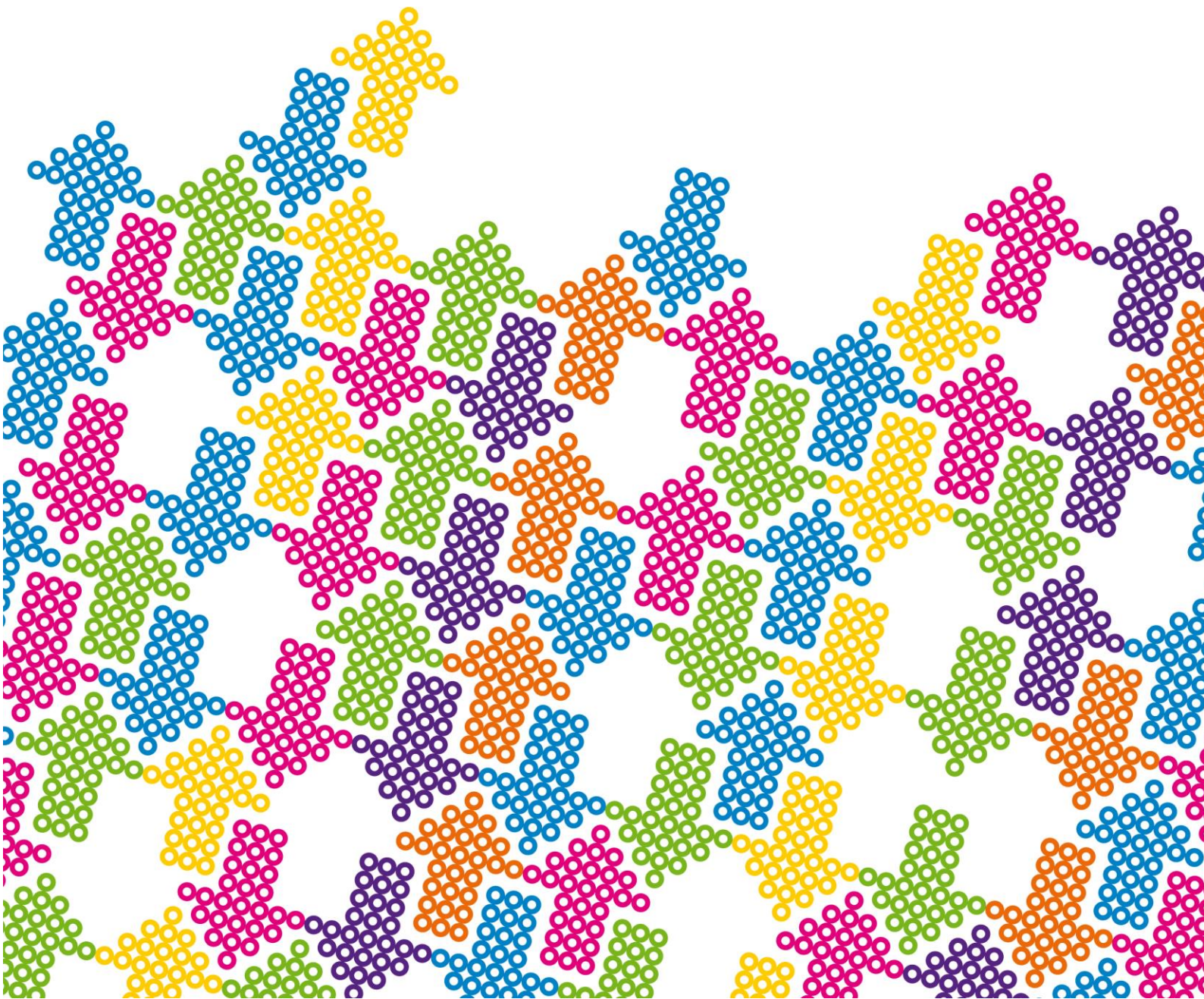




Ireland's Competitiveness Scorecard 2018

July 2018



Introduction to the National Competitiveness Council

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

In accordance with the European Council recommendation of September 2016 on the establishment of National Productivity Boards by Eurozone countries, in March 2018, the Government mandated the National Competitiveness Council as the body responsible for analysing developments and policies in the field of productivity and competitiveness in Ireland.

Each year the NCC publishes two annual reports:

- Ireland's Competitiveness Scorecard provides a comprehensive statistical assessment of Ireland's competitiveness performance; and
- Ireland's Competitiveness Challenge uses this information along with the latest research to outline the main challenges to Ireland's competitiveness and the policy responses required to meet them.

As part of its work, the NCC also:

- Publishes the Costs of Doing Business where key business costs in Ireland are benchmarked against costs in competitor countries; and
- Issues competitiveness bulletins and other papers on specific competitiveness issues.

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| Kevin Callinan | Deputy General Secretary, IMPACT Trade Union |
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Chairman's Preface



Despite intense competition, Ireland experienced continued strong economic growth in 2017. The economic outlook for 2018 and 2019 is for the most part, positive but the Council is concerned that there is a significant threat to competitiveness and the medium-term sustainability of Ireland's economy.

In terms of competitiveness, Ireland's fortunes are changing rapidly. In the aftermath of the economic crisis, Ireland benefitted from a highly advantageous set of circumstances that has led to rapid recovery: the low value of the euro boosted our exports; global interest rates and oil prices remained low; a sizeable cost reduction due to the downturn increased the competitiveness of firms; and, excess infrastructural capacity allowed rapid expansion without associated cost increases or congestion. Most of these factors are now turning against us and we

are beginning to see an erosion of Ireland's competitiveness. Ireland's economic model is vulnerable in terms of our reliance on a small number of firms in a small number of sectors delivering the bulk of our productivity performance. And, we are beginning to see a return to domestic policies that threaten the sustainability of the economy such as rapid house-price inflation, transport congestion, failure to meet our climate obligations, and failure to invest sufficiently in R&D and to address the funding crisis in higher education. Ireland is on an inevitable path to competitiveness loss placing us in a vulnerable position if the international economic conditions were to worsen.

Events which influence the performance of the Irish and global economy are unfolding rapidly. Several external uncertainties and domestic challenges endanger national competitiveness in the medium-term. Global economic uncertainty, particularly in trade policy, has increased and developments in US tax policy and international proposals on tax reforms pose a threat to growth. Brexit remains the single biggest, and most immediate, threat to Ireland's medium-term prosperity.

Domestically, the economy cannot grow in a sustainable manner unless the macro-environment is stable. We must avoid, at all costs, a return to short-term policymaking, which results in boom to bust effects when the economic cycle inevitably slows. While the headline measures of economic growth are positive, it is worrying that Ireland's debt per capita is the highest in the EU at over €42,000 per person. In 2007, as the country entered into the economic crisis, it was less than €11,000. To improve our capacity to absorb and respond to economic shocks, the Government must continue its efforts to reduce debt and avoid any narrowing of the tax base. Recent developments in the national accounts highlight the highly globalised nature of economic activity in Ireland. Multinational enterprises have been, and will remain, integral to our economy. In comparative terms, the share of multinational activity in Ireland is high, and their activities have a significant bearing on our economy. A significant concern is that the sustainability of Irish growth is threatened by the reliance of the economy on a small number of companies, a small number of export markets and a narrow range of products and services. There is a need to evolve into new products, markets and sectors, whilst maintaining the competitive advantages in existing ones. Improving Ireland's relative tax competitiveness to create a supportive environment for SMEs is crucial.

As the economy continues to grow, cost pressures and capacity constraint are becoming more prominent. Ireland performs below competitor countries particularly in terms of costs of residential property, labour, credit, energy and services prices. It is vital that policy development does not negatively impact on enterprise competitiveness, particularly in terms of increased financial and administrative costs to business. Ireland's

projected failure to meet its 2020 emissions reduction obligations in respect of climate change requires a step-change in policy development and societal behaviour.

As a small open economy, productivity remains fundamental to growth. Productivity levels and growth rates in Ireland are strong but our performance is heavily influenced by a small cohort of enterprises which disguises, to a degree, underperforming sectors and boosts Ireland's productivity levels. Bridging the productivity gap that exists between the most productive firms and lagging firms is vital for sustainable growth. The availability of qualified, work-ready skills and talent is a fundamental source of competitive advantage and a key driver of productivity growth. As the economy is approaching full employment, job vacancy levels are increasing and the need for certain skills is becoming more pronounced. Increasingly rapid changes in the world of work, driven by digitalisation, bring not only the need for ICT specialist skills but also affect the competency requirements across all sectors, particularly those exposed to the risk of automation. Ireland's main challenge is to equip more than half of the population with at least basic digital skills. Policies that facilitate skills adaptability are necessary to prevent polarisation of the labour market.

In an economy approaching full employment, creating conditions for increasing participation rates and attracting talent from abroad proves crucial. The availability of affordable high-quality child and after-school care, and policies encouraging older workers to remain in the labour force longer, could help to address skills shortages and improve Ireland's attractiveness as a location to work and live. Currently, Ireland's high marginal personal tax rates are a major factor in deterring mobile skilled labour. The shortfall and affordability of residential housing can also influence decisions around relocation of talent. Despite an increase in construction activity, strong demand, particularly for apartments in urban areas, means that property price inflation is likely to continue. High rents push the cost of living out of line with other developed European economies. Increasing property prices and rental costs, combined with a tight labour market, are likely to result in higher wage demands and diminish Ireland's ability to attract and retain talent.

Innovation is a key driver of productivity growth. Ireland's national R&D investment levels lag our key competitors. Measures which enhance the absorptive capacity of domestic enterprises to utilise technology would help reduce Ireland's asymmetric productivity performance. Ireland must transform from an innovation follower into a leader. Inadequate investment in higher-education, and the associated slide of Irish institutions in the university rankings, is a perfect example of a failure to invest in Ireland's future competitiveness.

Targeted and timely capital expenditure in infrastructure is one of the principal means by which government can enhance productivity and competitiveness. Ireland's planning and development framework must be evidence-based, focussed, transparent, timely and agile. A critical challenge now is our capacity to deliver effectively-connected infrastructure projects that drive future productivity growth, that maximise returns on investment and which do not contribute to overheating the economy, and to do so in a way that ensures value for money in the face of low productivity levels and high-demand in the construction sector.

Improving our competitiveness is the key to our efforts to ensure Ireland develops a sustainable economic model that avoids a boom and bust cycle. Ireland's recent fall from 6th to 12th most competitive economy, as benchmarked by the Institute for Management Development, is a timely reminder that our relative competitiveness is under constant threat. The near-perfect competitiveness conditions Ireland has enjoyed are over. The risks to Ireland's prosperity at this point are increasing and the process of reform and improvement must be intensified if Ireland is to avoid the kind of trajectory that we experienced in the lead up to the last economic crisis. In this report, the Council is sounding a competitiveness alarm.

Professor Peter Clinch

Chair, National Competitiveness Council

Executive Summary

A range of indicators used in this year's Scorecard shows that the Irish economy continued its expansion in 2017 and into 2018. As well as the headline measures of economic growth, the labour market and public finances continue to improve. Our taxation regime, highly skilled young workforce, and environment in which to do business remain for the most part relatively competitive. Ireland performs well in both subjective and objective measures of well-being, indicating that the country is an attractive location to live and work.

While the economic outlook for Ireland appears positive, Ireland's competitiveness is under threat. The sustainability of growth is threatened by the reliance of the economy on a small number of highly productive exporting companies. The globalised nature of the economy makes Ireland susceptible to negative economic shocks, which are outside the influence of domestic policymakers. Global economic uncertainty, particularly in trade policy, has increased in 2018. Along with continued ambiguity regarding the outcome of Brexit, external factors as ever pose a serious risk.

Domestically, fast growth is beginning to manifest itself in cost pressures and capacity constraints and if not addressed, these deficiencies could become more acute in the short term. As the economy continues to grow, ensuring our economic model is competitive, balanced and resilient to shocks takes on even more significance. It is important that we do not loosen fiscal discipline (i.e. unsustainable current expenditure increases, or shrinking tax ratios) at this stage as this would undo much of the progress achieved to date, and would have potentially significant negative implications for future competitiveness. It is vital that a careful balance is struck between addressing weaknesses and deficiencies in infrastructure and implementing policy in a manner which does not contribute to overheating or unbalancing the economy.

Cost competitiveness is critical for an economy like Ireland's. While cost and price pressure has been modest in recent years, Ireland remains a relatively expensive country in which to live and work. As the economy continues to grow, cost pressures are evident in key areas – particularly in relation to property, labour costs, credit and services prices, where Ireland performs below competitor countries. With the labour market likely to tighten further, upward pressures on labour costs can be expected in several sectors and across occupations. Measures to encourage labour force participation can help alleviate labour cost pressure.

Increasing productivity, particularly in the SMEs sector, is also vital. Productivity levels and growth rates in Ireland are strong, but skewed by globalisation activities. Our performance is heavily influenced by a small cohort of enterprises. Bridging the productivity gap that exists between the most productive firms and laggard firms is vital for sustainable growth prospects. Developing Ireland's infrastructure base is a fundamental challenge to enhancing productivity. While capital investment levels are projected to increase over the medium term, at present they remain low and infrastructure pressures are rising. Well planned infrastructure is important in increasing labour mobility, encouraging enterprise and ensuring Ireland is an attractive location for talent.

Although Ireland's export performance is a major contributor to Ireland's economic growth, the range of products and services exported and the base of exporting enterprises is relatively concentrated. The continuous digitalisation of the economy is altering the structure of long established business models, supply and value chains, and productivity, consumption and competition patterns. Ireland's long-term productivity prospects will be dependent on the take up and diffusion of innovative technologies, infrastructure development, skills availability and reform of regulatory frameworks.

While our competitiveness performance in recent years has been positive, it is vital that we act now to preserve the progress made to date and to drive further improvements in Ireland's competitiveness.

How Ireland Performs

Competitiveness is a multidimensional concept incorporating many interlinked and interdependent factors; reflecting this complexity, Ireland's Competitiveness Scorecard analyses over 170 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 bird's-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 2018 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 set out below.

Competitiveness performance

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 several international competitiveness indices has improved in recent years. The 2017/2018 WEF Global Competitiveness Report shows Ireland is currently ranked 24th most competitive economy, a decline of one place in the year. Using the IMD measure of competitiveness, Ireland is currently ranked 12th, a fall from 6th place in 2017. The World Bank's 2017 Ease of Doing Business report places Ireland 17th out of 190 economies – an improvement of one place from the previous year. Ireland's relative competitiveness is under constant threat, as other economies are striving to improve. Rankings serve to remind us that competitiveness is a relative measure. The process of reform and improvement must be continuous.

While data for late 2017 and 2018 points to a slight fall in HCI competitiveness in Ireland, the upward movement of the indices are linked to the exchange rate movements, with subdued inflation mitigating the impact on the real HCI. Both the nominal and real Harmonised Competitiveness Indicator are currently at relatively low levels by historic standards.

Because 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 Ireland's relative international competitiveness than is the case in many euro area countries. The euro has appreciated against sterling and the US dollar over the past two years. The euro-sterling exchange rate average was £0.88 in 2017 compared with £0.82 in 2016 and £0.73 in 2015. The appreciation of the euro-sterling exchange rate and continued uncertainty regarding Brexit poses difficulties for Irish export competitiveness.

Quality of Life

Ireland performs relatively well in objective measures of well-being (income, education attainment, air and water quality) and health. The OECD Better Life Index indicates that Ireland performs better than most other countries in subjective measures of well-being relating to jobs and earnings, housing, personal security, health status, education and skills, work-life balance, social connections and environmental quality, but below average in income and wealth, and civic engagement.

Ireland's exceptionally strong economic growth in recent years is reflected in several indicators: in 2017 Ireland's GDP per capita remains the second highest in the Euro area and the median equivalised income was also above the Euro area and the UK income. However, annual adjusted disposable income per capita in purchasing power standard, although increasing, was still below the Euro area average. Ireland's Gini

coefficient was 29.5 (0 being the most equal distribution, 100 - the least equal distribution) in 2016, below the Euro area average (30.7), indicating a more equal income distribution in Ireland than in the Euro area. Ireland's at-risk-of-poverty rate remained below the Euro area average in 2016. In 2016 the percentage of working persons at risk of poverty in Ireland fell to 4.8 per cent, half the Euro area average rate. In 2017 the proportion of people residing in jobless households fell below the Euro area average.

Climate change presents very significant challenges for Ireland, both in terms of mitigating 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. The EPA latest projections show that, at best, Ireland will only achieve a one per cent reduction by 2020 compared to the 20 per cent reduction target. Ireland remains heavily dependent on fossil fuel energy sources, which account for 93 per cent of the gross inland consumption, compared to 73 per cent in the Euro area. In 2016, overall energy consumption grew by 3.2 per cent. Energy use in transport grew by 3.3 per cent and accounted for 42 per cent of the total energy use. Consumption in industry grew by 2 per cent and the highest increase in energy consumption (7.8%) was recorded in the Commercial/Public Services Sector. Between 1990 and 2016 total emissions increased by 10.4 per cent. The agriculture (32%), transport (20%), energy (20%), and residential (10%) sectors accounted for most of the emissions. Although Ireland has increased its use of renewable energy sources in the period 2012-2016, at 9.5 per cent, Ireland remains below its target of 16 per cent share of renewables in gross final consumption.

Business Performance

The 2018 Globalisation Report¹ ranks Ireland the most globalised economy in the EU. Exports and Imports as a percentage of GDP were 120 per cent and 88 per cent respectively in 2017. Trade as a proportion of GDP in Ireland has increased since 2013 and is significantly above Euro area and OECD averages. 2017 was a record year in terms of enterprise agency (Enterprise Ireland and IDA Ireland) employment. 209,338 people are now employed in companies supported by Enterprise Ireland. This represents a net increase of 10,309 jobs for 2017, taking account of job losses. 210,443 are now employed by IDA Ireland client companies, with employment growing by 5.3 per cent on an annual basis.

Ireland's share of total global export markets has increased in the last decade and was 1.3 per cent as of 2016. Brexit has exposed how Irish export markets are geographically concentrated and the range of products and services exported has likewise become increasingly concentrated. Ireland's principal trading partners in terms of goods exports are the US (27.2% share) and UK (13.4%). The Euro area accounted for 33 per cent of goods exports, with the Belgium, Germany, Netherlands and France the EU primary markets. The top 15 commodities accounts for approximately 90 per cent of total goods exports from Ireland. The significance of pharmaceuticals and chemical products is clear with these two commodity groups alone accounting for 45 per cent of exports. The top 100 traders in Ireland account for 80 per cent of total export value.

New firms are especially relevant for expanding productivity and innovation performance. A continuous flow of new business start-ups that can survive and thrive in international markets strengthens the productivity base not only through the creation of new businesses, products and services but also by stimulating improved performance in existing businesses. The World Bank's latest Ease of Doing Business report shows that Ireland has a relatively supportive environment for starting a business compared with many international competitors. Ireland improved its ranking in terms of Ease of Starting a Business to 8th out of 190 countries and is the highest-ranking EU member state in this category. The number of newly born enterprises as a

¹ 2018 Globalization Report, Who benefits most from globalization?

proportion of the total number of active enterprises is increasing. The largest increase in births was in the Construction sector. Ireland has a very high proportion of high growth enterprises (growth in employment by 10% or more). 86 per cent of the enterprises born in Ireland in 2014 survived in 2015. 3-year and 5-year survival rates are significantly higher than most EU countries where less than half survive for a 5-year period.

Despite intense competition, Ireland has maintained a remarkably robust performance in terms of jobs and investments from inward investment. Foreign-owned enterprises account for 2 per cent of all enterprises, they account for 63 per cent of gross value added and 22 per cent of all persons engaged. In Industry, they account for 89 per cent of value added and 42 per cent of all persons engaged. Foreign-controlled enterprises outside the EU generated 43 per cent of the value added in the Irish non-financial business economies in 2014, compared to 18 per cent in the UK and 11 per cent in the EU. Deepening and broadening the FDI base and maintaining Ireland's competitive advantage as a location for new and existing mobile investment should continue as a cornerstone of enterprise policy.

Prices and Costs

The Council published its Costs of Doing Business in Ireland report in June 2018 and concluded that in terms of consumer prices, Ireland remains an expensive location in which to live and do business with a price profile which can be described as "high cost and rising". Irish consumer prices in 2017 were 23.7 per cent above the European Union average and increasing at an annual rate of 0.2 per cent. 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 average during this period also.

Despite robust growth in employment, labour cost growth has remained modest in recent years and below the growth experienced in both the UK and the EU. However, this masks considerable divergence at sectoral level, and most likely firm level. It is vital that Ireland's labour cost base does not move significantly out of line with competitors, particularly the UK.

Ireland is an expensive place to live, relative to many EU member states, particularly in terms of property costs. Continued strong demand means property price inflation and rent increases are likely to continue in the short term until additional supply becomes available. Commercial property price levels in Ireland compare favourably to comparable cities in the UK and Europe. However, strong rental growth can be observed. The supply and demand for credit has improved significantly since the height of the crisis. However, the cost of credit, while falling, continues to remain relatively high. The divergence between Irish and Euro area interest rates for enterprise is particularly noticeable for loans of up to €0.25 million, where the interest rate on new business loans in Ireland was more than double the Euro area average rate throughout 2017.

The high dependence on imported fossil fuels makes Ireland's transport and energy prices vulnerable to substantial oil price fluctuations. Weighted average electricity prices (in purchasing power standard) for non-household consumers in the lower consumption bands (below 20,000MWh) increased in the second half of 2017 but remained below the Euro area. However, average electricity prices in the high consumption bands (20,000 to 70,000 MWh and 70,000 to 150,000 MWh) surpassed the Euro area average prices in the second half of 2017. Given Ireland's dependence on energy imports from the UK, Brexit could potentially have a significant impact on Ireland's energy market.

The openness of the economy means the enterprise sector remains vulnerable to negative price pressures and cost shocks, which are outside the influence of domestic policymakers. Many downside risks have already emerged that could undermine national competitiveness, growth and living standards. These include unfavourable exchange rate movements, higher international energy prices and imported inflation from Ireland's major trading partners, particularly the UK. In the face of growing supply side constraints, there is a risk that rising costs outstrip productivity gains, push up prices and erode competitiveness.

Productivity

In the long-run, Ireland's productivity is the primary determinant of living standards and the engine of economic growth. Irish productivity growth rates and levels have been above the OECD average since the recession. The economic cycle and more generally trends in the composition of value added and employment have a significant effect on measured productivity levels in Ireland. Ireland had the highest output per hour worked among OECD member states in 2016. Output per hour was \$88 in 2017 and \$83.1 in 2016 in GDP terms, compared to \$51.6 in the UK and \$47.1 in the OECD in 2016. On average over the period 2006-2016, Ireland's productivity growth rate (4.6%) has been well above most Member States and the OECD total (0.9%).

In recent years, Ireland's performance is significantly affected by globalisation activities, which are reflected in the national accounts. Irish labour productivity growth has been above that in competitor countries since 2010. 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.

Labour productivity growth was low immediately prior to the recession, with economic growth concentrated in the Domestic and Other sectors, reflecting the importance of Construction over the period. Economic growth considerably weakened to an average annual growth rate of around 2 percent for the period 2009-2011. Over the course of the recession (2009-2011) as output and employment growth collapsed, labour productivity growth increased at a stronger rate. The period 2015 and 2016 saw a significant increase in industrial sector productivity due to the relocation of large multinational companies to Ireland. Gross Value Added (GVA) substantially exceeded labour growth in 2014 and 2016, which explains increased labour productivity. GVA grew by 27 per cent in 2015 because of major globalisation events, causing a 23 per cent increase in labour productivity.

Ireland's growing base of multinationals in high value-added, capital intensive sectors (particularly a small cohort of manufacturing and ICT firms) disguises, to a degree, underperforming sectors and boosts Ireland's productivity levels. Recent research by the Department of Finance shows most businesses have experienced a decline in productivity growth in recent years. The research suggests that the top 10 per cent of firms account for 87 per cent of value added in manufacturing and 94 per cent in services. This highlights Ireland's exposure to firm-specific shocks. While Ireland's productivity growth is relatively strong, there is a need to increase productivity across many sectors and occupations. Supporting an uplift in productivity performance at firm level across all sectors remains a significant competitiveness challenge across a range of policy spheres.

Employment

Employment is approaching peak pre-recession levels, illustrated by the over 2.2 million employed in Q1 2018, an increase of 2.9 per cent or 62,100 in the year to Q1 2018. Employment increased in eleven of the fourteen economic sectors over the year to Q1 2018. Consistent with the increase in employment levels, headline and long-term unemployment are also on a steady downward trajectory. In Q1 2018 the seasonally adjusted number of unemployed and long-term unemployed was 137,300 and 50,100 respectively. Long-term unemployment accounted for 37.7 per cent of total unemployment in Q1 2018. The difference in unemployment rates across Ireland's eight regions (18%) was the lowest in the Euro area. The youth unemployment rate declined further in 2017 and 2018, and at 11.8 per cent in May 2018 it was below the Euro area average of 16.8 per cent. The robust performance of the economy is reflected in the increasing number of employment permits. At 11,361, the total number of employment permits issued (new and renewed) in 2017 is almost three times the number of permits issued in 2013 (3,863), with the largest number of employment permits issued in the Service sector (4,270).

As the labour market is approaching full capacity, job vacancy levels are increasing and certain skills needs are becoming more pronounced. There is a divergence in job vacancy rates not only at sectoral level within the Irish economy, but also between Ireland, the Euro area and the UK in 2017. The sectors with the highest job vacancy rates in Ireland are Professional, Financial & insurance and ICT.

Business Environment

While access to and affordability of credit has improved, Irish business continues to face higher interest rates and greater volatility in those rates than competitors abroad. The divergence between the interest rates is particularly noticeable in relation to new loans of up to €250,000, where the interest rate is more than the double the Euro area average. Bank loans remain the relevant form of external financing for 55 per cent of Irish SMEs (compared to 48% at EU level). Diversifying the lending market remains a challenge. Although private equity investment as proportion of GDP increased in Ireland in the period 2013-2016, at 0.18 per cent of GDP in 2016, it is below the UK (0.64%) and the best EU performers. The proportion of non-performing loans (this includes all lending) in Ireland has decreased from 25 per cent to 14 per cent in the period 2012-2016, however, Ireland's performance remains below the Euro area average of 4.1 per cent and the OECD of 2.9 per cent in 2016.

Maintaining a growth and entrepreneurship-friendly taxation system, whilst simultaneously broadening the tax base, is critical to maintaining existing levels of employment and creating new jobs. A broader stable tax base is also crucial in achieving sustainability of the public finances. In terms of tax base, income tax remains the Government's largest tax stream (€20.5bn in 2017). The rise in income tax receipts illustrates the improvement in the labour market. Over the period 2012-2017, income tax receipts recorded an increase of 34 per cent. Corporation tax receipts increased by 99 per cent over the same period. Ireland's exposure related to the concentration of corporation tax receipts among a very small cohort of firms remains a serious risk in terms of the long-term sustainability of the public finances.

In terms of income tax and social security contributions for married couples and individuals as a per cent of total labour costs, Ireland is more competitive than the Euro area. Marginal rates of income tax in Ireland for married couples and individuals earning below the average wage are lower than the rates in the UK, Euro area and OECD. The rates for individuals earning the average wage and above are less competitive.

Ireland's corporation tax rate remains internationally competitive and is the third lowest in the OECD at 12.5 per cent. However, while Ireland's rate has remained consistent over recent years, many economies have reduced their rates (e.g. the UK and in 2018, the US). Ireland's headline Capital Gains Tax (33%) is the third highest in the OECD and above the UK tax rate of 28 per cent.

Physical Infrastructure

Government investment as percentage of GDP remains below pre-crisis levels in Ireland and across the OECD. In 2015, average investment spending across OECD countries amounted to 3.2 per cent of GDP. Ireland's measures relative to GDP are skewed by the activities of multinationals and the equivalent figure for Ireland was the second lowest in the OECD at 1.7 per cent. Expenditure increased to 1.9 per cent in 2016 but remains low. Over the medium term, capital investment levels are projected to increase, but at present remain low relative to pre-crisis levels. Developing Ireland's infrastructure base is a fundamental challenge to enhancing competitiveness. Perceptions regarding the overall quality of infrastructure in the economy remain low in Ireland. Ireland's score in international competitiveness rankings fell over the past five years to 2015 and in 2017 remains below the EU average (4.9). Ireland is ranked 51st in the world with the UK 27th. In an EU context Ireland is ranked 21st with the UK 12th.

Sustained investment needs to be made in quality public transport projects, broadband and housing which offer the highest economic and social returns and is future-proofed. In view of demographic change and the long lead times for the delivery of road, air and sea port infrastructure and services, it is critically important that planning is effective and future proofed to ensure Ireland is well positioned to meet longer term infrastructure needs.

Clusters and Firm Sophistication

Ireland has a relatively high degree of specialisation and cluster presence in biopharma, digital, medical devices and business services sectors. Competitiveness and productivity is driven by firms capable of using knowledge intensive production processes. In terms of relative sophistication of business processes as perceived by national executives, Ireland is ranked 14th in the world and 7th in the Euro area and scores above the Euro area average. Ireland is a strong innovation follower with performance improving over time but behind the UK and the best innovation leaders. 46 per cent of SMEs in Ireland are reported as having introduced a product or process innovation in 2016, the second highest in the EU. The proportion of SMEs in Ireland who introduced a marketing or organisational innovation is high (52.5%). The comparable figure in the UK is 45 per cent with the EU average 35 per cent. E-sales accounted for 33 per cent of the total turnover generated by Irish enterprises in 2016, which was the highest share recorded in Europe. The EU and UK rates were both 18 per cent. Overall, the share of e-sales in total turnover has been increasing for Irish SMEs and remains the highest in the EU.

Knowledge and Talent

In an international context, the IMD's Competitiveness Yearbook 2018 ranks Ireland 5th for attracting and retaining talent. Ireland's other strengths are in relation to the availability of financial skills (7th) and the ability to attract foreign talent (8th). Relative weaknesses include the pupil-teacher ratio in secondary education (43rd) and language skills (46th).

In 2016, Irish expenditure on R&D as percentage of GDP accounted for 1.18 per cent, below the EU average (2.03%) and UK (1.69%). Business expenditure on R&D (BERD) accounted for 0.8 per cent, with public expenditure accounting for 0.3 per cent. R&D investment has increased in recent years but GNP/GDP levels have increased at a faster rate. In 2016, Gross expenditure on R&D (GERD) increased to €3,243m and is at its highest level in the period 2007-2016.

The proportion of the working age population with tertiary (third level) education in Ireland is above the Euro area average the OECD average. As a percentage of total third level graduates, Ireland produced more science, maths & statistics and ICT graduates than the Euro area. However, the proportion of engineering, manufacturing and construction graduates is below the Euro area average. Ireland surpasses both the Euro area and OECD average attainment for secondary education participation. With 6.1 per cent classified as early school leavers, Ireland's retention rates in secondary education are above the Euro area average of 11 per cent. However, the percentage of people aged 25-64 in receipt of education and training (both formal and non-formal) in Ireland remains below the Euro area average.

Institutions

The World Bank's Doing Business index assesses regulations affecting SMEs and measures regulations applying to companies throughout their life cycle. Ireland improved its ranking in 2017 and is now ranked 17th in the world and 4th in the Euro area. Ireland ranks highly for ease of paying taxes, starting a business and protecting minority investors. Relative to the UK, the biggest deficiencies are Ireland's scores in enforcing contracts, getting electricity and trading across borders. Ireland's lead in registering a property and starting a

business is slim. Perceptions regarding institutional effectiveness and the quality of public services and regulatory effectiveness are above the OECD average but behind the UK. Ireland's trade in services is relatively open and Ireland has a relatively low level of trade restrictiveness across 19 major services sectors.

Macroeconomic sustainability

The Irish economy recorded strong growth in 2017 (7.8 %). The European Commission forecasts economic growth of 5.7 per cent and the Department of Finance - 5.6 per cent in 2018. However, the Modified Gross National Income (GNI*), which more accurately reflects the underlying state of the Irish economy as it excludes the impact of multinationals' activities, was more than 30 per cent lower (€189.2 billion) than the Gross Domestic Product (€275.6 billion) in 2016.

Both the EU and Euro area economies grew by 2.4 per cent in 2017 and are predicted to grow by 2.3 per cent in 2018. National accounts data suggests that exports were the key driver of economic growth in Ireland in 2017 with both goods and service sector performing well. The growth in exports combined with significant contractions in imports (-6.2%), resulted in an increased net export figure of 14.39 per cent (-9.11% in 2016). Year on year, consumption spending grew moderately (1.9%) and there was a significant drop in investment (-22%); the latter largely due to a low level of investment in intangible assets as well as the significant decline in aircraft purchase.

Ireland's GDP per capita remains the second highest in the EU after Luxembourg and significantly above the Euro area average. Ireland's current account surplus was €37bn for 2017, an increase of nearly €28bn on 2016.

Ireland's debt as a percentage of GDP continued to decline in recent years and is below the UK (87.7%) and the Euro area (86.7%) in 2017. It was 68 per cent in 2017 and is expected to decline to 66 per cent in 2018.

However, the Irish GDP figures are skewed by the activities of the multinational sectors, and the debt-to GNI*² ratio, a better measure of sustainability in Ireland, remains very high (100.1 %) but are predicted to fall in the period 2018-2021. Measured per capita, Ireland's debt is the highest in the EU at over €42,000 per person. In 2007, as we entered into the economic crisis, it was less than €11,000. The Government's mid-term budgetary objective in accordance with EU Fiscal rules remains the achievement of a structural deficit of 0.5 percent of GDP. Earlier estimates of achieving this target, as outlined in the government's (MTO)³, by 2018 have been revised and the Department of Finance now predicts it to be achieved around 2021. The general government deficit was 0.3 percent of the GDP in 2017, in line with the threshold (3 percent of GDP) set out in the Stability and Growth Pact. The exchequer's revenue income represented 25.7 per cent of GDP in 2017, a fall of almost 2 per cent on 2016 (27.5%). Similarly, expenditure as a percentage of GDP also fell from 28 per cent in 2016 to 26.1 per cent in 2017. Beyond the public finances, Irish household debt as a proportion of income fell more than 60% during the period 2011-2016. However, Irish households remain the fourth most indebted households in the EU.

Endowments

In 2017, Ireland continued to have the youngest population in the Euro area. In the period 2012-2017, the Irish population increased by 4.2 per cent. Ireland's birth rate remains considerably higher compared to other EU countries, even though it declined by around 3 percent in the period 2011-2016. The combination of positive net migration and natural increase resulted in an overall increase in the population (population estimate of 4.79 million in April 2017). The median age of the Irish population remained below the EU average.

²GNI* - Modified Gross National Income

³ MTO- Medium Term (Budgetary) objective

The change in dependency ratios are important for long-term planning across a range of policy spheres. Ireland has the 7th lowest old age dependency ratio in OECD and 2nd lowest in Europe. However, the Irish dependency ratio rose in the period 2000-2015 and is expected to rise further by 2025. Ireland's labour force grew by almost 5 per cent in the period 2012-2017. In 2017, the overall labour force participation rate in Ireland was 72.6 per cent, slightly below the Euro area average (73.1%). The female rate was below the Euro area average, the male rate was above the Euro area average. The CSO recorded net inward migration in 2017 (+19,800), the highest level since 2008.

Population density in a country determines the infrastructures demand, such as road networks, educational institutions, broadband connections and the transport system, and these are vital in maintaining and improving a country's competitiveness. Ireland is one of the most sparsely populated countries in the EU. Census 2016 data shows the significant differences in change in population density between urban and rural areas in the period 2011-2016, with density averaging 2,008 people per km² in urban areas and 27 people per km² in rural areas in 2016.

Ireland's Competitiveness Challenge – the policy challenges

The future resilience of our economy will rely on the ability of our enterprises to compete effectively in international markets and to anticipate and respond to customer demands for new products, services and solutions in new and existing markets. Our improved performance is reflected in strong employment growth across sectors and regions. However, the sustainability of Ireland's economic model is under threat. There are significant challenges in the external environment, particularly global economic uncertainty, changes to the business tax landscape, protectionist policies and Brexit related risks. Domestic pressures are also undermining our ability to compete. Our debt levels remain high, increasing property prices and rental costs diminish our ability to attract and retain talent, and the economy relies on a small number of highly productive companies, a small number of export markets, and a narrow range of products and services. The overarching themes emerging from the analysis in Ireland's Competitiveness Scorecard 2018, which will be considered in the Council's 2018 Competitiveness Challenge Report are:

- **Ensuring the sustainability of the economic model:** The economy cannot grow in a sustainable manner unless the macro environment is stable. Ireland's debt levels remain high. The State cannot provide services efficiently if it must make high-interest payments on its past debts. It is important to improve Ireland's tax competitiveness to support and reward employment, investment and entrepreneurship. Ireland's export performance remains strong, however the range of products and services exported, the base of exporting enterprises, and the market destinations are relatively concentrated. We need to continue to improve the environment for business in Ireland in order to expand the export base and range of exported products and services.
- **Maintaining cost competitiveness:** As the economy continues to grow, cost pressures and capacity constraints have emerged in key areas. Cost pressures are evident in property, labour, credit, services and energy prices, where Ireland performs below competitor countries. Ireland remains an expensive location in which to do business with a price profile described as "high cost and rising". Increasing business costs reduce the competitiveness of enterprises based in Ireland and our attractiveness as a location for mobile investment. As the pressure on costs increases, it is critical that domestic policies do not contribute to overheating the economy.
- **Bridging the productivity gap between "the best and the rest":** productivity is a key driver of national competitiveness. Improving levels of labour and capital productivity enables enterprises to improve their efficiency and profitability, and enhances the ability of countries to maintain international competitive advantage and sustainably improve living standards. Productivity levels and growth rates in Ireland are strong but skewed by globalisation activities. Our performance is heavily influenced by a small cohort of enterprises, which disguises, to a degree, underperforming sectors and boosts Ireland's productivity levels. Bridging the productivity gap that exists between the most productive firms and laggard firms is vital for sustainable growth prospects. While we are improving our innovation performance, we cannot stand still. Ireland's firms must continue to move up the value chain and embrace and support new technologies and opportunities, particularly in the digital economy.

Ireland's Competitiveness Scorecard does not provide the answers to these challenges. Rather, this report informs the evidential base to assist in the identification of the key challenges affecting enterprise competitiveness. The Council will put forward proposals to address many of these issues in its annual policy document, Ireland's Competitiveness Challenge, which will be published later this year.

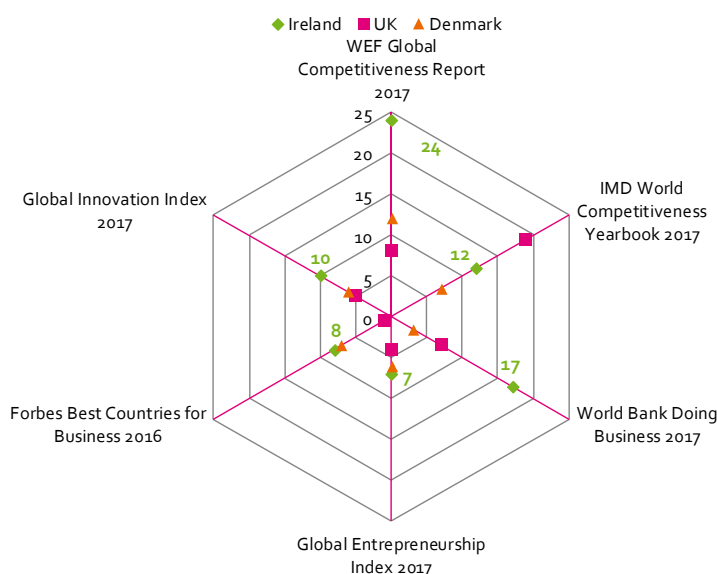
Chapter 1: Ireland’s Competitiveness Performance and Outlook

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 170 indicators 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 bird’s-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 across a range of international indices. In this figure, a ranking of 1 (i.e. close to the centre of the chart) represents a robust performance (i.e. a ranking of 1 would imply that Ireland is deemed to be the most competitive of 33 countries in the OECD). Ireland’s performance is compared relative to Denmark and the UK. In comparison to the UK, Ireland performs well in international competitiveness rankings as benchmarked by the IMD but is behind the UK in Global Innovation (Ireland is ranked 10th, the UK 5th in the Global Innovation Index), Entrepreneurship (Ireland is ranked 7th, the UK 4th in the Global Entrepreneurship Index) and Ease of Doing Business (Ireland is ranked 17th, the UK 7th) indices.

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



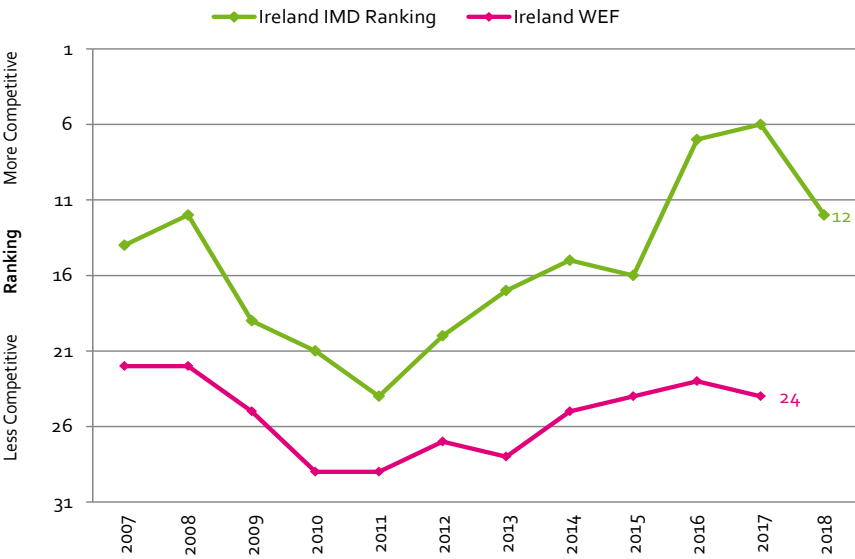
These indices cover several policy areas – some based on directly quantitative aspects of policy (e.g. the World Bank Doing Business Index); others measure qualitative, more subjective issues; indices such as the IMD and WEF competitiveness indices capture a mixture of both.

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 robust 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 about 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 two of the most high-profile enterprise competitiveness-related indices. Ireland’s 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 2017/2018 WEF Global Competitiveness Report shows Ireland is currently ranked 24th most competitive economy, an improvement of 1 place in the year. Using the IMD measure of competitiveness Ireland is currently ranked 12th, a fall of 6 places from the previous year. Ireland’s fall in the IMD ranking is due to several reasons. Our economic performance decline in the IMD ranking is due to distortions to Ireland’s GDP figures and gross fixed capital formation. Perceptions of Government efficiency declined largely due to high effective personal tax rates. Many of Ireland’s traditional assets continue to remain competitive. Ireland is ranked first in the world by the IMD for labour productivity of industry, flexibility and adaptability of our workforce. We also perform well in relation to the attracting and retaining talent (5th) competitiveness of our tax regime (2nd) and measures which consider ease of doing business (7th) and ease of starting a business (5th). 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.

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



Since 2011, the trend in Ireland’s international competitiveness ranking, as measured by the IMD and WEF, has generally been upward. After strong improvements in 2016 and 2017, Ireland is now ranked 12th in the IMD’s World Competitiveness Yearbook 2018 and is ranked 24th in the WEF Global Competitiveness Report 2017/2018.

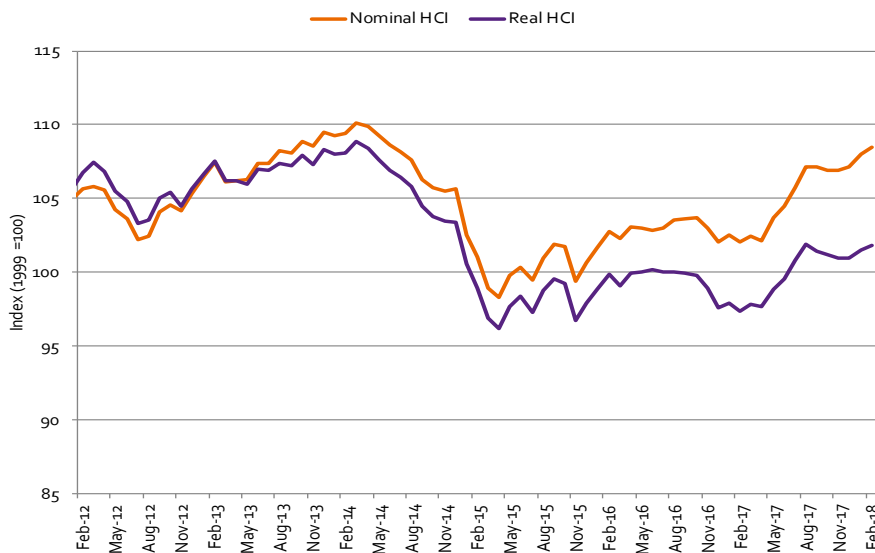
Source: IMD, WEF

The World Bank’s 2017 Ease of Doing Business report places Ireland 17th out of 190 economies – an improvement of 1 place 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. Globally, Ireland is a top 20 performer regarding measures of paying taxes (5th), ease of starting a business (10th), protecting minority investors (13th) and resolving insolvency (18th). Ireland’s 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).

Harmonised Competitiveness and exchange rate trends

Ireland's competitiveness narrative can be illustrated using Harmonised Competitiveness Indices (HCIs)⁴. The purpose of HCIs is to provide comparable measures of countries' price and cost competitiveness that are consistent with the real effective exchange rates.

Figure 1.3: Harmonised Competitiveness Indicators, Ireland, February 2012-February 2018 (1999 = 100)



HCI data for February 2018 show that the nominal HCI increased by 6% on an annual basis. In real terms, the HCI increased by 4.6%. The upward movement of the indices indicates a decline in this measure of competitiveness linked to exchange rate movements, with low inflation mitigating the impact on the real HCI.

Source: Central Bank of Ireland

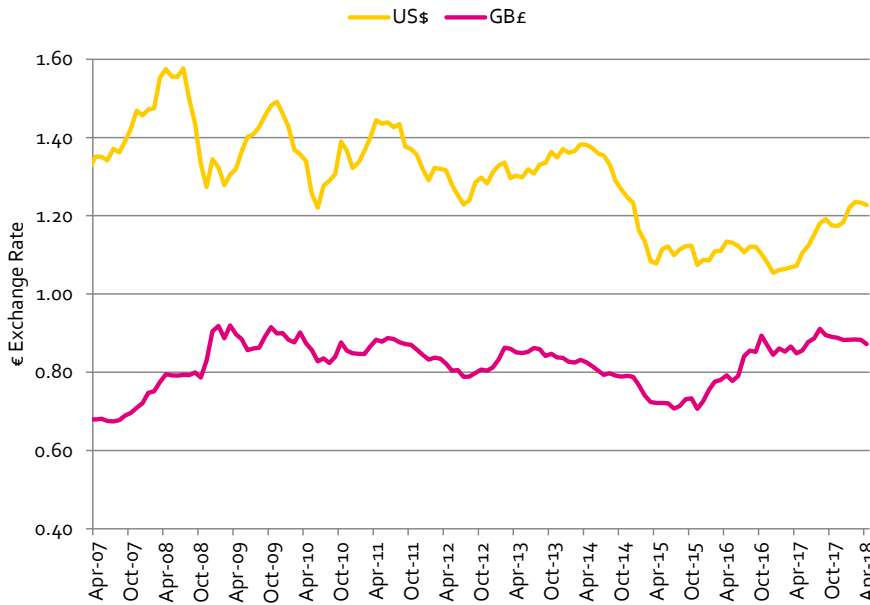
Factors outside of the control of Irish policy makers and enterprises, such as exchange rates, exert a considerable influence on national competitiveness and the cost base for enterprise based in Ireland. Favourable exchange rates, vis-à-vis Ireland's main trading partners, make firms based in Ireland more cost competitive and allow them to trade more effectively in international markets. Because 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 relative international competitiveness than is the case in many Euro area countries. The euro has appreciated against sterling and the US dollar over the past year. The appreciation of the euro-sterling exchange rate poses significant challenges for Irish export competitiveness to the UK. The €/£ exchange rate average was £0.88 in 2017 compared with £0.82 in 2016 and £0.73 in 2015. In April 2018, the euro averaged £0.87; this compares to an average value of £0.81 from 2007-2016. The permanency of the exchange rate shift is an important competitiveness consideration. Analysis by the Central Bank⁵ has modelled the effects of a sterling depreciation shock (the pound depreciates by 10% relative to the euro) on Irish output. The analysis suggests the export economy is most affected with a decline in relative competitiveness leading to a fall in output of 0.4 per cent after 3-4 years and by 0.2 per cent in the long run. Domestic demand and the non-traded sector would also be affected negatively. In addition, inflation would be lower due to a decline in import

⁴ Features of the Irish economy can affect movements in HCIs and care should be taken in interpreting movements in the indices as a measure of competitiveness. The nominal HCI is affected by exchange rate developments and relative to other Euro area countries a high share of Ireland's exports are destined for non-Euro area countries (UK and US). Real HCIs consider, relative price movements relative to trading partners. Using consumer prices as a deflator means the impact of intermediate goods and capital goods are not directly considered and the influence of indirect taxes and non-traded goods and services on the CPI limited its usefulness as an indicator of good indication of international competitiveness. See Barry, F, (2017) The Central Bank's harmonised, competitiveness indicators, users beware, Administration, vol. 65, no. 4, O'Brien, D. (2010) Measuring Ireland's price and labour cost competitiveness. Central Bank Quarterly Bulletin, Q1, 2010.

⁵ Central Bank of Ireland, Quarterly Bulletin No.2 2018

prices. The Central Bank estimate the aggregate impact of the shock as a reduction of the GDP level of approximately 0.2 per cent in the long run.

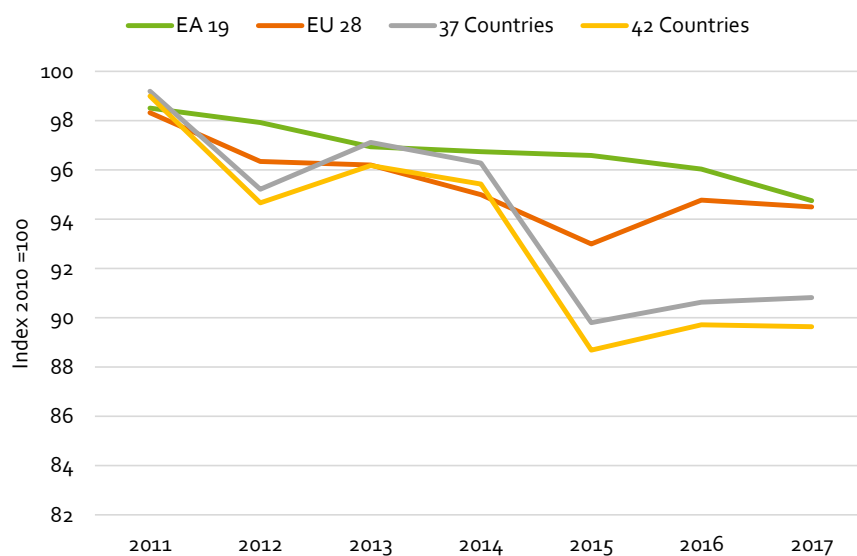
Figure 1.4: Euro/Dollar, Euro/Sterling, exchange rates, April 2007-2018



The euro has appreciated against sterling and the US dollar over the past year. In the year to April 2018 the euro appreciated by 14% relative to the dollar and 10% relative to sterling. Since the Brexit referendum, the value of sterling has been volatile and depreciated by 10 per cent relative to the euro. In April 2018, the euro averaged £0.87; this compares to an average value of £0.81 from 2007-2016.

Source: Central Bank

Figure 1.5: Real effective exchange rate (REER), Ireland, deflated by Consumer Prices, 2011-2017



The REER is a country's exchange rate relative to a basket of exchange rates of other countries weighted by respective trade shares. A negative value indicates improved competitiveness. Recent developments in exchange rates and inflation have served to improve Ireland's performance.

Source: Eurostat

Economic outlook

The European Commission’s forecast for economic growth for Ireland together with our major trading partners are shown in Table 1.1 below. With a growth rate of 7.8 percent, the Irish economy outperformed the rest of the Euro area countries, the EU and major global economies in 2017. The substantial improvement in the labour market conditions meant the unemployment rate is projected to decrease year on year to 4.9 per cent over 2018-2019. The European Commission report also indicates a slowing down in the economy in the next two years with predicted growth rate of 5.7 per cent in 2018 and 4.1 in 2019 respectively. The Department of Finance forecasts economic growth of 5.6 per cent in 2018 and 4 per cent in 2019. In the short-term the major economic indicators such as private consumption, exports and investments are projected to remain robust. The short-term economic outlook for both the EU and the Euro area is also positive. The EU is forecasted to grow by 2.3 per cent in 2018 and 2 per cent in 2019 and the Euro area by 2.3 per cent and 2 percent in the same period.

Table1.1: Economic Growth Outlook (Annual percentage change), European Commission

| | 2017 | 2018 | 2019 |
|-----------|------|------|------|
| World | 3.7 | 3.9 | 3.9 |
| EU | 2.4 | 2.3 | 2 |
| Euro area | 2.4 | 2.3 | 2 |
| Ireland | 7.8 | 5.7 | 4.1 |
| Germany | 2.2 | 2.3 | 2.1 |
| France | 1.8 | 2 | 1.8 |
| Italy | 1.5 | 1.5 | 1.2 |
| UK | 1.8 | 1.5 | 1.2 |
| US | 2.3 | 2.9 | 2.7 |
| China | 6.9 | 6.6 | 6.3 |
| Japan | 1.7 | 1.3 | 1.1 |

Source: European Commission Spring Economic Forecast 2018

The OECD Outlook for Ireland report highlights the various domestic and foreign risk factors that could cloud the Irish economic outlook in the short and long term. Domestically, the forecast warns that, combination of a growing economy, expanding labour market and the disequilibrium in the housing sector could once again lead to speculative property bubbles and elevated levels of property related loans. Also, the tightening of the labour market could put upward and unsustainable cost pressure on businesses and dampen private investment. Additionally, an open economy like Ireland is highly dependent on the global economic environment and vulnerable to global/external risk factors. The combination of the global trade slowdown, due to the rising possibility of the global trade war, and uncertainty caused by the Brexit poses a significant challenge to the Irish economy.

Table 1.2: Forecast Annual percentage change key indicators, Ireland, 2018

| | GDP | GNP | HICP | Employment Rate |
|-------------------------|-----|-----|------|-----------------|
| Department of Finance | 5.6 | 5.6 | 0.8 | 2.7 |
| Central Bank of Ireland | 4.8 | 4.4 | 0.8 | 2.4 |
| ESRI | 4.8 | 4.7 | NA | 2.7 |
| European Commission | 5.7 | NA | 0.9 | NA |
| IMF | 3.4 | NA | 1.5 | 1.6 |
| OECD | 2.9 | NA | 1.4 | NA |

Source: Various Bodies

The continuing negotiations on the future trading relationship between the EU and UK means the impact of Brexit on the overall Irish economy remains uncertain. As the UK remains Ireland's largest market in the EU, the predicted low UK growth rate in the next two years (1.5% in 2018 and 1.2% in 2019) coupled with the continued volatility of sterling would have an adverse effect on export demand and negatively affect the overall economy. The economic outlook for the US, our principle trading partner outside the EU, indicates that the US economy will continue to grow by 2.9 per cent in 2018 and 2.7 per cent in 2019. This can change significantly as the recent policy initiatives from the US administration have increased volatility in global markets.

Despite domestic challenges and the uncertain global economic environment, the positive outlook for labour force expansion, private investment, exports and consumption are the basis for a forecast of moderate growth in the Irish economy in the short to medium term.

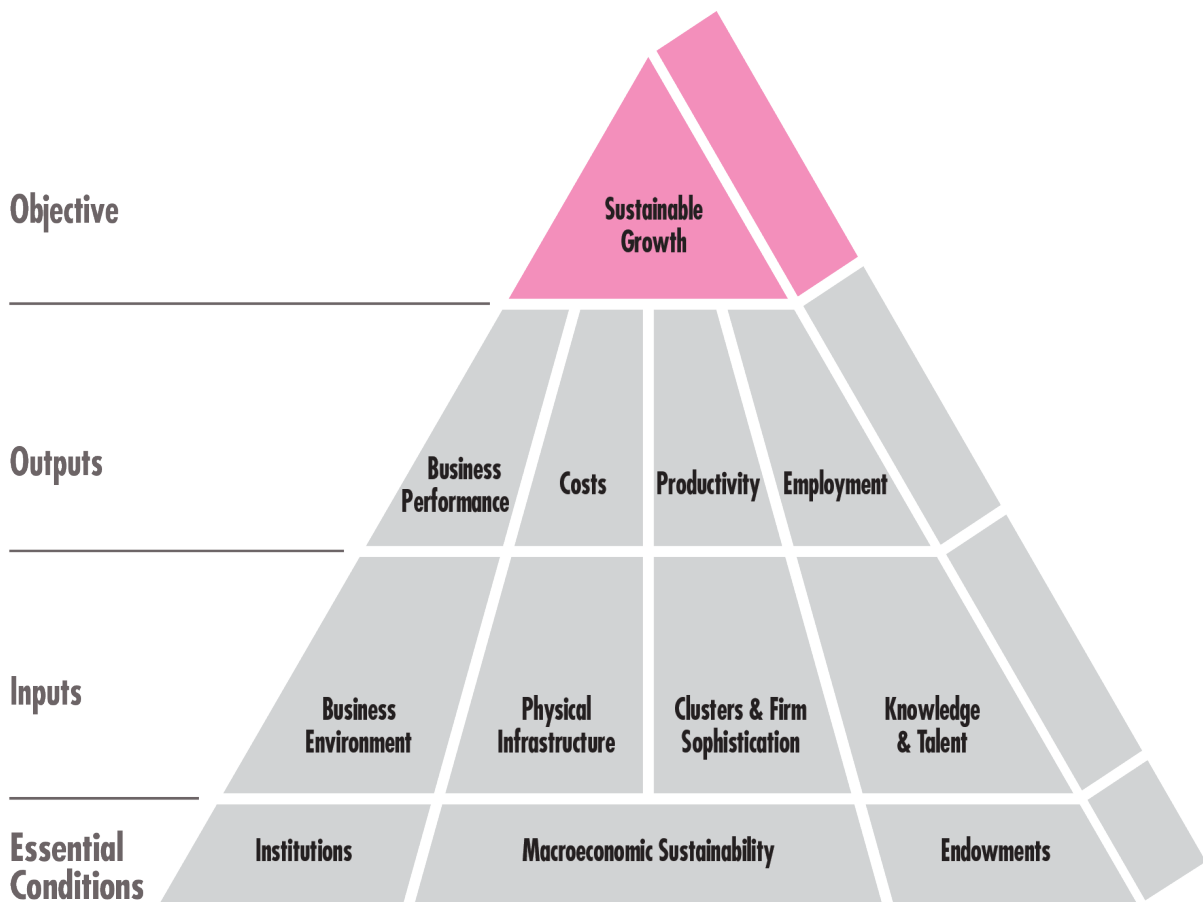
Table 1.3: Forecast Annual percentage change in the composition of Irish economic growth, 2017-2021

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------|-------|------|------|------|------|
| Real GDP | 7.8 | 5.6 | 4 | 3.4 | 2.8 |
| Real GNP | 6.6 | 5.6 | 3.7 | 3.1 | 2.6 |
| Exports | 6.9 | 6.9 | 5.4 | 4.5 | 3.9 |
| Imports | -6.2 | 6.6 | 5.9 | 4.8 | 4.4 |
| Personal Consumption | 1.9 | 2.6 | 2.4 | 2.3 | 1.9 |
| Government Consumption | 1.8 | 1.9 | 1.9 | 1.8 | 1.7 |
| Investment | -22.3 | 8.5 | 7.4 | 5.2 | 4.7 |

Source: Department of Finance Stability Program Update 2018

Chapter 2

Sustainable Growth



Sustainable Growth

Competitiveness is not an end, but is a means of achieving sustainable improvements in growth and living standards. 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.

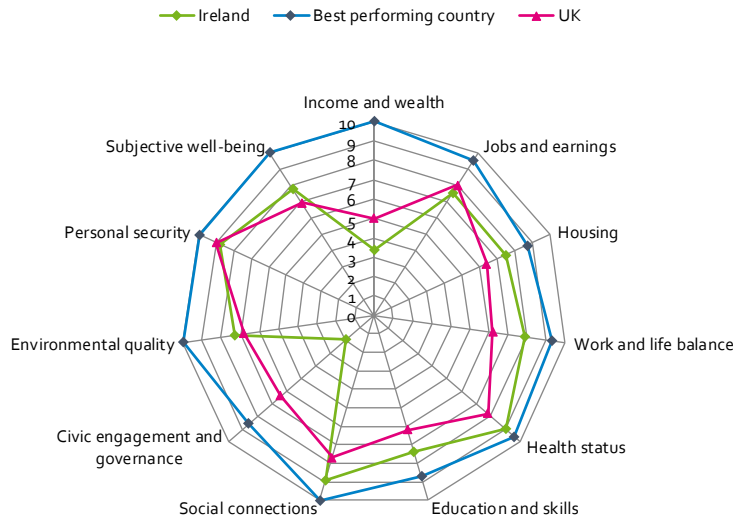
- **Quality of Life: A key objective of competitiveness is to support a high quality of life, which is broader than material living standards. Quality of life is measured by indicators of life satisfaction, health and life expectancy.**
 - Ireland performs relatively well in objective measures of well-being (income, education attainment, air and water quality). Eurostat data shows that life expectancy in Ireland has increased over the past decade and in 2016 Irish life expectancy is 81.8 years, above the EU average of 81 years and marginally below the Euro area average of 82 years. Healthy life years at birth for Irish females were estimated at 69.8 years in 2016, the third highest rate in the EU and 5.6 years above the EU average. Male healthy life years at birth in Ireland in 2016 were estimated at 67.3 years, the fourth highest rate in the EU and 3.8 years above the EU average.
 - Ireland performs well in many measures of subjective well-being relative to most other countries as illustrated by the OECD Better Life Index. Data for 2015 shows that Ireland ranks above the average in measures relating to social connections, jobs and earnings, housing, personal security, health status, education and skills, work-life balance, and environmental quality. Ireland scores below average in income and wealth, and civic engagement. Ireland continues to perform strongly in 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. Ireland's ranking is 8th in the world and above the OECD average. The World Happiness report 2018, which measures happiness in terms of GDP per capita, healthy life expectancy, social support, generosity, perception of corruption and freedom to make life choices, shows that Ireland ranks 13th happiest country (4th in the Euro area). Ireland performs strongly within the Euro area in variables related to GDP per capita (2nd), social support (2nd), generosity (3rd) and perceptions of corruption (3rd). Ireland also ranks 13th in terms of happiness of its immigrants.
- **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.**
 - Ireland's exceptionally strong economic growth in recent years has been reflected in GDP per capita: in 2017 Ireland's GDP per capita remains the second highest in the Euro area. The median equivalised income in Ireland was also above the Euro area and the UK income. However, annual adjusted disposable income per capita in purchasing power standard, reflecting the idea of household income better than GDP, shows that although disposable income increased by 2.6 per cent compared to 2012, in 2016 it was still below the Euro area average (Figure 2.2.3).
 - Ireland's Gini coefficient was 29.5 in 2016, compared with 30.5 in 2012. The score is below the Euro area average of 30.7, indicating a more equal income distribution than in the Euro area (Figure 2.2.9).
 - Ireland's at-risk-of-poverty rate (16.6%) remained below the Euro area average (17.4%) in 2016. Social transfers play a significant role in reducing poverty risk in Ireland; excluding social transfers, the at-

risk-of poverty rate was 34.7 per cent. In 2016 the percentage of working persons at risk of poverty in Ireland fell to 4.8 per cent compared to 2012 (5.6%), and was significantly below the Euro area average rate of 9.5 per cent and the UK rate of 8.6 per cent. The improvement in the labour market has seen a significant reduction in the scale of household joblessness - the share of adult population in jobless households was, 10.0 per cent in 2017 (14.4% in 2013), below the Euro area of 10.2 per cent.

- **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, in force since November 2016, represents a global effort to limit global temperature increases to less than 2 degrees and to pursue efforts to limit the temperature increase to 1.5 degrees above pre-industrial levels. Within Europe one of the main instruments to reduce greenhouse gas emissions is the EU Emissions Trading Scheme (ETS), which currently covers about 45 per cent of EU emissions, and 28 per cent of total emissions in Ireland. The Scheme has an objective to reduce emissions in energy intensive industry covered by the Scheme by 21 per cent relative to 2005 levels by 2020 and 43 per cent by 2030. Under the 2009 EU Effort Sharing Decision (ESD), which applies to the non-ETS sector, Ireland has a series of particularly challenging commitments. Between 2013 and 2020, Ireland has a target to reduce GHG emissions to 20 per cent below 2005 levels. This target is partially calculated based on GDP per capita and is one of the most demanding 2020 reduction target allocated under the ESD — 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 moving towards a 20 per cent increase in energy efficiency.
 - Figure 2.3.3 shows that Ireland remains heavily dependent on fossil fuel energy sources, which account for 93 per cent of the gross inland consumption, compared to 73 per cent in the Euro area. In 2016, overall energy consumption grew by 3.2 per cent. Energy use in transport grew by 3.3 per cent and accounted for 42 per cent of the total energy use. Consumption in industry grew by 2 per cent and the highest increase in energy consumption (7.8%) was recorded in the Commercial/Public Services Sector.
 - Between 1990 and 2016, total emissions increased by 10.4 per cent to 61,188 kt of CO₂ equivalent. The agriculture (32%), transport (20%), energy (20%), and residential (10%) sectors accounted for most of emissions. While emissions by agriculture and industrial sectors have declined below 1990 levels, transport emissions have increased by 138 per cent.
 - Increasing the share of renewables in gross final consumption of energy is one of the headline indicators of the Europe 2020 strategy. Although Ireland has increased its use of renewable energy sources in the period 2012-2016, at 9.5 per cent Ireland remains below its target of 16 per cent share of renewables in gross final consumption.
 - The EU 2030 targets envisage a domestic EU greenhouse gas reduction target of at least 40 per cent compared to 1990. Ireland's emissions levels have been falling since 2008 on a year-on-year basis. Since 2012 there has been an increase in the greenhouse emissions, and in 2015 they were 9.2 per cent above the 1990 level.

2.1 Quality of Life

Figure 2.1.1 OECD Better Life Index, Indicators of Life satisfaction⁶, Ireland 2015

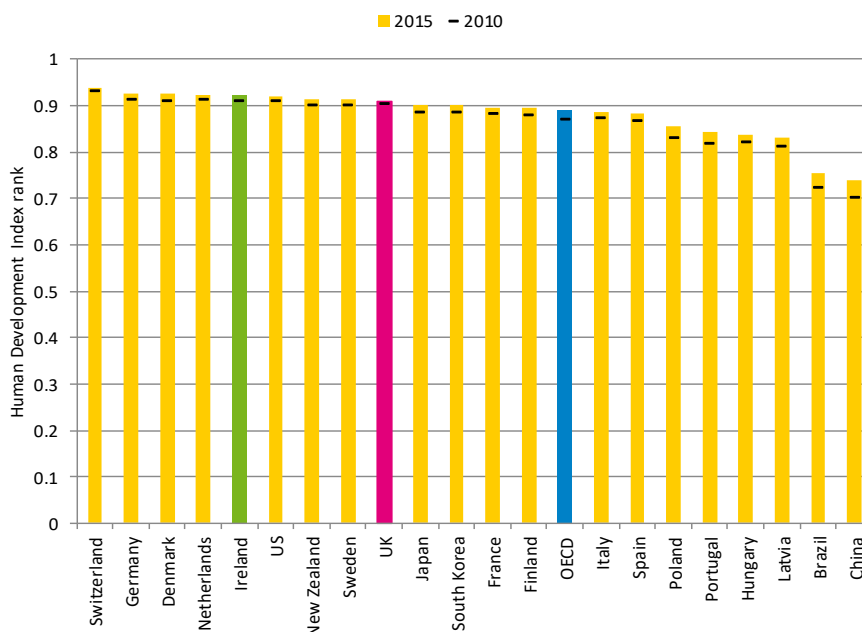


Ireland performs well in measures of well-being in the Better Life Index. Ireland is a top performer in social connections and above average in jobs and earnings, housing, personal security, health status, education and skills, subjective well-being, work-life balance, and environmental quality. Ireland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

OECD rank: n/a

Source: OECD Economic Surveys, Ireland

Figure 2.1.2 Human development index, 2010-2015



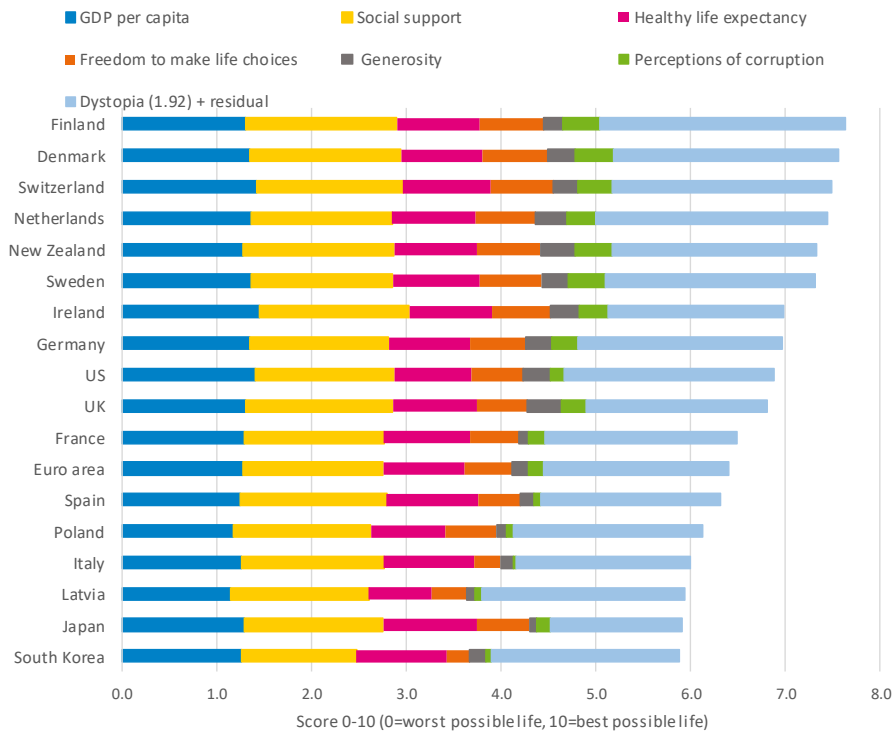
The Human Development Index measures average achievement in three basic dimensions of human development - a long and healthy life, knowledge and a decent standard of living. Ireland continues to perform strongly in this indicator, ranking 8th in the world and above the OECD average.

OECD rank: 8th

Source: UN

⁶ Life satisfaction is measured on a scale from 0 to 10, with 0 being the lowest score – indicating least satisfied

Figure 2.1.3 Ranking of Happiness⁷, 2015-2017



The indicator measures happiness in terms of six key variables. At 7.0, Ireland's overall happiness rank is 13th out of 156 countries (the best performer is Finland with a score of 7.6). Ireland performs strongly within the Euro area in GDP per capita (2nd), social support (2nd), generosity (3rd) and perceptions of corruption (3rd).

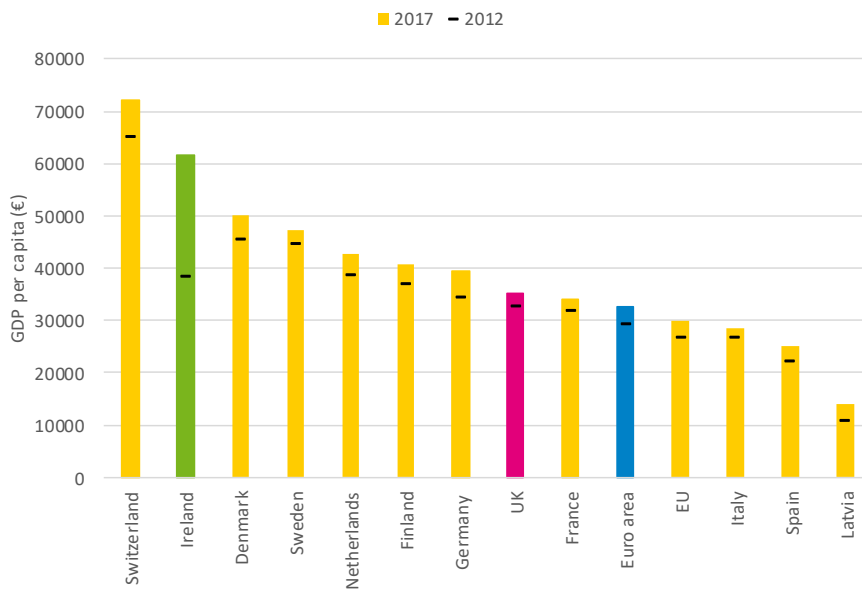
Euro area rank: 4th

Source: Sustainable Development Solutions Network

⁷ The overall length of each country bar represents the average ladder score. Each of these bars is divided into seven segments, the first six sub-bars being GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and freedom from corruption. The seventh bar, Dystopia (which has values equal to the world's lowest national averages for 2015-2017 for each of the six key variables) is used as a benchmark against which all countries can be favourably compared (in terms of each of the six key variables), thus allowing each sub-bar to be of positive width.

2.2 National Income

Figure 2.2.1 GDP per capita, current prices, 2017⁸

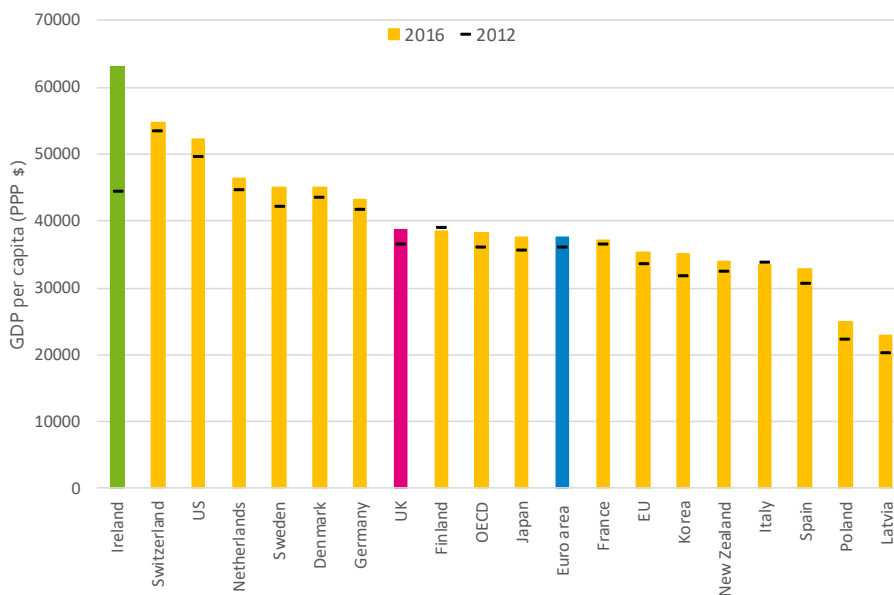


Ireland's exceptionally strong economic growth in recent years is reflected in GDP per capita. At €61,700, in 2017 Ireland's GDP per capita remains the second highest in the Euro area. Over the course of the recession, Ireland's GDP per capita declined but remained relatively high.

Euro area rank: 2nd

Source: Eurostat

Figure 2.2.2 GDP per capita, constant prices (PPS), 2016



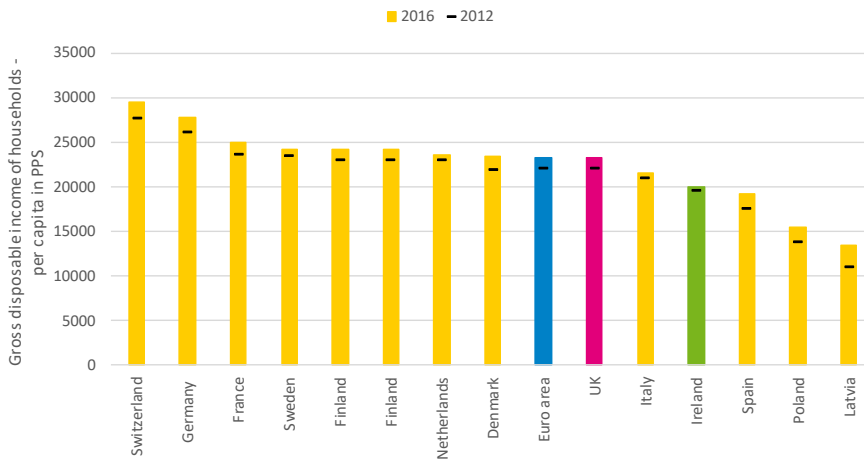
Despite the economic crisis, Ireland's GDP per capita at purchasing power standard (i.e. adjusted for living costs differences) remained relatively stable and has been on an upward trajectory since 2012. At €63,131, Ireland's GDP per capita is the second highest in the Euro area (€37,480) in 2016.

Euro area rank: 2nd

Source: OECD

⁸ No data available for Switzerland for 2017, data from 2016 used instead.

Figure 2.2.3 Adjusted gross disposable income of households per capita in PPS⁹, 2016

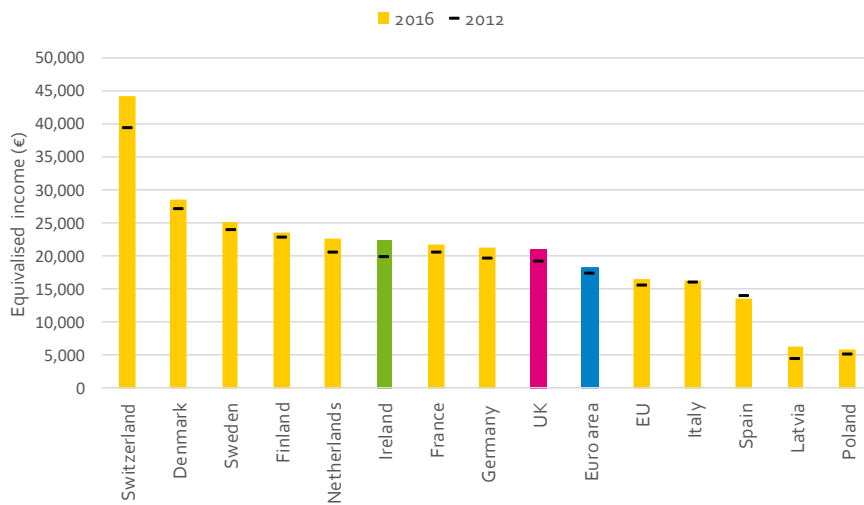


Disposable income, as a concept, is closer to the idea of household income than GDP. Ireland's annual adjusted disposable income per capita in PPS was 20,001, below the Euro area figure of 23,280. The disposable income increased by 2.6% compared to 2012.

Euro area rank: 9th

Source: Eurostat

Figure 2.2.4 Median equivalised¹⁰ disposable income, 2016



Following a decline during the recession, the median equivalised net income has been on an upward trajectory since 2013. In 2016 the median equivalised income in Ireland was €22,407, above the Euro area income of €18,240 and the UK income of €21,136.

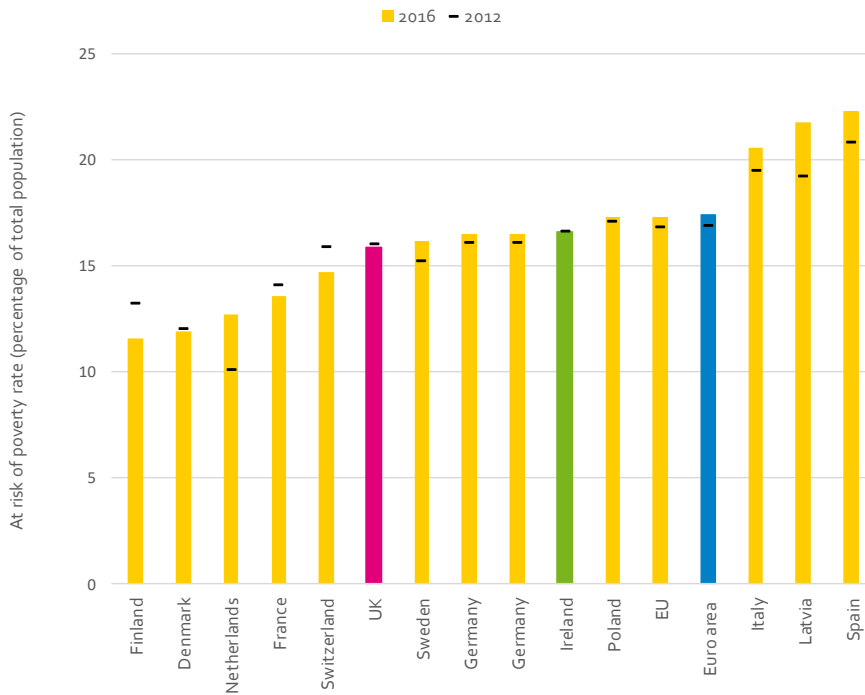
Euro area rank: 5th

Source: Eurostat

⁹ 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.

¹⁰ Equivalised disposable income is defined as the total income of a household, after tax and other deductions, divided by the number of household members.

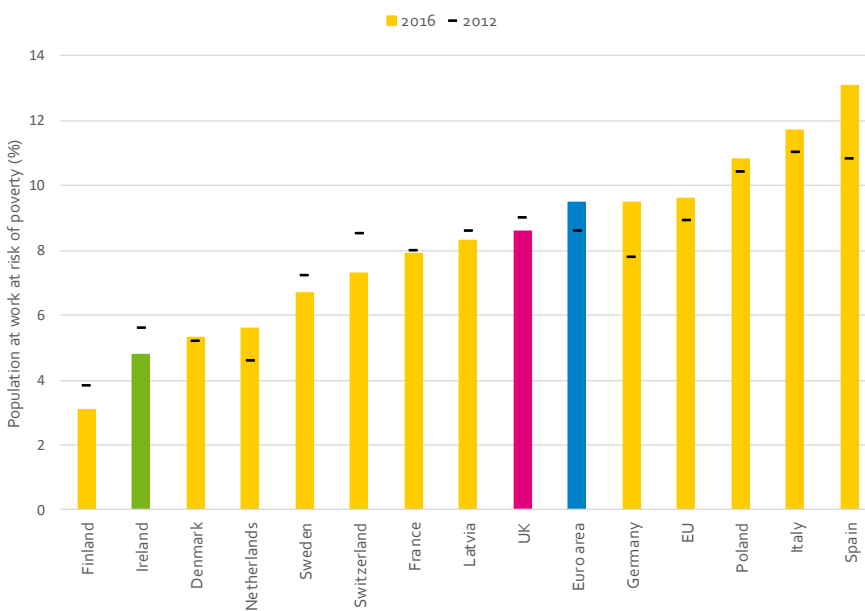
Figure 2.2.5 At-risk-of poverty rate (60% of median income after social transfers), 2016



Ireland's at-risk-of-poverty rate (16.6%) remained below the Euro area average (17.4%) in 2016. Social transfers play a significant role in reducing poverty risk in Ireland; excluding social transfers, the at-risk-of poverty rate was 34.7%.
Euro area rank: 8th

Source: Eurostat

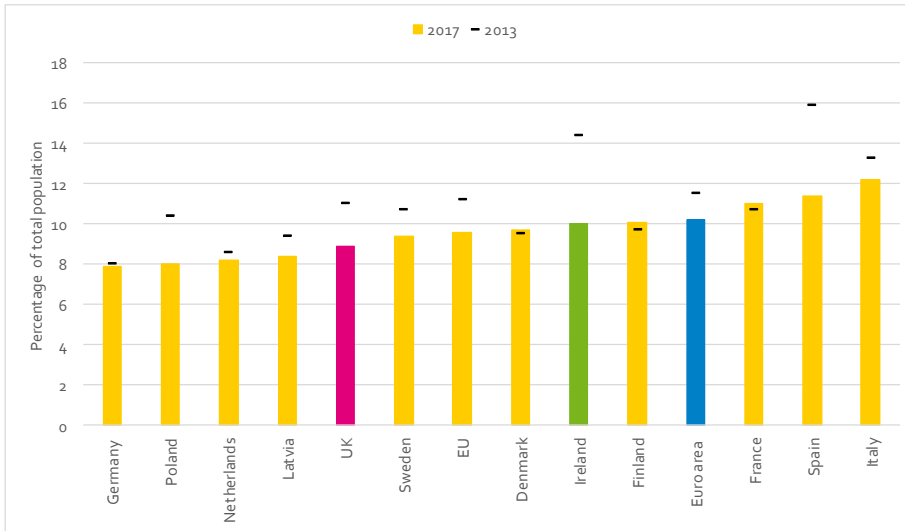
Figure 2.2.6 In-work at-risk-of poverty rate, persons employed aged 18+, 2016



In 2016 the percentage of working persons aged 18+ at risk of poverty in Ireland has fallen to 4.8% compared to 2012 (5.6%). Ireland's rate remained significantly below the Euro area average rate of 9.5% and the UK rate of 8.6%.
Euro area rank: 17th

Source: Eurostat

Figure 2.2.7 Share of persons aged 18-59¹¹ who are living in households where no-one works, 2017

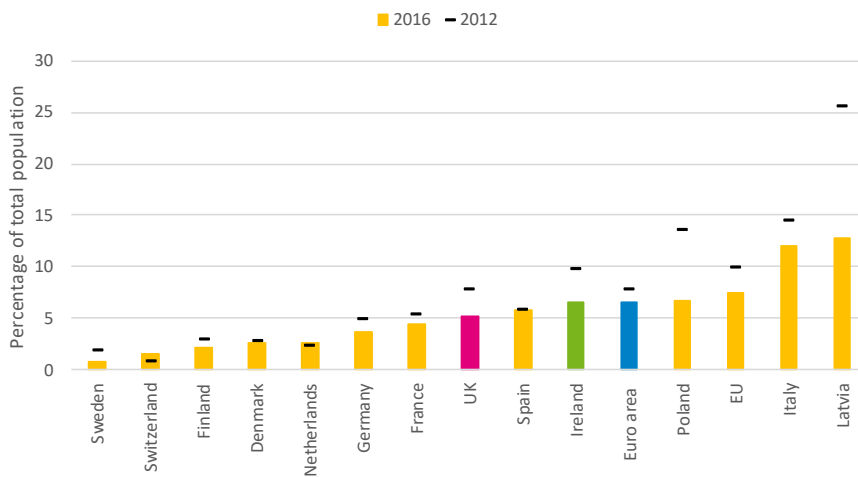


The improvement in the labour market has seen a significant reduction in the scale of household joblessness — the share of adult population in jobless households was, 10.0 per cent in 2017 (14.4% in 2013), below the Euro area of 10.2 per cent.

Euro area rank: 7th

Source: Eurostat

Figure 2.2.8 Percentage of population defined as severely materially deprived, 2016



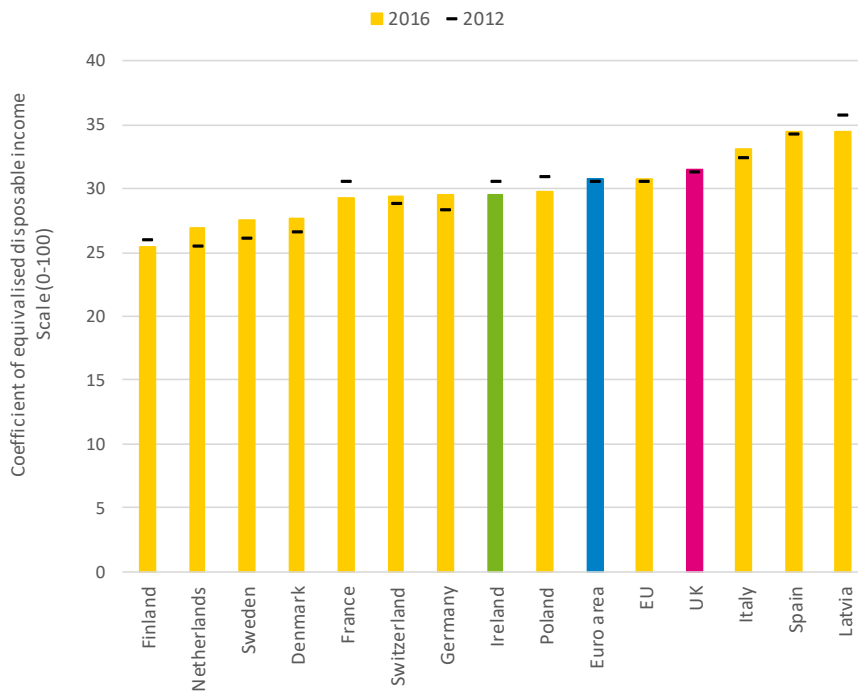
Material deprivation covers issues including economic strain, durables and housing. After an increase in the proportion of the severely materially deprived population during the recession, since 2013 the rate has gradually decreased and in 2016 it is 6.5%, marginally below the Euro area of 6.6% but above the UK (5.2%).

Euro area rank: 8th

Source: Eurostat

¹¹ Students living in households composed solely of students of the same age class are not included

Figure 2.2.9 Gini¹² coefficient of equalised disposable income, 2016

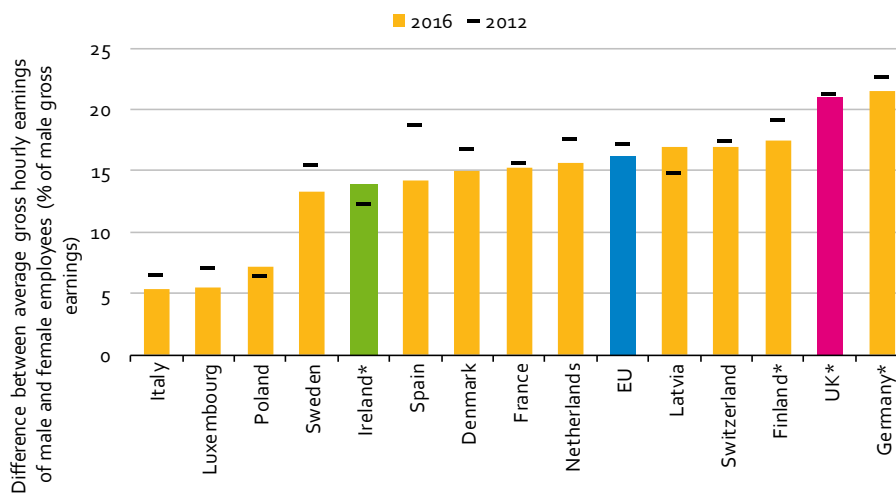


The Gini coefficient is a measure of equality of income in the population. Ireland's Gini coefficient was 29.5 in 2016, down from 30.5 in 2012. The score is below the Euro area average of 30.7, an indication of a more equal income distribution than in the Euro area.

Euro area rank: 11th

Source: Eurostat

Figure 2.2.10 Unadjusted gender pay gap¹³, 2016



Female employees were paid 13.9% an hour less than male employees in Ireland in 2014. This is an increase on 12.2% in 2012. The average EU gender pay gap in 2016 was 16.3% and 21% in the UK. The lowest gender pay gap in the EU in 2016 was in Romania at 5.8%, while the highest was in Estonia at 26.9%.

EU rank: 9th lowest

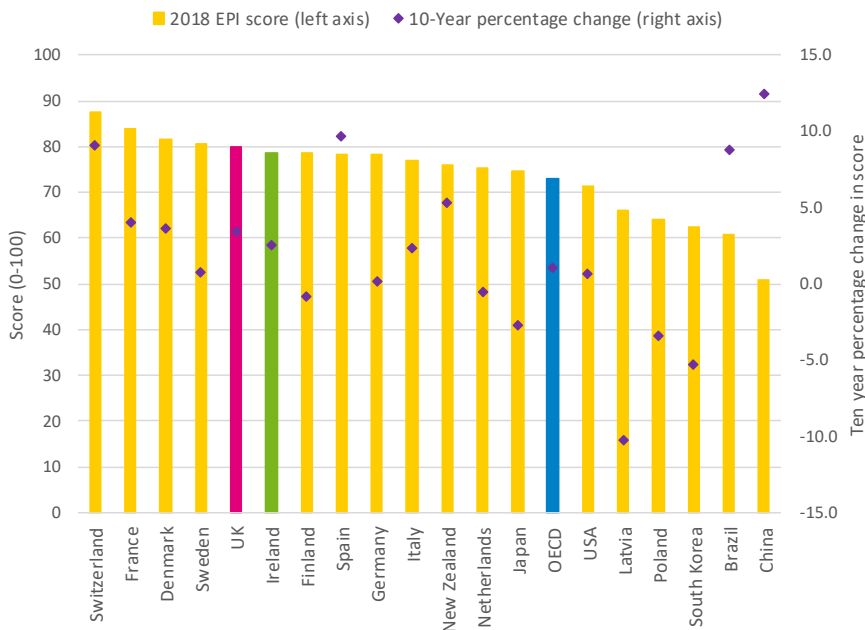
Source: Eurostat

¹² 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 national income.

¹³ Data for enterprises employing 10 or more employees, NACE Rev. 2 B to S (-O) * Data for Ireland for 2016 is 2014 data. Data for UK provisional and estimated by Eurostat. Data for Finland and Germany is provisional.

2.3 Environmental Sustainability

Figure 2.3.1 Environmental performance index (Scale 0-100), 2018

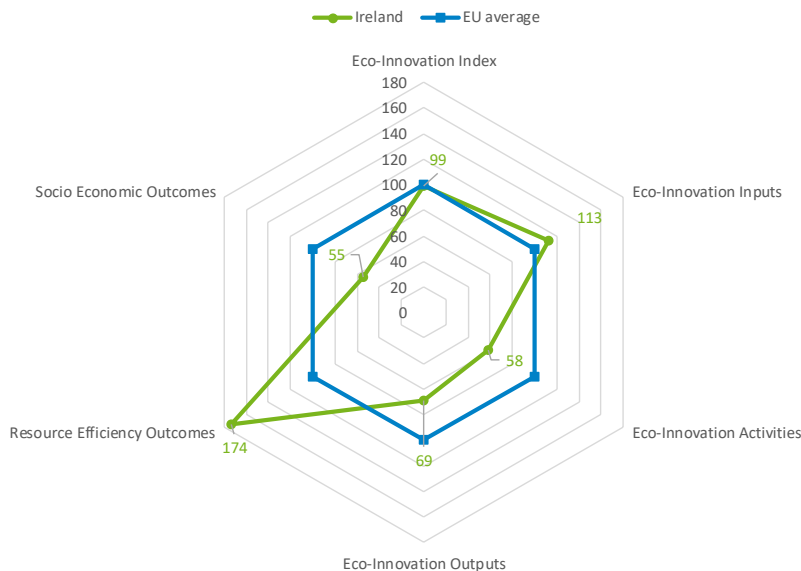


The Yale Environmental Performance Index assesses 24 indicators grouped in 10 categories which measure environmental health and ecosystem vitality. Ireland's performance over a 10-year period has improved by 2.5% and at 78.8 is above the OECD average of 73.1 but below the UK of 80.

OECD rank: 8th

Source: Yale Centre for Environmental Law and Policy

Figure 2.3.2 Components of the ECO-Innovation index¹⁴, Ireland 2017



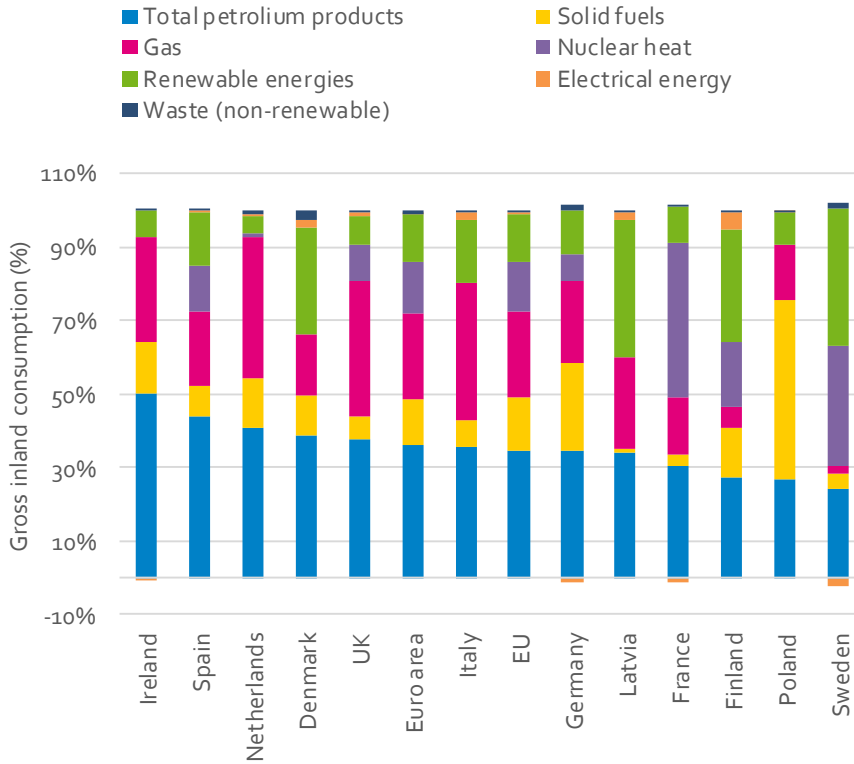
The European Eco-Innovation Index measures eco-innovation performance across five dimensions. Ireland is considered an average eco-innovation performer, with scores above the EU average in inputs and resource efficiency outcomes but behind in socio-economic outcomes, outputs and activities.

EU-28 rank: 13th

Source: European Commission

¹⁴ The index covers various aspects of eco-innovation by applying 16 indicators grouped into five dimensions: 1) inputs comprising investments (financial or human resources), 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, covering resource (material, energy, water) efficiency and GHG emissions, 5) outcomes, illustrating the extent eco-innovation performance generates positive outcomes for social aspects (employment) and economic aspects (turnover, exports).

Figure 2.3.3 Gross inland consumption, percentage by fuel type, 2016

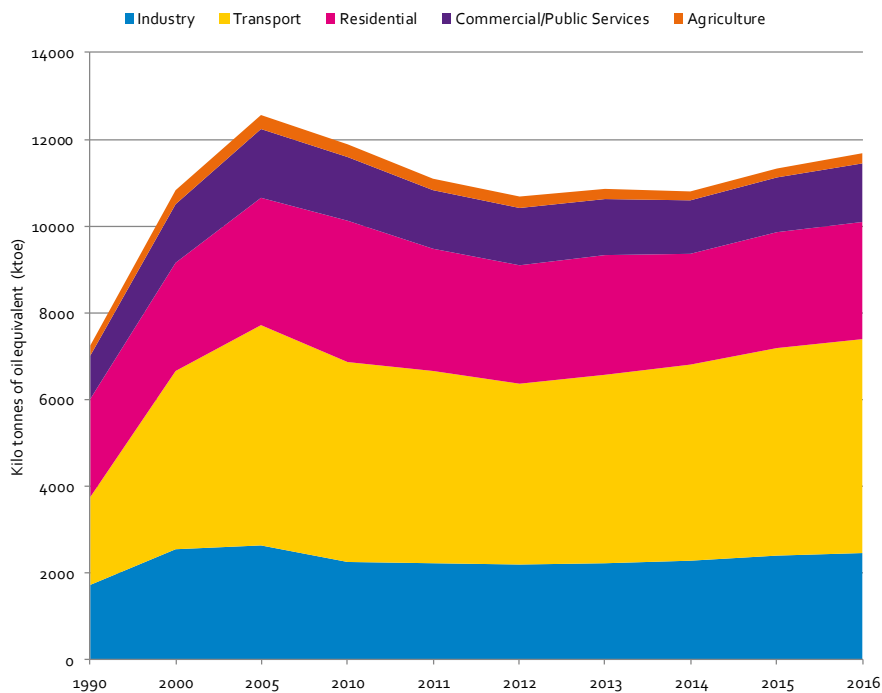


There is considerable heterogeneity across the EU in terms of fuel consumption. Ireland remains heavily dependent on fossil fuel energy sources (93% of gross inland consumption, compared to 73% in the Euro area).

Rank: n/a

Source: Eurostat

Figure 2.3.4 Total final energy consumption by sector, Ireland, 1990-2016

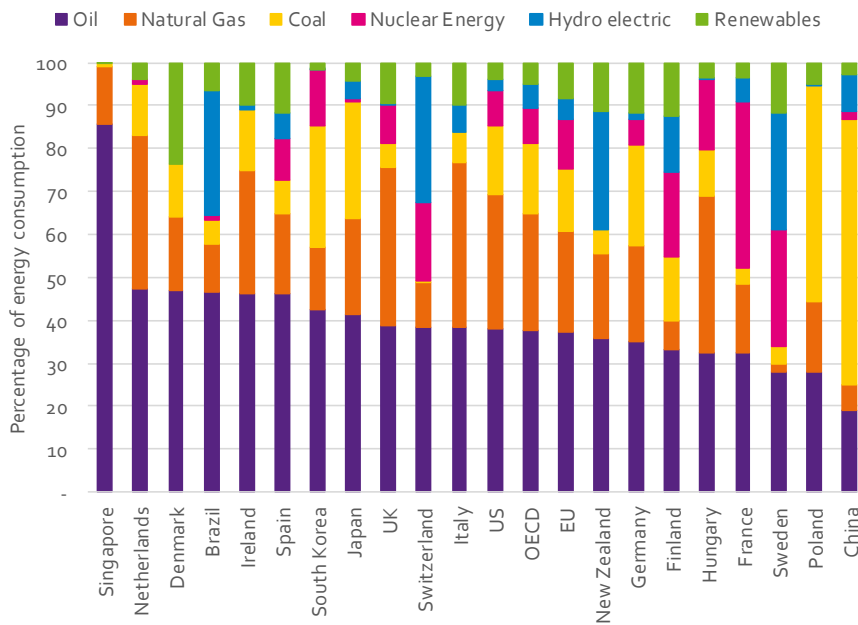


In 2016, overall energy consumption increased by 3.2% to 11,679 ktoe. Energy use in transport accounts for 42% of the total and grew by 3.3%. Consumption in industry grew by 2%. The highest increase in energy consumption (7.8%) was recorded in the Commercial/Public Services Sector.

Rank: n/a

Source: SEAI

Figure 2.3.5 Components of energy consumption, 2016



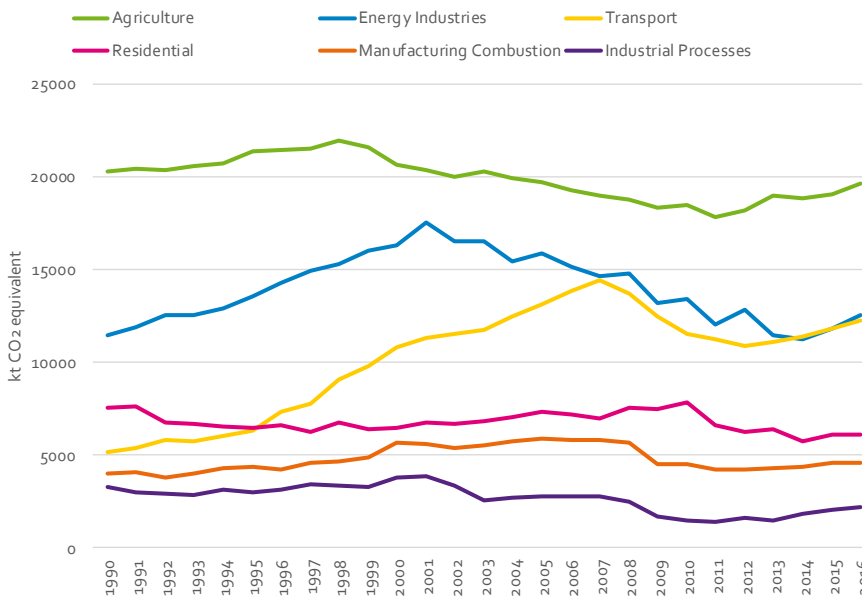
Since 2012 Ireland's dependence on oil and natural gas to meet its energy consumption needs has declined marginally, from 75% to 74.7% but remains above the OECD figure of 64.8%. Green energy accounts for 9.9% of the energy consumption in Ireland, above both the OECD average of 4.9% and the EU average of 8.3%.

OECD rank:

Oil dependency: 6th

Source: BP statistical review of world energy

Figure 2.3.6 Emissions by national climate change sectors (Kt CO₂ equivalent), Ireland, 1990-2016

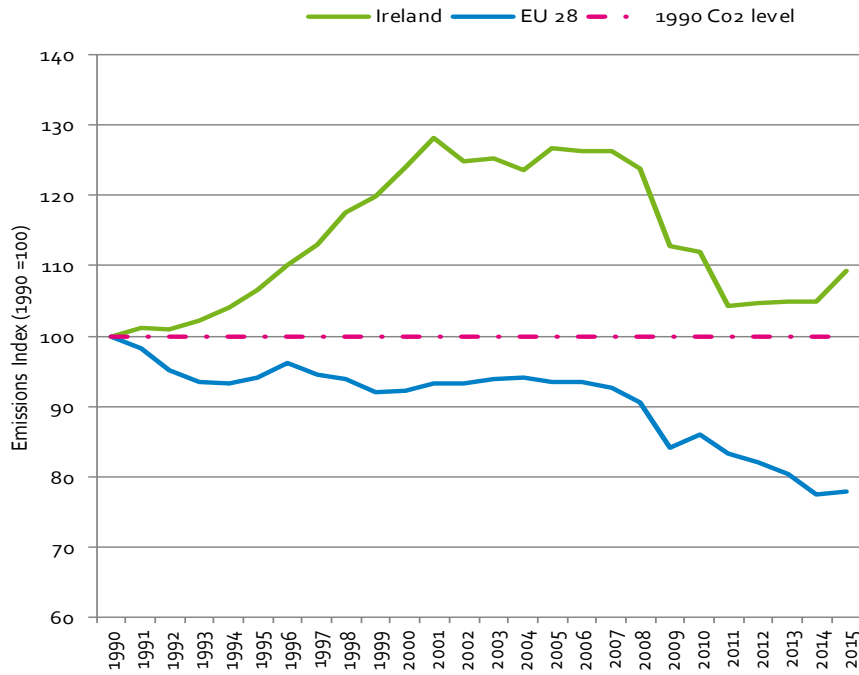


Between 1990 and 2016, total emissions increased by 10.4% to 61,188 kt of CO₂ equivalent. The agriculture (32%), transport (20%), energy (20%), and residential (10%) sectors account for most of emissions. Emissions by agriculture and industrial sectors have declined below 1990 levels, but transport emissions have increased by 138%.

Rank: n/a

Source: EPA

Figure 2.3.7 Greenhouse Gas emissions (Kt CO₂ equivalent indexed to 1990), Ireland, EU-28, 1990-2015

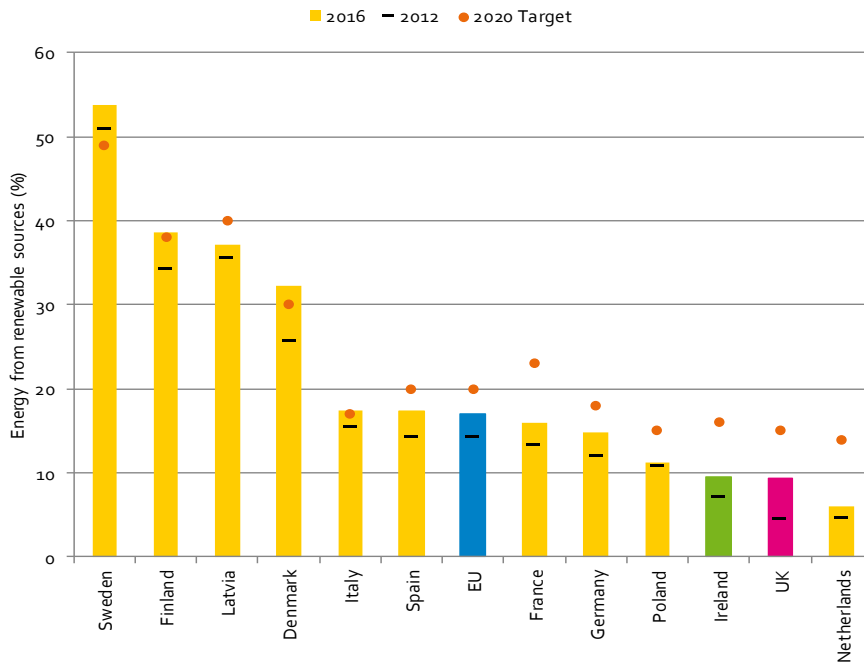


The EU 2030 targets envisage a domestic EU greenhouse gas reduction target of at least 40% compared to 1990. Ireland's emissions levels have been falling since 2008 on a year-on-year basis. Since 2012 there has been an increase in the greenhouse emissions, and in 2015 they were 9.2% above the 1990 level.

Rank: n/a

Source: Eurostat

Figure 2.3.8 Share of renewable energy in gross final consumption, 2016

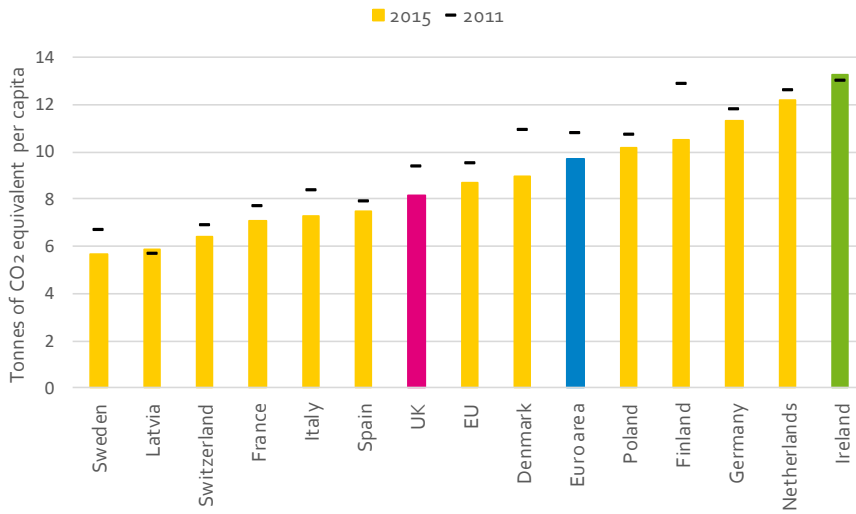


Increasing the share of renewables in gross final consumption of energy is one of the headline indicators of the Europe 2020 strategy. Although Ireland has increased its use of renewable energy sources in the period 2012-2016, at 9.5% Ireland remains below its target of 16% share of renewables in gross final consumption.

EU Rank: % distance from target: 26th

Source: Eurostat

Figure 2.3.9 Greenhouse Gas emissions per capita, 2015

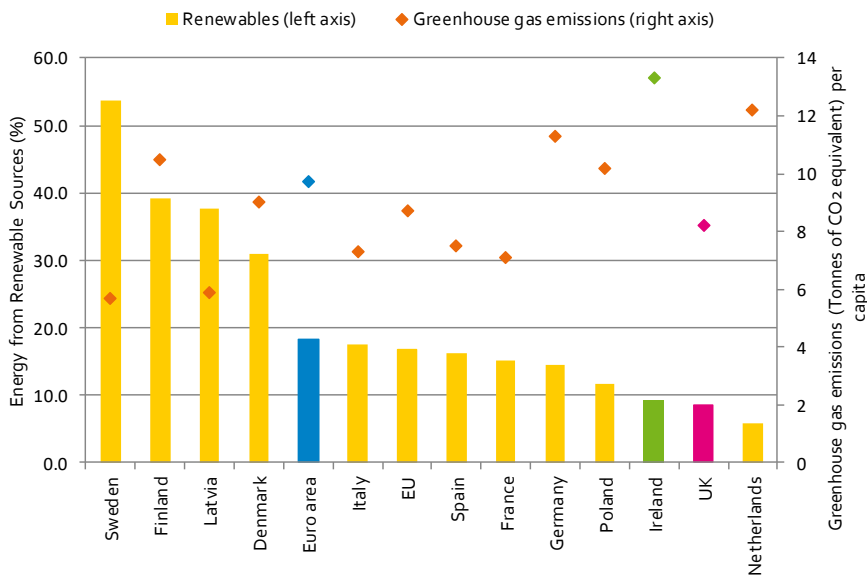


The greenhouse emissions per capita have been gradually decreasing in the period 2002-2010 to 14 tonnes of CO₂ equivalent per capita. Between 2011 and 2014 the greenhouse emissions have been stable at 13 t/capita but 2015 saw an increase to 13.3 t/capita, a figure above the Euro area of 9.7.

Euro area rank: 3rd

Source: Eurostat

Figure 2.3.10 Percentage of energy from renewable sources and per capita CO₂ emissions, 2015



Ireland's use of renewable energy sources has increased in the period 2011-2015 but remains well below the Euro area and the target of a 16% share of renewables in gross final consumption. In terms of emissions per capita, Ireland's absolute performance has improved but Ireland remains significantly behind leading EU states.

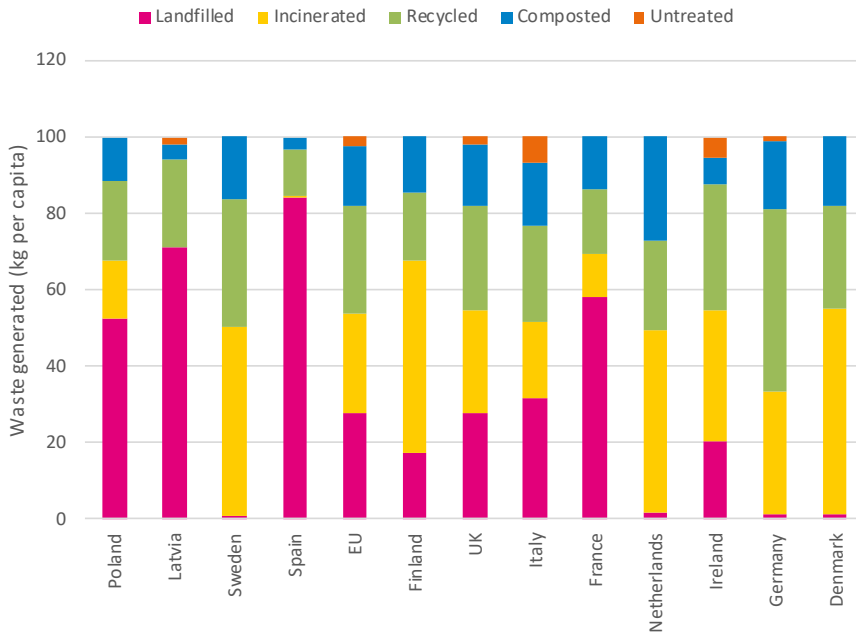
Euro area rank:

Renewables: 15th

Emissions: 3rd

Source: Eurostat

Figure 2.3.11 Municipal waste generated and treatment, 2016



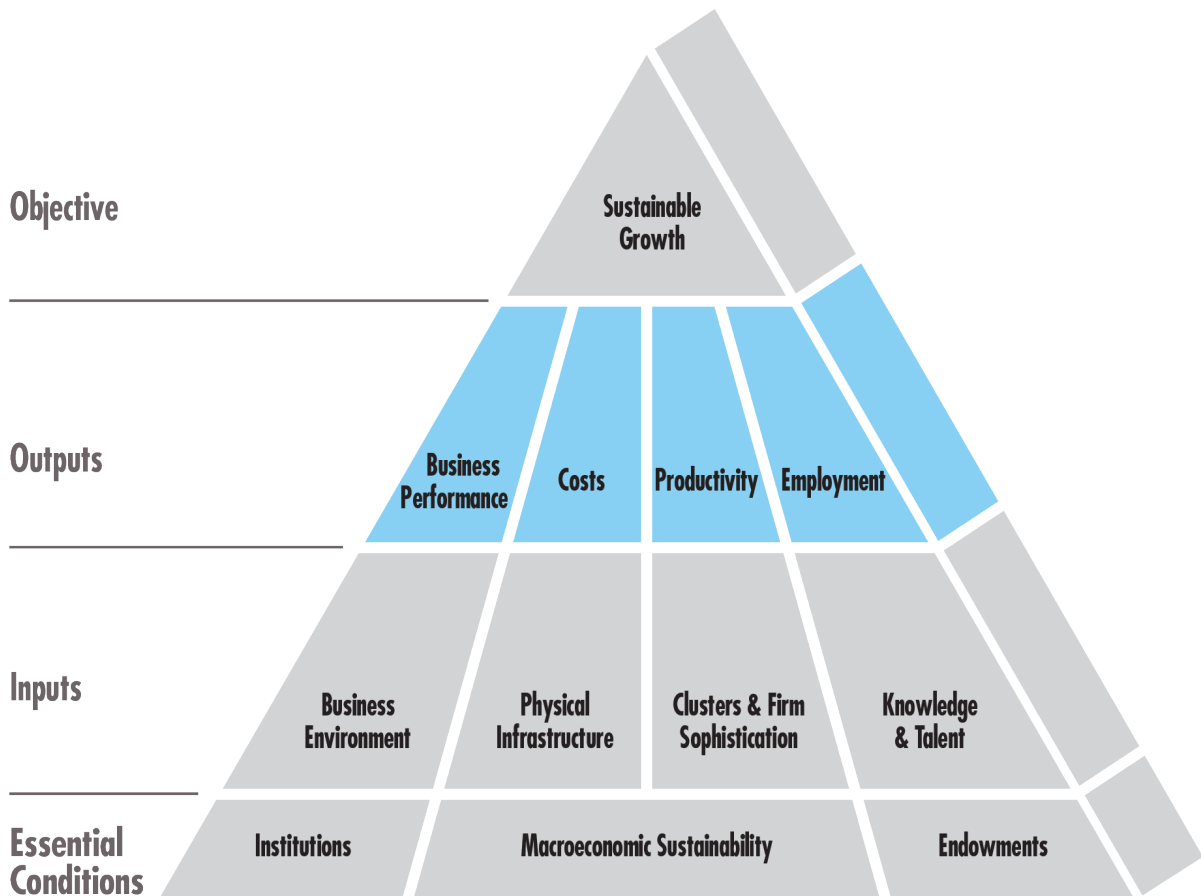
In the five-year period to 2016, the amount of waste generated in Ireland declined to 567 kg/capita, a 9.1% decrease. In terms of treatment options, Ireland makes greater use of recycling and incineration than the Euro area. While performance has improved, Ireland generates more waste per capita than the Euro area average.

Euro area rank:
Total waste: 15th

Source: Eurostat

Chapter 3

Competitiveness Outputs



Competitiveness Outputs

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

- **Business Performance: The performance of the business sector is central to the Council’s definition of competitiveness. The enterprise sector is the driver of the economy and as such, is critical to income growth and maintaining high employment levels in Ireland. A strong and vibrant enterprise sector is also essential to sustaining the government finances and hence expenditure on public services. Business performance is assessed across headings including trade and investment flows, entrepreneurship, indigenous enterprise performance, and inward investment.**
 - Exports and Imports as a percentage of GDP were 120 per cent and 88 per cent respectively in 2017. Trade as a proportion of GDP in Ireland has increased since 2013 and is significantly above Euro area and OECD averages. Ireland’s share of total global export markets has increased in the last decade and was 1.3 per cent, as of 2016. Ireland has expanded its share of the world’s commercial services market, reaching 3 per cent in 2016, up from 2.4 per cent in 2006. Over the same period, Ireland’s share of global merchandise exports has trended downwards but was 0.8 per cent in 2016, the same share as 2006.
 - Ireland’s principal trading partners in terms of goods exports are the US (27.2% share) and UK (13.4%). The Euro area accounted for 33 per cent of goods exports, with the Belgium, Germany, Netherlands and France the EU primary markets. While the share accounted for by these trading partners (84%) is relatively unchanged in a decade, the importance of the US market has increased.
 - The top 15 commodities account for approximately 90 per cent of total goods exports from Ireland. The significance of pharmaceuticals and chemical products is clear with these two commodity groups alone accounting for 45 per cent of exports. The top 100 traders in Ireland account for 80 per cent of total export value.
 - The number of newly born enterprises as a proportion of the total number of active enterprises is increasing. There were 18,100 new enterprise births in 2015, an increase of over 11 per cent on 2014. The largest increase in births was in the Construction sector. Ireland has a very high proportion of high growth enterprises (growth in employment by 10% or more).
 - 86 per cent of the enterprises born in Ireland in 2014 survived in 2015. 3-year and 5-year survival rates are significantly higher than most EU countries where less than half survive for a five-year period.
 - Foreign owned enterprises account for 2 per cent of all enterprises, 63 per cent of gross value added and 22 per cent of all persons engaged. In Industry, they account for 89 per cent of value added and 42 per cent of all persons engaged. Foreign-controlled enterprises outside the EU generated 43 per cent of the value added in the Irish non-financial business economies in 2014 compared to 18 per cent in the UK and 11 per cent in the EU.
- **Prices and Costs: Cost competitiveness is critical to ensuring that enterprises based in Ireland can compete successfully in international markets. This section examines the overall cost level and the rate of change for several key business inputs. Data on both pay and non-pay is included.**

- The Council published its Cost of Doing Business in Ireland report in June 2018 and concluded that Irish consumer prices in 2017 were 23.7 per cent above the EU average. The Council warns that increasing business costs will reduce the competitiveness of enterprises based in Ireland and the attractiveness of Ireland as a location for mobile investment and outlines the areas where upward cost pressures are evident.
- Overall, despite robust growth in employment, labour cost growth has remained modest in recent years and below the growth experienced in both the UK and the EU. The labour cost index shows that Irish labour costs have been increasing since 2014, but at a slower rate than the UK and Euro area. Between 2016 and 2017, hourly labour costs in the total economy expressed in Euro currency rose by 1.9 per cent both in Ireland and the Euro area. The hourly labour costs expressed in own currency increased by 2.6 per cent in the UK. The modest labour cost growth masks considerable divergence at sectoral level and between Ireland and the UK. In Ireland, the sectors with the highest rates of growth were Utilities (5%) and professional services (3.8%). Growth was negative in mining, arts and other services. In the UK growth was highest in administrative (4.8%) and transport (4.7%).
- The last number of years has witnessed a sustained recovery in the Irish commercial property market which resulted in sustained growth in commercial capital and rental values. Overall capital value growth was recorded at 5.2 per cent in Q4 2017 – this comprised of annual increases of 8.4 per cent, 1.3 per cent and 3.2 per cent in Office, Retail and Industrial values respectively. However, while the capital value index has increased, it remains 38 per cent below 2007 peak value. The take-up of office space remained strong in 2017, reflecting the growth of existing businesses. Office rental prices in Ireland in 2017 compare relatively favourably to cities in the UK. However, prices are increasing at a faster rate, due to increased demand.
- Ireland remains heavily dependent on imported energy products which represent 82 per cent of the gross inland consumption in Ireland. The high dependence on imported fossil fuels makes Ireland's energy prices vulnerable to substantial oil price fluctuations. Weighted average electricity prices (in purchasing power standard) for non-household consumers in the lower consumption bands (below 20,000 MWh) increased in the second half of 2017 but remained below the Euro area. However, average electricity prices in the high consumption bands (20,000 to 70,000 MWh and 70,000 to 150,000 MWh) surpassed the Euro area average prices in the second half of 2017. Given Ireland's dependence on energy imports from the UK, Brexit could potentially have a significant impact on Ireland's energy market. Ireland is relatively cost competitive for telecoms, especially for business mobile broadband. However, it is 10 per cent (Q3 2017) more expensive in cost for fixed and mobile broadband than the UK. Concerns persist around the issues of quality (speed) and the regional availability of high-speed services.
- In 2017 Ireland remained an expensive location in which to live and do business with a price profile which can be described as "high cost and rising". Irish consumer prices in 2017 were 23.7 per cent above the European Union average and increased at an annual rate of 0.2 per cent (Figure 3.2.4). In 2017 Irish consumer prices increased by 0.3 per cent (year-on-year) compared with 1.5 per cent for the Euro area and 2.7 per cent in the UK. 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 average during this period also. In 2016 service producer price levels in Ireland were 7.6 per cent higher than in 2010, while prices in the Euro area were 1.4 per cent higher on average, and 4 per cent higher in the UK. In the year to Q3 2017, business services prices increased by approximately 4 per cent. The biggest increases in prices in 2017 were recorded in Postal and Courier (8.9%) and Computer services (5.8%). Motor insurance has moderated in recent months, however, in the period 2014-2016, prices as measured by the CPI increased by approximately 40 per cent.

- **Productivity: In the long run, a country's standard of living is dependent upon productivity. The indicators in this section examine Ireland's labour productivity performance in an OECD context, as well as data from the CSO's experimental Productivity in Ireland report published in May 2018.**

 - Ireland had the highest output per hour worked among OECD member states in recent years. Output per hour was \$88 in 2017 and \$83.1 in 2016 in GDP terms, compared to \$51.6 in the UK and \$47.1 in the OECD in 2016. On average over the period 2006-2016, Ireland's growth rate (4.6%) has been well above most Member States and the OECD total (0.9%).
 - In recent years, Ireland's performance is significantly affected by globalisation activities, which are reflected in the national accounts. Irish labour productivity growth has been above that in competitor countries since 2010. 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.
 - Reflecting significant changes in the economic cycle, the pattern of Irish productivity growth shows significant volatility. Median total productivity growth over the period was 4.7% peaking at 22% in 2015 with a low of -1.1% in 2012. Significant volatility is seen in Manufacturing, Construction, Agriculture and Finance sectors.
 - CSO data shows Irish productivity growth (gross value added per hour worked) averaged 4.5 per cent in the period to 2000-2016. The contribution of the Foreign sector to labour productivity growth averaged 10.9 percent and 2.5 per cent for the Domestic and Other sectors. The results are affected by the significant economic developments in 2015. In 2016 productivity in both the foreign and the domestic sector was 2.2 per cent. On average over the period 2006-2014, productivity in the foreign sector (6.2%) has been higher than the Domestic sector average of 2.7 per cent.
 - Industry and ICT have seen significant rises in productivity over this period, increasing by a factor of 2.7 and 2.4 respectively. A substantial proportion of the growth in Industry was driven by the globalisation events in 2015. The Distribution, Transport, Retail and Construction sectors show minor changes in productivity.
 - Figure 3.3.13 shows that in general, growth in labour productivity over the last decade, and in 2015, has been driven by increased capital deepening. In the period 2006-2016 Ireland's capital stock per employee increased by 99 per cent from €190,000 to €378,000. The CSO reports that the rate of increase in capital stocks in Ireland in both the Foreign sector and the Domestic and Other sector was the highest in the EU.
- **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 several other demographic and migration indicators are examined in the section on endowments (Chapter 6).**

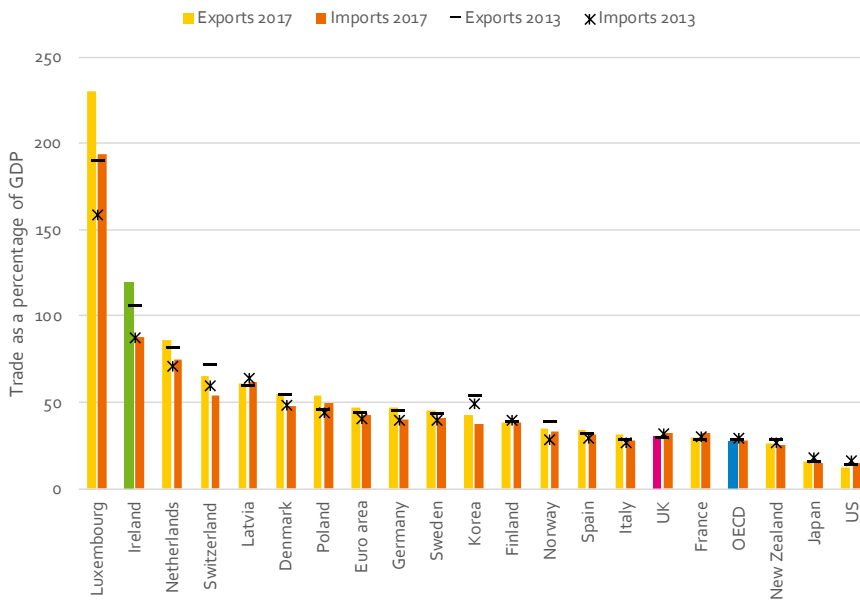
 - Figure 3.4.2 shows the continued improvement in the labour market. Employment is approaching peak pre-recession levels, illustrated by the over 2.2 million employed in Q1 2018, an increase of 2.9 per cent or 62,100 in the year to Q1 2018. The increase in total employment was represented by an increase in full-time employment of 72,000 and a decrease in part-time employment of 9,900.
 - Headline and long-term unemployment are also on a steady downward trajectory. The seasonally adjusted unemployment rate was 5.1 per cent in June 2018 and the seasonally adjusted number of persons unemployed was 120,200, a decrease of 34,300 when compared to June 2017. The long-term unemployment rate decreased from 3.7 per cent to 2.1 per cent over the year to Q1 2018. Youth

unemployment (15-24-year-olds) was 11.8 per cent in May 2018, below the Euro area average (16.8 %).

- Strong employment growth is observed across sectors and regions. The difference in unemployment rates across Ireland's eight regions (18%) is the lowest in the Euro area.
- The gap between the individual's jobs skills and the demand of the labour market is illustrated by Figure 3.4.11. With 35 per cent of the workers employed in a different field from the area they specialised in, and 44 per cent with a qualification mismatch, Ireland's performance is below the Euro area 15 (31.2% and 35.8% respectively).
- Figure 3.4.12 shows that for a long-term unemployed, one earner married couple with two children earning 100 per cent of the average wage, the Irish replacement rate (79%) exceeds the OECD median (58%) and the UK rate (71%). The rate for single persons (49%) also exceeds the OECD (32%) and UK (37%) rates. The replacement rates are higher for lower-income families.
- The overall job vacancy rate remained flat (1.1% in Q4 2017) and significantly below the Euro area (2%) and the UK (2.6%). There is a divergence in terms of job vacancy rates within the Irish economy and between Ireland, the Euro area and the UK in 2017. The sectors with the highest job vacancy rates in Ireland are Professional (2.7%), Financial & insurance (2.6%) and ICT (1.7%), in the Euro area Administrative & support service (3.8%) and in the UK Accommodation & food services (3.9%).
- The robust performance of the economy is also reflected in the number of employment permits issued. At 11,361, the total number of employment permits issued in 2017 is almost three times higher compared to 2013 (3,863). The largest number of employment permits was issued in the Service Industry sector (4,270), while the highest increase in the number of permits was recorded in the Medical & Nursing sector (almost 10 times the amount between 2013 and 2017).

3.1 Business Performance

Figure 3.1.1 Exports and Imports as a percentage of GDP, 2017¹⁵



Ireland's economy is very open with elevated levels of import and export trade in both goods and services. Exports and Imports as a percentage of GDP were 120% and 88% respectively in 2017. Trade as a proportion of GDP in Ireland has increased since 2013 and is significantly above Euro area and OECD averages.

OECD rank: 2nd (exports), 3rd (imports)

Source: OECD

Figure 3.1.2 Export Growth Rate, Ireland, selected economies¹⁶, 2007-2017

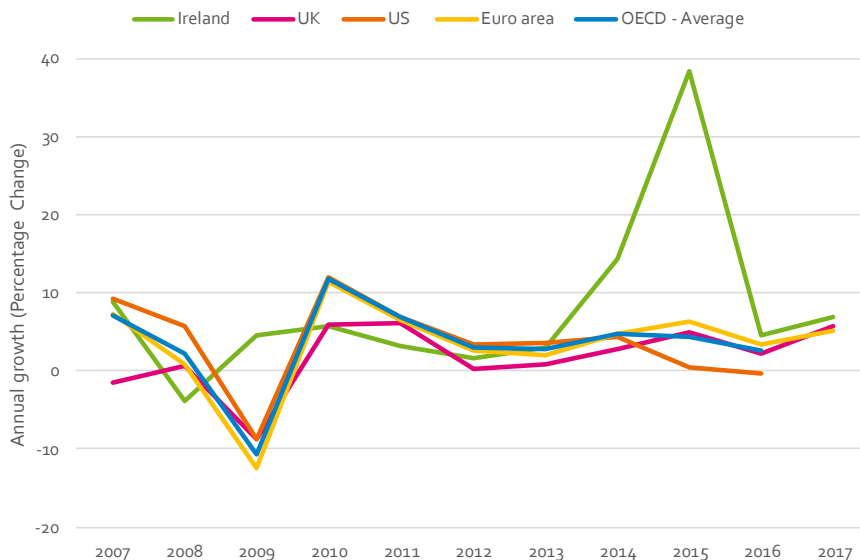


Figure 3.1.2 shows the growth rate in Irish exports over the past decade. Exports grew by 6.9% in 2017. Except for 2008, growth rates have been strong before and after the crisis. The exceptionally strong rise in exports in 2014 and 2015 is mainly due to the globalisation activities of a very small number of companies.

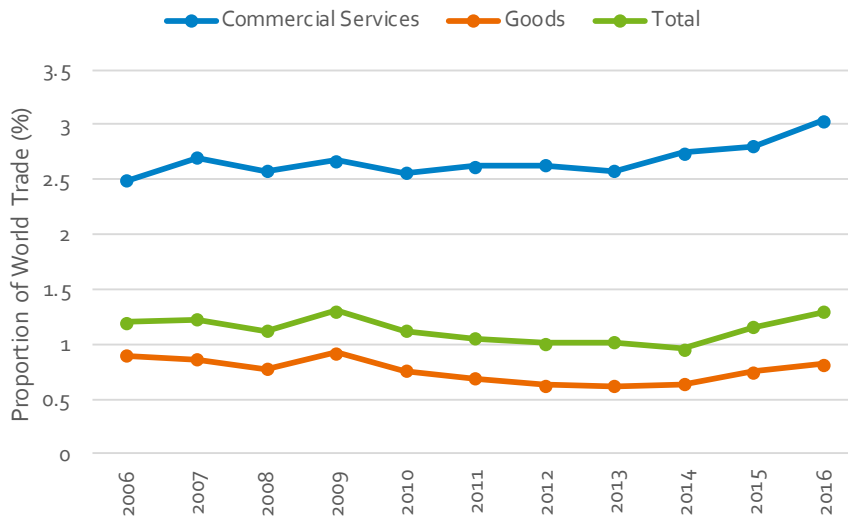
OECD rank: 7th

Source: OECD

¹⁵ 2017 data for Japan, New Zealand, OECD and US is 2016 data

¹⁶ UK data for 2017 (5.7%) is reported by the OECD as an estimate. 2017 data for US and OECD not available

Figure 3.1.3 Ireland's share of world trade, 2016



Ireland's share of total global export markets has increased in the last decade and was 1.3% as of 2016. Ireland has expanded its share of the world's commercial services market, reaching 3% in 2016, up from 2.4% in 2006. Over the same period, Ireland's share of global merchandise exports has trended downwards but was 0.8% in 2016, the same share as 2006.

Rank: n/a

Source: WTO

Figure 3.1.4 Irish goods exports and imports, percentage share by trading partner, 2017

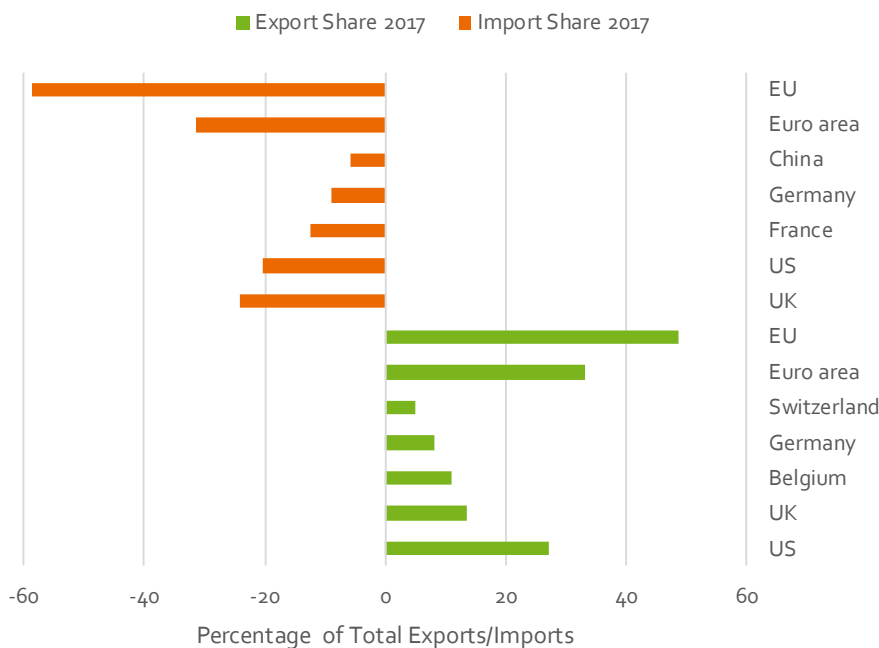


Figure 3.1.4 shows the importance of intra-EU trade for Ireland. The EU market accounts for 59% of imports and 49% of exports. The US and UK are Ireland's most important trading partners accounting for 27% and 11% of total exports. The UK is the most important partner for imports accounting for 24% of total imports.

Rank: n/a

Source: CSO

Figure 3.1.5 Goods Exports by Trading Partner, Ireland, 2007-2017



Ireland’s principal trading partners in terms of goods exports are the US (27.2% share) and UK (13.4%). The Euro area accounted for 33% of goods exports, with the Belgium, Germany, Netherlands and France the EU primary markets. While the share accounted for by these trading partners (84%) is relatively unchanged in a decade, the importance of the US market has increased.

Rank: n/a

Source: CSO

Figure 3.1.6 Goods Exports Top 15 Commodities 2017

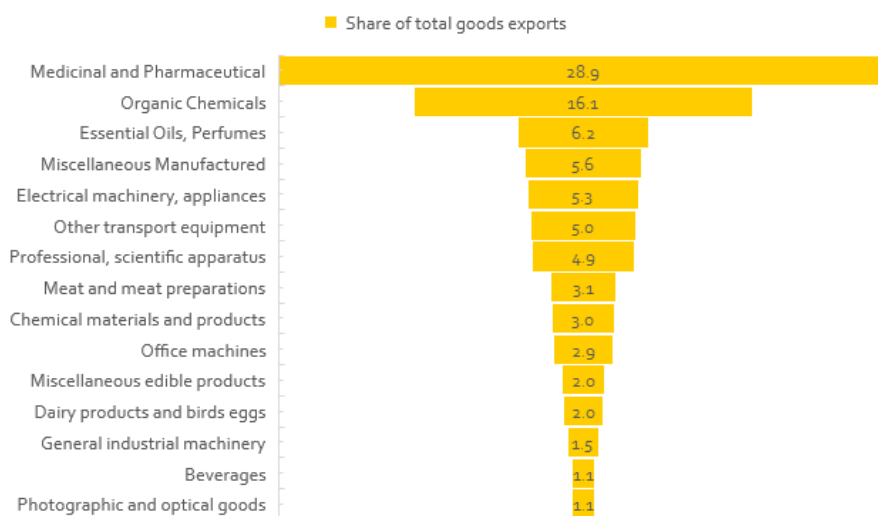


Figure 3.1.6 shows the top 15 commodities which account for approximately 90% of total goods exports from Ireland. The significance of pharmaceuticals and chemical products is clear with these two commodity groups alone accounting for 45% of exports.

Rank: n/a

Source: CSO

Figure 3.1.7 Goods Exports by Commodity and Trading Partner, 2016

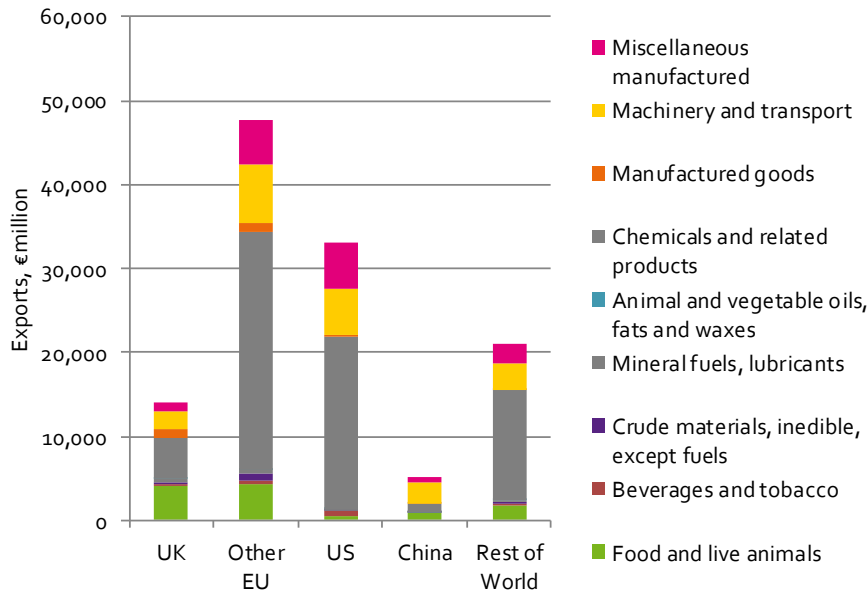
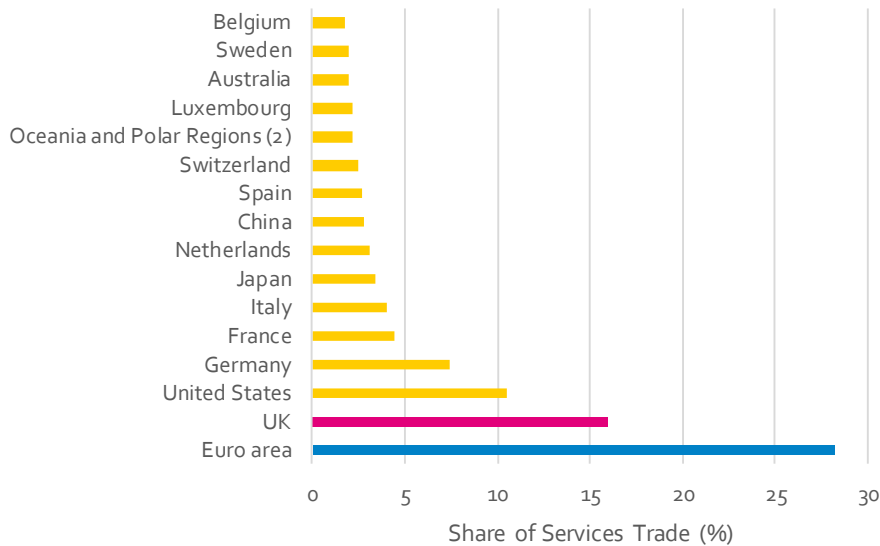


Figure 3.1.7 shows Chemicals account for the largest share of exported goods to the US, UK, rest of the EU and rest of the world. The UK accounted for €14.4 billion, (12%) of total exports, and is the primary destination for Food exports, accounting for 28% of total Food exports.

Rank: n/a

Source: CSO

Figure 3.1.8 Services Trade by Principal Trading Partner, Ireland, 2016

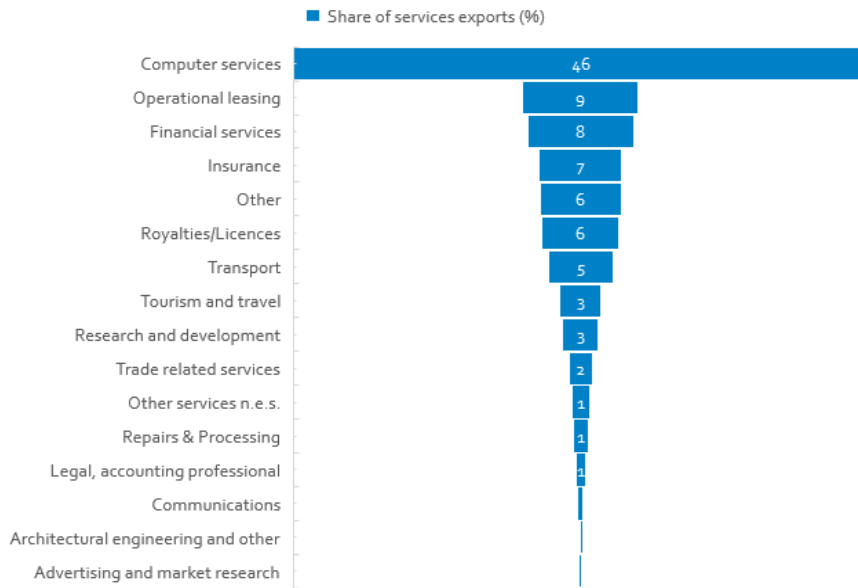


The Euro area is the most important market for services exports, accounting for 28% of total service exports. The UK accounts for 16% of total services exports (down from 23% in 2007), with the US accounting for 10.5%. Japan, China and Switzerland are the largest markets outside of the EU and US.

Rank: n/a

Source: CSO

Figure 3.1.9 Services Trade by Principal Category, Ireland, 2016

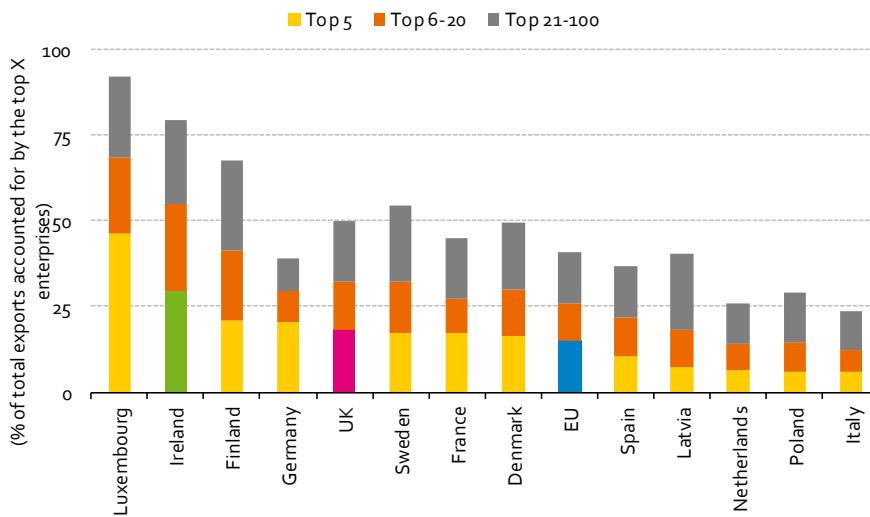


Source: CSO

Figure 3.1.9 shows the degree of concentration in Irish services exports. The significance of computer services exports is extremely high accounting for 46% of all services exports. Financial and insurance activities account for 15% combined.

Rank: n/a

Figure 3.1.10 Value of exports by enterprise concentration, 2015

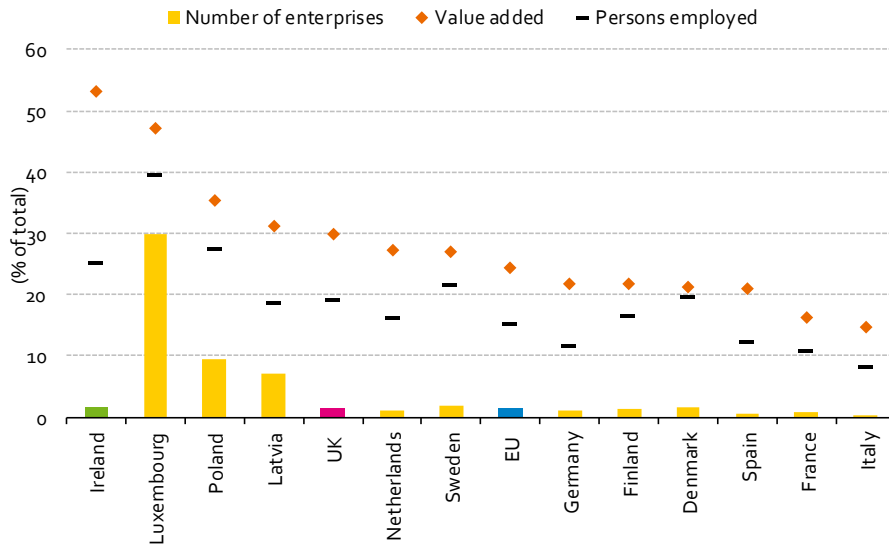


Source: Eurostat

The share of total trade accounted for by a small number of traders is high in Ireland relative to many EU Member States. Across the EU, the top five traders accounted for 15.1% of total exports (in value terms) compared to 29.5% in Ireland. The top 100 traders in Ireland account for 80% of total export value.

EU rank: 2nd

Figure 3.1.11 Share of foreign-controlled enterprises, non-financial business economy, 2014



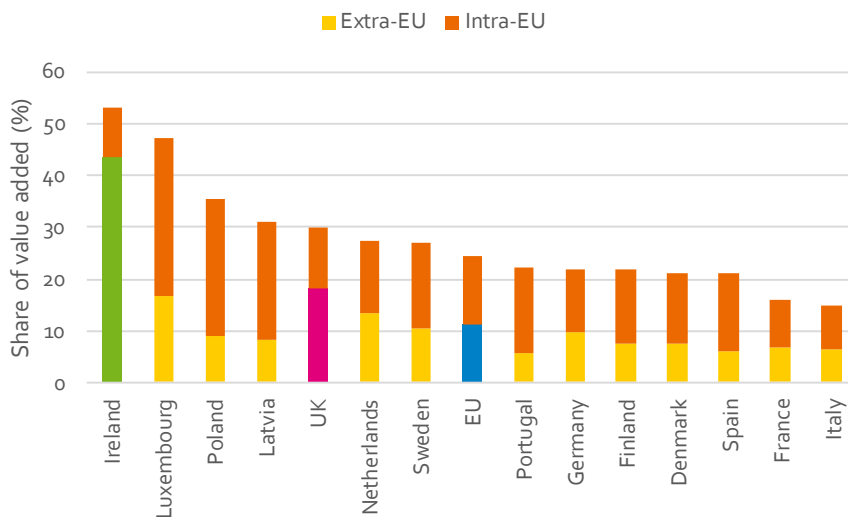
The number of foreign-owned enterprises as a proportion of all enterprises in Ireland is 1.6%, above the UK and EU rates (both 1.2%). The proportion of total value added generated (53%) is the second highest level in the EU, behind Hungary.

Foreign-owned enterprises accounted for 25% of employment, above the EU average (15%) and the UK (19%)

EU rank: value added: 2nd

Source: Eurostat

Figure 3.1.12 Share of foreign-controlled enterprises in total value added, Extra and Intra EU, non-financial business economy, 2014



Foreign-controlled enterprises outside the EU generated 43% of the value added in the Irish non-financial business economies in 2014 compared to 18% in the UK and 11% in the EU. A high proportion of extra EU foreign-controlled enterprises in Ireland and the UK are ultimately controlled by units from the US.

EU-27 rank: Extra-EU 1st, intra-EU 23rd

Source: Eurostat

Figure 3.1.13 Share of foreign owned in gross value added, employment and enterprise population, 2015

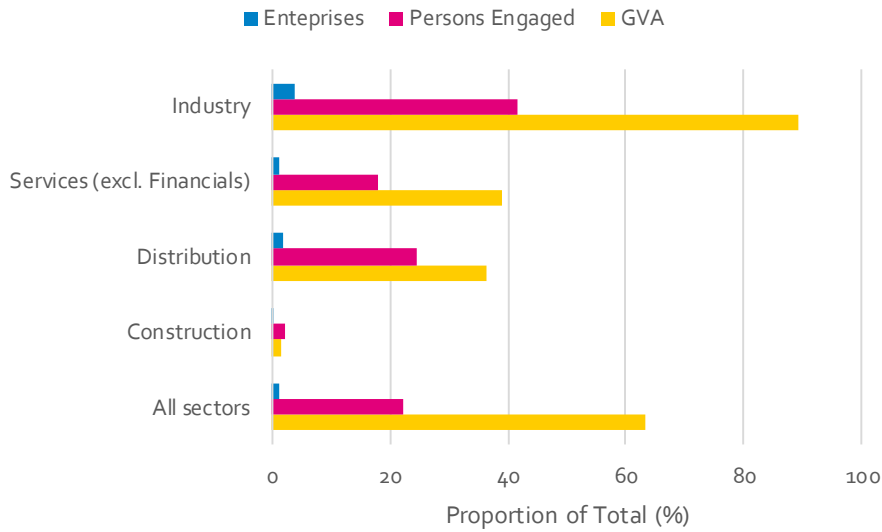
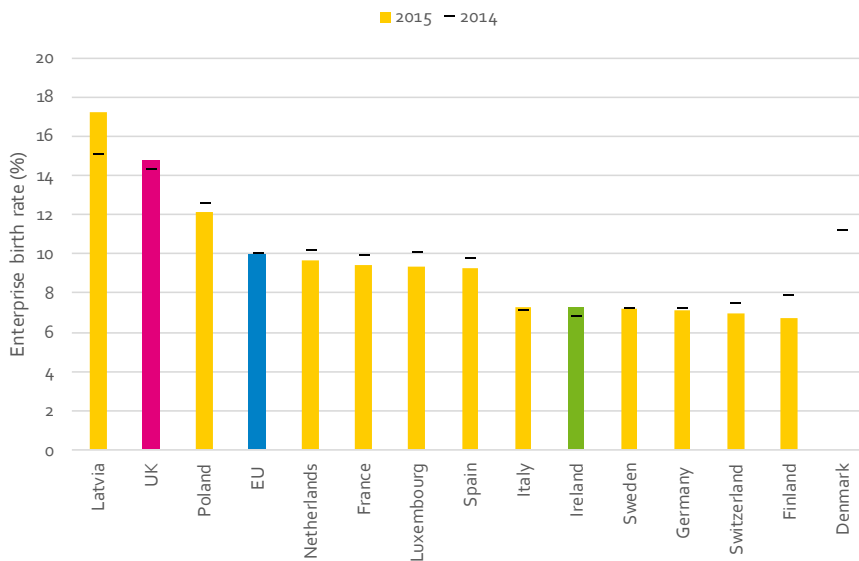


Figure 3.1.13 underlines the importance of inward investment to the Irish economy, particularly in industry¹⁷. While foreign-owned enterprises account for 2% of all enterprises they account for 63% of gross value added and 22% of all persons engaged. In Industry, they account for 89% of value added and 42% of all persons engaged.

Rank: n/a

Source: CSO

Figure 3.1.14 Enterprise births as a percentage of active enterprises, 2015



The number of newly born enterprises as a proportion of the total number of active enterprises increased in Ireland in 2015 compared with 2014 from 6.8% to 7.2%. In the EU¹⁸ birth rates ranged from 5.1% in Greece to 18.5% in Lithuania. The rate in the UK (14.7%) was above the EU average (10%).

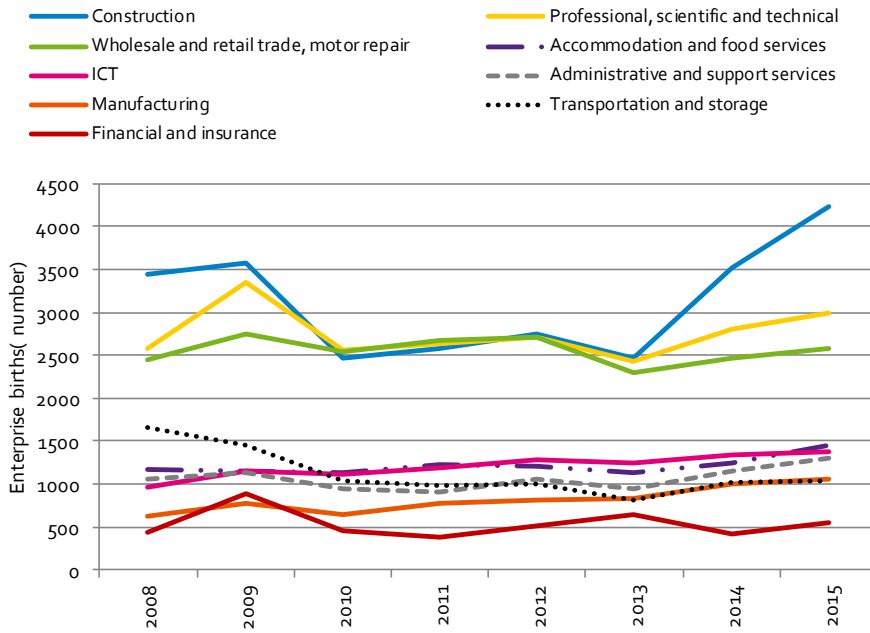
EU rank: 23rd

Source: Eurostat

¹⁷ Industry covers NACE Rev.2 (05-39) of which Manufacturing (10-33), Construction (41-43), Distribution (45-47) and Services covers NACE Rev. 2 H to N (excluding K) and R92, R93, S95, S96.

¹⁸ Data for 2015 not available for Denmark

Figure 3.1.15 Enterprise births by sector of activity, Ireland 2008-2015

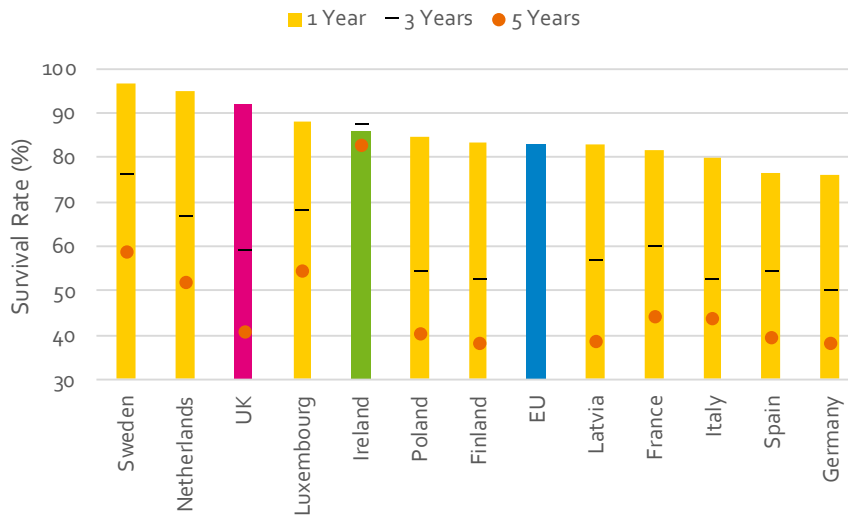


There were 18,100 new enterprise births in 2015, an increase of over 11% on 2014. The largest increase in births was in the Construction sector which increased by 19% to 4,226. This is the highest number of births recorded for the Construction sector in the period 2008 to 2015. The Financial Service sector experienced the highest percentage increase (30.1%) between 2014 and 2015.

Rank: n/a

Source: CSO

Figure 3.1.16 Enterprise Survival rate 2015

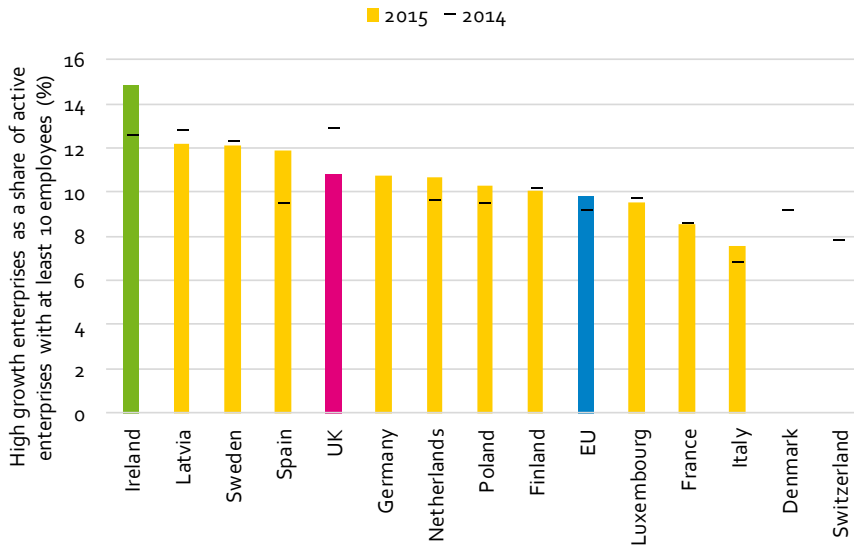


Looking at enterprises one-year survival rate 85.8 % of the enterprises born in Ireland in 2014 survived in 2015. The EU average rate was 83% and 92% in the UK. In Ireland 83% survived five years and 87% 3 years. These rates are significantly higher than most EU countries where less than half survive for a five-year period.

EU rank: 1-year rate 10th, 3-year, 2nd, 5-year 2nd

Source: Eurostat

Figure 3.1.17 Share of high growth enterprises measured in employment, 2015



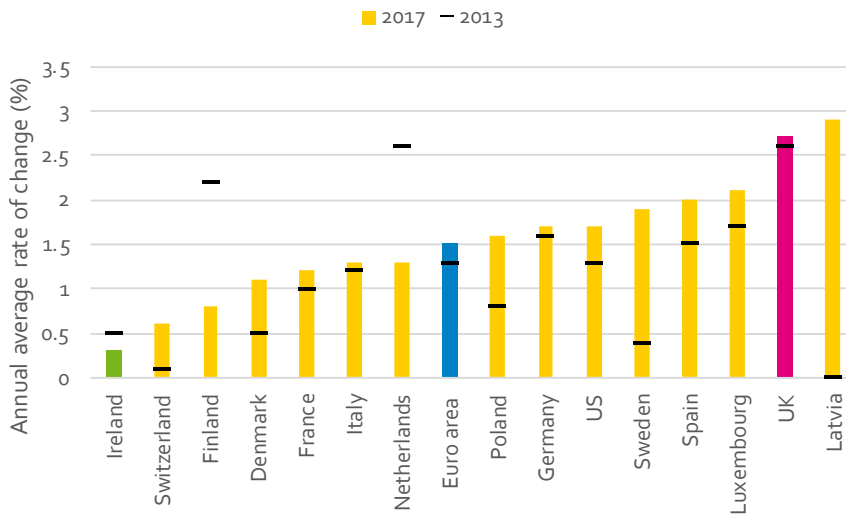
High-growth enterprises (growth in employment by 10% or more) play a key role in economic growth and jobs. Considerable variation exists across the EU. The shares range from 14.8% in Ireland 10.8% EU average and 9.8% in the UK. High-growth enterprises in Ireland were predominantly in manufacturing and retail.

EU rank: 1st

Source: Eurostat

3.2 Prices and Costs

Figure 3.2.1 Harmonised Index of Consumer Prices (HICP), Rate of Change, 2017



At 0.3% consumer price inflation in Ireland as measured by the HICP was the lowest in the EU in 2017. Core inflation has grown at a very subdued rate in recent years. Irish inflation has been $\leq 0.5\%$ over the last five years. Euro area and UK inflation rates have also been relatively low by historic standards.

EU rank: 1st (lowest)

Source: Eurostat

Figure 3.2.2 HICP, average inflation rate, Ireland, UK, Euro area, 2007-2017

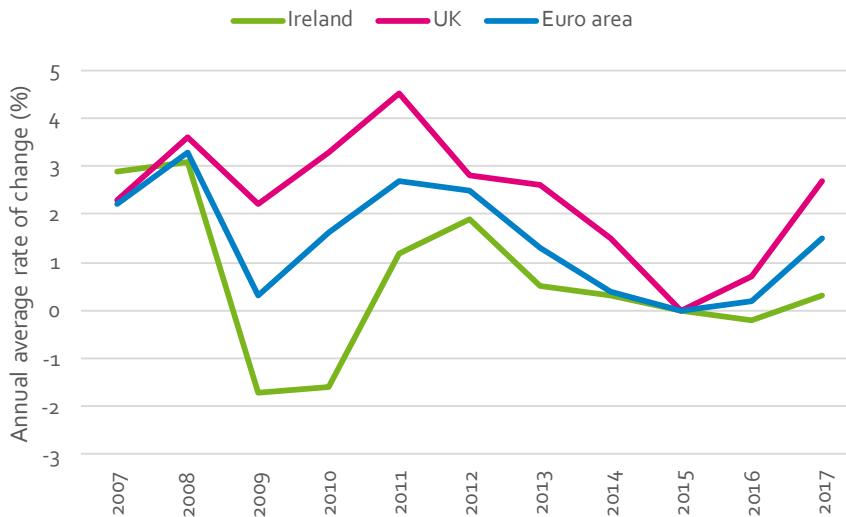
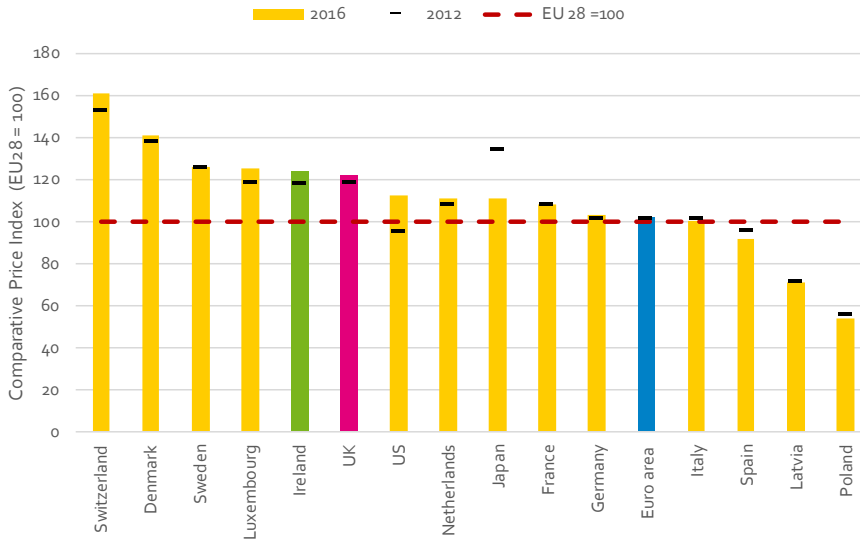


Figure 3.2.2 shows the trend in inflation in Ireland, the Euro area, and the UK. In 2017 Irish consumer prices increased by 0.3% (yoy) compared with 1.5% for the Euro area and 2.7% in the UK. Irish inflation has tended to be below the Euro area average since 2008.

EU rank: 1st (lowest)

Source: Eurostat

Figure 3.2.3 Comparative price levels of final consumption by private households including indirect taxes, 2016



In 2016 Ireland had the 4th highest prices levels in the EU, after Denmark, Sweden and Luxembourg. Irish price levels were 23.7% above the EU level, with prices in the UK 21.6% higher. Between 2007- 2009 price levels in Ireland were 25% above the EU average. Price levels in Ireland fell in 2010 to 18% above the EU average and then increased in the years to 2016.

EU rank: 4th highest

Source: Eurostat

Figure 3.2.4: Consumer price levels, 2016 and inflation rate of change, 2017

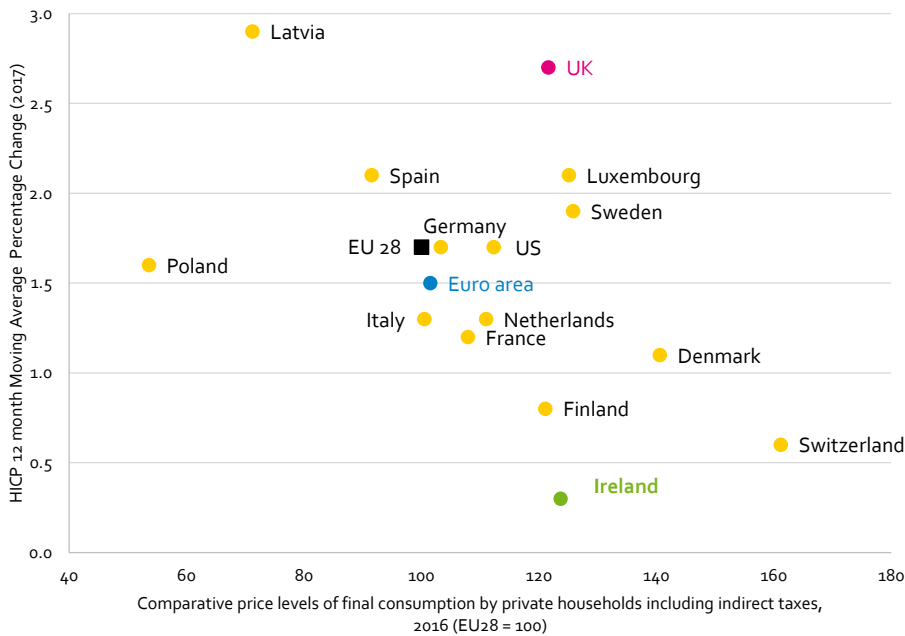


Figure 3.2.4 shows both changes in prices (inflation) and the price level. Ireland’s current price profile could be described as “high cost, rising slowly” while the UK is “high cost, rising quickly”. Price levels in Ireland were 23.7 per cent above the EU 28 average in 2016 and increasing by 0.2% in November 2017; the UK was 21.6 per cent above the EU average and increasing by 2.6%.

EU rank: price level 4th highest

Source: Eurostat

Figure 3.2.5 Comparison of Service producer prices, 2016

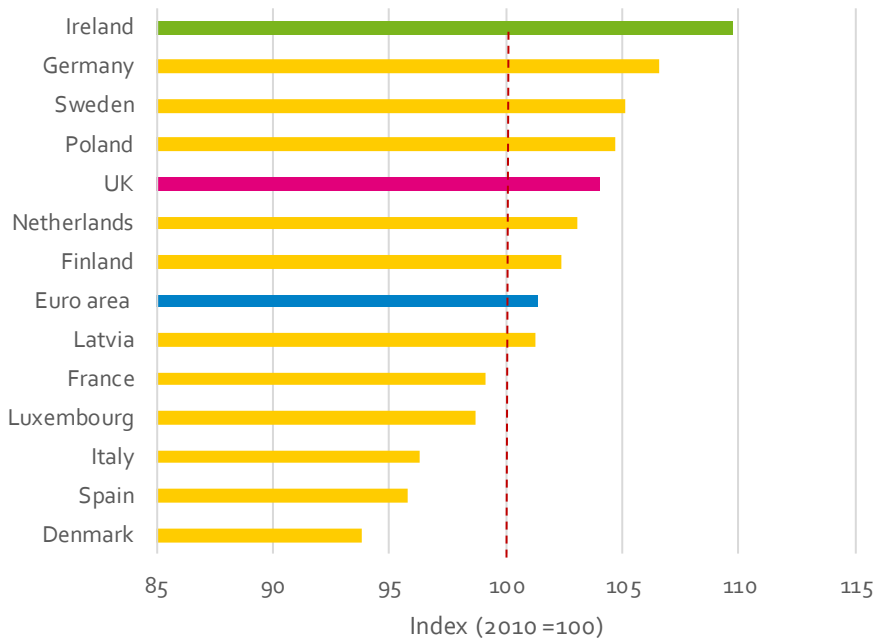
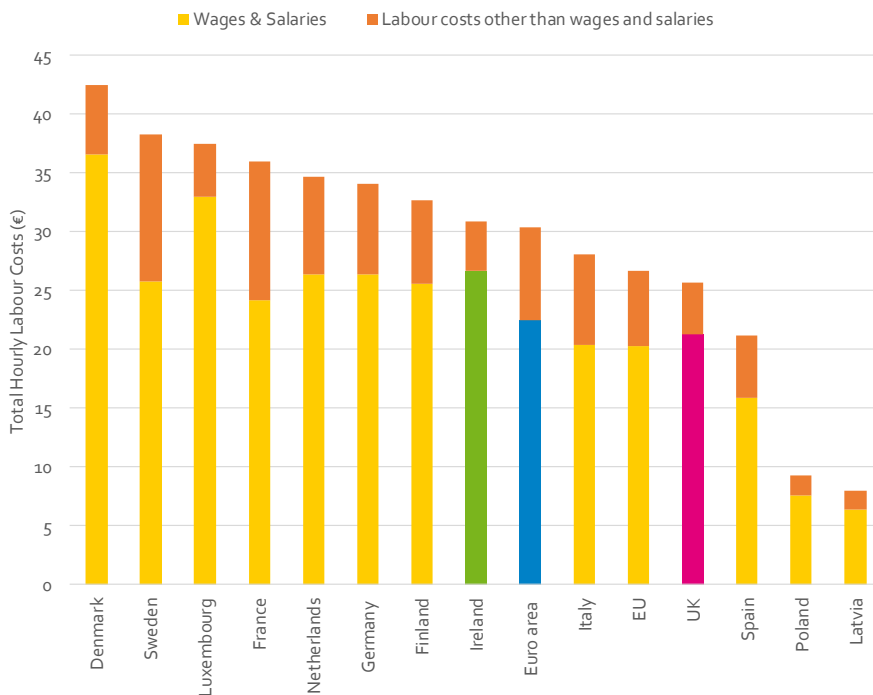


Figure 3.2.5 compares Service Producer Prices levels in Ireland relative to other European countries. Following a period of decline during the recession, an upward trend has been evident since 2011. Service producer price levels in Ireland are 7.6% higher than in 2010. Prices in the Euro area are 1.4% higher on average and 4% higher in the UK.

EU rank: 3rd

Source: Eurostat

Figure 3.2.6 Total economy hourly labour costs¹⁹, 2017



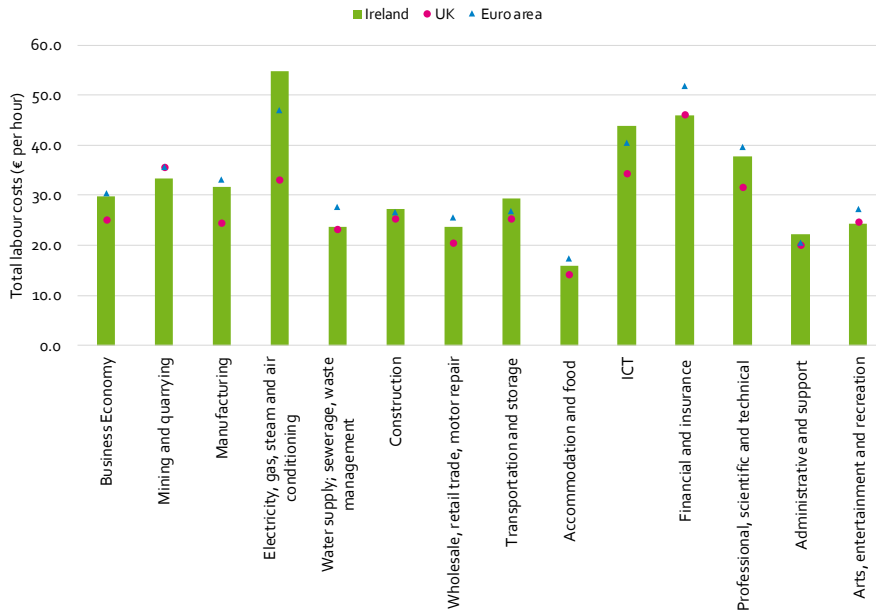
Total hourly labour costs (denominated in euro) in the EU ranged from €4.1 in Bulgaria to €42.5 in Denmark. At €31 per hour, Ireland's hourly rate remained the 8th highest in the Euro area, 2% and 20% higher than the Euro area (€30.3) and the UK (€25.7).

Euro area rank: 8th

Source: Eurostat

¹⁹ Eurostat total economy data refers to enterprises with 10 or more employees and excludes agriculture and public administration

Figure 3.2.7 Hourly Labour Costs, Business Economy, Detailed NACE sectors, 2017

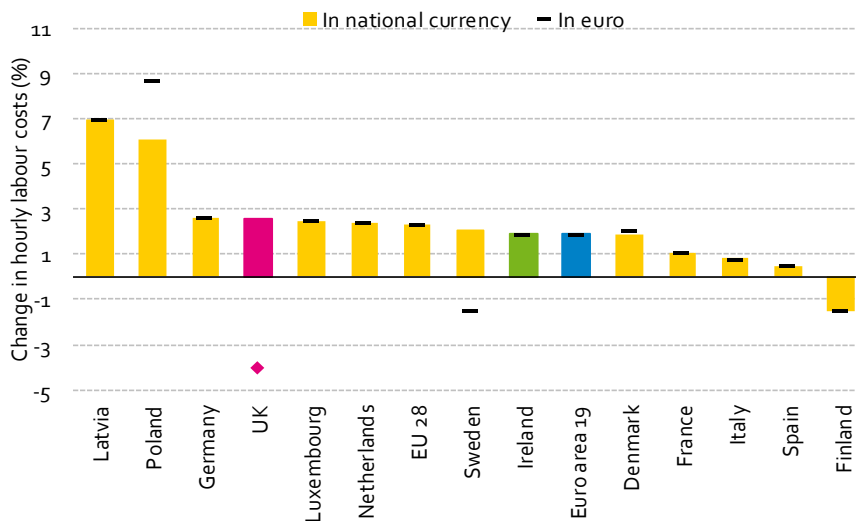


Considering labour costs at sectoral level, in 2017 hourly labour costs were highest in Utilities (€55) and lowest in Accommodation and Food (€16). Ireland (€46) was behind the UK (€46.2) in financial services. In manufacturing (IE € 31.6 and UK €24.6) and ICT (€43.8 and €34.3) Ireland is above UK levels.

Rank: n/a

Source: Eurostat

Figure 3.2.8 Growth in Hourly Labour Costs 2017²⁰



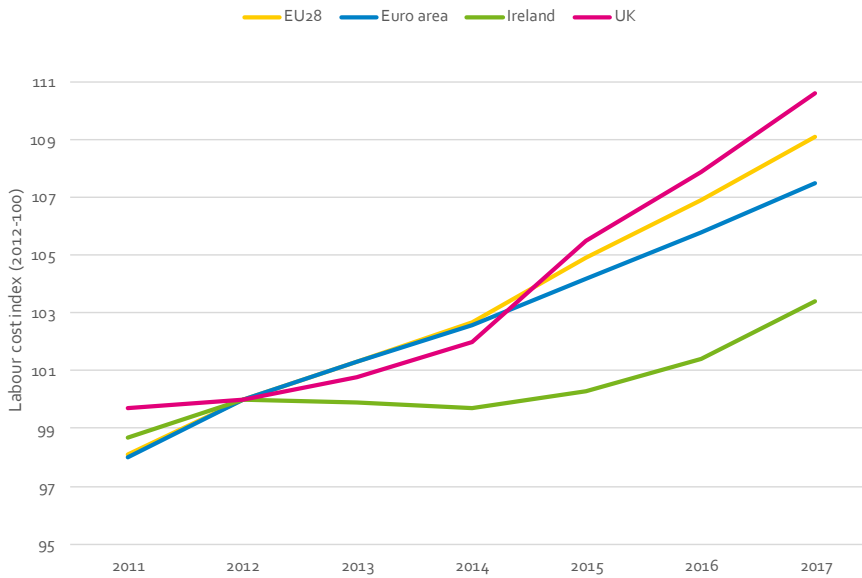
Between 2016 and 2017, hourly labour costs in the whole economy expressed in € rose by 1.9% both in Ireland and the Euro area. The largest increases were recorded in the Baltic Member States. Expressed in national currency, hourly labour costs increased in the UK (+2.6%) (-4.1% in €).

Rank: n/a

Source: Eurostat

²⁰ When comparing labour cost estimates over time, levels expressed in national currency should be used to eliminate the influence of exchange rate movements.

Figure 3.2.9 Labour costs index, 2011-2017

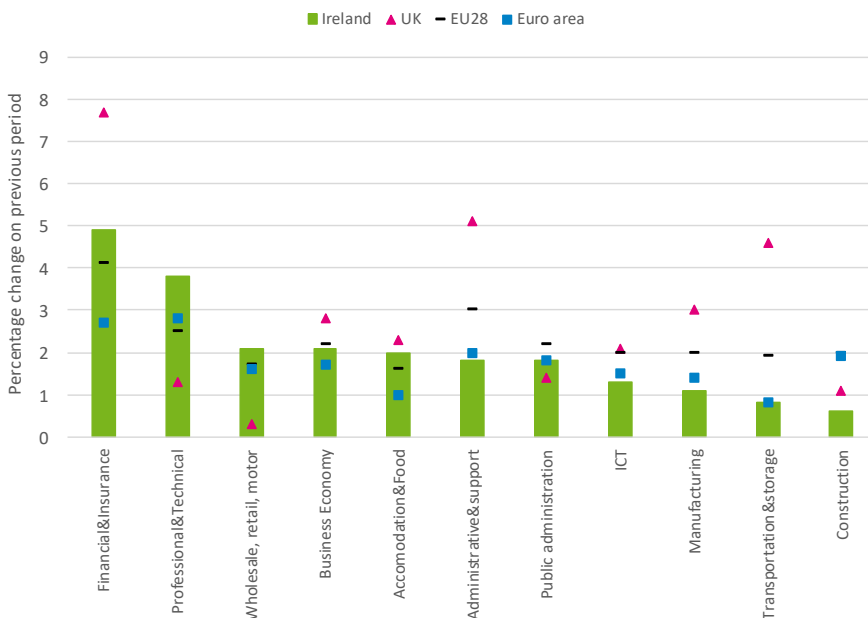


Expressing growth in an index form, where 2012 labour costs are 100, the graph shows that Irish nominal labour costs have been increasing since 2014 but cumulatively have increased by less than the EU, Euro area and UK labour costs.

Rank: n/a

Source: Eurostat

Figure 3.2.10 Growth in labour costs²¹, by economic sector, annual percentage change, 2017



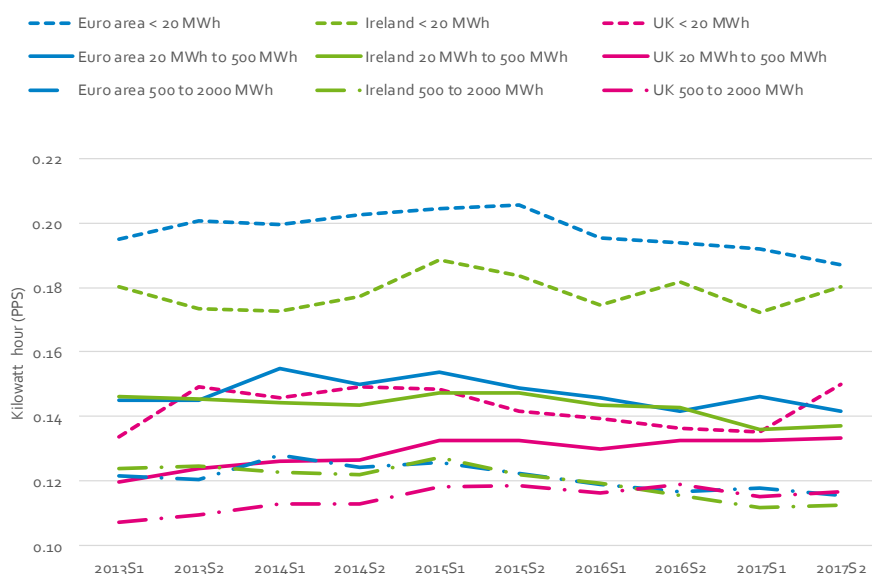
The rate of labour cost growth varies by sector. In 2017 the highest annual increase in Ireland was recorded in Financial & Insurance (4.9%) and Professional & Technical (3.8%). Growth was lowest in Construction (0.6%). In the Euro area, the strongest growth was in Professional & Technical, and in the UK in Financial & Insurance.

Rank: n/a

Source: Eurostat

²¹ Labour cost for LCI (compensation of employees plus taxes minus subsidies)

Figure 3.2.11 Non-household electricity prices, low consumption bands (excluding VAT and other recoverable taxes and levies)²², S2 2017

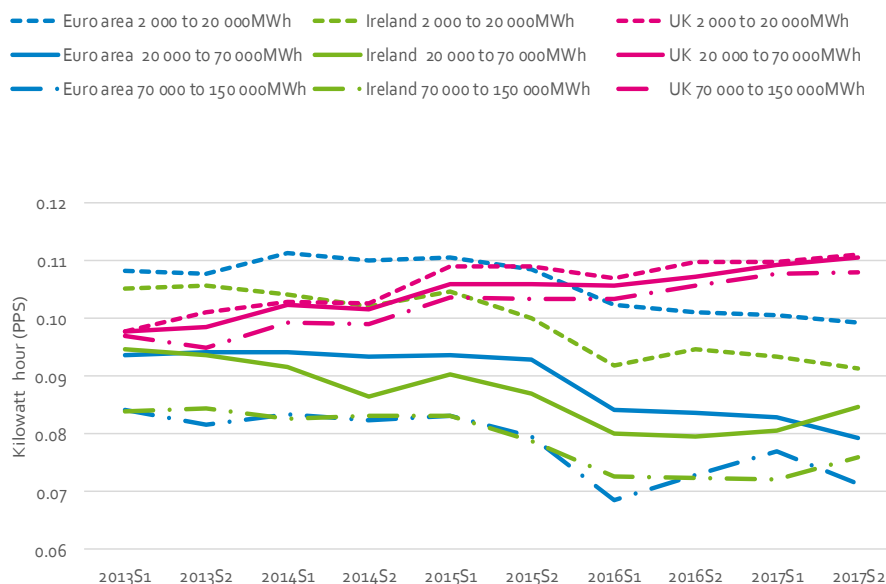


The price of electricity for non-household consumers in the three low bands were below the Euro area in 2017 but the gap has narrowed in the second half of 2017. The UK prices in the <20 MWh, and between 20 and 500 MWh bands, were below the Irish prices throughout the period examined.

Rank: n/a

Source: Eurostat

Figure 3.2.12 Non-household electricity prices high consumption bands (excluding VAT and other recoverable taxes and levies), S2 2017



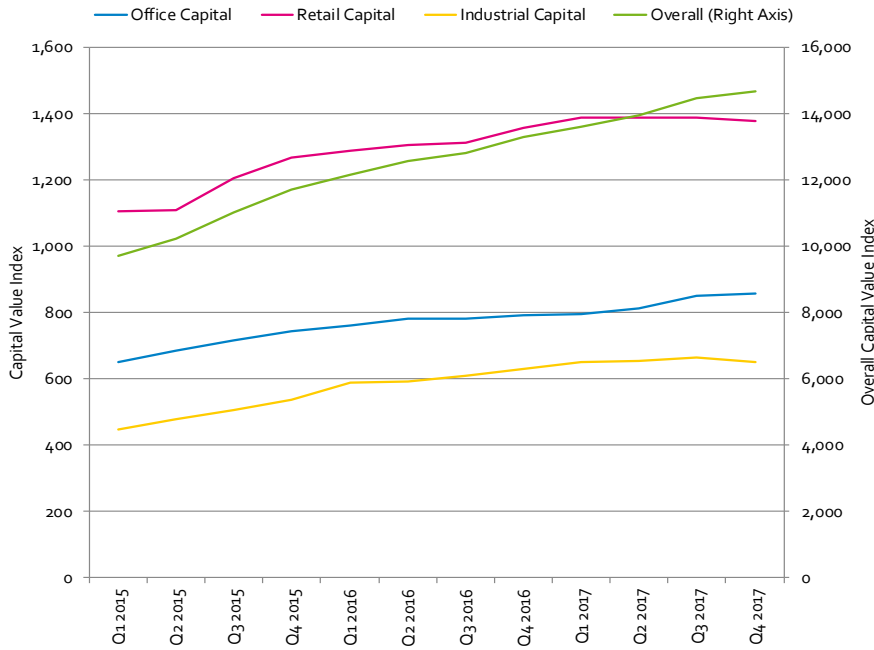
The price of electricity for non-household consumers in the high bands (20,000 to 70,000 MWh and 70,000 to 150,000 MWh) increased in the second half of 2017 and surpassed the Euro area average prices. The UK prices in all high bands were above the Irish prices since 2014.

Rank: n/a

Source: Eurostat

²² Until 2016, the domain of non-household consumers was defined as industrial consumers, consequently reporting authorities could include other non-household consumers.

Figure 3.2.13 Quarterly change in capital values in Ireland, Q1 2015-Q4 2017

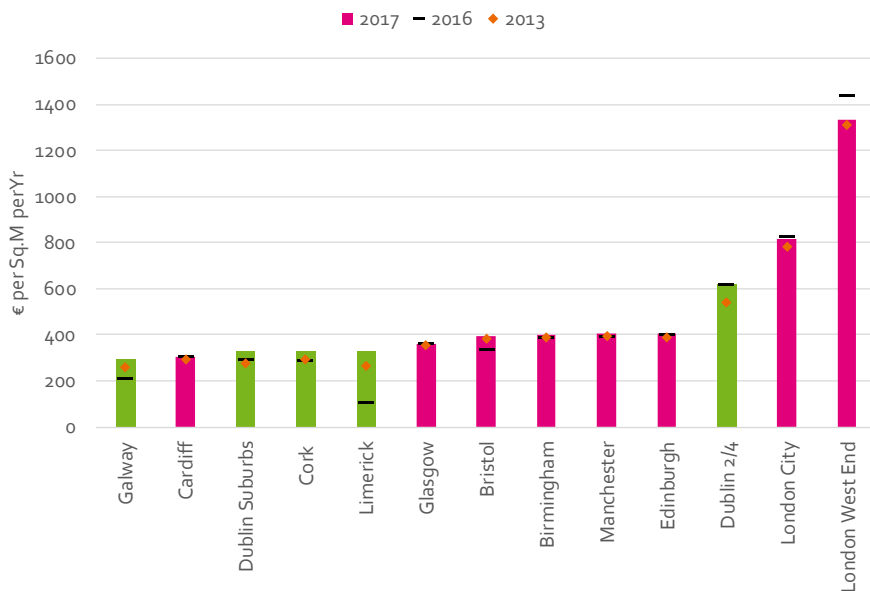


The figure shows change in capital values for a range of commercial property classes. Since Q1 2015, values across all categories have consistently increased. Overall capital value growth was recorded at 5.2% in Q4 2017 – this comprised of annual increases of 8.4%, 1.3% and 3.2% in Office, Retail and Industrial values respectively.

Rank: n/a

Source: Jones Lang LaSalle, Irish Property Index

Figure 3.2.14 Cost of renting a prime office unit, € per square metre per year, Q4 2017²³



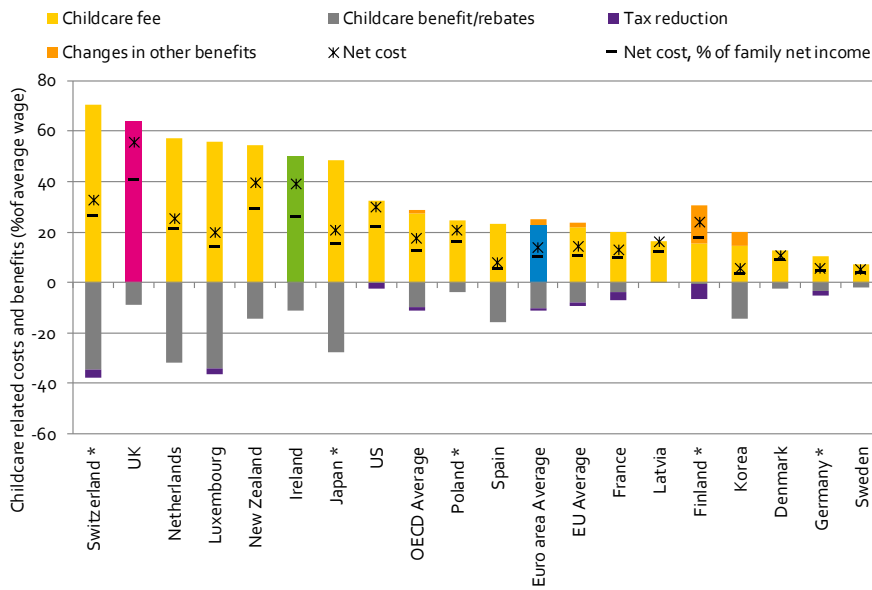
Office rental prices in Ireland in 2017 compare favourably to cities in the UK. In 2017, Cushman and Wakefield report the cost per SqM per year in Dublin City (€619) and Suburbs (€324), Limerick and Cork (€325) and Galway (€295). UK costs range from €1333 in the West End, €406 in Manchester, and €303 in Cardiff.

Rank: n/a

Source: Cushman and Wakefield, Office Snapshot Reports

²³ Figures for both Dublin (D2/D\$) and Cork are from Q2 2016.

Figure 3.2.15 Out-of-pocket childcare costs for a two-earner couple family, 2015

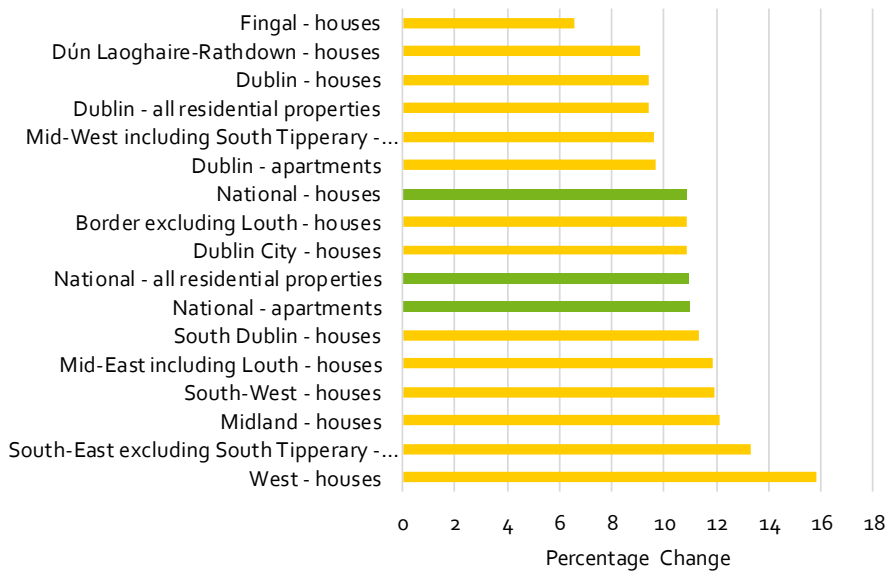


Net Irish childcare costs for parents with two children and combined income at 167% of AW as a percentage of income are amongst the highest in the OECD. While Irish childcare benefit/rebates (11.2%) are above the UK, Euro area and OECD averages, high fees (50% of average wages) means the out-of-pocket costs for Irish childcare are relatively high.

OECD 31 rank: 29th

Source: OECD

Figure 3.2.16 Residential Property Index, Average Annual Percentage Change, 2017

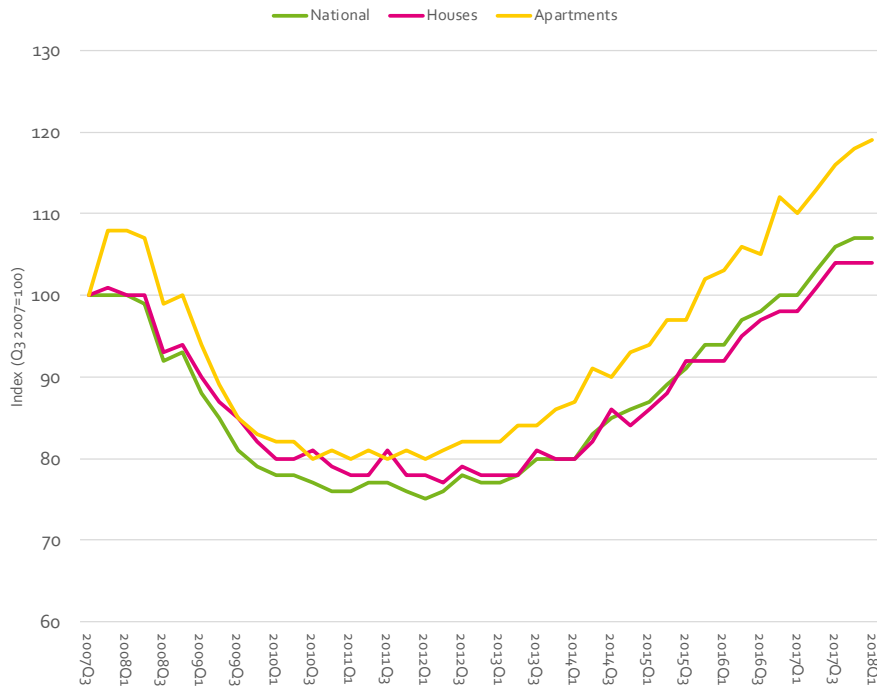


On average in 2017 the rate of increase in house prices was highest in the West (16%) and lowest in Fingal (6.6%). National prices increased by 10.8%. On a national basis apartments increased by 11% with prices increasing by 9% in Dublin.

Rank: n/a

Source: CSO

Figure 3.2.17 Residential Tenancies Board National Rental Index, Ireland 2007- 2018



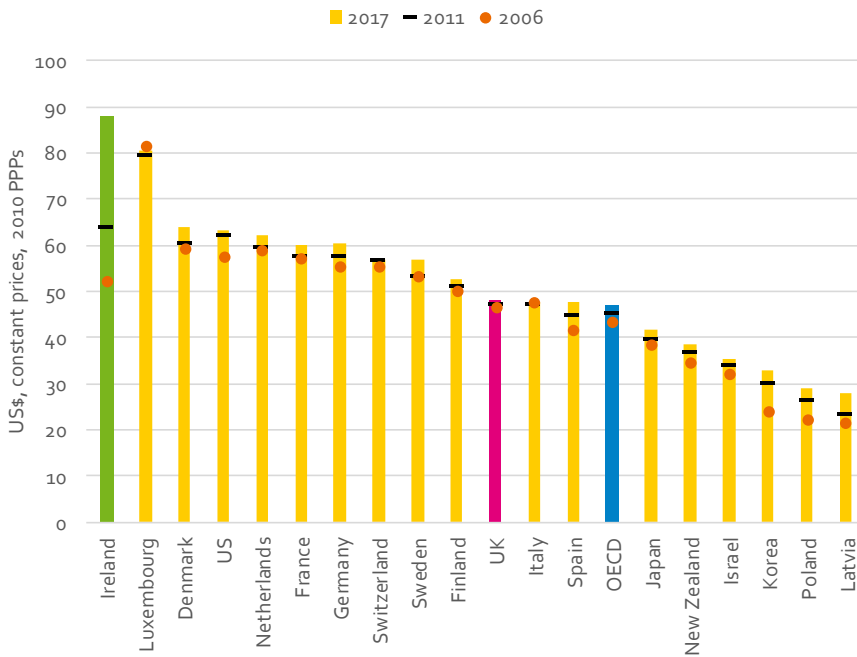
The PRTB Index for house rents stood at 107 in 2018 Q4, 7 index points higher than the peak in 2007 Q4. The Index for apartment rents stood at 119 in 2018 Q1, 11 index points higher than the 2007 Q4 peak. Rents for houses grew by 6.2% annually, while apartment rents increased by 7.5% annually.

Rank: n/a

Source: RTB

3.3 Productivity

Figure 3.3.1 GDP per hour worked, USD, constant prices, 2010 PPPs, 2017²⁴



Ireland’s output per hour worked in GDP terms was \$88 in 2017, the highest output among OECD member states. Output per hour worked was \$51.6 in the UK and \$47.1 in the OECD. In recent years, Ireland’s performance is significantly affected by globalisation activities which are reflected in the national accounts.

OECD rank: 1st

Source: OECD

Figure 3.3.2 GDP per hour worked, USD, constant prices, Index, 2006-2016

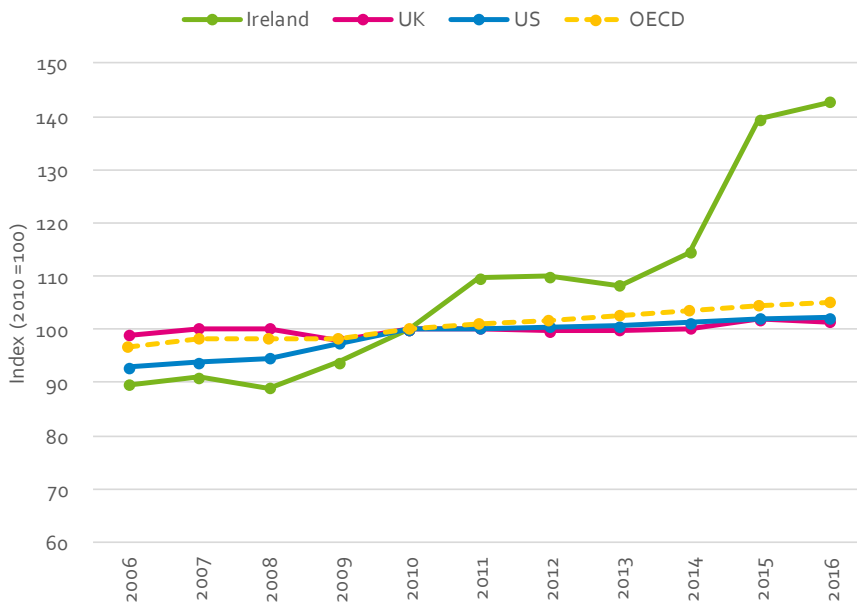


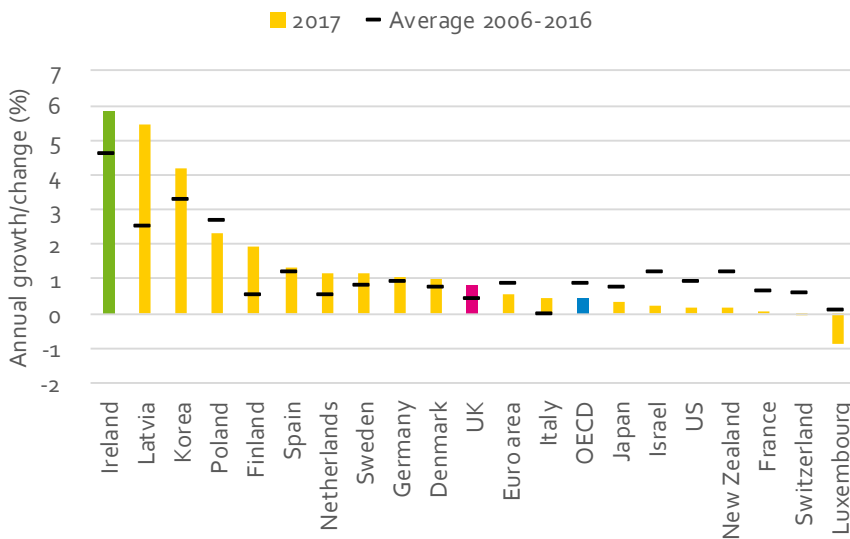
Figure 3.3.2 shows the trend in GDP per hour worked, in index form. Irish labour productivity growth has been above that in competitor countries since 2010. However, corporate restructuring, including the relocation of firms with significant IP assets and aircraft leasing, led to noteworthy increases in labour productivity, particularly in 2015.

OECD rank: 1st

Source: OECD

²⁴ 2017 data for UK and OECD is 2016 data

Figure 3.3.3 GDP per hour worked, constant prices, annual growth percentage change, 2017²⁵

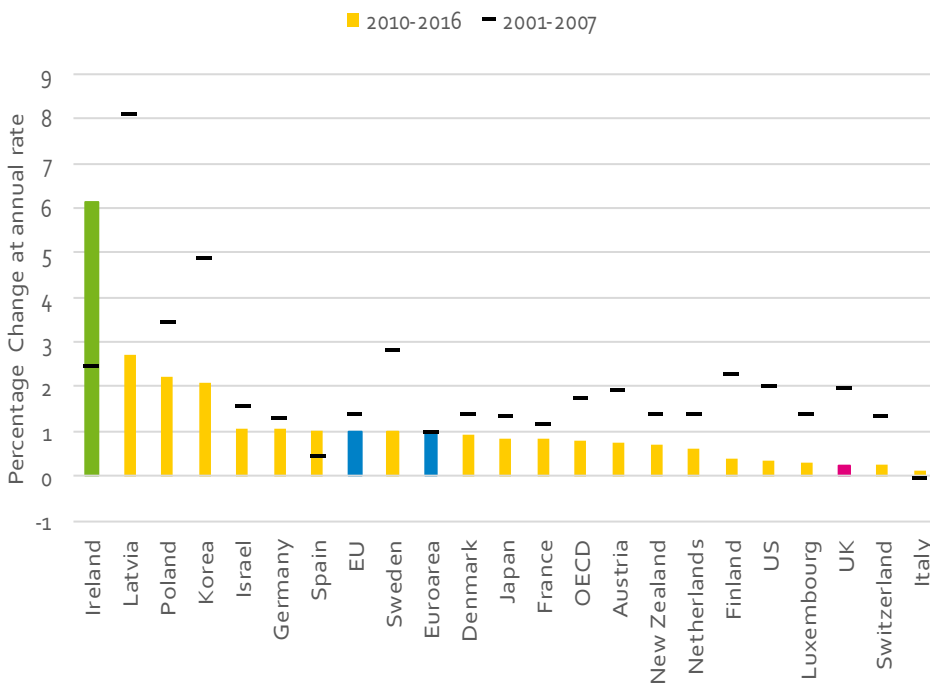


Large disparities exist among OECD Member States in terms of productivity growth rates. In 2017 Ireland’s growth was 5.8 %, which significantly exceeds the UK (0.8%) and the OECD total. On average over the period 2006-2016, Ireland’s growth rate (4.6%) has been well above most Member States and the OECD (0.9%).

OECD rank: 1st

Source : OECD

Figure 3.3.4 Labour Productivity growth before and after the crisis (GDP per hour worked), 2016



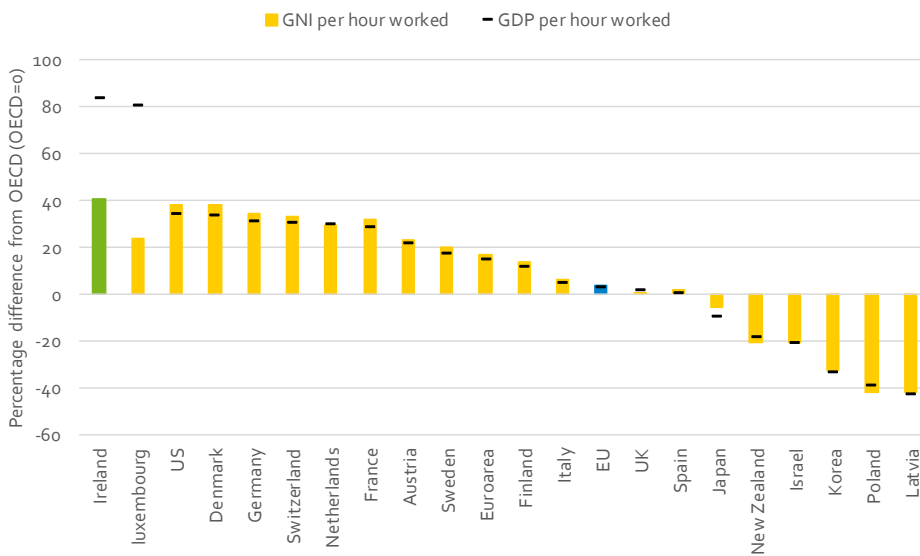
In most OECD countries, labour productivity has grown at about half the rate of the pre-crisis period. Conversely, in Ireland labour productivity in the post-crisis period has grown at over double the rate of the pre-crisis period. The EU and UK labour productivity growth rates are still well below the pre-crisis period.

OECD rank : post-crisis period: 1st

Source : OECD

²⁵ 2017 Data for Israel, Japan, Poland, New Zealand, Switzerland, US and the OECD total is 2016 data

Figure 3.3.5 GNI and GDP per hour worked (current prices), 2016²⁶

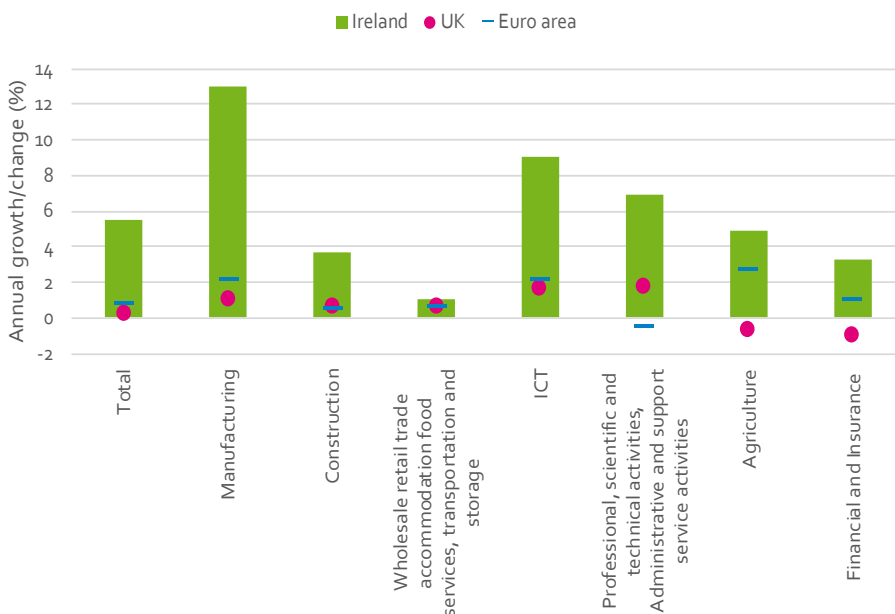


In most countries, labour productivity measures based on GDP and GNI are similar. However, in Ireland there is a notable difference, reflecting the significant effects of the impact of multinational companies on Ireland’s GDP. While significantly lower compared to the GDP measure, the GNI per hour worked in Ireland was still higher than the EU and UK.

OECD rank: n/a

Source : OECD

Figure 3.3.6 Average annual growth in gross value added per hour worked, constant prices, 2006-2016



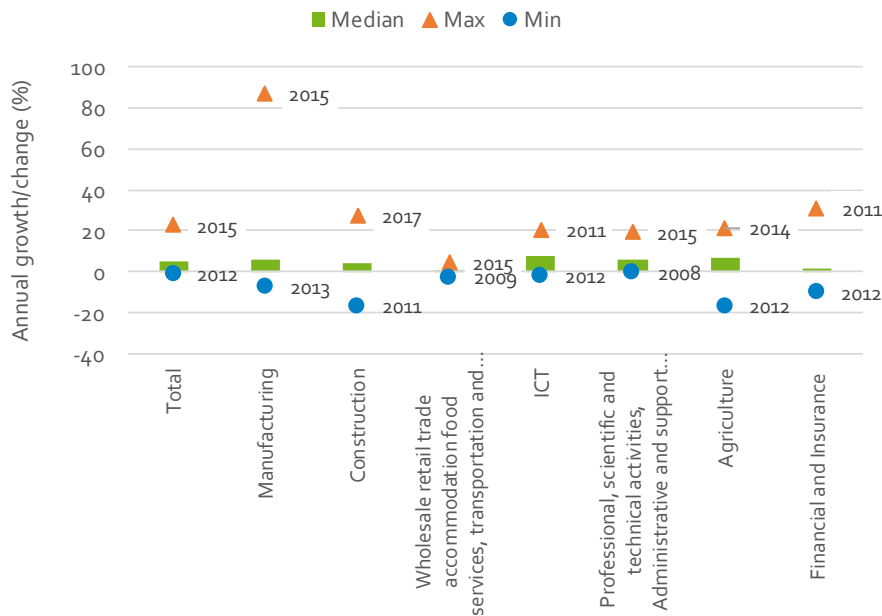
Productivity growth across economic sectors has tended to be higher in Ireland compared to the UK and Euro area. The differential between Ireland and the UK and Euro area is highest in manufacturing and ICT. The Wholesale retail, accommodation food services, transportation and storage is the only sector where Irish growth (1%) is close to the UK (0.6%) and Euro area averages (0.5%).

OECD rank: n/a

Source: OECD

²⁶ 2016 data for Ireland is 2015 data

Figure 3.3.7 Median growth in gross value added per hour worked, constant prices, Ireland, 2006-2016

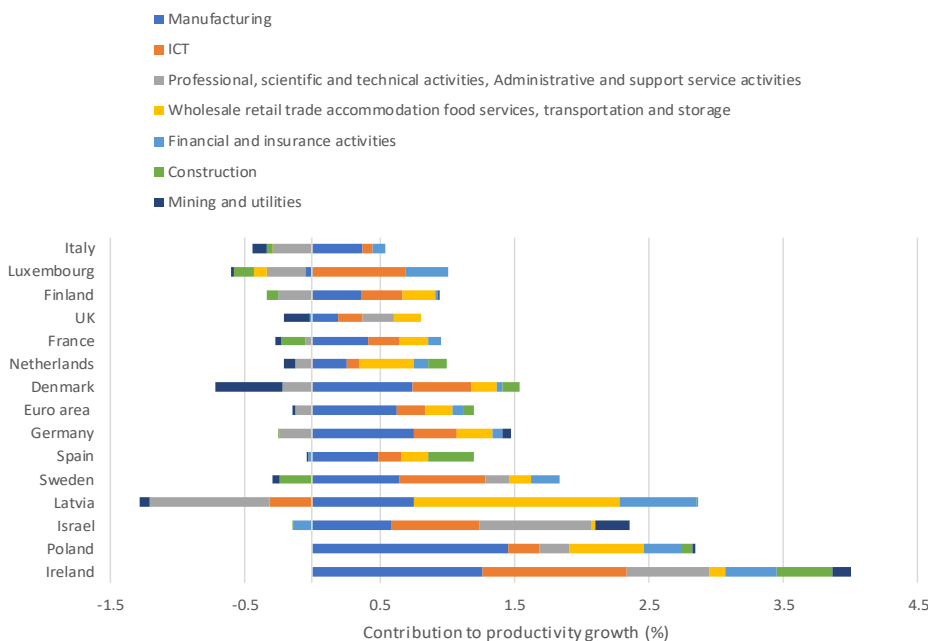


Reflecting significant changes in the economic cycle, the pattern of Irish productivity growth shows significant volatility. Median total productivity growth over the period was 4.7%, peaking at 22% in 2015 with a low of -1.1% in 2012. The spike in manufacturing in 2015 (87%) is due to activities of multinationals. Significant volatility is seen in Construction, Agriculture and Finance sectors.

OECD rank: n/a

Source: OECD

Figure 3.3.8 Contributions to labour productivity growth of business sector services, 2006-2016

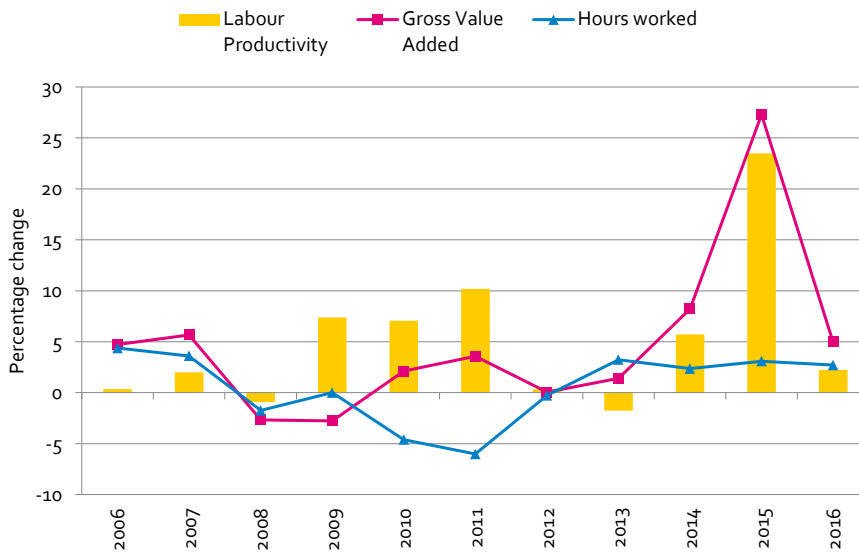


In Ireland, the relative contribution of manufacturing (1.3%) and ICT (1%) to business sector productivity growth is particularly strong. The Professional Services (0.6%) and construction sectors (0.4%) made positive contributions to productivity growth. The Trade, Hotels and Transport sector contribution to growth is relatively low.

OECD rank: n/a

Source: OECD

Figure 3.3.9 Labour Productivity growth, Ireland, 2006-2016

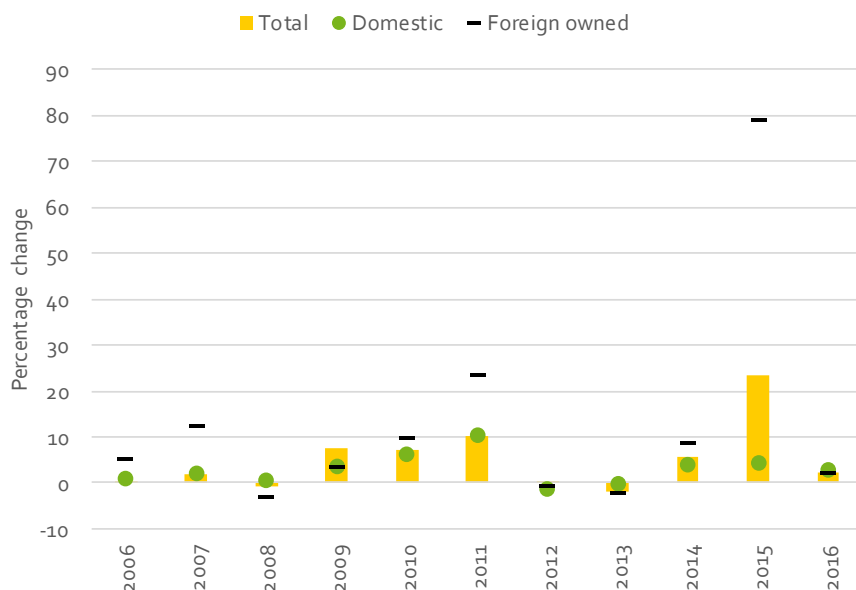


CSO data shows productivity growth falling in the period preceding 2008, with GVA growth declining faster than hours worked. During the period 2009-2011, due to recovering GVA and falling labour hours, labour productivity improved. GVA growth substantially exceeded labour growth in 2014 and 2016, which explains increased labour productivity.

Rank: n/a

Source: CSO²⁷

Figure 3.3.10 Labour productivity, Domestic and Other and Foreign sectors²⁸, 2006-2016



In 2016 productivity growth in both the foreign and the domestic sector was 2.2%. On average over the period 2006-2014, productivity growth in the foreign sector was 6.2% and in the Domestic sector -2.7%. Foreign labour productivity grew by over 23% in 2011, and 78% in 2015, due largely to significant increases in GVA.

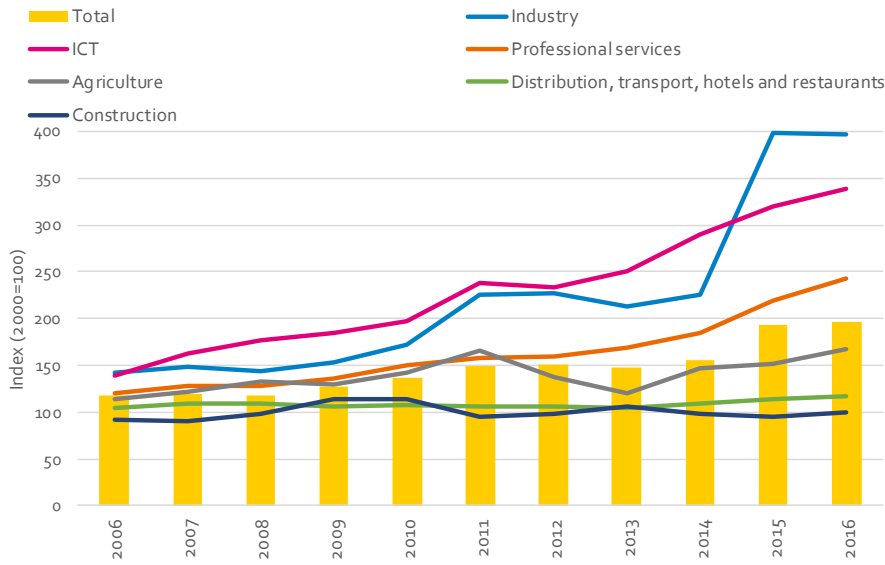
Rank: n/a

Source: CSO

²⁷ CSO, Productivity in Ireland 2016. Results are considered experimental by the CSO.

²⁸ The Foreign Sector is defined by the CSO as sectors dominated by foreign MNEs include the following: Chemicals and Chemical Products (NACE 20), Software and Communications (NACE 58-63), Reproduction of recorded media, Pharmaceutical products, Electrical equipment and Medical supplies (NACE 18.2, 21, 26, 27, and 32.5). The Domestic and Other Sector refers to all sectors not categorised as Foreign sector.

Figure 3.3.11 Irish Labour productivity Index, (Base 2000=100) by Economic Sector, 2006-2016

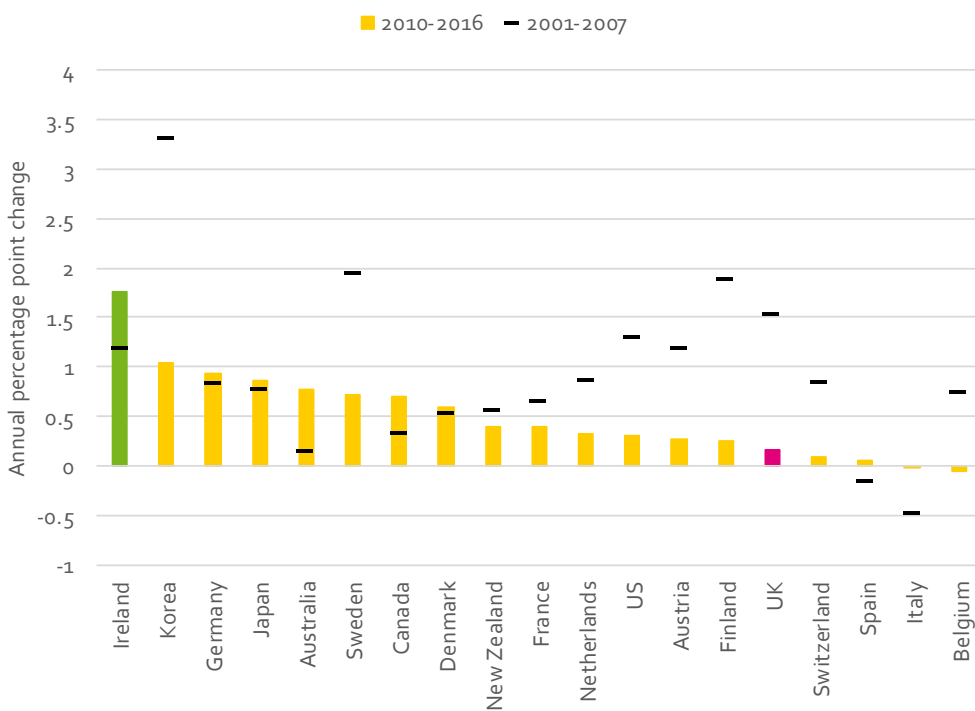


Industry and ICT have seen significant rises in productivity over this period, increasing by a factor of 2.7 and 2.4 respectively. A substantial proportion of the growth in Industry occurred between 2014 and 2016, driven by the globalisation events in 2015. Distribution, Transport, Retail and Construction sectors have seen relatively minor changes.

Rank: n/a

Source: CSO

Figure 3.3.12 Multifactor Productivity (MFP) growth before and after the crisis²⁹



Multifactor Productivity (MFP) growth varied considerably among the OECD countries over the past two decades. Ireland recorded MFP growth rate of 1.75 % in the period 2010-2016, a slight improvement on pre-crisis years (1.19 %).

Rank : n/a

Source: OECD

²⁹ 2016 data for Ireland is 2014. 2015 data for Sweden, Japan, New Zealand, Spain and Italy, Start year 1996 for Austria

Figure 3.3.13 Contribution of Multifactor Productivity³⁰ and Capital Deepening³¹, 2006-2016

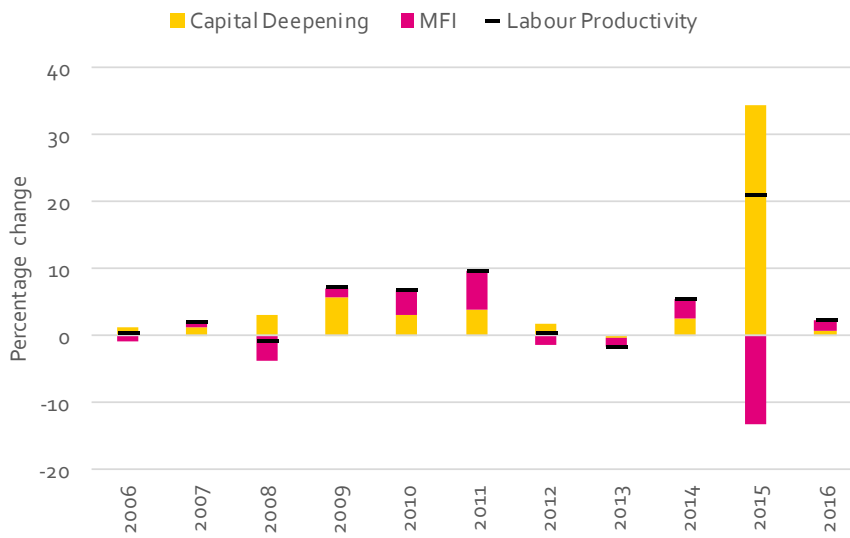


Figure 3.3.13 shows that in general, growth in labour productivity over the last decade, and in 2015, has been driven by increased capital deepening. The declines in labour productivity in 2005, 2008 and 2012 have also been associated with increased capital deepening being offset by declines in MFP.

Rank: n/a

Source: CSO

Figure 3.3.14 Capital Stock per employee, 2006-2016



Capital stock refers to the amount of capital in the economy. Over the period 2006-2016, Ireland's capital stock per employee increased by 99% from €190,000 to €378,000. The CSO reports that the rate of increase in capital stocks in Ireland in both the Foreign sector and the Domestic and Other sector was the highest in the EU.

Rank: n/a

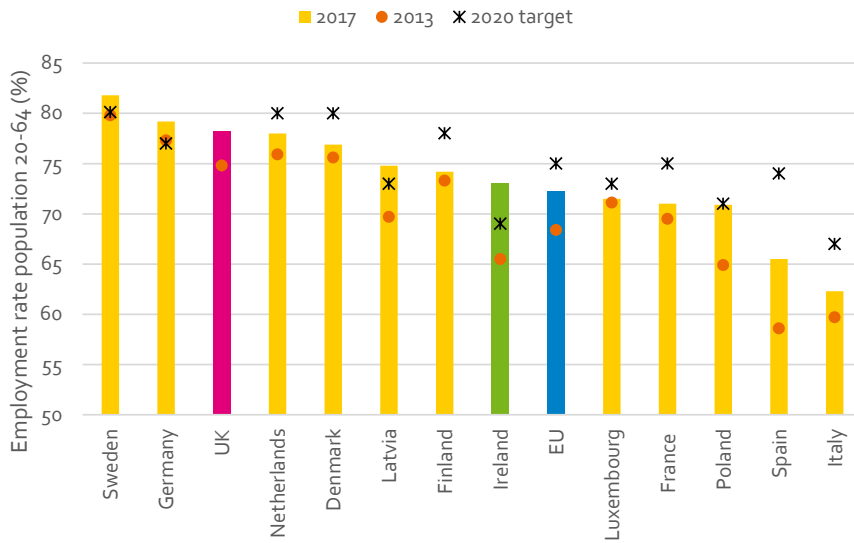
Source: CSO

³⁰ MFP reflects the overall efficiency with which labour and capital inputs are used together in the production process. Changes in MFP reflect the effects of changes in management practices, brand names, organisational change, general knowledge, network effects, spillovers from production factors, adjustment costs, economies of scale, the effects of imperfect competition and measurement errors.

³¹ Capital deepening is growth in the capital intensity of labour (the amount of capital available per hour worked).

3.4 Employment

Figure 3.4.1 Employment rate and progress to EU2020 employment target, 2017



One of the targets of the Europe 2020 strategy is to have an employment rate of at least 75 % for persons aged 20-64 in the EU by 2020. This objective has been translated into national targets. 9 EU Member States had reached or exceeded their national target in 2017. Ireland's 2020 target is 69%. In 2017 the Irish rate was 73% up from 65.5% in 2013.

EU rank: 15th

Source: Eurostat

Figure 3.4.2 Employment, unemployment & long-term unemployment (000's), Q1 2013 – Q1 2018

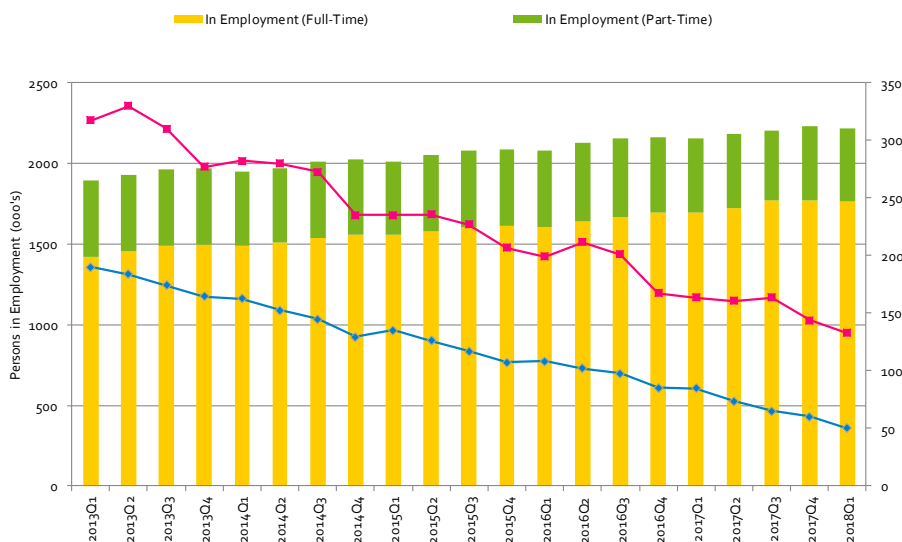
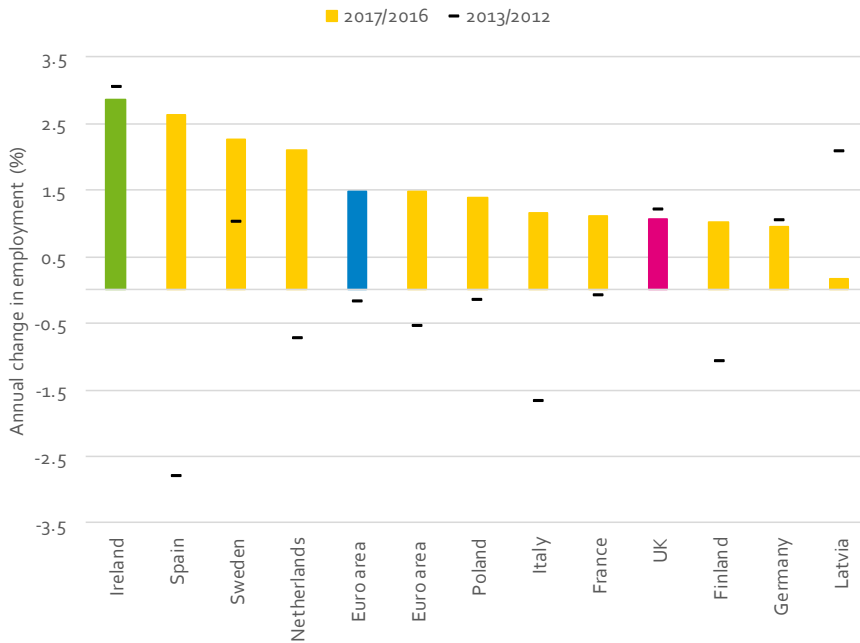


Figure 3.4.2 shows the continued improvement in the labour market. In Q1 2018, over 2.2 million were employed, an increase of 2.9% in the year to Q1 2018. Headline and long-term unemployment are also on a steady downward trajectory.

Rank: n/a

Source: CSO

Figure 3.4.3 Employment growth rate, 2017

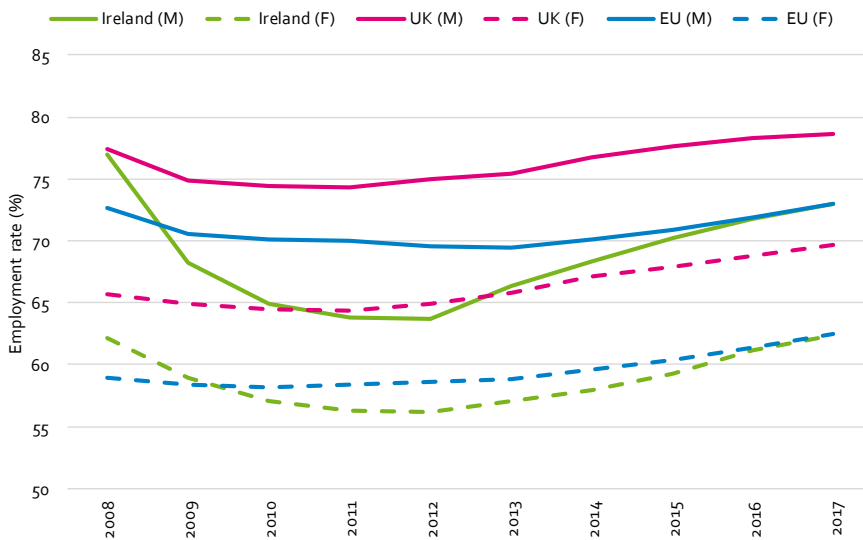


Ireland continues to experience strong employment growth. In 2017 the employment growth rate was 2.8%, above the Euro area rate of 1.5% and the UK rate of 1.1%. Other EU countries also recorded strong employment growth, the highest growth rates in the Euro area being observed in Slovenia, 4.8% and Luxembourg, 4.3%.

EU rank: 6th

Source: Eurostat

Figure 3.4.4 Employment rate by gender, Ireland, UK, EU, 2008-2017

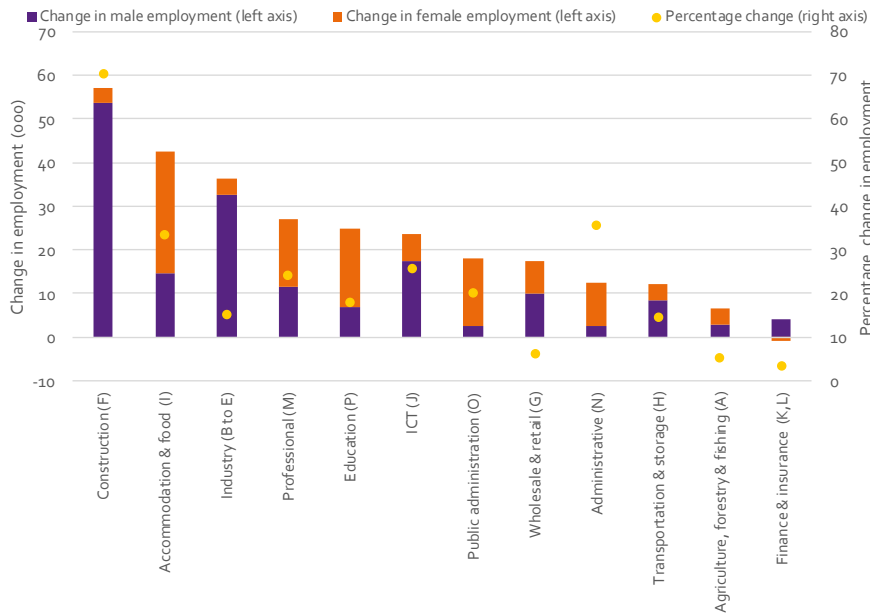


The female employment rate in Ireland fell in the period 2008-2012, but is now above the 2008 level. In 2017 the female employment rate in Ireland was 62.4%, below the EU average (62.5%) and UK (69.7%). The male employment rate in 2017 was 73% in 2017, 4 percentage points below the 2008 level, (EU 73%) and below the UK rate 78%.

EU rank: Female employment 14th

Source: Eurostat

Figure 3.4.5 Change in employment in Ireland by sector and gender, Q1 2013-Q1 2018

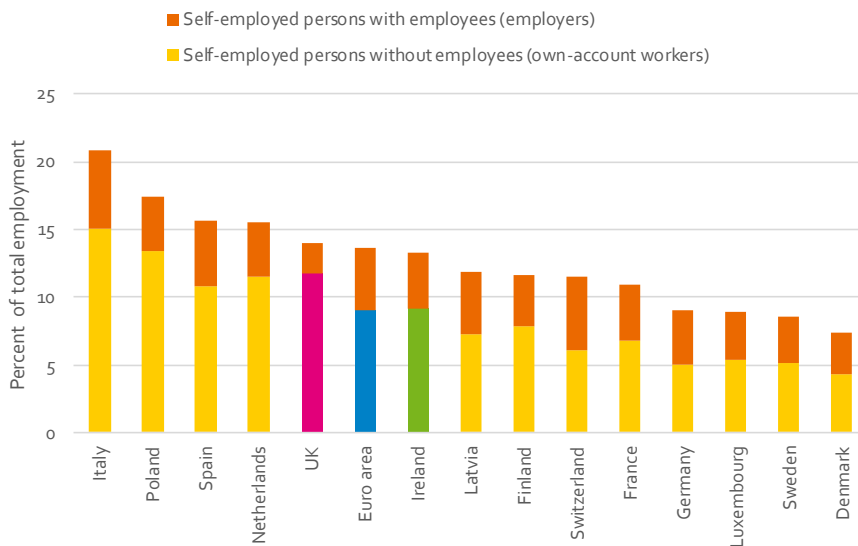


All key economic sectors have experienced growth in employment between Q1 2013 and Q1 2018. The highest percentage growth was recorded in the Construction (57.2%) and Administrative Accommodation & Food sectors (42.5%), while Finance & insurance (3.3%) and Agriculture (6.4%) experienced the lowest growth between the two periods.

Rank: n/a

Source: CSO

Figure 3.4.6 Self-employed persons, employers and those without employees, 2017

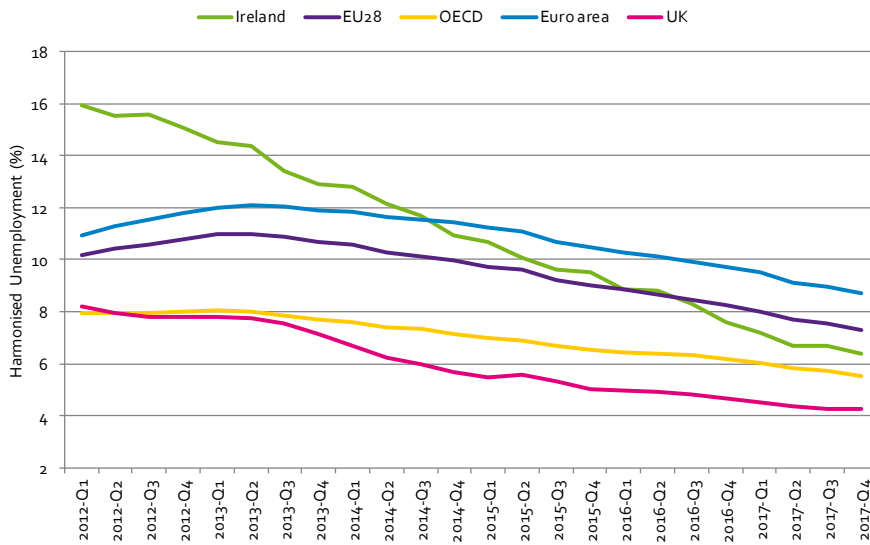


The proportion of self-employed in Ireland (13.3%) is close to the Euro area average (13.6%) and UK (14%). The proportion of self-employed persons' employers (4.2%) is above the UK level (2.2%). Own-account workers account for 9.1% of employment in Ireland, the same as the Euro area average with 11.8% in the UK.

EU rank: 11th (self-employed & own account workers)

Source: Eurostat

Figure 3.4.7 Unemployment rate (seasonally adjusted, standardised rate)³²



This indicator measures the number of unemployed people as a percentage of the labour force. Ireland's unemployment rate has declined substantially and in Q4 2017 was 6.4%, much lower compared to its highest point of 15.9% in Q1 2012. The UK labour market has proven more resilient over the same period.

Rank: n/a

Source: OECD

Figure 3.4.8 Labour force participation, persons aged 15 and over, Q1 2013 – Q1 2018



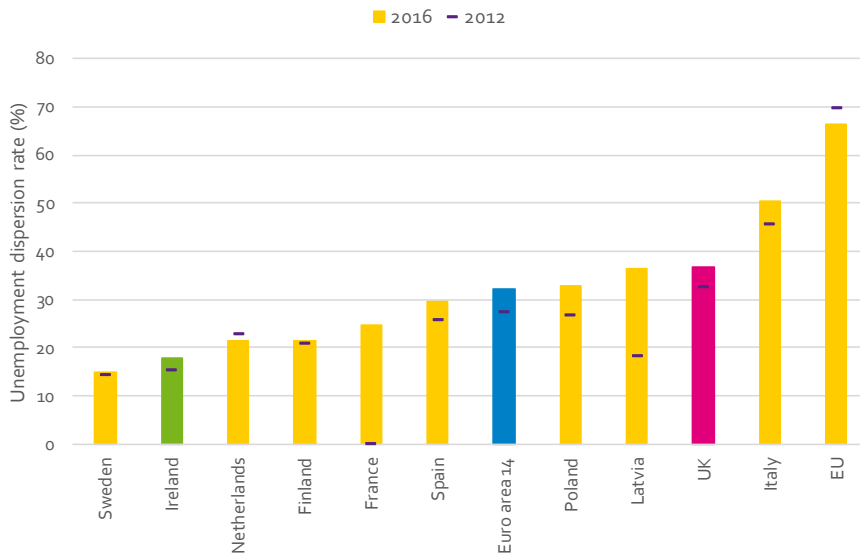
Participation rates in Ireland have remained relatively stable between 2013 and 2018. In Q1 2018, the participation rate was 61.5%. The male participation rate was 68.2% compared with a female participation rate of 55.1%.

Rank: n/a

Source: CSO

³² 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.

Figure 3.4.9 Dispersion of regional unemployment rates by NUTS 3 regions (%), 2016

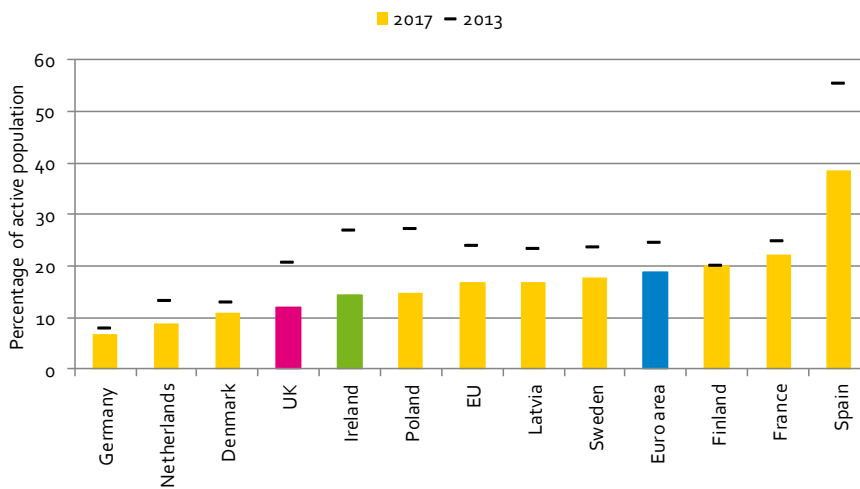


The lower the dispersion rate the greater the level of cohesion between regions. The difference in unemployment rates across Ireland's eight regions (18%) is the lowest in the Euro area.

Euro area-14 rank: 1st

Source: Eurostat

Figure 3.4.10 Youth unemployment rate, 2017



Unemployment amongst those aged 15-24 years, as a percentage of the active population has been on a downward trajectory in Ireland since 2014. In 2017, the youth unemployment rate was 14.5% of the active population, below the Euro area average of 18.8%.

Euro area rank: 8th

Source: Eurostat

Figure 3.4.11 Proportion of workers with skills mismatches, 2015

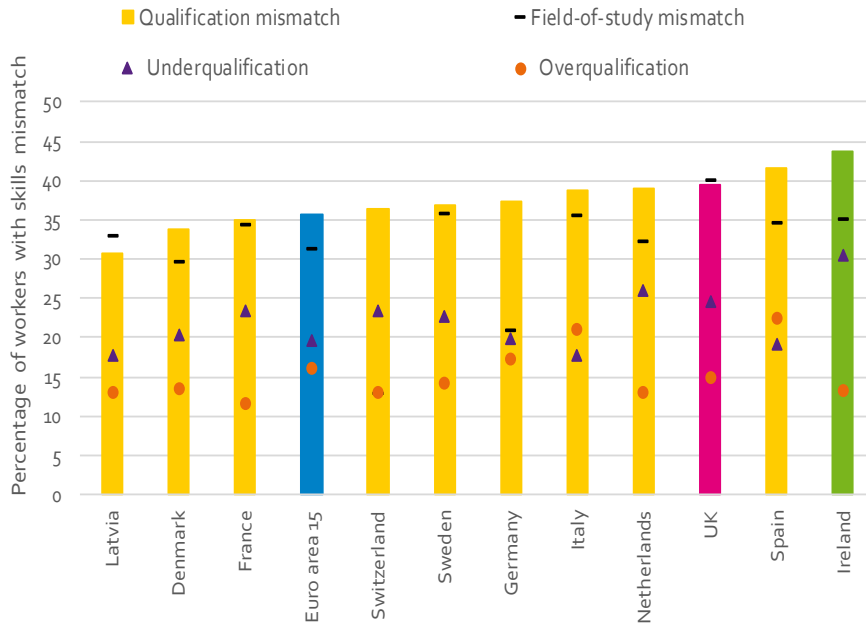


Figure 3.4.11 shows the gap between the individual's jobs skills and the demand of the labour market. With 35% of the workers employed in a different field from the area they specialised in, and 44% with a qualification mismatch (31% underqualified and 13% overqualified) Ireland performs worse than the Euro area 15.

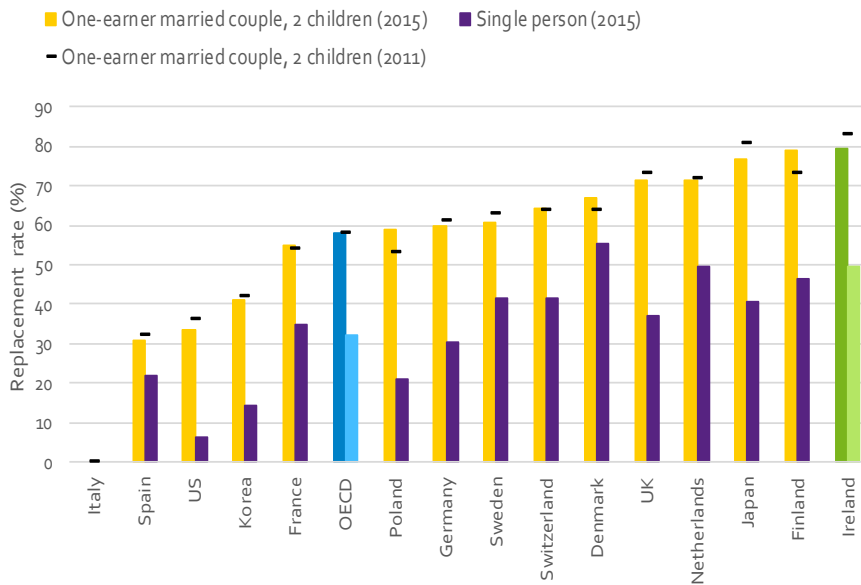
Euro area-15 rank mismatches:

Field of study: 12th

Qualification: 14th

Source: OECD

Figure 3.4.12 Net replacement rates for long-term unemployed, 2015



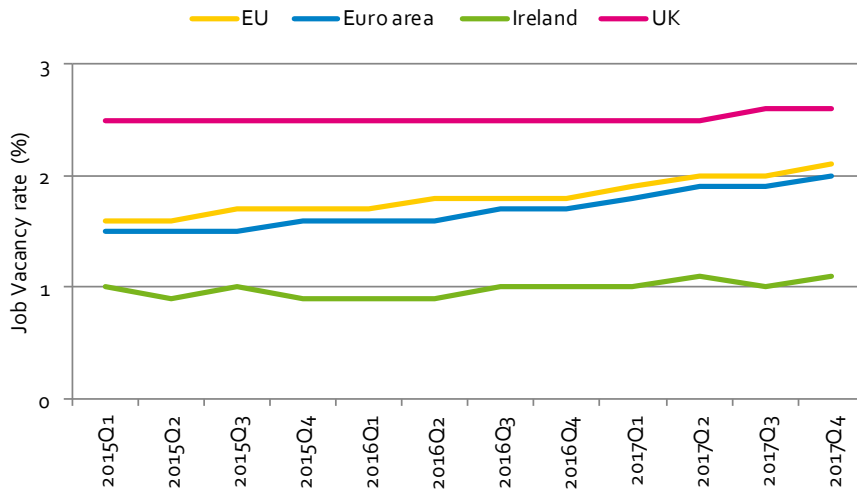
For a long-term unemployed, one earner married couple with two children earning 100% of the average wage, the Irish replacement rate (79%) exceeds the OECD median (58%) and the UK rate (71%). The rate for single persons (49%) also exceeds the OECD (32%) and UK (37%) rates. Rates are higher for lower income families.

OECD rank: Married:

33rd, Single 30th

Source: OECD

Figure 3.4.13 Job vacancy rate, Q4 2017

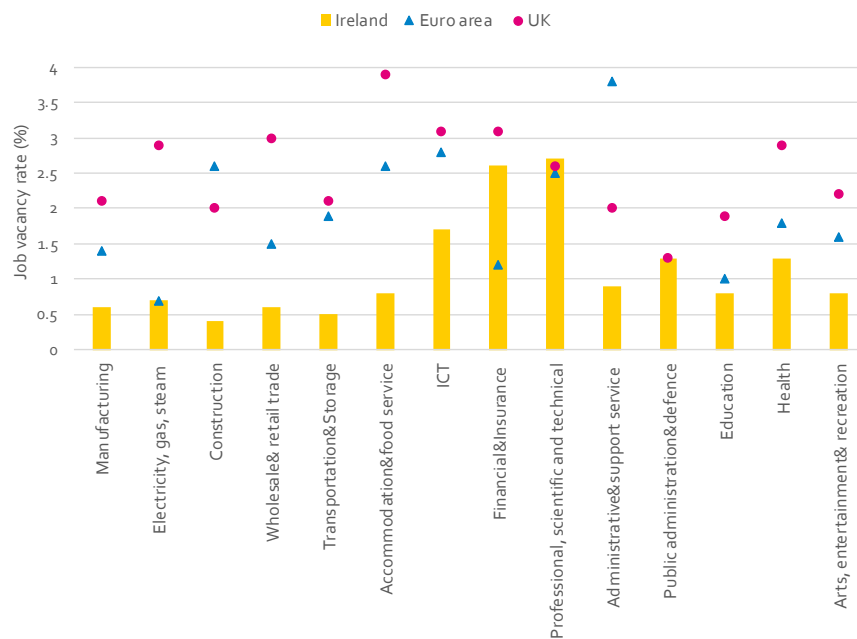


Over the last two years, Irish job vacancy levels (whole economy) have been flat at around 1%. The Irish job vacancy rate reached 1.1% in Q4 2017 but remains significantly below the rates in the Euro area (2%) and the UK (2.6%) over the corresponding period.

Euro area rank: 4th

Source: Eurostat

Figure 3.4.14 Job vacancy rate by sector, 2017

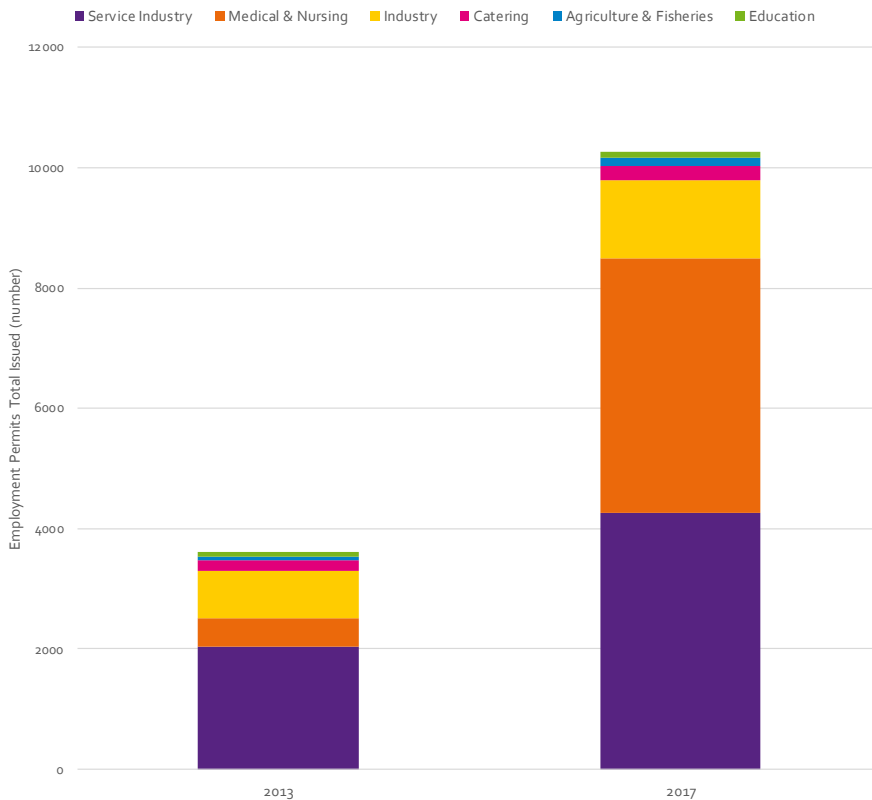


In terms of job vacancy rates at sectoral level, there is a considerable divergence within the Irish economy and between Ireland and the UK in 2017. The sectors with the highest job vacancy rates are Professional (2.7%), Financial & insurance (2.6%) and ICT (1.7%). In the Euro area, the highest rates are in Administrative & support service (3.8%), in the UK Accommodation & food services (3.9%).

Rank: n/a

Source: Eurostat

Figure 3.4.15 Number of employment permits issued by sector, 2017

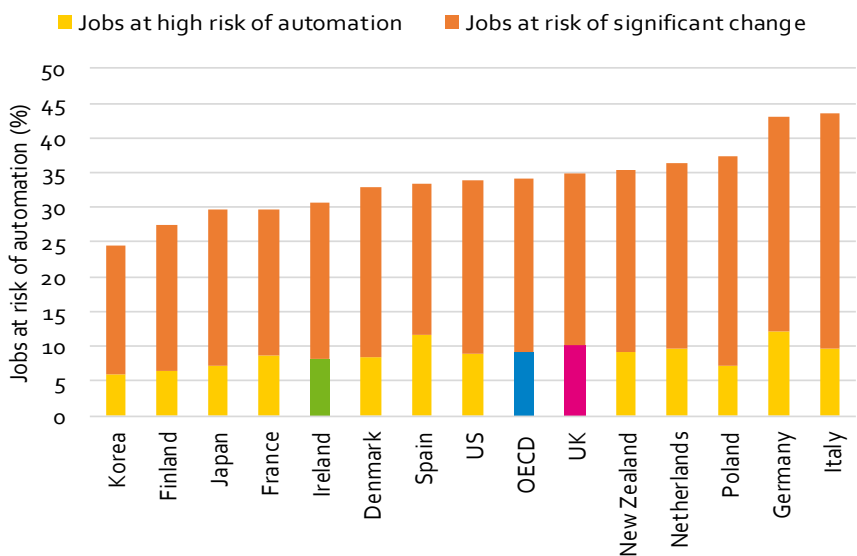


At 11,361, the total number of employment permits issued in 2017 is almost three times the 2013 level. The largest number of employment permits in 2017 was issued in the Service Industry sector (4,270), while the highest increase in the number of permits issued was recorded in the Medical & Nursing sector (4,217 permits in 2017 compared to 483 in 2013).

Rank: n/a

Source: DBEI

Figure 3.4.16 Jobs at risk of automation³³, 2017



8% of Irish jobs are estimated at high risk of automation compared to 9% and 10% in the UK and OECD respectively. A larger share of jobs (22%), however, is estimated to have a lower risk of automation (50-70%) but a significant risk of seeing the majority of the tasks they entail changed by technology.

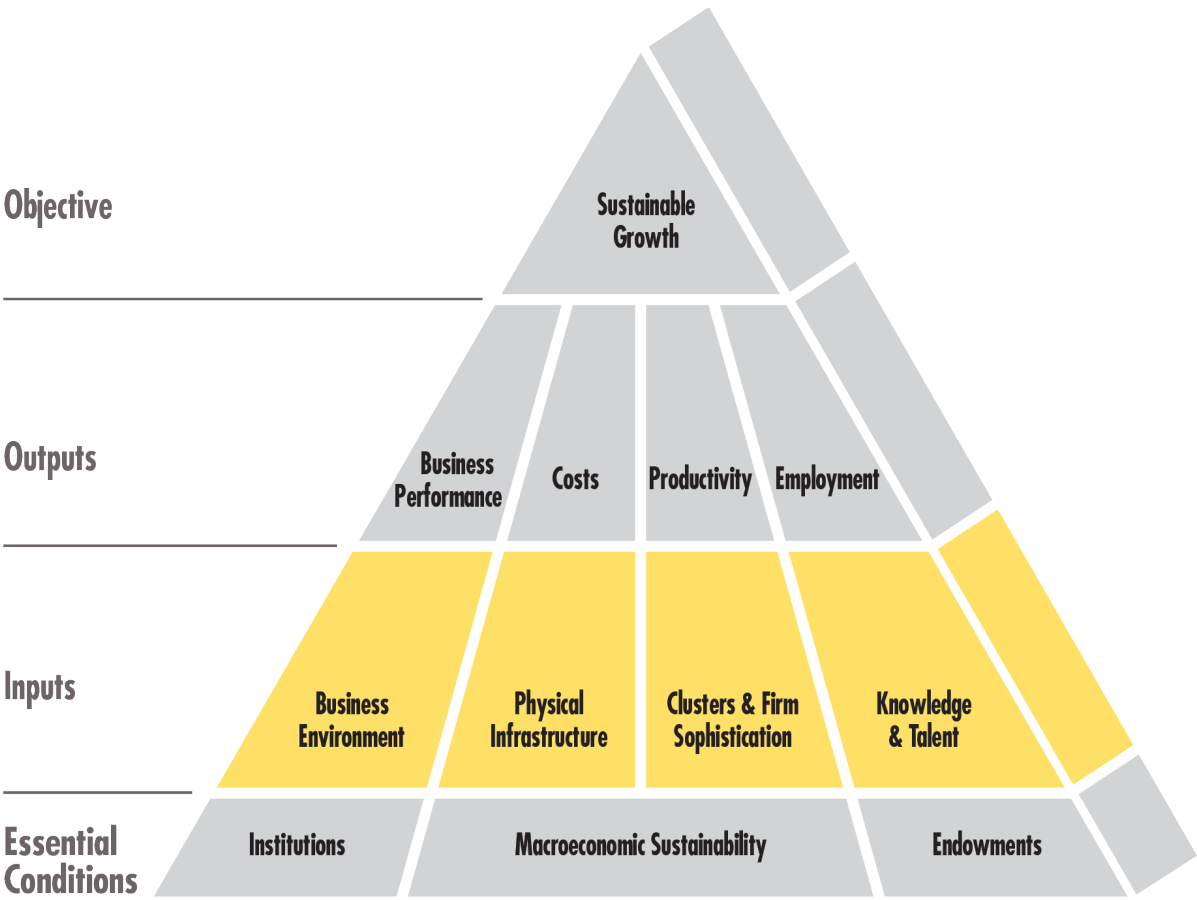
OECD Rank: 10th

Source: OECD

³³ The OECD have estimated the proportion of jobs at risk of automation by analysing the task content of individual jobs using the OECD Adult Skills Survey. Jobs at high risk of automation are those with a probability of being automated of at least 70%. See OECD Employment Outlook 2017.

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.

- **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.**
 - The supply and demand for credit has improved significantly since the height of the crisis. The ECB Survey on Access to Finance of Enterprises (SAFE) indicates that access to finance was the most important concern for 8 per cent of Irish SMEs, compared to 19 per cent of SMEs in 2013. Bank loans remain the relevant form of external financing for 55 per cent of Irish SMEs (compared to 48% at EU level). In 2017, some 21 per cent of the Irish firms surveyed applied for bank credit.
 - The 2017 European Investment Bank survey³⁴ suggests that while bank loans remain the main source of external finance for investment activities (41%), their share fell compared to 2016 (57%); the share of bank loans is also below the EU average of 56 per cent. Leasing has become more prominent as a form of external finance and in 2017 it accounted for 36 percent of the overall external finance. However, all other types of finance, including equity, bonds and grants represent less than 10 per cent of the external finance used indicating that diversifying the lending market remains a challenge. Figure 4.1.4 shows that although private equity investment as proportion of GDP increased in Ireland in the period 2013-2016, at 0.18 per cent of GDP in 2016, it is below the UK (0.64%) and the best EU performers. The intensity of total Venture Capital (VC) investment is above the OECD 30 average (0.05%), with the greater portion of VC attributed to early stage investments, 0.06 per cent compared to 0.02 per cent of later stage venture capital (Figure 4.1.3).
 - Figure 4.1.6 shows that although the proportion of non-performing loans (this includes all lending) in Ireland has decreased from 25 per cent to 14 per cent in the period 2012-2016, Ireland’s performance remains below the Euro area average of 4.1 per cent and the OECD³³ of 2.9 per cent in 2016.
 - The cost of credit, while falling, continues to remain relatively high. The concentrated lending market coupled with higher credit risk premiums in Ireland are some of the factors for higher interest rates compared to the Euro area. Central Bank analysis shows the Irish SME lending market is highly concentrated with the three main lenders accounting for approximately 80 per cent of market share. The divergence between the interest rates is particularly noticeable in relation to new loans of up to €250,000 where the interest rate is more than the double the Euro area average (Figure 4.1.7).
 - Maintaining a growth and entrepreneurship-friendly taxation system, whilst simultaneously broadening the tax base, is critical to maintaining existing levels of employment and creating new jobs. A broader stable tax base is also crucial in achieving sustainability of the public finances. In terms of tax base, income tax remains the Government’s largest tax stream (€20.5bn in 2017). The rise in income tax receipts illustrates the improvement in the labour market - over the period 2012-2017 income tax receipts recorded an increase of 34 per cent. Corporation tax receipts increased by 99 per cent over the same period. Ireland’s exposure related to the concentration of corporation tax receipts among a very small cohort of firms remains a serious risk in terms of the long-term sustainability of the public finances. In 2016 revenues from immovable properties in Ireland (1.3% of GDP) were below the Euro area-16 average (1.8% of GDP) and the UK (4.1% of GDP).

³⁴ EIB Investment Survey, Ireland Overview, 2017

- Ireland's corporation tax rate remains internationally competitive and is the third lowest in the OECD at 12.5 per cent. However, while Ireland's rate has remained consistent over recent years, many economies have reduced their rates (e.g. the UK and in 2018, the US). Ireland's headline Capital Gains Tax (33%) is the third highest in the OECD and above the UK tax rate of 28 per cent.
 - OECD data shows (Figures 4.1.9 and 4.1.10) that in terms of income tax and social security contributions for married couples and individuals as a percentage of total labour costs, Ireland is more competitive than the Euro area. Marginal rates of income tax in Ireland for married couples and individuals earning below the average wage are lower than the rates in the UK, Euro area and OECD. The rates for individuals earning the average wage and above are less competitive. However, the OECD's calculations of the average wage for Ireland do not appear to include the cohort of supervisory or managerial workers, while part-time workers are included on a non-adjusted basis. If the average wage is calculated in line with the methodology used for most OECD countries, Ireland's average wage will be approximately €45,000 instead of €36,000, which will have an impact on the level of average income tax and marginal rates of income tax, bringing them closer to the OECD average figures.³⁵
- **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 a key role in determining quality of life and the attractiveness of place (a key factor in terms of attracting high skilled, internationally mobile workers).**
 - Government investment as percentage of GDP remains below pre-crisis levels in Ireland and across the OECD. In 2015, average investment spending across OECD countries amounted to 3.2 per cent of GDP. The equivalent figure for Ireland was the second lowest in the OECD at 1.7 per cent. Expenditure increased to 1.9 per cent in 2016 but remains low. Over the medium term, capital investment levels are projected to increase but at present remain low relative to pre-crisis levels. Developing the Irish infrastructure base is a fundamental challenge to enhancing competitiveness.
 - Perceptions regarding the overall quality of infrastructure in the economy remain low in Ireland. Ireland's score in international competitiveness rankings fell over the past five years to 2015 and in 2017 remains below the EU average (4.9). Ireland is ranked 51st in the world with the UK 27th. In an EU context Ireland is ranked 21st with the UK 12th.
 - A key issue is balancing the developmental trajectory of Dublin and regional cities with other parts of the country. With more people (and consequently more skills) concentrating in cities, urban areas are increasingly becoming the driving forces of national economies. The spatial distribution of economic activity in Ireland is not unusual for a very small country and Ireland cannot be competitive without Dublin being competitive. It is critical that, in bringing forward the accelerated development of a "next tier" of cities as key engines of economic performance, the competitiveness of Dublin is not damaged by diverting expenditure away from investing in the critical infrastructure needed to avoid a deterioration in quality of life and a rapid rise in the cost of living. Ireland needs to use the National Planning Framework as the primary vehicle to ensure that, with scarce resources, a rigorous and

³⁵ See <http://economic-incentives.blogspot.ie/2018/05/why-is-irish-average-wage-in-oecd.html>

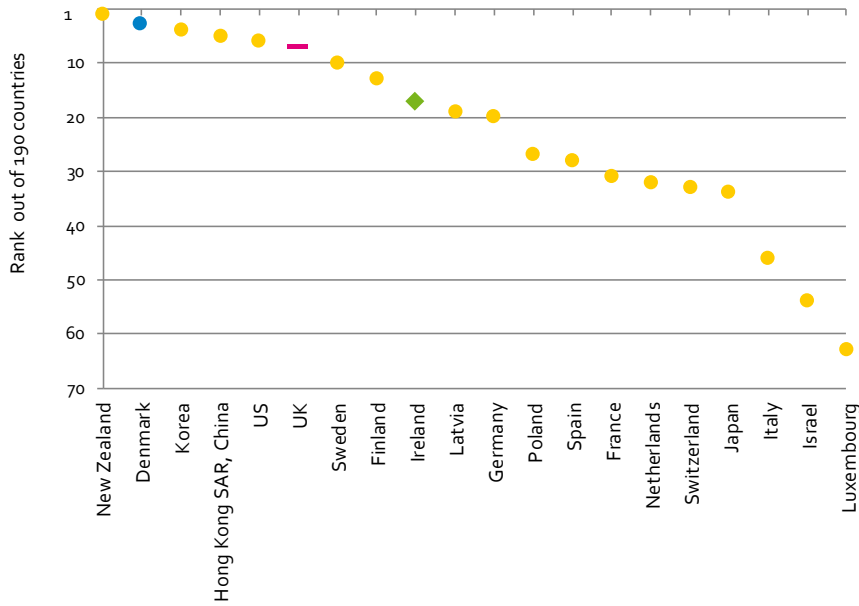
transparent evaluation system is used to allocate funds across government departments so as they are invested with the greatest return.

- **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, and some orbit around anchor firms. Despite Ireland's small size it has many cities and 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. The European Commission's Regional Ecosystem Scoreboard shows both the Southern and Eastern and Border, Midland and Western regions have relative strengths in Tertiary education and SME innovation and weaknesses in Lifelong learning and R&D expenditure.
 - Competitiveness and productivity is driven by firms using knowledge intensive production processes. Figure 4.3.3 shows the relative sophistication of business processes as perceived by national executives. In international competitiveness rankings Ireland is ranked 14th in the world and 7th in the Euro area and scores above the Euro area average.
 - Ireland is a strong innovation follower with performance improving over time but behind the UK and the best innovation leaders. 46 per cent of SMEs in Ireland are reported as having introduced a product or process innovation in 2016. This is the second highest in the EU (Belgium 48%) and above the EU average (31%) and the UK (33%). Ireland's performance has increased from 36 per cent in 2015 and since 2011 (41%).
- **Knowledge and Talent: The availability of knowledge, talent and skills are one of the main differentiators in growth performance 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 formal education system at all levels.**
 - 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. There is considerable heterogeneity in R&D expenditure as a percentage of GDP in the EU. In 2016, Irish expenditure on R&D accounted for 1.18 per cent of GDP, below the EU average (2.03%) and UK (1.69%). Business expenditure on R&D (BERD) accounted for 0.8 per cent, with public expenditure accounting for 0.3 per cent. R&D investment has increased in recent years but GNP/GDP levels have increased at a faster rate. In 2016, Gross Expenditure on R&D increased to €3,243m and is at its highest level in the period 2007-2016. Estimated as a share of government budget appropriations or outlays on R&D, expenditure in Ireland was 0.97 per cent in 2016, behind the UK (1.25%) and the EU average of 1.37 per cent.
 - In an international context, the IMD's Competitiveness Yearbook 2018 ranks Ireland 5th for attracting and retaining talent. Ireland's other strengths are in relation to the availability of financial skills (7th) and the ability to attract foreign talent (8th). Relative weaknesses include the pupil-teacher ratio in secondary education (43rd) and language skills (46th).
 - Ireland is currently ranked 6th in the Digital Economy and Society Index 2018. While scoring top rankings in the indicators relating to STEM graduates, the use of online trading by SMEs and Open Data, in Ireland more than 50 per cent of the adult population is lacking at least basic digital skills and 6 per cent of rural households still do not have access to even basic fixed broadband. Ireland also fell behind other EU countries with regard to the number of people actively using the internet.

- The proportion of the working age population with tertiary (third level) education in Ireland is 42.8 per cent, above the Euro area average of 33.1 per cent and the OECD average of 35.5 per cent. Figure 4.4.4 shows the proportion of the active population aged 15-74 who are scientists in Ireland in 2016, at 8.9 per cent it is above the Euro area average 6.4 per cent but below the UK level of 10.5 per cent. In Ireland and across most OECD countries, the largest share of graduates (24%), in tertiary education programmes, complete degrees in business, administration and law. The share of students in Ireland graduating from the fields of natural sciences, maths, statistics (8%), engineering, manufacturing and construction, (10%) and ICT (6%) combined is 24 per cent. As a percentage of total third level graduates, Ireland produced more Science, maths & statistics and ICT graduates than the Euro area. However, the proportion of engineering, manufacturing and construction graduates is 3.6 per cent below the Euro area average.
- Ireland surpasses both the Euro area and OECD average attainment for secondary education participation. With 6.1 per cent classified as early school leavers, Ireland's retention rates in secondary education are above the Euro area average of 11 per cent. There is a significant inverse correlation between educational attainment and age in Ireland, while 52.6 per cent of the 25-34 cohort have third level education, in the 55-64 cohort the proportion is 28.7 per cent. Ireland performs better than the Euro area in all age groups in terms of attainment of third level education.
- The percentage of people aged 25-64 in receipt of education and training (both formal and non-formal) in Ireland has increased from 7.5 per cent to 8.9 per cent in the period 2013-2017. Despite the increase, Ireland's performance remains below the Euro area average.

4.1 Business Environment

Figure 4.1.1 Ease of Doing Business Ranking, 2017/2018

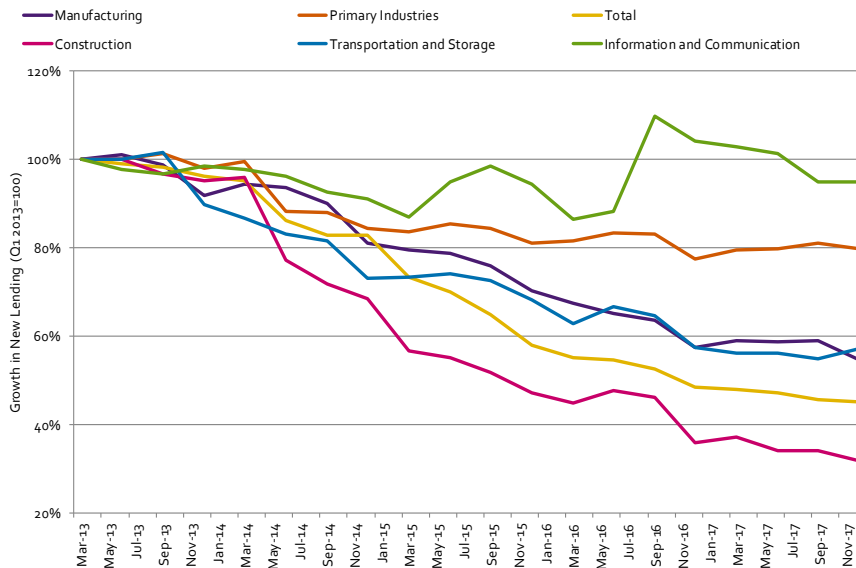


The World Bank’s Ease of Doing Business report assesses regulations affecting SMEs throughout their life cycle. Ireland improved its ranking in 2017 and is now ranked 17th in the world. New Zealand is 1st, with Denmark the highest in the EU at 3rd, and the UK 7th of 190 economies. Ireland is ranked 4th in the Euro area.

OECD rank: 10th

Source: World Bank

Figure 4.1.2 Outstanding credit to SMEs sector, 2013 - 2017

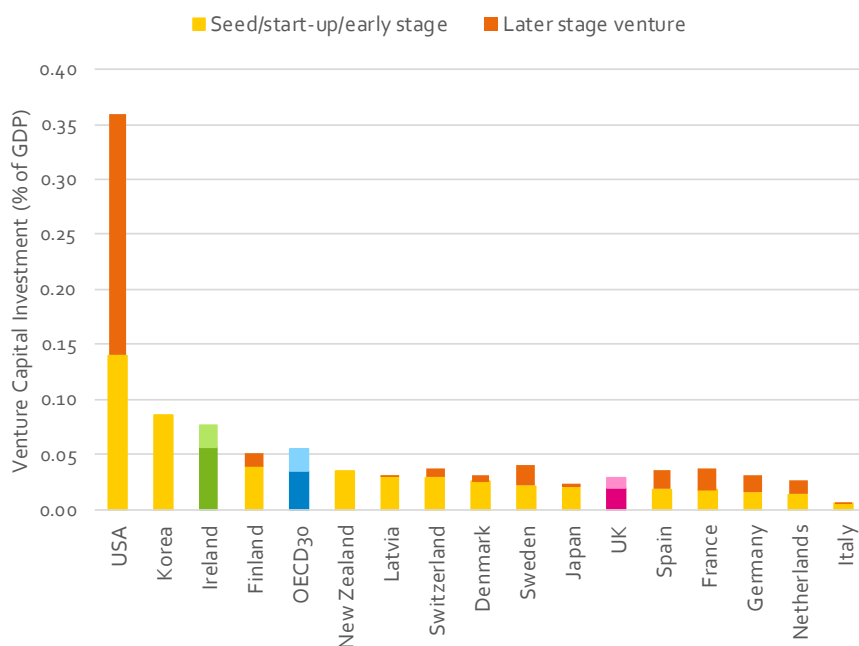


Using Q1 2013 as the base, the outstanding amount of credit lent to the SME in the sectors examined shrunk over the 5-year period. The highest percentage decline was observed in the Construction sector, where the outstanding loans in Q4 2017 were 30% of the loans in Q4 2013.

Rank: n/a

Source: Central Bank of Ireland

Figure 4.1.3 Venture capital investment as a % of GDP³⁶, 2016

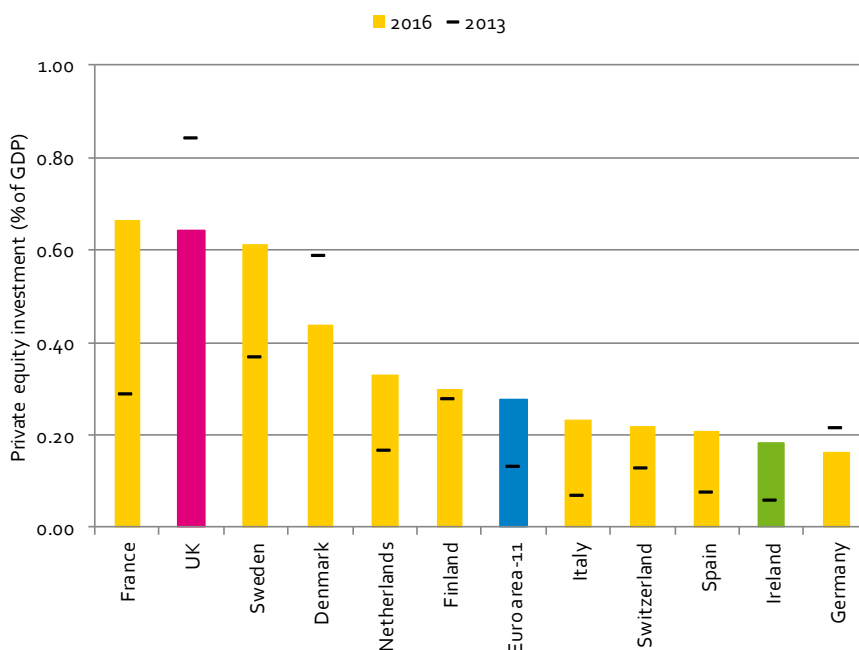


The intensity of total Venture Capital (VC) investment as a percentage of GDP in Ireland (0.08%) is above the OECD 30 average (0.05%). The greater portion of VC in Ireland is attributed to early stage investments, 0.06% compared to 0.02% of later stage venture capital.

OECD rank: 5th

Source: OECD

Figure 4.1.4 Private equity investment (as a % of GDP), 2016



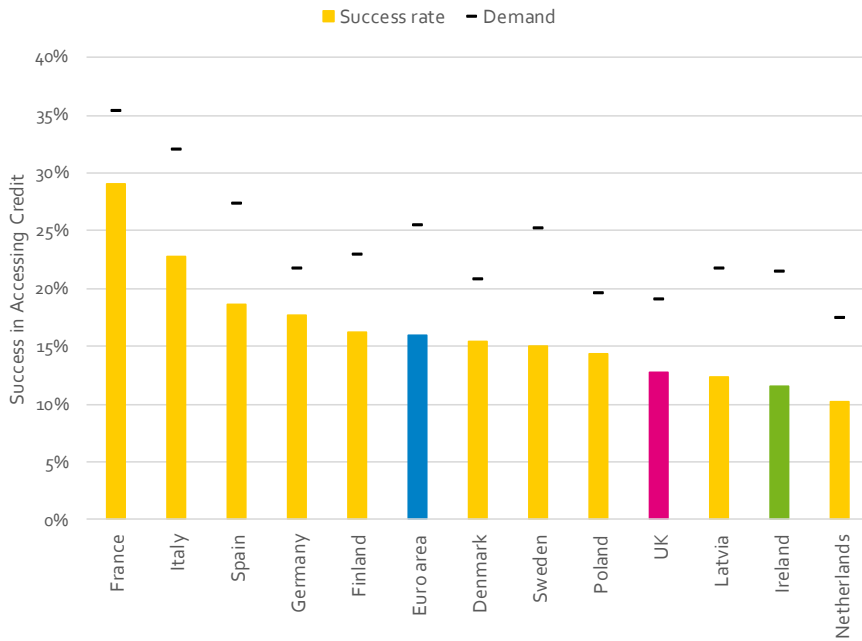
Private equity investment as a proportion of GDP increased in Ireland in the period 2013-2016, as it did across most of benchmarked countries. At 0.18% of GDP in 2016, it is below the UK (0.64%) and the best EU performers.

Rank: EU-21: 11th

Source: Invest Europe

³⁶ Data for New Zealand and South Korea is based on total venture capital investment, data for Israel and Japan is from 2014.

Figure 4.1.5 Demand and success in accessing credit, 2017

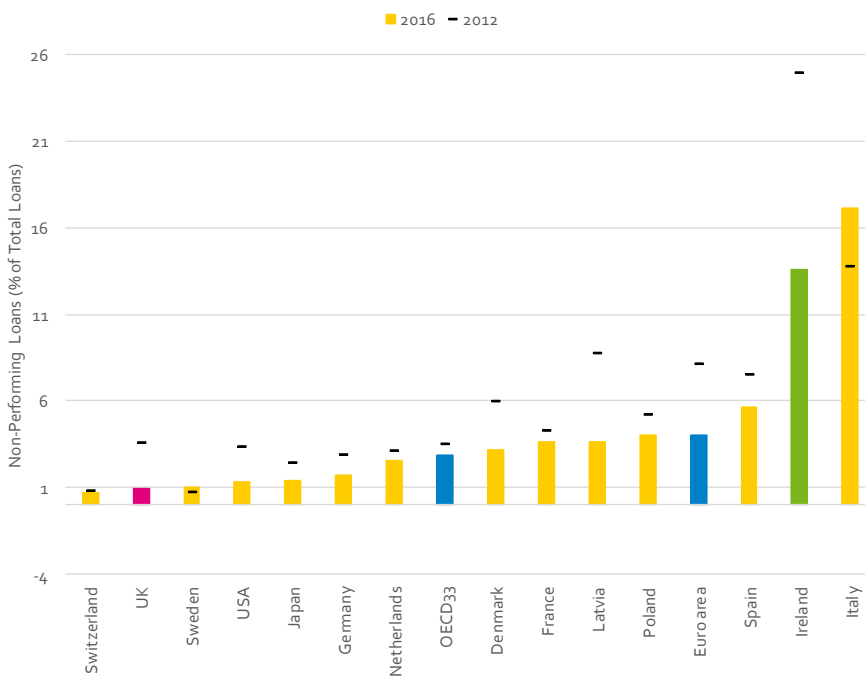


In 2017, some 21% of the Irish firms surveyed applied for bank credit. 12% of these applicants were successful in receiving the total amount requested. The Euro area average success rate is 16%, while the UK rate is 12.7%.

Euro area rank:
Demand (15th),
Success (15th)

Source: ECB SAFE

Figure 4.1.6 Ratio of non-performing loans to total loans, 2016

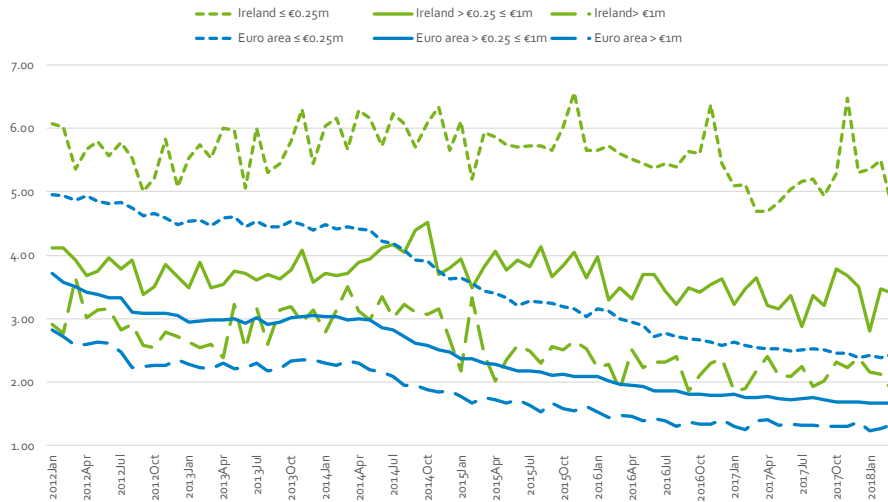


Although the proportion of non-performing loans (this includes all lending) in Ireland has decreased from 25% to 14% in the period 2012-2016, Ireland's performance remains below the Euro area average of 4.1% and the OECD33 of 2.9% in 2016.

OECD rank: 31st

Source: World Bank

Figure 4.1.7 Interest rates for non-financial corporations by loan size (new business), 2012 - 2018

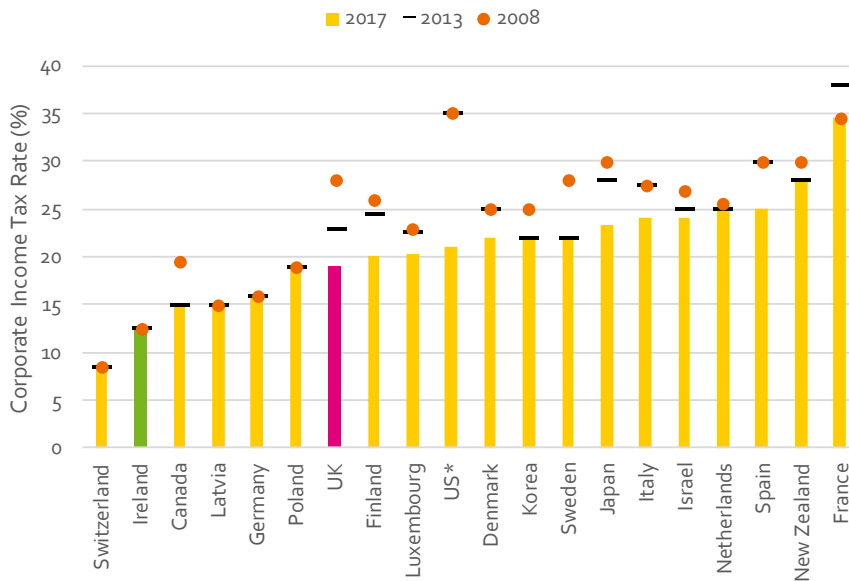


Irish loans have been more volatile over the period examined and interest rates in Ireland for all three categories of loans are higher than the Euro area rates. The divergence is particularly noticeable for loans of up to €0.25 million, where Ireland's interest rates are double the Euro area rates.

Rank: n/a

Source: ECB

Figure 4.1.8 Corporation tax rates (%), 2008-2017



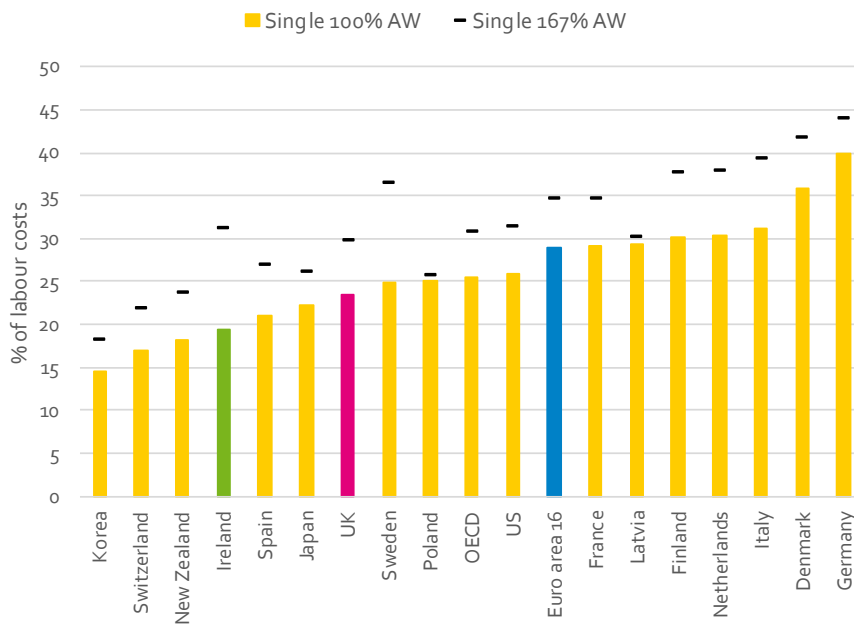
Ireland's corporation tax rate remains internationally competitive and is the third lowest in the OECD at 12.5%. While Ireland's rate has remained consistent over recent years, many of Ireland's competitors have reduced their rates (e.g. the UK and in 2018, the US³⁷).

OECD rank: 3rd

Source: OECD

37 The Tax Cuts and Jobs Act of 2017 reduced US corporate tax rates to one flat rate of 21% tax rate on corporate income from January 1 2018.

Figure 4.1.9 Income tax plus employee contributions minus cash benefits (% of gross wage earnings), single, 100% & 167% AW³⁸, 2017



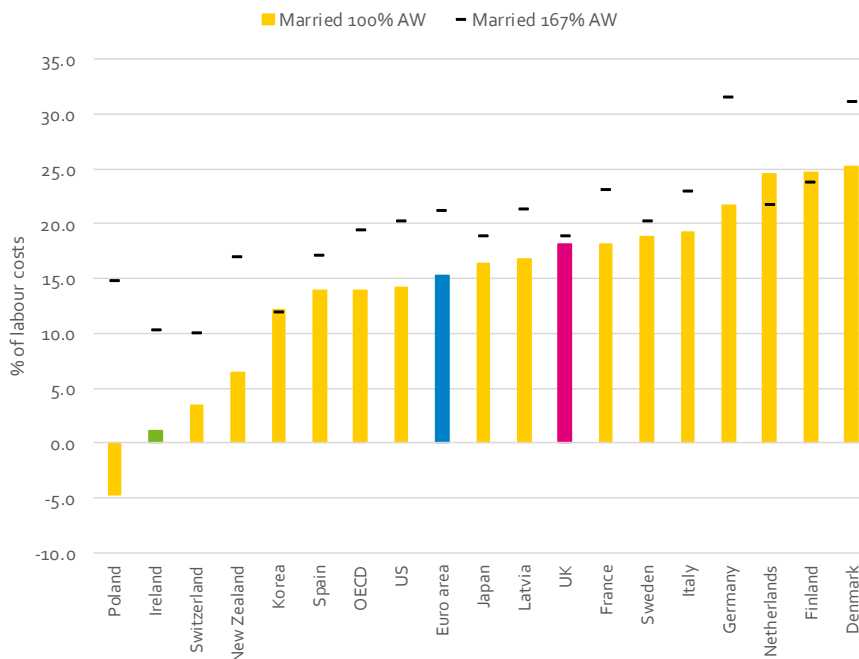
The income tax and employee contributions as a % of labour cost for an individual earning the average wage in Ireland is 19.4%, below the Euro area 16 (28.9%) and OECD (25.5%). The corresponding figure for an individual earning above the average wage is below the Euro area but above the OECD.

OECD rank:

Single, 100%: 8th,
Single, 167%: 17th

Source: OECD

Figure 4.1.10 Income tax plus employee contributions minus cash benefits (% of gross wage earnings), married couples with 2 children, 100% & 167% AW, 2017



Ireland is competitive in terms of income tax and social security contributions for married couples as a % of total labour costs. For a married couple with 2 children on a combined income of 100% or 167% of the average wage, the figure is below the OECD and Euro area.

OECD rank:

100% AW: 3rd, 167%: 4th

Source: OECD

³⁸ The OECD's calculations of the average wage for Ireland do not appear to include the cohort of supervisory or managerial workers, while part-time workers are included on a non-adjusted basis. If the average wage is calculated in line with the methodology used for most OECD countries, Ireland's average wage will be approximately €45,000 instead of €36,000, which will have an impact on the level of average income tax: See <http://economic-incentives.blogspot.ie/2018/05/why-is-irish-average-wage-in-oecd.html>

Figure 4.1.11 Marginal rate of income tax plus employee contributions (% of gross wage earnings), 2017



Marginal rates of income tax in Ireland for married couples and individuals earning below the average wage are lower than the rates in the UK, Euro area and OECD. The rates for individuals earning the average wage and above are less competitive.

OECD rank:

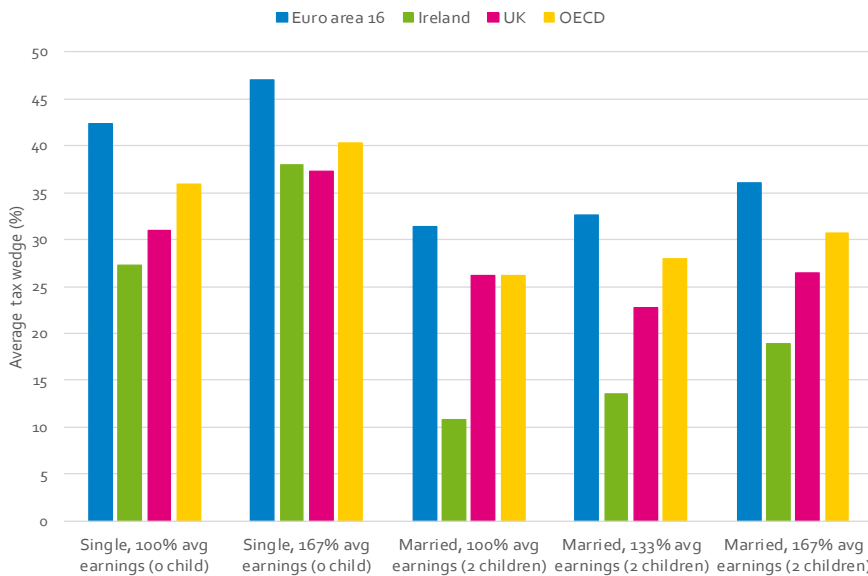
Single, 0 ch, 100%: 32nd

Married, 2 ch, 100%: 10th

OECD rank:

Source: OECD

Figure 4.1.12 Average tax wedge (%), 2017



Ireland's tax wedge levels are low compared to the Euro area and OECD at average wages for individuals (Ireland-27.2%, OECD-35.9%, Euro area-42.4%) and at all wage levels for married couples. At higher incomes the wedge for individuals is above the UK wedge.

OECD rank: Single, 0 ch, 100%: 29th, Married, 2 ch, 100%: 32

Source: OECD

Figure 4.1.13 Tax rate on low wage earners (Unemployment trap³⁹), 2015

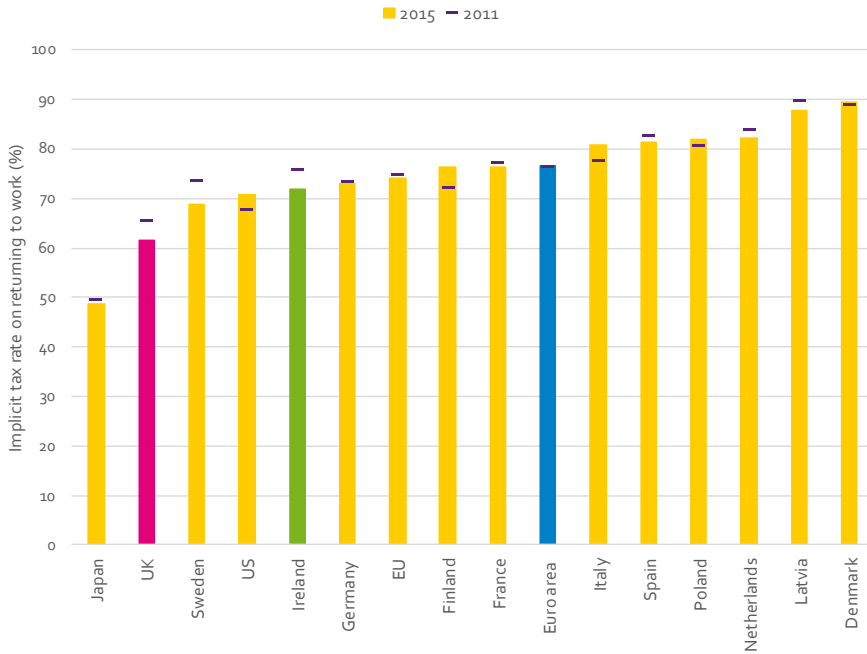
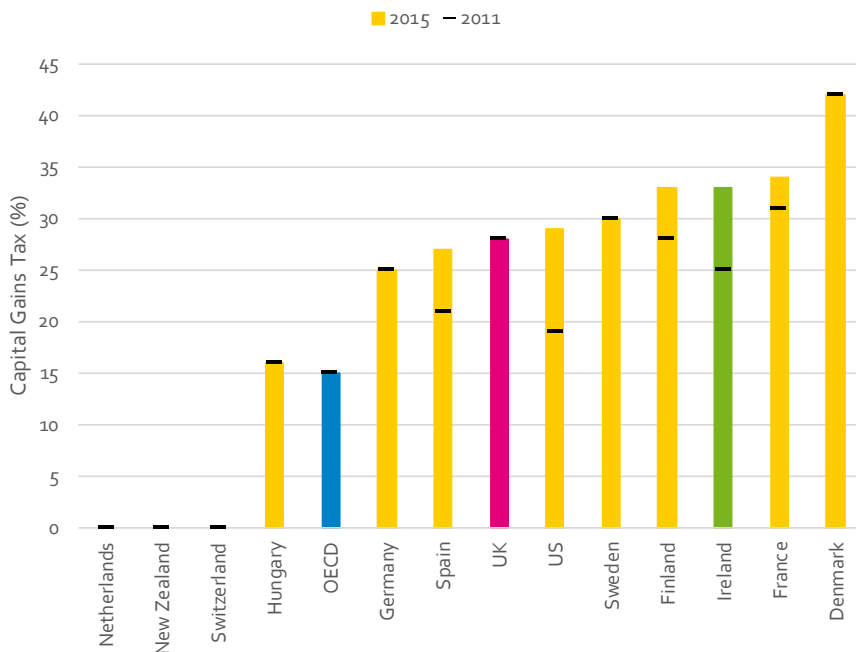


Figure 4.1.13 shows the implicit tax rate of taking up employment. The tax rate on low wage earners has been on a downward trajectory in Ireland since 2009 and in 2015 it was 71.8%, below the tax rate in the Euro area average of 76.5%, but above the UK rate of 61.7%.

Euro area rank: 13th

Source: Eurostat

Figure 4.1.14 Capital Gains Tax, 2015



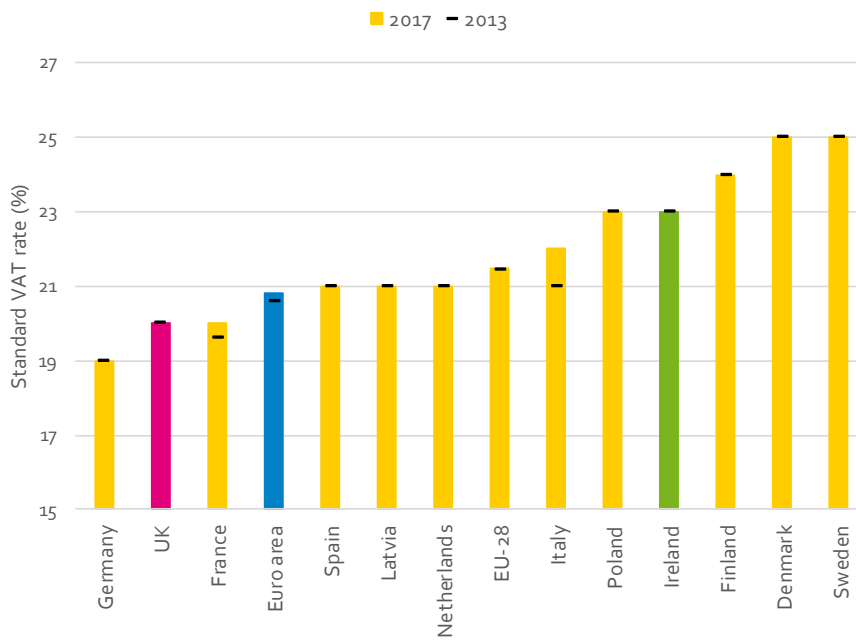
Benchmarking Capital Gains Taxes across the OECD shows that in 2015 Ireland had the third highest headline CGT in the OECD (33%), a fall of 5 places since 2011. The OECD average rate was 18.4% in 2015. The equivalent rate in the UK is 28%.

OECD-34 rank: 32nd

Source: Deloitte/Tax Foundation

³⁹ 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 4.1.15 Standard Value Added Tax (%), 2017



The standard VAT rates varied between 15% and 25% across the EU in the period 2013-2017.

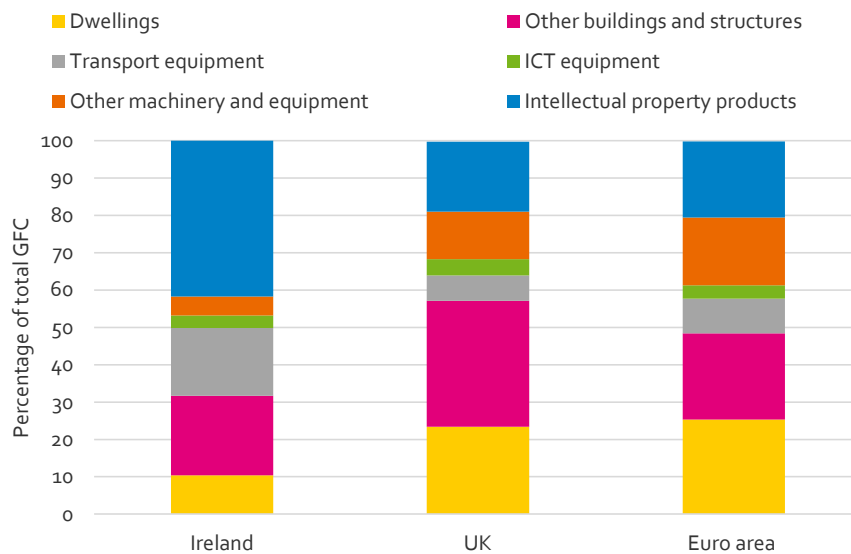
Ireland's VAT rate of 23% is above the Euro area average of 20.8% and among the highest in the EU. The lowest standard VAT rate was recorded in Germany (19%).

Euro area rank: 3rd

Source: Eurostat

4.2 Physical Infrastructure

Figure 4.2.1 Gross fixed capital formation as a percentage of GDP, current prices, 2017

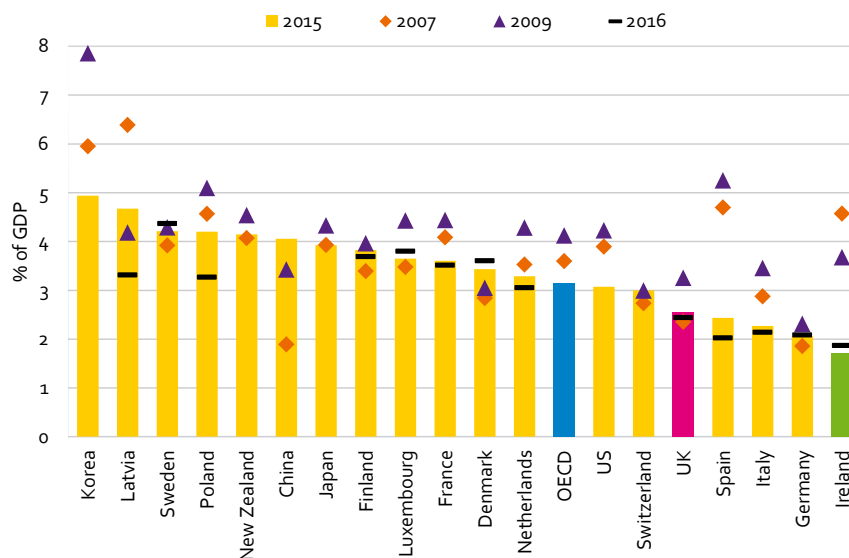


In 2017, gross fixed capital formation as a share of GDP was 4th highest in Ireland at 23.4% compared to 20.6% in the Euro area. GFC in Ireland is dominated by intellectual property which accounts for 42% of the total. At 10%, the proportion of investment in dwellings is half the UK and Euro area levels and remains well below pre-crisis levels.

Rank: n/a

Source: Eurostat

Figure 4.2.2 Government investment as percentage of GDP, 2007, 2009, 2015 and 2016



Government investment as % of GDP remains below pre-crisis levels in Ireland and across the OECD. In 2015, average investment spending across OECD amounted to 3.2% of GDP. The equivalent figure for Ireland was the second lowest in the OECD at 1.7%. Expenditure increased to 1.9% in 2016 but remains low.

OECD rank: 33rd

Source: OECD

Figure 4.2.3 Trend in Capital Expenditure, Ireland, 1997-2016

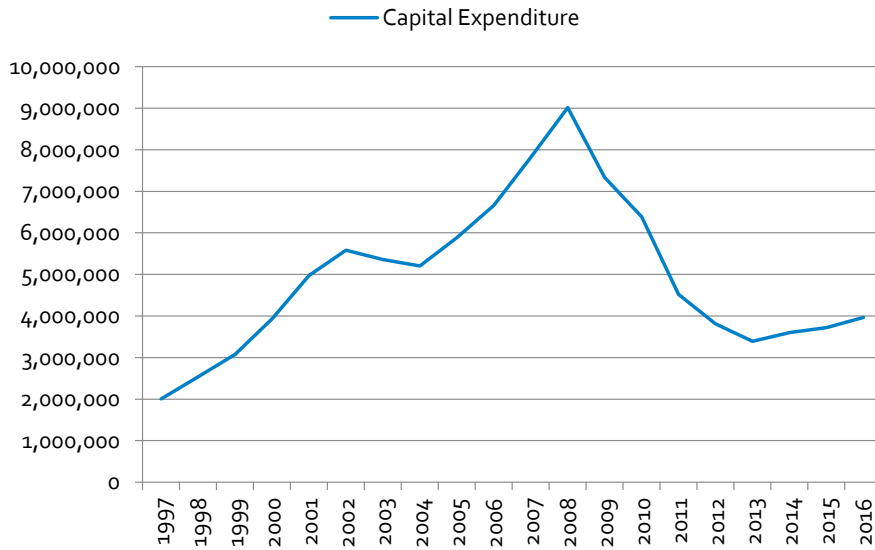


Figure 4.2.3 shows the long-term trend in capital expenditure. In 2009, the rate of spending growth dropped sharply at the onset of the economic and fiscal crisis. In the late 90's and early 2000's expenditure grew strongly. In the following years, as part of the fiscal consolidation effort, total voted spending was reduced annually.

Rank: n/a

Source: Department of Public Expenditure and Reform

Figure 4.2.4 General government expenditure on Transport, 2006-2016

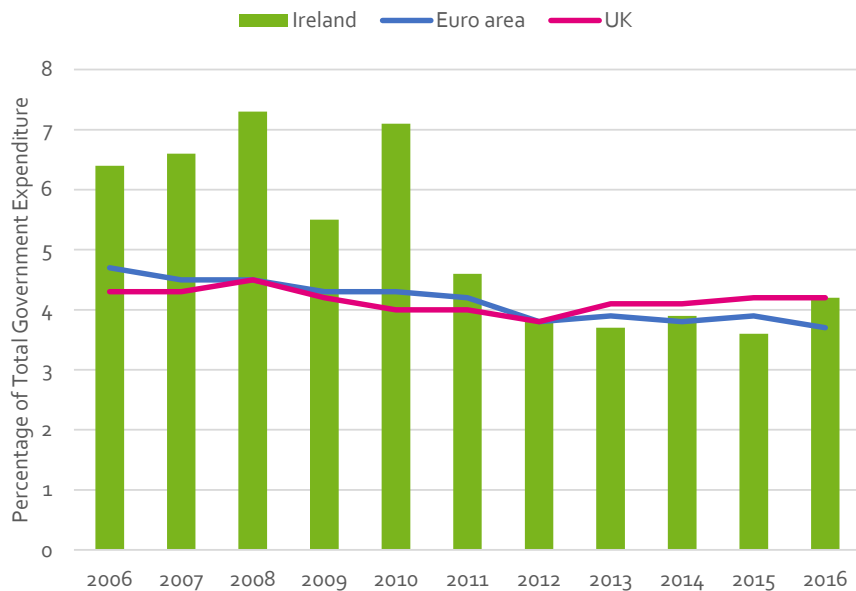
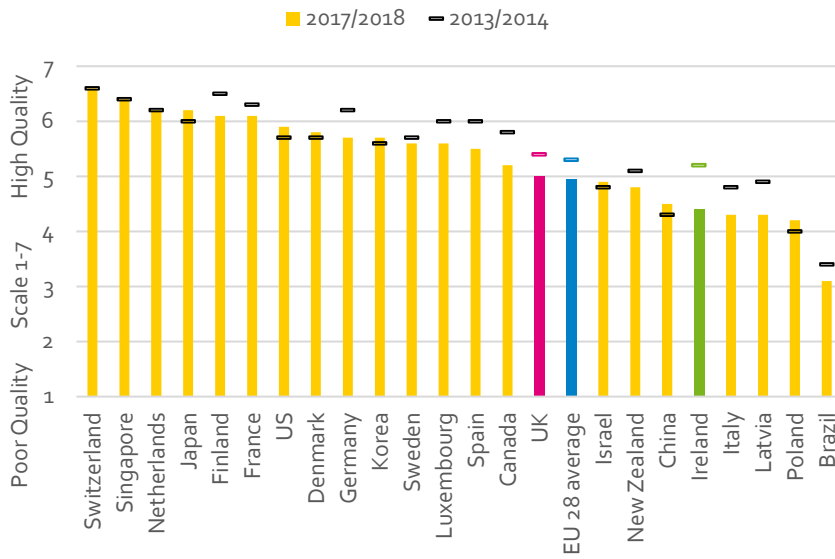


Figure 4.2.4 shows the trend in transport expenditure expressed as a percentage of total general government expenditure. The Irish share was above or equal to equivalent levels in the UK and Euro area in the period 2006-2012. It peaked at 7.3% in 2008 and declined to 3.7% in 2013. At 4.2% the Irish share was equal to the UK and above the Euro area average (3.7%) in 2016.

EU rank: 18th

Source: Eurostat

Figure 4.2.5 Perception of Infrastructure Quality⁴⁰, 2017/2018

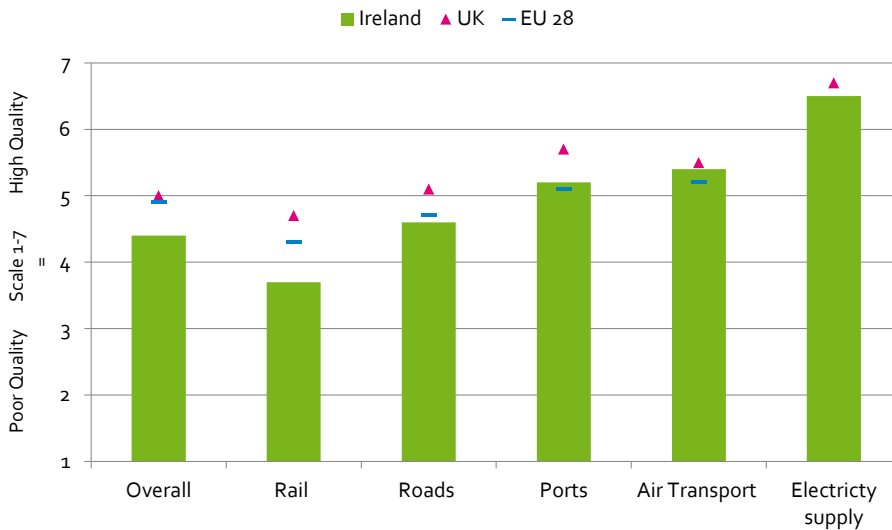


Perceptions regarding the overall quality of infrastructure in the economy remain low in Ireland. Ireland’s score fell over the past 5 years to 2015 and in 2017 (4.4) remains below the EU average (4.9). Ireland is ranked 51st in the world with the UK 27th. In an EU context Ireland is ranked 21st with the UK 12th.

OECD rank: 27th

Source: WEF

Figure 4.2.6 Perception of Infrastructure Quality, Ireland, EU⁴¹, UK, 2017/2018



Perceptions of the quality of the Irish transport infrastructure by respondents to the Executive survey of the World Economic Forum tend to be lower for Irish respondents than the UK and the EU average. Ireland performs best on-air transport infrastructure (14th in the EU) but ranks relatively poorly on rail and roads 19th and 17th in the EU respectively.

OECD rank: 27th

Source: OECD

⁴⁰ Participants in the WEF survey are asked How do you assess the general state of infrastructure (e.g., transport, communications, and energy) in your country? [1 = extremely underdeveloped—among the worst in the world; 7 = extensive and efficient—among the best in the world]

⁴¹ EU excludes Malta and Cyprus in rail and Austria, Czech Republic, Hungary, Luxembourg, Romania, and Slovakia in Ports.

Figure 4.2.7 Enterprises⁴² with broadband access by maximum contracted download speed of fixed internet connection, 2017

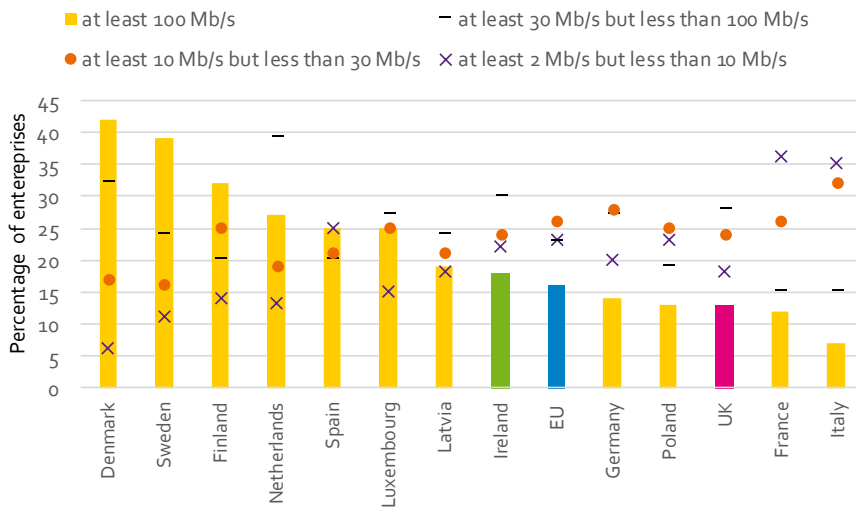
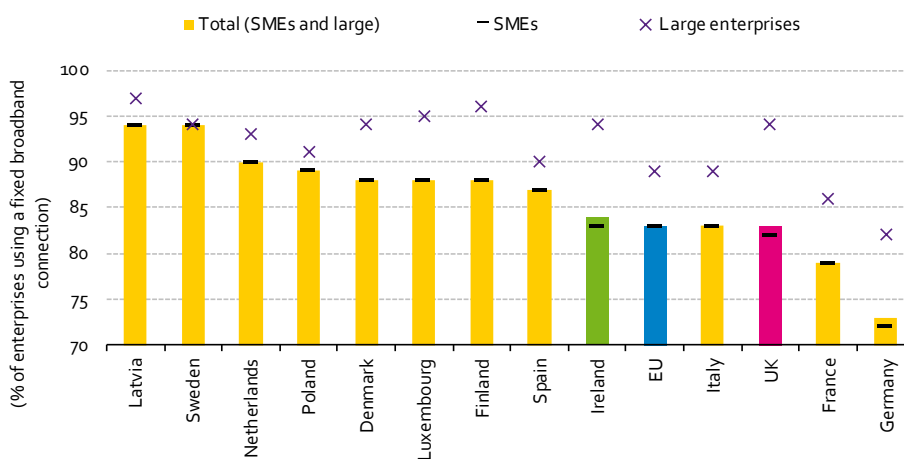


Figure 4.2.7 shows the share of Irish enterprises using the fastest internet connections was 18% in 2017. In 2017, 30% of Irish enterprises had an internet connection speed that was in the range of ≥ 30 Mb/s but < 100 Mb/s. This was greater than UK and Euro area average and up from 17% in 2014. 24% had a connection in the range of ≥ 10 Mb/s but < 30 Mb/s.

EU rank: (at least 30: 5th at least 100: 12th)

Source: Eurostat

Figure 4.2.8 Enterprises considering the speed of their fixed internet connection to be sufficient, by enterprise size, 2017



In Ireland the share of enterprises that considered the speed of their fixed internet connection to be sufficient in 2017 was 84% the same as in the UK and the EU-28 average. 83% of Irish SMEs and 94% of large enterprises considered their broadband speed sufficient.

EU rank: 20th

Source: Eurostat

⁴² All enterprises, without financial sector (10 persons employed or more)

Figure 4.2.9 Logistics Performance Index⁴³ (LPI) Score, 2016



The most recent data on logistics (for 2016) ranks Ireland’s performance 18th in the world. Germany is first, with the UK, 8th overall. Ireland’s best ranking (11th) is on ease of arranging competitively priced shipments. Relative to the UK, Ireland is less competitive on timeliness of delivery, efficiency of customs clearance and infrastructure.

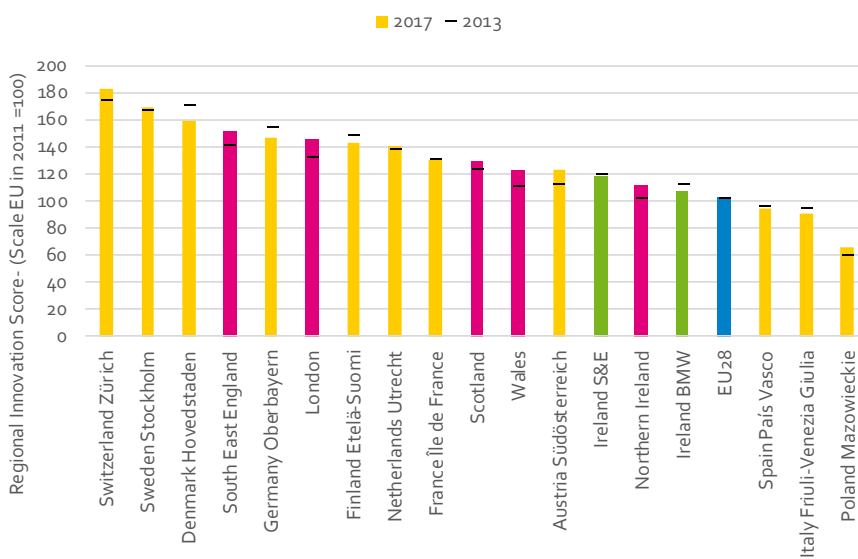
rank: n/a

Source: World Bank

⁴³ The World Bank uses six key dimensions to benchmark countries' logistics/ freight forwarding performance in index form. The data used in the ranking comes from a survey of logistics professionals who are asked questions about the foreign countries in which they operate. The components analysed International LPI are based on recent theoretical and empirical research and on the practical experience of logistics professionals involved in international freight forwarding. The six dimensions considered are: 1) Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs; 2) Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology); 3) Ease of arranging competitively priced shipments; 4) Competence and quality of logistics services (e.g., transport operators, customs brokers); 5) Ability to track and trace consignments; 6) Timeliness of shipments in reaching destination within the scheduled or expected delivery time.

4.3 Clusters and Firm Sophistication

Figure 4.3.1 Regional Ecosystem Scoreboard (RES), Median Country Scores, 2016



The RES presents a composite index to rate the quality of the regional entrepreneurial and innovation ecosystem that support clusters. Both the Southern and Eastern and Border, Midland and Western regions have relative strengths in Tertiary education and SME innovation and weaknesses in Lifelong learning and R&D expenditure.

OECD rank: n/a

Source: European Commission

Figure 4.3.2 Perceived State of Cluster Development⁴⁴, 2017/2018

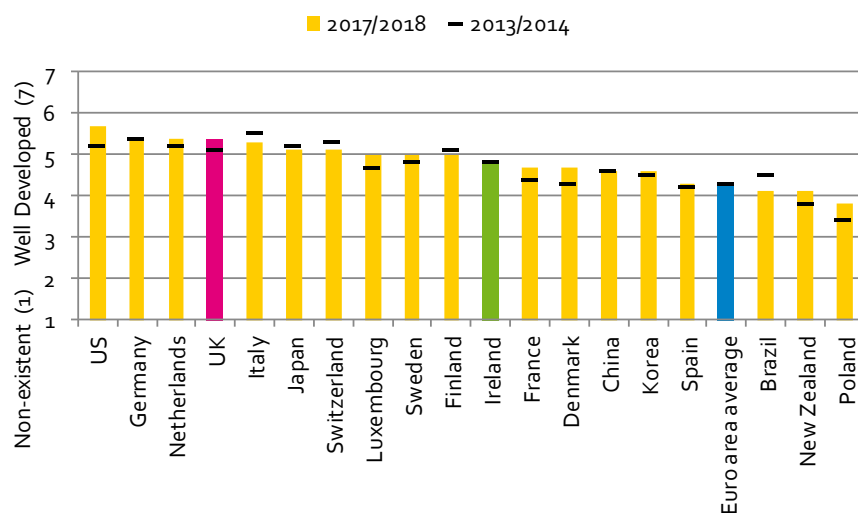


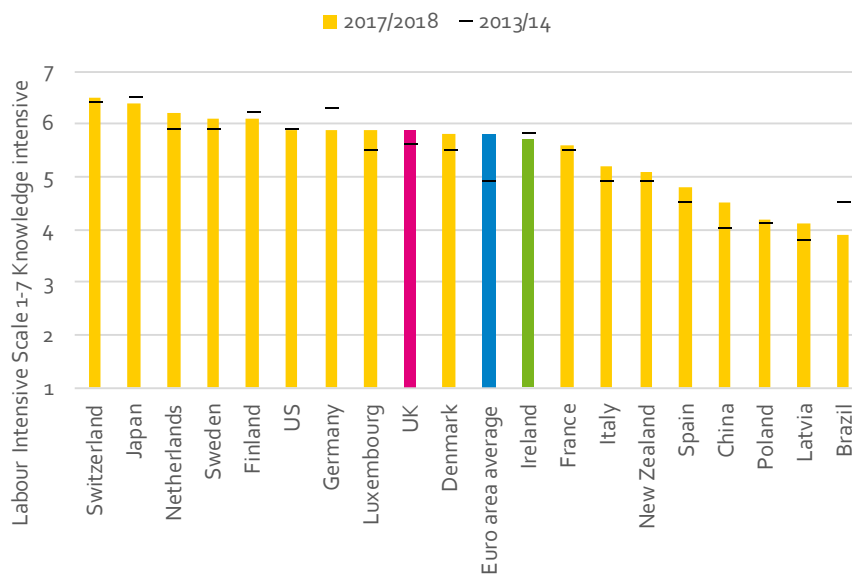
Figure 4.3.2 presents WEF data provided based on personal assessment of managers in surveyed companies about cluster development in their country. In Ireland the weighted average score in 2017/18 was 4.8, above the Euro area average score of 4.3 but below the UK (5.4).

OECD rank: 8th

Source: WEF

⁴⁴ The WEF survey asks, "In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)?" [1 = non-existent; 7 = widespread in many fields]

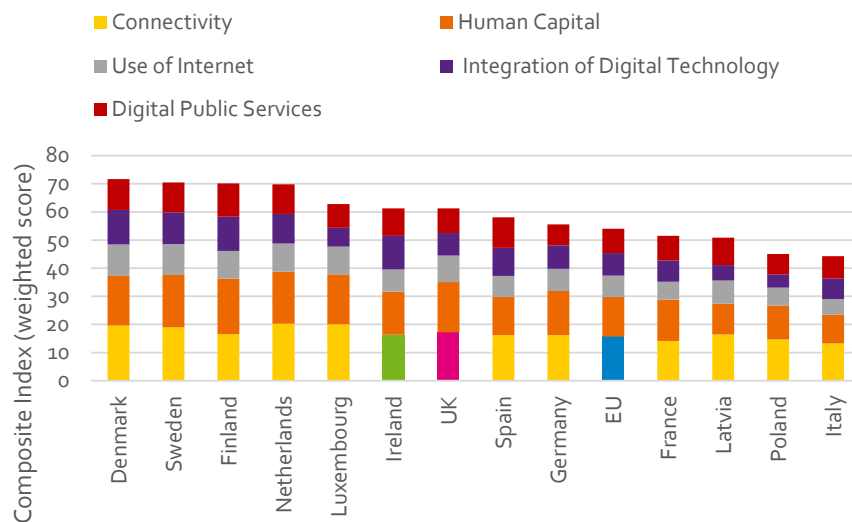
Figure 4.3.3 Perceived State of Enterprise Business Sophistication⁴⁵, 2017/2018



Competitiveness and productivity is driven by firms using knowledge intensive production processes. Figure 4.3.3 shows the relative sophistication of business processes as perceived by national executives. Ireland is ranked 14th in the world and 7th in the Euro area and scores above the Euro area average. The UK is ranked 12th in the world. Ireland's rank has fallen compared to 2013. **OECD rank: 14th**

Source: WEF

Figure 4.3.4 European Digital Economy and Society Index Innovation Scoreboard⁴⁶, Overall ranking, 2017



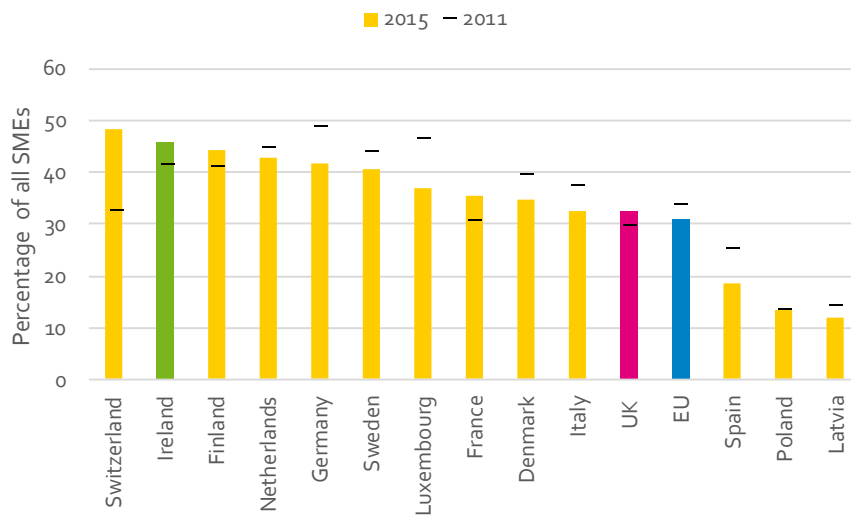
The EU shows Ireland as a strong innovation follower with performance improving over time but behind the UK and the best innovation leaders. In 2017, all Member States improved in the DESI. Ireland progressed the most (close to 5 points as opposed to an EU average of 3.2). **EU rank: 6th**

Source: European Commission

⁴⁵ The WEF survey asks, "In your country, how sophisticated are production processes?" [1 = not at all—production uses labour-intensive processes; 7 = highly—production uses latest technologies]

⁴⁶ The Digital Economy and Society Index (DESI) is a composite index that summarises relevant indicators on Europe's digital performance and tracks the evolution of EU member states in digital competitiveness.

Figure 4.3.5 SMEs introducing product or process innovations (percentage of SMEs), 2015



46% of SMEs in Ireland are reported as having introduced a product or process innovation in 2015. This is the second highest in the EU (Belgium 48%) and above the EU average (31%) and the UK (33%). Ireland’s performance has increased from 36% in 2015 and since 2011 (41%).

EU rank: 2nd

Source: European Commission

Figure 4.3.6 SMEs introducing marketing or organisational innovations (percentage of SMEs), 2015

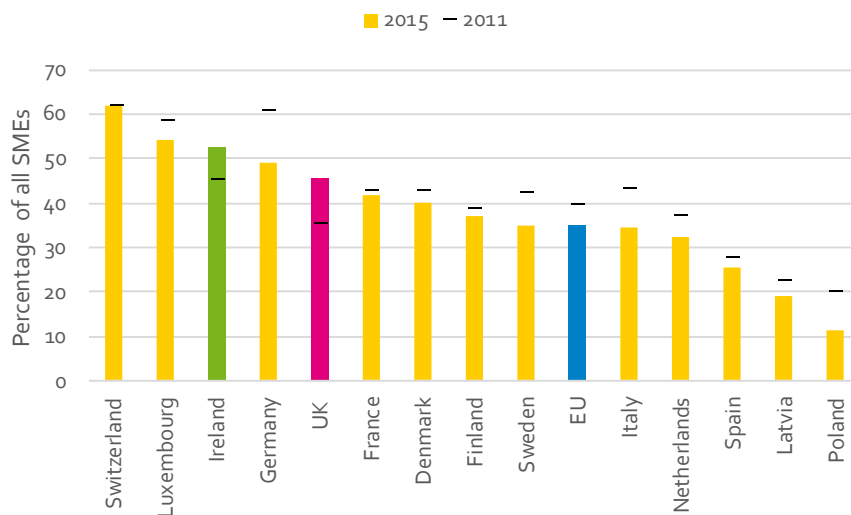


Figure 4.3.6 shows the proportion of SMEs in Ireland who introduced a marketing or organisational innovation is high (52.5%). The UK is 45%, with the EU average 35%. Previous iterations of the Community Innovation Survey suggest the proportion of SMEs engaging in marketing innovations in Ireland is greater than organisational innovation.

EU rank: 2nd

Source: European Commission

Figure 4.3.7 Sales of new-to-market and new-to-firm innovations as percentage of turnover, 2015

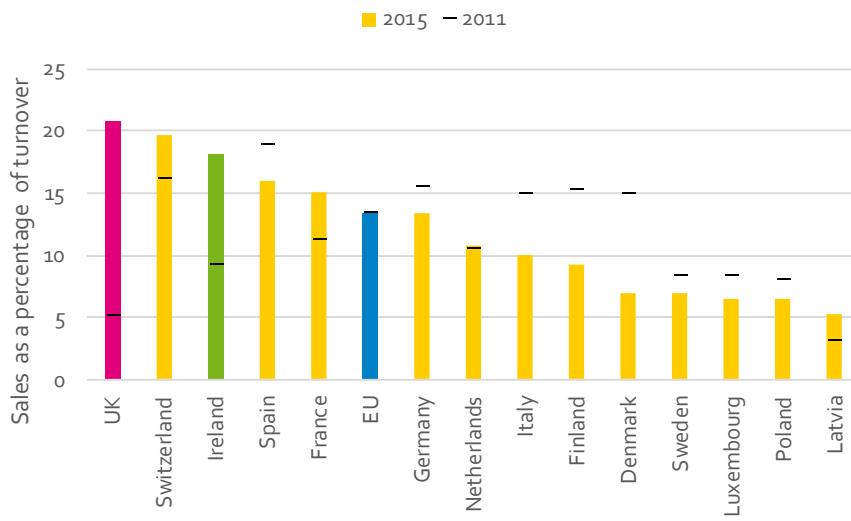
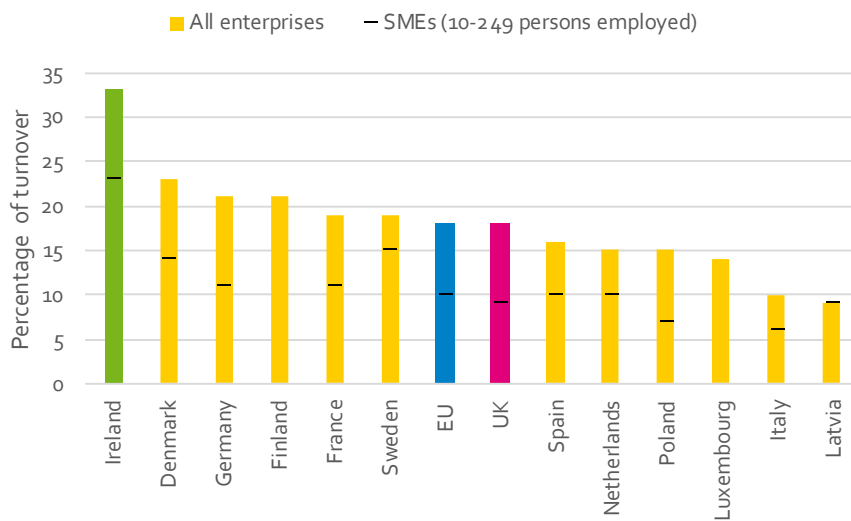


Figure 4.3.7 shows sales as a percentage of turnover attributed to new/significantly improved products, and includes both products which are only new to the firm and products which are also new to the market. Ireland ranks 3rd in the EU with sales estimated at 18.1% compared to the EU average of 13.4%. The relevant figure for the UK is 20.8%.

EU rank: 3rd

Source: European Commission

Figure 4.3.8 Enterprises' total turnover from e-commerce, 2017



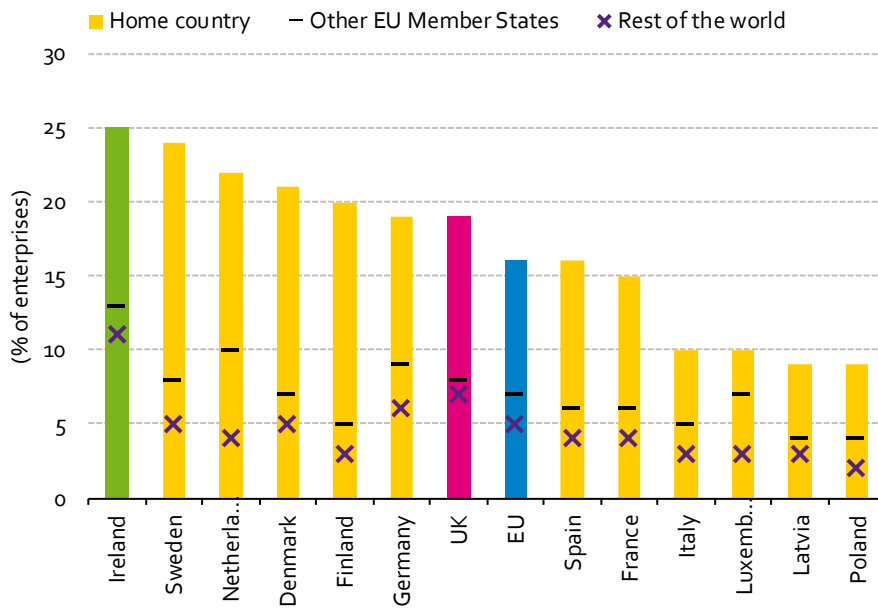
E-sales accounted for 33% of the total turnover generated by Irish enterprises in 2016, which was the highest share recorded in the EU. The EU and UK rates were both 18%. Overall, the share of e-sales in total turnover has been increasing for Irish SMEs and remains the highest in the EU⁴⁷. The share of turnover for Irish SMEs was 23% compared with 9% in the UK.

EU rank: 1st

Source: Eurostat

⁴⁷ SME data not available for Finland and Luxembourg

Figure 4.3.9 Enterprises with web sales, by place of sale, 2016



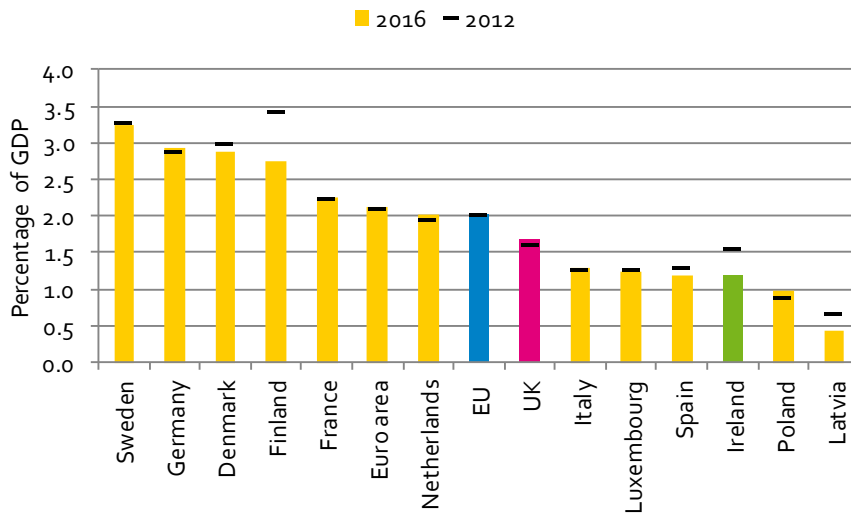
In 2016 the highest proportions of enterprises with web sales to other EU Member States countries were recorded in Ireland (13%). In 2016, Ireland also recorded the highest share of enterprises declaring that they made web sales outside of the EU, this proportion was 11%. Ireland was the only EU Member State with a share that was in double-digits.

EU rank: 1st

Source: Eurostat

4.4 Knowledge and Talent

Figure 4.4.1 R&D expenditure (GERD⁴⁸) as a percentage of GDP, 2016



There is considerable heterogeneity in R&D expenditure as a percentage of GDP in the EU. In 2016, Irish expenditure on R&D accounted for 1.18% of GDP, below the EU average (2.03%) and UK (1.69%). Business expenditure on R&D accounted for 0.8%, with public expenditure accounting for 0.3%.

EU rank: 18th

Source: Eurostat

Figure 4.4.2 Expenditure on R&D by sector, Ireland, 2007-2016

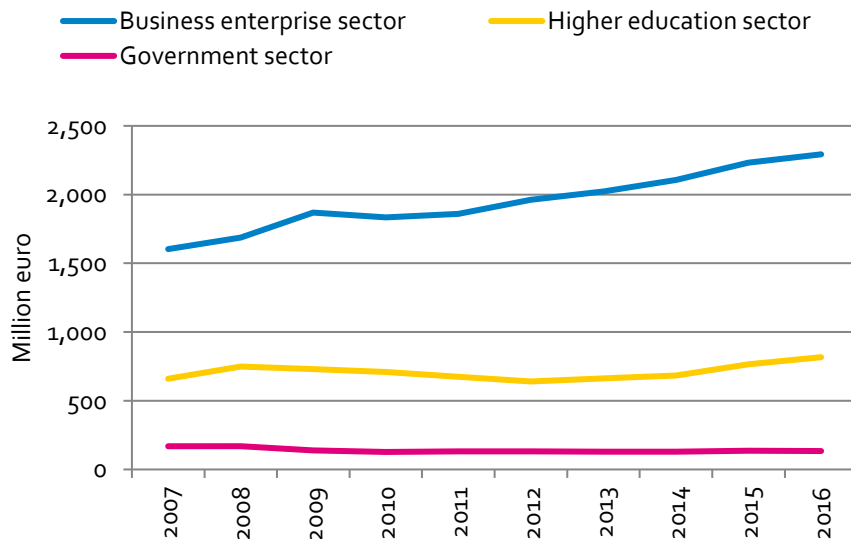


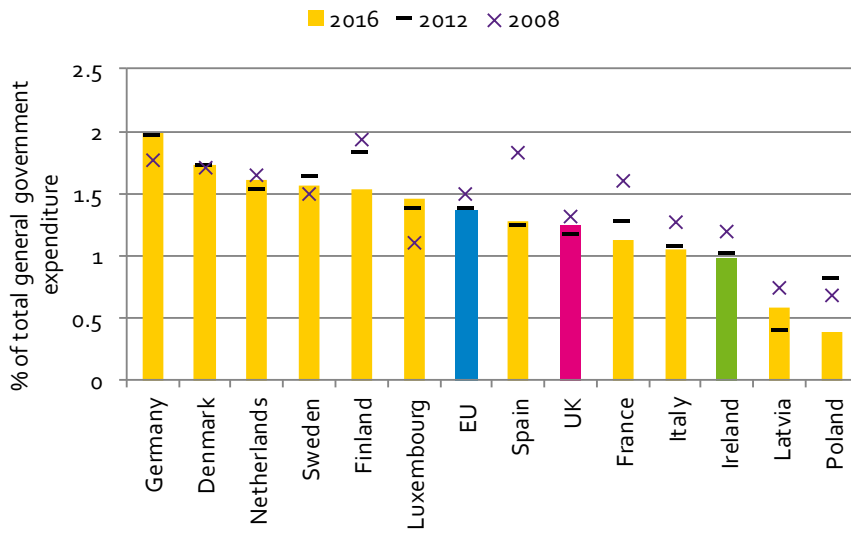
Figure 4.4.2 shows R&D investment has increased over this period but GNP/GDP levels have increased at a faster rate. In 2016, Gross Expenditure on R&D increased to €3,243m and is at its highest level in the 11 years of this time-series and represents a 47% increase over 2006 (€2,214m). The highest expenditure on R&D continues to be in the business sector.

EU rank: 18th

Source: Eurostat

⁴⁸ Gross Expenditure on Research and Development (GERD) is the sum of R&D expenditure in the business, higher education and government sectors.

Figure 4.4.3 Share of government⁴⁹ budget appropriations or outlays on research and development, 2016



Estimated as a share of government budget appropriations or outlays on research and development, expenditure in Ireland was 0.97% in 2016, behind the UK (1.25%) and the EU average of 1.37%. Expenditure fell to 0.76% in 2010. In 2008, it stood at 1.19% and was 1.02% in 2012. **EU rank: 18th**

Source: Eurostat

Figure 4.4.4 Scientists and engineers as a percentage of the active population aged 15-74, 2016

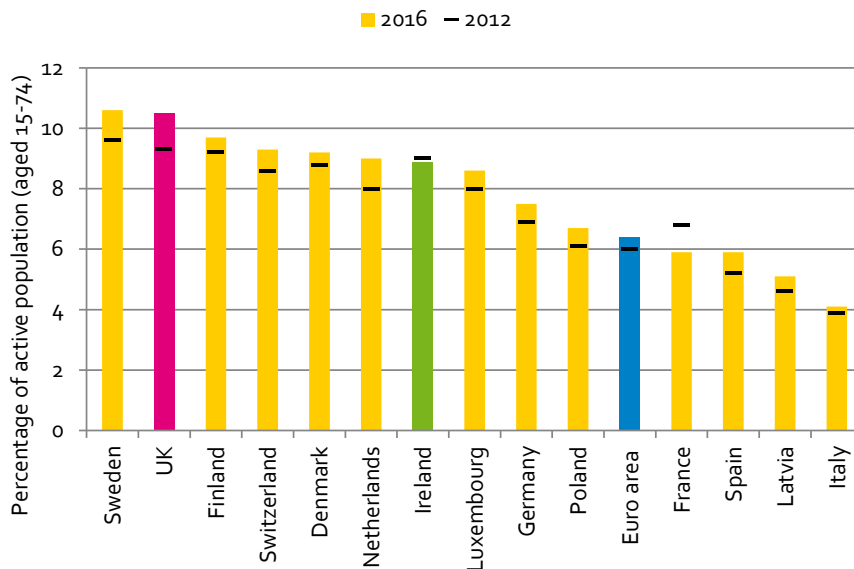
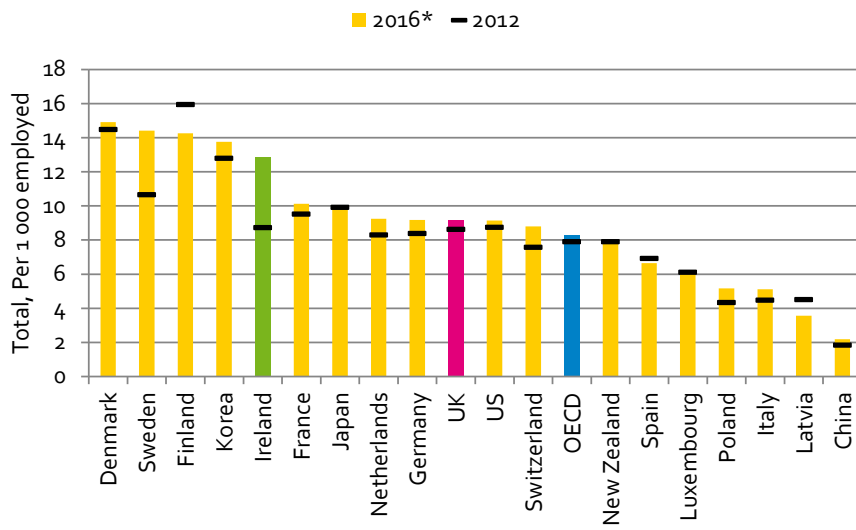


Figure 4.4.4 shows the proportion of the active population aged 15-74 who are scientists in Ireland in 2016 was 8.9%. This is above the Euro area average 6.4% but below the UK level 10.5%. The Irish rate is down marginally since 2012 (9%) but has been above 8% since 2011. **EU rank: 7th**

Source: Eurostat

⁴⁹ Data on Government Budget Appropriations or Outlays on Research and Development (GBOARD) refer to budget provisions, not to actual expenditure, i.e. GBOARD measures government support for R&D using data collected from budgets. The GBOARD indicator should be seen as a complement to indicators based on surveys of R&D performers, which are considered to be a more accurate but less timely way of measuring R&D activities. In this chart, total GBOARD is expressed as a percentage of total general government expenditure

Figure 4.4.5 Researchers per thousand employees, 2016

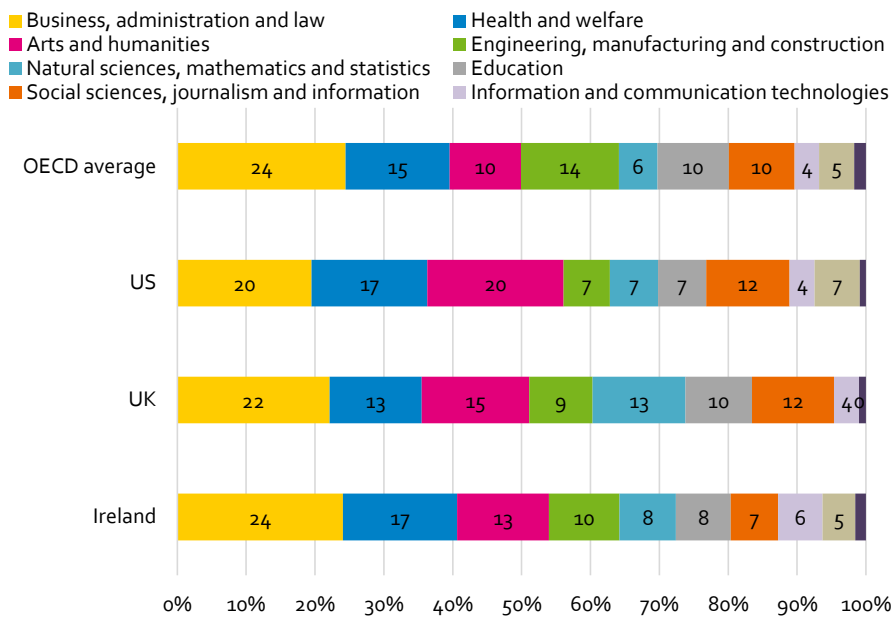


Researchers are professionals engaged in the creation of new knowledge, products, processes and systems. In Ireland, there were 12.8 researchers per 1000 employees compared to 9.1 in the UK and 8.2 in the OECD⁵⁰. The number of researchers in Ireland is up from 8.7 in 2012.

OECD rank: 5th

Source: OECD

Figure 4.4.6 Graduates by Field of Study, 2015



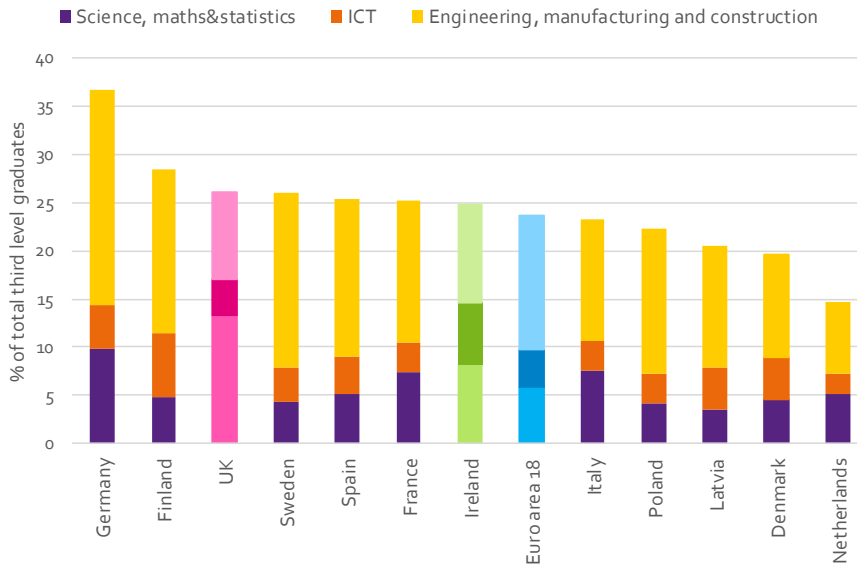
In Ireland and across most OECD countries, the largest share of graduates (24%) in tertiary education programmes complete degrees in business, administration and law. The share of students in Ireland graduating from the fields of natural sciences, maths, statistics (8%), engineering, manufacturing and construction, (10%) and ICT (6%) combined is 24%.

OECD rank: n/a

Source: OECD

⁵⁰ * 2016 data for France, New Zealand, Poland, US, UK and OECD refers to 2015

Figure 4.4.7 STEM graduates (% of total third level graduates), 2015



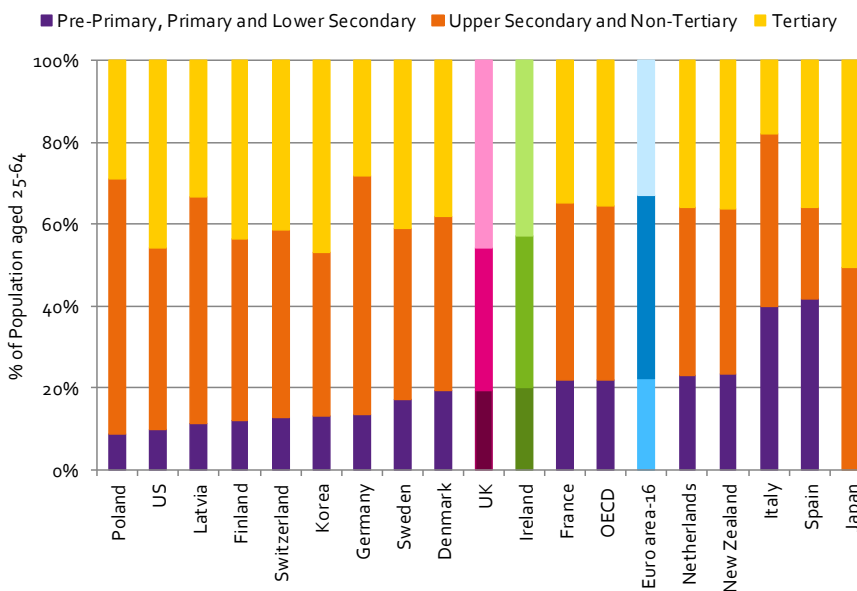
As a percentage of total third level graduates, Ireland produced more Science, maths & statistics and ICT graduates than the Euro area. However, the proportion of engineering, manufacturing and construction graduates is 3.6% below the Euro area average.

Euro area rank:

Science & Maths: 3rd,
ICT: 3rd, Engineering: 15th

Source: Eurostat

Figure 4.4.8 Educational attainment of population aged 25-64 by highest level of education (%), 2016⁵¹



The proportion of the working age population with tertiary education in Ireland is 42.8%, above the Euro area average of 33.1% and the OECD average of 35.5%. The proportion with just pre-primary, primary or lower secondary education is marginally below the Euro area and OECD figures.

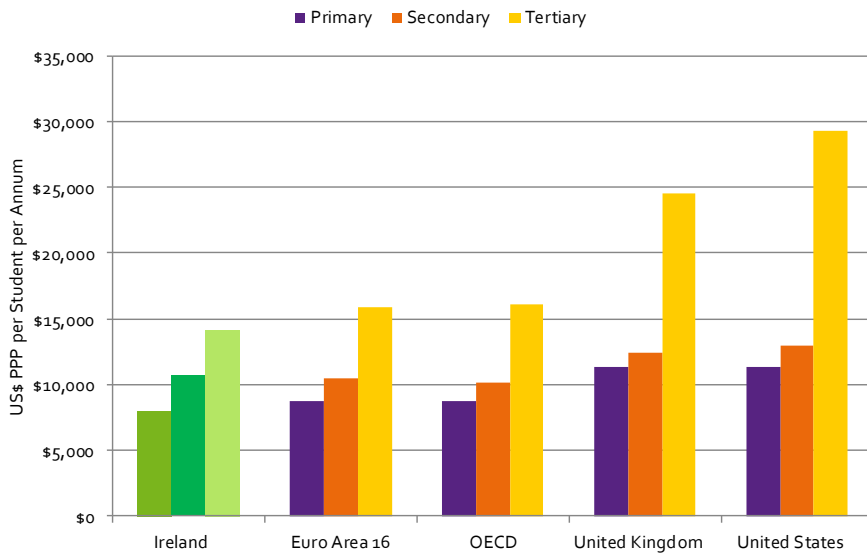
OECD rank:

Upper secondary (26th),
Tertiary (11th)

Source: OECD

⁵¹ 2016 data for Ireland refers to 2015

Figure 4.4.9 Annual expenditure on education institutions, per student (\$ US PPP), 2014

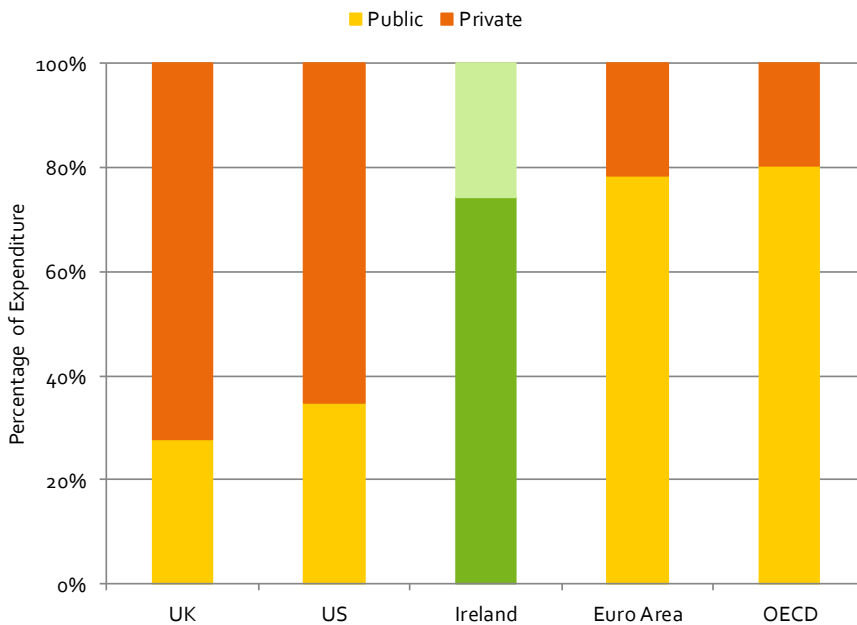


Ireland spends more per student at secondary level than the OECD or Euro area average but less at both primary and tertiary level. The gap between Ireland and the UK and US expenditure is particularly wide at tertiary level.

OECD rank:
 Primary (20th)
 Secondary (16th)
 Tertiary (18th)

Source: OECD

Figure 4.4.10 Breakdown of tertiary educational expenditure, 2014

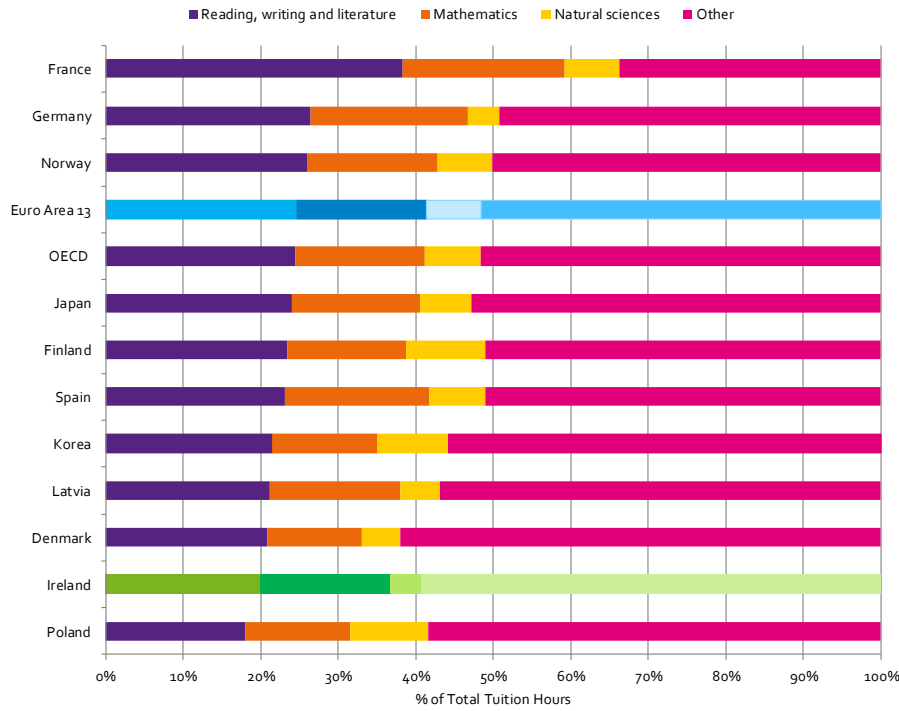


Tertiary education in Ireland and the Euro area is primarily funded by the public sector. In 2014, 74% of the expenditure on tertiary education in Ireland was funded by public sources and 26% by private sources. The breakdown for the Euro area is 78% and 22% respectively.

OECD rank:
 Public 18th, Private 16th

Source: OECD

Figure 4.4.11 Average annual hours of tuition by subject at primary education, 2017

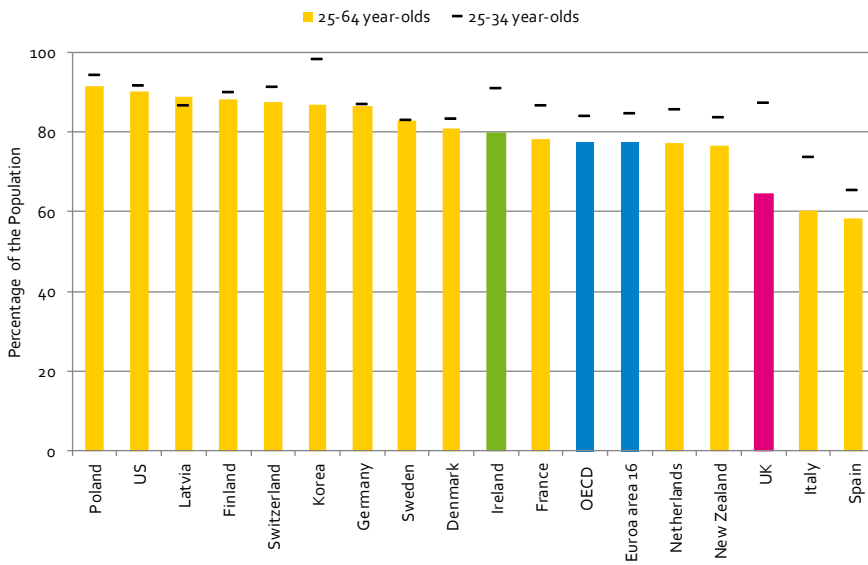


In 2016, Irish primary school students received less hours of tuition in science and reading, writing and literature as a percentage of total tuition hours than the average student across the OECD and the Euro area 13. Irish primary school students received marginally more hours of tuition in maths than the OECD and Euro area average student.

OECD rank:
 Maths hours: 15th,
 Science hours: 26th

Source: OECD

Figure 4.4.12 Percentage of population aged 25-64 that has at least upper secondary education⁵², 2016



Some 80% of 25-64-year-olds had attained at least upper secondary education in Ireland in 2016 compared with 91% of 25-34-year-old cohort. Ireland surpasses both the Euro area and OECD average attainment for both age cohorts.

OECD rank:
 25-34 olds: 10th
 25-64-year olds: 20th

Source: OECD

⁵² 2016 data for Ireland refers to 2015 for 25-34 olds

Figure 4.4.13 Early school leavers as a percentage of population aged 18-24, 2017

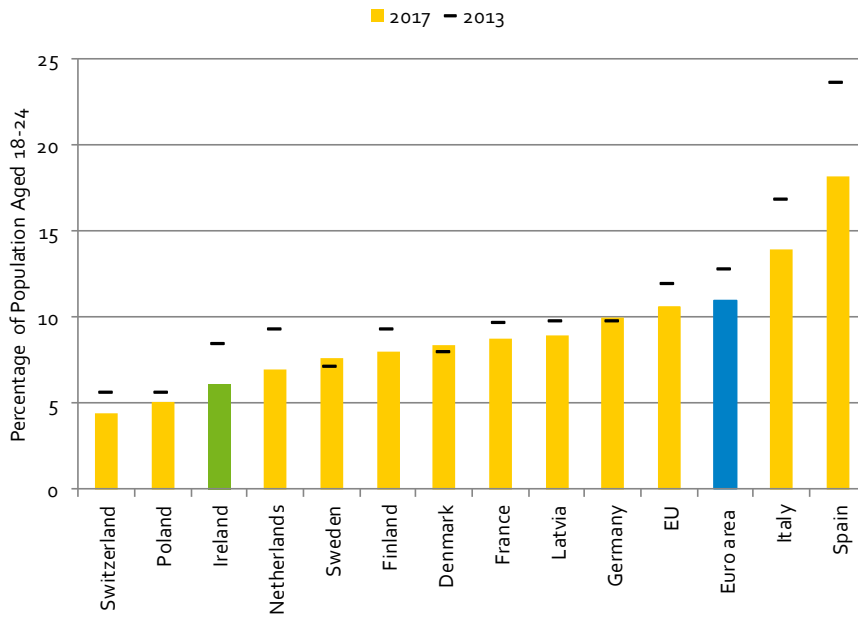
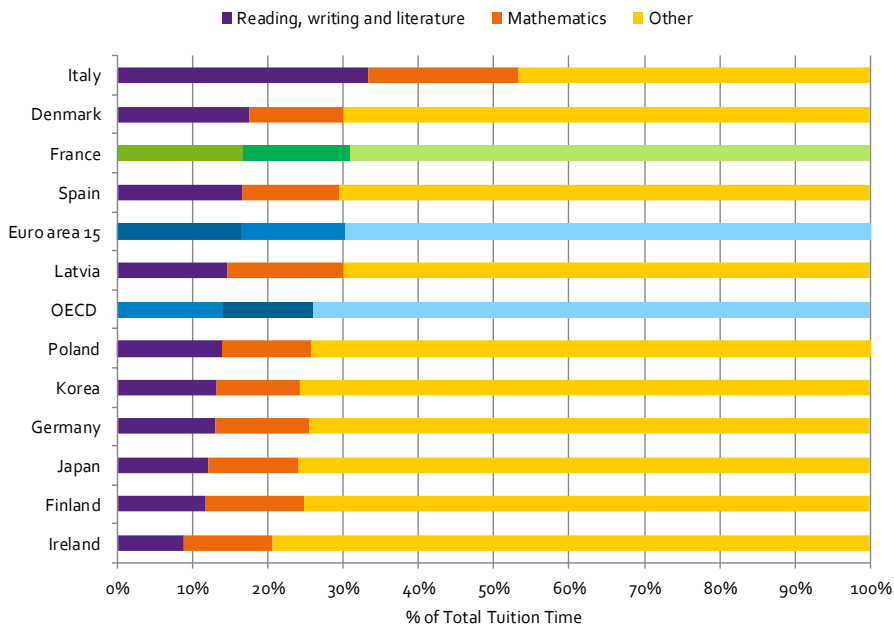


Figure 4.4.13 measures the percentage of the population aged between 18 and 24 who have attained at most lower secondary education. Ireland's performance has been improving since 2009. With 6.1% of this age cohort classified as early school leavers, Ireland's retention rates in secondary education are above the Euro area average of 11%.

Euro area rank: 3rd

Source: OECD

Figure 4.4.14 Average annual hours of tuition by subject, lower secondary education, 2017



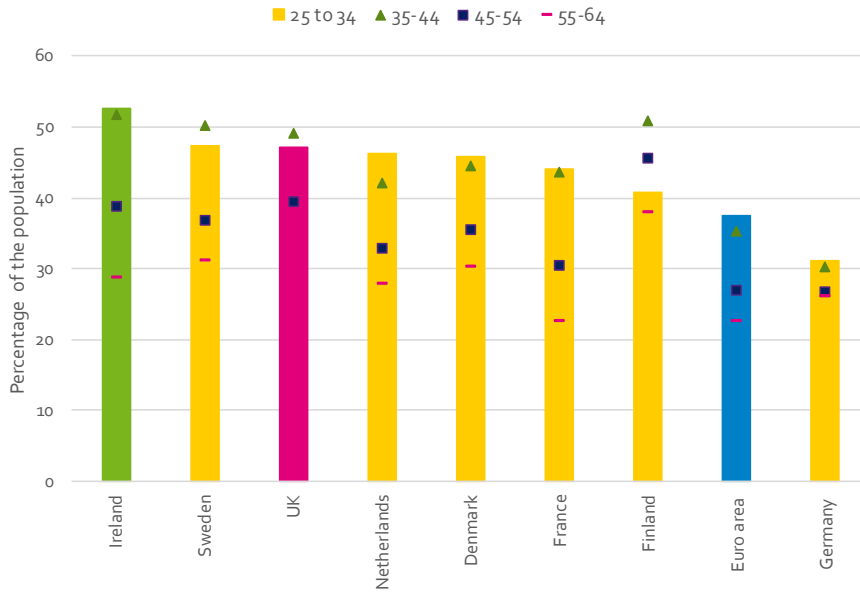
Ireland's Lower Secondary Education dedicates less time to maths tuition (11.9) than the Euro area 15 (13.7) as proportion of the total tuition time. The Irish figure is in line with the OECD average for the same subject. Irish students receive less tuition time on reading, writing and literature than both the Euro area and OECD countries.

Euro area rank:

Maths: 15th

Source: OECD

Figure 4.4.15 Population by age cohort that has at least third level education, 2015



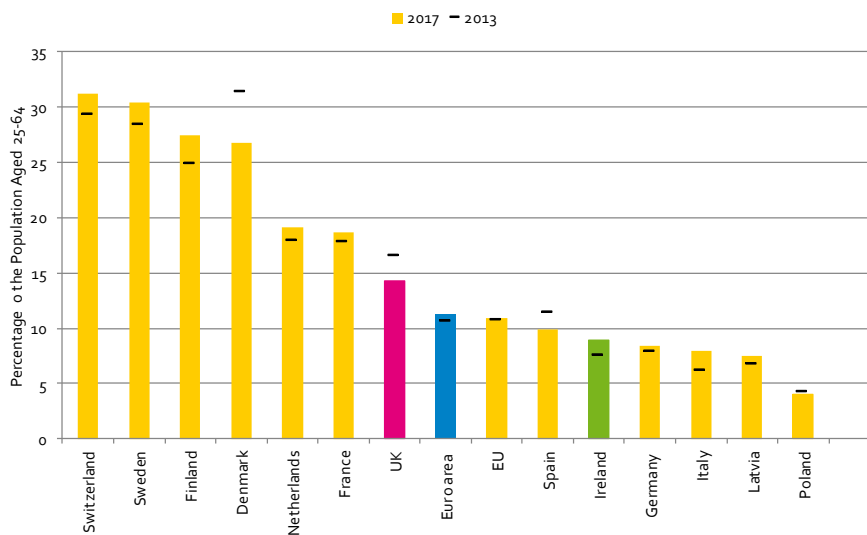
There is a significant inverse correlation between educational attainment and age in Ireland, while 52.6% of the 25-34 cohort have third level education, in the 55-64 cohort the proportion is 28.7%. Ireland performs better than the Euro area in all age groups.

Euro area rank:

- 25-34yrs: 3rd
- 35-44 yrs.: 1st
- 45-54yrs: 2nd
- 55-64yrs: 5th

Source: Eurostat

Figure 4.4.16 Lifelong learning (as a percentage of population aged 25-64), 2017

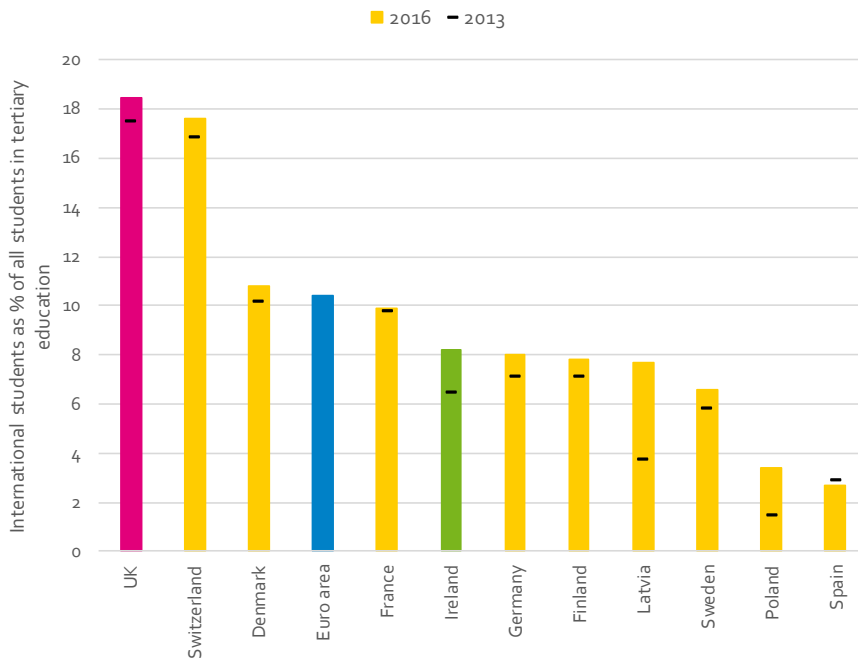


The percentage of people aged 25-64 in receipt of education and training (both formal and non-formal) in Ireland has increased from 7.5% to 8.9% in the period 2013-2017. Despite the increase, Ireland's performance remains below the Euro area average and below the target set by the European Agenda for Adult Learning of 15% to be achieved by 2020.

Euro area rank: 11th

Source: Eurostat

Figure 4.4.17 International students (as a percentage of all students in third level education)⁵³, 2016

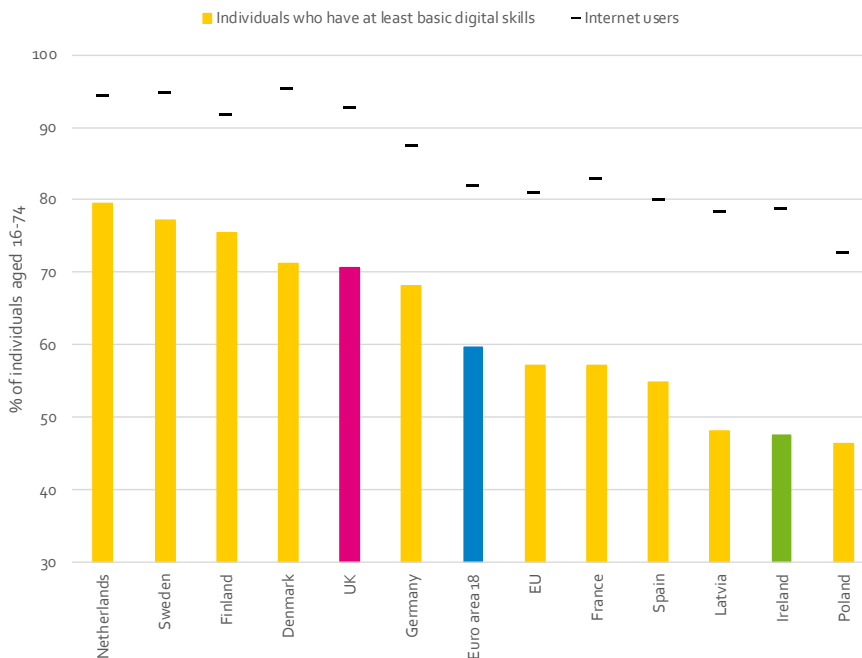


The proportion of international students in the total number of students in tertiary education in Ireland has increased from 6.5% to 8.2% between 2013 and 2016. Ireland's performance is below the Euro area (10.4%) and the UK (18.5%) in attracting international students in tertiary education.

Euro area-18 rank: 8th

Source: Eurostat

Figure 4.4.18 Population having at least basic digital skills (as a percentage of individuals aged 16-74), 2018



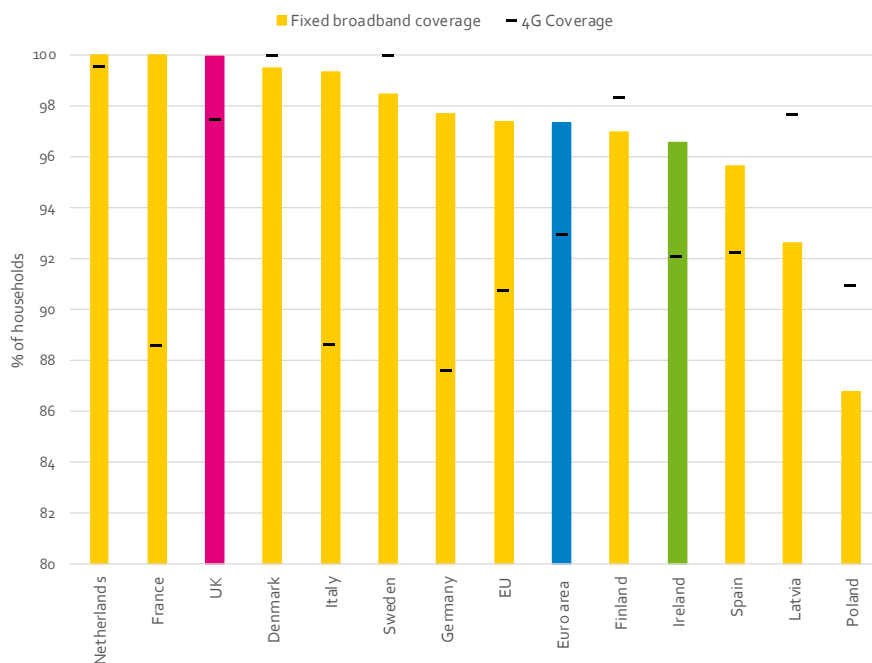
In Ireland only 48% of the population report as having at least basic digital skills, one of the lowest levels in the entire EU and the second last in the Euro area. Ireland also fell significantly behind other EU countries regarding the number of people actively using the internet (Ireland 79 %, Euro area average 82%).

Euro area-18 rank:
Individuals with at least basic digital skills (17th)

Source: Digital Economy and Society Index

⁵³ 2016 data for the UK refers to 2015

Figure 4.4.19 Proportion of households with broadband coverage and 4G coverage, 2018



Ireland has improved its performance in the overall Connectivity dimension, currently ranking 11th among EU countries (compared to 15th in 2015). However, in terms of fixed broadband coverage (96.6% of the households) and 4G coverage (92.1%), Ireland is behind the Euro area (97.3% and 92.9% respectively).

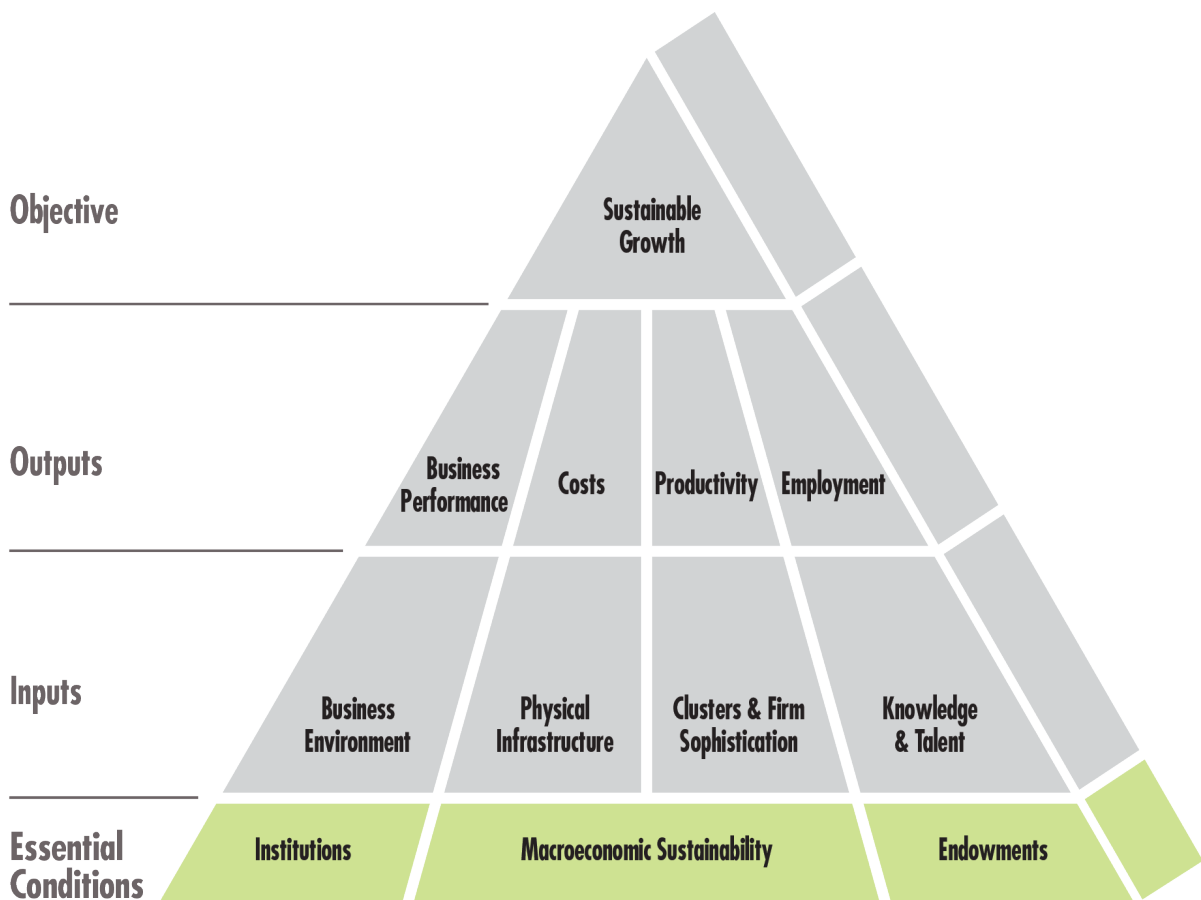
Euro area rank:

Fixed broadband coverage: 14th

Source: Eurostat

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 and the ease of doing business. 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 Ease of Doing Business report assess regulations affecting SMEs throughout their life cycle. Ireland improved its ranking in 2017 and is now ranked 17th in the world and 4th in the Euro area. Ireland ranks highly for ease of paying taxes, starting a business and protecting minority investors. Performance in time/cost of contract enforcement, trading across borders and getting electricity lags. Relative to the UK, the biggest deficiencies are Ireland's scores in enforcing contracts, getting electricity and trading across borders. Ireland's lead in registering a property and starting a business is slim.
 - World Bank research suggests that perceptions regarding the quality of public services and regulatory effectiveness are above the OECD average but behind the UK.
 - 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 is above the OECD average.
 - Ireland's trade in services is relatively open. This is measured by the Services Trade Restrictiveness Index 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, indicating less restrictiveness in service trade.
- **Macroeconomic sustainability: Macroeconomic environment plays a vital role in determining the sustainability of the economic growth. This pillar evaluates the stability of this environment. A range of indicators are monitored under this heading, including the components of growth, government finances (debt, deficit) and overall debt to income ratio.**
 - Following strong economic growth of 5.1 per cent in 2016 and 7.8 per cent in 2017, the European Commission projects economic growth of 5.7 per cent and the Department of Finance 5.6 per cent in 2018. However, the Modified Gross National Income (GNI*), which more accurately reflects the underlying state of the Irish economy as it excludes the impact of multinationals' activities, was more than 30 per cent lower (€189.2 billion) than the Gross Domestic Product (€275.6 billion) in 2016.
 - Both EU and Euro area economies also continued their upward trend from recent years growing by 2.4 per cent in 2017 and predicted to grow by 2.3 per cent in 2018. In terms of Ireland's main trading partners outside of the Euro area, the UK economy grew moderately (0.1 %) year on year in 2017, whereas the US economy expanded by 0.8 per cent.
 - Preliminary national accounts data suggests that export was the key driver of economic growth in Ireland in 2017. While exports of both goods and services performed well, imports contracted

significantly in 2017 (-6.2%), resulting in current account surplus for the year. Exports increased year-on-year from just over 103 per cent of GDP in 2011, to 124 per cent in 2015, before decreasing to 121 per cent in 2016 as shown in Fig 5.2.6. Ireland had the second highest level of exports as a percentage of GDP in the OECD after Luxembourg. Year-on-year, consumption spending was subdued (1.9% growth) and there was a significant drop in investment (-22%); the latter largely due to low level of investment in intangible assets as well as the significant decline in aircraft purchase.

- Strong public finances are imperative to a country's competitiveness. As shown in Figure 5.2.3, in recent years, debt as a percentage of GDP has continued to decline reflecting the country's continued robust economic performance. It stood at 68 per cent in 2017 and is expected to decline to 66 per cent this year. The debt-to-GNI*⁵⁴ ratio, a better measure of sustainability in Ireland, remains very high (100.1 per cent) but is predicted to fall in the period 2018-2021. Measured per capita, Ireland's debt is the highest in the EU at over €42,000 per person. In 2007, as we entered into the economic crisis, it was less than €11,000. Additionally, earlier estimates of achieving structural deficit of 0.5 per cent, as outlined in the government's (MTO)⁵⁵, by 2018 have been revised and the Department of Finance now predicts it to be achieved around 2021. The government deficit stood at 0.3 per cent of the GDP in 2017, in line with the threshold (3 percent of GDP) set out in the Stability and Growth Pact. It is predicted to fall to 0.2 per cent this year and to 0.1 per cent in 2019. The euro area deficit stood at 0.9 per cent with nine countries recording surpluses.
 - Irish sovereign bonds are continuing to trade in line with core European sovereign yields reflecting the strong market confidence in the Irish economy. The yield on a 10-year Irish government bond was trading at just over 0.5 per cent in 2017, well below Greece, Spain and Portugal.
 - Irish government revenue represented 25.7 per cent of GDP in 2017, a fall of almost 2 per cent on 2016 (27.5%). Similarly, expenditure as percentage of GDP also fell from 28 per cent in 2016 to 26.1 per cent in 2017. Fig 5.2.7 shows that, "Social Protection" continues to account for the major share of government spending across the EU, followed by "Health", "General Public Services", and "Education".
 - In terms of Irish households, Figure 5.2.13 shows Irish households debt as a proportion of income fell by more than 60 per cent during the period 2011-2016. However, Irish households are still the fourth most indebted households in the EU.
- **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.**
 - In 2017, Ireland continued to have the youngest population in the Euro area. The CSO forecasts that the young population in Ireland will increase until 2021 before falling slightly in 2026. However, OECD population projections indicate the rising age profile of the population across the OECD countries. Ireland's population increased by 4.2 per cent in the period 2012-2017 and recorded the fourth highest percentage increase in population in the EU. In the period 2011-2016, Ireland's birth rate declined by around 3 per cent, however, Figure 5.3.2 shows the Irish rate is still considerably high compare to the birth rate in other EU countries.

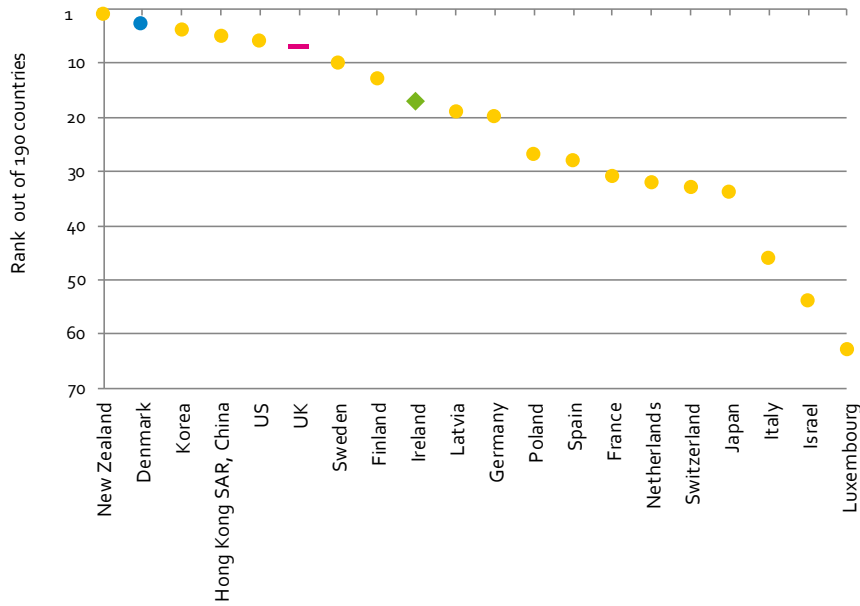
⁵⁴GNI* - Modified Gross National Income

⁵⁵ MTO- Medium Term (Budgetary) objective

- The Irish median age increased from 35.5 to 36.9 during the period 2013-2017 but remained well below the EU median age of 42.8. The combination of positive net migration and natural increase in the population resulted in an overall increase in the population of 52,900 bringing the total population estimate to 4.79 million in April 2017.
- In Ireland the dependency ratio rose from 19.2 to 21.2 during the period 2000-2015 and is expected to rise further to 27.3 by 2025. Ireland has the 7th lowest old age dependency ratio in OECD and 2nd lowest in Europe. As the dependency ratio increases, important debates on the range of policies like retirement age, immigration, size of pension, healthcare expenditure and labour force growth become more urgent. In line with the population growth during the period 2012-2017, Ireland's labour force also grew by almost 5 percent during the same period.
- Emigration of skilled and qualified people is detrimental to any country's social and economic development. CSO figures shows that more people left Ireland than came into the country during the period 2010-2014. A reversal of that trend is observed with net migration figures being positive for three consecutive years since then.
- Ireland is one of the most sparsely populated countries in the world, especially in an EU context. In the period 2006-2016, population density in Ireland has gone up from 62.5 persons per km², to 69.3 persons per km². The census figures also reveal the significant increase in population density in the urban areas, with a density average of 2,008 people per km² in urban areas in 2016, compared to 1,736 in 2011. In rural areas in 2016 the average density was 27 people per km².

5.1 Institutions

Figure 5.1.1 Ease of Doing Business Ranking, 2017/2018



The World Bank’s Ease of Doing Business report assesses regulations affecting SMEs throughout their life cycle. Ireland improved its ranking in 2017 and is now ranked 17th in the world. New Zealand is 1st, with Denmark the highest in the EU at 3rd and the UK 7th of 190 economies. Ireland is ranked 4th in the Euro area.

OECD rank: 10th

Source: World Bank

Figure 5.1.2 Ease of Doing Business Ranking by Theme, Ireland, Denmark, New Zealand, UK, 2017/2018

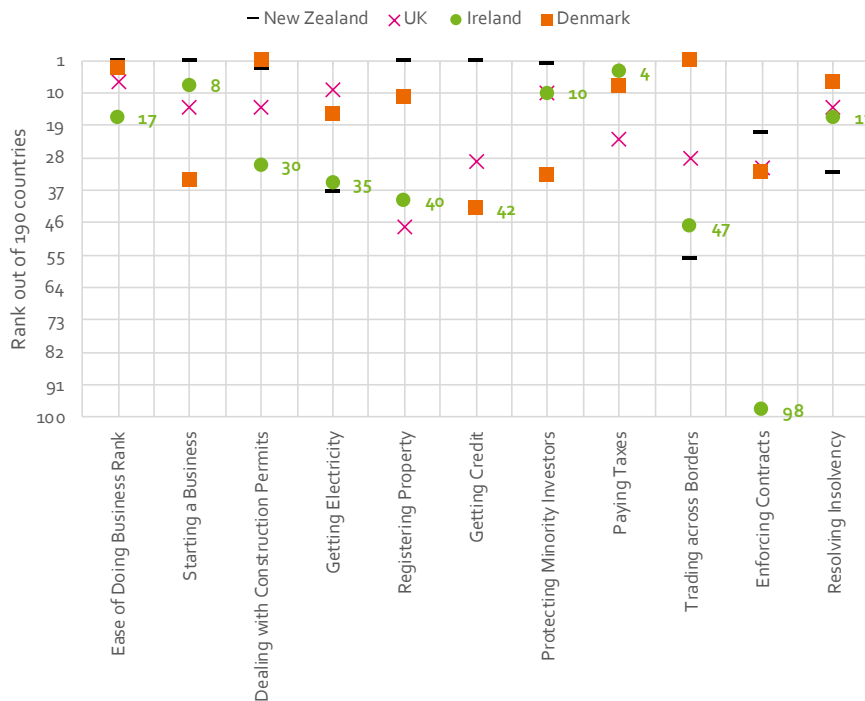
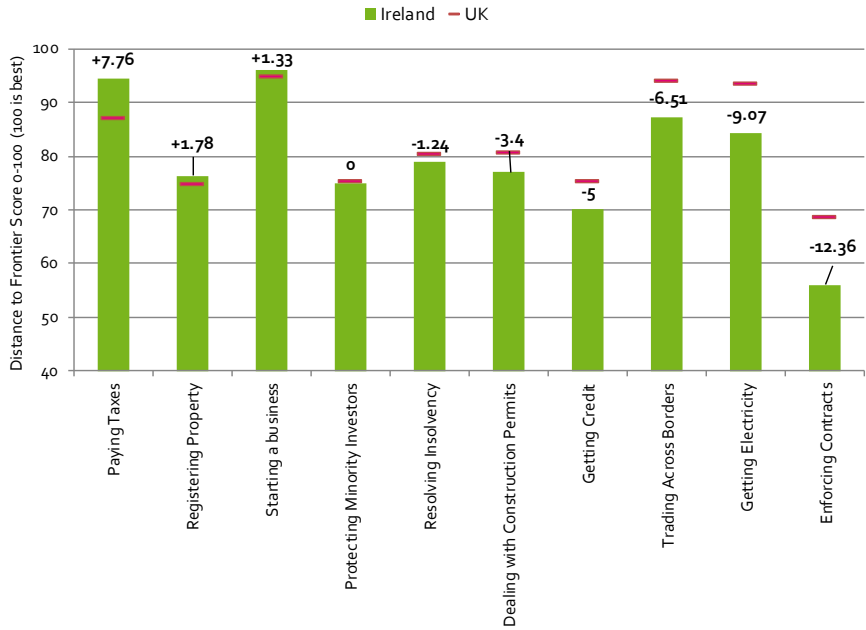


Figure 5.1.2 shows Ireland's performance across the themes examined by the World Bank. It shows variation in performance across themes even in the best performing economies. Ireland ranks highly for ease of paying taxes, starting a business and protecting minority investors. Performance in time/cost of contract enforcement, trading across borders and getting electricity lags.

OECD rank: n/a

Source: World Bank

Figure 5.1.3 Ease of Doing Business, Distance to the Frontier, Ireland and the UK, 2017/2018



An economy's rank is based on its distance to frontier (best) score, which measures how far an economy is from the best performance. Figure 5.1.3 shows relative to the UK, the biggest deficiencies are Ireland's scores in enforcing contracts, getting electricity and trading across borders. Ireland's lead in registering a property and starting a business is slim.

OECD rank: n/a

Source: World Bank

Figure 5.1.4 Perception of Government effectiveness⁵⁶, 2016

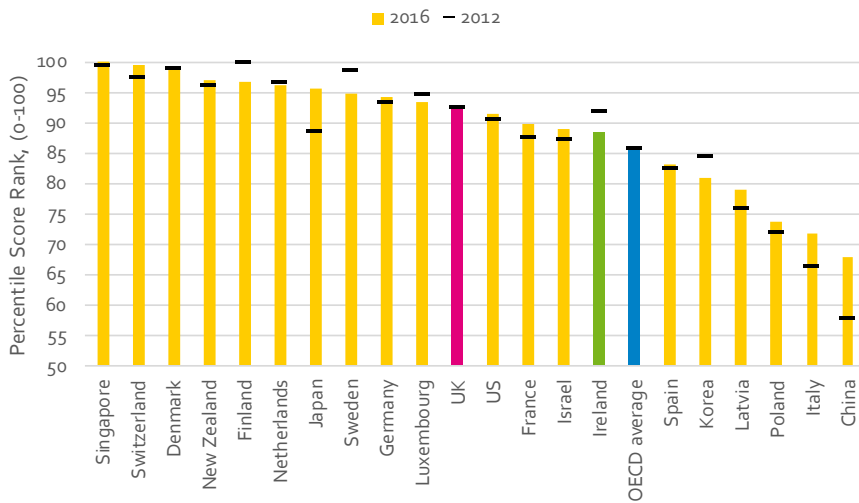


Figure 5.1.4 ranks scores in perceptions of the quality of public services, the quality and independence of the civil service, the quality of policy formulation and implementation. Ireland is 19th in the OECD and scores 88/100, above the OECD average (85), but behind the UK (92).

OECD rank: 19th

Source: World Bank

⁵⁶ The Worldwide Governance Indicators (WGI) are a research dataset summarizing the views on the quality of governance provided by many enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from several survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms.

Figure 5.1.5 Perception of Regulatory Effectiveness, 2016

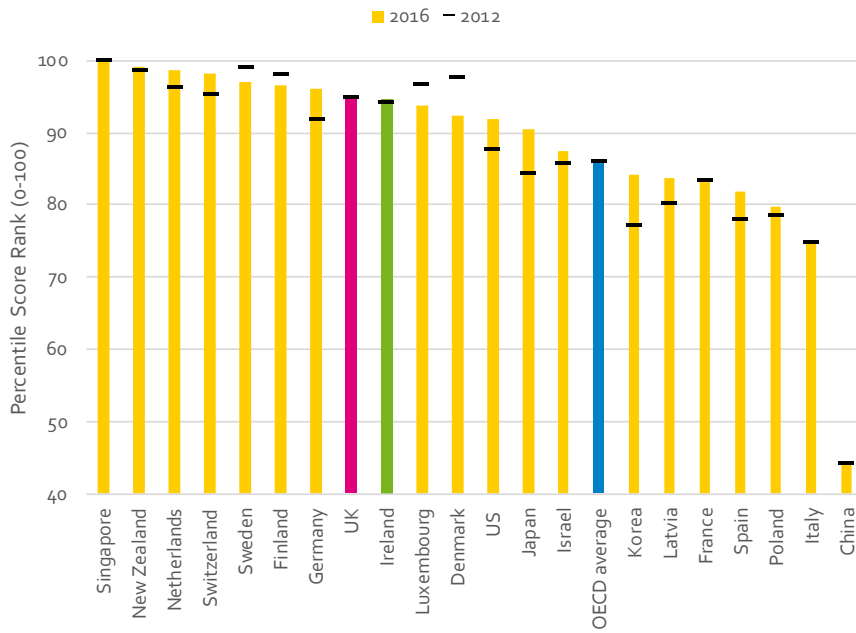
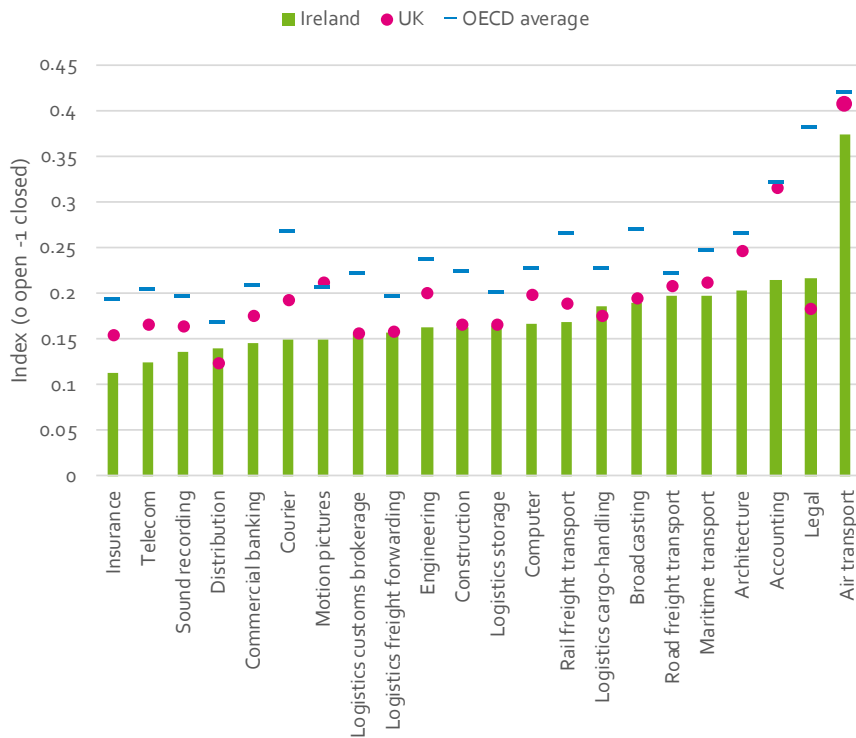


Figure 5.1.5 ranks scores in perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Ireland’s score (94.71/100) has improved since 2012 and was 9th highest in the OECD in 2016. The UK was 7th with a score of 95.19.

OECD rank: 9th

Source: World Bank

Figure 5.1.6 Services Trade Restrictiveness Index (STRI), 2017



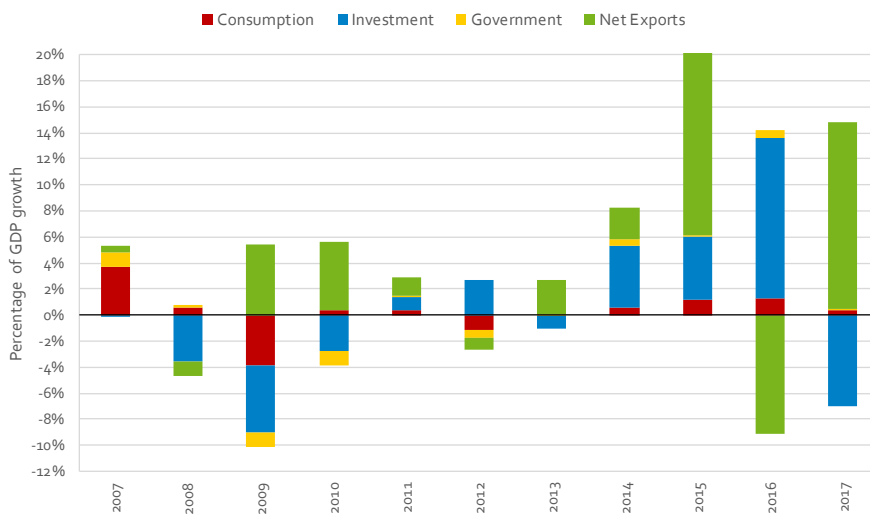
The STR Index quantifies restrictions on foreign entry, restrictions to movement of people, barriers to competition and regulatory transparency. Figure 5.1.6 shows Ireland’s score on the STRI in 22 sectors relative to the UK and OECD average. Ireland has a lower score than the average in all 22 sectors.

OECD rank: n/a

Source: OECD

5.2 Macroeconomic Sustainability

Figure 5.2.1 Components of Irish economic growth, 2007-2017

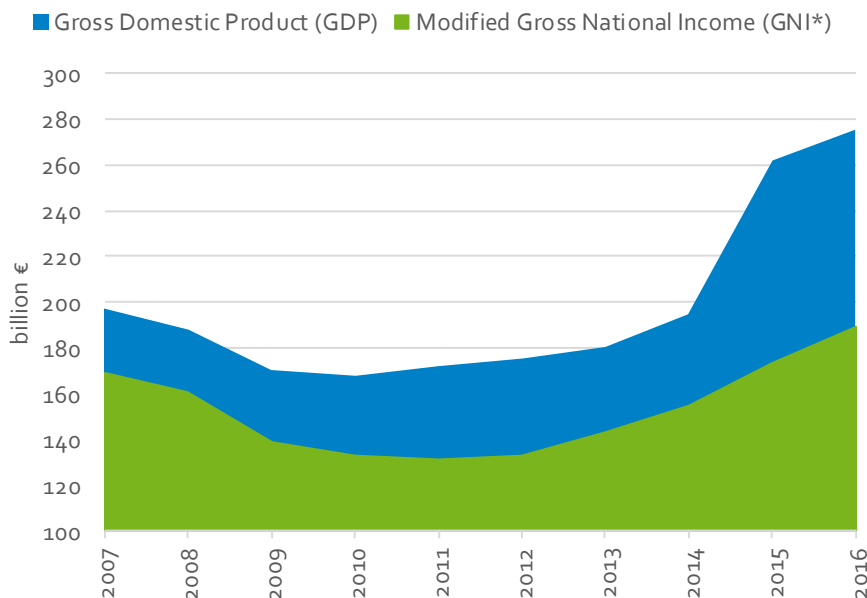


Net exports continue to be the main contributor to Irish economic growth since the recession, except in 2016 when it dropped significantly. Contribution of consumption and government spending has recovered since the recession, but remain modest. Investment remained positive until the dramatic drop in 2017.

Rank: n/a

Source: CSO

Figure 5.2.2 Gross Domestic Product and Gross National Income GNI*, Ireland 2007-2016

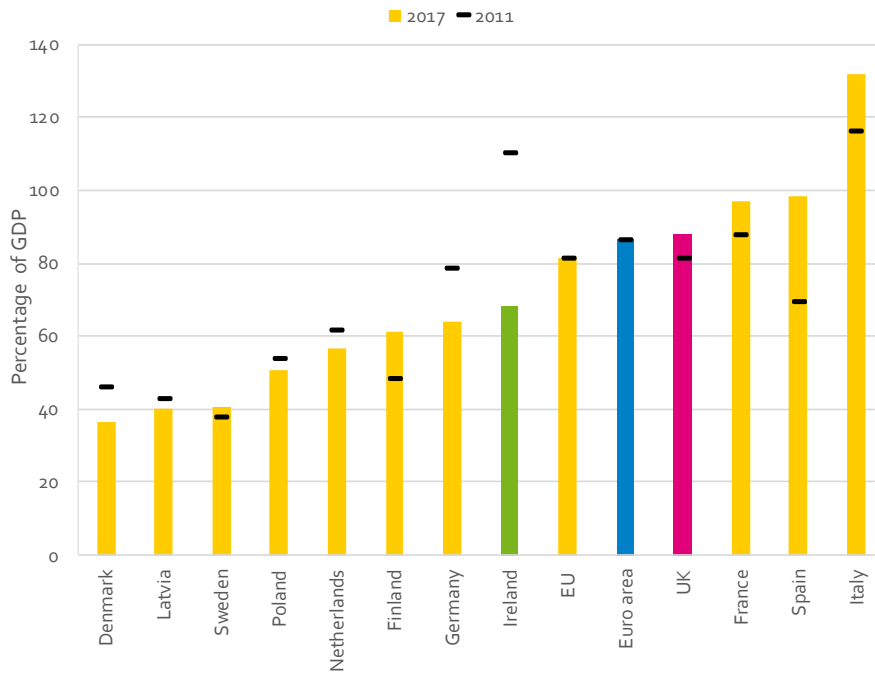


GDP at current market prices decreased from €197 billion in 2007 to €167.6 in 2011. It has increased every year since and stood at €275.6 billion in 2016. Modified GNI (GNI*) at current prices fell from €168.6 billion in 2007 to €131.3 billion in 2011, before increasing over the next 5 years to stand at €189.2 billion in 2016. GNI* as a percentage of GDP decreased from 85% in 2007 to 68% in 2016.

Rank: n/a

Source: Department of Finance

Figure 5.2.3 General government gross debt, 2017

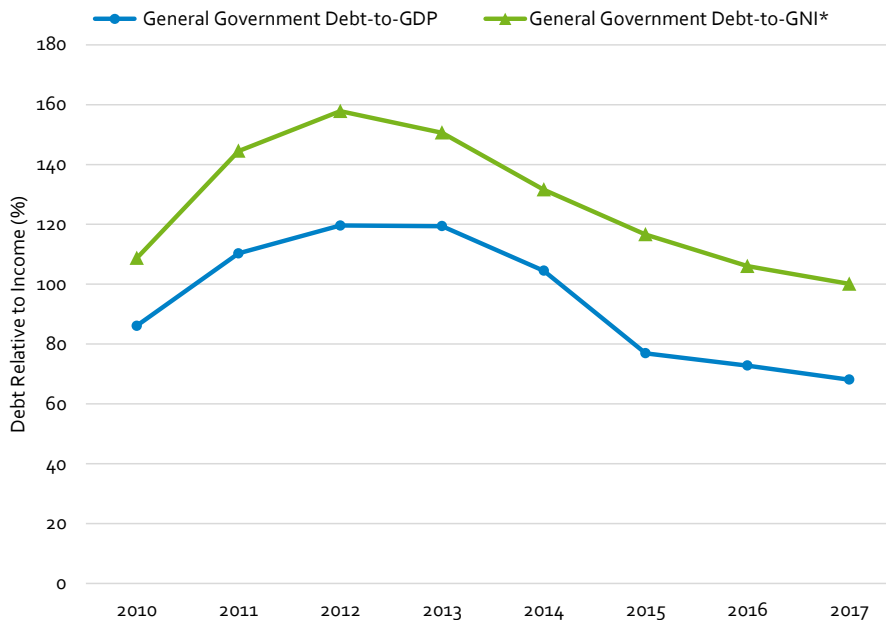


Driven by cost of capitalisation of financial institutions as well as the Exchequer running large deficits, Ireland’s debt increased significantly in the early part of this decade peaking at 119.5% in the period 2012-2013. However, the figure has come down significantly and stood at 68% in 2017. It is below the UK 87.7% and the Euro area 86.7%.

Euro area rank: 10th

Source: Eurostat

Figure 5.2.4 Government Debt to National Income Ratio, Ireland 2010-2017

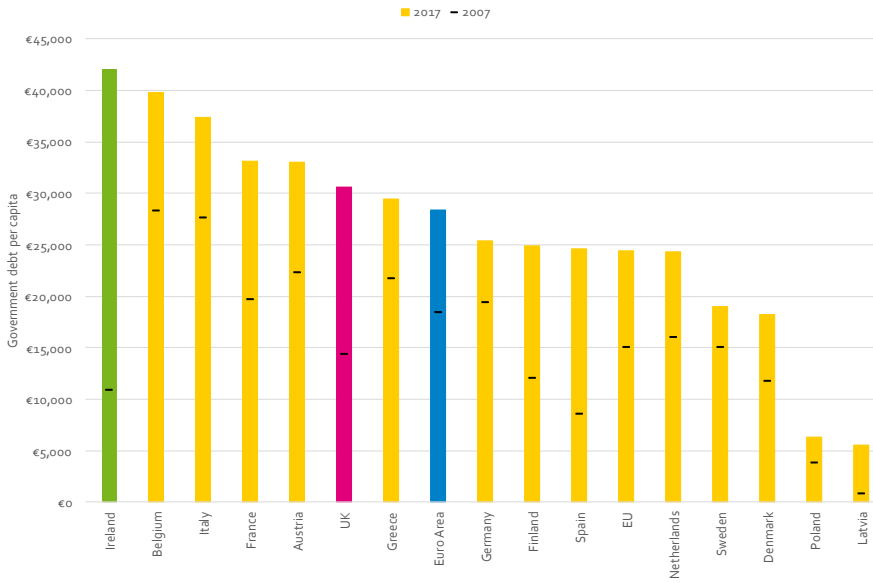


General government consolidated gross debt as a percentage of GDP in Ireland peaked at 24% in 2012. The debt to modified GNI (GNI*) ratio in Ireland followed a similar pattern and rose steeply from 28% in 2007 to 157.8% in 2012, before falling to 106% in 2016. The sharp fall in the debt to GDP ratio in 2015 is due to the unprecedented increase in GDP.

Rank: n/a

Source: Department of Finance

Figure 5.2.5 Government Consolidated Gross Debt per capita, 2007-2017

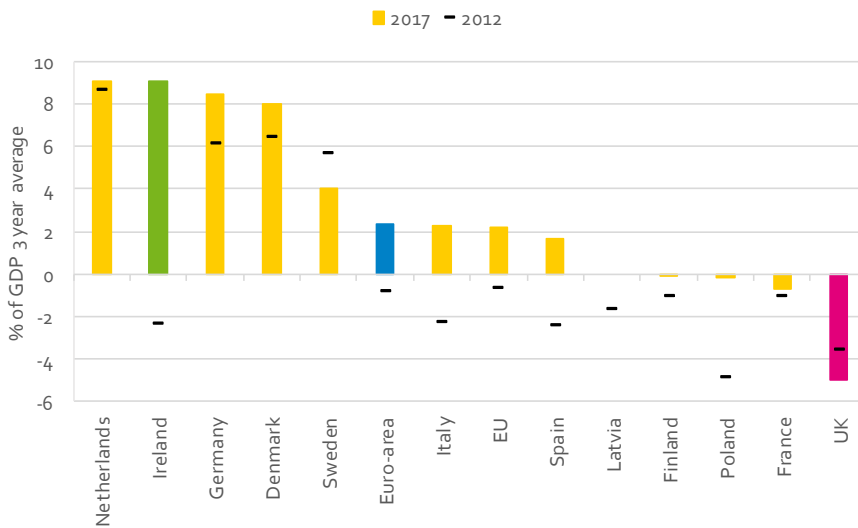


In 2007, as we entered into the economic crisis, the Government consolidated gross debt per capita was €10,863. At €42,073, in 2017 Ireland's gross debt per capita was the highest in the EU.

EU rank: 1st

Source: NCC calculations based on Eurostat data

Figure 5.2.6 Balance of Payments Current Account as percentage of GDP 3-year average

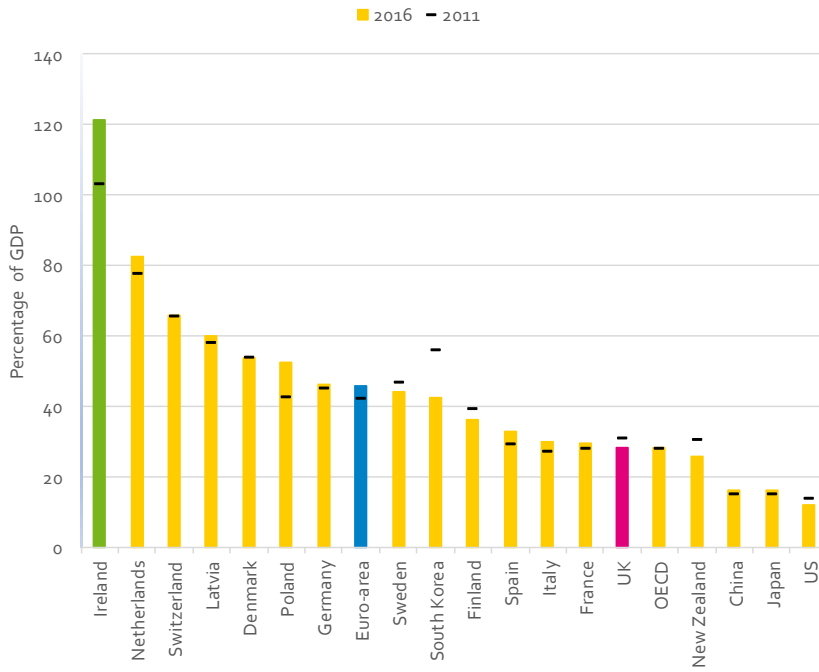


The Balance of payment current account provides information about the transactions of a country with the rest of the world. Ireland's current account has moved from deficit in 2012 to surplus in 2017. The figure is significantly above EU average and has jumped from 13th in 2012 to 1st in 2017 in the ranking.

Euro area rank: 1st

Source: Eurostat

Figure 5.2.7 Exports of goods and services as a percentage of GDP, 2017⁵⁷

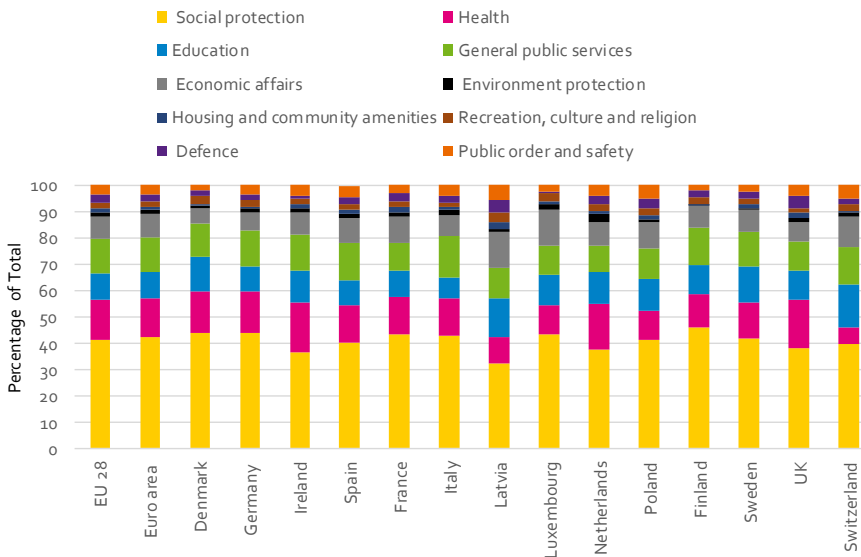


The Irish economy is very open with elevated levels of trade in both goods and services. Exports as a percentage of GDP has increased from just over 103% in 2011, to 124% in 2015, before sliding down to 121% in 2016. Ireland has the second highest level of exports as a percentage of GDP in the OECD after Luxembourg.

OECD rank: 2nd

Source: OECD

Figure 5.2.8 Total general government expenditure by area, 2016



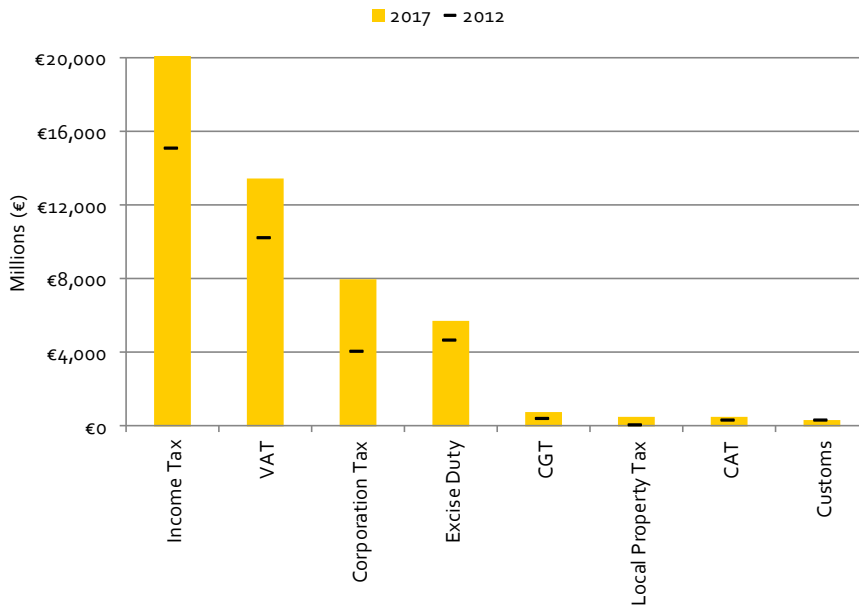
In 2016, the share of social protection expenditure in total expenditure was 36.4% in Ireland compared to 42.1% in the Euro area. "Health" accounted for 19.2% of total expenditure in Ireland, the highest share in the EU. Education accounted for 12.1%, compared to 9.7% in the Euro area.

Rank: n/a

Source: Eurostat

⁵⁷ Data for 2016 & 2017 for France and Spain are estimates

Figure 5.2.9 Tax revenue in Ireland by category, 2017

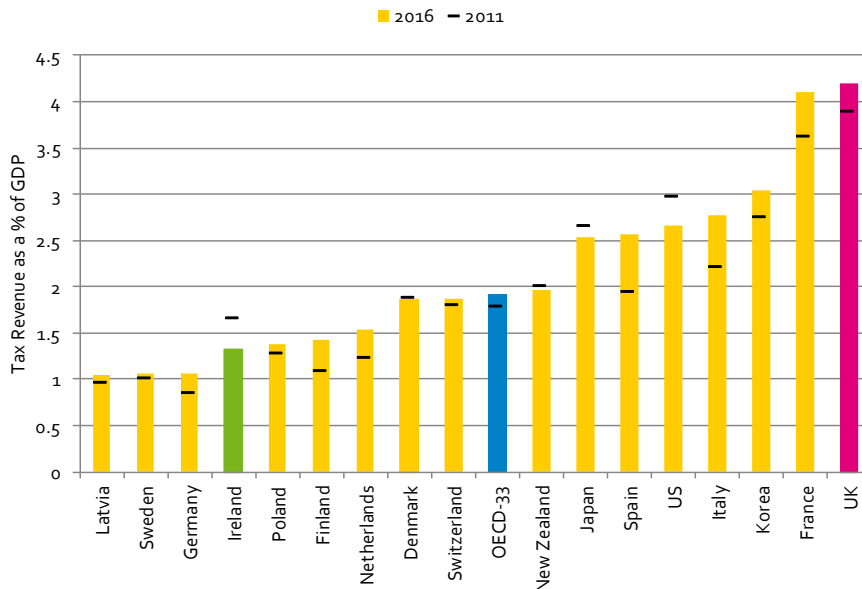


Overall, Irish tax revenues have increased by €14.5bn (36.7%) in the period 2012-2017. At €20.5bn in 2017, Income tax remains the Government's largest tax stream (40% of total tax revenue). Corporation tax revenue has increased by 99% in the period 2012-2017 and represents 15.7% of total tax revenue.

Rank: n/a

Source: Department of Finance

Figure 5.2.10 Income from property taxes⁵⁸, 2016



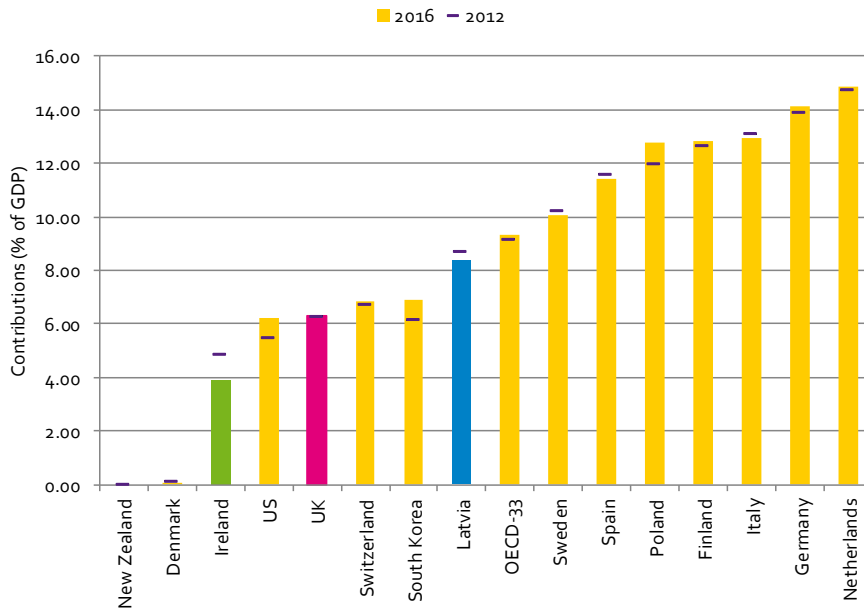
At 1.3% of GDP, revenue from immovable property in Ireland in 2016 was below the Euro area-16 average of 1.8% and the OECD-33 average of 1.9%. The UK is the best performer in the OECD with revenue generated from immovable property accounting for 4.1% of GDP.

OECD-33 rank: 14th

Source: OECD

⁵⁸ 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, followed by consumption taxes and other property taxes as well as environmentally-related taxes, personal income taxes and corporate income taxes.

Figure 5.2.11 Social security contributions (% GDP), 2016

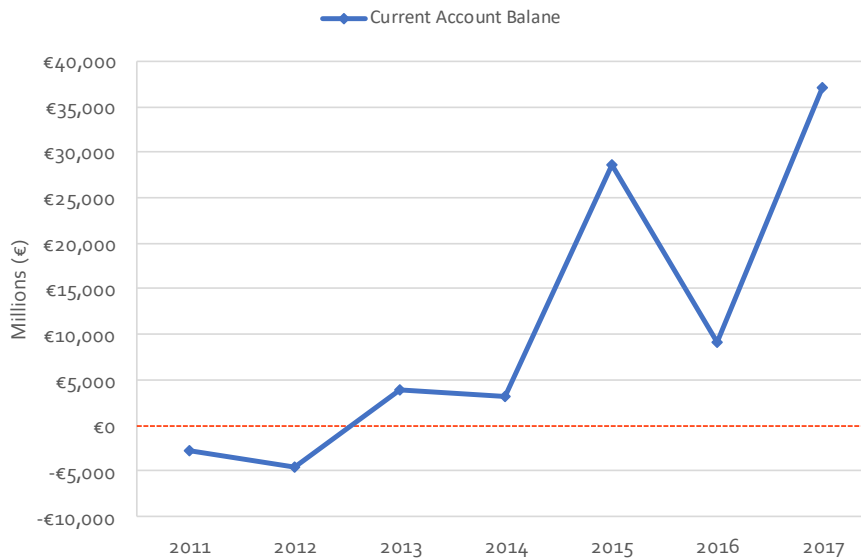


Social security is comprised of employee and employer contributions, self-employed, non-employed contributions and some “unallocable” contributions. Social security contributions in Ireland generate significantly less revenue as % of GDP (3.9%), compared to the OECD-33 (9.3%).

OECD-33 rank: 28th

Source: OECD

Figure 5.2.12 Balance of payments, current account (€ millions), 2017

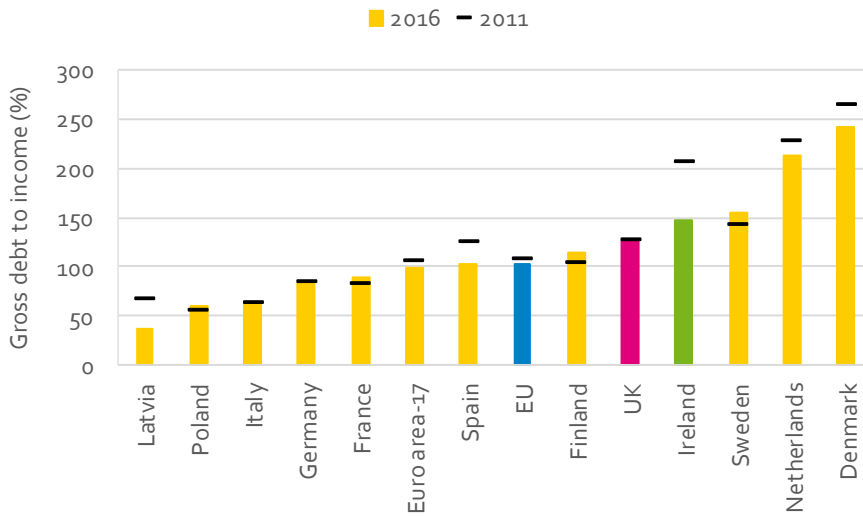


The balance of payments current account is a measure of Ireland's financial flows with the rest of the world. Ireland's current account was in deficit in the 2nd quarter of 2017 of (-€872m). This is largely related to a fall in general trade relative to Q1. For the year 2017, the current account surplus is €37,090m, an increase of €27,897m on 2016.

Rank: n/a

Source: CSO

Figure 5.2.13 Gross debt to income ratio of households, 2016⁵⁹

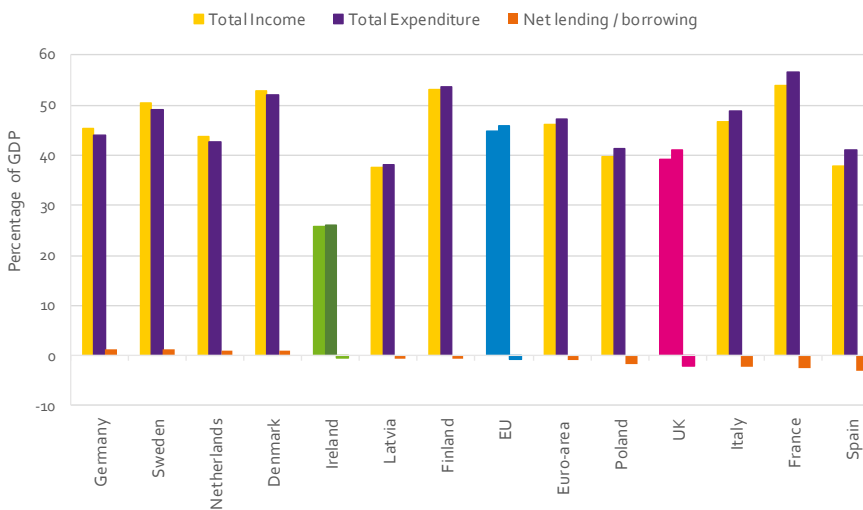


Between 2011 and 2016, Irish households reduced their debt as a proportion of disposable income by more than 60% – the largest reduction in the EU. Aggregate household indebtedness has declined in Ireland in recent years in nominal terms, but remains above Euro area average.

Euro-17 rank: 14th

Source: Eurostat

Figure 5.2.14 General government revenue, expenditure and deficit, 2017



In 2017, Irish Government revenue represents 25.7% of GDP, a decline from 33.9% recorded in 2012. Expenditure also decreased from 41.9% in 2012 to 26.1% of GDP in 2016. Ireland's deficit level is on a steady downward trend in recent years with -0.4% of GDP in 2017.

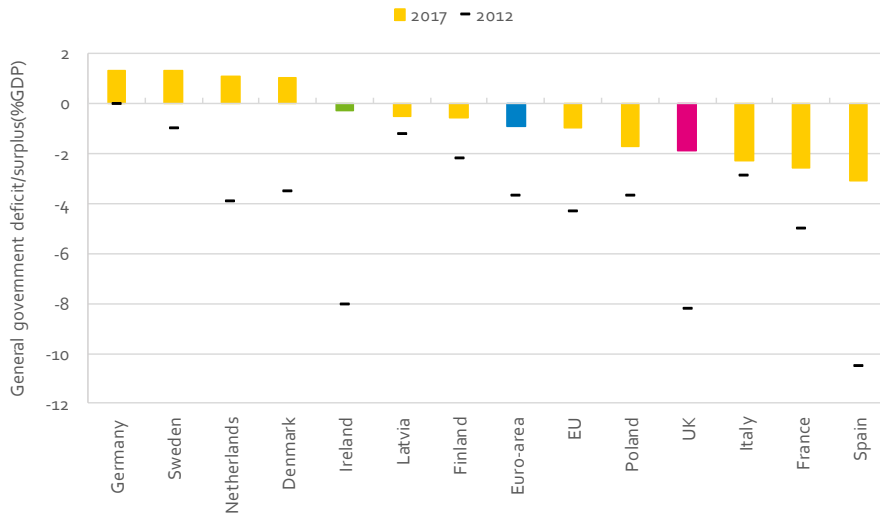
Euro area rank:

Deficit: 9th

Source: Eurostat

⁵⁹ EU- 24 Data for Greece, Croatia, Hungary, Malta & Romania not available Euro area-17- Data for Greece, Malta not available Figures for France, Cyprus, Netherland, Portugal for 2016 are provisional

Figure 5.2.15 General government deficit/surplus (as percentage of GDP),2017

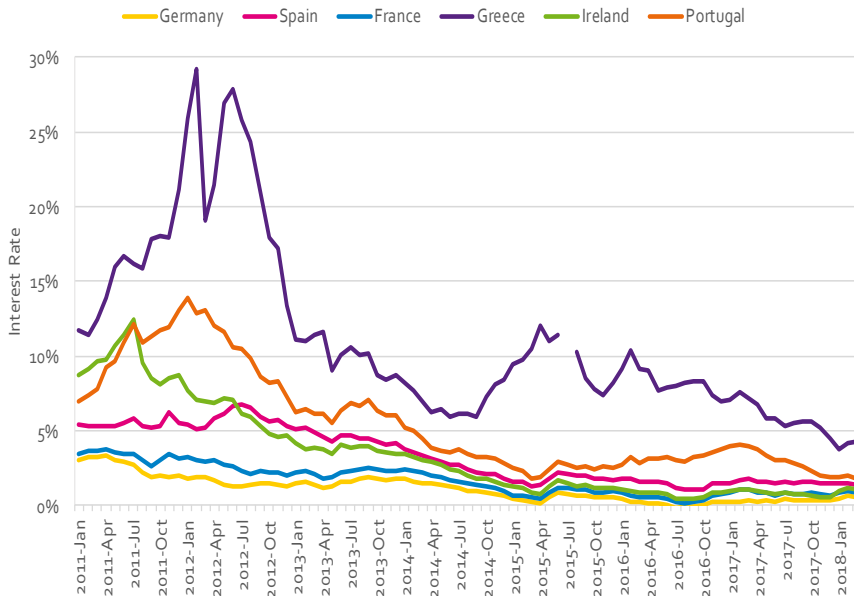


The chart shows that the general government deficit has fallen significantly since 2012 (0.8% of the GDP). The trend has continued with another 2% fall between 2016 (0.5%) to 2017(0.3%). Eight states in the Euro area recorded surpluses while overall Euro area deficit stands at 0.9%.

Euro area rank: 9th

Source: Eurostat

Figure 5.2.16 Ten – year government bonds (Interest Rates),2011-2018⁶⁰



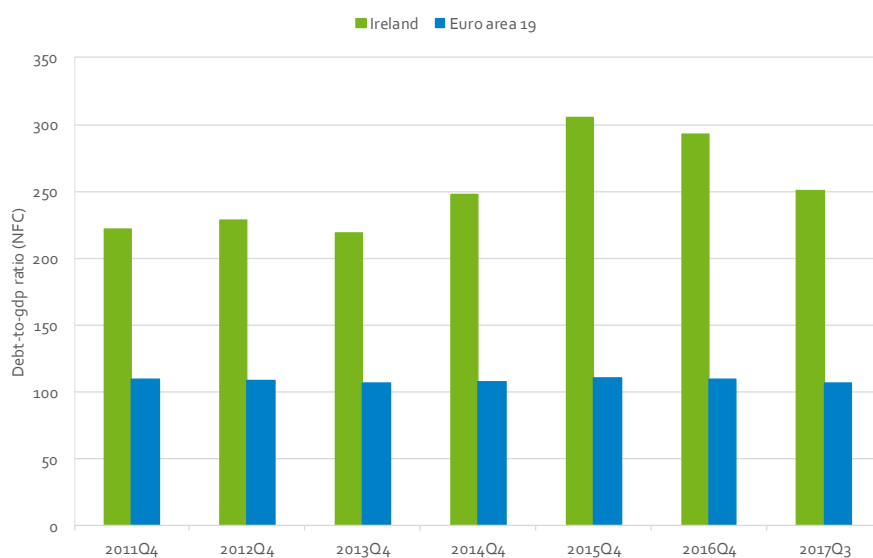
The Irish sovereign bond yield has come down significantly in recent years since the peak of July 2011 (12.45%). 10-year government bonds yields are continuing to trade in line with core European sovereign yields reflecting the strong market confidence in Ireland.

Rank: n/a

Source: ECB

⁶⁰ The gap in the series for Greece on July 2015 is due to the lack of data owing to the market closure.

Figure 5.2.17 Non-Financial Corporation Debt- to- GDP ratio, 2011-2017



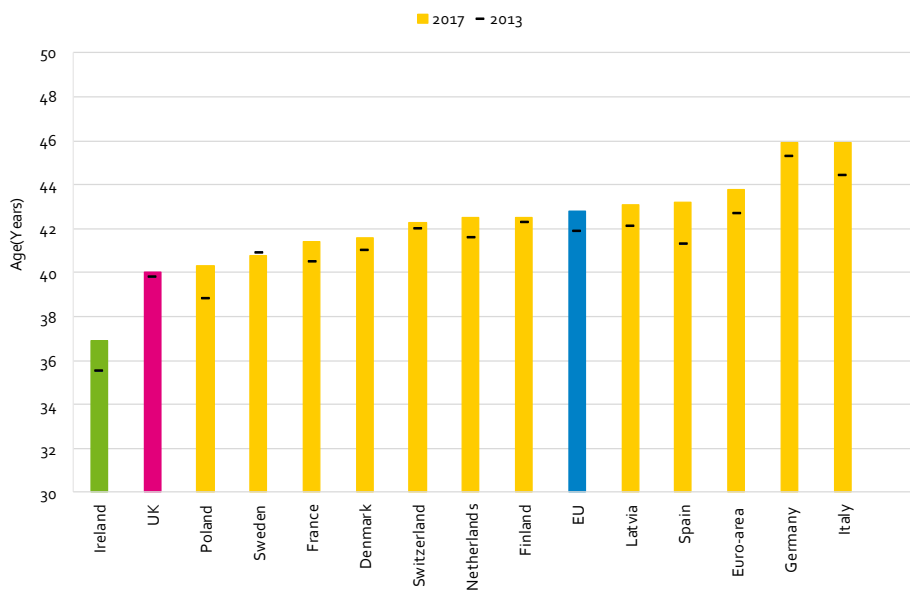
Ireland has one of the highest indebted NFC sectors in Europe in terms of debt -to-GDP ratio but relatively less indebted in terms of the size of balance sheet. This is due to the large and increasing activities of multinationals in Ireland. In 2017, the debt-to-GDP ratio of Ireland's NFCs was 247.76 % and the Euro area average was (106.73%).

rank: n/a

Source: ECB

5.3 Endowments

Figure 5.3.1 Median Population age, 2017

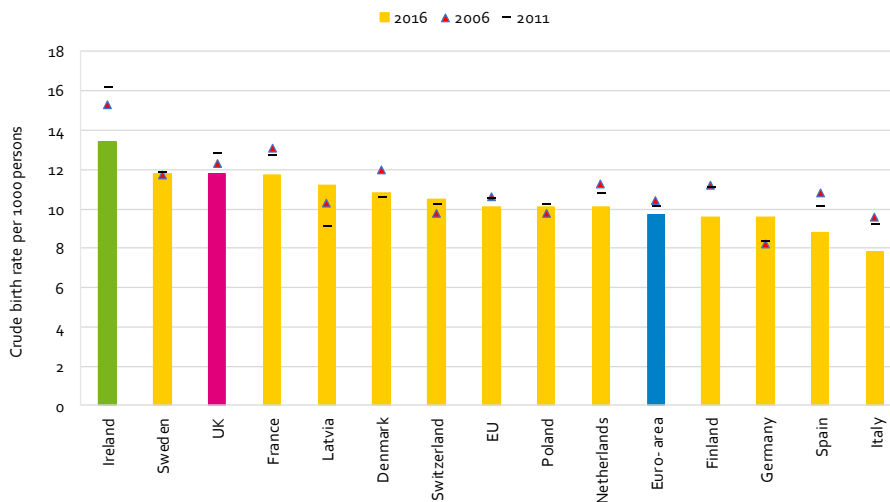


Due to ageing and changes in family formation, the median age of the Irish and EU population has steadily increased in the last decades. In 2017 Ireland continues to have the youngest population in the EU (median age 36.9). The median age of the EU population was 42.8.

Euro area rank: 1st

Source: Eurostat

Figure 5.3.2 Crude Birth Rate, 2016 ⁶¹



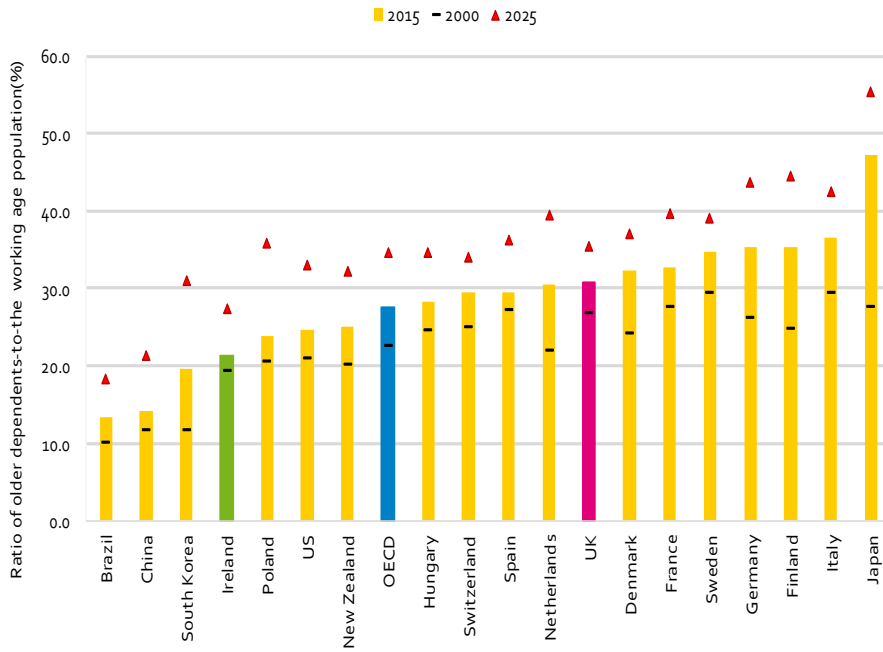
The crude birth rate is the ratio of the number of live births during the year to the average population in that year. Ireland has consistently topped the EU rankings. The birth rate in 2016 is 13.4, considerably higher than the birth rate in EU area-19 (9.7). However, Ireland's birth rate has decreased in the period 2011-2016.

Euro area rank: 1st

Source: Eurostat

⁶¹ Data for EU-28, EU-19, France and Germany are provisional. Data for UK is estimated

Figure 5.3.3 Old age dependency ratio, 2015

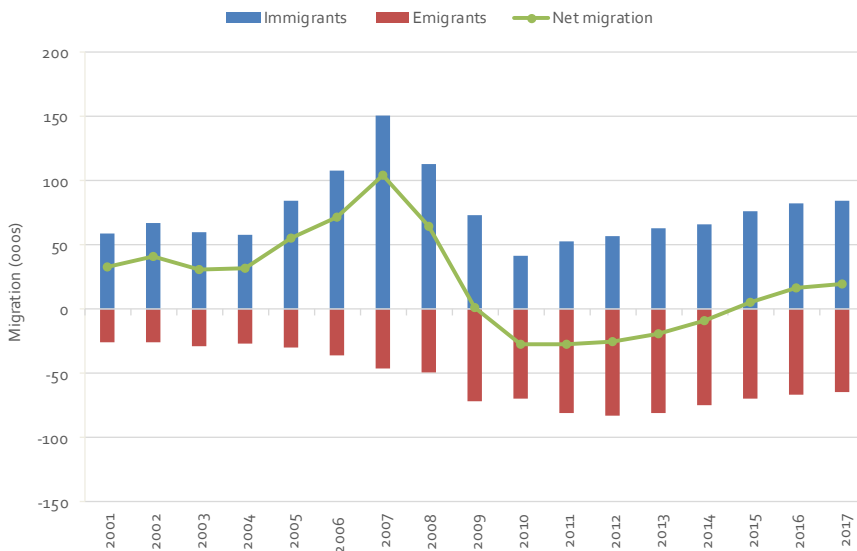


The age dependency ratio shows the ratio of persons older than 64 to the working-age population. At 21.2%, Ireland has the 7th lowest ratio in the OECD, and the 2nd lowest in Europe. Ireland's dependency ratio is increasing steadily but is still expected to be below the OECD average in 2025

OECD rank: 7th

Source: OECD

Figure 5.3.4 Net Migration (000s), 2001-2017⁶²



Total emigration from Ireland continues to decline and the preliminary estimate for 2017 is 64,800. The number of immigrants increased to 84,600 resulting in total net inward migration of 19,800. This is the third year in a row Ireland recorded a positive net migration with significant jump in the last two years.

Rank: n/a

Source: CSO

⁶² Data for 2017 is preliminary

Figure 5.3.5 Net Migration 15 years and over by educational attainment, 2012-2017⁶³

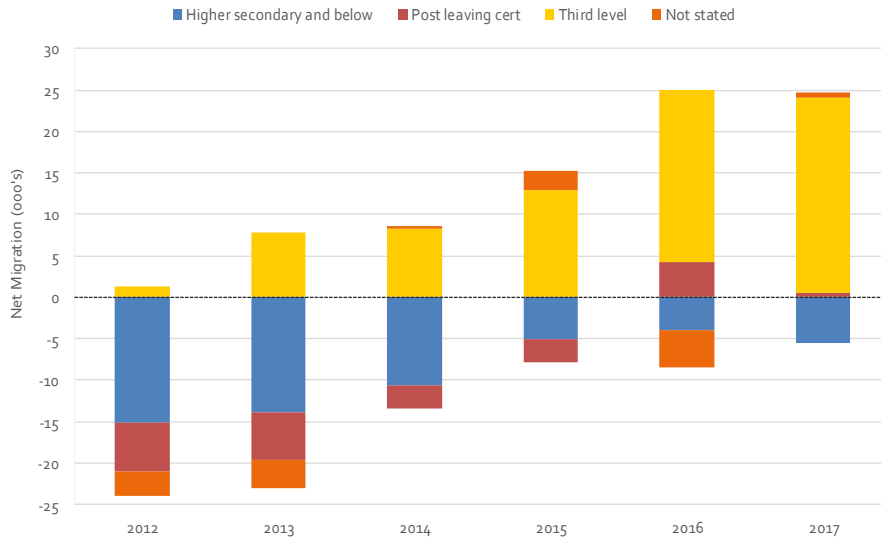
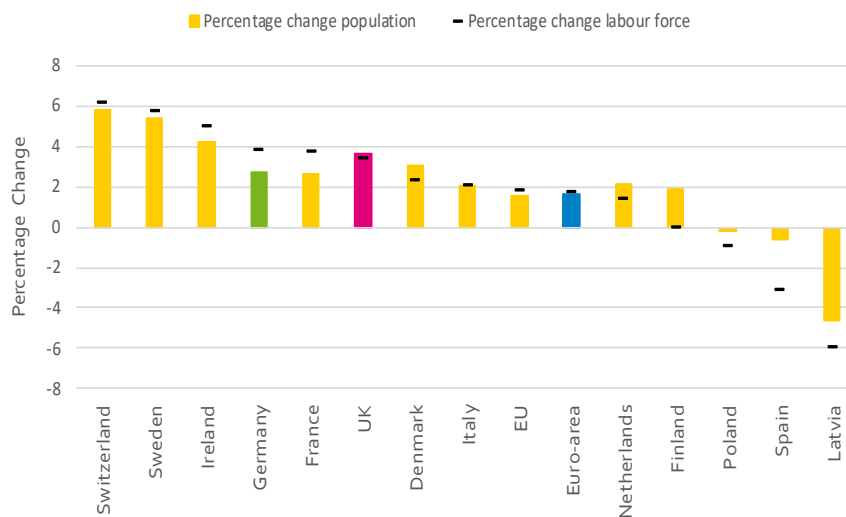


Figure 5.3.5 shows the estimated net migration by educational attainment. There is a significant positive trend with more people with third level qualification coming into Ireland (48,600) than leaving the country (24,900) during the period 2012-2017. The net migration figure for 2017 was 19,200 an increase of over 3000 from 2016.

Rank: n/a

Source: CSO

Figure 5.3.6 Population and labour force growth, 2012 - 2017⁶⁴



In the period 2012-2017, Ireland's population increased at slower rate (4.2%) than preceding 5-year period (5.7%). In 2017 Ireland was fourth in the euro area in terms of increase in population. Ireland's labour force growth has increased from 5.2% in 2007-2012, to 4.9% in 2012-2017.

Euro area rank:

Population: 4th

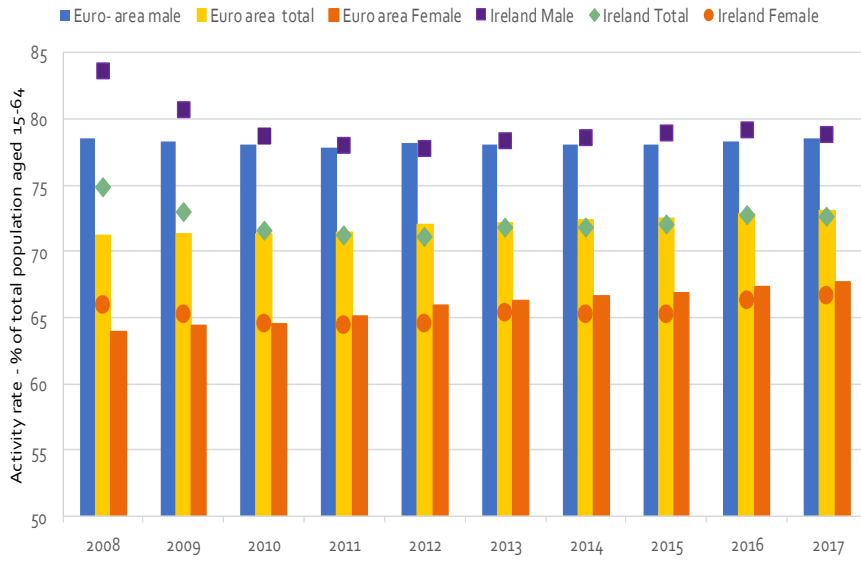
Labour Force: 4th

Source: Eurostat and CSO

⁶³Data for 2017 is preliminary.

⁶⁴Labour force is defined as the population ≥15 years of age

Figure 5.3.7 Labour Force Activity Rate⁶⁵, 2008-2017

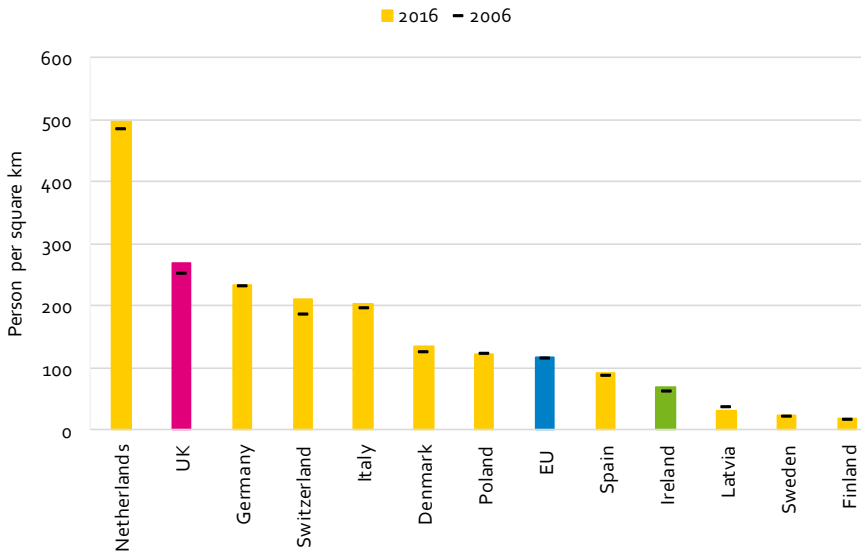


In 2017, the total labour force activity rate was 72.6%, slightly below the Euro area average (73.1%). While the female rate (66.6%) in 2017 is slightly higher than in 2008 (66%), it is still below the Euro area average (67.7%). However, the male rate is still above the Euro area average (78.5%) even though it has come down significantly during the same period (83.6%-78.8%).

Euro area rank: Total 12th, Male 8th, Females 13th

Source: Eurostat

Figure 5.3.8 Population density, 2006 - 2016⁶⁶



In 2016 Ireland's population density was 69.3 persons per km², up from 62.5 persons in 2006. Ireland's population density is relatively low compared to UK (270.5) and the EU (117.5). There is a significant divergence in population density across regions in Ireland.

EU-28 rank: 22nd

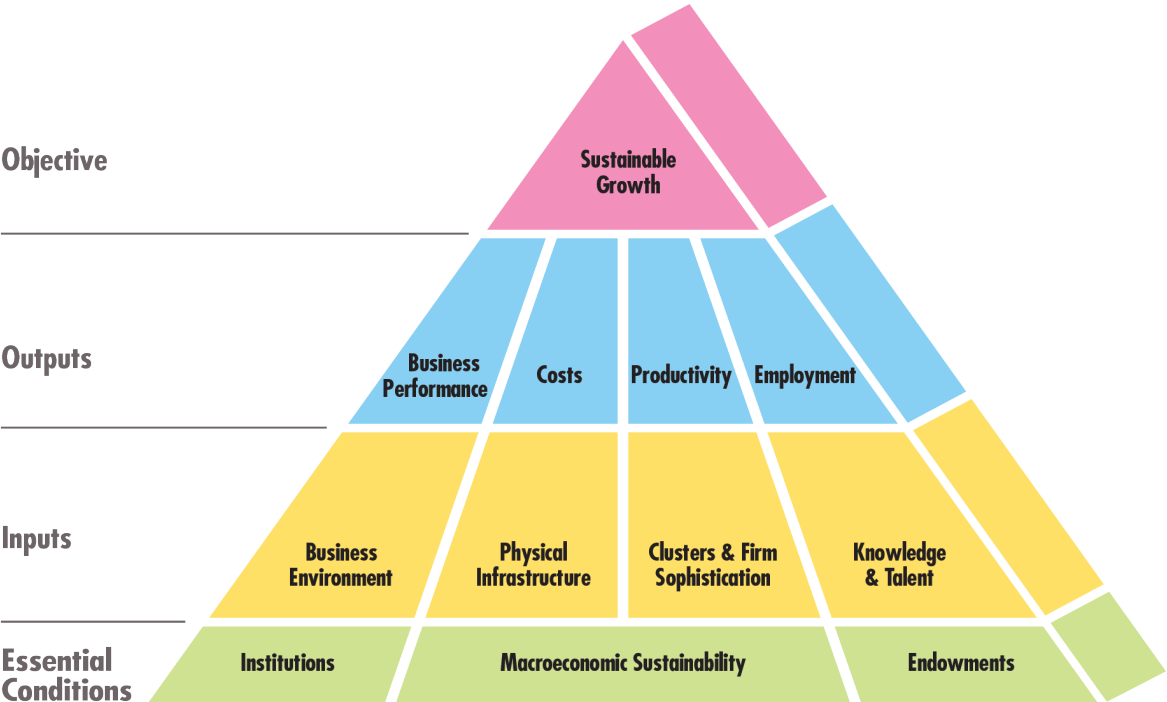
Source: Eurostat

⁶⁵ Data for France for the period 2008-2013 for male and female is not available

⁶⁶ Data for EU 28 is estimated

Annex 1 Methodology

The Council uses a “competitiveness pyramid” to illustrate the several factors (essential conditions, policy inputs and outputs), which combine to determine overall competitiveness and sustainable growth. Under this framework, competitiveness is not an end but as a means of achieving improvements in living standards and quality of life.



- At the top of the pyramid is **sustainable growth** in living standards – the fruits of competitiveness success.
- Below this are the key policy outputs for achieving competitiveness, including **business performance** (such as trade and investment), **costs**, **productivity**, and **employment**. These can be seen as representing the metrics of current competitiveness.
- Below this in the third tier are the policy inputs covering three pillars of future competitiveness, namely the **business environment** (taxation, regulation, and finance), **physical infrastructure**, **clusters and firm sophistication**, and **knowledge and talent**.
- Finally, at the base of the pyramid are the essential conditions for competitiveness, these foundations are based on institutions, macroeconomic sustainability, and endowments.

The 2018 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 data, with the OECD, the EU, the UN, IMF and the WTO as the sources. 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 (Latvia and Poland). Seven non-European countries which are global leaders or are of a comparable size to Ireland are also included where data is available. These countries include 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, EU or the Euro area average⁶⁷. Given the importance of the UK as a trading partner and the potential implications of Brexit on the economy, Ireland's performance relative to the UK is also highlighted.

Measuring and benchmarking competitiveness performance relative to third countries highlights Ireland's strengths in several 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. We have endeavoured to collect data from high-quality, internationally respected sources, and where necessary, caveats on data are set out. Performance is generally considered over a five year or annual basis. In some instances, a longer time frame is used, particularly considering changes in the economic cycle pre- and post-recession. Nonetheless, there are limitations to comparative analysis:

- 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. As much of this data is collected on an annual basis, there may be a time lag in capturing recent changes in cost levels.
- 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);
- 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 cost measures.
- There are no generic strategies to achieve an optimum level of cost competitiveness; as countries face trade-offs and may be at different points in the economic cycle.
- Where possible, Irish cost levels are compared to a relevant peer group average (e.g. the OECD, EU and Euro area average). Given the importance of the UK as a trading partner and the potential implications of Brexit on the economy, the UK's performance is also benchmarked. It is also worth noting that individual cost metrics have strengths and weaknesses (i.e. in terms of definitions used, in how the data is collected etc.). When analysing the individual metrics, it is important, therefore, to consider all the data as the analysis of the individual metrics combine to tell a coherent story about Ireland's current competitiveness performance.

⁶⁷ 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.

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