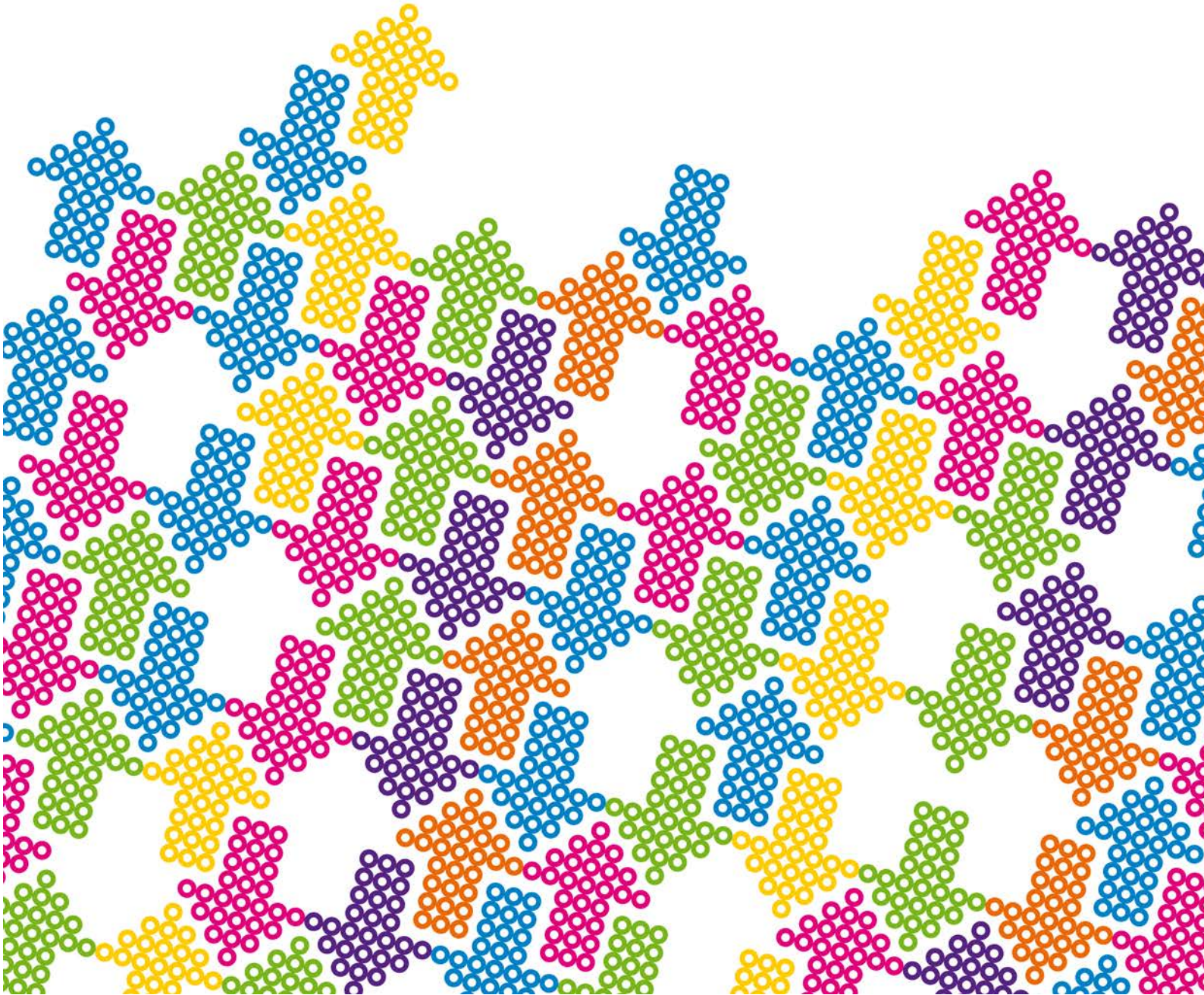
An Chomhairle
Náisiúnta Iomaíochas
National Competitiveness
Council

Ireland's Competitiveness Scorecard 2016

July2016



Introduction to the National Competitiveness Council

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

- Ireland's Competitiveness Scorecard provides a comprehensive statistical assessment of Ireland's competitiveness performance; and
- 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:

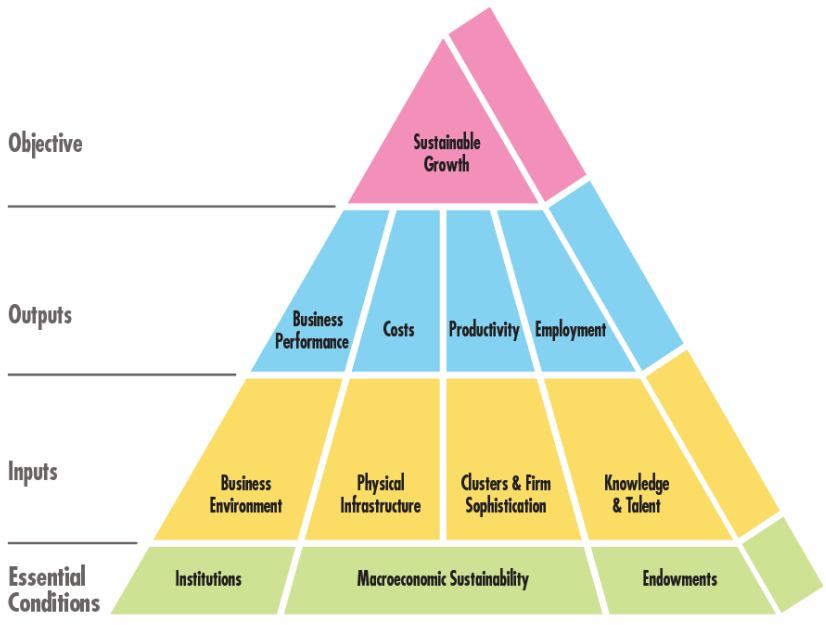
- Publishes the Costs of Doing Business where key business costs in Ireland are benchmarked against costs in competitor countries; and
- Provides an annual Submission to the Action Plan for Jobs and other papers on specific competitiveness issues.

The work of the National Competitiveness Council is underpinned by research and analysis undertaken by the Strategic Policy Division of the Department of Jobs, Enterprise and Innovation

The NCC's Competitiveness Framework

The Council defines national competitiveness as the ability of enterprises to compete successfully in international markets. National competitiveness is a broad concept that encompasses the diverse range of factors which result in firms in Ireland achieving success in international markets. For the Council, the goal of national competitiveness is to provide Ireland's people with the opportunity to improve their living standards and quality of life. The Council uses a "competitiveness pyramid" to illustrate the various factors (essential conditions, policy inputs and outputs), which combine to determine overall competitiveness and sustainable growth. Under this framework, competitiveness is not an end in itself, but a means of achieving sustainable improvements in living standards and quality of life. This framework is elaborated on further in Chapter 2.

The NCC Competitiveness Framework



National Competitiveness Council Members

Prof Peter Clinch	Chair, National Competitiveness Council
Kevin Callinan	Deputy General Secretary, IMPACT Trade Union
Micheál Collins	Senior Research Officer, Nevin Economic Research Institute
Isolde Goggin	Chair, Competition and Consumer Protection Commission
Declan Hughes	Assistant Secretary, Department of Jobs, Enterprise and Innovation
Danny McCoy	Chief Executive Officer, Ibec
Jane Magnier	Joint Managing Director, Abbey Tours
Seán O'Driscoll	President, Glen Dimplex Group
Louise Phelan	Vice President of Global Operations, Europe Middle East and Africa, PayPal
Dave Shanahan	Chief Executive, Adagio Ventures Commercialisation Partners
Martin Shanahan	Chief Executive, IDA Ireland
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Brid Cannon	Department of Agriculture, Food and the Marine
Patricia Cronin	Department of Communications, Climate Change and Natural Resources
Maria Graham	Department of Housing, Planning and Local Government
John McCarthy	Department of Finance
Deirdre McDonnell	Department of Education and Skills
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Taoiseach's Foreword

Ireland is now firmly on the path of recovery following many difficult years. While we are now the fastest growing economy in the EU for the second year in a row we cannot become complacent to the risks Ireland faces. Thanks to the careful management of the public finances and the implementation of pro-growth policies we have restored market confidence. We can never return to the boom bust policies of the past. Our improving competitiveness performance is manifest in the performance of enterprises based in Ireland. The exporting sectors of the economy, particularly companies supported by the enterprise agencies are winning new markets and creating jobs at record levels.

Job creation throughout the economy is strong and our priority is to continue to see recovery becoming more balanced from a sectoral and regional perspective. Most importantly, the latest figures show another decrease in unemployment to 7.8 per cent from a crisis peak of more than 15 per cent.Many of Ireland's traditional assets such as our competitive taxation system, highly skilled workforce, and pro-enterprise business environment have been strengthened. As set out in the Programme for Government our plan now is to add 200,000 new jobs to the economy by 2020 and to reduce unemployed below 6 per cent.

Improved competiveness has been a key part of our economic and labour market revival. It is positive that our international competitiveness rankings continue to improve. Ireland has improved from 24th in the IMD ranking in 2011 to 7th in 2016, while we have moved up to 17th in the World Bank survey on Ease of Doing Business. This has not happened by chance. It is the result of the efforts of the people of Ireland, and it is the result of ambitious enterprises, hardworking employees and effective Government policies.

While the economic outlook for Ireland appears positive, external conditions are less certain, not least in the wake of the recent outcome of the UK's referendum on its membership of the EU. There is no room for complacency. As a small open economy, competitiveness is vital if we are to withstand the vagaries of the global economic cycle. This is why enhancing Ireland's competitiveness performance continues to be a key economic priority for Government.

We need to be ambitious; constantly looking to the future, to new markets, new products, and new growth opportunities. Maintaining and improving our competitiveness remains vital. It is important therefore that we continue to build on what has been achieved. Domestically, we will continue to address those areas that could potentially undermine national competitiveness, and ultimately growth and jobs. Maintaining fiscal sustainability and a broad tax base; supporting innovation, increasing productivity; addressing infrastructure bottlenecks, skills, making work pay and growing our enterprise base are all immediate challenges the Government is working to address.

Competitiveness is important not just for its own sake, but to achieve our broader national economic and social development objectives, the most important of which is achieving sustainable increases in standards of living and well-being for all of our people.

I would like to thank the National Competitiveness Council for producing this highly valuable report, which provides a solid analytical foundation for competitiveness policy development and delivery, and which will provide an extremely useful input for policymakers across Government.

Enda Kenny, T.D.,
Taoiseach

Chairman's Preface

Ireland's ability to provide well-paid jobs and good-quality public services like health, education and social protection relies upon us being able to sell our goods and services abroad. That requires a competitive economy and upon increasing productivity by investing in people and capital, thereby equipping individuals with the skills and tools to work smarter.

A competitive economy allows us to take advantage of global upturns and survive downturns. Global rankings show that Ireland's performance has improved considerably but sustained action is required to narrow the gap with the world's most competitive countries who are continuously improving their own performance.

From the early 1990s up to around 2001, Ireland achieved rapid and *sustainable* economic growth as it was underpinned by rapid productivity growth. Then, up to 2007, we had rapid *unsustainable* economic growth underpinned by credit growth; then the crash. Ireland's subsequent recovery is a remarkable feat and involved difficult decisions and much hardship. After a 28 per cent loss in cost competitiveness between 2000 and 2008, we have seen a 20 per cent improvement which is underpinning excellent export performance, jobs growth and increased tax revenues.

The results in this year's Competitiveness Scorecard suggest our recovery appears to have consolidated but the outlook is precarious. The crash brought competitiveness improvements by significant reductions in prices. We have benefitted from the low value of the euro boosting exports to the UK and US. Low interest rates and low oil prices also help. But these can change.

Long standing external threats such as financial market volatility and the fragile global economy persist, and are now exacerbated by the uncertain consequences of the British decision to leave the EU. The changed relationship between the UK and the EU will have far-reaching consequences for Ireland. The economic and political implications of Brexit remain unclear at this juncture. Undoubtedly, the changed institutional arrangements between the UK and EU, and between Ireland and the UK will bring challenges. What must be made clear, however, is Ireland's consistent commitment to the EU. In uncertain times, this relationship represents a key strength for us. Likewise, our traditional close ties to the UK must be protected and fostered.

A strengthening euro would harm exports. To ensure our recovery is resilient and sustainable, we must avoid another competitiveness loss by using those levers within our control to insulate ourselves as best as possible from the factors beyond our control.

In recent years, we rightly had a relentless focus on "macroeconomic variables" - bringing down the deficit, reducing public debt and stabilising the banking system. Macroeconomic sustainability remains a fundamental part of returning us to rapid growth and we must retain a prudent approach to government spending and revenues ensuring that increased revenues are spent where they can most yield competitiveness improvements.

The Council believes that the relentless focus that went into bringing our macroeconomic fundamentals into line must now switch to the microeconomic competitiveness levers such as investing in physical and knowledge capital that will support economic expansion and avoid bottlenecks and price inflation, making work pay, broadening our tax base, and improving the efficiency and effectiveness of our public services. This will ensure economic and jobs growth is sustainable and will provide the leeway to deliver better public services and improve living standards.

This year's Scorecard underlines the significant improvements that have been made in Ireland's public finances. While recognising the need to invest in public services, it is imperative that a sustainable fiscal position must be maintained.

Rising costs remain a key concern for the Council. This is addressed in detail in our *Costs of Doing Business in Ireland* 2016 report published in April 2016. There is an urgent need to address the supply and affordability of

residential property. A rising house price/rent - wage rate– cost of living spiral adversely impacts on those already living here, makes Ireland a less attractive location for returning Diaspora and skilled migrants, and represents one of the greatest threats to the recovery. Having a competitive economy does not require "low wages". Rather, real wage improvements must be underpinned by productivity growth. Crucially, this should not be interpreted as 'asking people to work harder'. Rather, it is about keeping costs of living down, supporting people to have affordable places to live near a good job, making sure there is the infrastructure for them to get to work, enjoy their leisure time, be supported by good public services, and have a good quality of life.

The availability of world-class infrastructure in telecommunications, energy, water and transport is necessary to support sustainable growth. The Capital and Investment Plan 2016-2021 is welcome but not enough to ensure we have the infrastructure to support growth without costs rising rapidly. Infrastructure is not just physical; it also includes investment in skills and supports for enterprise.

To sustain exports we must facilitate our enterprises to win new markets and develop new products through support for start-ups and SMEs. More productive and innovative indigenous firms acting as sub-suppliers to exporting sectors and serving the domestic market are also vital components of a balanced, vibrant and competitive economy. A significant ramping up of capital expenditure in physical and knowledge infrastructure is required, above and beyond the commitments contained in the Capital and Investment Plan 2016-2021.

As set out in this year's Scorecard, our demographic profile is currently favourable; we have a young relatively highly-educated population. However, the age profile is increasing and relative to our competitors, we have a sparsely populated country with a high proportion living in rural areas. This creates a number of challenges and opportunities from a competitiveness perspective.

Talent is the single biggest factor explaining differences in prosperity between countries. Addressing the emergence of a range of skills shortages, our still high rates of youth and long-term unemployment, the relatively large cohort of workers with low skills, and enhancing the quality of outputs right across the education system are important challenges we must face.

The evidence also shows that effective institutions are a crucial ingredient for a competitive economy. Improving Ireland's competitive performance must remain at the heart of government policy. To improve living standards, the same urgency and commitment that went into stabilising the economy must now go into maintaining and improving Ireland's competitiveness. This is the only way to secure jobs and incomes and to provide quality public services.

This report provides the evidential base to assist policymakers to identify the key challenges confronting Irish enterprise. The Council will further consider these challenges in its annual policy document, Ireland's Competitiveness Challenge, which will be published later this year.

I would like to conclude by thanking the Council members and advisers for their valuable time commitment and helpful contributions throughout the development of this report. I would also like to acknowledge the exceptional work of the Secretariat in the preparation of such a detailed report.

Professor Peter Clinch

Chairman, National Competitiveness Council

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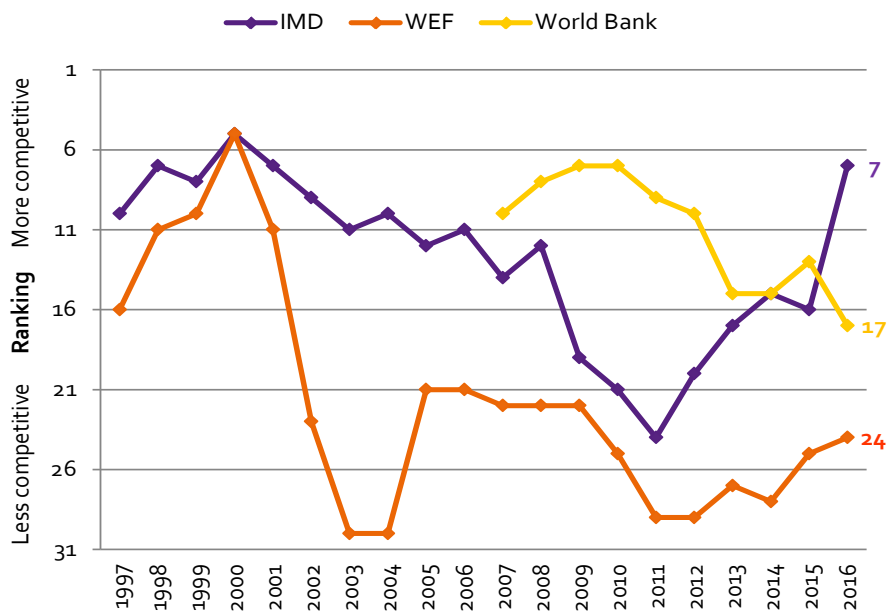
Executive Summary

Competitiveness is a complex concept incorporating a myriad of interlinked and interdependent factors; reflecting this complexity, Ireland's Competitiveness Scorecard analyses over 130 indicators each of which tells part of Ireland's competitiveness story. These indicators measure a range of inputs, outputs and outcomes. Given the disparate nature of these indicators, the National Competitiveness Council does not attempt to create a single quantifiable measure of competitiveness – rather, each indicator is examined individually. Thereafter, taking a birds-eye view of all the data collected, the Council can draw the various strands of analysis together to present a comprehensive picture of Ireland's international competitiveness performance.

Figure E1 shows how Ireland's competitiveness performance has evolved in recent years in three of the most high profile and competitiveness-relevant indices. Our position in the WEF and IMD rankings deteriorated prior to and over the course of the recession but has gradually started to recover in recent years.

Figure E1 Ireland's global competitiveness rankings, 1997-2016



Since 2009, Ireland's international competitiveness rankings as measured by the IMD and WEF have improved. Ireland is now 7th in the IMD's World Competitiveness Yearbook and 24th in the WEF Global Competitiveness Report. Ireland is ranked 17th in the World Bank's ease of doing business report and remains below peak rankings.

Source: IMD, WEF, World Bank

Competitiveness has been central to Ireland's improved economic and enterprise performance. The Council has previously highlighted how Irish enterprise continues to benefit from a range of benign external factors including a weakened euro, low international energy prices and a degree of recovery in our key trading partners which have greatly facilitated recent growth. However, this is not to understate the importance of those factors over which we exercise control. Reforms have helped to make work pay, encouraged enterprise and entrepreneurship, improved access to finance for SMEs, streamlined regulatory processes and reduced administrative burdens. Fiscal sustainability has been important. Productivity gains and improvements in cost competitiveness have all contributed to growth, jobs and are key to improving living standards. The exporting sectors of the economy continue to perform strongly and many of Ireland's traditional strengths (such as our competitive taxation regime, highly skilled workforce, and pro-enterprise regulatory regime) remain.

It is important that we do not become complacent about the ongoing need for reform and that we focus our efforts on continuing to improve Ireland's competitiveness performance in areas that can be influenced by domestic policy action. The key findings from this report, and a number of challenges emerging from this analysis, are summarised below.

- **Ensuring growth is equitable, balanced and sustainable:** Sustainable growth and improved living standards for all is the primary goal of national competitiveness. Further achievement of this goal will need an increased emphasis on policies that address for example, fiscal sustainability, incomes, regional and urban development and planning, global warming/emissions targets.
- **Enhancing the competitiveness of enterprise with a particular focus on supporting productivity growth:** In the medium term, productivity performance is the key determinant of competitiveness. To facilitate productivity growth, firms must invest in people, technology and processes. This requires access to investment capital. While significant progress has been made in relation to access to traditional bank credit, the Council is still concerned about Ireland's performance in relation to non-performing loans, working capital and the development of alternate sources of non-bank credit. While many of our large, exporting companies and sectors regularly record impressive productivity growth, performance is weaker amongst domestically focussed companies and sectors. The availability of a large and talented cohort of managers is a key driver of enterprise productivity and competitiveness.
- **Broadening our export base - new products, new sectors and new markets:** Supporting the internationalisation of Irish enterprise will contribute to making the economy more stable and resilient to shocks. Exporting also fuels the domestic economy and delivers more sustainable job opportunities than could otherwise be achieved by an economic model dependent on consumption or government expenditure. There is a need to evolve into new products, markets and sectors, whilst maintaining the competitive advantages we enjoy in existing ones. Further improving the administrative environment, ensuring that the regulatory environment is conducive to new entrepreneurs, and pursuing an ambitious external trade agenda, are cost-effective means to stimulate enterprise competitiveness. We must ensure that Irish enterprise stays at the forefront of technology and innovative activity and process and support the development of clusters.
- **Improving talent, innovation and productivity:** Linked to the productivity agenda referenced above, is the issue of talent. Across the OECD, companies experience difficulties in recruiting and retaining people with the right skills. These difficulties and shortages can reflect factors other than skills, such as unattractive working conditions, poor recruitment policies, limited opportunities for career progression and lack of labour mobility. From a competitiveness perspective it is critical that enterprise development and skills policies are aligned and that labour/skills mismatches are minimised. There is a continuing need to attract students into technical, engineering, maths and language courses to meet demand in these areas. It is vital that the education and training system is responsive to enterprise needs – for example, the continued rollout of new apprenticeship programmes is important in this regard. It is equally important that there is engagement and active participation by the enterprise sector with the higher and further education system. Training and up-skilling of talent is associated with large increases in both innovation and productivity and output. Retraining, upskilling, talent development and career progression strategies at firm level remain vital.
- **Investing in physical infrastructure, knowledge and talent:** A modern, vibrant and dynamic economy depends on the availability of competitively priced world-class infrastructure (e.g., energy; telecoms; ICT, transport, waste and water) and related services. Investment in these services is critical to support competitiveness. Further targeted and prioritised investment is required to address existing and emerging infrastructural bottlenecks which could constrain growth by dampening productivity and labour mobility, increasing costs and limiting sectoral opportunities for enterprise development. Capital investment on enterprise development, skills, education and supports for research, development and innovation activity are also vital for competitiveness.

- **Increasing labour market participation:** While the labour market has certainly contributed strongly to overall economic growth in recent years, concerns persist about our relatively low levels of labour force participation, particularly female participation. In this regard, a range of interconnected issues analysed herein will require further policy consideration. Specifically, the interaction of replacement rates, active and preventative labour market programmes, the cost of childcare, and the costs of returning to work are all important determinants of labour market participation.
- **Maintaining cost competitiveness:** While the Council's productivity agenda is primarily focused on the medium term, we cannot afford to ignore or become complacent about our cost base. As an export dependent economy, costs are a major determinant of our ability to sell into international markets. Against a backdrop of strong economic growth and positive labour market dynamics, cost pressures have emerged across a range of sectors. Particular focus is required to address domestically influenced cost factors in the energy, legal and health sectors. Likewise, the current rapid increases in house prices and residential rents have the potential to produce adverse knock-on consequences in terms of prices and wage expectations across the entire economy. Rapid and adverse cost developments put competitiveness gains at risk. We must also be cognisant of potential threats to our cost competitiveness which are appearing on the horizon. For example, failure to meet our environmental and emissions targets will have a direct impact on costs: the potential negative effect of sanctions on our cost competitiveness should refocus minds on the importance of meeting these environment commitments.
- **Planning for the future:** Our ability to deliver the right infrastructure in the right place, and in the right timeframe, will also be a key driver of future competitiveness. In this regard, the development of the National Planning Framework is crucial. Many of the indicators in this report raise issues in relation to patterns of development, population density, and regional competitiveness, all of which require in depth consideration. The trade-offs and costs associated with different patterns of development need to be understood in order to best support future investment and development.
- **Fiscal sustainability:** Sound public finances are a prerequisite for sustainable growth. Ireland has made significant strides in this regard, as evidenced by our exiting the EU's Excessive Deficit Procedure. Nevertheless, a continuation of prudent fiscal policy is still a necessity to reduce our debt burden and to further reduce the exchequer deficit. Ireland will need to carefully manage the public finances, prioritising expenditure and investment to support competitiveness and maintain essential services, whilst simultaneously maintaining a growth-friendly taxation system. In this regard, there remains a need to further broaden the tax base. Further, vigilance is required to ensure that the Exchequer does not become over reliant on any single or temporary source of revenue which may be a result of cyclical fluctuations, rather than a sustainable, permanent increase in revenue.
- **Brexit:** On June 24th the UK voted to leave the European Union. This decision has significant short-term and long term implications for Ireland. Economically, the uncertainty arising from the outcome of this decision will almost certainly in the short term, result in a weakened exchange rate and lower growth for the UK economy with direct consequences for Irish growth and trade prospects. The economic and political implications and timing of Brexit – and indeed the institutional arrangements between the UK and EU, and between Ireland and the UK – remain unclear at this juncture. Notwithstanding this uncertainty, the immediate competitiveness implications for Ireland of the UK leaving the EU will need to be considered.

Ireland's Competitiveness Scorecard does not pose the answers to these challenges. Rather, this report provides the evidential base to assist policy makers to identify the key challenges confronting Irish enterprise. The Council will put forward proposals to address many of these issues in its annual policy document *Ireland's Competitiveness Challenge* which will be published later this year.

Chapter 1: Introduction

The factors determining Ireland's competitiveness performance continued to evolve in 2015. A number of positive developments are evident, including strong rates of economic growth, declining debt, increased consumption and investment, productivity and export growth, and an improving labour market performance.

This positive outlook is expected to continue and economic growth is forecast to exceed 4 per cent in 2016 – the highest growth rate in the OECD; this follows on the back of an exceptionally strong growth rate (7.8% in GDP terms) in 2015. Further, growth is broadly based: employment growth has been recorded in 12 of 14 economic sectors[1], export growth remains very strong and there has been a significant contribution from the domestic economy in terms of consumption and investment levels. As a result, levels of GDP and GNP per capita - a key measure of societal wellbeing - are improving.

Improved competitiveness has been central to Ireland consolidating its economic performance. The Council has previously highlighted how Irish enterprise continues to benefit from a range of benign external factors including a weakened euro, low international energy prices and a degree of recovery in our key trading partners which have greatly facilitated recent growth. However, this is not to understate the importance of those factors over which we exercise control. Reforms have helped to make work pay, encouraged enterprise and entrepreneurship, improved access to finance for SMEs, streamlined regulatory processes and reduced administrative burdens and costs. Fiscal sustainability has been important. Productivity gains and improvements in cost competitiveness have all contributed to growth and jobs and are key to improving living standards. The exporting sectors of the economy continue to perform strongly and many of Ireland's traditional strengths (such as our attractive taxation regime, a highly skilled workforce, and generally pro-enterprise regulatory regime) remain.

Ireland's continuing competitiveness however cannot be taken for granted, and there are causes for concern as regards immediate threats to our ability to compete internationally. A number of short and medium term downside risks have already emerged in key areas that could undermine national competitiveness, growth and living standards. Infrastructure bottlenecks, skills mismatches and emerging industrial unrest are again immediate challenges.

Ensuring that growth is equitable, balanced and sustainable is a particular challenge at this time. Upward cost pressure is evident across the economy and increasing productivity across all sectors and occupations, particularly in the indigenous economy remains a significant issue. At a time of strong headline economic growth and after a contraction in incomes and expenditure during the recession it is understandable that expectations of, and demands on, the Government finances are rising. However, principal among the internal risks to continued growth is adopting unsustainable and unaffordable policies. In this regard, there is limited scope for action and difficult choices remain. Policies which secure competitiveness, growth and employment are key to maintaining economic and employment growth and improving public services and living standards.

There is a continuing and urgent necessity to prudently manage the public finances, to enhance the environment in which enterprises operate, to enable them to trade successfully in increasingly competitive global markets. The focus now more than ever must be on ensuring that the diverse range of factors and policy inputs that influence national competitiveness including education and training, entrepreneurship and innovation, Ireland's economic and technological infrastructure and the taxation and regulatory framework operate at world class levels.

1 Annual declines were recorded between Q4 2014 and Q4 2015 in financial, insurance and real estate activities, and education activities.

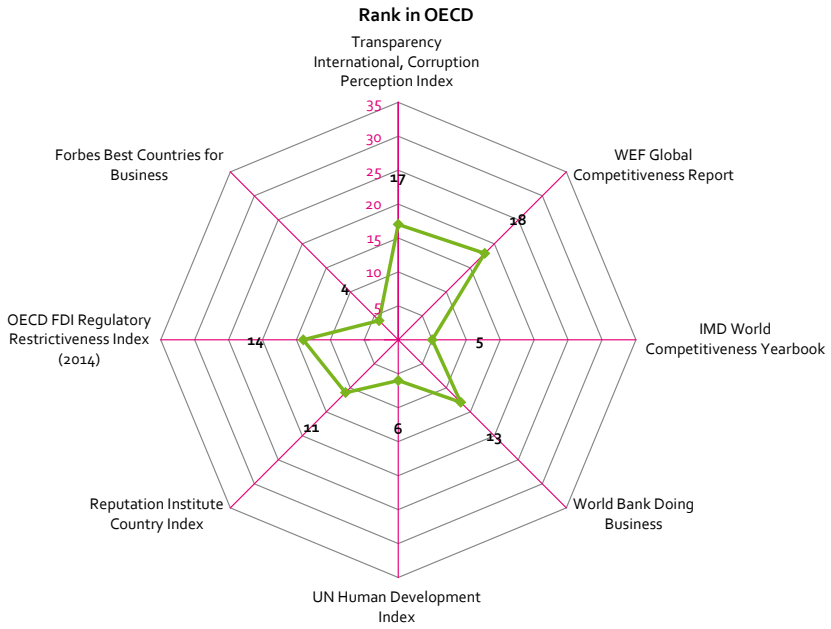
International competitiveness performance

Competitiveness is a complex concept incorporating a myriad of interlinked and interdependent factors; reflecting this complexity, Ireland's Competitiveness Scorecard analyses over 140 indicators each of which tells part of Ireland's competitiveness story. These indicators measure a range of inputs, outputs and outcomes. Given the disparate nature of these indicators, the National Competitiveness Council does not attempt to create a single quantifiable measure of competitiveness – rather, each indicator is examined individually. Thereafter, taking a birds-eye view of all the data collected, the Council can draw the various strands of analysis together to present a comprehensive picture of Ireland's international competitiveness performance.

A range of international bodies operate in the competitiveness space and many of these measure and condense all of the complexity of competitiveness into a single metric or ranking. While methodologies differ, these metrics can provide a useful insight into how external observers view Irish performance vis-à-vis our key trading partners and competitors.

Figure 1.1 presents Ireland's ranking from amongst the 32 OECD member states (excluding Mexico and Turkey) across a range of international indices. In this figure, a ranking of 1 (i.e. close to the centre of the chart) represents a strong performance (i.e. a ranking of 1 would imply that Ireland is deemed to be the most competitive of the 32 countries in the OECD).

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

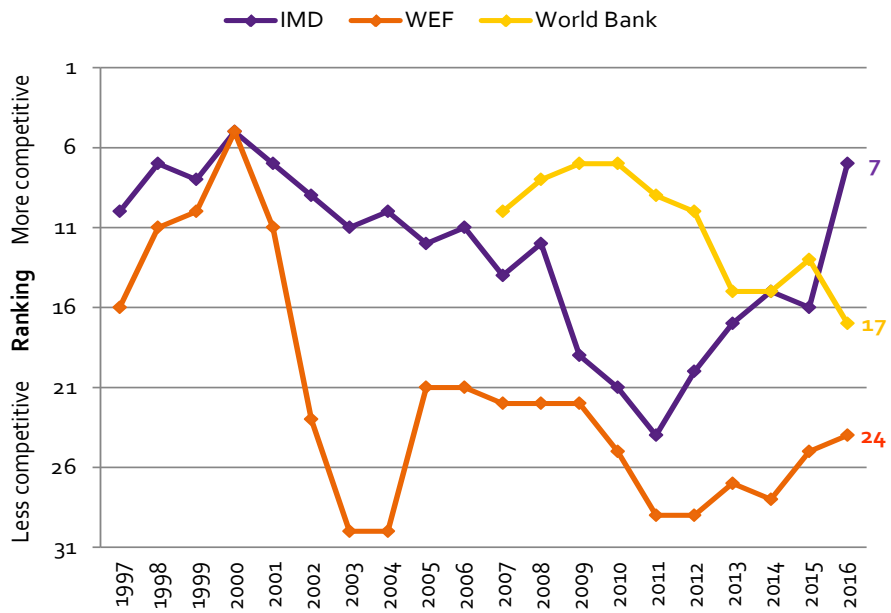


These indices cover a number of policy areas – some based on directly measureable aspects of policy (e.g. the World Bank Doing Business Index); others measure qualitative, more subjective issues such as reputation; indices such as the IMD and WEF competitiveness indices capture a mixture of both.

Source: Various International Organisations

Figure 1.2 examines how Ireland's ranking has evolved in recent years in three of the most high profile and competitiveness-relevant indices. Our position in these international competitiveness rankings deteriorated primarily over the period 2001-2005 and in the early years of the recession but has gradually started to recover in recent years.

Figure 1.2 Ireland's global competitiveness rankings, 1997-2016



Since 2009, Ireland's international competitiveness rankings have improved. Ireland is now 7th in the IMD's World Competitiveness Yearbook and 24th in the WEF Global Competitiveness Report. Ireland is ranked 17th in the World Bank's ease of doing business, a disimprovement of 4 places from last year[2].

Source: IMD, WEF, World Bank

- The WEF's *Global Competitiveness Report* provides an assessment of the factors driving productivity and prosperity across 140 countries. In the 2015-16 report, Ireland is ranked 24th, an improvement of one place from last year. Ireland is the 8th most competitive country within the Euro area, and 11th amongst the EU28, and performs well in relation to goods market efficiency (ranked 7th), institutions (12th), health and primary education (12th), and labour market efficiency (13th). Ireland is ranked in the top 10 in relation to intellectual property, investor protection, quality of education, FDI rules, exports, and productivity levels. Weaknesses, however, are also identified in relation to infrastructure (27th), market size (57th), financial markets (61st), and the macroeconomic environment (87th).
- In the IMD's *World Competitiveness Yearbook,* Ireland's ranking declined over the period 2008 to 2011 from 12th to 24th. Thereafter, performance improved over the 2012 to 2014 period. Of the 61 countries benchmarked in 2016, Ireland is ranked 7th, up from 16th in 2015[3]. The rise is related to improving performances in the areas of "business efficiency", "economic performance", and "government efficiency". The IMD view infrastructure performance as relatively weak.
- The World Bank's *Doing Business* report provides an assessment of various regulations affecting SMEs throughout their life cycle. In the latest report, Ireland is ranked 17th out of 189 economies[4]. Relative to many Euro area countries, Ireland has comparatively simple administrative procedures, a low burden of regulation, a straightforward licensing system and an enterprise environment conducive to doing business. However, the report also highlights a number of areas in which there is significant room for improvement. Ireland is quite far behind the leaders in enforcing contracts (93rd) dealing with construction permits (43rd), Ireland is a top 30 performer in getting electricity (30th), getting credit (28th) and starting a business (25th).

2 The methodology used by the World Bank's in compiling the 'Doing Business' report changed in 2015.
3 Ireland is ranked 1st out of Euro area countries ranked in the top 20 globally. The top 5 comprises the Hong Kong, Switzerland, US, Singapore, and Sweden. The top 20 countries remain the same as 2015, albeit with some countries improving and some declining, illustrating the dynamic nature of international competitiveness rankings.
4 Due to methodological changes, it is not possible to compare performance in 2015-2016 with performance in 2009-2010.

Indices are not perfect measures of competitiveness performance. As regards Ireland's international rankings, it is not always a question of Ireland's absolute deterioration in categories but rather a matter of other countries improving their position relative to Ireland's. All indices show some countries improving and others declining, illustrating the dynamic nature of international competitiveness performance. Advanced economies, such as Ireland, at the upper end of the rankings, can find it harder to get high impact from their reforms due to their already strong performance (i.e. as a country nears the frontier or limit of best practice, the harder marginal improvements are to achieve).

Ireland's rankings show that relative to many Euro area and OECD countries, we have comparatively simple administrative procedures, a low burden of regulation, a straightforward licensing system, a strong talent pool, effective institutions and an enterprise environment conducive to competitiveness. However, Ireland's relative position as assessed by the WEF, IMD and World Bank provides a constant reminder of the intense global environment in which Ireland is competing for export share and inward investment. They also serve to highlight the parallel between highly competitive countries and those with high levels of national income, economic growth and employment.

Competitiveness, exchange rates and inflation

Much of Ireland's competitiveness narrative can be illustrated using Harmonised Competitiveness Indices (HCIs). The purpose of HCIs is to provide meaningful and comparable measures of countries' price and cost competitiveness that are also consistent with the real effective exchange rates (REERs) of the euro[5]. Ireland's Harmonised Competitiveness Indicator (HCI) captures the impacts of both exchange rates and relative price movements. Between April 2008 and July 2012, Ireland regained much of its competitiveness as the real HCI improved by 18.5 per cent (and the nominal improved by 10.6 per cent - reflecting lower inflation in Ireland than amongst our trading partners, and in some cases price reductions). As shown in Figure 4.3.5, over half of Ireland's improvement in competitiveness over the course of the recession and subsequent recovery is a result of external factors – primarily movements in the exchange rate.

Favourable exchange rates vis-à-vis our main trading partners makes firms based in Ireland more cost competitive and allows them to trade more effectively in international markets. In particular, the value of the Euro against the US Dollar and Sterling is intrinsic to our export cost competitiveness. The value of the Euro against Sterling is critical for Irish exporters, particularly SMEs and employment intensive sectors such as the agri-food sector[6] which are very dependent on strong trading activity with the UK. In 2015, the UK accounted for 12 per cent of total exports and 25 per cent of imports.

Over the past ten years the average value of Sterling to the Euro was £0.79. In the period 2007-2009, the Euro appreciated by 35 per cent against Sterling trading at £0.97 in March 2009. Between 2013 and 2015 changes in the value of the Euro and Sterling saw the rate fall to £0.70 in July 2015. This period of depreciation made Irish goods and services relatively cheaper in the UK. In the past year however, the Dollar has fluctuated and Sterling has appreciated sharply vis-à-vis the Euro. While these fluctuations pose challenges for exporting firms, the current exchange rate remains more favourable to exporters than at many stages over the last decade (Figure 4.2.4). The value of Sterling is however expected to weaken further in light of the UK's recent decision to leave the EU.

Low levels of price inflation have been a characteristic of most OECD economies in recent years. Inflation was slow-moving in 2015 and early 2016, mainly driven by energy price developments. Average annual inflation in

5 HCIs are constructed using the same methodology and data sources as the euro effective exchange rates. While the HCI of a specific country takes into account both intra and extra-Euro area trade, however, the euro EERs are based on extra-Euro area trade only. Therefore, the HCIs and euro EERs reflect different phenomena and are not directly comparable.

6 Bord Bia estimates that currency developments helped to boost the competitiveness of Irish exports by around €950 million in 2015, See Bord Bia, Export Performance and Prospects 2015/2016

Ireland and the EU over the period 2010 to 2015 declined across a range of commodities, with the decline in energy prices a primary driver of falling prices. Overall, Irish Harmonised Index of Consumer Prices (HICP) inflation was below both the Euro area and EU average. However, for housing, education, and for overall services, Irish inflation exceeded the average annual rate. While consumer price inflation – as measured by the HICP – was flat last year. As shown in Figure 4.3.2, Irish consumer prices remain over 20 per cent above the Euro area-18 average. The GDP deflator, an implicit measure of the price changes in the economy as a whole, is forecast by the Department of Finance to increase by 2.6 per cent this year.

Economic growth in Ireland and our main trading partners

The Irish economy has emerged from the depths of a severe economic recession and there are signs that the economic recovery, underway since 2012, is robust. Preliminary national accounts estimates by the CSO and Eurostat for 2015 indicate that the Irish economy is the fastest growing economy in Europe for the second year in a row, growing at a rate three times faster than our major trading partners. The Irish economy has now recorded strong economic growth for the third successive year. Following annual GDP growth of 1.4 per cent and 5.2 per cent in 2013 and 2014 respectively, initial estimates indicate that the Irish economy remains the fastest growing economy in Europe with GDP increasing by 7.8 per cent year-on-year in 2015, and by 5.7 per cent in GNP terms.

The European growth rate improved in 2015 but remains relatively modest. Eurostat estimate that GDP grew by 1.6 per cent in the Euro area and by 1.9 per cent in the EU28 in 2015. From an Irish perspective, it is notable that GDP growth in the UK weakened year-on-year in 2015 to 2.3 per cent (-0.6%) and remained flat in the US at 2.4 per cent. The economic performance of both countries is particularly important, given the prominence of both countries as export destinations for Irish produced goods and services. The decision by the UK to leave the EU is likely to have negative ramifications for Irish growth rates in 2016 and beyond.

The drivers of economic growth

In terms of the drivers of economic growth, preliminary national accounts data indicates the contribution of net exports in 2015 was negligible (+0.8%) with the most significant contribution to growth coming from domestic demand (+9.3%),. Figure 6.2.1 shows how over the course of the recession, net exports were the key driver of economic growth. In 2015 the relative contribution of net exports has declined while personal consumption and investment increased by 3.5 per cent and 28 per cent respectively.

It is notable that investment growth in recent quarters has been driven by an increasing level of investment in intangible assets - largely attributable to intellectual property transactions and R&D activity by multinational enterprises. Notwithstanding this effect, it is positive that the underlying investment level has continued to improve arising from increased expenditure on machinery and equipment investment (excluding aircraft) and construction. After sharp declines in investment during the recession, gross fixed capital formation continues to recover strongly (Figure 4.1.1). Irish investment levels in all assets types halved between 2008 and 2013, falling from 22 per cent of GDP to 11 per cent of GDP in 2014. In GNP terms, Irish private investment (24%) exceeds the Euro area average (17%). Public investment (2.4% of GDP), however, remains below the Euro area average (2.7%) and inadequate capital investment, left unaddressed, will damage competitiveness and adversely impact future economic growth.

Commercial and residential real estate transactions and prices continued to increase in 2015, particularly in Dublin. Likely as a consequence of increased demand and subsequent rising prices, CSO data shows planning permissions granted for all types of construction continue to grow (from a very low base) and increased by 10 per cent year-on-year to 17,427. Housing completions remain extremely low. Planning permissions for new dwellings increased by 28 per cent year-on-year to 4,269. This level of activity remains well below pre crisis levels. Planning permissions for buildings for trade and administration and other economic activities also remain considerably below long term averages. New construction output levels also remain significantly below

peak and severe residential property supply constraints have emerged. The sustained shortage of supply of property and increasing rents and purchase prices represents a significant threat to competitiveness (Figure 3.2.7).

This increase in consumption (albeit from a low base) appears to be strengthening. Buoyed by an upturn in the labour market, consumer spending on goods has been strong in 2015 with retail sales for all businesses (excluding the motor trades) increasing by 2.7 per cent in value and 6.1 per cent in volume.

In terms of output there were positive increases across almost all sectors-Manufacturing (+14.2%), Construction (+8.8%), Distribution, Transport Storage & Communications (+8.7%), Agriculture (+6.4%) and Other Services (+4.3%). While GDP growth is a somewhat imperfect measure of economic performance, especially for highly-globalised economies such as Ireland, this strong level of growth is to be welcomed and is reflected in continued positive momentum in the exchequer returns and the labour market. High frequency indicators show that growth has continued in 2016. QNHS, retail sales, consumer sentiment, industrial production as well as the purchasing managers' indices and surveys point to continuing growth in 2016.

Trade remains integral to Ireland's growth trajectory. Ireland is one of the most open economies in the EU, and a significant exporter to non-EU countries (goods exports to non-EU countries account for 24.1 per cent of GDP). As a result of the scale of non-euro denominated trade, particularly to the US and UK, and as noted above, Irish firms are particularly exposed to exchange rate fluctuations and economic conditions in these key trading partners.

While Ireland's dependence on the UK as an export destination has declined in recent decades, it remains our single largest market in the EU, and both economies are highly interlinked. Simulations by the ESRI suggest that the effect of a 1 per cent reduction in UK GDP is to reduce Ireland's GDP and GNP by 0.3 per cent in the medium term. Therefore, any negative effect that the Brexit decision has on UK' growth, is also likely to strongly felt in terms of Irish economic growth.

Ireland's share of total global export markets is 1.1 per cent, as of 2014. Ireland has expanded its share of the world's services market, accounting for 2.7 per cent of global exports in 2014, up from 2.2 per cent in 2005. Over the same period, Ireland's share of global merchandise exports declined from 1 per cent to 0.7 per cent in 2015. Irish merchandise exports to the EU-28 amounted to 27.4 per cent of GDP in 2015. (Figure 4.1.7) Ireland's competitiveness strengths are reflected in Ireland's trade performance. In 2015, exports increased by 13.8 per cent and imports increased by 16.4 per cent over the same period (meaning that combined, net export performance contributed less than previous years to overall growth) (Figure 6.2.1).

From an international investment perspective, Ireland continues to be an attractive location for foreign direct investment (FDI), and exhibited a strong performance in 2015. Ireland's stock of inward investment (174 per cent of GNP) is amongst the highest in the OECD, and is the second highest in the Euro area Figure 4.1.2). Despite intense international competition for globally mobile investment, Ireland maintained a strong performance in terms of FDI investment levels, exports and employment in 2015.

Macroeconomic developments and sustainable public finances

Stable and sustainable public finances are a prerequisite for competitiveness. The Department of Finance[7] estimate that year-on-year, tax revenue grew by 10.5 per cent in 2015 with continued strong growth evident across the major tax heads. Reflecting the resurgent labour market performance and the increasing numbers of people at work, cumulative income tax receipts increased by 7 per cent in 2015.

7 Department of Finance, Exchequer Returns end-December 2015

Corporation tax receipts continue to be very strong[8] and recorded a 49 per cent increase on 2014[9]. There has also been significant growth in capital gains, stamp duties, VAT and non-tax revenue. This positive and broad based tax revenue growth has continued into 2016 with tax receipts of €14,035 million to end-April, up 9.1 per cent year-on-year and 3.5 per cent above expectations.

Economic and employment growth and careful management of Government expenditure has resulted in significant improvements in the Government finances over the period 2012-2015. As a result and acknowledging that the Government had reduced the budget deficit below the threshold of 3 per cent of GDP, Ireland formally exited the Excessive Deficit Procedure in May 2016. As a result, Ireland is now under the preventive arm of the Stability and Growth Pact. The preventive arm gives primacy to the structural balance – the budgetary position excluding one-off factors and taking account of the economic cycle. With the correction of the excessive deficit in 2015, Budget 2016 was the first framed under the preventive arm of the Stability and Growth Pact where the new fiscal anchor is the achievement of a structural deficit of 0.5 per cent of GDP. Debt levels remain relatively high but at present and need to continue on a sustainable downward trajectory. The general government debt-to-GDP ratio has declined sharply since 2013. The debt-to-GDP ratio was 93.8 per cent in 2015, significantly down on its peak of 120 per cent in 2012. Of course, continued improvement is required to meet the Stability and Growth Pact target of a 60 per cent debt-to-GDP ratio.

Substantial consolidation on the expenditure side throughout the recession, as well as more buoyant tax revenues, has resulted in the general government deficit continuing to fall sharply in 2015 to 2.3 per cent[10] of GDP down form from 3.8 per cent in 2014 and significantly below 2010-2011 levels, when the deficit peaked at 32.3 per cent and 12.6 per cent respectively. At 2.3 per cent of GDP and 1.3 percent both the headline and underlying General Government deficits are below the Treaty reference value (3 per cent of GDP). The debt and deficit ratios are expected to continue on a downward path meaning Ireland is moving towards a position where balanced budgets are achieved[11]. In its 2016 Stability Programme, which is predicated on a no-policy-change assumption, the Government plans gradual improvements of the headline balance, and plans to achieve a surplus of 0.4 per cent of GDP in 2018[12].

Actions at Euro area level, international financial market developments and the transformation in Ireland's economic performance and improvements in the public finances has resulted in the cost of Government financing falling close to historic lows in 2015. Irish bond yields were trading in line with core European sovereign yields, and have decoupled from the Euro area periphery (Figure 6.2.10). The yield on a ten-year Irish Government bonds which reached 14 per cent in 2011 has now declined to below 1 per cent. Following the positive review by Moody's, in May 2016 the yield fell further to 0.81 per cent.

Total Exchequer debt servicing costs for 2015 remain very high at €7,106 million, albeit they have decreased by 6.2 per cent year-on year.

As regards, the financial system, the pillar banks have been significantly strengthened and their performance has been relatively positive in terms of risk profile and profitability levels. Levels of non-performing loans (NPLs) remain relatively high and the workout of impaired loans and the disposal of NPLs remains a challenge. An adequately-reserved, cost-competitive insurance sector is a vital component of economic activity and

8As noted in the National Risk Assessment Strategy 2015, Ireland is heavily dependent on FDI for its contribution to employment, spend in the wider economy and tax revenue. This creates a vulnerability to changes in Ireland's attractiveness as a location for these companies. Revenue note that while corporation tax is concentrated among payments by large multinational companies, the growth in receipts in 2015 is broad based in nature and not solely arising from foreign owned multinationals. See Revenue, An Analysis of Corporation Tax Receipts in 2014-2015, April 2016

9 Part of this increase is due to approximately €470 million in payments received from roughly 16,000 companies that did not pay corporation tax in 2014, and over €400 million additional revenue in respect of balances associated with earlier accounting periods.

10 Excluding the classification of a one-off transaction related to the restructuring of AIB the deficit would have dropped further to 1.3 per cent of GDP.

11 Department of Finance, Ireland's Stability Programme April 2016 Update

12 European Commission, Recommendation for a Council Recommendation on the 2016 National Reform Programme of Ireland and Delivering a Council Opinion on the 2016 Stability Programme of Ireland

financial stability. While the domestic life sector is experiencing growth, the majority of companies in the non-life market continued to record underwriting losses in 2015. Losses associated with motor insurance appear to be the primary reason the non-life sector records an underwriting loss as a whole.

Labour market performance

The impact of Ireland's enhanced competitiveness, return to fiscal sustainability, financial stability and economic growth is evident in the labour market. Seasonally adjusted employment in Ireland has now grown for fourteen consecutive quarters. In the year to Quarter 4 2015 employment increased by 2.3 per cent, bringing total employment to 1.983 million - an annual increase of approximately 44,000[13]. The overall employment rate among persons aged 15-64 has also been increasing and was 63.9 per cent in Q4 2015 compared to 62.6 per cent in Q4 2014 and 59 per cent in 2010. The employment rate in the EU-28 in Q4 2015 was 66 per cent. Despite the positive trend, Ireland remains some way short of 2007-2008 peak employment levels of 2.16 million and the scale of the employment challenge which still confronts Ireland remains significant (Figure 4.4.1)

It is positive that employment growth in 2015 was spread relatively equally across the different sectors of the economy with employment growing in 12 of 14 economic sectors. Growth was strongest in construction (8.5%), with significant growth also evident in public administration (4.6%) and accommodation and food service activities (4%). Overall, the majority of sectors in Ireland have experienced growth in employment between 2010 and 2015 as recovery took effect. Likewise, employment growth has been recorded across most regions and employment increased by 2.9 per cent in the Border, Midland and Western region and 2 per cent in the South and Eastern region. The number of employees in Q4 2015 was 1.64 million, up 41,200 (+2.6%) over the year. The number of self-employed persons increased by 1,000 or +0.3 per cent over the year to 321,300. Full time employment continues to account for the majority (88%) of the increase in employment in Ireland. Full time employment has increased by 7.6 per cent between 2010 and 2015, while part time employment increased by 3.9 per cent. The employment growth rate in 2015 was well above the Euro area average. The European labour market continues to be sluggish – employment in the Euro area grew by 1 per cent in 2015 (Figure 4.4.2).

Unemployment continues to fall. In Q4 2015 the unemployment rate was 8.7 per cent compared to 10 per cent in Q1 2015 and 15.1 per cent in Q1 2012. Unemployment decreased by 26,100 (-12.2%) in the year to Q4 2015 bringing the total number of persons unemployed to 187,500. Unemployment has now fallen by 43 per cent from its peak in 2012 when 324,000 were unemployed. The differential in unemployment rates across Ireland's 8 regions is the lowest in the Euro area (Figure 4.4.6). While the dispersion rate did increase for a time in 2010 to 2013, it is effectively unchanged compared with 2009. Long-term unemployment has also decreased in recent years from a peak of 204,000 in Q1 2012 to 102,100 in Q4 2015. The rate has fallen from 5.8 per cent to 4.7 per cent over the year to Q4 2015. Significantly down on its peak rate of 9.5 per cent in 2011, Irish long term unemployment has fallen below the Euro area average (5.5%) for the first time since 2009. Youth unemployment in Ireland peaked at 31.1 per cent in June 2012 but has since decreased to 20.9 per cent in 2015, below the Euro area average of 22.5 per cent. While this decline is very positive, it is concerning that the long term youth unemployment at 42.5 per cent at Q4 2015 is the fourth highest in the Euro area (Figure 4.4.7).

With strong employment growth, it is likely that skills shortages will increase in the medium term (Figure 4.4.8). The Irish recovery has led to an increase in the demand for skills in a number of sectors. Vacancies classified as difficult to fill in 2015 by the Expert Group on Future Skills Needs (EGSN) were primarily in professional occupations in ICT, engineering, science, health, business and limited openings in construction.

13 The lowest level of employment during the recession was recorded in Q2 2012 when total employment was 1.835 million.

While the scale of skills shortages varies in magnitude, continued engagement by the education sector with enterprise to identify and deliver relevant courses which meet the existing and future skills needs of employers is vital.

Economic outlook

While the Irish economy is experiencing rapid growth and is projected to continue to grow, the outlook is subject to significant uncertainty and downside risks. Globally, trade and investment levels remain weak, with modest growth forecast for many emerging and advanced economies. World trade volumes grew by approximately 2 per cent in 2015, and this rate is associated with very low rates of global GDP growth[14].

The OECD and European Commission estimate that global growth eased to around 3 per cent in 2015. This is below its long-run average and represents the lowest level of growth in five years. Growth in the Euro area is improving, but not as fast as might be expected given the falls that have been experienced in oil prices, long-term interest rates and the value of the euro.

In June 2016, the OECD and IMF revised downwards short term growth estimates for the UK and the US, whilst revising upwards the forecast for the Euro area. The outlook for China is an important vector for global growth and uncertainty, given its large and rising contribution to trade, investment and activity. Export activity and GDP growth moderated in 2015, to just over 6.75 per cent, as the Chinese economy transitioned from industrial to services-based growth. The risk of a sharp slowdown in China, which would have adverse effects for the global economy, has lessened as policy stimulus begins to have an effect. Growth in the US and UK is set to remain below potential, at less than 2 per cent per annum, and Euro area growth remains relatively modest with forecasts at less than 2 per cent per annum out to 2017. As noted by the European Commission, uncertainty linked to geopolitical tensions, the pace of implementation of structural reforms and the outcome of the UK's EU referendum could adversely affect European economies. This sentiment is mirrored by the OCED who consider that a Brexit would depress growth in the UK, Europe and Ireland.

While Ireland's dependence on the UK as an export destination has declined in recent decades, it remains our single largest market in the EU, and both economies are highly interlinked. Simulations by the ESRI suggest that the effect of a 1 per cent reduction in UK GDP is to reduce Ireland's GDP and GNP by 0.3 per cent in the medium term[15]. The UK's decision to leave the EU will have significant short-term and long-term effects on the Irish economy.

Geo-political instability, financial instability and sharp fluctuations in exchange rates are also some of the many substantial downside risks that exist[16]. While supportive macroeconomic policies and lower commodity prices are projected to strengthen global growth gradually through 2016 and 2017, a slowdown in emerging market economies is weighing on global trade. Subdued trade, investment and productivity growth is also checking the momentum of the recovery in advanced economies, and the growth forecasts - particularly for those in the Euro area - reflect moderate growth. The ECB's monetary policy approach has helped facilitate a low interest rate environment across the Euro area. In recent months the ECB has cut interest rates and expanded its asset-buying to provide a boost Euro area growth and stimulate inflation. A tightening of monetary policy in the Euro area would have implications for the costs of debt, stability and growth. Financial disturbances and tighter global liquidity conditions could also pose risks for financial stability and threaten economic growth.

14 OECD, Interim Economic Outlook, February 2016

15 See Barrett, A., et al, Scoping the Possible Economic Implications of Brexit on Ireland, ESRI, Research Series No. 48, November 2015

16 The National Risk Assessment Report details comprehensive range of economic, geo-political, social, technological and environmental developments that could have significant implications for Ireland. See Department of An Taoiseach National Risk Assessment 2015

As an exceptionally open economy, heavily dependent on international trade and investment, Ireland's economic outlook is highly dependent on growth and demand levels in our major trading partners. Table 1.1 outlines the European Commission's forecasts for economic growth for Ireland and our major trading partners in the coming years. The forecasts underline how economic growth in Europe is expected to remain modest. As a result, GDP growth in the euro area is forecast to remain below 2 per cent rates over the 2015-2017 period.

Table 1.1 Economic Growth Outlook, 2015-2017 (Annual percentage change)

	2015	2016	2017
World	3	3.1	3.4
EU	2	1.8	1.9
Euro area	1.7	1.6	1.8
Ireland	7.8	4.9	3.7
Germany	1.7	1.6	1.6
France	1.2	1.3	1.7
Italy	0.8	1.1	1.3
UK	2.3	1.8	1.9
US	2.4	2.3	2.2
China	6.9	6.5	6.2
Japan	0.5	0.8	0.4
Source: European Commission Spring Statement 2016			

Despite the risks outlined above (and a range of domestic challenges), leading indicators point to resilient economic activity in Ireland for the first quarter of 2016 and the consensus of economic forecasts (Table 1.2) provide cause for cautionary optimism in the short term.

Table 1.2: Forecast Annual percentage change key indicators, Ireland, 2016

	GDP	GNP	HICP	Employment Rate
Department of Finance	4.9	4.1	0.4	2.6
Central Bank of Ireland	5.1	4.7	0.6	2.3
ESRI	4.8	5.0	1.2	2.0
European Commission	4.5	n/a.	0.6	1.6
OECD	5.0	n/a.	1.6	n/a.
Source: Various Bodies				

Table 1.3 presents the Department of Finance's projections for growth in the medium term. While this forecast is highly contingent on factors outside the control of domestic policy makers, (and was made prior to the UK's EU referendum) achieving these projections will require balanced growth, with contributions from all sectors

of the economy, whilst remaining within the parameters set down by Stability and Growth Pact. Notwithstanding the external risks outlined above, for Ireland to remain competitive in the global economy, policy action is required to address a number of constraints which are currently undermining our competitiveness.

Table 1.3: Forecast Annual percentage change in the composition of Irish economic growth, 2015-2020

	2015	2016	2017	2018	2019	2020
Real GDP	7.8	4.9	3.9	3.9	3.3	3.1
Real GNP	5.7	4.1	3.7	3.7	2.8	2.6
Exports	13.8	8	5.5	5.1	4.5	4.3
Imports	16.4	9	5.8	4.6	4.3	4
Personal Consumption	3.5	3.9	2.7	2.4	2	1.8
Government Consumption	-0.8	1.5	1.6	1.3	1	1
Investment	28.2	13.5	7	4.8	4.7	3.9
Source: Department of Finance Stability Programme Update 2016						

Most immediately, Ireland's international competitiveness reflects our cost competitiveness vis-à-vis our competitors and trading partners. Productivity continues to be a major focus for the Council. The challenges in improving the quantity and quality of labour, productive capital, and enhancing total factor productivity (through technological change, innovation and the application of competition policy) are significant. However, productivity remains an essential underlying component of sustainable competitiveness, growth, and jobs. Ireland's relative performance in each of these areas is considered below.

Quality of life

Competitiveness is not an end in itself, but is a means of achieving sustainable improvements in living standards and quality of life. The quality of life measures included in this year's *Scorecard* are intended to complement more traditional measures of GDP per capita and cover income distribution, well-being and the environment.

Ireland performs well in many objective measures of well-being (life expectancy, education attainment, hours worked, air and water quality) and health relative to the OECD and EU averages. Life expectancy in Ireland has increased over the past decade and the latest comparable data shows that Irish life expectancy (81.1 years) is above the EU28 average (80.6 years). Further, the proportion of life expectancy at age 65 lived in good health is higher for both men and women in Ireland compared with the EU28 average[17]. Healthy life years at birth in Ireland for females was 68 years in 2013, the second highest rate in the EU and 6.5 years above the EU average. Male healthy life years at birth in Ireland in 2013 was 65.8 years, 4.4 years higher than the EU average, and the third highest rate in the EU. In terms of the proportion of the population with self-reported chronic illness and limitations in activities, Ireland also compares favourably with the EU average[18].

17 Department of Health, Health in Ireland, Key Trends 2015

18 Improvements in mortality rates and relatively high levels of self-rated health can mask variations between regions, age groups and other population subgroups.

Despite the impact of the recession, perceptions of quality of life and measures of life satisfaction show that people resident in Ireland report above average levels of life satisfaction. In the OECD's Better Life Index (Figure 3.1.2), Ireland ranks at the top in terms of social connections, and scores above average in relation to housing, personal security, health status, subjective well-being, work-life balance, civic engagement and environmental quality. On the other hand, Ireland ranks below average in relation to jobs and earnings, and income and wealth.

Over the course of the recession, Ireland's GDP per capita declined, but remained above the Euro area average. On the back of stronger economic and employment growth, incomes per capita are once again increasing rapidly. In 2014 GDP per capita (€41,000) was well above the Euro area average (+37%) and the annual percentage growth rate of GDP per capita was well in excess of the OECD and Euro area averages. In 2015 GDP per capita increased by 12.6 per cent to €46,200, above the pre-recession peak. In GNP per capita terms, however (a better measure of living standards), the differential between Ireland and the Euro area is much narrower. As shown in Figure 3.2.3, the median equivalised net income of Irish households is above the Euro area average, although Ireland experienced a decrease in median equivalised disposable income over the period 2009-2014.

The Irish Gini coefficient was 30.8 per cent in 2014 - marginally below the Euro area average indicating that income distribution in Ireland is slightly more equal than in the Euro area. The risk-of-poverty rate (15.6%) increased by 0.6 per cent in Ireland between 2009 and 2014. This is below the Euro area average and the rate of increase was also less than the Euro area increase. Over the course of the recession, Ireland's welfare system cushioned the impact and risk of poverty to a degree. Excluding social transfers, the at-risk-of poverty rate in 2014 was 37.2 per cent. After social transfers, the risk-of-poverty rate is reduced to 15.6 per cent. Figure 3.2.6 shows the risk of in-work poverty for working households has also fallen in recent years.

The sustainability of the natural environment and a commitment to environmentally friendly policies is a key determinant of long term quality of life. Under the 2009 EU Effort Sharing Decision (ESD), which applies to greenhouse gas emissions (GHG) outside the scope of the EU Emissions Trading System, Ireland has a series of challenging commitments as regards energy consumption patterns. For each year between 2013 and 2020, Ireland has a target to reduce GHG emissions to 20 per cent below 2005 levels. This target is considered jointly the most demanding 2020 reduction target allocated under the ESD and one shared only by Denmark and Luxembourg[19]. Ireland has also committed to increasing the share of renewables in final energy consumption to 16 per cent by 2020 and to move towards a 20 per cent increase in energy efficiency. Based on existing policy measures, Ireland would miss its national emission reduction targets by 10 per cent[20].

Figure 3.3.4 shows that between 1990 and 2014, total emissions in Ireland increased by 2.5 per cent. Emissions by the energy, industry, residential and waste sectors declined and are now below 1990 levels. Transport emissions, however, have increased by 120 per cent. While Ireland overachieved in terms of our annual obligations in the early years of the compliance period (2013-20), this will not be sufficient to meet our overall compliance obligations. The EPA's projected emissions for 2020 estimate that Ireland's emissions in 2020 could be in the range of 6-11 per cent below 2005 levels[21].

Ireland has made progress in decoupling its emission levels from economic growth as set out in Figure 3.3.2. This is a result of changes in the structure of the economy, particularly the growth of the less energy intensive services sector, greater use of gas and renewables, and improved energy efficiency. The share of renewable energy production in Ireland continues to grow (albeit from a low base) with 8.6 per cent of gross final

19 Department of the Environment, Community and Local Government, Invitation to Submit Views on the Development of Ireland's First National Low Carbon Transition & Mitigation Plan

20 European Commission, Country Report for Ireland,2016

21 Environmental Protection Agency, Greenhouse Gas Emission Projections to 2020, 2016

consumption derived from renewables in 2014. Although it is declining, Ireland continues to have a very high dependence on imported fossil fuels, particularly oil as set out in Figure 3.3.7: 48 per cent of Ireland's energy consumption is based on oil. Ireland is, on average, just over half way towards meeting its 2020 renewable energy target. If these targets are achieved, this would reduce emission levels and would also be accompanied by significant financial benefits, estimated to be worth €8 billion to the economy in net present value (NPV) terms[22]. The EU's 2030 climate and energy framework sets even more ambitious key targets for emissions reduction, renewables and energy efficiency for the year 2030. Meeting our current and future internationally binding renewable energy and greenhouse gas emissions targets is a significant challenge for Ireland.

At present, water capacity, infrastructure and non-domestic water charges vary considerably across the country. Ireland has a large number of public and private water supplies for a relatively small population, compared to other EU countries. While drinking water quality in Ireland is considered generally safe, (99.9 per cent of public water samples comply with microbiological parameters[23]) a continued focus on ensuring it remains so is required as contamination of water supplies can have a major impact not only on health and wellbeing but also on enterprise, particularly in the food and biopharma sectors. As regards waste, EPA data[24] shows Ireland has made significant progress in meeting the majority of its EU waste recycling, recovery and diversion targets. While relative performance has improved, Ireland still generates more waste per capita than the Euro area average and is amongst the highest in the OECD. In the five year period to 2013, the amount of waste generated in Ireland had reduced to 586 kg per person, a fall of 18 per cent. In terms of treatment options, Figure 3.3.8 shows that Ireland makes greater use of recycling and landfill than the Euro area average.

Business performance

Ireland is one of the most open economies in the EU (Figure 4.1.5). Irish merchandise exports to the EU-28 amounted to 27.4 per cent of GDP in 2015. Ireland is also a significant exporter to non-EU countries (24.1% of GDP). Emerging markets are of growing importance globally. While the value of Irish exports to Brazil, Russia, India and China (BRIC) have increased in value terms, only a minor increase has been recorded in terms of exports as a proportion of GDP (from 1.4 per cent in 2010 to 1.5 per cent in 2014). Ireland's share of total global export markets is 1.1 per cent, as of 2014. Ireland has expanded its share of the world's services market up 0.5 per cent to 2.7 per cent in 2015. Over the same period, Ireland's share of global merchandise exports declined from 1 per cent to 0.7 per cent in 2015. While exports have been the primary engine of economic growth in Ireland in recent years, the composition and range of goods exported from Ireland has become increasingly concentrated. Figure 4.1.9 shows that within the services sector computer and business services dominate, whilst chemicals (and particularly medical and pharmaceutical products) are the primary goods exports.

Building on strong growth in 2014, the activity level of FDI and indigenous enterprise in 2015 was exceptionably strong in terms of export growth, jobs created and new investment. From an indigenous enterprise perspective, export and employment performance continues to be strong. Data from the Annual Business Survey of Economic Impact shows that the value of exports by Irish owned companies increased by 72 per cent to €16.1 billion in the period 2009-2014. The survey also shows that employment in companies supported by Enterprise Ireland and Údarás Na Gaeltachta continues to increase with total employment increasing by 5 per cent between 2014 and 2015 to almost 200,000. This represents an 18 per cent increase in employment over the period 2010-2015.

The attraction of FDI continues to be a central feature of Ireland's enterprise policy, and foreign firms contribute substantially to capital investment, exports, productivity, jobs, expenditure in the Irish economy

22 SEAI, Ireland's Energy Targets: Progress, Ambition and Impacts, 2016
23 Environmental Protection Agency, Drinking Water Report 2014
24 Environmental Protection Agency, Progress towards EU waste targets, 2016

and to the exchequer. OECD data highlights the hugely significant contribution of FDI to our economy. The most recent data shows that Ireland's stock of inward investment (151% of GDP, 174% of GNP) is the second highest in the Euro area. While the quantity and level of investments is a key headline metric of FDI success, from a competitiveness perspective, the quality of investment is most important in the longer term. In this regard, independent assessment by the IBM Global Locations Report shows that in 2015 Ireland was, for the fourth year in a row, the top ranking country in the world on the added value and knowledge intensity of jobs created by an investment project. In terms of job creation relative to population size, Ireland remains one of the strongest per-capita performers among the world's advanced economies. In January 2016 IDA Ireland reported that the number of investments secured during the year increased by 8 per cent in 2015, and that client companies created net jobs of 11,833 in 2015 – a year-on-year rise of 66 per cent.

Analysis by the World Bank[25] shows that Ireland has a relatively supportive environment for entrepreneurship compared with many of our Euro area competitors. CSO QNHS data reflects this and shows that the numbers of self-employed persons as a percentage of total employment in Ireland continues to increase, albeit at a slow pace. Figure 4.4.4 shows that although the proportion of self-employed in Ireland has fallen since 2009 (from 15.7 per cent to 15.1 per cent in 2014); it remains above the Euro area-19 average (14.2%).

Costs

Prices and costs are perhaps the most visible measure of national competitiveness. During the last decade, fuelled by inexpensive credit and high levels of consumption, Ireland's cost competitiveness was severely eroded. Over the course of the recession, the Irish economy underwent a sharp correction in terms of our cost competitiveness. In recent years, Ireland has regained competitiveness as a result of falls in relative prices and favourable exchange rate movements.

Core inflation (consumer prices excluding food and energy) has been low in Ireland and most advanced economies in recent years. In the Euro area, since 2013, inflation has been declining and remains well below the European Central Bank's target level[26]. The annual average rate of change in Eurostat's Harmonised Indices of Consumer Prices was 0 per cent in 2015.

At present, overall consumer prices are declining in Ireland. Prices on average, as measured by the Consumer Price Index, were 0.3 per cent lower in 2015 compared to 2014 and 0.1 per cent lower in April 2016 compared with April 2015. As highlighted by the CSO, the most notable changes in the year were decreases in Transport (-4.9%), Furnishings, Household Equipment & Routine Household Maintenance (-2.6%), Clothing & Footwear (-2.3%) and Food & Non-Alcoholic Beverages (-1.0%). There were increases in Miscellaneous Goods & Services (+4.5%), Education (+3.8%), Restaurants & Hotels (+2.0%) and Alcoholic Beverages & Tobacco (+1.7%).

The Council published its Costs of Doing Business in Ireland report in April 2016 and concluded that despite the low inflation environment, Ireland remains a relatively expensive location in which to do business. Ireland's price profile is described as "high cost, rising slowly". The analysis in the Costs report warns that the return to economic growth has resulted in a series of upward cost pressures. These are briefly surmised below.

In relation to labour costs, the Council notes that although demands for wage increases are understandable after a period of economic stagnation and wage cuts, our relative competitive position will be negatively affected if wage growth outpaces that in competitor countries. Irish labour costs fell in both 2010 and 2011 and there was a return to growth in 2012. While labour cost growth has been positive between 2012 and 2015, the rates recorded have been consistently below EU and Euro area averages (Figures 4.2.7 and 4.2.8).

25 World Bank, Ease of Doing Business, 2016

26 The primary objective of the ECB's monetary policy is to maintain price stability. The ECB aims at inflation rates of below, but close to, 2 per cent over the medium term.

The last number of years has witnessed a sustained recovery in the Irish property market. Commercial rents for both office and retail space grew strongly. In 2015 prime retails rents increased by 22 per cent year-on-year. The cost of constructing a prime office unit and a high tech factory / laboratory facility in Ireland both fell by almost 6 per cent between 2013 and 2015. However, concerns persist about the availability and cost of prime office space for rent in large urban centres in the short term as the market tightens and vacancy rates decline (Figure 4.2.11). This could result in future rent increases and any shortage of supply of new commercial space could adversely impact our competitiveness.

The availability and affordability of residential property is a key issue in overall competitiveness as both rental costs and purchase prices feed through into increased wage demands and rising living costs. Residential rents now exceed pre-recessionary levels, and the latest Daft.ie rental data shows an increase in the average rent nationwide of 9.3 per cent in the year to March 2016[27]. Rapid and unsustainable increases in residential property costs represent one of the main threats to Ireland's continued competitiveness and recovery.

In terms of energy costs, the EU is among the most expensive locations for electricity and gas globally, and within the EU, while relative performance has improved, Ireland is one of the most expensive countries for electricity. This applies to both large and small users: Ireland is the 5th most expensive location in the Euro area-17 for large electricity users (Figure 4.2.13). Ireland is mid-table in the Euro area in terms of industrial gas prices, but comparable prices in the US are substantially lower than in the EU.

Looking at other utility costs, on average, water and waste water costs for enterprise in Ireland compare favourably to those in competitor markets (Figure 4.2.16). Ireland is relatively cost competitive for telecoms although concerns persist around the issues of quality (speed) and the regional availability of high speed services.

In terms of business services, upward cost trends are evident for many business services, after several years of price reductions. Following a period of decline during the recession, an upward trend is now evident in the CSO's Services Producer Price Index (Figure 4.2.15). Recent increases have been driven by computer programming and consultancy, air transport and legal services. Specifically, freight, air transport, computer consultancy, postal and legal services are above 2010 levels.

Finally, Figure 4.2.18 highlights the net costs of childcare. For all households with children, the additional costs associated with childcare represent the largest additional cost associated with taking up either part-time or full-time employment. Childcare costs in Ireland are the second highest and highest in the OECD for couples and lone parents respectively and are not offset, as in some other countries, by benefits in the form of subsidies, direct payments etc.

Productivity

Productivity, or the value of output per hour worked, is a measure of the efficiency with which goods and services are produced. In the long-run, Ireland's productivity is the primary determinant of living standards relative to other countries and the engine of economic growth. Post crisis, productivity growth has fallen significantly in most OECD countries and has been slow to recover. This decline is broadly spread across economic sectors. In the OECD, the largest contribution to productivity growth over the past decade has come from the manufacturing and knowledge intensive business services sectors such as ICT[28]. OECD research indicates the rate of productivity growth varies across economic sectors, with global (exporting) sectors and firms performing best[29]. Productivity in Europe is considerably lower than in the United States and

27 Daft.ie, Irish Rental Price Report Q1 2016
28 OECD, Compendium of Productivity Indicators, 2015, 2016
29 OECD, The Future of Productivity,2015

that the productivity gap has widened since the mid-1990s and is mostly related to a slower pace of technology adoption and innovation in EU economies, especially in the services sector. Within the Euro area, there is large variation in productivity growth rates between economies, reflecting the different states of the economic cycle, employment structure, and labour market and the intensity of ICT and capital investment.

In Ireland, at the sectoral level, productivity growth is driven by improved efficiency and capital deepening (i.e. increases in capital per worker). The most recent CSO data for 2012 shows that the Electricity, Gas, Steam and Air Conditioning Supply sector generated the most GVA per person engaged at over €323,600[30]. The next largest figure was recorded in the Manufacturing sector at over €213,100. The sector that generated the least GVA per person engaged was Accommodation and Food Service Activities at almost €20,200. Other Services had the second lowest GVA per person engaged at under €28,200 followed by the Retail Trade sector with just over €28,900. The superior productivity performance of modern manufacturing and tradable services (i.e. exporting sectors) and their contribution to Irish productivity growth is larger than international norms[31].

Labour productivity levels and growth rates are generally higher in the manufacturing sector compared to the services sector. In the period 2009-2014, the main contributions to productivity growth in business sector services have been in ICT and business services with negative contributions from construction and financial services. As highlighted by the OECD, average labour productivity of large manufacturing firms is compared to other countries, significantly higher in Ireland, reflecting in large part the high intellectual property content of output, typically provided by multinational firms. Assessing productivity in terms of value added per person employed, the OECD finds that compared to large firms there is a significant productivity gap between micro, small and medium-sized firms. In Ireland, in the period 2008-2012, the labour productivity of micro firms in the manufacturing sector was 60 per cent less than that of larger firms, with the gap to medium and small firms, 84 per cent and 66 per cent respectively. The gap is less pronounced in the Services sector.

OECD data indicates that Irish labour productivity levels improved considerably between 2009 and 2014 with average annual growth of 2.7 per cent in GDP terms. Figure 4.3.1 shows that labour productivity growth in Ireland is exceptionally strong and above the OECD average. Ireland had the fifth highest labour productivity rate among EU states in 2015, after Luxembourg, Norway, the US and Netherlands when measured productivity using GDP per hour worked. However, if measured using GNP per hour worked, Ireland's relative position declines (Figure 4.3.2). At 3.1 per cent, the growth rate of Irish (GDP) productivity per hour work exceeds the OECD average (1.5%). Despite the positive trends in productivity performance, the composition of employment had a big impact on Irish productivity growth. Ireland's large base of multinationals in high value added sectors serves to boost Ireland's productivity level and disguises to a degree underperforming sectors. Ireland's productivity performance (in common with many other countries) is built upon a narrow base of sectors, and indeed, in some cases, companies. The presence of foreign multinationals in Ireland, particularly in the Pharma and ICT sectors has a significant impact on measures of Irish productivity. While Irish productivity levels are higher than the OECD average, the contribution of productivity to economic growth is less pronounced in Ireland than other OECD member states (Figure 4.3.5).

Employment

Figure 4.4.1 illustrates the ongoing improvement in the labour market. While employment has not yet returned to peak pre-recession levels, over 1.98 million were in employment in Q4 2015, an annual increase of 2.3 per cent. Full time employment continues to account for the majority of the increase (88%) in employment in Ireland. Overall, the majority of sectors in Ireland have experienced growth in employment between 2010 and 2015 as recovery took effect. Employment growth is spread relatively equally across the different sectors

30 CSO, Business in Ireland 2012
31 Ireland's Productivity Performance, 1980-2011, Forfás

of the economy with employment growing in 12 of 14 economic sectors. Similar to 2014, growth was strongest in construction (8.5%), with strong growth also evident in public administration (4.6%) and accommodation and food service activities (4%).

Figure 4.4.2 shows the Irish employment growth rate in 2015 was well above the Euro area average. As set out earlier, Irish employment growth is relatively strong and balanced from a sectoral and regional perspective. Consistent with the increase in employment levels, unemployment and long term unemployment are on a steady downward trajectory. The number of unemployed and long term unemployed persons in Q4 2015 was 187,500 and 102,100 respectively. Unemployment decreased on a year on year basis and by 40 percent compared with Q4 2010. The unemployment rate has now declined on an annual basis for 14 quarters.

Long term unemployment and youth unemployment levels are also declining, yet they remain high. Eurostat data shows long term unemployment declined further in 2015 and is now equal to the euro are average (5.5%). This is significantly below the 9 per cent rate recorded in 2012. Youth unemployment amongst those aged 15-24 years in Ireland (20.9%) is now below the Euro area average (22.4%). Long term youth unemployment, however, remains a serious challenge in Ireland (42.9%), compared with a Euro area average (34.6%) (Figure 4.4.7).

Looking at the incentive to work, Figure 4.4.9 shows that for a long term unemployed, one earner married couple with 2 children earning 100% of the average wage, the Irish replacement rate (80%) exceeds the OECD average (54.4%). The rate for single individuals (50.6%) also exceeds the OECD average (31.5%).

Other disincentives also exist which limit the attractiveness of returning to work. In particular the high cost of childcare is a pressing concern. Furthermore, the implicit cost of returning to work amounts to 90 per cent of potential earnings in Ireland compared with 57 per cent in the OECD.

In terms of addressing unemployment and improving the employability of individuals, it is notable that Ireland spends a large proportion of GDP (over 3%) on labour market programmes. A relatively small proportion of this, however, is dedicated to active labour market programmes, with the majority of expenditure being used for income maintenance (Figure 4.4.12).

Business environment

Conditions for enterprise have improved in the period 2010-2015. This is evident in Ireland's improved performance across a range of metrics, including tax revenue and increases in exports, employment and investment. Ireland's relative performance in terms of the time to start a new business, property registration and tax filing requirements, speed of electricity connection and the availability of credit have also improved (Figure 6.1.1).

Improving access to and the affordability of credit has been a priority issue for the Council in recent years and there are encouraging signs that progress is being made. In Ireland and across the Euro area the volume of credit supplied to non-financial corporation's (NFCs) has been low in the wake of the economic and financial crisis as a result of low economic growth, structural adjustments in the banking system and weak demand. In addition, many firms, particularly SMEs, micro-enterprises and start-ups had encountered difficulties accessing credit and working capital. In 2015, Irish firms had a success rate of 67 per cent in applying for bank loans, up from 40 per cent in 2011. The corresponding Euro area average is 67.5 per cent, indicating that Ireland's performance has converged with the Euro area over the past four years.

While access to and affordability of credit has improved, Irish firms continue to face higher interest rates and greater volatility in those rates than their competitors abroad. Central Bank research has found that SME borrowing costs are higher in countries such as Ireland due to a number of factors. These include higher stocks

of defaulted SME loans, higher probability of future SME default, higher national unemployment, more severe perceptions of banking sector financial stress, higher government borrowing costs, and weaker levels of bank competition[32]. As set out in Figures 5.1.1-5.1.4, growth rates in the stock of credit and new lending remain modest, reflecting in part the scale of debt repayment and consolidation since the onset of the economic downturn. It is encouraging to note the stock of non-performing loans continues to decline. While wholesale interest rates are low at present, interest rates for revolving loans and overdrafts in Ireland have continually remained elevated above that of the Euro area average since 2010. Irish firms are being charged significantly more than their Euro area peers, and the rates charged are more volatile is a competitiveness disadvantage.

While bank financing will continue to be crucial for enterprise, broadening the finance options available and accessible to SMEs and micro-enterprises remains a challenge. The CSO's Access to Finance survey published in March 2016 shows bank finance is by far the most popular type of finance sought by SMEs. It also indicates that there is a correlation between size and sector and growth trajectory in successfully accessing finance. It also highlights how relatively few SMEs (particularly, non-exporting SMEs) seek funding from non-bank sources: for example only 4.7 per cent of medium sized enterprises looked for equity finance compared to 39.8 per cent of similar sized enterprises who looked for bank finance.

Increasing levels of private equity, crowdfunding and venture capital funding remains a challenge. Figure 5.1.6 shows the intensity of total venture capital investment is marginally below the OECD average with the greater portion of venture capital in Ireland attributed to early stage investments. Private equity accounts for 0.16 per cent of GDP in Ireland (down from 0.28 per cent in 2007). This is well below the levels in the best performing Euro area countries and significantly below the level seen in the UK (0.72) (Figure 5.1.7).

While declining, levels of household and corporate indebtedness remain high in Ireland and well above OECD and Euro-area averages. In the period 2009 to 2014, Irish households reduced their debt as a proportion of disposable income by 32 per cent to 179 per cent. At the end of 2014, non-performing loans made up 18.7 per cent of gross loans in Ireland. This compares to an OECD High Income average of 3.1 per cent. Citing European Banking Authority figures, the European Commission notes that non-performing loans accounted for over 23.4 per cent of GDP in June 2015.

Investment by enterprise is a key driver of competitiveness. Following a sharp drop during the recession, investment activity in Ireland has increased significantly. In GNP terms, Irish private investment (24%) exceeds the Euro area average (17%), although public investment (2.4%) is below average (2.7%).

Maintaining a growth-friendly taxation system while simultaneously broadening the tax base, is critical to maintaining existing levels of employment and creating new jobs in Ireland.

In terms of the tax base, income tax receipts - reflecting the growth in the labour market - have increased by €4.4bn (31%) in the past five years. Between 2010 and 2015 Capital Gains Tax and corporation tax receipts rose by 79% and 64% respectively (Figure 5.1.8).

Ireland's corporation tax rate remains internationally competitive at 12.5 per cent. While Ireland's rate has remained consistent over recent years, many of our key competitors have reduced their rates (e.g. the UK). Figure 5.1.9 highlights central statutory rates – effective rates in many counties, however, can be significantly lower.

Ireland remains competitive in terms of the levels of income tax and social security contributions as a proportion of total labour costs. However, for a married couple with 2 children on a combined income of 167 per cent of the average wage (i.e. a 2 earner family), the rate is higher than the OECD average. Figure 5.1.11 shows marginal rates have increased in Ireland since 2013 with the notable exception of married, single

32 Central Bank of Ireland, Quarterly Bulletin, 2 2016

income families with two children. Marginal rates are particularly high for individuals earning the average wage or above. Social security contributions in Ireland are lower than is the case in other OECD countries.

The Irish VAT rate (23%) is higher than the OECD average (19.2%), however, there are a number of lower VAT rates and exemptions for certain enterprises.

Physical infrastructure

The availability of competitively priced world class infrastructure (energy, telecoms, transport, waste and water) and related services is critical to support economic growth and enterprise development. The Council appreciates that striking the right balance between prudent management of the public finances and long-term growth-enhancing investment is a significant challenge for Government. Further targeted and prioritised investment is required to address existing and likely infrastructural bottlenecks which could constrain growth in the economy by dampening productivity growth, and increasing costs. Although the quality and level of infrastructure investment is heterogeneous across the OECD, there is a need for upgrading and modernisation in most economies[33].

While recent capital expenditure commitments in Ireland are welcome – present levels of investment are insufficient to close the knowledge and economic infrastructure gap between Ireland and our key competitors which still persist. Indeed, as previously noted by the Council, current expenditure plans may be insufficient to maintain and add to the existing infrastructure stock allowing for depreciation. The relatively low levels of net investment projected over the medium term represent a significant challenge in light of demographic pressure, EU budgetary commitments and clear infrastructure deficits in housing, health, education, innovation, transport and water. In common with most other OECD countries, general Government capital expenditure in Ireland declined significantly as a result of the crisis and remains relatively weak. Following a peak investment of 5.2 per cent of GDP in 2008, public investment fell to a low of 1.8 per cent of GDP in 2013 before slightly recovering in 2014. Figure 4.1.1 shows public investment (2.4%) in Ireland has increased since 2010 but remains below the Euro area average (2.7%). Figure 5.2.2 shows that as a percentage of GDP, Ireland's inland infrastructure expenditure declined from 0.8 per cent to 0.4 per cent in 2013 and was well below the OECD average (0.8%).

Enhancing Ireland's capital stock is a priority challenge to secure competitiveness, employment and improve quality of life. Ireland's diminished investment in infrastructure is reflected in our low scores in relation to the perception of overall infrastructure quality. Reflecting a period of sustained capital investment by the State, there was a strong improvement in perceptions up until 2010. Ireland's score fell over the five years to 2015 and remains below the OECD average (Figure 5.2.3). The European Commission's 2016 Country Report for Ireland notes that capital expenditure in Ireland is barely sufficient to replace existing stock. There is a clear need to continue to increase investment in essential infrastructures such as broadband and water, and to maintain and develop infrastructure already in place (e.g. roads, public transport and interconnectors). The scope to improve infrastructure capacity and effectiveness in the medium term must be guided by identifying and prioritising those investments which contribute most to Ireland's competitiveness and addressing enterprise needs and bottlenecks.

In terms of capital stock, net capital stock grew by 1.8 per cent per annum in the period 2004 to 2014. Gross Fixed Capital Expenditure continues to recover and grew by 11 per cent in 2015. Intangible fixed assets (9.5%) and transport equipment (7.6%) have grown most rapidly over the ten year period in question.

Innovative businesses need affordable fast broadband coverage and this is a challenge throughout the EU. Access to Next Generation Broadband in Ireland increased from 54 per cent in 2013 to 80 per cent in 2015.

33 Fostering Investment in Infrastructure, OECD, 2015

While Ireland now surpasses the Euro area average in terms of availability, it remains behind the best performers (Figure 5.2.3). As is the case with Ireland, many countries have improved their telecommunications infrastructure in recent years and basic broadband is now widespread in the EU. However, fast broadband is still more concentrated in areas of high population density and its extension to other areas, particularly rural areas is needed.

Firm sophistication and clusters

The level and degree of firm sophistication is increasingly recognised as a key driver of enterprise productivity and national competitiveness[34]. Across OECD countries, productivity developments are determined by the diverging performance of three types of firms: the globally most productive (i.e. global frontier firms), the most advanced firms nationally and laggard firms. Productivity growth amongst the globally most productive firms is strong but the gap between high productivity firms and the rest has increased. The OECD finds that the best firms are increasingly similar in their performance but countries differ dramatically in their tail of weaker performers that remain active in the market[35].

There are considerable differences in firm level behaviour and performance across and within countries. Cross-country differences in, for example, the propensity to export, use of modern management techniques, innovation levels, Research & Development (R&D) expenditure, can help explain prosperity differences in addition to traditional measures of business environment quality.

Innovation is vital. Innovative economies require sufficient and effective investment in R&D, especially by the private sector; the presence of high-quality scientific research institutions; extensive collaboration in research between universities and industry; and sophisticated business practices and effective clusters.

R&D expenditure as percentage of GDP in the EU ranged from 0.48 per cent to 3.32 per cent across the EU in 2013. Figure 5.3.1 shows that in 2014 Irish expenditure on R&D accounted for 1.51 per cent of GDP (1.75% of GNP[36]). Business expenditure on R&D (BERD) accounted for 1.1 per cent, while the higher education sector (HERD) and government sector (GovERD) accounted for 0.33 per cent and 0.07 per cent respectively.

The majority of research expenditure in Ireland occurred in the services sector (57.3%) and foreign owned companies in Ireland account for 65 per cent of business expenditure on R&D. Figure 5.3.6 based on the most recent Community Innovation Survey shows that firms in Ireland were more likely to be innovative (58.7%) compared to the Euro area-19 average (49.5%). However, the ratio of turnover from products new to the enterprise and new to the market as a percentage of total turnover is below the Euro area average. Investment in knowledge-based capital (KBC) is a broad measure which includes investment in computerised information, innovative intellectual property and economic competencies. This form of investment has grown over time, but Ireland remains in the lower half of OECD countries in terms of investment intensity (Figure 5.3.8).

The Innovation Union Scoreboard 2016 provides a comparative assessment of innovation performance. While Ireland is classed as an "innovation follower" with an above average performance our ranking has improved - from 10th place in 2013 to 8th place in 2015. Ireland is ranked 1st under the theme of "Innovators and Economic Effects" (i.e. how innovative firms are and economic success stemming from innovation in terms of employment, revenue and exports). Figures 5.3.9 and 5.3.10 show Ireland has a higher proportion of innovative enterprises than both the EU28 and Euro area-19 averages in product, process and marketing but performance is relatively weak in terms of organisational innovation.

34 Ketels, C., Review of Competitiveness Frameworks, 2016
35 OCED, The Future of Productivity, 2015
36 The Government has set a target to increase total investment in R&D in Ireland to 2.5% of GNP by 2020. See Department of Jobs, Enterprise and Innovation, Innovation 2020

The specialisation of regions in clusters or groups of related industries is an important barometer of competitiveness. The European Commission considers that clusters are defined by the co-location of producers, services providers, educational and research institutions, financial institutions and other private and government institutions related through linkages of different types[37]. Clusters are diverse and varied in terms of development; some originate out of the third level sector or Government research centres, others are loose networks of SMEs, some orbit around anchor firms. Regions that reach critical mass in such clusters have been found to achieve higher levels of productivity, innovation, employment and prosperity.

Despite Ireland's small size it has a large number of cities/towns that have proven ability to attract FDI and develop new enterprises. Ireland is a location for 13 of the world's top 15 Medical Technology companies, 9 of the world's top 10 Pharma companies and 9 of the top 10 global Software companies. A number of sectors are clustered across the regions, for example, there is a concentration of medical devices enterprises in the West of Ireland, Pharma in the South and Financial Services and ICT in Dublin. The European Commission's Cluster Mapping tool[38] indicates that Ireland has a relatively high degree of specialisation and cluster presence in biopharma, digital, medical devices and business services sectors. Data on the prevalence and presence of industrial clusters presence at NUTS level is limited at present. Figure 5.3.11 presents World Economic Forum data on the state of national cluster development. Ireland's score (4.8) in this regard was in excess of the Euro area-19 average (4.3).

Knowledge and Talent

The availability of talent is a leading source of national competitive advantage and key to competitiveness in the broadest sense. GDP growth, labour force status, occupation, earnings as well as health and wellbeing are all positively related to educational attainment levels. Set in an international context, the IMD's 2015 World Talent Report ranks Ireland 16th out of 60 countries in the world for the availability of talent, a fall of ten places in a year. Ireland's strengths are in relation to public expenditure on education per pupil (secondary), the availability of skilled labour, the perception that the education system meets the needs of a competitive economy and ability to attract and retain talent. Relative weaknesses include the pupil-teacher ratio (secondary) and perceptions of apprenticeships and language skills.

GDP per capita on education (primary to higher education) was amongst the lowest among OECD countries. In recent years Ireland's ranking has improved for this measure, most significantly for expenditure at second-level education[39]. However, Ireland's overall ranking remains slightly below the OECD average and the gap is most pronounced at tertiary level. Figure 5.4.2 shows Ireland performs better in terms of spend when measured per student spending more at primary and secondary levels per student. Expenditure levels per student at tertiary levels are marginally below the OECD average but significantly below the UK and US, where a higher proportion of expenditure is privately funded. Ireland's higher and further education sector is a vital competitiveness asset that needs to be supported. While educational quality and outcomes are not simply a function of the level of expenditure, the Department of Education and Skills projects that continuing growth in the higher education sector will generate increased need for significant capital investment in areas such as new accommodation and facilities.

In terms of pupil numbers and pupil-teacher ratios, data from the Department of Education and Skills shows that the numbers of pupils in Irish primary and secondary schools increased by 7.5 per cent and 7 per cent respectively in the period 2009-2014. Ireland had a student to teacher ratio of 16.4 in primary education in

37 DG Enterprise, Innovation Clusters in Europe, 2013
38 European Commission, Cluster Mapping Tool, see http://ec.europa.eu/growth/smes/cluster/observatory/cluster-mapping-services/cluster-mapping/mapping-tool/index_en.htm
39 Department of Education and Skills, Education at a Glance, OECD Indicators, 2015

2013. This was the seventh highest ratio in the EU. Ireland had the fourth highest student to teacher ratio for upper secondary education at 13.9 in 2013, for those EU countries for which data was available[40]. At third level, the most recent data shows the student to teacher ratio is 20:1 compared to the OECD average 16:1.

At all levels, average educational attainment in Ireland has improved in recent years (Figure 5.4.1). There is a significant inverse correlation in Ireland between educational attainment and age; while a lower proportion of 45-54 and 55-64 year olds have attained tertiary education than the OECD average, a greater proportion of the remaining cohorts have a third level qualification than is the case in the OECD.

In 2015, Irish primary school students received more hours of tuition in maths and other subjects than students in most other OECD countries. As shown in Figure 5.4.4, despite the limited time spent on science tuition, Irish students spent more compulsory time in the classroom than the OECD average. Ireland has made significant progress in reducing the proportion of the population aged 18-24 that are early school leavers and is now well below the EU and Euro-area averages. In 2015, 6.9 per cent of this age cohort was considered early school leavers, down from 11.5 per cent in 2010 (Figure 5.4.6). This reflects higher retention rates in secondary education. Some 79 per cent of 25-64 year olds had attained at least upper secondary education in Ireland in 2014 compared with 90 per cent of the 25-34 year old cohort. The most recent OECD data shows Irish PISA scores for maths, reading and science have improved since 2009. On average, Irish students score above the OECD-32 in all 3 categories (Figure 5.4.7).

The third level education attainment level remains above the OECD-32 average. The proportion of the working age population with tertiary level education increased from 36 per cent in 2009 to 42 per cent in 2014. The proportion of maths, science and technology (MST) graduates in Ireland has increased from 18.7 per 1,000 in 2007 to 21.6 per 1,000 of the population aged 20-29 in 2014. The proportion of male graduates in MST areas in Ireland, at 33.6 per 1,000 of the population aged 20-29, was the highest in the EU. In terms of the proportion of female MST graduates in Ireland (40.5%), Ireland is on a par with the Euro area average.

The job vacancy rate is a useful barometer of labour market conditions and skills availability, reflecting in part, the unmet demand for labour, as well as potential mismatches between the skills and availability of those who are unemployed and those sought by employers. Over the past year, Irish job vacancy levels are fairly constant at around 1 per cent. Eurostat data shows that at 0.8 per cent, the Irish job vacancy rate in Q4 2015 was half the Euro area rate. On a sectoral level there is evidence of higher than average job vacancy rates in a number of sectors. Despite a continuous increase in the supply of high-skilled workers with tertiary degrees, in Ireland and elsewhere, demand for specialised talent outstrips supply in some key occupations. Recent research by the Expert Group on Future Skills Needs (EGFSN) anticipates job opportunities arising from both expansion and replacement demand for a range of occupational roles including in ICT, data analytics, manufacturing, medical devices, pharmaceuticals, food and beverages, international sales and marketing, project management, freight transport, hospitality, distribution and logistics[41].

Participation in life-long learning has increased modestly since 2009, however, at 11.5 per cent, the percentage of people in Ireland aged 25-64 in receipt of education (both formal and non-formal) ranks below the Euro area 19 (16.5%) and EU-28 (16.3%) averages (Figure 5.4.12). Of continuing concern is the high proportion of the labour force with relatively low levels of formal education. Irish adults are rated below the EU average in terms of Digital skills and OECD average in terms of literacy and numeracy ability (Figure 5.4.13).

40 CSO, Measuring Ireland's Progress, 2014
41 Expert Group on Future Skills Needs, Vacancy Overview 2015

Institutions

The quality of the institutional environment - which determines the legal and administrative framework within which individuals, firms, and governments interact - has a strong bearing on competitiveness. The importance of robust and effective institutions is a major determinant of the enterprise environment and impacts upon the ease in which enterprises can start, survive and thrive.

While difficult to quantitatively benchmark, the Council believes that ensuring that the public service is optimal in terms of efficiency and effectiveness is a critical competitiveness consideration, and so a number of indicators are presented in this year's Scorecard to assess Ireland's relative international performance.

According to the World Bank's Doing Business report which assesses the regulations affecting SMEs, throughout their life cycle, Ireland's performance has improved. In 2016, Ireland is ranked 19th overall (and 4th in the Euro area), an improvement of 2 places from last year. However, as shown in Figures 6.1.1 and 6.1.2, Ireland lags a number of competitor countries such as the UK and highlights a number of areas in which there is significant room for improvement. In terms of the perceptions of institutional and government effectiveness Ireland is a strong performer. Figure 6.1.3 shows that Ireland's performance has improved since 2010 and is above the OECD 32 average in terms of perceptions of judicial independence and protection of minority shareholders. Ireland also ranks above the OECD average in terms of perceptions of the quality of public services, the quality of the civil service the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Figure 6.1.4).

The OECD Indicators of Product Market Regulation measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. While Ireland's score is comparable to the OECD average, Figure 6.1.6 shows our ranking declining. It is positive to note that Ireland performs very well as regards the burden and time taken in compliance activities relating to corporate, labour and consumption taxes. Ireland is ranked 4th in the OECD as regards the time to prepare and pay tax.

Macroeconomic sustainability

As shown in Figure 6.2.1, in the years preceding the economic crash, growth was driven by unsustainable increases in consumer spending and investment. During the recession, net exports were the key driver of growth. Exports in Ireland increased from 93 per cent of GDP in 2009 to 113 per cent in 2013. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg. In recent quarters the contribution of domestic consumption and investment has replaced net exports as the primary drivers of growth.

Since 2008, the current account has moved from deficit to surplus. The surplus for 2015 was €9,548m, a 40 per cent increase on 2014. While overall export growth momentum has been maintained, imports have been increasing at a faster rate than exports which is why the contribution to overall GDP growth from net trade has declined.

Stability in the public finances is also essential in that it facilitates investment in public services and infrastructure due to its impact on borrowing and repayment costs. By avoiding excessive deficits and excessive debts, governments can invest in productivity and welfare enhancing areas of the economy (such as education, or infrastructure), rather than spending finite resources on interest charges. Significant fiscal adjustments were undertaken in Ireland over the period since 2008 in response to the impact of the global economic recession, and financial and sovereign debt crisis, as well as a series of domestically-based shocks. These polices have been successful in stabilising the public finances. The general government deficit continued to fall sharply in 2015 to 2.3 per cent of GDP down from 3.8 per cent in 2014 and significantly below the deficit levels of 2010/2011, when the deficit peaked at 32.3 per cent. The Euro-area 19 recorded a deficit of 2.1 per cent in 2015, with only Germany and Estonia reporting surpluses.

Ireland's debt as a percentage of GDP increased significantly in the period 2009-2012 partly as a result of the cost of the capital support provided by the State to several financial institutions, and partly due to the Exchequer running large deficits. Ireland's debt level peaked at 125.3 per cent in Q2 2013 but has decreased considerably to 99.4 per cent in Q3 2015. Reflecting improved economic and fiscal positions, Irish bond yield movements are now trading in line with core European sovereign yields. In 2011 the yield on a ten year Irish government bond reached 14 per cent, now it has remained steady through 2016, trading at below 1 per cent (Figure 6.2.10).

In 2015, Irish Government revenue amounted to 34.1 per cent of GDP (39.6% of GNP) with expenditure estimated at 35.9 per cent of GDP. Figure 6.2.6 shows that in common with most EU states 'social protection' accounts for the major share of Government expenditure. 'Health', 'general public services', and Education' account for the next greatest shares of Government spending. EU rules mean that future increases in public expenditure will be derived with reference to the potential growth rate of the economy and safeguarded from dependence on cyclical revenues.

Broadening the tax base is central to Ireland's macroeconomic sustainability. As highlighted by the Council in its 2015 Competitiveness Challenge report, there is further scope to introduce reforms to ensure that the tax system is as supportive of competitiveness, growth and job creation as possible, whilst having regard to wider societal objectives.

The newly agreed 2016 Programme for a Partnership Government commits Ireland to meeting in full the domestic and EU fiscal rules as enshrined in law. The Department of Finance reports that the underlying general government deficit for 2015 was 1.3 per cent of GDP. Ireland's concerted efforts to restore the public finances after the recession meant that we exited the Excessive Deficit Procedure, as expected, in May 2016. As a result, the public finances will be subject to the rules of the preventive arm of the Stability and Growth Pact. The cornerstone of the preventive arm is the achievement of the Medium Term Budgetary Objective (MTO). Ireland's MTO is to achieve a structural deficit of -0.5 per cent of GDP. The public finances in Ireland are on the adjustment path towards the MTO; the current trajectory suggests that the MTO will be achieved in 2018. These calculations are very sensitive and expected to change on foot of the actual figures for realised GDP growth. While appreciating the significant demands on the public finances at this time, it is it vital that prudent fiscal policy choices which support competitiveness and sustainable growth continue to be made.

Endowments

The productivity-based view of competitiveness emphasises the importance of endowments - that is natural resources, geographic location and size, as important dimensions in determining national competitive performance[42]. Further, Ireland's membership of the EU and Euro area, island location, market size and use of English are important if difficult to quantify determinants of economic performance. Given the different historical contexts and economic, political and social starting points of various countries, and their differing physical geographies, and resource endowments, it is not proposed to benchmark Ireland's relative international performance across such measures. However, it is worth reflecting on changes in the demographic profile of the Irish labour force in an international context.

Ireland had the second highest fertility rate in the EU in 2013 at 1.96, behind France at 1.99 and well ahead of the EU average of 1.55 in 2013. In 2014, Ireland had the youngest population in the EU. The Irish median age of 36 years, is increasing but remains well below the average in the EU of 42.2 years. Over the last twenty years, the median age of the Irish population has steadily risen by six years, from 30 years in 1994.

42 Ketels, C., Review of Competitiveness Frameworks, 2016

Ireland had the third highest percentage increase in population (14%) between 2004 and 2014 in the EU (Figure 6.3.2). The combined effect of natural increase and negative net migration resulted in an overall increase in the population of 25,800 bringing the population estimate to 4.64 million in April 2015.

CSO Population projections indicate that (as is the case across the OECD) an increasing age profile will be the central change in the structure of the Irish population in the coming years. The increase in the numbers of older people has clear implications for the future funding and sustainability of Ireland's healthcare and pension systems. The evolution of dependency ratios is a crucial element determining the long-term sustainability of pension systems. Ireland has the 7th lowest old age dependency ratio in the OECD-32 and the second lowest in Europe, however, the proportion of older persons in Ireland is increasing.

Ireland's rising dependency ratio increases the importance of increasing labour force participation and employment. Participation rates in Ireland have remained relatively stable between 2010 and 2015, following a decline in the initial years of the recession. In Q4 2015, the participation rate was 60 per cent. The male participation rate was 67.5 per cent compared with a female participation rate of 52.8 per cent. Despite the improvement in Ireland's labour market, labour force participation rates remain below their pre-crisis peaks. While short-term changes in the participation rate can vary with economic cycles, the female participation rate in Ireland is consistently significantly lower than those of best-performing OECD economies.

As a consequence of the recession, emigration returned as a feature of the Irish labour market in 2009. In addition to the social loss associated with emigration, the migratory outflow of skills represents a significant loss of talent and undermines labour force and employment growth. CSO data shows the majority (56.1%) of immigrants (and 52.7% of emigrants) in 2015 have attained a third level qualification. Overall, however, more third level qualified people are leaving the country in recent years than are arriving, representing a loss of skills. Total emigration from Ireland in 2015 is estimated at 80,900 - a slight reduction on 2014 (Figure 6.3.6). The number of immigrants increased to 69,300, resulting in total net outward migration of 11,600. This is the lowest level of net migration since 2009. The ESRI, in their latest Quarterly Economic Commentary, expect that net migration will be neutral in 2016 with a small positive net migration figure expected in 2017.

Population density is a consideration for economic planning and also directly impacts competitiveness - particularly through the impact that it has on infrastructure networks and service delivery costs. Ireland is more sparsely populated than the EU average. In 2014 Ireland's population density was 67 persons per km2, up from 59 persons per km2 recorded in 2004. There is significant divergence across regions with population density in Dublin estimated at 1,401 persons per km^2 compared to 32 persons per km^2 in the West.

The number and scale of cities continues to grow across the globe — driven by rapid urbanisation in emerging economies and continued urbanisation in advanced economies. With more people (and consequently more skills) concentrating in cities, urban areas are increasingly becoming the driving forces of national economies, and are the preferred destinations for companies to locate their facilities. Urban areas have been found to reach systematically higher levels of performance and focus on specific, often knowledge-driven, activities. On the other hand, they are also exposed to specific congestion costs.

The rate of urbanisation, while increasing is relatively low in Ireland: with 60 per cent of the population classed as urban and 40 per cent classed as rural. The relative size of Dublin is also an important consideration from a planning and development perspective, with 28 per cent of the total population resident in Dublin. There are also pronounced differences between Dublin and other regions in terms of the sectoral composition of employment (e.g. share of knowledge intensive services, GVA, economic output), participation rates, prevalence of commuting, infrastructure etc.

Ireland's competitiveness performance – the policy challenges

The Council considers it is important that we do not become complacent about the need for continued reform and that we focus our efforts on continuing to improve Ireland's competitiveness performance in areas that can be influenced by domestic policy action. The key themes emerging from this analysis, which will be considered in the Council's 2016 Competitiveness Challenge Report are summarised below.

- **Ensuring growth is equitable, balanced and sustainable:** Sustainable growth and improved living standards for all is the primary goal of national competitiveness. Achievement of this goal will encompass policies that address for example, fiscal sustainability, incomes, regional and urban development and planning, global warming/emissions targets.
- **Enhancing the competitiveness of enterprise with a particular focus on supporting productivity growth:** In the medium term, productivity performance is the key determinant of competitiveness. To facilitate productivity growth, firms must invest in people, technology and processes. This requires access to investment capital. While significant progress has been made in relation to access to traditional bank credit, the Council is still concerned about Ireland's performance in relation to non-performing loans, working capital and the development of alternate sources of non-bank credit. While many of our large, exporting companies and sectors regularly record impressive productivity growth, performance is weaker amongst domestically focussed companies and sectors. The availability of a large and talented cohort of managers is a key driver of enterprise productivity and competitiveness.
- **Broadening our export base - new products, new sectors and new markets:** Supporting the internationalisation of Irish enterprise will contribute to making the economy more stable and resilient to shocks. Exporting also fuels the domestic economy and delivers more sustainable job opportunities than could otherwise be achieved by an economic model dependent on consumption or government expenditure. There is a need to evolve into new products, markets and sectors, whilst maintaining the competitive advantages we enjoy in existing ones. Further improving the administrative environment, ensuring that the regulatory environment is conducive to new entrepreneurs, and pursuing an ambitious external trade agenda, are cost-effective means to stimulate enterprise competitiveness. We must ensure that Irish enterprise stays at the forefront of technology and innovative activity and process and support the development of clusters.
- **Improving talent, innovation and productivity:** Linked to the productivity agenda referenced above, is the issue of talent. Across the OECD, companies experience difficulties in recruiting and retaining people with the right skills. These difficulties and shortages can reflect factors other than skills, such as unattractive working conditions, poor recruitment policies, limited opportunities for career progression and lack of labour mobility. From a competitiveness perspective it is critical that enterprise development and skills policies are aligned and that labour/skills mismatches are minimised. There is a continuing need to attract students into the tech, engineering, maths and language courses to meet demand in these areas. It is vital that the education and training system is responsive to enterprise needs – for example, the continued rollout of new apprenticeship programmes is important in this regard. It is equally important that there is engagement and active participation by the enterprise sector with the higher and further education system. Training and up-skilling of talent is associated with large increases in both innovation and productivity and output. Retraining, upskilling, talent development and career progression strategies at firm level remain vital.
- **Investing in physical infrastructure, knowledge and talent:** A modern, vibrant and dynamic economy depends on the availability of competitively priced world-class infrastructure (e.g., energy; telecoms; ICT, transport, waste and water) and related services. Investment in these services is critical to support competitiveness. Further targeted and prioritised investment is required to address existing and emerging infrastructural bottlenecks which could constrain growth by dampening productivity and labour mobility,

increasing costs and limiting sectoral opportunities for enterprise development. Capital investment on enterprise development, skills, education and supports for research, development and innovation activity are also vital for competitiveness.

- **Increasing labour market participation:** While the labour market has certainly contributed strongly to overall economic growth in recent years, concerns persist about our relatively low levels of labour force participation, particularly female participation. In this regard, a range of interconnected issues analysed herein will require further policy consideration. Specifically, the interaction of replacement rates, active and preventative labour market programmes, the cost of childcare, and the costs of returning to work are all important determinants of labour market participation.
- **Maintaining cost competitiveness:** While the Council's productivity agenda is primarily focused on the medium term, we cannot afford to ignore or become complacent about our cost base. As an export dependent economy, costs are a major determinant of our ability to sell into international markets. Against a backdrop of strong economic growth and positive labour market dynamics, cost pressures have emerged across a range of sectors. Particular focus is required to address domestically influenced cost factors in the energy, legal and health sectors. Likewise, the current rapid increases in house prices and residential rents have the potential to produce adverse knock-on consequences in terms of prices and wage expectations across the entire economy. Rapid and adverse cost developments put competitiveness gains at risk. We must also be cognisant of potential threats to our cost competitiveness which are appearing on the horizon. For example, failure to meet our environmental and emissions targets will have a direct impact on costs: the potential negative effect of sanctions on our cost competitiveness should refocus minds on the importance of meeting these environment commitments.
- **Planning for the future:** Our ability to deliver the right infrastructure in the right place, and in the right timeframe, will also be a key driver of future competitiveness. In this regard, the development of the National Planning Framework is crucial. Many of the indicators in this report raise issues in relation to patterns of development, population density, and regional competitiveness, all of which require in depth consideration. The trade-offs and costs associated with different patterns of development need to be understood in order to best support future investment and development.
- **Fiscal sustainability:** Sound public finances are a prerequisite for sustainable growth. Ireland has made significant strides in this regard, as evidenced by our exiting the EU's Excessive Deficit Procedure. Nevertheless, a continuation of prudent fiscal policy is still a necessity to reduce our debt burden and to further reduce the exchequer deficit. Ireland will need to carefully manage the public finances, prioritising expenditure and investment to support competitiveness and maintain essential services, whilst simultaneously maintaining a growth-friendly taxation system. In this regard, there remains a need to further broaden the tax base. Further, vigilance is required to ensure that the Exchequer does not become over reliant on any single or temporary source of revenue which may be a result of cyclical fluctuations, rather than a sustainable, permanent increase in revenue.
- **Brexit:** On June 24th the UK voted to leave the European Union. This decision has significant short-term and long term implications for Ireland. Economically, the uncertainty arising from the outcome of this decision will almost certainly in the short term, result in a weakened Sterling exchange rate and lower growth for the UK economy with direct consequences for Irish growth and trade prospects. The economic and political implications and timing of Brexit – and indeed the institutional arrangements between the UK and EU, and between Ireland and the UK – remain unclear at this juncture. Notwithstanding this uncertainty, the immediate competitiveness implications of the UK leaving the EU will need to be considered.

Brexit Underscores the Importance of Enhancing National Competitiveness

The decision by British voters to leave the European Union has far reaching, if somewhat uncertain consequences for everyone in Europe. From an Irish perspective, it has short term and long term implications across a range of policy areas which directly impact upon our national competitiveness.

Economically, the uncertainty arising from the Brexit decision will almost certainly result in lower growth for the global economy, with direct consequences for Irish growth prospects. From a financial markets perspective, beyond the immediate shock to global stock markets, we are likely to see increased bond prices, albeit from current low levels, as the uncertainty attached to Brexit manifests itself through higher interest rates.

Looking at our trading profile, 15 per cent of Irish merchandise exports go to the UK and 30 per cent of our imports come from UK. Through currency effects, there will be at least short term cost implications: for Irish exporters, many of whom are dependent on the UK market, the depreciation of sterling will result in higher costs and diminished competitiveness relative to UK produced goods and services. Conversely, imports to Ireland from the UK will become more competitive. The re-emergence of trade impediments could increase the cost of exports and increase Irish inflation. The aforementioned currency effects will also have significant implications for the Irish tourist industry – UK visitors represent the single largest category of tourist coming to Ireland.

In terms of investment, the ESRI have predicted that Brexit will result in a likely fall in foreign direct investment into the UK with a knock-on contraction in UK economic demand which would adversely impact on the Republic. On the other hand, Ireland's strong and ongoing commitment to remaining within both the EU and the single currency may enhance our attractiveness to potential investors seeking an EU base who would have previously considered locating in the UK.

Historically, and even preceding the creation of the single market, Ireland and the UK enjoyed a common labour market, that has mutually benefitted both countries. The continued free movement of labour is now under threat and Brexit will most likely result in restrictions in people movement especially for purposes of work. However, any restrictions will not just impact Irish people seeking to move to the UK - restrictions on migrants could mean that some will divert to Ireland with implications for the Irish labour market in terms of unemployment rates and wage levels.

In relation to the energy implications for Ireland of Brexit, there could be significant once-off costs: since 2007 Ireland has benefited from the creation of an all-island energy market. We remain, however, heavily reliant on gas imports from the UK. Brexit could give rise to energy security issues for Ireland that might require significant once off investments, including, for example, investments in energy storage and an interconnector to France.

The changed relationship between the UK and the EU will have far-reaching consequences for Ireland. The economic and political implications of Brexit – and indeed the institutional arrangements between the UK and EU, and between Ireland and the UK – remain unclear at this juncture. What must be made clear, however, is Ireland's consistent commitment to the EU. In uncertain times, this relationship represents a key strength for us. Likewise, our traditional close political, economic and social ties to the UK must be protected and fostered.

Ultimately, polices to protect our international competitiveness must remain a priority for policy makers; only by maintaining and enhancing Ireland's international competitiveness can we build an economy sufficiently robust and adaptable to withstand whatever the turbulent global economic environment throws at us. Only a renewed commitment to improving our competitiveness will put us in a position to take advantage of whatever opportunities emerge as a result of the changed European dynamic.

Chapter 2: Methodology

Competitiveness performance reflects the interaction of a wide range of factors that combined; determine a firm's ability to compete successfully in international markets. Levels of enterprise productivity, innovation, investment, employment and profitability are the key determinants of their ability to compete and grow.

The ability of the enterprise sector to compete is also determined by the stability of the macroeconomic environment, demographics, and the efficiency and effectiveness of public services and institutions.

The Council has approached its work by, inter alia, examining the essential conditions for competitiveness (such as business performance, productivity, prices and costs, and labour supply) alongside the key policy inputs (such as the business environment, physical infrastructure and knowledge infrastructure), to plot a path to improve Ireland's overall competitive environment.

The Council has long promoted the idea that a co-ordinated, cross-government, and public-private approach is required to enhance national competitiveness. For over a decade, the Council has used a bespoke competitiveness framework ("the Competitiveness Pyramid") to illustrate and describe the multifaceted and interlinked dimensions of national competitiveness. In particular, the Council's approach is cognisant of Ireland's status as a small open economy, dependant on trade, and the important impact that our international competitiveness has on our overall economic wellbeing.

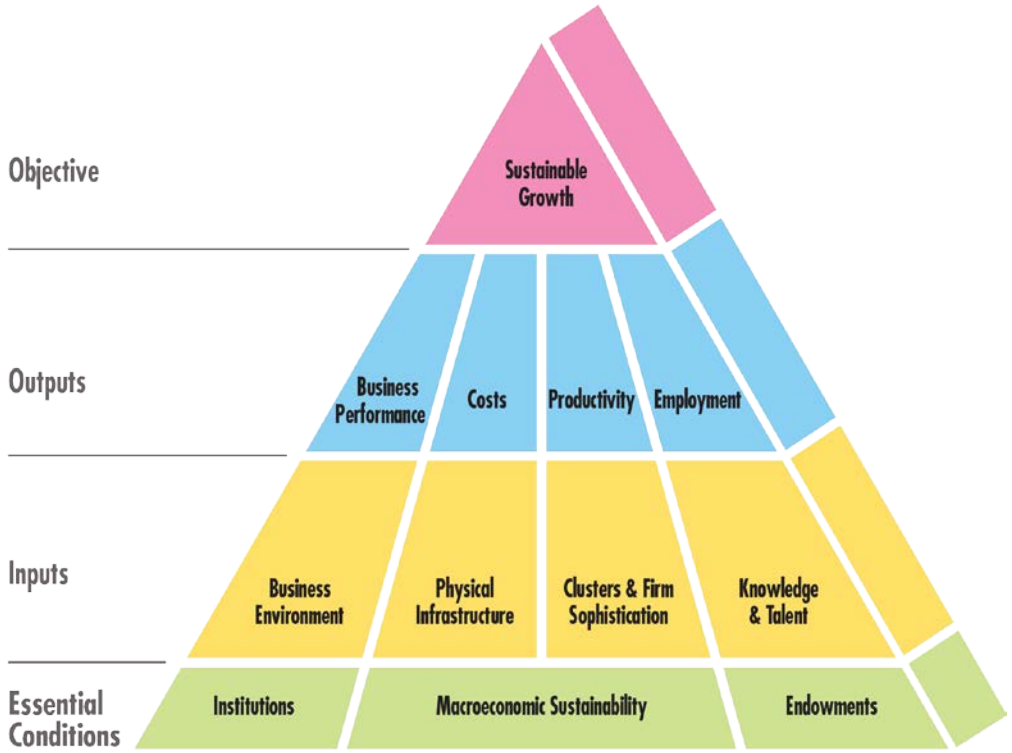
It is important to note that competitiveness is not an end in itself, but rather is a means to achieve sustainable improvements in living standards and quality of life. Our understanding of competitiveness is not static – over time, the definition used by the Council and our approach to benchmarking has evolved to reflect the issues and challenges confronting us, and reflecting the ever-changing global environment. Furthermore, the literature on competitiveness has expanded rapidly in recent years, and new concepts and approaches to measuring competitiveness have emerged. For example, a large theoretical, empirical and policy-relevant body of literature now exists, considering, inter alia, productivity, clusters and networks, innovation and creativity, governance and the role of institutions and institutional agility, social and cultural capital, economic complexity, firm sophistication and geographic considerations.

This literature has implications for the Council's work. To ensure that the Council remains an effective and authoritative voice on competitiveness policymaking, research was commissioned in 2015 to examine both our existing definition and framework, and to review the emerging international literature. This work was carried out on behalf of the Council by Dr Christian Ketels, Principal Associate at the Institute for Strategy and Competitiveness at Harvard Business School. Dr Ketels' Competitiveness Frameworks Review (published on the Council's website), and a subsequent public consultation exercise have facilitated an evolution of the NCC's understanding of competitiveness. This process has resulted in a revised and updated Competitiveness Framework (Figure 2.1, overleaf).

At the top of the Pyramid is sustainable growth in living standards – this reflects the fruits of competitiveness success. The competitiveness outputs and enablers of competitiveness are represented in the second tier of the pyramid framework. These can be seen as the metrics of current competitiveness.

A range of national performance indicators in business performance, costs, productivity and employment are examined and assessed relative to international competitors to provide an overall macroeconomic view of Irish competitiveness. These indicators are defined as "output" indicators and are not directly within the control of policymakers. Ireland's performance in these areas is directly related to the quality of previous policies instituted at the input level and the ability to build a strong intermediate stage of competitiveness.

Figure 2.1 The NCC Competitiveness Framework



Source: National Competitiveness Council

The third tier of the pyramid focuses on policy inputs and includes four broad pillars of future competitiveness, namely the business environment (taxation, regulation, finance and social capital), physical infrastructure, clusters and firm sophistication, and knowledge and talent. These represent the foundation stones of the economy and are the primary drivers of current and future competitiveness performance. The Council believe that it is within these particular areas that policymakers can have the greatest impact on competitiveness. It is crucially important to measure Ireland's competitiveness at the input level and then benchmark it vis-à-vis best international practise. This allows policy makers to identify policy weaknesses and thus design specific policies to address these concerns.

The bottom tier of the pyramid is a new addition to the Council's framework. Described as essential conditions, this tier reflects the impact that a number of largely exogenous factors (exogenous, at least from the perspective of competitiveness policy) have on national competitiveness. These factors include the institutional make-up of a country, its macroeconomic stability, and a range of natural endowments (such as demographics, for example).

The Council's framework and definitions attempt to strike a pragmatic balance shorter term concerns relating to costs (reflected in metrics around market share, macro imbalances, etc.) with more medium term concerns around productivity performance: for instance, the Council's focus on sustainable growth (economic growth, environmental quality, and the standard of living) is clearly anchored in the productivity-based definition of competitiveness. At the same time, the Council also focuses on the cost environment for enterprise, and the resulting cost competitiveness of goods and services produced here.

2.1 How to read this report

The rest of this report is divided into four main sections - sustainable growth (Chapter 3), competitiveness outputs (Chapter 4), competitiveness inputs (Chapter 5) and essential conditions for competitiveness (Chapter 6) - which correspond to the segments of the competitiveness pyramid.

This report uses internationally comparable metrics, with the OECD, the EU, the UN, IMF and the WTO as the sources for the majority of indicators. Indicators from specialist international competitiveness bodies (e.g. from the World Bank's Doing Business report, the World Economic Forum's Global Competitiveness Report and the Institute for Management Development's World Competitiveness Yearbook) are also used. Where further depth is of benefit, national sources such as the Central Bank and the CSO are used.

Subject to data availability, Ireland's performance is benchmarked against 19 other countries. Countries have been chosen to provide a mix of Euro area members (Finland, France, Germany, Italy, the Netherlands and Spain), other non-Euro area European countries (Denmark, Sweden, Switzerland and the UK), and two newer EU member states (Hungary and Poland). Seven non-European countries which are global leaders or are of a similar size to Ireland are also included. These countries are Brazil, China, Japan, South Korea, New Zealand, Singapore, and the US. This allows for a detailed comparison between Ireland and many of its closest trading partners and competitors. Ireland is also compared to a relevant peer group average – either the OECD or the Euro area average[43].

Measuring and benchmarking competitiveness performance relative to third countries highlights Ireland's strengths in a number of areas but is also intended to identify potential threats and elaborate on weaknesses and to determine corrective actions. 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:

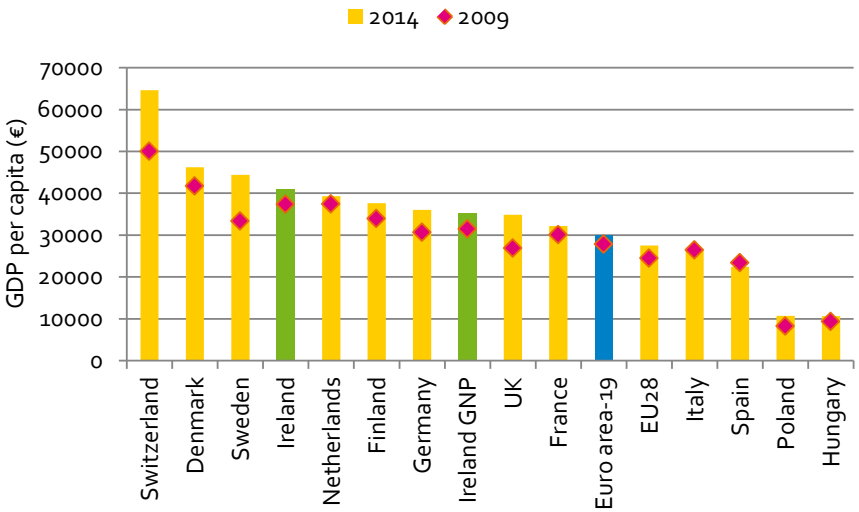
- The most recent and up-to-date data is used. While every effort is made to ensure the timeliness of the data, there is a natural lag in collating comparable official statistics across countries. There are also factors that are difficult to benchmark (e.g. the benefit of being in the GMT time zone or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

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

2.2 Interpretation of the charts

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

Figure 3.2.1 Gross domestic product at market prices, € per inhabitant, 2014



Ireland's GDP and GNP per capita levels are above the Euro area average. Over the course of the recession, Ireland's GDP and GNP per capita declined but remained relatively high. Exceptionally strong economic growth in recent years has seen GDP per capita rise to €41,000 in 2014.

Euro area-19 Ranking:

GDP: 2nd(↑1)

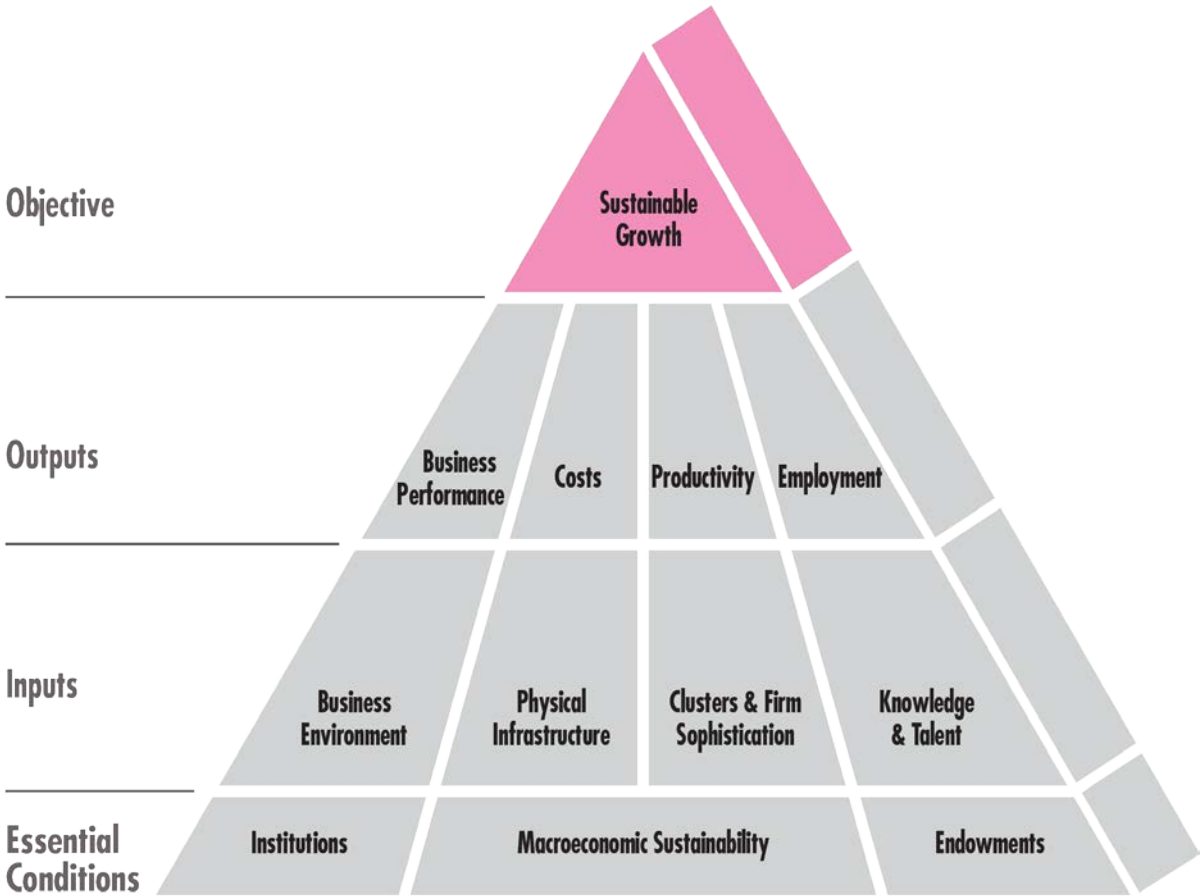
GNP: 8th (↓5)

Source: Eurostat

- The majority of chart titles are given a traffic light colour, green, yellow or red, in order to provide a general indication of Ireland's performance. Green indicates a strong performance (top third of OECD, Euro area, or comparator group), orange signals an average performance, while red means that Ireland is ranking within the bottom third of the comparator group. Certain indicators, which are not ranked, are also given a traffic light colour, in which case the colour is determined (somewhat subjectively) based on Ireland's performance over time, or vis-à-vis a peer group average.
- Rankings are provided where appropriate, but in a number of charts, it is not possible to designate a best performer. In charts with both GDP and GNP performance for Ireland, where feasible 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 endnotes. (↑) refers to an improvement in Ireland's competitive position, so 1 means an improvement of one place in Ireland's ranking. (-) means that there has been no change in Ireland's ranking, while (↓) refers to a fall in ranking.

Chapter 3

Sustainable Growth



Sustainable Growth

At the apex of the Council's Competiveness Framework is sustainable growth. Competitiveness is not an end in itself, but is a means of achieving sustainable improvements in growth and living standards. The ultimate goal of economic policy making is to achieve broad based improvements in people's well-being. The Council monitors progress on this goal by assessing economic, social and environmental dimensions of societal wellbeing.

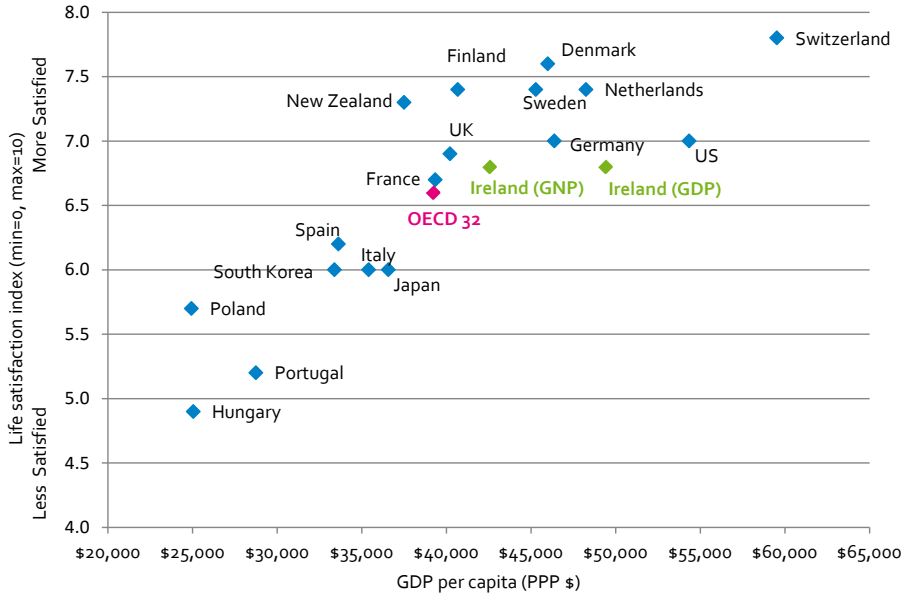
While there is no generally accepted definition of wellbeing, traditional measures have relied on economic indicators such as GDP and GNP per capita. However, although the national income elements of sustainable growth can be benchmarked with relative ease, the concept and measurement of "quality of life" is more complex.

Both in Ireland and internationally, there is increasing interest in benchmarking quality of life improvements - incorporating aspects of living standards, income levels, equality, health and life expectancy. The Scorecard benchmarks three elements of sustainable growth, namely income (growth rates, levels and distribution), quality of life and environment sustainability.

- **Quality of Life:** A key objective of competitiveness is to support a high quality of life, which is broader than material living standards. Quality of life is measured by indicators of life satisfaction, health and life expectancy.
- **National Income:** High and rising incomes are a key measure of the success of national competitiveness. The indicators used in this section cover the level, growth and distribution of Ireland's national income. Indicators include median incomes, income distribution, and risk of poverty.
- **Environmental Sustainability:** The quality of a natural environment and the commitment to environmentally sustainable policies is a key determinant of sustainable growth. The essence of environmental sustainability is a stable relationship between human activities and the natural world, one that does not diminish the prospects for future generations to enjoy a quality of life at least as good as our own. Indicators in this section include per capita CO_2 emissions, waste generation and renewable energy use.

3.1 Quality of Life

Figure 3.1.1 Life satisfaction and GDP per capita, 2014



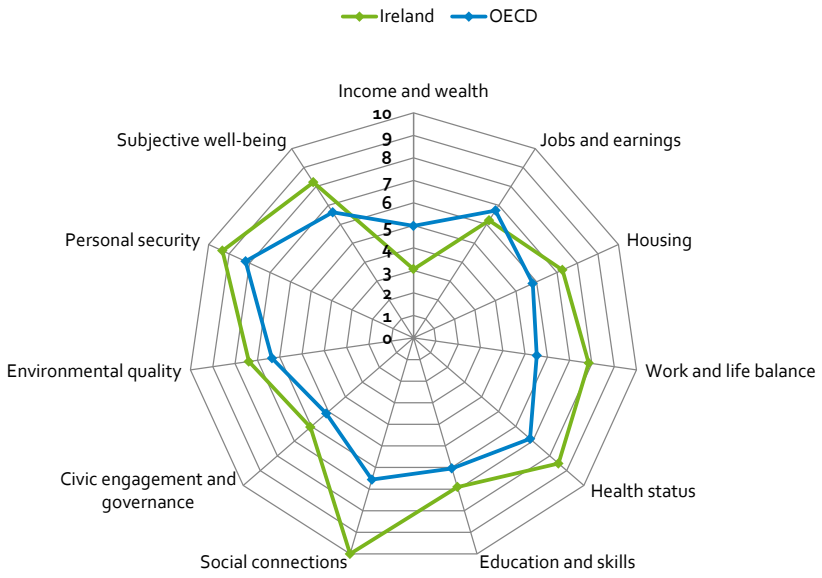
The OECD Better Life Index compares life satisfaction across countries. Figure 3.1.1 plots life satisfaction and GDP per capita at purchasing power parity (i.e. adjusted for living costs differences). Irish levels of life satisfaction are just above the OECD-32 average.

OECD-32 rank:

GDP: 5th; GNP: 14th; Life Satisfaction: 18th

Source: OECD

Figure 3.1.2 Indicators of life satisfaction[44], 2014



Ireland performs well in many measures of well-being relative to most other countries in the Better Life Index. Ireland ranks at the top in social connections and above the average in housing, personal security, health status, subjective well-being, work-life balance, civic engagement and environmental quality but below average in jobs and earnings and income and wealth.

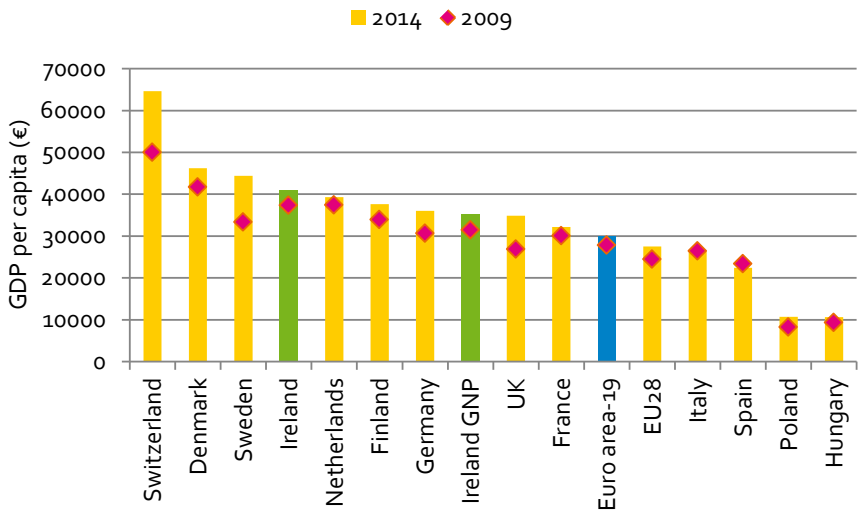
OECD-32 rank: 13th

Source: OECD

44 Life satisfaction is measured on a scale from 0 to 10, with 0 being the lowest score- indicating least satisfied.

3.2 National Income

Figure 3.2.1 Gross domestic product at market prices, € per capita, 2014



Ireland's GDP and GNP per capita levels are above the Euro area average. Over the course of the recession, Ireland's GDP and GNP per capita declined but remained relatively high. Exceptionally strong economic growth in recent years has seen GDP and GNP per capita rise in 2014.

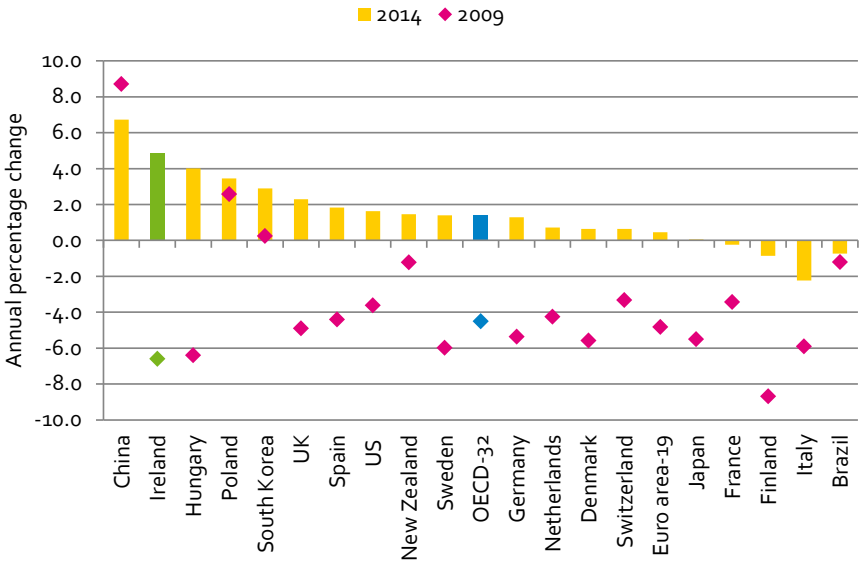
Euro area-19 rank:

GDP: 2nd(↑1)

GNP: 8th (↓5)

Source: Eurostat

Figure 3.2.2 Annual percentage growth rate of GDP per capita (constant local currency), 2014



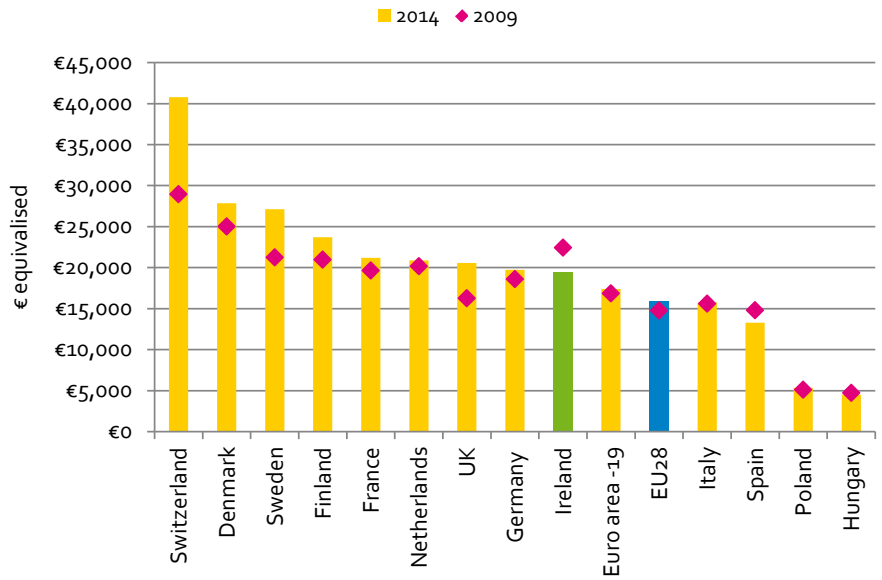
The negative impact of the recession resulted in Ireland's GDP per capita growth rate declining by -6.6% in 2009. Figure 3.2.2 shows economic growth in 2014 was exceptionally strong and the second fastest rate in the OECD 32.

OECD-32 rank:

GDP: 1st (↑27)

Source: World Bank/OECD

Figure 3.2.3 Median equivalised disposable income (€)[45], 2014

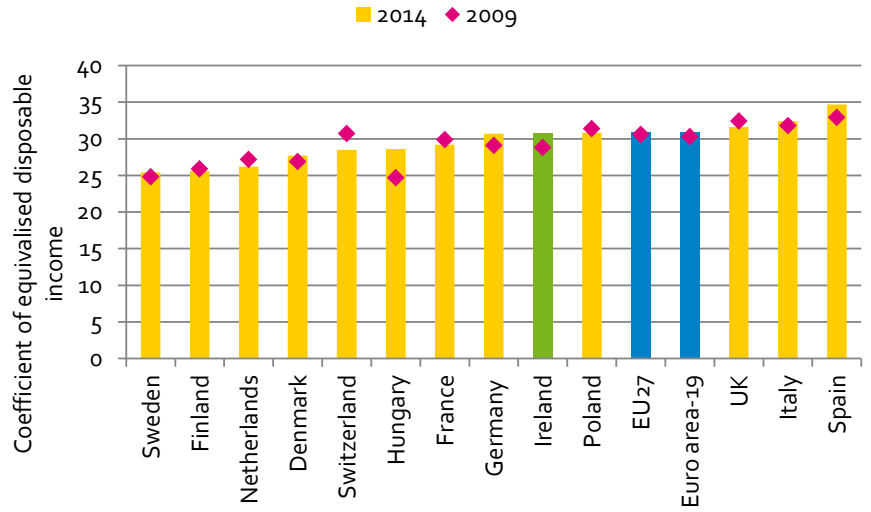


The median equivalised net income of Irish households is above the Euro area average and median incomes have increased between 2013 and 2014. Ireland experienced a decrease in median equivalised disposable income over the period 2009 to 2014.

Euro area-9 rank: 8th (↓6)

Source: Eurostat

Figure 3.2.4 Gini coefficient of equivalised disposable income[46], 2014



The Gini Coefficient is a measure of equality of income in the population. The Irish Gini coefficient in 2014 was 30.8%, marginally below the Euro area average indicating that income distribution in Ireland is slightly more equal than in the Euro area.

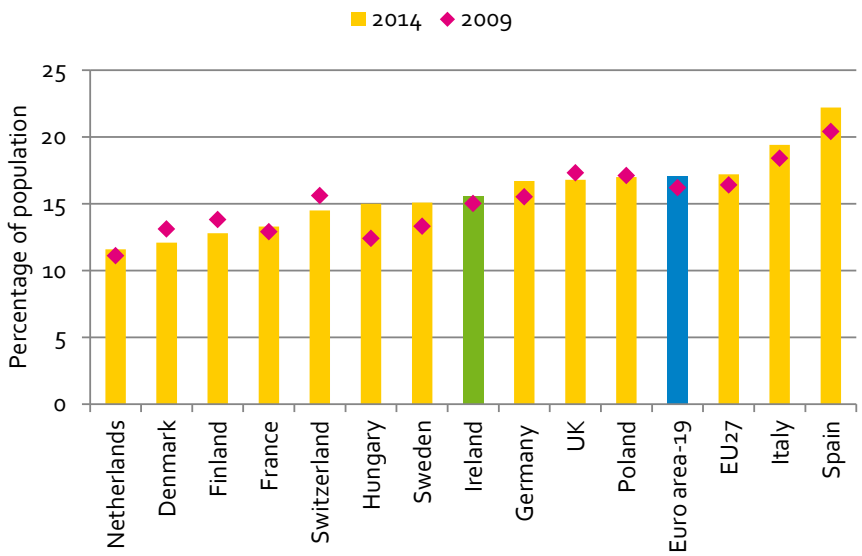
Euro area-19 rank: 11th (↓3)

Source: Eurostat

45 Equivalised disposable income is defined as the total income of a household, after tax and other deductions, divided by the number of household members.

46 If each person in a country received the same income the Gini coefficient would be 0%. A Gini coefficient of 100% indicates that the entire national income was in the hands of one person. Latest data for Switzerland is from 2013.

Figure 3.2.5 At-risk-of poverty rate, (60% of median income after social transfers)[47], 2014

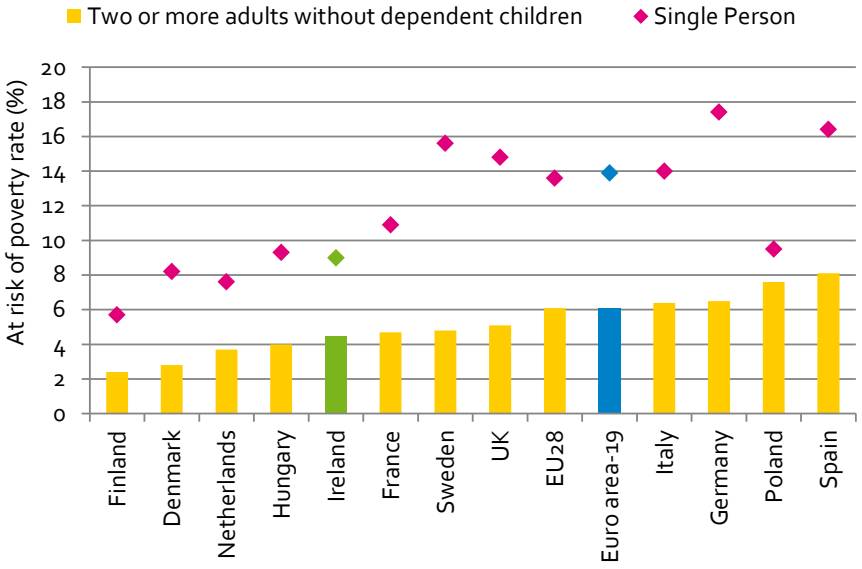


The at-risk-of-poverty rate (15.6%) increased by 0.6% in Ireland between 2009 and 2014. This is below the Euro area average. Social transfers play a significant role in reducing income poverty in Ireland: excluding social transfers, the at-risk-of poverty rate was 37.2%.

Euro area-19 rank: 9th (↑1)

Source: Eurostat

Figure 3.2.6 In-work at-risk-of poverty rate, 2014



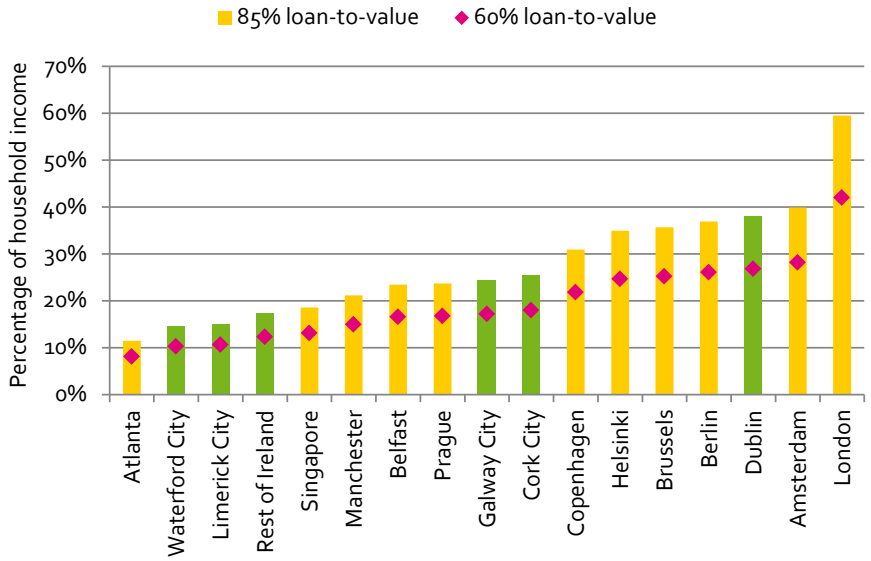
The risk of in-work poverty for working households increased during the recession, peaking in 2011. Since 2011 the percentage of working households with two adults and two children at risk of poverty has fallen from 5.4% to 4.5%. The percentage of single working households at risk of poverty fell from 15.8% to 9%.

Euro area-19 rank:
Single 6th (↑8)
Married 10th (-)

Source: Eurostat

47 Latest data for Switzerland is from 2013.

Figure 3.2.7 Mortgage Affordability Index (MAI)[48], 2015



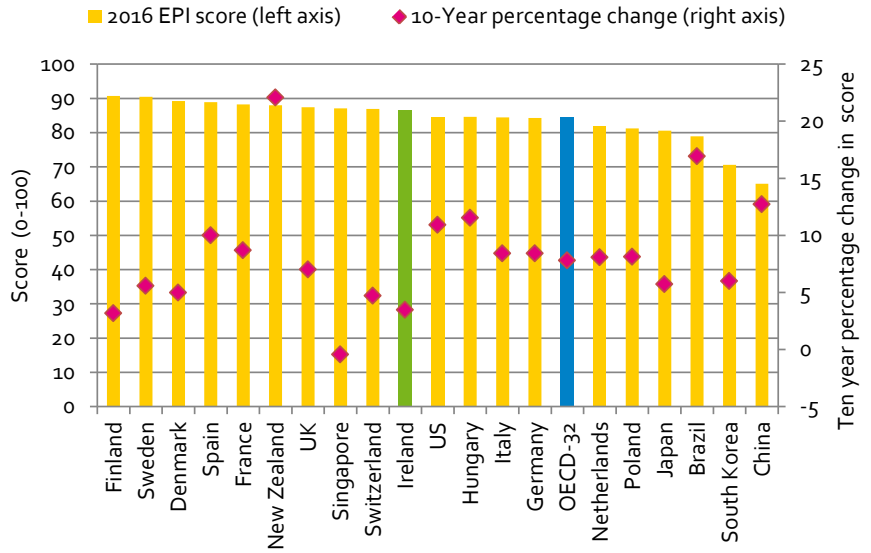
The MAI captures the cost of a newly purchased dwelling to a household earning the average household income for that city. The overall MAI shows that only 2 cities (Amsterdam and London) were deemed less affordable than Dublin.

Ranking (Dublin out of 12 international): 10th

Source: Indecon Economic Consultants

3.3 Environmental Sustainability

Figure 3.3.1 Environmental performance index (Scale 0-100), 2016



The Yale Environmental Performance Index assesses 20 indicators of environmental health and ecosystem protection and resource management. Ireland's performance has improved since 2010 and over a ten year timeframe has improved by 3.5%

OECD-32 rank:17th

Source: Yale Centre for Environmental Law and Policy

48 The MAI is based on a standardised housing unit taking account of differences in mortgage cost. It can be decomposed into two constituent parts: a price-to-income ratio; and a mortgage multiplier reflecting the cost of raising mortgage finance. The mortgage multiplier calculates the first year repayment costs of a notional 20-year mortgage, based on an 85% loan-to-value ratio (the MAI for a 60% LTV is also shown). The cost of mortgage finance in Ireland in 2015 was the highest of all countries surveyed, thus reducing the affordability of a new purchase.

Figure 3.3.2 Index of GDP, total primary energy (TPER[49]) and energy-related CO2, Ireland, 2014

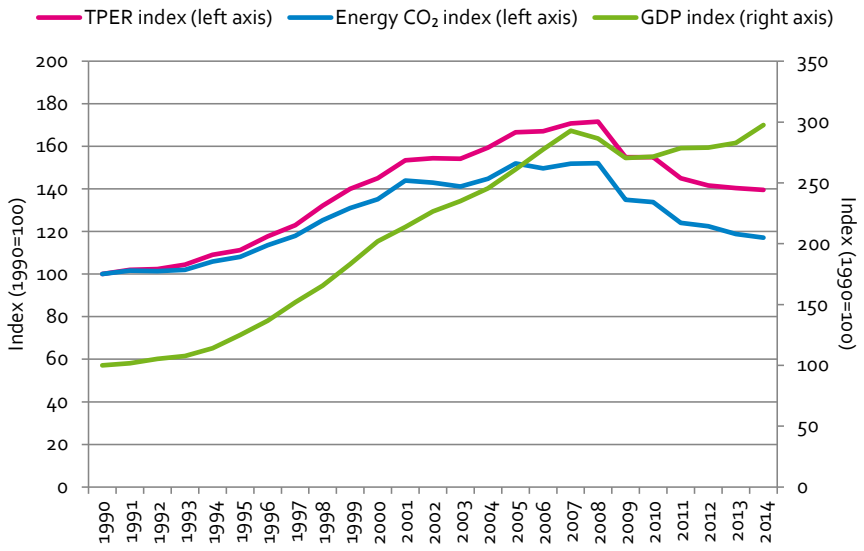
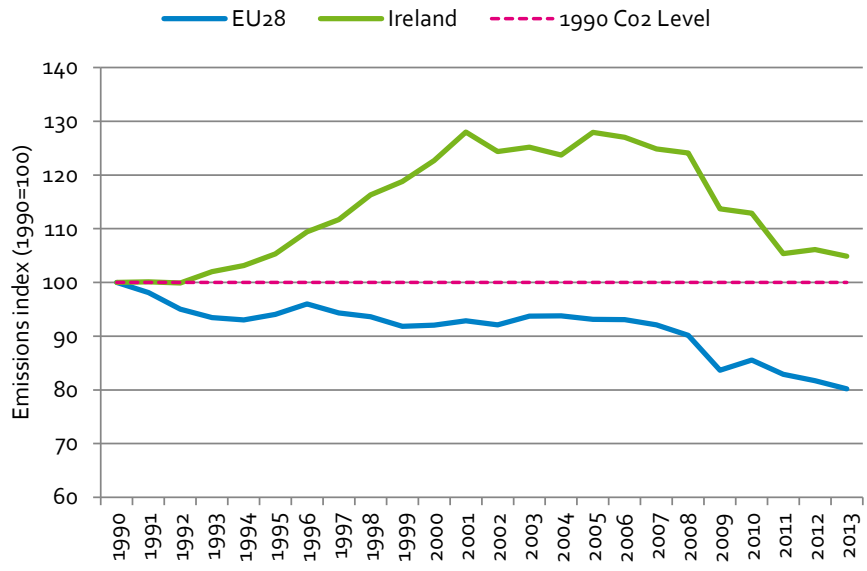


Figure 3.3.2 shows the decoupling of Irish energy consumption from economic growth. This is a result of changes in the structure of the economy and greater energy efficiency. CO2 growth has slowed due to changes in the fuel mix, greater use of gas and renewables and reducing consumption of coal and peat.

Rank: n/a

Source: SEAI, CSO

Figure 3.3.3 Greenhouse Gas Emissions (CO2 equivalent indexed to 1990), 1990-2013



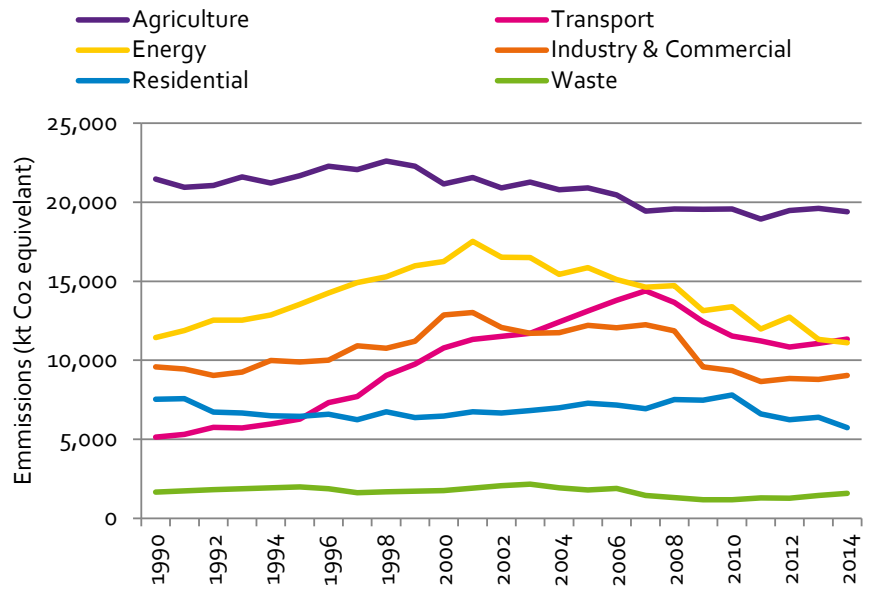
The EU 2030 targets envisage a domestic EU greenhouse gas reduction target of at least 40% compared to 1990. Ireland's emission levels peaked in 2001, 28.5% above 1990 levels. Ireland's emissions have fallen on a year-on-year basis every year since 2008, but in 2014 remained 5.8% above the 1990 level - their lowest level since 1994.

Rank: n/a

Source: Eurostat

49 Total Primary Energy (TPER) is also known as gross inland consumption

Figure 3.3.4 Emissions by national climate change sectors (Kt CO2 equivalent), 1990-2014

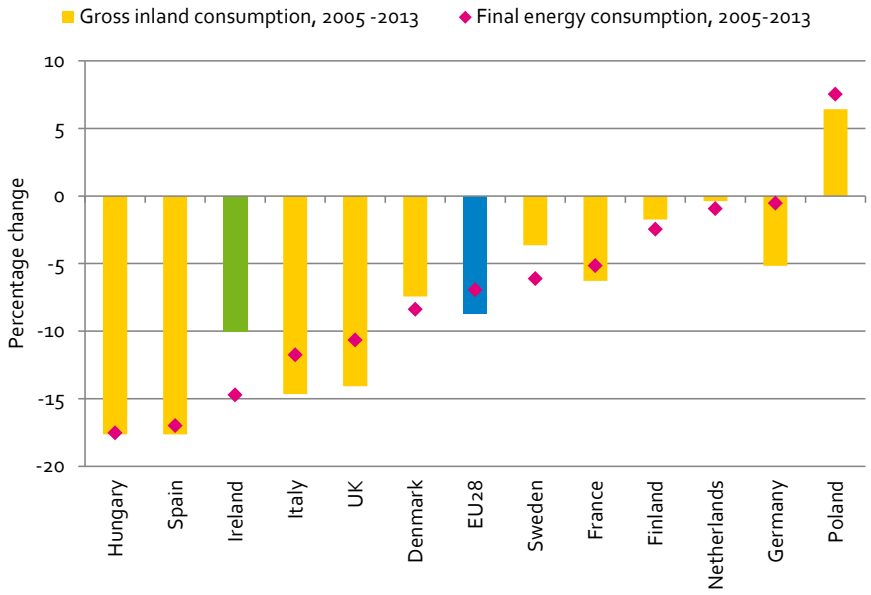


Between 1990 and 2014, total emissions increased by 2.5% to 58,205kt of Co2 equivalent. The agriculture sector accounts for 33% of total emissions. Emissions by the energy, industry, residential and waste sectors have declined and are below 1990 levels. Transport emissions however have increased by 120%.

Rank: n/a

Source: EPA

Figure 3.3.5 Gross inland and final energy consumption[50], 2013



The EU's Directive on energy efficiency sets annual and headline targets reduction in primary energy consumption by 2020. Figure 3.3.5 shows significant progress has been made, but to realise Ireland's 2020 targets will require a significant acceleration of effort.

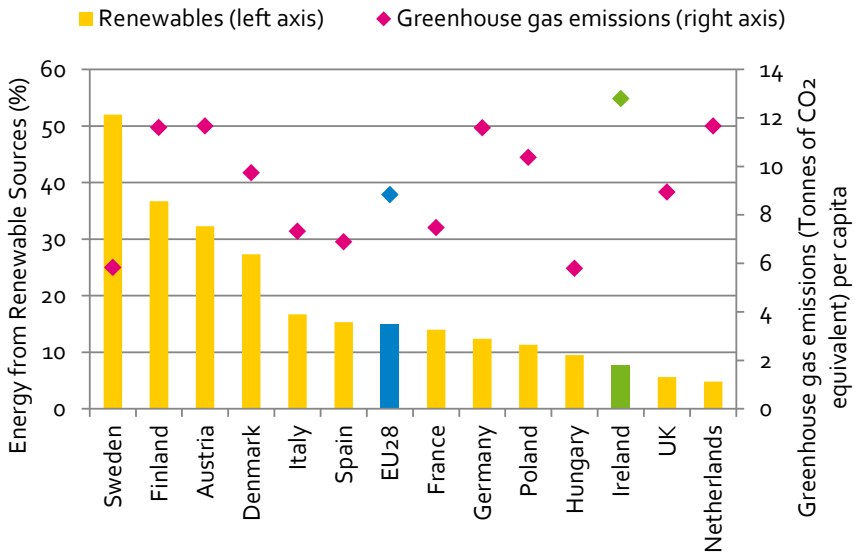
Euro area-19 rank:

Inland: 8th; Final: 4th

Source: Eurostat

50 "Gross inland consumption" refers to the total energy demand of a country or region. It measures the quantity of energy necessary to satisfy inland consumption of the geographical entity. Final energy consumption is the total energy consumed by end users, such as households, industry and agriculture. It is the energy which reaches the final consumer's door and excludes that which is used by the energy sector itself.

Figure 3.3.6 Percentage of energy from renewable sources and emissions per capita, 2013



Source: Eurostat, European Environment Agency

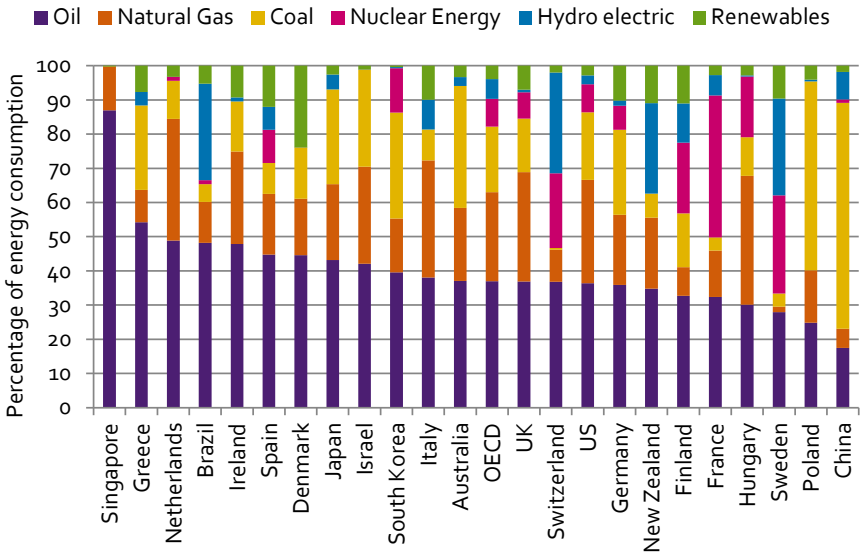
Ireland's use of renewable energy sources has increased over the 2010-2015 but we remain well below the EU average and our target of a 16% share of renewables in gross final consumption. In terms of emissions per capita, Ireland's absolute performance has improved in recent years but we remain behind leading EU states.

Euro area-19 rank:

Renewables: 15th (-)

Emissions: 17th (↑1)

Figure 3.3.7 Components of energy consumption, 2014



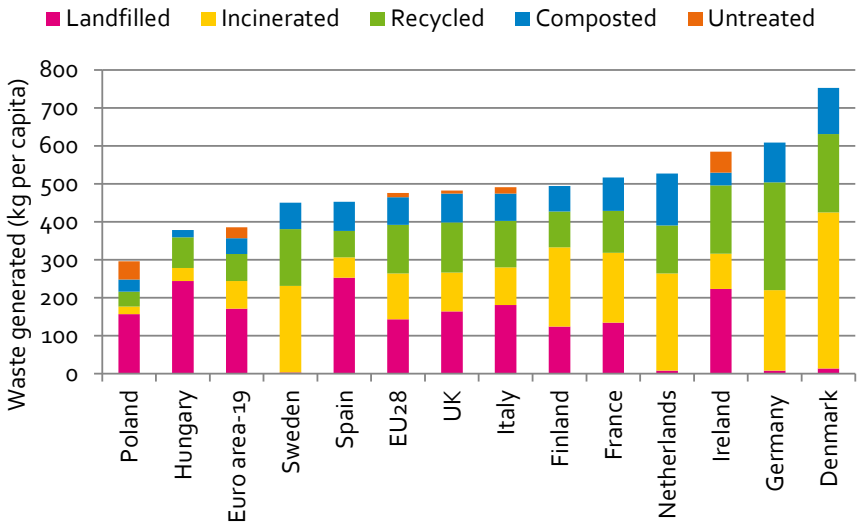
Source: BP Statistical Review of World Energy 2015

Since 2009, Ireland's dependence on oil and natural gas to meet its energy consumption needs has reduced from 85% to 75%. Ireland still has a higher reliance on oil than the OECD-27 average. Green energy accounts for an increasing proportion of energy consumption in Ireland, and is slightly higher than the OECD average.

OECD-29 rank:

Oil dependency: 26th

Figure 3.3.8 Municipal waste generated and treatment, 2013



Source: Eurostat

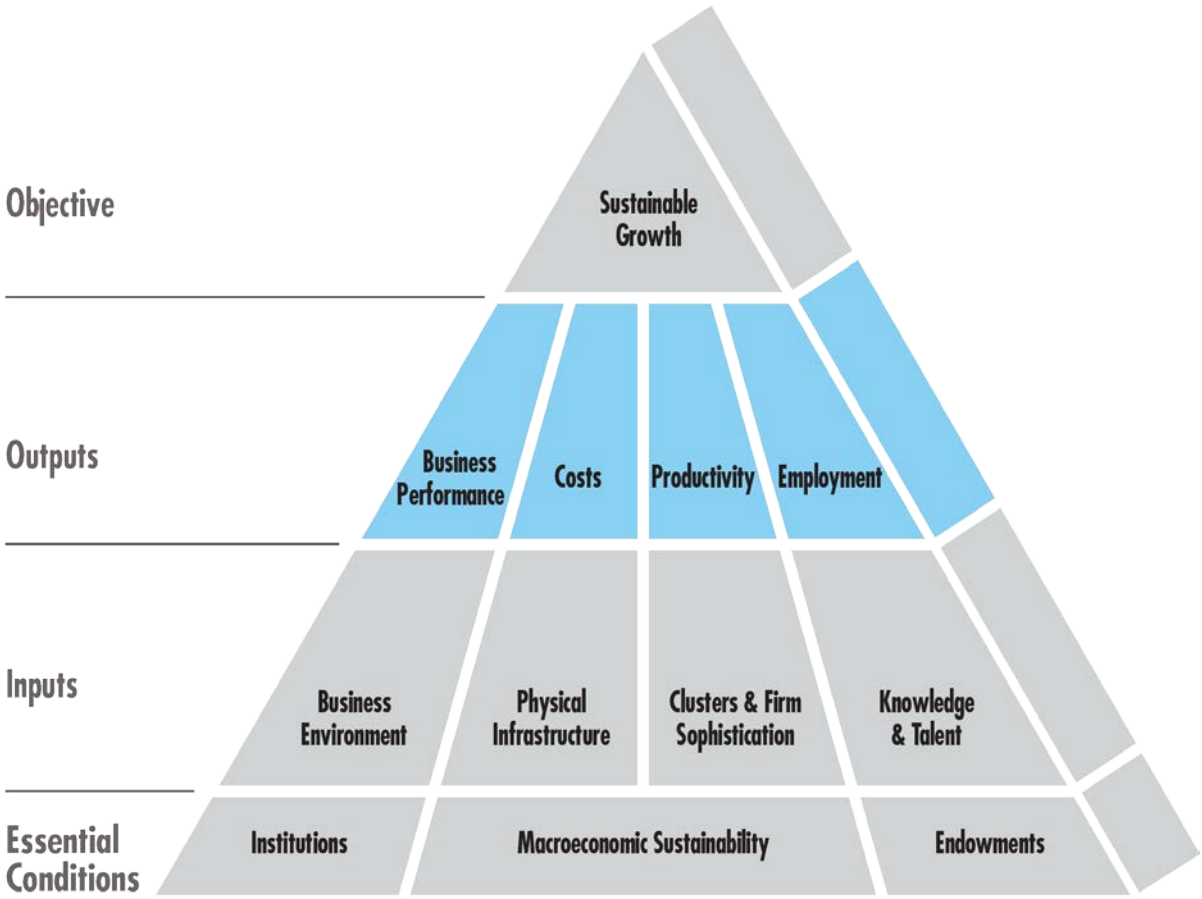
In the five year period to 2013, the amount of waste generated in Ireland had reduced to 586 kg per person, a decrease of 18%. In terms of treatment options, Ireland makes greater use of recycling and landfill than the Euro area average, untreated levels are also high. While performance has improved, Ireland still generates more waste per capita than the Euro area average.

Euro area-19 rank:

Total waste: 16th (↑2)

Chapter 4

Competitiveness Outputs



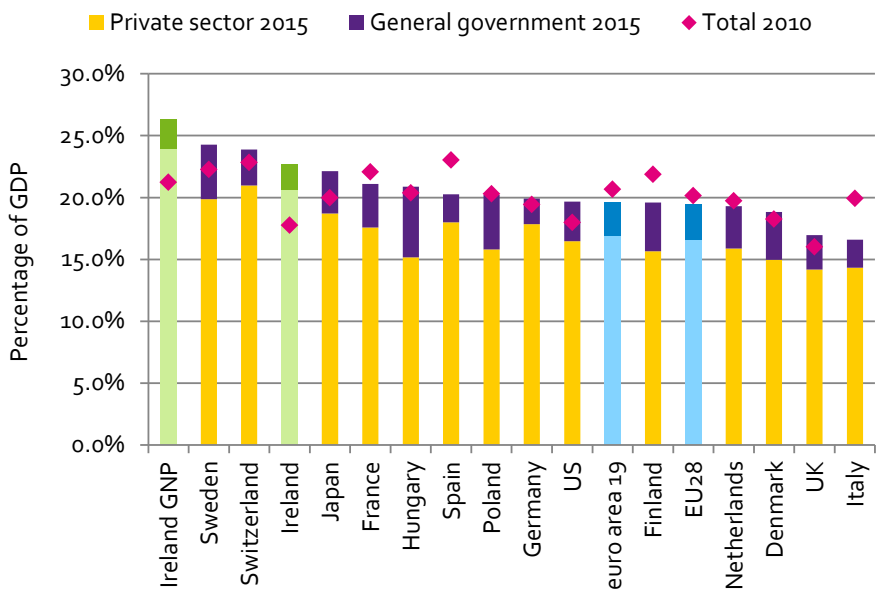
Competitiveness Outputs

The outputs of competitiveness are represented in the second tier of the competitiveness framework. These can be seen as the metrics of current competitiveness. The metrics in this tier cover business performance, costs, productivity and labour supply. These indicators are defined as "competitiveness output" indicators and are not directly within the control of policymakers. Ireland's performance in these areas is directly related to the quality of previous policies instituted at the input level and the ability to build a strong intermediate stage of competitiveness.

- **Business Performance:** The performance of the business sector is central to the Council's definition of competitiveness. The enterprise sector is the driver of the economy and as such, is critical to income growth and maintaining high employment levels in Ireland. A strong and vibrant enterprise sector is also essential to sustaining the government finances and hence expenditure on public services. Business performance is assessed across a range of headings including investment flows, FDI performance, indigenous enterprise performance, and export flows and trade.
- **Costs:** Cost competitiveness is critical to ensuring that enterprises based in Ireland have the ability to compete successfully in international markets. This section examines the overall cost level and the rate of change for a number of key business inputs. Data on both pay and non-pay is included.
- **Productivity:** In the long run, a country's standard of living is dependent upon productivity. The indicators in this section examine Ireland's labour productivity performance in an OECD context, as well as multi-factor productivity.
- **Employment:** Employment is a key determinant of living standards, and growth in employment combined with productivity growth is the main driver of economic growth. This section considers a range of indicators, measuring key aspects of labour market performance including employment and unemployment. Some labour market indicators such as participation rates and a number of other demographic and migration indicators are examined in the section on endowments (Chapter 6).

4.1 Business Performance

Figure 4.1.1 Gross fixed capital formation (GFCF), current prices (% GDP), 2015

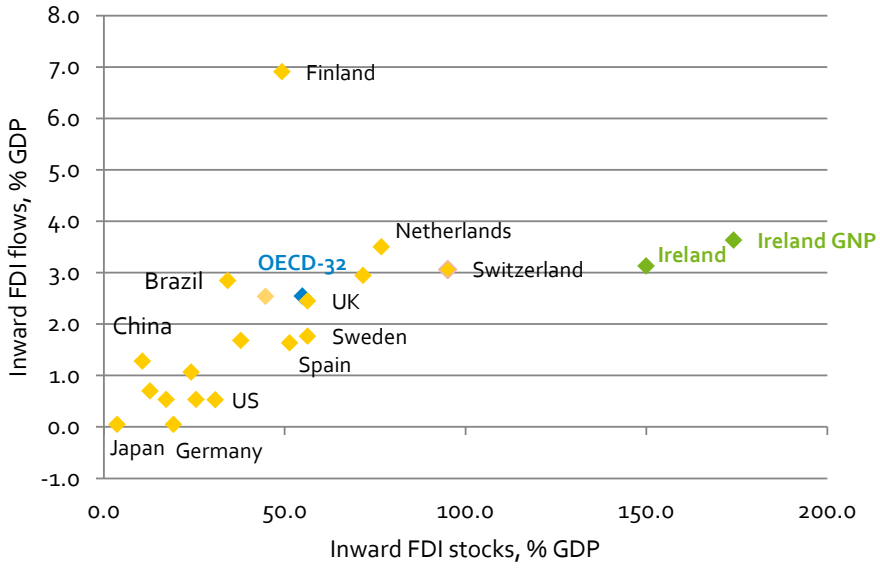


Investment is a key driver of economic growth. Following a sharp drop during the recession, investment activity in Ireland has increased significantly. In GNP terms, Irish private investment (24%) exceeds the Euro area average (17%), although public investment (2.4%) is below average (2.7%).

Euro area-19 rank: 4th (↑13)

Source: European Commission, AMECO Database

Figure 4.1.2 Inward FDI stock and flow (% GDP), 2014



Ireland's stock of inward investment (174% of GNP) is amongst the highest in the OECD. While inward FDI flows as a percentage of GDP declined in 2014[51], the number of Greenfield investments won increased to 185 (from 175 in 2013).

OECD-32 rank:

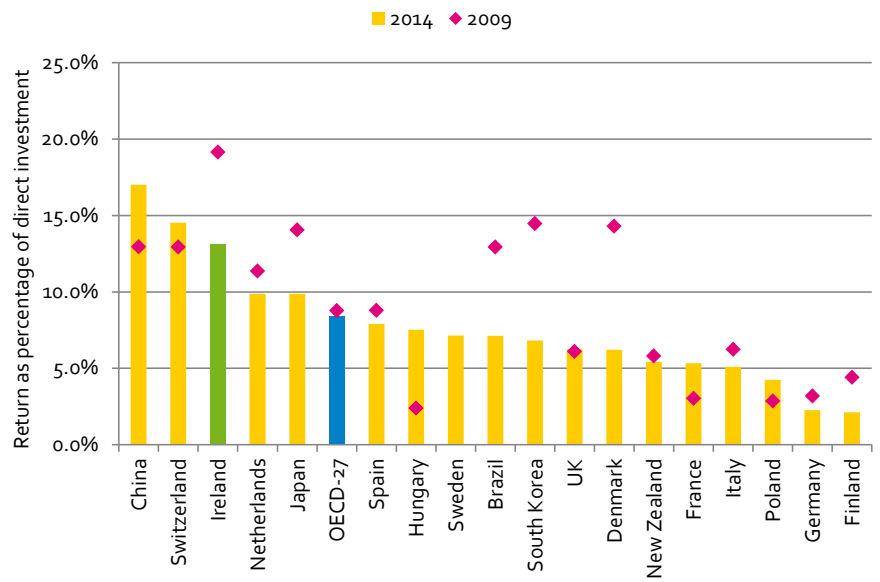
Stock (% GDP): 2nd (↑1)

Flow (% GDP): 9th (↓6)

Source: UNCTAD

51 Due to activity by multinationals', institutional investors, REITs and the IFSC, FDI flows in Ireland are not a very reliable indicator, and have a history of volatility and research has found that FDI inflows bear little relationship to foreign-owned multinationals in terms of employment, investment and exports. See for example, Barry, F., and Bergin, A., Ireland's Inward FDI over the Recession and Beyond, Institute for International Integration Studies, IIIS Discussion Paper No.321/ March 2010

Figure 4.1.3 Rate of return to US-owned companies on their investments in foreign countries (%)[52], 2014

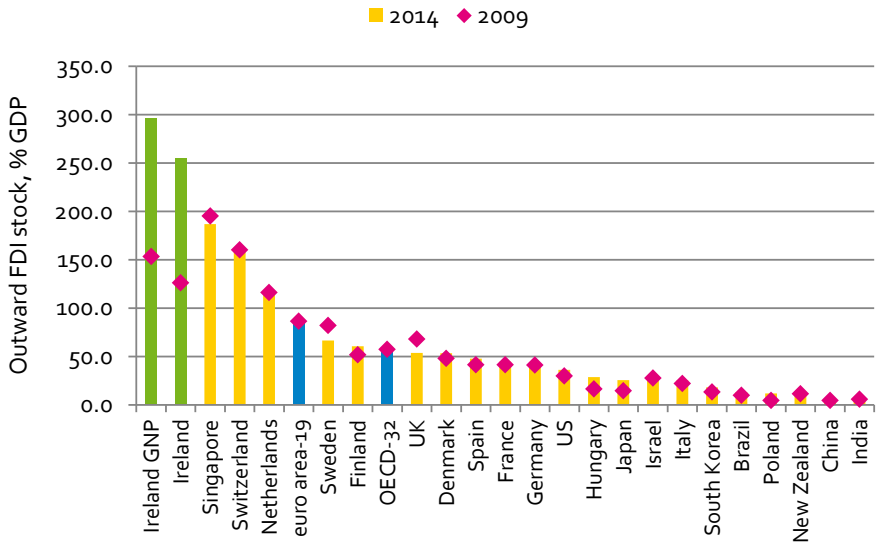


While the reported income of US companies as a proportion of the amount invested in Ireland, declined from 19.1% in 2009 to 13.1% 2014, Ireland continues to be one of the most attractive investment locations within the OECD and the 2nd most attractive location within the Euro area-13.

OECD-27 rank: 3rd (↓1)

Source: US Bureau of Economic Analysis / DJEI Calculations

Figure 4.1.4 FDI outward stock (% GDP), 2014



Levels of outward direct investment from Ireland by Irish MNCs and foreign MNCs based here increased from 126.1% of GDP in 2009 to 254.8% in 2014. Much of this increase can be attributed to the foreign assets of foreign owned companies being re-domiciled in Ireland[53].

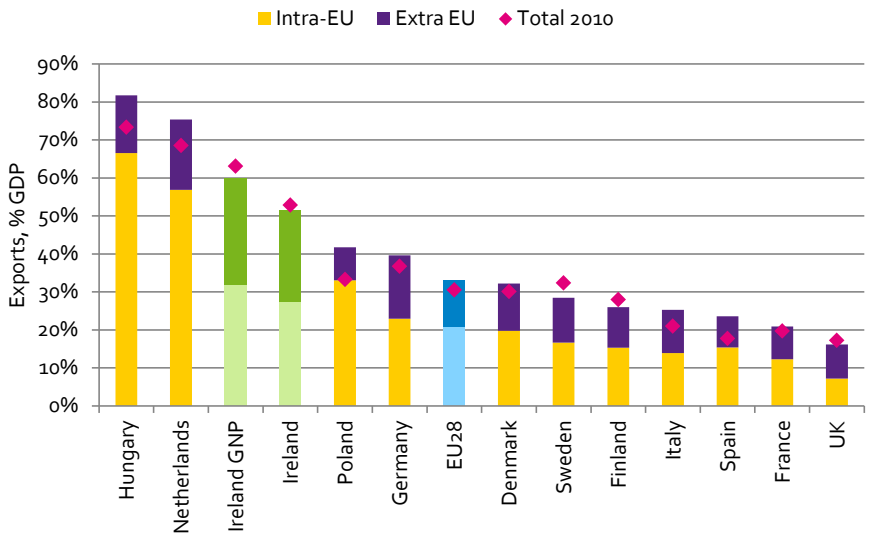
OECD-32 rank: 1st (↑3)

Source: UNCTAD

52 OECD-27 excludes Estonia, Iceland, Mexico, Slovakia, Slovenia and Turkey; the Euro area-13 excludes Estonia, Latvia, Lithuania, Malta, Slovenia and Slovakia.

53 For more information on the impact of this, see CSO, Redomiciled PLCs in the Irish Balance of Payments, July 2015

Figure 4.1.5 Intra and extra-EU merchandise exports (% GDP), 2015



Ireland is one of the most open economies in the EU. Irish merchandise exports to the EU-28 amounted to 27.4% of GDP in 2015. Ireland is also a significant exporter to non-EU countries (24.1% of GDP). As a result of the scale of non-euro denominated trade, Irish firms are particularly exposed to exchange rate fluctuations.

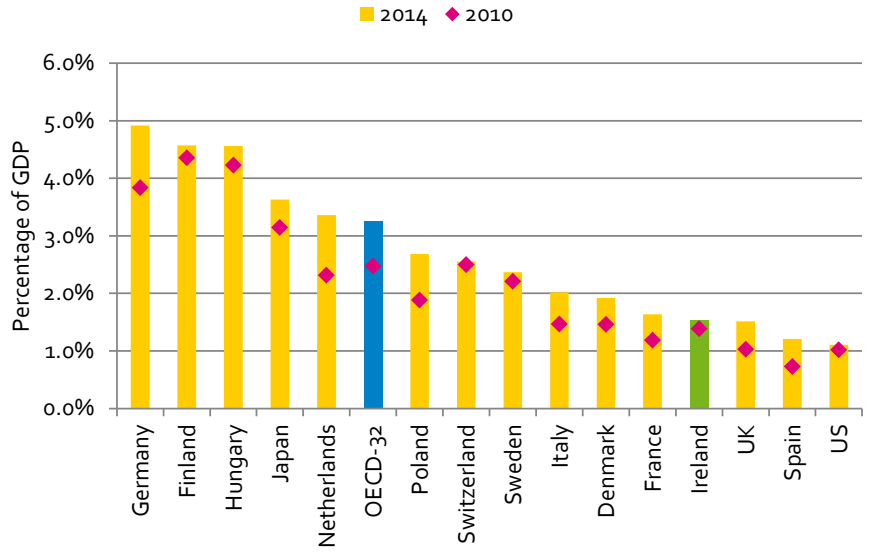
Euro area-19 rank:

Total exports: 7th (-)

Extra-EU: 2nd (↑1)

Source: Eurostat

Figure 4.1.6 Exports to emerging markets (% GDP)[54], 2014



Emerging markets are of growing importance globally. While the value of Irish exports to Brazil, Russia, India and China (BRIC) has increased in value terms, only a minor increase has been recorded in terms of exports as a proportion of GDP (from 1.4% in 2010 to 1.5% in 20104).

OECD-32 rank: 22nd (↓2)

Source: OECD

54 Emerging markets refer to Brazil, Russia, India and China.

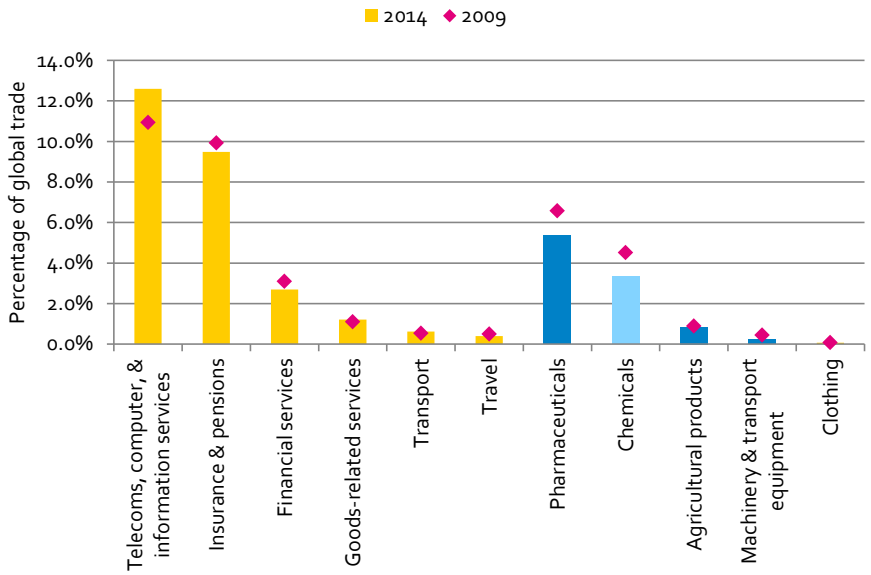
Figure 4.1.7 Ireland's share of world trade, 2015

Source: World Trade Organisation

Ireland has expanded its share of the world's services market, reaching 2.7% in 2014, up from 2.2% in 2005. Over the same period, Ireland's share of global merchandise exports declined from 1% to 0.7% in 2015. Ireland's share of total global export markets is 1.1%, as of 2014.

Rank: n/a

Figure 4.1.8 Ireland's share of world trade by sector, 2014

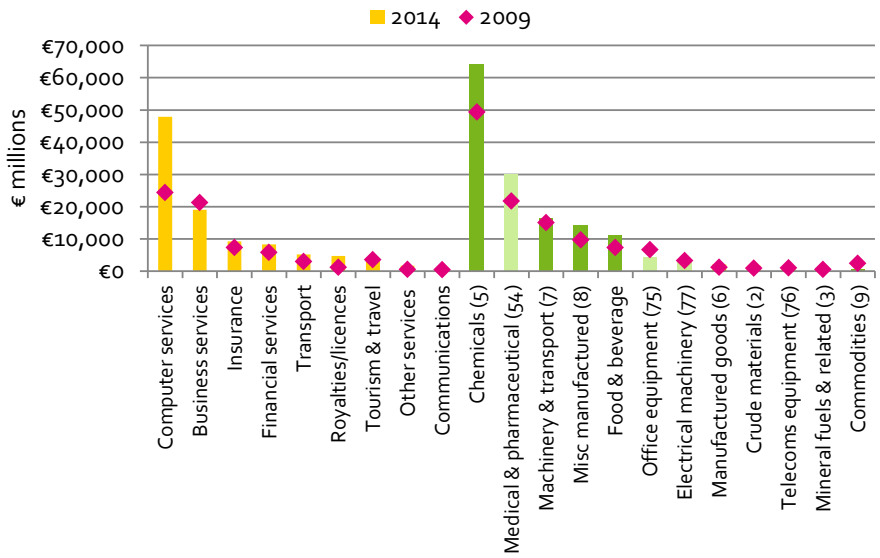


Source: World Trade Organisation

This indicator measures Ireland's share of world exports at a sectoral level. Ireland lost market share in pharmaceuticals, insurance and financial services between 2009 and 2014. On the other hand, strong gains were recorded in the telecommunication, computer and information services sector.

Rank: n/a

Figure 4.1.9 Total goods and services exports by sector from Ireland (€million), 2014

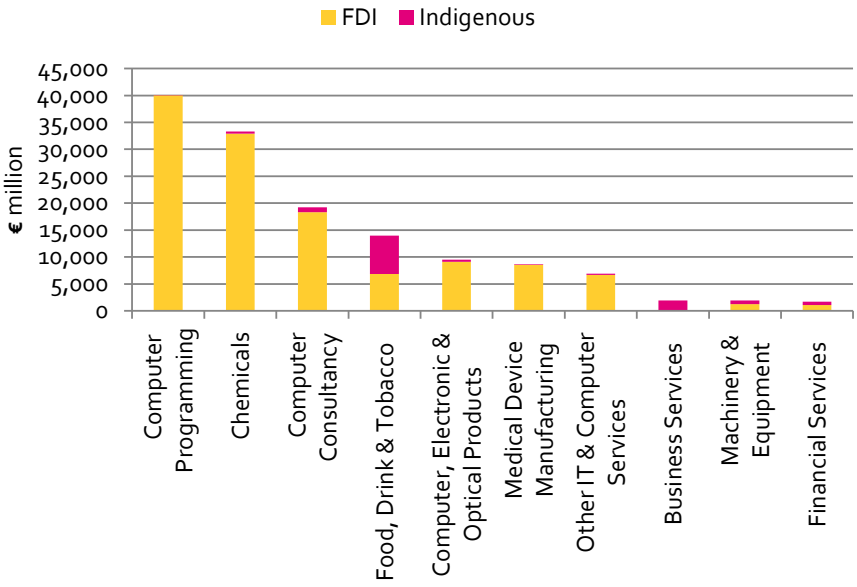


While exports have been the primary engine of economic growth in Ireland in recent years, the composition and range of goods exported from Ireland has become increasingly concentrated. Within the services sector computer and business services dominate, whilst chemicals (and particularly medical and pharmaceutical products) are the primary goods exports.

Rank: n/a

Source: Central Statistics Office

Figure 4.1.10 Enterprise agency client exports from Ireland by sector and firm ownership, 2014



Exports by enterprise agency clients increased by 32% in the five years to 2014. Irish owned companies account for 11% of total agency client exports. With the exception of the Food, Drink and Tobacco sector, Foreign owned firms account for more than 90% of exports from the top 5 sectors.

Rank: n/a

Source: DJEI, Annual Business Survey of Economic Impact

Figure 4.1.11 Direct expenditure in the economy by enterprise agency clients by sector, 2014

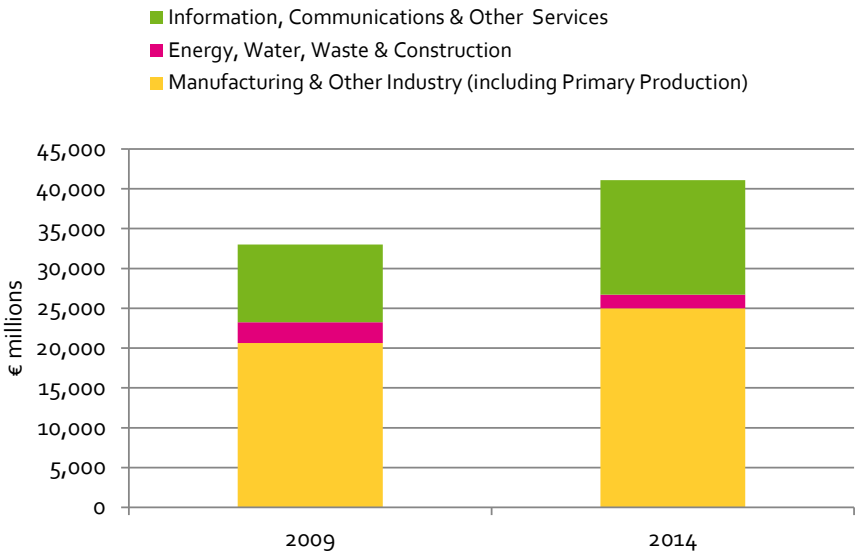
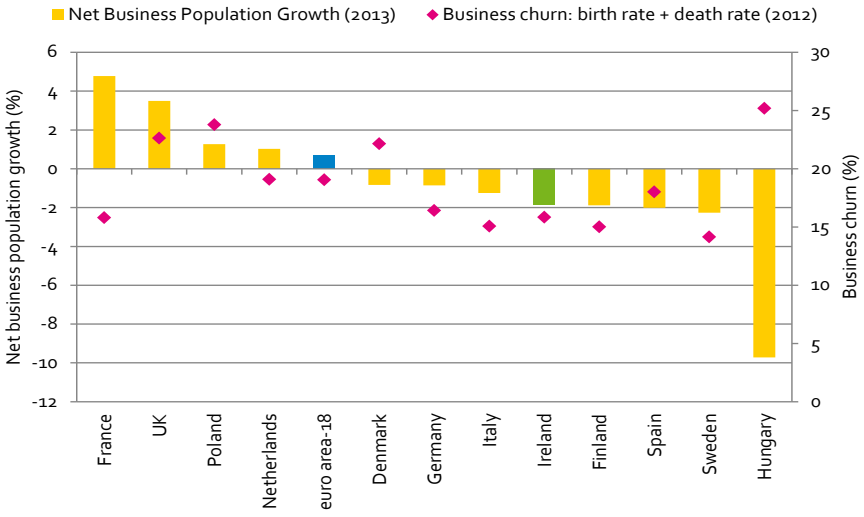


Figure 4.1.11 shows direct expenditure in the Irish Economy (payroll, Irish materials, and Irish services) by enterprise agency client companies[55]. In 2014, total expenditure by enterprise agency clients increased by 24% to €41 billion. The proportion of expenditure by industry and manufacturing and ICT has increased significantly.

Rank: n/a

Source: DJEI, Annual Business Survey of Economic Impact

Figure 4.1.12 Net business population growth[56], 2013



In 2013 in Ireland, more businesses closed than were created. Gains in the ICT and financial services sectors were offset by construction losses. Ireland had one of the lowest business churn rates in the Euro area in 2012.

Euro area-18 rank:

Business population growth: 13th (↓1)

Source: Eurostat

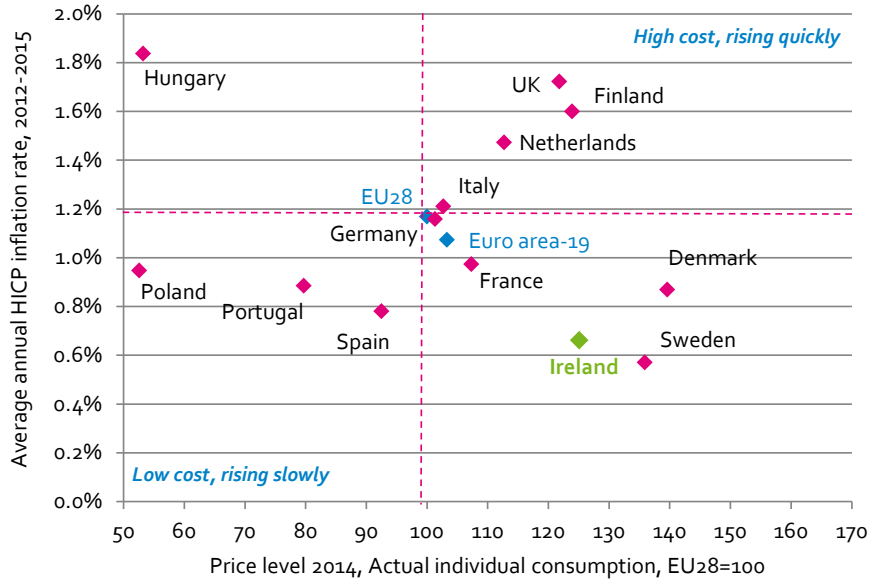
55 The ABSEI is an annual survey of the client companies of Enterprise Ireland, IDA Ireland, Údarás na Gaeltachta and Shannon Development in the manufacturing and information, communication and other services sectors, employing ten or more employees in Ireland.

56 Euro area-18 excludes Greece; net population growth data for Ireland is for 2012 and churn data is for 2011. Business churn considers the total number of firm births and deaths as a proportion of the enterprise population.

4.2 Costs

Price Levels

Figure 4.2.1 Consumer price levels (2014) and average annual inflation, 2012-2015



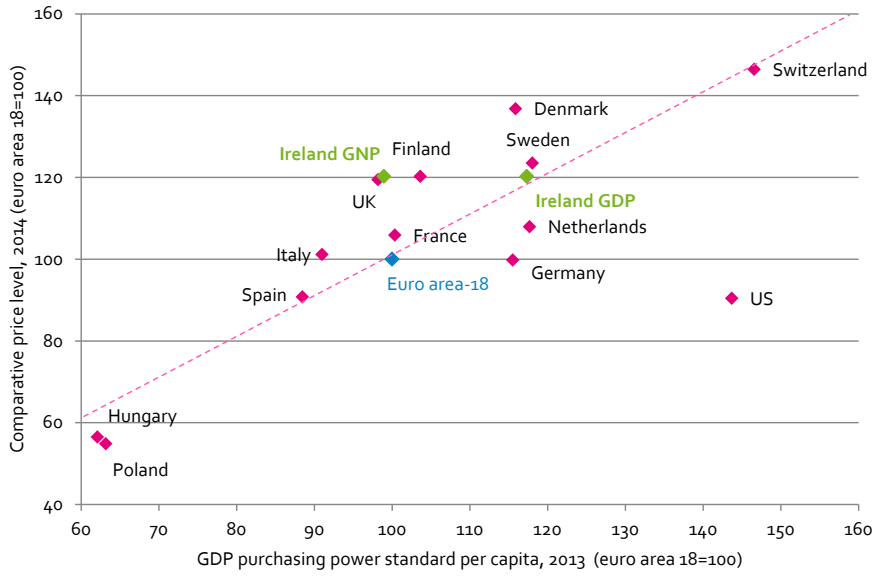
Source: Eurostat

Figure 4.2.1 examines both changes in prices (inflation) and the price level. It shows that Ireland's current price profile is "high cost, rising slowly". Europe, in recent years, has been characterised by low inflation – indeed, the threat of deflation persists across the Euro area.

Euro area-19 rank:

HICP: 3rd

Figure 4.2.2 Price levels (2014) and GDP per capita (2013)



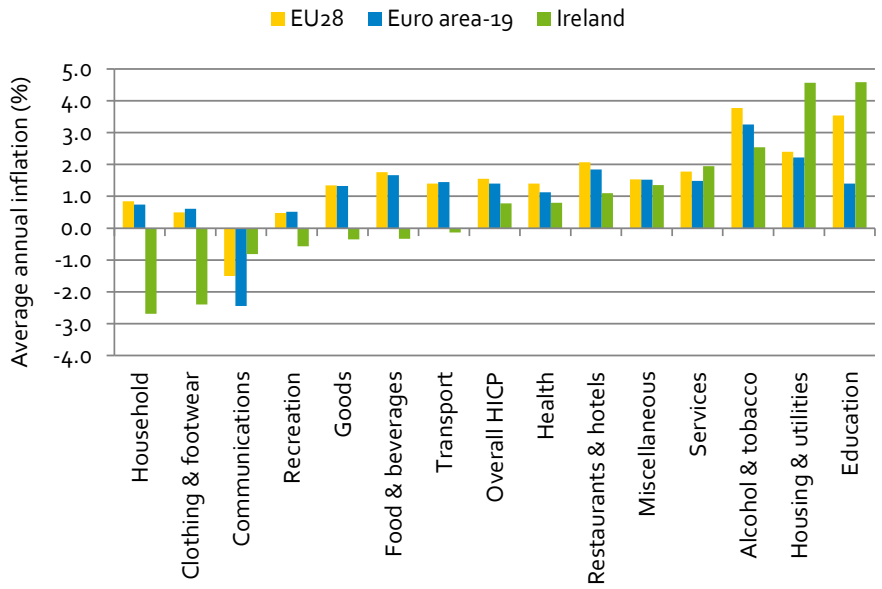
Source: Eurostat

While Irish and Euro area inflation is low, Irish consumer prices remain over 20% above the Euro area-18 average. In 2014, Ireland was the most expensive location in the Euro area for consumer goods and services. Prices in Ireland appear particularly high relative to income when measured in GNP terms.

Euro area-19 rank:

Price level 18th (↑1)

Figure 4.2.3 Average annual inflation rate by commodity group, Ireland, EU and Euro area, 2010-2015

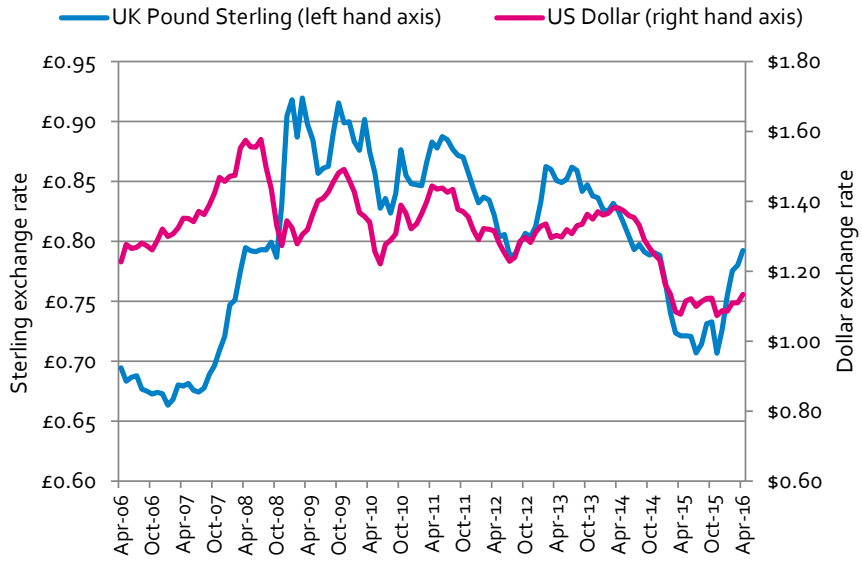


Source: Eurostat

Figure 4.2.3 examines average annual inflation in Ireland and the EU over the period 2010 to 2015 across a range of commodity categories. Overall, Irish HICP inflation was below both the Euro area and EU average. However, for housing, education, and for overall services, Irish inflation exceeded the average annual rate.

Rank: n/a

Figure 4.2.4 Euro, Dollar and Sterling exchange rates, April 2006-April 2016

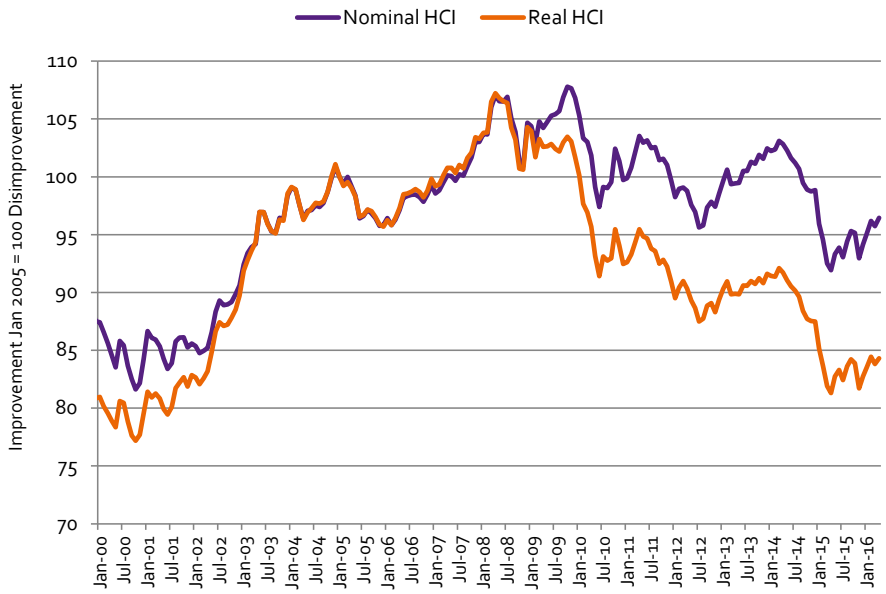


Source: European Central Bank

The value of the Euro against the Dollar and Sterling has fluctuated considerably in recent years. Whereas previously euro weakness boosted Irish competitiveness, in recent months Sterling has weakened against the euro. While these fluctuations pose challenges for exporting firms, the exchange rate has been more favourable to exporters than at many stages over the last decade

Rank: n/a

Figure 4.2.5 Harmonised competitiveness indicator (HCI) for Ireland, January 2000-April 2016



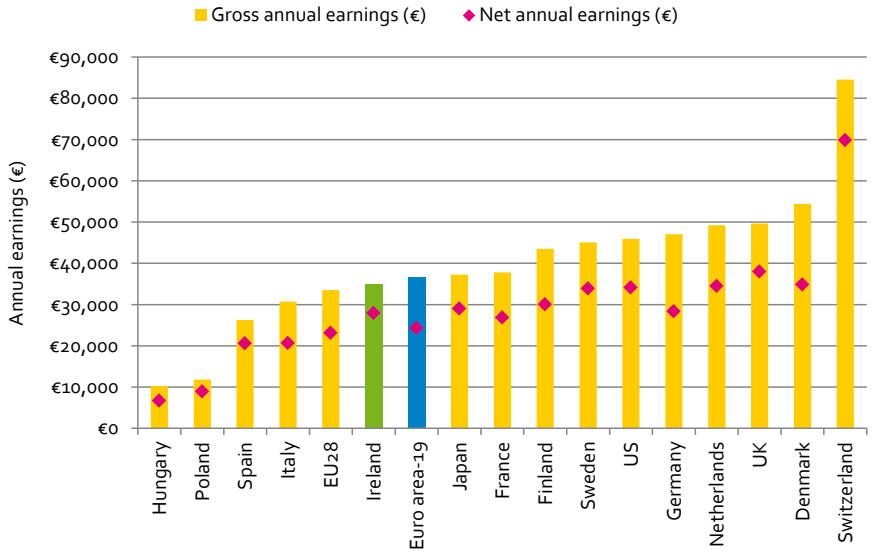
Analysis of the real HCI – which captures both relative price movements and exchange rate impacts, indicates that over half of Ireland's improvement in competitiveness over the course of the recession and subsequent recovery is a result of external factors – primarily movements in the exchange rate.

Rank: n/a

Source: Central Bank of Ireland

Pay Costs

Figure 4.2.6 Average annual gross & net earnings, single individual, no children, 100% of average earnings[57], 2015

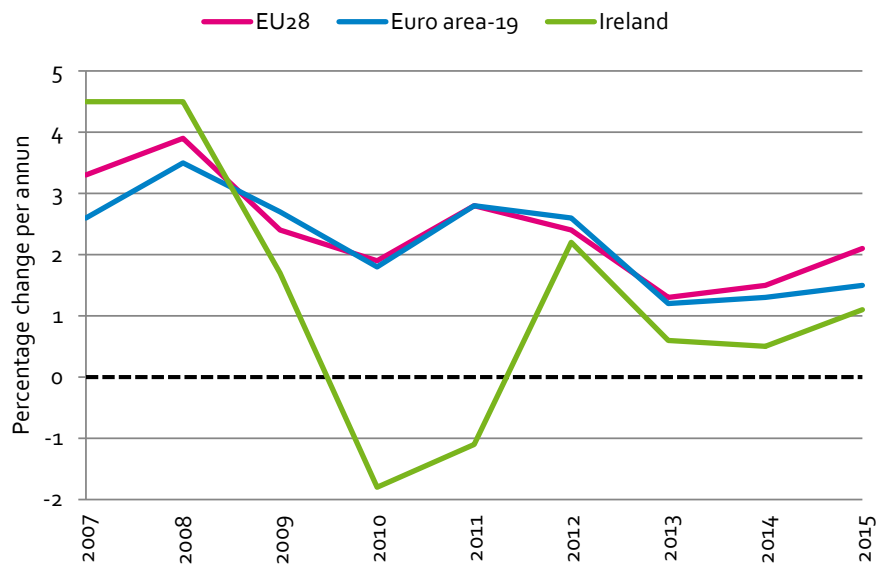


Gross earnings include wages, taxes on income and employer and employee social security contributions. While gross earnings are 4.6% below the Euro area average, net earnings are 14.9% above the average, reflecting the relatively small gap between before and after tax wages in Ireland. **Rank:** n/a

Source: Eurostat

57 Gross wages include wages, taxes on income and employer and employee social security contributions. Euro area-18 rank excludes Cyprus.

Figure 4.2.7 Annual growth in labour costs, 2007-2015

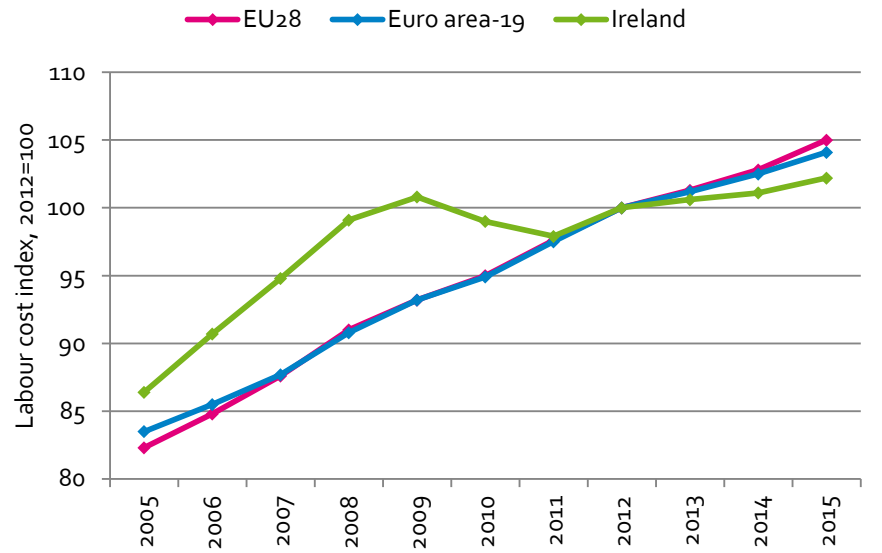


Source: Eurostat

Irish labour costs fell in both 2010 and 2011. There was a return to growth in 2012. While labour cost growth has been positive between 2012 and 2015, the rates recorded have been consistently below EU and Euro area averages, representing a competitiveness gain for Ireland.

Rank: n/a

Figure 4.2.8 Labour cost index, 2005-2015

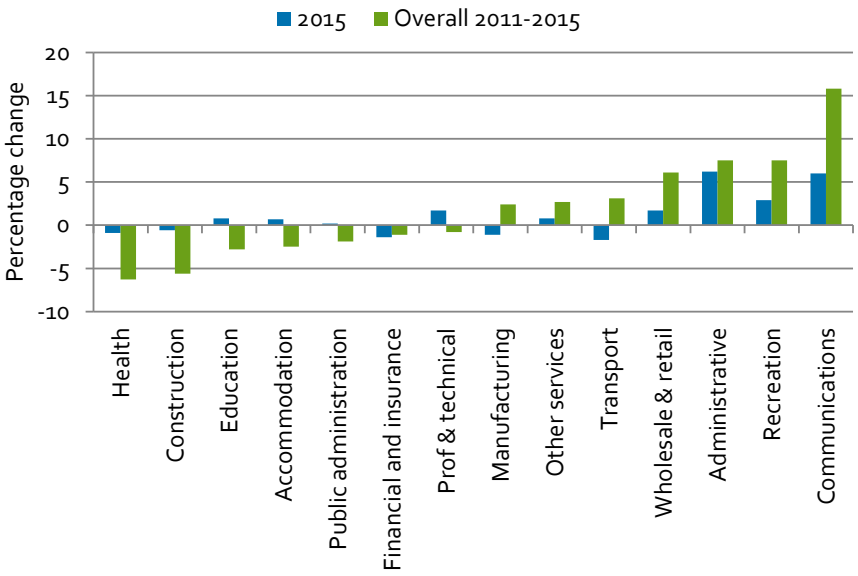


Source: Eurostat

Figure 4.2.8 shows similar data as the previous chart but expressed in index form. Setting 2012 labour cost levels equal to 100, it is evident that Irish labour costs have cumulatively increased by slightly less than EU and Euro area labour costs. However, an index such as this does not reflect the different starting levels of labour costs in each country.

Rank: n/a

Figure 4.2.9 Annual growth in labour costs in Ireland by sector, 2015

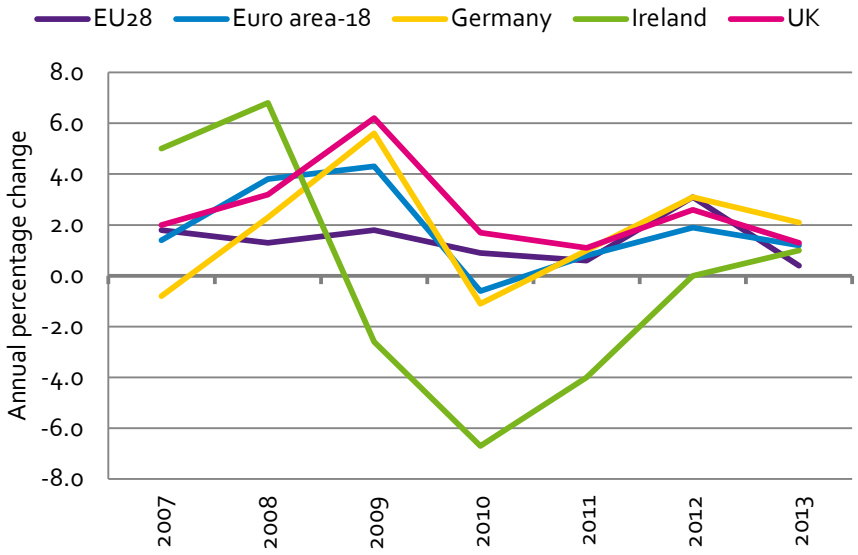


Between 2011 and 2015, there was significant variation in labour cost growth between sectors. While strong growth was recorded in the communications, and recreation sectors, significant reductions occurred in sectors such as health, construction and education. In 2015, increases were recorded in 9 out of 14 sectors analysed and decreases occurred in 5 sectors.

Rank: n/a

Source: Eurostat

Figure 4.2.10 Annual growth in nominal unit labour costs[58], 2007-2013



ULCs reflect both labour costs and productivity. Ireland was one of a small number of countries to witness reductions in ULCs during the recession. While ULC growth was positive in 2012 and 2013, the increase in Ireland was less than the increase in many of our competitors, representing a competitiveness gain.

Rank: n/a

Source: Eurostat

58 The latest forecasts from the European Commission suggest that in nominal ULC terms Ireland's competitiveness will improve further vis-à-vis other EU states over the 2016-2017 period. See European Commission, European Economic Forecast, Institutional Paper 020, February 2016

Figure 4.2.11: Earnings per week, earnings per hour and hours worked, Q4 2015

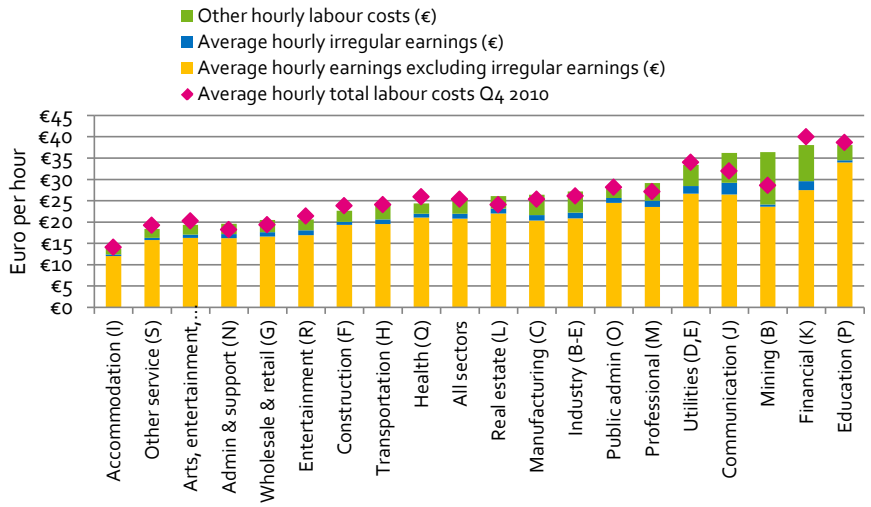


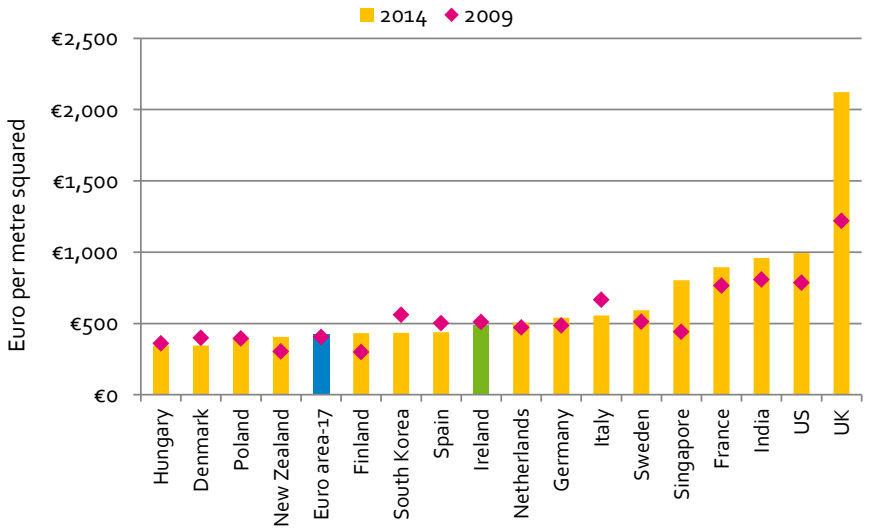
Figure 4.2.11 examines hourly Irish labour costs for a range of sectors. It includes data on regular and irregular earnings as well as "other labour costs". The highest hourly labour costs occur in sectors such as finance, insurance, real estate, and education.

Rank: n/a

Source: Central Statistics Office

Non-Pay Costs

Figure 4.2.12 Cost of renting a prime office unit, € per square metre per year, 2014

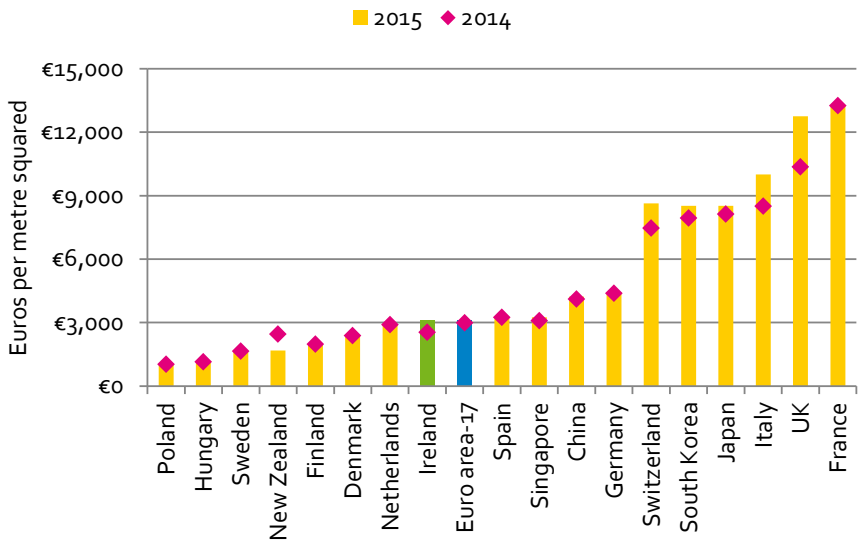


Office rents on new leases in Dublin fell by 47% between their peak in 2007 and 2012. The majority of this decline was realised early in the recession. Thereafter, prices stabilised. Between 2009 and 2014, rents fell in Ireland by a recorded 5%. In spite of this in 2014, Ireland was the 6th most expensive location in the Euro area.

Euro area-17 rank: 12th (↑1)

Source: Cushman and Wakefield Office Rents Around the World

Figure 4.2.13 Cost of renting a prime retail unit, € per square metre per month[59], 2015

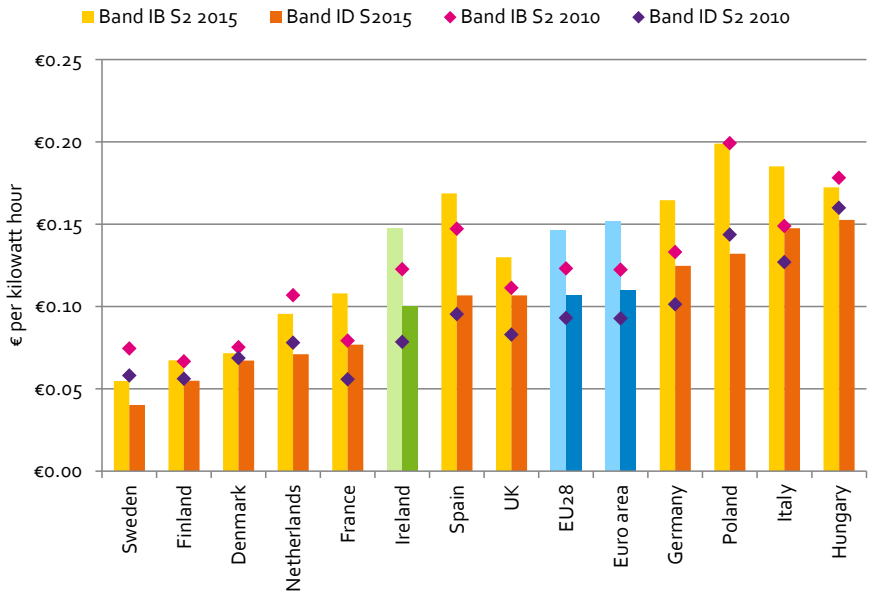


In 2015 prime retail rents increased by 22% in Ireland over the year. Ireland was the 6th most expensive location in the Euro area and rents range from €550 per square metre in O'Connell Street, Limerick to €5,500 in Grafton Street, Dublin.

Euro area-17 rank: 12th (↓1)

Source: Cushman and Wakefield, Main Streets Across the World, 2015/2016

Figure 4.2.14 Industrial electricity prices (excluding VAT)[60], S2 2015



In the second half of 2015, Irish electricity prices for SMEs were the 9th most competitive in the Euro area and were marginally below the Euro area average. Prices for large users were also below the average and were the 8th most competitive in the Euro area.

Euro area-19 rank:

Band IB: 9th (↓1)

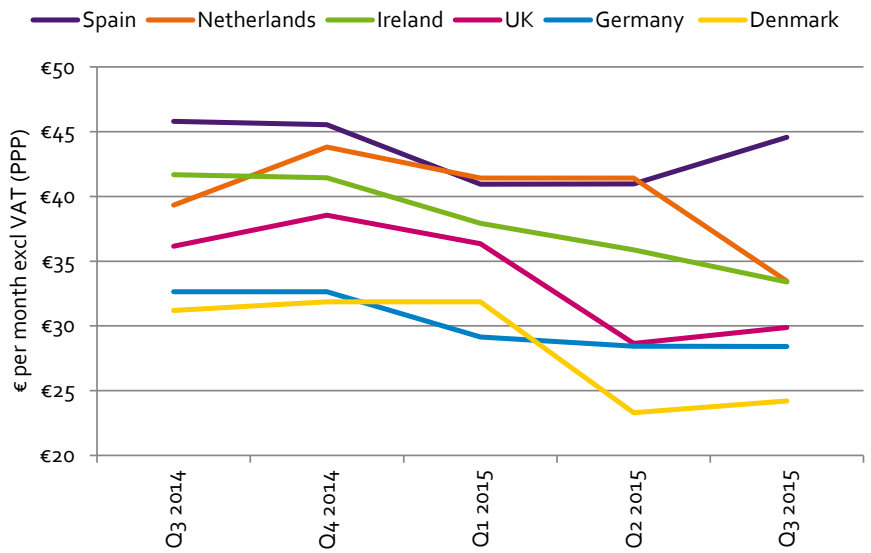
Band ID: 8th (↓3)

Source: Eurostat

59 The chart is based on the most expensive retail location in each country, and uses data collected in September 2015. Data relates to the expected rent obtainable on a standard unit and/or shopping centre in a prime pitch in 500 locations across 65 countries around the world. Data for Ireland is based on rents for Grafton St. in Dublin. Euro area-17 excludes Cyprus, Malta.

60 Band IB refers to electricity prices for SMEs are based on an annual consumption of 20 and 500 MWh (Band IB); Band ID refers to electricity prices for large users are based on an annual consumption of 2,000 to 20,000 MWh. Data refer to half-yearly prices for each year (I.e. S2 represents the second six months of the year). Prices exclude VAT and other recoverable taxes and levies.

Figure 4.2.15 Business fixed broadband, € per month excluding VAT, Q3 2015

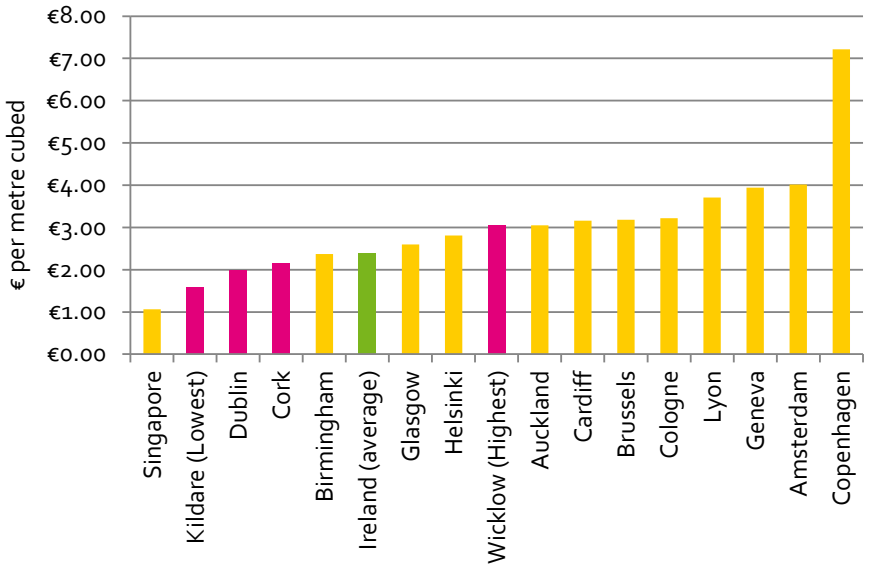


Source: ComReg

Figure 4.2.15 shows that in Q3 2015 fixed Broadband charges for Irish business were €33.40, roughly halfway between the most expensive (Spain at €44.56) and the least expensive (Denmark at €24.20). Over the previous five quarters Fixed Broadband charges fell by 24.7%.

Rank: n/a

Figure 4.2.16 Water services costs, 2013



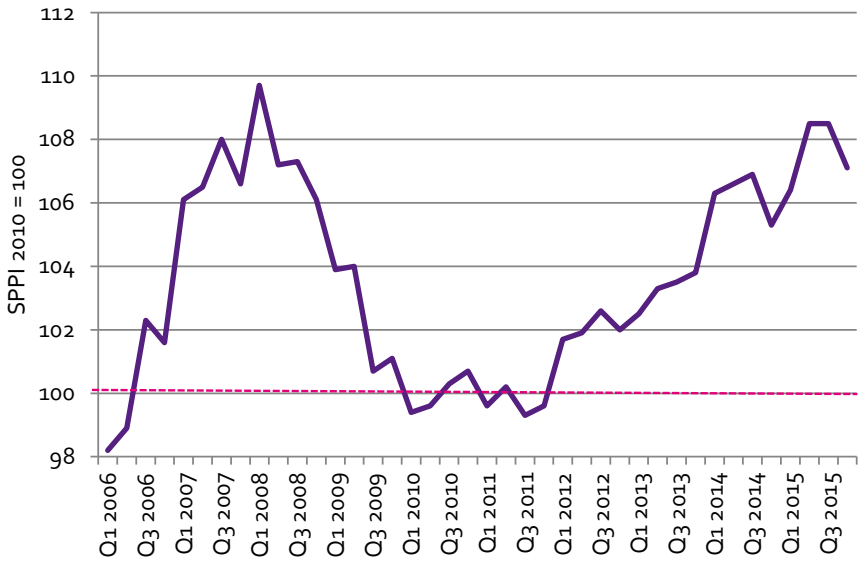
Source: DKM/RPS Consulting for DJEI

On average, water and waste water costs in Ireland (€2.38 per m3) compare favourably to those in competitor markets. The Commission for Energy Regulation is embarking on a project to develop a more harmonised suite of tariffs for non-domestic customers[61].

Rank: n/a

61 Data for Dublin relates to Dublin City Council; data for Birmingham is based on > 50,000 m3 annual water consumption in May-Sept and 50,000-249,000m3 waste water annual consumption; data for Glasgow is based on > 25,000 m3 annual water consumption 23,750m3 waste water annual consumption; data for Auckland is based on 10,000-88,310 m3 annual waste water consumption; data for Cardiff is based on 50,000 -99,000 m3 annual water consumption; data for Brussels is based on >5,000 m3 annual water consumption. Currently there is a wide range of non-domestic tariff levels, tariff categories, methodologies, applications, billing arrangements and billing cycles across Ireland.

Figure 4.2.17 Services producer price index (SPPI)[62], Q1 2006-Q4 2015

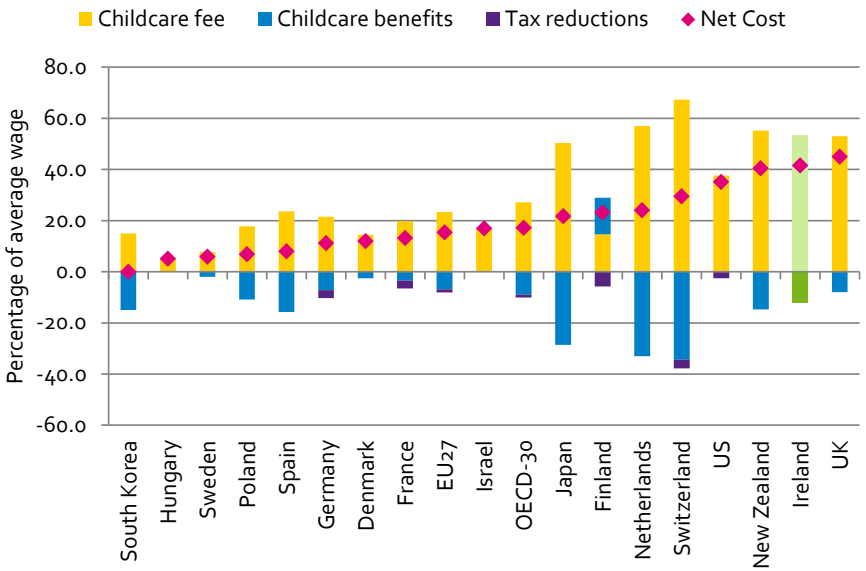


The SPPI measures changes in the average prices charged for a range of business services. In Q4 2015, the SPPI stood at 107.1. Following a period of decline during the recession, an upward trend has been evident since 2011. Recent increases were driven by computer programming and consultancy, air transport and legal costs.

Rank: n/a

Source: Central Statistics Office

Figure 4.2.18 Childcare-related costs and benefits, percentage of average wage[63], 2012



This data takes account of childcare fees, child benefit and relevant tax reductions. For couples, earning 167% of the average wage, Ireland is the 2nd most expensive in the OECD, resulting in low rates of female labour force participation. For lone parents (67% of the average wage) Ireland is the most expensive OECD location.

OECD-32 rank: 31st

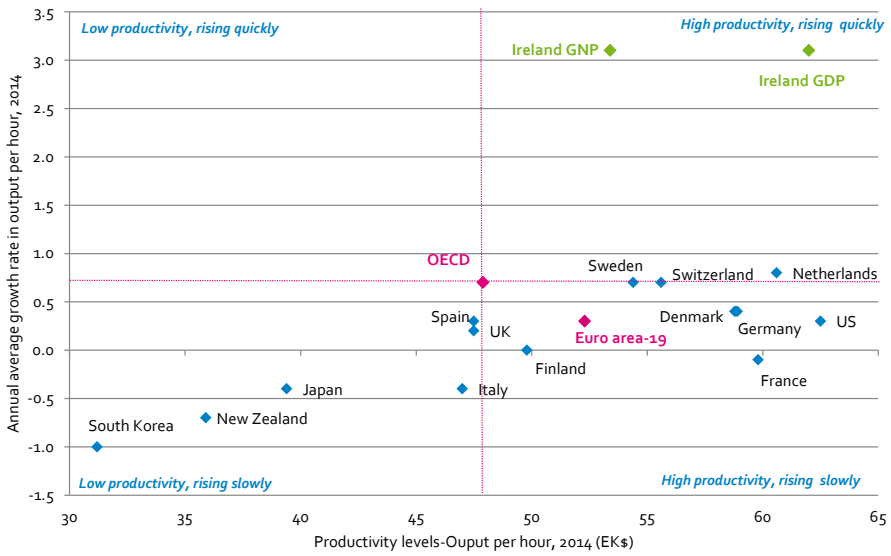
Source: OECD

62 The SPPI is an experimental data set and the indices are still under development. In most cases the services measured 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).

63 Data for couples refers to a situation where the first earner earns 100% of the average wage and the second earns 67% of the average wage. EU27 and OECD-30 exclude Chile, Italy, Mexico and Turkey.

4.3 Productivity

Figure 4.3.1 Productivity levels and growth rates[64], 2014



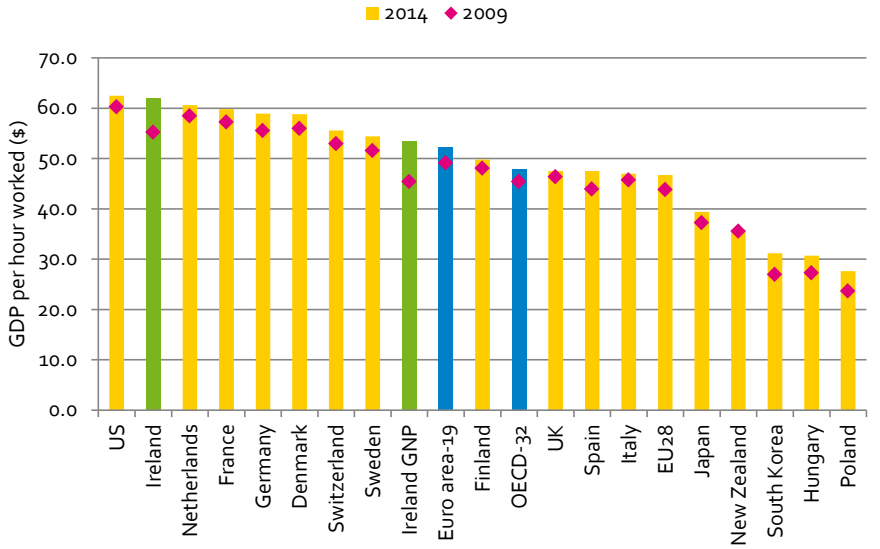
Irish productivity levels improved considerably between 2009 and 2014, recording average annual growth of 2.7% in GDP terms. In GNP terms they continue to remain slightly above the Euro area average. The presence of FDI, particularly in the Pharma and ICT sectors has a significant impact on Irish productivity.

OECD-32 rank:

GDP 5th ; GNP: 11th; Productivity growth 1st

Source: OECD

Figure 4.3.2 GDP per hour worked (US $, 2010 constant prices, PPS), 2014



Ireland had the 5th highest labour productivity rate among EU states in 2014. Output per hour worked was $62 in 2014 in GDP terms, but considerably lower in GNP terms. Irish (GDP) output per hour worked increased by 12% over 2009-2014 well in excess of the OECD average (5.5%).

OECD-32 rank:

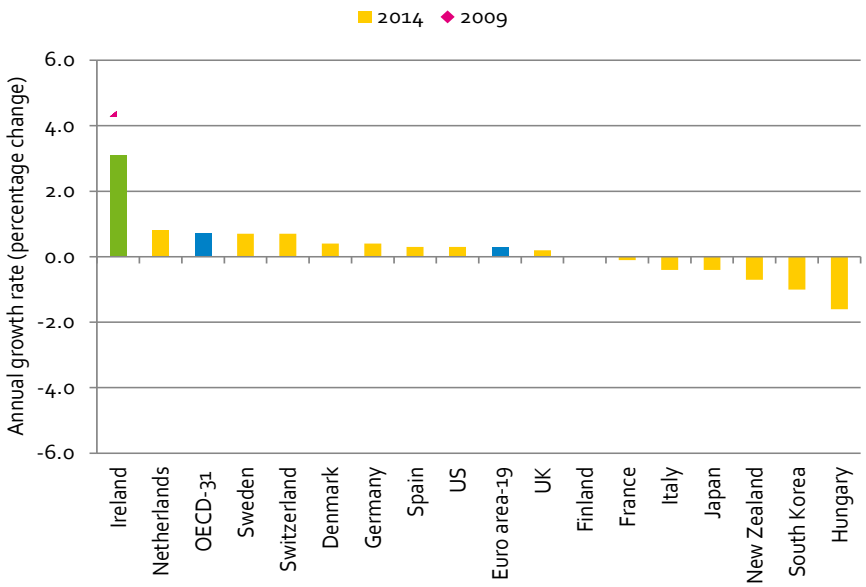
GDP 5th (↑4)

GNP 11th (↑6)

Source: OECD

64 Growth rate refers to output per hour GDP only

Figure 4.3.3 Growth in GDP per hour worked, constant prices, 2014

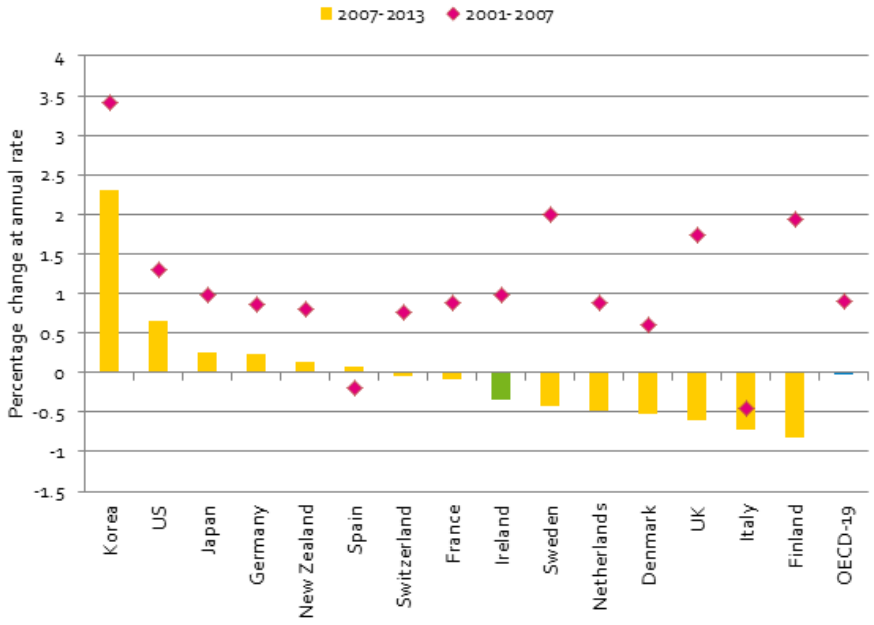


At 3.1% the growth rate of Irish (GDP) productivity per hour work significantly exceeds the OECD average (1.5%). Large disparities exist among OECD Member States in terms of performance and the 'FDI effect' means in GNP terms, Irish productivity growth rates are close to the OECD average.

OECD-31 rank: 1st (↑1)

Source: OECD

Figure 4.3.4 Multifactor productivity growth, total economy, percentage change at annual rate, 2001-2013

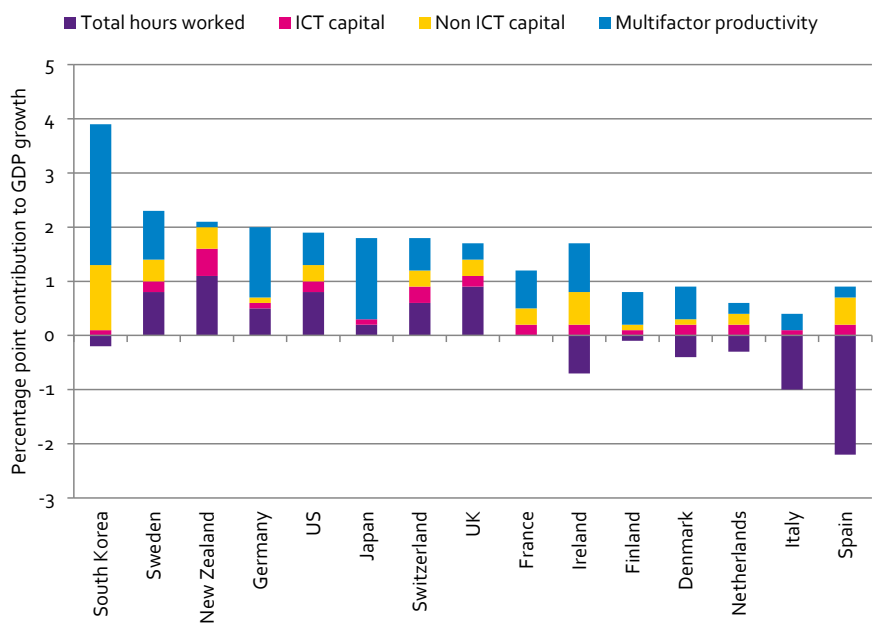


Multifactor productivity (MFP) reflects the overall efficiency with which labour and capital inputs are used together in the production process. Irish MFP grew by 1% in 2001-2007 and decreased by 0.35% in the years 2007-2013. Prior to the crisis, MFP growth in most OECD countries contributed strongly to productivity growth. In the period 2007-2013 MFP growth decelerated in nearly all countries.

OECD-19 rank: 8th

Source: OECD

Figure 4.3.5 Average percentage point contribution of productivity to GDP growth, 2009-2013



While productivity growth in Ireland (capital, non-capital and MFP) contributes positively to overall growth, the effect of this is somewhat undermined by the negative contribution of hours worked as a result of the recession. The negative contribution of hours worked over the period 2009-2013 reflects changes in labour market composition.

Rank: n/a

Source: OECD

4.4 Employment

Figure 4.4.1 Employment, unemployment & long term unemployment (000's), Q4 2007-Q4 2015

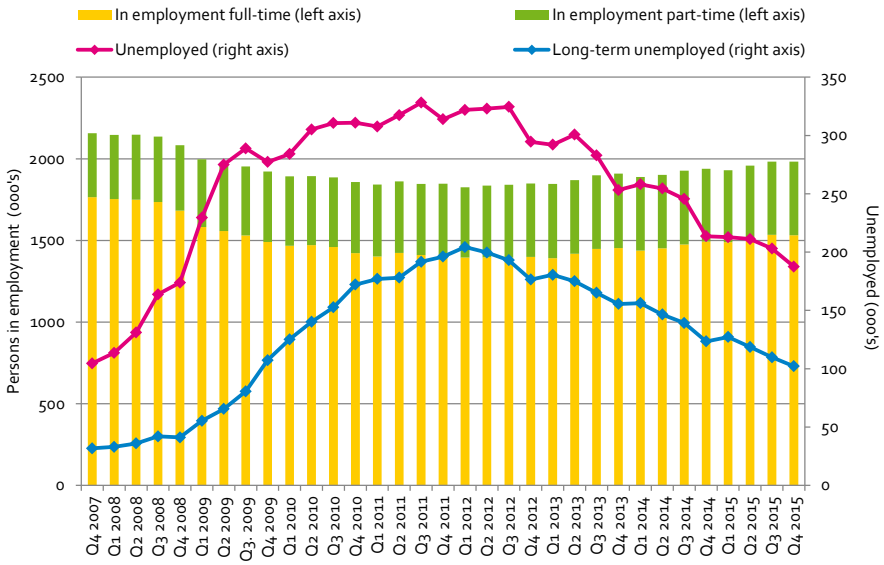
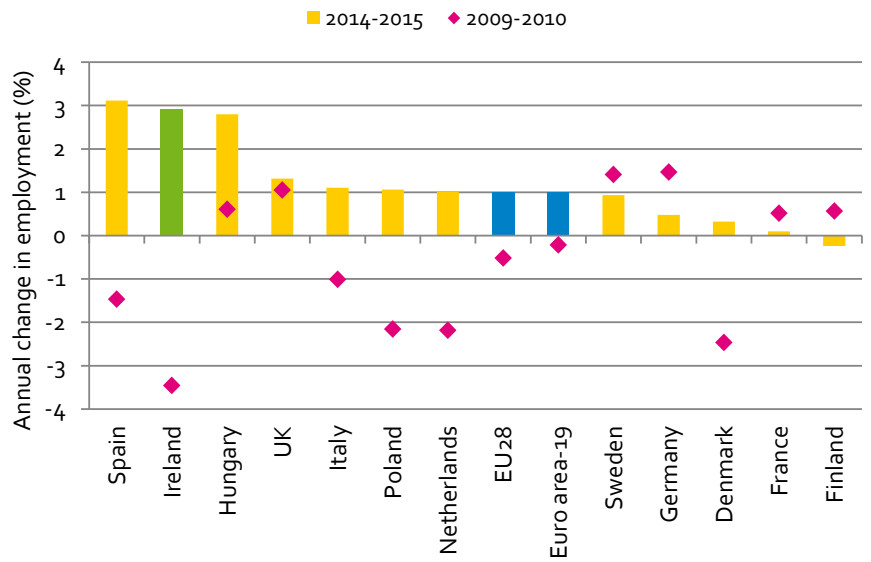


Figure 4.4.1 illustrates the ongoing improvement in the labour market. While employment has not yet returned to peak pre-recession levels, over 1.98 million were employed in Q4 2015, an annual increase of 2.3%. Unemployment and long term unemployment are on a steady downward trajectory: unemployment has declined on an annual basis for 14 quarters.

Rank: n/a

Source: Central Statistics Office

Figure 4.4.2 Employment growth rate, 2015

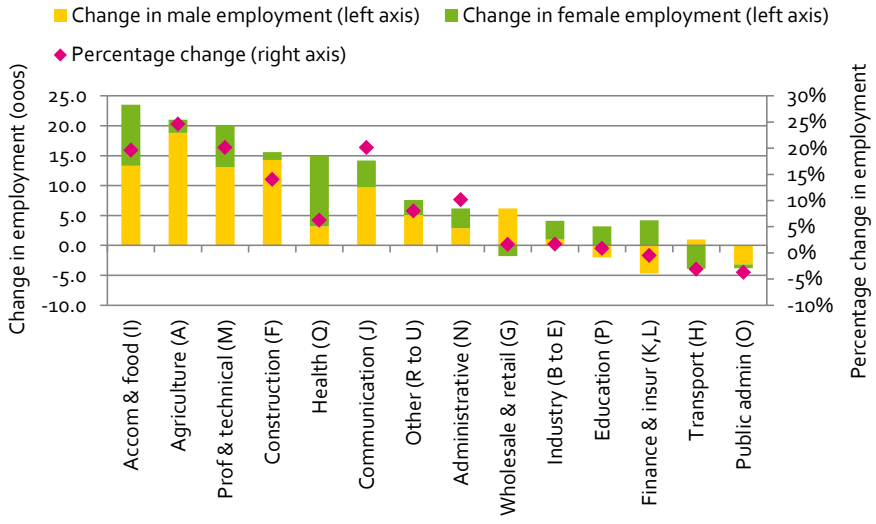


As a consequence of the recession employment growth collapsed in Ireland in 2009-2010. The job rich nature of the Irish economic recovery in employment terms is evident in Figure 4.4.2. At 2.9%, the Irish employment growth rate in 2015 was well above the Euro area average 0.9% and was the 4th highest in the Euro area.

Euro area-19 rank: 4th (↑12)

Source: Eurostat

Figure 4.4.3 Change in employment in Ireland by sector and gender, Q4 2010-Q4 2015



The majority of sectors in Ireland have experienced growth in employment between 2010 and 2015 as the recovery strengthens. Growth in construction employment is particularly noteworthy (given the previously extensive job losses in that sector), as is the increase in professional services, communications and accommodation and food and agricultural employment.

Rank: n/a

Source: Central Statistics Office

Figure 4.4.4 Self-employed (proportion as a percentage of total employment), 2014

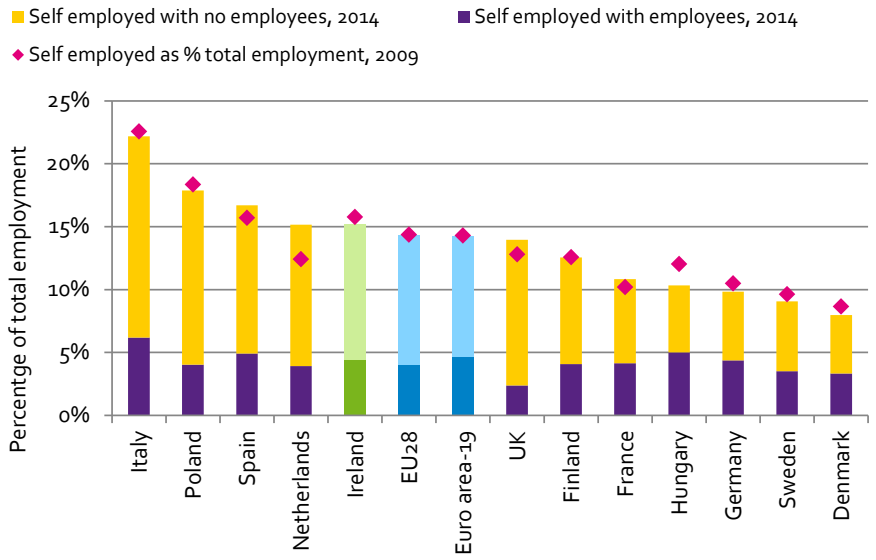
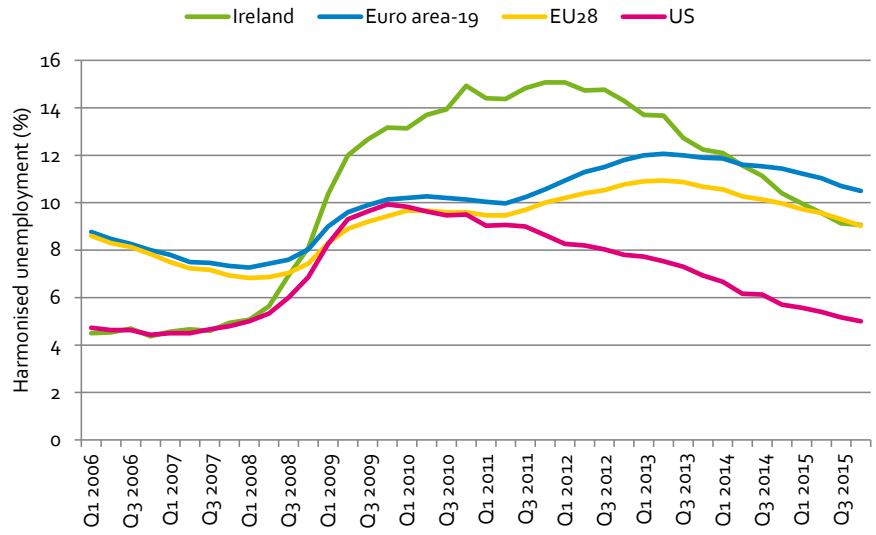


Figure 4.4.4 examines the number of self-employed persons and those self-employed who also have employees (a proxy for entrepreneurship). The proportion of self-employed in Ireland has fallen since 2009 (from 15.7% to 15.1% in 2014), but this remains above the Euro area-19 average (14.2%).

Euro area-19 rank: 8th (↓3)

Source: Eurostat

Figure 4.4.5 Unemployment rate (seasonally adjusted, standardised rate)[65], Q1 2006-Q4 2015



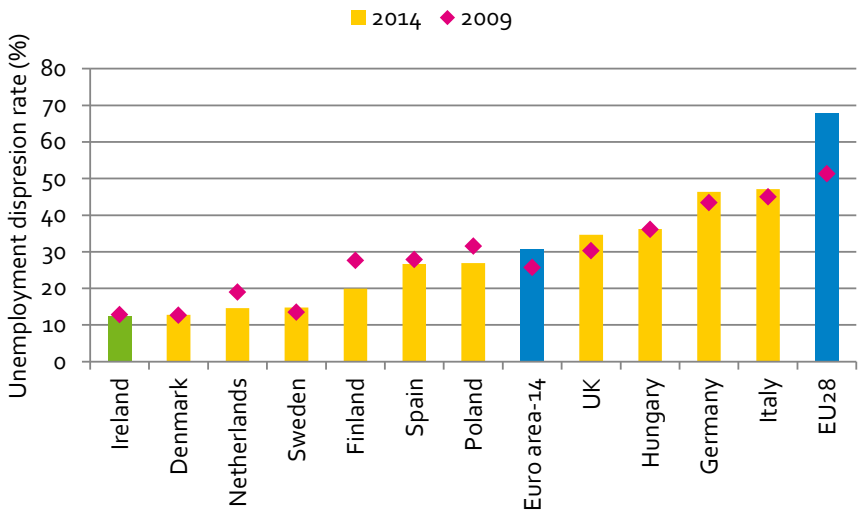
This indicator measures the number of unemployed people as a percentage of the labour force. The rapid deterioration in Ireland's labour market upon the onset of recession and its subsequent rapid improvement is evident. The US labour market has proven more resilient than its European counterpart.

Euro area-15 rank: 8th (↑6)

Source: OECD

65 Harmonised unemployment rates define the unemployed as people of working age who are without work, are available for work, and have taken specific steps to find work. The uniform application of this definition results in estimates of unemployment rates that are more internationally comparable than estimates based on national definitions of unemployment. Euro area-15 excludes Cyprus, Latvia, Lithuania and Malta. Change in rankings compares Q4 2010 with Q4 2015.

Figure 4.4.6 Dispersion of regional unemployment rates by NUTS 3 regions (%)[66], 2014

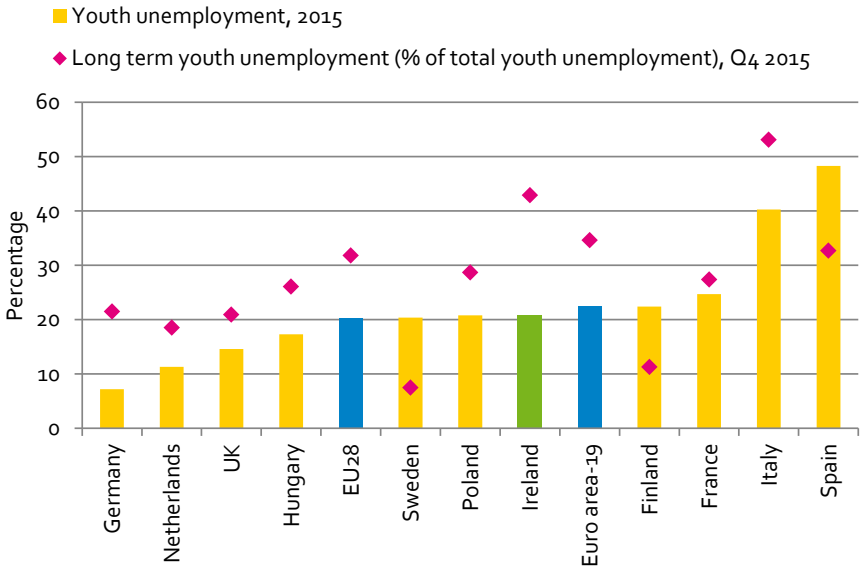


The lower the dispersion rate the greater the level of cohesion between regions. The differential in unemployment rates across Ireland's 8 regions (12.5%) is the lowest in the Euro area. While this is virtually unchanged compared with 2009, it did increase for a time in 2010 to 2013.

Euro area-14 rank: 1st (↑2)

Source: Eurostat

Figure 4.4.7 Youth unemployment and long term youth unemployment rate, 2015



Unemployment amongst those aged 15-24 years in Ireland (20.9%) is now below the Euro area average (22.4%). Long term youth unemployment remains a serious challenge in Ireland (42.9%), compared with the Euro area (34.6%). Ireland also has a high proportion of youth neither in employment, education or training[67].

Euro area-19 rank:

Youth: 10th (↑1)

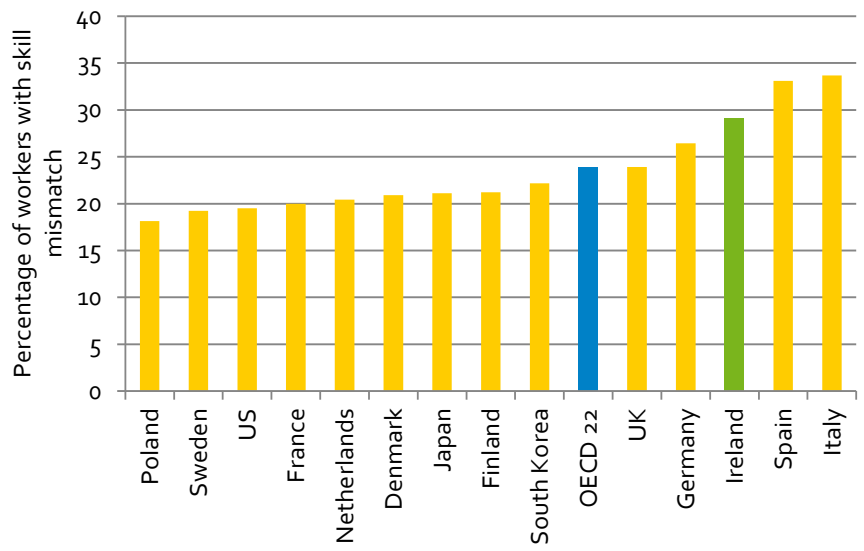
Long term: 13th (↑2)

Source: Eurostat

66 Euro area-14 excludes Cyprus, France, Luxembourg, Malta and Portugal.

67 NEET refers to the proportion of the 15-24 years age cohort who are not in employment, education or training (NEET).) In 2012 OECD data, the Irish NEET rate (16.7%) exceeded the OECD average (11.8%). Change in rankings compares Q4 2010 with Q4 2015.

Figure 4.4.8 Percentage of workers with skill mismatches[68], 2012

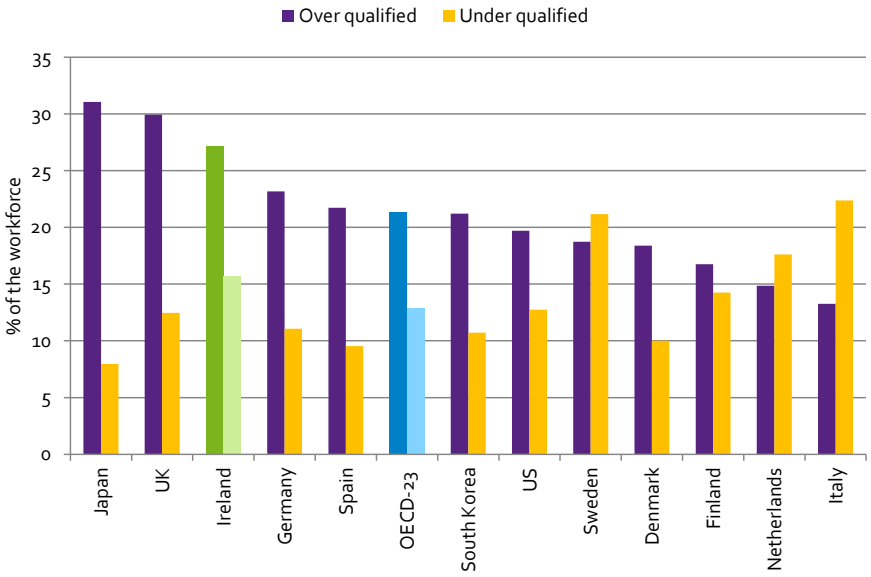


Source: OECD

Skills mismatch is an encompassing term which refers to various types of imbalances between skills offered and skills needed in the world of work. The incidence of skill mismatch in the Irish economy (over-education and under-education) is high by OECD standards.

OECD-22 rank: 19th

Figure 4.4.9 Over and under qualifications[69], 2012



Source: OECD PISA

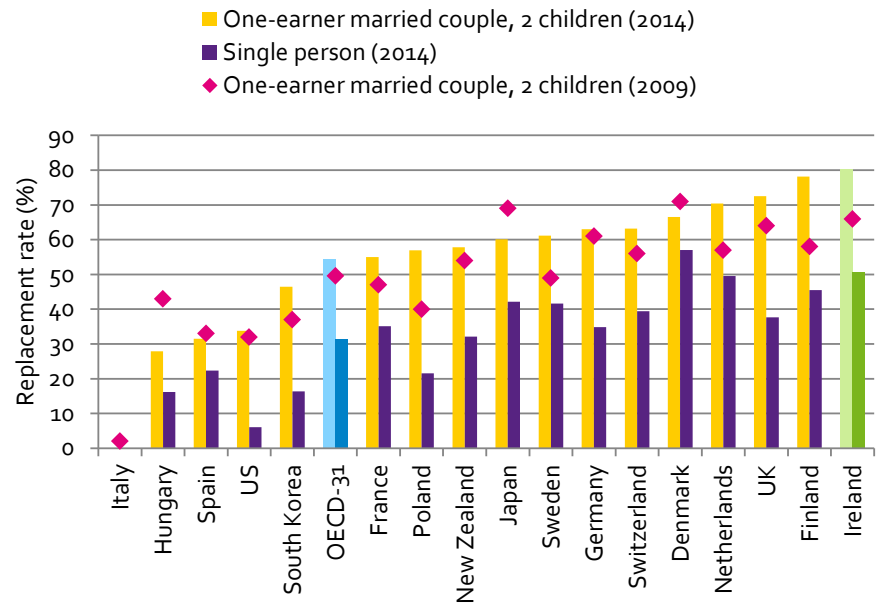
Ireland had the 4th highest percentage of workers whose highest qualification level is greater than the qualification that they deem necessary to get their current job. Ireland had the 5th highest percentage of workers considered under qualified for their current role.

OECD-23 rank:
Over: 4th Under: 19th

68 Skill mismatch data is based on the OECD's Survey of Adult Skills and combines information on self-reported skill mismatch and quantitative information on skill proficiency. OECD-22 excludes Chile, Greece, Hungary, Iceland, Israel, Luxembourg, Mexico, New Zealand, Portugal, Slovenia, Turkey and Switzerland. For more detail see OECD, Skill Mismatch and Public Policy in OECD Countries, Working Paper Series, 2015

69 Due to differences in methodology, measures of both over and under qualification should be interpreted with caution. See European Commission, Measuring Skills Mismatch, 7/2015. Over qualified rank is based on the country (Japan) with the highest proportion of over qualified workers being ranked 1; the under qualification rank is based on the country (Slovakia) with the smallest proportion of under qualified workers being ranked 1.

Figure 4.4.10 Net replacement rates for long term unemployed[70], 2014



For a long term unemployed, one earner married couple with 2 children earning 100% of the average wage, the Irish replacement rate (80%) exceeds the OECD average (54.4%). The rate for single individuals (50.6%) also exceeds the OECD average (31.5%). Rates are higher for lower income families.

OECD-31 rank:

Married: 31st (↓3)

Single: 30th (-)

Source: OECD

Figure 4.4.11 Implicit tax on returning to work[71], 2012

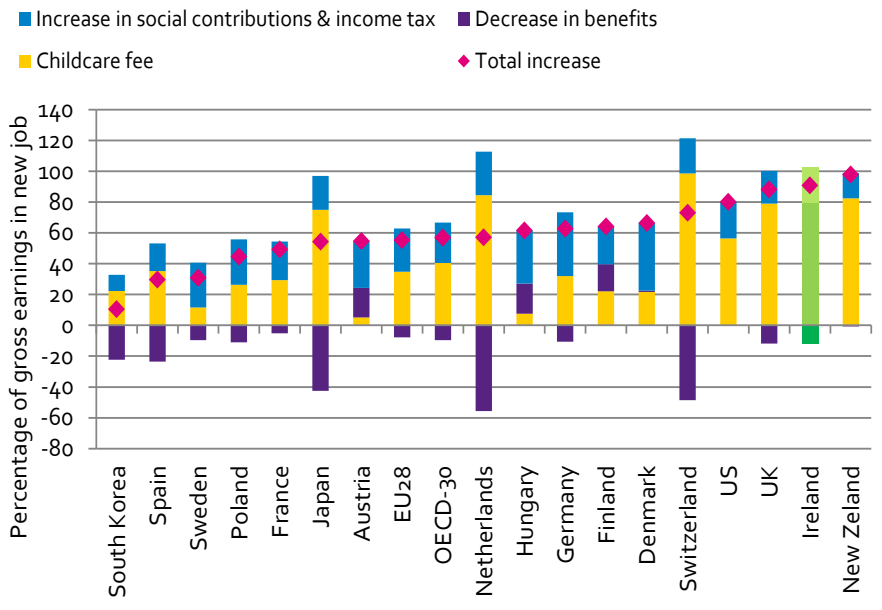


Figure 4.4.11 shows the cost of a second earner in a household taking up employment at 67% of average wage. In Ireland, significant disincentives exist, limiting the attractiveness of returning to work. The implicit cost of returning to work amounts to 90% of potential earnings in Ireland compared with 57% in the OECD.

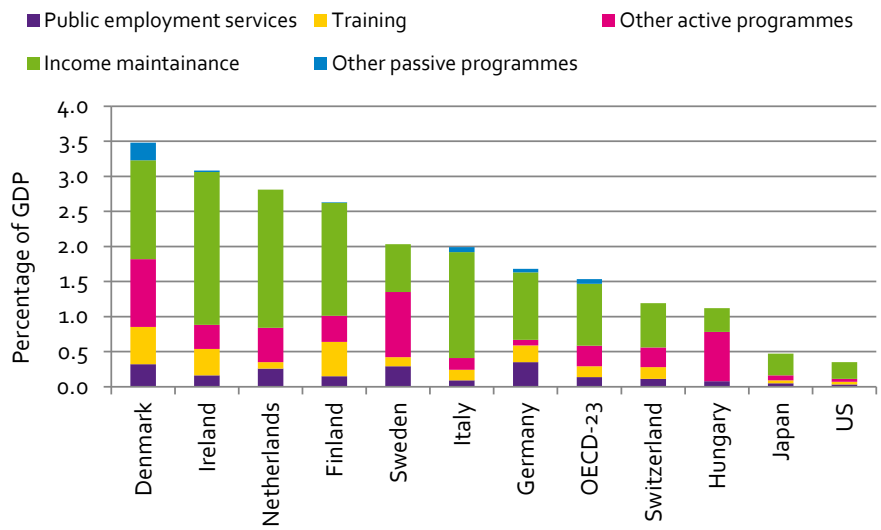
OECD-30 rank: 29th

Source: OECD Economic Policy Reforms 2016: Going for Growth Interim Report

70 OECD-31 excludes Chile, Mexico and Turkey.

71 Data is based on net transfers and childcare fees for households with two children aged 2 and 3. The indicator takes into account childcare fees and changes of taxes and benefits in case of a transition to a job paying two-thirds of average worker earnings.OECD-30 excludes Chile, Italy, Mexico and Turkey.

Figure 4.4.12 Public expenditure on labour market programmes (% GDP), 2013



Source: OECD

Ireland spends a large proportion of GDP (over 3%) on labour market programmes, reflecting the scale of our unemployment challenge. However, only 0.88% of GDP is spent on active labour market programmes. Income maintenance accounts for the largest proportion of expenditure in Ireland.

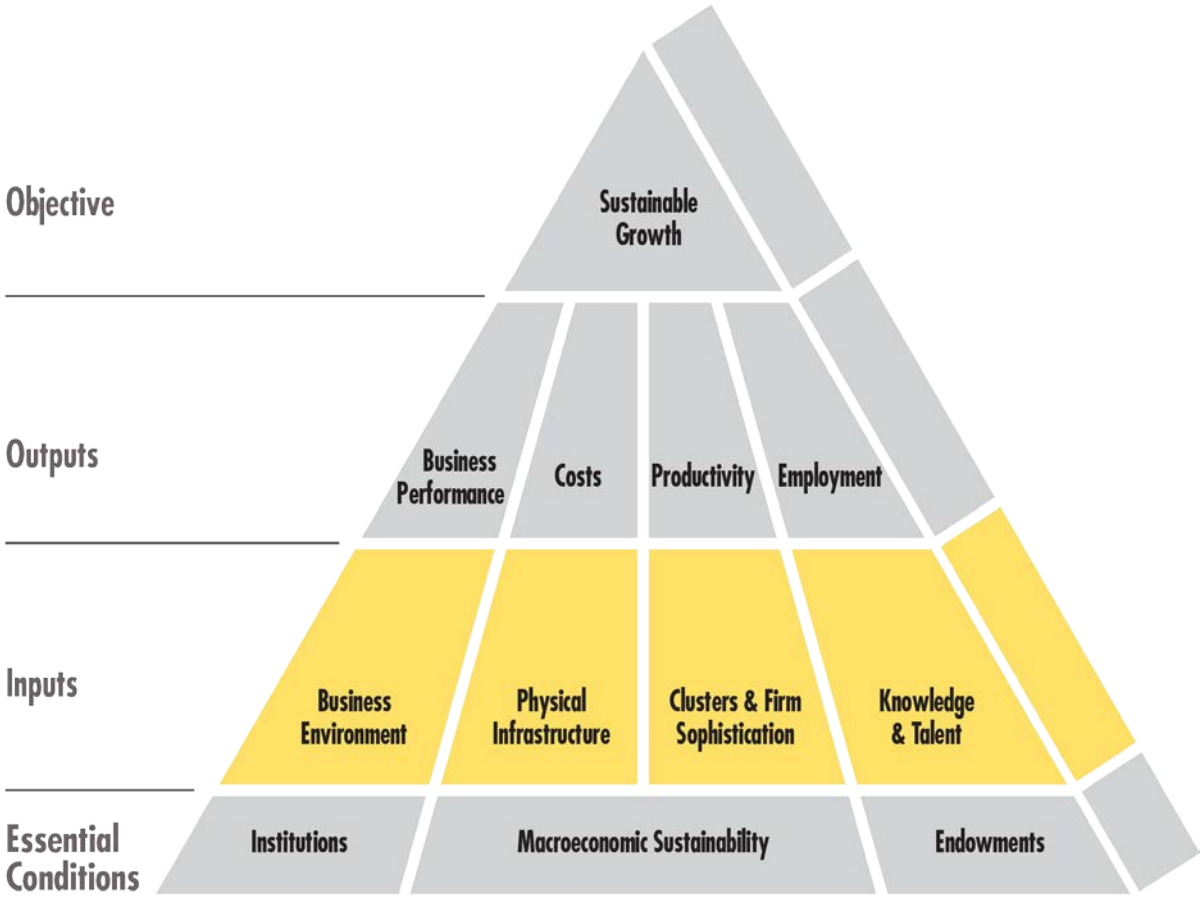
OECD-23 rank[72]:

Active LMP: 4th

72 OECD-23 excludes France, Greece, Iceland, Israel, Mexico, New Zealand, Poland, South Korea, Spain, Turkey and UK

Chapter 5

Competitiveness Inputs



Competitiveness Inputs

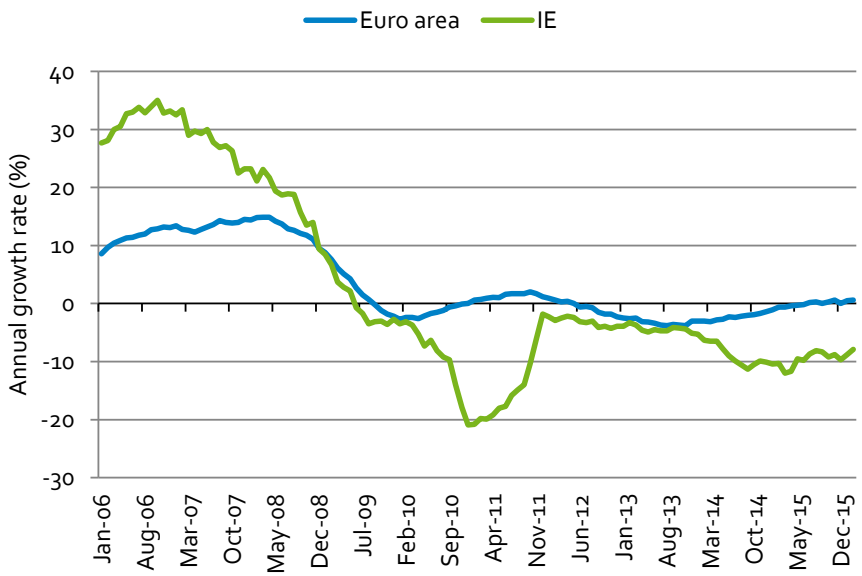
The third tier of the pyramid focuses on "competitiveness policy inputs". Four categories of inputs are examined - the business environment, physical infrastructure, clusters and firm sophistication and knowledge and talent. These represent the drivers of current and future competitiveness. It is within these particular areas that policymakers can have the greatest impact on competitiveness.

- **Business Environment:** The business environment indicators examine the conditions within which enterprise must operate. Benchmarked themes include the availability of credit and the taxation system.
- **Physical Infrastructure:** The availability of competitively priced world-class infrastructure (e.g. energy; telecoms; transport - road, public transport, airport, seaports; waste and water) and related services is critical to support competitiveness. Well-developed infrastructure can increase mobility of workers and goods, reduce traffic congestion and increase productivity. As well as the immediate impact on labour mobility, for instance, physical infrastructure also plays an important role in determining quality of life and the attractiveness of place (a key factor in terms of attracting high skilled, internationally mobile workers).
- **Clusters and Firm Sophistication:** Firm sophistication concerns two elements that are intricately linked: the quality of a country's overall business networks, and the quality of individual firms' operations and strategies. Individual firms' operations and strategies (branding, marketing, distribution, advanced production processes, and the production of unique and sophisticated products and services) spill over into the economy, and contribute to the development and dispersion of sophisticated and modern business processes across the enterprise sector. In addition, R&D expenditure and capability, and the quality of individual firms' operations and strategies etc. are considered in this section. Clusters have become a key focus of urban and regional policy in advanced economies and regional specialisation in particular industries has come to be regarded as advantageous in terms of growing entrepreneurship and employment. Cluster presence and firm sophistication provide an indication of the nature of a country's national competitiveness and its stage of development.
- **Knowledge and Talent:** The availability of talent and skills are one of the main differentiators between countries. The global war for talent has never been more intense. Ireland's education system has long represented a competitive advantage in this regard. This section examines the quality of our formal education system at all levels.

5.1 Business Environment

Finance for Business

Figure 5.1.1 Annual growth rate in outstanding credit, 2016

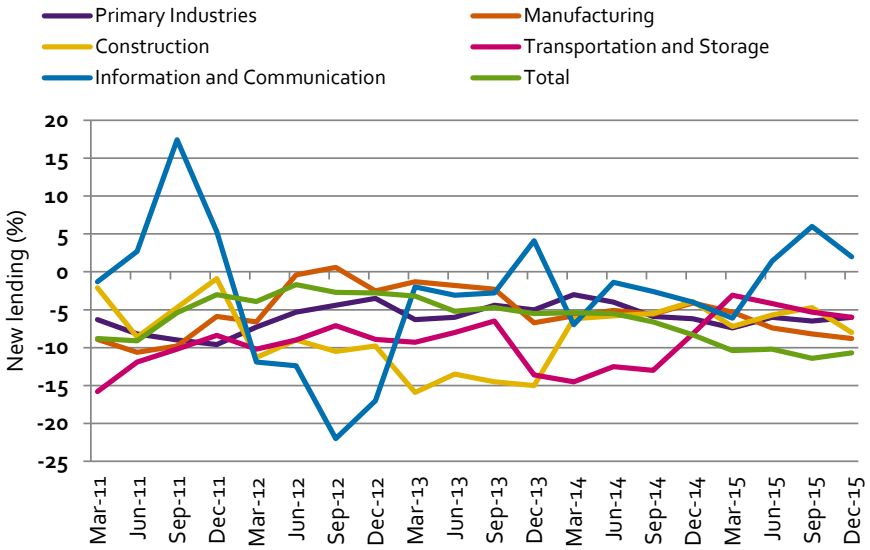


Source: European Central Bank

Growth rates in the stock of credit in Ireland have been negative since June 2009, reflecting in part the scale of debt repayment and consolidation since the onset of the economic downturn. Since 2014 the stock of credit continues to shrink more quickly than the Euro area average.

Rank: n/a

Figure 5.1.2 Gross new lending to SMEs by sector, 2016

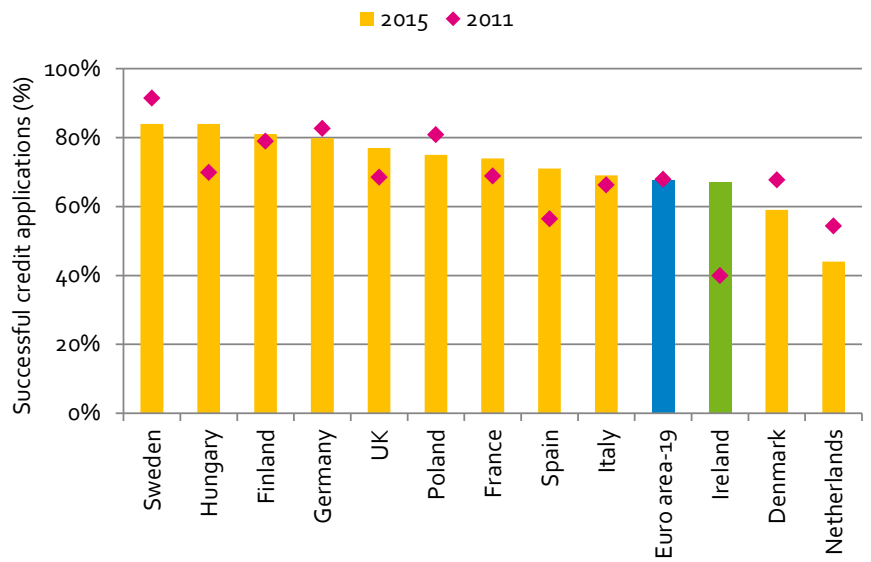


Source: Central Bank

The only SME sector to benefit from increased new lending since 2011 was Information and Communication, with the brief exception of Manufacturing in mid-2012. This reflects both demand for credit and the success rates of firms in accessing credit.

Rank: n/a

Figure 5.1.3 Success in accessing credit[73], 2015

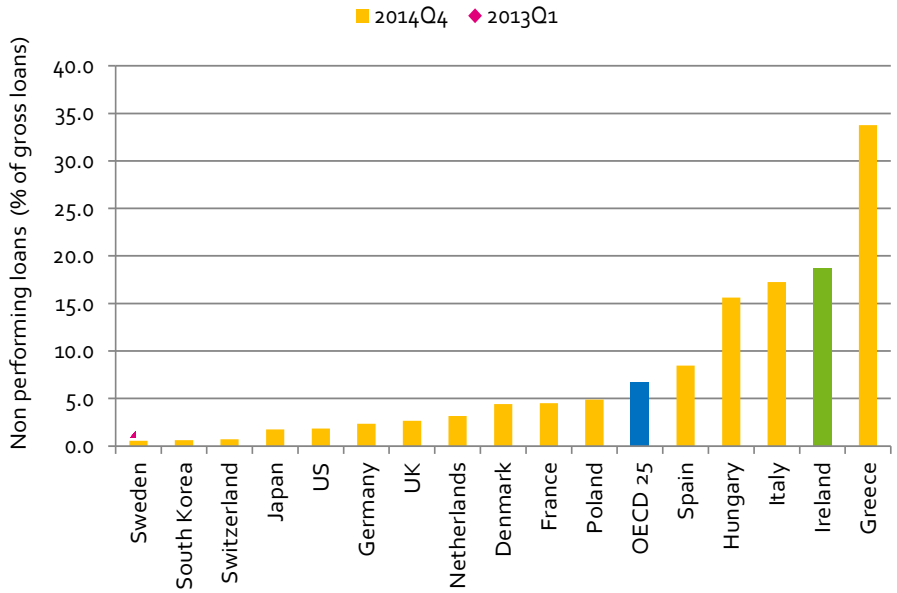


Source: European Central Bank, Survey on the Access to Finance of Enterprises

Figure 5.1.3 shows in 2015, Irish firms had a success rate of 67% in applying for bank loans, up from 40% in 2011. The corresponding Euro area average is 67.5% showing Ireland's performance has converged over the past four years.

Euro area-19 rank: 13th (↑6)

Figure 5.1.4 Ratio of non-performing loans to total gross loans, 2014



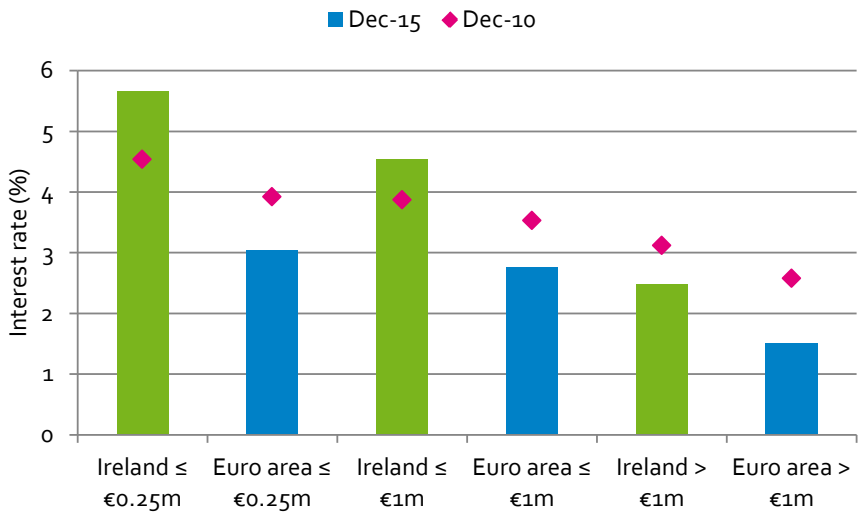
Source: OECD

Non-performing loans (this includes all lending, not just business lending) at the end of 2014 made up 18.7% of gross loans in Ireland. This compares to an OECD High Income average of 3.1%. Since the onset of the financial crisis Ireland's performance deteriorated by more than any OECD country.

OECD-25 rank: 24th (-)

73 Data based on the ECB's "Survey on the access to finance of enterprises".

Figure 5.1.5 Interest rates for non-financial corporations by loan size (new business), 2015



Irish interest rates on business loans have been consistently higher than equivalent Euro area rates. In December 2015, the interest rate in Ireland on loans of up to €0.25 million was more than 80% higher than the Euro area average rate for new business; the rate on loans of up to €1 million was more than 60% more expensive in Ireland.

Rank: n/a

Source: European Central Bank

Figure 5.1.6 Venture capital investment as a % of GDP[74], 2014

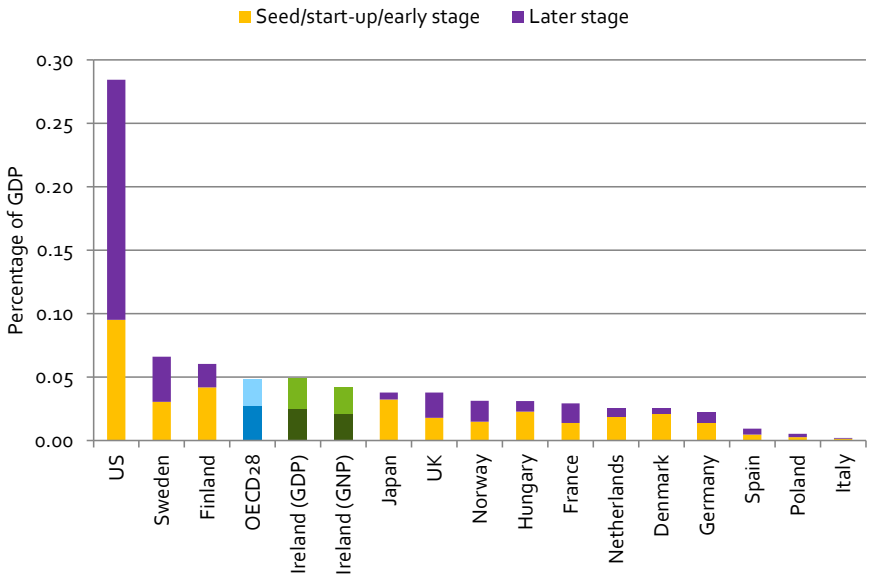


Figure 5.1.6 shows the intensity of total Venture Capital (VC) investment as a percentage of GDP in Ireland is marginally below the OECD average. The greater portion of VC in Ireland is attributed to early stage investments.

OECD-28 rank:

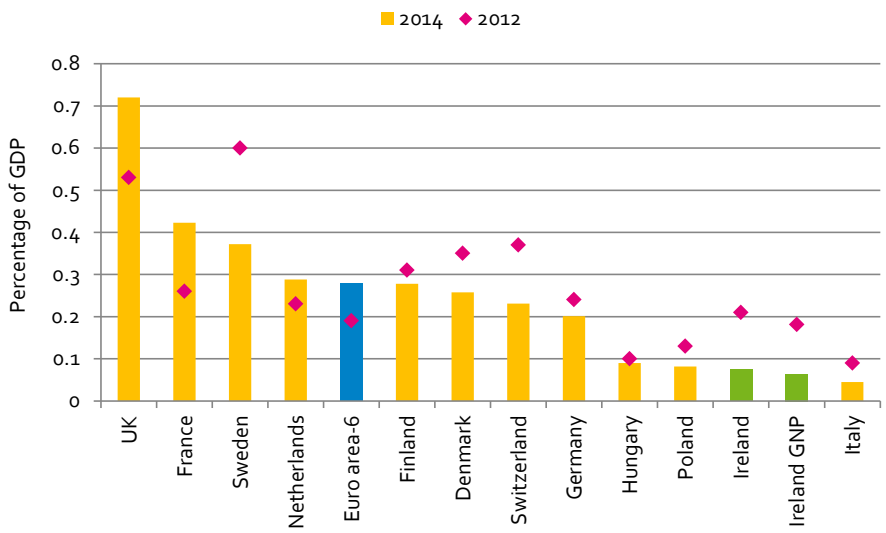
GDP: 7th

GNP: 6th

Source: OECD

74 Venture capital (VC) is private capital typically provided to high-growth companies.

Figure 5.1.7 Private equity investment (as a % of GDP) [75], 2014



Private equity investment decreased in Ireland between 2012 and 2014, as it did across all benchmarked countries during the period. Private equity now accounts for 0.16% of GDP (down from 0.28% in 2007) and is below the best EU performers and the UK.

Rank (out of 12):

GDP: 11th (↓2)

GNP: 11th (↓2)

Source: European Private Equity & Venture Capital Association

Taxation

Figure 5.1.8 Tax revenue in Ireland by category, 2015

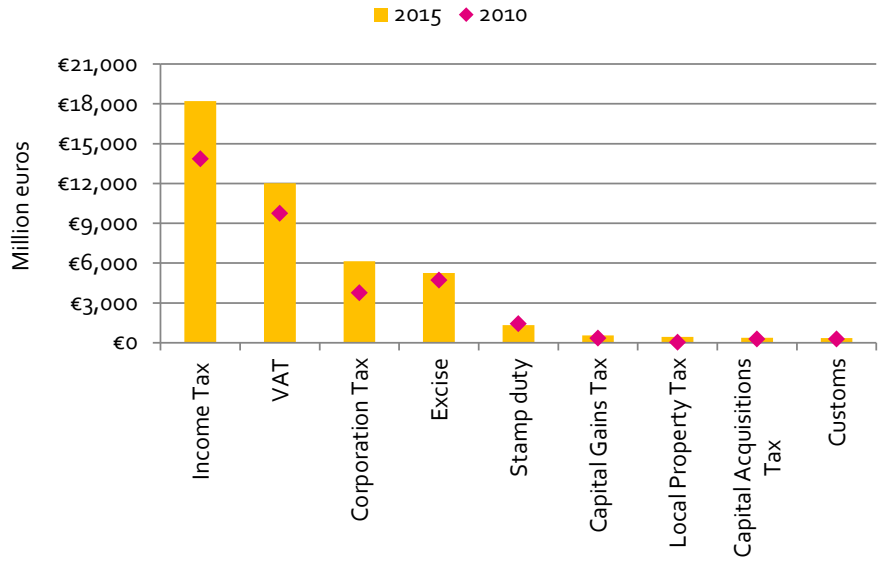


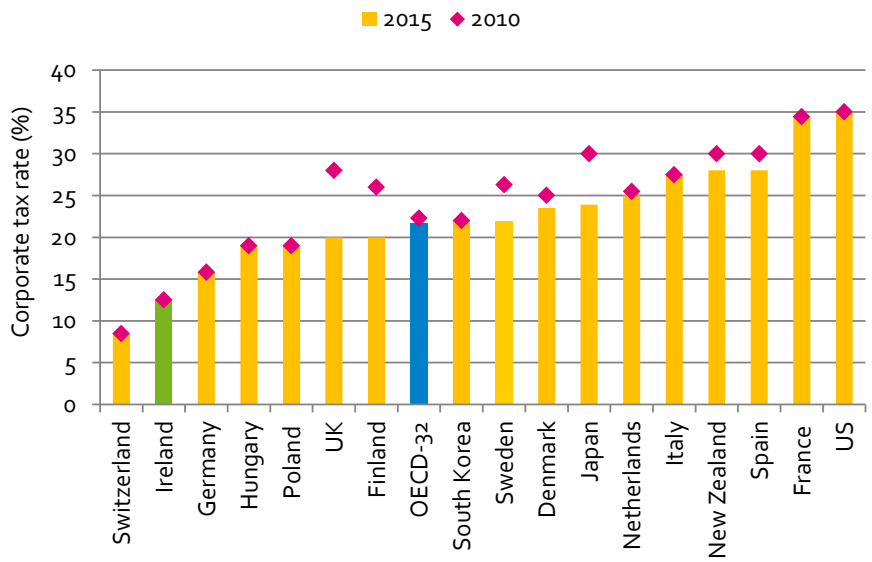
Figure 5.1.8 compares Irish tax revenues in 2015 with 2010. Overall, revenues have increased by €10.5bn (30%). Income tax receipts - reflecting labour market recovery and a broadening of the base- have increased by €4.4bn (31%). Between 2010 and 2015 Capital Gains Tax and corporation tax receipts rose by 79% and 64% respectively.

Rank: n/a

Source: Department of Finance

75 Private equity, which comprises all stages of financing (seed, start-up, expansion, replacement capital and buyouts)

Figure 5.1.9: Central government corporate income tax rate (%), 2015

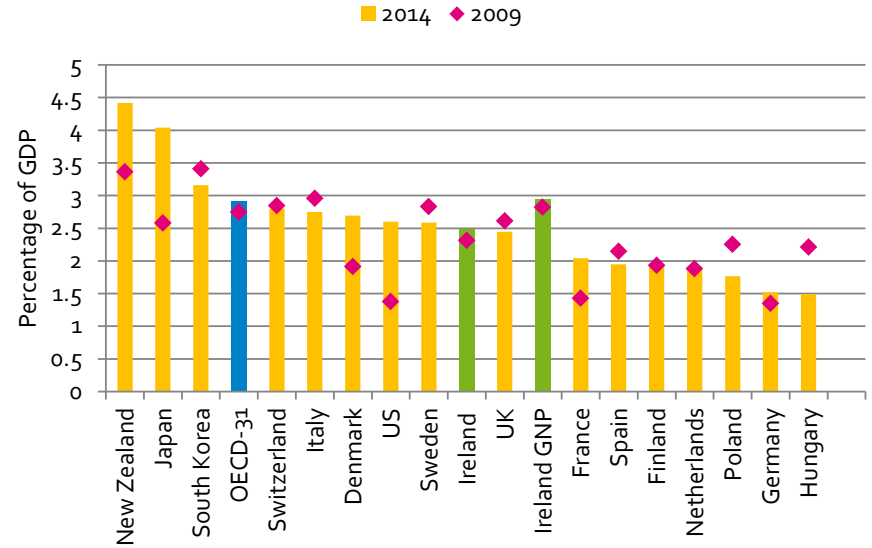


Ireland's corporation tax rate remains internationally competitive at 12.5%. While Ireland's rate has remained consistent over recent years, many of our key competitors have reduced their rates (e.g. the UK). This chart reflects central statutory rates – effective rates in many counties can be significantly lower.

OECD-32 rank: 2nd (-)

Source: OECD

Figure 5.1.10 Corporation tax receipts (% GDP)[76], 2014



Corporation tax receipts in Ireland accounted for 2.5% of GDP (2.2% of GNP) in 2014, compared with an OECD-31 (2013) average of 2.8%. In the five years to 2014 the OECD-31 average corporation tax receipts as a percentage of GDP grew by 6%.

OECD-31 rank:

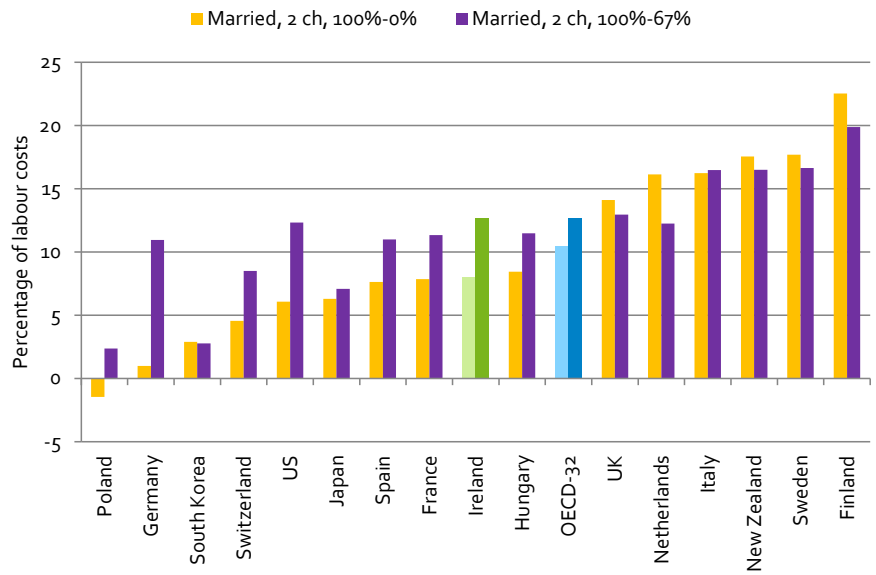
GDP: 18th (-)

GNP: 13th (↓1)

Source: OECD

76 Latest data for Japan, Netherlands, OECD-31 and Poland is from 2013.

Figure 5.1.11 Income tax plus employee contributions (% of gross wage earnings) (Married, 2 children, 100% & 167% AW), 2015



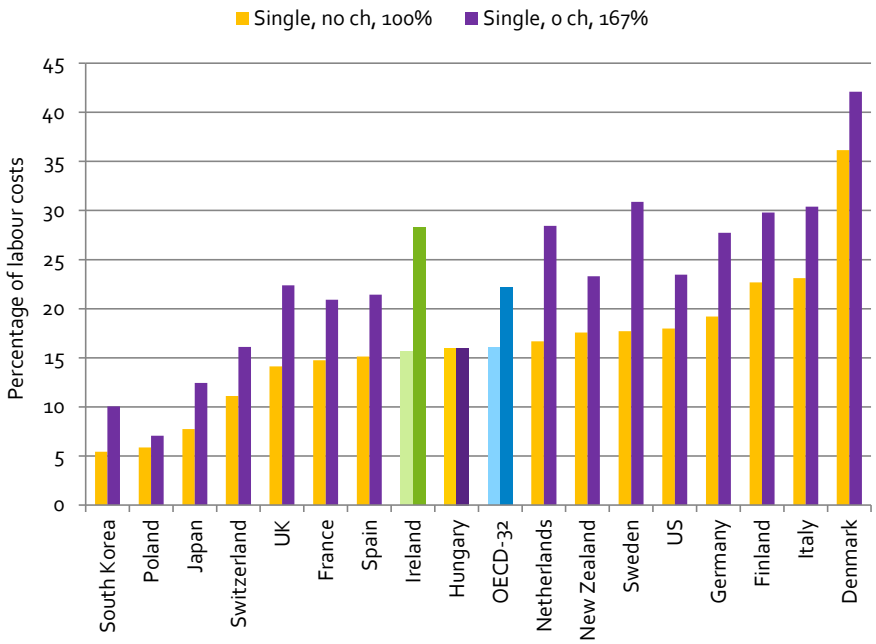
Ireland remains relatively competitive in terms of the levels of income tax and social security contributions as a proportion of total labour costs. However, for a married couple with 2 children on a combined income of 167% of the average wage (i.e. a 2 earner family), the rate is above the OECD average.

OECD-32 rank:

Married, 2 ch, 100%: 15th (↓2);
Married, 2 ch,167%: 19th (↓5)

Source: OECD

Figure 5.1.12 Income tax plus employee contributions (% of gross wage earnings) Single, 100% & 167% AW), 2015



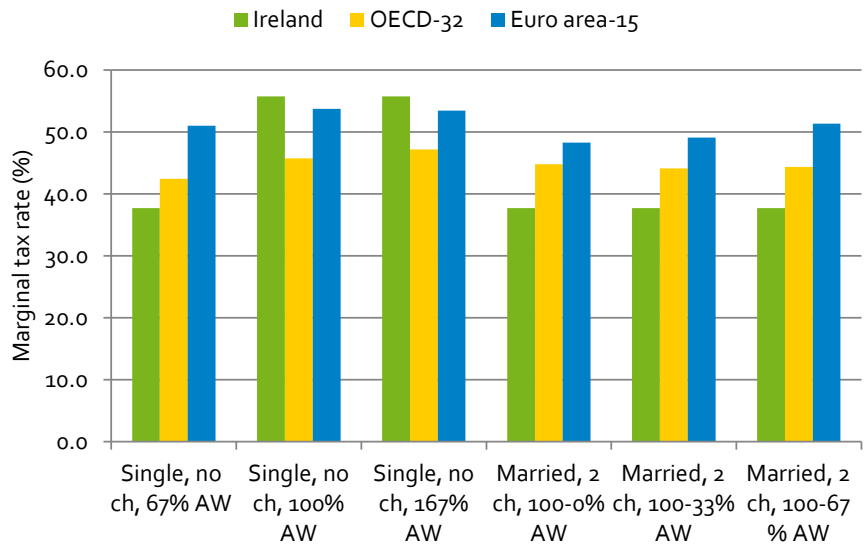
For a single person with no children on either 100% or 167% of the average wage, the difference between what the employer pays and what the employee receives has increased since 2013. At 167% of average wages, the difference in 2012 was 38.2% up from 34% in 2008.

OECD-32 rank:

Single,0 ch, 100%: 14th (↑1)
Single,0 ch, 167%: 24th (↓2)

Source: OECD

Figure 5.1.13 Marginal rate of income tax plus employee contributions less cash benefits (% of gross wage earnings)[77], 2015



Marginal rates have increased in Ireland since 2013 with the notable exception of married, single income families with two children. Marginal rates are particularly high for individuals earning the average wage or above.

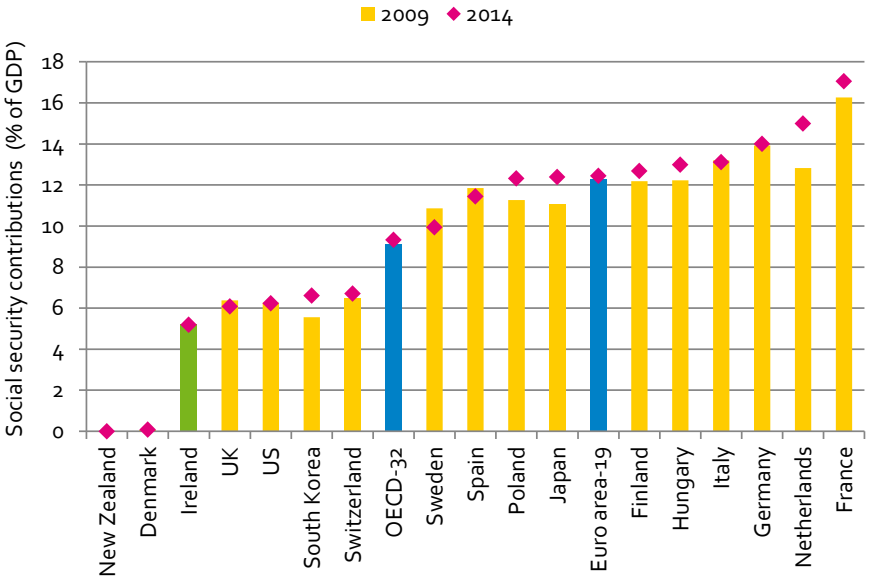
OECD-32 rank:

Single, no ch, 100%: 27th

Married, 2 ch, 100%: 8th

Source: OECD

Figure 5.1.14 Social security contributions (% GDP)[78], 2013



Social security is comprised of employee contributions, employer contributions, self-employed, non-employed contributions and some "unallocable" contributions. Significantly less revenue is generated through social security contributions in Ireland than is the case in other Euro area countries.

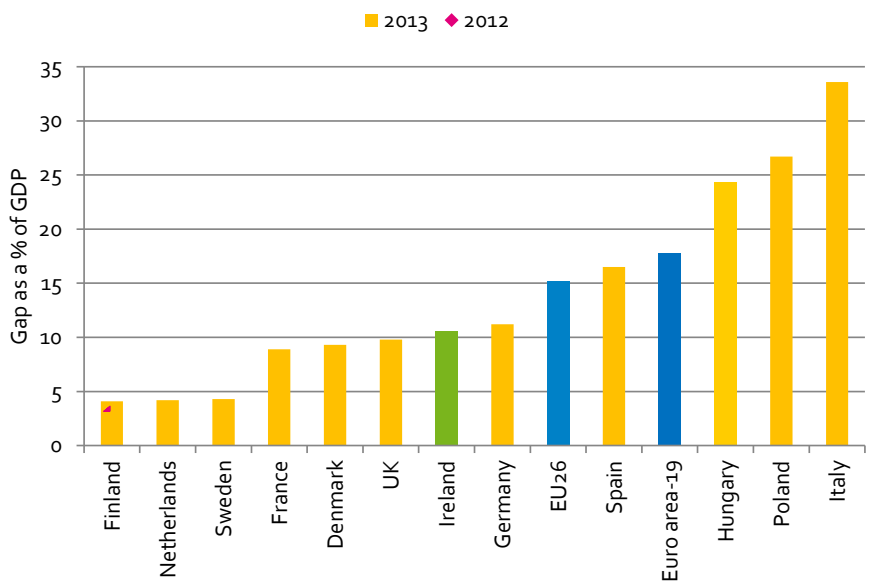
Euro area rank: 1st (-)

Source: OECD

77 The marginal rate refers to the percentage of tax and social contributions paid on each additional unit of income

78 Latest data for Japan, Netherlands, OECD average and Poland is from 2013.

Figure 5.1.15 Value added tax gap (% GDP)[79], 2013



In 2013 the estimated VAT gap within the Euro area ranged from the low of 4% in Finland to the high of 38% in Lithuania. Despite the rate in Ireland falling from 11.2% in 2012 to 10.6% in 2013, our Euro area ranking slipped from 10th to 12th during this period.

Euro area-19 rank: 8th (↑1)

Source: Eurostat

5.2 Physical Infrastructure

Figure 5.2.1 Average annual growth in net capital stock, 2014

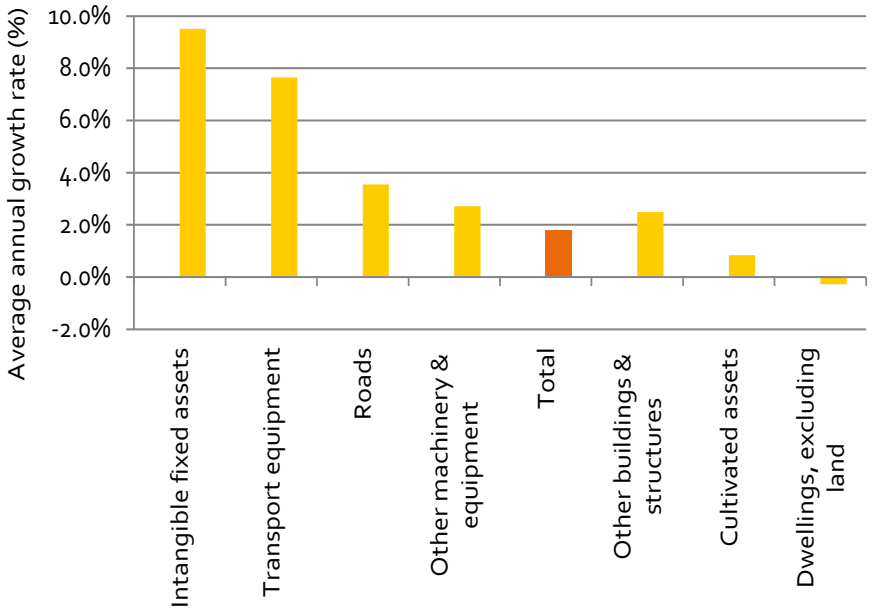


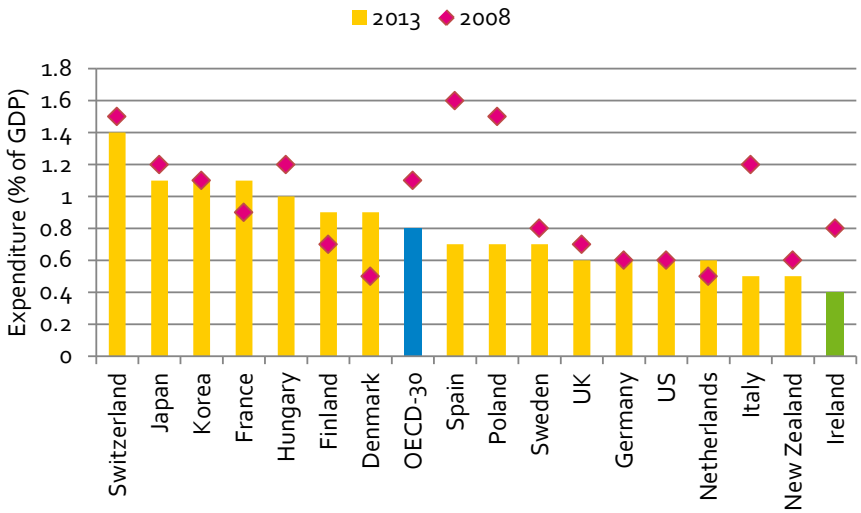
Figure 5.2.1 illustrates the average annual growth rate in the value of Ireland's fixed assets between 2004 and 2014. Overall, net capital stock grew by 1.8% per annum. Intangible fixed assets (9.5%) and transport equipment (7.6%) have grown most rapidly over the ten year period in question.

Rank: n/a

Source: CSO

79 The VAT Gap is an indicator of the effectiveness of VAT enforcement and compliance measures, as it provides an estimate of revenue loss due to fraud and evasion, tax avoidance, bankruptcies, financial insolvencies as well as miscalculations. The VAT Gap is defined as the difference between the amount of VAT actually collected and the VAT Total Tax Liability (VTTL), in absolute or percentage terms. See European Commission, Study to Quantify and Analyse the VAT Gap in the EU Member States 2015 Report, TAXUD/2013/DE/321, FWC No. TAXUD/2010/CC/104

Figure 5.2.2 Total inland infrastructure investment as a percentage of GDP[80], 2008-2013.



As a percentage of GDP, Ireland's inland infrastructure expenditure declined from 0.8% to 0.4% in 2013 and was well below the OECD average (0.8%) Expenditure in infrastructure as a percentage of GDP decreased in most OECD countries in the wake of the global recession in 2008.

OECD-30 rank: 28th (↓9)

Source: OECD

Figure 5.2.3 Perception of overall infrastructure quality (Scale 1-7), 2015

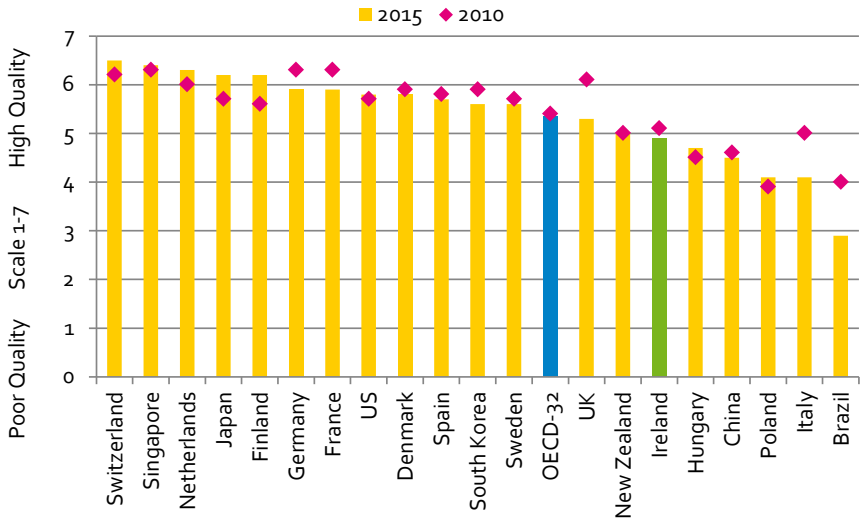


Figure 5.3.2 shows executives' perceptions regarding the overall quality of infrastructure in an economy. Despite a strong improvement in perception up until 2010, Ireland's score fell over the five years to 2015 and remains below the OECD average.

OECD-32 rank:23rd (↓2)

Source: World Economic Forum

80 Infrastructure investment covers spending on new transport construction and the improvement of the existing network. Inland infrastructure includes road, rail, inland waterways, maritime ports and airports and takes account of all sources of financing.

Figure 5.2.4 Next generation access broadband as % of total households, 2015

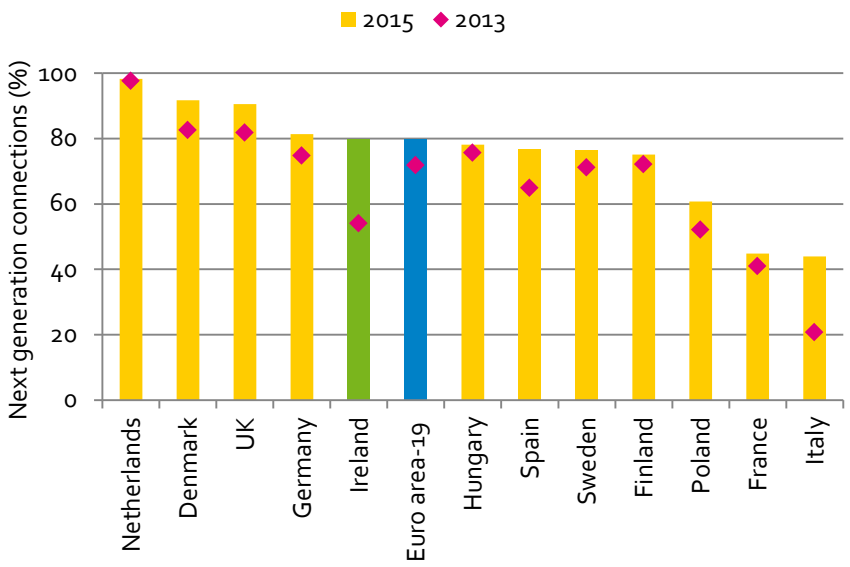


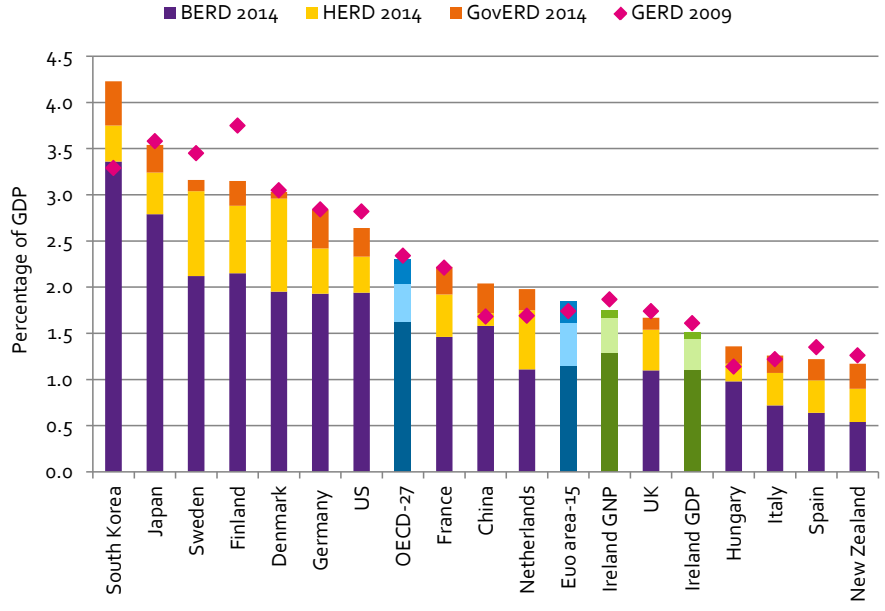
Figure 5.2.4 shows the percentage of households with access to broadband of speeds of at least 30MBs. Access to Next Generation broadband increased from 54% in 2013 to 80% in 2015. Ireland surpasses the Euro area average. The Netherlands is the best performer in the sample with almost full access to Next Generation.

Euro area-19 rank: 12th (↑3)

Source: OECD

5.3 Clusters and Firm Sophistication

Figure 5.3.1 Expenditure on R&D as a percentage of GDP (Business, Higher Ed, Govt)[81], 2014



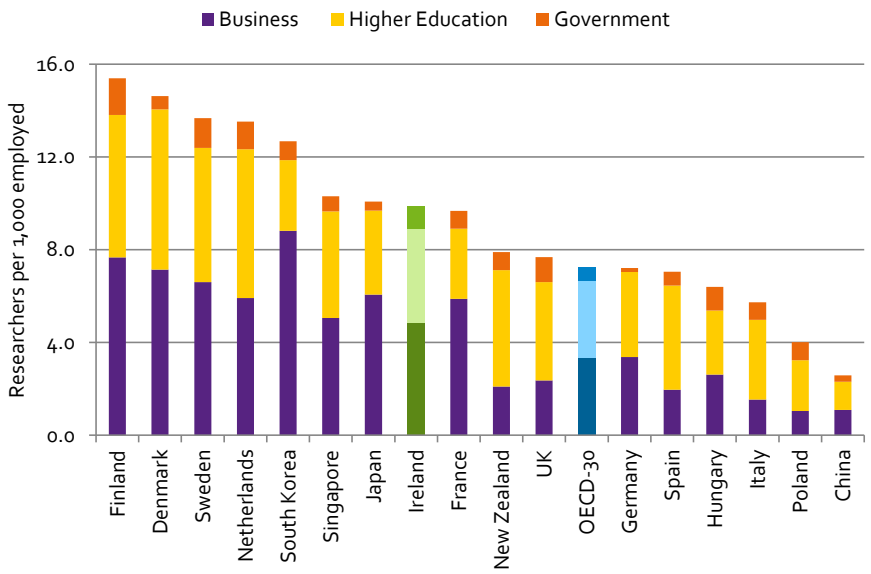
In 2014 Irish expenditure on R&D accounted for 1.51% of GDP (1.75% of GNP). Business expenditure on R&D (BERD) accounted for 1.1%, while the higher education sector (HERD) and government sector (GovERD) accounted for 0.33% and 0.07% respectively.

OECD-27 rank:
BERD: 13th (↑3)
HERD: 22nd (↓5)
GovERD: 27th (↑1)
GERD: 27th (-)

Source: OECD

81 Latest data for US and New Zealand is from 2013

Figure 5.3.2 Researchers per 1,000 in total employment[82], 2013

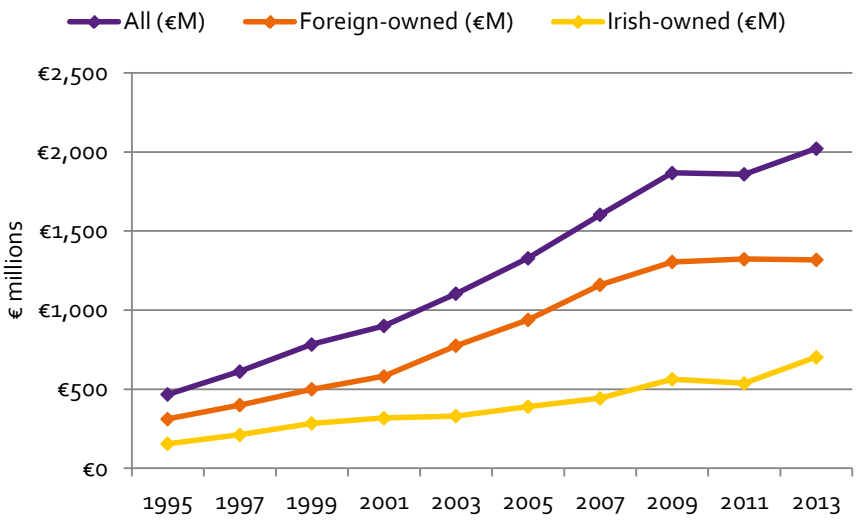


In 2013, 9.9 researchers were employed in Ireland for every 1,000 people in employment – above the OECD average (8.42) but well behind the best performing countries. Overall, 25,393 researchers were employed, just under a third of whom are female.

OECD-30 rank:
Business: 22nd
Higher Education: 23rd
Government: 27th

Source: OECD

Figure 5.3.3 Business sector R&D expenditure by firm type, 2013



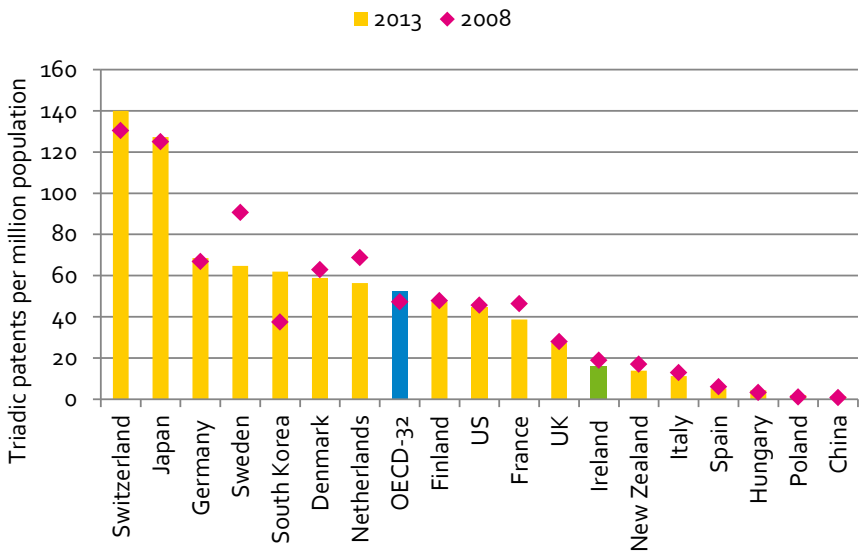
Foreign owned companies in Ireland spent over €1.32 billion on R&D in Ireland in 2013, accounting for 65% of business expenditure on R&D. By comparison, indigenous firms spent €703 million on R&D in the same year. The majority of research expenditure occurred in the services sector (57.3%).

Rank: n/a

Source: CSO

82 Latest data for China is from 2012. OECD-30 excludes Australia, Canada, Israel and US.

Figure 5.3.4 Triadic patents per million population[83], 2013

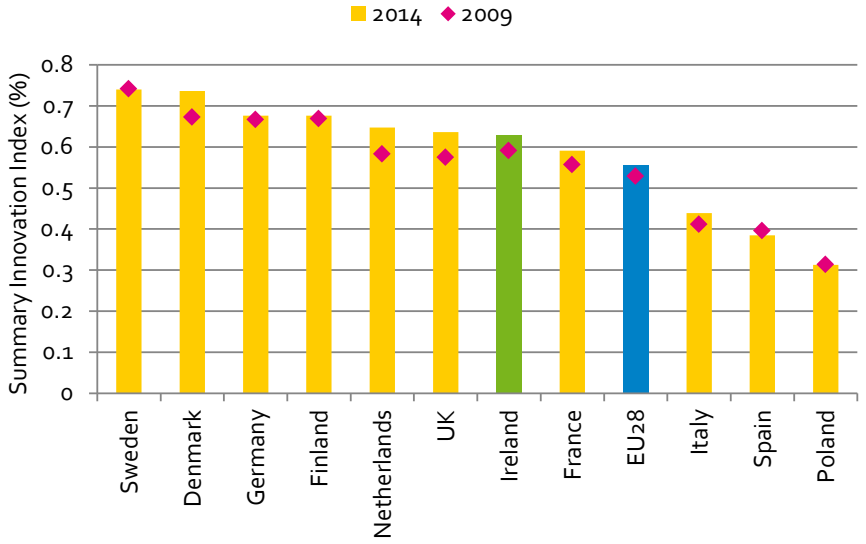


Triadic patents can be seen as a proxy for a country's inventive activity. Ireland performs well below the OECD-32 average on this measure, with 15.9 patents per million population compared with the OECD average 38.9 per million. Japan (103.6 patents per million) is the leading performer under this metric.

OECD-32 rank: 18th (↓1)

Source: OECD

Figure 5.3.5 Summary innovation index, 2014



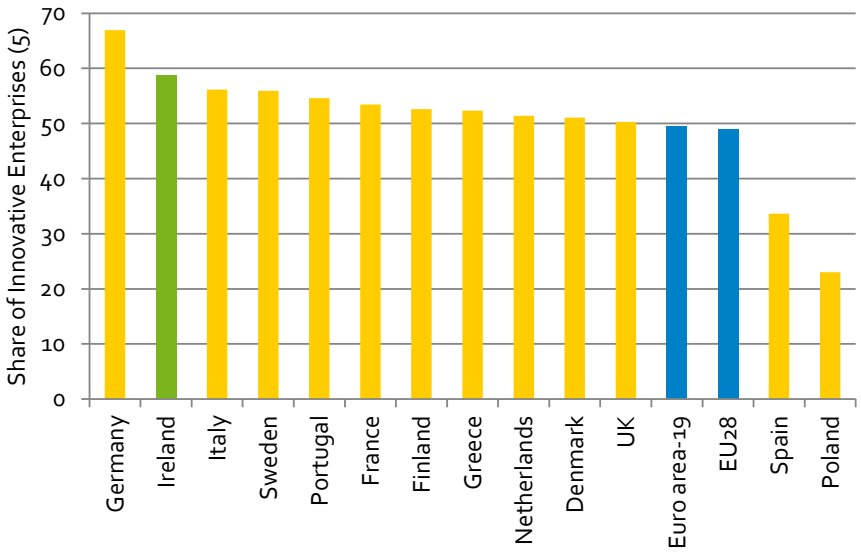
The Innovation Union Scoreboard 2016 provides a comparative assessment of innovation performance. Ireland is classed as an innovation follower with an above average performance. Relative strengths are in "human resources" and "economic effects". Relative weaknesses are in "finance and support", and "firm investments".

Euro area-18 rank: 5th (↓1)

Source: European Commission

83 Triadic patents refer to patents granted at European, Japanese and US patent offices. Latest data for Switzerland is from 2011 and Poland is from 2012.

Figure 5.3.6 Percentage of firms engaged in innovative activity, 2012



This chart shows the percentage of firms which reported that they engage in innovative activity. Firms in Ireland were more likely to be innovative (58.7%) compared to the Euro area-19 average (49.5%).

Euro area-19 rank: 3rd

Source: Eurostat

Figure 5.3.7 Percentage of turnover attributed to innovative activity[84], 2012

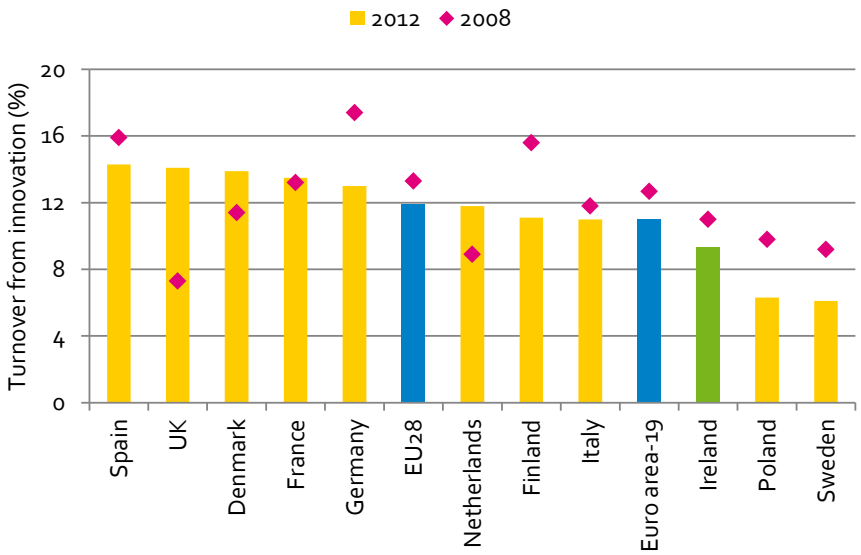


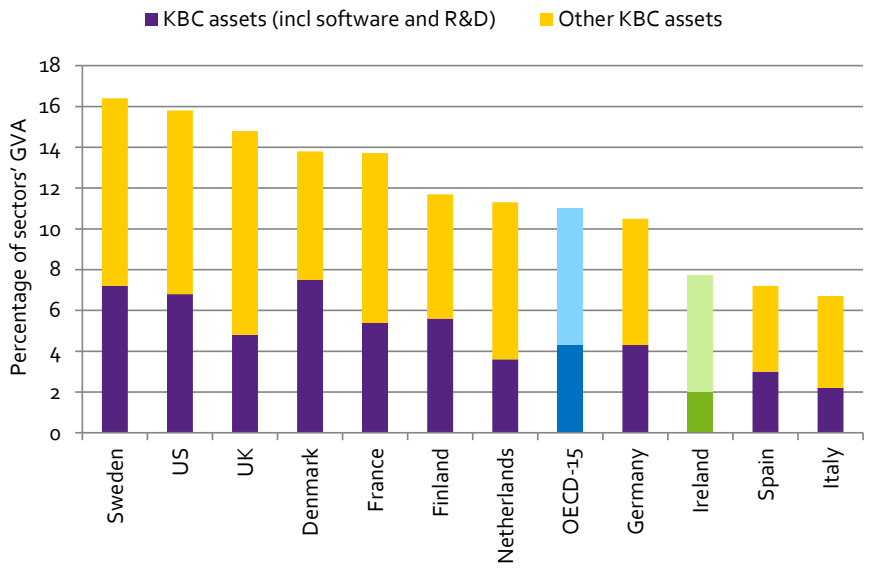
Figure 5.3.7 shows the ratio of turnover from products new to the enterprise and new to the market as a % of total turnover. The latest Irish data (from 2010) was 9.3%, down from 11% in 2008. The Euro area-18 average in 2012 was 11% also slightly down on 2008 (12.6%).

Euro area-18 rank: 14th (↓2)

Source: Eurostat

84 This indicator measures the ratio of turnover from products new to the enterprise and new to the market as a percentage of total turnover. It is based on the Community innovation Survey and covers at least all enterprises with 10 or more employees. An innovation is a new or significantly improved product (good or service) introduced to the market or the introduction within an enterprise of a new or significantly improved process. Change in ranking compares 2008 with 2010 data. Latest data for Ireland is from 2010

Figure 5.3.8 Investment intensity in knowledge-based capital (KBC) , % of market sector value added, 2013



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

Rank (out of 15): 11th

Source: OECD

Figure 5.3.9 Product and process innovation level, 2012

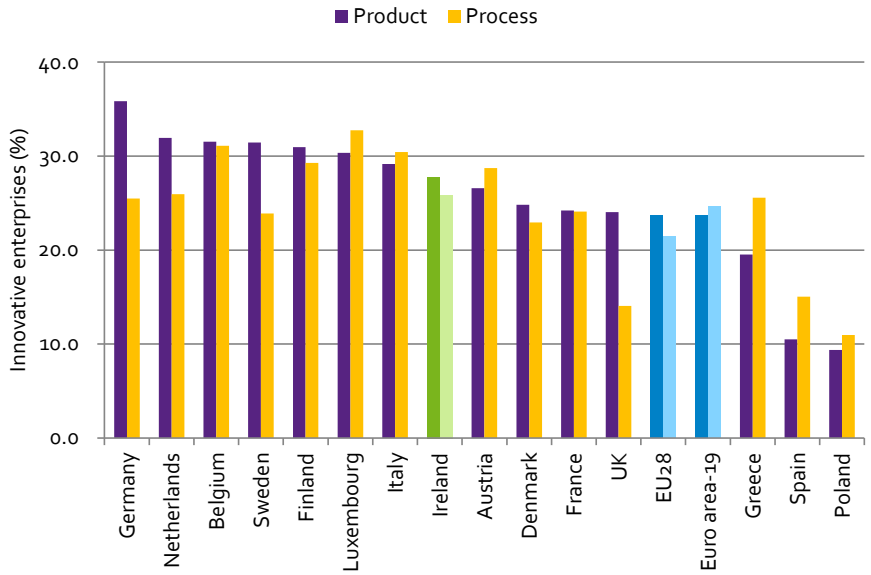


Figure 5.3.9 shows the percentage of innovative enterprises in terms of both product and process. In both areas, a higher proportion of Irish firms are engaged in innovative activity than is the case in the EU28 and Euro area-19.

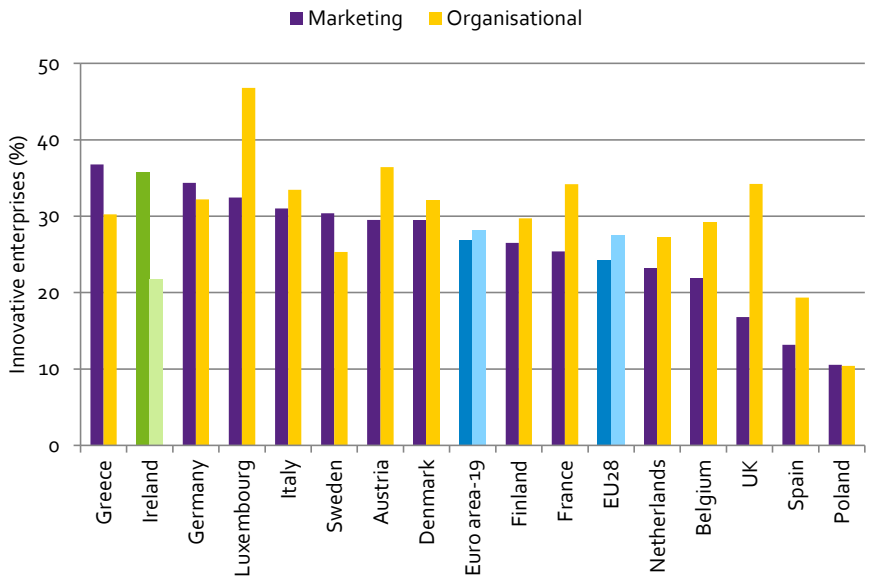
Euro area-19:

Product: 7th

Process:10th

Source: Eurostat

Figure 5.3.10 Marketing and organisational innovation level, 2012



Source: Eurostat

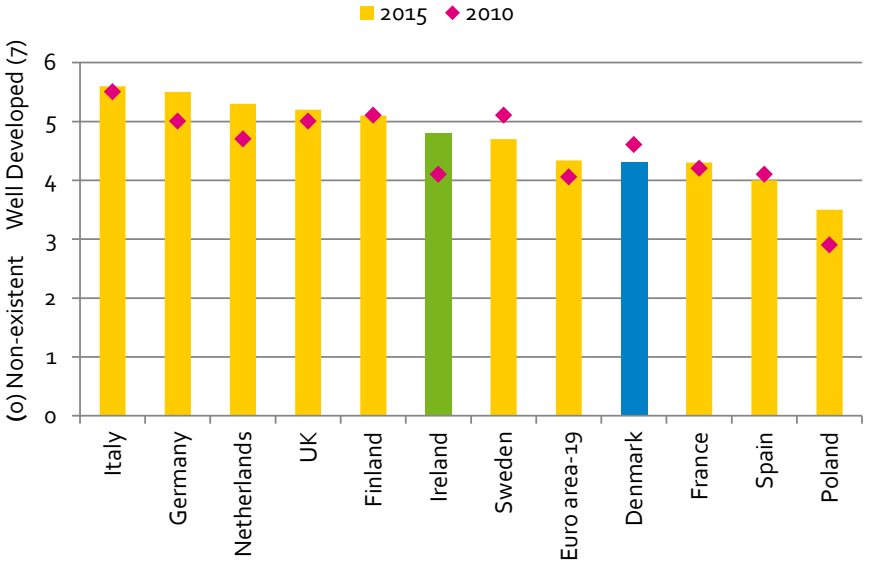
Figure 5.3.10 shows Ireland had more innovative enterprises in terms of marketing activity than both the EU28 and Euro area 19 averages. However, the reverse is the case with regard to organisational innovation.

EU28 rank:

Marketing: 2nd

Organisational: 14th

Figure 5.3.11 State of cluster development, 2015



Source: World Economic Forum

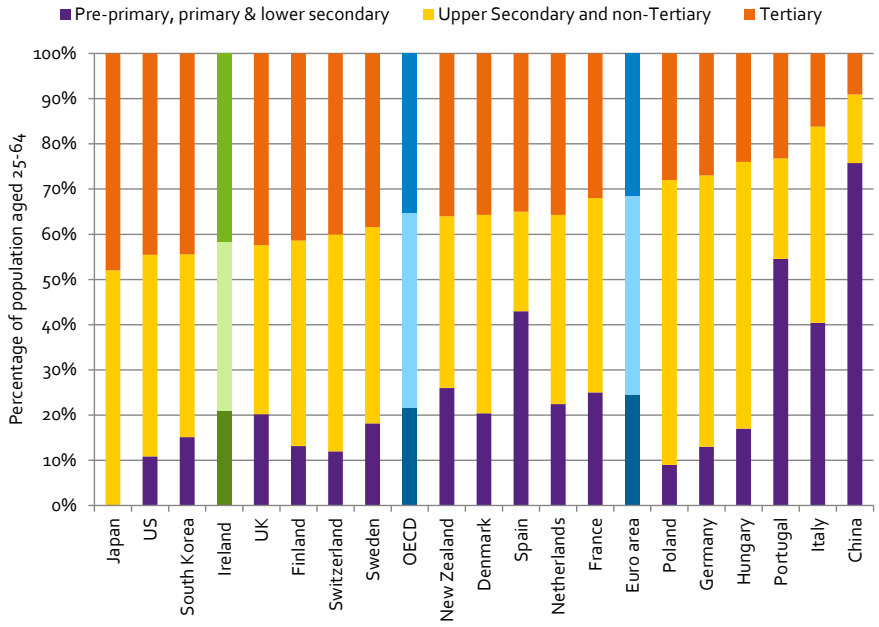
Figure 5.3.11 presents WEF data provided on the basis of personal assessment of managers in surveyed companies about cluster development in their country. In Ireland the score for cluster development in 2015 was 4.8. This was above the Euro area-19 average score of 4.3.

Euro area-19 rank:

8th (↓1)

5.4 Knowledge and Talent

Figure 5.4.1 Educational attainment of population aged 25-64 by highest level of education (%), 2014



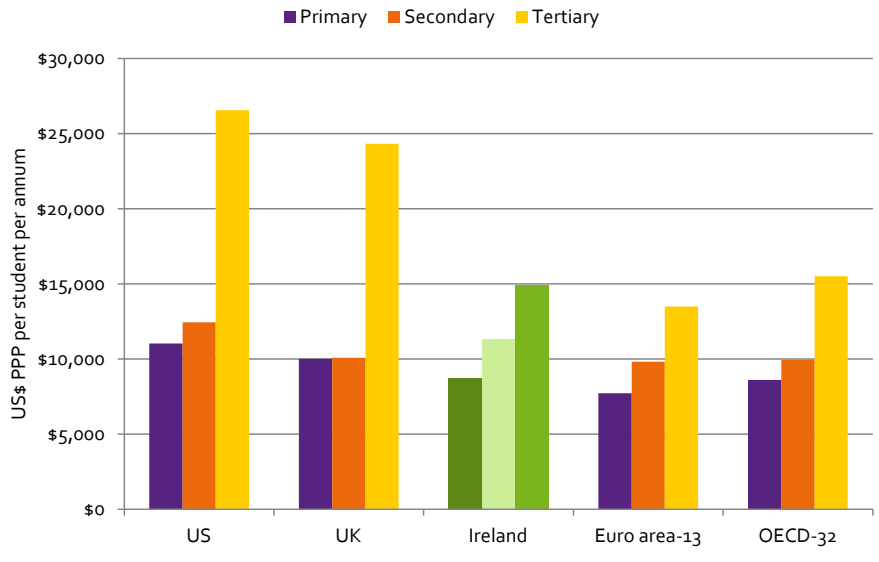
Source: OECD

Figure 5.4.1 shows the proportion of the working age population with tertiary (third level) level education has increased from 36% in 2009 and to 42% in 2014. The OECD- 32 average is 36%. The proportion with just pre-primary, primary or lower secondary is also below the OECD average.

OECD-32 rank:

Tertiary: 7th

Figure 5.4.2 Annual expenditure on educational institutions, per student ($US PPP)[85],2012



Source: OECD

Figure 5.4.2 shows that Ireland spent more per student at primary and secondary levels than the OECD 32 average and 4% less at tertiary level. The gap between Ireland and Euro area and US/UK expenditure is particularly pronounced at tertiary level.

OECD-32 rank:

Primary: 13th

Secondary: 8th

Tertiary:16th

85 Ranking based on OECD-31 which excludes Greece, Mexico and Turkey

Figure 5.4.3 Breakdown of tertiary educational expenditure[86],2012

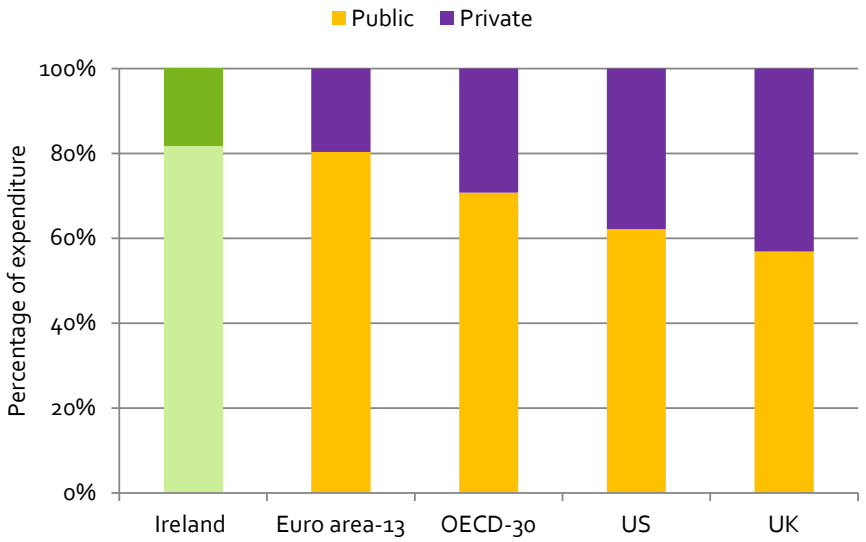


Figure 5.4.3 highlights how tertiary education in Ireland and the Euro area is primarily funded by the public sector. In Ireland In 2012, the breakdown of total tertiary expenditure on education in Ireland was 82% public: 18% private. The corresponding breakdown for the UK was 57% public: 43% private.

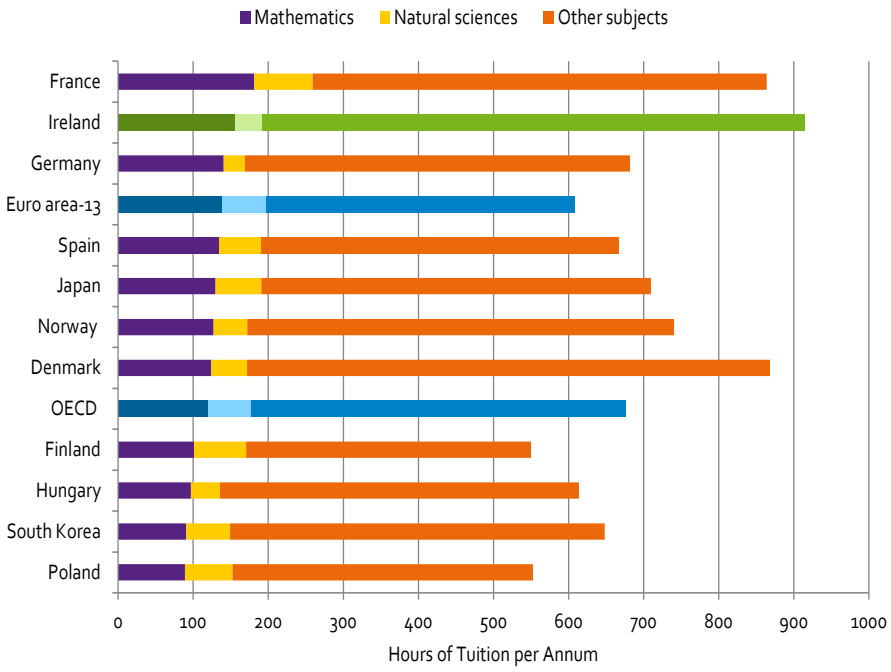
OECD-30 rank:

Public: 11th

Private: 20th

Source: OECD

Figure 5.4.4 Average annual hours of tuition by subject in primary school, 2015



In 2015, Irish primary school students received more hours of tuition in maths and other subjects than students in most other OECD countries. Despite the limited time spent on science tuition, Irish students spent more compulsory time in the classroom than the OECD average.

OECD-23 rank:

Maths hours: 8th

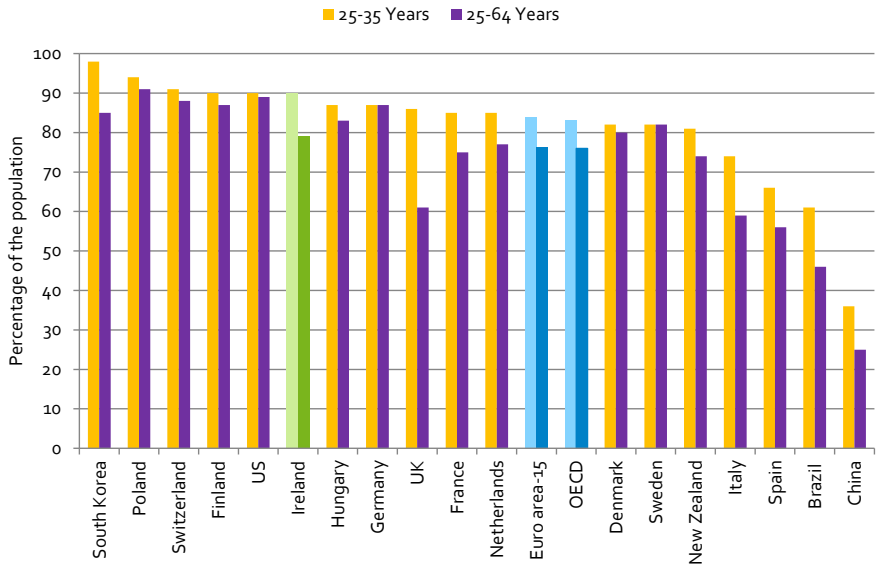
Science hours: 24th

Total hours:4th

Source: OECD

86 OECD-30 excludes Denmark, Greece, Mexico and Turkey; Euro area-14 excludes Cyprus, Greece and Malta

Figure 5.4.5 Percentage of population aged 25-64 that has at least upper secondary education, 2014



Some 79% of 25-64 year olds had attained at least upper secondary education in Ireland in 2014 compared with 90% of 25-34 year old cohort .Ireland surpasses the OECD average attainment for both cohorts. In all countries, more females complete secondary education than males.

OECD-31 rank:

25-34 yr. olds: 10th

25-64 yr. olds:15th

Source: OECD

Figure 5.4.6 Early school leavers as a percentage of population aged 18-24, 2015

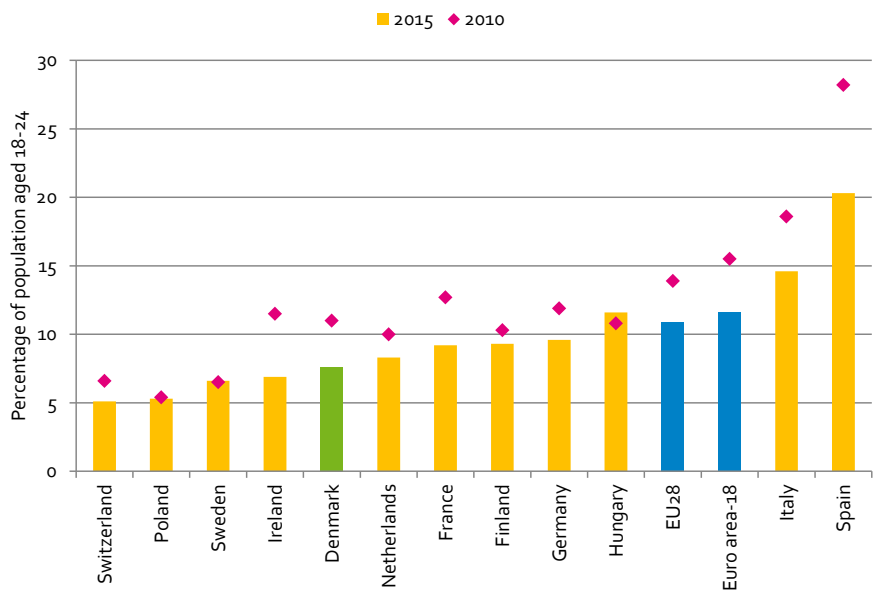
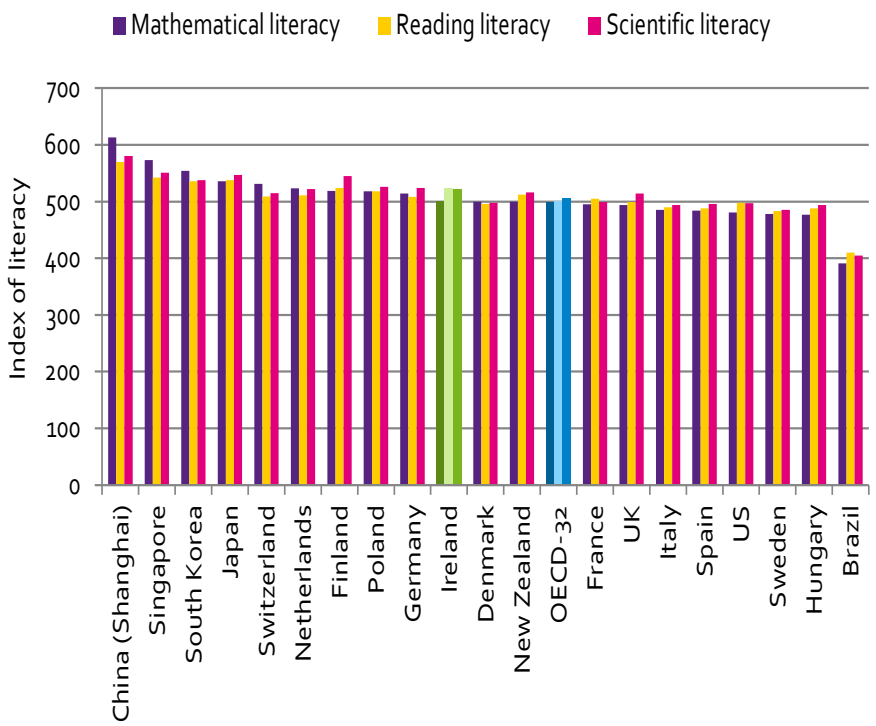


Figure 5.4.6 measures the percentage of the population aged between 18 and 24 who have attained, at most, lower secondary education. Ireland has made significant progress in this area. In 2015, 6.9% of this age cohort was classified as early school-leavers, down from 11.5% in 2010, reflecting higher retention rates in secondary education.

EU-28 rank: 8th (↑7)

Source: Eurostat

Figure 5.4.7 Scientific, mathematical and reading literacy of 15 year olds, 2012



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

OECD-32 rank:

Maths: 13th(↑13)

Reading: 4th(↑13)

Science: 8th(↑7)

Source: OECD PISA

Figure 5.4.8 Percentage of students at each proficiency level on the mathematics scale, 2012

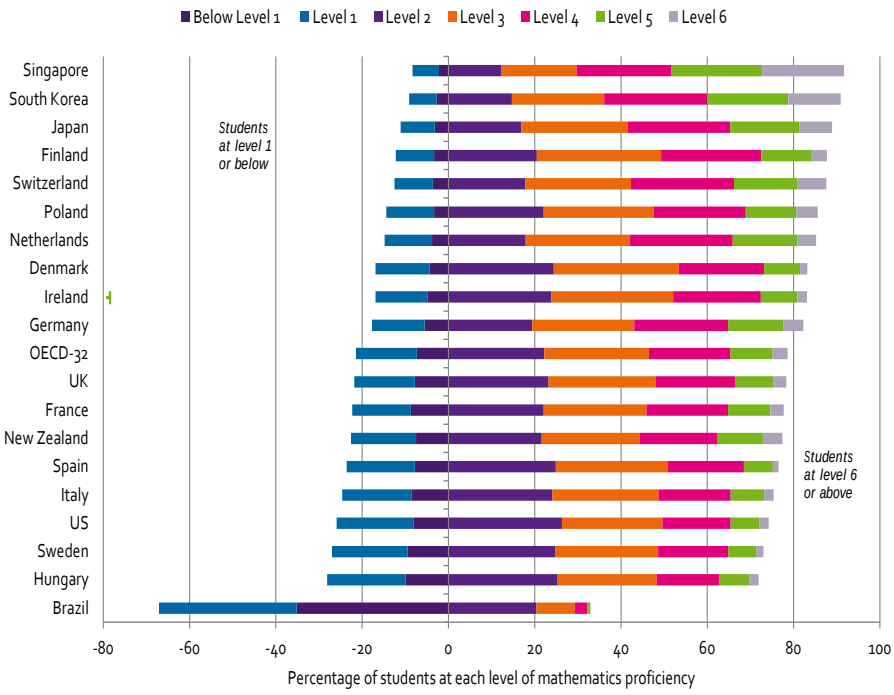


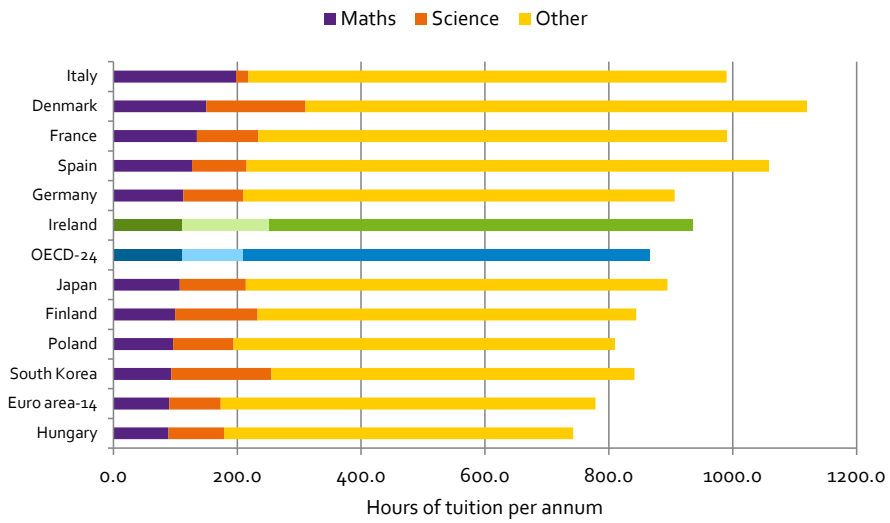
Figure 5.4.8 examines the distribution of scores in mathematics across the various competency levels. Ireland has a lower proportion of students scoring in levels 5 and 6 than the OECD average. On the other hand, there are fewer students in Ireland scoring at level 1 or below than is the case in the OECD.

OECD-32 rank:

Percentage achieving level 2-6: 10th

Source: OECD PISA

Figure 5.4.9 Average annual hours of tuition in lower secondary, by subject, 2015



Similar to the situation in primary school, Irish students spend more time in school per year (935 hrs) than the OECD-25 average (866 hrs). More time is dedicated, however, to maths (111 hrs) and science (140 hrs) than in the OECD (110 hrs and 100 hrs respectively).

OECD-25 rank:

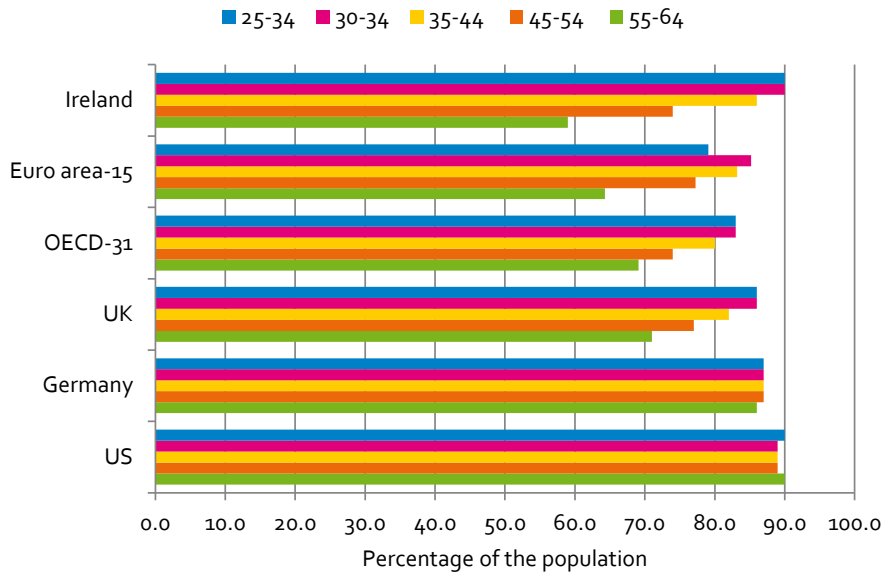
Maths hours: 20th

Science hours: 6th

Total hours: 8th

Source: OECD PISA

Figure 5.4.10 Population by age cohort that has at least third level education[87], 2014



There is significant inverse correlation in Ireland between educational attainment and age; while a lower proportion of 45-54 and 55-64 year olds have attained third level education than the OECD average, a greater proportion of younger cohorts have third level qualifications than is the case in the OECD.

OECD-31 rank:

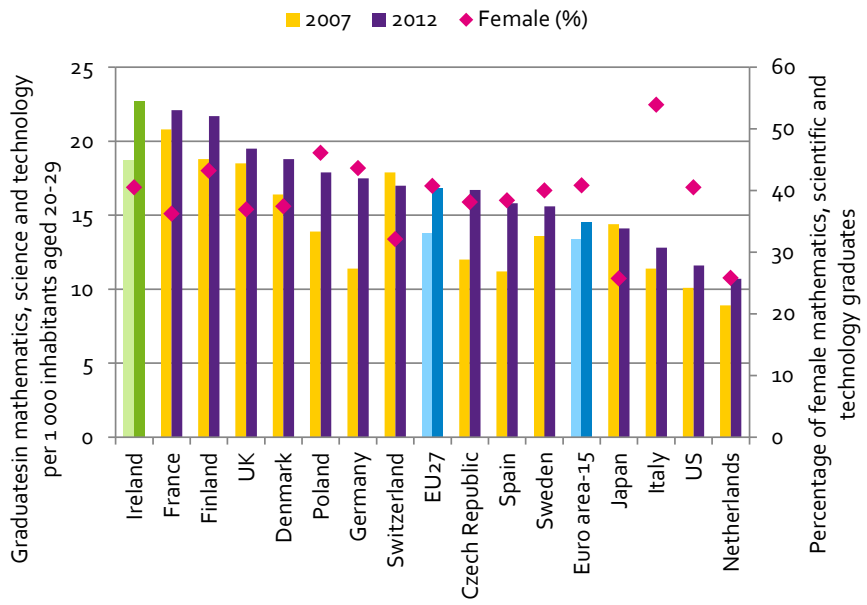
25-64 yrs: 19th

25-34 yrs:9th

Source: OECD

87 OECD-31 excludes Japan, Mexico and Turkey; Euro area-15 excludes Cyprus, Latvia, Lithuania and Malta.

Figure 5.4.11 Maths, Science and Technology graduates (per 1,000 population aged 20-29 years)[88], 2012



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

Euro area-17 rank:

Total: 1st (↑2)

Source: Eurostat

Figure 5.4.12 Lifelong learning (as a percentage of 25-64 year olds), 2014

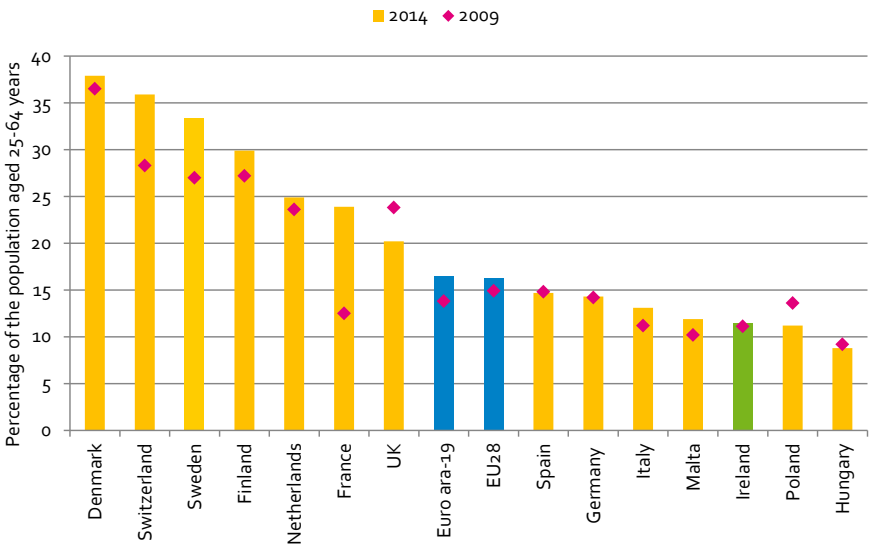


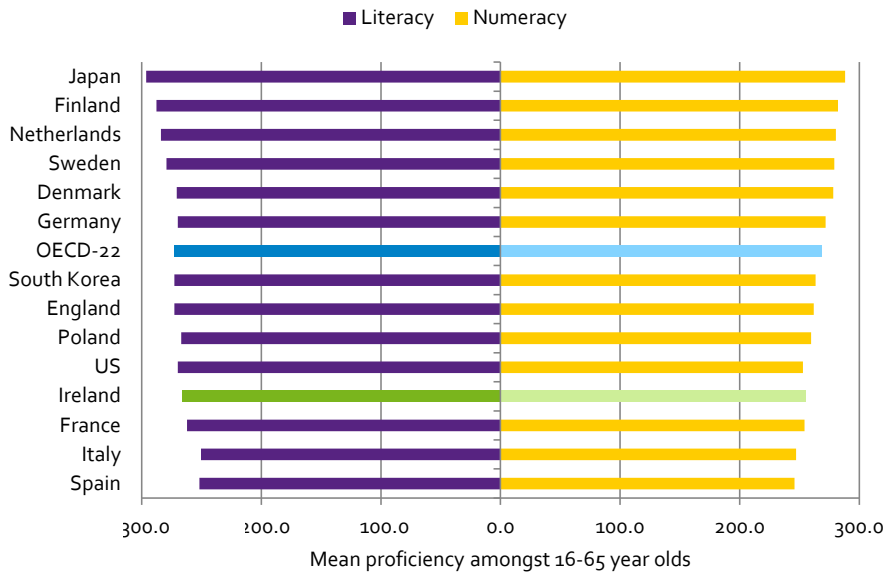
Figure 5.4.12 shows the percentage of people aged 25-64 in receipt of education (both formal and non-formal). Ireland (11.5%) ranks below the Euro area 19 (16.5%) and EU-28 (16.3%) averages. However, participation has increased modestly since 2009 despite the rise in unemployment.

EU28 rank: 19th (↑1)

Source: Eurostat

88 Data for France, EU-27, Sweden, Euro area-15, Japan, Italy and US is for 2011. EU27 excludes Croatia; Euro area-17 excludes Cyprus and Malta.

Figure 5.4.13 PIACC proficiency in maths and reading[89], 2012



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

OECD-22 rank:

Literacy: 19th

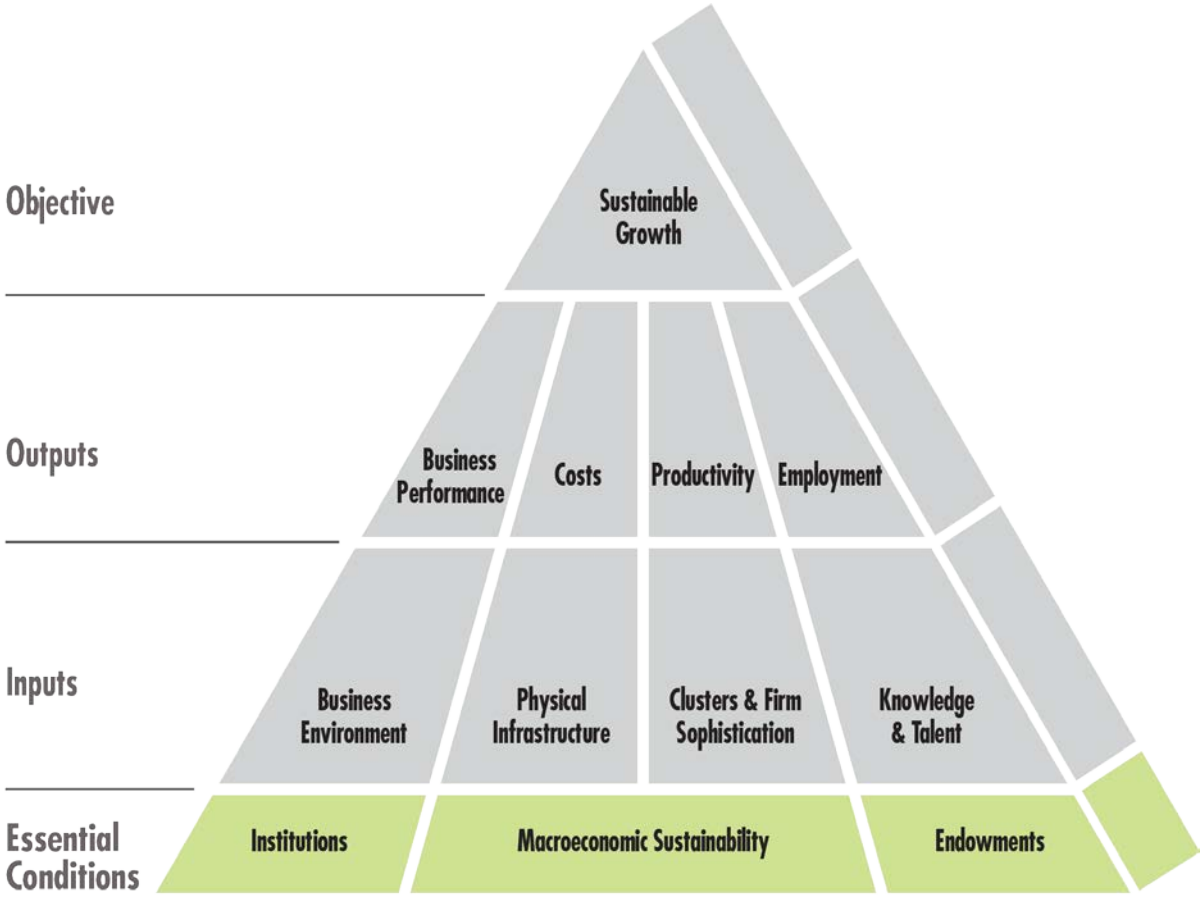
Numeracy: 18th

Source: OECD

89 OECD-22 excludes Chile, Greece, Hungary, Iceland, Israel, Luxembourg, Mexico, New Zealand, Portugal, Slovenia, Switzerland and Turkey.

Chapter 6

Essential Conditions



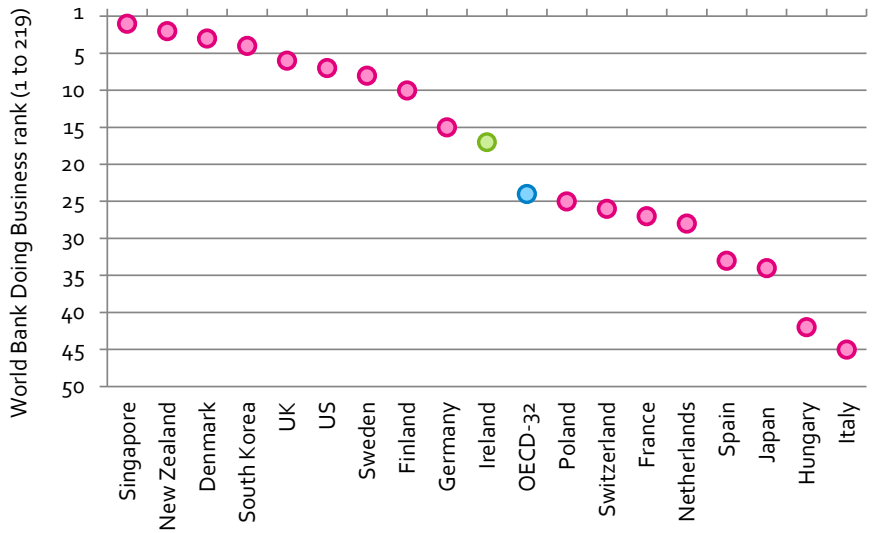
Essential Conditions

A range of factors which are either beyond the immediate reach of policy makers or which are determined by geography or other exogenous factors (e.g. the global economic climate) but which have a significant impact upon relative competitiveness are considered in this chapter.

- **Institutions:** The quality of institutions has a strong bearing on competitiveness and growth. Institutions influence investment decisions and play a key role in the ways in which societies distribute the benefits and bear the costs of development strategies and policies. While difficult to benchmark internationally, indicators in this section address government and public sector effectiveness, as well as global indicators on regulation, democracy, and ease of tax compliance.
- **Macroeconomic sustainability:** The challenge for Ireland is to maintain a sound budgetary position whilst simultaneously increasing capital investment to enhance competitiveness and support enterprise. A medium term viewpoint is required here: running fiscal deficits limits the government's future ability to react to business cycles. It is important to note that this pillar evaluates the stability of the macroeconomic environment; it does not directly take into account the way in which public accounts are managed by the government. A range of indicators are monitored under this heading, including the components of growth, government finances (debt, deficit,) and overall debt to income ratios.
- **Endowments:** Every country has a range of natural endowments pre-determined by geography (e.g. natural resources). While such factors cannot easily be impacted by policy, it is important to be cognisant of their impact on competitiveness. Factors such as demographic trends (i.e. population growth), labour force participation, migration and population density are examined.

6.1 Institutions

Figure 6.1.1 Ease of doing business rankings[90],2016



The World Bank's Doing Business assesses regulations affecting SMEs, and measures regulations applying to companies throughout their life cycle. In 2016, Ireland is ranked 19th, an improvement of 2 places from last year. Ireland is 4thin the Euro area behind Finland, Germany and Estonia but ahead of many comparators including, Netherlands and Spain.

OECD-32 rank: 13th

Source: World Bank

Figure 6.1.2 Ease of doing business Ireland and the UK, 2016

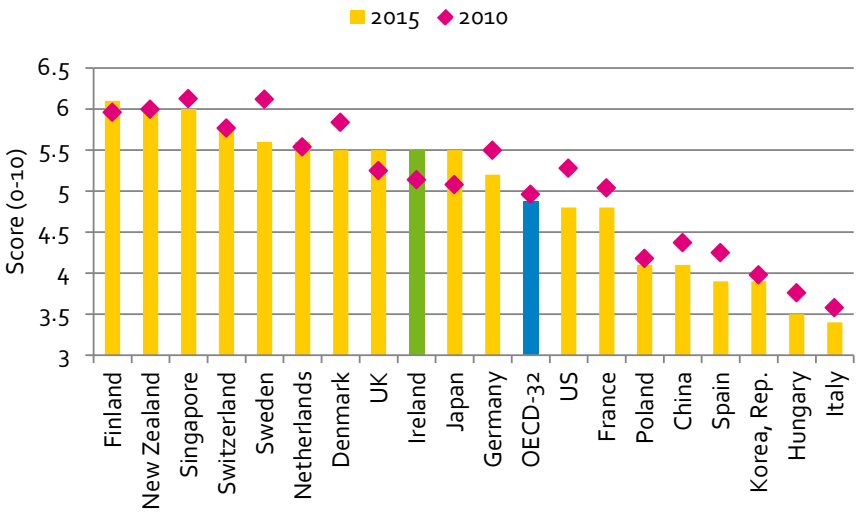
Our top 20 ranking indicates that Ireland has a comparatively good enterprise environment conducive to doing business. However, the World Bank ranking show Ireland lags the UK and highlights a number of areas in which there is significant room for improvement. Ireland is quite far behind in enforcing contracts.

OECD-32 rank: 13th

Source: World Bank

90 Due to changes in methodology, it is not possible to accurately compare performance over time. OECD-32 excludes Mexico and Turkey.

Figure 6.1.3 Perception of institutional effectiveness, 2016



A country's institutional environment (legal and administrative framework) is considered a major driver of competitiveness by the WEF. Ireland is ranked in the top ten in terms of perceptions of Judicial independence and protection of minority shareholders. Ireland's performance has improved since 2010 and is above the OECD 32 average.

OECD-32 rank: 8th (↑8)

Source: World Economic Forum

Figure 6.1.4 Perception of Government effectiveness, 2014

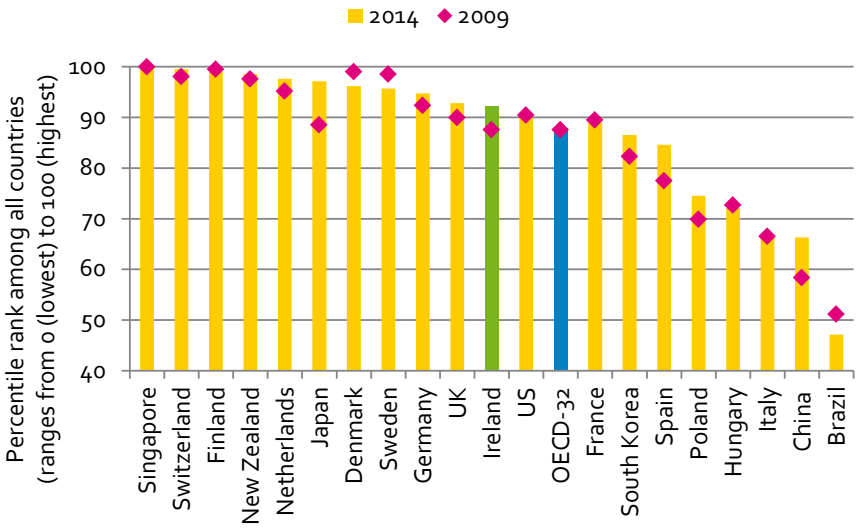


Figure 6.1.4 shows perceptions of the quality of public services, the quality and independence of the civil service, the quality of policy formulation and implementation. Ireland's performance has improved since 2009 and while behind a number of countries is above the OECD average.

OECD-32 rank: 13th (↑6)

Source: World Bank, Worldwide Governance Indicators

Figure 6.1.5 Time to prepare and pay tax[91], 2015

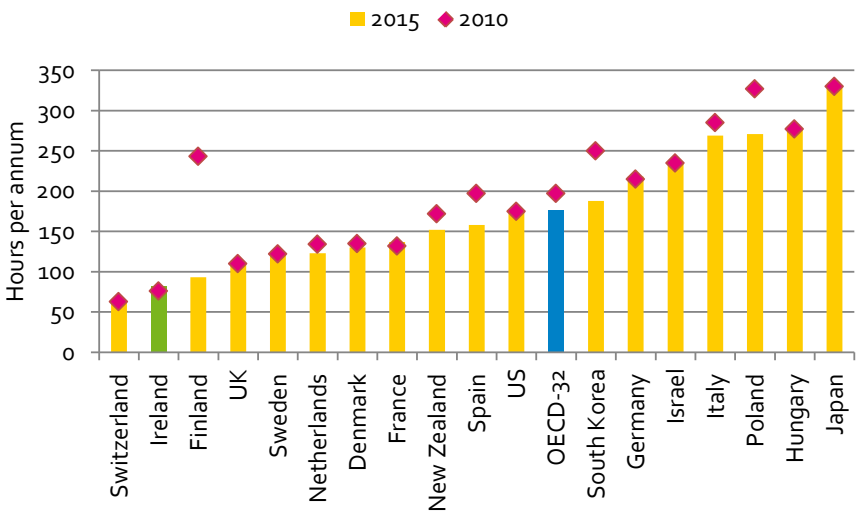
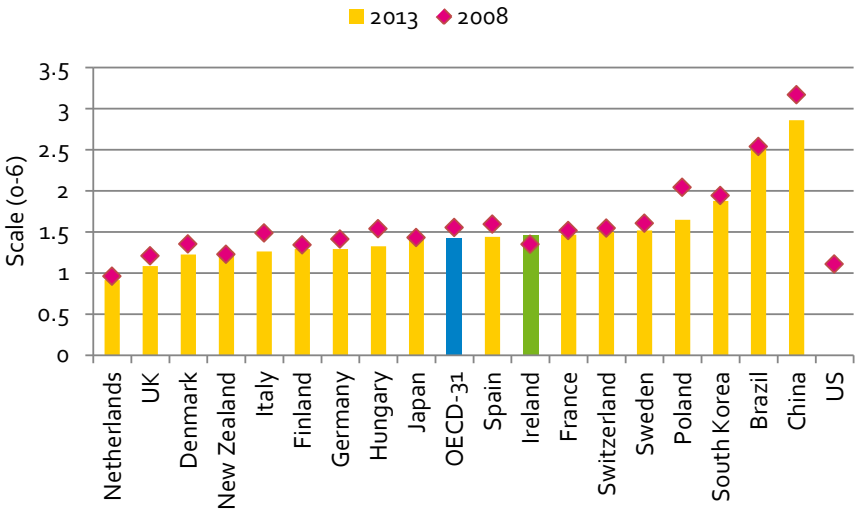


Figure 6.1.5 measures the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are considered – these include time taken to prepare tax figures, complete and file tax returns, and paying taxes. Ireland continues to perform strongly in this indicator.

OECD-32 rank: 4th (↓1)

Source: World Bank/PWC

Figure 6.1.6 Product market regulation (scale 0-6), 2013[92]



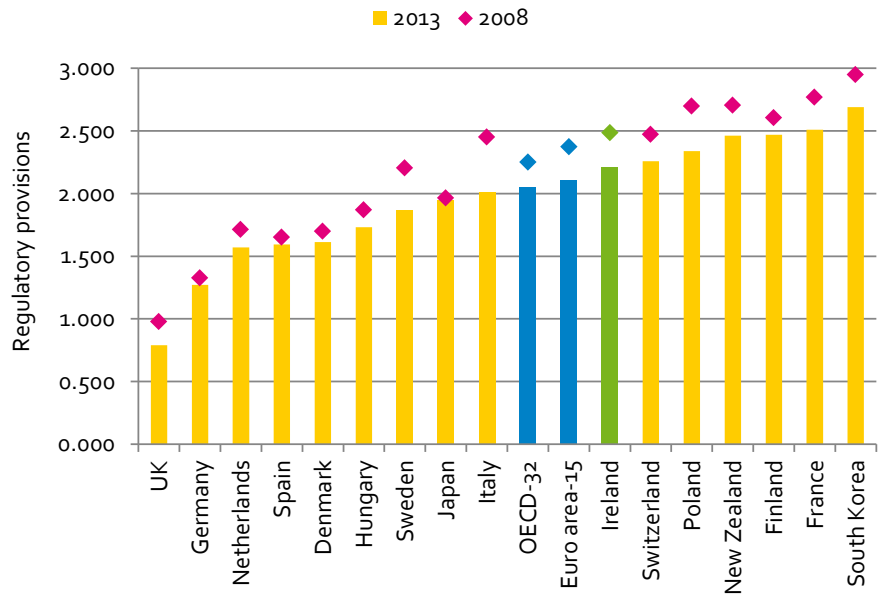
The OECD Indicators of Product Market Regulation are a comprehensive set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. While Ireland's score is comparable to the OECD average, our ranking has declined.

OECD-31 rank: 19th (↓13)

Source: OECD

91 2010 data not available for Japan or US; 2013 data used instead.
92 US data for 2013 is not available.

Figure 6.1.7 Energy, transport and communication regulation[93],2013



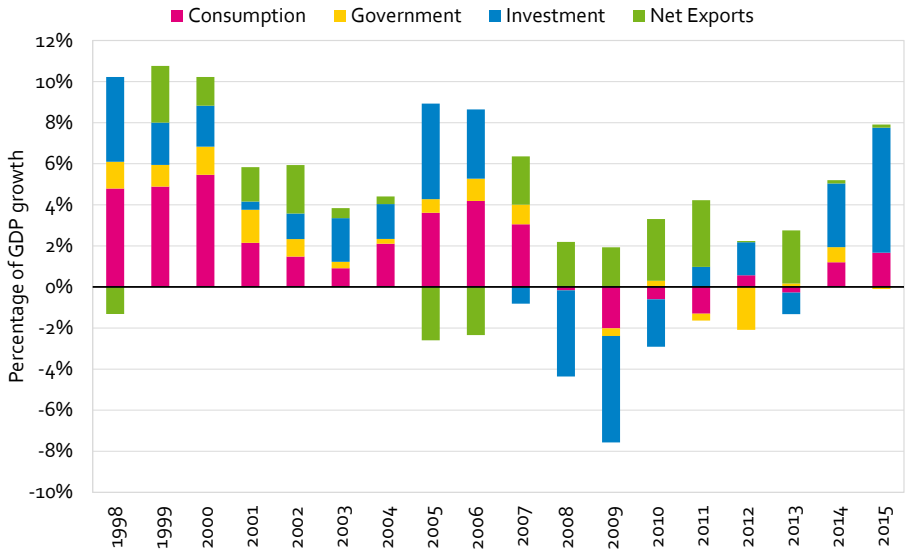
Source: OECD

Ireland's policy (like many OECD countries) of market liberalisation has been particularly apparent in the communications, energy and transport sectors. Figure 6.1.7 shows that regulatory provisions decreased not only in Ireland but across the OECD from 2008-2013. However, the provisions for regulated entities are above the OCED average in Ireland.

OECD-32 rank: 21st (↑1)

6.2 Macroeconomic Sustainability

Figure 6.2.1 Components of Irish economic growth, 1998-2015



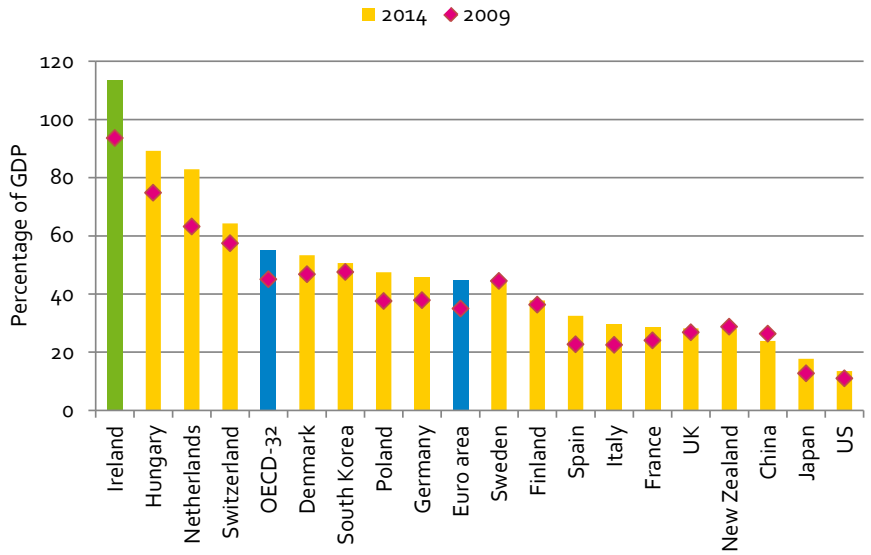
Source: CSO

Prior to the economic crash, growth was driven by unsustainable increases in consumer spending and investment. During the recession, exports were a key driver of growth. Recent growth is being driven by significant increases in the contribution of domestic demand (+9.3%), capital formation (+28.2%) and personal consumption (+3.5%).

Rank: n/a

93 Ranking based on OECD-31 which excludes Mexico, Turkey and US.

Figure 6.2.2 Exports of goods and services as a percentage of GDP, 2014

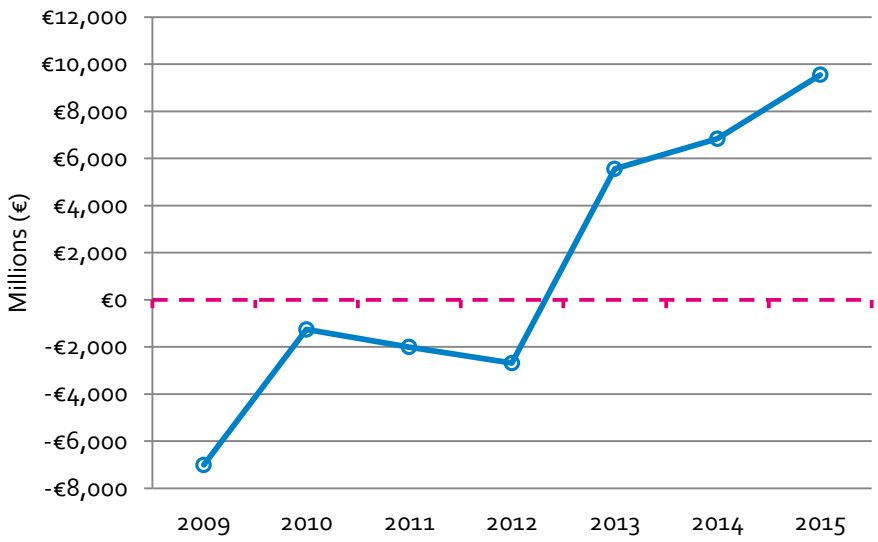


The Irish economy is very open with high levels of trade in both goods and services. Exports in Ireland rose from 93% of GDP in 2009 to 113% in 2013. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg.

OECD-32 rank: 2nd (-)

Source: OECD

Figure 6.2.3 Balance of payments, current account (€millions), 2009-2014

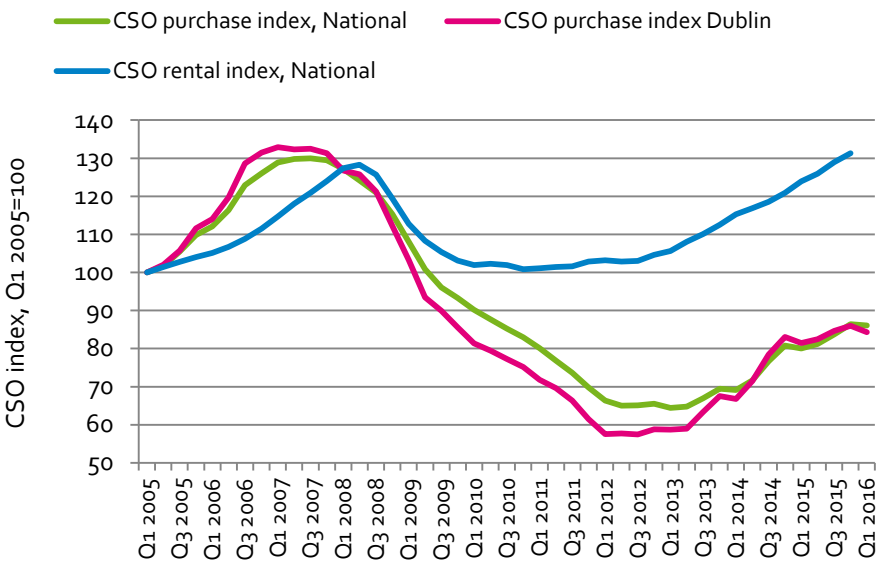


The balance of payments current account is a measure of Ireland's financial flows with the rest of the world. Since 2008, the current account has moved from deficit to surplus. The surplus for 2015 was €9,548m; a 40% increase on 2014. The surplus reflects trade in merchandise and services, as well as primary and secondary income account inflows and outflows.

Rank: n/a

Source: CSO

Figure 6.2.4 Index of Irish House Prices and Rents, Q1 2005 - Q1 2016

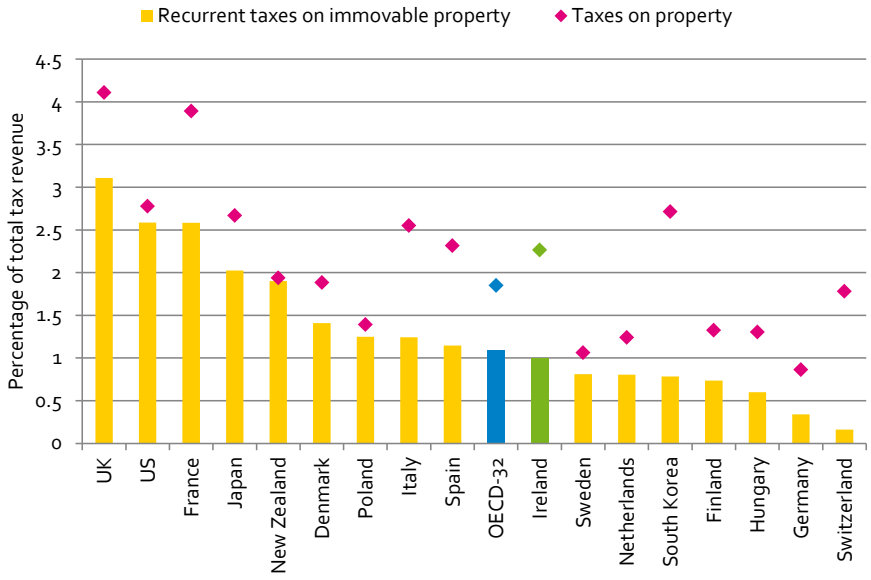


Despite recent increases, the scale of reduction in house prices since 2007 is still apparent. Prices remain far below pre-crisis levels. Estimates of the peak to trough fall in prices range from 50% to 66%, while the recent recovery in house prices ranges from 9% to 34%. Following a sharp fall at the onset of the recession, average Irish rents in 2016 are above the 2008 peak.

Rank: n/a

Source: CSO

Figure 6.2.5 Recurrent and total property tax receipts[94], 2014



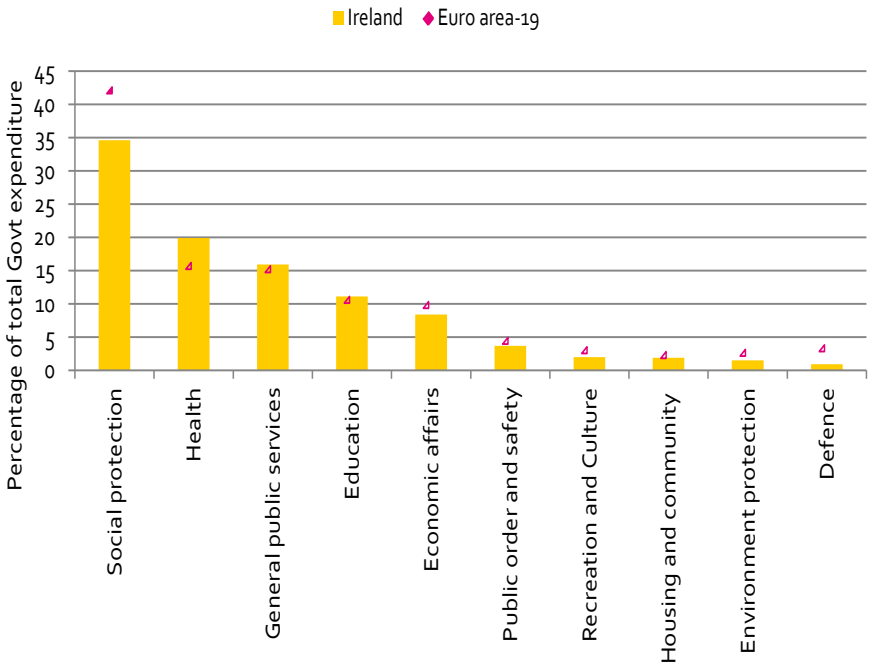
Prior to the introduction of the local property tax in 2013, Ireland generated a low proportion of revenue through property taxes. In 2014, however, the LPT raised €438m. Taxes on property are higher in Ireland than they are on average across the OECD.

OECD-32 rank:
Property taxes: 13th (↑6)
Recurrent taxes: 13th (↑1)

Source: OECD

94 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.). Latest data for Netherlands, OECD-32 and Poland is from 2013. Changes in rankings are based on comparison with 2009. According to the European Commission, recurrent taxes on immovable property are among those least harmful to growth.

Figure 6.2.6 General Government expenditure by function, 2014

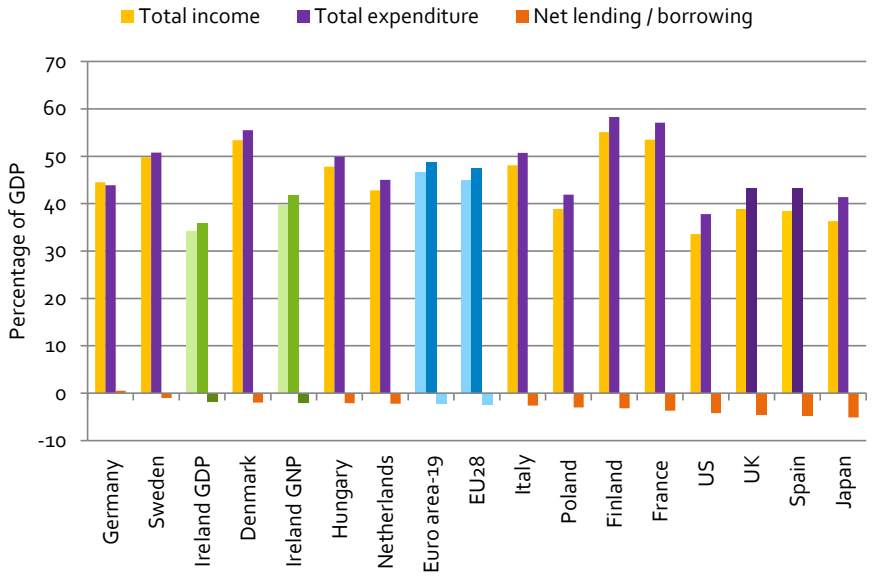


Across the EU, 'social protection' accounts for the major share of Government expenditure. 'Health', 'General Public Services', and 'Education' account for the next greatest shares of Government spending. As a percentage of total Government expenditure, Ireland spends more on health and education than the Euro area average.

Rank: n/a

Source: Eurostat

Figure 6.2.7 Total government revenue, expenditure and deficit, 2015



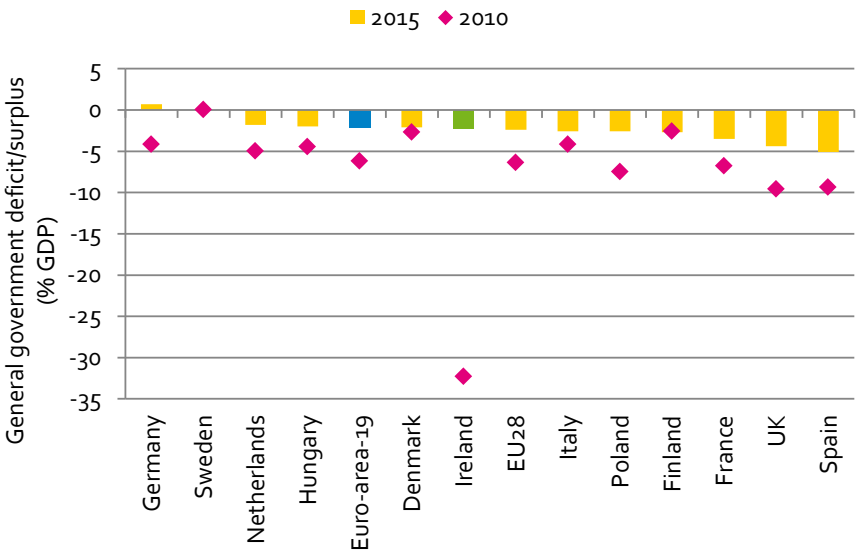
In 2015, Irish Government revenue amounted to 34.1% of GDP (39.6% of GNP). Expenditure amounted to 35.9% of GDP. Ireland's deficit has declined significantly in recent years.

Euro area-19 rank:

Deficit: 10th

Source: European Commission

Figure 6.2.8 General government deficit/surplus (% GDP), 2015

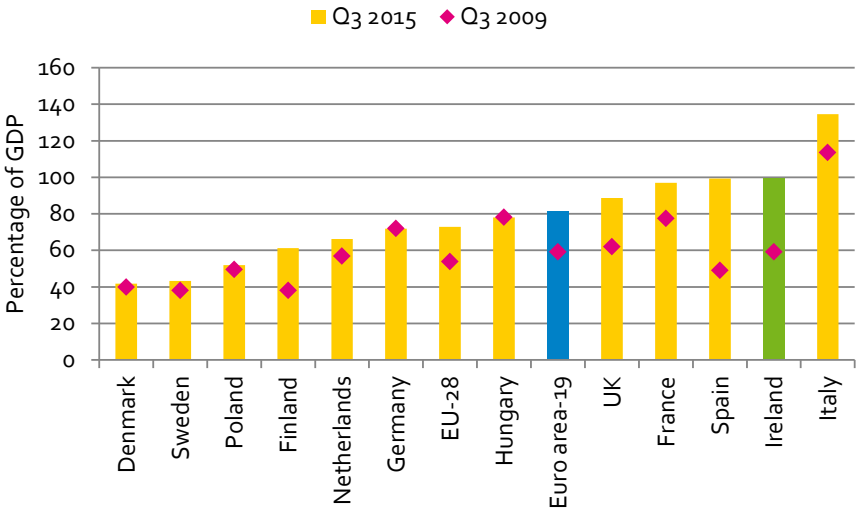


The general government deficit continued to fall sharply in 2015 to 2.3%[95] of GDP down from 3.8% in 2014 and significantly below the deficit levels of 2010/2011, when the deficit peaked at 32.3%. The Euro-area 19 recorded a deficit of 2.1% in 2015, with only Germany and Estonia recording surpluses.

Euro area-19 rank: 10th (↑9)

Source: Eurostat

Figure 6.2.9 General government gross debt (as a percentage of GDP), 2015



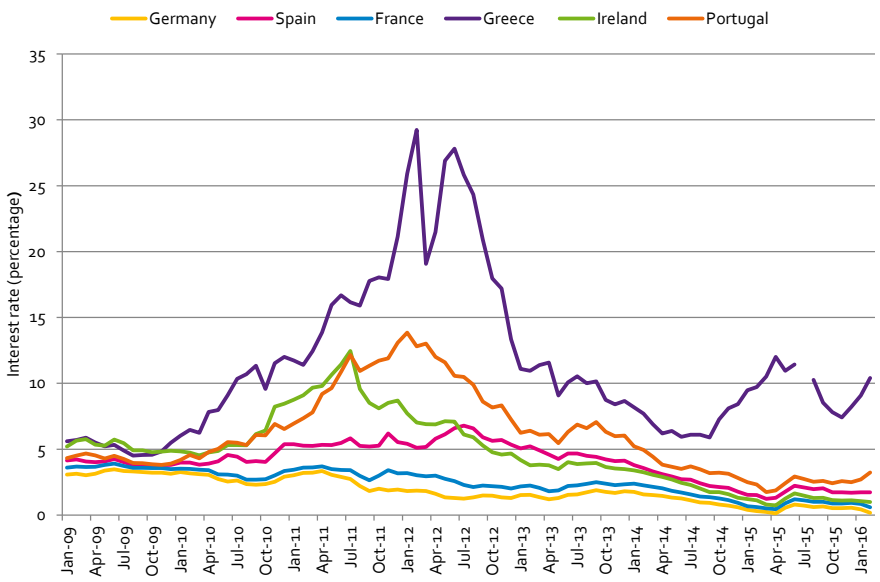
Ireland's debt as a percentage of GDP increased significantly in the period 2009-2012 partly as a result of the cost of the capital support provided by the State to several financial institutions, and partly due to the Exchequer running large deficits. Ireland's debt level peaked at 125.3% in Q2 2013 but has decreased considerably to 99.4% in Q3 2015.

Euro area-18 rank: 10th (-4)

Source: Eurostat

95 Excluding the classification of a one-off transaction related to the restructuring of AIB the deficit would have dropped further to 1.3% of GDP

Figure 6.2.10 Ten-year government bonds (Interest Rates), 2009-2016[96]

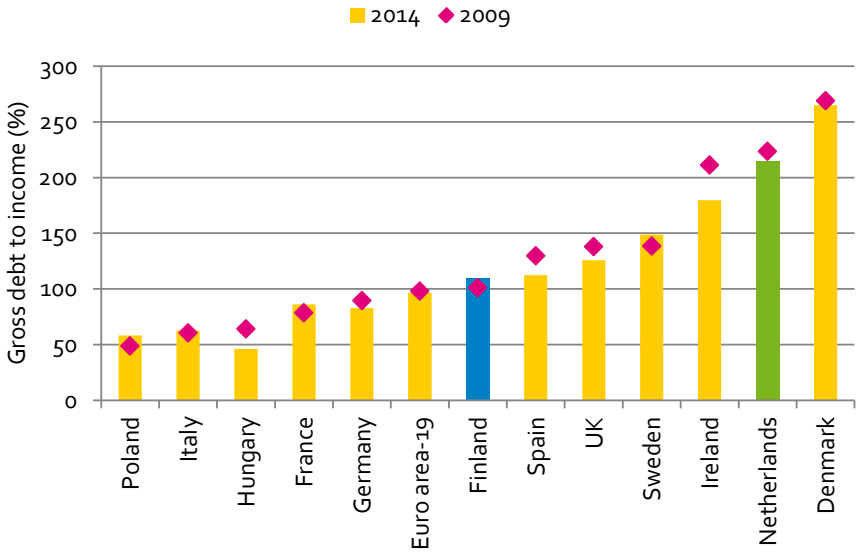


Source: ECB

Reflecting improved economic and fiscal positions, Irish bond yield movements are now trading in line with core European sovereign yields. In 2011 the yield on a ten year Irish government bond reached 14%, now it has remained steady through 2016, trading at below 1%.

Rank: n/a

Figure 6.2.11 Gross debt-to-income ratio of households[97], 2014



Source: Eurostat

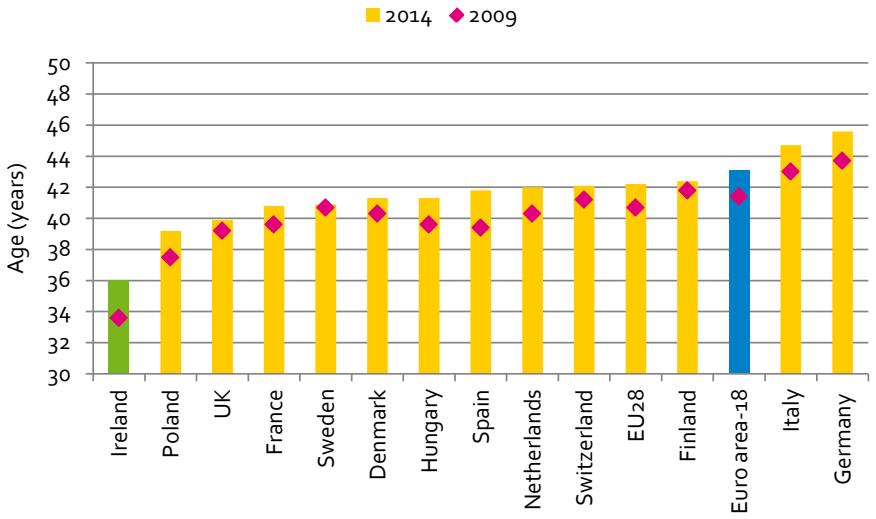
In the five years to 2008, Irish household debt levels increased by 42%. Between 2009 and 2014 Irish households reduced their debt as a proportion of disposable income by 32% - the largest reduction in the EU. Aggregate household indebtedness has declined in Ireland in recent years in nominal terms, and as a share of household income.

Euro area-16 rank: 14th (↑1)

96 Owing to market closure in Greece no data are available for **July 2015.**
97 Euro area-16 excludes Greece, Luxembourg and Malta.

6.3 Endowments

Figure 6.3.1 Median population age, 2014

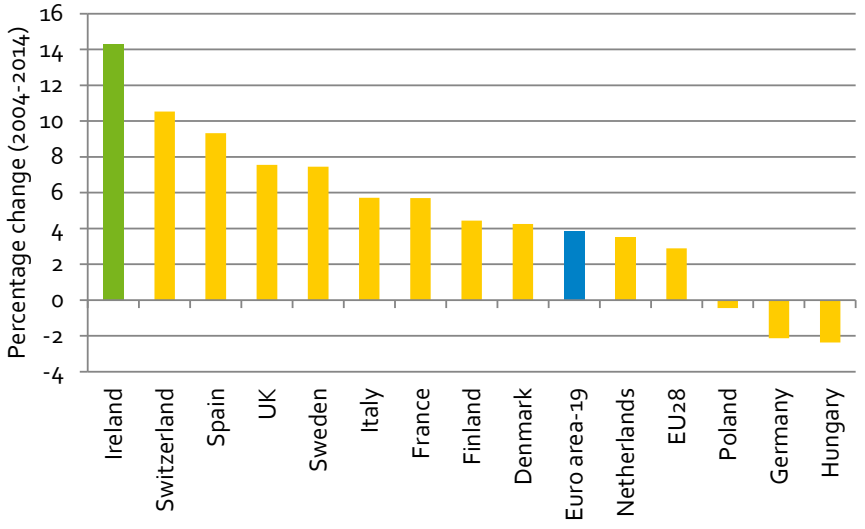


In recent decades, the profile of the Irish and EU population has changed, due to ageing and changes in family formation. In 2014, Ireland had the youngest population (median age 36 years). The average age of the EU population was 42.2. Over the last twenty years, the median age of the Irish population has steadily increased – it was 30 years in 1994.

Euro area-19 rank: 1st (-)

Source: Eurostat

Figure 6.3.2 Population growth rate, 2004-2014

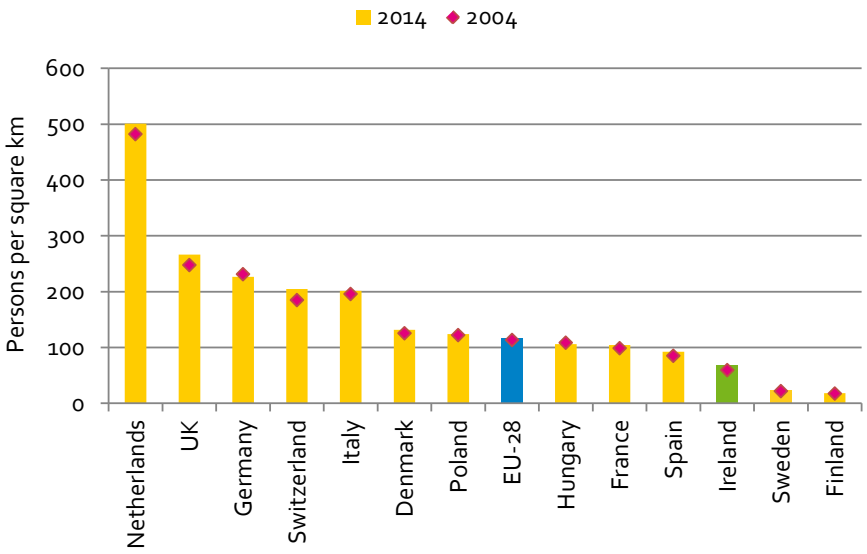


Ireland had the third highest percentage increase in population (14%) between 2004 and 2014 in the EU, behind Luxembourg and Cyprus. The combined effect of natural increase and negative net migration resulted in an overall increase in the population of 25,800 bringing the population estimate to 4.64 million in April 2015

Euro area-19 rank: 3rd

Source: Eurostat, CSO

Figure 6.3.3 Population density, 2004-2014

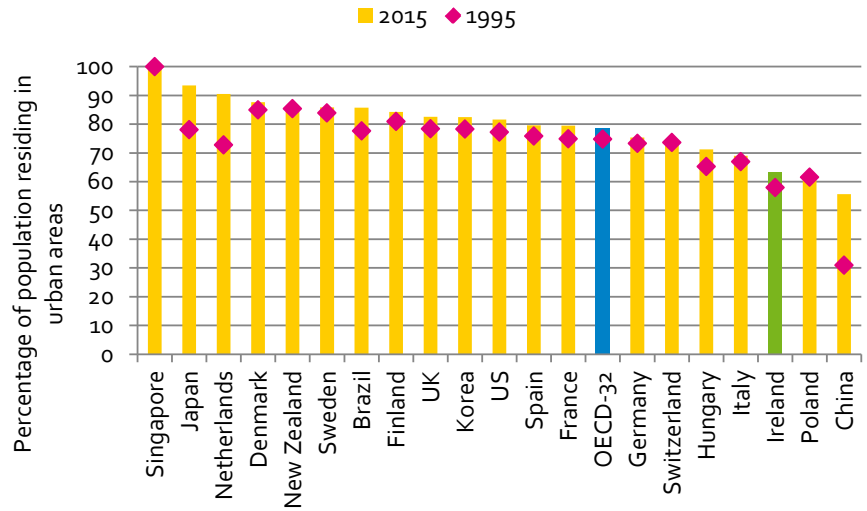


In 2014 Ireland's population density was 67 persons per km2, up from 59 persons per km2 recorded in 2004. Ireland is one of the most sparsely populated countries in Europe. There is significant divergence across regions with population density in Dublin estimated at 1,401 persons per km2 compared to 32 persons per km2 in the West.

EU-28 rank: 22nd (-)

Source: Eurostat

Figure 6.3.4 Percentage of population residing in urban areas, 1995-2015

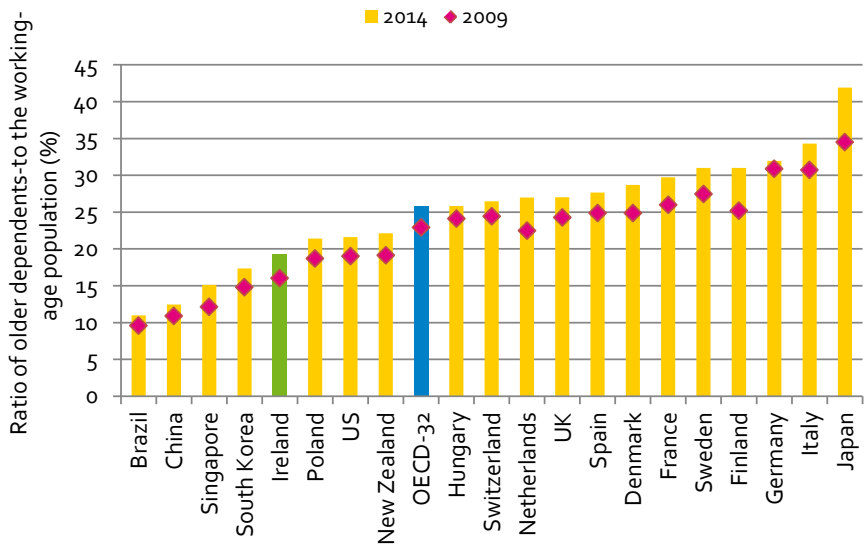


UN data shows that across the globe, there is an increasing trend towards greater urbanisation. In an OECD context, Ireland's population is relatively rural.63% of the Irish population reside in urban areas, (below the OECD average of 78%) an increase of 5% in twenty years.

OECD-32 rank: 29th (-)

Source: UN

Figure 6.3.5 Old age dependency ratio, 2014



The age dependency ratio shows the ratio of persons older than 64 to the working-age population. The evolution of the dependency ratio is a crucial element determining the long-term sustainability of pension systems. At 19.3, Ireland has the 7th lowest in the OECD-32 and the 2nd lowest in Europe. However, Ireland's dependency ratio is increasing steadily.

OECD-32 rank: 5th(↓2)

Source: World Bank

Figure 6.3.6 Net migration (000s), 2000-2015

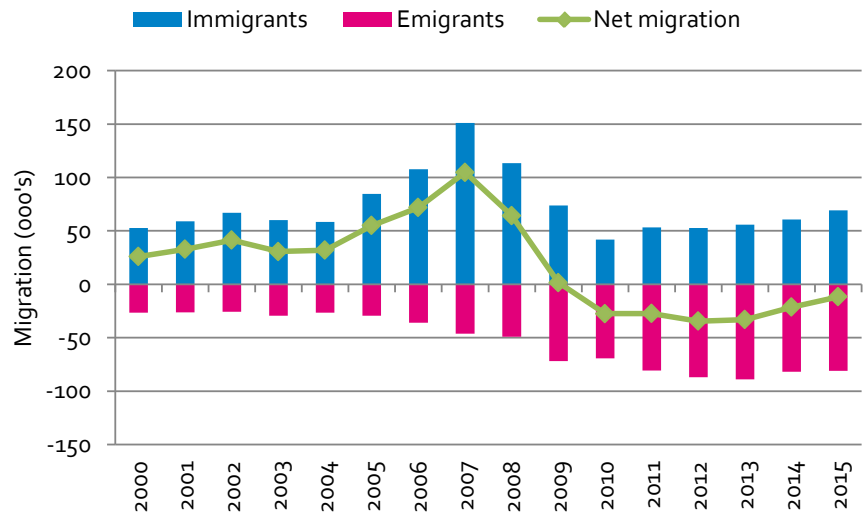


Figure 6.36 illustrates the trend in net migration in the years preceding and following the recession. Total emigration from Ireland in 2015 is estimated at 80,900 – a slight reduction on 2014. The number of immigrants increased to 69,300, resulting in total net outward migration of 11,600. This is the lowest level of net migration since 2009.

Rank: n/a

Source: CSO

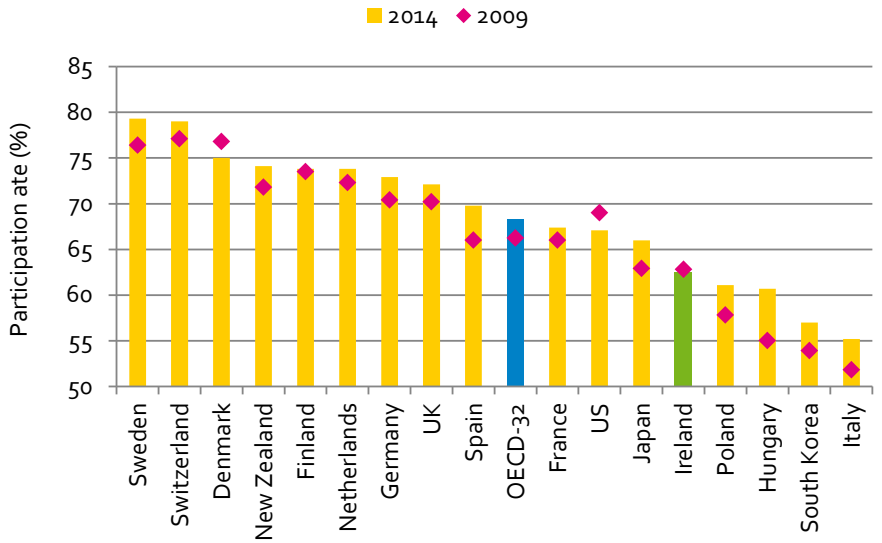
Figure 6.3.7 Labour market participation rates in Ireland, Q1 2010-Q4 2015

Participation rates in Ireland have remained relatively stable between 2010 and 2015, following a decline in the initial years of the recession. In Q4 2015, the participation rate was 60%.The male participation rate was 67.5% compared with a female participation rate of 52.8%.

Rank: n/a

Source: CSO

Figure 6.3.8 Female Labour market participation rates, 2014



Despite Ireland's improving labour market, labour force participation rates remain below their pre-crisis peaks. While short-term changes in the participation rate can vary with economic cycles, the female participation rate in Ireland is consistently significantly lower than those of best-performing OECD economies.

OECD-32 rank: 26th (↓4)

Source: OECD

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