decline of 45,400 over the same period, this suggests that many non-Irish nationals who lose their jobs, also leave the country.

Finally, Figure 4.52 considers the number of people at work compared with the number of dependents. Ireland has a favourable demographic composition as a result of a peak in birth rates in the 1980's. Over time, the dependency ratio will decline. At present, many EU countries with an older population structure are confronting the challenges posed by an ageing society.

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

Summary of Standardised Employment and Labour Supply Indicators[97]

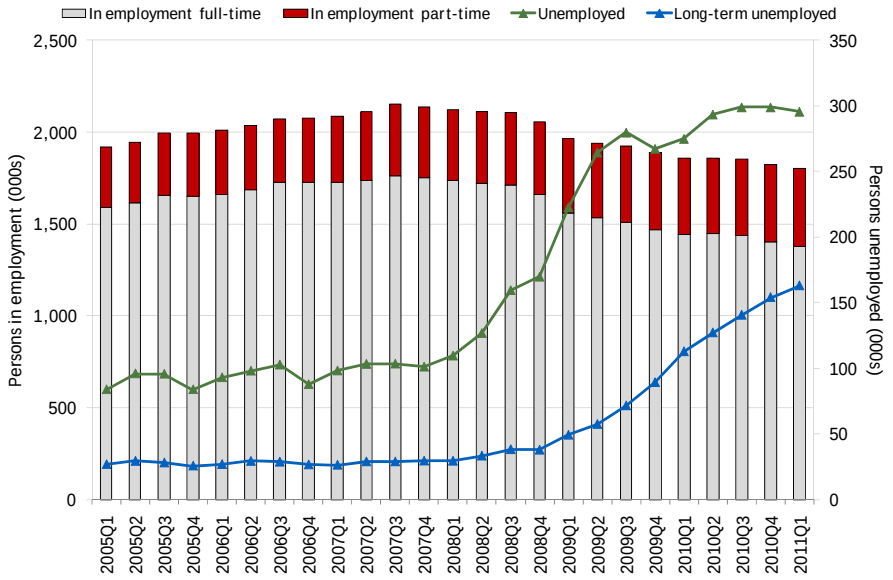


[97] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

4.4 Employment and Labour Supply

4.4.1 Employment and Unemployment

Figure 4.42 Employment & Unemployment (000's), Ireland Q1 2005-Q1 2011

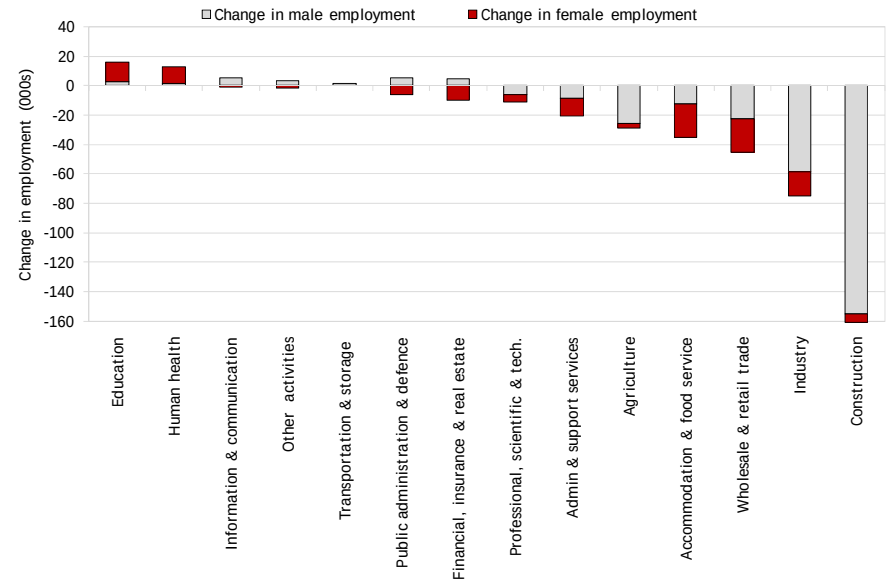


Source: CSO, Quarterly National Household Survey

Employment peaked (left axis) in Q3 2007 when the numbers employed reached almost 2,150,000. The number of people unemployed increased rapidly from Q1 2008 and in Q1 2011 had reached 295,700. Long term unemployment as a proportion of total unemployment began to rise significantly from Q4 2008 and in Q1 2011 represented 55% of those unemployed. The ESRI forecast that unemployment will increase to 304,000 by the end of 2011[98].

Ranking: n/a

Figure 4.43 Change in Employment in Ireland by Sector & Gender (000's), Q3 2007-Q1 2011



Source: CSO, Quarterly National Household Survey

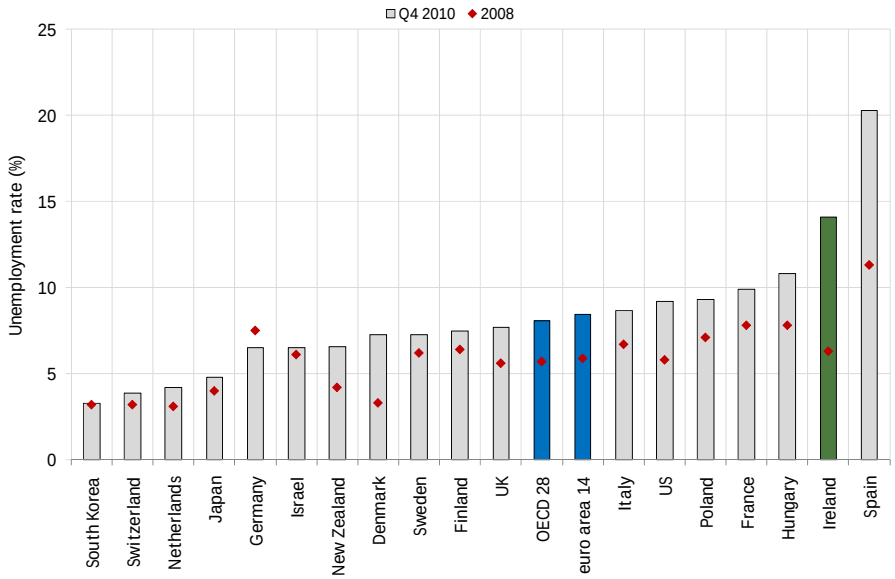
The scale of the decline in employment has varied across sectors. Employment in construction declined by 60% (160,900) between Q3 2007 to Q1 2011. There have also been significant declines in industry (-24%, or 74,800), wholesale and retail trade (-15% or 45,200) and agriculture (-25% or 28,400)[99]. Males have experienced a larger decline in employment than females – between Q3 2007 and Q1 2011 male and female employment declined by 263,800 and 81,800 respectively.

Ranking: n/a

[98] ESRI Quarterly Economic Commentary, May 2011

[99] The CSO suggest that caution be used when interpreting sectoral trends relating to the Agriculture, forestry and fishing sector. When available, the Census of Agriculture 2010 will provide a more reliable indication of employment trends in the sector. The Department of Agriculture, Fisheries and Food currently estimate that employment for the agri-food sector as a whole is 135,600 (Q1 2011). See Department of Agriculture, Fisheries and Food, Review and Outlook for Agriculture, Fisheries and Food 2010/2011

Figure 4.44 Unemployment, Standardised Rates, 2010



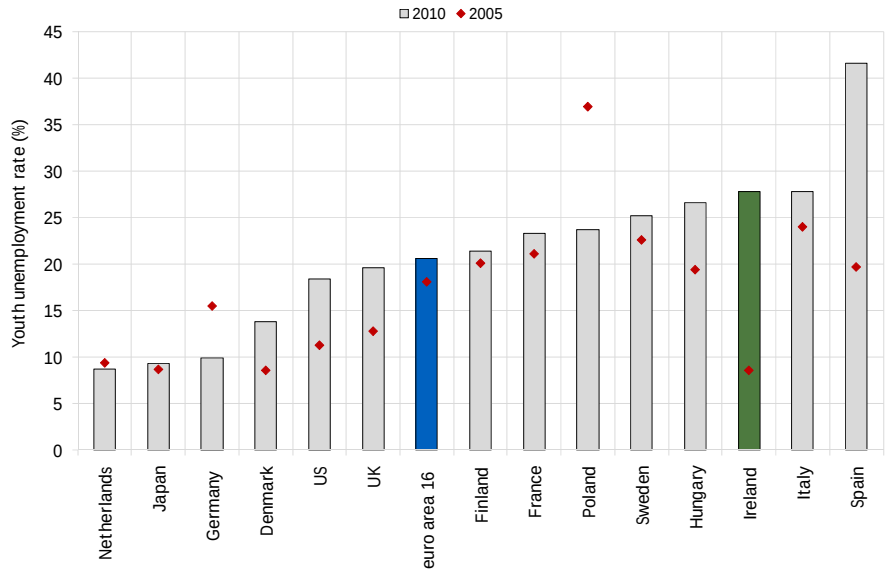
As of Q4 2010 the standardised unemployment rate in Ireland was 14.1% (up from 6.3% in 2008). This compares to the OECD-28 average of 8.1% and euro area-14 average of 8.4%. Only Spain and Greece had a higher rate of unemployment than Ireland.

OECD-28 ranking: 26th

euro area-14: 12th

Source: OECD, Labour statistics, CSO QNHS

Figure 4.45 Youth Unemployment, 2010

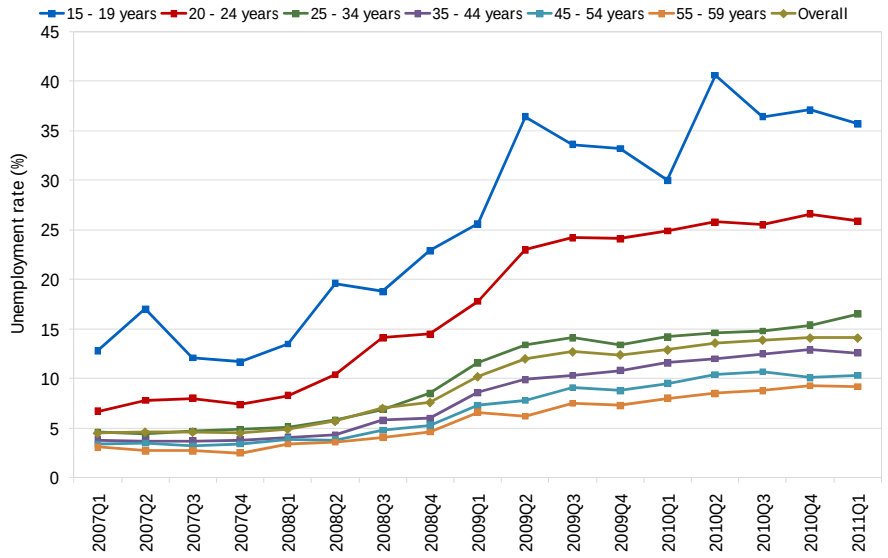


Unemployment rates among 15-24 years old are typically higher than the overall unemployment rate in the economy. Youth unemployment in Ireland grew three fold from 2005 to 2010 and now stands at 27.8%, which is substantially above the euro area-16 average of 20.6%. The decline in participation rates amongst 15-24 year olds is also worth noting. This has occurred primarily as a result of increased participation in education and training, as well as some emigration.

euro area-16 ranking: 12th (↓11)

Source: Eurostat, Education and Training Indicators

Figure 4.46 Unemployment (%) by age cohort, Q1 2007-Q1 2011

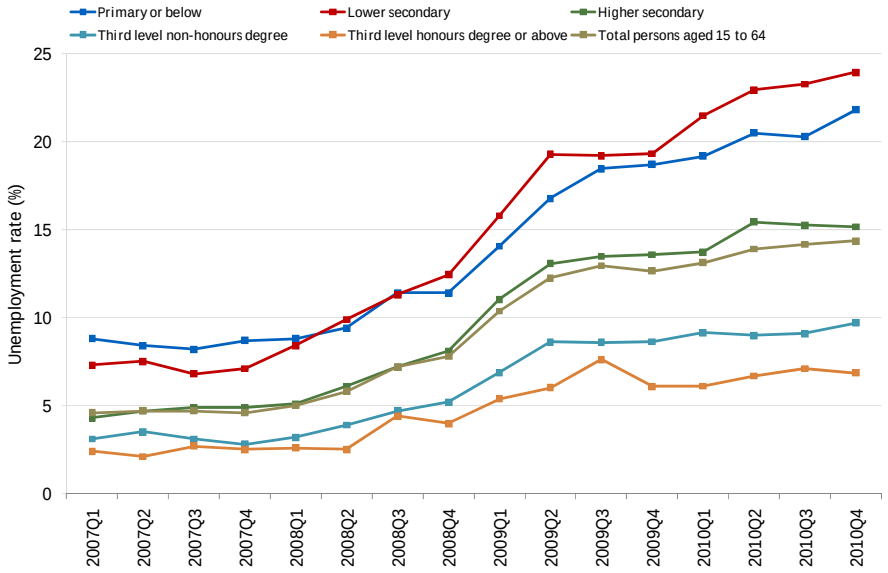


As this chart illustrates, the younger age cohorts have experienced higher levels of unemployment relative to older, more experienced workers. Workers under the age of 25 experience much higher rates of unemployment than other age cohorts. It is worth noting that the size of each cohort is not reflected in the chart.

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.47 Unemployment (%) by educational attainment, Q1 2007- Q4 2010

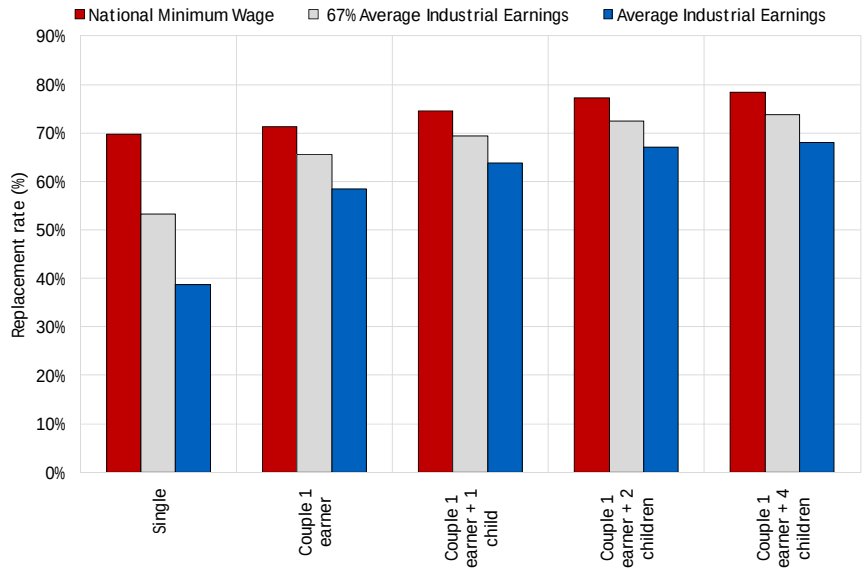


Another factor which increases the risk of being unemployed is a person's educational attainment. The unemployment rate has increased more rapidly for those with lower levels of educational attainment. Between Q1 2007 and Q4 2010, unemployment increased from 7.3% to 23.9% for those with lower secondary education. In contrast, those with third level education experienced a much more modest increase in unemployment (from 2.4% to 6.9%).

Ranking: n/a

Source: CSO, Quarterly National Household Survey

Figure 4.48 Replacement Rates[100], March 2011



Source: Department of Social Protection

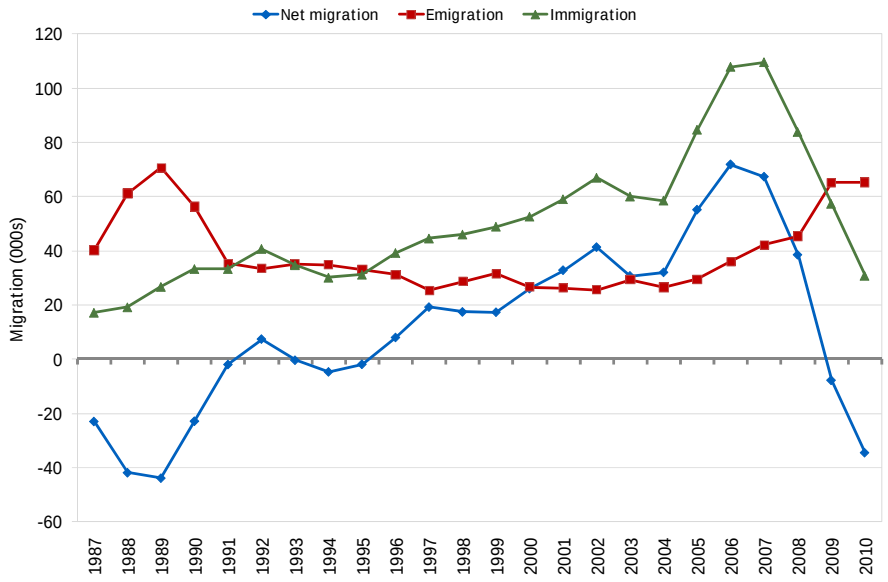
Replacement rates measure the ratio between the income a person receives when unemployed to the income they would receive if employed. The higher the replacement rate the greater the potential disincentive to take up offers of employment. For example, a couple with one child with one income equal to the average industrial earnings has a replacement rate of 64% - this means that the family's income on social welfare is equivalent to 64% of what they would earn in a job paying the average industrial wage.

Ranking: n/a

[100] 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 percent 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 4.49 Net migrants per 1,000 of Total Population, 1987-2010

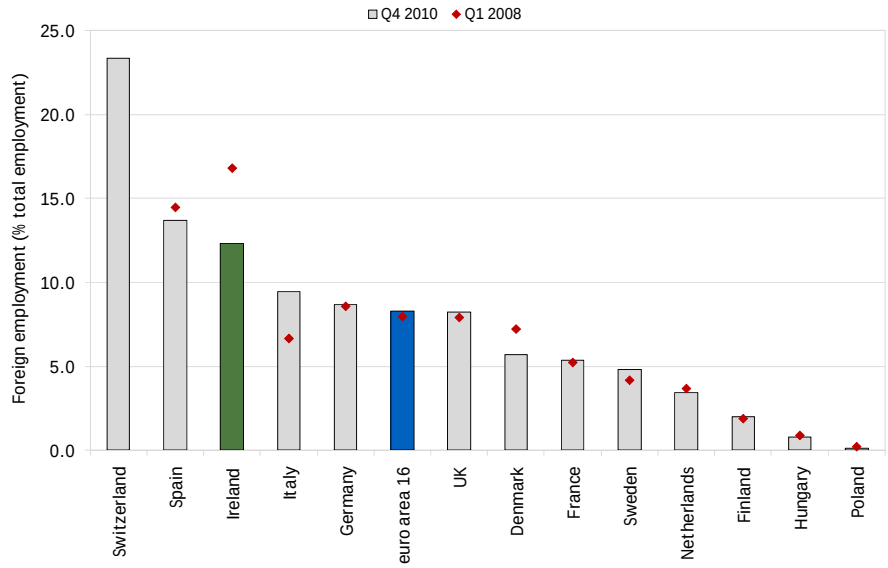


Ireland experienced a growing rate of inward migration until 2006. Since then net migration decrease rapidly due to declining economic prospects. The CSO estimate that 65,200 people left Ireland in both 2009 and 2010. The ESRI forecasts further outward migration of 75,000 in 2011 and 60,000 in 2012[101].

Ranking: n/a

Source: CSO, Population Estimates and Census Data

Figure 4.50 Number of Foreign People in Employment as a % of Total Employed, Q4 2010



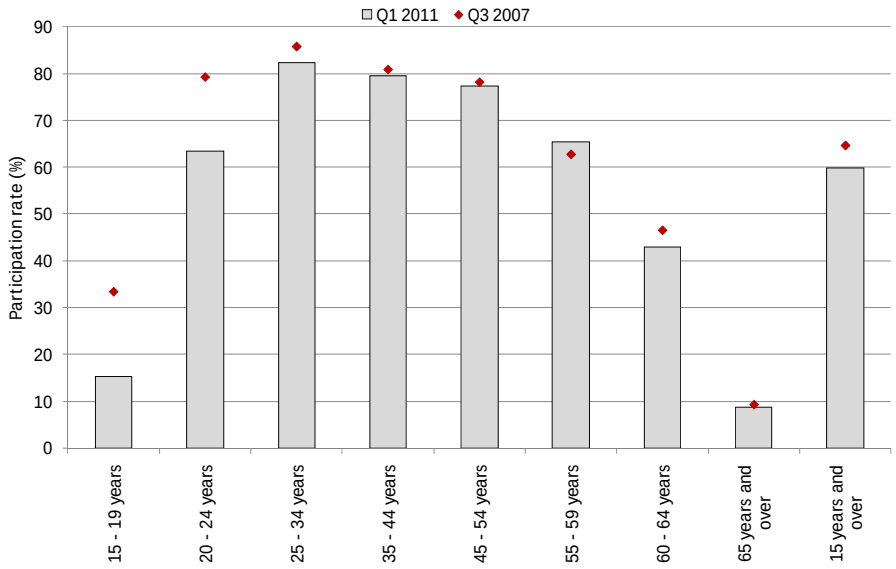
In Q4 2010 foreign nationals represented 12.3% of those employed in Ireland, down from 16.8% in Q1 2008. However this remains higher than the euro area average of 8.3%. Looking at the most recent CSO data, there were 202,000 non-Irish nationals in employment in Q1 2011, down from 237,400 in Q1 2010. A further 44,800 were unemployed accounting for 15.2% of total unemployment – this is a slight decrease from Q1 2010 when 45,500 non-Irish nationals where unemployed.

Ranking: n/a

Source: Eurostat, Labour Force Survey

[101] ESRI, Quarterly Economic Commentary, May 2011

Figure 4.51 Participation Rates, Aged 15-64, by age cohort

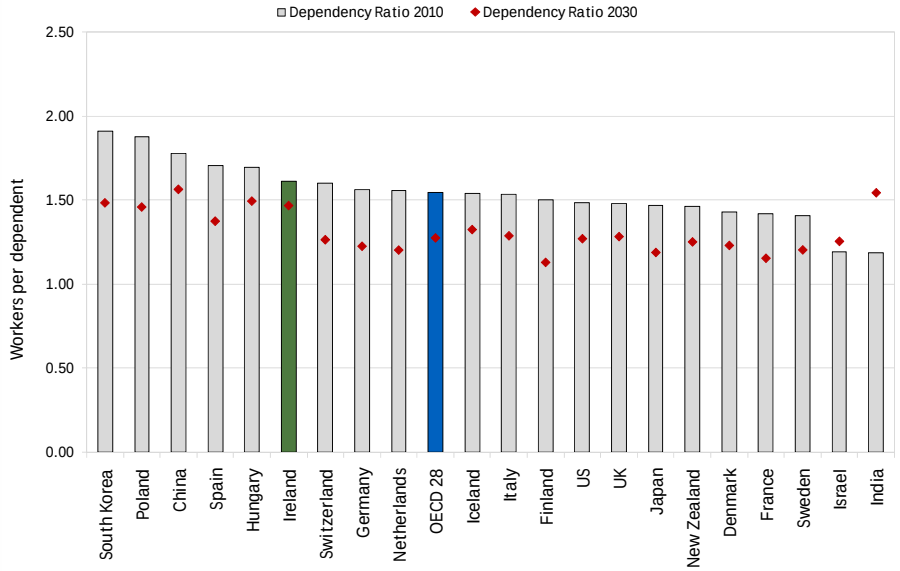


Source: CSO, Quarterly National Household Survey

Approximately 63% of the decline in the size of the labour force in the year to Q1 2011 (a decrease of 32,800) was attributable to a decline in participation. Overall, the labour force participation rate fell from 60.7% to 59.9% over the year. The male participation rate decreased from 68.8% to 67.7% in the year while the female participation rate declined from 52.7% to 52.4% over the same period. The greatest fall in participation rates over the course of the recession have occurred amongst younger cohorts. Participation rates are also closely related to educational attainment.

Ranking: n/a

Figure 4.52 Number of Persons of Working-Age per Dependent, 2010 and 2030



Source: OECD Stat.Extracts, Labour Force Statistics

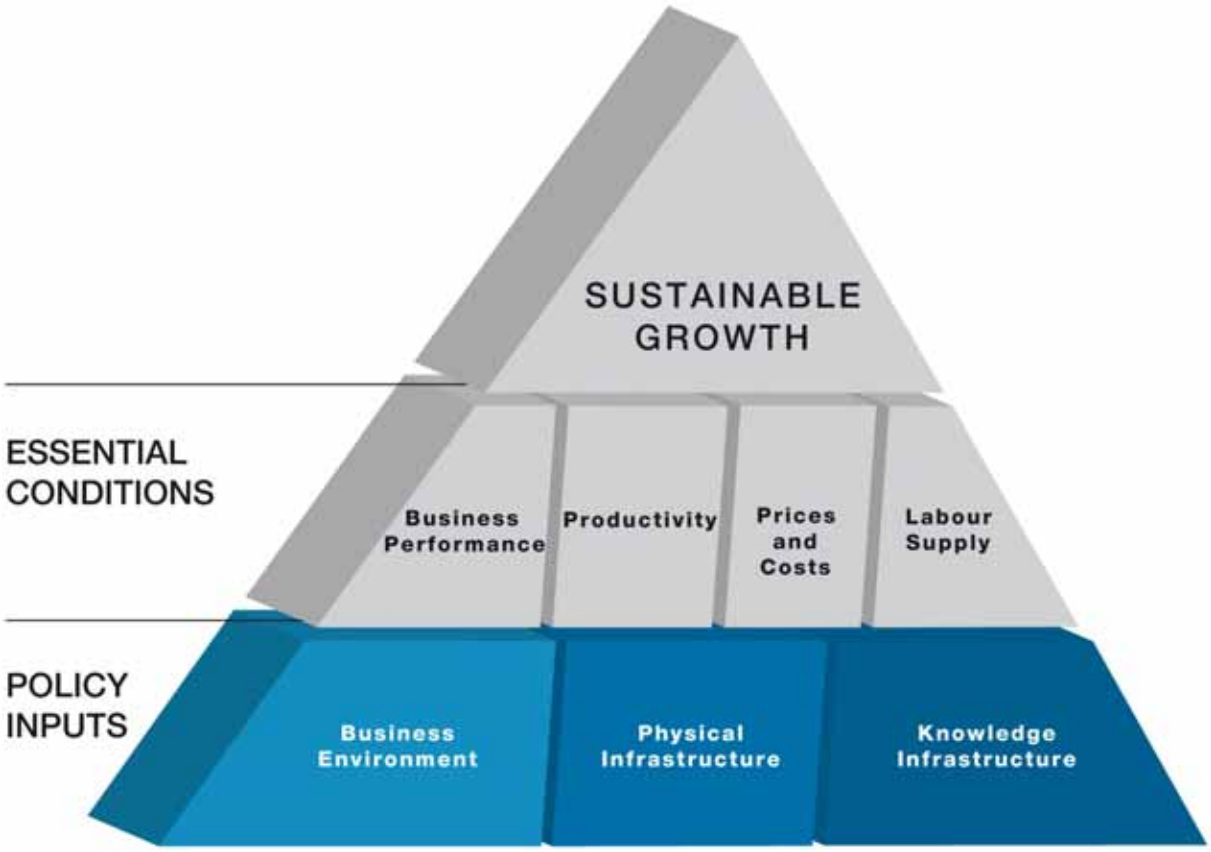
The number of people at work for each dependent provides an indication of level of social services that will be required to meet their needs. Ireland's demographic composition is favourably structured, due to a peak of births in the 1980s. According to the CSO, Ireland has the highest fertility rate in the EU, and its population is increasing at a higher rate than in any other EU country[102]. The OECD forecast that the dependency ratio will decline slightly by 2030.

OECD-28 ranking:
11th (↓3 from 2008)

[102] CSO, Measuring Ireland's Progress 2009, September 2010

Chapter 5

Policy Inputs



5. Policy Inputs

5.1 Business Environment

Ultimately, a country's competitiveness determines the ability of its enterprises to compete internationally. This section examines the business environment in which these enterprises operate and analyses performance relating to taxation, finance, regulation and competition.

5.1.1 Taxation

In the mid part of the last decade, the Irish government regularly ran budgetary surpluses as taxation revenue exceeded (current) expenditure. The global economic crisis and subsequent collapse in domestic demand has had a rapid and severe impact on the Irish Government's finances.

As a result of significant falls in revenue, the Irish Government is expected to run a deficit equivalent to 10.5 percent of GDP and 12.7 percent of GNP for 2011 (Figure 5.01)[103]. Despite significant cuts in expenditure as a result of required austerity measures, the Government's share of economic activity has increased from 33.7 percent of GDP in 2005 to 45.5 percent of GDP (and 56.4 percent of GNP) in 2011. This is a reflection of reduced activity in other sectors of the economy.

While a balanced budget is vital for macroeconomic stability, it is also important that the State raises enough revenue to maintain investment in economic and social infrastructure, which also supports competitiveness.

Looking at how the State raises money, the impact of Ireland's property boom is clear in Figure 5.03. Since 2007, the largest declines in tax receipts have been recorded in capital taxes and stamp duties – both closely related to the property market. In 2010 Ireland's total tax revenue was €31.8 billion, significantly down from tax revenue in 2007 of €47.2 billion. In 2011, a slight improvement (to €34.9 billion) is forecast. Comparing Ireland's tax structure to other countries, it emerges that social security contributions in Ireland constitute a smaller proportion of overall tax revenue than in other euro area economies (Figure 5.02), partly as a result of Ireland's favourable demographic profile, but also because the rate of social security contributions from employers is amongst the lowest in Europe[104].

Corporation tax has traditionally been seen by enterprise as one of Ireland's key competitiveness strengths (Figure 5.04). At 12.5 percent Ireland has the second lowest rate in the OECD-28. Despite the relatively low rate compared to many other locations, the yield from corporation tax in Ireland outstrips in relative terms, the yield in some other locations with higher headline rates (e.g. France) (Figure 5.05). In 2009, Ireland's corporation tax receipts as a percentage of GDP amounted to 2.4 percent, compared with an OECD average of 3.5 percent.

As well as taxes on profits, taxes on labour have a significant impact on the business environment. Looking at the gap between what the employer pays and what the employee receives (Figure 5.06),

[103] Including the cost of the bank bailout, the General Government Deficit in 2010 reached 31.5 percent of GDP
[104] OECD, Taxing Wages 2009

while labour taxes have risen considerably since 2008, Ireland still is a competitive performer; for a married couple with two children on a combined income of 167 percent of the average wage, Ireland is ranked 4th in the OECD; for a single person with no children on 167 percent of the average wage, Ireland is ranked 11th.

Ireland has become less competitive in terms of taxes on labour as a result of reductions in tax bands and credits, as well as other changes such as the introduction of a Universal Social Charge. As a result of these changes, average and marginal tax rates have increased: for a single worker earning €40,000 per annum the average rate of tax has increased from 18.6 percent in 2008 to 24.2 percent in 2011, while the marginal rate has increased from 47 percent to 52 percent.

Value Added Tax (VAT) represents the primary source of indirect tax revenues for all countries. Despite the standard rate of tax in Ireland falling from 21.5 percent in 2009 to 21 percent in 2010, Irish VAT rates are amongst highest in the OECD (Figure 5.08). The introduction of a temporary reduced rate of VAT (9 percent instead of the headline rate of 13.5 percent) for certain activities - largely tourism related services - is noteworthy, given the important contribution of the sector to overall exports[105]. Finally, Ireland generates a relatively low proportion of revenue through the use of property taxes (5.6 percent of total tax revenue, compared with 10.3 percent in the UK and 12.8 percent in the US) (Figure 5.09).

5.1.2 Finance

Access to affordable credit is essential to keep the wheels of enterprise turning. Irish firms, however, have generally faced above average interest rates when it comes to getting loans (Figure 5.10) and overdraft facilities (Figure 5.11).

As well as concerns about the cost of credit, enterprises rely on ready access to credit. The lack of readily available finance is one of the greatest barriers to economic growth. Without access to finance, enterprises cannot invest easily in productivity enhancing capital. The scale of the problem confronting enterprises seeking finance is illustrated in Figure 5.12. Annual growth rates in the stock of credit have been negative since March 2009. The value of credit outstanding to companies declined from a peak of €193.6 billion in November 2006 to €102 billion in April 2011.

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 (Figure 5.14) and as well as significant levels of private equity investment compared to other countries (Figure 5.15) and private equity investment. The value of credit lines financed by the European Investment Bank for enterprises in Ireland remains significantly below the euro area average (Figure 5.16).

[105] The new 9 percent rate applies from1 July 2011 until end-December 2013 and will apply mainly to restaurant and catering services, hotel and holiday accommodation and various entertainment services such as admissions to cinemas, theatres, museums, fairgrounds, amusement parks and sporting facilities. The purpose of this targeted VAT relief is to boost tourism and stimulate employment in the sector. The effects of the rate change will be assessed and the measures reviewed before the end of 2012 in the context of preparing Budget 2013. See Department of Finance, Jobs Initiative, May 2011

5.1.3 Regulation and Competition

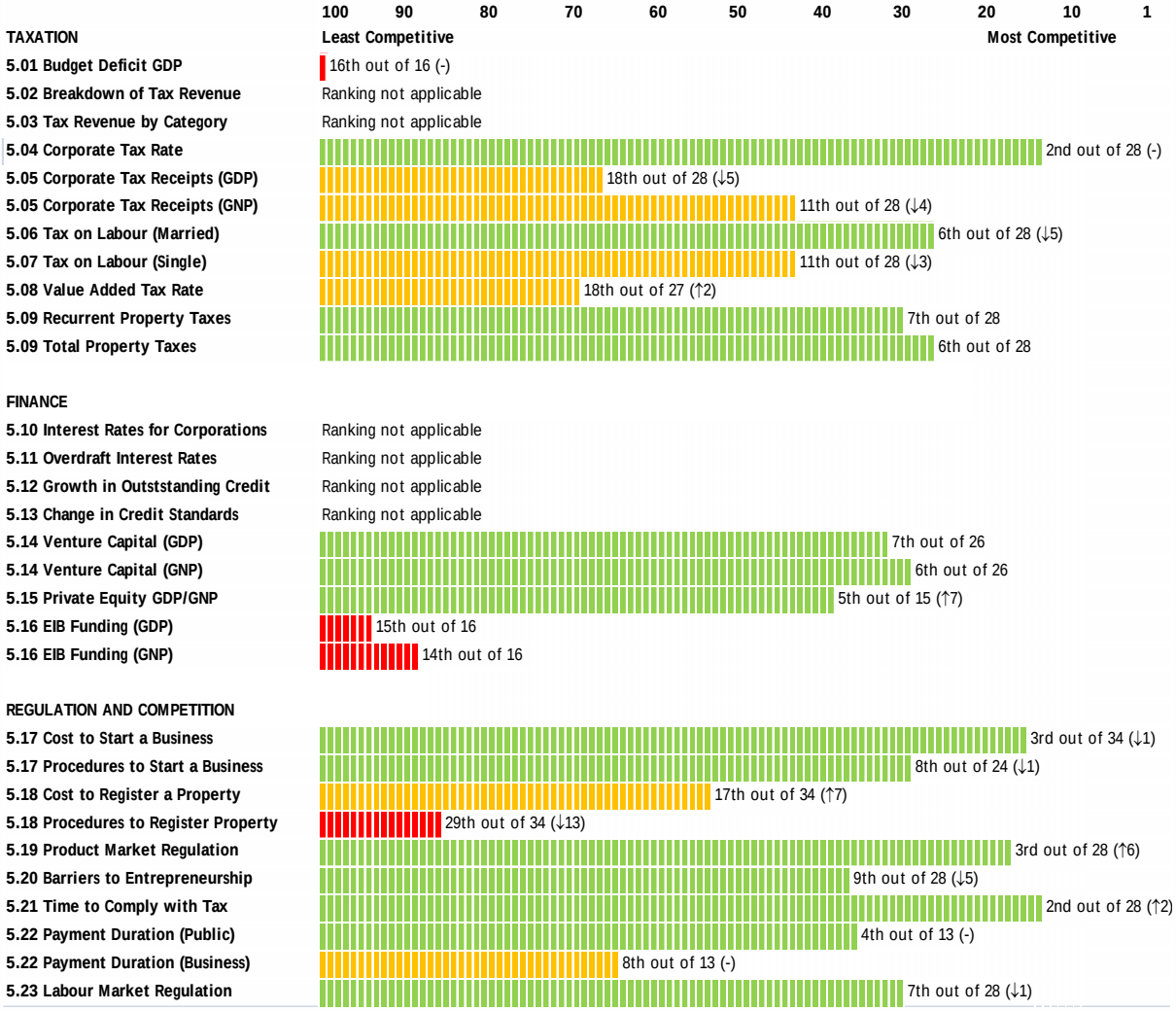
The regulatory framework must simultaneously ensure that high standards are followed in the conduct of enterprise, while at the same time ensuring that unnecessary constrains to innovation, productivity and economic growth are not imposed. Ireland's international reputation has been damaged by serious lapses in corporate governance in the last number of years. It is important to point out, however, that regulatory failures primarily occurred in the domestic financial system, rather than in the internationally traded sector. Furthermore, Ireland remains an attractive location from which to do business. Overall, Irish regulation is designed to facilitate entrepreneurship and expansion.

For those seeking to start a business, Ireland compares favourably both in term of the financial costs of compliance and in terms of the number of procedures involved (Figure 5.17). Ireland performs less well in relation to the cost of registering a property - property costs are recorded as a percentage of property value and Ireland's relatively high level of stamp duty sees Ireland ranked below the OECD average (Figure 5.18).

Ireland's generally pro-enterprise regulatory environment is reflected in relatively low barriers to entrepreneurship (Figure 5.20), a competitive product market regime (Figure 5.19), and a legislative approach which maintains labour market flexibility (Figure 5.23). The time taken to comply with tax payment requirements in Ireland is also relatively low (Figure 5.21).

The chart below summarises Ireland's performance across the full range of Business Environment indicators.

Summary of Standardised Business Environment Indicators[106]

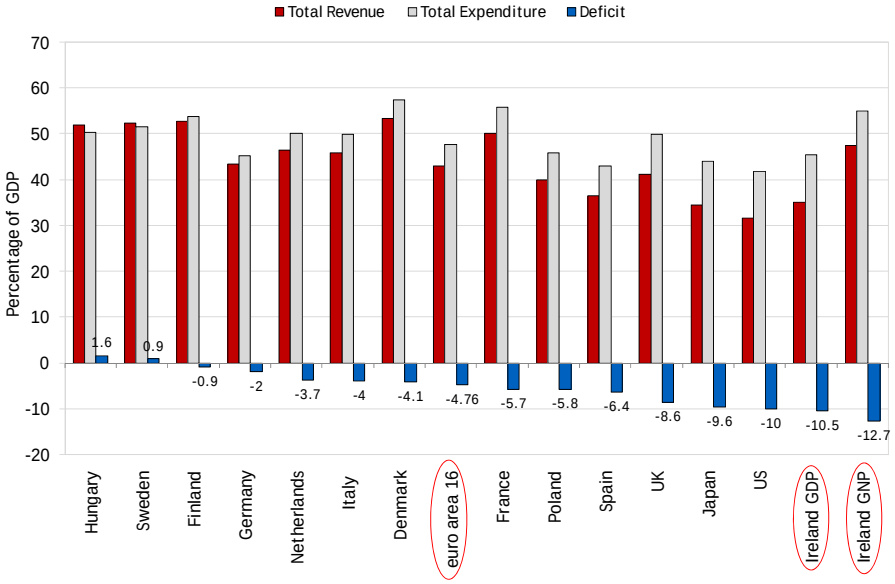


[106] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

5.1 Business Environment

5.1.1 Taxation

Figure 5.01 Total General Government Revenue and Expenditure (as a % of GDP), 2011F

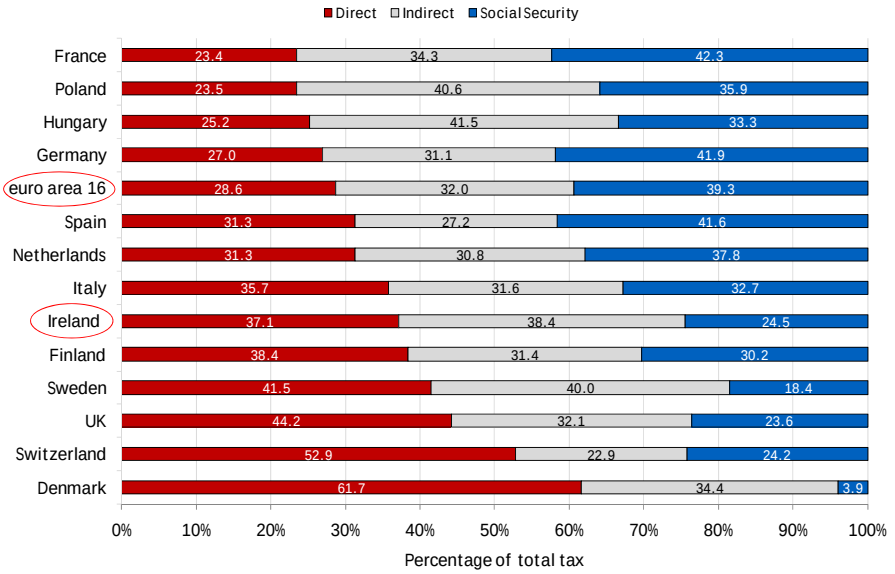


Source: European Commission. DG EconFin, Spring 2011 Economic Forecasts

Irish Government expenditure is forecast to account for 45.5% of GDP and 54.9% of GNP in 2011. This results in an estimated deficit of -10.5% of GDP and -12.7% of GNP for 2011. This contrasts with the euro area-16 average deficit of -4.76% of GDP for 2011. The share of Government expenditure in the economy has increased as a result of decreased activity in the other sectors of the economy.

euro area-16 ranking[107]: Budget deficit: 16th (-)

Figure 5.02 Breakdown of Tax Revenue, 2009



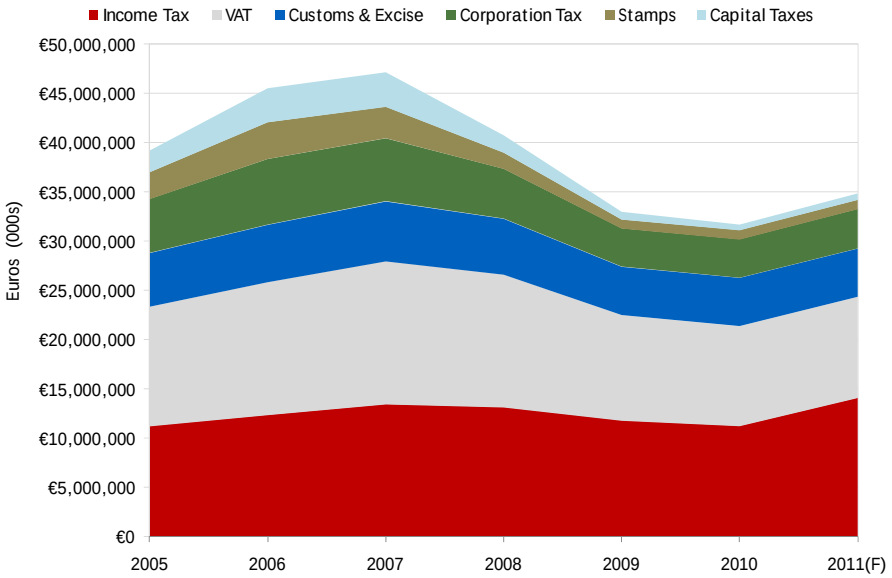
Source: Eurostat, Economy and Finance Indicators

Social security contributions in Ireland constitute a smaller proportion of overall tax revenue than in other euro area economies. This is influenced partly by Ireland's favourable demographic structure (fig 4.53). The remaining elements of Ireland's revenue stream are almost evenly split between indirect (37.1%) and direct taxation (38.4%).

Ranking: n/a

[107] Change in ranking is based on comparison between 2010 and 2011 forecast

Figure 5.03 Tax Revenue, by Category 2005-2011F

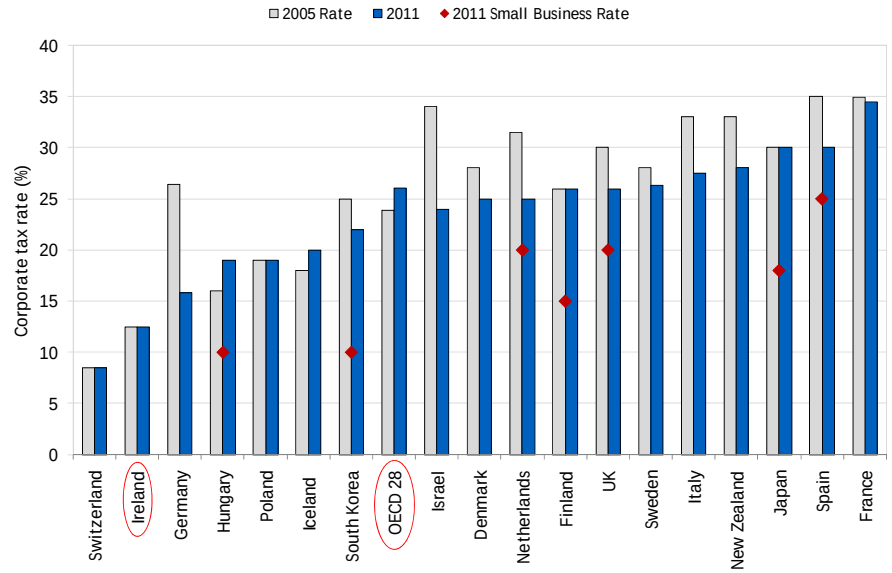


Source: Department of Finance, Exchequer Statements

In 2010 Ireland's total tax revenue was €31.8 billion, significantly down from tax revenue in 2007 of €47.2 billion. For 2011 tax revenue is forecast to increase to €34.9 billion. The sharpest decline among the tax heads since 2007 have been in capital taxes[108], stamp duties and corporation tax. The expected increase in income tax in 2011 is driven by the changes to tax bands and credits in the last budget as well as the introduction of the Universal Social Charge (USC), which is expected to generate €426 million in 2011[109].

Ranking: n/a

Figure 5.04 Central Government Corporate Income Tax Rate, 2010



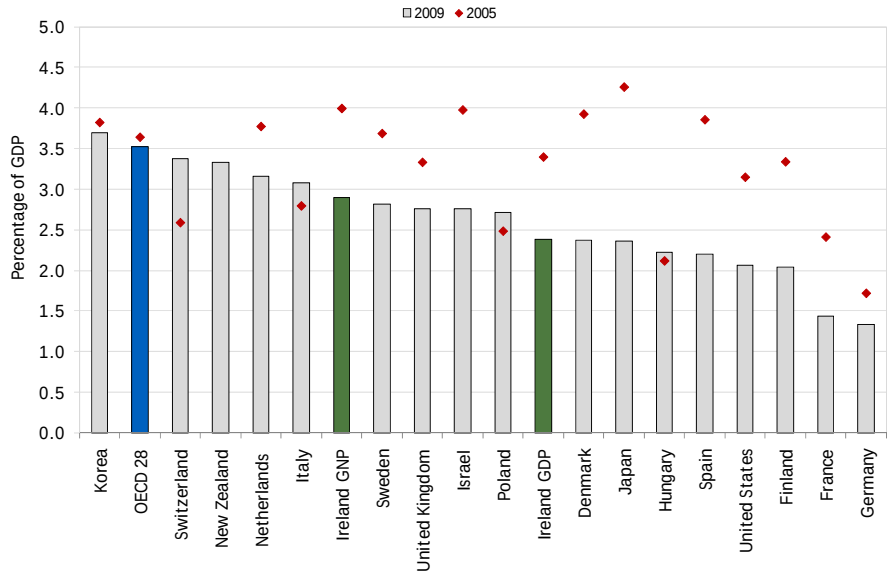
Source: OECD Tax Database 2011

Despite the downward trend in corporation taxes globally, Ireland's corporation tax rate remains one of the country's key competitiveness strengths. At 12.5% Ireland has the second lowest headline rate in the OECD-28.

OECD-28 ranking: 2nd **(-)**

[108] Capital taxes comprise capital gains tax and capital acquisitions tax.
[109] Receipts from the Universal Social Charge (USC) are collected as part of Income Tax. The USC replaces the Income Levy and Health Levy. The Health Levy was previously collected as a Departmental receipt rather than a tax receipt. Figures based on Department of Finance's end-May 2011 Analysis of Taxation receipts.

Figure 5.05 Corporation Tax Receipts[110] (as a % of GDP), 2009

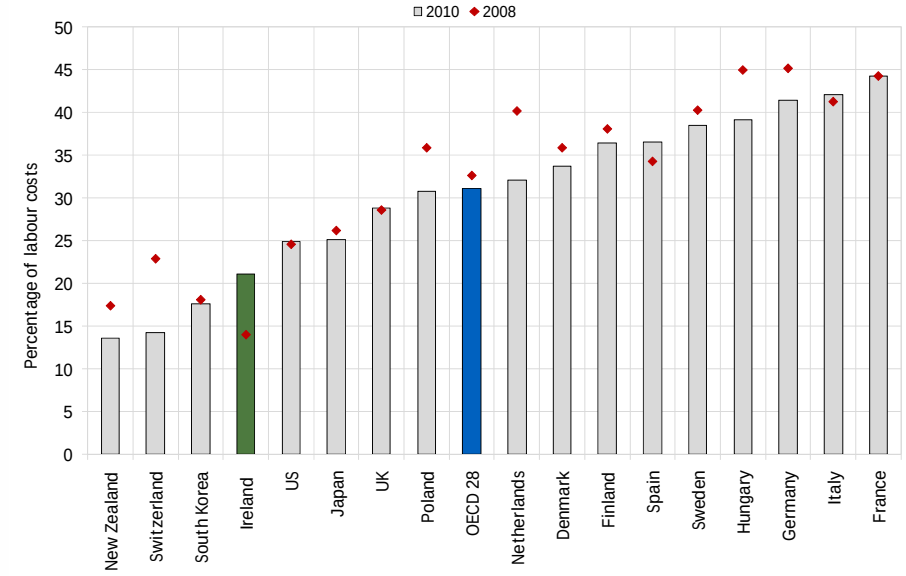


Source: OECD, Revenue Statistics

The value of corporation tax receipts has fallen in recent years. While Ireland's corporation tax receipts as a percentage of GDP was similar to the OECD average in 2005, the margin has widened since 2008. In 2009 Ireland's corporation tax receipts as a percentage of GDP was 2.4% compared to the OECD average of 3.5%.

OECD-28 ranking:
% GDP:18th (↓5)
% GNP: 11th (↓4)

Figure 5.06 Total Tax on Labour (as a % of Average Earnings), 2010, (Married, 2 CD, 167% AW)



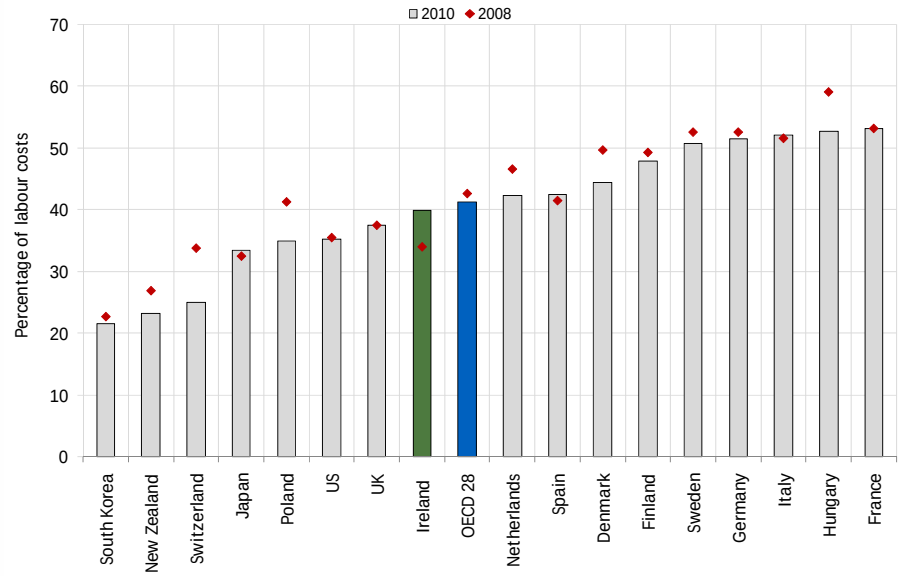
Source: OECD, Taxing Wages, 2010

Figure 5.06 measures the gap between what the employer pays and what the employee receives. As a result of increased taxes on labour, the gap between gross and net pay has risen considerably since 2008. For a married couple with two children on a combined income of 167% of the average wage (i.e. a two earner family), the difference is 21.1%, up from 14% in 2008. Both average and marginal rates have also been increasing: for a couple earning a combined total of €40,000 per annum, the average rate of tax has increased from 3.6% in 2008 to 9.2% in 2011 while the marginal rate has increased from 26% to 31%.

OECD-28 ranking:
6th (↓5)

[110] Figures for OECD, Netherlands and Poland refer to 2008 data

Figure 5.07 Total Tax on Labour (as a % of Average Earnings), 2010 (Single, no CD, 167% AW)

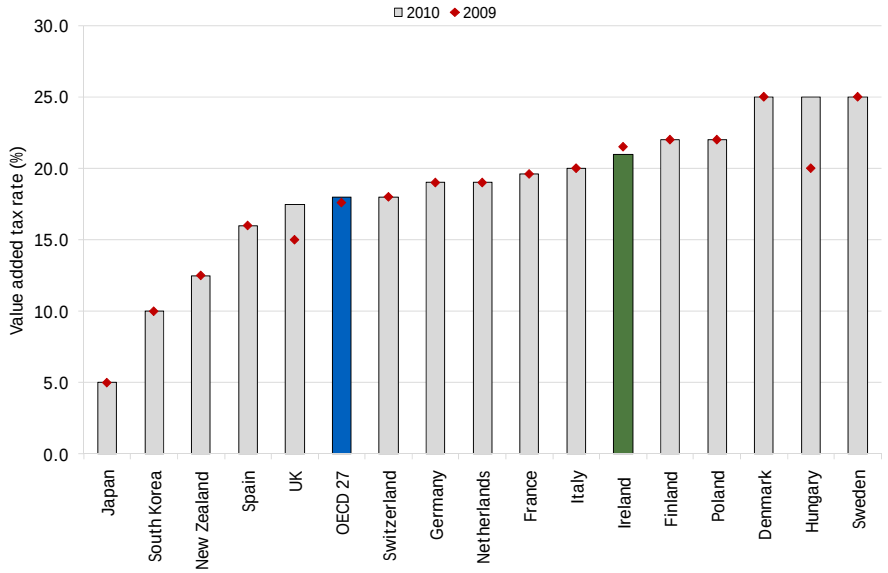


Source: OECD, Taxing Wages, 2010

For a single person with no children on 167% of the average wage, the difference between what the employer pays and what the employee receives has increased as a result of increased labour taxes – the difference in 2010 was 39.9% up from 34% in 2008. As a result of changes in tax bands and credits, as well as the introduction of the USC, average and marginal tax rates have increased: for a single worker earning €40,000 per annum the average rate of tax has increased from 18.6% in 2008 to 24.2% in 2011, while the marginal rate has increased from 47% to 52%.

OECD-28 ranking:
11th (↓3)

Figure 5.08 Value Added Tax, Standard Rate, 2010[111]



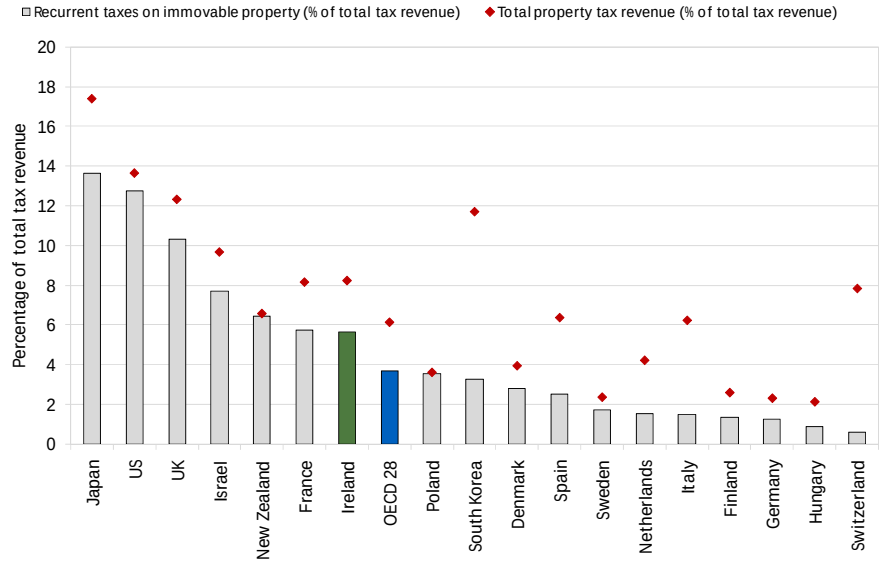
Source: OECD, Taxing Wages, 2010

Sales tax or Value Added Tax is the primary source of indirect tax revenues for all countries. VAT is a tax on consumption and can be regressive. Despite the standard rate of tax in Ireland falling from 21.5% in 2009 to 21% in 2010, Irish VAT rates are amongst highest in the OECD.

OECD-27 ranking:
18th (↑2)

[111] OECD 27 excludes US

Figure 5.09 Recurrent[112] and Total Property Tax Receipts as % of Total Tax Revenue, 2009[113]



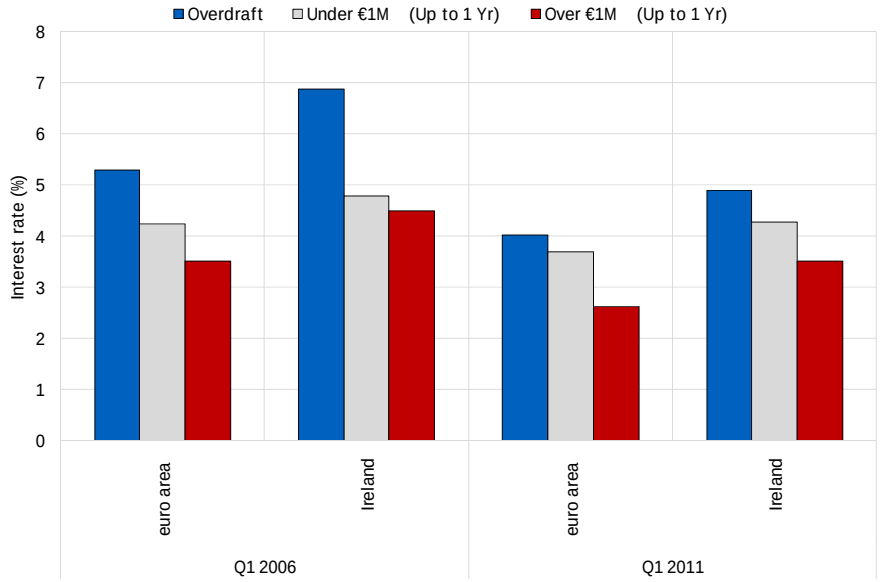
Source: OECD, Revenue Statistics 1965-2009

Total taxes on property include several different headings (e.g. recurrent taxes on immovable property, recurrent taxes on net wealth, estate, inheritance and gift taxes, etc). The reductions in stamp duty announced in the most recent budget are not reflected in this data. Ireland generates a relatively low proportion of revenue through the use of recurrent taxes (5.6% of total tax revenue, compared with 10.3% in the UK, and 12.8% in the US).

OECD-28 ranking:
Recurrent Taxes: 7th
Total Property Tax: 6th

5.1.2 Finance

Figure 5.10 Interest Rates Available to Non-Financial Corporations by Loan Size & Duration Q1 2011[114]



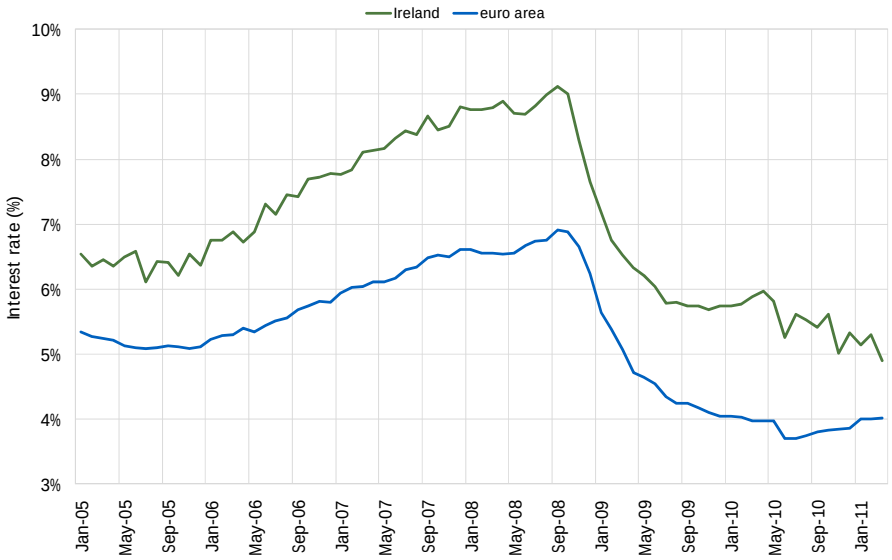
Source: : European Central Bank

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 2011. Although interest rates in Ireland and the euro area have fallen since 2006, the gap between Irish and euro area interest rates has not narrowed for either loans of up to or over €1 million.

Ranking: n/a

[112] Recurrent property taxes relate to taxes levied regularly in respect of the use or ownership of immovable property (i.e. taxes levied on land and buildings). Such taxes can be in the form of a percentage of an assessed property value based on rental income, sales price, or capitalised yield; or in terms of other characteristics of property, (e.g. size or location) from which a presumed rent or capital value can be derived. Recurrent taxes can be levied on proprietors, tenants, or both.
[113] Data for Australia, Greece, Netherlands, Poland, and Portugal is taken from 2008 when calculating the OECD-28 average.
[114] This indicator applies to new business loans. Interest rates expressed for overdrafts included bank overdrafts, revolving loans, convenience and extended credit card debt.

Figure 5.11 Overdraft Interest Rates to Non-Financial Corporations, January 2005-March 2011[115]



This chart shows interest rates available to nonfinancial 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 March 2011, Irish firms paid 4.9% on an overdraft compared to the euro area average of 4%.

Ranking: n/a

Source: : European Central Bank

Figure 5.12 Annual Growth Rate in Outstanding Credit to Non-Financial Corporations, January 2005-April 2011

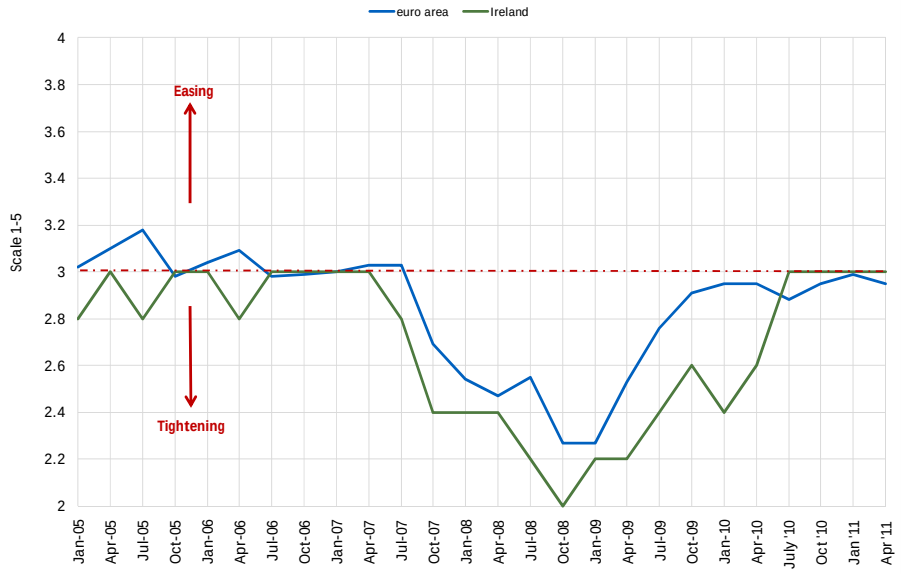
Annual growth rates in the stock of credit have been negative since March 2009. This is in contrast to 2005-2008 period when there was positive annual growth rates in outstanding credit in excess 20% and even peaked to over 30% in 2006. The value of credit outstanding to companies declined from a peak of €193.6 billion in November 2006 to €102 billion in April 2011.

Ranking: n/a

Source: European Central Bank

[115] Interest rates expressed for overdrafts included bank overdrafts, revolving loans, convenience and extended credit card debt.

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

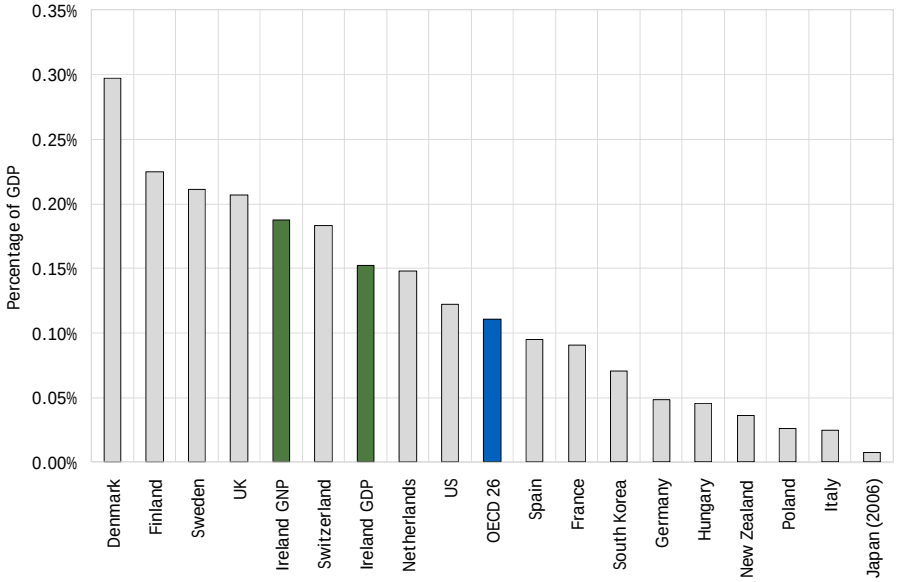


Source: : European Central Bank

According to data from bank loan officers, Irish banks tightened credit standards more aggressively than euro area banks from 2007 onwards[116].
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. Since mid 2010, Irish standards appear to have moved in line with average European standards.

Ranking: n/a

Figure 5.14 Venture Capital Investment as a % of GDP, 2008



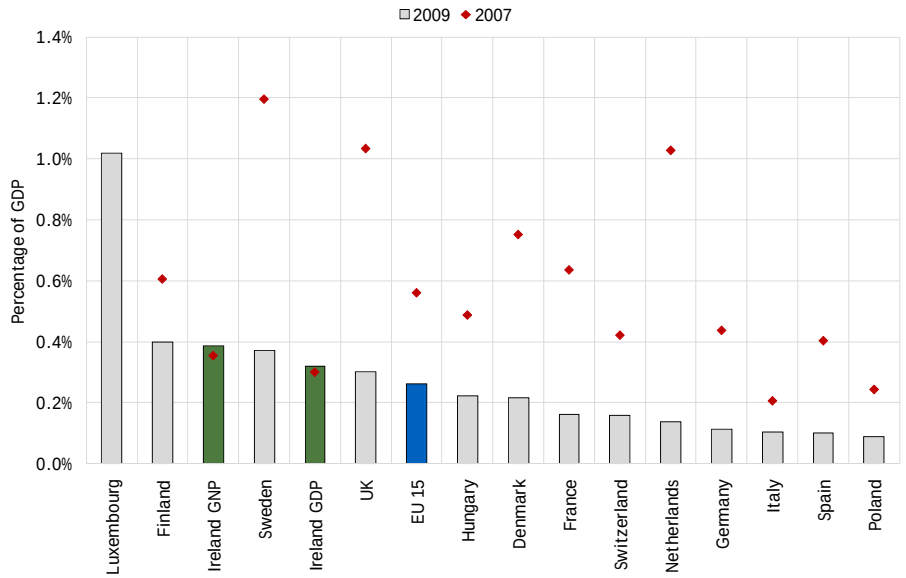
Source: OECD, Science, Technology and Industry Scorecard 2009

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 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 - in the US, VC investment declined by 60% in Q1 2009 compared to Q1 2008.

OECD-26 ranking[117]:
GDP: 7th
GNP: 6th

[116] 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.
[117] OECD 26 excludes Iceland and Slovakia

Figure 5.15 Private Equity Investment (as a % of GDP), 2009

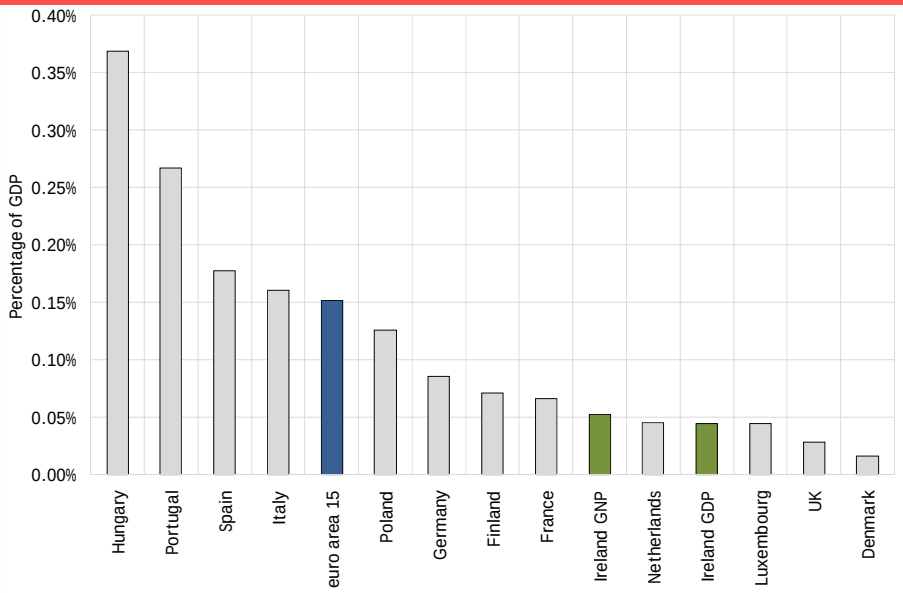


Source: European Private Equity & Venture Capital Association

Private equity comprises all stages of financing: seed, start-up, expansion, replacement capital and buyouts. Private equity declined sharply across the EU between 2007 and 2009 – the euro area average declined from 0.56% of GDP to 0.26%. This decline did not impact upon Irish figures (perhaps as a result of the large fall in GDP) – private equity investment now accounts for 0.32% of GDP and 0.38% of GNP and now exceeds the EU-15 average.

EU-15 ranking:
GDP: 5th (↑7)
GNP: 5th (↑7)

Figure 5.16 Total Value of EIB Funding for Credit Lines to Enterprise 2006-2010 as a % Average GDP 2006-2010



Source: European Investment Bank

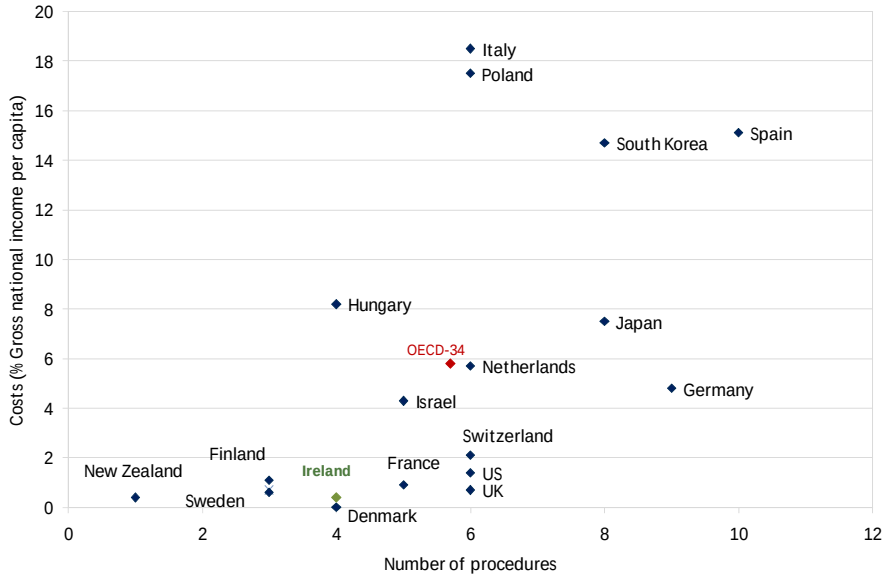
The European Investment Bank provides funding through financial intermediaries in recipient countries to support credit lines to enterprise in that country. The value of credit lines financed by the EIB in Ireland between 2006 and 2010 remains significantly below the euro area average.

euro area-16 ranking[118]:
GDP: 15th
GNP 14th

[118] Euro area16 excludes Malta

5.1.3 Regulation and Competition

Figure 5.17 Cost of Starting a Business and Number of Procedures Involved, 2011



This chart shows both the financial costs of meeting the regulations to establish a business and the number of procedures involved. Ireland ranks favourably under both measures.

OECD-34 ranking:
Cost: 3rd (↓1)
Procedures: 8th (↓1)

Source: World Bank, Doing Business 2011

Figure 5.18 Cost of Registering a Property and Number of Procedures Involved, 2011

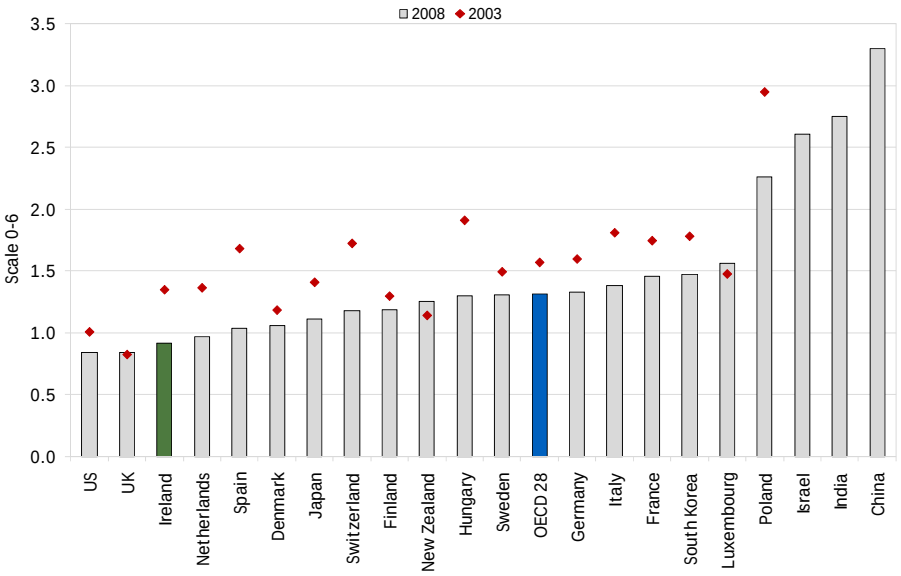
This chart shows both the financial costs of registering a property and the number of procedures involved. Property costs are recorded as a percentage of property value and comprise official costs required by law, including fees, transfer taxes, stamp duties and any other payments[119]. While the number of procedures in Ireland is similar to the OECD average, the costs are considerably higher.

OECD-34 ranking:
Cost: 17th (↑7)
Procedures: 29th (↓13)

Source: World Bank, Doing Business 2011

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

Figure 5.19 Product Market Regulation, (Scale 0-6), 2008

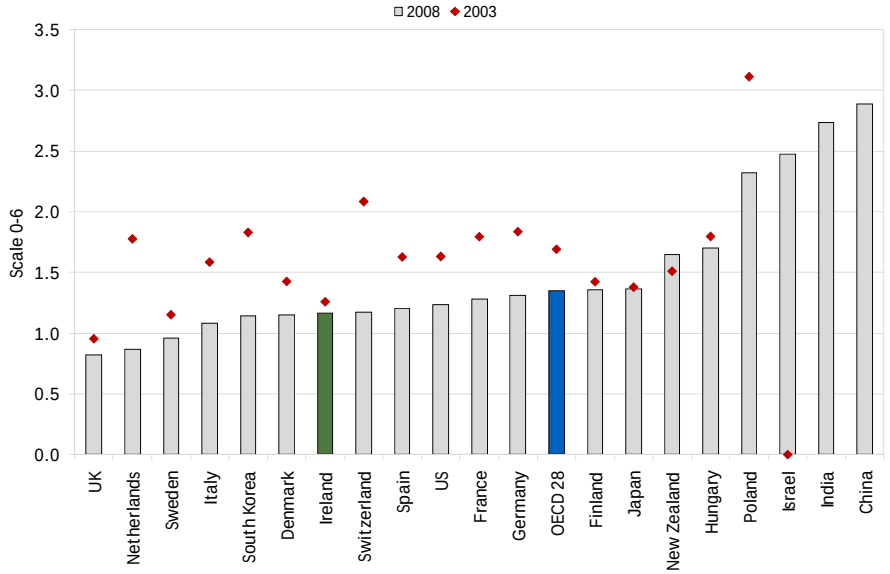


The degree to which policies promote or inhibit competition in product markets is measured by this indicator. Ireland performs well in this indicator as regulations promote choice and competition. Furthermore barriers to product market competition declined in Ireland, like most other OECD countries between 2003 and 2008.

OECD-28 ranking:
3rd (↑6)

Source: OECD, Product Market Indicators

Figure 5.20 Barriers to Entrepreneurship, (Scale 0-6), 2008

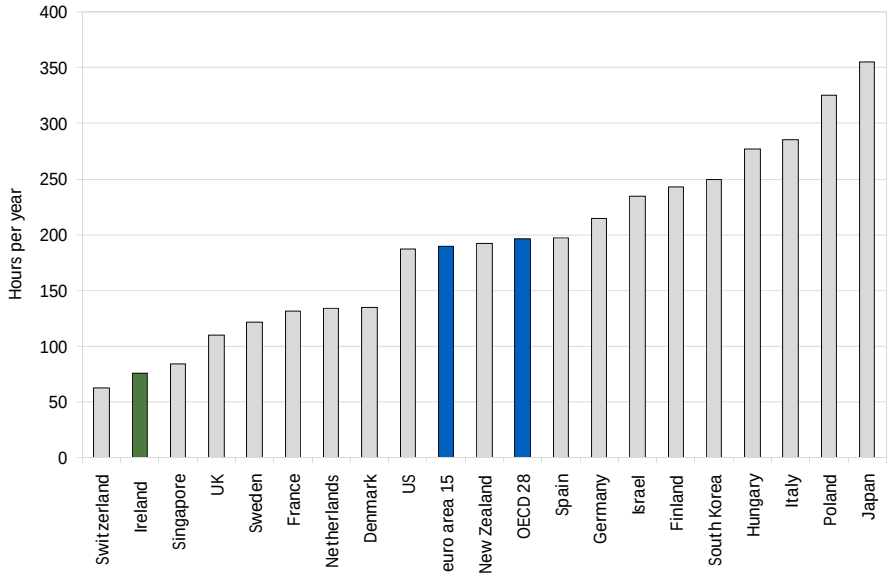


This indicator measures regulatory and administrative opacity, administrative requirements for start-ups and barriers to competition. While Ireland performs relatively well, we have only improved marginally since 2003. Ireland's performance is weak in terms of regulatory and administrative opacity and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

OECD-28 ranking:
9th (↓5)

Source: OECD, Product Market Indicators

Figure 5.21 Time to Comply with Tax Payments[120] (hours per year), 2010

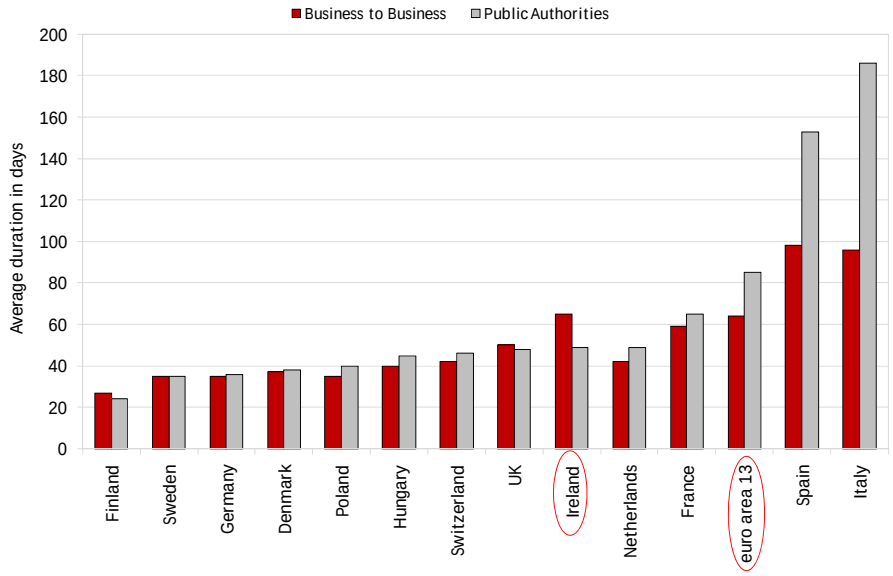


The time to comply indicator measures the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are captured – these include time taken to prepare the tax figures, complete and file the tax returns, and paying the taxes. Ireland is one of a number of small countries to perform strongly under this indicator.

OECD-28 ranking:
2nd (↑2)

Source: World Bank/ Price Waterhouse Coopers, Paying Taxes, 2011

Figure 5.22 Average Payment Duration for Settling an Invoice (Days), 2010



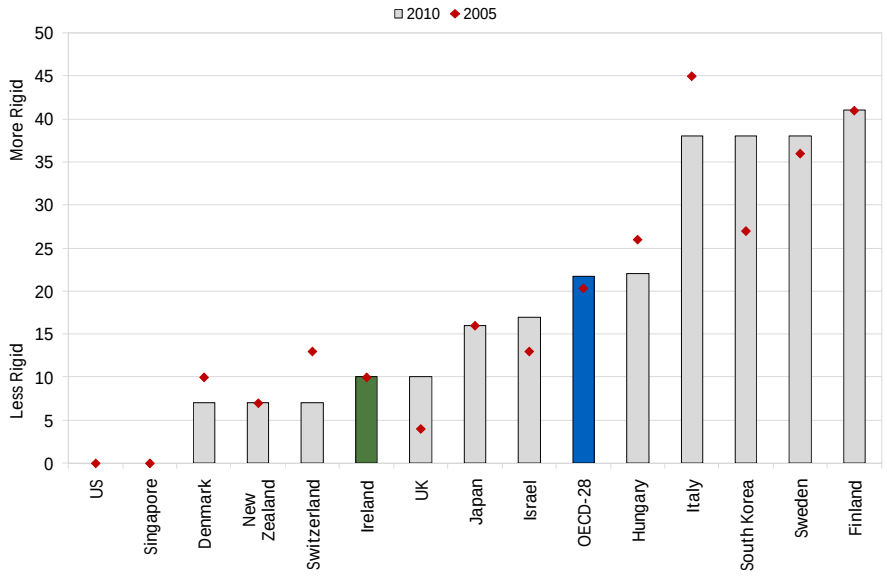
In Ireland, the average time taken to settle an invoice is 49 days for public authorities and 65 days for businesses. The euro area-13 average is 85 days for public authorities and 64 for businesses. The performance of Ireland's public authorities has improved in recent years but remains behind leading countries such as Finland (27 days), Sweden and Germany (35 days).

euro area-13 ranking[121]:
Public Authorities: 4th (-)
Business to Business: 8th (-)

Source: European Payment Index 2010, Intrum Justitia

[120] Euro area 15 excludes Malta
[121] Euro area 13 excludes Luxembourg, Malta, and Slovenia

Figure 5.23 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.

OECD-28 ranking:
7th (↓1)

Source: World Bank, Doing Business 2010

5.2 Physical and Economic Infrastructure

The quality of a countries infrastructure directly impact on the ability of enterprises to conduct their business – regardless of whether they are service or manufacturing firms. Infrastructure quality impacts upon many aspects of a firm's ability to do business – it determines the ease with which goods can be moved and the efficiency of delivering services remotely. The quality of a country's infrastructure also affects the mobility of labour and quality of life. Finally, the stock and quality of infrastructure can affect the attractiveness of the country in the eyes of investors and potential high skilled migrants. In this section, a range of indicators benchmarking Ireland's relative performance are grouped under three headings:

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

5.2.1 Investment in Physical Infrastructure

Undeniably, Ireland has made great strides in terms of the quality of our physical infrastructure over the last decade and a half. This is reflected in the value of Ireland's fixed assets which has increased from €294 billion in 2000 to €470 billion in 2009 (Figure 5.24). This reflects sustained investment in infrastructure and other capital stock over the course of several years (Figure 5.25). Between 2000 and 2009 the average growth rate in the value of Ireland's fixed assets was 5.4 percent.

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.

The recession, not surprisingly, has had a significant impact on government capital spending. In 2009, the exchequer spent €14.7 billion on voted and non-voted capital expenditure. In 2010 this figure fell to €8 billion. According to the most recent Stability Programme Update further reductions are anticipated out to 2015[122].

5.2.2 Transport, Energy and Environmental Infrastructure

Despite the sustained investment over the course of recent National Development Plans and the resultant improvement in infrastructure, perceptions about quality remain poor (Figure 5.26). According to the IMD, while Ireland's score in terms of air and water transport has improved in recent years, Ireland's perceived performance in relation to distribution infrastructure (including road, rail, air and sea transport) ranks poorly and it remains below the performance of comparator countries (Figure 5.27). Perceptions about the quality of energy infrastructure remain particularly poor.

[122] Department of Finance, Ireland – Stability Programme Update, April 2011

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 (Figure 5.28)

Ensuring a secure, environmentally sustainable and economically competitive energy supply is a major global challenge. Ireland's overall energy import dependency was 88 percent in 2009 which compares unfavourably with the EU-15 average of 57 percent (Figure 5.29). Ireland also maintains very limited storage capacity – for example natural gas storage capacity is four percent of annual consumption which is very low compared to the euro area-10 average of 17.8 percent (Figure 5.30).

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 (Figure 5.31).

5.2.3 Information and Communication Technology Infrastructure

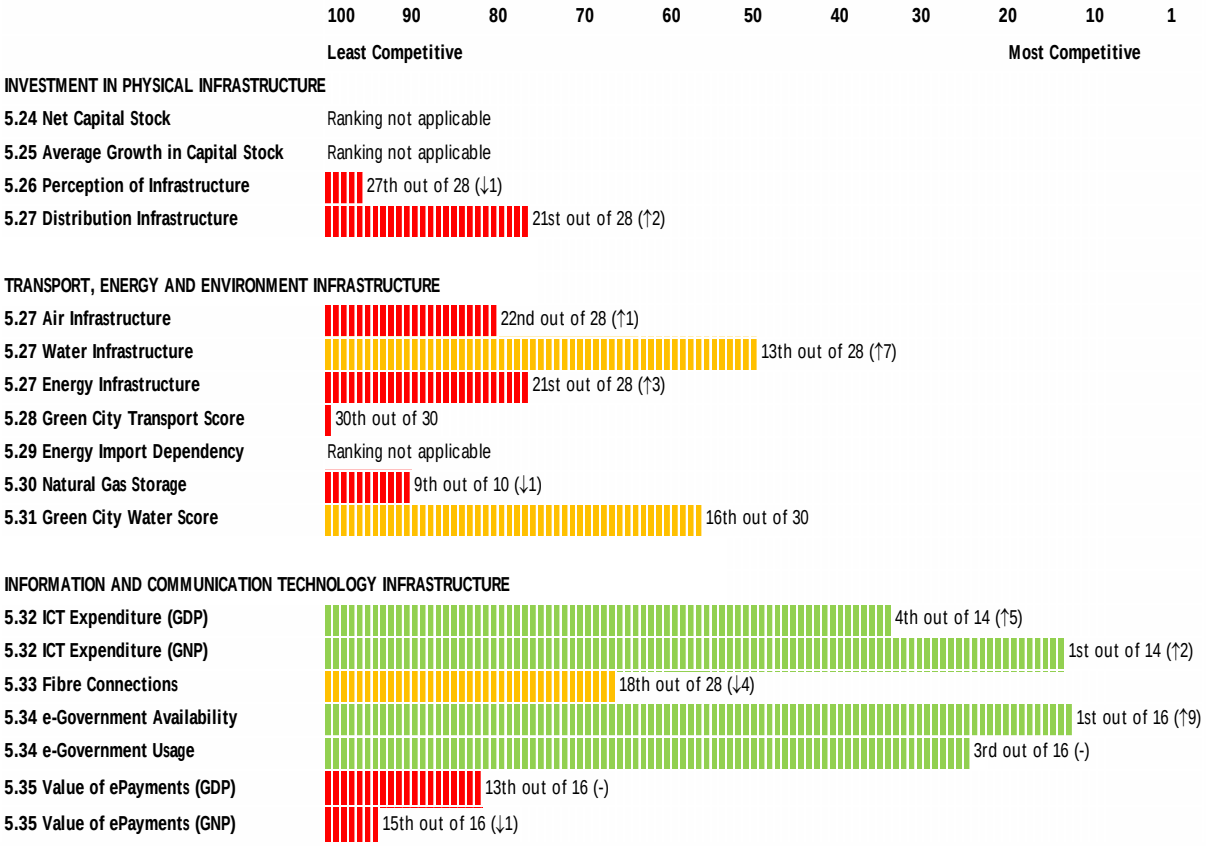
Given the growing importance of services to the Irish economy – and particularly high value added services (Figure 4.09), a world class information and communication technology infrastructure is essential. Ireland's invested 5.5 percent of GDP (6.7 percent of GNP) on ICT in 2009 (Figure 5.32). This is more than the euro area average of 5.1 percent but behind the UK, which spends 6.7 percent of GDP on ICT.

In some regards, Ireland is well placed - in terms of online availability of e-Government, for instance - amongst the leading nations in the EU, with 100 percent of public services examined being available electronically. Similarly, enterprises in Ireland appear to be using such services on a regular basis (Figure 5.34). Use of ICT, however, is perhaps not as prevalent amongst members of the public who demonstrate continued reliance on cash payments rather than electronic payments (Figure 5.35).

Ireland's performance is poor in terms of upgrading the local broadband access network to fibre and on offering very fast broadband speeds over fibre. In Ireland only 0.5 percent of connections are over fibre connections compared to 55 percent in Japan (Figure 5.33). Ireland remains significantly behind the OECD average of 12 percent.

Ireland's performance across all of the Physical and Economic Infrastructure indicators is summarised below.

Summary of Standardised Physical and Economic Infrastructure Indicators[123]

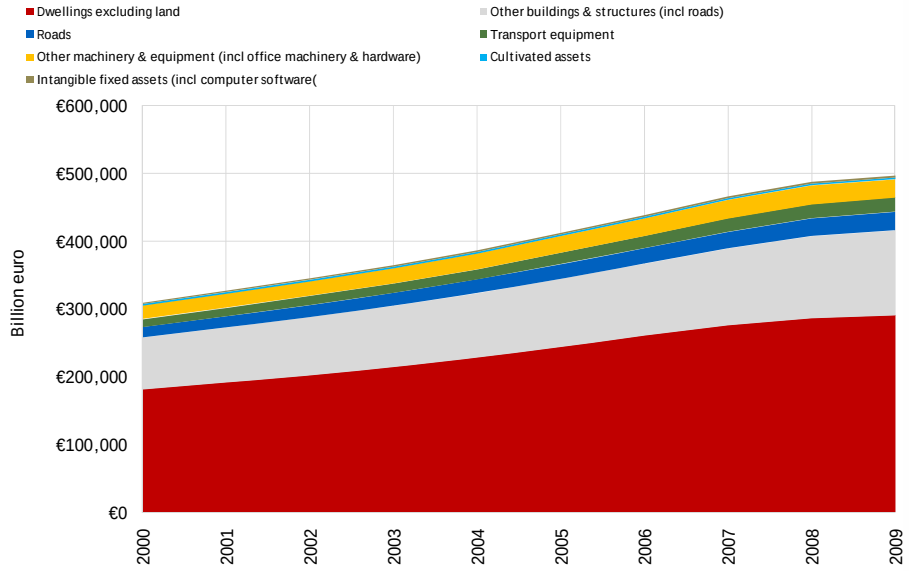


[123] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

5.2 Physical and Economic Infrastructure

5.2.1 Investment in Physical Infrastructure

Figure 5.24 Net Capital Stock at Year End, 2000-2009 (millions of Euro in constant 2008 prices)[124]

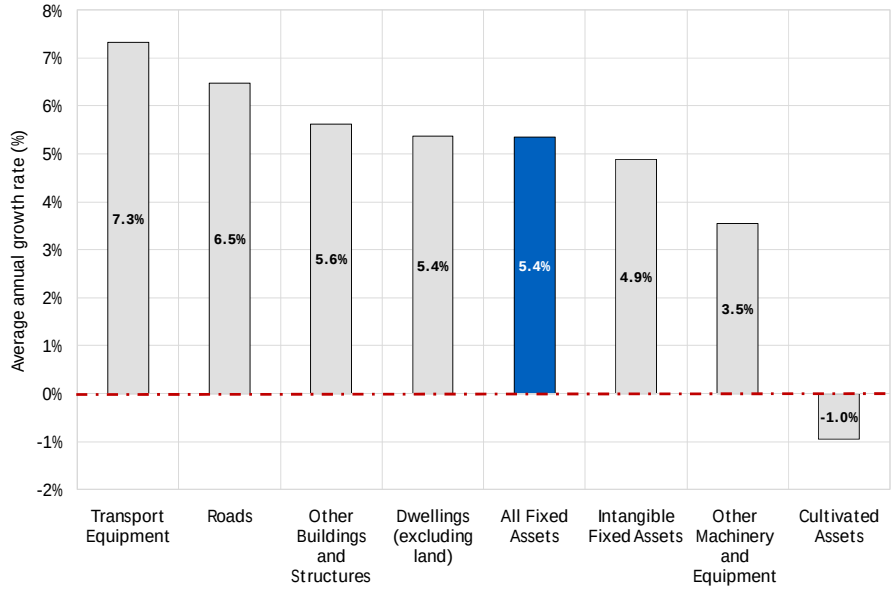


The value of Ireland's fixed assets has risen from €294 billion in 2000 to €470 billion 2 in 009. In 2009, the value of dwellings in the State accounted for €291 billion, other buildings and structures for €98.7 billion, roads €26.9 billion, transport equipment for €21.4 billion, other machinery and equipment for €27.1 billion, intangible assets including software for €2.7 billion and cultivated assets for €2.4 billion.

Ranking: n/a

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

Figure 5.25 Average Annual Growth Rate in Net Capital Stock at Year End, 2000-2009



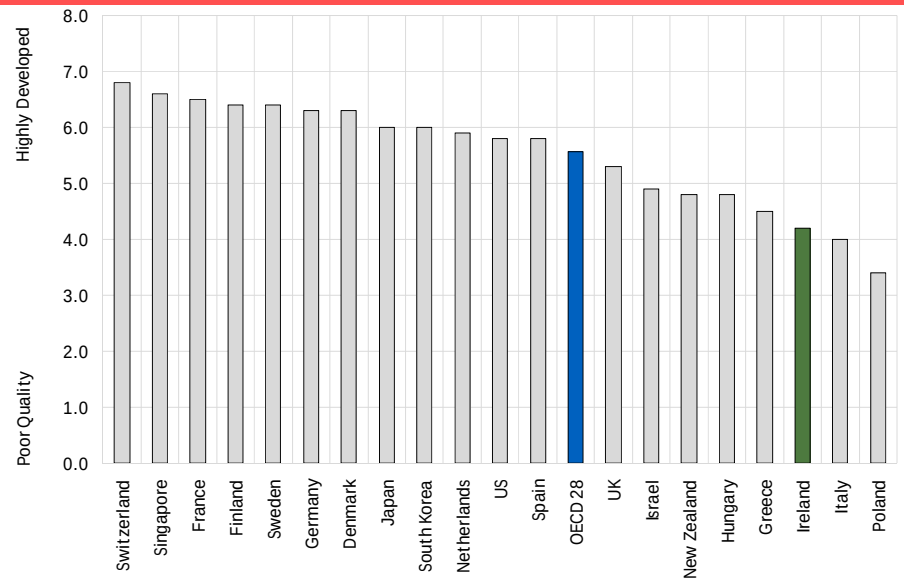
This figure shows the average annual growth rate in the value of Ireland's fixed assets over the period 2000-2009. The average growth rate for all fixed assets was 5.4% between 2000 and 2009. Transport equipment and roads have displayed the strongest growth rates. Investment in machinery and equipment and intangible fixed assets such as software has been relatively weaker over the period.

Ranking: n/a

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

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

Figure 5.26 Perception of Overall Infrastructure Quality (Scale 1-7), 2010



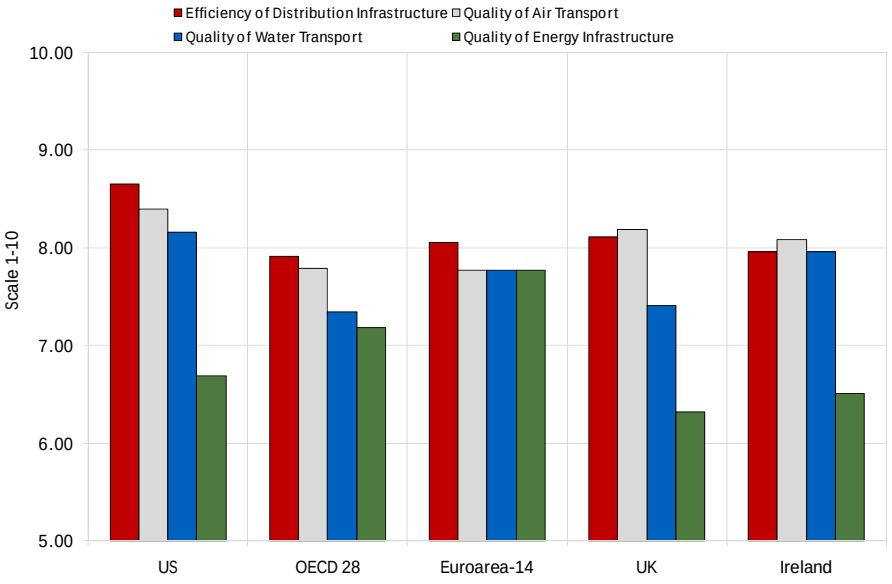
This chart shows executives' perceptions regarding the overall quality of infrastructure in an economy. Ireland's score remains significantly below the OECD average despite significant investments in infrastructure over the course of several National Development Plans.

OECD-28 ranking: 27 (↓1)

Source: World Economic Forum 2010/2011

5.2.2 Transport, Energy and Environmental Infrastructure

Figure 5.27 Perception of Quality of Distribution, Air Transport, Water Transport and Energy Infrastructure (Scale 0-10)[125], 2011



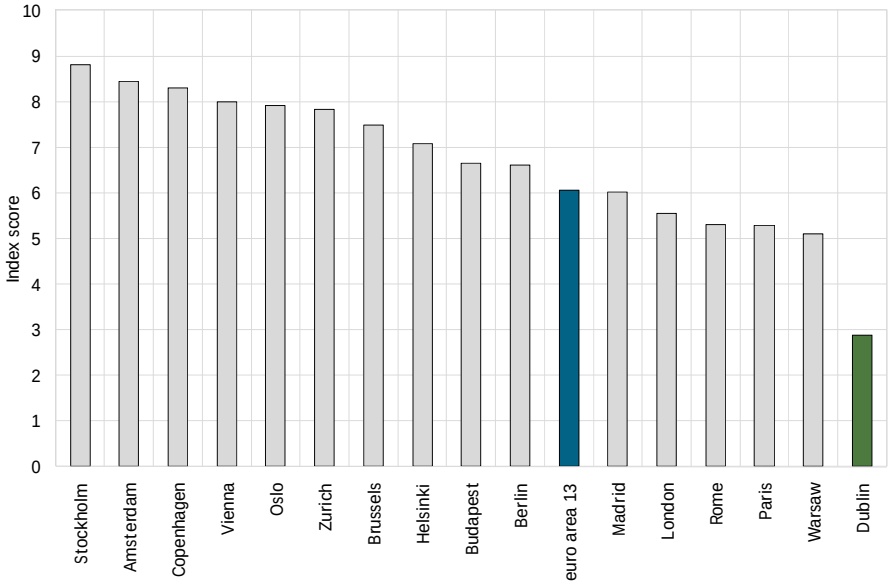
Ireland's performance across most infrastructure areas has improved in recent years, reflecting the significant investment made over the several National Development Plans. The quality of Ireland's energy infrastructure, however, is the worst perceived of all infrastructure areas.

OECD-28 ranking:
Distribution: 21 (↑2)
Air: 22 (↑1)
Water: 13 (↑7)
Energy: 21 (↑3)

Source: IMD World Competitiveness Yearbook, May 2011

[125] Euro area 14 excludes Malta and Cyprus

Figure 5.28 Green City Index, Transport Score (Scale 1-10), 2009

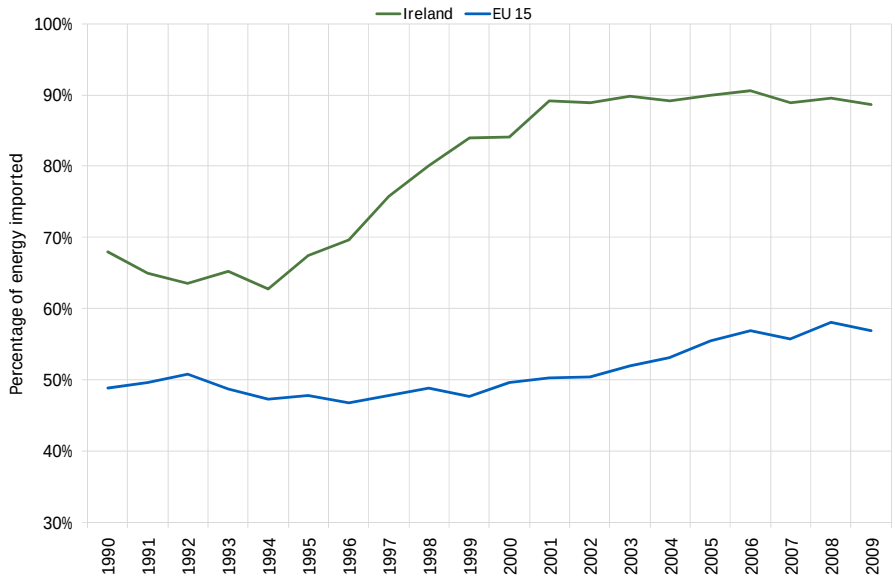


Source: Siemens/Economist Intelligence Unit, European Green City Index, December 2009

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:
30th out of 30 cities

Figure 5.29 Energy Import Dependency of Ireland and the EU 15, 1990-2009[126]



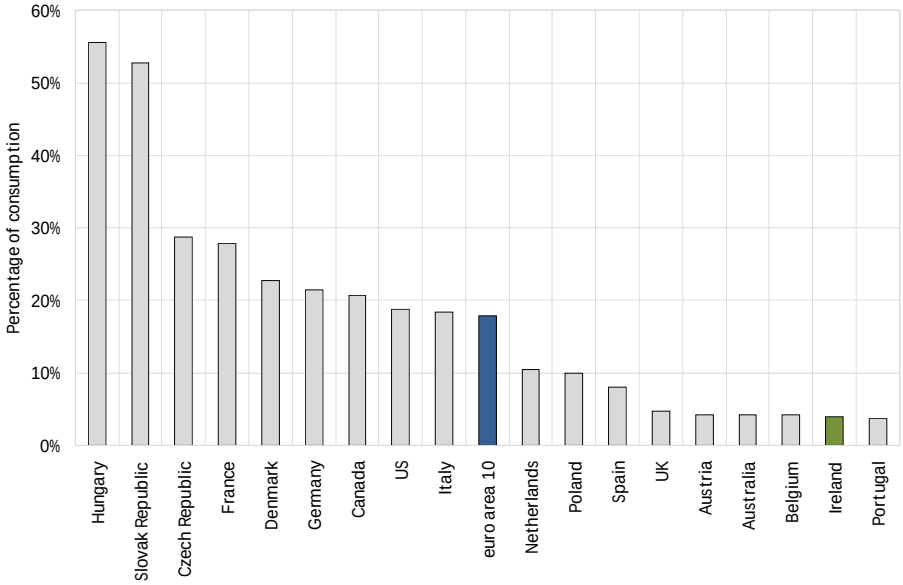
Source: Eurostat, Environment and Energy Indicators

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 88% in 2009 which compares unfavourably with the EU-15 average of 57%.

Ranking: n/a

[126] Import Dependency is calculated as follows: (Imports – Exports – Non Energy Consumption)/ (Primary Energy Supply – Non Energy Consumption + Marine Bunkers)

Figure 5.30 Natural Gas Storage Capacity as a Percentage of Annual Consumption, 2009

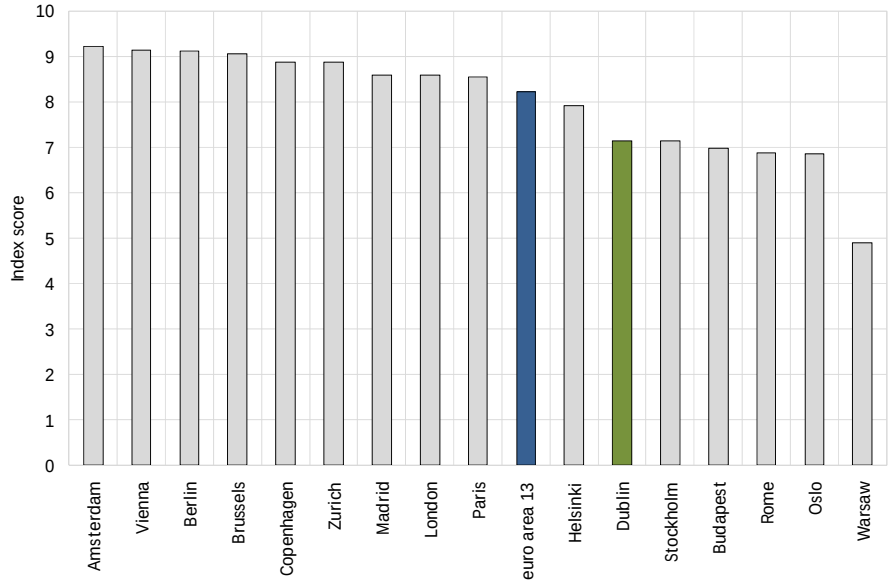


Source: International Energy Agency, Natural Gas Information 2010

Ireland's storage capacity is low at 4% of consumption[127]. Given Ireland's location on the edge of the European gas network and dependence on gas for 57% of electricity generation[128], 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[129]:
9th (↓1)

Figure 5.31 Green City Index, Water Score (0-10), 2009



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

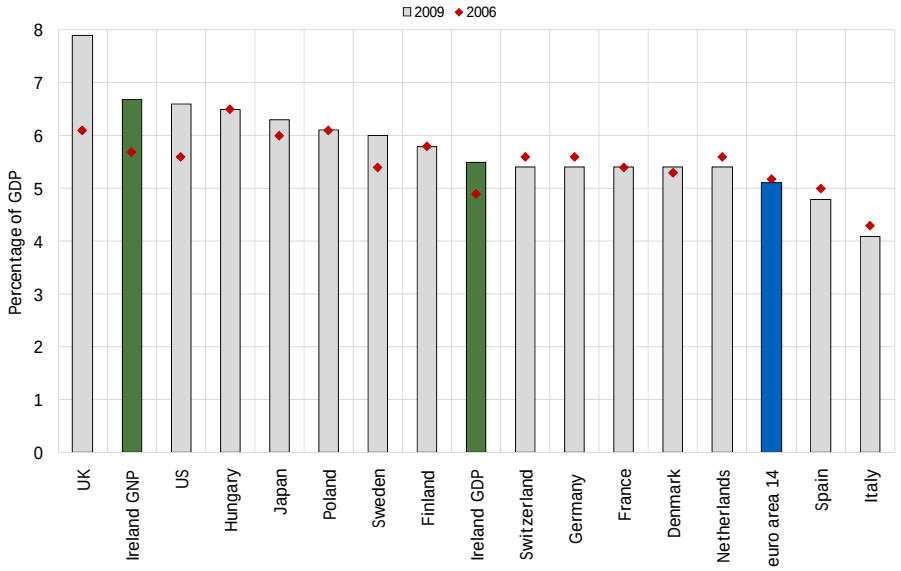
This index measures the aggregate performance of European cities across a range of factors including total annual water consumption per capita, percentage of water lost in the distribution system, percentage of dwellings connected to the sewerage system and policy measures to improve the efficiency of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

Group ranking:
16th out of 30 cities

[127] Calculated as working storage capacity/natural gas consumption (in million standard cubic metres)
[128] Refers to 2009, SEAI, Energy in Ireland, 1990-2009
[129] Euro area 10 excludes Cyprus, Estonia, Finland, Greece, Luxembourg, and Slovenia

5.2.3 Information and Communication Technology Infrastructure

Figure 5.32 ICT expenditure as a % of GDP, 2009

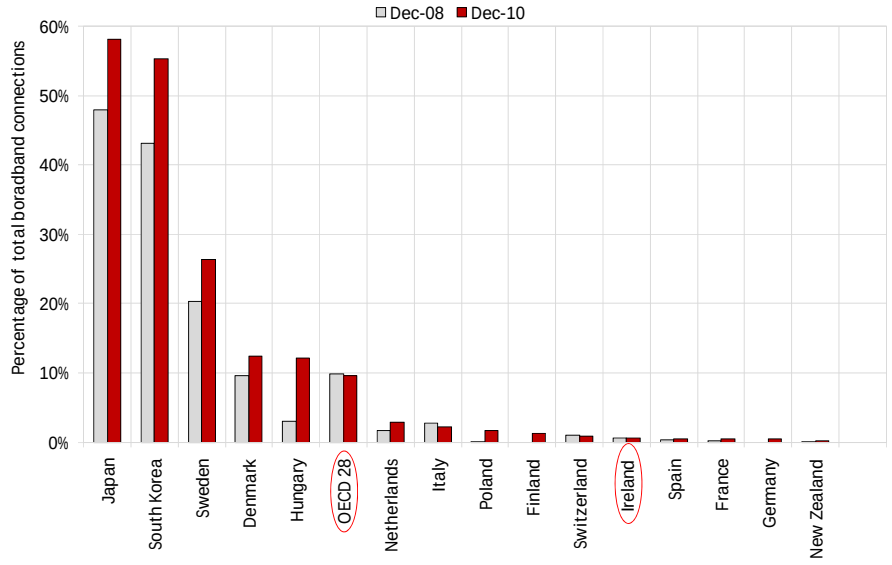


Source: Eurostat, Structural Indicators

Information and communication technology (ICT) is essential to modern enterprise whether engaged in service or manufacturing activities. Ireland's investment in ICT was 5.5% of GDP in 2009 which is ahead of the euro area average of 5.1%. Expenditure, however, still lags the UK which spends 6.7% of GDP on ICT. Almost 53% of Ireland's spend was accounted for by spend on communications equipment, with the rest being spent on IT.

euro area-14 ranking[130]:
GDP: 4th (↑5)
GNP: 1st (↑2)

Figure 5.33 Fibre Connections as a Percentage of Total Broadband Connections, June 2010



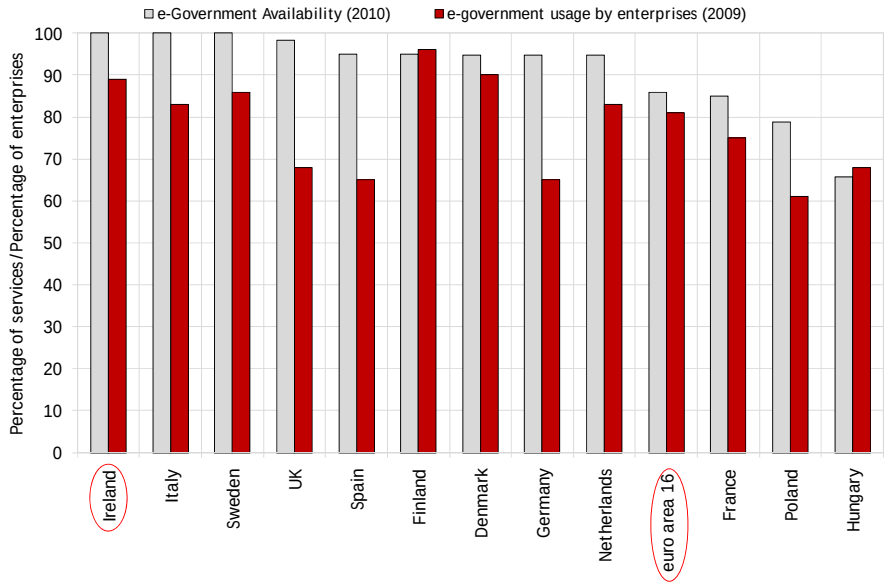
Source: OECD, Broadband Statistics

Ireland ranks poorly and lags behind leading countries in terms of upgrading the local broadband access network to fibre and on offering very fast broadband speeds over fibre. In Ireland only 0.5% of connections are over fibre connections compared to 55% in Japan, 52% in South Korea, and 25% in Sweden. Ireland remains significantly behind the OECD average of 12%.

OECD-28 ranking:
18th (↓4)

[130] Euro area 14 excludes Cyprus and Malta

Figure 5.34 e-Government Availability, 2010

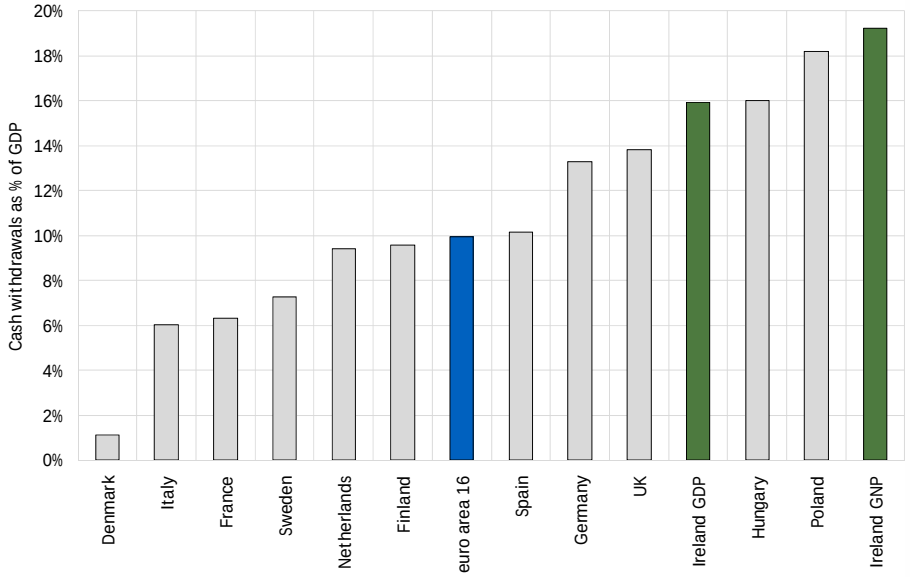


This indicator shows the online availability of 20 basic public services for which it is possible to carry out full electronic case handling. Ireland's position has improved significantly in recent years and in 2010, for the first time 100% of services examined were available electronically.

euro area-16 ranking:
Availability: 1 (↑9)
Usage: 3 (-)

Source: Eurostat, Information Society

Figure 5.35 Use of ePayments: Value of Cash Withdrawals (% GDP), 2009



Use of e-payments in Ireland is less common than in most other benchmarked countries. This is demonstrated by Ireland's reliance on cash for payments. Electronic and card payments are far more efficient than cash in terms of transactions costs. Whereas cash withdraws accounted for 9.9% of GDP in the euro area, in Ireland cash withdrawals accounted for 15.9% of GDP and 19.2% of GNP in 2009.

euro area-16 ranking:
GDP: 13th (-)
GNP: 15th (↓1)

Source: European Central Bank, AMECO database

5.3 Knowledge Infrastructure

As noted in early chapters, productivity will be the key determinant of economic growth in Ireland in the years ahead. Productivity can primarily be driven either by improved capital allocation or through the enhancement of the skills of the workforce. Productivity, therefore, depends to a large extent on education and training. A workforce that is better educated and trained can produce higher value goods and services, and is more likely to be innovative. Employers, employees and the economy as a whole benefit from investments in education and training.

5.3.1 Overview of Education

Average educational attainment in Ireland has improved significantly in the last two decades. The proportion of the working age population with tertiary level education has increased from 26 percent in 2003 to 33 percent in 2008 (Figure 5.36). Despite these advancements, older cohorts of Ireland's population aged 25-64 remain less qualified than the OECD average.

While the success of any education system is impacted by expenditure levels, expenditure is by no means the chief determinant of success. Nevertheless, expenditure remains an important benchmark. In 2007, Ireland spent in excess of the OECD average investment per student across pre primary (where applicable), primary and secondary education. Ireland's investment per student at tertiary level, however, was slightly below that of the OECD average in 2007 (Figure 5.37). Ireland tends to have higher numbers of students per teacher than the OECD average at both primary and secondary level (Figure 5.45) although class size is not directly correlated with performance.

5.3.2 Pre-Primary and Primary Education

Participation in primary education is almost universal. Participation in pre-primary education, however, is not and Figure 5.38 shows that Ireland ranks poorly in terms of the participation of 3 year olds in education.

Looking at primary education in Ireland, 11 year old students at primary level in Ireland receive fewer hours of tuition in maths and science than most other OECD countries. Of the countries displayed in this chart, Ireland dedicated the least hours of tuition to science (Figure 5.39).

5.3.3 Secondary Education

Figure 5.40 looks at the percentage of the population who have attained at least upper secondary education. The data shows significant disparity in terms of attainment according to age cohorts. While 85 percent of 25-34 year olds had completed formal secondary education, attainment levels dropped to 69 percent for the population aged 25-64 years, suggesting that second level attainment is lower amongst older cohorts.

As well as attainment issues amongst older cohorts, a number of issues persist amongst younger cohorts. According to Eurostat data, 11.3 percent of 18-24 year olds left the system having only completed lower secondary as their highest level of formal education (Figure 5.41). This is a better

performance than in 2005 (12.5%) and is better than the euro area average (15.9%)[131]. Recent data published by the Department of Education and Skills shows that the second level retention rate continues to improve[132]. In part, this may be driven by economic conditions; there are no longer the same employment incentives available which might previously have encourage young males in particular to leave education for the labour market without completing secondary education.

In terms of performance at second level, a number of concerning trends emerge. Irish students performed poorly in terms of scientific, mathematical and reading literacy of 15 year olds, as measured by the OECD's latest Programme for International Student Assessment (PISA) scores (Figure 5.42). There was a significant decline in performance compared with 2006 results. It is also worth noting that the number of hours dedicated to science tuition for 12-14 year olds in Ireland in 2008 was lower than most other OECD countries, although time allocated to maths was similar to the OECD average (Figure 5.43).

5.3.4 Tertiary Education

Younger age cohorts in Ireland enjoy significantly higher levels of tertiary attainment than older cohorts (Figure 5.46), reflecting the changing nature of Irish society over several decades as well as the changing needs of the economy. It is difficult to measure quality in education – Figure 5.47 uses the Times Higher University Index which compares universities around the world across a number of metrics. According to this measure, Trinity College Dublin is Ireland's leading university (ranked 76th out of 200 institutions around the world).

Looking at the output from the third level sector, in 2009, Ireland had 17.2 maths, science and computing graduates per 1,000 of the population aged 20-29, which compares favourably with other euro area states (Figure 5.48). However performance of Ireland in this indicator has weakened since 2005.

Despite ambitions to grow Ireland's international education sector, Irish institutions have not been as successful as some other countries in attracting foreign students (Figure 5.49). In 2008, international students comprised of 7.2 percent of total students enrolled at tertiary level in Ireland – this is significantly less than other English speaking jurisdictions such as New Zealand (24.4%), and the UK (19.9%)

Lifelong learning 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 ranks below the euro area average and its performance in this measure has fallen since 2005 (Figure 5.50).

[131] Note that according to CSO data, in Q2 2010, 10 percent of those aged 18-24 were defined as early school leavers (i.e. persons aged 18-24 whose highest level of education attained is lower secondary or below and who have not received education (either formal or non-formal) in the four weeks prior to the survey). The proportion of male early school leavers was nearly double the proportion of female early school leavers in Q2 2010 (12% compared to 7%). See CSO, Quarterly National Household Survey Educational Attainment Quarter 2 2000 to Quarter 2 2010, December 2010

[132] The Department's report provides data relating to pupils who entered the first year of the junior cycle in the years from 1991 to 2004 and completed second level schooling no later than 2010. For students entering secondary school in 1995, the retention rate was 78.0 percent. This increased to 84.5 percent for students entering in 2004. The improvement in the retention rate for males was even more significant (from 72.5 percent to 82.4 percent. See Department of Education and Skills, Retention Rates of Pupils in Second Level Schools – 1991 to 2004 Entry Cohorts, May 2011

5.3.5 Research and Development Infrastructure

In 2009 Irish expenditure on R&D was 1.77 percent of GDP. Business expenditure on R&D (BERD) in Ireland accounted for 1.17 percent of this (Figure 5.51). With expenditure in 2009 of €1.3 billion, foreign-owned companies undertake most business expenditure on R&D in Ireland (70%). Indigenous firms spent €563 million on R&D in 2009 (Figure 5.53).

While the Strategy for Science, Technology and Innovation (SSTI) adopted in 2006 set out a target to achieve research intensity of 2.5 percent of GNP by 2013, developments over recent years have caused an interruption in this trajectory. Taking account of the constraints on productive investment to 2014 imposed by the National Recovery Plan (and assuming that public funding of R&D will remain constant over this period, and that private funding will increase by an average of 3 percent per annum), this scenario would give a Research Intensity Level at end-2014 of 1.51 percent of GDP (1.93% of GNP).

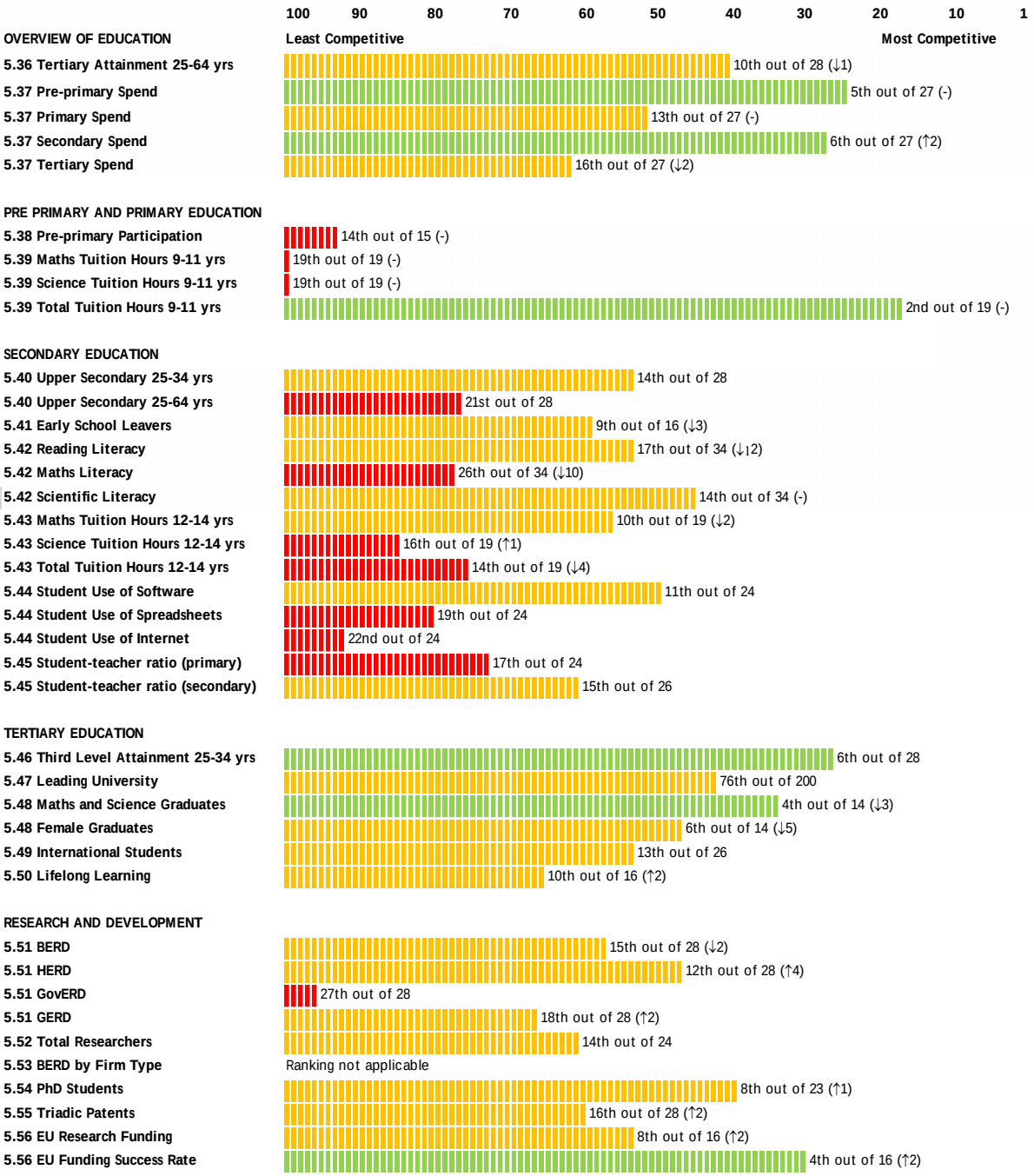
Investment in research and development is both a method of enhancing human capital and a reflection of success in developing talent. Figure 5.54 shows that Ireland had 0.27 PhD graduates per 1,000 of the population in 2009. This is above the OECD-23 average of 0.22. Ireland has improved marginally in this indicator since 2005 when there were 0.26 PhD graduates per 1,000 of the population.

Irish researchers, businesses and educational institutions have received a total of €300 million between 2007 and April 2011 under the EU's 7th Framework Programme for research and development, and are expected to draw down at least the same figure again before fund ends in 2013. As of 2009 – the latest date for which internationally comparable data is available, Irish researchers were more likely to be successful (27%) than the euro area average (23%) in their applications for competitive funding. However, Irish researchers attracted significantly less funding per applicant than leading countries such as Finland, Germany and Denmark (Figure 5.56).

Looking at employment levels as a result of such investment, in 2009 there were 7.77 researchers employed in Ireland for every 1,000 people in employment (Figure 5.52). This was less than the OECD average of 8.28 per 1,000. The share of research employment accounted for by the Government sector is particularly weak. In 2008, Ireland produced 1,090 PhD graduates which is 28 percent more PhD graduates per 1,000 of population than the OECD-24 average (Fig. 5.54).

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

Summary of Standardised Knowledge Infrastructure Indicators[133]

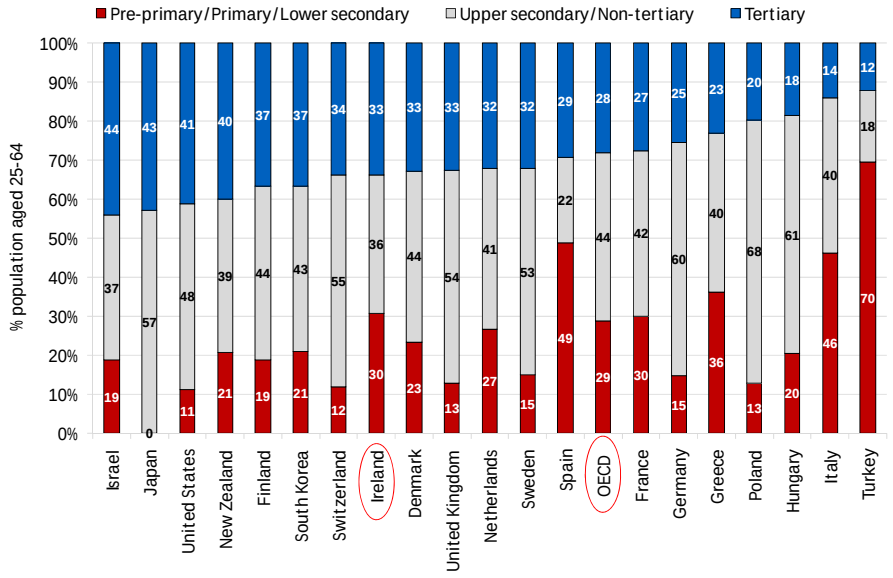


[133] Ireland's performance under each indicator is standardised out of 100 – a score of one being the most competitive, and 100 being least competitive. For example, where Ireland is ranked 3rd out of 15 countries, this gives a score of 20 (i.e. 3/15*100); where Ireland is ranked 14th out of 15, this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

5.3 Knowledge Infrastructure

5.3.1 Overview of Education

Figure 5.36 Educational Attainment of Population aged 25-64 by Highest Level of Education 2008

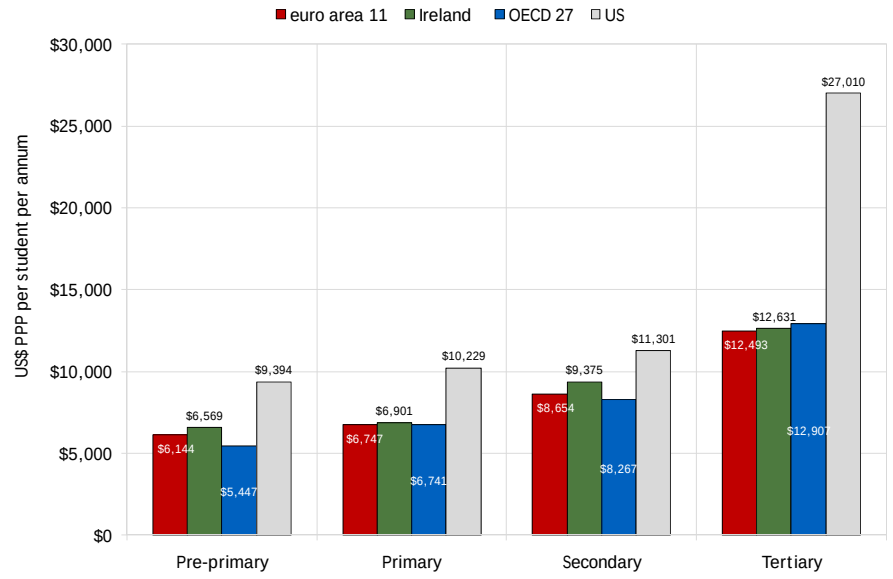


Average educational attainment in Ireland has improved significantly in the last two decades. The proportion of the working age population with tertiary level education has increased from 26% in 2003 to 33% in 2008. Older cohorts of Ireland's population aged 25-64 have lower levels of attainment than the OECD average.

OECD-28 ranking by tertiary: 10th (↓1)

Source: OECD, Education at a Glance, 2010

Figure 5.37 Annual Expenditure on Educational Institutions- per student ($US PPP), 2007[134]



In 2007, Ireland spent in excess of the OECD-27[135] average investment per student across pre primary, primary and secondary education. Ireland's investment per student at tertiary level was slightly below that of the OECD average. While higher spending does not automatically 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[136].

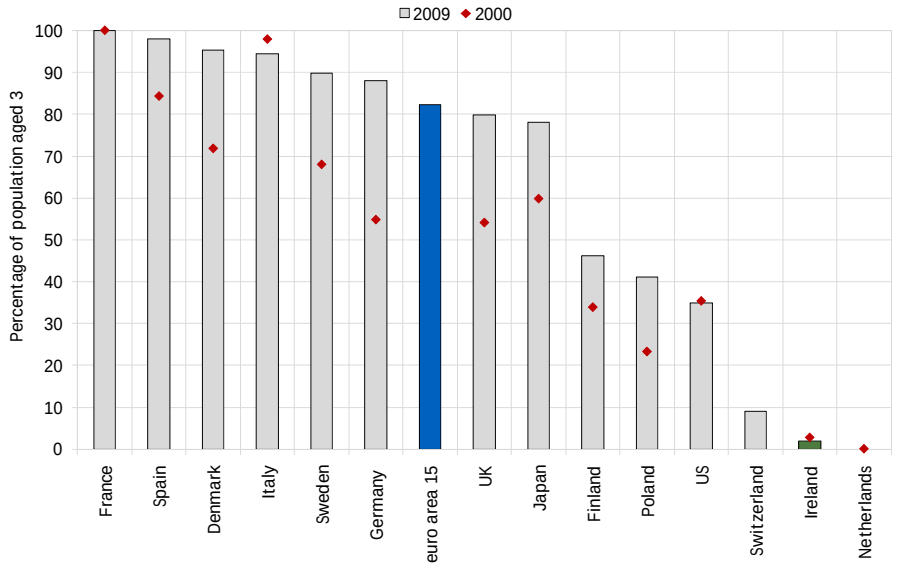
OECD-27 ranking:
Pre-primary: 5th (-)
Primary: 13th (-)
Secondary: 6th (↑2)
Tertiary: 16th (↓2)

Source: OECD, Education at a Glance, 2010

[134] Euro area 11 excludes Cyprus, Greece, Luxemburg, Malta, Slovakia
[135] OECD 27 excludes Greece
[136] In 2007, 68.4 percent of tertiary spend in the US was private expenditure compared to 14.6 percent in Ireland.

5.3.2 Pre-Primary and Primary Education

Figure 5.38 Participation of 3 year olds in education (as % of population aged 3), 2009

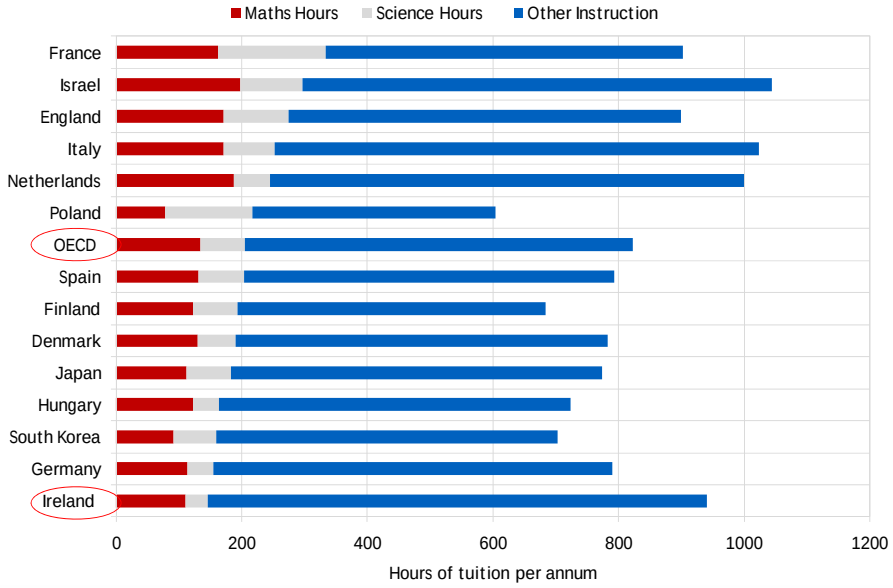


Pre-primary education includes programmes designed for children at least three years old and not older than six years. Ireland ranks poorly in this indictor and is significantly below the euro area-15 average in the participation of three year olds in education.

euro area-15 ranking[137]:
14th (-)

Source: Eurostat, Population and Social Conditions

Figure 5.39 Average Annual Hours of Tuition to 9-11 Year Olds, by Subject, 2008



9- 11 year old students at primary level in Ireland receive fewer hours of tuition in maths and science than most other OECD countries. Of the countries displayed in this chart, Ireland dedicates the least hours of tuition to science.

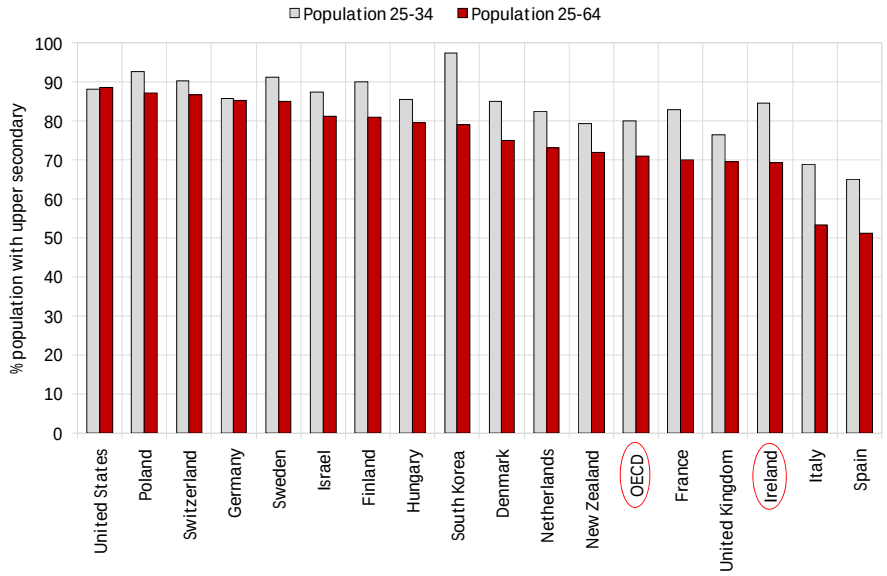
OECD-19 average ranking[138]:
Maths hours: 19th (-)
Science hours: 19th (-)
Total hours: 2nd (-)

Source: OECD, Education at a Glance, 2010

[137] Euro area 15 excludes Greece
[138] OECD 19 excludes Australia, Belgium, Canada, Czech Republic, New Zealand, Slovakia, Sweden, Switzerland and US

5.3.3 Secondary Education

Figure 5.40 Percentage of the Population Aged 25-34 & 25-64 with at least Upper Secondary Level Education, 2008

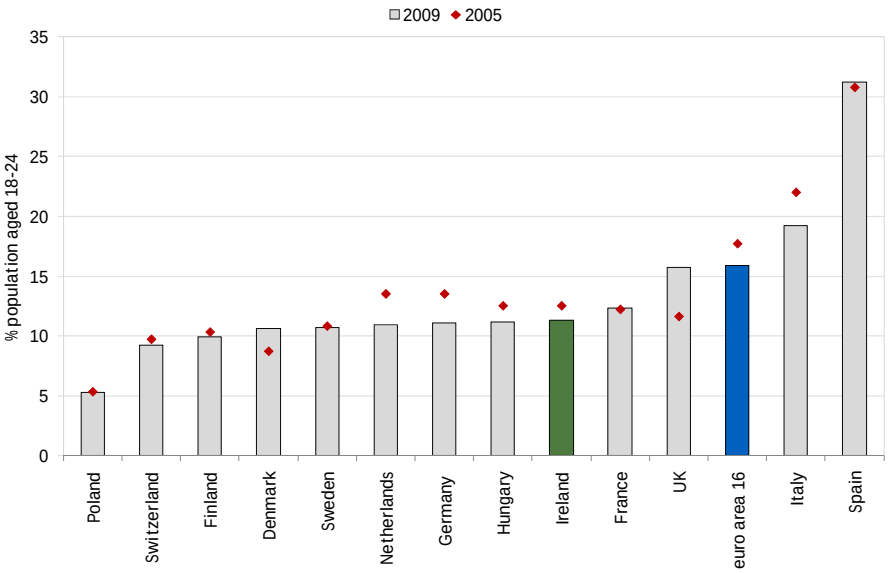


While 69% of the 25-64 population have at least upper secondary level education, the figure is much higher for younger cohorts. 85% of 25-34 year olds had at least this level of education. Across the entire population, Ireland marginally lags the OECD average although as a result of high levels of attainment amongst younger cohorts, the gap is narrowing rapidly.

OECD-28 average ranking:
25-34 year olds: 14th
25-64 year olds: 21st

Source: OECD, Education at a Glance, 2010

Figure 5.41 Early School Leavers (as % of Population aged 18-24), 2009

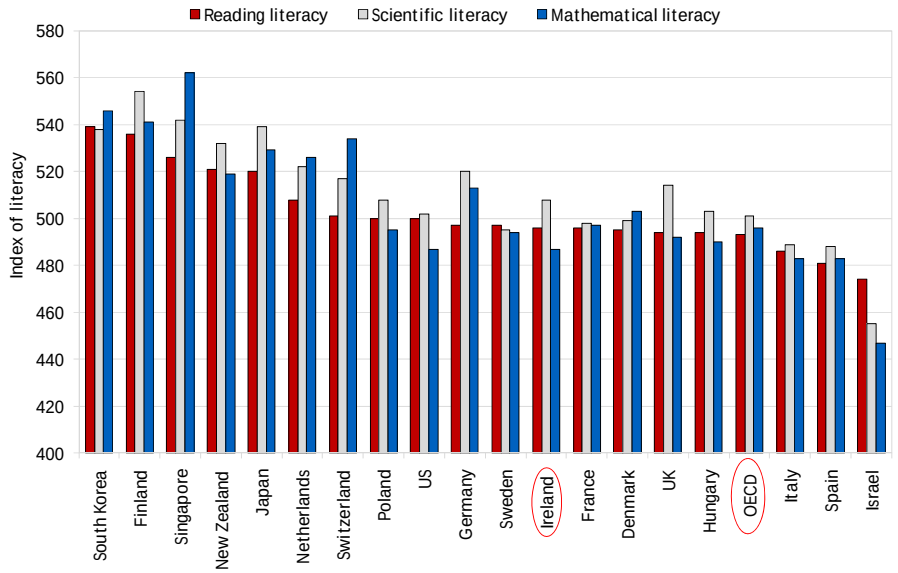


This indicator measures the percentage of population aged between 18 and 24 who have attained, at most, lower secondary education. In 2009, 11.3% of this age cohort was considered early school leavers compared to 12.5% in 2005. This reflects higher retention levels in secondary education.

euro area-16 average ranking: 9th (↓3)

Source: Eurostat, Structural Indicators, Social Cohesion

Figure 5.42 Scientific, Mathematical and Reading Literacy of 15 Year Olds, 2009

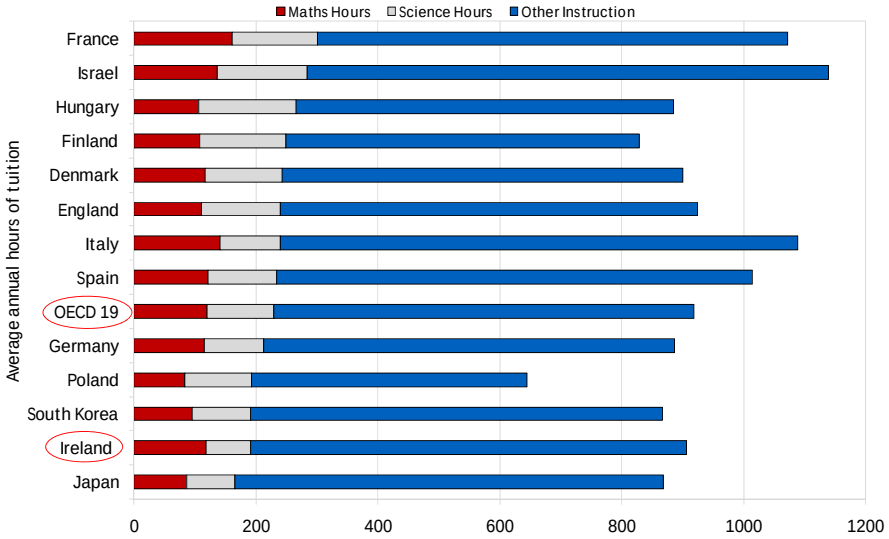


In the OECD 2009 PISA (Programme for International Student Assessment) study, Irish 15 year olds performed poorly in terms of mathematical literacy and reading literacy but performed above the OECD average in terms of scientific literacy. Proficiency in reading and maths declined sharply compared with results from 2006[139].

OECD-34 ranking:
Reading: 17th (↓12)
Maths: 26th (↓10)
Science: 14th (-)

Source: OECD, PISA Database, 2009

Figure 5.43 Average Annual Hours of Tuition to 12-14 year-olds, by Subject, 2008



The number of hours dedicated to science tuition for 12-14 year olds in Ireland in 2008 was lower than most other OECD countries. Time allocated to maths was similar to the OECD average.

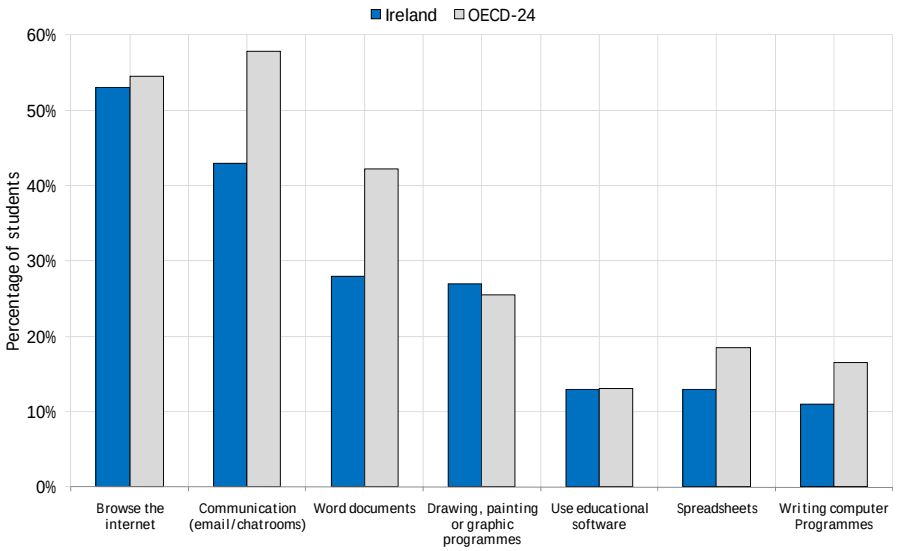
OECD-19 ranking[140]:
Maths hours: 10th (↓2)
Science hours: 16th (↑1)
Total hours: 14th (↓4)

Source: OECD, Education at a Glance, 2010

[139] Ireland's mean score in reading in 2009 is 31 points lower than in 2000, when reading was also a major assessment domain. This decline is the largest across all 39 countries that participated in both PISA 2000 and PISA 2009, resulting in Ireland's rank falling from 5th to 17th among such countries. Ireland's mean mathematics declined by 16 points between 2003 and 2009 – the 2nd largest of any country participating in both years. Among countries that participated in both 2003 and 2009, Ireland's rank dropped from 20th to 26th. Ireland's mean score in science was 508 in both 2006 and 2009, indicating no change in performance. Looking at the 57 countries that participated in 2006 and 2009, Ireland's rank has climbed two places from 20th to 18th.

[140] OECD 19 excludes Australia, Chile, Czech Republic, Netherlands, New Zealand, Slovakia, Sweden, Switzerland and US

Figure 5.44 Students Use of ICT for Programmes and Software, 2006

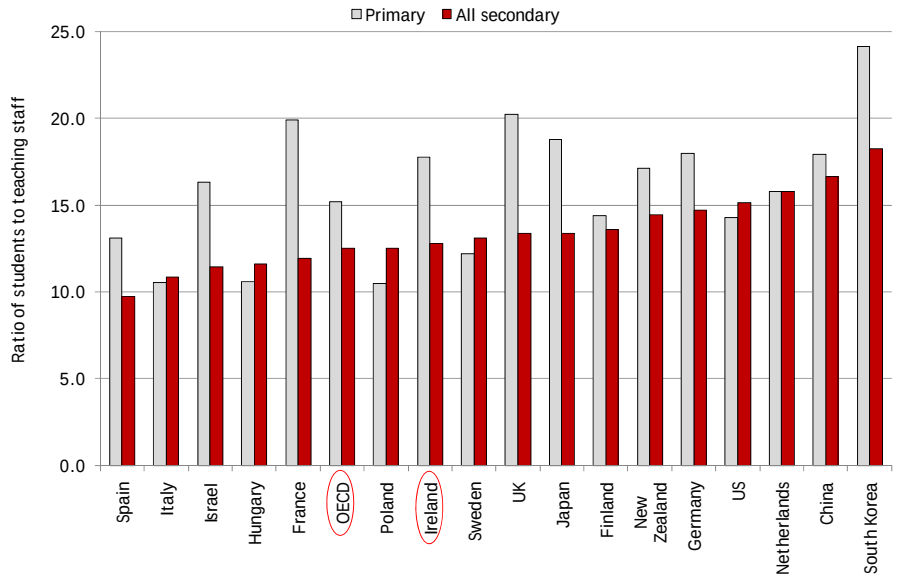


This chart shows the purposes for which 15 year old students use computers. A lower proportion of Irish students use computers for a range of activities including spreadsheets, word documents, browsing the internet and communication.

OECD-24 ranking[141]:
Educational Software: 11th
Computer Program: 19th
Spreadsheets: 19th
Graphics: 16th
Word: 22nd
Internet: 22nd
Email: 22nd

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

Figure 5.45 Ratio of Students to Teaching Staff in Educational Institutions, 2008



While class size is not automatically a determinant of how effective an education system is, it provides an indication of resources. This figure looks that the ratio of students to teaching staff in both primary and secondary educational institutions. In terms of primary schools, Ireland has a higher ratio of students to teachers (17.8) than the OECD average (15.2). The same is true at second level where Ireland's ratio (12.8) is higher than the OECD average (12.5).

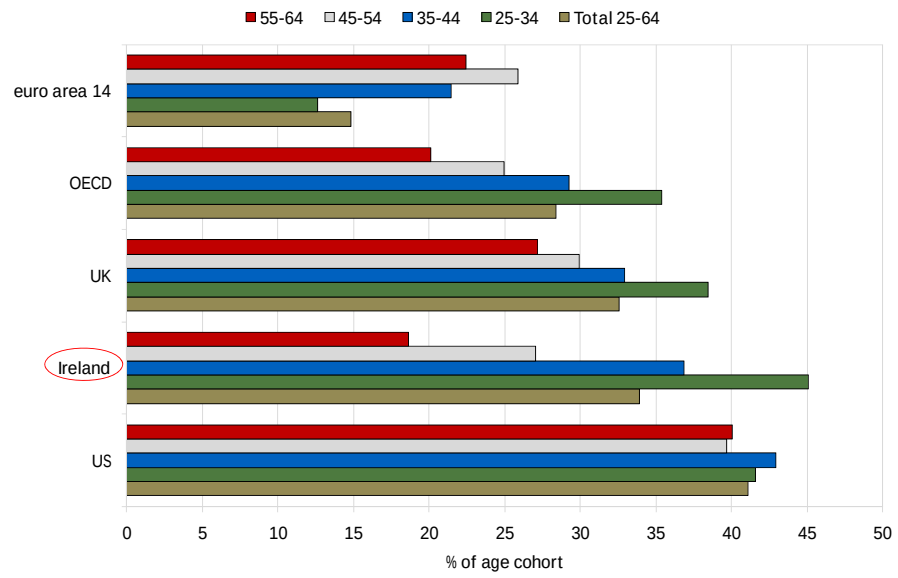
OECD ranking[142]**:**
Primary: 17th
Secondary 15th

Source: OECD, Education at a Glance, 2010

[141] OECD 24 excludes France, Luxembourg, UK and US
[142] The OECD average for primary school ratios is calculated for OECD 24 which excludes Canada, Denmark, Greece and Iceland - no data was available for these countries. The OECD average for secondary school ratios is calculated for OECD 26 which excludes Denmark and Greece - no data was available for these countries.

5.3.4 Tertiary Education

Figure 5.46 Population by Age Cohort (years) that has at Least Third Level Education, 2008

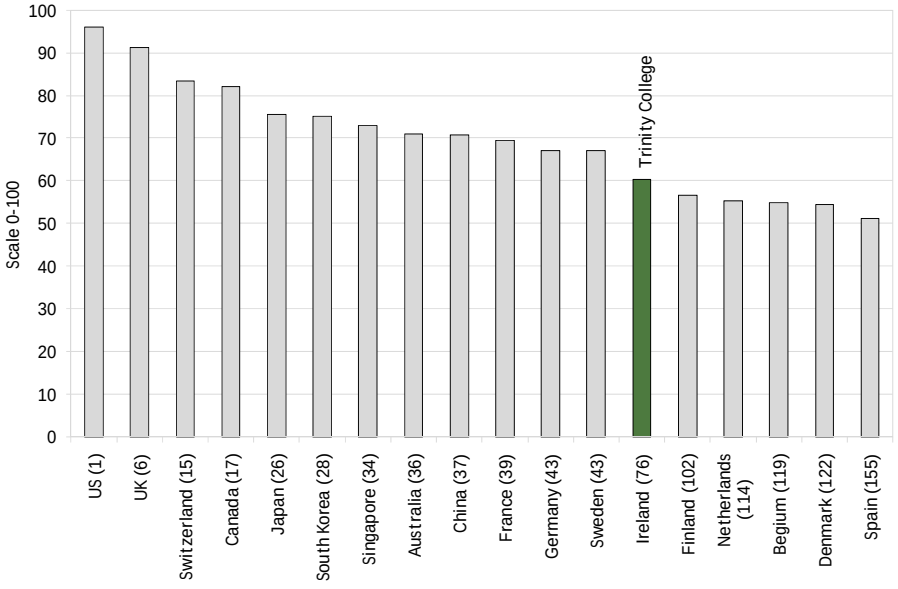


Educational attainment in Ireland appears to be inversely correlated with age, more so than other countries. While 55-64 year olds have lower educational attainment than the OECD average, Ireland's 25-34 years olds have a higher level of educational attainment than their OECD counterparts.

OECD-28 ranking:
25-64 years: 10th (↓1)
25-34 years: 6th

Source: OECD, Education at a Glance, 2010

Figure 5.47 Score of Leading Institution by Country in the Times Higher University Index (Scale 0-100[143]), 2010



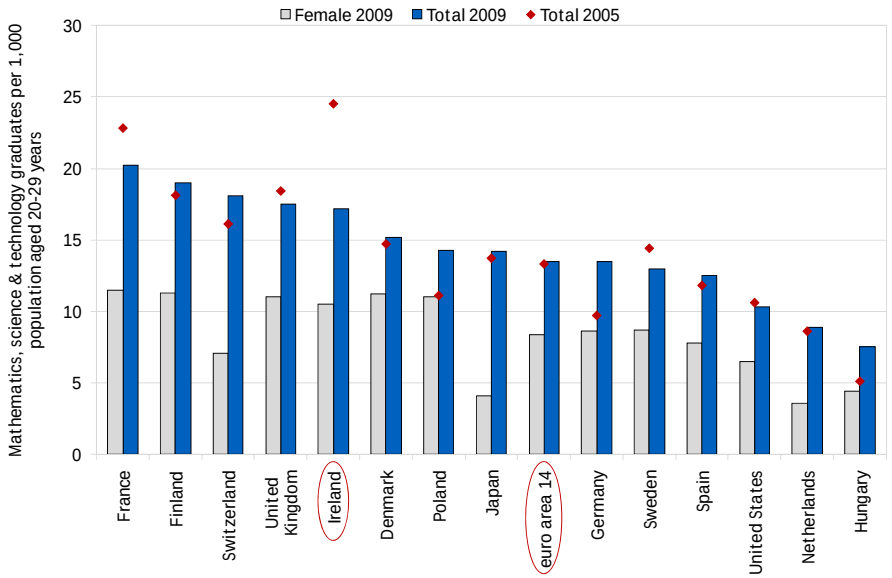
This index ranks Trinity College Dublin as Ireland's leading university. The Times Higher Education University Index ranks Trinity College 76th out of 200 institutions around the world (down from 43rd in 2009). University College Dublin ranked in 94th place in 2010.

Ranking of institution:
76th

Source: The Times Higher Education World University Rankings 2010-2011

[143] The scores are based on peer reviews 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.

Figure 5.48 Maths, Science and Computing Graduates (as a % of the total graduates), 2009

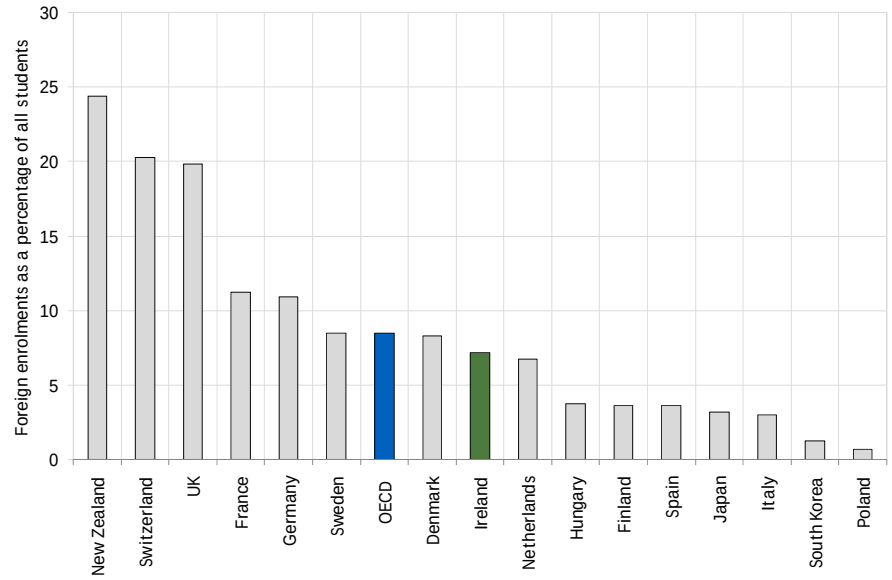


In 2008, Ireland had 17.2 maths, science and computing graduates per 1,000 of the population aged 20-29, which compares favourably with other euro area states. Ireland's performance in terms of this indicator has weakened since 2005.

euro area-14 ranking[144]: Total graduates 4th (↓3) Female graduates: 6th (↓5)

Source: Eurostat, Population and Social Conditions

Figure 5.49 International Students (as a % of all Students in Tertiary Education), 2008



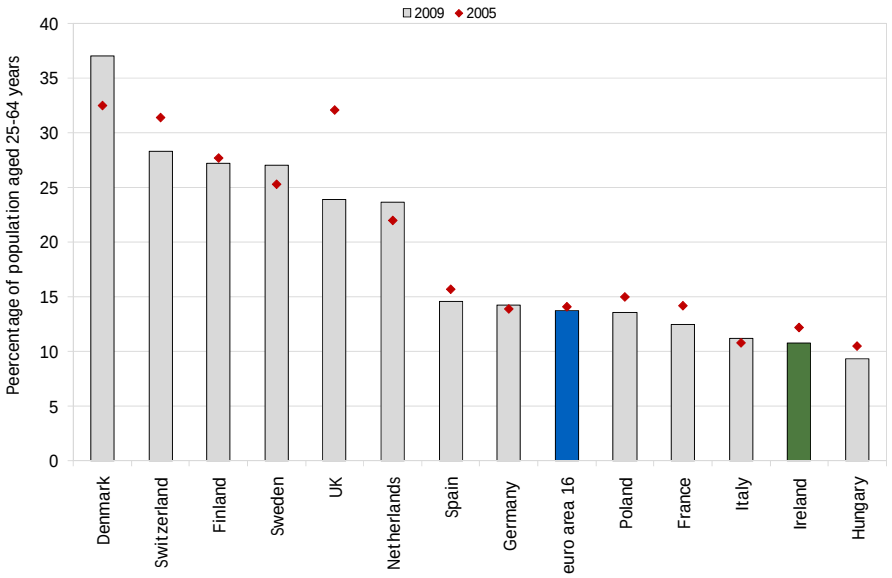
In 2008, international students comprised of 7.2% of total students enrolled at tertiary level in Ireland, down from 8.8% in 2007. Ireland does not attract the same level of international students as other English speaking jurisdictions such as New Zealand (24.4%), and the UK (19.9%).

OECD-26 ranking[145]: 13th

Source: OECD, Education at a Glance, 2010

[144] Euro area 14 excludes Italy and Luxembourg
[145] OECD 26 excludes Luxembourg and US

Figure 5.50 Life- Long Learning (as a % of 25-64 year olds), 2009



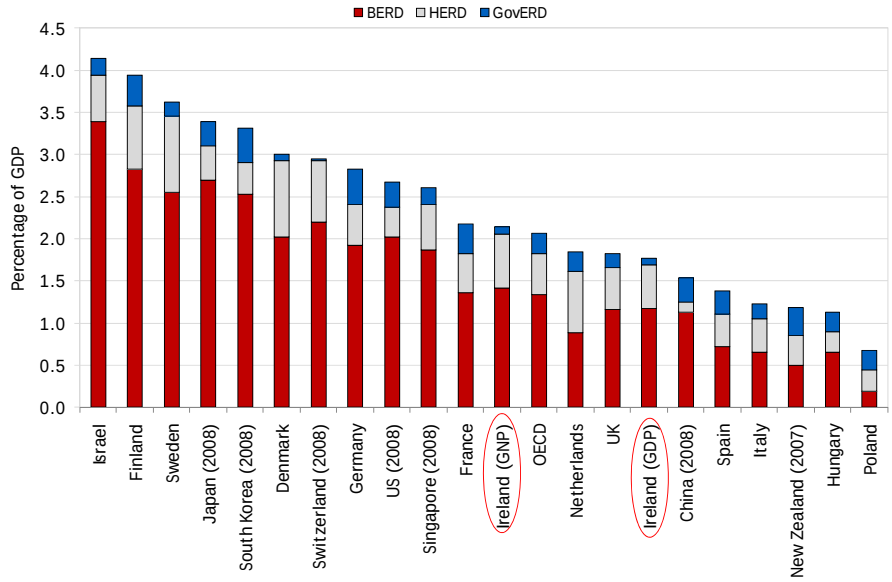
This indicator measures the percentage of persons aged 25-64 years old in receipt of education in the four weeks prior to the survey and includes both formal and non-formal education. Ireland (10.8%) ranks below the euro area average (13.7%) and its performance under this measure has declined since 2005.
Females in Ireland (11.4%) have higher participation rates than males (10.1%).

euro area-16 ranking:
10th (↑2)

Source: Eurostat, Structural Indicators

5.3.5 Research and Development Infrastructure

Figure 5.51 Expenditure on R&D as % GDP (Business, Higher Ed, Govt), 2009

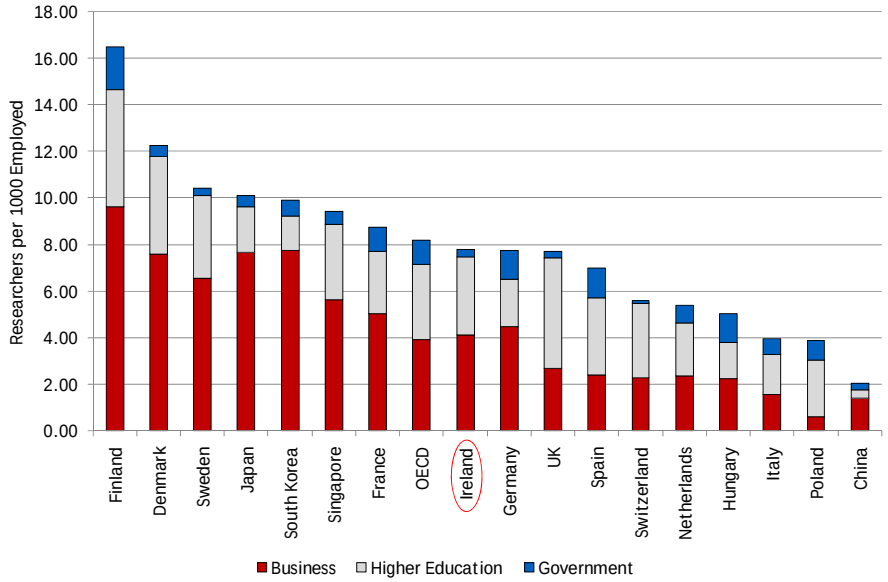


In 2009 Irish expenditure on R&D was 1.77% of GDP. Business expenditure on R&D (BERD) in Ireland accounted for 1.17%, while the higher education sector (HERD) and government sector (GovERD) accounted for 0.52% and 0.08% respectively.

OECD-28 ranking:
BERD: 15th (↓2)
HERD: 12th (↑4)
GovERD: 27th
GERD: 18th (↑2)

Source: OECD Main Science and Technology Indicators, 2010/1

Figure 5.52 Total Researchers per Thousand Total Employment, 2009

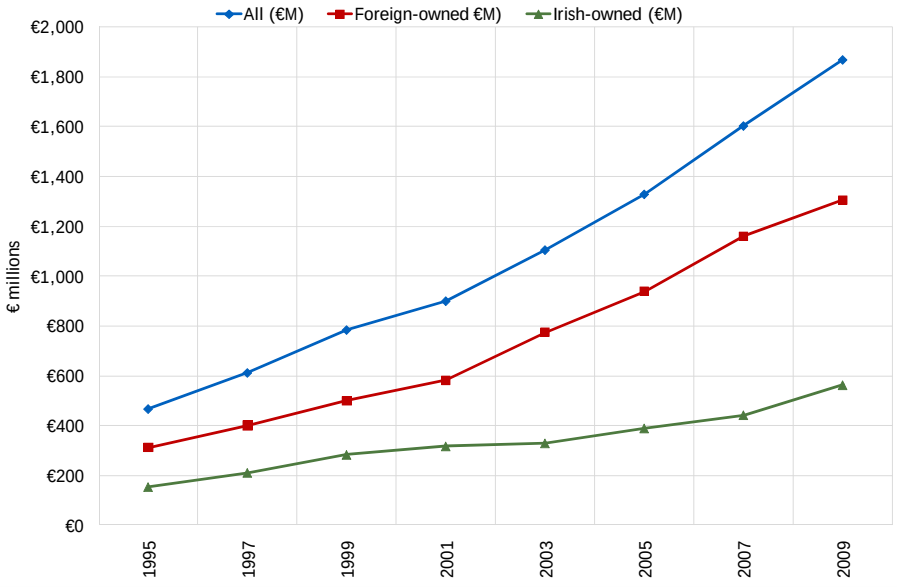


Source: OECD, Main Science and Technology Indicators, 2010/2

In 2009 there were 7.77 researchers employed in Ireland for every 1,000 people in employment. This was less than the OECD average of 8.28 per 1,000. Overall, 14,880 full time equivalents were engaged as researchers in Ireland. The majority of these were employed in the business sector (52.7%). Higher education accounted for 43.6% of researchers while the Government sector employed less than 4% of researchers in Ireland.

OECD-24 ranking[146]:
Total: 14th
Business: 10th
Higher Education: 9th
Government: 20th

Figure 5.53 Business Sector R&D Expenditure by Firm Type, 1995-2009



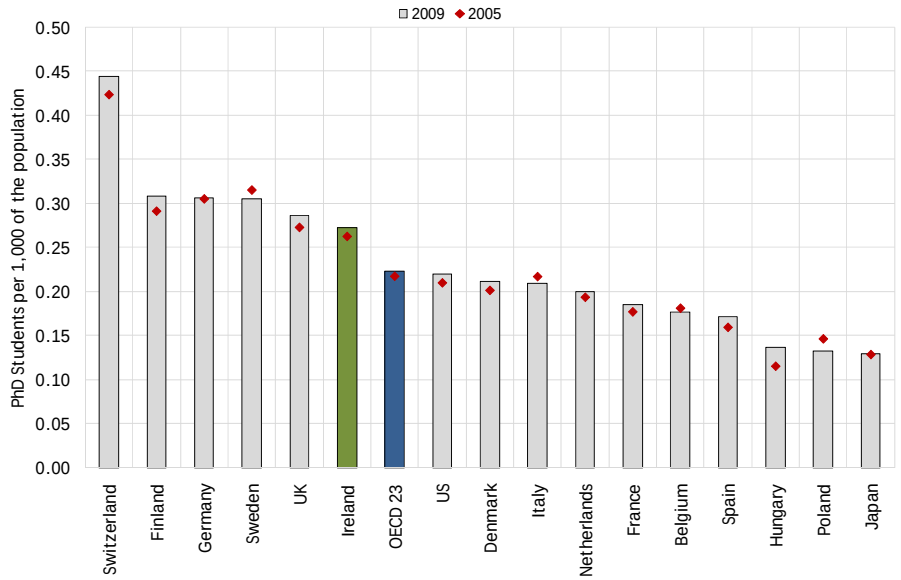
Source: CSO/Forfás, Business Expenditure on Research and Development

With expenditure in 2009 of €1.3 billion, foreign-owned companies undertake most business expenditure on R&D in Ireland (70%). The Irish Strategy for Science, Technology and Innovation 2006-2013 has set a target for business expenditure on R&D in indigenous firms to grow to €825 million by 2013. Indigenous firms spent €563 million on R&D in 2009.

Ranking: n/a

[146] OECD 24 excludes Canada, Chile, Greece and New Zealand due to a lack of data

Figure 5.54 PhD Students per 1, 000 of the population, 2009

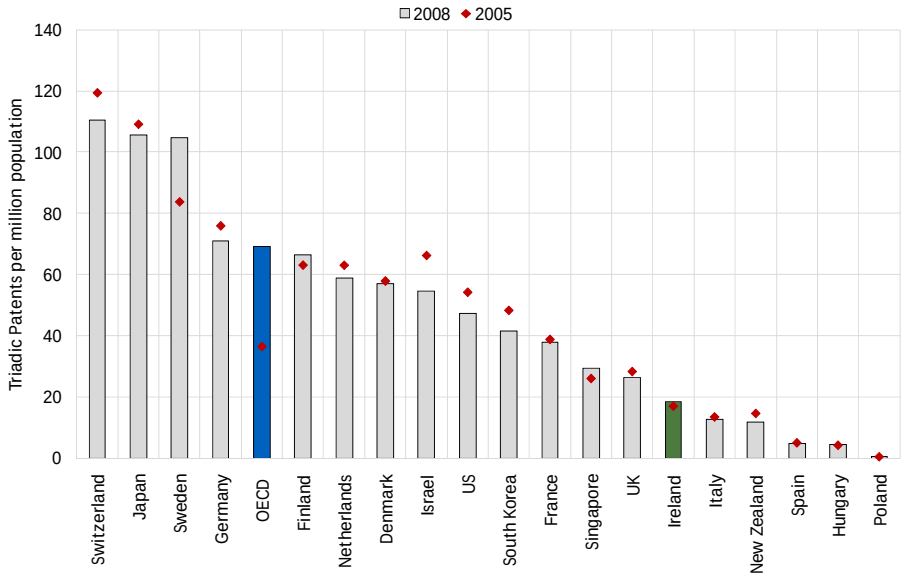


In 2009, Ireland had 0.27 PhD graduates per 1,000 of the population, slightly above the OECD-23 average. Despite this, Ireland is slow to improve in this indicator; in 2005 Ireland had 0.26 PhD graduates per 1,000 of the population.

OECD-23 ranking[147]:
8th (↑1)

Source: Eurostat, Population and Social Conditions

Figure 5.55 Triadic Patents per million population, 2008



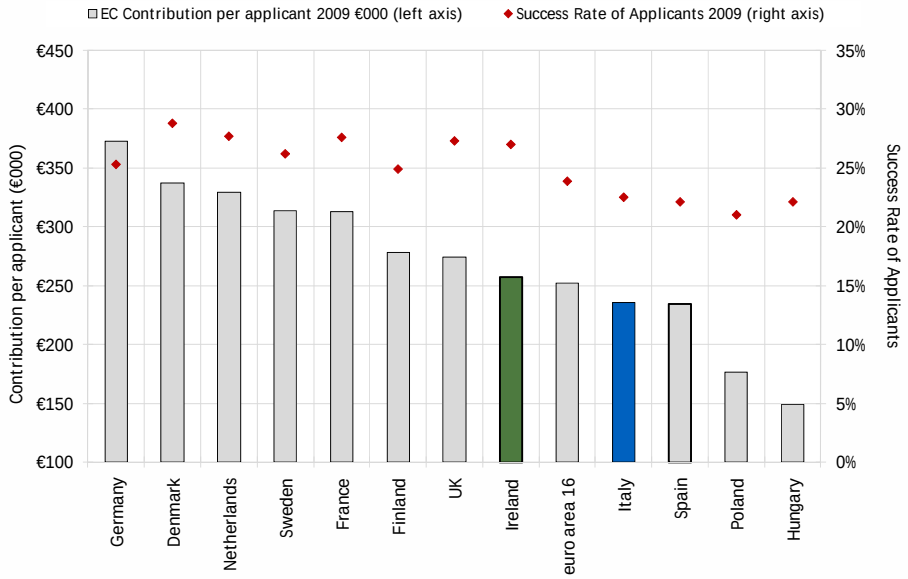
Patents can be taken as a reflection of a country's inventive activity. Triadic patents are patents granted at European, Japanese and US patent offices. Ireland performs well below the OECD average on this measure, with just over 18 patents per million population compared with an OECD average of 69 per million.

OECD-28 ranking:
16th (↑2)

Source: OECD, Main Science and Technology Indicators, 2010/2

[147] OECD 23 excludes Australia, New Zealand, Canada, South Korea, and Luxembourg

Figure 5.56 EU Research Funding (€ per applicant and success rate), 2009



Source: European Commission, DG Research, Framework 7 Monitoring Program, July 2010

Under the 7th Framework Programme for EU research and development, Irish researchers were more likely to be successful (27%) than the euro area average (23%) in their applications for competitive funding. However, Irish researchers attracted significantly less funding per applicant than leading countries such as Finland, Germany and Denmark. As of June 2011, Ireland has drawn down 1.32% of the total available budget ahead of our national target of 1.25% (or €600 million)

euro area-16 ranking:
€ per applicant: 8th (↑2)
Success Rate: 4th (↑2)

Wilton Park House, Wilton Place,
Dublin 2, Ireland

Tel +353 1 607 3000
Fax +353 1 607 3030

www.competitiveness.ie

Forfás

National Competitiveness Council