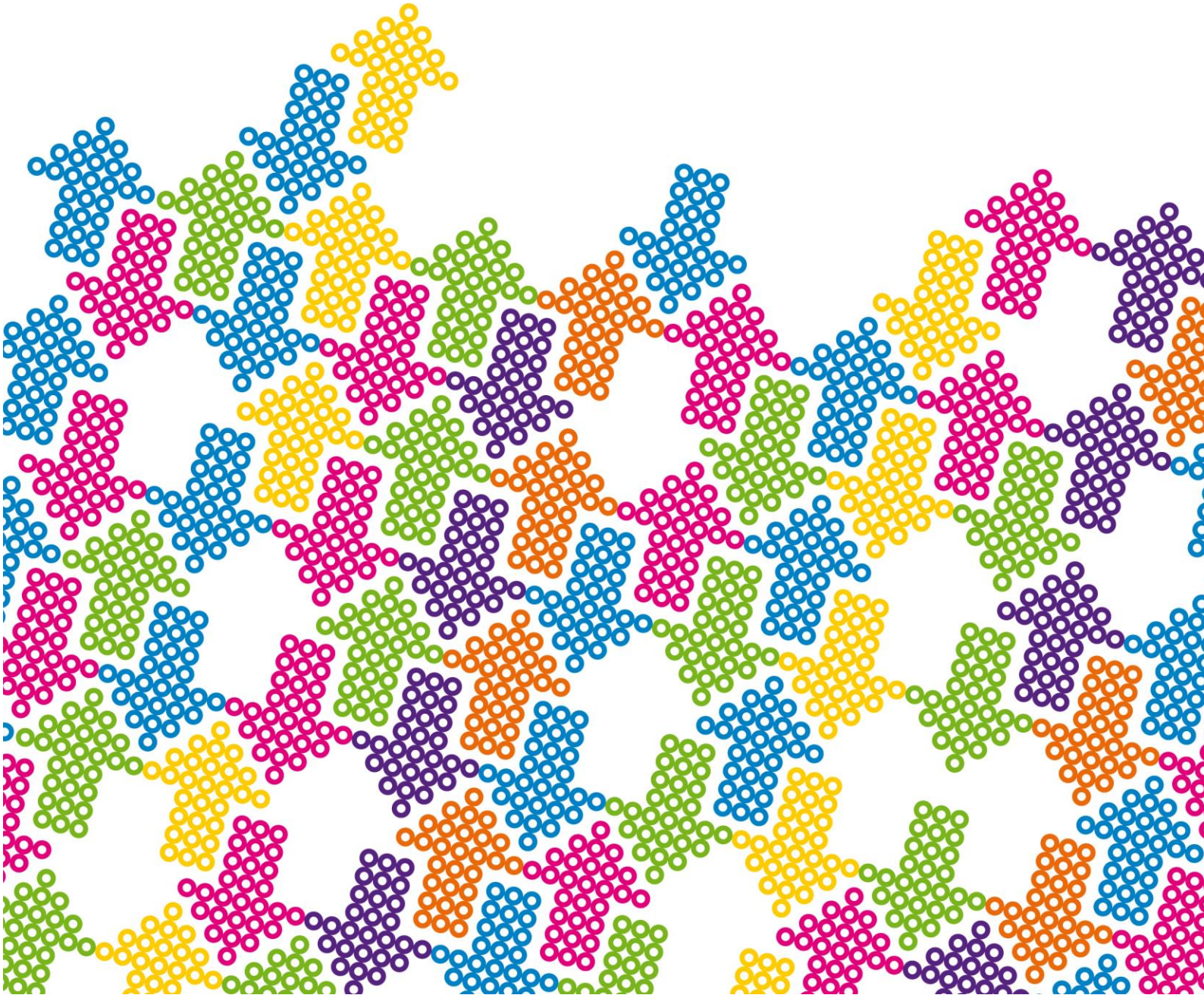
An Chomhairle
Náisiúnta Iomaíochas
National Competitiveness
Council

Ireland's Competitiveness Scorecard 2017

July 2017



Introduction to the National Competitiveness Council

The National Competitiveness Council reports to the Taoiseach and the Government, through the Tánaiste and Minister for Enterprise and Innovation on key competitiveness issues facing the Irish economy and policy actions to enhance Ireland's competitive position.

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" framework to illustrate the various factors (essential conditions, policy inputs and outputs), which combine to determine overall competitiveness and sustainable growth. This framework is elaborated on further in Annex 1.

In line with its Terms of Reference, each year the Council 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 Council 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.

In addition, the Council publishes a range of other papers, submissions and reports on a variety of issues of importance to Ireland's competitiveness.

- In April 2017, the Council published a report Benchmarking Competiveness: Ireland and the UK, 2017 which provides a statistical snapshot assessment of Ireland's current competitiveness performance across areas which are crucial to improving our international competitiveness position. Ireland's competitiveness performance is considered with specific reference to the UK, to establish areas where policy attention could enhance Ireland's competitiveness.
- In February 2017, the Council published a report benchmarking Ireland's recent productivity performance. Ireland's labour productivity performance is strong in an international context. Increasing productivity across all sectors remains a significant challenge. Productivity growth is a key driver of national competitiveness, as it enables firms based in Ireland to compete successfully in international markets by facilitating output to be produced in a more efficient and effective manner. Ireland can take advantage of a sizeable competitiveness opportunity if we can avoid the 'productivity trap' being experienced by many developed economies. Facilitating enterprise and start-ups, trade, access to finance, skills and infrastructure are critical to productivity and competitiveness gains.
- In 2016 the Council undertook a review of our Competitiveness Framework and a study to assess the affordability of residential property in Ireland in an international context.
- NCC Competitiveness Bulletins focus on individual topics and highlight issues of concern to the Council, setting out briefly why a particular issue is of concern, and providing a summary of actions designed to enhance Ireland's competitiveness.

National Competitiveness Council Members

Professor Peter Clinch	Chair, National Competitiveness Council
Pat Beirne	Chief Executive Officer, Mergon Group
Kevin Callinan	Deputy General Secretary, IMPACT Trade Union
Micheál Collins	Assistant Professor of Social Policy, University College Dublin
Isolde Goggin	Chair, Competition and Consumer Protection Commission
Cathríona Hallahan	CEO/Managing Director (Ireland), Microsoft
Declan Hughes	Assistant Secretary, Department of Jobs, Enterprise and Innovation
Jane Magnier	Joint Managing Director, Abbey Tours
Danny McCoy	Chief Executive Officer, Ibec
Seán O'Driscoll	President, Glen Dimplex Group
Margot Slattery	Country President, Sodexo Ireland
Martin Shanahan	Chief Executive, IDA Ireland
Julie Sinnamon	Chief Executive, Enterprise Ireland
Ian Talbot	Chief Executive, Chambers Ireland
Patrick Walsh	Managing Director, Dogpatch Labs
Jim Woulfe	Chief Executive, Dairygold Co-Operative Society Limited

Council Advisers

Patricia Cronin	Department of Communications, Climate Action and Environment
Kathleen Gavin	Department of Education and Skills
John McCarthy	Department of Finance
Conan McKenna	Department of Justice and Equality
David Moloney	Department of Public Expenditure and Reform
Ray O'Leary	Department of Transport, Tourism, and Sport
John Shaw	Department of the Taoiseach
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Taoiseach's Foreword

As a small open economy, competitiveness is central to our future prosperity. Improved competitiveness has helped Ireland increase employment, exports and investment in recent years. Over two million people are now working, and the Action Plan for Jobs target of 45,000 extra jobs this year is on course to be exceeded.

A failure to maintain competitiveness in the run-up to the economic crisis left the Irish economy vulnerable and ultimately resulted in the loss of jobs and fall in living standards suffered by the Irish people. We need to ensure that we don't repeat the mistakes of the past, and that is why the Government, the Oireachtas and the Irish public need to pay attention to the analysis of the National Competitiveness Council.

Whilst our competitiveness performance in recent years has been positive, it is essential to remain vigilant as we approach full employment and the economy begins to face capacity constraints. Increasingly the focus must be on growing participation in the workforce, and increasing skill levels, innovation and productivity across the economy, in both private and public sectors.

In addition, Brexit creates large uncertainties and risks for the Irish economy, and in particular for those sectors most dependent on trade with the United Kingdom. In many cases, these sectors are employment intensive, operate in low-margin industries, and have a large regional footprint. Now, more than ever, Ireland needs to respond creatively to challenges such as infrastructure bottlenecks, skills deficits, and increasing costs. We need to help Irish companies become more resilient to Brexit by improving their levels of productivity and innovation.

Ireland's Competitiveness Scorecard 2017 is a very detailed analysis of Ireland's competitiveness performance across many different variables, based on a sophisticated understanding of what determines a country's competitiveness. It provides an objective evidence base for those making policy and resource-allocation decisions in a time of considerable uncertainty.

I would like to thank the National Competitiveness Council for this comprehensive report and encourage everyone involved in policy-making to consider its analysis carefully so that we can enable Irish companies to compete successfully in international markets and provide Ireland's people with the opportunity to further improve their living standards in the years ahead.

Leo Varadkar TD
Taoiseach

Tánaiste's Foreword

The trajectory of Ireland's competitiveness performance in recent years has been positive, and is reflected in strong employment growth across sectors and regions. The strong performance of clients supported by the enterprise agencies in winning exports, market share and job creation in the face of intense global competition is to be commended and reflects the competitiveness of the environment in which to do business in Ireland.

At the same time, as set out in this report, a number of critical competitiveness issues are evident and my objective is to ensure the economy is resilient at sectoral and firm level to deal with imminent competitiveness challenges and to build further on the progress we have made.

Global uncertainty and Brexit in particular, has underlined the importance of building competitive advantage and generating uplift in enterprise export competitiveness to secure sustainable jobs and growth. A more diverse export base can reduce exposure to external demand shocks, exchange rate volatility and enhance growth and jobs. Supporting start-ups and facilitating enterprise evolve into new products, markets and sectors, while sustaining the advantages we enjoy in existing ones is a key priority for my Department.

Ensuring enterprise stays at the forefront of innovative activity is vital to deepening the resilience of our enterprise base and necessary for success in global markets, which for a small open economy like Ireland, is necessary for creating sustainable growth. The returns from innovation are a particularly vital component in securing productivity growth, consolidating and broadening our FDI base, and creating competitive advantage in intellectual property and commercial products and services. At firm level, the returns from innovation are associated with lower costs, increased turnover, productivity and job creation.

In the context of intense competition internationally for exports, mobile investment and talent, enhancing national competitiveness is vital to secure increases in incomes and future prosperity. Building the foundations of future growth means we must further enhance the competitiveness of our business environment. We must continue to invest in our infrastructure and talent base and talent, and harness the benefits from trade and the Single Market.

As Minister for Enterprise and Innovation, I will ensure policies which enhance national competitiveness and create the best possible environment for enterprise, innovation and investment across all regions are prioritised and implemented.

Frances Fitzgerald TD

Tánaiste and Minister for Enterprise and Innovation

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 it also requires the enhancement of productivity by investing in people and capital, thereby equipping individuals with the skills and tools to work smarter.

MAINTAINING OUR SUCCESS: Ireland's relative macroeconomic performance continued to improve over the last year. Improved public finances, productivity growth, export growth and the labour market have all contributed to Ireland's improved competitiveness performance in international rankings. 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 young workforce, and supportive environment in which to do business and invest) remain. This has led to an improvement in Ireland's competitiveness rankings (we are ranked 6th in the latest IMD World Competitiveness Yearbook). This improvement is welcome and the achievement should be acknowledged. The key concern of the NCC is that Ireland maintains these rankings. This is a difficult challenge in a rapidly growing economy that is closing in on full employment. However, it is particularly crucial to address the significant downside threats to the Irish economy which include Brexit, a potential shift in trade and taxation policy in the US, and the uncertain nature of global growth, particularly, the potential for slower than projected growth in the UK and US.

CAUTION: To protect its economy, Ireland must address those competitiveness factors that are within its control. Moreover, as one of the world's most globalised economies, we must take care when evaluating our economic success through national income statistics. Our strong improvements in macroeconomic metrics have driven the improvement in Ireland's relative competitiveness score. Metrics derived with respect to national income, such as export values, expenditure ratios-to-GDP, measures of potential output, the structural deficit, debt and the expenditure benchmark, must be interpreted with caution. While the headline measures of success are positive, beneath the surface, a number of significant challenges are evident.

COSTS: A rapidly improving labour market and positive inflation are likely to pose challenges for competitiveness in terms of skill shortages, increasing consumer prices and business costs. Cost pressures are evident in key areas, in particular, in residential property, the shift in the value of Sterling and rising prices. Ireland has a relatively high share of trade outside the Euro area – meaning that Ireland is more exposed to the impact of exchange rate fluctuations. The value of the Euro against Sterling is critical for Irish exporters, particularly those in employment intensive sectors such as the agri-food sector which remain very dependent on strong trading activity with the UK. The euro's appreciation relative to sterling poses significant concerns for parts of the exporting sector reliant on trade with the UK, especially the food sector and areas of the economy sensitive to cross-border trade. While overall labour-cost growth remains competitive, sector specific pressures exist. On an annual basis, there has been strong labour-cost growth in construction, professional services and accommodation and food.

EXPORT BASE: Despite our strong trade performance, our export base remains narrow. Brexit has underlined the importance of generating uplift in enterprise export competitiveness to secure future jobs and growth. A more diverse export base can reduce exposure to external demand shocks, exchange rate fluctuations and instability in export earnings, upgrade value-added, and enhance growth and jobs. Policies to facilitate enterprise to move into new products, markets and sectors, whilst maintaining the competitive advantages it enjoys in existing ones, are now critical.

PRODUCTIVITY GAP: Such policies referred to above will help to bridge the productivity gap that exists between the most productive firms in Ireland and the rest of the enterprise base that is lagging. While Ireland's productivity growth is relatively strong, it is skewed by a small cohort of firms in the manufacturing and ICT sectors. There is a need to increase productivity across many sectors and occupations, particularly in the indigenous and locally-trading sectors of the economy. This is perhaps the foremost medium-term domestic challenge to sustainable growth prospects.

INNOVATION: Ensuring Irish enterprise stays at the forefront of technology and innovative activity, and can support that through access to competitively-priced finance from a variety of sources, is critical for boosting productivity growth. While Ireland has a higher proportion of innovative enterprises than the Euro area-19 average in product, process and marketing, its performance is relatively weak in terms of organisational innovation. Business R&D expenditures as a percentage of GDP have been relatively flat over the period 2010-2015. At the same time, while public investment in R&D is increasing, meeting our intensity target of 2.5% of GNP by 2020 is a significant challenge and that figure still places Ireland as an 'innovation follower' according to this indicator. Competitive 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. A challenge for the private sector, and for policymakers, is how to enhance the diffusion of knowledge and knowhow from the leading firms, including the multinational enterprises, to the rest of the Irish enterprise base. The productivity of the leading firms will be enhanced through higher rates of productivity across the board which will result in better products and services, a larger pool of skilled workers, and a lower cost base.

PUBLIC FINANCES: Careful management of the public finances within the EU budgetary guidelines will remain a challenge, particularly considering the need to address growing infrastructure and funding deficits, and to ensure that the economy does not overheat. Ireland's exposure related to the concentration of corporation tax receipts among a very small cohort of firms remains a risk and it is essential that the tax base is broadened consistent with the OECD tax hierarchy for growth, which contends that taxes on immobile bases, such as property, and consumption are less distortive than those on personal and corporate income. Any loosening of fiscal discipline (by which we mean, for example, unsustainable current expenditure increases or shrinking tax ratios) at this stage would undo much of the progress achieved to date, and would have potentially significant negative implications for future competitiveness.

Sustainable growth and improved living standards for all is the primary goal of national competitiveness. To ensure Ireland has the capacity to absorb and respond to economic shocks, it is important to ensure our fiscal position remains sustainable. While we must continue to compete from a taxation perspective, we should avoid any narrowing of the tax base and ensure the tax system supports and rewards employment, enterprise, investment and innovation. Developing our infrastructure base, while complying with the EU's fiscal rules, is a fundamental challenge to enhancing competitiveness. Improving and prioritising public investment, particularly our capacity to deliver regionally connected projects in line with the National Planning Framework are essential. However, any investment of valuable public funds must be done on a sound evidence base.

This report provides part of 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.

Professor Peter Clinch
Chairman, National Competitiveness Council

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Executive Summary

Competitiveness is a multidimensional concept incorporating many of interlinked and interdependent factors; reflecting this complexity, Ireland's Competitiveness Scorecard analyses over 140 measures each of which articulates an aspect of Ireland's competitiveness performance.

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.

The 2017 Scorecard is divided into four main sections - sustainable growth (Chapter 2), competitiveness outputs (Chapter 3), competitiveness inputs (Chapter 4) and essential conditions for competitiveness (Chapter 5) - which correspond to the segments of the NCC's competitiveness pyramid. **Key findings are summarised below.**

Ireland's economic prosperity is inextricably linked to how competitive we are internationally.

Competitiveness performance reflects the interaction of a wide range of factors that, combined, determine the ability of firms to compete successfully in international markets. Ireland's performance across the main international competiveness indices has improved in recent years. The World Bank's Ease of Doing Business report currently ranks Ireland 18th out of 190 economies. The Wold Economic Forum Global Competitiveness Report ranks Ireland 23rd out of 138 countries. The Institute for Management Development measure of competitiveness ranks Ireland 6th most competitive out of 63 countries. Both the nominal and real Harmonised Competitiveness Indicator are currently at relatively low levels by historic standards and recent data points to continued HCI competitiveness in Ireland.

As a small peripheral EU economy, with limited resources, factors outside of our control such as exchange rates exert a significant influence on national competitiveness and the cost base for enterprise based in Ireland. Over the past year there has been a pronounced fall in the value of Sterling against the Euro. Following the UK referendum result in June 2016, the value of Sterling against the Euro fell sharply and in October and November 2016 was trading at times at £0.90. In the first half of 2017, Sterling has remained weak in relation to the Euro averaging around £0.85, but has fluctuated higher at times, averaging £0.87 in early June 2017. In contrast to continued weakness in Sterling, the Dollar has strengthened in relation to the Euro. As of May 2017, the Euro/Dollar exchange rate was $1.10 compared with $1.13 in May 2016.

Quality of Life

Ireland performs relatively well in objective measures of well-being (income, education attainment, air and water quality) and health. According to the OECD's Better Life Index Ireland ranks above the OECD average in subjective measures relating to housing, personal security, health status, education and skills, social connections, subjective well-being, work-life balance, and environmental quality, but below average in income and wealth, and civic engagement.

As a result of exceptionally strong economic growth in recent years, Ireland's GDP per capita is the second highest in the Euro area in 2016. Disposable gross income fell during the recession but has increased since 2013. However, the annual adjusted disposable income per capita in PPPs was 20,181, 13 per cent below the Euro area figure 23,295. The Irish Gini coefficient score in 2015 was 29.8 compared with 31.1 in 2010 and is below the Euro area average (30.8) indicating that income distribution in Ireland is more equal than in the Euro area. The risk-of-poverty rate (16.3%) is below the Euro area average (17.2%). The risk of in-work poverty for

working households is below the Euro area average and was 4.8 per cent down from 5.5 per cent in 2010. The proportion of the population considered materially deprived was 0.6% above the Euro area average in 2015.

Climate change presents very significant challenges for Ireland, both in terms of mitigating our emissions and achieving national and international binding targets, as well as adapting to the effects of a changing climate. Ireland's 2020 target is to achieve a 20 per cent reduction of non-ETS sector emissions on 2005 levels, with annual binding limits set for each year over the period 2013 to 2020. EPA projections indicate that by 2020, Ireland's emissions are likely to be in the range of 4-6 per cent below 2005 levels, well short of the target reduction level. While declining, fossil fuels account for 90 per cent of Irish gross inland fuel consumption in 2015. Ireland still has a much higher reliance on imported oil (48%) than the EU average to meet its energy consumption needs. Between 1990 and 2015, total emissions increased by 6.7 per cent to 59,878kt of CO_2 equivalent. The agriculture (33%), transport (20%), energy (20%), and residential (10%) sectors account for the majority of emissions. The share of renewable energy production in Ireland continues to grow (albeit from a low base) with 9.6 per cent of gross final consumption derived from renewables in 2015.

Business Performance

Ireland is one of the most open economies in the EU. Exports in Ireland increased from 103 per cent of GDP in 2010 to 124 per cent in 2015. Ireland's share of total global export markets is 1.3 per cent, as of 2015. Ireland has expanded its share of the world's services market up 0.2 per cent to 3 per cent in 2016. Over the same period, Ireland's share of global merchandise exports grew from 0.7 per cent in 2015 to 0.8 per cent in 2016. Enterprise Ireland client exports grew by 6 per cent in 2016 reaching a record high of €21.6bn. Export growth to the UK, however, which accounts for €7.5bn of exports, slowed from 12 per cent in 2015 to 2 per cent in 2016. From a sectorial perspective, the Food sector reported the largest decline, with the value of Food exports to the UK falling by 2.8 per cent while non-food sectors saw exports increase by 6.4 per cent.

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. Chemicals and related products account for 56 per cent of merchandise exports. Exports in computer services represent 47.2 per cent of the total export in services. In terms of markets, the US accounted for 26% of merchandise exports up from 23% in 2011. Other key markets include Belgium (12.5%), UK (11.4%), Germany (6.7%) and Switzerland (5%). Computer services account for the largest share of exported services to the EU (including the UK), US and the rest of the major export destinations, apart from Luxembourg. Building on strong growth in 2015, the activity level of FDI and indigenous enterprise in 2016 was exceptionably strong in terms of export growth, jobs created and new investment. Export and employment performance by client companies of the enterprise agencies continues to be strong. Analysis by the World Bank shows that Ireland has a relatively supportive environment for entrepreneurship compared with many of our Euro area competitors.

Costs

The Council published its Costs of Doing Business in Ireland report in June 2017 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". Ireland regained cost competitiveness as a result of falls in relative prices, low inflation and favourable exchange rate movements. This made Irish firms more competitive internationally and made Ireland a more attractive location in which to base a business. The openness of the Irish economy means the competitiveness of the enterprise sector is particularly vulnerable to negative price and cost shocks which are outside the influence of domestic policymakers. These include unfavourable exchange rate movements, higher international energy prices or imported inflation from our major trading partners. Specifically in terms of business costs, the cost base for enterprise has improved

across a range of metrics since 2010, (e.g. the cost of starting a business, communications costs and average income taxes). Ireland, however, remains a relatively high cost location and already the return to sustained levels of growth has resulted in upward cost pressures at sectoral level (e.g. labour) and property costs.

Productivity

In the long-run, Ireland's productivity is the primary determinant of living standards relative to other countries and the engine of economic growth. Ireland's labour productivity performance is strong in an international context. Irish labour productivity growth has been above that in competitor countries since 2013 and was 2.3 per cent in 2016. However, Ireland's performance has been greatly affected by shifts in the composition of employment and the influence of a number of high value added sectors on output. The narrow base of enterprises in high value added sectors (particularly in High tech manufacturing and ICT) disguises, to a degree, underperforming sectors and skews Ireland's productivity level and growth rate.

Employment

While employment has not yet returned to peak pre-recession levels, over 2.05 million were in employment in Q1 2017, an annual increase of 3.5 per cent. Employment growth in the year to Q1 2017 was spread relatively equally across the different sectors of the economy with employment growing in 11 of 14 economic sectors. 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 Q1 2017 was 146,200 and 78,655 respectively. Unemployment decreased on a year on year basis and fell from 15.1 to 6.8 per cent, on a seasonally adjusted basis, between Q1 2012 and Q1 2017. On a monthly basis unemployment was 6.3 per cent in June 2017 compared to 8.3 per cent a year earlier. Long term unemployment and youth unemployment levels are also declining, yet they remain high. Eurostat data shows youth unemployment declined further in 2016 and is now below both the EU28 and the Euro area averages (17.2%). Ireland has a high proportion of youth neither in employment, education or training (NEET). Out of the total age cohort 15-24, 7.4 per cent were classified as NEET in 2016, compared with the EU28 and Euro area 19 averages of 3.8 per cent and 3.7 per cent respectively.

There is evidence of higher than average job vacancy rates in a number of sectors. 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.

Business Environment

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. The Department of Finance report that Exchequer tax revenues the first half of 2017 are on-profile. Year on year tax receipts to end June 2017 were up €842 million (4%) underpinned by an improving economy. Year on year increases are evident in corporation tax (+10.7%), income tax (+3.1%) and VAT (+11%). Excise duties recorded shortfalls against profile and are down 12.1 per cent year on year. The Irish income tax system is progressive particularly at low and middle incomes. Ireland remains competitive in terms of the levels of income tax and social security contributions as a proportion of total labour costs. However, Ireland's marginal tax rate is high at higher incomes with the highest rate applying at just below the average industrial wage, compared to the UK's rate applying at 4.2 times the average industrial wage. Ireland's corporation tax rate remains internationally competitive at 12.5 per cent. In 2016 Ireland had the 5th highest rate of capital gains tax in the OECD at 33 per

cent. 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 activities.

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. In April 2017, the interest rate in Ireland on loans of up to €1 million was more than 74 per cent higher than the Euro area average rate for new business; the rate on loans of up to €1 million was more than 79 per cent more expensive in Ireland. While bank financing will continue to be crucial for enterprise, broadening the finance options available and increasing levels of private equity, crowdfunding and venture capital funding remains a challenge. Figure 4.1.4 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). Non-performing loans at the end of 2016 made up 9 per cent of gross loans, down from 16.1 per cent in 2011. This compares to an OECD High Income average of 3.85 per cent.

Physical Infrastructure

Although absolute levels of Irish investment in infrastructure are recovering, inland capital investment as a percentage of GDP (0.4%) is low relative to pre-crisis levels. Public investment as a proportion of gross fixed capital formation (2.4%) is below both the UK and Euro average (2.7%). Perceptions regarding the quality of Irish infrastructure are relatively low. The WEF ranks Ireland's overall quality of infrastructure 38th, significantly lower than both the UK (24th) and the US (11th) in terms of perceptions. The Capital Plan is now being reviewed to ensure that capital spending is strictly aligned with national economic and social priorities, consistent with Programme for Partnership Government objectives. The level of investment projected over the medium term represents a significant challenge in light of demographic pressure, EU budgetary commitments and deficits in telecommunications, innovation, and transport and water infrastructure. Developing our infrastructure base, while complying with the EU's fiscal rules, is a fundamental challenge to enhancing competitiveness.

Clusters and Firm Sophistication

The European Commission's Cluster Mapping tool indicates that Ireland has a relatively high degree of specialisation and cluster presence in biopharma, digital, medical devices and business services sectors. The EU Innovation Scoreboard classifies Ireland as behind the EU average in the finance and firm investments dimensions of innovation. European Commission/Eurostat data shows Business R&D expenditures as a percentage of GDP has been relatively flat in Ireland over the period 2010-2015. Firms in Ireland were more likely to be innovative (61%) compared to the EU average (49%) with relative performance strong across all firm sizes. Ireland has a higher proportion of innovative enterprises than the Euro area-19 average in product, process and marketing but performance is relatively weak in terms of organisational innovation. The proportion of sales of new to market and new to firm innovations as a percentage of turnover has fallen in recent years and at 9.3 per cent is below the EU average of 12.4 per cent.

Knowledge and Talent

The EU Innovation Scoreboard provides a comparative assessment of the research and innovation performance of EU Member States. The 2016 Scoreboard places Ireland 6th in the overall ranking of EU Member States, classed as an innovation follower with an above average performance. Set in an international context, the IMD's 2016 Competitiveness Yearbook 2017 ranks Ireland 1st for attracting and retaining talent. Ireland's other strengths are in relation to the availability of skilled labour (5th), financial skills (6th) and the ability to attract foreign talent (10th). Relative weaknesses include the pupil-teacher ratio in secondary

education (43rd), language skills (44th) and the cost of living index (45th). GDP per capita expenditure 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. However, Ireland's overall ranking remains slightly below the OECD average and the gap is most pronounced at tertiary level. Ireland performs better in terms of spend when measured per student, particularly at primary and secondary levels. At all levels, average educational attainment in Ireland has improved. Ireland has made significant progress in reducing early school leavers. Participation in life-long learning has fallen since 2011 and stood at 11.9 per cent in 2016.

Institutions

The World Bank's Doing Business index assesses regulations affecting SMEs and measures regulations applying to companies throughout their life cycle. In 2017 Ireland is ranked 18th overall and 5th in the Euro area, a decline of 1 place from last year. Ireland has a comparatively good enterprise environment conductive to doing business but lags behind the UK in a number of areas, such as dealing with construction permits, getting electricity, trading across borders and enforcing contracts. Ireland is ranked in the top ten in terms of perceptions of judicial independence, protection of minority shareholders, strength of investor protection and property rights.

Macroeconomic sustainability

Following GDP growth of 8.5 per cent and 26.3 per cent in 2014 and 2015 respectively, Eurostat estimates that in 2016 the Irish economy was the fastest growing EU economy for the third year in a row with growth of 5.2 per cent. Preliminary national accounts data indicates that the principle contribution to economic growth came from domestic demand (investment and consumer spending). Exports in Ireland increased from 103 per cent of GDP in 2010 to 124 per cent in 2015. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg. While Ireland's current account was in deficit in the fourth quarter of 2016 (largely due to an increase in research and development service imports), the annual current account is in surplus, indicating that Ireland is paying its way in the world. Reflecting improved economic and fiscal positions, Irish bond yield movements are continuing to trade in line with core European sovereign yields.

The focus of policy in reducing general government deficit has been effective and the general government deficit continued to fall in 2016 to 0.6 per cent of GDP down from 2 per cent in 2015 and below the threshold of 3 per cent of GDP set out in the Stability and Growth Pact. The Department of Finance's estimates indicate that the structural balance in 2016 was -1.9 per cent of GDP, and that based on current trajectory and assumptions within Budget 2017, Ireland is on track to reach the target of 0.5 per cent in 2018. Economic growth has contributed to improvements in the debt to GDP ratio. While the debt to GDP ratio remains high, it has decreased substantially from its peak of 119.5 per cent in 2012-2013 to 75.4 per cent in 2016. It is important that this downward trajectory continues if Ireland is to achieve the Stability and Growth Pact target of a 60 per cent debt-to GDP ratio. Recognising that metrics derived with respect to ratios-to-GDP may be skewed due to on-shoring of intellectual property, and in order to ensure that public finances are in a position to withstand Brexit related shocks, the Department of Finance has set an additional mid-term goal of achieving debt-to-GDP ratio of 45 per cent of GDP. In 2016 Irish Government revenue represented 27.5 per cent of GDP. Expenditure amounted to 28% of GDP. Figure 5.2.8 shows that across the EU, 'Social Protection' accounts for the major share of Government spending, followed by 'Health', 'General Public Services', and 'Education'. In line with EU rules, future increases in public expenditure will be based on the potential growth rate of the economy and safeguarded from dependence on cyclical revenues.

Moving beyond the public finances, households continued to reduce debt as a proportion of income in 2016. Notwithstanding this positive trend, Ireland has the fourth most indebted households in the EU. The

indebtedness of the business sector (non-financial corporations) remains evident with the Irish level the third highest in the EU, although a proportion of the debt is associated with non-residential loans.

Endowments

In 2016 Ireland continued to have the youngest population in the EU (median age 36). The combined effect of natural increase and positive net migration resulted in an overall increase in the population of 38,400 bringing the population estimate to 4.67 million in April 2016. The evolution of the old age dependency ratio is a crucial element in determining the sustainability of Ireland's healthcare and pension systems. Ireland has the 7th lowest old age dependency ratio in the OECD. Ireland's rising dependency ratio increases the importance of expanding labour force participation and productivity. Despite the substantial percentage increase in the population (3.4%) between 2011 and 2016, the labour force growth (active population, 15 years and over) for the same period is only 0.3 per cent, below the EU average of 2.1 per cent. Total emigration from Ireland continues to decline. In 2016 62.7 per cent of the Irish population lived in urban areas, a marginal increase of 0.7 per cent compared to 2011. The rural population constitutes 37.3 per cent of the total population. That 44 per cent of the urban population lives in Dublin is an important consideration from a planning and development perspective.

Ireland's competitiveness performance – the policy challenges

While the economy is in its strongest place since the onset of the recession, and growing at a strong rate, Ireland's competitiveness is at a critical juncture. Driven by domestic demand sources, economic growth is forecast for 2017 and 2018 with continued strong employment growth and a further decline in unemployment. Employment grew in 11 of the 14 economic sectors during 2016 with the largest annual increases recorded in industry, construction and accommodation and food services. A rapidly improving labour market and positive inflation may pose challenges for competitiveness in terms of skill shortages, increasing consumer prices and business costs. While the overall economic outlook for Ireland is positive, the economy faces significant threats from external factors, including the outcome of the Brexit negotiations, a potential shift in trade and taxation policy in the US, a slowdown in UK and US growth and the uncertain nature of the political economy of the EU.

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, the EU, US and UK. This makes it crucial that we address those factors within our control. The competitiveness and consistency of our tax offering, legal, regulatory and administrative environment, cost base, the availability of talent, technology and property solutions will remain vital to our ability to withstanding the ebb and flow of global economic developments.

Brexit represents the foremost downside economic risk for Ireland. The immediate impact of Brexit has been uncertainty, reduced growth prospects and a shift in exchange rates. The depreciation of Sterling relative to the Euro and dealing with the permanency of the exchange rate shift is an important competiveness consideration. The triggering of Article 50 and the imminent structural shift in the UK's trading relations with EU partners has far reaching implications for Irish competitiveness across a range of policy areas– including trade, investment, skills, and sector specific competitiveness impacts – particularly, for indigenous Irish enterprise in sectors such as Agri-food, Traditional Manufacturing and Tourism. In addition, recent analysis by the ESRI suggests that a hard Brexit could have significant implications for the fiscal space. With growth in taxation returns slower than expected to date in 2017, continued revenue growth cannot be taken for granted. Careful management of the public finances within the EU budgetary guidelines will remain a challenge, particularly in light of the need to address growing infrastructure and funding deficits.

While the exact cyclical position of the economy is difficult to precisely estimate, after three years of strong economic and labour market growth, the Council considers it imperative that an appropriate fiscal and budgetary position consistent with the EU budgetary framework is adopted to ensure Ireland is best positioned to withstand shocks, and to ensure that the economy does not overheat.

As a highly globalised economy, Irish National Accounts data now include a very significant amount of activity carried out elsewhere, but formally recorded as part of Irish GDP. The narrow base of sectors driving economic growth, in particular, the activities of a small cohort of multinational firms, the influence of contract manufacturing and the relocation of intellectual property assets, have limited impact on actual activity in the Irish economy. Metrics derived with respect to national income, such as export values, expenditure ratios-to-GDP, measures of potential output, the structural deficit, debt and the expenditure benchmark, have become skewed and must be interpreted with caution. It remains to be seen whether the quarterly changes in national income and related increases in Irish corporation tax revenue might be one-off adjustments or recurring. However, it would be hazardous to rely on volatile and potentially transitory revenue sources, to fund permanent levels of current public spending, or reductions in tax rates which can prove difficult to reverse. The introduction by the CSO of the GNI* measure will help better inform domestic policymaking but internationally measures relative to GDP will remain the benchmark against which many measures of Ireland's competitiveness performance will be assessed.

It remains to be seen whether the quarterly changes in national income and related increases in Irish corporation tax revenue might be one-off adjustments or recurring. However, it would be hazardous to rely on volatile and potentially transitory revenue sources, to fund permanent levels of public spending, or reductions in tax rates which can prove difficult to reverse. Ireland's exposure related to the concentration of corporation tax receipts among a very small cohort of firms remains a risk and it is essential that the tax base is broadened in line with the OECD tax hierarchy for growth, which contends that taxes on immobile bases, such as property, and consumption are less distortive than those on personal and corporate income. Any loosening of fiscal discipline (i.e. unsustainable current expenditure increases, or shrinking tax ratios for example) at this stage would undo much of the progress achieved to date, and would have potentially significant negative implications for future competitiveness. However, the Council recognises the budgetary challenges of reducing the deficit level while at the same time ensuring that fiscal policy supports sustainable economic and employment growth, and facilitates sufficient public investment in productivity enhancing capital projects. It is important to achieve appropriate balancing of the need to meet our obligations under the Stability and Growth Pact and put in place a sustainable, counter-cyclical, medium-term fiscal planning process. We encourage that the fiscal space remaining goes towards investing in the conditions of future competitiveness, specifically building innovation capacity, economic infrastructure, particularly digital and energy related and on enhancing our productivity and skills base.

Ireland's move up the international rankings (we are ranked 6th in the latest IMD World Competitiveness Yearbook) is welcome. However, our strong improvements in macroeconomic metrics have driven the improvement in Ireland's relative competitiveness score. This may suggest that our current performance, which is relatively strong, is overstating our overall competitiveness position and masking weakness in the underlying drivers of future competitiveness performance and sector specific challenges, particularly related to costs and productivity.

The Council considers it more important than ever that we do not become complacent about the need for continued reform and that policy continues to work to improve Ireland's competitiveness performance in areas that can be influenced by domestic policy action. The overarching themes emerging from the Scorecard analysis, which will be considered in the Council's 2017 Competitiveness Challenge Report are summarised below.

- **Ensuring growth is sustainable:** Sustainable growth and improved living standards for all is the primary goal of national competitiveness. To ensure capacity to absorb and respond to economic shocks it is important to ensure our fiscal position remains sustainable. While we must continue to compete from a taxation perspective, we should avoid any narrowing of the tax base and ensure the tax system supports and rewards employment, enterprise, investment and innovation.

  Developing our infrastructure base, while complying with the EU's fiscal rules, is a fundamental challenge to enhancing competitiveness. Measures to reduce infrastructure bottlenecks including by improving and prioritising public investment, particularly our capacity to deliver regionally connected projects in line with the National Planning Framework will be vital to enhancing competitiveness. Related to infrastructure prioritisation, meeting Ireland's climate change commitments and transitioning to a low emissions economy presents significant challenges and opportunities at sectoral level and will be central to the direction of long term economic growth prospects. As a small open economy, any deterioration in our cost competitiveness will have a major negative impact upon economic growth, employment and our standard of living. Ireland's current price profile could be described as "high cost, rising slowly". This must be supported by an administrative and regulatory framework that ensures costs and supply-side conditions remain competitive.

- **Generating an uplift in enterprise competitiveness with a particular emphasis on productivity:**

  As a small open economy, productivity and cost competitiveness remain fundamental to long term growth prospects. Brexit has underlined the importance of generating uplift in enterprise export competitiveness to secure future jobs and growth. A more diverse export base can reduce exposure to external demand shocks, exchange rate fluctuations and instability in export earnings, upgrade value-added, and enhance growth and jobs. Policies to facilitate enterprise evolve into new products, markets and sectors, whilst maintaining the competitive advantages we enjoy in existing ones, are critical at this time.

  Current productivity growth is strong but overall performance in Ireland is heavily influenced by the performance of the Manufacturing and ICT sectors and in particular the performance of FDI enterprises in these sectors. Bridging the productivity gap that exists between the most productive firms and laggard firms is a major challenge to sustainable growth prospects. Facilitating workplace innovation and delivering uplift in management skills and labour force quality at all levels is particularly vital. Ensuring Irish enterprise stays at the forefront of technology and innovative activity, is able to access competitively-priced finance is also an important challenge. Business R&D expenditures as a percentage of GDP have been relatively over the period 2010-2015. While public investment in R&D is increasing, meeting our intensity target of 2.5% of GNP by 2020 is a significant challenge. From a competitiveness perspective, the returns from innovation are a vital component in securing productivity growth, diversifying and broadening the enterprise and exports base, growing FDI, and creating competitive advantage in intellectual property and commercial products and services.

Chapter 1: Ireland's Competitiveness Performance and Outlook

International competitiveness performance

Competitiveness is a complex concept incorporating a myriad of interlinked and interdependent factors; reflecting this complexity, Ireland's Competitiveness Scorecard analyses data over 140 charts each of which tells a part of Ireland's competitiveness story. These 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 1.1 presents Ireland's ranking from amongst 33 OECD member states 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 33 countries in the OECD).

Figure 1.1 Overview of Ireland's international rankings amongst OECD countries 2016

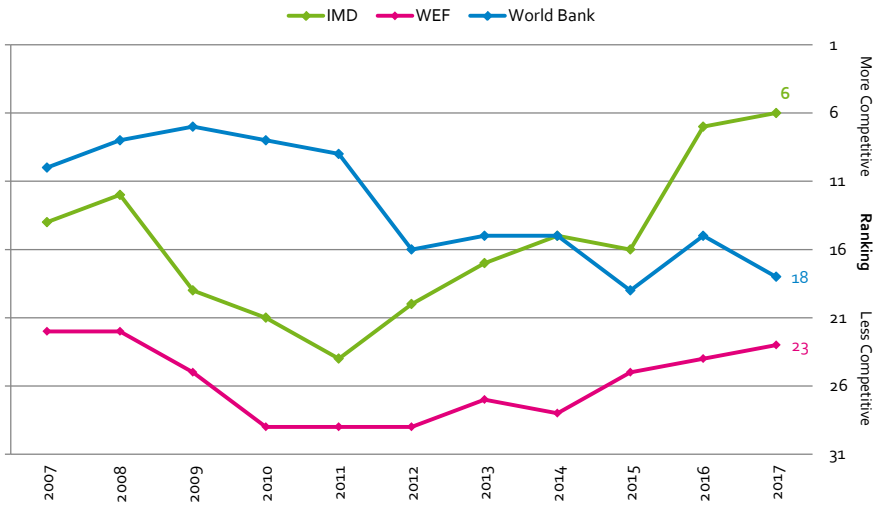
These indices cover a number of policy areas – some based on directly quantitative aspects of policy (e.g. the World Bank Doing Business Index); others measure qualitative, more subjective issues such as reputation, quality of life, entrepreneurship and FDI; indices such as the IMD and WEF competitiveness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

Source: Various International Organisations

Indices and rankings are useful, if imperfect, measures of competitiveness performances. In some instances, Ireland's ranking is not a question of absolute deterioration or improvement in these categories but rather a matter of other countries improving their position relative to Ireland's. 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). In addition, the methodology, surveys and data used in these benchmarking reports differ significantly. Methodologies are frequently revised and this can have an impact on Ireland's ranking. While acknowledging that year on year fluctuations in data may be subject to 'data noise', (particularly as regards perception based indicators) performance across these rankings indicates the dynamic and global nature of competitiveness.

Figure 1.2 examines how Ireland's ranking has evolved in the last decade in three of the most high profile enterprise competitiveness-related indices[1]. Our position in the World Economic Forum (WEF) and Institute for Management Development (IMD) rankings deteriorated prior to and over the course of the recession but has gradually started to recover in recent years. The 2017 WEF Global Competitiveness Report shows Ireland is currently ranked 23rd most competitive economy, an improvement of 1 place in the year. Using the IMD measure of competitiveness Ireland is currently ranked 6th, an improvement of 1 place from the previous year. In terms of quantitative data, international indices of competitiveness such as the WEF and IMD reports combine current economic performance metrics (e.g. economic growth, fiscal position, productivity levels, employment, prices indicators) with measures of potential future success (e.g. investment in infrastructure, education and innovation) as well as qualitative measures. Ireland's performance has improved in the last three years especially in relation to performance based on current economic metrics. This development generally improves Ireland's overall competitiveness score. This may suggest that our current performance, which is relatively strong, is overstating our overall competitiveness position and masking weakness in the underlying drivers of future competitiveness performance. The World Bank's 2017 Ease of Doing Business report places Ireland 18th out of 190 economies – a fall of 1 places from the previous year. While Ireland's performance and overall score has improved, other countries have also improved their performance and improved at a faster rate. In addition, the World Bank has been incorporating changes in methodology which affect Ireland's ranking and can make comparison with previous years difficult. The report tracks changes in regulations affecting businesses and sheds light on how easy or difficult it is to open and run a small to medium-size business. Globally, Ireland is a top twenty performer with regard to measures of paying taxes (5th), ease of starting a business (10th), protecting minority investors (13th) and resolving insolvency (18th). Our ranking is less impressive in getting credit (32nd), getting electricity (33rd), dealing with construction permits (38th), registering property (41st), trading across borders (47th) and enforcing contracts (90th).

Figure 1.2 Ireland's global competitiveness rankings, 2007-2017



Since 2011, Ireland's international competitiveness ranking, as measured by the IMD and WEF, has improved. Ireland is now 6th in the IMD's World Competitiveness Yearbook 2017 and 23rd in the WEF Global Competitiveness Report. Ireland is ranked 18th by the World Bank and remains below peak.

Source: IMD, WEF, World Bank, 2017

[1] The Council's recent report Benchmarking Competitiveness: Ireland and the United Kingdom, 2017 assesses Ireland's performance across these three global competitiveness benchmarks in greater detail

Competitiveness, exchange rates and inflation

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. Ireland's HCI captures the impacts of both exchange rates and relative price movements. The latest HCI data for April 2017 show that the nominal HCI decreased by 0.8 per cent on a year-on-year basis. The real HCI decreased by 2.4 per cent when deflated with consumer prices. Both the nominal and real HCI are currently at relatively low levels, by historic standards and recent data points to continued HCI competitiveness in Ireland.

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. As a result of the scale of Ireland's non-Euro denominated trade, (i.e. with the UK and US), Euro exchange rates have a greater impact on our relative international competitiveness than is the case in many Euro area countries. Over the past year there has been a pronounced fall in the value of Sterling against the Euro. Following the UK referendum result in June 2016, the value of Sterling against the Euro fell sharply and in October and November 2016 was trading at times at £0.90. In the first half of 2017, Sterling has remained weak in relation to the Euro averaging around £0.85 but has fluctuated higher at times, averaging £0.87 in early June 2017. In contrast to continued weakness in Sterling, the Dollar has strengthened in relation to the Euro. As of May 2017, the Euro/Dollar exchange rate was $1.10 compared with $1.13 in May 2016.

Low levels of price inflation have been a characteristic of Ireland and most OECD economies in recent years. In 2016, consumer price inflation was low or negative through much of the year. However, inflation has been positive in the first half of 2017 reflecting a pick- up in energy and services prices. Prices on average, as measured by the CPI, were year on year 0.2 per cent higher in May 2017. The CSO report the most notable annual changes were increases in Transport (+2.2%), Alcoholic Beverages & Tobacco (+2.1%), Restaurants & Hotels (+1.8%) and Education (+1.7%). Prices as measured by the EU Harmonised Index of Consumer Prices (HICP) were unchanged in May 2017 compared with May 2016. Our price profile might be described as "high, rising slowly". At present, Ireland is experiencing moderate consumer price growth. Eurostat data shows price levels in Ireland were 25 per cent above the EU 28 average in 2016.

Economic outlook

Table 1.1 shows the European Commission's forecasts for economic growth for Ireland and our major trading partners. The Irish economy was the fastest growing economy in the EU in 2016. The European Commission's forecast for 2017 and 2018 indicates that the economy will continue to expand but at a slower pace, and Ireland will be the 4th fastest growing economy in the EU after Luxembourg, Malta and Romania. Projections for the next two years indicate that strong labour market performance and increased domestic demand as a result of continued increase in private consumption and investment will be the main factors underpinning economic growth.

However, while the overall economic outlook for Ireland is positive, the OECD[2] in its 2017 Economic Outlook suggests that the Irish economy is overheating somewhat. Strong economic growth and shortage of housing supply fuel the property prices and contribute to an increase in property-related loans, thus possibly forming another property bubble. In addition, as an open economy, the country is highly exposed to risks related to the external environment. It is expected that economic growth in both the EU and the euro area will remain moderate (below 2% over the next two years).

[2] OECD Economic outlook, Volume 2017

The extent of the impact of the outcome of the Brexit negotiations on the Irish economy remains uncertain. In the short-term, as the UK remains Ireland's largest market in the EU, a forecast of UK GDP growth of 1.8 per cent in 2017, diminishing to 1.3 per cent in 2018, coupled with a potential further weakness in Sterling would have a negative impact on the Irish economy. The economic outlook for the US, Ireland's principle trading partner outside of the EU, indicates that the US economy will continue to grow by 2.2 – 2.3 per cent over 2017-2018 but this forecast may be downgraded due to potential protectionist policy changes in the areas of taxation and trade.

Table 1.1 Economic Growth Outlook, (Annual percentage change) European Commission

	2016	2017	2018
World	3	3.4	3.6
EU	1.9	1.9	1.9
Euro area	1.8	1.7	1.8
Ireland	5.2	4	3.6
Germany	1.9	1.6	1.9
France	1.2	1.4	1.7
Italy	0.9	0.9	1.1
UK	1.8	1.8	1.3
US	1.6	2.2	2.3
China	6.7	6.6	6.3
Japan	1	1.2	0.6
Source: European Commission Spring Economic Forecast 2017			

Table 1.2: Forecast Annual percentage change key indicators, Ireland, 2017

	GDP	GNP	HICP	Employment Rate
Department of Finance	4.3	4.2	0.6	2.7
Central Bank of Ireland	3.5	3.3	0.7	2.6
ESRI	3.8	3.5	0.7	2.9
European Commission	4	n/a	0.6	2.6
OECD	3.7	n/a	0.8	n/a
Source: Various Bodies				

Despite the uncertainties associated with the external environment and a range of domestic challenges, economic forecasts indicate that the Irish economy will expand with a moderate pace. Employment will continue to grow and the main drivers of economic growth are projected to be domestic investment and consumption.

Table 1.3: Forecast Annual percentage change in the composition of Irish economic growth, 2015-2021

	2016	2017	2018	2019	2020	2021
Real GDP	5.2	4.3	3.7	3.1	2.7	2.5
Real GNP	9	4.2	3.5	2.8	2.3	2.1
Exports	2.4	5	5.1	4.2	3.9	3.8
Imports	10.3	-2	5.3	4.5	4.2	4
Personal Consumption	3	2.8	2.7	2.5	2.2	2
Government Consumption	5.3	2.6	2.1	2	1.9	1.8
Investment	45.5	-17.1	5.4	4.3	3.3	2.9
Source: Department of Finance Stability Programme Update						

Although contingent on a number of external factors, the Department of Finance's projections for growth in the medium term (Table 1.3) are positive. Achieving these projections will require balanced growth, underpinned by increased contribution from all sectors of the economy whilst respecting the parameters set out by the Stability and Growth Pact.

Competitiveness Implications of Brexit

While the Irish economy is experiencing strong growth, it is at a critical juncture. In particular, the challenges of Brexit and the imminent structural shift in the UK's trading relations with the EU has far reaching implications for Ireland across a range of policy areas including trade, investment, the labour market, and energy, as well as many sector specific competitiveness impacts – particularly Agri-food, Traditional Manufacturing, Tourism and sectors exposed to cross border trade. Ireland is in a unique geographic situation – the UK is our land bridge to the EU, with 80 per cent of our exports being exported to the UK for direct use or onward transit. The immediate impact of Brexit has been uncertainty, reduced growth prospects and increased currency volatility. Through currency effects, there have been immediate short term cost implications for Irish exporters, many of whom are dependent on the UK market. The permanency of the exchange rate shift is an important competiveness consideration. Ireland's ability to achieve sustainable growth is dependent on our ability to trade internationally.

The EU and UK commenced the first round of exit negotiations on 19 June 2017. The policy implications arising from these negotiations will have a significant bearing on Ireland's future. While the UK is and will remain a key trading partner for Ireland it is also a country it competes with for mobile investment and export market share. While the UK is a key trading partner it is also a crucial competitor in terms of mobile investment and export market share. The World Bank's Ease of Doing Business report ranks Ireland 18th and the UK 7th out of 190 economies. The WEF Global Competitiveness Report ranks Ireland 23rd and the UK 7th most competitive out of 138 countries. The IMD measure of competitiveness ranks Ireland 6th and the UK 19th out of 61 countries. In April 2017[3], the Council considered Ireland's strengths and weaknesses relative to the UK with respect to competiveness and benchmarked performance across a range of areas. For example, in comparison to the UK, Ireland performs well in international competitiveness rankings with respect to:

- World Bank ease of starting a business; (Ireland 10th, UK 16th, World Bank)
- Labour productivity; (Ireland 1st, UK 21st, IMD)
- Quality of institutions; (Ireland 12th UK 14th, WEF)
- Attracting and retaining talent. (Ireland 1st, UK 14th, IMD)

The UK has higher rankings with respect to:

- Ease of Doing Business overall ranking; (Ireland 18th, UK 7th, World Bank)
- Perceptions of infrastructure quality; (UK 31st, Ireland 38th IMD)
- Public expenditure per capita on education; (UK 14th, Ireland 18th ,IMD)
- Export Concentration by partner. (UK 15th, Ireland 55th, IMD)

The challenges posed by Brexit provide urgent impetus to pursue policies that enhance competitiveness. The Council considers policy needs to focus on Ireland's macroeconomic environment as well as microeconomic structural factors such as innovation capacity, the quality of infrastructure, costs of doing business and productivity across all economic sectors. The Council is particularly concerned about the challenges confronting our indigenous enterprise sector arising from Brexit. Specifically, the cost competitiveness implications caused by shifting exchange rates and uncertainty regarding trade pose real threats to continued growth. Brexit will inform the Council's consideration of policy recommendations to improve competitiveness which will be set out in the 2017 Competitiveness Challenge report.

[3] NCC Competitiveness Benchmarking, Ireland and the UK, 2017

Report Structure

The 2017 Competitiveness Scorecard is set out in four main sections - sustainable growth (Chapter 2), competitiveness outputs (Chapter 3), competitiveness inputs (Chapter 4) and essential conditions for competitiveness (Chapter 5) – these correspond to the layers of the NCC's competitiveness framework.

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 over time 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 newer EU member states (Hungary, Latvia and Poland). Seven non-European countries which are global leaders or are of a similar size to Ireland are also included where data is available. These countries are Brazil, China, Japan, South Korea, New Zealand, Singapore, and the US. This allows for 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[4].

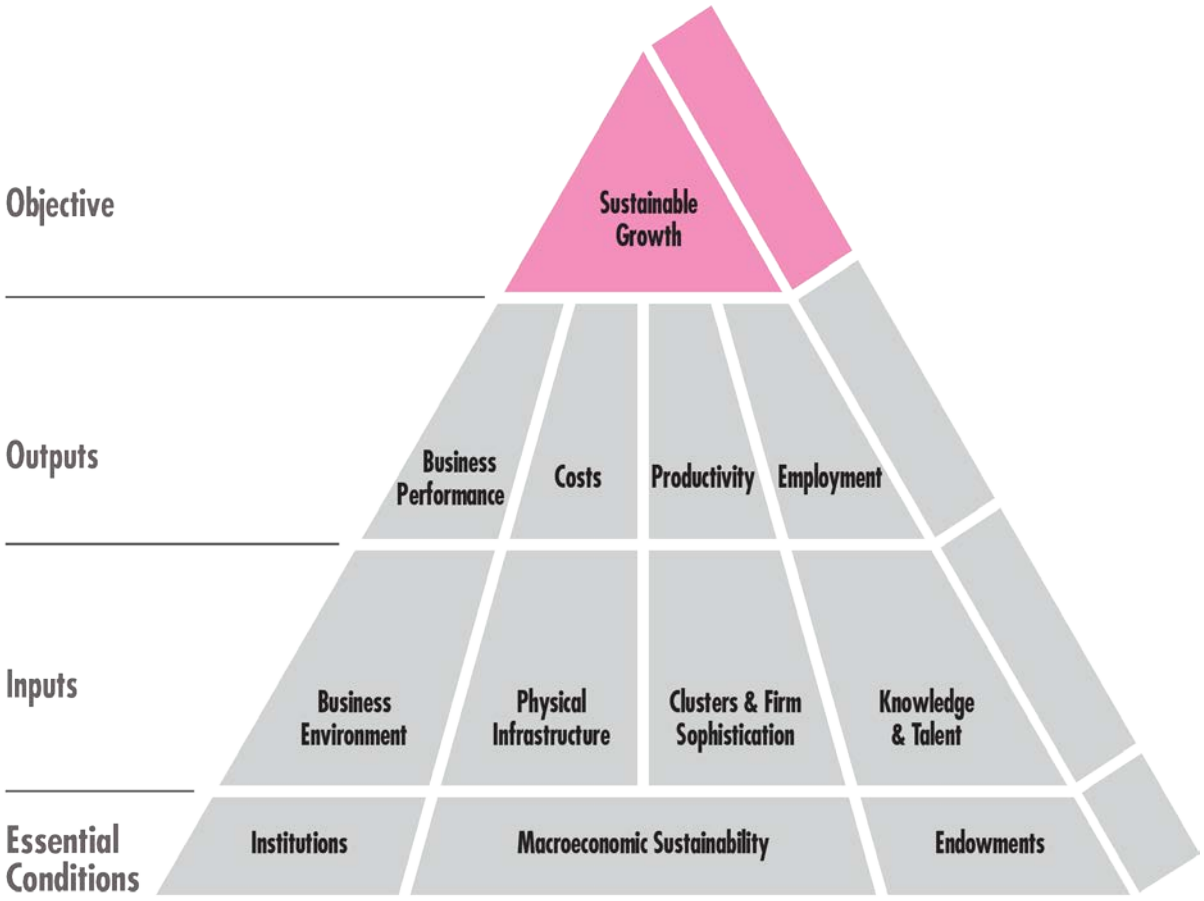
Measuring and benchmarking competitiveness performance relative to third countries highlights Ireland's strengths in a number of areas but is also intended to identify potential threats and elaborate on weaknesses and to determine corrective actions. Benchmarking competitiveness is useful - it informs 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. Competitiveness indices and rankings can seek to measure a vast range of issues. Generally, these indices are based on weighting systems. The relevance and importance of the individual metrics included will vary 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.

4 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.

Chapter 2

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. 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: quality of life, income (growth rates, levels and distribution) 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.**
  - Ireland performs relatively well in objective measures of well-being (income, education attainment, air and water quality) and health. Eurostat data shows life expectancy in Ireland has increased over the past decade and the latest comparable data shows that Irish life expectancy in 2014 (81.4 years) is above the EU28 average (80.9 years). Further, the proportion of life expectancy at age 65 lived in good health continues to improve and is higher for both men and women in Ireland compared with the EU28 average. Healthy life years at birth in Ireland for females were estimated at 67.9 years in 2015, the third highest rate in the EU and 4.6 years above the EU average. Male healthy life years at birth in Ireland in 2015 were estimated at 66.6 years, 4 years higher than the EU average.
  - In the OECD's Better Life Index (Figure 2.1.1), Ireland performs well in many measures of subjective well-being relative to most other countries in the Better Life Index. Ireland ranks above the average in measures relating to housing, personal security, health status, education and skills, social connections, subjective well-being, work-life balance, civic engagement, and environmental quality, but below average in income and wealth, and jobs and earnings. The Index indicates that Irish people report to being more satisfied with their lives than the OECD average. On a rating of general satisfaction with life on a scale from 0 to 10, Ireland scores 6.8, higher than the OECD average of 6.5. Ireland ranks 8th in the OECD in terms of the UN's human development index which measures average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living (Figure 2.1.2).
- **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, risk of poverty and material deprivation.**
  - Over the course of the recession, Ireland's GDP per capita declined but remained relatively high. As a result of exceptionally strong economic growth in recent years, Ireland's GDP per capita is the second highest in the Euro area in 2016 (Figure 2.2.1).
  - Ireland's household net financial wealth to income ratio has been rising steadily from 126.62 in 2010 to 207.51 in 2015. However, the indicator remains below the EU average of 252 .55. Disposable gross income fell during the recession but has increased since 2013. In Ireland, the annual adjusted disposable income per capita in PPPs was 20,181, 13 per cent below the Euro area figure 23,295.
  - The median equivalised net income in Ireland was €21,688 in 2015, above the Euro area median (€17,759). However, median equivalised disposable income remains below 2008 levels (€22,995). (Figures 2.2.2 and 2.2.3)

- The Irish Gini coefficient score in 2015 was 29.8, compared with 31.1 in 2010. Ireland is below the Euro area average (30.8) indicating that income distribution in Ireland is more equal than in the Euro area (Figure 2.2.4).
- The risk-of-poverty rate (16.3%) is below the Euro area average (17.2%). It increased by 1.1 per cent between 2010 and 2015. Social transfers play a significant role in reducing poverty risk in Ireland: excluding social transfers, the at-risk-of poverty rate was 36.2 per cent. Figure 2.2.6 shows the risk of in-work poverty for working households is below the Euro area average and was 4.8 per cent down from 5.4 per cent in in 2014 and 5.5 per cent in 2010. The proportion of the population considered materially deprived increased in Ireland over the recession. It was 5.7% in 2010, peaked at 9.9% in 2013 and has declined since (7.5% in 2015). The Irish rate was 0.6% above the Euro area average in 2015.

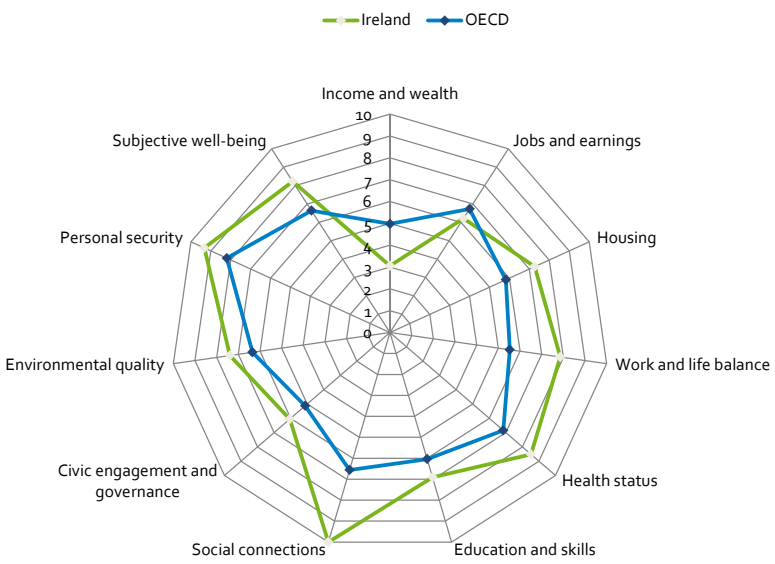
- **Environmental Sustainability: The quality of a natural environment and the commitment to environmentally sustainable policies is a key determinant of sustainable growth. The essence of environmental sustainability is a stable relationship between human activities and the natural world, one that does 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 CO2 emissions, waste generation and renewable energy use.**
  - The Paris Agreement, which entered into force in November 2016, aims to limit global average temperature rise to well below 2 degrees Celsius above pre-industrial levels, with an ambition of 1.5 degrees Celsius. The EU is committing to a reduction of at least 40 per cent in EU-wide emissions by 2030 compared with 1990 levels, which will be met through reductions of 43 per cent in the Emission Trading System (ETS) and 30 per cent in the non-ETS sector compared with 2005 levels. 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. For each year between 2013 and 2020, Ireland has been given a carbon budget for GHG emissions, the cumulative effect of which mandates Ireland to achieve a 20 per cent emissions reduction based on 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. 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.
  - While declining, (98% in 1990), Figure 2.3.3 shows fossil fuels account for 90 per cent of Irish gross inland consumption in 2015. Ireland still has a much higher reliance on imported oil to meet its energy consumption needs (48%) than the EU average. Figure 2.3.4 shows the relative decoupling of energy use from economic growth. 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. However, 2015 saw an increase in the overall energy requirement linked to increased domestic economic activity in the industry and transport sectors.
  - Between 1990 and 2015, total emissions increased by 6.7 per cent to 59,878kt of CO_2 equivalent. The agriculture (33%), transport (20%), energy (20%), and residential (10%) sectors account for the majority of emissions (Figure 2.3.6). Emissions by the agriculture and industrial sectors have declined and are below 1990 levels.
  - The EU 2030 targets envisage a domestic EU greenhouse gas reduction target of at least 40 per cent compared to 1990. Ireland was given a 39 per cent target in the 2016 Effort Sharing Regulation issued by the Commission which was reduced to 30 per cent based on cost-effective mitigation potential, and further reduced to 20.6 per cent net of flexibility options in the land use, land-use change and

forestry sector, and the possibility to make a one-off transfer or surplus emissions allowances from ETS into non-ETS.

- Ireland's emission levels peaked in 2001, 28.5 per cent above 1990 levels. Ireland's emissions have fallen on a year-on-year basis since 2008, but the rate of decline has slowed since 2011. In 2014 emissions were 5.6 per cent above the 1990 level.
- Figure 2.3.8 shows the share of renewable energy production in Ireland continues to grow (albeit from a low base) with 9.6 per cent of gross final consumption derived from renewables in 2015.

2.1 Quality of Life

Figure 2.1.1 OECD Better Life Index, Indicators of life satisfaction[5], Ireland, 2014

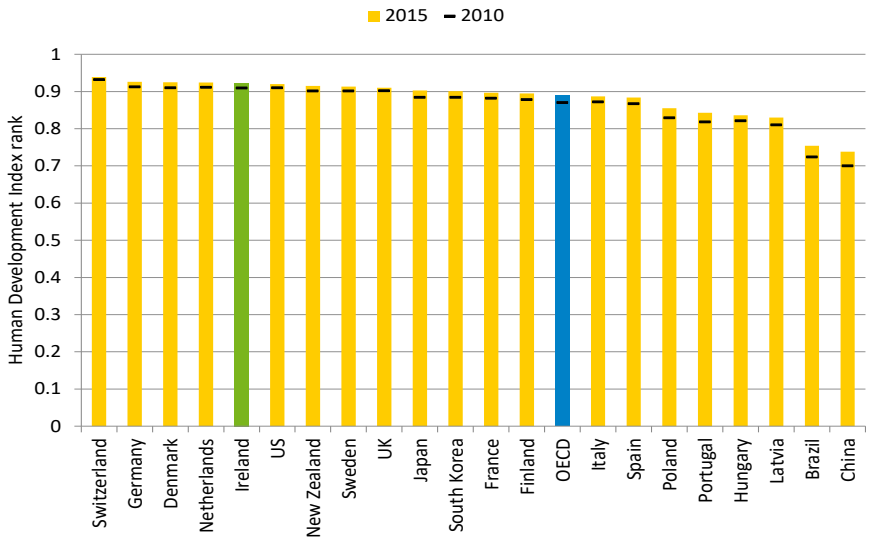


Ireland performs well in measures of well-being in the Better Life Index. Ireland ranks at the top in social connections and above the average in housing, personal security, health status, subjective well-being, work-life balance, civic engagement and environmental quality but below average in jobs and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

Rank n/a

Source: OECD Economic Survey of Ireland 2015

Figure 2.1.2 Human development index, 2010 - 2015



The Human Development Index measures average achievement in three basic dimensions of human development - a long and healthy life, knowledge and a decent standard of living. Ireland performs strongly, ranking 8th in the world and above the OECD average.

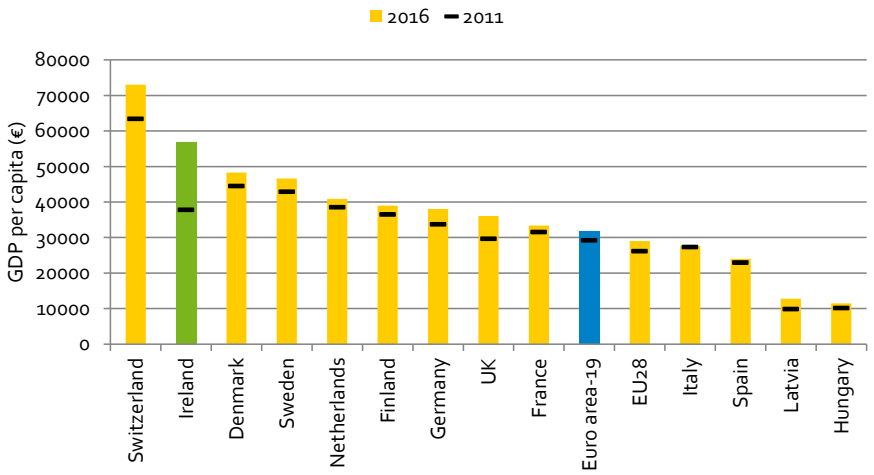
OECD rank: 8th (-)

Source: UN

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

2.2 National Income

Figure 2.2.1 GDP per capita current prices, 2016[6]

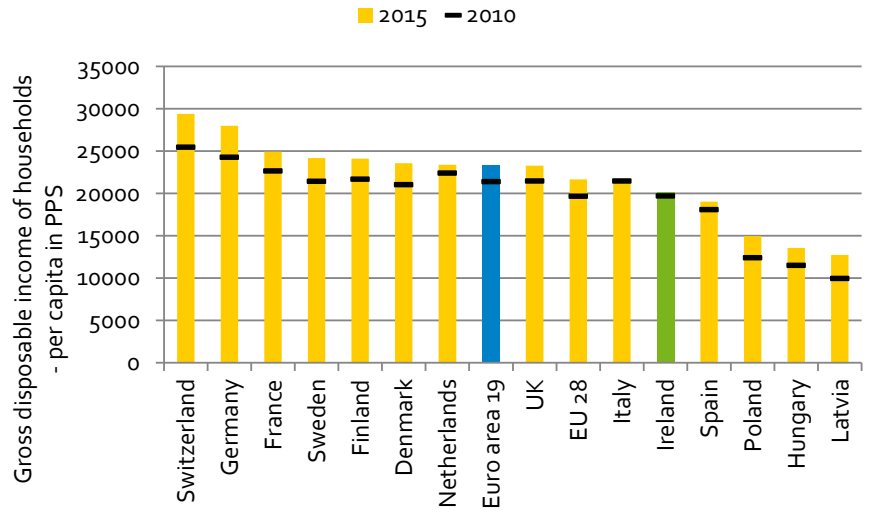


Over the course of the recession, Ireland's GDP per capita declined but remained relatively high. As a result of exceptionally strong economic growth in recent years, at €56,800, Ireland's GDP per capita is the second highest in the Euro area.

Euro area-19 rank: 2nd (↑1)

Source: Eurostat

Figure 2.2.2 Adjusted gross disposable income of households per capita in PPPs [7]



Disposable income, as a concept, is closer to the idea of household income than GDP.

In Ireland, the annual adjusted disposable income per capita in PPPs was 20,181, 13% below the Euro area figure 23,295. Disposable income fell during the recession but has increased since 2013.

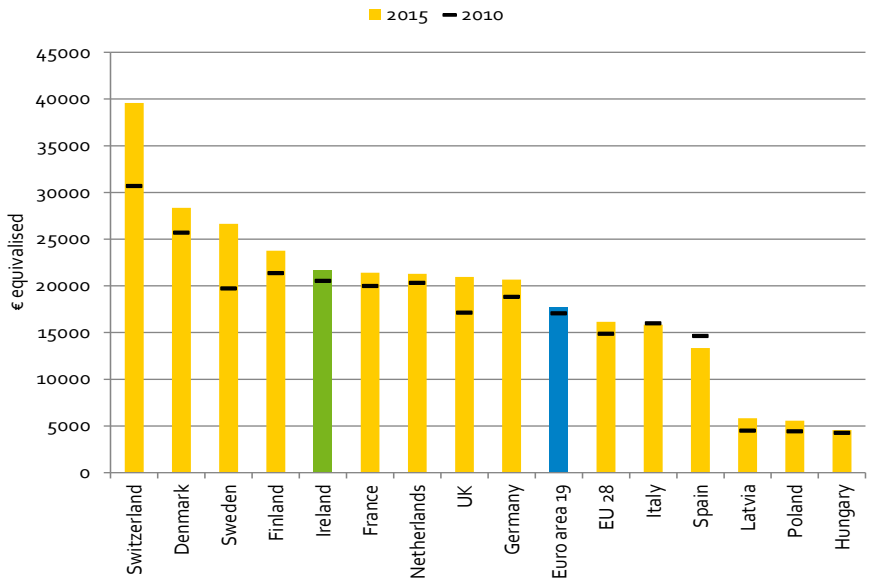
Euro area-19 rank: 10th (↑1)

Source: Eurostat

[6] No data available for Switzerland for 2016, provisional data for 2015 used instead. Data for Netherlands, Greece, Cyprus, Spain and France is provisional, data for Poland and Portugal is estimated.

[7] Adjusted gross disposable income of households per capita in PPS reflects the net resources, earned by households which are available for consumption and/or saving. It includes the flows corresponding to the use of individual services which households receive free of charge from the government. These services, called "social transfers in kind", mainly include education, health and social security services.

Figure 2.2.3 Median equivalised[8] disposable net income (€) , 2015

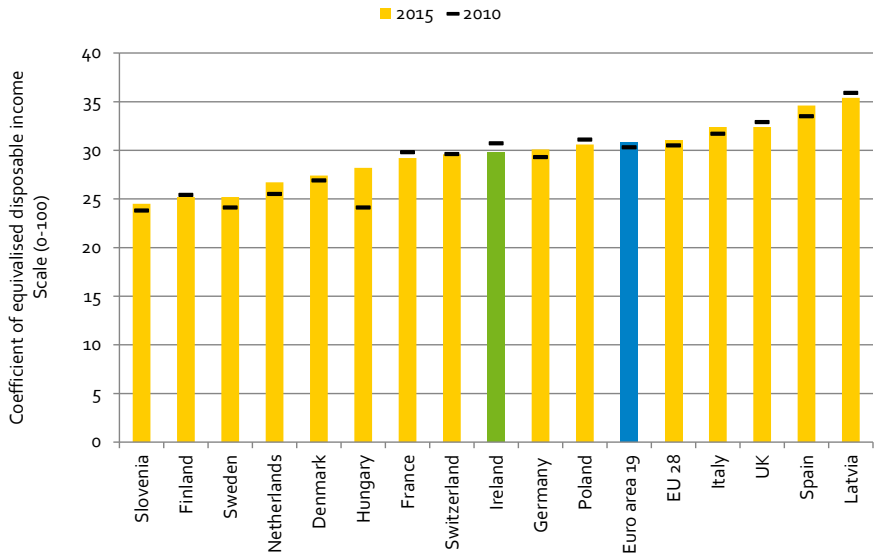


Source: Eurostat

The median equivalised net income in Ireland was €21,688 in 2015, above the Euro area median (€17,759). Median incomes declined in the period 2009-2011 but have increased since. However, median equivalised disposable income remains below 2008 levels (€22,995)

Euro area-19 rank: 4th(-)

Figure2.2.4 Gini[9] coefficient of equivalised disposable income, 2015



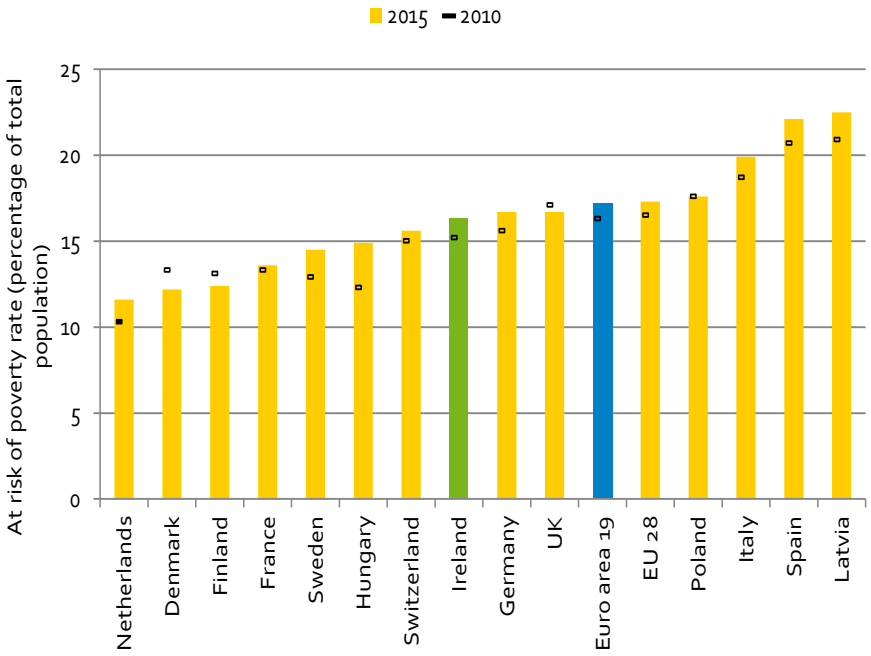
Source: Eurostat

The Gini Coefficient is a measure of equality of income in the population. The Irish Gini coefficient score in 2015 was 29.8, compared with 31.1 in 2010. Ireland is below the Euro area average (30.8) indicating that income distribution in Ireland is more equal than in the Euro area.

Euro area-19 rank: 10th (↑2)

[8] Equivalised disposable income is defined as the total income of a household, after tax and other deductions, divided by the number of household members.
[9] The Gini Coefficient is a measure of equality of income in the population where 0 represents a situation where all households have an equal income and 1 indicates that one household has all of national income.

Figure 2.2.5 At-risk-of poverty rate, (60% of median income after social transfers), 2015

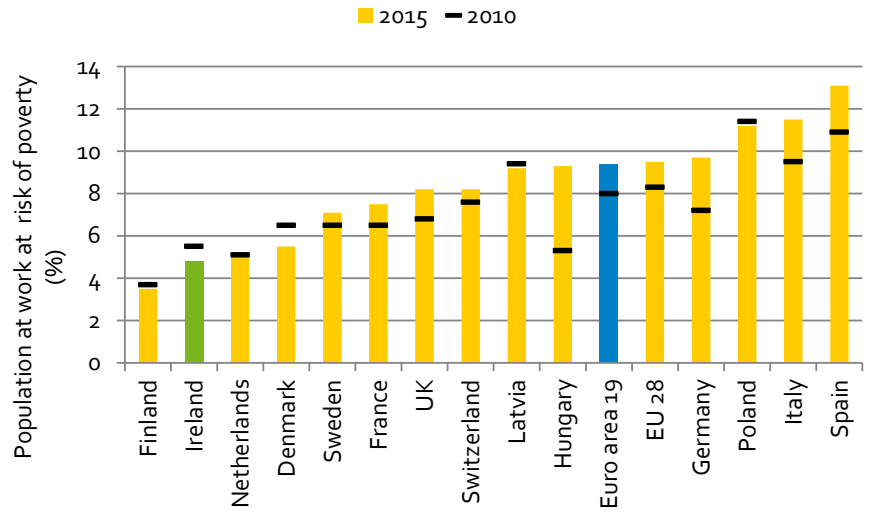


The Irish at-risk-of-poverty rate (16.3%) is below the Euro area average (17.2%) and has been below the Euro area since 2008. On an annual basis the Irish rate decreased by 0.1%. It increased by 1.1% between 2010 and 2015. Social transfers play a significant role in reducing poverty risk in Ireland: excluding social transfers, the at-risk-of poverty rate was 36.2%.

Euro area-19 rank: 10th (↓1)

Source: Eurostat

Figure 2.2.6 In-work at-risk-of poverty rate, persons employed aged 18+,2015

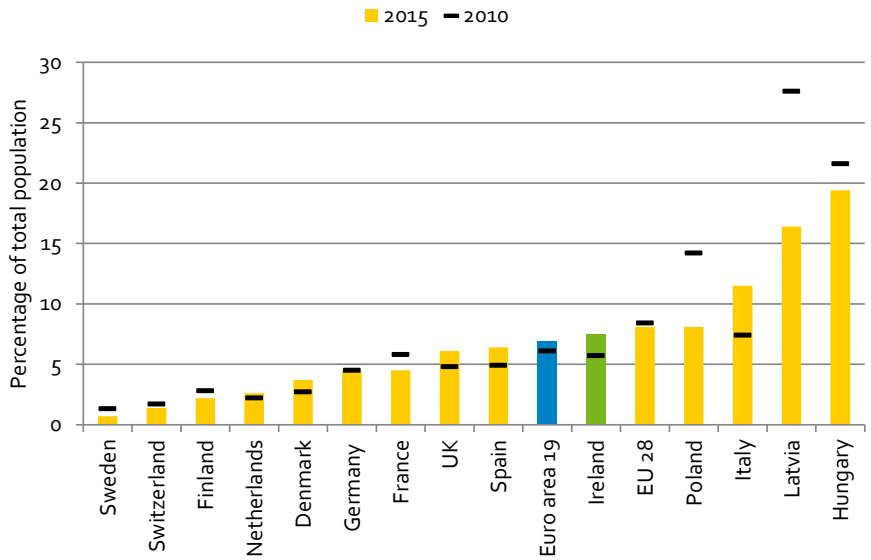


In 2015 the percentage of working persons aged 18+ at risk of poverty in Ireland has fallen to 4.8%, down from 5.4% in in 2014 and 5.5% in 2010. The Irish rate was almost half the Euro area rate (9.4%) in 2015 and below the UK rate 8.2%.

Euro area-19 rank: 3rd (↑2)

Source: Eurostat

Figure2.2.7 Percentage of population defined as severely materially deprived[10], 2015



Material deprivation covers issues including economic strain, durables and housing. The proportion of the population considered materially deprived increased in Ireland over the recession. It was 5.7% in 2010, peaked at 9.9% in 2013 and has declined since (7.5% in 2015). The Irish rate was 0.6% above the Euro area average in 2015.

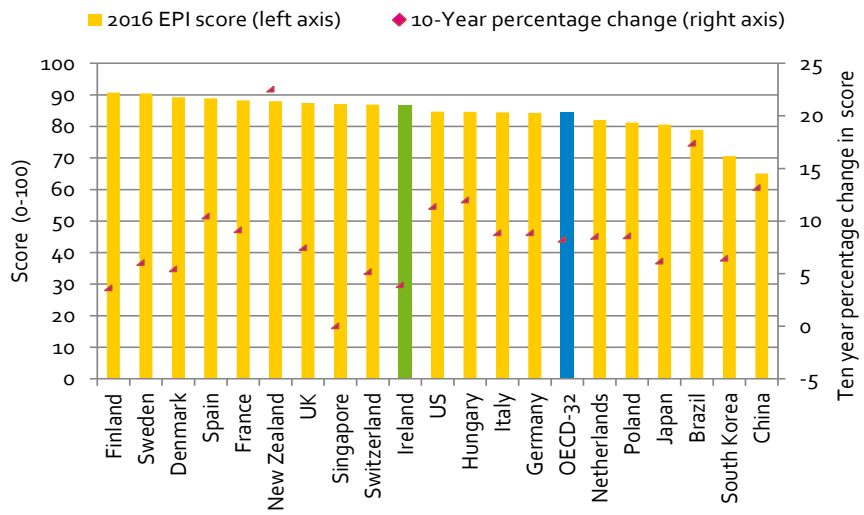
Euro area-19 rank: 11th (↓4)

Source: Eurostat

[10] Material deprivation" covers indicators relating to economic strain, durables, housing and environment of the dwelling. Severely materially deprived persons have living conditions severely constrained by a lack of resources, they experience at least 4 out of 9 following deprivations items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone.

2.3 Environmental Sustainability

Figure 2.3.1 Environmental performance index (Scale 0-100), 2016[11]

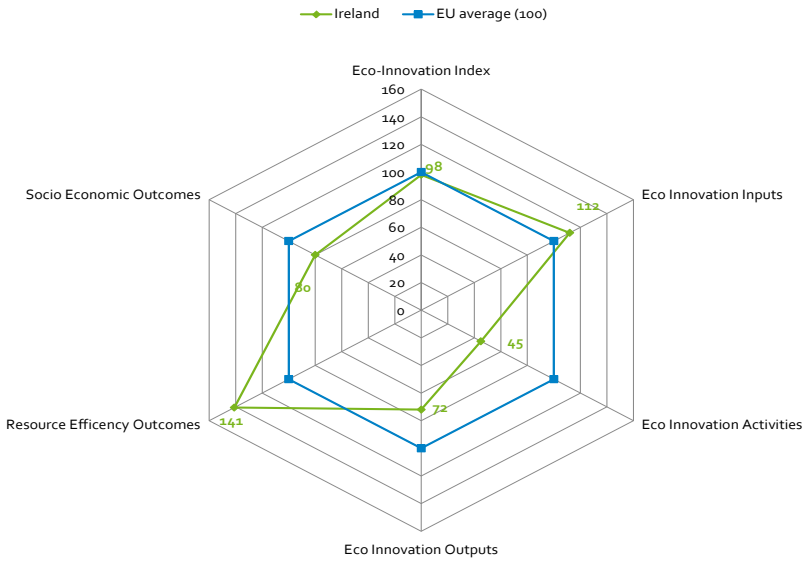


Source: Yale Centre for Environmental Law and Policy

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 rank: 17th (-)

Figure 2.3.2 Components of the ECO-Innovation index[12], Ireland, 2016



Source: European Commission

The European Eco-Innovation Index illustrates eco-innovation performance across five dimensions: Overall, Ireland is considered an average eco-innovation performer with scores around the EU average across most dimensions.

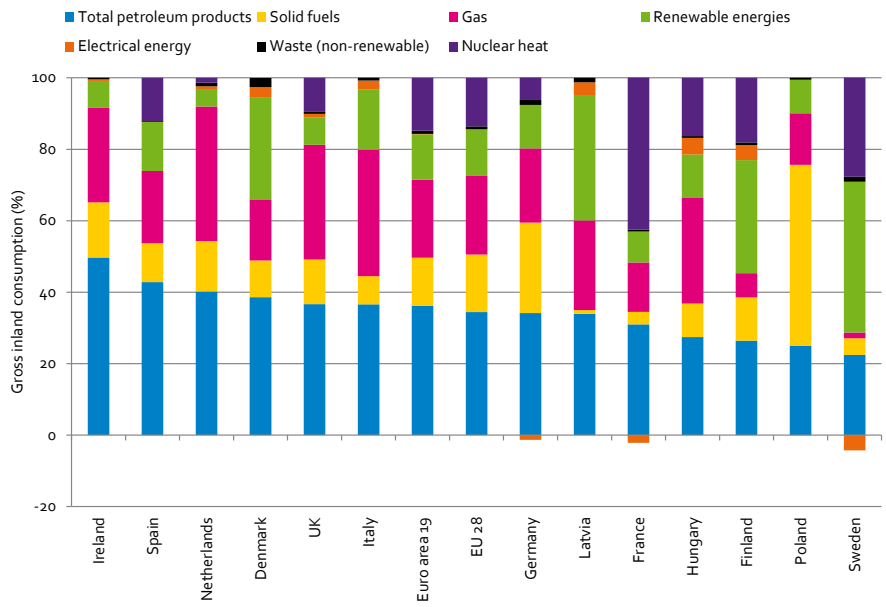
Ireland performs best on inputs and resource efficiency outcomes.

Rank EU 28: 13th (↓5)

[11] Ranking and Score based on 2014 data

[12] Index covers different aspects of ecoinnovation by applying 16 indicators grouped into five thematic areas. (1) inputs comprising investments (financial or human resources), which aim at triggering eco-innovation activities, (2) activities, illustrating the extent companies are active in eco-innovation, (3) outputs, quantifying activities in terms of patents, academic literature etc (4) Resource efficiency outcomes, covering resource (material, energy, water) efficiency and GHG emission s (5) Socio-economic outcomes, illustrating the extent eco-innovation performance generates positive outcomes for social aspects (employment) and economic aspects (turnover, exports). See https://ec.europa.eu/environment/ecoap/scoreboard.

Figure 2.3.3 Gross inland consumption, percentage by fuel type, 2015

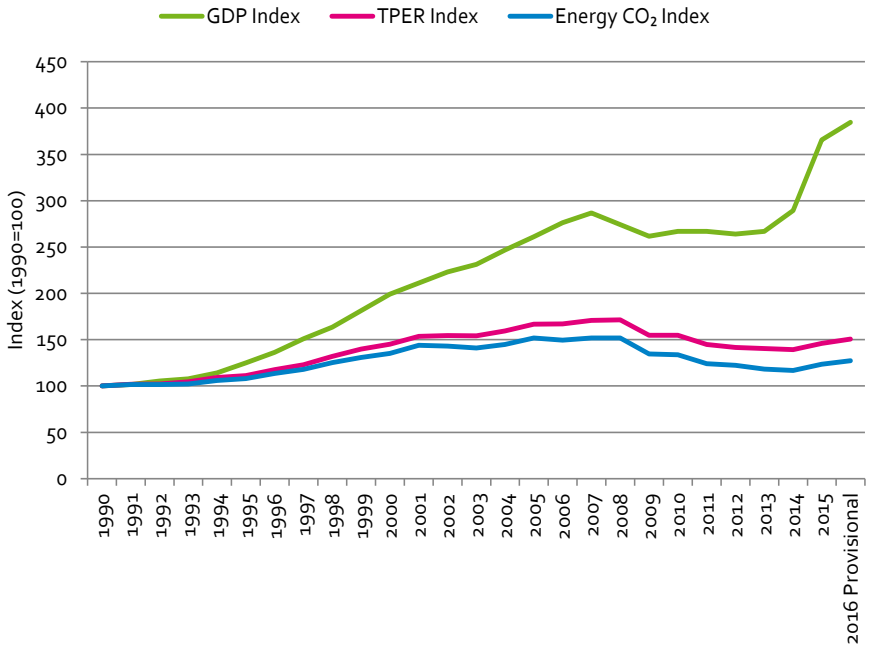


Source: Eurostat

Figure 2.3.3 shows there is considerable heterogeneity across the EU in terms of the composition of national fuel consumption. While declining, (98% in 1990) fossil fuels account for 90% of Irish gross inland consumption in 2015. Ireland still has a much higher reliance on petroleum products (48%) than the EU average (34%).

Rank: n/a

Figure 2.3.4 Index of GDP, total primary energy (TPER[13]) and energy-related CO2, 1990-2016



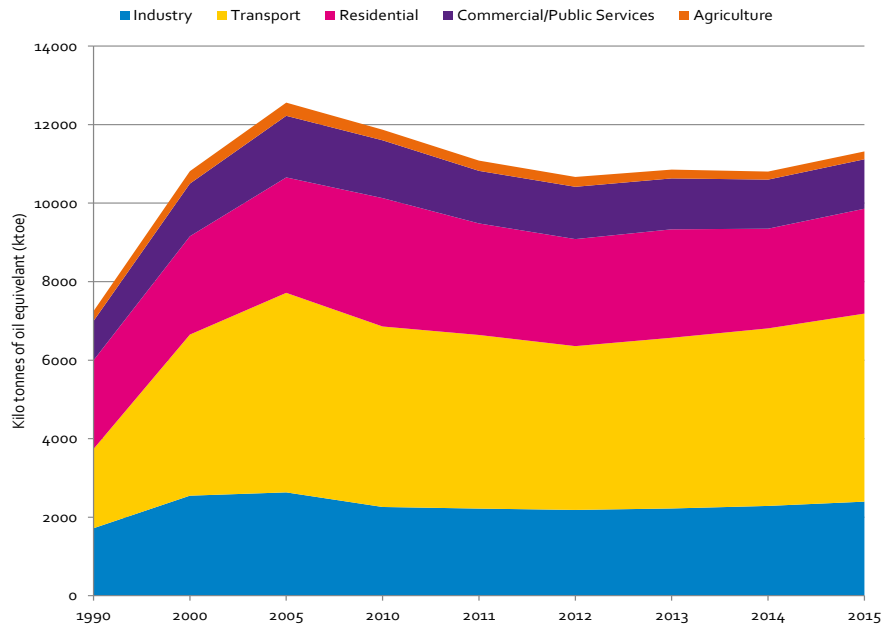
Source: SEAI/CSO

Fig 2.3.4 shows the relative decoupling of TPER from economic growth. 2015 saw an increase in overall energy with TPER growing by 4.9%. This was linked to increased domestic economic activity in the industry and transport sectors, which are closely aligned with the economy, increasing by 4.8% and 5.9% respectively.

Rank: n/a

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

Figure 2.3.5 Total Final Energy Consumption by Sector, Ireland, 1990-2015

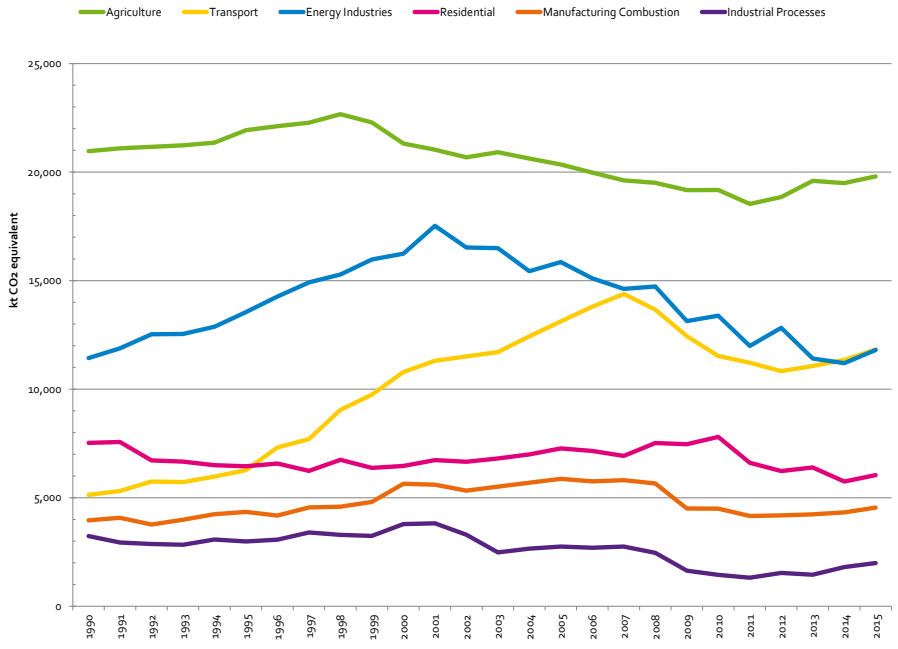


In 2015, overall energy consumption increased by 4.7% to 11,337 ktoe. Energy use in transport accounts for 42% of the total and grew in 2015 by 5.9% to 4,789 ktoe but was 16% lower than in 2007. Consumption in industry grew 4.8% to 2,397 ktoe. Over the 1990 – 2015 period, the share of industry TFC dropped from 24% to 21%.

Rank: n/a

Source: SEAI

Figure 2.3.6 Emissions by national climate change sectors (Kt CO_2 equivalent), Ireland, 1990-2015

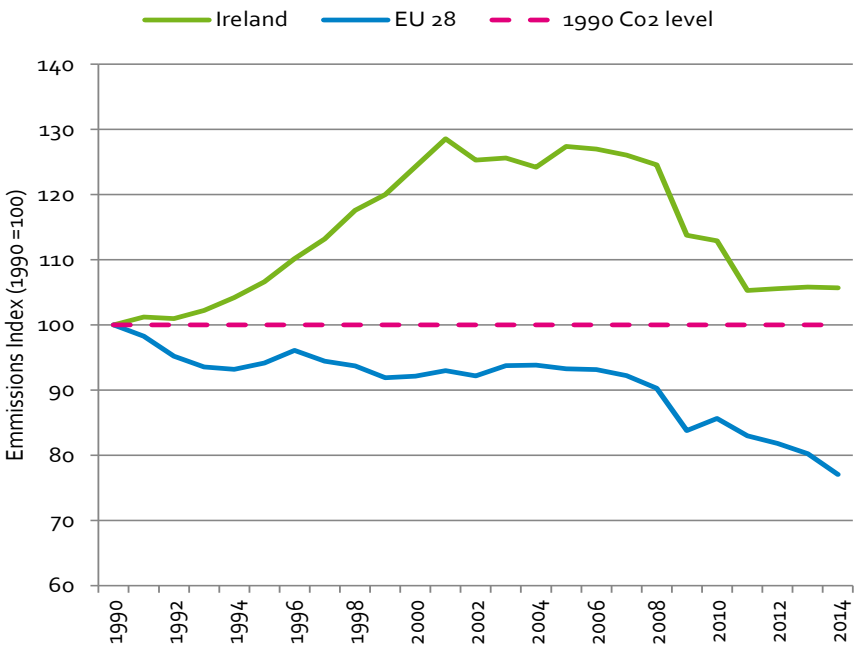


Between 1990 and 2015, total emissions increased by 6.7% to 59,878kt of CO_2 equivalent. The agriculture (33%), transport (20%), energy (20%), and residential (10%) sectors account for the majority of emissions. Emissions by the agriculture and industrial sectors have declined and are below 1990 levels. Transport emissions however have increased by 130%.

Rank: n/a

Source: EPA

Figure 2.3.7 Greenhouse Gas Emissions (Kt CO2 equivalent indexed to 1990), Ireland, EU 28, 1990-2014

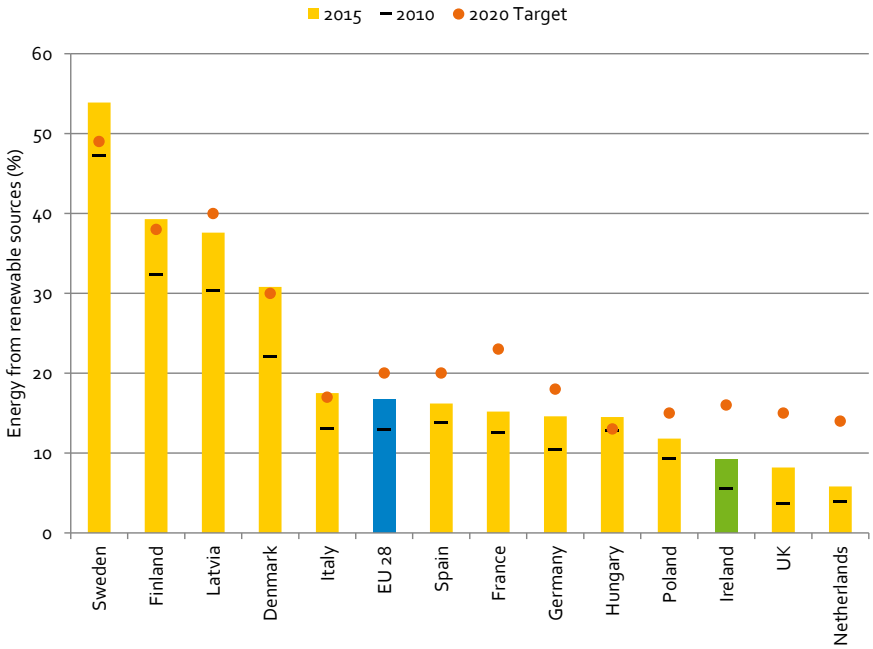


Source: Eurostat

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 since 2008, but the rate of decline has slowed since 2011. In 2014 emissions were 5.6% above the 1990 level.

Rank: n/a

Figure 2.3.8 Share of renewable energy in gross final energy consumption, 2015



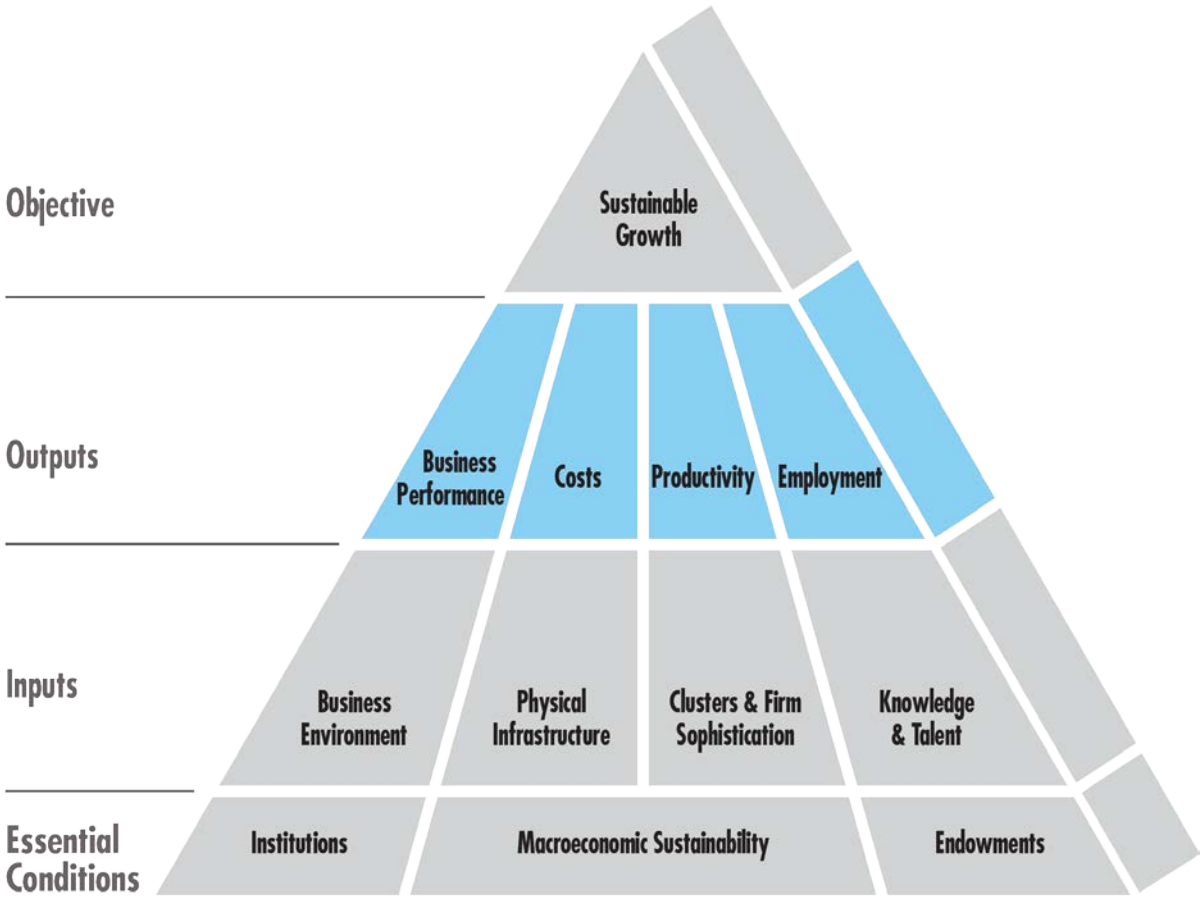
Source: Eurostat

Increasing the share of renewables in gross final consumption of energy is one of the headline indicators of the Europe 2020 strategy. Ireland's use of renewable energy sources has increased over the period 2010-2015 but at 9.1% in 2015 we remain below our target of a 16% share of renewables in gross final consumption.

Rank: EU 28: % distance from target 25th

Chapter 3

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 exporting sector is essential to sustaining the government finances and funding public services. Business performance is assessed across a range of headings including investment flows, export composition and market flows.**
  - Ireland has expanded its share of the world's services market, reaching 3% in 2016, up from 2.2% in 2005. Over the same period, Ireland's share of global merchandise exports declined from 1% to 0.8% in 2016. Ireland's share of total global export markets is 1.3%, as of 2016. (Figure 3.1.2)
  - Figure 3.1.3 shows Ireland's share of world total exports at a sectoral level. Strong growth was recorded in the Transport (27%), Telecoms, Computer & Information (20.3%) and Machinery (17.5%) sectors over this 5 year period.
  - 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 3.1.4 shows that within the services sector computer and business services dominate, whilst chemicals (and particularly medical and pharmaceutical products) are the primary goods exports.
  - Irish merchandise exports to the EU-28 amounted to 22.3% of GDP in 2016. 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. The EU, US and UK remain Ireland's principal markets for exports. The UK is particularly important for services and food exports.
  - Building on strong growth in 2015, the activity level of FDI and indigenous agency client companies 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. Over the period of its 2014-2016 Strategy 'Driving Enterprise, Delivering Jobs', 45,592 new full time jobs were created by Enterprise Ireland client companies. This brings the total number of people employed by Enterprise Ireland supported companies to 201,108 – an all-time high for the Agency. Enterprise Ireland's 2017-2020 Strategy 'Build Scale, Expand Reach' aims to increase client company exports to €26 billion per annum by the end of 2020. Furthermore, the Strategy contains an ambitious target to grow the level of exports to over two thirds outside the UK over this period. Data from the Annual Business Survey of Economic Impact shows that the value of exports by Irish owned companies increased by 67 percent to €18.7 billion in 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 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 (283% of GDP) is the second highest in the Euro area. In January 2017 IDA Ireland reported that the number of investments secured increased by 14.5 per cent in 2016, and that client companies created 11,842 net jobs in 2016 – IDA clients account for almost 10 per cent of direct employment in Ireland. IDA Ireland

has completed two years of its five year strategy, Winning: Foreign Direct Investment 2015-2019 - with the latest results indicating a strong performance towards delivering its 2019 target of 80,000 new jobs and 900 investments.

- Analysis by the World Bank 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 3.6.4 shows that although the proportion of self-employed in Ireland has fallen in recent years it remains above the Euro area average.

- **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.**
  - The Council published its Costs of Doing Business in Ireland report in June 2017 and concluded that despite the low inflation environment, Ireland remains a relatively expensive location in which to do business. 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 Ireland, the hourly labour cost was €30.4 in 2016, compared to €26.7 in the UK and €29.8 for the Euro area 19. While labour cost growth has been positive in Ireland, the growth has been below EU and Euro area averages in the 5 year period to 2016, representing a competitiveness gain for Ireland. Sectoral wage growth rates have been lower in Ireland than the Euro area over the corresponding period with the notable exception of Wholesale & Retail and ICT. In 2016, growth in labour costs in Ireland was strongest in Professional, scientific & technical activities (+3.4%, Euro Area+1.5%), Transportation & storage (+2.6%, Euro Area +1.1%) and Administrative and support service activities (+2.3%, Euro Area +0.8%).
  - The last number of years has witnessed a sustained recovery in the Irish commercial property market. Commercial rents growth has been driven by an increase in demand, reflecting the improving economy. This in turn, has boosted capital values, the price that would have been paid for property if it had been purchased at the point of valuation, in all commercial sectors (e.g., office, industrial and retail). Commercial property prices in Ireland, however, still compare favourably to comparable cities in the UK but concerns persist about the availability of prime office space for rent in large urban centres in the short term as the market tightens and vacancy rates decline. This could result in future rent increases and any shortage of supply of new commercial space could adversely impact our competitiveness.
  - The differential average price for electricity between Ireland and the UK has gone from a point where we are almost 12 per cent more expensive in 2012 to a situation where in the first half of 2016 electricity prices are 6 per cent cheaper in Ireland. Whilst industrial gas prices are now equal to the average prices across the Euro area, comparable prices are over 15 per cent lower in the UK. Ireland is relatively cost competitive for telecoms, especially for business mobile broadband. However, concerns persist around the issues of quality (speed) and the regional availability of high speed services. Services prices in Ireland have risen continuously since the beginning of 2012 and the magnitude of the increase has been higher than the Euro area 19 average during this period also.
  - Inflation 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. The annual average growth rate in Eurostat's Harmonised Indices of Consumer Prices was 0.2 per cent in 2016. The corresponding figure for Ireland was -0.2 per cent. Prices on average, as measured by the Consumer Price Index, registered no growth in 2016 compared to 2015 and were 0.2 per cent higher in April 2017 compared with April 2016. As highlighted by the CSO, the most notable changes

in the year were decreases in Transport (-0.52%) and Miscellaneous Goods & Services (-0.04%). The aspects which caused the largest upward contribution in the month were Restaurants & Hotels (+0.12%) and Alcoholic Beverages & Tobacco (+0.08%). Ireland, however, remains a relatively expensive location in which to live and do business with a price profile which can be described as "high cost, rising slowly". Irish consumer prices remain over 25 per cent above the European Union average.

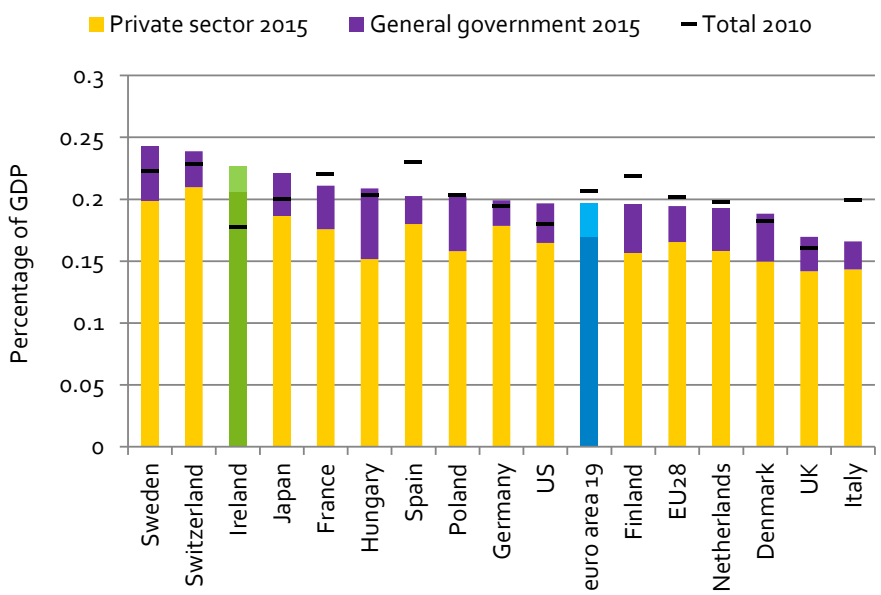
- **Productivity: In the long run, a country's standard of living is dependent upon productivity. The charts in this section examine Ireland's labour productivity performance in an OECD context, as well as multi-factor productivity.**
  - Ireland's labour productivity performance is strong in an international context. Figure 3.5.1 shows Ireland had the 3rd highest output per hour worked among OECD member states in 2016.Output per hour was $79.7 in GDP terms, an increase of 28 per cent over 2011. Figure 3.5.4 shows significant differences in productivity are evident when considering output as a measure of GDP or the OECD's measure of Gross National Income. As a measure of GDP, Ireland's output is approximately 80 per cent above the OECD baseline, as a measure of GNI, the differential falls to 44 per cent.
  - OECD data shows that taking the period 2010-2015, Ireland's labour productivity annual growth rate was 5.5 per cent which significantly exceeds the OECD average (0.8%). Irish labour productivity growth has been above that in competitor countries since 2013 and was 2.3 per cent in 2016. However, Ireland's performance has been greatly influenced by shifts in the composition of employment and the influence of a number of high value added sectors on output. The effects of corporate restructuring, including the relocation of firms with significant IP assets and aircraft leasing, led to noteworthy increases in total output and hence labour productivity, particularly in 2015 (Figure 3.5.2).
  - The narrow base of enterprises in high value added sectors (particularly in foreign owned Pharma and ICT) disguises, to a degree, underperforming sectors and skews Ireland's productivity level and growth rate.
  - Multifactor productivity (MFP) reflects the overall efficiency with which labour and capital inputs are used together in the production process. Figure 3.5.8 shows growth decelerated in nearly all countries after the crisis compared with the period 2001-2007 Irish MFP grew by 0.9 per cent in 2001-2007 and growth increased to 1.3 per cent in the years 2009-2014.
- **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 indicators are examined in the section on endowments (Chapter 5).**
  - Figure 3.6.1 illustrates the continued improvement in the labour market. While employment has not yet returned to peak pre-recession levels, over 2.05 million were in employment in Q1 2017, an annual increase of 3.5 per cent. The increase in total employment of 68,600 in the year to Q1 2017 was represented by an increase in full-time employment of 84,200 and a decrease in part-time employment of 15,600. Overall, the majority of sectors in Ireland have experienced growth in employment between 2011 and 2016 as recovery took effect. Employment growth in the year to Q1 2017 was spread relatively equally across the different sectors of the economy with employment growing in 11 of 14 economic sectors.
  - Figure 3.6.2 shows the Irish employment growth rate in 2016 was well above both the Euro area and EU28 averages. 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 Q1 2017 was 146,200 and 78,655 respectively. Unemployment decreased on a year on year basis and fell from 15.1 to 6.8 per cent, on a seasonally adjusted basis, between Q1 2012 and Q1 2017.

- Long term unemployment and youth unemployment levels are also declining, yet they remain high. Eurostat data shows youth unemployment declined further in 2016 and is now below both the EU28 and the Euro area averages (17.2%). This is significantly below the 29.1 per cent rate recorded in 2011. The proportion of self-employed in Ireland has risen since 2011 (from 0.75% to 0.85% in 2016). It remains above the Euro area-19 average (0.33%). Ireland also has a high proportion of youth neither in employment, education or training (NEET). Out of the total age cohort 15-24, 7.4 per cent were classified as NEET in 2016, compared with the EU28 and Euro area 19 averages of 3.8 per cent and 3.7 per cent respectively. (Figure 3.6.8)
- Figure 3.3.9 shows that for a long term unemployed, one earner married couple with 2 children earning 100 per cent 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%). The unemployment trap measures the percentage of gross earnings lost to taxes when a person becomes employed. This occurs through the loss of unemployment benefits combined with higher tax and social security contributions. Figure 4.4.12 shows the how tax systems fare in encouraging those who are unemployed into taking up employment. Other disincentives also exist which limit the attractiveness of returning to work. In particular the high cost of childcare is a pressing concern.

3.1 Business Performance

Figure 3.1.1: 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: UNCTAD

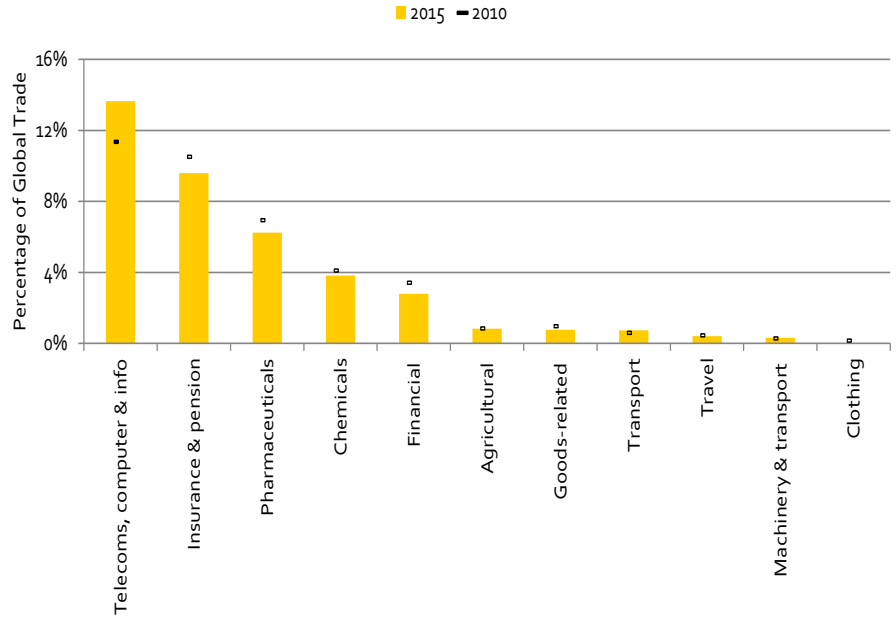
Figure 3.1.2: Ireland's share of world trade, 2016

Ireland has expanded its share of the world's services market, reaching 3% in 2016, up from 2.2% in 2005. Over the same period, Ireland's share of global merchandise exports declined from 1% to 0.8% in 2016. Ireland's share of total global export markets is 1.3%, as of 2016.

Rank: n/a

Source: WTO

Figure 3.1.3: Ireland's share of world trade by Sector, 2015

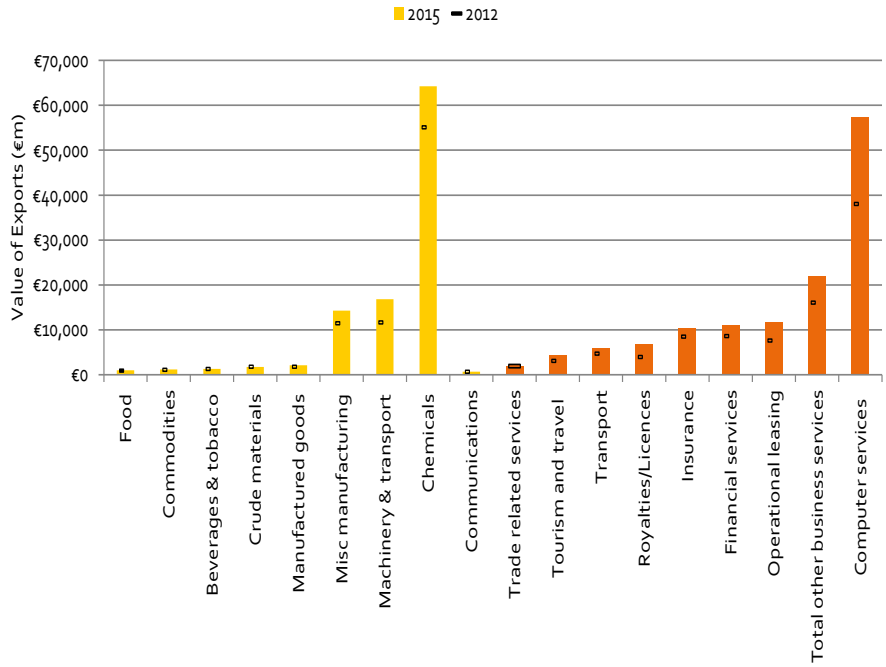


This indicator measures Ireland's share of world total exports at a sectoral level. Ireland lost market share in insurance & pensions, financial services and pharmaceuticals between 2010 and 2015. Strong growth was recorded in the Transport (27%), Telecoms, Computer & Information (20.3%) and Machinery (17.5%) sectors over this 5 year period.

Rank: n/a

Source: WTO

Figure 3.1.4: Total goods and services exports by sector from Ireland (€million), 2015

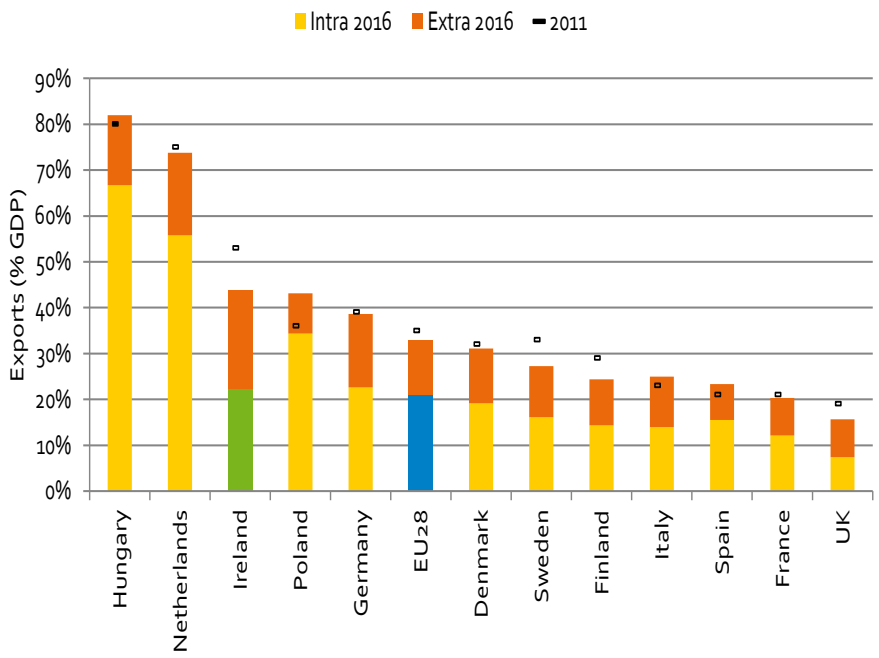


While exports have been the primary engine of economic growth in Ireland in recent years, the composition and range of goods exported from Ireland has become increasingly concentrated. Within the services sector, business and computer services dominate, whilst chemicals (and particularly medical and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

Rank: n/a

Source: WTO

Figure 3.1.5: Intra and extra-EU merchandise exports (% GDP), 2016



Ireland is one of the most open economies in the EU. Irish merchandise exports to the EU-28 amounted to 22.3% of GDP in 2016. 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.

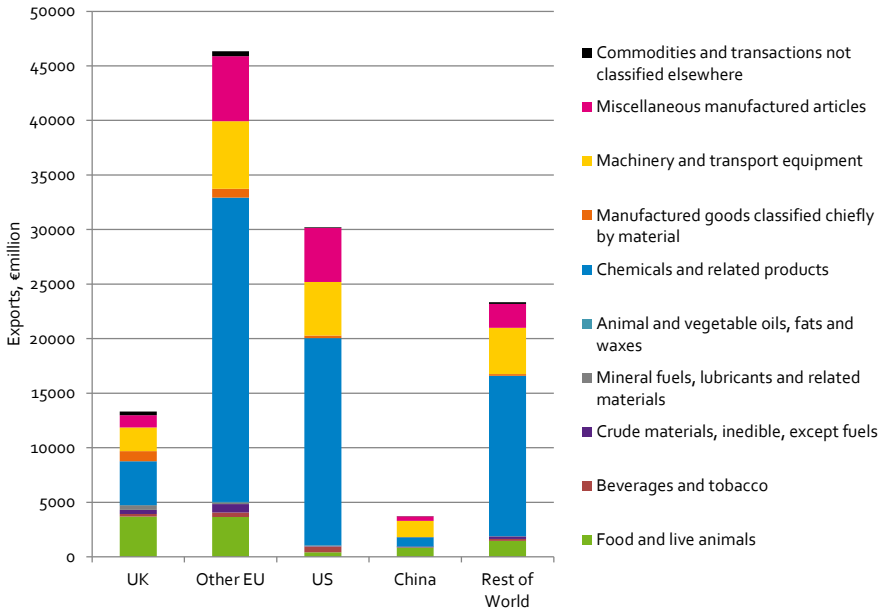
EU 28 rank:

Total exports: 10th (↓1)

Extra-EU: 8th (↑1)

Source: Eurostat

Figure 3.1.6: Ireland's Merchandise exports classified by commodity and principal countries, 2016

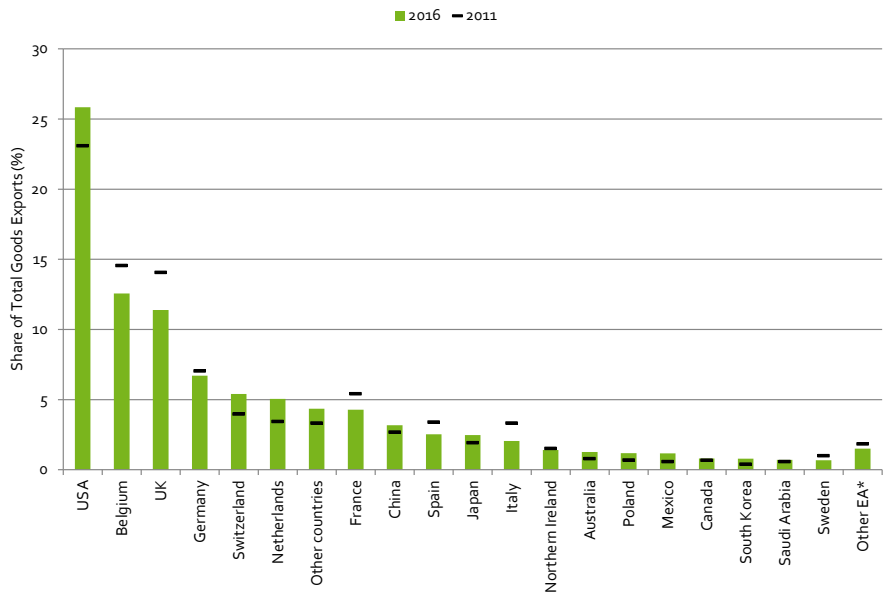


Merchandise exports totalled €116.9 billion in 2016. Chemicals and related products accounted for 56% in total and account for the largest share of exported goods to the US, UK, and rest of the EU. The UK accounted for €13.3 billion, (11.5%) of total exports and is the primary destination for Food exports, accounting for 28% of total Food exports.

Rank: n/a

Source: CSO

Figure 3.1.7 : Share of total Irish Merchandise Exports, classified by country, 2016

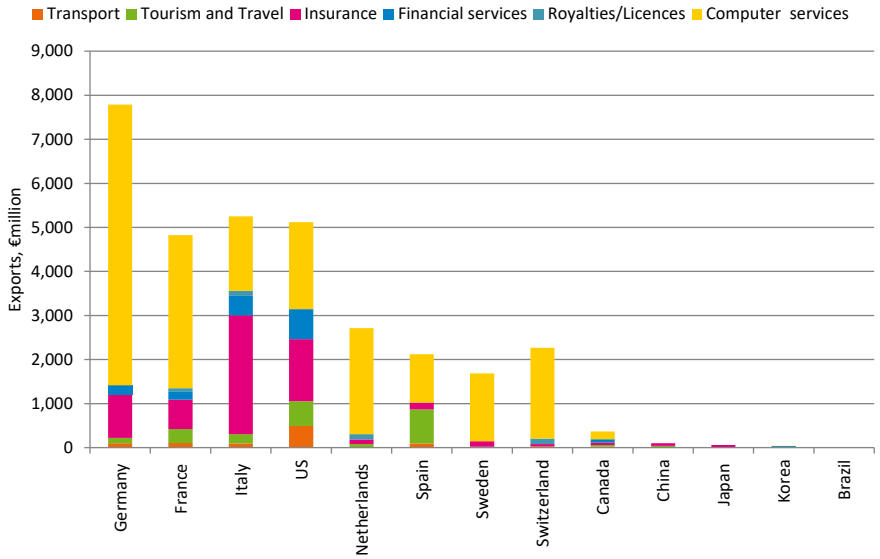


The US accounted for 26% of merchandise exports up from 23% in 2011. Other key markets include Belgium (12.5%), UK (11.4%), Germany (6.7%) and Switzerland (5%). Notable non EU/US markets with increasing market share compared with 2011 are China (3.1%), Japan (2.4%), Australia (1.2%), Mexico (1.1%), Canada (0.8%), Korea (0.8%) and Saudi Arabia (0.7%).

Rank n/a

Source: CSO

Figure 3.1.8: Ireland's Services exports classified by service type and principal countries, 2015

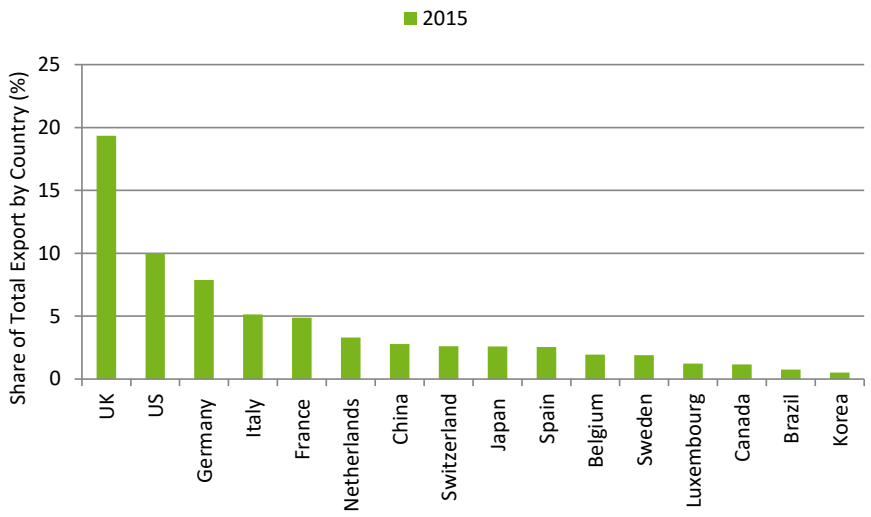


Ireland's exports of computer services represent 47.2% of the total export in services, followed by financial services (9.08%) and insurance (8.47%). Computer services account for the largest share of exported services to the EU (including the UK), US and the rest of the major export destinations, apart from Luxembourg.

Rank n/a

Source: CSO

Figure 3.1.9 : Share of total Irish Services Exports, classified by country, 2015

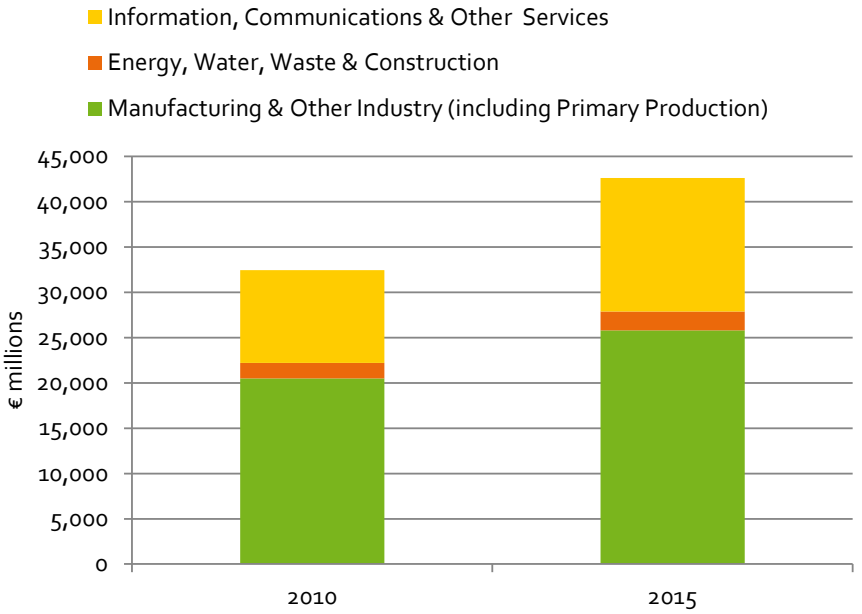


In 2015 Ireland's total exports in services accounted for €121,605 million. The largest share of services is exported to the EU (54% of total export). In terms of individual countries, the largest share of exports in services is attributed to the UK - 19.35% of total export, the US (10.01%) and Germany (7.87%).

Rank n/a

Source: CSO

Figure 3.1.10: Direct expenditure in the economy by enterprise agency clients by sector, 2015[14]



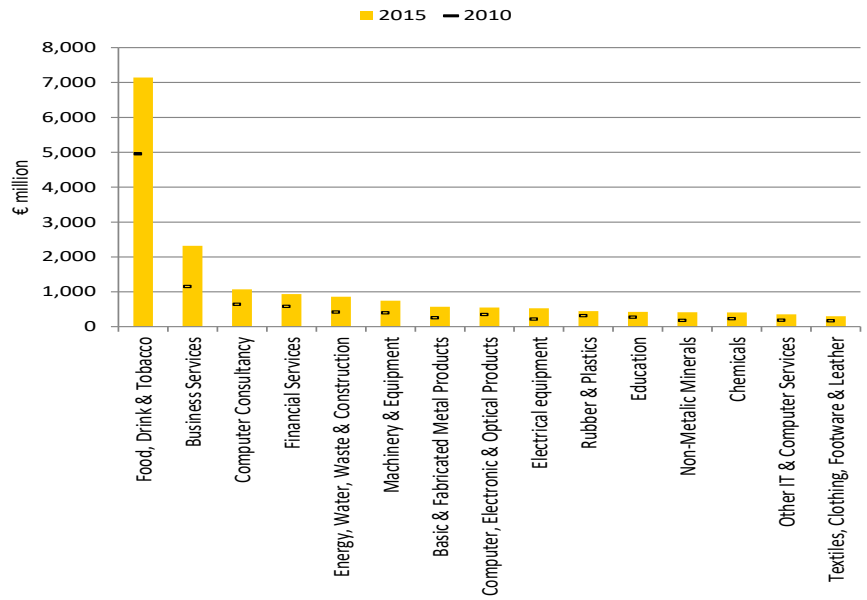
In 2015, total expenditure by enterprise agency clients increased by 34.1% to €42.6 billion from 2010. The proportion of expenditure by industry and manufacturing and ICT has increased significantly.

Rank: n/a

Source: DJEI, Annual Business Survey of Economic Impact

[14] Figure 3.1.10 shows direct expenditure in the Irish Economy (payroll, Irish materials, and Irish services) by enterprise agency client companies.

Figure 3.1.11: Exports by Irish owned clients of enterprise agencies by sector, 2015

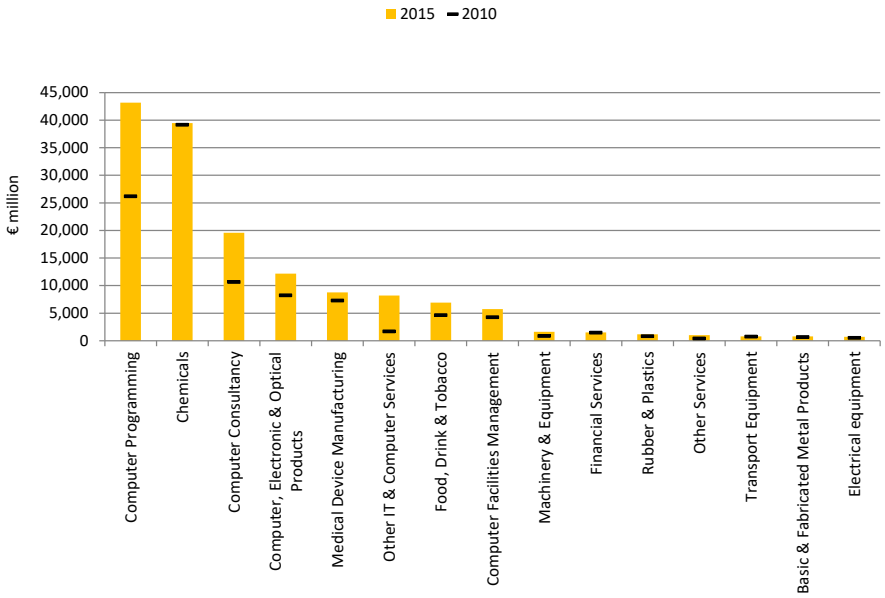


Exports by Irish owned clients of enterprise agencies increased by 67% in the five years to 2015. The Food, Drink and Tobacco sector and Business Services account for more than 50% of the exports by indigenous companies. All sectors recorded increases in export volume over the 5 years in question.

Rank: n/a

Source: DJEI, Annual Business Survey of Economic Impact

Figure 3.1.12: Exports by Foreign owned clients of enterprise agencies by sector, 2016

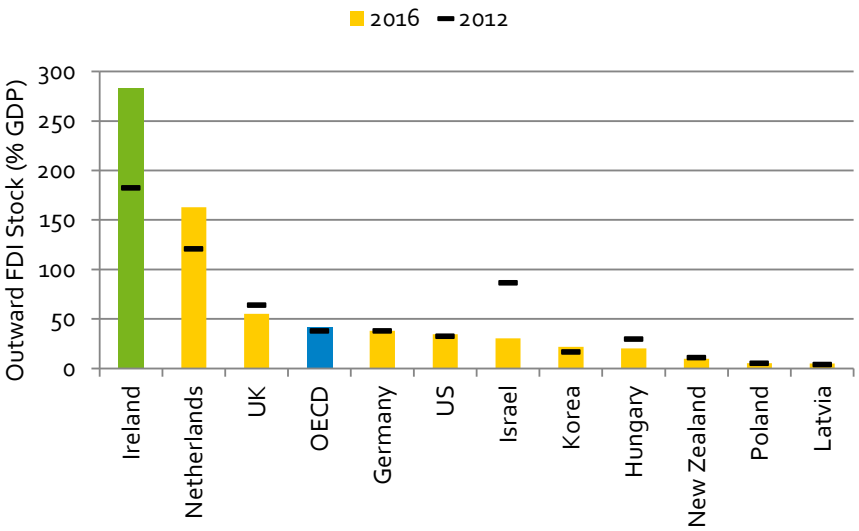


Exports by Foreign owned clients of enterprise agencies increased by 41% in the five years to 2015. The Computer Programming and Chemical Sectors account for more than 50% of exports by Foreign owned companies. However, little export growth was recorded in the chemical sector over the time period in question.

Rank: n/a

Source: DJEI, Annual Business Survey of Economic Impact

Figure 3.1.13: FDI outward stock[15] (% GDP), 2015



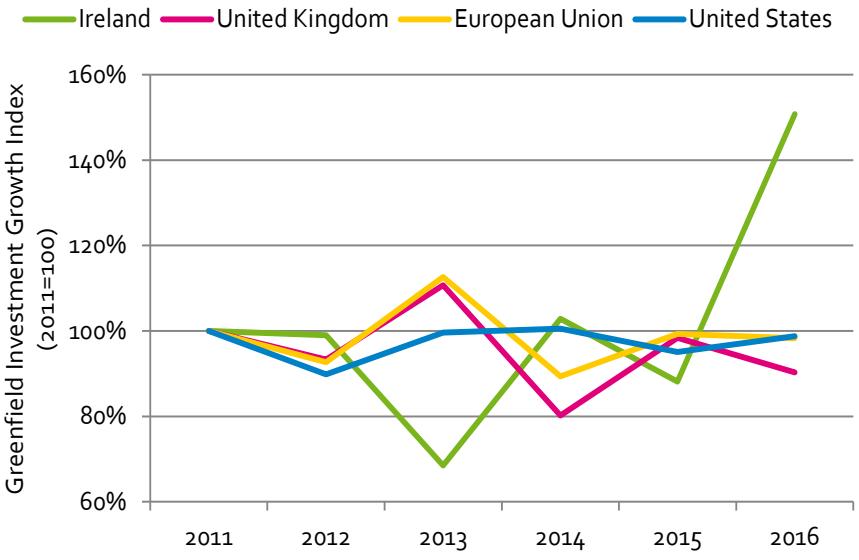
Source: OECD

Levels of outward direct investment from Ireland by Irish MNCs and foreign MNCs based here increased from 182% of GDP in 2012 to 283% in 2015. Much of this increase can be attributed to the foreign assets of foreign owned companies being re-domiciled in Ireland[16].

OECD rank:

1st (-)

Figure 3.1.14: Growth in Greenfield Investments[17], 2011-2016



Source: UNCTAD

Figure 3.1.14 shows the absolute growth rates in the number of greenfield investments between 2011 and 2016. Ireland experienced steady growth rates in investment except for a significant fall off in 2013 and an almost 50% increase in 2016. This is a result of the surge in FDI inflows which occurred in 2015.

Rank: n/a

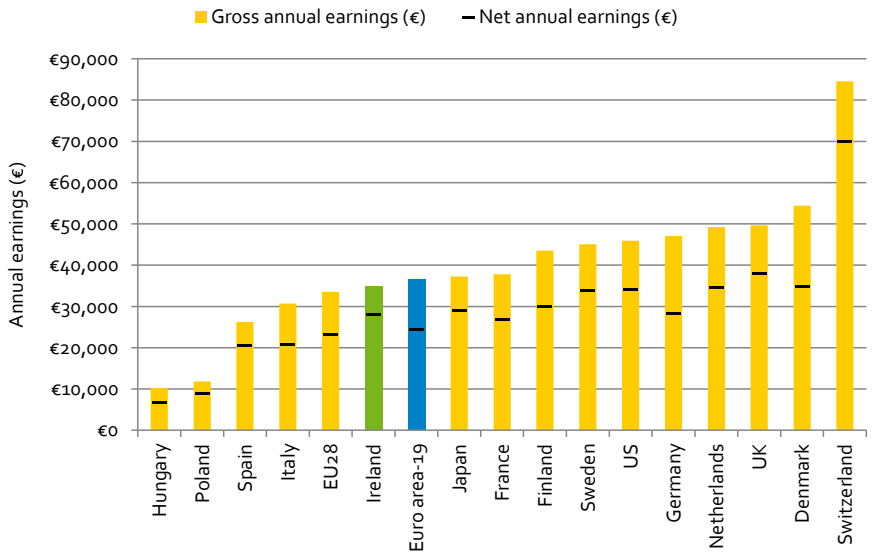
[15] Foreign Direct Investment (FDI) stocks measure the total level of direct investment at a given point in time, usually the end of a quarter or of a year. The outward FDI stock is the value of the resident investors' equity in and net loans to enterprises in foreign economies.

[16] For more information on the impact of this, see CSO, Domiciled PLCs in the Irish Balance of Payments, July 2015

[17] A green field investment is a form of foreign direct investment where a parent company builds its operations in a foreign country from the ground up by building a new facility.

3.2. Costs - Labour

Figure 3.2.1: Average annual gross & net earnings, single individual, no children, 100% of average earnings, 2016[18]

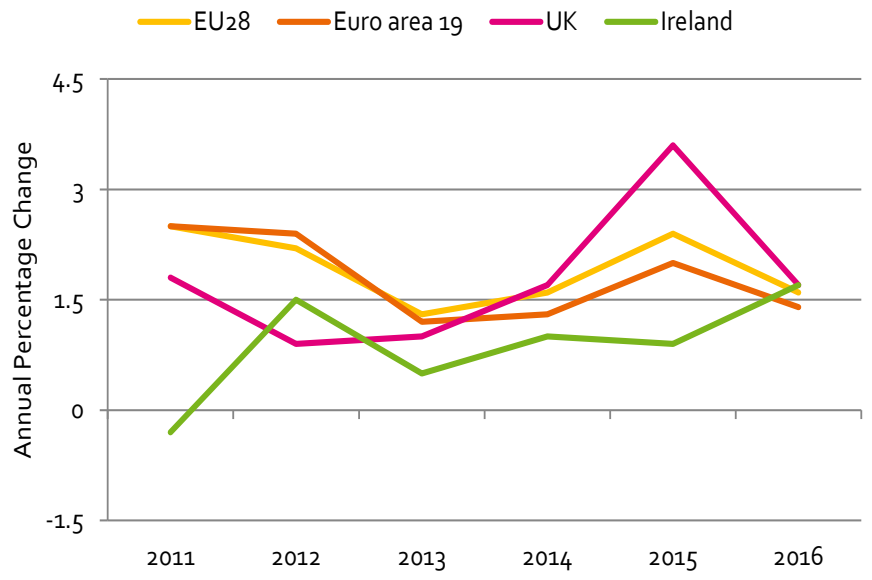


Gross earnings include wages, taxes on income and employer and employee social security contributions. While gross earnings are 4.6% below the Euro area average, net earnings are 14.9% above the average, reflecting the relatively small gap between before and after tax wages in Ireland.

Rank: n/a

Source: Eurostat

Figure 3.2.2: Annual growth in Business labour costs (wages and Salaries), 2011-2016



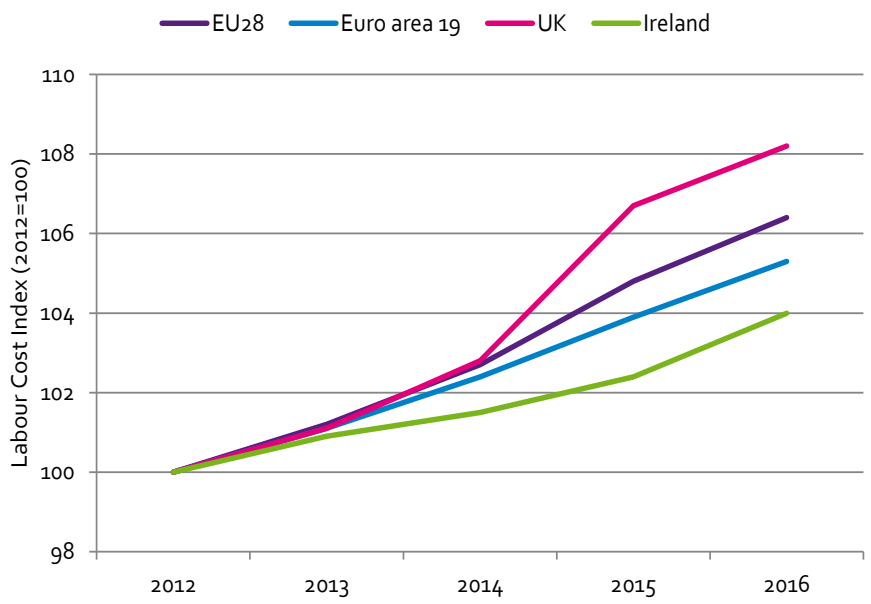
Irish labour costs fell in 2011. While labour cost growth has been positive between 2012 and 2015, the rates recorded have been consistently below EU and Euro area averages, representing a competitiveness gain for Ireland. In 2016 growth rates in Ireland converged with those in both the Euro area and the UK.

Rank: n/a

Source: Eurostat

[18] Gross wages include wages, taxes on income and employer and employee social security contributions.

Figure 3.2.3: Labour cost index, 2012-2016

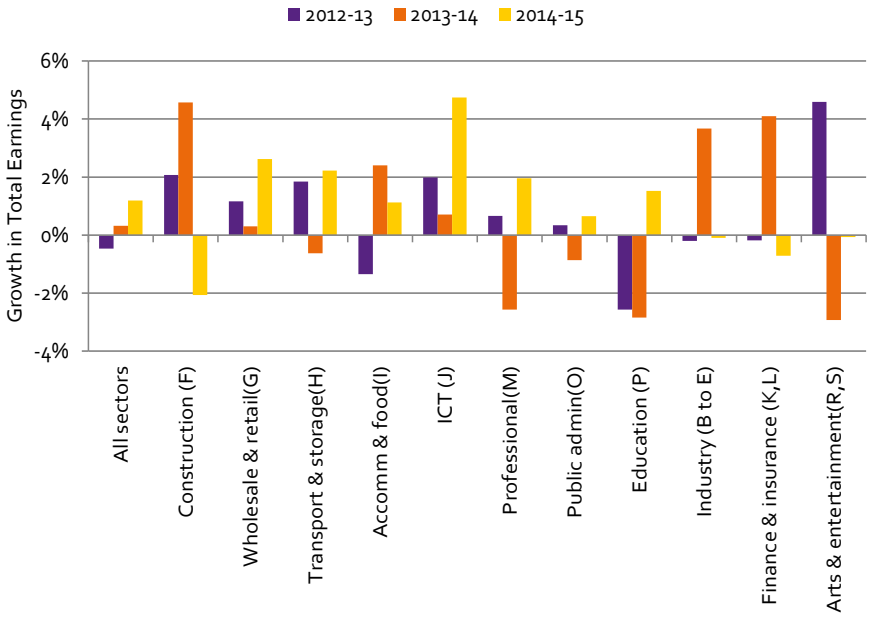


Source: Eurostat

Figure 3.2.3 shows similar data as the 3.2.2 but expressed in index form. Setting 2012 labour cost levels equal to 100, it is evident that Irish labour costs have cumulatively increased by less than EU and Euro area and UK labour costs respectively. However, an index such as this does not reflect the different starting levels of labour costs in each country.

Rank: n/a

Figure 3.2.4: Annual growth in labour costs in Ireland by sector, 2012-2015

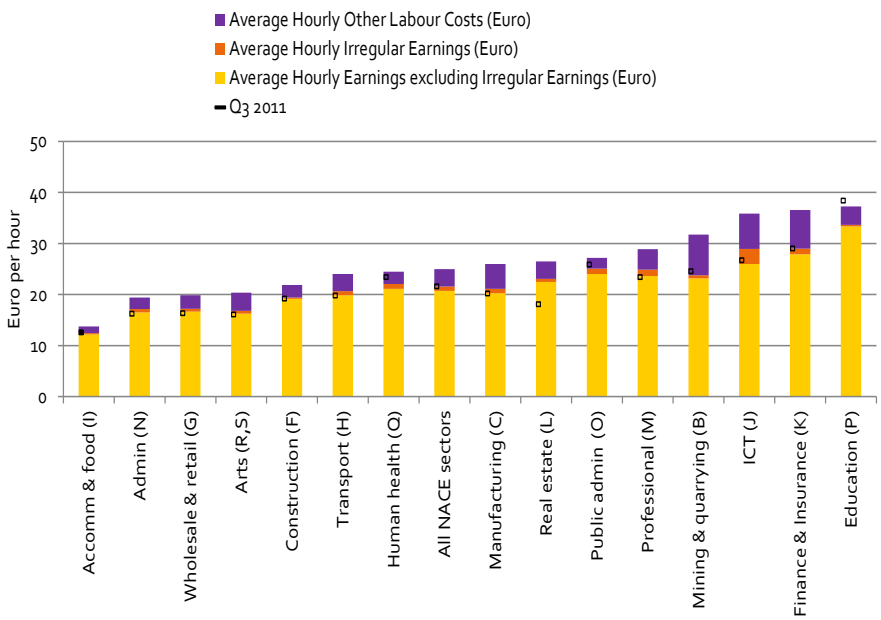


Source: CSO

Figure 3.2.4 shows that total earnings across all sectors in Ireland grew by 1.2% between 2014 and 2015 with increases recorded in 8 out of the 12 sectors examined. The largest increase in 2015 was recorded in ICT. Construction and Finance & Insurance earnings fell by 2.1% and 0.7% in 2015. Finance & Insurance costs also fell in 2015.

Rank: n/a

Figure 3.2.5: Earnings per hour and hours worked, Q4 2015



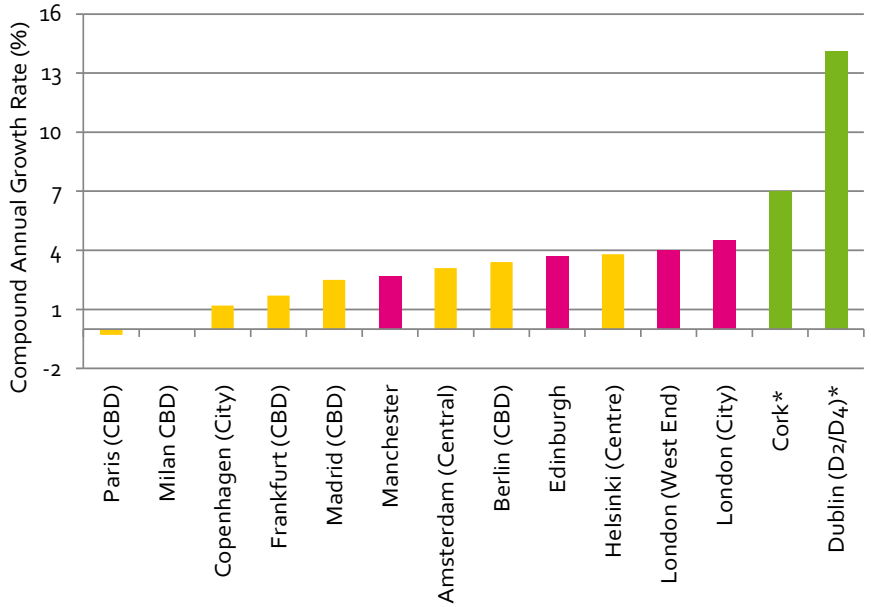
Source: CSO

Figure 3.2.5 examines 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 and insurance, ICT and education. Earnings per hour range from €12.19 (Accommodation & Food) to €33.35 (Education).

Rank: n/a

3.3 Other Business Costs

Figure 3.3.1: 5-year Growth[19] in Cost of renting a prime office unit, € per square metre per year, Q4 2016[20]

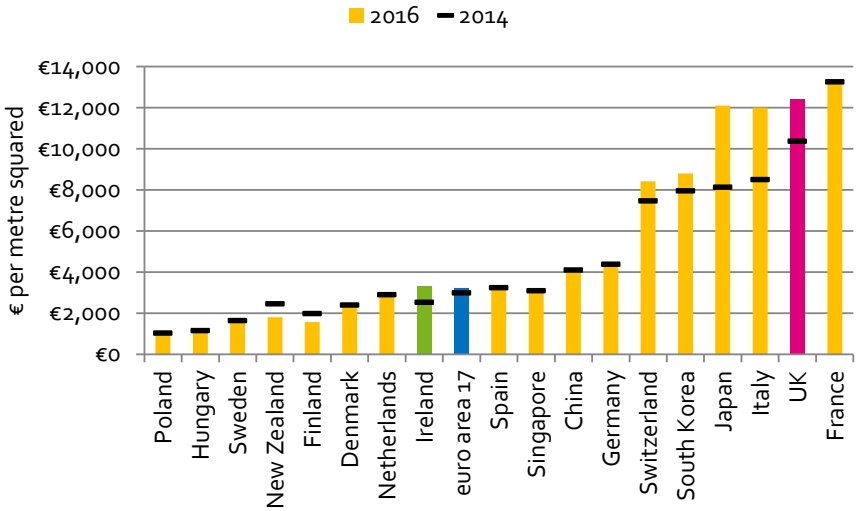


In the 5 years to Q4 2016 Compound Annual Growth Rates associated with Office Rents were 14.1% in Dublin (D2 and D4 districts) and 7% in Cork. The rates in Dublin were over 3 times the equivalent rates in both London City and London's West End.

Rank: n/a

Source: Cushman and Wakefield, Office Snapshot Reports

Figure 3.3.2: Cost of Renting a Prime Retail Unit, € per square metre per month[21]



In 2016 prime retail rents had increased by 31.5% in Ireland since 2014. Ireland was the 5th most expensive location in the Euro area. Rents range from €550 per square metre in O'Connell Street, Limerick to €5,920 in Grafton Street, Dublin.

Euro area-13 Rank: 5th (↑2)

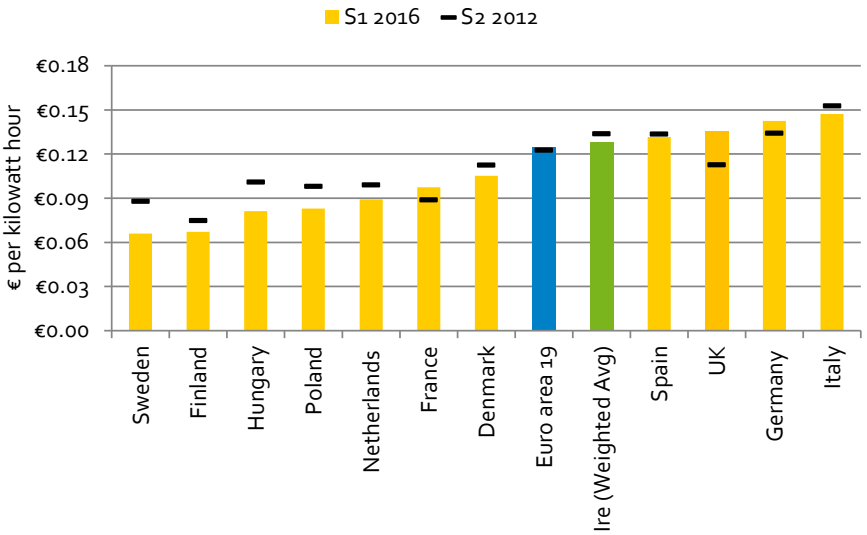
Source: Cushman and Wakefield, Main Streets Across the World

[19] This growth is measured in Compound Annual Growth Rate (CAGR) Terms. CAGR equates to the mean annual growth rate of an investment over a specified period of time longer than one year.

[20] Figures for both Dublin (D2/D4) and Cork are from Q2 2016.

[21] The chart is based on the most expensive retail location in each country, and uses data collected in September 2014. Data for retail rents relates to the expected rent obtainable on a standard unit and/or shopping centre in a prime pitch in 330 locations across 65 countries around the world. Rents in most countries are supplied in local currency and converted to a common currency for purposes of international comparison. Data for Ireland is based on rents for Grafton St. in Dublin. The chart excludes data on the US (New York - €29,822 per metre squared) for presentational purposes.

Figure 3.3.3: Industrial electricity prices[22] (excluding VAT), S1 2016

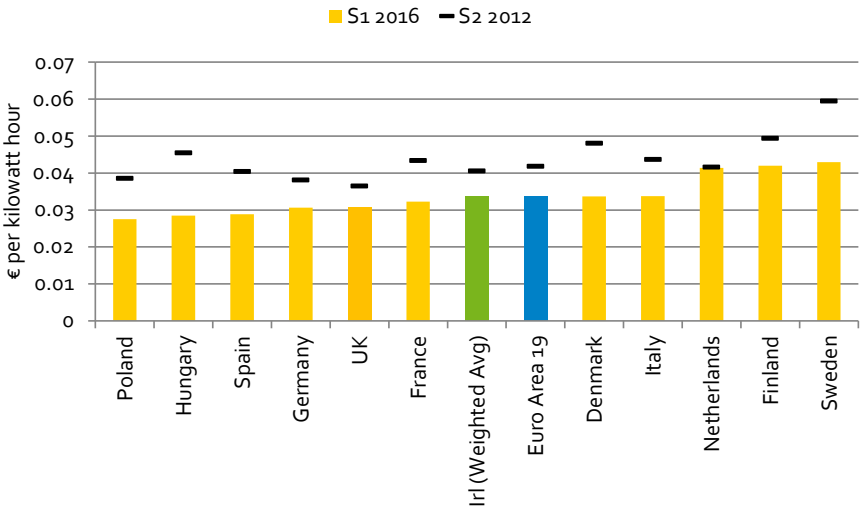


In the first half of 2016, weighted average industrial electricity prices in Ireland were 2.9% higher than the simple Euro area 19 average but 6% cheaper than the UK average price. Nominal prices in S1 2016 here were 4.5% lower than in S2 2012.

Rank: n/a

Source: Eurostat, SEAI

Figure 3.3.4: Industrial gas prices for (excluding VAT)[23], S1 2016



In the first half of 2016 weighted average industrial gas costs in Ireland were in line with the average Euro area 19 price. The weighted average price in Ireland has fallen by 17% since S2 2012 whereas average prices across the Euro area fell by 19.5% over the corresponding period.

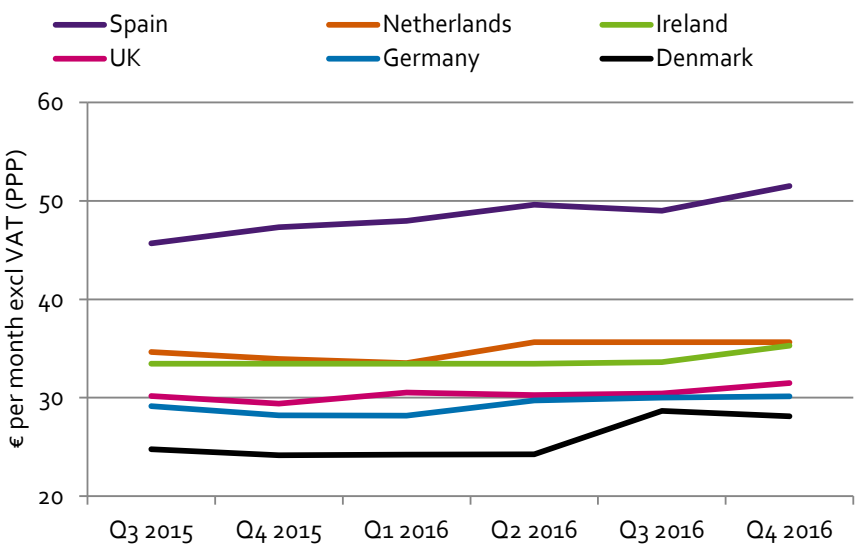
Rank: n/a

Source: Eurostat, SEAI

[22] The Irish figures are weighted average electricity prices whereas the remaining prices are simple arithmetic averages. Weighted average figures for other European countries will be available later in 2017. It should be noted that Ireland's energy supplies, excluding renewables, are often at the end of supply pipelines and this combined with low spatial density make energy more expensive to deliver in Ireland.

[23] The Irish figures are weighted average gas prices whereas the remaining prices are simple arithmetic averages. Weighted average figures for other European countries will be available later in 2017. Again it should be noted that Ireland's energy supplies, excluding renewables, are often at the end of supply pipelines and this combined with low spatial density make energy more expensive to deliver in Ireland.

Figure 3.3.5: Business Fixed Broadband, € per month excluding VAT, Q4 2016

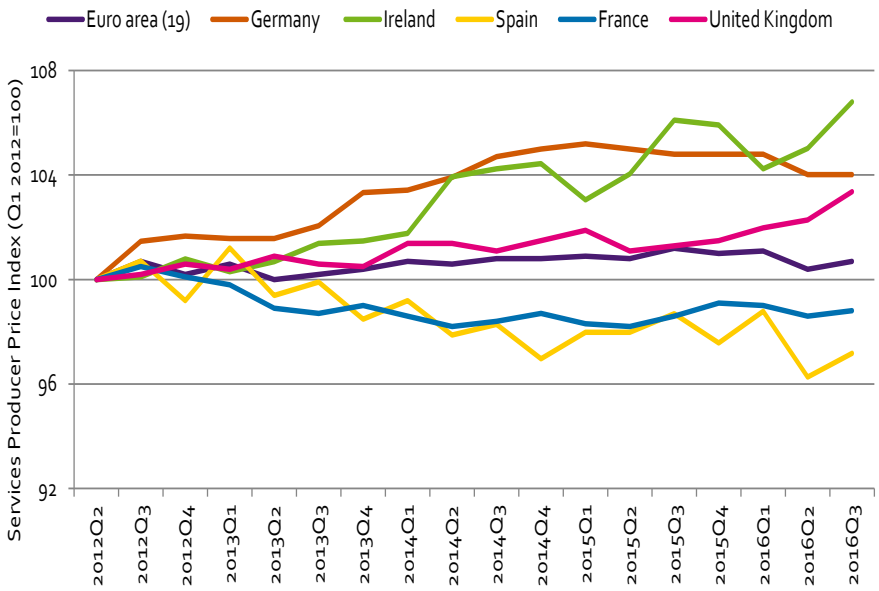


Source: Comreg

Figure 3.3.6 shows that over the previous six quarters Fixed Broadband costs remained stationary and in Q4 2016 for Irish Business were €35.28, significantly less than the most expensive country benchmarked (Spain at €51.52). The least expensive country benchmarked was Denmark (€28.11).

Rank: n/a

Figure 3.3.6: European Services Producer Price Index, Q2 2012-Q3 2016

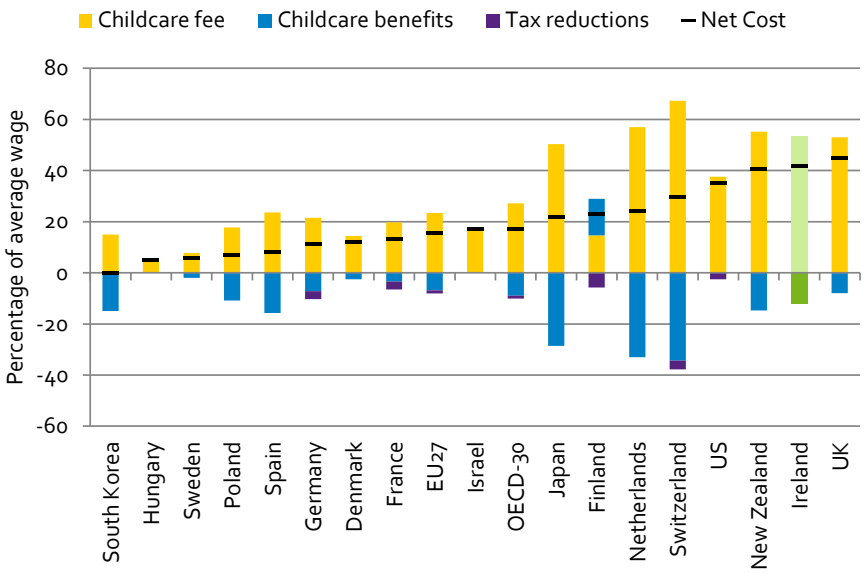


Source: Eurostat

Figure 3.3.6 compares the evolution of SPPI's across the EU[36]. Since 2010, service prices have risen markedly in both Ireland (6.8%) and Germany (4%), and to a lesser extent the UK (3.4%), compared to the Euro area 19 (0.7%). Corresponding prices in France and Spain were lower in Q3 2016 than in comparable quarter in 2010.

Rank: n/a

Figure 3.3.7: Childcare-related costs and benefits, percentage of average wage[24], 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.

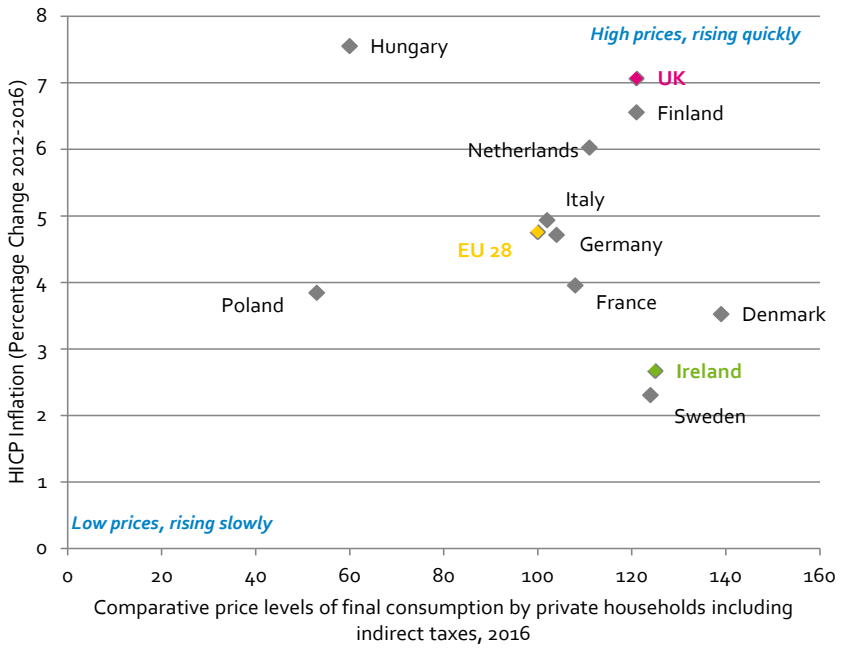
OECD rank: 31st

Source: OECD

[24] 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.

3.4 Prices

Figure 3.4.1: Consumer price levels (2016) and average annual inflation, 2012-2016



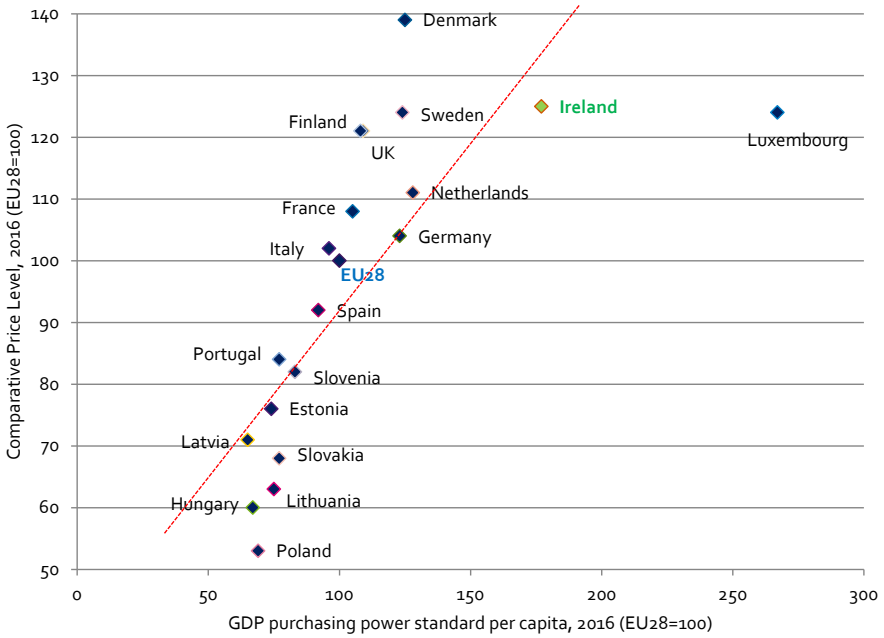
Source: Eurostat

Figure 3.4.1 examines both changes in prices (inflation) and the price level. It shows that Ireland's current price profile is "high cost, rising slowly" with consumer prices 25% above the EU 28. Inflation in Ireland over the past 4 years has been significantly less than the equivalent across the EU28.

Euro area-19 Rank:

HICP: 19th (↓2)

Figure 3.4.2: Price levels (2016) and GDP per capita (2016)



Source: Eurostat

While Irish and Euro area inflation is low, Irish consumer prices remain over 25% above the Euro area average. In 2016, Ireland was the second most expensive location in the EU28 for consumer goods and services and the highest in the Euro area.

Euro area-19 rank:

Price Levels: 19th (↓1)

Figure 3.4.3: Average annual inflation rate by commodity group, Ireland, EU and Euro area, 2011-2016

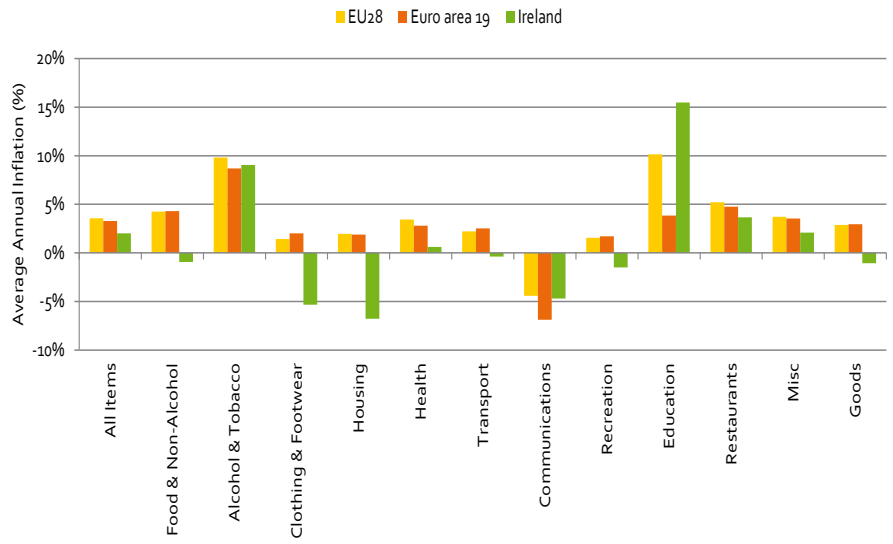


Figure 3.4.3 examines average annual inflation in Ireland and the EU over the period 2011 to 2016 across a range of commodity categories. Overall, Irish HICP inflation was below both the Euro area and EU average. However, for education Irish inflation exceeded the average annual rate.

Rank: n/a

Source: Eurostat

Figure 3.4.4: Irish price levels relative to the European Union 28 (including indirect taxes), 2016[25]

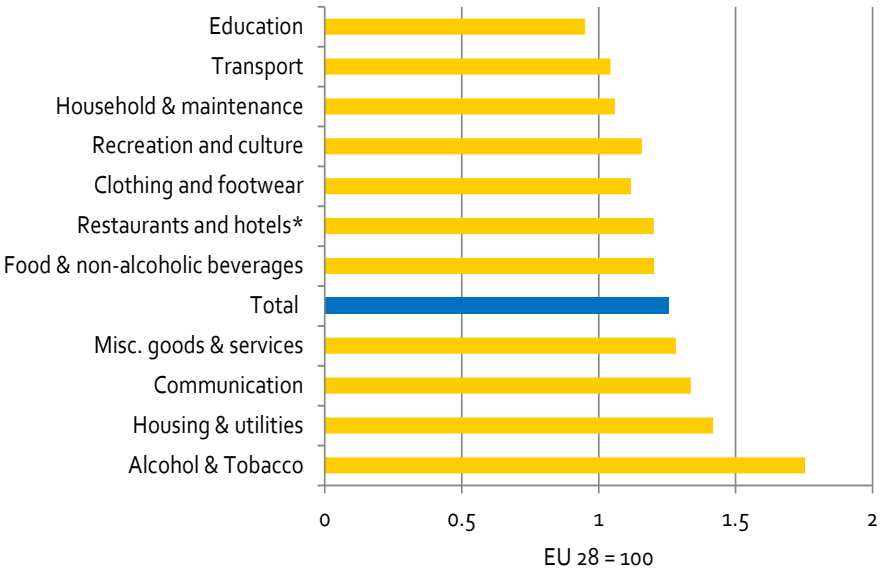
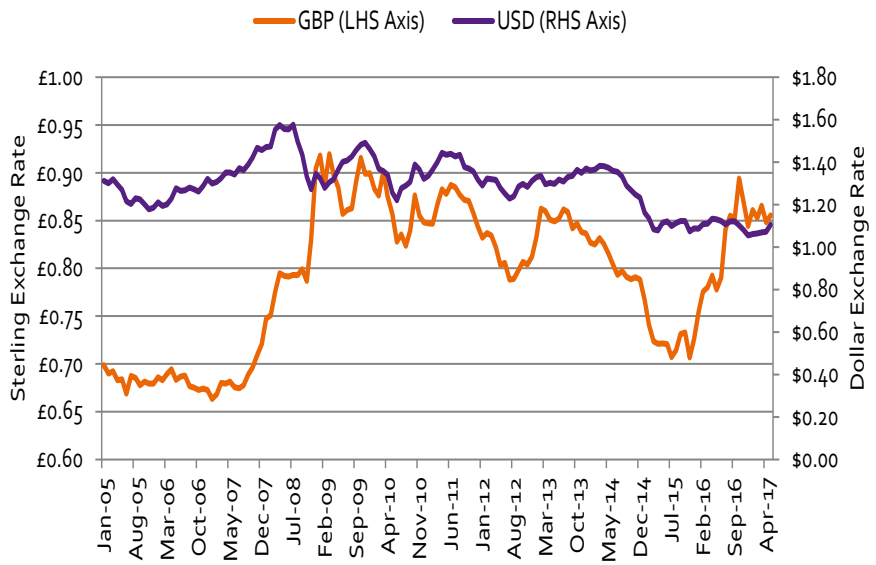


Figure 3.4.4 compares relative prices for a range of goods and services in Ireland with the EU28 average price. Irish prices are above the Euro area average for 11 out of 12 categories of goods and services (education being the exception). The wide differential in alcohol and tobacco prices is primarily a consequence of taxation policy. **Rank**: n/a

Source: Eurostat

[25] *In the period March - May 2017, the total number of trips to Ireland increased by 4.8% to 2,496,400 - an overall increase of 113,500 compared to the same period twelve months earlier. STR Global data shows the Average Daily Rates (ADR) for hotel rooms Ireland increasing at a faster rate than competitor destinations such as the UK, Scotland and Northern Ireland are compared over the years 2014-2017.

Figure 3.4.5: Euro, Dollar and Sterling exchange rates, Jan 2012-April 2017



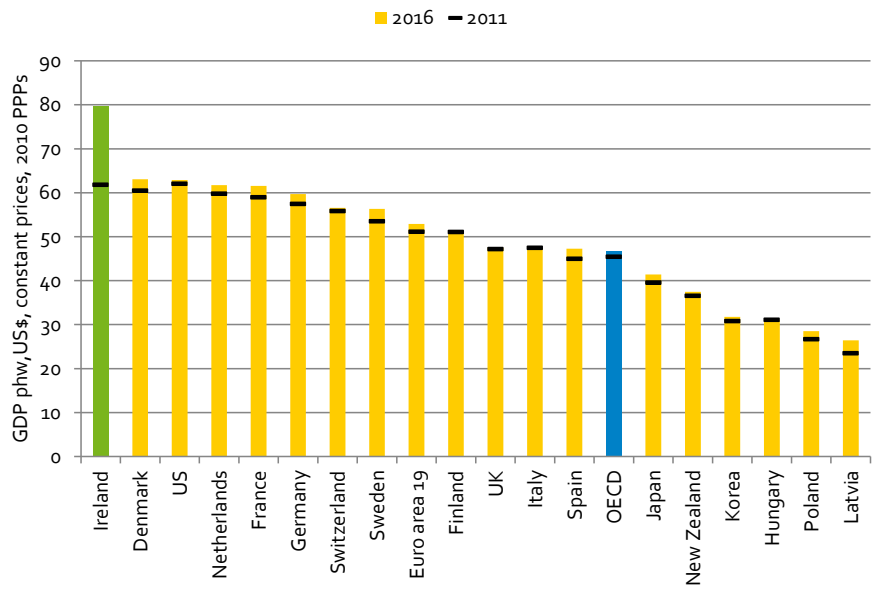
Source: European Central Bank

In 2016, the Euro strengthened and appreciated by 16 per cent against Sterling posing significant challenges for parts of the exporting sector reliant on trade with the UK. The Euro/Sterling exchange rate has oscillated around £0.85 in 2017. Further volatility and depreciation of Sterling represents a major threat to Irish export competitiveness.

Rank: n/a

3.5 Productivity

Figure 3.5.1 GDP per hour worked, (USD, constant prices, 2010 PPPs), 2016



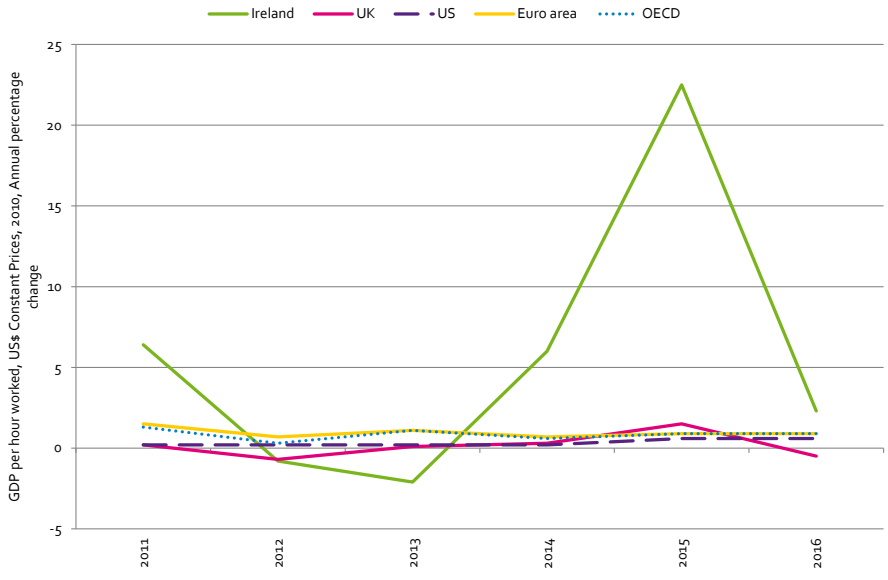
Source: OECD

Ireland had the 3rd highest output per hour worked among OECD member states in 2016. Output per hour was $79.7 in 2016 in GDP terms, an increase of 28% over 2011. However, Ireland's performance is significantly affected by the measurement multinational activities in the national accounts.

OECD rank:

GDP phw 3rd (↑2)

Figure 3.5.2 Growth in GDP per hour worked, (USD, constant prices, 2010 PPPs), 2011- 2016[26]



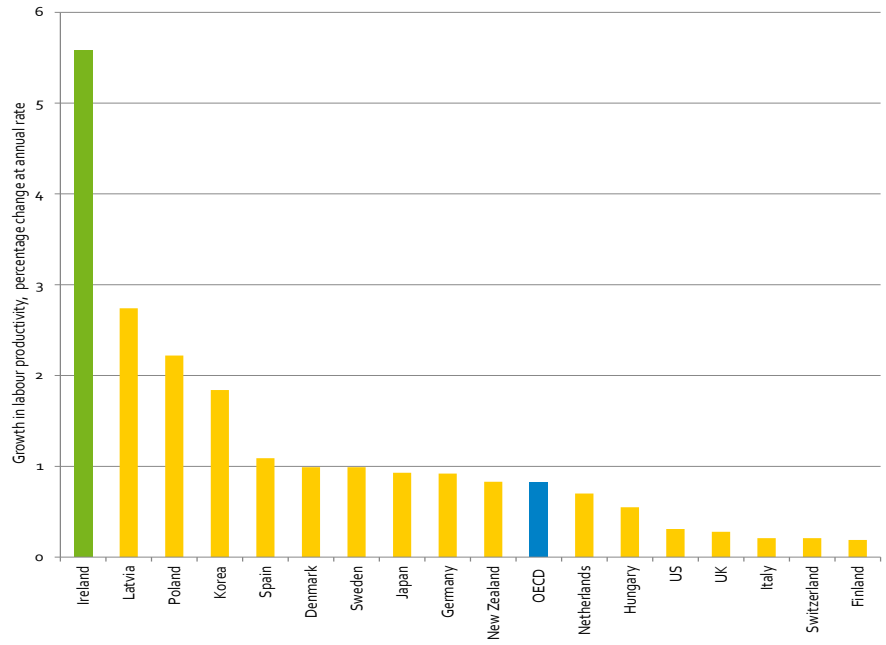
Source: OECD

Irish labour productivity growth has been above that in competitor countries since 2013 and was 2.3% in 2016. However, corporate restructuring, including the relocation of firms with significant IP assets and aircraft leasing , led to noteworthy increases in labour productivity, particularly in 2015 (22.5%).

OECD rank: 1st (↑1)

[26] Data for 2016 for US, Euro area and OECD corresponds to 2015 figure

Figure 3.5.3 Growth in labour productivity (GDP per hour worked) Total economy, 2010-2015



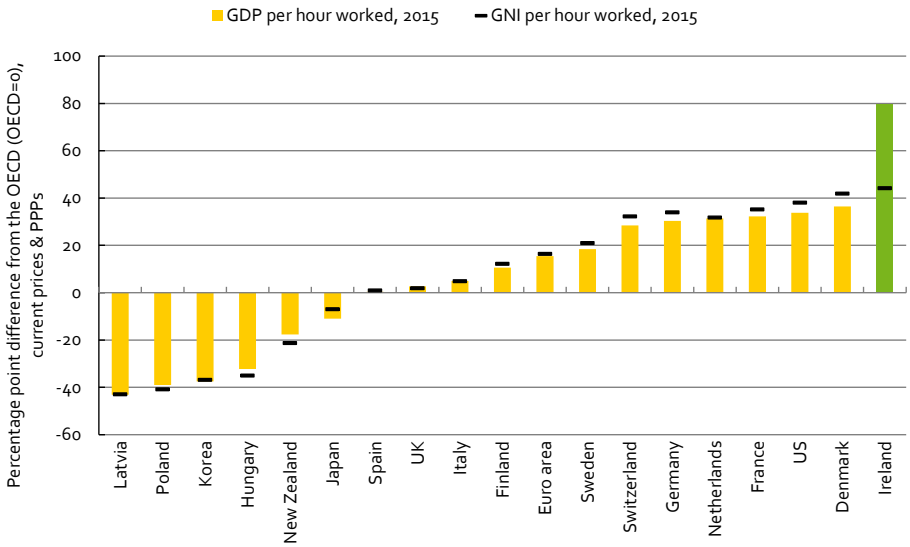
Source: OECD

Across the OECD, labour productivity growth has been subdued in most OECD countries in recent years. Large disparities exist among OECD Member States in terms of growth rates. Taking the period 2010-2015, at an annual rate of growth, Ireland's growth was 5.5% which significantly exceeds the OECD average (0.8%).

OECD rank:

GDP phw growth (1st)

Figure 3.5.4 GDP and GNI[27] per hour worked, Percentage differential to the OECD average, 2015



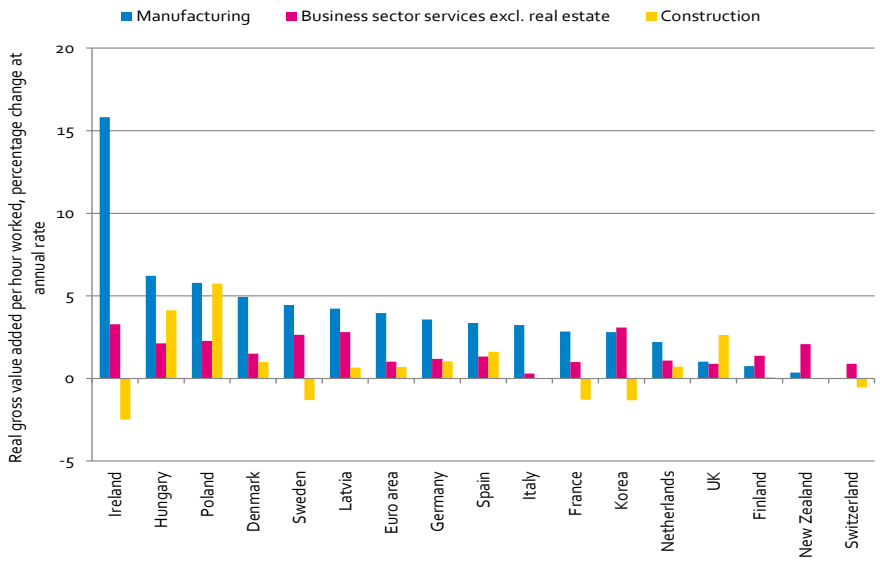
Source: OECD

In Ireland significant differences in productivity are evident when considering output as a measure of GDP or GNI. As a measure of GDP, Ireland's output is approximately 80% above the OECD baseline, as a measure of GNI, the differential falls to 44%. This reflects the presence of multinationals.

Rank: n/a

[27] GNI is GDP plus net receipts from abroad of compensation of employees and property income plus net taxes and subsidies receivable from abroad. Property income from abroad includes interest, dividends and all or part of the retained earnings of foreign enterprises owned fully or in part by residents.

Figure 3.5.5 Labour productivity growth by main economic activity, 2009-2015

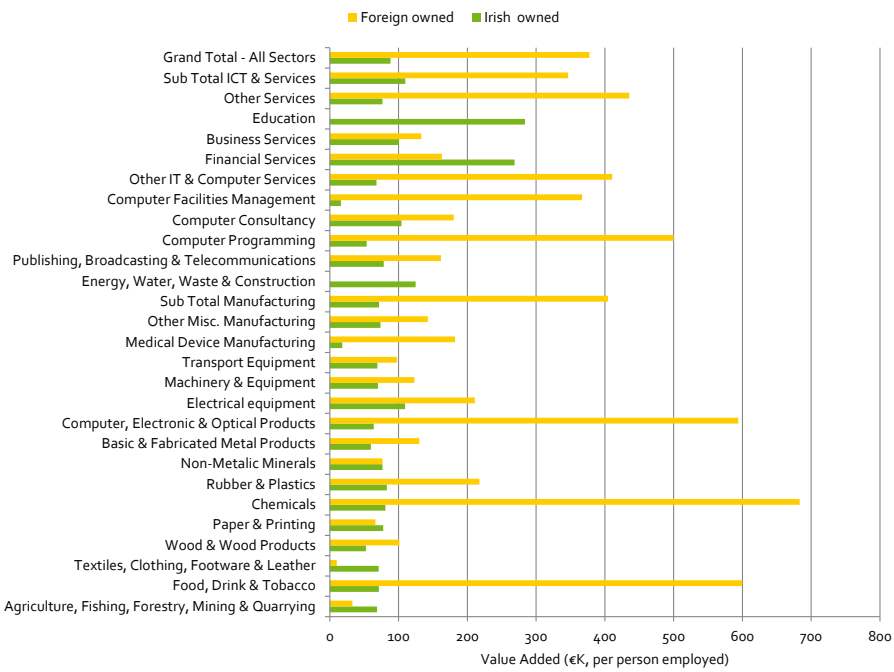


Across the OECD, labour productivity growth in manufacturing has tended to outpace services sector growth. Between 2009 and 2015, Irish growth in manufacturing was 16% compared with 3% in services and -2% in construction. Irish manufacturing productivity data has been significantly influenced by corporate restructuring.

Rank: n/a

Source: OECD

Figure 3.5.6 Labour productivity, Value Added per Employee,€000's, 2015

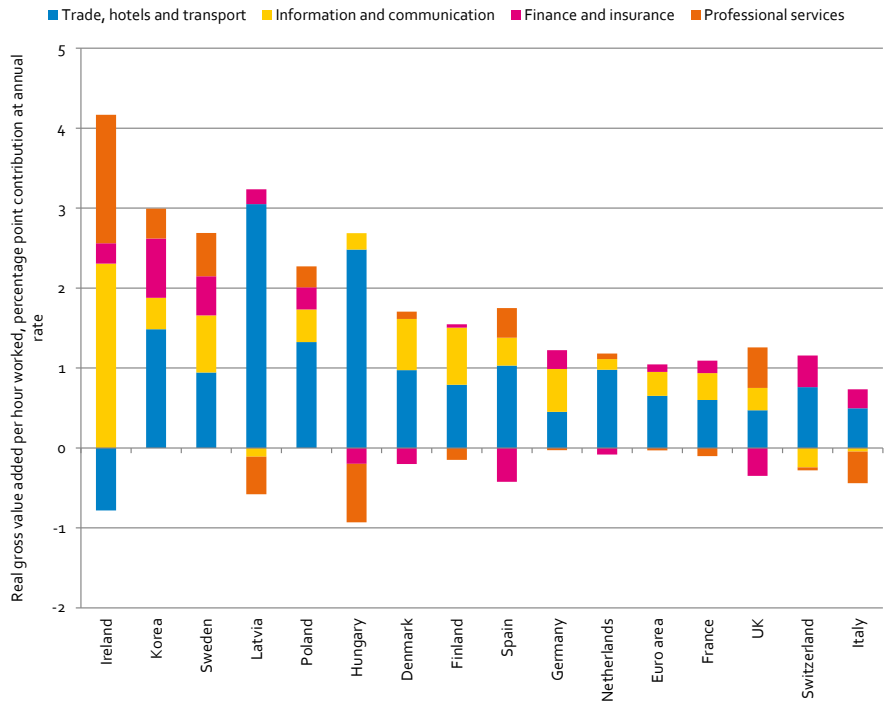


There is considerable heterogeneity between and within sectors in terms of output per person employed. Assessing the relative output of foreign firms relative to Irish firms shows the differential is five times larger in manufacturing than services where output is three times as high per person employed.

Rank: n/a

Source: DJEI

Figure 3.5.7 Contributions to labour productivity growth of business sector services, 2009-2015

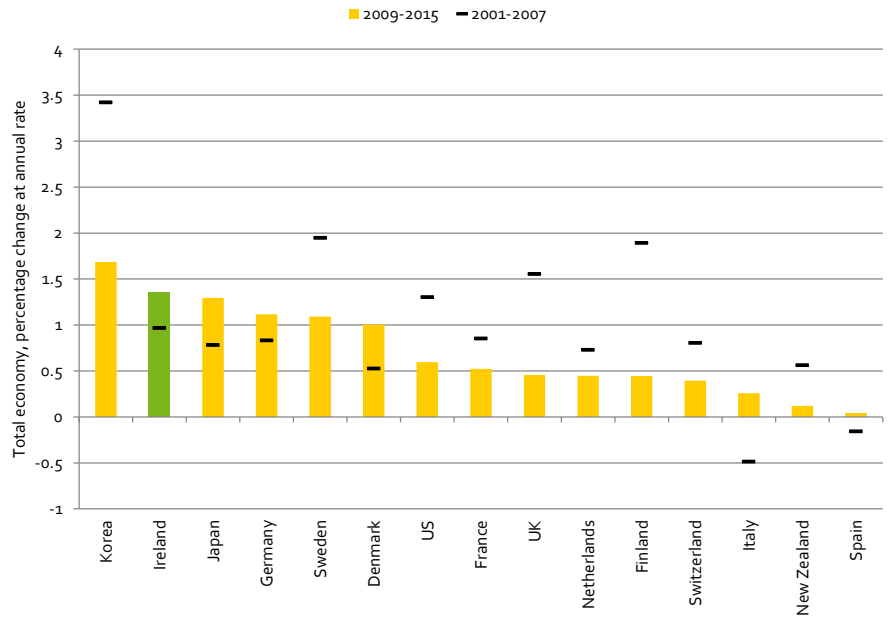


In Ireland, over the period 2009-2015, the relative contribution of ICT to business sector productivity growth (2.3%) is particularly strong. The Professional Services (1.6%) and Financial sectors (0.3%) also made positive contributions to business sector productivity growth. The Trade, Hotels and Transport sector contribution to growth is negative, in contrast to the UK and OECD trends

Rank: n/a

Source: OECD

Figure 3.5.8 Multifactor productivity growth, total economy, percentage change at annual rate, 2001-2014[28]



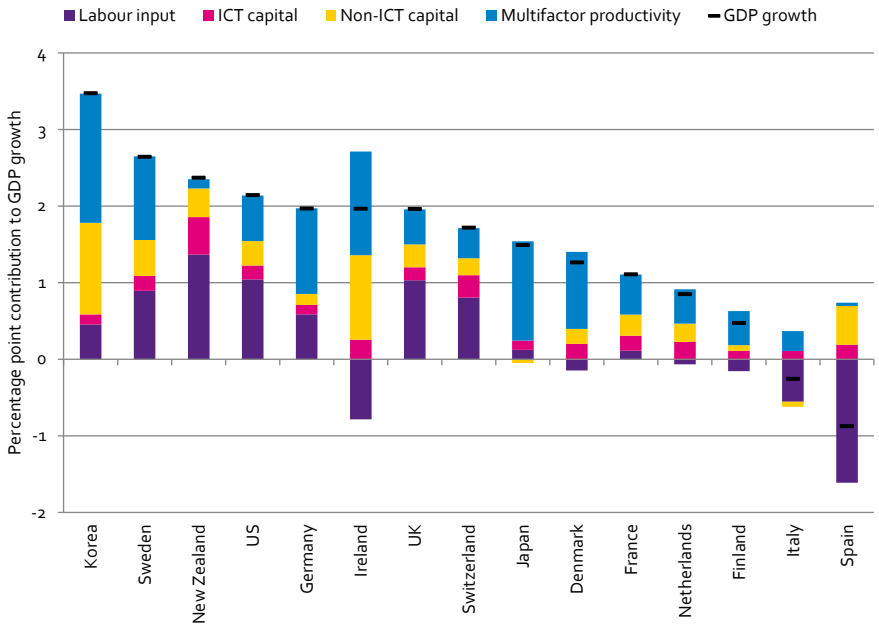
Multifactor productivity (MFP) reflects the overall efficiency with which labour and capital inputs are used together in the production process. MFP growth decelerated in nearly all countries after the crisis compared with the period 2001-2007 Irish MFP grew by 0.9% in 2001-2007 and growth increased to 1.3% in the years 2009-2014.

OECD rank: 2nd (↑5)

Source: OECD

[28] Data for Ireland and Spain correspond to the period 2009-2014.

Figure 3.5.9 Average percentage point contribution of productivity to GDP growth, 2009-2015[29]



Source: OECD

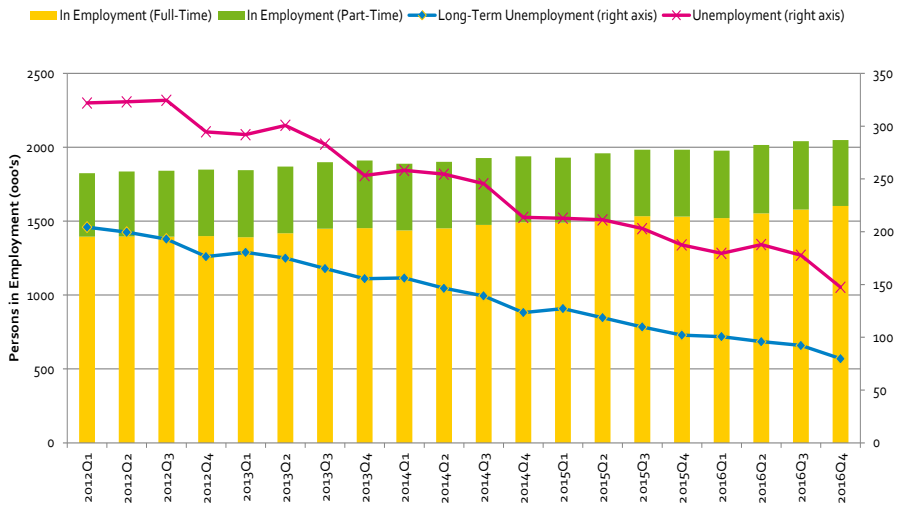
GDP growth can be decomposed into a labour input component, a capital input component and MFP growth. While productivity growth in Ireland (capital, non-capital and MFP) contributes positively to overall growth in recent years, the effect of this is offset by the negative contribution of labour as a result of the recession.

Rank: n/a

[29] Data for Ireland and Spain correspond to the period 2009-2014.

3.6 Employment

Figure 3.6.1: Employment, unemployment & long term unemployment (000's), Q4 2007-Q4 2016

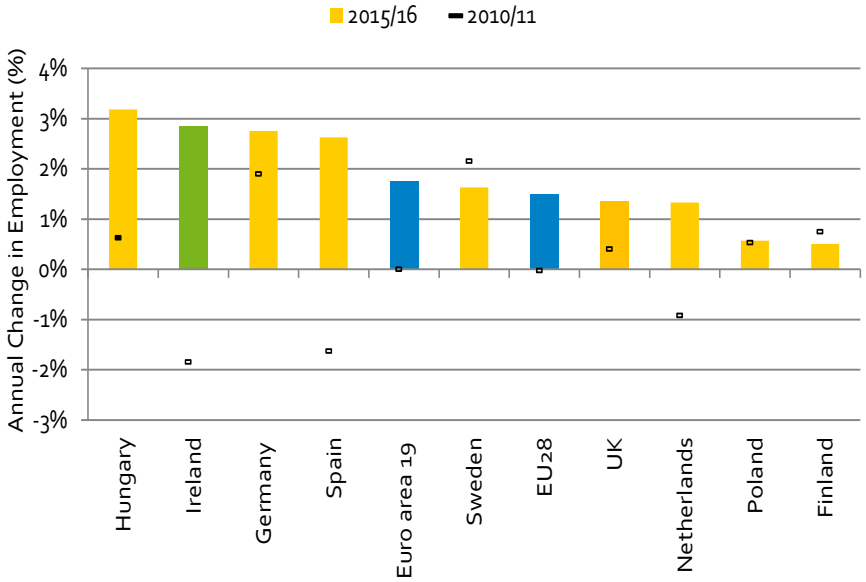


Source: Central Statistics Office

Figure 3.6.1 shows the continued improvement in the labour market. While employment has not yet returned to peak pre-recession levels, over 2 million were employed in Q4 2016, an increase of 3.3% over Q4 2015. Headline and long term unemployment are on a steady downward trajectory.

Rank: n/a

Figure 3.6.2: Employment Growth Rate, 2015



Source: Eurostat

As a consequence of the recession, employment growth collapsed in Ireland in 2009-2011. The job rich nature of the Irish economic recovery in employment terms is evident in Figure 3.6.2. 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)

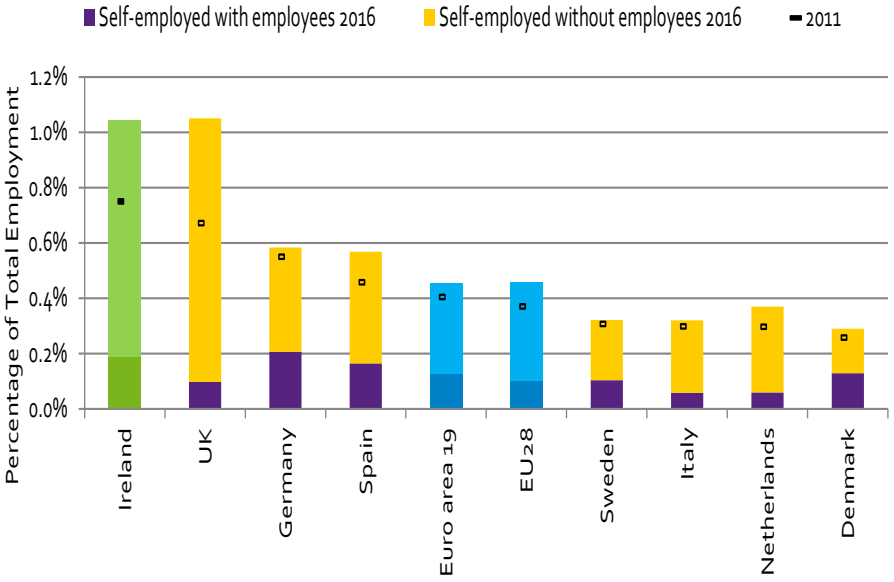
Figure 3.6.3: Change in employment in Ireland by sector and gender, Q4 2010-Q4 2016

Source: CSO

The majority of sectors in Ireland have experienced growth in employment between 2011 and 2016 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 accommodation and food and agricultural employment.

Rank: n/a

Figure 3.6.4: Self-employed (proportion as a percentage of total employment), 2016



Source: Eurostat

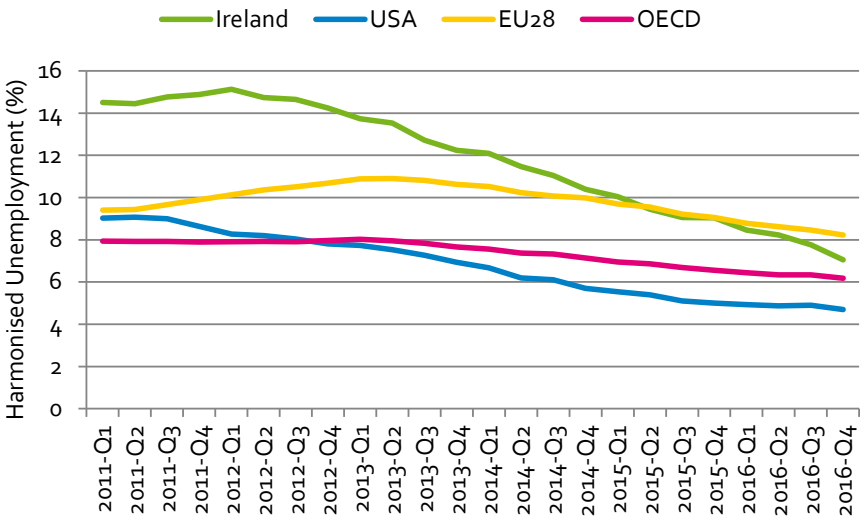
Figure 3.6.4 examines the number of self-employed persons and those self-employed who also have employees (a proxy for entrepreneurship). The proportion of self-employed in Ireland has risen since 2011 (from 0.75% to 0.85% in 2016), remains above the Euro area-19 average (0.33%).

EU 28 rank:

With Employees 4th

Without Employees 5th

Figure 3.6.5: Unemployment rate (seasonally adjusted, standardised rate)[30], Q1 2006-Q4 2016

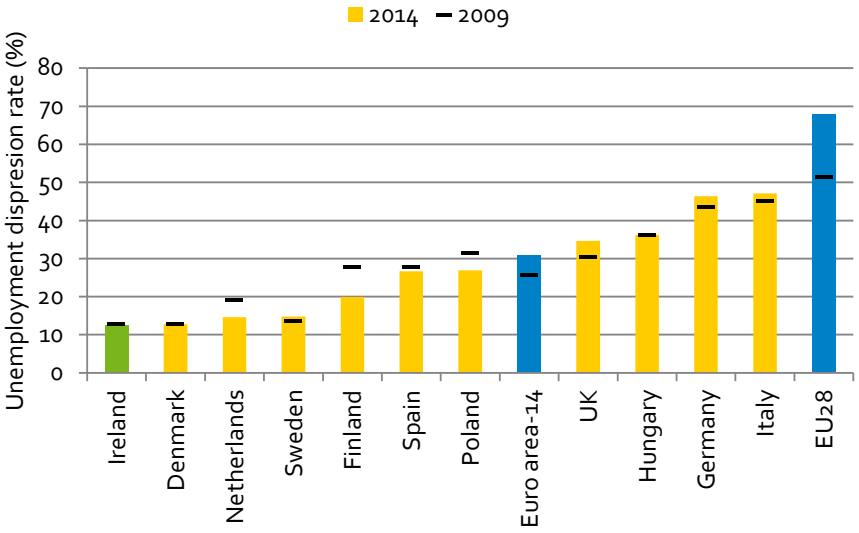


This indicator measures the number of unemployed people as a percentage of the labour force. The rapid deterioration in Ireland's labour market upon the onset of recession and its subsequent rapid improvement is evident. The US labour market has proven more resilient than its European counterpart.

Rank: n/a

Source: OECD

Figure 3.6.6: Dispersion of regional unemployment rates by NUTS 3 regions (%)



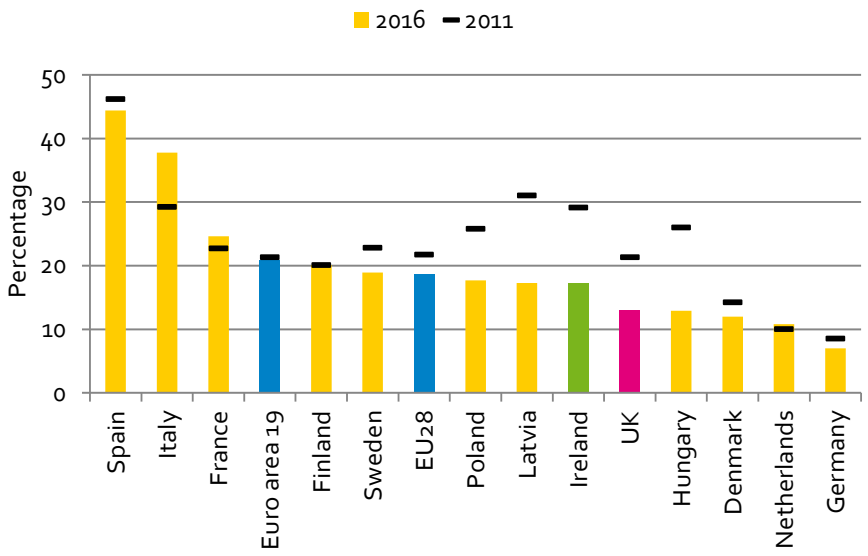
The lower the dispersion rate the greater the level of cohesion between regions. The differential in unemployment rates across Ireland's 8 regions (12.5%) is the lowest in the Euro area. While this is virtually unchanged compared with 2009, it did increase for a time in 2010 to 2013.

Euro area-14 rank: 1st (↑2)

Source: Eurostat

[30] 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 3.6.7: Youth unemployment rate, 2016



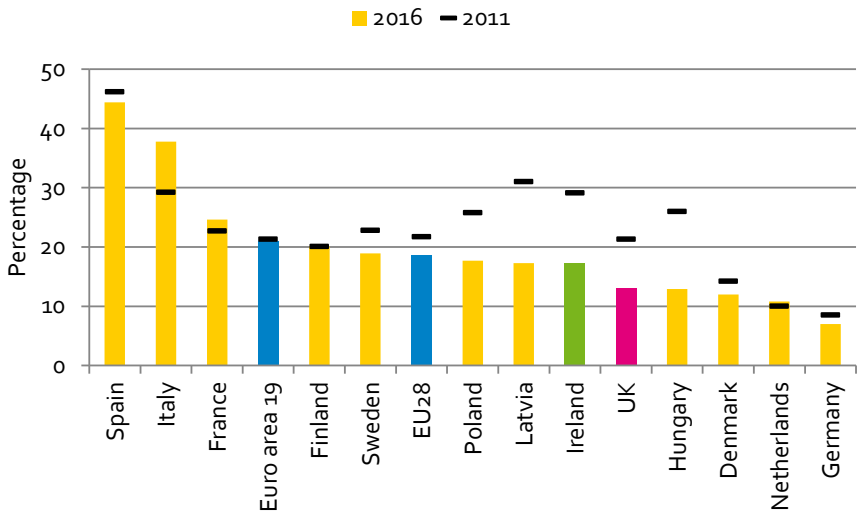
Source: Eurostat

Unemployment amongst those aged 15-24 years in Ireland (17.2%) is now below the Euro area average (20.9%). Ireland's high proportion of youth neither in employment, education or training and long term youth unemployment remains a serious challenge

EU 28 rank:

Youth: 12th (↓7)

Figure 3.6.8: Neither in Employment, Education or Training (NEET), 2016

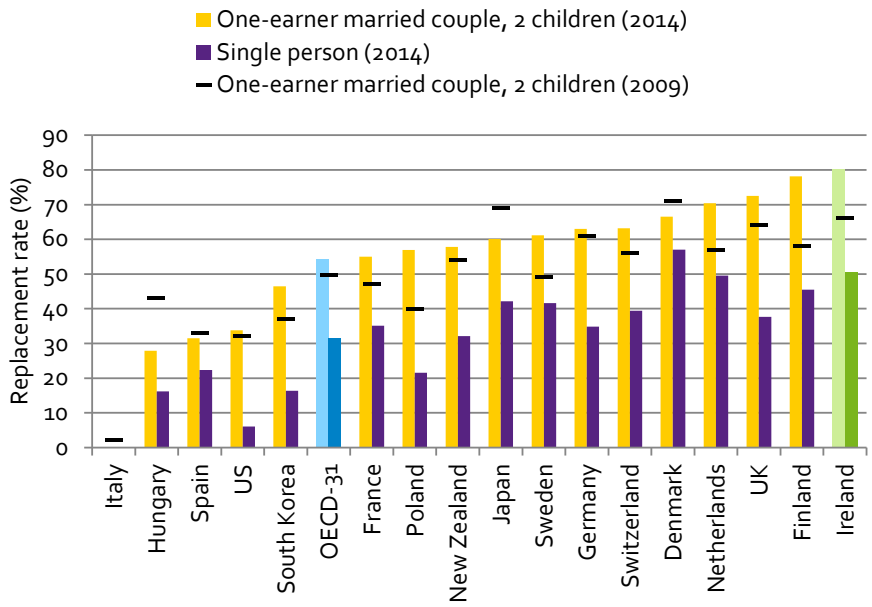


Source: Eurostat

Ireland also has a high proportion of youth neither in employment, education or training (NEET). Out of the total age cohort 15-24, 7.4% were classified as NEET in 2016, compared with the EU28 and Euro area 19 averages of 3.8% and 3.7% respectively. The comparable rate in 2016 in the UK was 3.3%

EU28 Rank: 26th (↓1)

Figure 3.6.9: Net replacement rates for long term unemployed[31], 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 rank:

Married: 31st (↓3)

Single: 30th (-)

Source: OECD

Figure 3.6.10: Job Vacancy Rate, Q4 2016

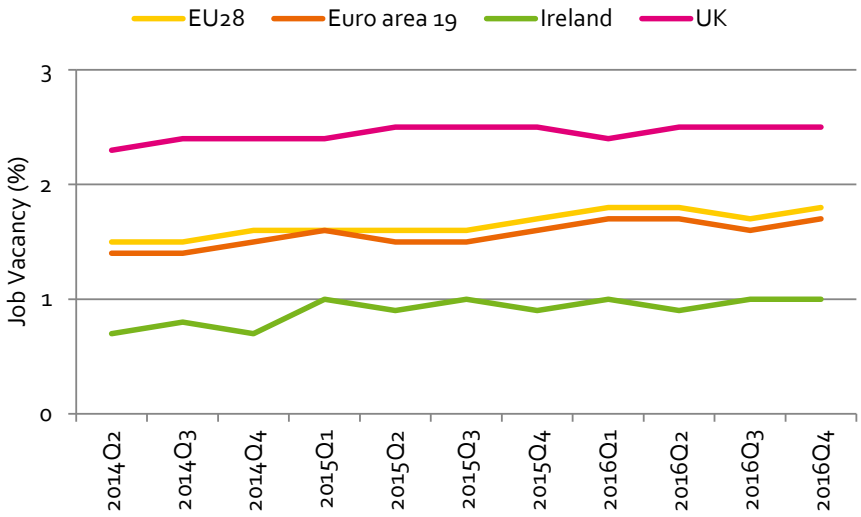


Figure 3.3.10 shows that at 1 per cent, the Irish job vacancy rate in Q4 2016 was half the equivalent EU28 rate. Over the two years, Irish job vacancy levels have been stationary at around 1 per cent. The comparable level in the UK has oscillated around 2.5% over the corresponding period.

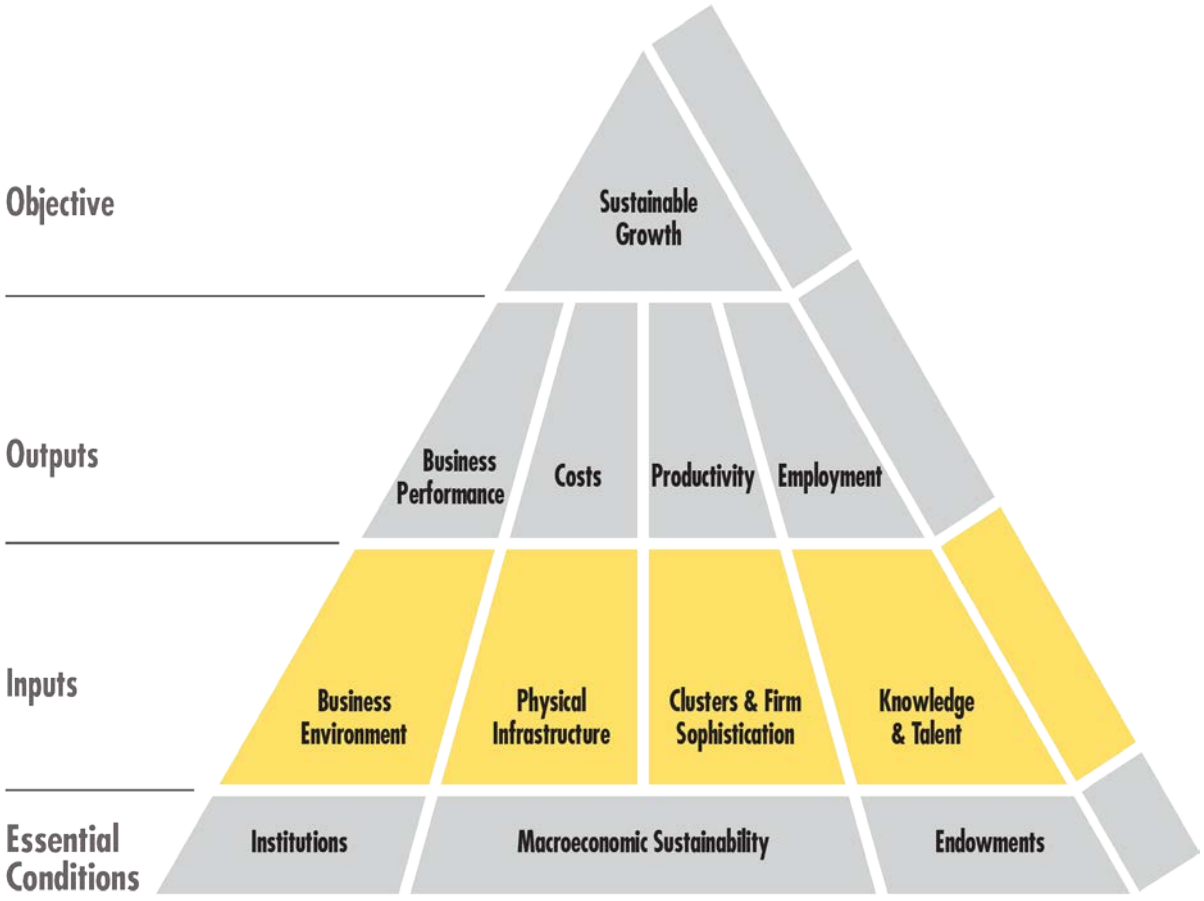
EU24 rank: 8th

Source: Eurostat

31 OECD-31 excludes Chile, Mexico and Turkey.

Chapter 4

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 cost and availability of credit and the taxation system. 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. Irish interest rates on business loans have been consistently higher than equivalent Euro area rates. Figure 4.1.8 shows that in April 2017, the interest rate in Ireland on loans of up to €1 million was more than 74 per cent higher than the Euro area average rate for new business; the rate on loans of up to €1 million was more than 79 per cent more expensive in Ireland.**
    - In Ireland and across the Euro area the volume of credit supplied to non-financial corporation's (NFC's) 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. Using Q1 2012 as the base, the outstanding amount of credit lent to various SME sectors analysed contracted considerably. The total loans outstanding to SMEs in the Construction sector in Q4 2016 were 30 per cent of what they were some 5 years previously (Figure 4.1.3).
    - 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 shows 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 4.1.4 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 4.1.7 shows Non-performing loans (this includes all lending, not just business lending) at the end of 2016 made up 9 per cent of gross loans, down from 16.1 per cent in 2011, in Ireland and continue to hinder recovery in the banking sector. This compares to an OECD High Income average of 3.5 per cent.
    - 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 €5.3bn (40%) in the past five years. Between 2011 and 2016 Capital Gains Tax and corporation tax receipts increased by 101 per cent and 124 per cent respectively (Figure 4.2.1). 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 4.2.2 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. 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 including social security contributions is lower than the OECD average. Figure 4.2.6 shows marginal rates are particularly high for individuals in Ireland earning the average wage or above. Social security contributions in Ireland are lower than is the case in other OECD countries. The Irish Standard VAT rate (23%) is higher than the OECD average (19.2%), however, there are a number of lower VAT rates and exemptions for certain activities. In 2014 Ireland had the third highest headline Capital Gains Tax rate in the OCED, and fell 5 places since 2011 (Figure 4.2.11).

- **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).**
  - Over the medium term, capital investment as a percentage of GDP is projected to increase but will remain low relative to pre-crisis levels. Developing our infrastructure base, while complying with the EU's fiscal rules, is a fundamental challenge to enhancing competitiveness relative to countries such as the UK.
  - 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. Figure 3.1.1 shows public investment (2.4%) in Ireland has increased since 2010 but remains below the Euro area average (2.7%). Figure 4.3.2 shows that as a percentage of GDP, Ireland's inland infrastructure expenditure declined from 0.8 per cent in 2009 to 0.3 per cent in 2014 and was well below the OECD average (0.8%). 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 2016 and remains below the OECD average (Figure 4.3.3).
  - In terms of capital stock, net capital stock grew by 0.6 per cent per annum in the period 2005 to 2015. 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.
- **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. 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. Despite Ireland's small size it has a large number of cities/towns that have proven ability to attract FDI and develop new enterprises.**
  - The European Commission's Cluster Mapping tool indicates that Ireland has a relatively high degree of specialisation and cluster presence in biopharma, digital, medical devices and business services sectors. Figure 4.4.1 uses the Commission's Regional Ecosystem Scoreboard to show the regions ranking in the top 10 per cent of all of the EU28 regions are found in the UK (median score (0.546), NI (0.521). In Ireland, the South East (0.511) scores ahead of the BMW region (0.496). Figure 4.4.2 presents WEF data provided on the basis of personal assessment of managers in surveyed companies

about cluster development in their country. In Ireland the weighted average score in 2015/16 was 4.9. This was above the Euro area-19 average score of 4.3.

- Competitive economies require sufficient and effective investment in knowledge based capital, especially by firms; the presence of high-quality scientific research institutions; extensive collaboration in research between universities and industry; and sophisticated business practices and effective clusters. Results from the 2012–2014 Community Innovation Survey (published by the CSO as Innovation in Irish Enterprises) show that total spending on innovation activities in Industry and Selected Services sectors was almost €3.8bn in 2014, a 4 per cent increase on the 2012 spend of €3.65bn.
- The EU Innovation Scoreboard classifies Ireland as behind the EU average in the finance and firm investments dimensions of innovation. European Commission/Eurostat data shows Business R&D expenditures as percentage of GDP (BERD) has been relatively flat in Ireland over the period 2010-2015. BERD is reported at 1.1 per cent for 2015, below the EU average of 1.3 per cent (Figure 4.4.5). CSO data shows foreign owned companies in Ireland account for 61 per cent of business expenditure on R&D.
- Figure 4.4.7 shows firms in Ireland were more likely to be innovative (61%) compared to the EU average (49%) with relative performance strong across all firm sizes. However, small firms are less likely to be innovation active than larger firms. Figure 4.4.8 shows 36 per cent of SMEs in Ireland are reported as having introduced a product or process innovation in 2015. This is above the EU average (31%), however Ireland's performance is down on an annual basis (41%) and since 2010 (43%).
- 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. Creating, exploiting and commercialising new technologies are vital for competitiveness. The proportion of sales of new to market and new to firm innovations as a percentage of turnover has fallen in recent years and at 9.3 per cent is below the EU average of 12.4 per cent (Figure 4.4.10). Technological innovation, as measured by the introduction of new products (goods or services) and processes, is a key ingredient to growth. In Ireland 52 per cent of product exports are classified as medium/high tech compared with an EU average of 55 per cent (Figure 4.4.11).
- Innovative businesses need affordable fast broadband coverage and this is a challenge throughout the EU. The percentage of Irish businesses with a fixed fast broadband connection grew from 26 per cent to 42 per cent between 2014 and 2016. The compares favourably with the OECD average of 35 per cent (Figure 4.4.12). 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, concerns persist around the issues of quality (speed) and the regional availability of high speed services fast broadband which is still more concentrated in areas of high population density and its extension to other areas, particularly rural areas, is needed.

- **Knowledge and Talent: The availability of knowledge, 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.**
  - The EU Innovation Scoreboard provides a comparative assessment of the research and innovation performance of EU Member States. The 2016 Scoreboard shows that year on year Ireland moved up two places from 8th to 6th in the overall ranking. Ireland is classed as an innovation follower with an above average performance. Performance across the framework of the Innovation Scoreboard relative to the best performing countries is mixed (Figure 4.4.4). Ireland is strong in the innovators

and economic effects dimensions. Ireland is behind the EU average in the finance, firm investments and intellectual assets dimensions. Figure 4.4.5 shows there is considerable heterogeneity in R&D expenditure as percentage of GDP in the EU. In 2015, Irish expenditure on R&D accounted for 1.51 per cent of GDP, below the EU average (2.02%).

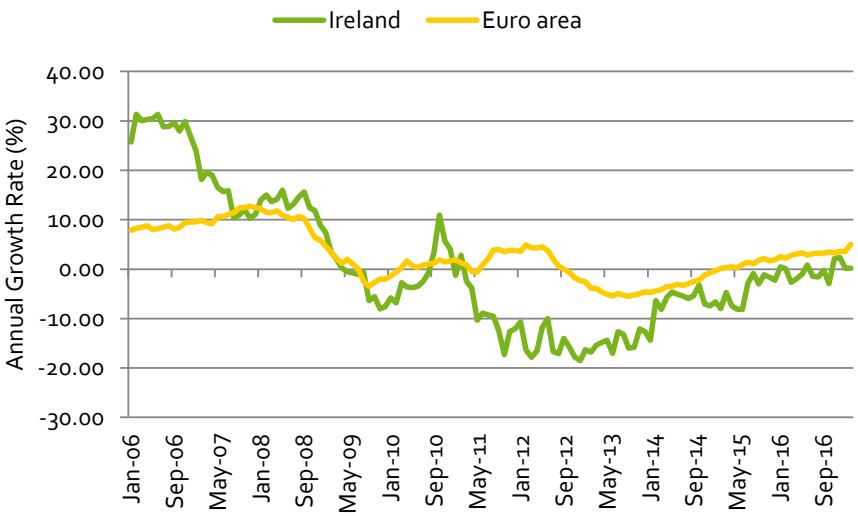
- Ireland ranks 8th in the EU's Digital Economy and Society Index 2017. Ireland ranks very high when it comes to the integration of digital technologies by businesses, mostly because many SMEs embraced e-commerce. Internet users increasingly take advantage of high-speed infrastructures and also make good use of online public services. Ireland's main challenge is to equip more than half of the population with at least basic digital skills (Figures 4.5.12 & 4.5.13).
- Set in an international context, the IMD's 2016 Competitiveness Yearbook 2017 ranks Ireland 1st for attracting and retaining talent. Ireland's other strengths are in relation to the availability of skilled labour (5th), financial skills (6th) and the ability to attract foreign talent (10th). Relative weaknesses include the pupil-teacher ratio in secondary education (43rd) and language skills (44th).
- GDP per capita expenditure 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. However, Ireland's overall ranking remains slightly below the OECD average and the gap is most pronounced at tertiary level. Figure 4.5.2 shows Ireland performs better in terms of spend when measured per student spending more at 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.
- At all levels, average educational attainment in Ireland has improved in recent years (Figure 4.5.1). 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. 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. (Figure 4.5.6). This reflects higher retention rates in secondary education. Some 80 per cent of 25-64 year olds had attained at least upper secondary education in Ireland in 2015 compared with 91 per cent of the 25-34 year old cohort. The most recent OECD data shows Irish PISA scores in 2015 for maths, reading and science have improved since 2012. On average, Irish students score above the OECD in all 3 categories (Figure 4.5.7).
- As a percentage of total undergraduates, Irish higher education and further education institutes provide more Science & maths and ICT graduates that the EU28 average (Figure 4.5.10). However, the number of engineering graduates Ireland produced is significantly below the EU28 average.
- Eurostat data shows that at 1 per cent, the Irish job vacancy rate in Q4 2016 was half the EU28 rate. (Figure 3.3.10) On a sectoral level there is evidence of higher than average job vacancy rates in a number of sectors[32]. 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 .

[32] In Q1 2017 there were high vacancy rates recorded in the Professional, Scientific & Technical (2.7%), Financial, Insurance and Real Estate (2.1%) and ICT (1.6%) sectors according to the CSO.

- Participation in life-long learning has fallen since 2011 and stood at 11.9 per cent in 2016. The percentage of people in Ireland aged 25-64 in receipt of education (both formal and non-formal) ranks below the Euro area 19 (17.2%) and EU-28 (16.6%) averages (Figure 4.5.11). Of continuing concern is the high proportion of the labour force with relatively low levels of formal education.

4.1 Finance for Business

Figure 4.1.1 Annual growth rate in outstanding credit, 2017

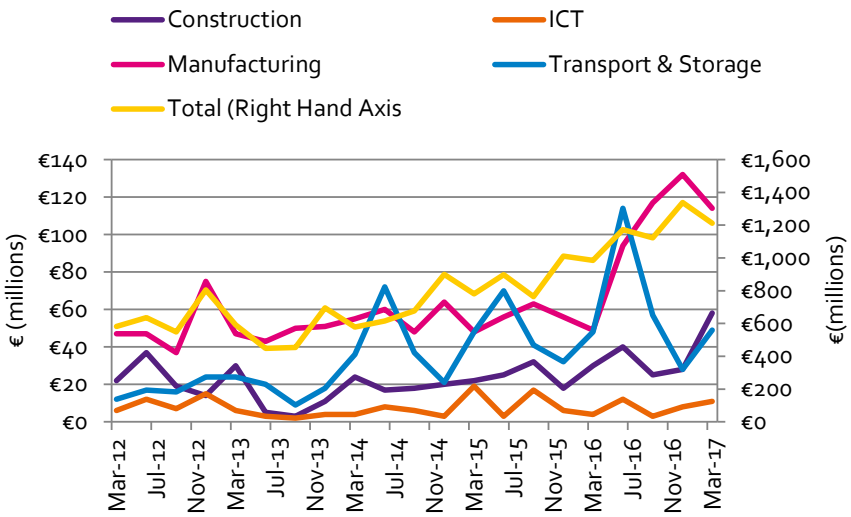


Source: ECB

Growth rates in the stock of credit in Ireland have been negative since December 2010, 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 4.1.2 Gross new lending to SMEs by sector, 2017

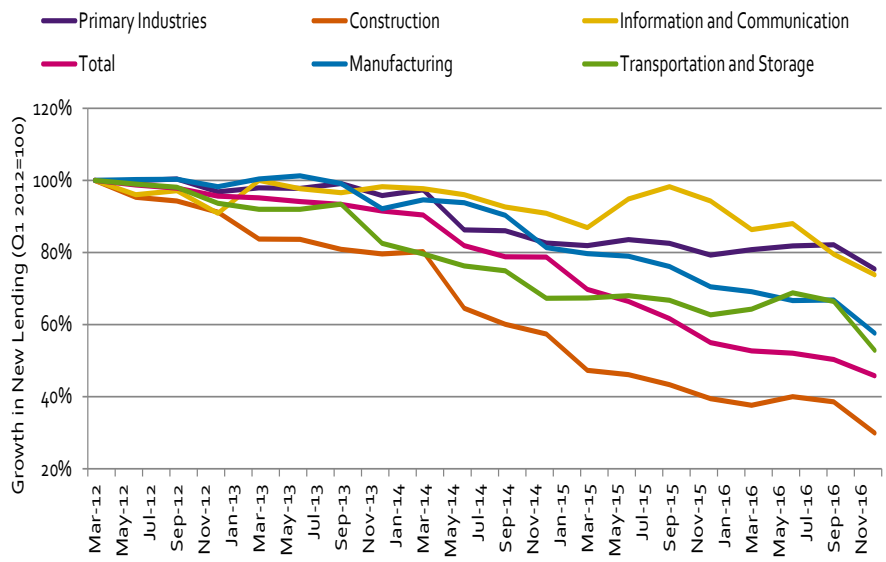


Source: Central Bank of Ireland

Figure 4.1.2 presents new lending trends for various sectors. The 12 months to March 2017 have seen large increases in new Manufacturing and Construction lending. Annualised lending in Q3 2016 totalled €3bn. New lending was 28% higher in Q3 2016 than two years previously.

Rank: n/a

4.1.3 Outstanding Credit lending to SMEs by sector, 2012-2017



Using Q1 2012 as the base, the outstanding amount of credit lent to the SME sector analysed shrunk considerably. The total loans outstanding to SMEs in the Construction sector in Q4 2016 were 30% of what they were some 5 years previously. Total credit afforded to Primary Industries fell by 25% over the corresponding period.

Rank: n/a

Source: Central Bank of Ireland

Figure 4.1.4 Venture capital investment as a % of GDP[74], 2015

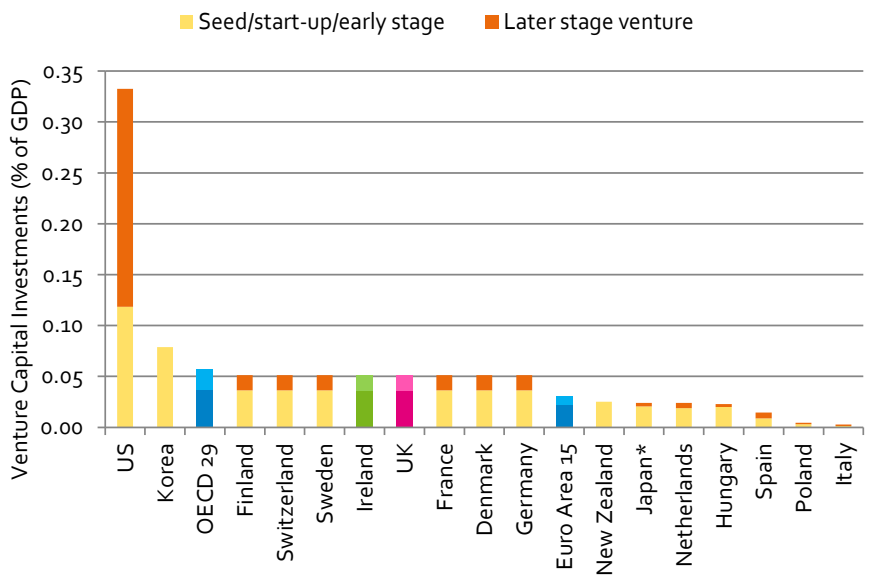


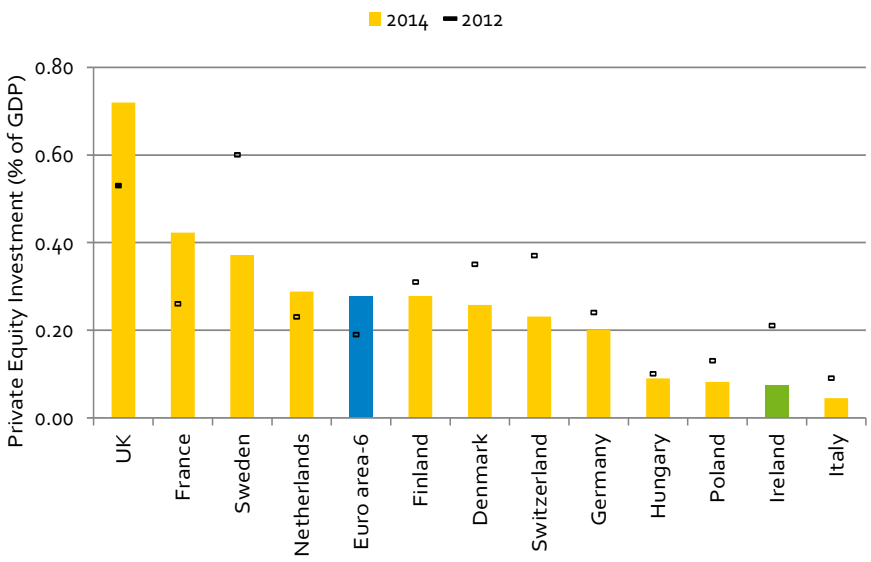
Figure 4.1.4 shows the intensity of total Venture Capital (VC) investment as a percentage of GDP in Ireland is marginally below the OECD average. The greater portion of VC in Ireland is attributed to early stage investments.

OECD rank:

GDP: 7th

Source: OECD

Figure 4.1.5 Private equity[33] investment (as a % of GDP), 2015



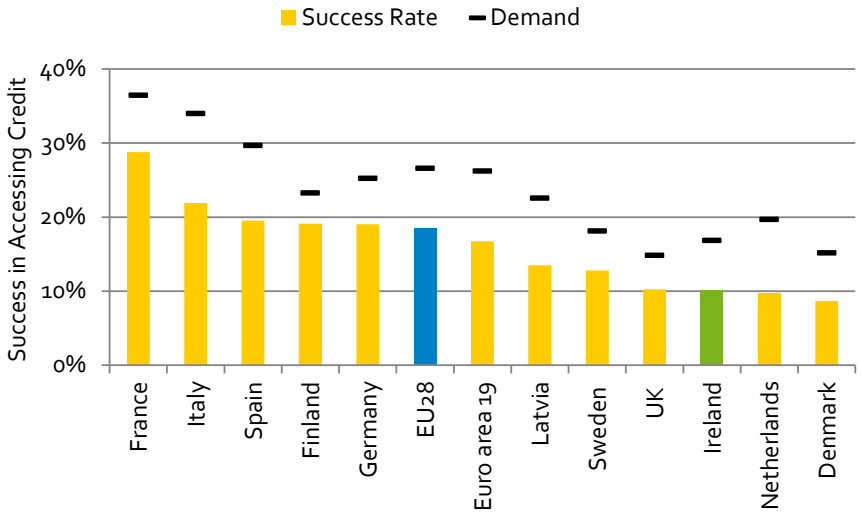
Source: European Private Equity & Venture Capital Association

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 countries):

GDP: 11th (↓2)

Figure 4.1.6 Demand and Success in accessing credit[73], 2016



Source: ECB SAFE

Figure 4.1.6 shows in 2016, some 17% of Irish firms surveyed applied for bank credit. Of these applicants 10% were fully successful in their application. The corresponding Euro area average is 19% showing tighter lending conditions for SMEs in Ireland.

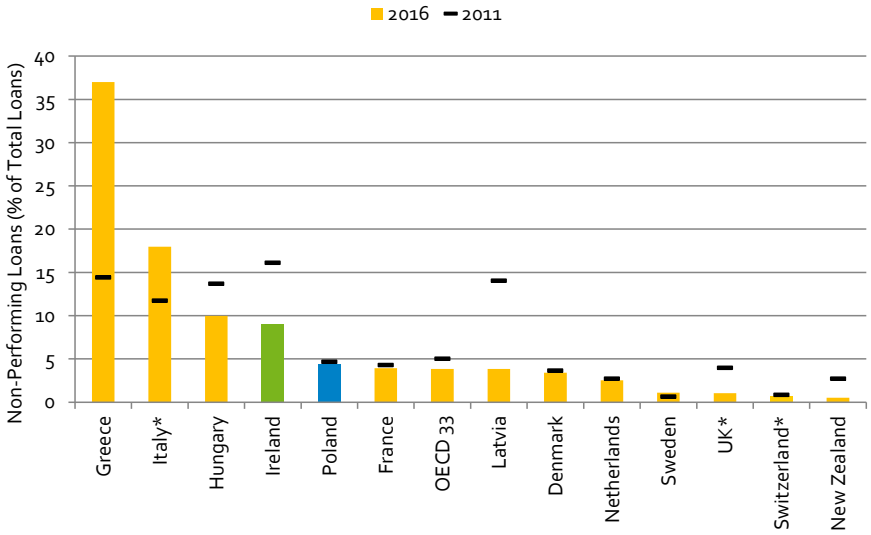
Euro area-19 rank:

Demand (19th)

Success (15th)

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

Figure 4.1.7: Ratio of non-performing loans to total gross loans, 2015[34]



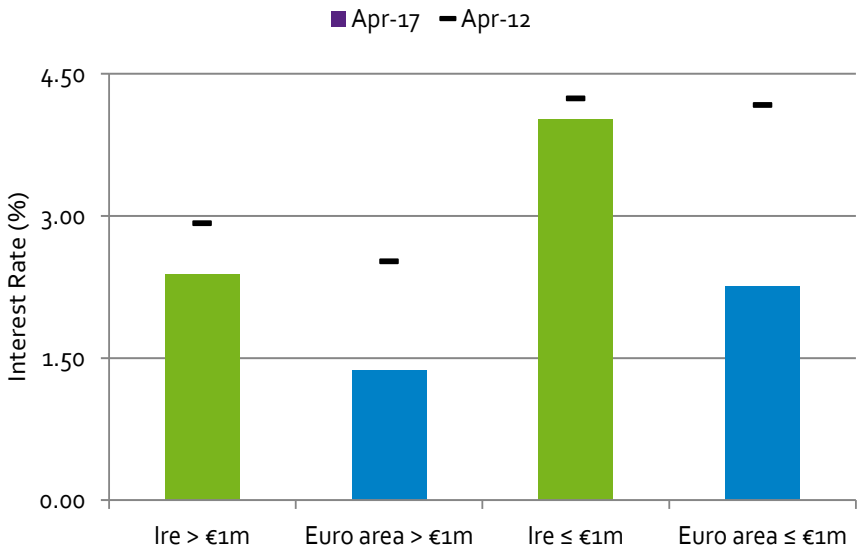
Source: World Bank

Non-performing loans (this includes all lending, not just business lending) at the end of 2016 made up 9% of gross loans in Ireland, down from over 16% five years previously. This compares to an OECD High Income average of 3.5%.

OECD Rank:

29th (↑1)

Figure 4.1.8 Interest rates for non-financial corporations by loan size (new business), 2017



Source: ECB

Irish interest rates on business loans have been consistently higher than equivalent Euro area rates. In

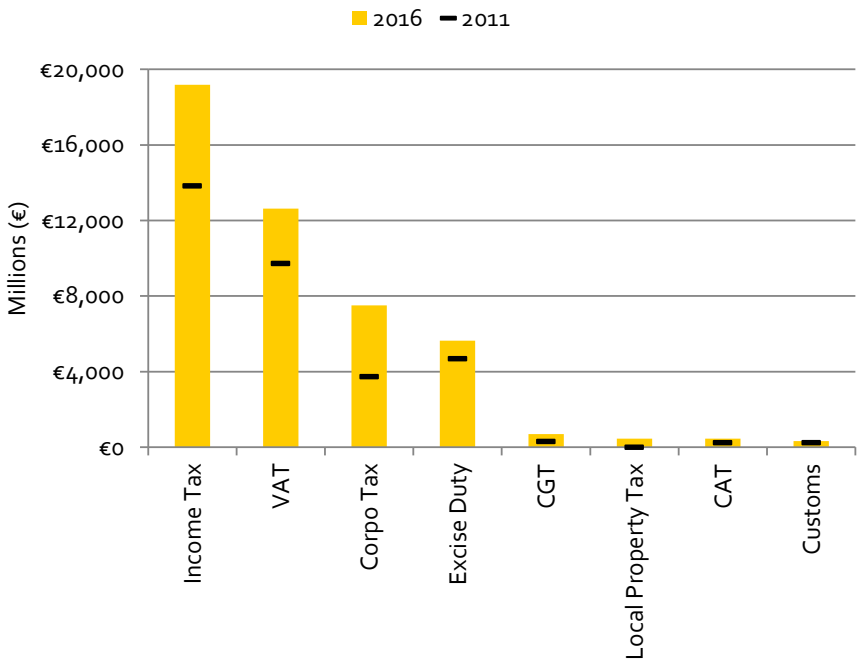
April 2017, the interest rate in Ireland on loans of up to €1 million was more than 74% higher than the Euro area average rate for new business; the rate on loans of up to €1 million was more than 79% more expensive in Ireland.

Rank: n/a

[34] Figures are 2015 for Italy, UK and Switzerland.

4.2 Taxation

Figure 4.2.1: Tax revenue in Ireland by category, 2016

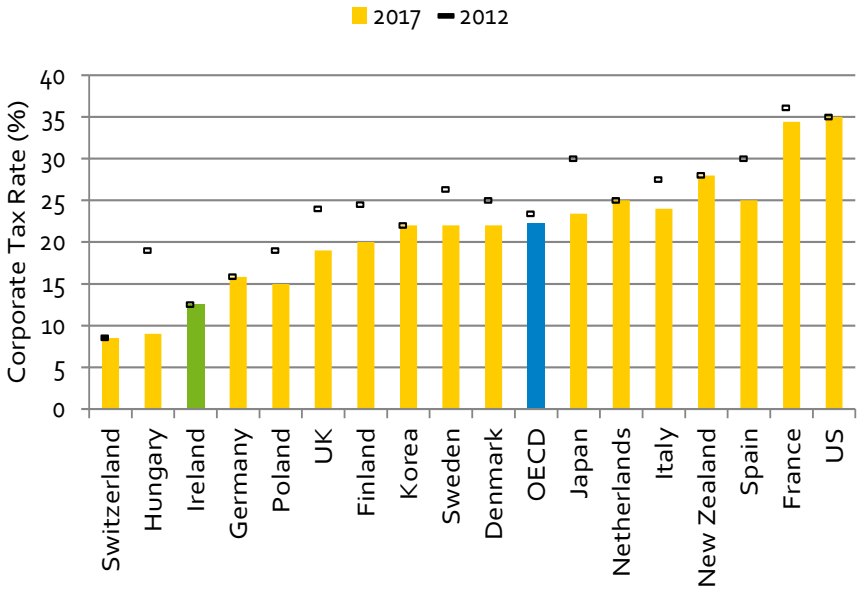


Source: Department of Finance

Figure 4.2.1 compares Irish tax revenues in 2016 with 2011. Overall, revenues have increased by €14bn (41%). Income tax receipts -reflecting labour market recovery and a broadening of the base- have increased by €5.3bn. Between 2011 and 2016 Capital Gains Tax and corporation tax receipts rose by 101% (€7.5bn in 2016) and 201% (€695m in 2016) respectively.

Rank: n/a

Figure 4.2.2: Central government corporate income tax rate (%), 2017

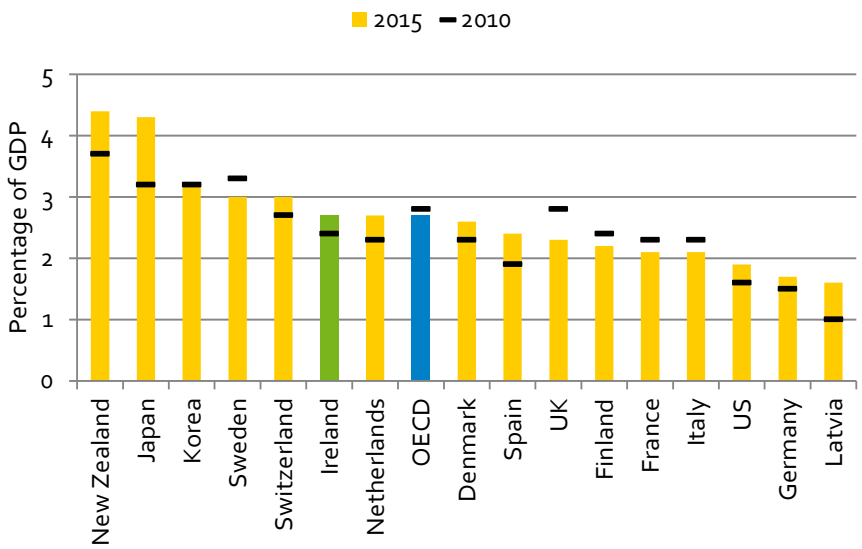


Source: OECD

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 rank: 3rd (↓1)

Figure 4.2.3: Corporation tax receipts (% GDP), 2015



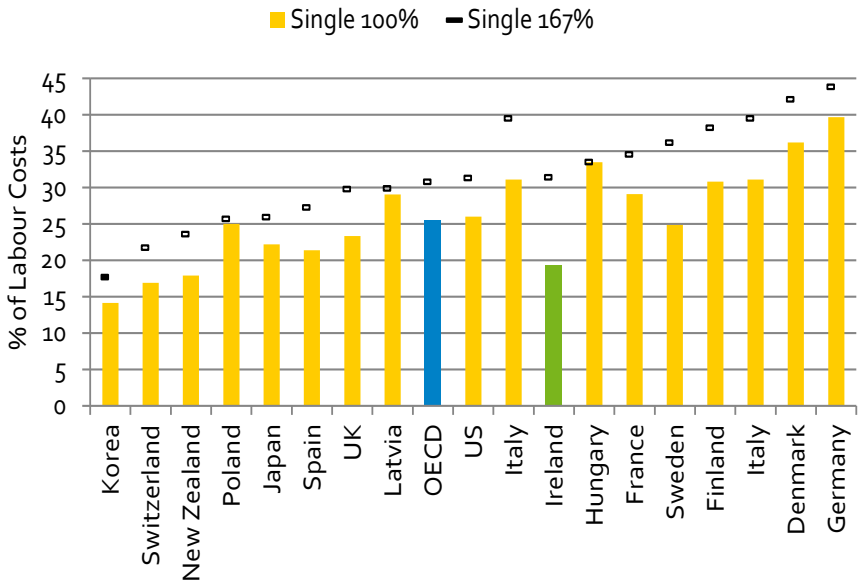
Corporation tax receipts in Ireland accounted for 2.5% of GDP (2.2% of GNP) in 2015, compared with an OECD-31 (2013) average of 2.8%. In the five years to 2015 the OECD-31 average corporation tax receipts as a percentage of GDP grew by 6%.

OECD rank:

GDP: 13th (↑2)

Source: OECD

Figure 4.2.4: Income tax plus employee contributions (% of gross wage earnings) Single, 100% & 167% AW), 2016



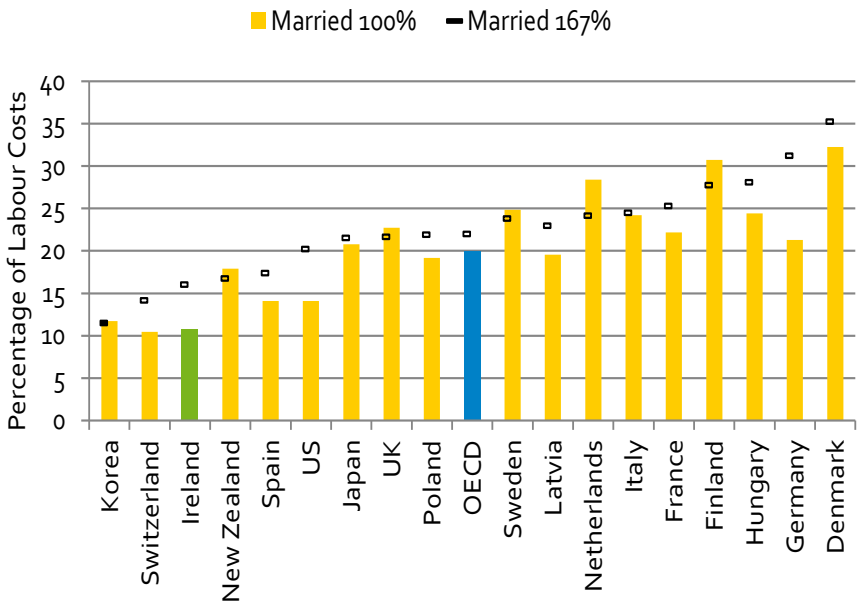
For a single person with no children on either 100% or 167% of the average wage, the difference between what the employer pays and what the employee receives has increased since 2013. At 167% of average wages, the difference in 2016 was 31.4% down from 38.2% in 2012. **OECD rank:**

Single,0 ch, 100%: 28th

Single,0 ch, 167%: 18th

Source: OECD

Figure 4.2.5: Income tax plus employee contributions (% of gross wage earnings) (Married, 2 children, 100% & 167% AW), 2016

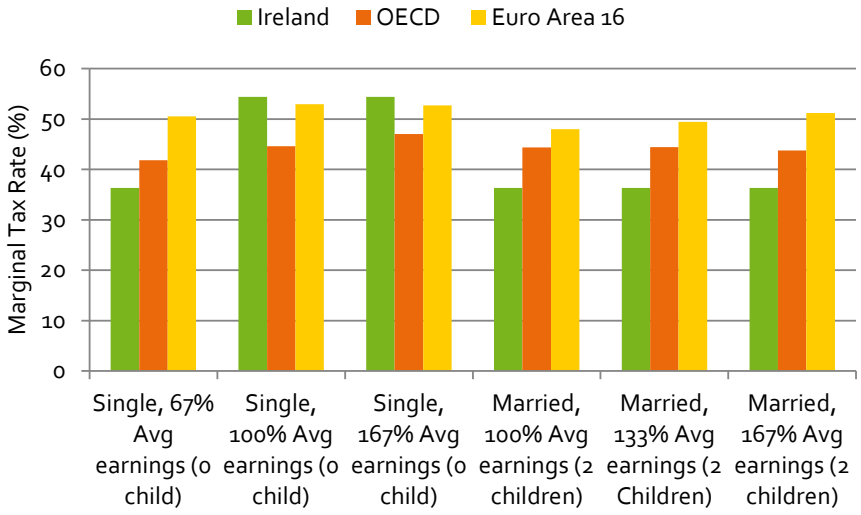


Ireland remains relatively competitive in terms of the levels of income tax and social security contributions as a proportion of total labour costs. For a married couple with 2 children on a combined income of 167% of the average wage (i.e. a 2 earner family), the rate is below the OECD average. **OECD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

Married, 2 ch, 100%: 2nd;
Married, 2 ch,167%: 4th

Source: OECD

Figure 4.2.6: Marginal rate[35] of income tax plus employee contributions less cash benefits (% of gross wage earnings) , 2016



Marginal rates in Ireland are particularly high for individuals earning the average wage or above. Conversely, marginal rates for married couples, regardless of income are lower than OECD and Euro area averages.

OECD rank:

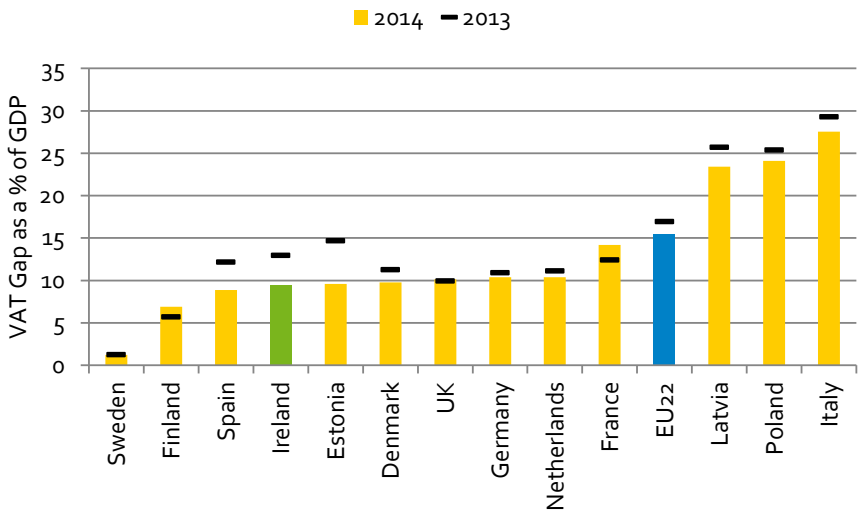
Single, no ch, 100%: 26th

Married, 2 ch, 100%: 4th

Source: OECD

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

Figure 4.2.7: Value added tax gap (% GDP)[36], 2014



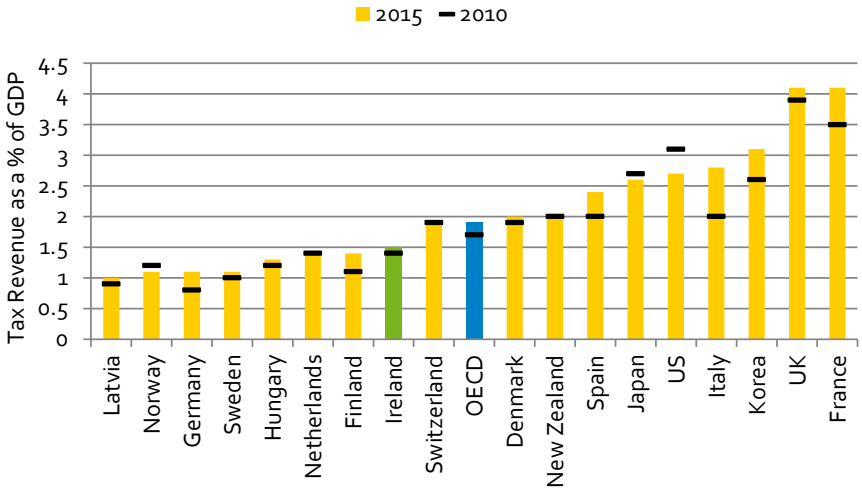
In 2014 the estimated VAT gap within the Euro area ranged from the low of 1.24% in Sweden to the high of 37% in Lithuania. As a result of the rate in Ireland falling from 12.9% in 2013 to 8.4% in 2014, our EU-22 ranking improved to 6th during this period.

EU22 rank:

6th (↑4)

Source: Eurostat

Figure 4.2.8: Income from Property Taxes[37], 2015



Revenues from immovable properties in Ireland are below the EU average. Such revenues amounted to 1.5 per cent of GDP in 2015, below the OECD average of about 1.9 per cent of GDP in the corresponding year. In both the UK and France the tax income from property in 2015 equated to 4.1% of GDP.

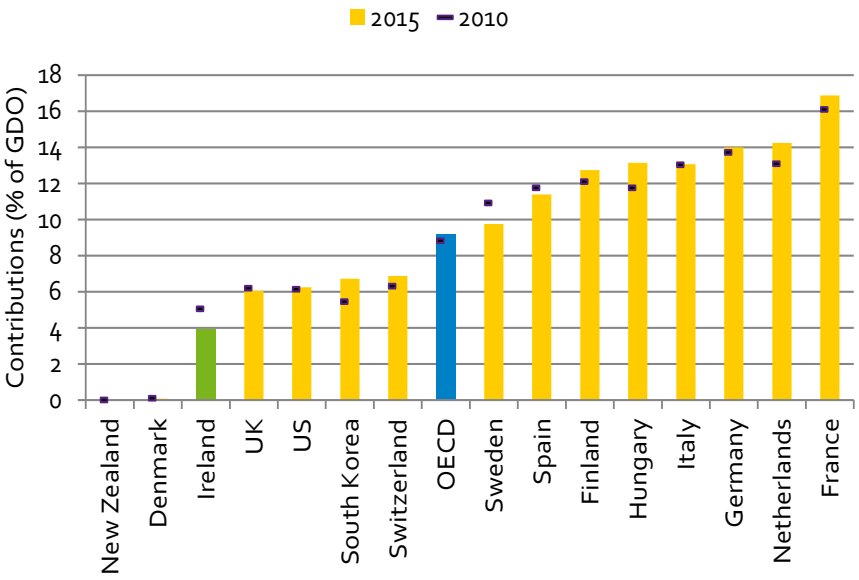
OECD Rank: 17th (↑1)

Source: OECD

36 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.

37 Tax on property is defined as recurrent and non-recurrent taxes on the use, ownership or transfer of property. These include taxes on immovable property or net wealth, taxes on the change of ownership of property through inheritance or gift and taxes on financial and capital transactions. Empirical work by the OECD suggests a tax and economic growth hierarchy with recurrent taxes on immovable property being the least distortive tax instrument in terms of reducing long-run GDP per capita, followed by consumption taxes and other property taxes as well as environmentally-related taxes, personal income taxes and corporate income taxes.

Figure 4.2.9: Social security contributions (% GDP), 2015



Social security is comprised of employee contributions, employer contributions, self-employed, non-employed contributions and some "unallocable" contributions. Significantly less revenue was generated through social security contributions in Ireland (3.9% of GDP) than is the case across the OECD (9.1% of GDP).

OECD rank: 26th (↓1)

Source: OECD

Figure 4.2.10: Tax rate on low wage earners (Unemployment Trap[38]), 2015

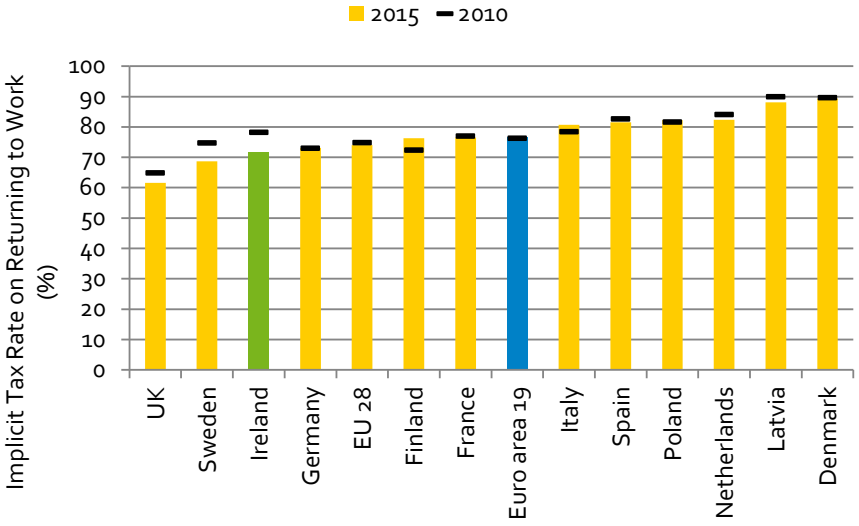


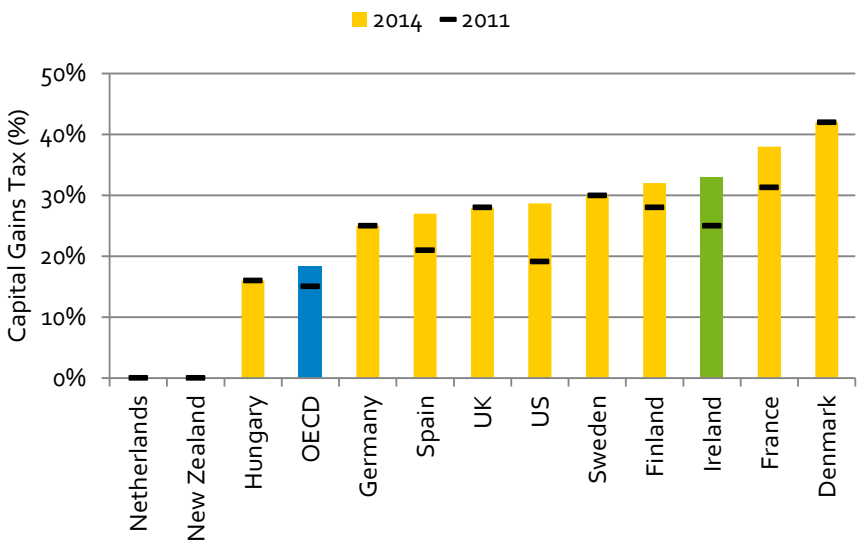
Figure 4.2.10 shows the implicit tax rate of taking up employment. The Irish tax system has reformed over the 5 years to 2015 and now provides more incentives for job seekers. The tax rate on low wage earners is 71.6% in Ireland compared with the Euro area rate 76.5%.

EU28 rank: 9th (↑5)

Source: Eurostat

[38] The **unemployment trap** measures the percentage of gross earnings lost to taxes when a person becomes employed. This occurs through the loss of unemployment benefits combined with higher tax and social security contributions.

Figure 4.2.11: Capital Gains Tax, 2014



Source: Tax Foundation

Figure 4.2.11 benchmarks Capital Gains Taxes across the OECD. In 2014 Ireland had the third highest headline CGT rate in the OCED, and fell 5 places since 2011. The OECD average rate in 2014 was just over 18% - the Irish figure was almost double this at 33%.

OECD rank:

32nd (↓5)

4.3 Physical Infrastructure

Figure 4.3.1: Average annual growth in net capital stock, 2005-2015[39]

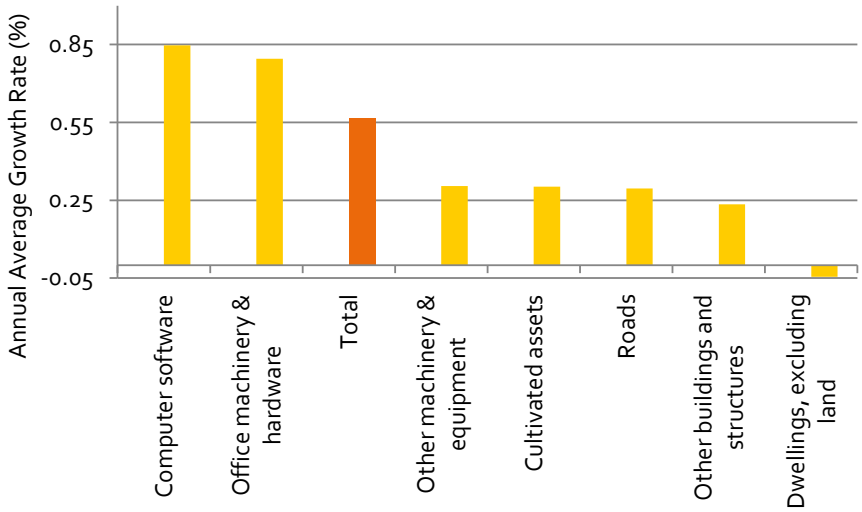
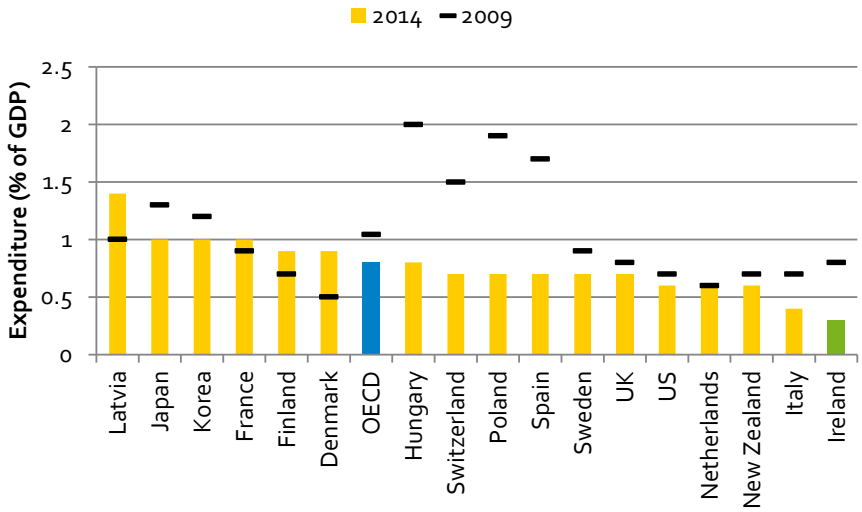


Figure 4.3.1 illustrates the average annual growth rate in the value of Ireland's fixed assets between 2005 and 2015. Overall, net capital stock grew by 0.6% per annum. Computer software assets (0.84%) and Office Machinery & Hardware (0.8%) have grown most rapidly over the ten year period.

Rank: n/a

Source: Central Statistics Office

Figure 4.3.2: Total inland infrastructure investment as a percentage of GDP[40], 2009-2014.



As a percentage of GDP, Ireland's inland infrastructure expenditure (transport infrastructure) declined from 0.8 per cent in 2009 to 0.3 per cent in 2014 and since 2011 has been well below the OECD and UK's level of investment in 2014.

OECD rank:

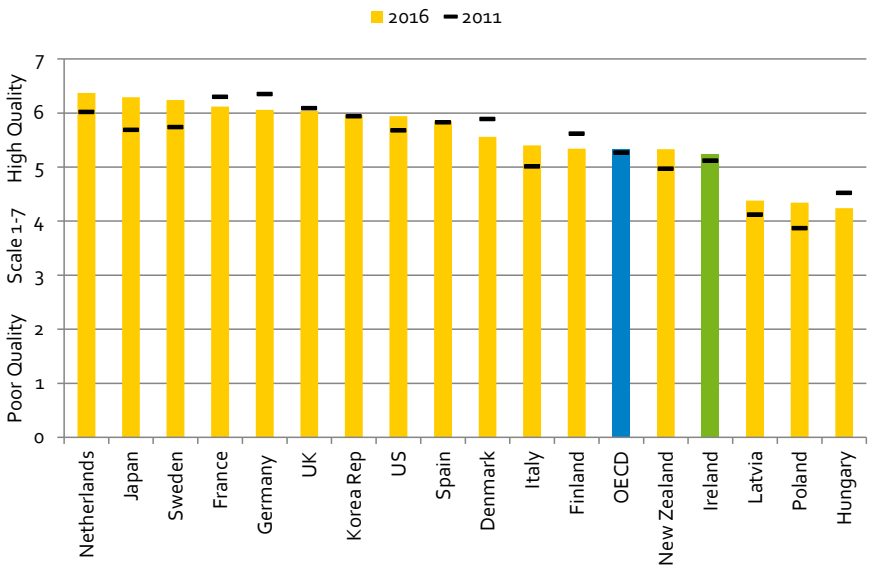
32nd (↓11)

Source: OECD

[39] The CSO defines 'Cultivated assets as livestock for breeding such as dairy cattle etc.

[40] 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 4.3.3: Perception of overall infrastructure quality (Scale 1-7), 2016



Source: World Economic Forum

Despite a strong improvement in perception up until 2010, perceptions regarding the overall quality of infrastructure in the economy remain low in Ireland.

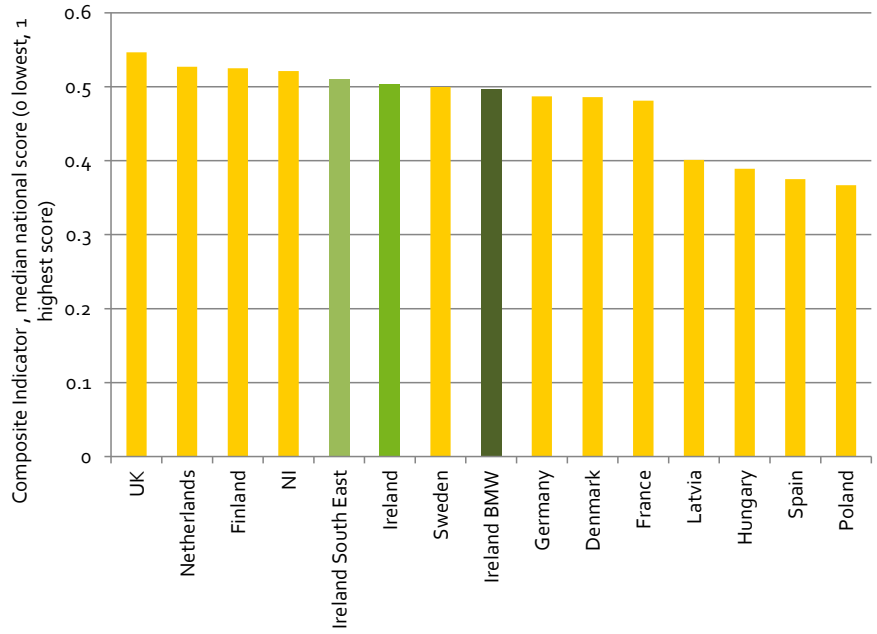
Ireland's score fell over the five years to 2015 and remains below the OECD average.

OECD Rank:

23rd (↓3)

4.4 Clusters and Firm Sophistication

Figure 4.4.1 Regional Ecosystem Scoreboard, Median Country Scores, 2016



The Regional Ecosystem Scoreboard presents a composite index to rate the quality of the regional entrepreneurial and innovation ecosystem that can support cluster development. The most recent results indicate the regions ranking in the top 10% of all of the EU28 regions are found in the UK (median score (0.546), NI (0.521). In Ireland, the South East (0.511) scores ahead of the BMW region (0.496).

Rank: n/a

Source: European Commission Regional Ecosystem Scoreboard

Figure 4.4.2 Perceived State of Cluster Development, 2015/2016

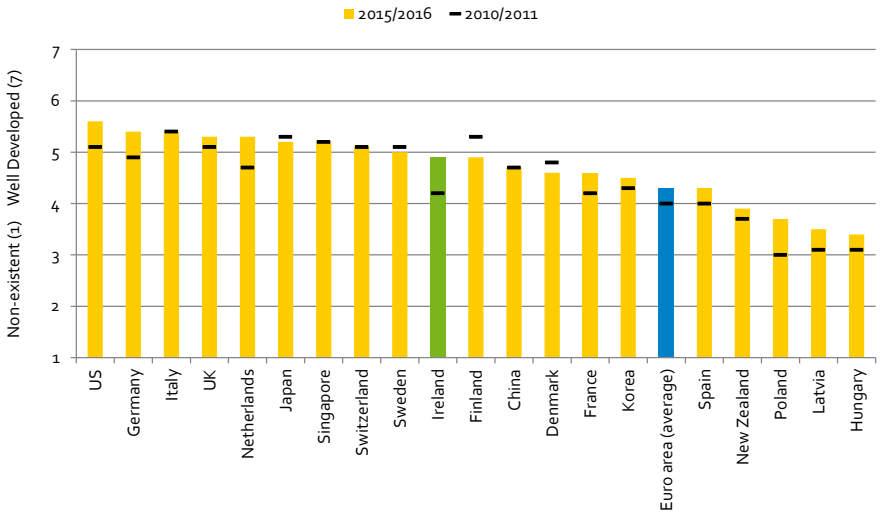
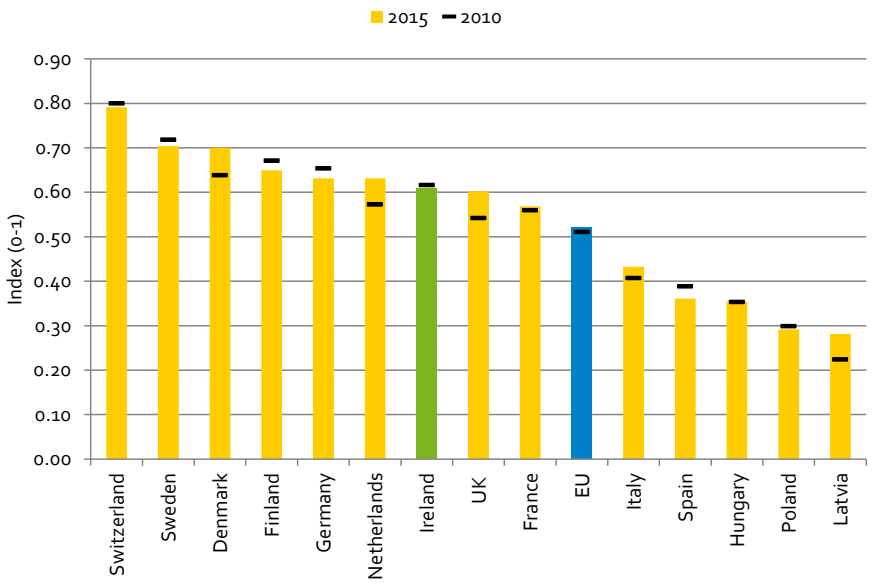


Figure 4.4.2 presents WEF data provided on the basis of personal assessment of managers in surveyed companies about cluster development in their country. In Ireland the weighted average score in 2015/16 was 4.9. This was above the Euro area-19 average score of 4.3.

Euro area-19 rank: 5th (↑3)

Source: World Economic Forum (WEF)

Figure 4.4.3 European Innovation Scoreboard, Overall ranking, 2016



The EU Innovation Scoreboard provides a comparative assessment of the research and innovation performance of EU Member States. The 2016 Scoreboard shows that year on year Ireland moved up two places from 8th to 6th in the overall ranking of EU Member States. Ireland is classed as an innovation follower with an above average performance.

EU 28 rank: 6th (-)

Source: European Commission

Figure 4.4.4 European Innovation Scoreboard, Performance, Ireland, EU , UK Switzerland, 2016

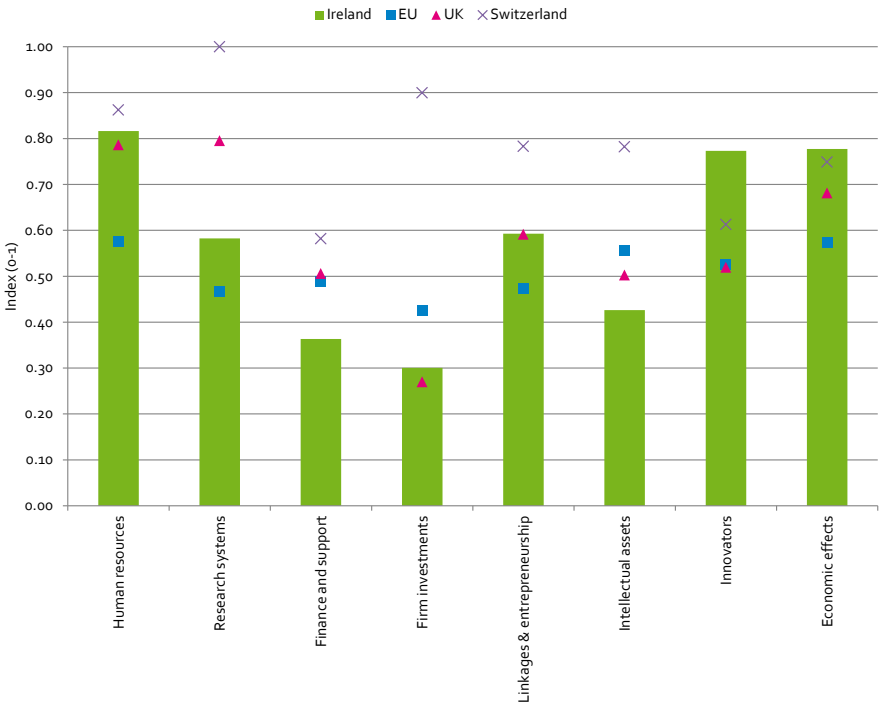
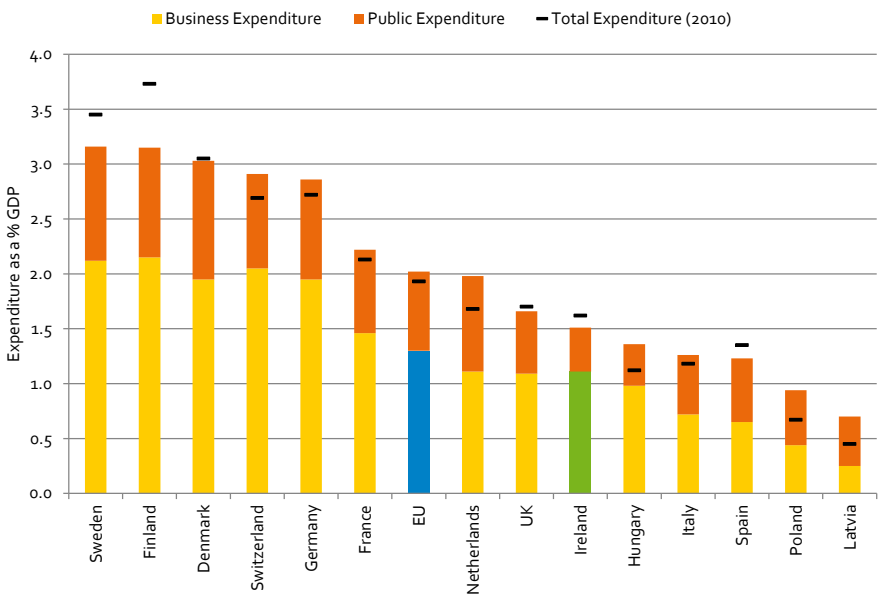


Figure 4.4.4 shows Ireland's performance across the Measurement framework of the Innovation Scoreboard relative to the best performing country Switzerland and the UK and EU. Ireland is strong in the innovators and economic effects dimensions. Ireland is behind the EU average in the finance, firm investments and intellectual assets dimensions.

EU 28 rank: 6th (-)

Source: European Commission

Figure 4.4.5 Public and Business Expenditure on Research and Development as a percentage of GDP, 2015



There is considerable heterogeneity in R&D expenditure as percentage of GDP in the EU. In 2015, Irish expenditure on R&D accounted for 1.51% of GDP, below the EU average (2.02%). Business expenditure on R&D (BERD) accounted for 1.1%, with public expenditure accounting for 0.4%.

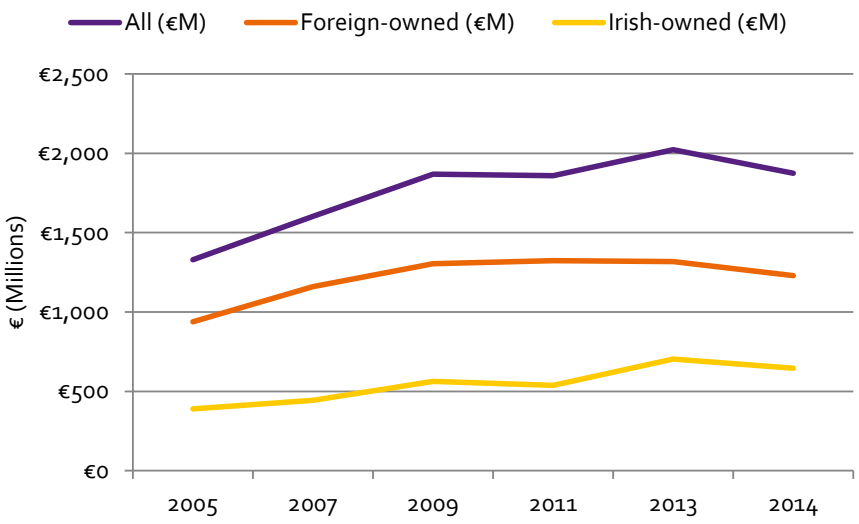
EU 28 rank:

Business 10th (-)

Public 23rd (↓6)

Source: European Commission/Eurostat

Figure 4.4.6 Business sector R&D expenditure by firm type, 2014

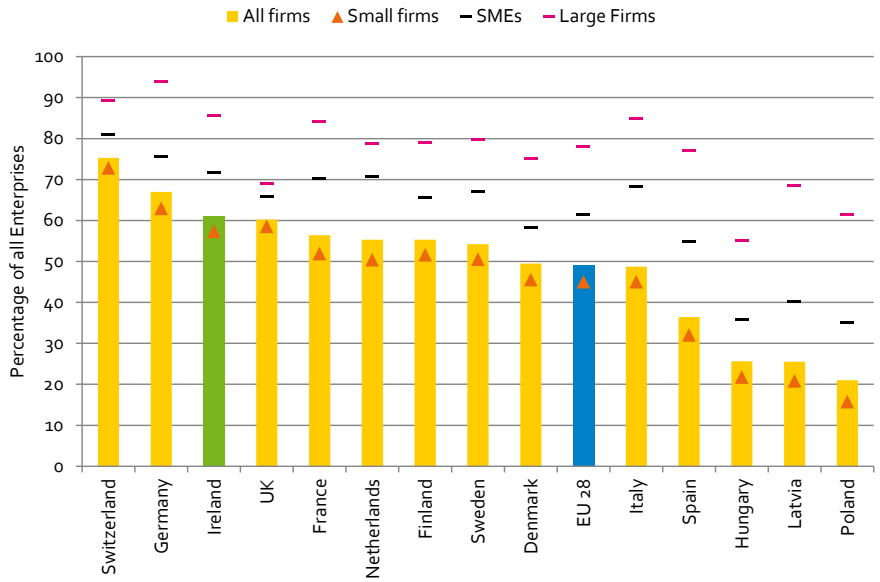


Foreign owned companies in Ireland spent over €1.32 billion on R&D in Ireland in 2013, accounting for 65% of business expenditure on R&D. By comparison, indigenous firms spent €703 million on R&D in the same year. The majority of research expenditure occurred in the services sector (57.3%).

Rank: n/a

Source: CSO

Figure 4.4.7 Percentage of Innovative Enterprises, by Size, 2014



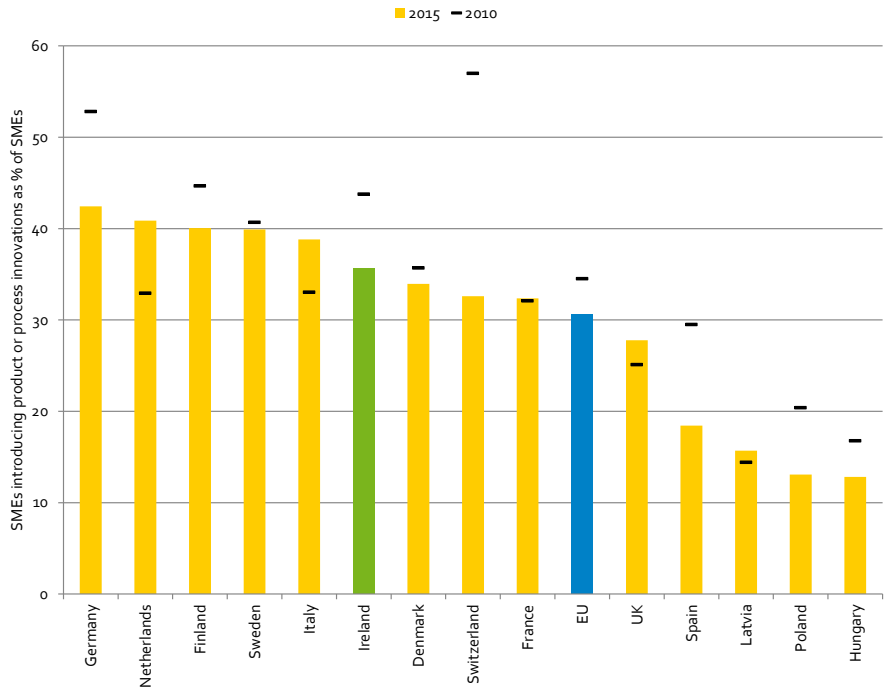
Firms in Ireland were more likely to be innovative (61%) compared to the EU average (49%). Relative performance is strong across all firm sizes. Reflecting the trend at EU level, larger firms tend to be more innovation active. In Ireland the proportions are: Small firms (57%), SMEs (71%), Large Firms (85%).

Rank: Euro area

All firms (4th)

Source: Eurostat

Figure 4.4.8 SMEs introducing product or process innovations as a percentage of all SMEs, 2015

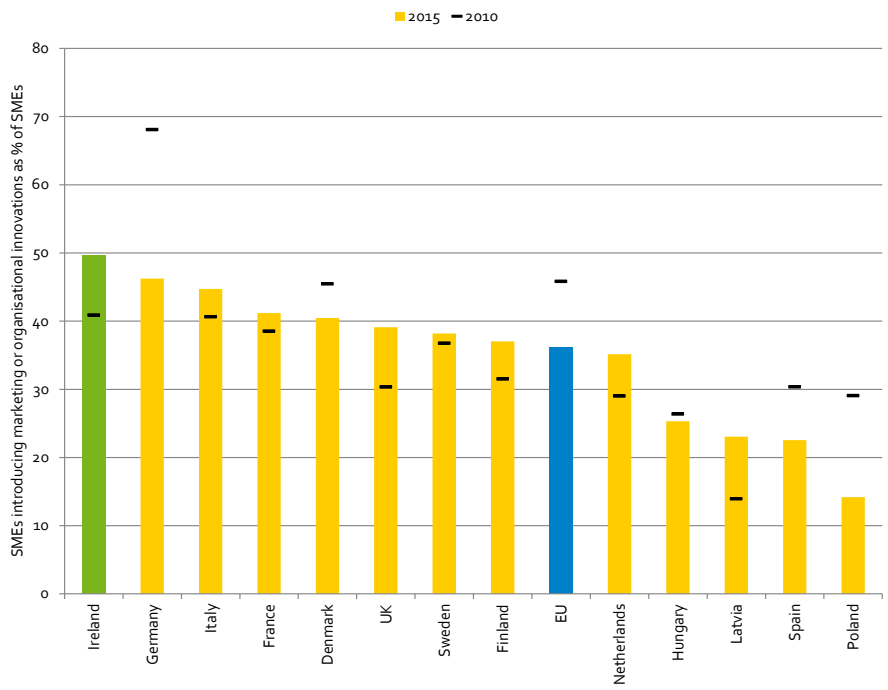


Technological innovation, as measured by the introduction of new products (goods or services) and processes, is a key ingredient to growth. 36% of SMEs in Ireland are reported as having introduced a product or process innovation in 2015. This is above the EU average (31%), however Ireland's performance is down on an annual basis (41%) and since 2010 (43%)

EU 28 rank: 10th (↓3)

Source: European Commission/Eurostat

Figure 4.4.9 SMEs introducing marketing or organisational innovations as a percentage of SMEs, 2015

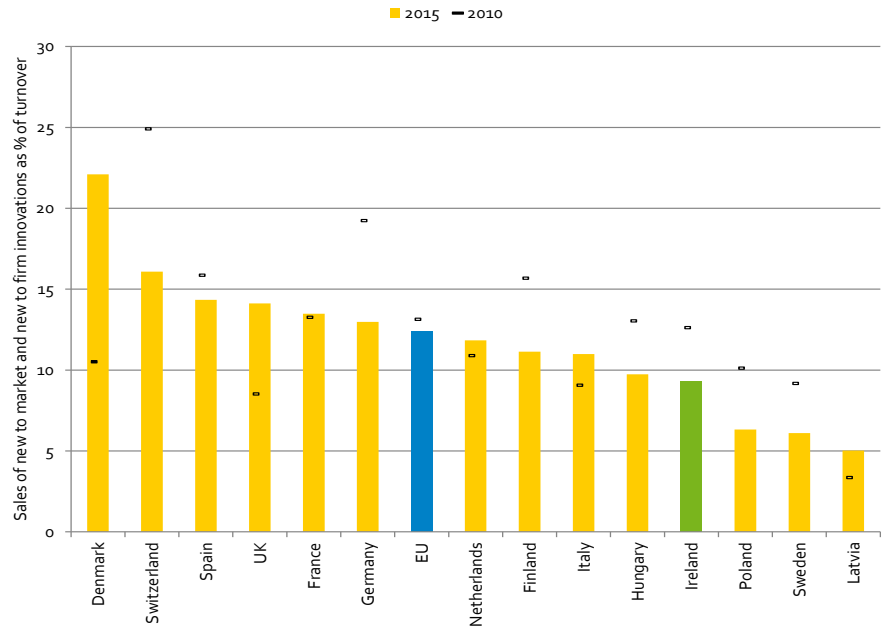


Source: European Commission/Eurostat

Figure 4.4.9 shows the proportion of SMEs in Ireland who introduced a marketing or organisational innovation is high (50%) in an EU context. The EU average is 36%. Previous iterations of the Community Innovation Survey suggest the proportion of SMEs engaging in marketing innovations is greater than organisational innovation.

EU 28 rank: 2nd (↑8)

Figure 4.4.10 Sales of new to market and new to firm innovations as a percentage of turnover, 2015



Source: European Commission/Eurostat

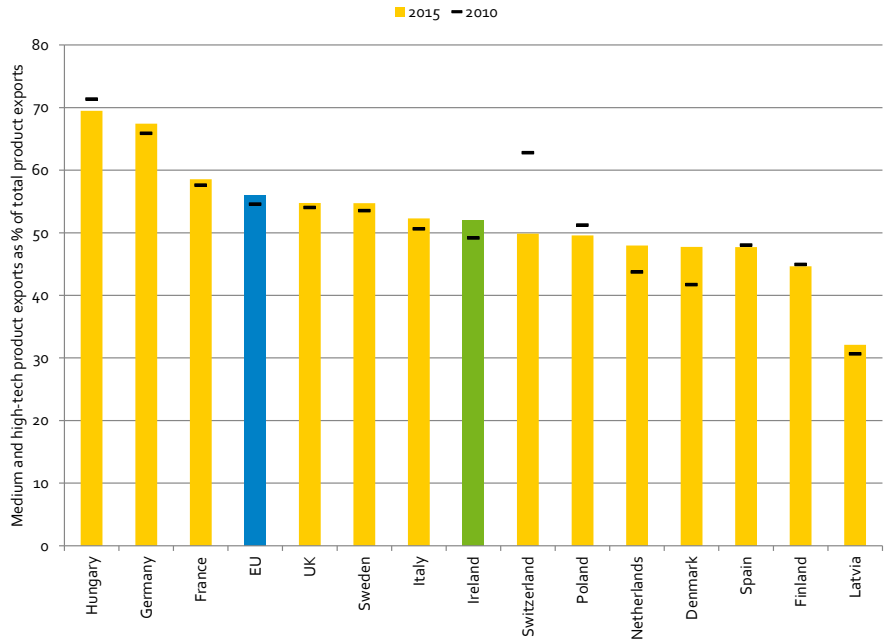
Figure 4.4.10 shows sales as a percentage of turnover attributed to of new/ significantly improved products and includes

both products which are only new to the firm and

products which are also new to the market. The latest Irish data (from 2013) was 9.3%, down from 12.6% in 2008. The EU average in 2015 was 12.4% also slightly down on 2010 (13.1%).

EU 28 rank: 20th (↓4)

Figure 4.4.11 Medium and high-tech product exports as a percentage of total product exports,2015



Creating, exploiting and commercialising new technologies are vital for competitiveness. Medium and high technology products exports are key drivers for economic growth and are generally a source of high value added and well-paid employment. In Ireland 52% of product exports are classified as medium/high tech compared with an EU average of 55%.

EU 28 rank: 14th (↑4)

Source: European Commission/Eurostat

Figure 4.4.12: Enterprises with Fast Fixed Broadband as % of total Enterprises, 2015

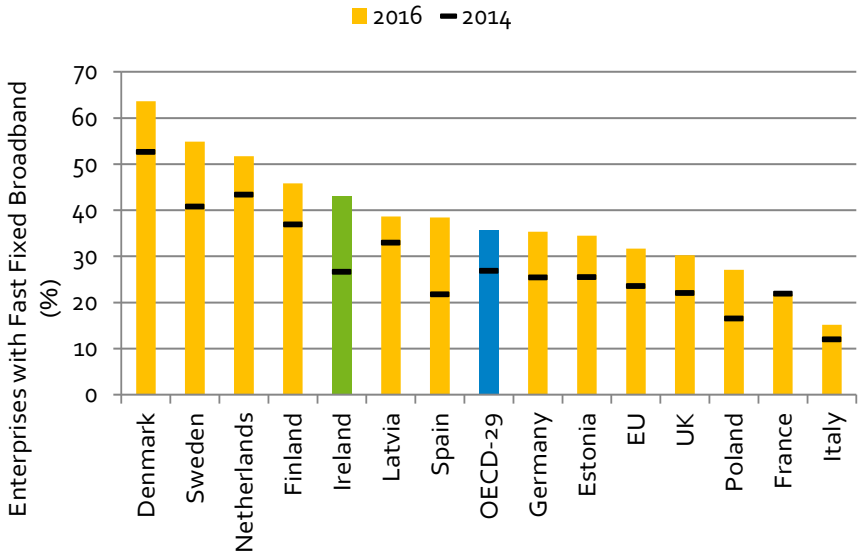


Figure 4.4.12 shows the percentage of businesses with a fixed fast broadband connection. Between 2014 and 2016 the percentage of Irish businesses with such a connection increased from 26% to 42%. The OECD-29 average in 2016 was 35%

OECD rank: 10th (↑4)

Source: OECD

4.5 Knowledge and Talent

Figure 4.5.1: Educational attainment of population aged 25-64 by highest level of education (%), 2015

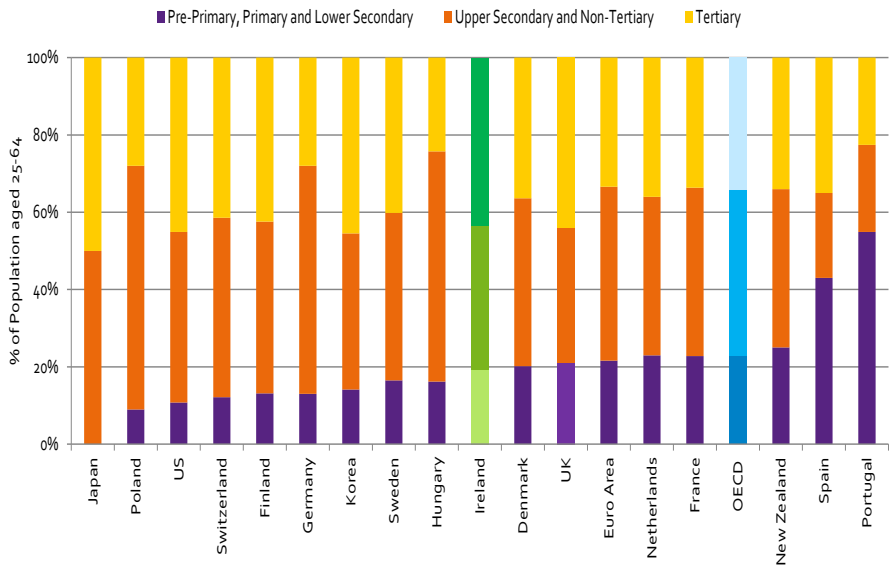
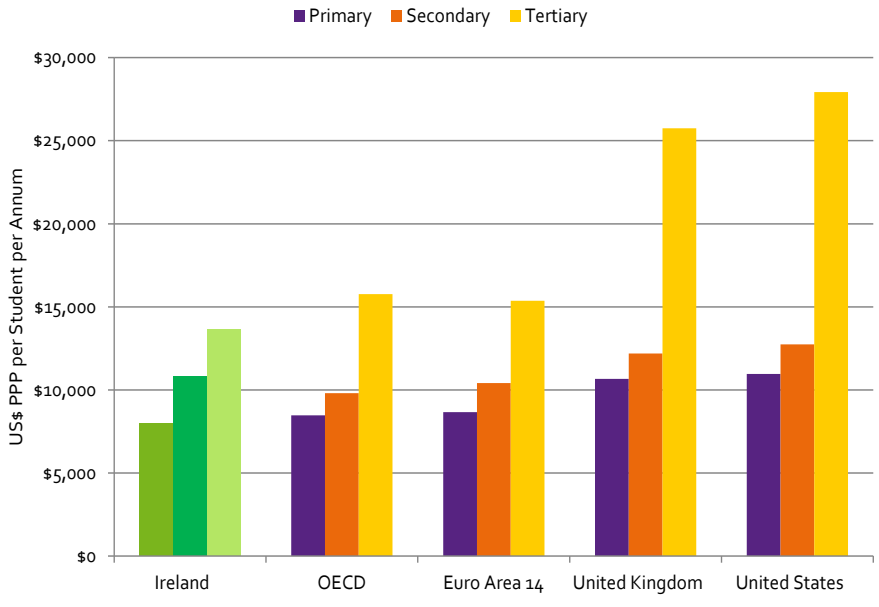


Figure 4.5.1 shows the proportion of the working age population with tertiary (third level) level education has increased from 36% in 2009 and to 43% in 2015. The OECD average is 36%. The proportion with just pre-primary, primary or lower secondary is below the OECD average. **OECD rank:** Upper-secondary (24th), Tertiary (7th)

Source: OECD

Figure 4.5.2: Annual expenditure on educational institutions, per student ($US PPP),2013



Ireland spends more per student at secondary level than the OECD 32 average but 6.5% and 14% less at both primary and tertiary level. The gap between Ireland and Euro area and US/UK expenditure is particularly pronounced at tertiary level.

OECD rank:

Primary: 19th (↓6)

Secondary: 14th (↓6)

Tertiary: 19th (↓3)

Source: OECD

Figure 4.5.3: Breakdown of tertiary educational expenditure,2013

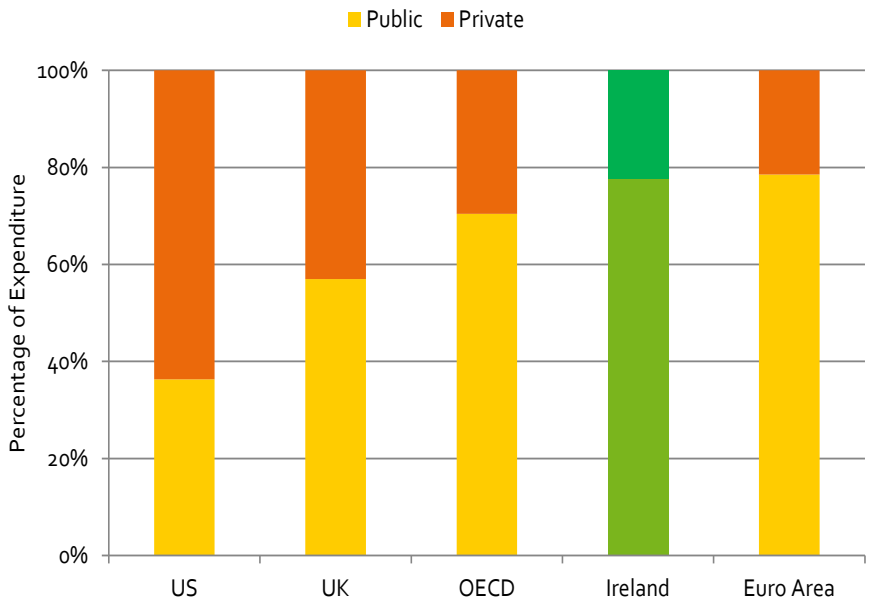


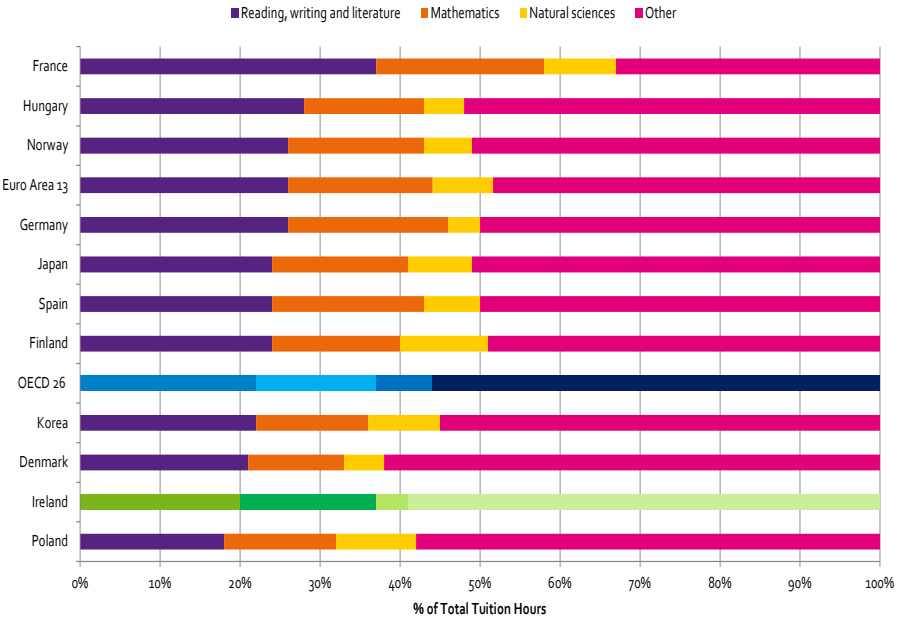
Figure 4.5.3 highlights how tertiary education in Ireland and the Euro area is primarily funded by the public sector. In Ireland In 2013, the breakdown of total tertiary expenditure on education in Ireland was 78% public: 22% private. The corresponding breakdown for the UK was 57% public: 43% private.

OECD rank: Public:14th (↓3 on 2012)

Private:18th (↑2 on 2012)

Source: OECD

Figure 4.5.4: Average annual hours of tuition by subject at Primary Education, 2016



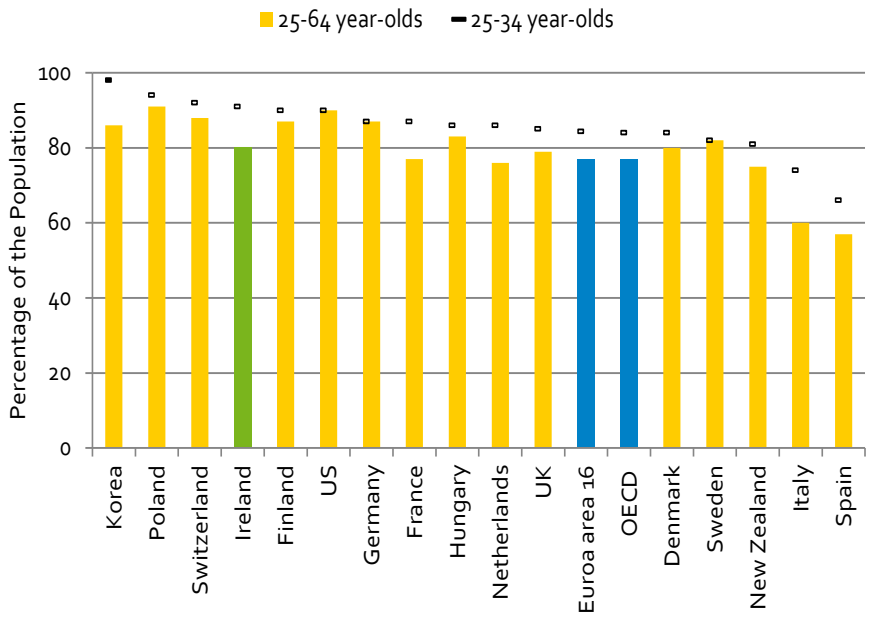
In 2015, Irish primary school students received more hours of tuition in maths than the average student across the OECD countries. Despite the limited time spent on science tuition, Irish students spent more compulsory time in the classroom than the OECD average.

OECD rank: Maths hours: 9th (↑6 on 2015)

Science hours: 25th (- on 2015)

Source: OECD

Figure 4.5.5: Percentage of population aged 25-64 that has at least upper secondary education, 2015



Some 80% of 25-64 year olds had attained at least upper secondary education in Ireland in 2015 compared with 91% 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 rank:

25-34 yr. olds: 8th

25-64 yr. olds: 18th

Source: OECD

Figure 4.5.6: Early school leavers as a percentage of population aged 18-24, 2016

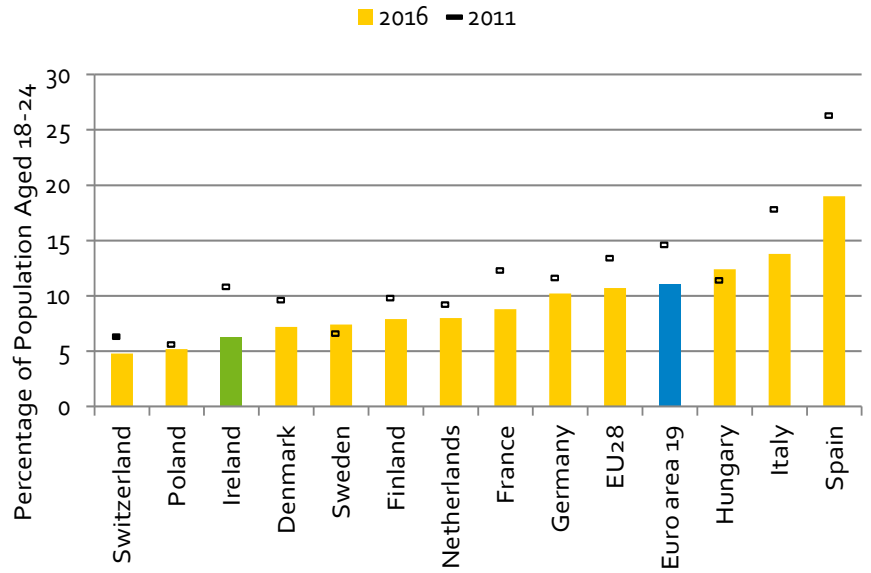
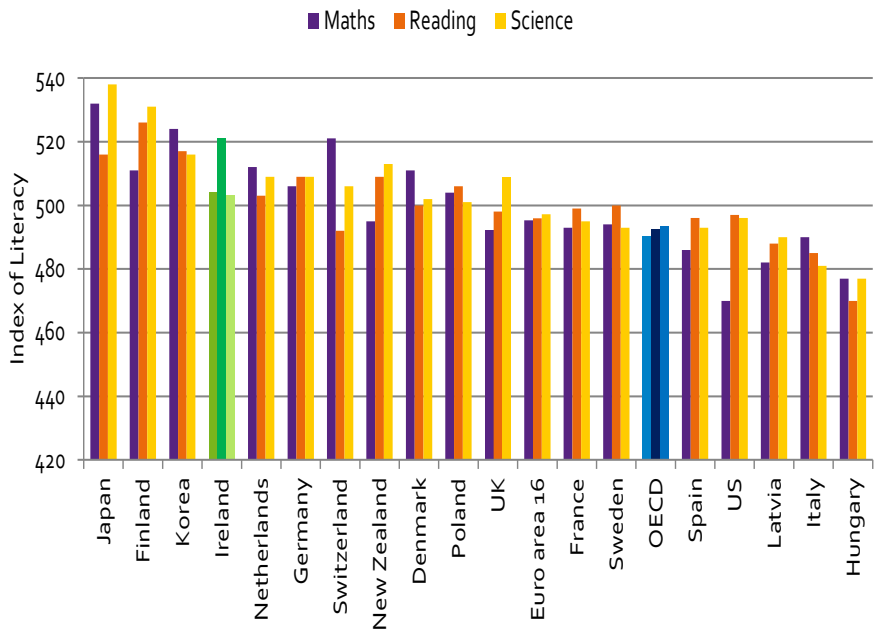


Figure 4.5.6 measures the percentage of the population aged between 18 and 24 who have attained, at most, lower secondary education. Ireland has made significant progress in this area. In 2016, 6.3% of this age cohort was classified as early school-leavers, down from 10.8% in 2011, reflecting higher retention rates in secondary education.

EU 28 rank: 7th (↑7)

Source: Eurostat

Figure 4.5.7: Scientific, mathematical and reading literacy of 15 year olds, 2016



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 rank:**

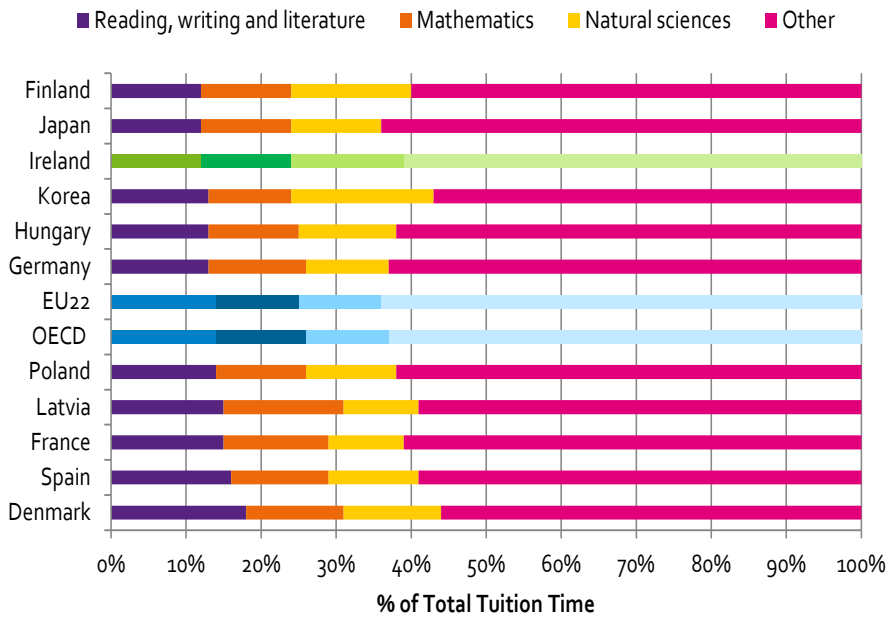
Maths:12th (↑1 on 2012)

Reading:3rd (↑1 on 2012)

Science:13th (↓5 on 2012)

Source: OECD

Figure 4.5.8: Average annual hours of tuition in lower secondary, by subject, 2016



More time is dedicated to science tuition (15%) than to maths (12%) in Irish Lower Secondary education. The percentage of tuition time in Ireland for Maths is in line with the OECD average but for Science it exceeds this average by 35%.

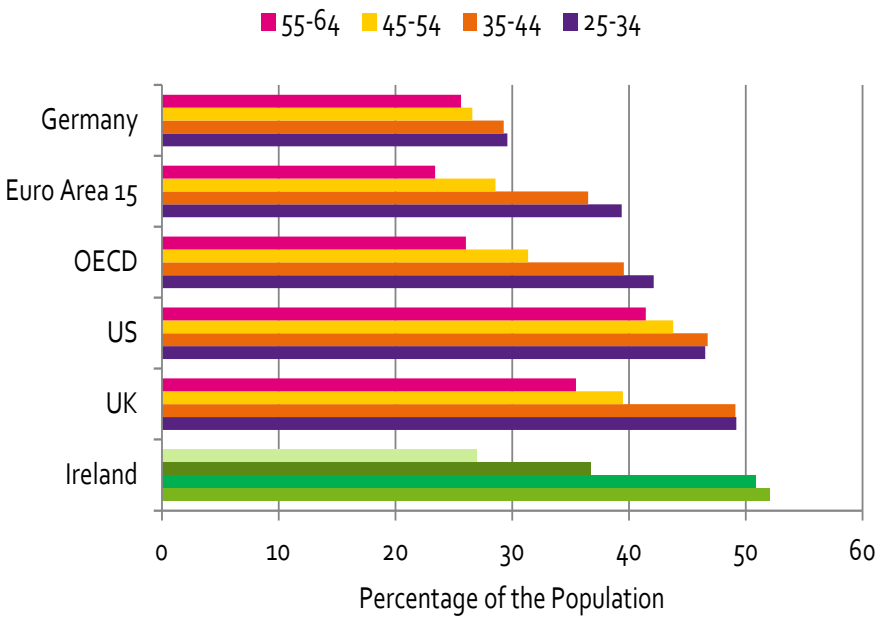
OECD rank:

Maths hours:18th (↑8 on 2015)

Reading hours: 23rd (↑5 on 2015)

Source: OECD

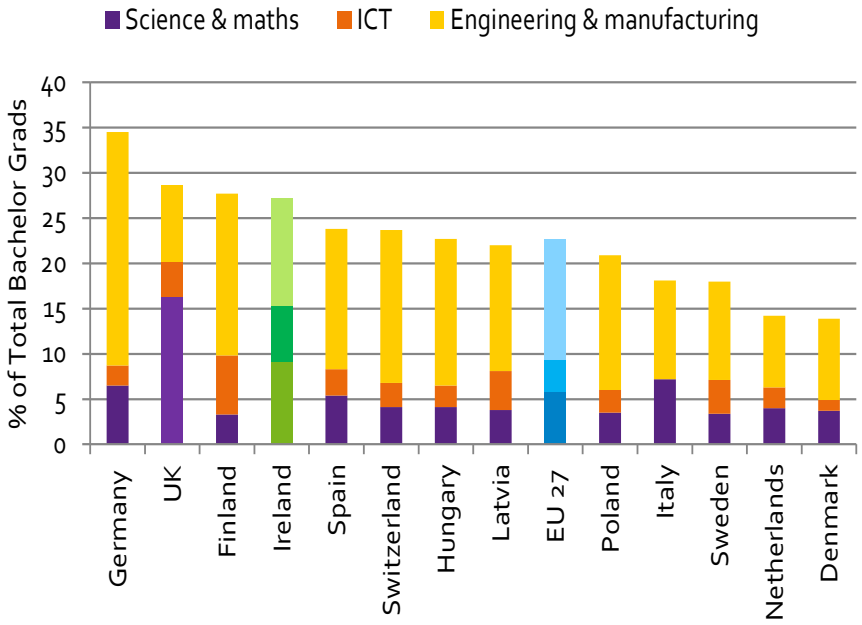
Figure 4.5.9: Population by age cohort that has at least third level education[87], 2014



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 rank:** 55-64 yrs:15th (↑4 on 2013) ; 25-34 yrs:4th (↑5 on 2013)

Source: OECD

Figure 4.5.10: STEM graduates (% of Total Bachelor Graduates), 2015

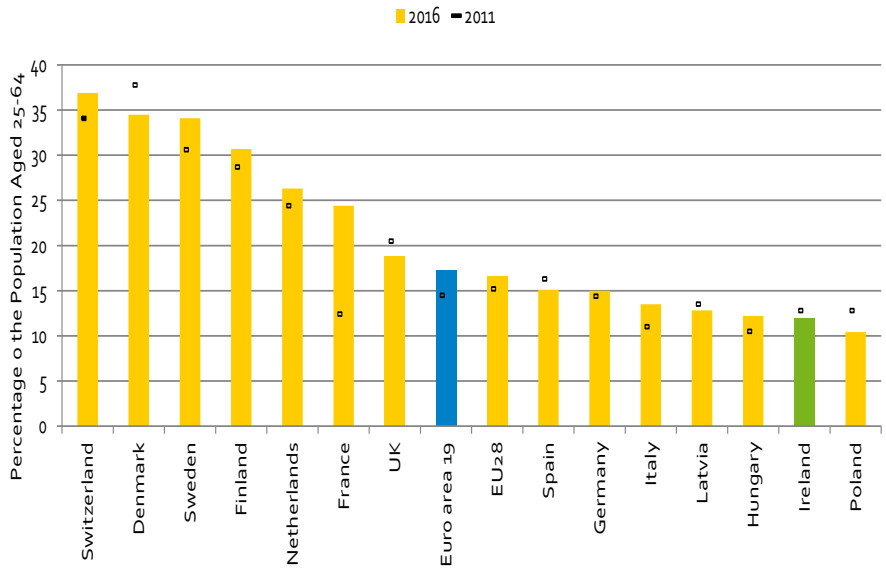


As a percentage of total undergraduates, Irish higher education and further education institutes provide more Science & maths and ICT graduates than the EU27 average. However, the number of engineering graduates Ireland produced is significantly below the EU27 average.

EU27 rank: Science & Maths:4th (↑2 on 2014); ICT:4th (↑1 on 2014) Engineering: 18th (↑1 on 2014)

Source: Eurostat

Figure 4.5.11: Lifelong learning (as a percentage of 25-64 year olds), 2016



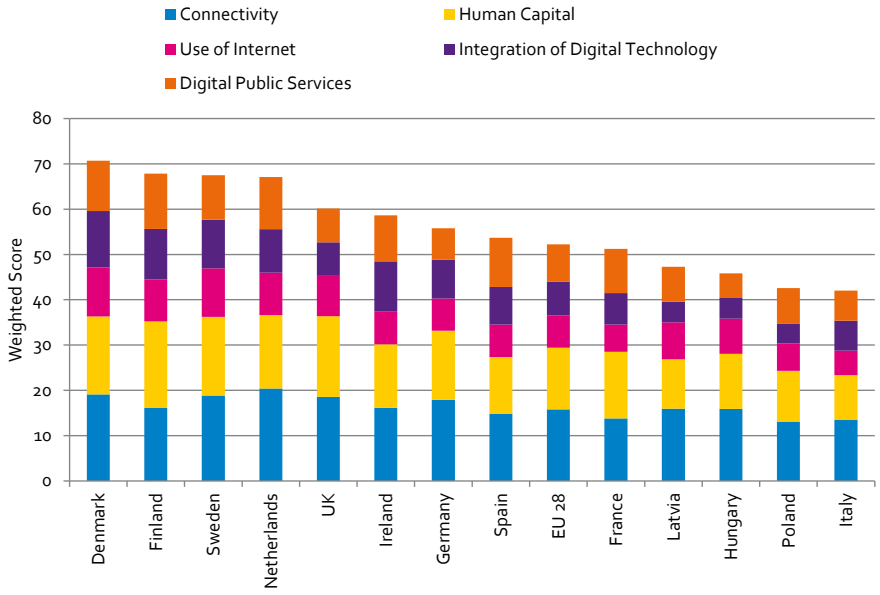
Source: Eurostat

Figure 5.4.11 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.

EU 28 rank:

22nd (↓5)

Figure 4.5.12: European Digital Economy and Society Index, 2017

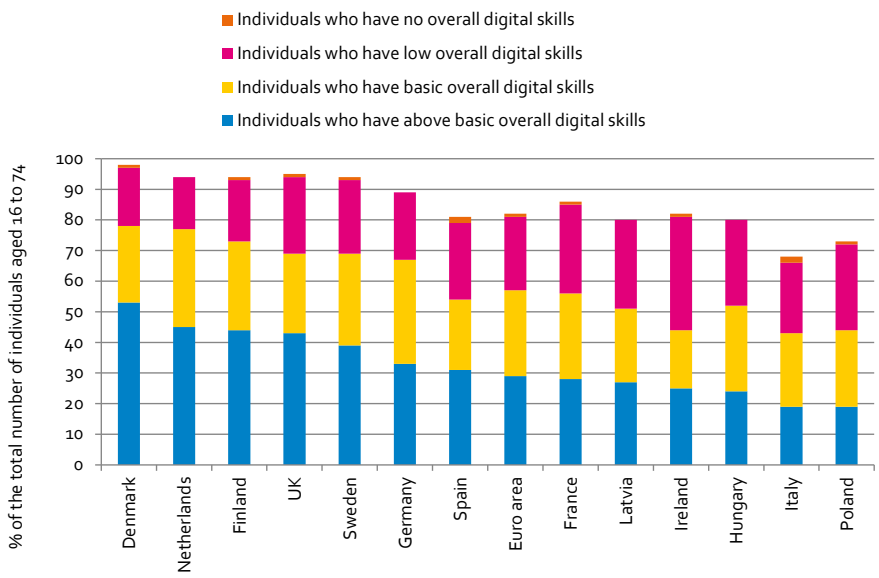


Source: Eurostat

Ireland ranks 8th in the EU DESI 2017. Ireland performs well in integration of digital technologies by businesses, mostly because many SMEs embraced e-commerce. Internet users use high-speed infrastructures and make good use of online public services. Ireland's main challenge is to equip more than half of the population with at least basic digital skills. **EU 28 rank:**

8th (-)

Figure 4.5.13: European Digital Economy and Society Index, 2017



Source: Eurostat

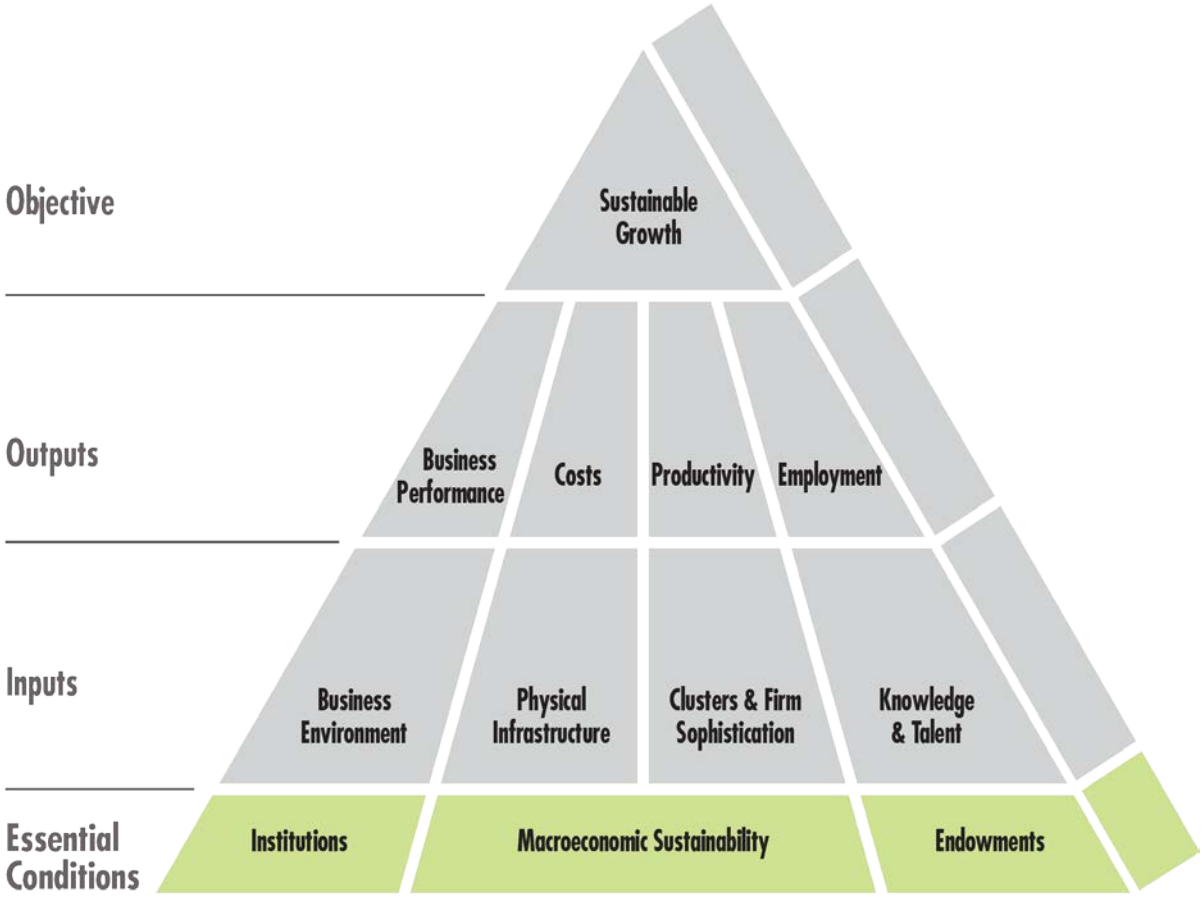
44% of persons in Ireland report as having advanced (25%) or basic (19%) digital skills. This is below the Euro area average (57%). The proportion of the population in Ireland who report to having low overall digital skills (37%) is the highest in the EU and above the Euro area average (24%).

EU 28 rank:

Individuals who have low overall digital skills (28^{th})

Chapter 5

Essential Conditions



Essential Conditions

A range of factors which are either beyond the immediate reach of policy makers (such as demographic effects) or which are determined by institutional effectiveness 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 and ease of tax compliance.**
  - The World Bank's Doing Business index assesses regulations affecting SMEs and measures regulations applying to companies throughout their life cycle. In 2017, Ireland is ranked 18th overall and 5th in the Euro area, a decline of 1 place from last year. Figure 5.1.1 shows that while Ireland has a comparatively good enterprise environment conductive to doing business, the country falls behind the UK in a number of areas, such as dealing with construction permits, getting electricity and trading across borders. There is significant room for improvement in the area of enforcing contracts.
  - Figure 5.1.3 shows that Ireland is ranked in the top ten in terms of perceptions of judicial independence, protection of minority shareholders, strength of investor protection and property rights. Ireland's ranking has improved since 2011 and is above the OECD average. Ireland's performance in terms of perceptions of government effectiveness has also improved since 2010 (Figure 5.1.4). The perceptions of Ireland's quality of public services, quality and independence of the civil service, quality of policy formulation and implementation are above the OECD average. Figure 5.1.5 shows Ireland continues to perform strongly in terms of time to prepare and file tax returns and pay taxes.
  - Ireland's trade in services is relatively open. This is measured by the Services Trade Restrictiveness Index (Figure 5.1.6) which helps identify which policy measures restrict trade across 19 major services sectors. Ireland's index is lower than the OECD average in all sectors.
- **Macroeconomic sustainability: 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.**
  - Following annual GDP growth of 8.5 per cent and 26.3 per cent in 2014 and 2015 respectively, Eurostat estimates that in 2016 the Irish economy is the fastest growing economy for the third year in a row with a GDP growth rate of 5.2 per cent. The European economy continued to expand at a steady pace in 2016 and initial estimates indicate that GDP grew by 1.8 per cent in the Euro area and by 1.9 per cent in the EU in 2016. In terms of our main trading partners outside of the Euro area, GDP growth in both the UK and US declined year-on-year in 2016 to 1.8per cent in the UK (-0.4%) and 1.6 per cent in the US (-0.8%). Since both countries are major export destinations for Irish products and services, their economic performance remains particularly important. Ireland's GDP per capita remains substantially above the euro area average (+44.4%) and is the second highest in the EU after Luxembourg.
  - Preliminary national accounts data indicates that in 2016 the principle contribution to economic growth came from domestic demand (investment and consumer spending) (Figure 5.2.1). Increasing level of investment in intangible assets, particularly intellectual property services of multinationals, and building and construction investment have been the main drivers of

investment growth (+9.1%). The strong improvement in the labour market has helped drive the increase in consumer spending (+1.7%).

- There is a shift from the trend during the recession period, where net exports were the main component of economic growth. The weaker value of the sterling had a negative impact on export growth. In addition, the activities of multinationals have distorted the impact of net exports somewhat. The decline in contract manufacturing and increased imports of intangible assets by multinational companies undermined the impact of net export as a factor for economic growth (-6.4%). In terms of output, Figure 5.2.11 shows that all sectors enjoyed increases in their gross value added, with the biggest increase of 87 per cent recorded in the industry sector.
- As shown in Figure 5.2.1, in the years preceding the economic crash, growth was driven by unsustainable increases in consumer expenditure and investment. During the recession, exports were the key driver of growth. Exports in Ireland increased from 103 per cent of GDP in 2010 to 124 per cent in 2015. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg. While Ireland's current account was in deficit in the fourth quarter of 2016 (largely due to an increase in research and development service imports), the annual current account is in surplus, indicating that Ireland is paying its way in the world. Ireland's balance of payments current account expressed as a percentage of GDP 3 year average (5.5%) is above the euro area of 2.2 per cent (Figure 5.2.4).
- Stable and sustainable public finances are a prerequisite for competitiveness. The focus of policy in reducing the general government deficit has been effective and the general government deficit continued to fall in 2016 to 0.6 per cent of GDP down from 2 per cent in 2015 and below the threshold of 3 per cent of GDP set out in the Stability and Growth Pact. The euro area recorded a deficit of 1.5 per cent with 8 States recording surpluses (Figure 5.2.5).
- The Fiscal Stability Treaty requires that the general government budget must be balanced or in surplus. As a result, the new fiscal anchor is the achievement of a structural deficit of 0.5 per cent of GDP. The Department of Finance's estimates indicate that the structural balance in 2016 was -1.9 per cent of GDP, and that based on current trajectory and assumptions within Budget 2017, Ireland is on track to reach the target of 0.5 per cent in 2018.
- Economic growth has contributed to improvements in the debt-to-GDP ratio in 2016. While the debt–to GDP ratio remains high, Figure 5.2.10 shows it has decreased substantially from its peak of 119.5 per cent in 2012-2013 to 75.4 per cent in 2016. Recognising that metrics derived with respect to ratios-to-GDP may be skewed due to on-shoring of intellectual property, and in order to ensure that public finances are in a position to withstand Brexit related shocks, the Department of Finance has set an additional mid-term goal of achieving debt-to-GDP ratio of 45 per cent of GDP.
- Reflecting improved economic and fiscal positions, Irish bond yield movements are continuing to trade in line with core European sovereign yields but remain low from a historical perspective (Figure 5.2.6). The yield on a ten year Irish government bond was trading at around 1 per cent in 2016, close to the French and German bond yield movements.
- In 2016, Irish Government revenue represented 27.5 per cent of GDP. Expenditure amounted to 28% of GDP. Figure 5.2.7 shows that across the EU, 'Social Protection' accounts for the major share of Government spending, followed by 'Health', 'General Public Services', and 'Education'. In line with EU rules, future increases in public expenditure will be based on the potential growth rate of the economy and safeguarded from dependence on cyclical revenues.
- Moving beyond the public finances, Figure 5.2.12 shows Irish households continued to reduce debt as a proportion of income in 2016. Notwithstanding this positive trend, they are still the

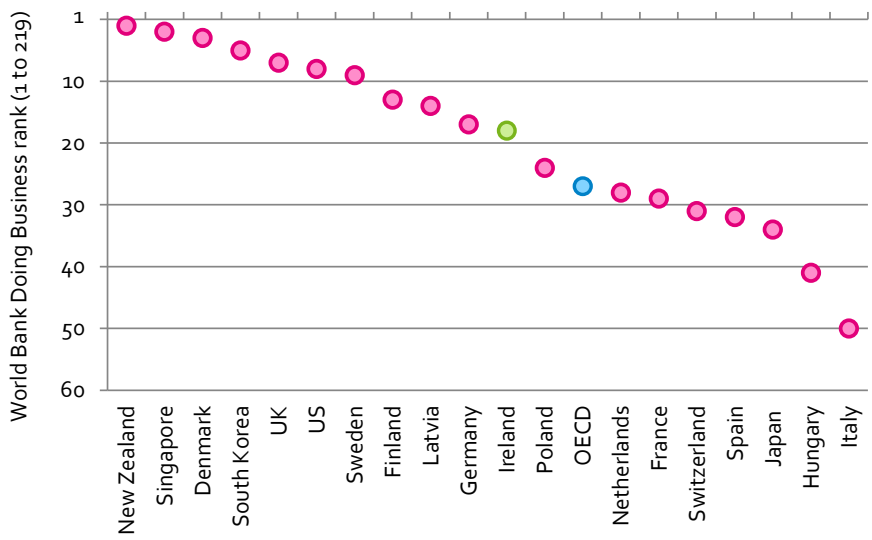
fourth most indebted households in the EU. The indebtedness of the business sector (non-financial corporations) also remains evident with the Irish level the third highest in the EU (Figure 5.2.13)

- **Endowments The productivity-based view of competitiveness emphasises the importance of endowments - that is natural resources, geographic location, demographics and size, as key dimensions in determining national competitive performance. 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 here.**
    - The evolution of the dependency ratio is a crucial element in determining the long-term funding and sustainability of Ireland's healthcare and pension systems. OECD population projections indicate that the age profile of the population across the OECD countries, including Ireland is increasing. While Ireland's birth rate decreased in the period 2010 – 2015, Figure 5.3.2 shows the Irish rate is considerably higher than the birth rate in the Euro area. In 2016 Ireland continued to have the youngest population in the EU. The Irish median age of 36.6 is increasing, but remains well below the median in the EU of 42.6 years (Figure 5.3.1). Over the period 2011-2016, the median age of the Irish population has increased by 2 years. Ireland had the fourth highest percentage increase in population (3.4%) between 2011 and 2016 in the EU (Figure 5.3.6), behind Luxembourg and Cyprus. The combined effect of natural increase and positive net migration resulted in an overall increase in the population of 38,400 bringing the population estimate to 4.67 million in April 2016.
    - As Figure 5.3.3 shows, at 21.2 per cent Ireland has the 7th lowest old age dependency ratio in the OECD, and the 2nd lowest in Europe. Ireland's dependency ratio is increasing steadily but is still expected to be below the OECD average in 2025. Ireland's rising dependency ratio increases the importance of expanding labour force participation and employment. Despite the substantial percentage increase in the population (12%) between 2006 and 2016, and the improvement in Ireland's labour market, the labour force growth (active population, 15 years and over) for the same period is only 2.57 per cent, below the EU average of 4.19 per cent.
    - Apart from social loss associated with emigration, outward migration of skilled labour causes loss of talent which is important for achieving sustainable competitiveness). Total emigration from Ireland continues to decline and in 2016 is estimated at 76,200 (Figure 5.3. 4). The number of immigrants increased to 79,300, resulting in total net inward migration of 3,100. CSO data shows that while in the period 2011-2015 more third level qualified people left Ireland than arrived in the country, in 2016 this trend is reversed, which represents a gain of skills for the Irish economy (Figure 5.3.5). Notwithstanding this positive trend, the figure of the emigrants with third level qualifications remains high (45% of all emigrants).
    - Population density has a direct impact on competitiveness – particularly through its impact on infrastructure networks and service delivery costs. Ireland is one of the most sparsely populated countries in Europe. In 2015 Ireland's population density was 67.9 persons per km2, up from 60.8 persons per km^2 recorded in 2005 (Figure 5.3.7). There is significant divergence across regions with density in Dublin estimated at 1427.6 persons per km^2 compared to 32.1 persons per km2 in the West. Ireland's rate of urbanisation, while increasing, is relatively low. In 2016, 62.7 per cent of the Irish population lived in urban areas, a marginal increase of 0.7 per cent compared to 2011. The rural population constitutes 37.3 per cent of the total population. The fact, that 44 per cent of

the urban population lives in Dublin is an important consideration from a planning and development perspective.

5.1 Institutions

Figure 5.1.1 Ease of doing business rankings[41], 2017

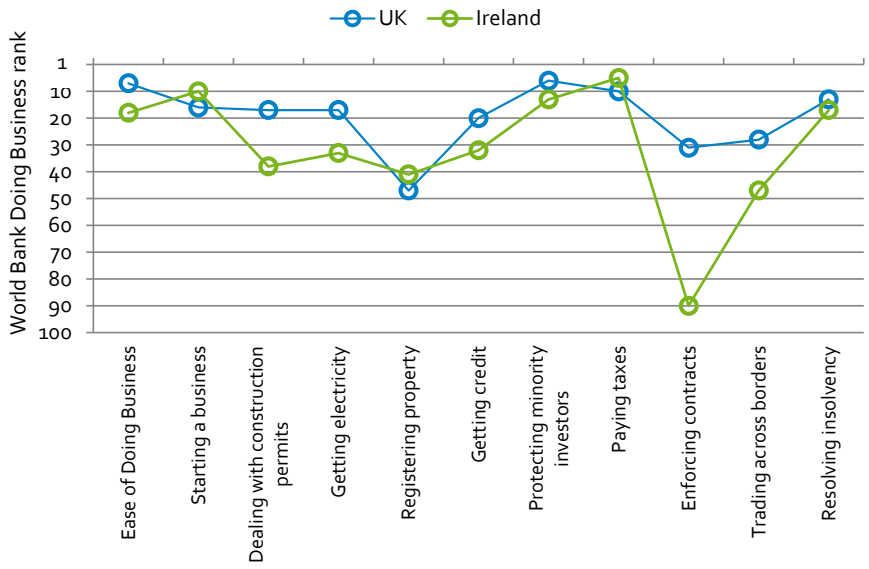


The World Bank's Doing Business accesses regulations affecting SMEs, and measures regulations applying to companies throughout their life cycle. In 2017, Ireland is ranked 18th, a fall of 1 place from last year. Ireland is 5th in the Euro area behind Estonia, Finland, Latvia and Germany but ahead of Netherlands and Spain.

OECD rank: 13th

Source: World Bank

Figure 5.1.2 Ease of doing business Ireland and the UK, 2017



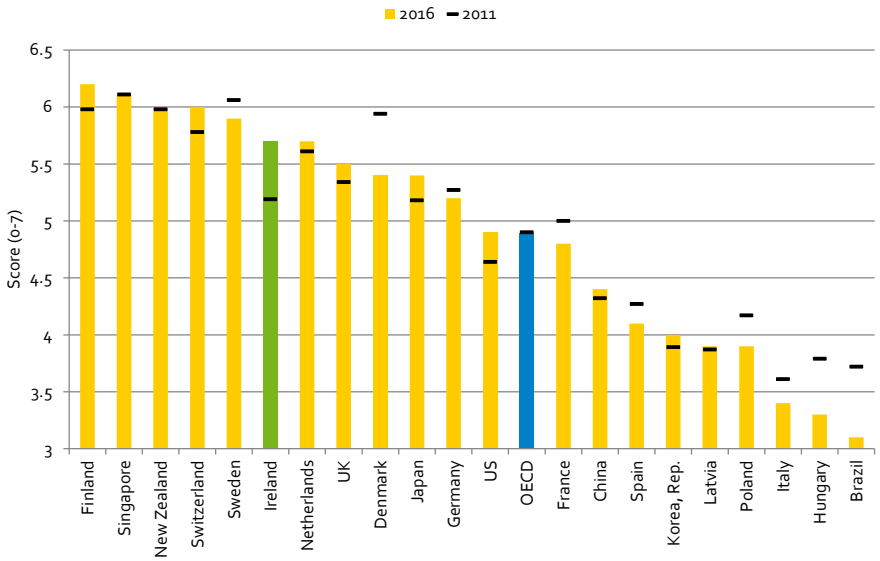
Our top 20 ranking indicates that Ireland has a comparatively good enterprise environment in which to do business. However, Ireland falls behind the UK in terms of dealing with construction permits, getting electricity and trading across borders. There is a significant room for improvement in the area of enforcing contracts.

OECD rank: 13th

Source: World Bank

[41] Due to changes in methodology, it is not possible to accurately compare performance over time.

Figure 5.1.3 Perception of institutional effectiveness, 2016



According to WEF a country's institutional environment (legal and administrative framework) is a major driver of competitiveness. Ireland is ranked in the top ten in terms of perceptions of judicial independence, protection of minority shareholders, strength of investor protection and property rights. Ireland's performance has improved since 2011 and is above the OECD average.

OECD rank: 7th (↑7)

Source: World Economic Forum

Figure 5.1.4 Perception of Government effectiveness, 2015

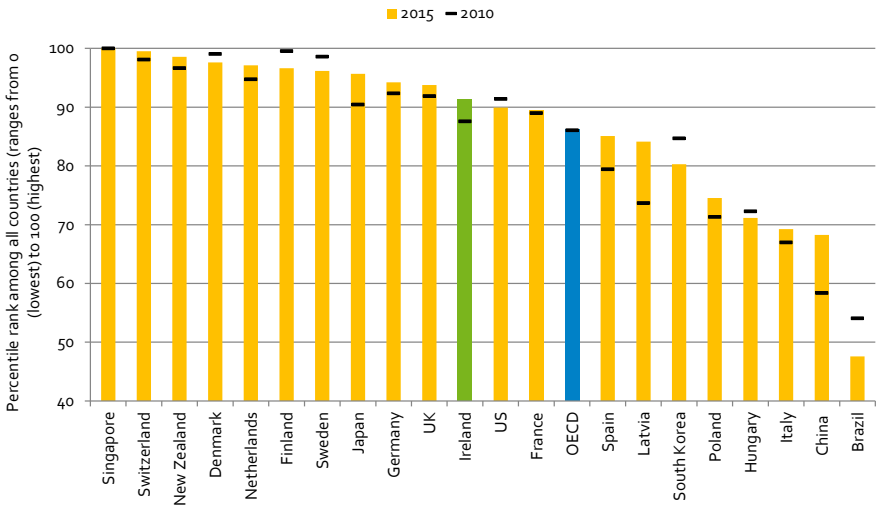


Figure 5.1.4 shows perceptions of the quality of public services, the quality and independence of the civil service, the quality of policy formulation and implementation. Ireland's performance has improved since 2010 and while behind a number of countries is above the OECD average.

OECD Rank: 14th (↑5)

Source: World Bank, Worldwide Governance indicators

Figure 5.1.5 Time to prepare and pay tax, 2016

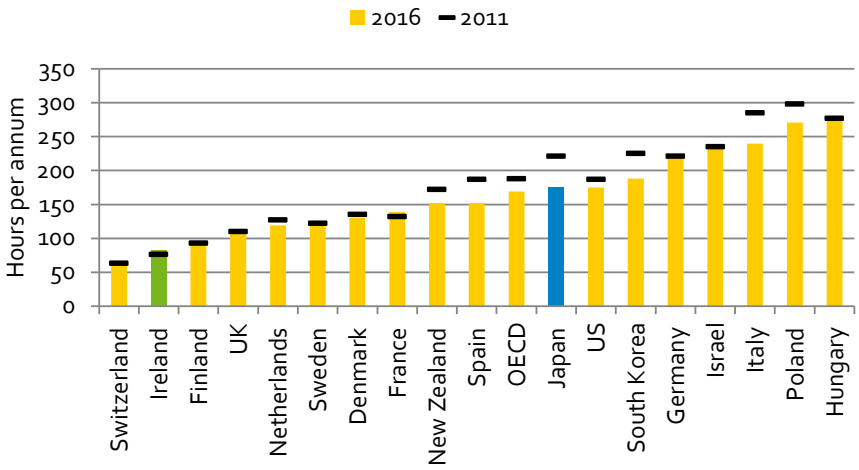
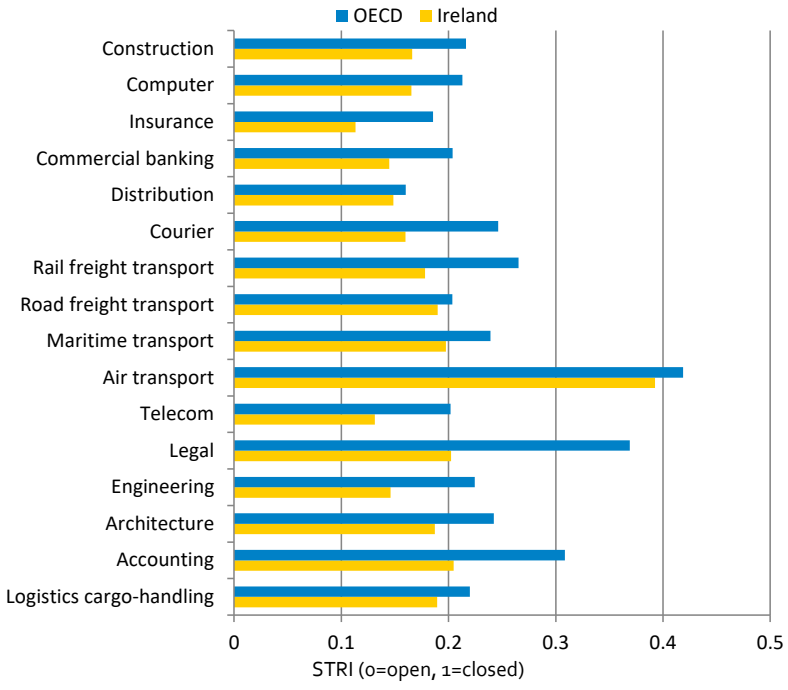


Figure 5.1.5 shows the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are considered - these include time taken to prepare tax figures, complete and file tax returns, and paying taxes. Ireland continues to perform strongly in this indicator.

OECD rank: 3rd (-)

Source: World Bank/PWC

Figure 5.1.6 Services Trade Restrictiveness Index, 2016



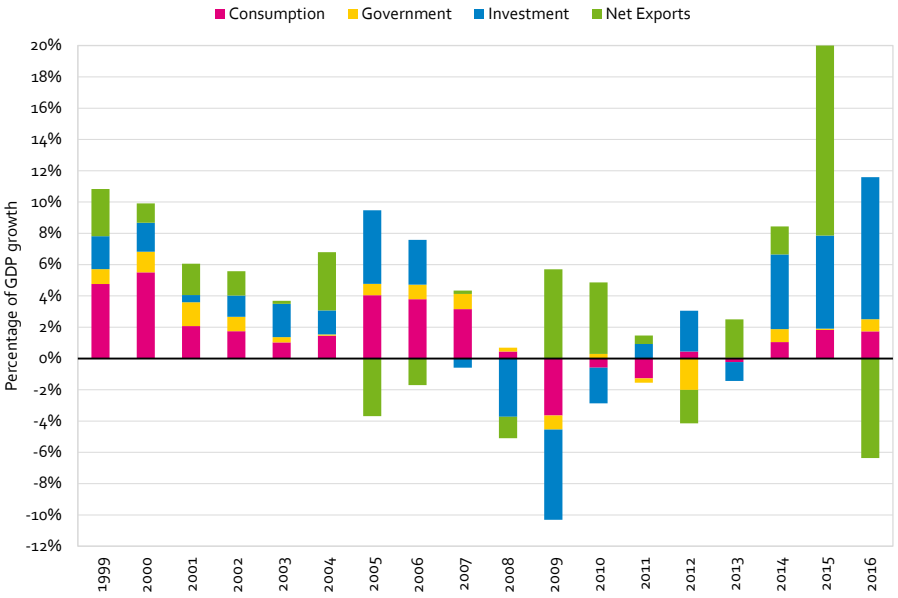
The Services Trade Restrictiveness Index helps identify which policy measures restrict trade across 19 major services sectors. The index quantifies restrictions on foreign entry, restrictions to movement of people, barriers to competition and regulatory transparency. Ireland's index is lower than the OECD average in all sectors, indicating that Ireland's trade in services is relatively open.

Rank: n/a

Source: OECD

5.2 Macroeconomic Sustainability

Figure 5.2.1 Components of Irish economic growth, 1999-2016

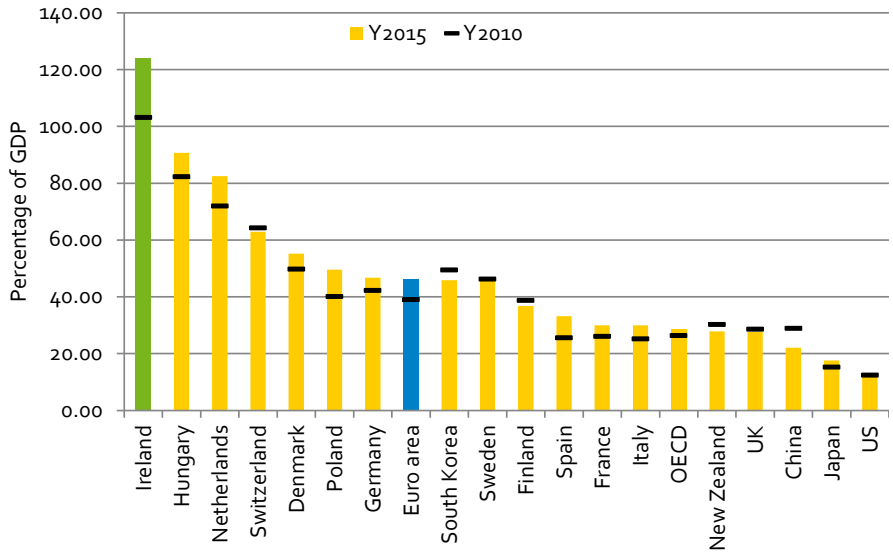


Prior to the economic crash, growth was driven by unsustainable increases in consumer expenditure and investment. During the recession, exports were a key driver of growth (+4.6% in 2010). Growth in 2016 is being driven mainly by significant increases in investment (+9.1%) and consumer spending (+1.7%), while the contribution of export had declined (-6.4%).

Rank: n/a

Source: CSO

Figure 5.2.2 Exports of goods and services as a percentage of GDP, 2015

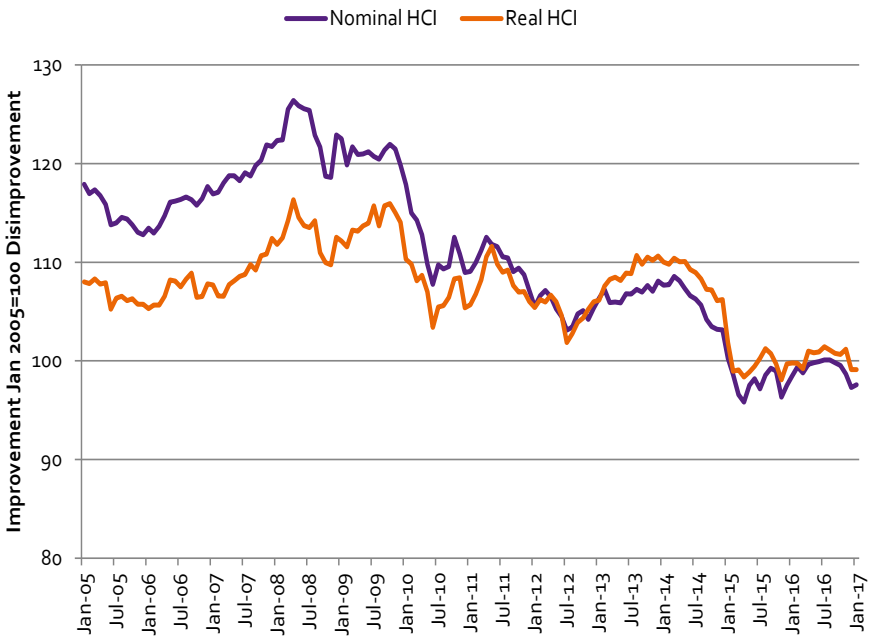


The Irish economy is very open with high levels of trade in both goods and services. Exports in Ireland increased from 103% of GDP in 2010 to 124% in 2015. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg.

OECD rank: 2nd(-)

Source: OECD

Figure 5.2.3: Harmonised competitiveness indicator (HCI) for Ireland, Jan 2005-Jan 2017

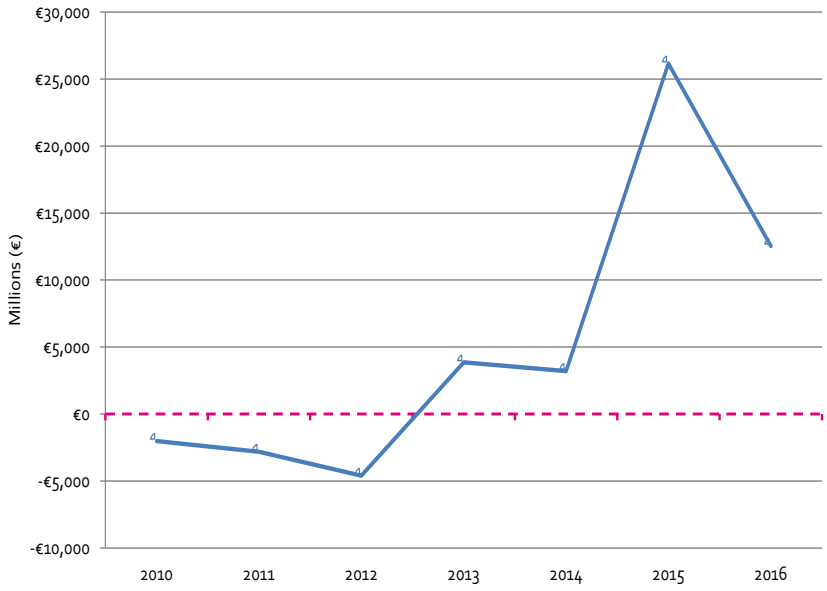


Source: European Central Bank

From March 2014 to January 2015, renewed euro depreciation provided a boost to Irish cost competitiveness. The latest data up to January 2017 show that the nominal HCI decreased marginally by 1 per cent, primarily as a result of exchange rate movements, whereas real HCI improved by 1 percent over the previous 12 months.

Rank: N/a

Figure 5.2.4 Balance of payments, current account (€millions), 2010-2016

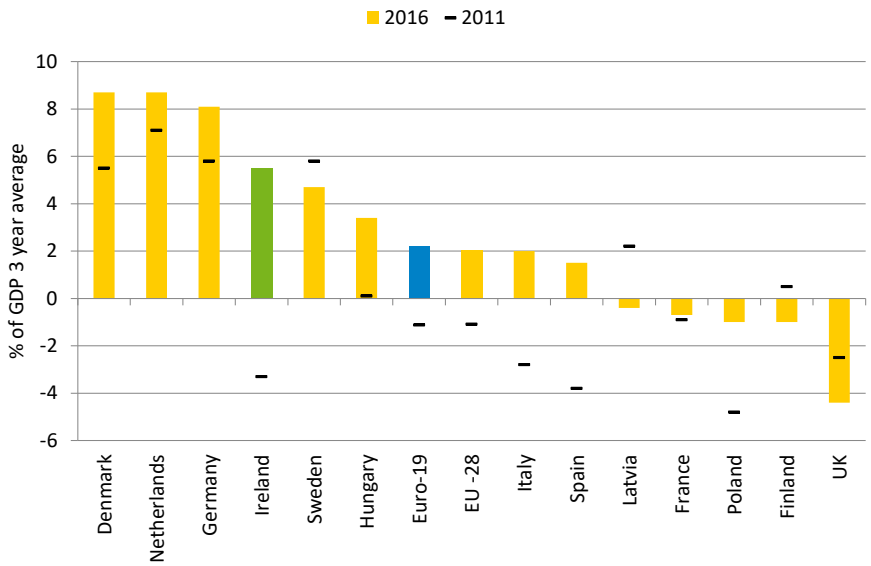


Source:CSO

The balance of payments current account is a measure of Ireland's financial flows with the rest of the world. Ireland's current account was in deficit in the fourth quarter of 2016 (-€11,132m). This is largely related to an increase in research and development service imports in the quarter. For the year 2016, the current account surplus is €12,544m, a decrease of €13,613m on 2015.

Rank: n/a

Figure 5.2.5 Balance of Payments Current Account as percentage of GDP 3 year average

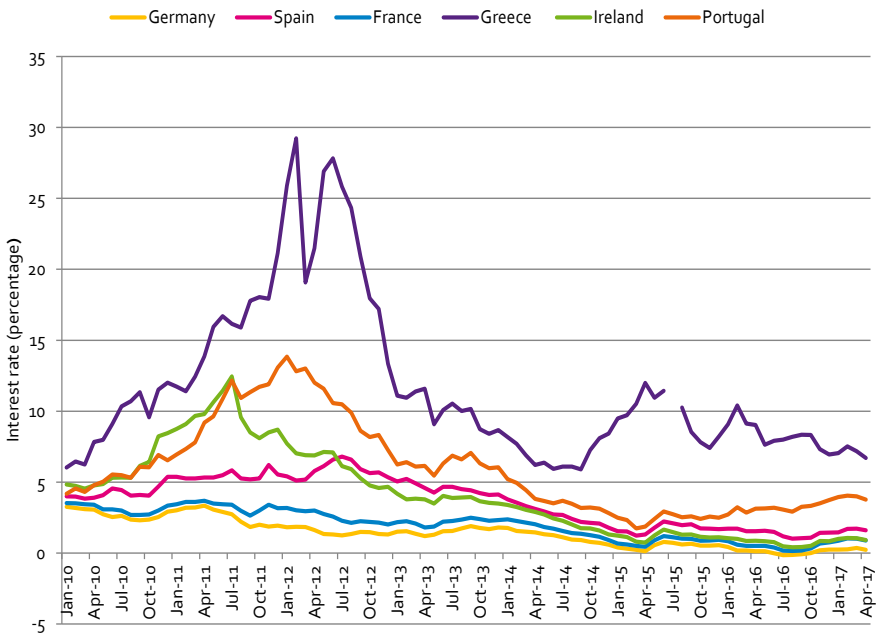


The balance of payments current account provides information about the transactions of the EU States with the rest of the world. Figure5.2.5 indicates that since 2011 Ireland's current account has moved from deficit to surplus. The figure is significantly above the EU average and Ireland is currently ranked 6th in the EU.

Euro area-19 rank: 5th(↑14)

Source: Eurostat

Figure 5.2.6 Ten-year government bonds (Interest Rates), 2010 -2017[42]



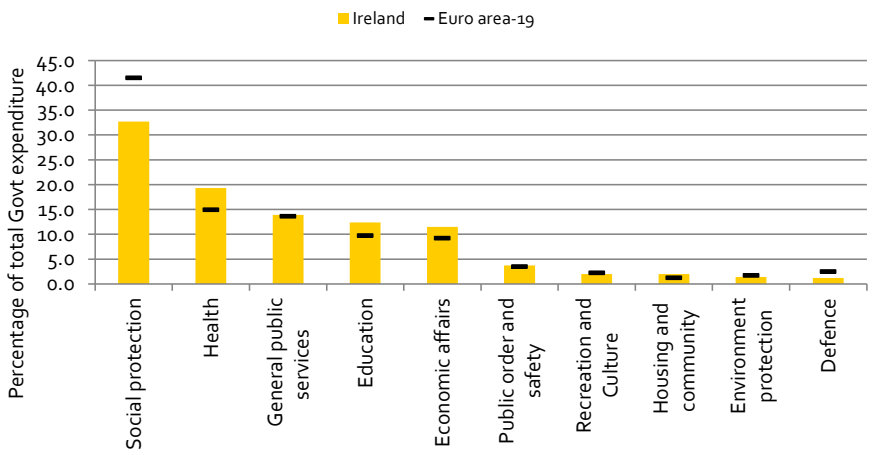
Reflecting improved economic and fiscal positions, Irish bond yield movements are continuing to trade in line with core European sovereign yields. The yield on a ten year Irish government bond peaked at 12% in 2011; it has been trading at around 1% in 2016 and the first quarter of 2017.

Rank: n/a

Source: ECB

[42] Owing to market closure in Greece no data are available for July 2015.

Figure 5.2.7 General Government expenditure by function, 2015

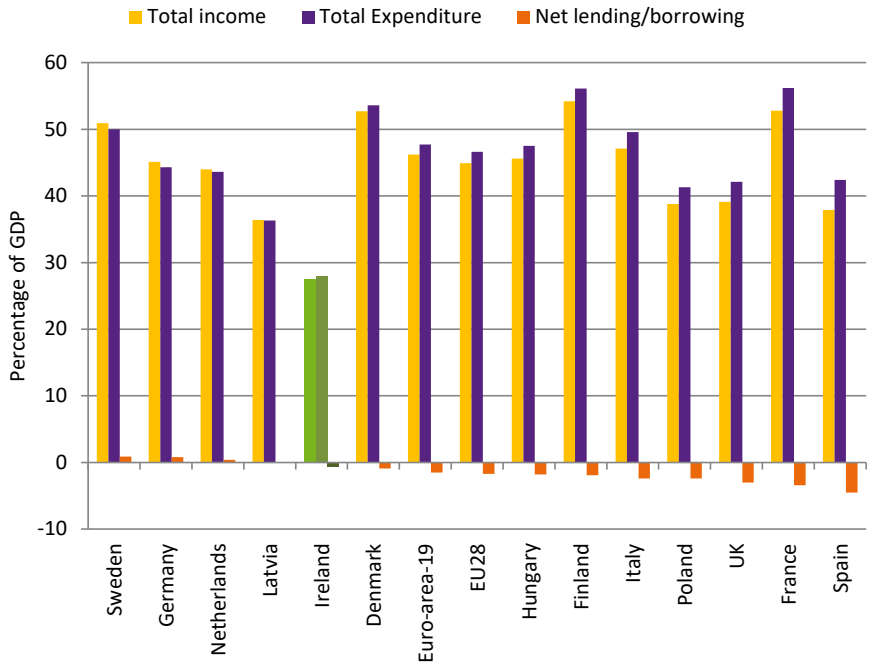


Across the EU, 'Social Protection' accounts for the major share of Government spending, followed by 'Health', 'General Public Services', and 'Education'. As a percentage of total Government expenditure, Ireland spends more on health (19.3%), economic affairs (11.5%) and education (12.4%).

Rank: n/a

Source: Eurostat

Figure 5.2.8 Total government revenue, expenditure and deficit, 2016

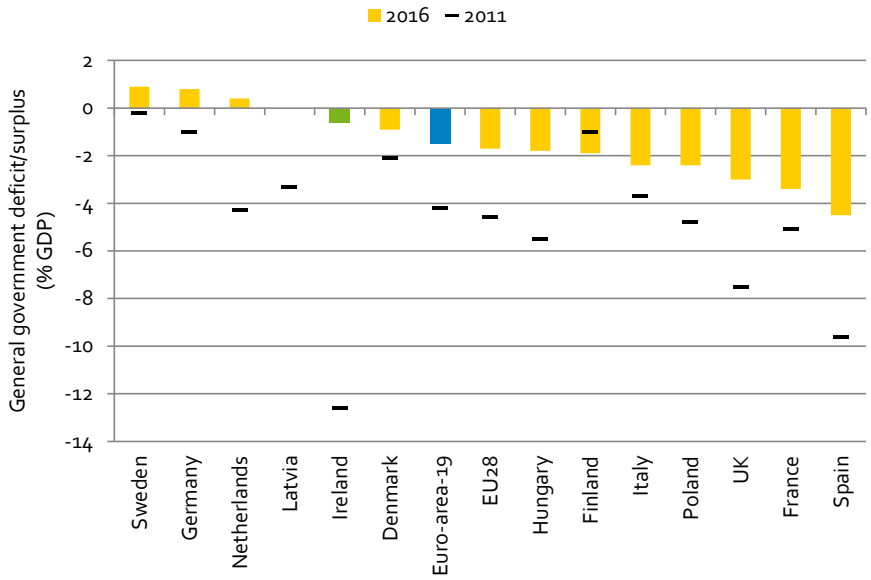


In 2016, Irish Government revenue represents 27.5% of GDP, a decline from 33.3% recorded in 2011. Expenditure also decreased from 46% in 2011 to 28% of GDP in 2016. Ireland's deficit declined significantly in recent years and in 2016 amounts to -0.6% of GDP (down from -12.6% in 2011).

Euro area-19 rank: Deficit: 10th

Source: Eurostat

Figure 5.2.9 General government deficit/surplus (as a percentage of GDP), 2016



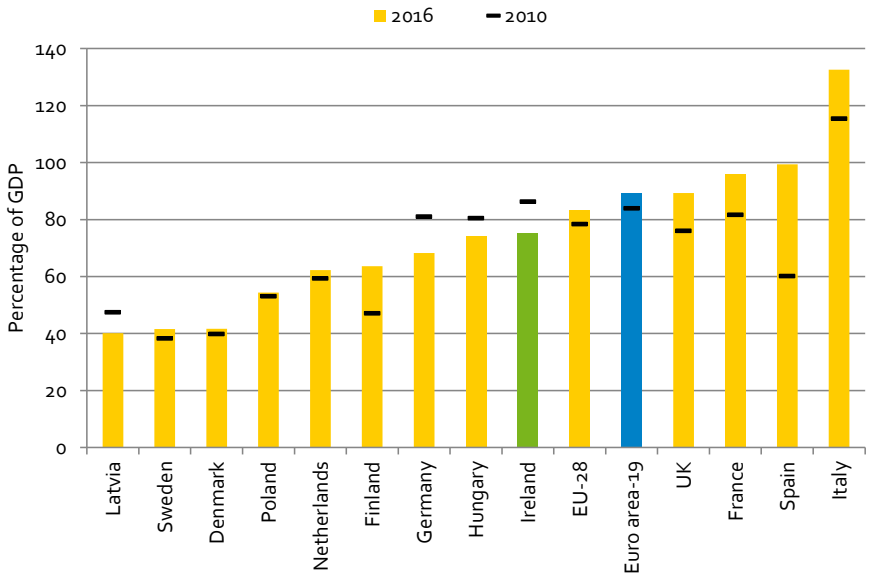
Source: Eurostat

Figure 5.2.9 shows the general government deficit in Ireland continued to fall in 2016 to 0.6% of GDP, down from 2% in 2015 and significantly below the deficit level of 12.6 in 2011. The Euro-area19 recorded a deficit of 1.5% with 8 States recording surpluses.

Euro area-19 rank:

10th (↑9)

Figure 5.2.10 General government gross debt (as a percentage of GDP), 2016

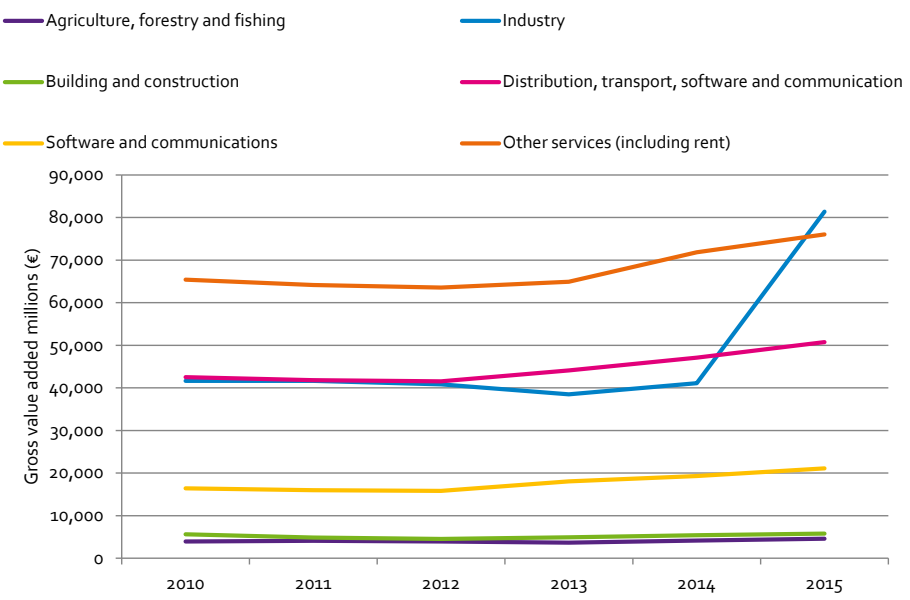


Source: Eurostat

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 119.5% in 2012-2013 but has decreased substantially. At 75.4% in 2016, it is below the UK 89.3% and the euro area 89.2%.

Euro area-19 rank: 10th (↑5)

Figure 5.2.11 Gross value added at constant factor cost by sector, Ireland, 2010-2015

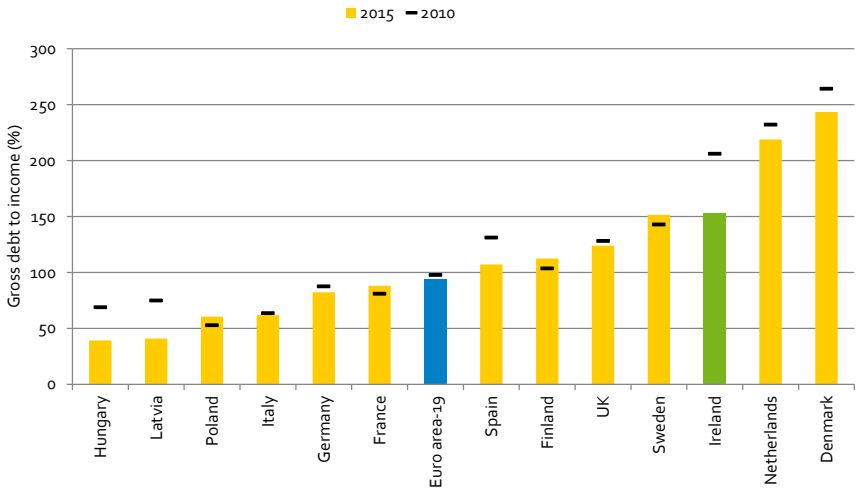


Source: CSO

In the period 2010 - 2014, the gross value added contributed by the sectors, as shown in Figure 5.2.11, is relatively stable. In 2015 all sectors experienced positive growth. The industry sector recorded a growth of 97%, while the other main sectors had annual increases ranging from 5.7% to 10.4%.

Rank n/a

Figure 5.2.12 Gross debt-to-income ratio of households, 2015[43]



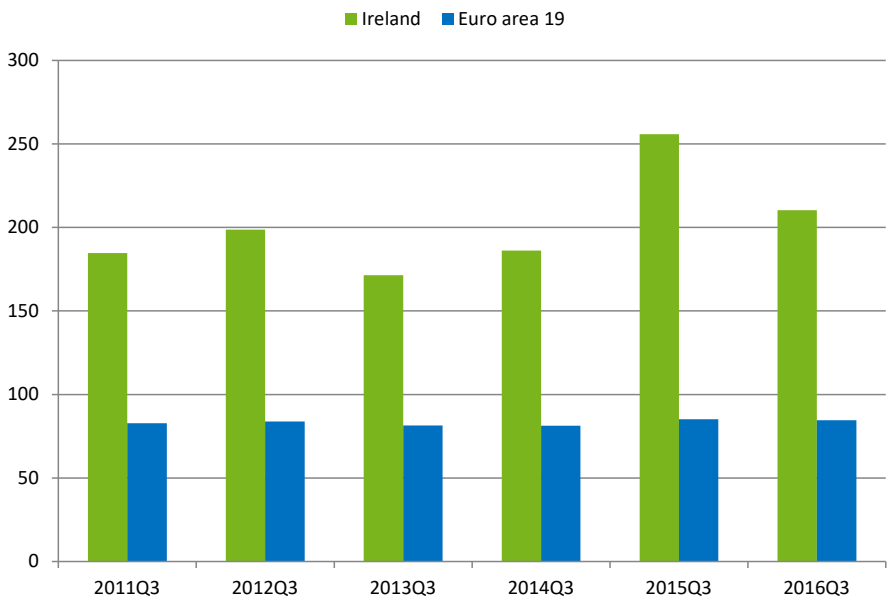
Source: Eurostat

Between 2010 and 2015, Irish households reduced their debt as a proportion of disposable income by 53% to 153.01%- 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.

Euroarea-16 rank: 14th(↑1)

[43] Euro area-16 excludes Greece, Luxembourg and Malta. Information for France is provisional

Figure 5.2.13 Non financial corporations debt-to GDP ratio, 2011-2016



Source: European Central Bank

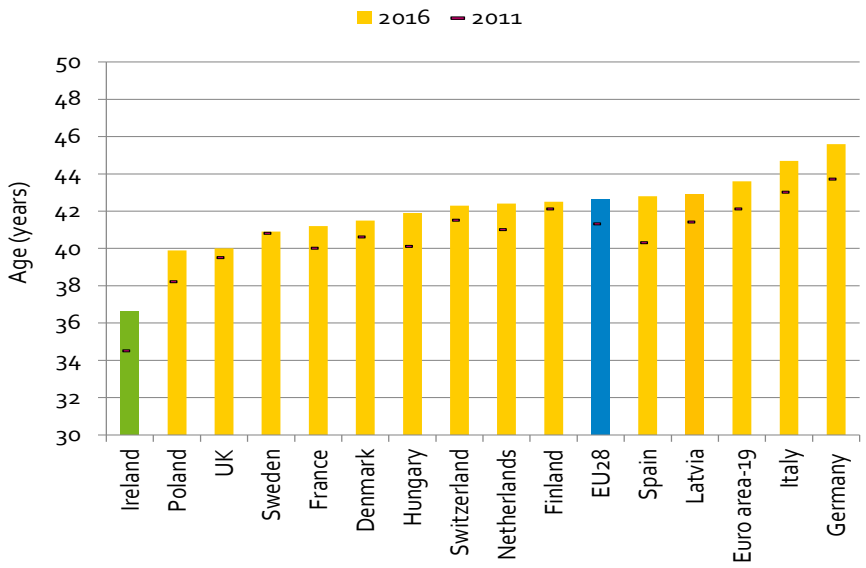
High indebtedness has a negative impact on companies' performance and renders them vulnerable to revenue and interest rate shocks. The Irish business sector (NFC) is the third most indebted in the EU and euro area. Ireland's NFC's debt is largely affected by the activities of the multinationals; a proportion of the debt is associated with non-residential loans.

Euro area-19 rank[44]: (-)

[44] Due to lack of data in 2011 and 2012, the ranking is based on Q32013.

5.3 Endowments

Figure 5.3.1 Median population age, 2016[45]

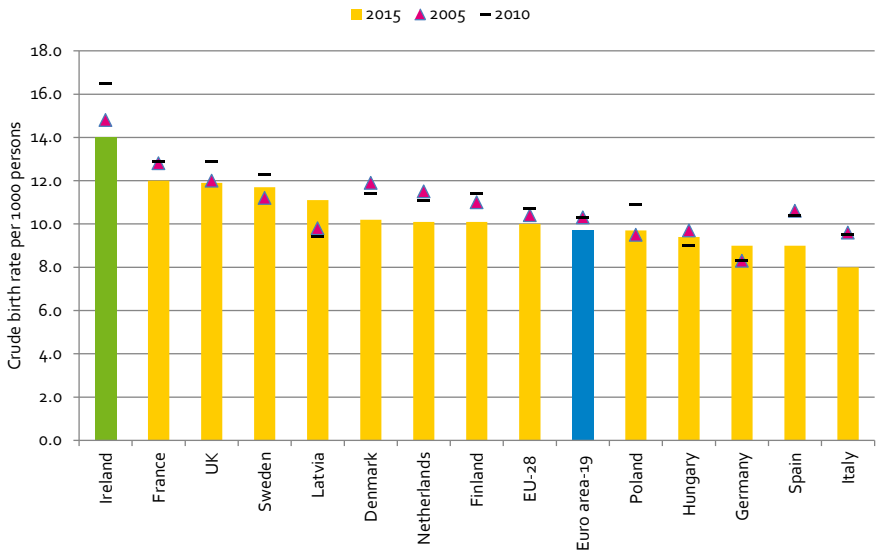


Source: Eurostat

Due to ageing and changes in family formation, the median age of the Irish and EU population has steadily increased in the last decades. In 2016 Ireland continues to have the youngest population in the EU (median age 36.6). The median age of the EU population was 42.6.

Euro area-19 rank: 1st(-)

Figure 5.3.2 Crude Birth Rate, 2015[46]



Source: Eurostat

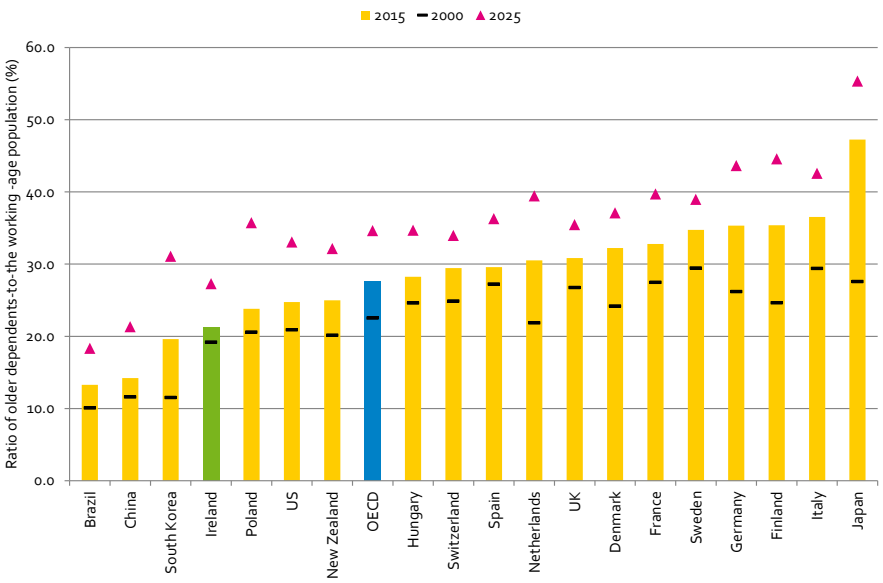
The crude birth rate is the ratio of the number of live births during the year to the average population in that year. Ireland has consistently topped the EU rankings. The birth rate in 2015 is 14, considerably higher than the birth rate in the EU area-19 (9.7). However, Ireland's birth rate figure has decreased in the period 2010 – 2017.

Euro area-19 rank: 1st (-)

45 Data for EU-28, EU-19 and France is provisional. Data for Portugal and UK is estimated

46 Data for Ireland and EU-19 is provisional, for UK - estimated and for EU28 - estimated provisional.

Figure 5.3.3 Old age dependency ratio, 2015

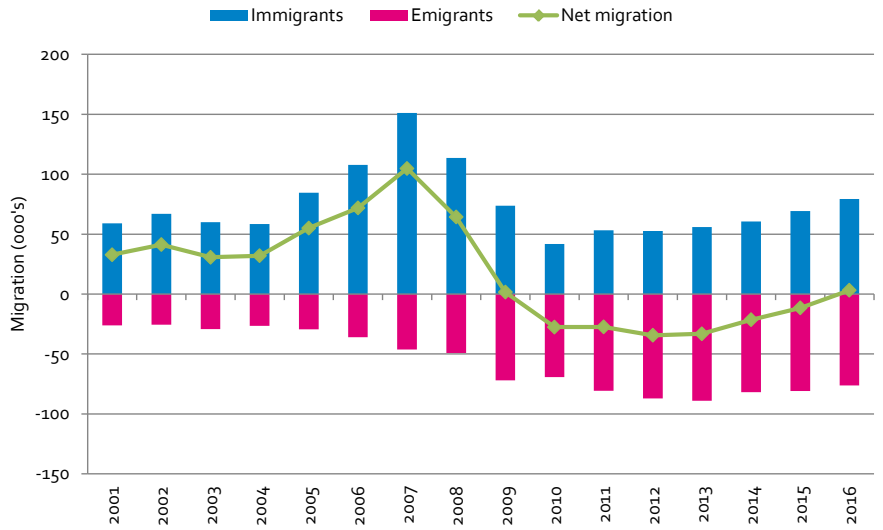


The age dependency ratio shows the ratio of persons older than 64 to the working-age population. At 21.2%, Ireland has the 7th lowest ratio in the OECD, and the 2nd lowest in Europe. Our dependency ratio is increasing steadily but is expected to be below the OECD average in 2025.

OECD rank: 7th (-)

Source: OECD

Figure 5.3.4 Net migration (000s), 2001 - 2016[47]



Total emigration from Ireland continues to decline and in 2016 is estimated at 76,200. The number of immigrants increased to 79,300, resulting in total net inward migration of 3,100. This is the first record of positive net migration since 2009.

Rank n/a

Source:CSO

47 Data for 2016 is preliminary

Figure 5.3.5 Net migration 15 years and over by educational attainment, 2011-2016[48]

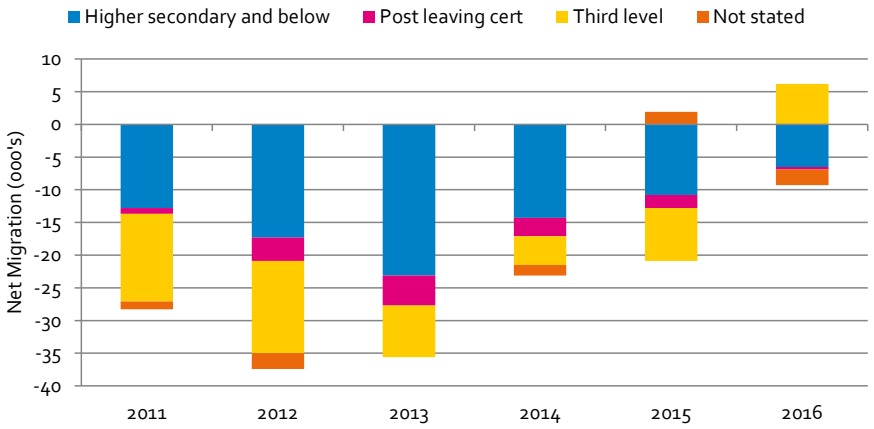
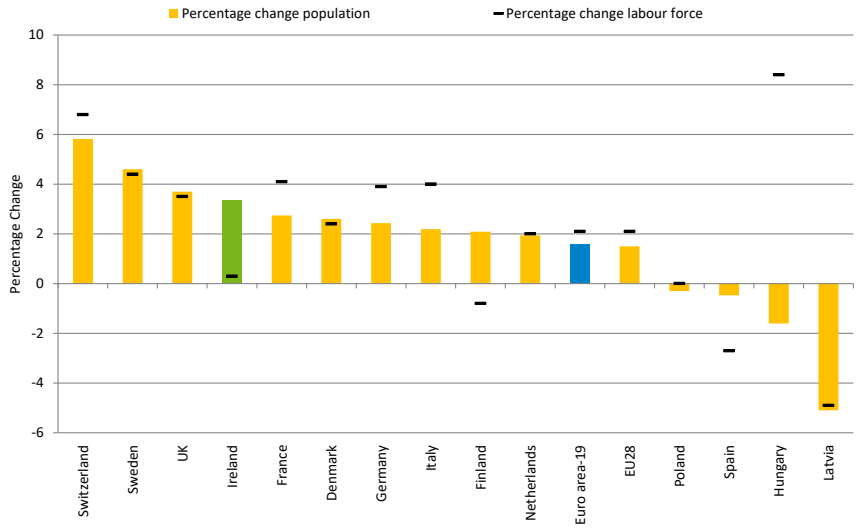


Figure 5.3.5 shows the estimated net migration by education attainment. While in the period 2011-2015 more third level qualified people have left Ireland than arrived in the country, in 2016 this trend is reversed. However, the proportion of emigrants with third level qualifications remains high (45% of all emigrants).

Rank n/a

Source: CSO

Figure 5.3.6 Population and labour force growth, 2011 - 2016



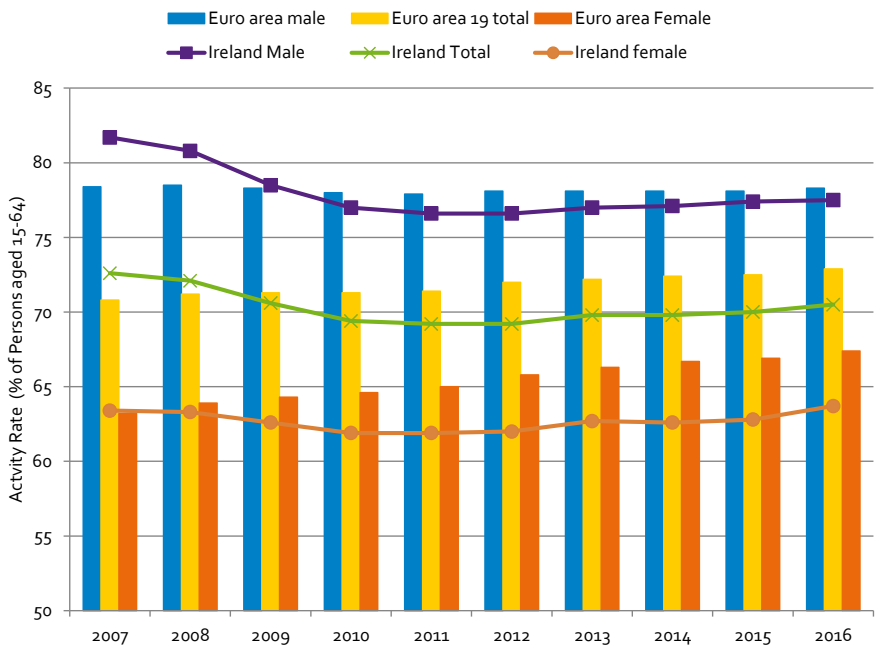
In the period 2006-2011, Ireland's population increased at a faster rate (8.6%) than in the period 2011-2016 (3.4%). In 2016 Ireland was fourth in the euro area in terms of percentage increase in population. Ireland's labour force growth (≥ 15 years) has also slowed from 1% in 2006-2011, to 0.3% in 2011-2016.

Euro area-19 rank:
Population: 4th (↓1)
Labour Force: 10th (↓1)

Source: Eurostat and CSO

48 The information for 2011, 2012, 2013, 2014 and 2016 is preliminary.

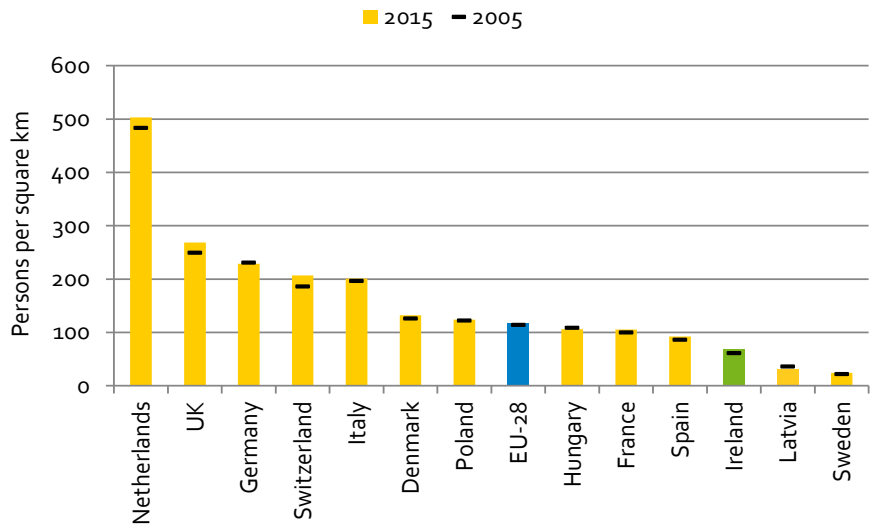
Figure 5.3.7 Labour Force Activity Rate[49], 2007-2016



Source: Eurostat

Activity rates in Ireland declined during 2008-2012 and have been slowly recovering since. In 2016 the total rate (70.5%) was behind the Euro area average (72.9%). At 63.7% the female rate is now above pre-crisis levels but below the Euro area average (67.4%) and the best performing Euro area country, Netherlands (75%) and UK (72.3%). **Euro area rank 2016:** Total 14th , Male 11th , Female 15th

Figure 5.3.8 Population density, 2005-2015[50]



Source: Eurostat

In 2015 Ireland's population density was 67.9 persons per km^2, up from 60.8 persons in 2005. Ireland is one of the most sparsely populated countries in Europe. There is significant divergence across regions with density in Dublin estimated at 1427.6 persons per km^2 compared to 32.1 per km^2 in the West.

EU-28 rank: 22nd (-)

[49] The active population (labour force) is defined as the sum of employed and unemployed persons.
[50] Data for EU-28 for 2015 is estimated

Annex 1: Methodology

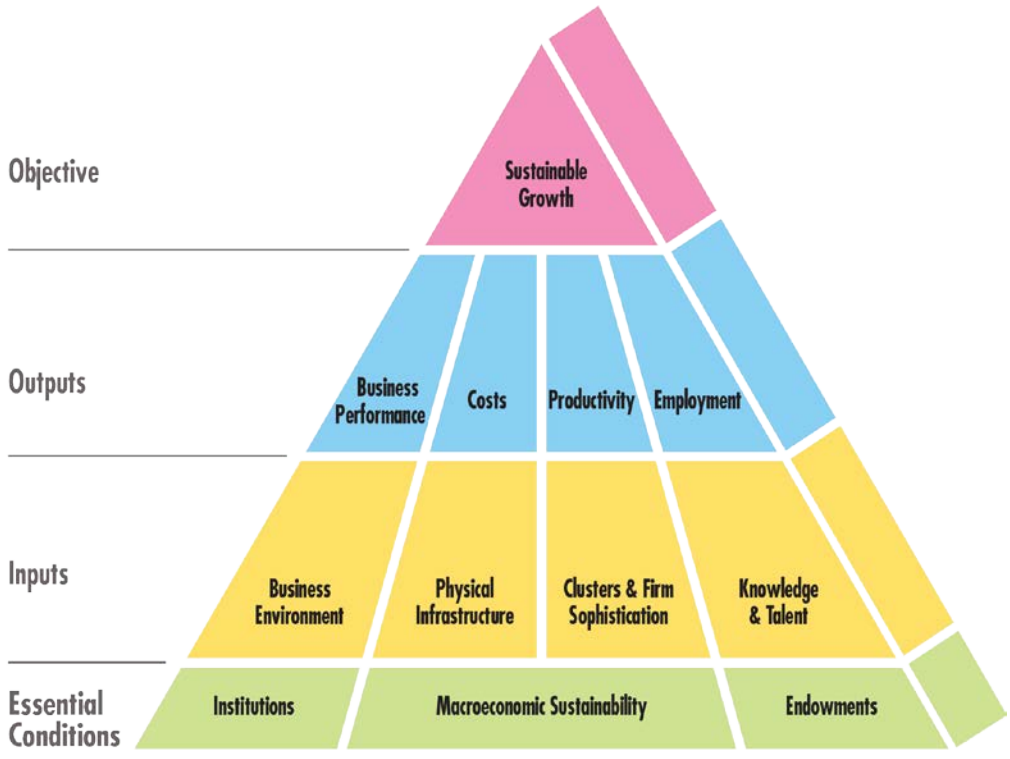
Competitiveness performance reflects the interaction of a wide range of factors that combined; determine a firm's ability to compete successfully in international markets. Levels of enterprise productivity, innovation, investment, employment and profitability are the key determinants of their ability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

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 A.1 The NCC Competitiveness Framework



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.

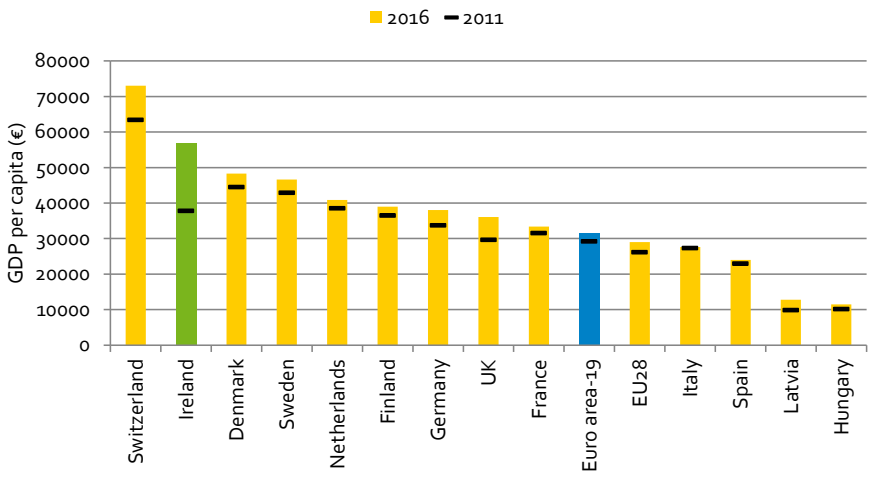
The bottom tier of the pyramid is a new addition to the Council's framework. Described as essential conditions, this tier reflects the impact that a number of largely exogenous factors (exogenous, at least from the perspective of competitiveness policy) have on national competitiveness. These factors 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.

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 2.2.1 GDP per capita current prices, 2016[51]



Over the course of the recession, Ireland's GDP per capita declined but remained relatively high. As a result of exceptionally strong economic growth in recent years, at €56,800, Ireland's GDP per capita is the second highest in the Euro area.

Euro area-19 rank: 2nd (↑1)

Source: Eurostat

- 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 in the time period set out in the chart, 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.

[51] No data available for Switzerland for 2016, provisional data for 2015 used instead. Data for Netherlands, Greece, Cyprus, Spain and France is provisional, data for Poland and Portugal is estimated.

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