




The Competitiveness Scorecard for Northern Ireland

A framework for measuring economic, social and environmental progress

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Minister's foreword

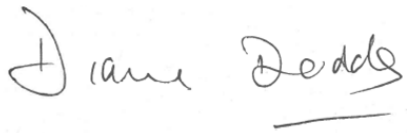
It has been an incredibly challenging year as the COVID -19 pandemic spread across the world. Here in Northern Ireland, we have made extraordinary sacrifices right across society; to slow the transmission of the virus; to avoid the healthcare system being overwhelmed and, to save lives. We have also witnessed the extraordinary speed at which enterprises, individuals and Government have responded, with incredible examples of resilience and new innovations as we changed our ways of working, learning and socialising almost overnight.

Inevitably, the recession that has resulted from the COVID-19 pandemic is the deepest and most rapid in NI's history. We continue to face pre-existing economic challenges, some of which have accelerated and intertwine to present opportunities and ways in which one can help to address another. These include climate change, building future trading relationships, digitisation and an aging population base.

I am pleased to note that the research highlights Northern Ireland's outstanding performance in terms of digital infrastructure - which is a key economic enabler - built over decades with foresight and a longer-term perspective on the needs of society. I am also pleased that Northern Ireland is ahead of all competitor nations in terms of the proportion of electricity generated from renewable sources, a sound basis upon which to progress towards a low carbon economy. It is laudable that my colleagues in the Department for the Economy and its predecessor, the Department for Enterprise, Trade and Investment had the vision to invest in the leading-edge technologies of their time, helping the economy to continue to function throughout the pandemic and perhaps more importantly, proving that we are world class in these areas and can be in others.

As we focus on the future, our ability to recover will be dependent both on keeping people safe and focussing on our key strengths to be able to compete internationally. I welcome the forthcoming vaccination programme that will support our efforts to keep people safe, especially the most vulnerable and allow the economy to function more normally. In the immediate term we will continue our efforts to support the healthcare sector, jobs and the most vulnerable in society. As we look beyond managing the current crisis, our focus must be on building a competitive and sustainable economy that delivers for all, one that makes the most of green and digital opportunities.

I warmly welcome the Competitiveness Scorecard as a framework for measuring economic, social and environmental progress across society, providing an objective and data-driven assessment of the areas in which we thrive and others on which we must focus more attention. I would like to thank the UUEPC for their research which will help in shaping our policy choices and will look forward to engaging with all key stakeholders as we continue to build the recovery together.



Diane Dodds, MLA
Minister for the Economy

Acknowledgements

We would like to thank Professor Frances Ruane, Chair of the National Competitiveness Council, and the National Competitiveness Council for their support in developing and delivering both the 2016 and 2020 Competitiveness Scorecards for NI.

We would also like to thank Invest NI, the Department for the Economy and the Economic Advisory Group for their support as research sponsors and for steering group support.

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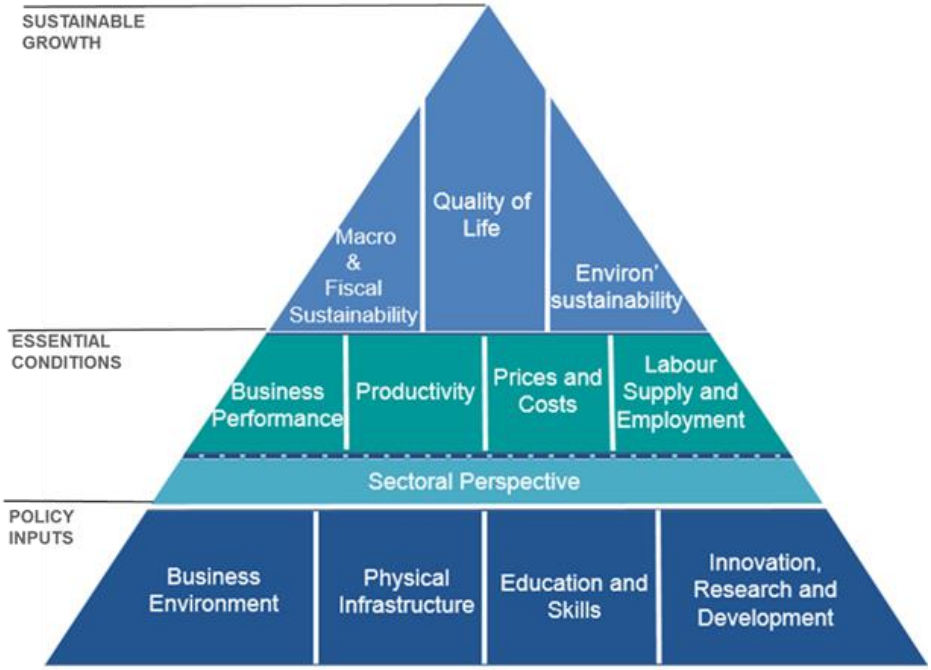
1 Executive summary

1.1. The Competitiveness Scorecard details NI's performance relative to competitor nations over two decades, utilising a methodology similar to Ireland's National Competitiveness Council (NCC). The structure of the Competitiveness Scorecard is illustrated below and comprises of three tiers incorporating more than 100,000 data points over two decades and almost 150 indicators on a range of economic, social and environmental indicators that influence standards of living, wellbeing and inclusion across NI.

Figure 1.1: UUEPC Competitiveness Scorecard



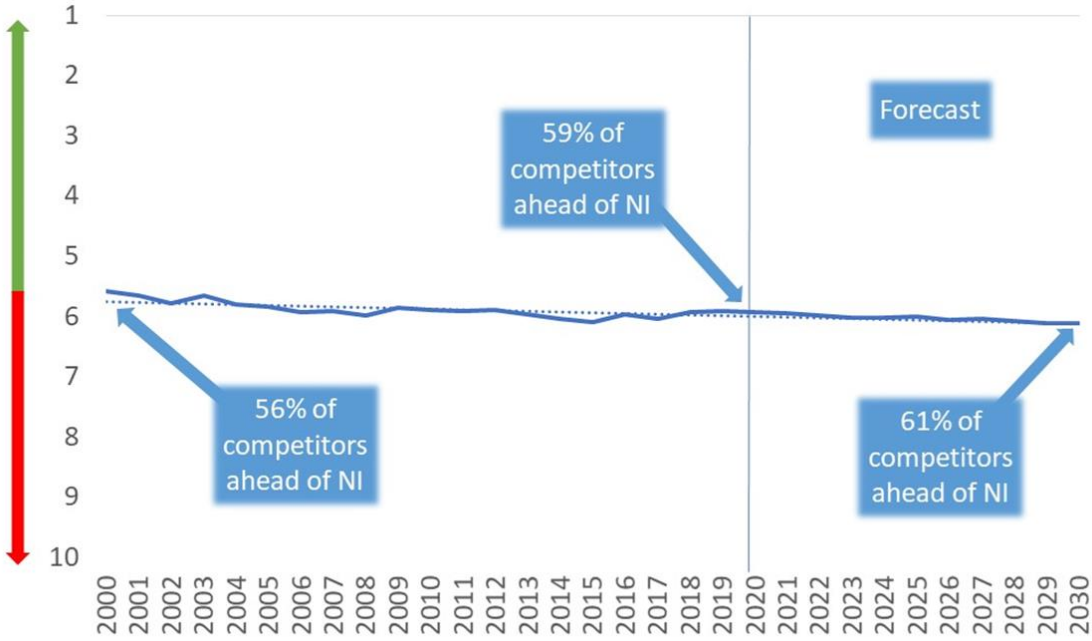
Source: UUEPC

1.2. The context within which this research has been conducted is unparalleled as the COVID-19 pandemic brought serious disruption across society and the deepest and most rapid recession in NI's history. The Competitiveness Scorecard provides a framework through which to consider areas that COVID-19 and Brexit might have had most impact, including areas of pre-existing strength or vulnerability. It also helps to provide a longer term view of how and where policy might be targeted to best support enterprises and individuals through the pandemic and recovery stages.

1.3. The immediate policy focus is necessarily on saving lives, avoiding the healthcare system becoming overwhelmed and maintaining as much economic activity as possible. However, it will also be necessary to pursue a flexible and data-driven policy framework that can adapt to the evolving global and local conditions and the needs of society in order to make the most of any opportunities and support a balanced and inclusive economic recovery.

1.4. Unfortunately, NI's relative competitiveness has eroded over time as other countries have improved more quickly and outpaced NI. There are a number of bright spots – most notably the proportion of electricity generated from renewable sources, which is ahead of all competitor nations. NI's strong performance, more generally, on wellbeing, technological infrastructure and environmental sustainability indicators is also positive. However, there are also a range of challenges including outcomes from the education and skills system, persistently low productivity and innovation levels and childcare costs – all of which inhibit NI's international competitiveness.

Figure 1.3: NI's relative competitiveness, 2000-2030



Source: UUEPC

1.5. In order to support policy makers as they look to the future, this research suggests five areas for immediate focus. They will help support society through the pandemic and Brexit disruptions and put the NI economy on a footing from which to take forward a sustainable, inclusive and balanced economic recovery. They are;

- Support work;
- Seize digital and green opportunities;
- Skill up for the Future of Work;
- Raise productivity to boost incomes and standards of living; and
- Focus internationally.

1.6. Following on from the Competitiveness Scorecard, an ***NI Competitiveness Challenges*** report will be published during 2021, which will detail a range of potential policy suggestions based on these five areas of greatest need in order to boost future competitiveness and sustainability.

2 Introduction

2.1 Background

2.1.1 The Competitiveness Scorecard benchmarks NI's competitiveness relative to a range of European and OECD countries across almost 150 indicators and over 100,000 data points. The methodology employed is similar to Ireland's National Competitiveness Council's Competitiveness Scorecard, with some revisions to take account of NI specific factors. This includes an NI perspective, a sectoral consideration and a more in-depth assessment of quality of life indicators in line with global competitiveness research.

2.1.2 In their response to the 2016 Scorecard, the members of the NI Economic Advisory Group (EAG) expressed the view that the issue of competitiveness should be the central focus of the EAG's research agenda going forward. They asked for further analysis and reporting to provide greater transparency into the competitiveness of the various factors that contribute to the NI economy. This report provides an up-to date perspective on NI's relative competitiveness.

2.1.3 This report adds competitiveness forecasts in order to provide a perspective on NI's trajectory in the absence of any significant policy changes. These are based on time trend forecasts for each indicator and country, to which NI's time trend forecast is compared at an aggregate level. The outcomes are presented in terms of a two-decade historical assessment and one decade of forecasts to estimate NI's relative position in 2030. The objective is to support policymakers to focus resources on the areas that require most attention both now and in the future.

2.2 What is competitiveness and why is it important?

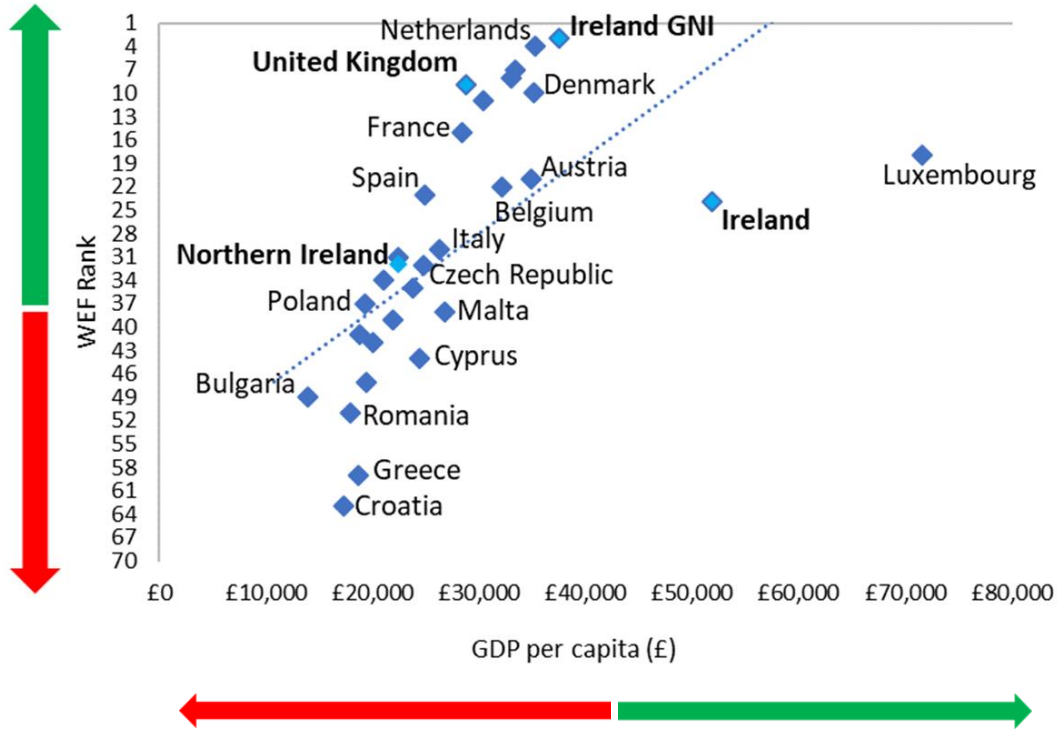
2.2.1 There is no internationally agreed definition of economic competitiveness, however the World Economic Forum (WEF) defines competitiveness as ***"the set of institutions, policies, and factors that determine the level of productivity of a country"***.[1] The level of productivity in turn determines the level of prosperity and rates of return to investments (capital and labour), which are the fundamental drivers of growth rates. In conclusion, the WEF states that ***"a more competitive economy is one that is likely to grow faster over time."***

2.2.2 WEF also state that "***A competitive economy…is a productive one" and "Productivity leads to growth, which improves incomes and hopefully, at the risk of sounding simplistic, well-being.***[2]***"***

[1] http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf
[2] WEF, 2017, What exactly is economic competitiveness? Available at: https://www.weforum.org/agenda/2017/09/what-is-economic-competitiveness/

2.2.3 This positive relationship between competitiveness and wealth is illustrated in Figure 2.1, whereby countries with higher levels of GDP per capita, such as Ireland and Denmark, are generally more competitive in the WEF rankings compared to those with lower levels, such as Croatia and Greece.

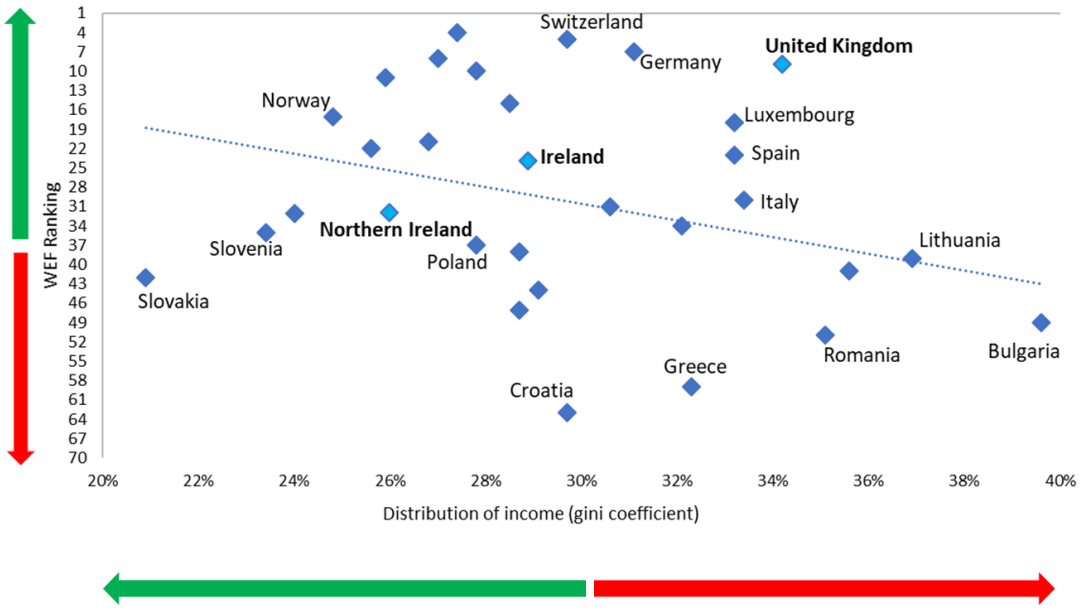
Figure 2.1: Competitiveness ranking vs GDP per capita, 2018



Sources: World Economic Forum, Eurostat, UUEPC analysis

2.2.4 Countries that are more competitive also tend to be more equal, with a negative relationship observed between competitiveness and income inequality. This is demonstrated in Figure 2.2 using the Gini coefficient, which measures the distribution of income in a nation, 0 being completely equal and 100 completely unequal. Countries with more equal income distributions, such as Norway, rank more highly in the WEF competitiveness index compared to countries such as Bulgaria whose lower rankings are associated with more unequal incomes.

Figure 2.2: Competitiveness ranking vs distribution of income (Gini coefficient), 2018



Sources: World Economic Forum, Eurostat, UUEPC analysis

2.2.5 The IMD Competitiveness yearbook uses a similar approach to the WEF, measuring competitiveness as ***"how well countries manage all their resources and competencies to facilitate long-term value creation."***[3] Overall competitiveness can mean how well a country is doing relative to another country or groups of countries, or it relates specifically to a country's performance in terms of international trade, or it can relate to whether a country is performing at its maximum economic potential.

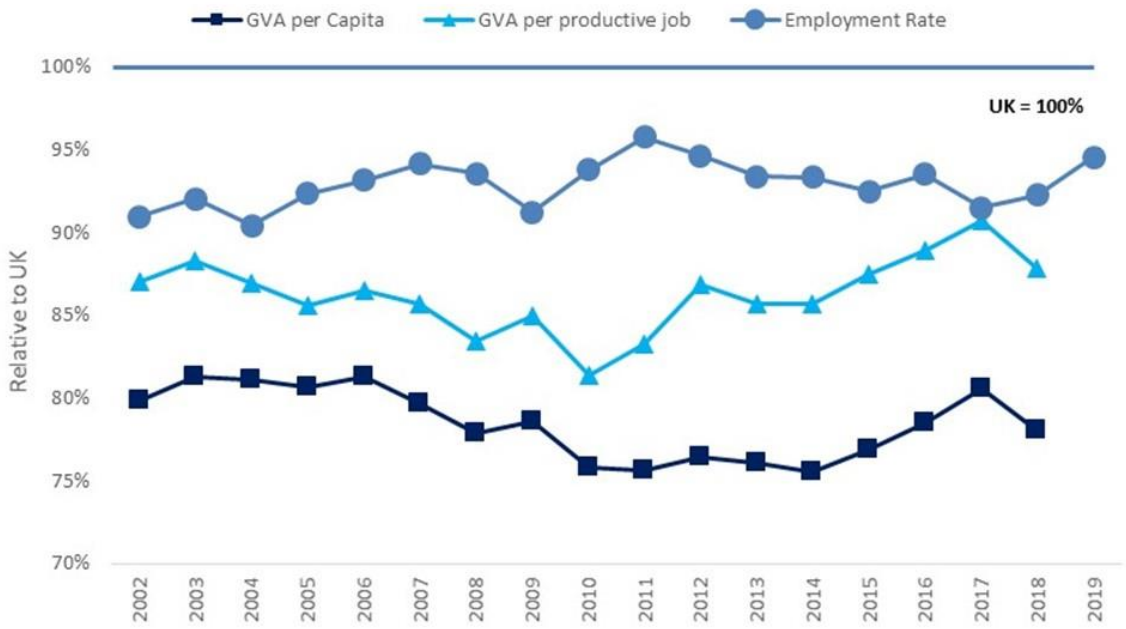
2.2.6 Overall, competitiveness matters a great deal for the growth trajectory of an economy and the wealth of its citizens, whichever definition is used. Indeed, in response to recent fiscal crises European leaders have suggested ***"Setting up common standards in the field of "labour markets, competitiveness, business environment and public administrations, as well as certain aspects of tax policy"***. These common standards would also require ***"setting up independent competitiveness authorities within each [of the EU countries], and would co-ordinate at EU level to ensure, for instance, consistent wage developments."***[4] It will be important that NI continues to focus on competitiveness relative to its European competitors in a post Brexit world. It would be of benefit to NI to monitor best practice in competitiveness measurement and targeting across Europe as well as coordinating with Competitiveness Councils across Europe.

[3] http://www.imd.org/news/IMD-releases-its-2015-World-Competitiveness-Ranking.cfm
[4] http://www.policy-network.net/pno_detail.aspx?ID=4922&title=The-eurozones-changing-philosophy-and-what-it-means-for-Britain

2.3 Economic context in NI and existing and future challenges

2.3.1 Over the last decade, NI's key economic aspiration has been to achieve UK average levels of wealth. This ambition is indicated within the draft Programme for Government[5] with the aim of rebalancing the NI economy towards more and higher value-added employment. Figure 2.4 shows the scale of the challenge. Lower average levels of wealth in NI are driven by lower employment rates (relatively fewer people in employment) and lower productivity (workers producing less per hour and a lower concentration of employment in high productivity sectors).

Figure 2.4: Relative GVA per capita, productivity & employment rate (UK=100), NI, 2000-19



Source: ONS, BRES & UUEPC
Note: Productivity and GVA data are not available for 2019

2.3.2 Prior to COVID-19 the NI economy had been performing strongly over the last number of years, creating almost 113,000 net additional jobs since Q3 2012. The recent labour market indicators have shown continued improvement, despite the ongoing uncertainty surrounding Brexit. Employment levels and rates reached a record high of 848,000 and 72.6% for those aged 16-64 in September-November 2019. ILO unemployment levels of 20,000 and a rate of 2.3% in September-November 2019 also marked a new record - the joint lowest since record began.

2.3.3 The strong performance in the NI labour market also led to record breaking levels of economic output, with £40.5bn of GVA in 2017. However, GVA dipped since this record high in 2017 to the current level of £40.1bn a likely follow on

[5] https://www.northernireland.gov.uk/consultations/draft-programme-government-framework-2016-21-and-questionnaire

from the uncertainty around Brexit. Since the end of the recession in 2010, the economy has grown at a modest average rate of 1.7% per annum.

2.3.4 The potential impact of Brexit, historical competitiveness challenges and relatively lower standards of living mean that competitiveness must remain high on the policy agenda, as NI strives to improve in a challenging global environment.

2.3.5 Whilst this research was underway, COVID-19 swept across the world. This has resulted in overnight changes in health and economic circumstances globally and prolonged uncertainty as the pandemic continues. The scale of the impact of the outbreak of COVID-19 cannot be underestimated. Globally the outbreak of this virus led to a sudden drop in oil prices, increased unemployment and children being unable to attend school for a prolonged period, to name but a few consequences. The UK, like many other nations, has been impacted by COVID-19 requiring the Government to balance carefully the economic and healthcare risks. COVID-19 and its impact is unparalleled, and the policy response has been unprecedented, with novel interventions required, such as the Coronavirus Job Retention Scheme.

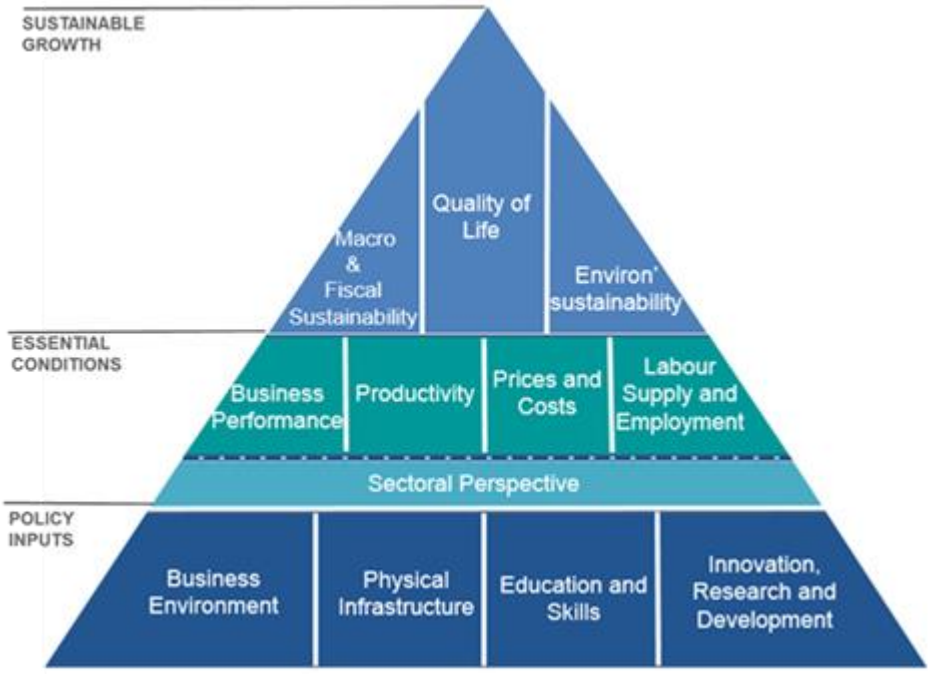
2.3.6 The outbreak of the virus resulted in thousands of people working, learning and socialising from the comfort and safety of their home using digital infrastructure. NI is in a good place to support this due to its competitive digital infrastructure. NI should aim to maintain and develop its competitiveness in digital infrastructure as new working patterns from remote destinations away from traditional, city centre workplaces become normalised.

2.3.7 The evidence used throughout this report pre-dates COVID-19 as the latest publicly available data. Whilst that may be the case, those economies that are most competitive will be able to deal with the challenges that COVID-19 and Brexit create, as the most competitive economies will be best placed to recover. NI must focus on competitiveness as part of the recovery, resilience and rebuilding plan as it will be the ultimate determinant of economic success.

3 How to interpret the competitiveness scorecard

3.1 The structure of the competitiveness scorecard is detailed in figure 3.1. The inputs, or policy drivers form the base tier of the pyramid and are areas in which policymakers can intervene directly. These influence the outputs, or essential conditions in the middle tier, including the sectoral composition of the NI economy. These then influence the outcomes in the sustainable growth tier as in terms of economic, social and environmental outcomes.

Figure 3.1 UUEPC Competitiveness Scorecard



3.2 All charts and infographics are constructed with the objective of presenting information to the reader in a way that is easily accessible and understood. However, some indicators are challenging to interpret, and the following guidelines will be useful when interpreting charts and infographics:

1. The most competitive countries are on the left of the charts. At a quick glance, if NI is located on the left of a chart, it is relatively competitive and vice versa.
2. A low ranking is competitive. If NI is ranked 1, it is the most competitive of the countries analysed.
3. Rankings in the summary tables are colour coded. The total number of countries is given to provide perspective and rankings are coded green for top third of rankings, amber for middle third and red for bottom third.
4. Where data are available, the UK, Ireland and EU/OECD averages are highlighted alongside NI for ease comparing NI's relative performance.

5. Direction of change is used to show whether an indicator has improved, remained stable or deteriorated in absolute terms over the past five years (where data are available).
6. Change in percentile is used to standardise NI's relative position as the number of countries available varies by indicator. The change in percentile(s) is denoted by the number of arrows i.e. two upward arrows represents an improvement of two percentiles.
7. It should be noted that the charts will not always include the full list of countries for which data is available (sometimes more than 35). Country selections are based on the NCC approach.
8. Spider charts are included in the summary for each element of the pyramid. A percentile ranking of 1 (i.e. being close to the centre of the spider diagram illustrates that NI is relatively competitive and vice versa.
9. Each indicator within the Scorecard is weighted equally, as in the case of other scorecards.

4 Competitiveness: sustainable growth

4.1 Increased competitiveness ultimately contributes to higher standards of living for citizens and a better quality of life. The sustainable growth tier of the Scorecard reports on the outworking of NI's historical competitiveness performance in terms of economic, social and environmental outcomes.

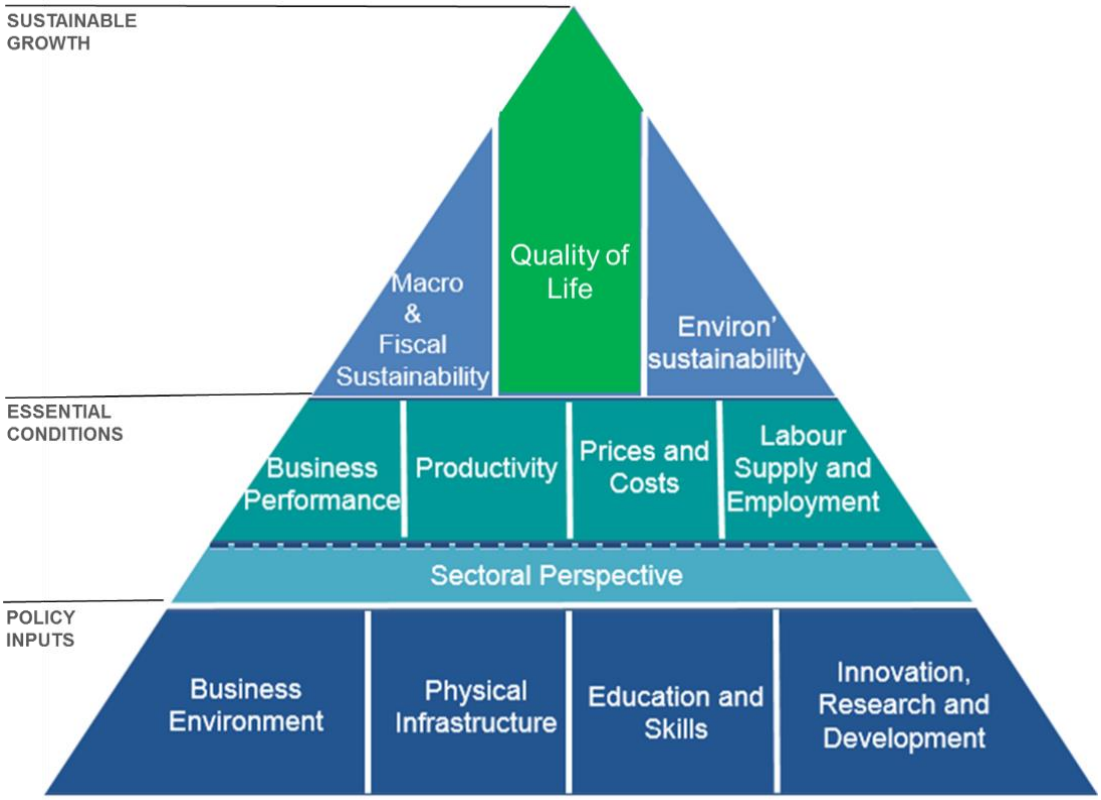
4.2 The sustainable growth level of the pyramid comprises three elements;

- Quality of life: as competitiveness underpins living standards for citizens in NI, this section examines wellbeing, happiness, income, poverty, life expectancy and civic engagement;
- Macroeconomic and fiscal stability: these indicators report on the level and growth of income, expenditure and taxation; and
- Environmental sustainability: reports on the impact of human activity on the environment in terms of energy, renewable energy, pollution and waste management.

4.1 Quality of life

4.1.1 In recent years, wellbeing and quality of life have become increasingly important concepts in measuring the standard of living in society. This move acknowledges that the standard of living of citizens is dependent upon much more than GVA per capita, which has traditionally been the indicator employed for benchmarking economic progress across countries and regions.

4.1.2 Government policies and company practices can combine to generate improvements in quality of life that in turn can increase the attractiveness of a country or region and therefore raise the level of talent and skills available. Businesses, investors and skilled labour often consider the "soft" factors of a location before deciding to locate there. Areas where standards of living are high but cost of living and labour costs are low, are generally more attractive to investors.

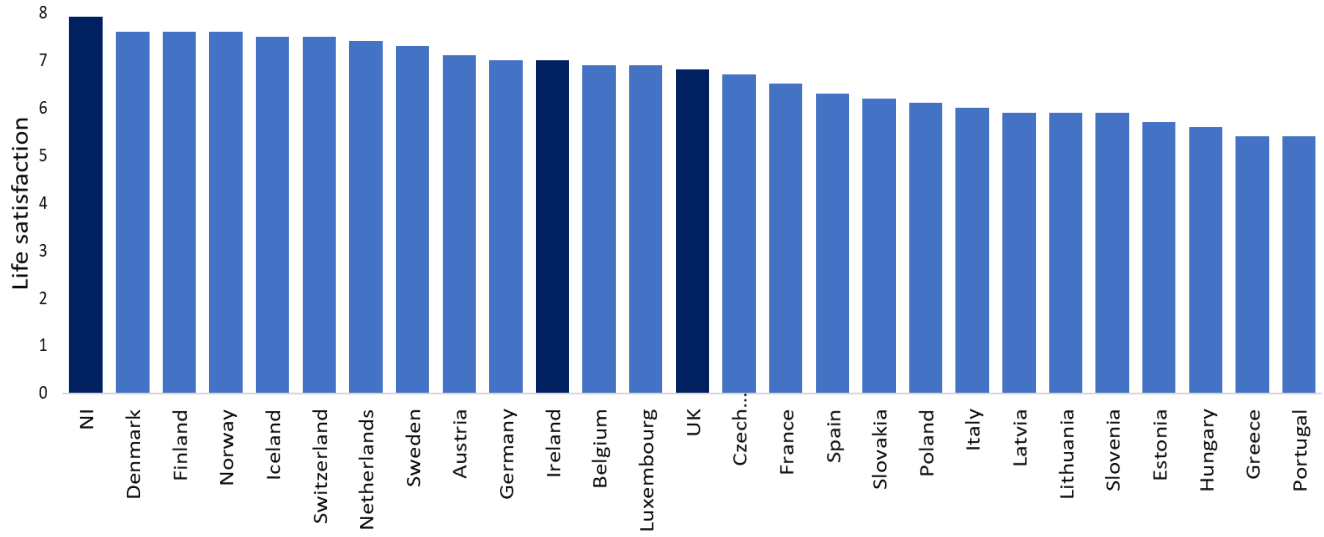


Source: UUEPC

Wellbeing

Figure 4.1.1: Life satisfaction international, 2018- 2019

Quality of Life	Rank	Direction of change	Change in decile	Year
Life satisfaction	1 / 27		=	2019



Sources: OECD better life index & ONS Personal wellbeing in the UK
Notes: 2018 data used for NI as 2019 not available.
NI wellbeing data is estimated using the UK:NI differential from the life satisfaction element of the ONS wellbeing survey and applying this factor to UK national data in the OECD better life index.

4.1.3 People in NI are the most satisfied with their quality of life amongst the OECD countries. Life satisfaction is driven by a range of factors in addition to wealth, such as good health, community and social attachment, and environmental factors. In the case of NI, framing of quality of life in a historical context is also likely to influence responses along with strong social, family and community bonds.

Figure 4.1.2: UK regional well-being indicators, 2018/19

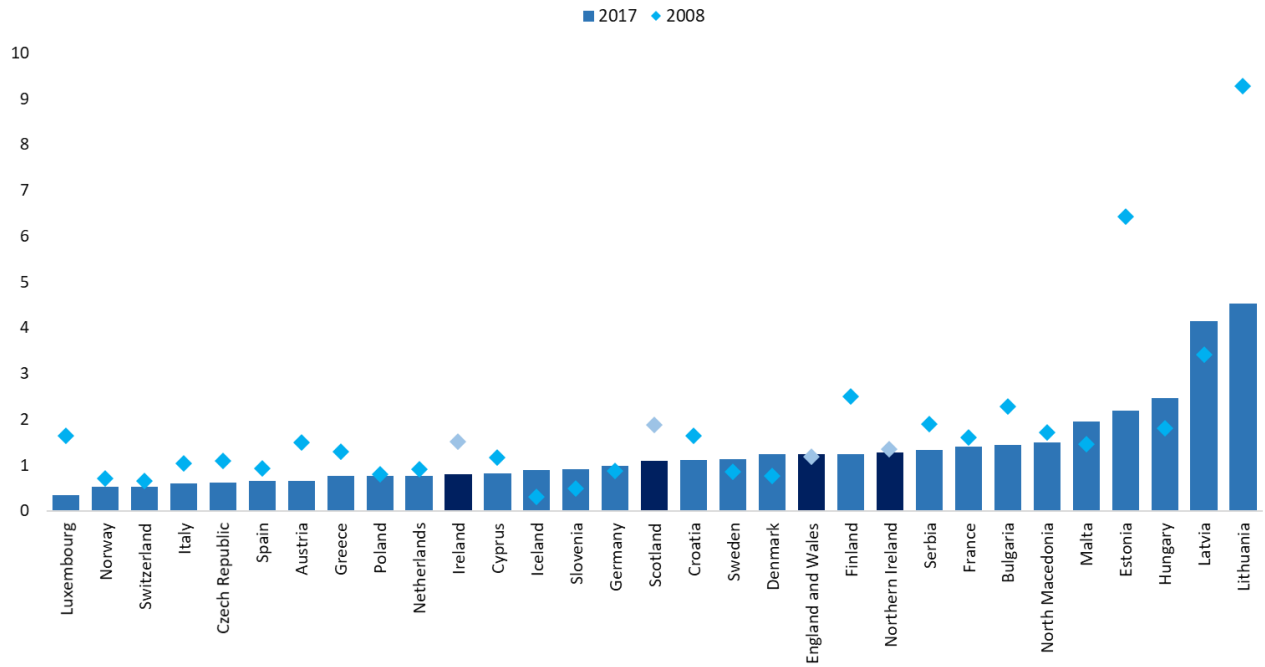
	Very high rating of satisfaction with their lives overall	Very high rating of how worthwhile the things they do are	Happiness yesterday rated very high	Anxiety yesterday rated as very low
Northern Ireland	***37%***	***42%***	***42%***	***41%***
Wales	31%	36%	36%	41%
East Midlands	32%	38%	38%	42%
South East	32%	37%	37%	40%
East	31%	36%	36%	43%
South West	31%	37%	37%	40%
Scotland	30%	35%	35%	42%
North East	32%	38%	38%	43%
Yorkshire & the Humber	32%	38%	38%	41%
London	***27%***	***32%***	***32%***	***36%***
North West	31%	36%	36%	43%
West Midlands	30%	34%	34%	43%
United Kingdom	***31%***	***36%***	***36%***	***41%***
NI Ranking	1	1	1	7

Source: ONS

4.1.4 NI residents reported greater levels of life satisfaction, happiness and feelings of worthwhile activity relative to other UK regions. This is despite NI's weaker performance in other economic and social indicators and given NI's past, overall economic conditions and the levels of recorded illness and poverty, it is a striking finding. NI has, however, dropped from 1st to 7th place since 2017/18in terms of the ranking for respondents who rated anxiety as very low.

Figure 4.1.3: Homicides per 100,000 people, 2008-2017

Quality of Life	Rank	Direction of change	Change in decile	Year
Homicide rate per 100,000 people	21 / 30		↑	2017

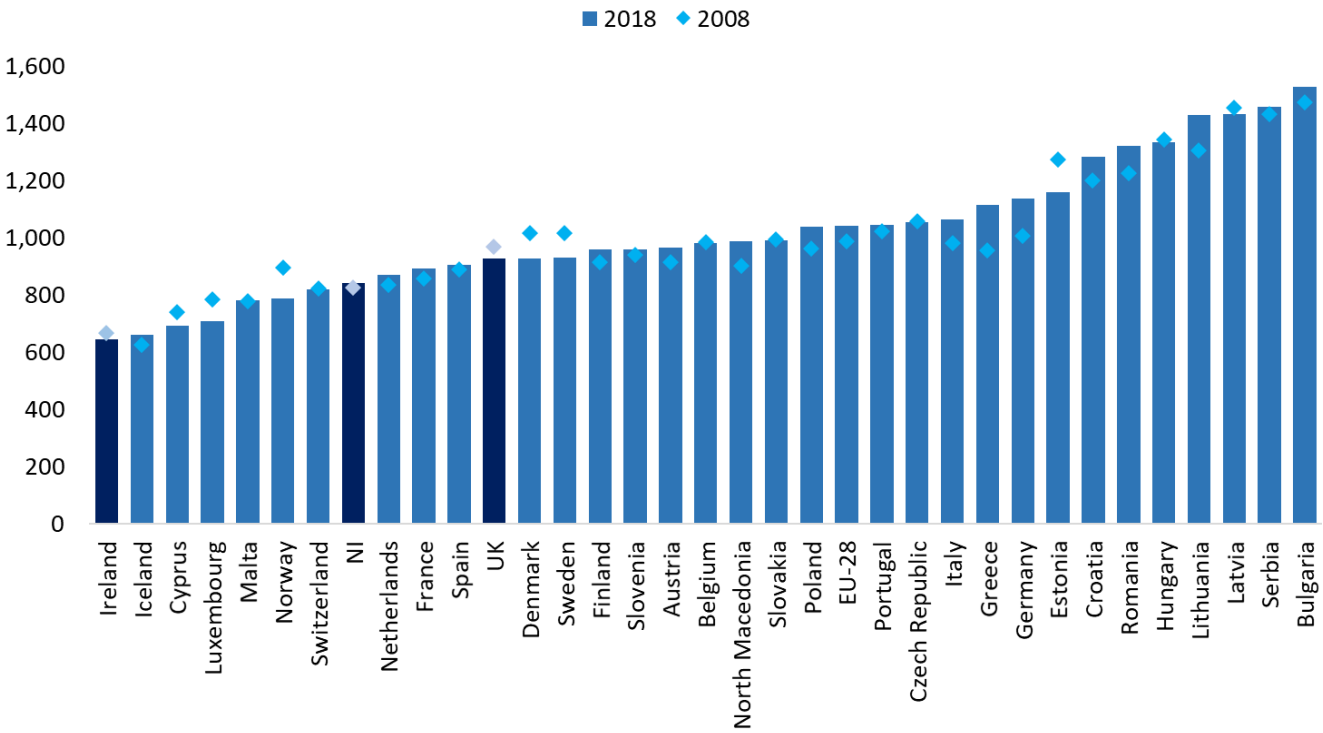


Sources: Eurostat & PSNI
Notes: OECD data used for Ireland (2000-2016)
When 2008 data wasn't available the earliest year of data were used and when 2017 data wasn't available the most recent year was used (Ireland and Austria).

4.1.5 The homicide rate has remained reasonably stable in NI over the last decade, unlike the majority of countries in which the rate has declined. NI's homicide rate remains in the bottom third of competitor countries, above all other parts of the UK and Ireland, illustrating that there is potential for improvement.

Figure 4.1.4: Mortality rate per 1,000 people, 2008-2018

Quality of Life	Rank	Direction of change	Change in decile	Year
Mortality rate per 1,000 people	8 / 34		=	2018

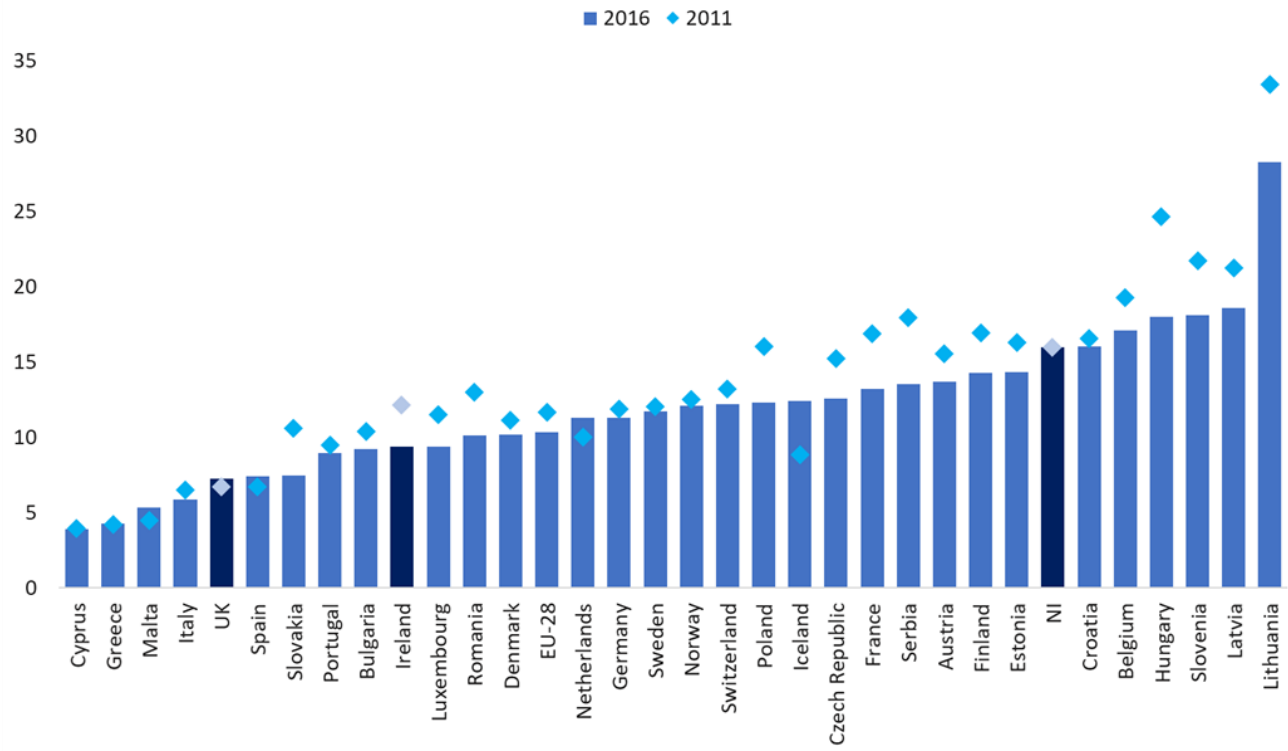


Sources: Eurostat & NISRA

4.1.6 NI has a relatively low mortality rate, which has remained stable over the last decade. Improving life expectancy, a relatively young population profile and a youthful immigration profile all help to maintain a low mortality rate. Ireland leads the field, with the UK in the top third, both experiencing a minor reduction since 2008.

Figure 4.1.5: Suicides per 100,000 population, 2011-2016

Quality of Life	Rank	Direction of change	Change in decile	Year
Suicide Rates	27 / 33		↓↓↓	2016



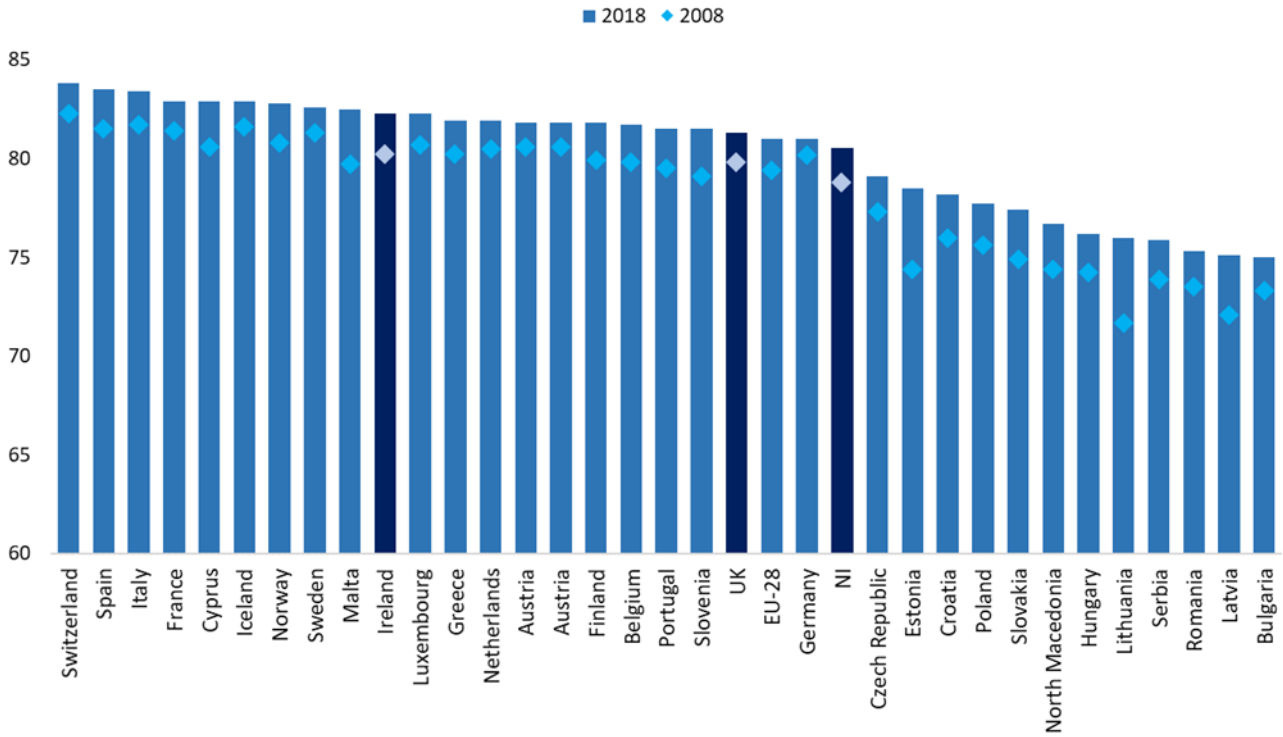
Sources: Eurostat & NISRA
Notes: 2016 are the latest available data on a comparable international basis
It should be noted that NI data on suicides has been reviewed with additional scrutiny of drug related deaths. The outcome is a reduction of one third for deaths recoded in 2018 and 2019. A review of 2015-2018 data is currently underway by NISRA.

4.1.7 NI's suicide rate is persistently high relative to comparator nations and the UK and Ireland in particular. In stark contrast to the wellbeing indicators, the suicide rate suggests that there are still significant mental healthcare challenges to be addressed. Research has suggested that the relatively higher rate is due to a range of factors including intergenerational impacts of the Troubles in NI, and potentially also a relatively lower proportion of the healthcare budget being allocated to mental healthcare.

4.1.8 The majority of competitor nations have been able to reduce the rate over time – including Ireland. However, in NI and the UK suicide rates have remained stable, with NI well above the UK average. It is noteworthy that the NISRA review of drug-related suicides could reduce NI recorded deaths by 20%, moving it close to the EU-28 average, but still above the UK and Ireland.

Figure 4.1.6: Average life expectancy (years), 2008 – 2018

Quality of Life	Rank	Direction of change	Change in decile	Year
Average life expectancy (years)	22 / 34		=	2018



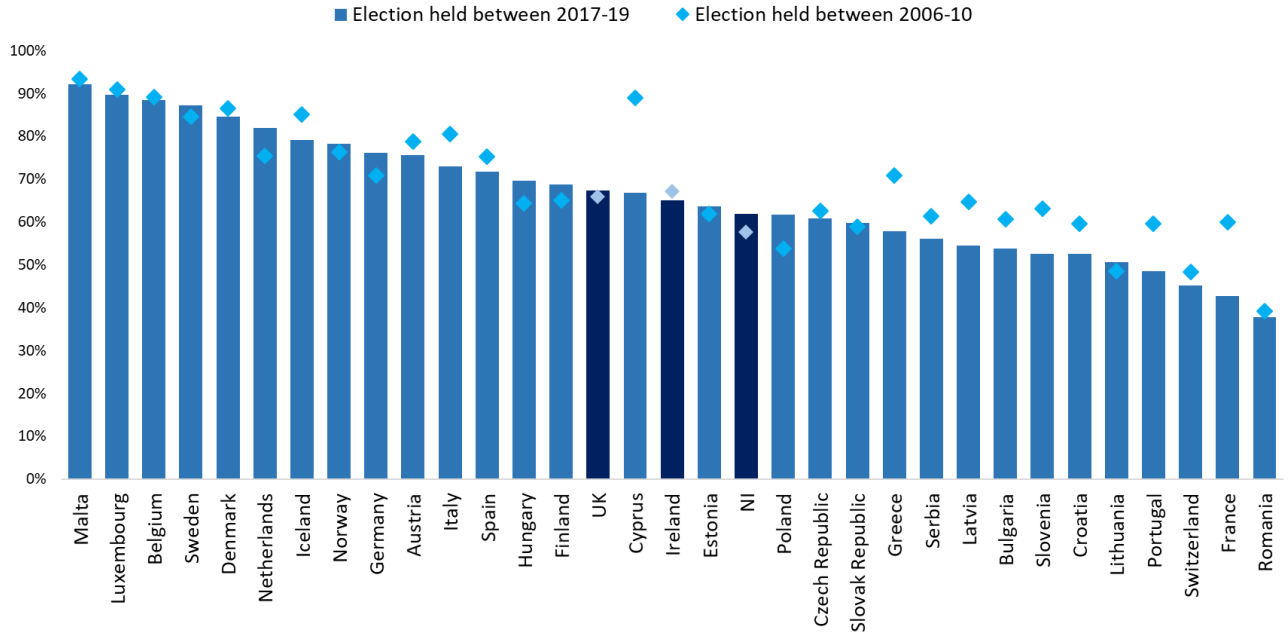
Sources: Eurostat & NISRA

4.1.9 Life expectancy is improving across developed nations as a result of improvements in lifestyle and healthcare. Ireland is in the top third of nations, with the UK around the halfway mark. NI's life expectancy, whilst it has improved, lags significantly behind the UK and Ireland and more than half of competitor nations.

Civic engagement

Figure 4.1.7: Voter turnout (as a % of registered voters), 2006-2019

Quality of Life	Rank	Direction of change	Change in decile	Year
Voter turnout (as a % of registered voters)	19 / 33		↑↑↑	2019



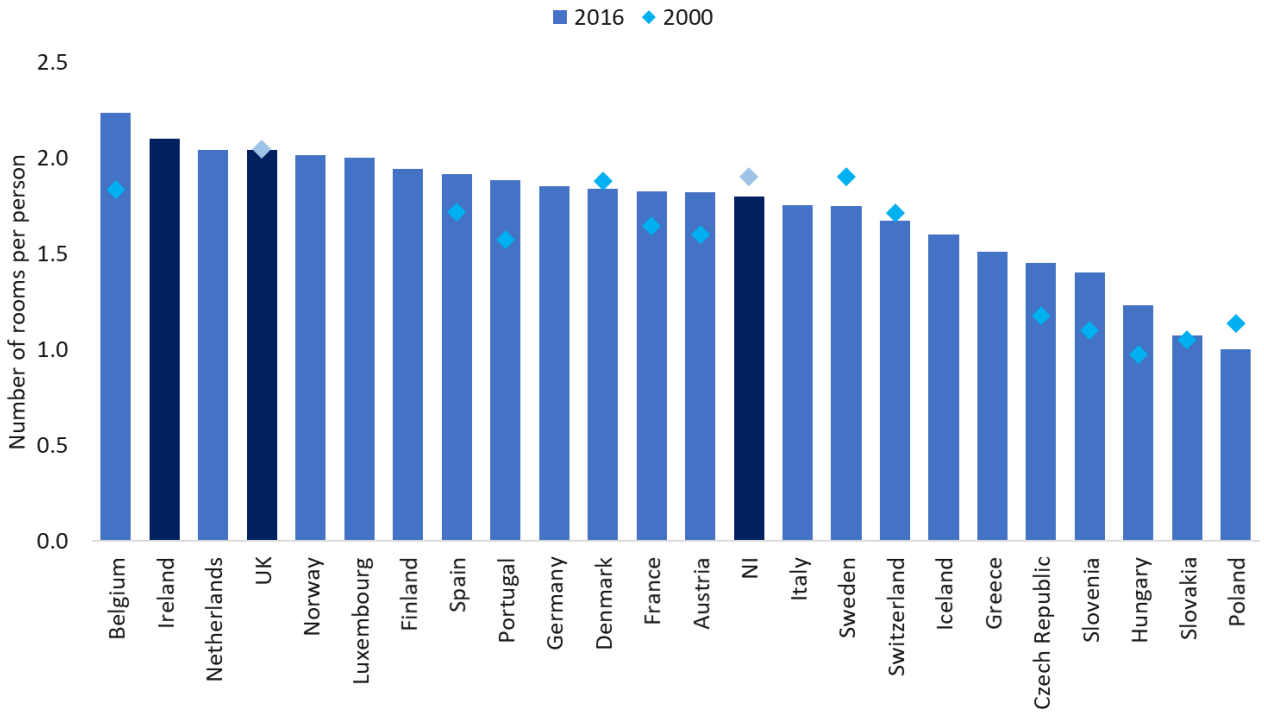
Sources: IDEA & House of Commons

4.1.10 NI's civic engagement rate (% of registered voters who voted during the last election) improved slightly over the last decade rising to 62% (2017-19) from 58% (2006-10). However, NI's voter turnout remains below the UK (67%), Ireland (65%) and average for the countries included in the analysis.

4.1.11 NI's relative position has improved as a result of a reduction in civic engagement in other nations and a slight improvement from the 2006 base year.

Figure 4.1.8: Number of rooms per person, 2016

Quality of Life	Rank	Direction of change	Change in decile	Year
Number of rooms per person	14 / 24		↓↓↓↓	2016



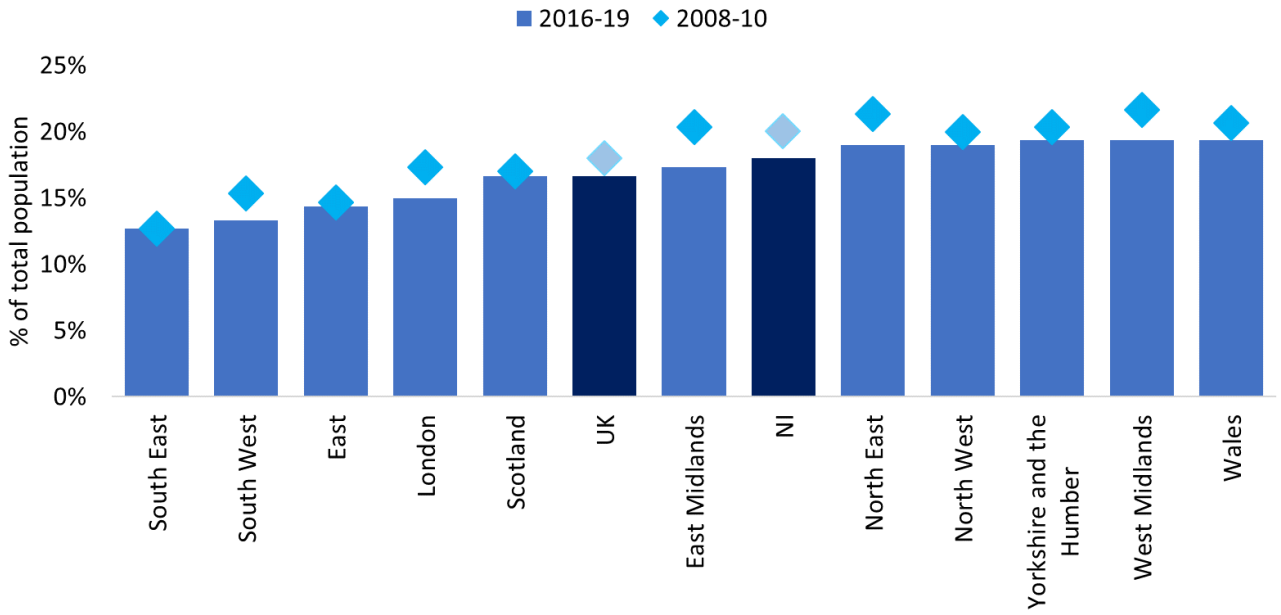
Sources: OECD Regional Well Being Survey
Notes: Based on 3-year averages 2013-15 and 1999-2001.
Data not available for 1999-2001 for all countries.

4.1.12 In 2016, the average number of rooms per person in NI was 1.8, this is a slight decrease from 1.9 in 2000. NI remains below the UK and Ireland and roughly half of the countries included in the analysis. Ireland has improved its position since the financial crash. It should be noted that this indicator does not measure the quality of the available housing stock.

Relative poverty

Figure 4.1.9: Proportion of population living in relative poverty before housing costs (BHC) 2008/10 -2015/18 (2/3-year average)

Quality of Life	Rank	Direction of change	Change in decile	Year
Relative low income levels (BHC)	7 / 12		↑	2019

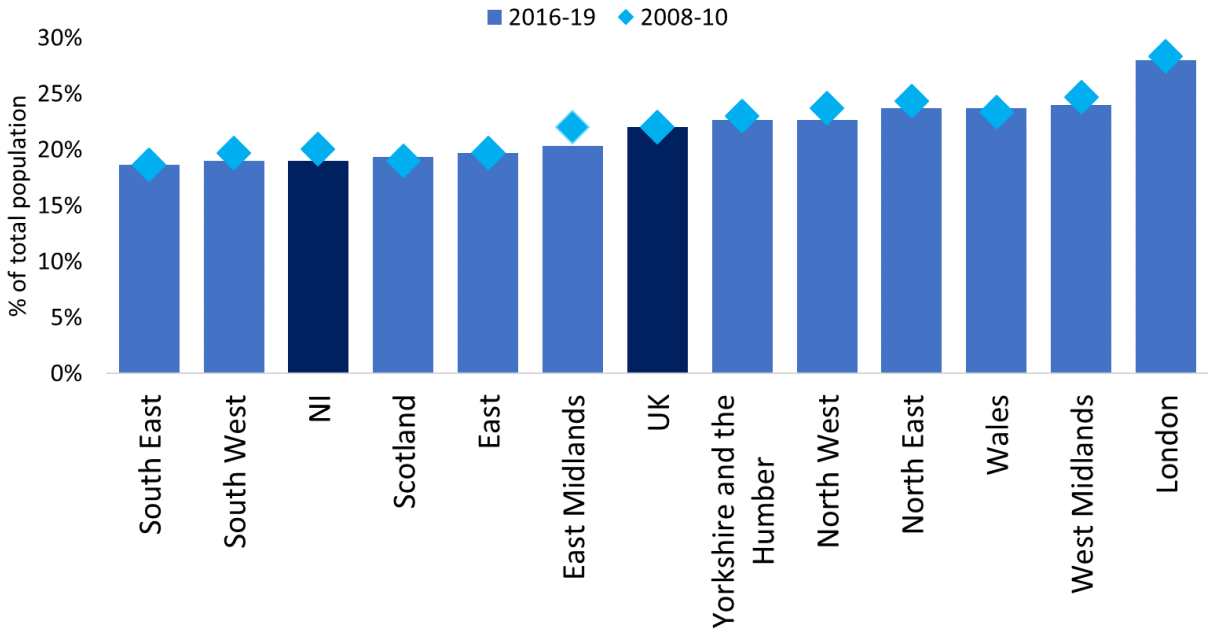


Source: ONS Households Below Average Income survey
Notes: Relative low-income or relative income poverty is defined here (in line with the Household Below Average Income report) as the proportion of the population group living in a household with income less than 60% of the UK median household income.
Figures provided are three-year averages due to the volatility of data at a regional level. The direction of travel and change in decile of the indicator are calculated using data relating to 2/3-year averages from 2008-2010 and 2015-2018.
Rank is based on 2018 data, whilst chart is based on 3-year average.

4.1.13 UK regional data are used for this indictor, due to the unavailability of internationally comparable data. It is encouraging that improvements in relative poverty are evident over the decade in every region, although these are relatively small. The proportion of the population at risk of poverty in NI remains above the UK average.

Figure 4.1.10: Proportion of population living in relative poverty after housing costs (AHC) 2008/10-2015/18 (2/3-year average)

Quality of Life	Rank	Direction of change	Change in decile	Year
Relative low income levels (AHC)	2 / 12		↑↑↑	2019



Source: ONS Households Below Average Income survey
Notes: Relative low-income or relative income poverty is defined as the proportion of the population group living in a household with income less than 60% of the UK median household income.

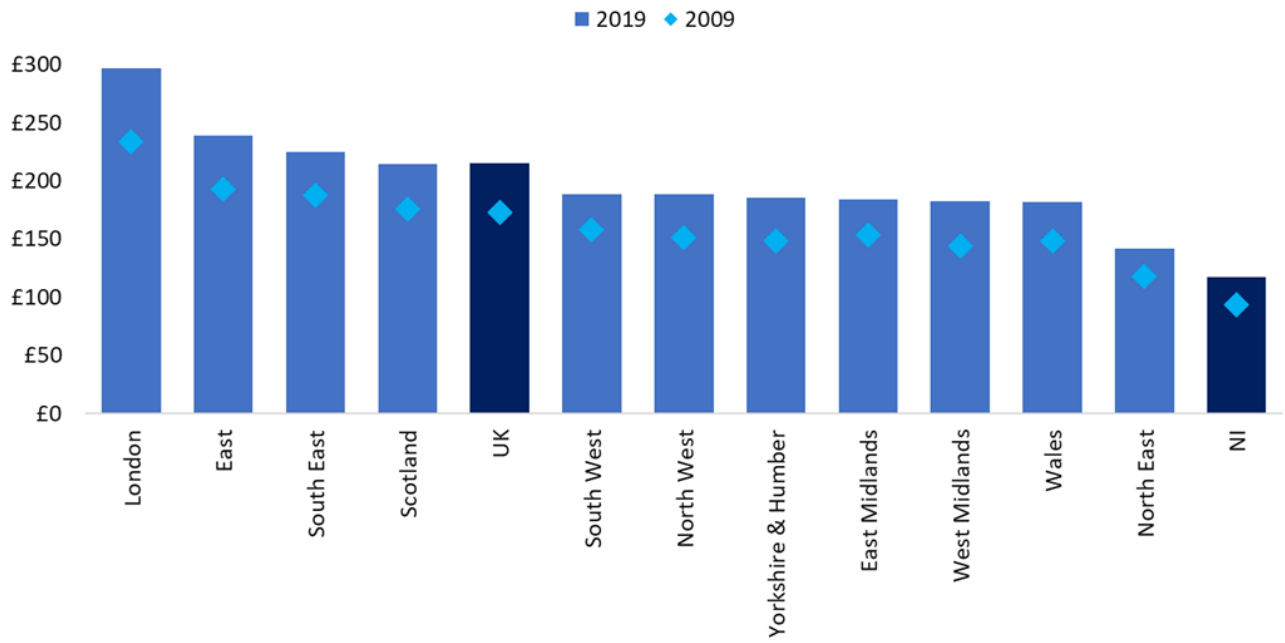
4.1.14 UK regional data are used for this indictor, due to the unavailability of internationally comparable data. Like the previous indicator, it is encouraging to see that that improvements are evident over the decade in most regions.

4.1.15 When housing costs (which are lower in NI than many other UK regions) are included in the calculation of relative poverty, NI's relative position improves to 2nd (joint with the South West), ahead of the UK average. This illustrates the impact of relatively lower housing costs in NI.

Disposable income

Figure 4.1.11: Annual disposable income (£ per week), 2009-2019

Quality of Life	Rank	Direction of change	Change in decile	Year
Annual disposable income (£ per week)	12 / 12		=	2019

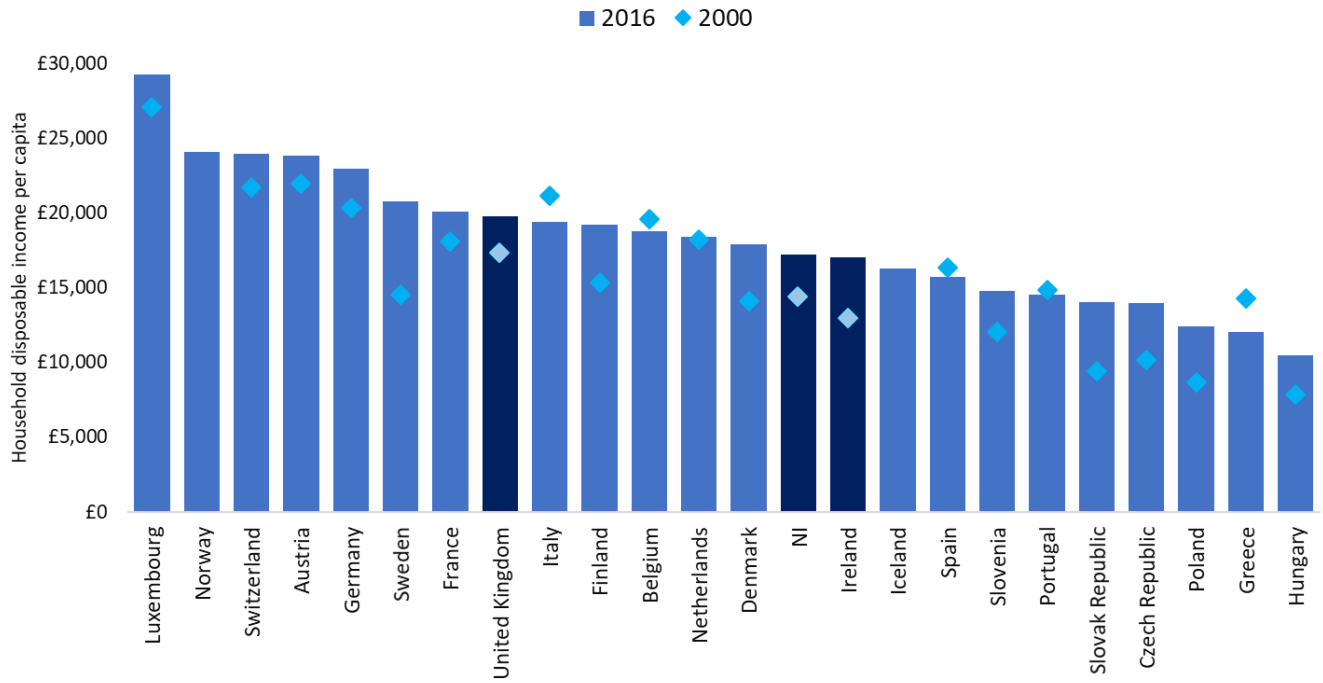


Source: Asda Income Tracker

4.1.16 UK regional data are used for this indictor, as the source data, the Asda income tracker focuses only on UK regions. NI has significantly lower disposable incomes on a weekly basis than the UK average and, despite improving, has remained at the bottom of the regional league table for the last decade, illustrating the impact of lower employment rates, lower productivity and lower wages.

Figure 4.1.12: Real household disposable income per capita, 2000-2016

Quality of Life	Rank	Direction of change	Change in decile	Year
Household disposable income per capita	14 / 24		↑	2016



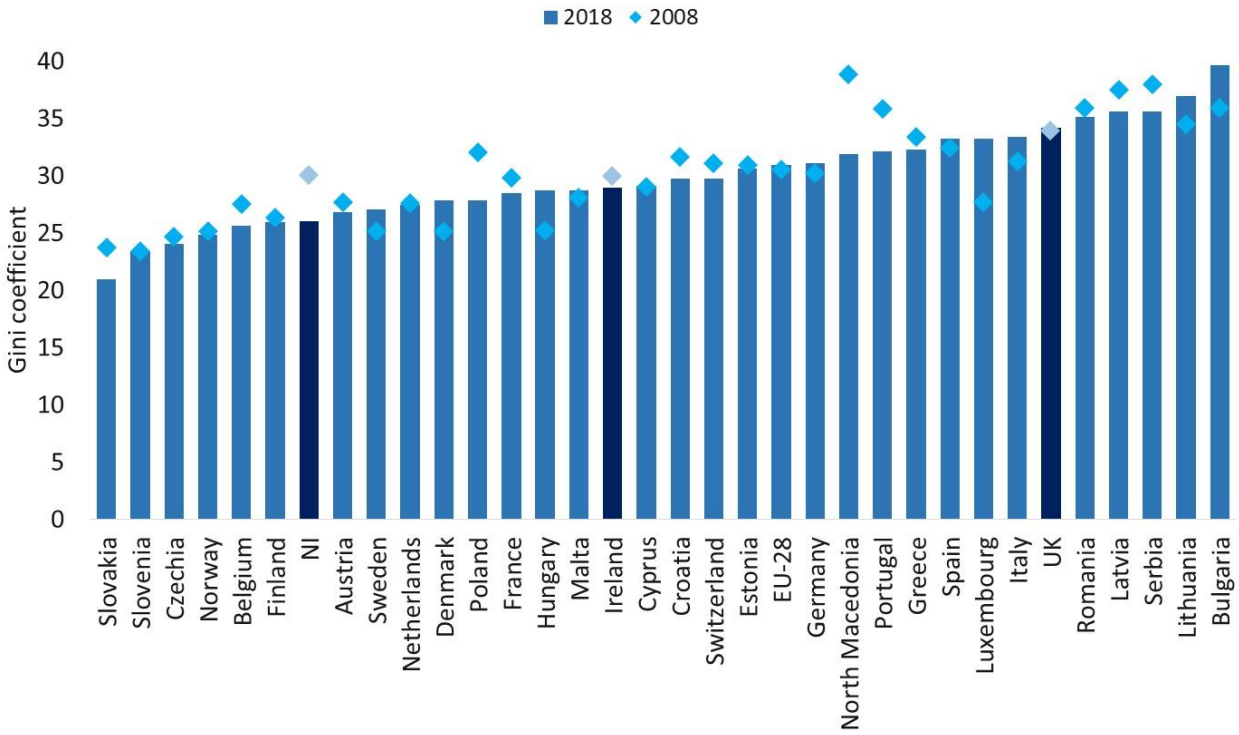
Source: OECD
Note: Data available first and last year OECD.

4.1.17 In 2016, household disposable income per capita in NI increased to £17,233 (£14,352 in 2000). NI has improved in this indicator, as have most other competitor nations, and still lags markedly behind the UK (£19,782), illustrating the outcome of relatively lower employment rates and productivity. Further research could be taken forward to reveal if the age profile of the population has a significant effect on disposable income.

Income distribution

Figure 4.1.13: Distribution of income - Gini Coefficients, 2008-2018

Quality of Life	Rank	Direction of change	Change in decile	Year
Distribution of income (gini coefficients)	7 / 34		↑↑↑	2018



Sources: Eurostat & Communities NI
Note: Where no 2008 data are available alternatives are used. 2010 data are used for the EU-28 and Croatia, 2012 data are used for North Macedonia, 2013 data are used for Serbia.

4.1.18 The Gini coefficient measures income distribution across a population. Zero expresses perfect equality (all incomes are equal) and 100 expresses perfect inequality (one person has all of the income).

4.1.19 NI is in the upper third of competitor nations in this indicator, ahead of the UK and Ireland and has improved markedly over the last decade. It is likely that the more equal distribution of income in NI is due to having fewer "super earners" than the UK and Ireland resulting in a "shorter tail" to the distribution. Again, the distribution of income is interesting and would merit further research to fully understand the driving factors.

Quality of life summary

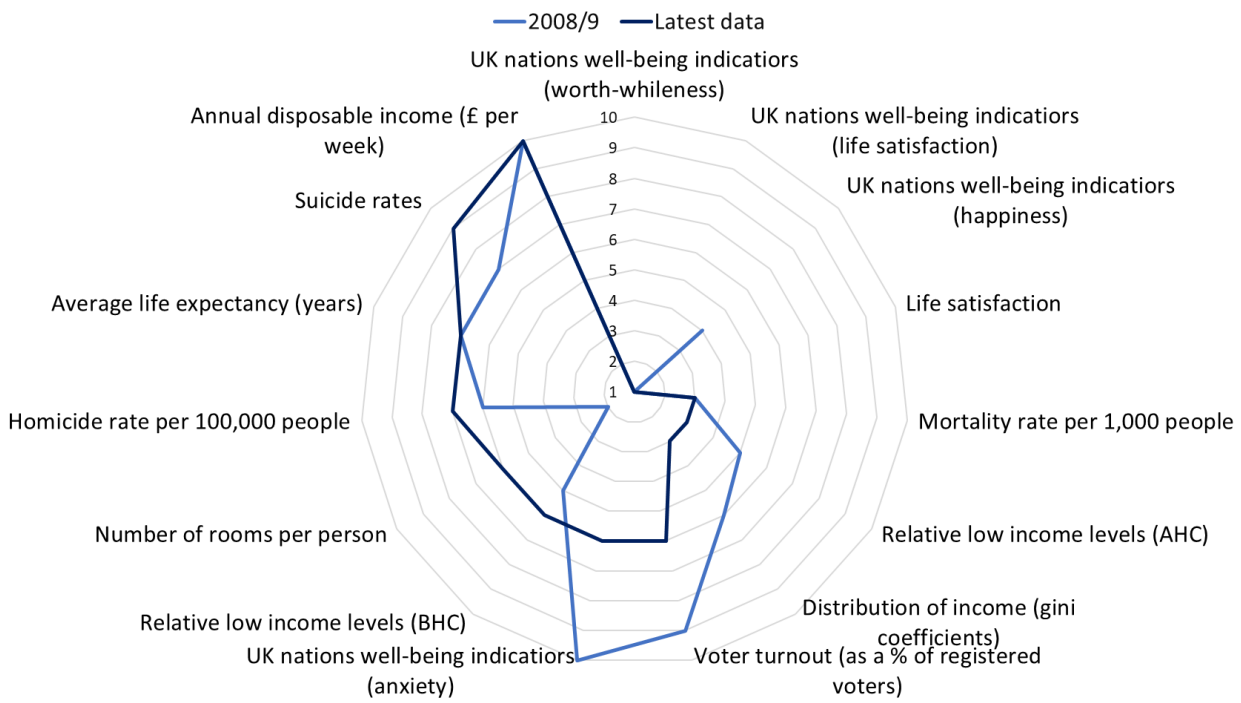
4.1.20 Quality of life is one of the relatively stronger pillars of the NI Competitiveness Scorecard. NI performs better than average and has been improving in an international context. However, it is very much a story of two halves.

4.1.21 On the positive side, NI's residents report that they are generally happy with life. Household incomes have increased, levels of anxiety have declined, people are generally happy, with a high level of self-worth and overall life satisfaction. These findings may be surprising to some, given NI's performance in other elements of the scorecard in economic and social indicators. However, delving into the research suggests that NI's population are relatively happier for a range of reasons including relatively stronger community and family bonds and the fact that, in a historical context, NI is a more pleasant place to work and live than a number of decades ago.

4.1.22 In terms of challenges for NI, poverty levels remain high. Lower housing costs help to alleviate the issue to an extent, but disposable incomes remain the lowest of the UK regions. Homicide and suicide rates remain relatively high in an international context and whilst life expectancy has increased, it continues to lag the UK and Ireland. Suicide rates, in particular, are concerning and further research to better understand the driving factors and potential policy interventions, would be helpful.

4.1.23 The Quality of Life element of the Scorecard demonstrates that the wellbeing of a nation or region cannot be measured by incomes alone. From the evidence contained within this pillar, it suggests that a range of factors other than incomes play a large part in determining societal wellbeing.

Summary of decile placement in Quality of Life indicators



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram. Household disposable income has been excluded from the summary diagram as 2008 data were not available

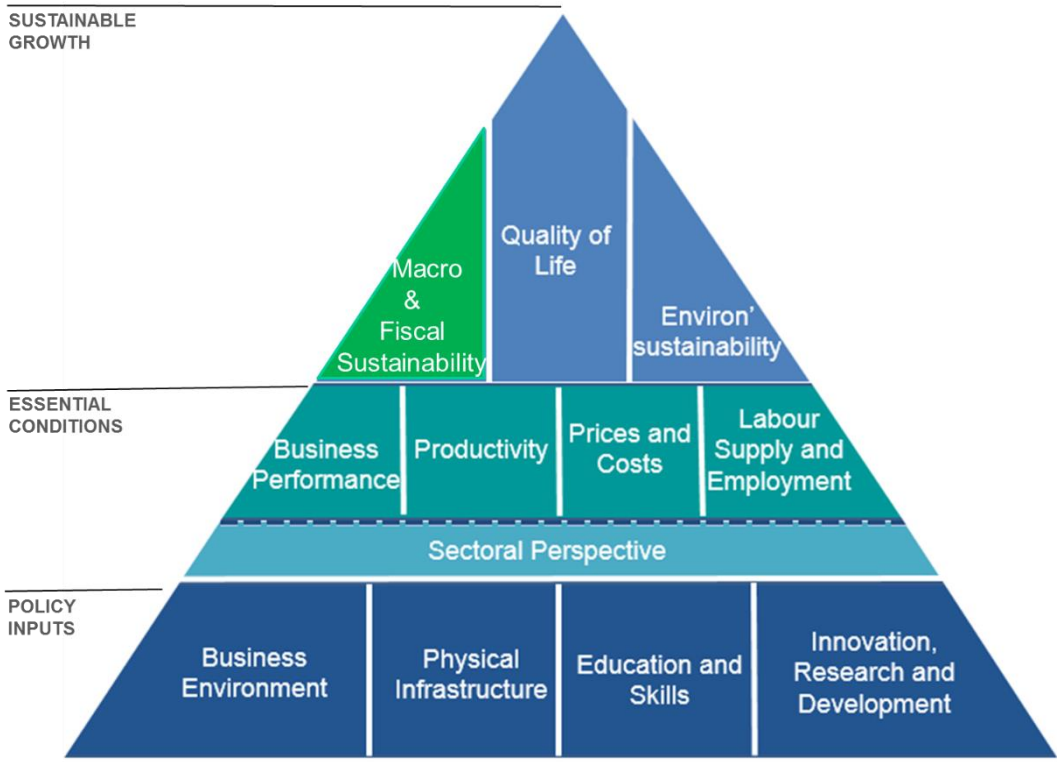
Summary of Quality of Life indicators

Quality of Life	Rank	Direction of change	Change in decile	Year
Life satisfaction	1 / 27		=	2019
UK nations well-being indicatiors (life satisfaction)	1 / 12		=	2019
UK nations well-being indicatiors (worth-whileness)	1 / 12		=	2019
UK nations well-being indicatiors (happiness)	1 / 12		↑↑↑↑	2019
Relative low income levels (AHC)	2 / 12		↑↑↑	2019
Distribution of income (gini coefficients)	7 / 34		↑↑↑	2018
Mortality rate per 1,000 people	8 / 34		=	2018
UK nations well-being indicatiors (anxiety)	7 / 12		↑↑↑↑	2019
Relative low income levels (BHC)	7 / 12		↑	2019
Household disposable income per capita	14 / 24		↑	2016
Number of rooms per person	14 / 24		↓↓↓↓	2016
Voter turnout (as a % of registered voters)	19 / 33		↑↑↑	2019
Average life expectancy (years)	22 / 34		=	2018
Annual disposable income (£ per week)	12 / 12		=	2019
Homicide rate per 100,000 people	21 / 30		↑	2017
Suicide rates	27 / 33		↓↓↓	2016

Source: UUEPC

4.2 Macroeconomic and fiscal sustainability

4.2.1. If enterprises are to compete successfully in an international trading environment a stable, sustainable and supportive macroeconomic and fiscal framework are required.

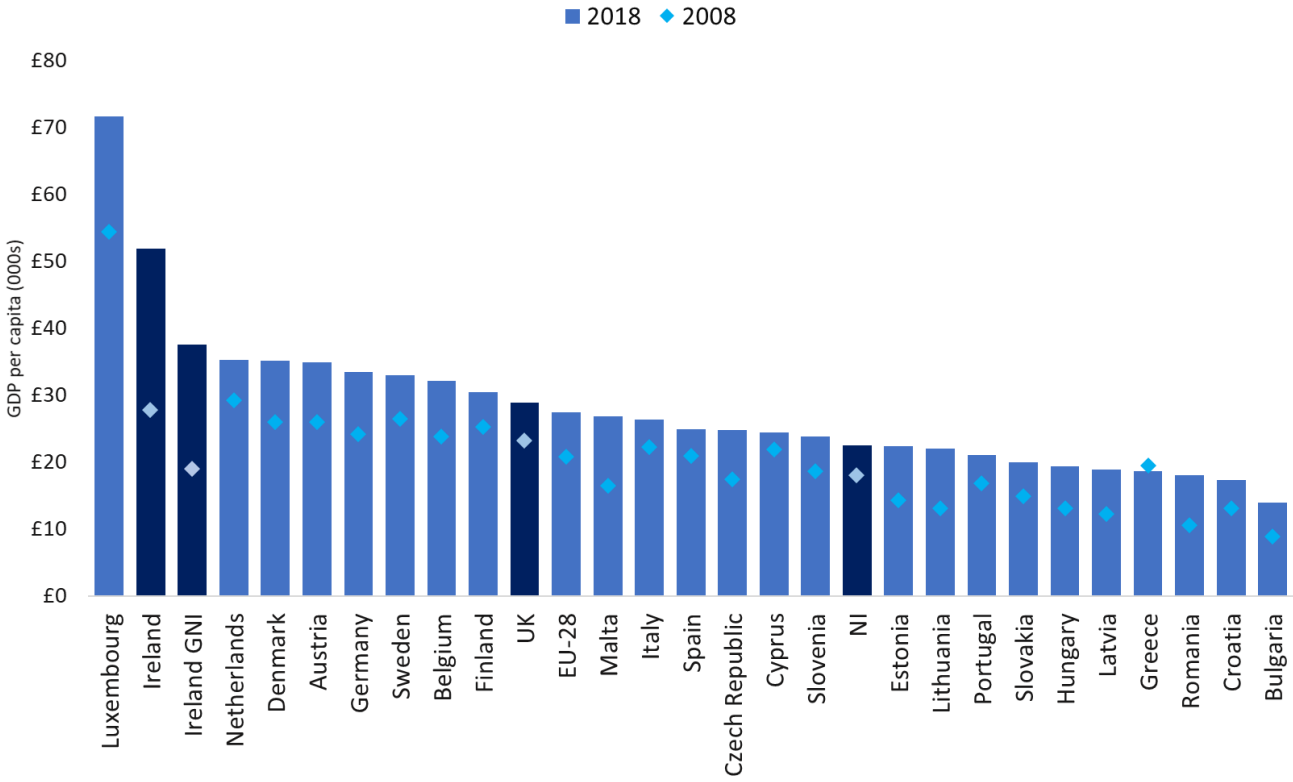


Source: UUEPC

Gross Domestic Product (GDP) per capita

Figure 4.2.1: GDP per capita at current market prices, 2008-2018

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Gross domestic product (GDP) at current market prices by NUTS 2 regions (Per capita)	19 / 31		↓	2018



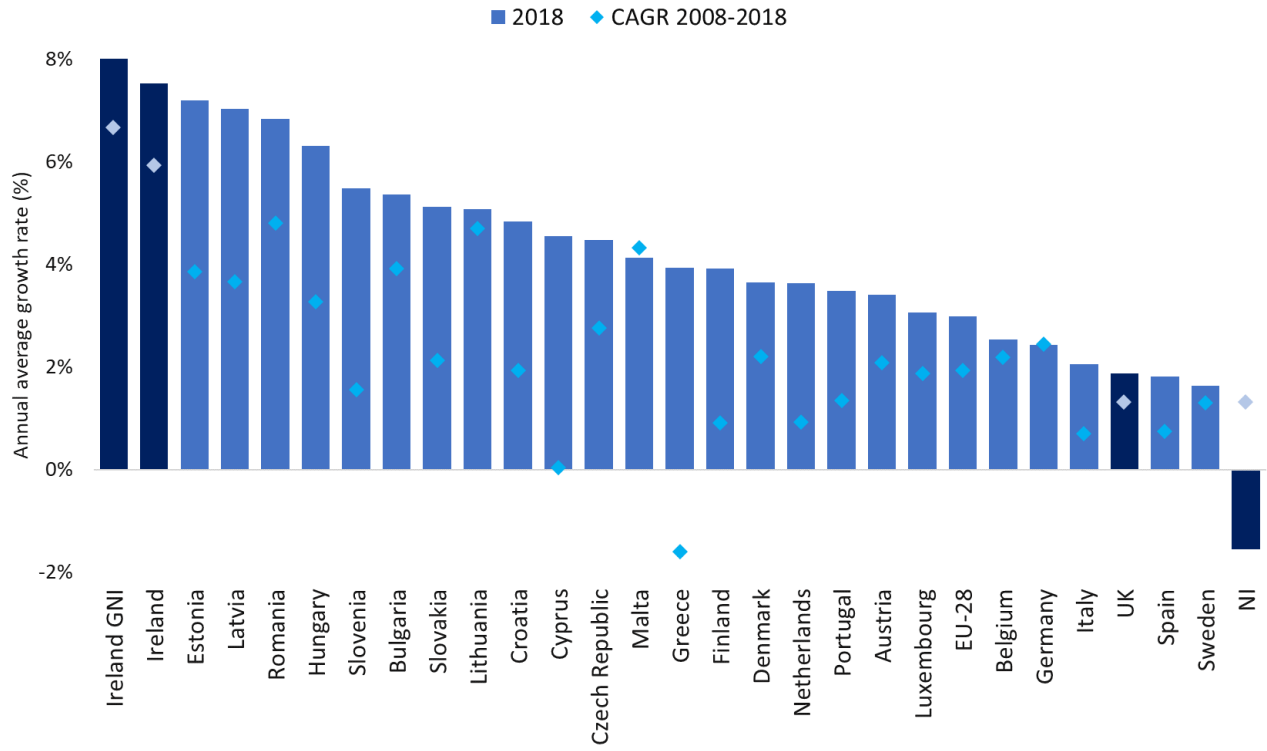
Source: Eurostat
Note: Ireland's Gross National Income (GNI) has been used to focus on incomes received by individuals and enterprises in Ireland whether they were generated locally or internationally.
Chart excludes France and Poland (from EU) and Serbia due to missing 2008 data.

4.2.2. GDP per capita is an indicator that is commonly used to compare the standard of living across a range of countries or economies. GDP per capita has improved marginally from 2008 – 18 across the majority of countries. There were two distinct phases from 2007. GDP per capita reduced annually to 2010 as the recession impacted and then from 2010 – 2018 GDP per capita improved annually as the economy recovered.

4.2.3. Ireland's GNI per capita (which focuses on incomes earned by Ireland's citizens and enterprises rather than GDP which measures the value of all goods and services) has improved markedly in this indicator since 2008. It increased from £27,800 to £51,800 in 2018, vastly outpacing both the UK and NI over the last decade, in part this is due to how national income is measured and the inclusion of activities such as aircraft leasing that were previously recorded offshore.

Figure 4.2.2: Average annual growth rate in GDP per capita at market prices, 2008-2018

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
GDP growth per capita (at market prices)	31 / 31		=	2018



Sources: Eurostat, CSO & UUEPC
Notes: Ireland's CAGR for GNI is for 2013-2018.
France, Poland and Serbia included in 2018 rank but excluded from chart due to missing 2008 data.

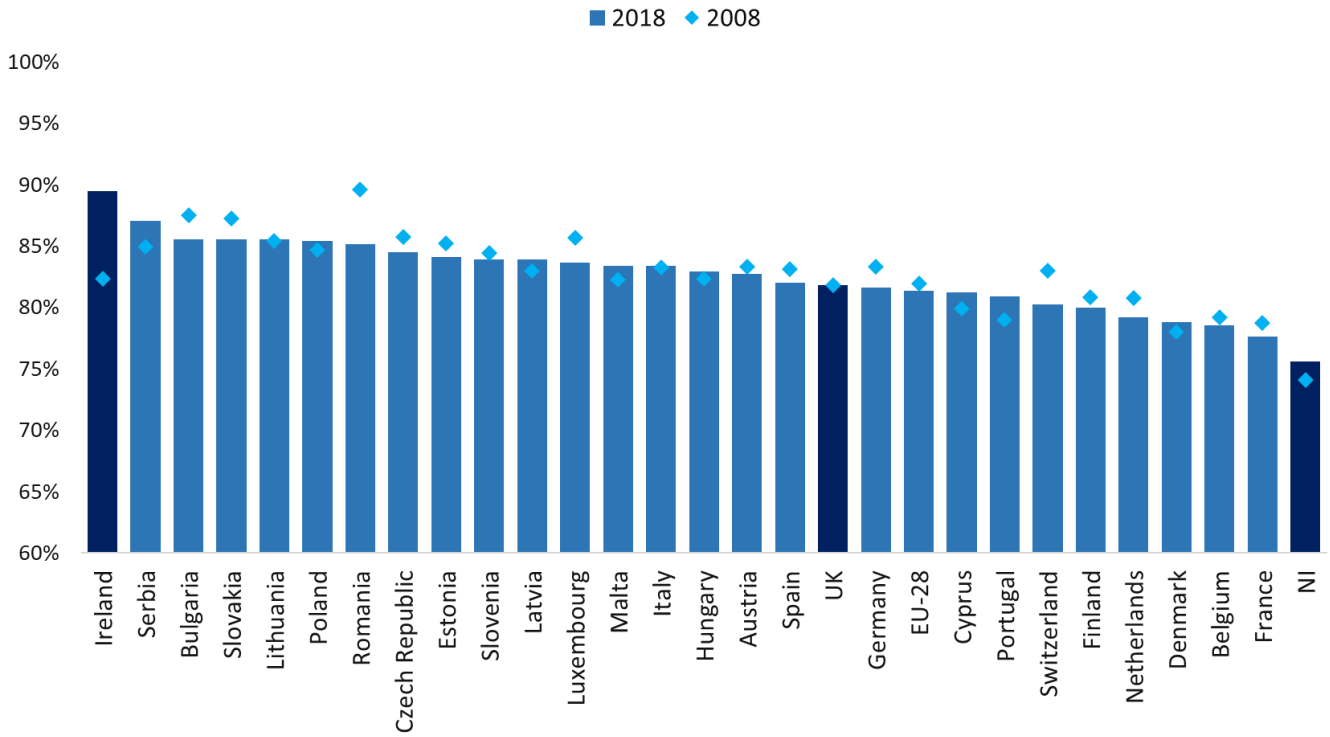
4.2.4. Ireland leads in terms of both GDP and GNI per capita growth, demonstrating that both the domestically and internationally focussed elements of the economy are growing at similar and very rapid rates in both a historical and relative context. Again, the impact of how GDP is measured and the inclusion of activities such as aircraft leasing that were previously recorded offshore are worth noting in this context.

4.2.5. In contrast, NI's GVA per capita contracted during 2018 due to a small reduction in GVA whilst the population continued to grow, placing NI at the bottom of the league table for 2018.

4.2.6. A number of smaller open eastern European economies grew at respectable rates during 2018. UK growth was also relatively low over the decade.

Figure 4.2.3: Private sector GDP as a proportion of total GDP, 2008-2018

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Private sector GDP as a proportion of total GDP	28 / 28		=	2018



Sources: Eurostat & ONS regional accounts

Notes: NI data are calculated using ONS Regional Accounts sectoral GVA.
Private sector is calculated as total GVA minus the public sector, defined as SIC sectors O - Q[6]. It should be noted that some private sector activity will be included in these sectors (private healthcare and education) and therefore this measure may slightly understate NI's position.
Croatia, Sweden, Norway and North Macedonia have been left from the chart due to incomplete time series.

4.2.7. NI's private sector is relatively smaller than competitor nations and whilst it grew more rapidly than the public sector, it remains well below the Irish, UK and EU average levels and is the smallest proportion of the countries included in the analysis. In 2018, private sector GDP accounted for 75.6% of total GDP, which is an improvement from 74.1% in 2008, but remains significantly behind competitors.

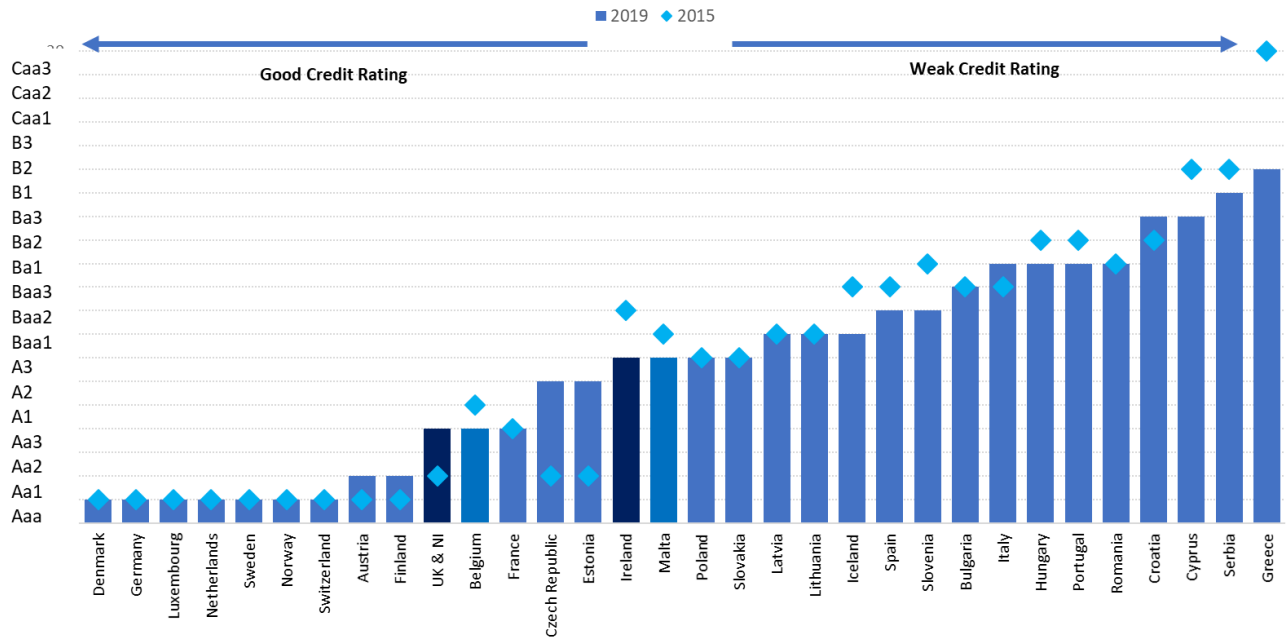
4.2.8. The UK Government's spending restraint dampened in public sector growth in NI over the last decade and as a result, the public sector experienced only marginal growth, which is one of the factors that resulted in a proportionately larger private sector. It is interesting to note that austerity has not led to significantly increased private wealth, which suggests that public sector spending "crowding out" private sector activity is not a significant issue.

[6] O: Public administration and defence; compulsory social security, P: Education and Q: Human health and social work activities

Credit ratings

Figure 4.2.4: National credit ratings, 2015 – 2019

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
National Credit Ratings	10 / 32		↓↓↓	2019



Sources: Trading Economics & Moody Credit Ratings
Note: The UK (and therefore NI) are in joint 10th place along with Belgium and France.

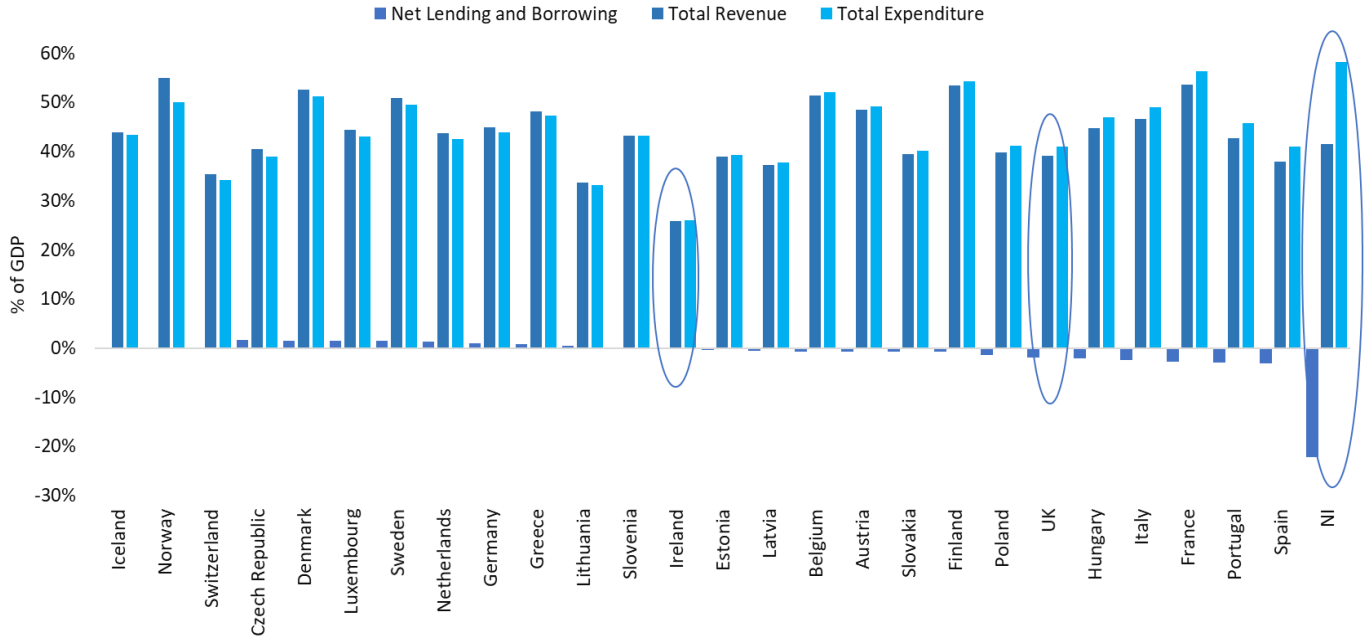
4.2.9. Credit ratings are determined at national level and therefore, the UK and NI credit ratings are treated as one. The stability of NI's macroeconomic environment is, to a large extent, determined by UK economic conditions. The UK's credit rating deteriorated from AA1 to AA2 over the decade. The Czech Republic and Estonia also saw a deterioration in their credit rating.

4.2.10. Ireland, Slovenia and Cyprus have all improved by two rating points as the impact of the 2008 recession waned and public finances became more stable. The Scandinavian and northern European nations are consistently very strong in terms of credit ratings and most nations have improved over the past four years as they emerged from the recession.

Government Revenue and taxation

Figure 4.2.5: Gap between total general government revenue and expenditure, 2018

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Gap between total general government revenue & expenditure	29 / 29		=	2018



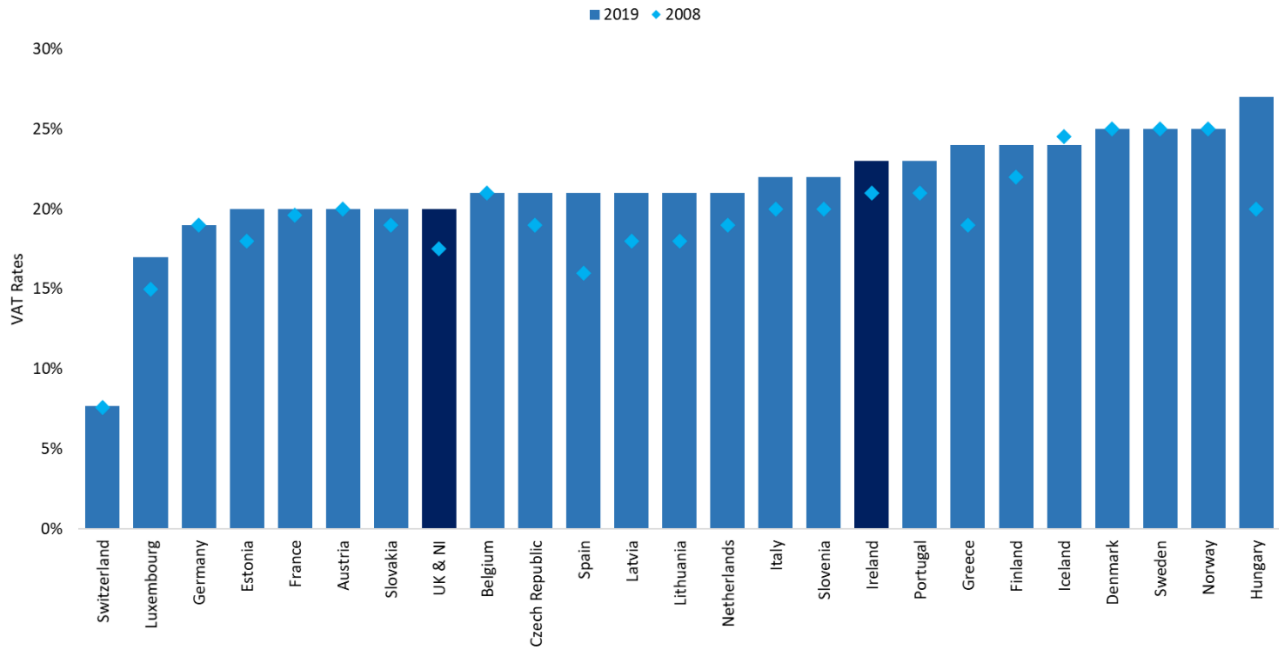
Sources: Eurostat, UUEPC, HMRC, Blue Book, ONS & HM Treasury
Note: Chart excludes Bulgaria, Croatia, Cyprus, Malta, Romania and Luxembourg (from EU) due to missing revenue or expenditure data.

4.2.11. NI is a region of the UK, rather than a nation state with full control over taxation and expenditure. NI has policy responsibility and therefore control of rates incomes of almost £1.4bn and over c£12bn of Departmental Expenditure out a total of more than £24bn. The fiscal deficit has remained at around £10bn per annum over the last decade. Significant elements of expenditure are determined at UK level (such as benefits and pensions). It should be noted that fiscal transfers to peripheral regions are quite normal within a political and monetary union, with wealthier regions supporting fewer wealthy areas.

Taxation

Figure 4.2.6: Value added tax (standard rate) (%), 2008-2019

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Value added tax standard rate (%)	6 / 25		↓	2019

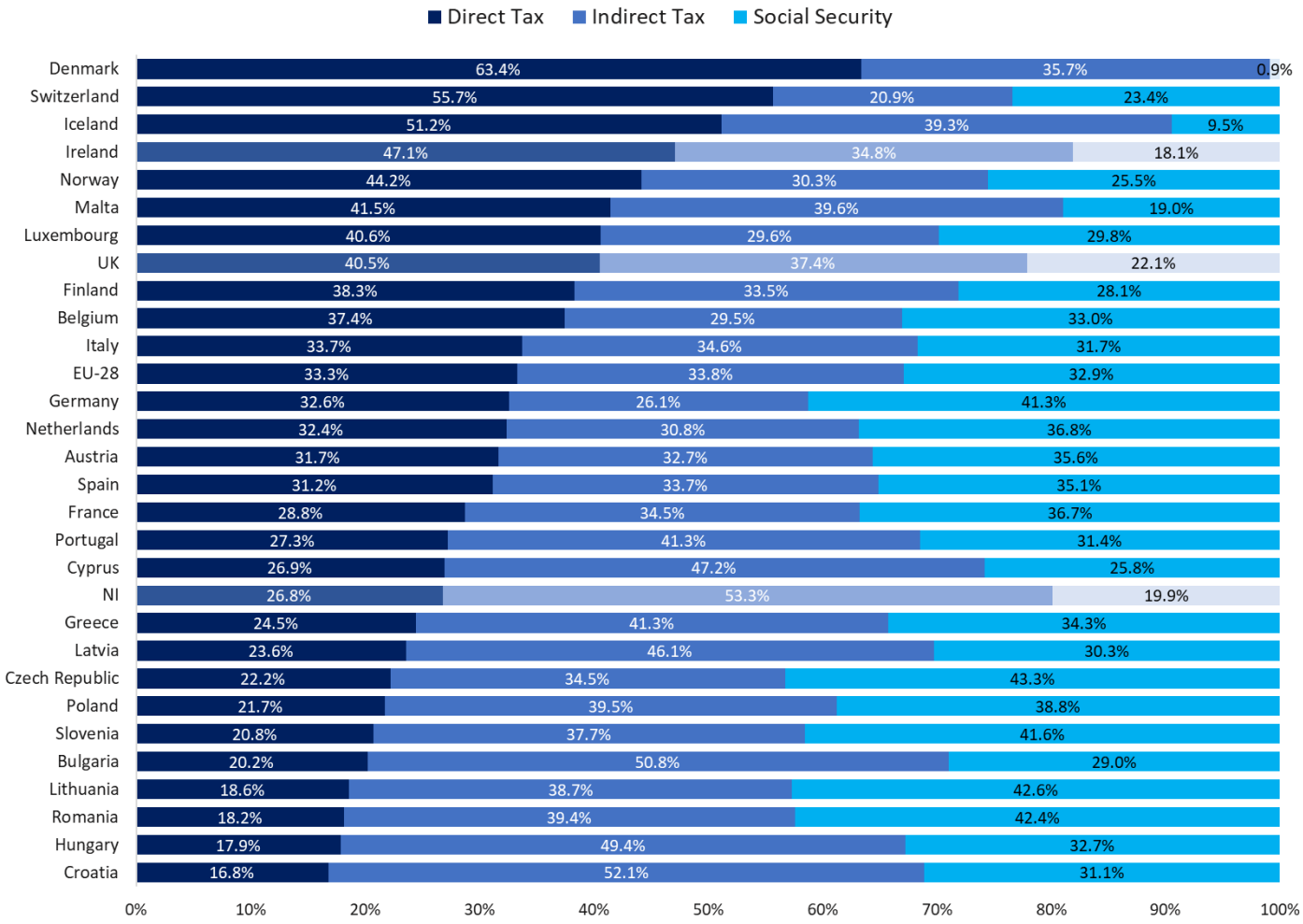


Source: OECD

4.2.12. VAT rates are set at national level and therefore, the UK and NI VAT rates are treated as one. The general direction of travel is upwards for VAT rates as Governments sought to address budget deficits as economies recovered following the 2008 recession. Whilst UK & NI VAT rates have increased, eroding competitiveness in this indicator, they remain at the relatively more competitive end of the spectrum. The current rate has been in place from 2011, when it increased from 17.5%.

Figure 4.2.7: Breakdown of tax revenue, 2018

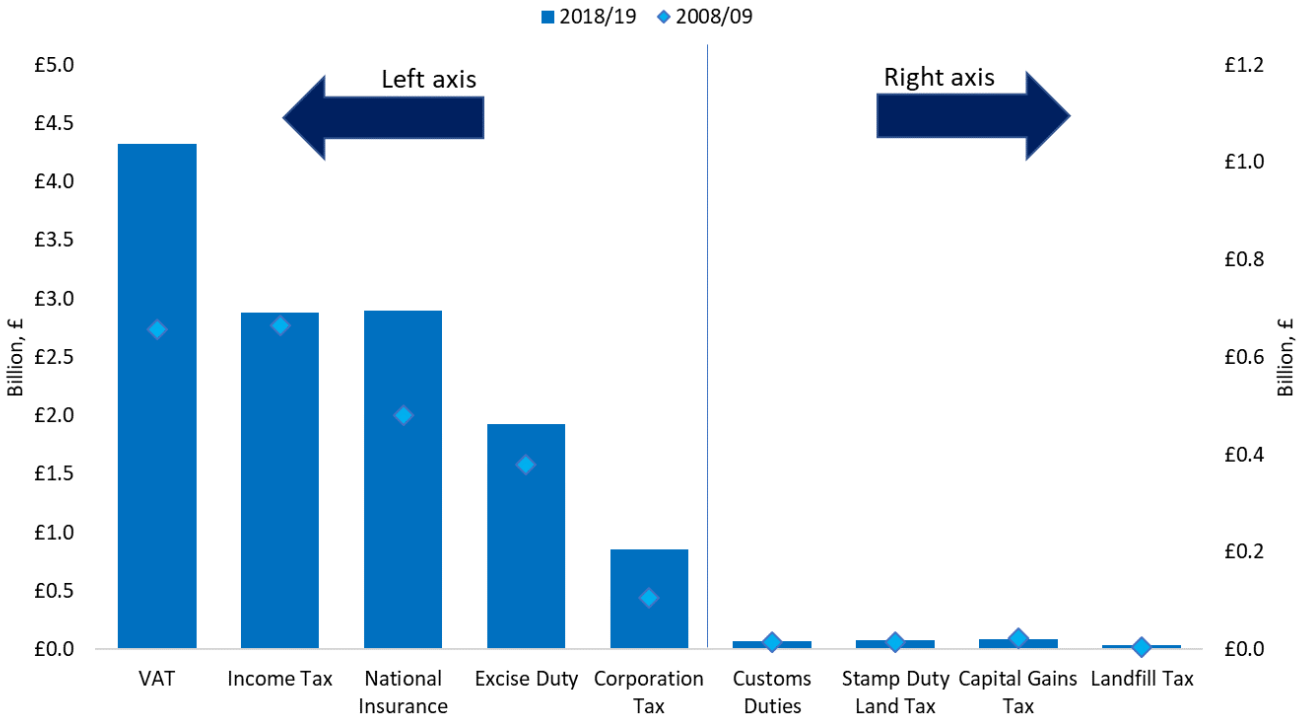
Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Breakdown of tax revenue (social security)	5 / 29		=	2018
Breakdown of tax revenue (direct tax)	11 / 29		↑	2018
Breakdown of tax revenue (indirect tax)	29 / 29		=	2018



Sources: Eurostat & HMRC
Notes: EU countries exclude Estonia
Direct tax = current taxes on income, wealth, etc. plus capital taxes
Indirect tax = taxes on production and imports
Social security tax = net social contributions minus Capital transfers from general government to relevant sectors representing taxes and social contributions assessed but unlikely to be collected

4.2.13. Direct taxation in NI accounts 27% of Government revenue, followed by social security (20%), meanwhile indirect tax accounts for the largest proportion at 53% of government revenue. In contrast, direct tax makes up the majority of UK and Ireland Government revenue with Ireland receiving 45% of its revenue through direct taxation. It is important to note that such revenue measures do not take account of the benefits which accrue as a result of these payments. NI's patterns are markedly different to the UK and Ireland, especially in indirect tax, making this issue worthy of further examination.

Figure 4.2.8: Tax revenue by category in NI, 2008/09 – 2018/19



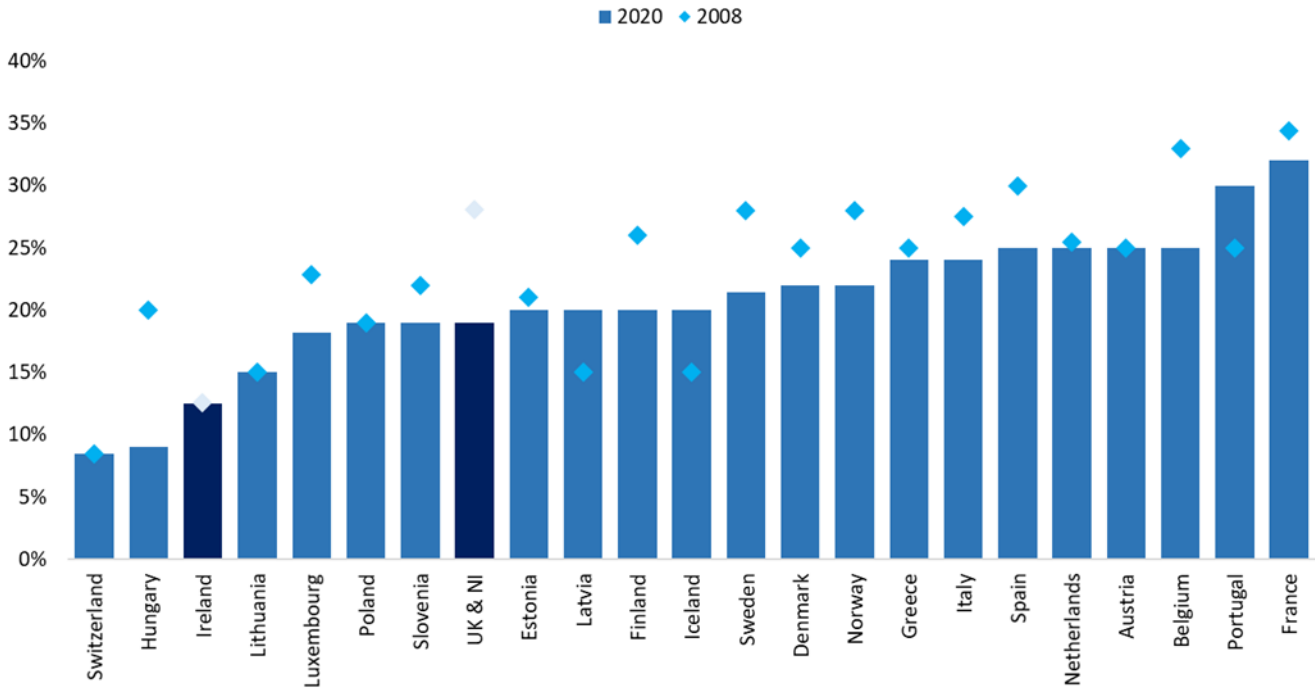
Source: HMRC

4.2.14. VAT generates the largest proportion of tax revenue in NI, more than £4.3bn per annum. VAT revenues have increased markedly over the last decade due to an increase in consumption and an increase in the rate from 17.5% to 20.0%. Income Tax and National Insurance are also two import sources of revenue. Corporation Tax receipts have also increased markedly over the decade as the headline rate declined.

Corporation Tax

Figure 4.2.9: Central Government Nominal Corporate Tax Rate (%), 2008 – 2020

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Central Government Corporate Income Tax Rate	7 / 26		↑↑↑↑↑↑	2020



Source: OECD

Note: This indicator does not include local government Corporate Tax rates, focussing only on the Central Government rate. For example, Germany's local Corporate Tax rate is 15%, resulting in a headline rate of 30%. Other countries, including the UK and NI, do not have a local Corporate Tax.
Chart excludes Bulgaria, Croatia, Cyprus, Czech Republic, Germany, Malta, Romania and Slovakia from EU-28 due to missing 2020 data.
The UK is joint 7th with Slovenia and Poland.

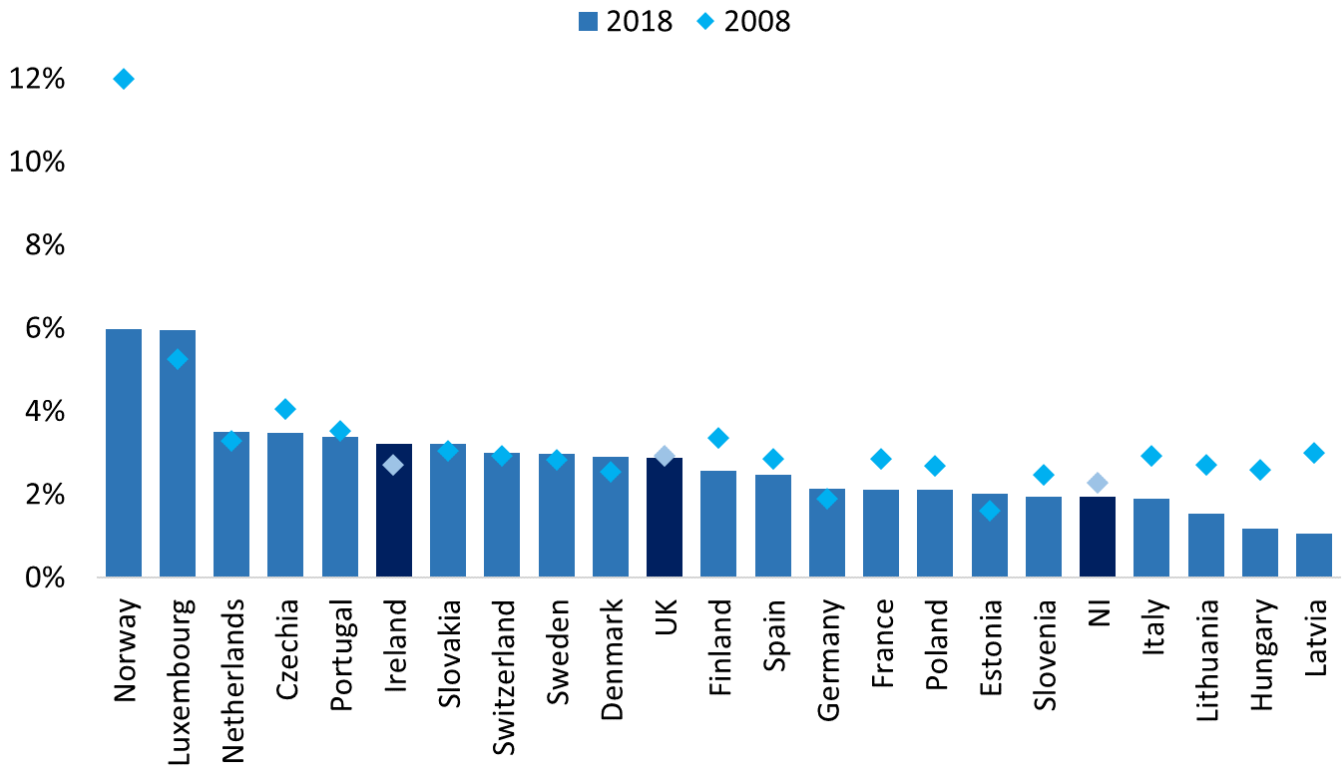
4.2.15. Over the period 2008-2020, the UK (and therefore NI's) Corporation Tax rate reduced significantly from 28% to 19%, mainly in annual reductions from 2011 - 2015. The 19% rate has been in place since 2017 putting the UK and NI into the top third of the table. Ireland is one of the leading countries with its flagship rate of 12.5%. It should be noted that the chart reflects central statutory rates – effective rates in many counties can be significantly lower and local rates can add to those illustrated here.

4.2.16. The Fresh Start Agreement[7] announced that the power to reduce the Corporation Tax rate to 12.5% would be devolved to NI in 2018. However, a differential rate was not implemented. Recent shifts in geopolitics, public finances, ideologies and consequently policy stances since 2018 now mean that it is highly unlikely that these powers will be exercised in NI to reduce the rate further.

[7] http://www.northernireland.gov.uk/a-fresh-start-stormont-agreement.pdf

Figure 4.2.10: Corporation Tax receipts (% of GDP), 2008-2018

Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Corporation Tax as % of GDP	19 / 23		=	2018



Sources: OECD & HMRC
Note: Greece, Belgium and Iceland ae not included in the chart as 2018 data are not available.

4.2.17. Corporate taxation is an important source of funding for public services. Ireland has increased its Corporation Tax revenue over the period, whilst retaining its flagship low rate of 12.5%. The UK is mid-table; however, NI is in the bottom quartile and Corporate Tax revenue as a percentage of GDP remains lower than 2008, which marked the height of the boom in NI.

Summary of macro and fiscal sustainability

4.2.18. NI's performance in the macroeconomic and fiscal sustainability element of the Scorecard is determined to a large extent by its historical competitiveness performance and the relative performance of the UK economy in an international context.

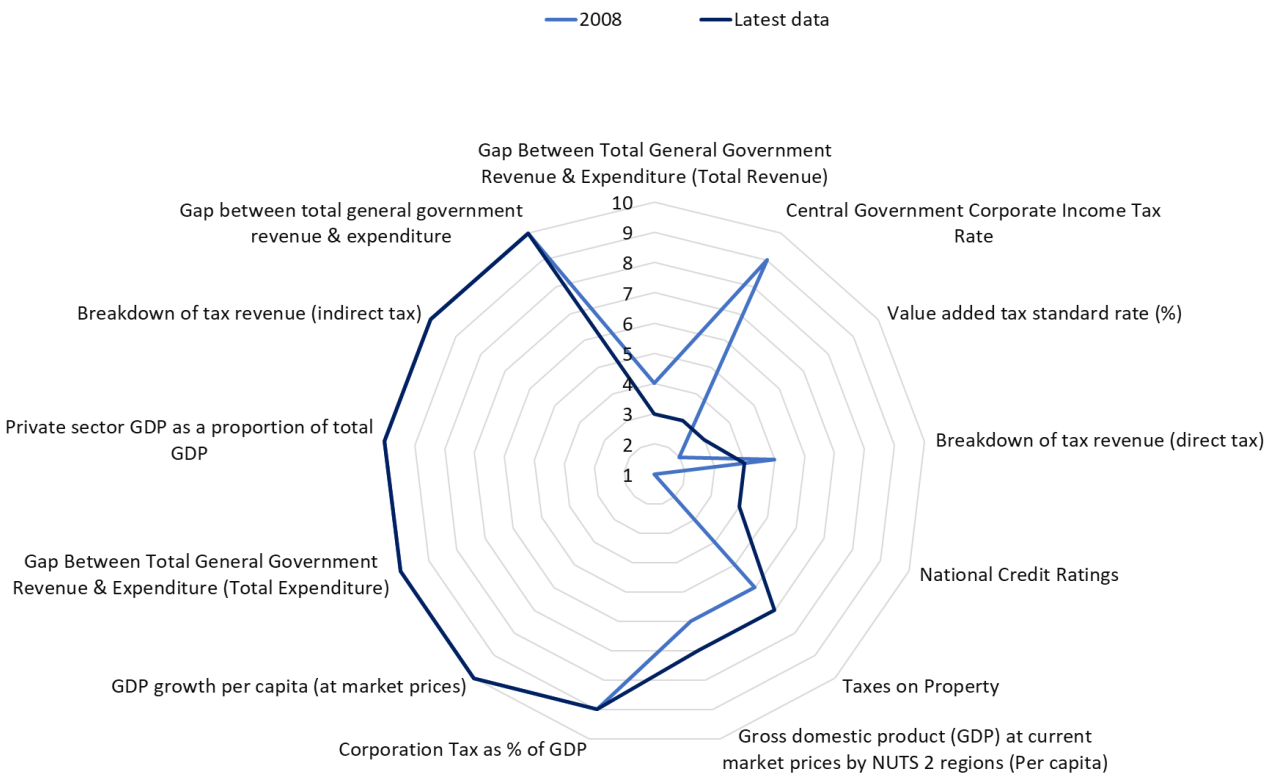
4.2.19. Over the past decade, NI's relative position has improved marginally albeit from a low base, remaining below average for the comparator countries considered in this analysis. The most significant driver of improving competitiveness is the reduction in the UK Corporate Tax rate from 28% to 19% since 2008 however national credit ratings and taxes on property have eroded competitiveness marginally.

4.2.20. This element of the Scorecard demonstrates that from a macroeconomic and fiscal perspective, it is beneficial for the NI economy to be part of a larger economic regime, which cushions it from many of the global challenges and turbulence that may be faced by a smaller economy. For example, NI benefits from the relatively stable public finances, taxation system and funding regime, as well as from a competitive credit rating. The creation of the Fiscal Council for NI later in 2020[8] will examine how Northern Ireland raises tax revenue and spends public monies. The national debate and decisions on the future path and timeline for restoration of UK public finances will have a direct impact on NI, as an era of higher taxation or lower spending will influence economic growth and potentially also the decisions on devolution of tax setting and spending powers.

4.2.21. NI's private sector remains relatively smaller than competitor nations and this is reflected in the narrower and more shallow tax base. Private sector growth was reasonably strong over the last decade while public sector growth was constrained by austerity. As a result, the public: private balance has improved, but not yet by enough to move NI up the table of international competitors.

8 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856998/2020-01-08_a_new_decade__a_new_approach.pdf

Summary of decile placement for macro and fiscal sustainability



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary of macro and fiscal sustainability indicators

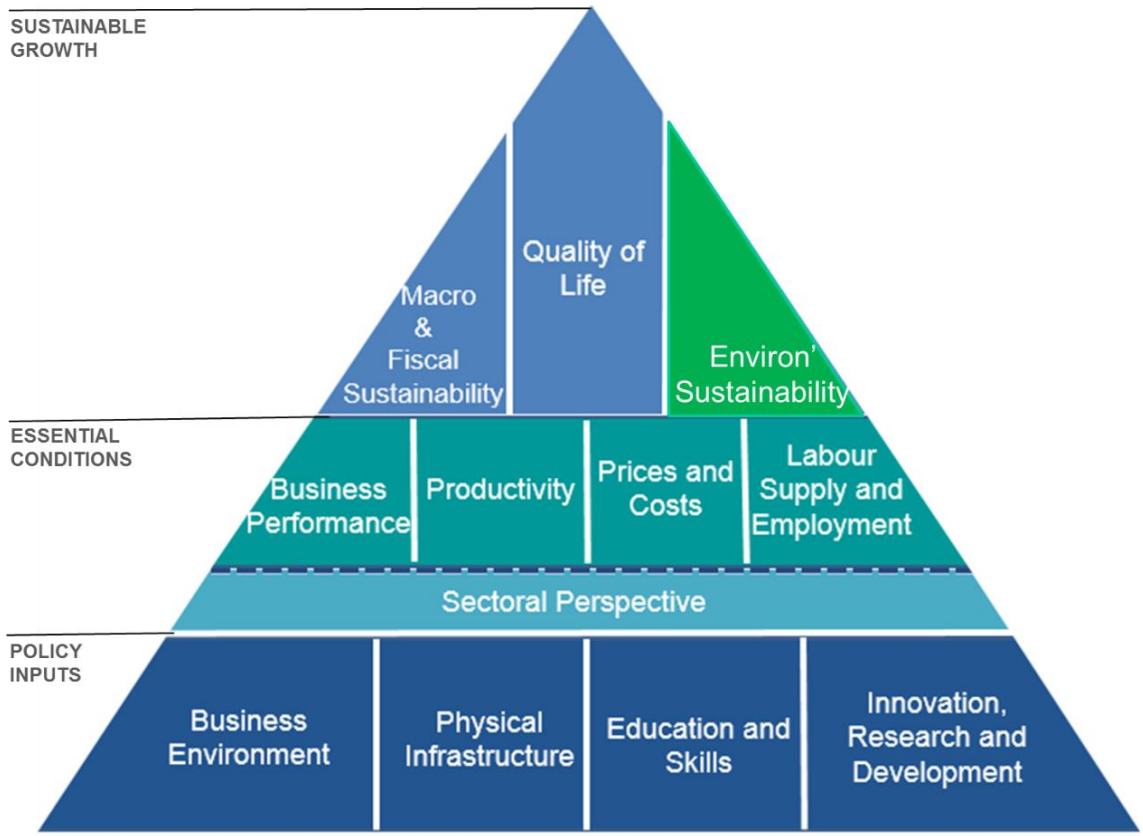
Macroeconomic Sustainability	Rank	Direction of change	Change in decile	Year
Breakdown of tax revenue (social security)	5 / 29		=	2018
Value added tax standard rate (%)	6 / 25		↓	2019
Gap between total general government revenue & expenditure (total revenue)	7 / 27		↑	2018
Central Government Corporate Income Tax Rate	7 / 26		↑↑↑↑↑↑	2020
National Credit Ratings	10 / 32		↓↓↓	2019
Breakdown of tax revenue (direct tax)	11 / 29		↑	2018
Taxes on Property	17 / 27		↓	2018
Gross domestic product (GDP) at current market prices by NUTS 2 regions (Per capita)	19 / 31		↓	2018
Corporation Tax as % of GDP	19 / 23		=	2018
Gap Between Total General Government Revenue & Expenditure (Total Expenditure)	24 / 24		=	2018
Private sector GDP as a proportion of total GDP	28 / 28		=	2018
Gap between total general government revenue & expenditure	29 / 29		=	2018
Breakdown of tax revenue (indirect tax)	29 / 29		=	2018
GDP growth per capita (at market prices)	31 / 31		=	2018

Source: UUEPC

4.3 Environmental sustainability

4.3.1. Environmental sustainability has a direct impact on long term economic competitiveness and the world is now facing into a climate emergency. It will be more important now than ever before that economic growth is also environmentally and socially sustainable.

4.3.2. NI will need to play its part in meeting 2050 net carbon zero targets and additional focus will undoubtedly be placed upon this element of the scorecard in future years. Degradation of the environment in which we live can impact negatively upon the health of the population, embedding additional costs on public services and also negatively impact the size and productivity of the available labour force.

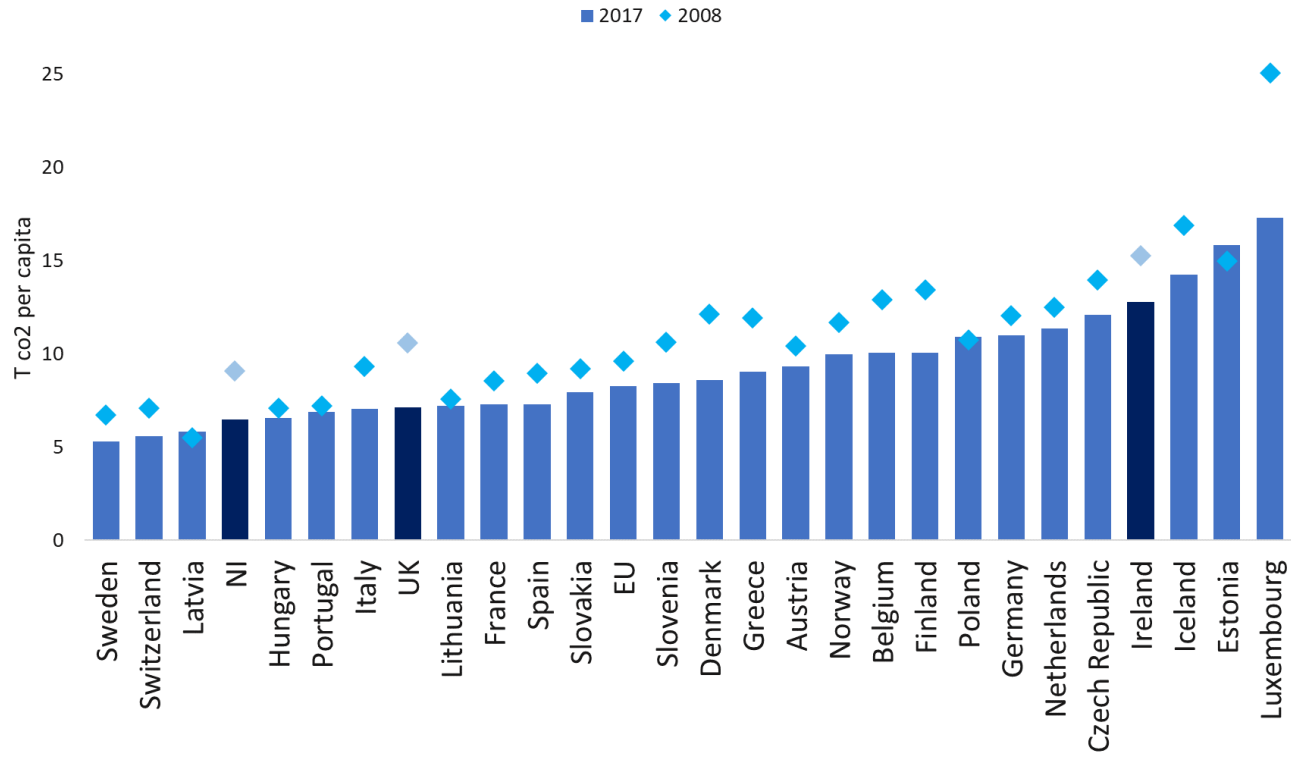


Source: UUEPC

Greenhouse gas emissions

Figure 4.3.1: Greenhouse gas emissions per capita (t CO2 per person), 2009-2017

Environmental sustainability	Rank	Direction of change	Change in decile	Year
Greenhouse gas emissions per capita	4 / 27		↑	2017

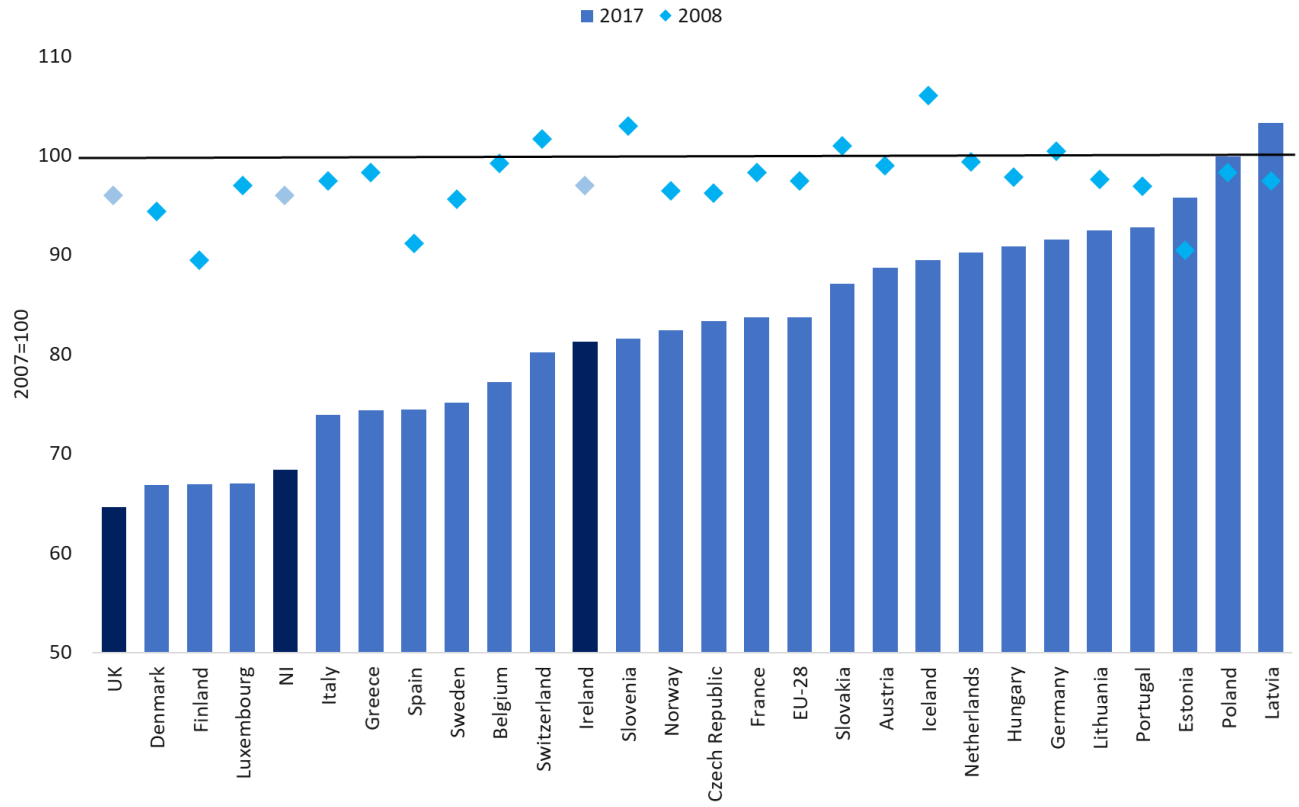


Sources: Eurostat & National Atmospheric Emissions Inventory
Note: Ranks excludes Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania as 2017 data are not available

4.3.3. NI produces a relatively low amount of greenhouse gases per person and has been successful at reducing the amount produced over time. NI is ahead of the UK and Ireland by a significant degree, potentially due to the current industrial structure and commuting patterns.

Figure 4.3.2: Total greenhouse gas emissions (indexed to 2007), 2000 – 2017

Environmental sustainability	Rank	Direction of change	Change in decile	Year
Total greenhouse gas emissions (indexed to 2007)	5 / 27		↑	2017

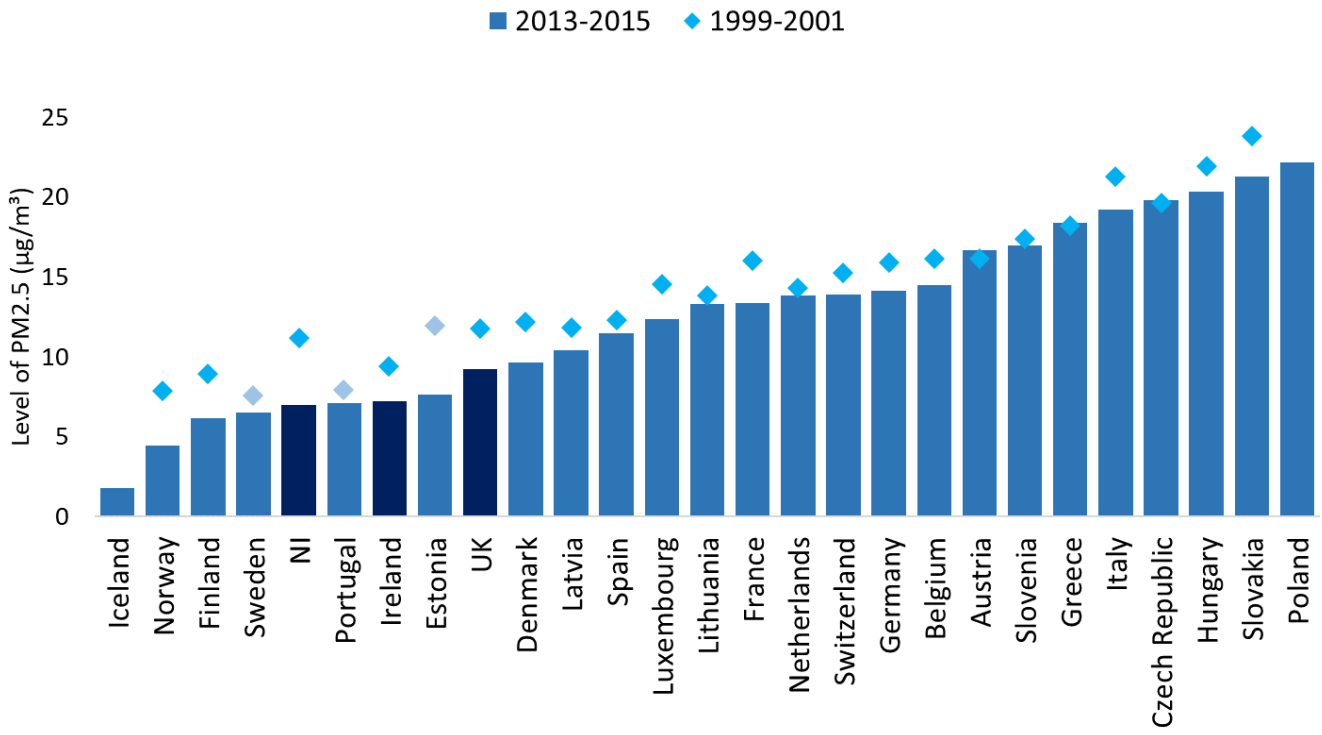


Sources: Department for the Environment and Climate Change & OECD
Note: Rank excludes EU-28.

4.3.4. The UK has been the most successful of the countries included in the analysis in terms of driving down CO^2 emissions over the decade. NI has also performed well, ranked 5th of the countries included. However, in Ireland, whilst emissions have fallen in a historical context, they still remain relatively high.

Figure 4.3.3: Exposure to air pollution (level of PM2.5) (3-year averages 1999-2001 & 2013-15)

Environmental sustainability	Rank	Direction of change	Change in decile	Year
Exposure to Air Pollution	5 / 27		=	2016



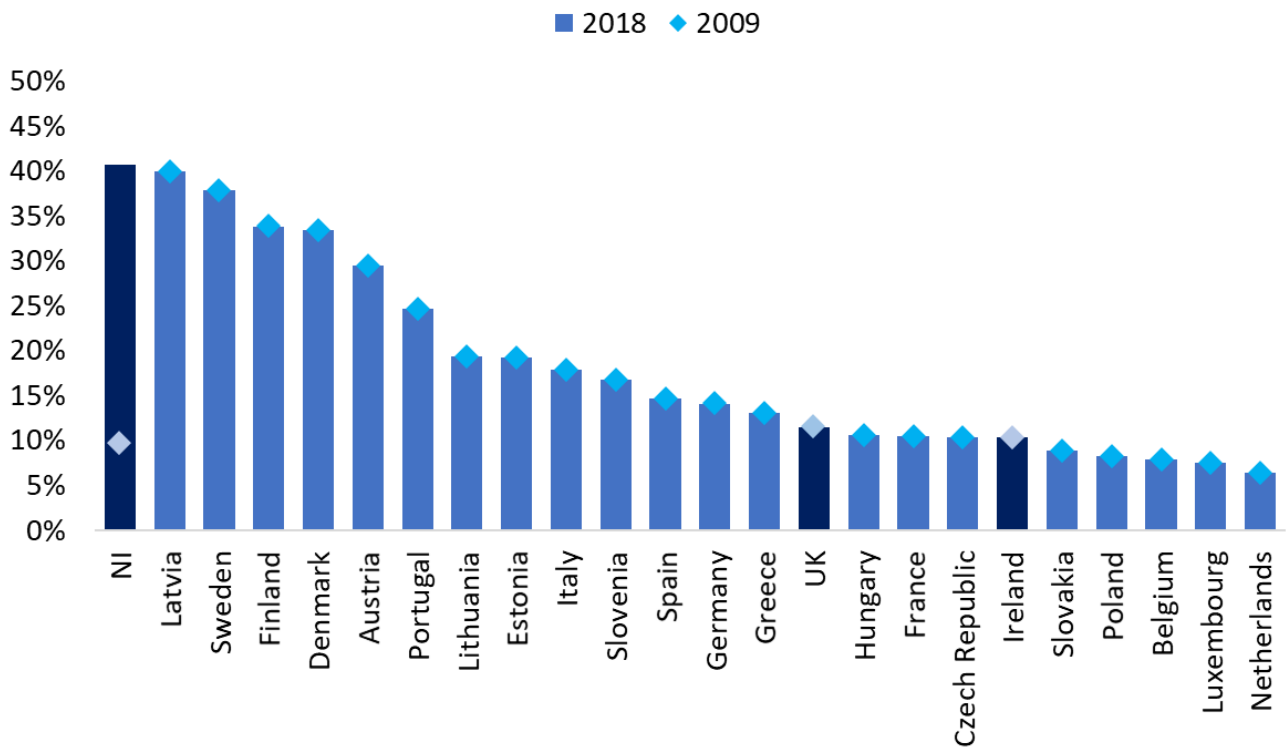
Source: OECD Regional Well-Being 2018
Note: OECD estimates from van Donkelaar, A., R. V. Martin, M. Brauer and B. L. Boys, Use of Satellite Observations for Long-Term Exposure Assessment of Global Concentrations of Fine Particulate Matter, Environmental Health Perspectives, Satellite-Derived Surface PM2.5 concentration dataset, annual mean 2013 = 2011-2014; 2003 = 2002-2004.
No 1999-2001 data available for Iceland.

4.3.5. NI has a relatively good record in terms of exposure to air pollution, ranked 5th of the countries included in the analysis. NI ranks ahead of the UK and aligns with a number of Scandinavian economies. The prevailing westerly winds across Europe also benefit the most westerly nations as pollution is carried across the continent.

Energy sources

Figure 4.3.4: Percentage of electricity generated from renewable sources, 2009-2018

Environmental sustainability	Rank	Direction of change	Change in decile	Year
% of energy from renewable sources	1 / 24		=	2018

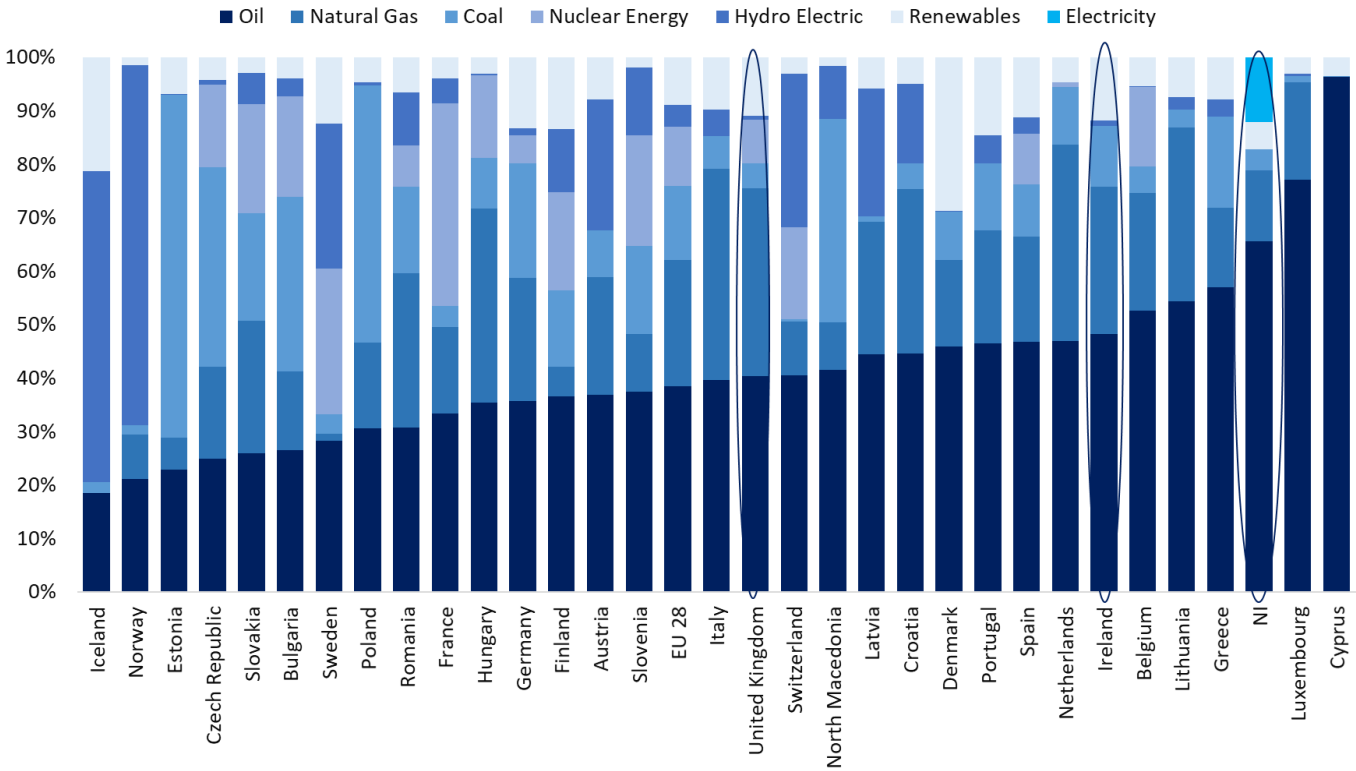


Sources: DECC, DfE & OECD
Note: Chart update based on OECD data – no data included for Bulgaria, Croatia, Cyprus, Iceland, Norway, Malta, Romania, EU-28, Switzerland, North Macedonia, Serbia
NI data available to 2019 but other countries to 2018 only.

4.3.6. This is an area of significant improvement for NI, with the most marked increase of the countries included in the analysis. NI has pivoted from being one of the weakest to topping the table, well ahead of the UK and Ireland. Almost all countries have improved, however the degree of improvement for NI is striking - significantly ahead of the others.

Figure 4.3.5: Components of Energy Consumption- 2017

Environmental sustainability	Rank	Direction of change	Change in decile	Year
Components of energy consumption coal as % of total	9 / 32		n/a	2017
Components of energy consumption natural gas as % of total	10 / 32		n/a	2017
Components of energy consumption coal	12 / 32		n/a	2017
Components of energy consumption renewables	14 / 32		↑	2017
Components of energy consumption renewables as % of total	19 / 32		n/a	2017
Components of energy consumption total consumption	23 / 32		n/a	2017
Components of energy consumption oil	24 / 32		n/a	2017
Components of energy consumption oil as % of total	30 / 32		n/a	2017

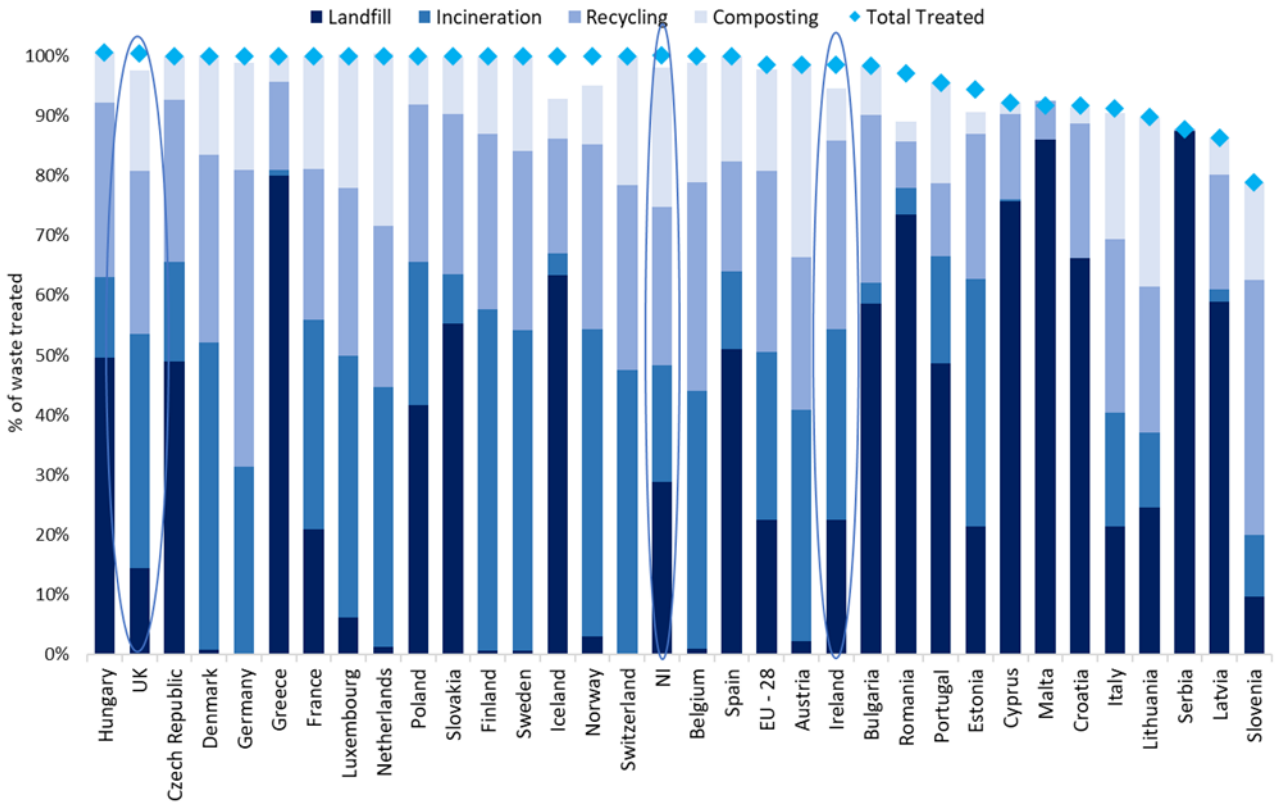


Sources: Eurostat, NISRA, Utility Regulator
Note: NI gas consumption is based on data from the Utility Regulator for Greater Belfast and 10 towns.

4.3.7. NI continues to be heavily dependent on imported oil which is required for almost two thirds of NI's overall energy consumption (transport and heating). This is much greater than the EU average of 38%. Natural gas then follows at 12% and electricity at 11% of NI's energy consumption with renewable energy accounting for just 5% of NI's energy consumption in 2017. The continued development of energy generation from renewable sources will assist with decreasing NI's reliance on imported fuels.

Figure 4.3.6: Municipal waste generated and treatment, 2018

Environmental sustainability	Rank	Direction of change	Change in decile	Year
Municipal waste generated and treatment, recycling	11 / 29		=	2018
Municipal waste generated and treatment, composting	15 / 29		=	2018
Municipal waste generated and treatment, incineration	16 / 30		↓	2018
Municipal waste generated and treatment, landfill	18 / 29		↑↑	2018
Municipal waste generated and treatment, total treated	21 / 29		↓	2018
Municipal waste generated and treatment, total waste	21 / 29		↓	2018



Sources: Eurostat & NIEA
Note: Data for Cyprus, Iceland, Ireland and Greece are for 2017

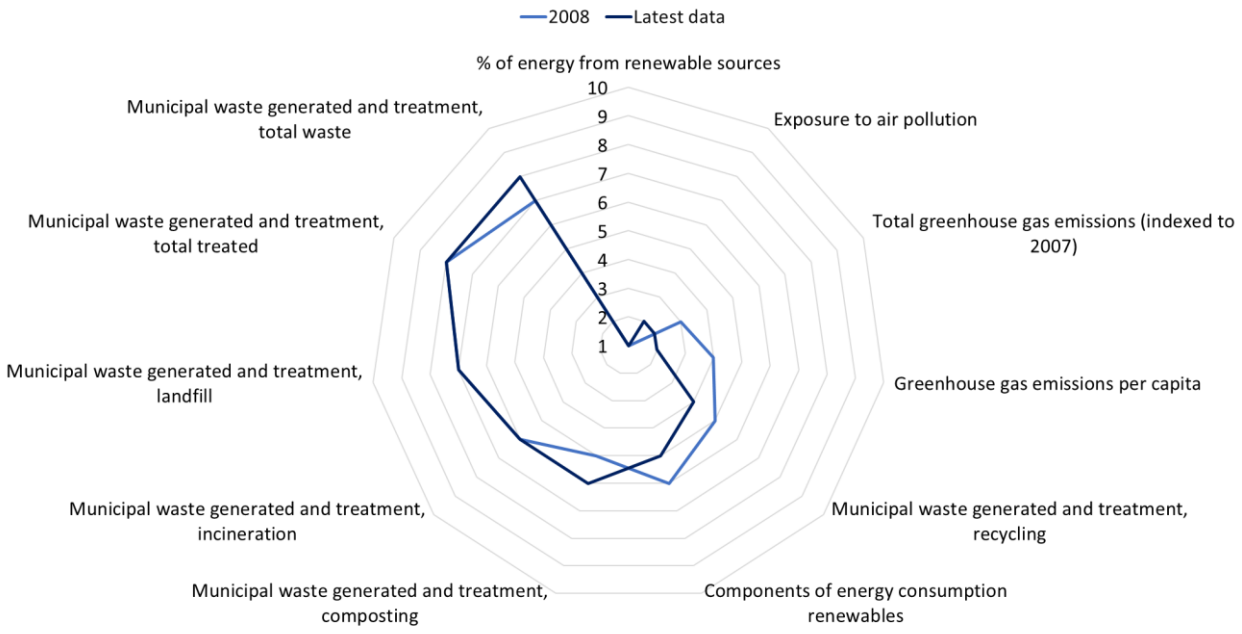
4.3.8. NI generated 528kg of total waste per person during 2018, above the EU-28 average of 488kg. All of the waste generated in NI is treated, with an increasing proportion being recycled (26%) and composted (23%). However, 29% of waste still goes to landfill. Again, this is an improvement from two thirds of waste in 2009 but is still a relatively high proportion. Both the UK and Ireland have been successful in terms of reducing the amount of waste landfilled.

Summary of environmental sustainability

4.3.9. NI performs very well in some elements of environmental sustainability however challenges remain in other elements. NI's performance is strong in terms of low levels of greenhouse gas emissions and consequently, low levels of air pollution. A notable success is in the proportion of electricity generated from renewable sources in which NI has moved from one of the weakest performing countries to best in class over a decade. This improvement is as a result of significant investment in wind generation and other renewable energy sources, demonstrating the impact of future focused policy and collaboration with the private sector.

4.3.10. In contrast, NI remains heavily dependent on imported oils for heating and transport and continues to landfill roughly one-third of refuse. NI's dependency on imported fuels exposes NI to significant risks in terms of future price rises and security of supply. Reducing this reliance in future will be vital to improve environmental sustainability, meet 2050 net zero carbon targets, as well as improving a security of supply of energy from other resources.

Summary of environmental sustainability indicators by decile



Source: UUEPC
Note:s 1 is the most competitive and 10 the least competitive position on the spider diagram.
The additional components of energy consumption indicators have been excluded as 2008 data were not available.

Summary of environmental sustainability indicators

Environmental sustainability	Rank	Direction of change	Change in decile	Year
% of energy from renewable sources	1 / 24		=	2018
Greenhouse gas emissions per capita	4 / 27		↑	2017
Total greenhouse gas emissions (indexed to 2007)	5 / 27		↑	2017
Exposure to air pollution	5 / 27		=	2016
Components of energy consumption coal as % of total	9 / 32		n/a	2017
Components of energy consumption natural gas as % of total	10 / 32		n/a	2017
Municipal waste generated and treatment, recycling	11 / 29		=	2018
Components of energy consumption coal	12 / 32		n/a	2017
Components of energy consumption renewables	14 / 32		↑	2017
Municipal waste generated and treatment, composting	15 / 29		=	2018
Municipal waste generated and treatment, incineration	16 / 30		↓	2018
Municipal waste generated and treatment, landfill	18 / 29		↑↑	2018
Components of energy consumption renewables as % of total	19 / 32		n/a	2017
Components of energy consumption natural gas	20 / 32		n/a	2017
Municipal waste generated and treatment, total treated	21 / 29		↓	2018
Municipal waste generated and treatment, total waste	21 / 29		↓	2018
Components of energy consumption total consumption	23 / 32		n/a	2017
Components of energy consumption oil	24 / 32		n/a	2017
Components of energy consumption oil as % of total	30 / 32		n/a	2017

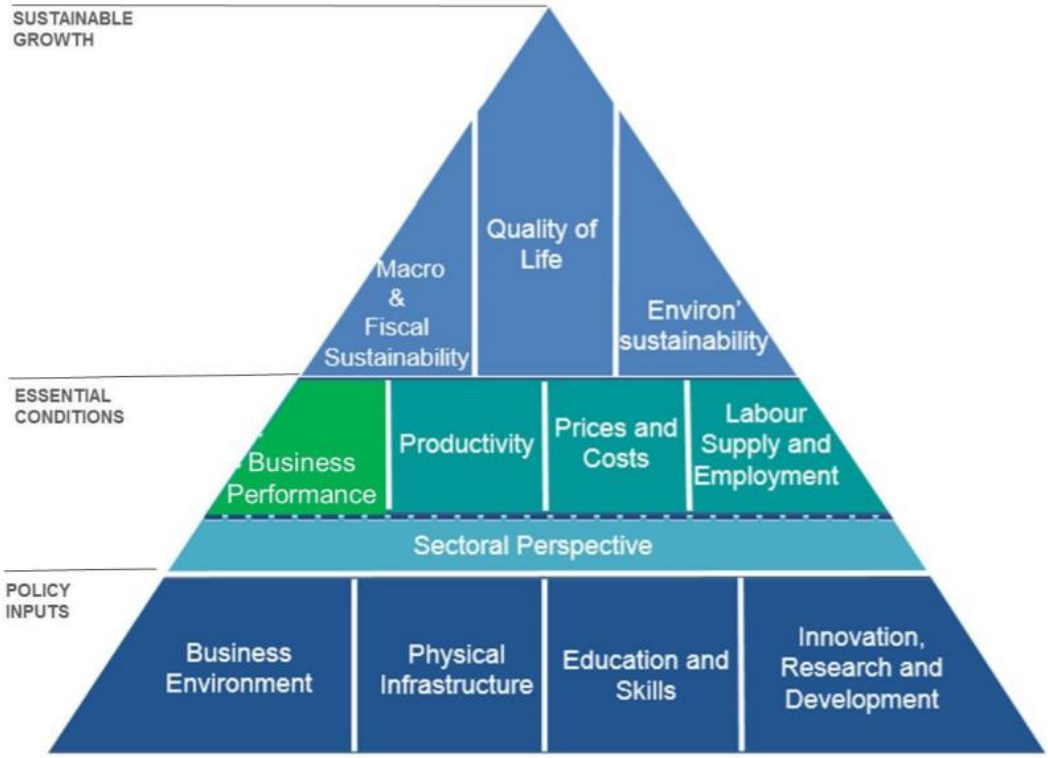
Source: UUEPC

5 Competitiveness: essential conditions

5.1. NI's business performance, productivity, prices and costs, and labour supply impact directly upon NI's current levels of competitiveness and are considered as essential conditions that are required for boosting overall competitiveness in the Scorecard.

5.1 Business performance

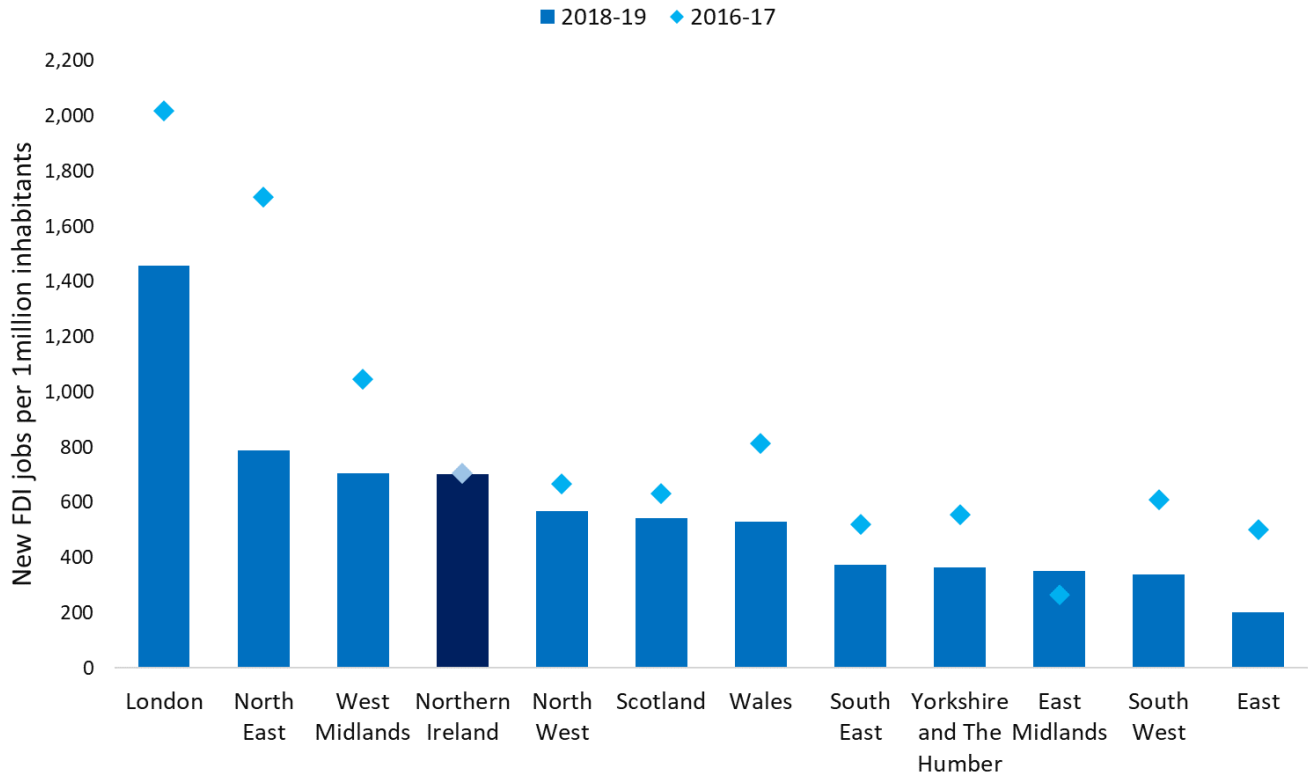
5.1.1. The performance of enterprises has a direct impact on the overall competitiveness of a region or nation. A vibrant and competitive business base encourages competition and growth, honing and maintaining advantage which helps countries to compete internationally for investment and export market shares. In turn, these factors influence incomes and employment levels throughout the economy, the composition of the tax base and feed through to government expenditure.



Source: UUEPC

Figure 5.1.1: FDI jobs per million inhabitants, 2016/17-2018/19

Business Performance	Rank	Direction of change	Change in decile	Year
FDI jobs created per million inhabitants	4 / 12		↑	2018



Sources: Gov.uk & ONS

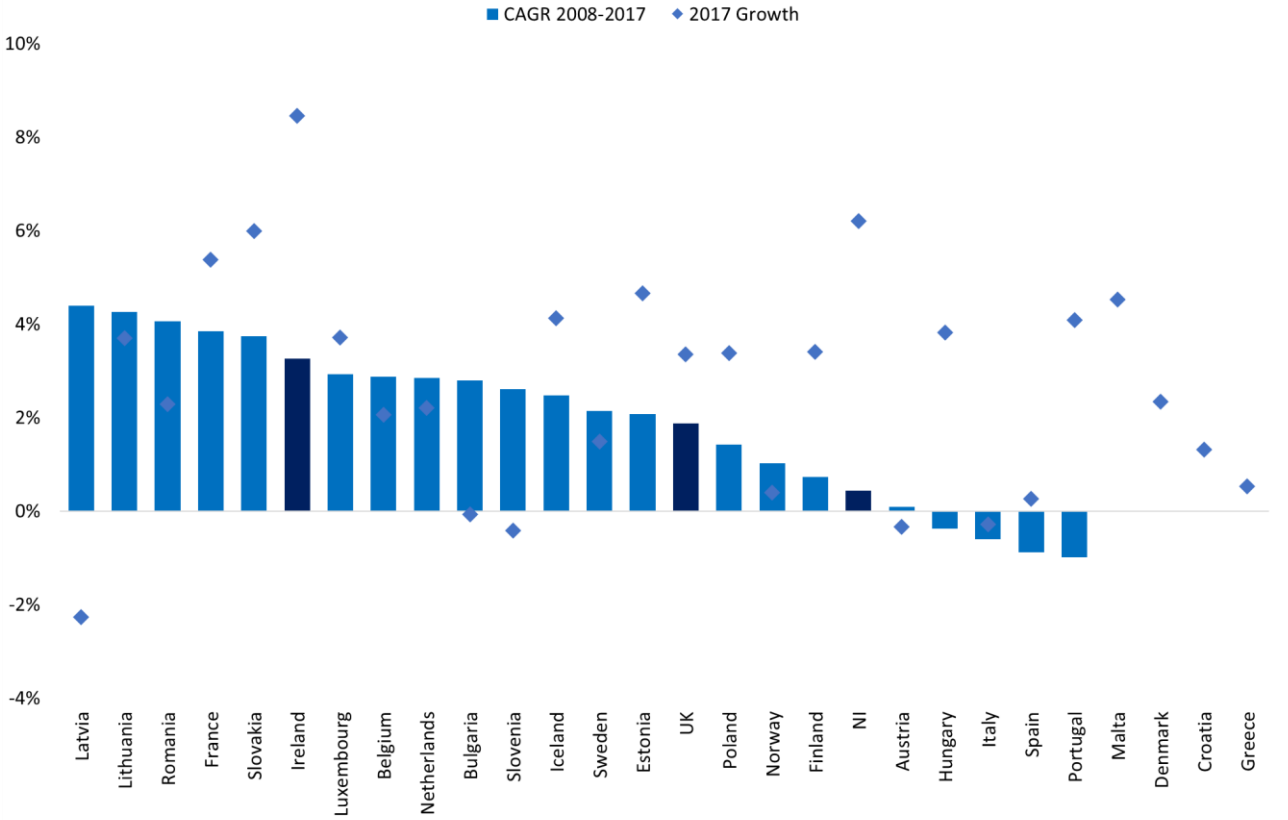
5.1.2. With the exception of the East Midlands and NI, all other UK regions have experienced a decline in FDI jobs created relative to the population. As might be expected, London is the most successful region although it is noteworthy that the North East and West Midlands outpace NI.

5.1.3. Whilst not included in this chart as the data are from a different source and are therefore not directly comparable[9], Ireland continues to perform strongly in this indicator rising from 2,865 (FDI jobs per one million inhabitants) to 4,500 in 2018. This reflects Ireland's long-term policy focus on attracting FDI through investments in education, infrastructure and the low Corporation Tax rate.

[9] Ireland not included due to data being incomparable as source and collection is different. .

Figure 5.1.2: Business population growth (%), 2008-2017

Business Performance	Rank	Direction of change	Change in decile	Year
Net business population growth	19 / 24		n/a	2017



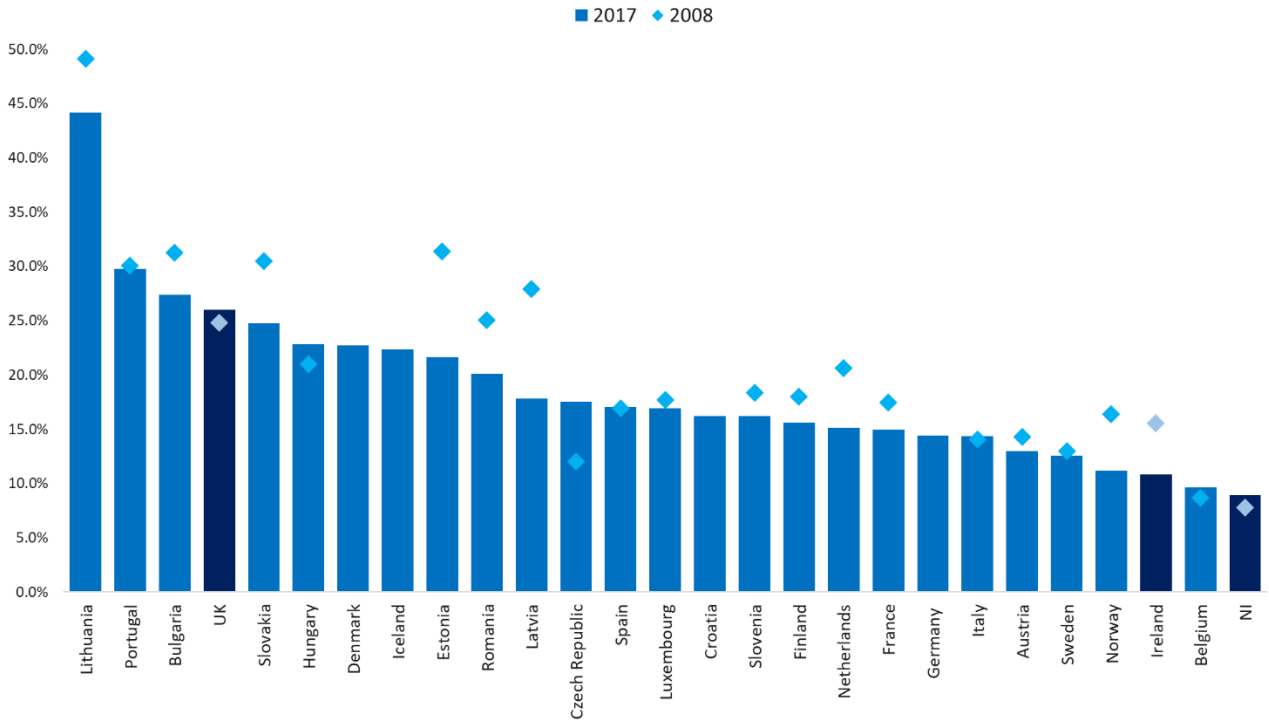
Sources: Eurostat & ONS
Note: Full data for Malta, Denmark, Greece and Croatia not available to complete full comparison with CAGR

5.1.4. NI's business population grew by 6% from 2016 to 2017 boosting NI's relative competitive position for 2017. However, the compound annual growth rate of the business population (CAGR) from 2008 to 2017 is much lower at 0.4%, this is also much lower than Ireland which grew by 3.3% and the UK at 1.9%.

5.1.5. This element of the scorecard suggests that further research could add value in understanding how the enterprise eco-system supports business starts and how it could be boosted in a COVID-19 and post Brexit environment.

Figure 5.1.3: Business Churn, 2008-2017

Business Performance	Rank	Direction of change	Change in decile	Year
Business churn	27 / 27		=	2017



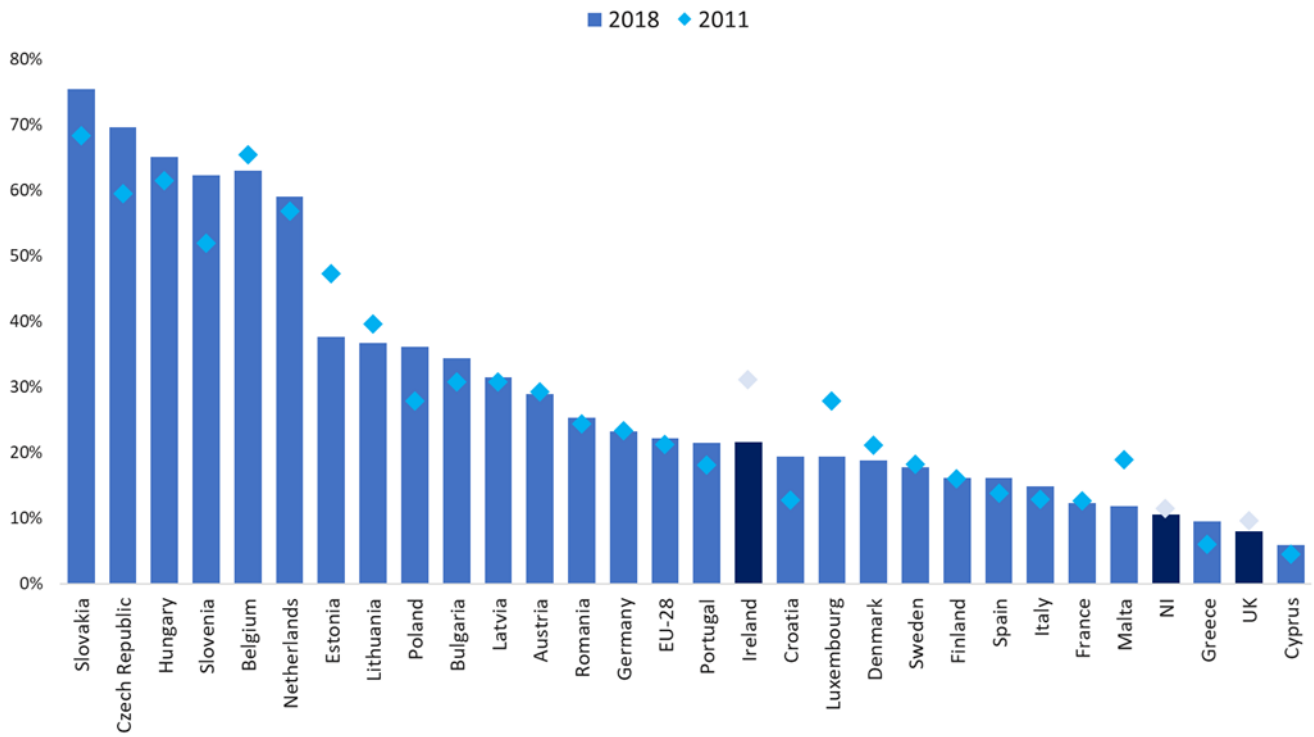
Sources: Eurostat & ONS
Note: 2008 data not available for all countries.

5.1.6. "Business churn" is calculated as the total number of births and deaths divided by the total number of enterprises. Higher levels of churn are indicative of a more dynamic business environment, with new more productive businesses replacing older inefficient ones. The chart illustrates that, in broad terms, Scandinavian and western European countries generally exhibit lower churn rates. The UK, however, has a relatively high churn rate at 26% whilst NI ranks in 27th place at 9%.

5.1.7. Again, this element of the scorecard suggests that further research could add value as both NI and Ireland have relatively low business start-up and churn rates, but better than average survival rates. This is important as NI enterprises are less innovative than average and start-ups provide one route to increase the level of innovation amongst the business stock. The link between low enterprise and innovation rates could be a valuable area of further exploration.

Figure 5.1.4: Exports of goods, extra EU, percentage of GDP, 2011-2018

Business Performance	Rank	Direction of change	Change in decile	Year
Exports of goods, extra-EU (% GDP)	26 / 29		=	2018

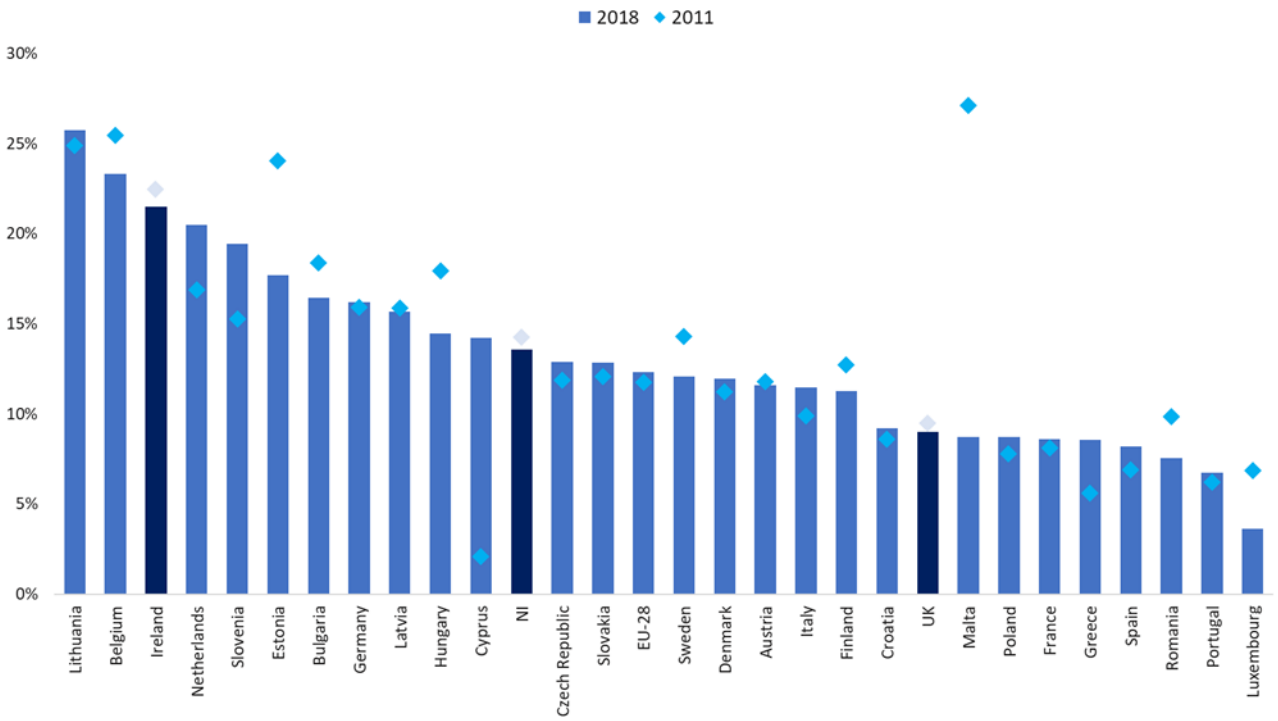


Sources: Eurostat, ONS, DETI and ECB
Note: Calculation completed in Euros. Rank excludes EU-28.

5.1.8. In 2018, goods exports from NI to countries outside of the EU amounted to just 11% of GDP, a relatively very low proportion which has remained steady since 2011. It will be important for NI to continue to develop trade links to increase exports outside of the EU in a post-Brexit environment, making this indicator (and export and external sales indicators) worthy of close monitoring.

Figure 5.1.5: Exports of goods, intra-EU, percentage of GDP, 2011-2018

Business Performance	Rank	Direction of change	Change in decile	Year
Exports of goods, intra-EU (% GDP)	12 / 29		=	2018



Sources: Eurostat, ONS, DETI and ECB
Note: Calculation completed in Euros. Rank excludes EU-28.

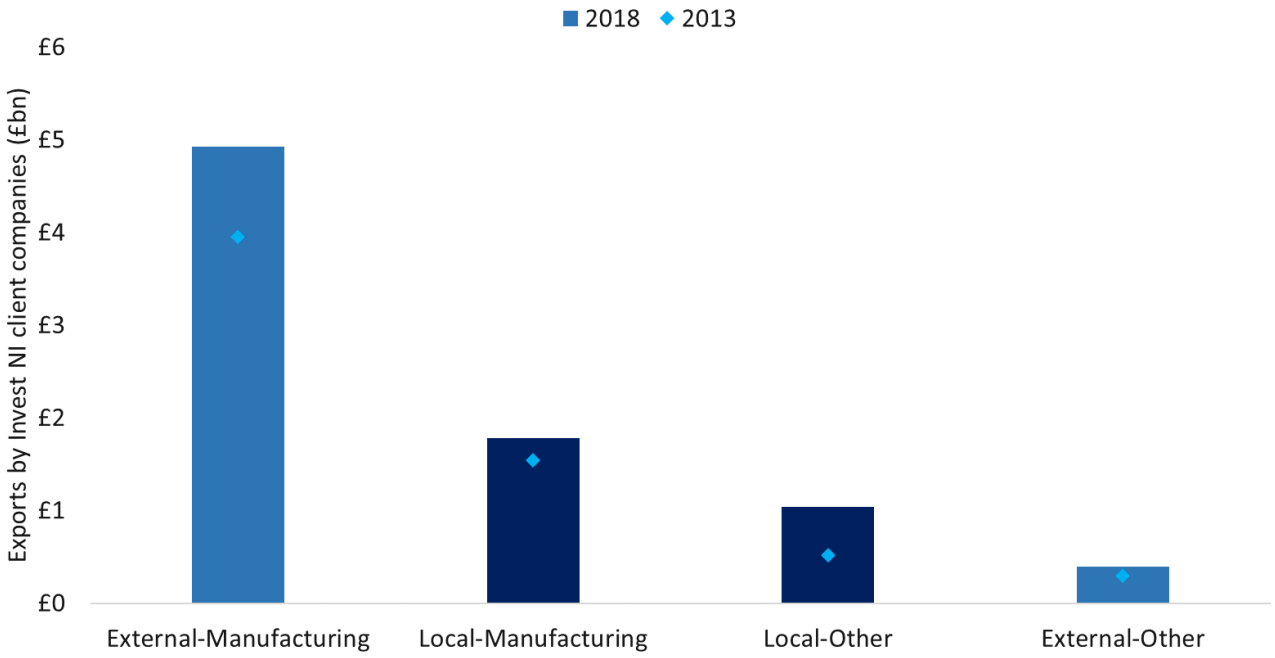
5.1.9. In 2018, exports of goods within the EU from NI accounted for 14% of GDP, remaining steady since 2011 and above average for the UK. It is unsurprising that more than half of NI's EU-based exports are to Ireland[10].

5.1.10. In a post-Brexit environment, it will be important for open and frictionless trade links to be maintained with Ireland and the UK to maximise competitiveness in this area.

5.1.11. The NI Protocol means that NI is the only part of the UK which remains part of the EU single market for goods and therefore there are likely to be opportunities to increase manufacturing exports to EU markets.

[10] Note the previous indicator, exports to emerging markets as a percentage of GDP, has been dropped from this update due to inconsistencies with data.

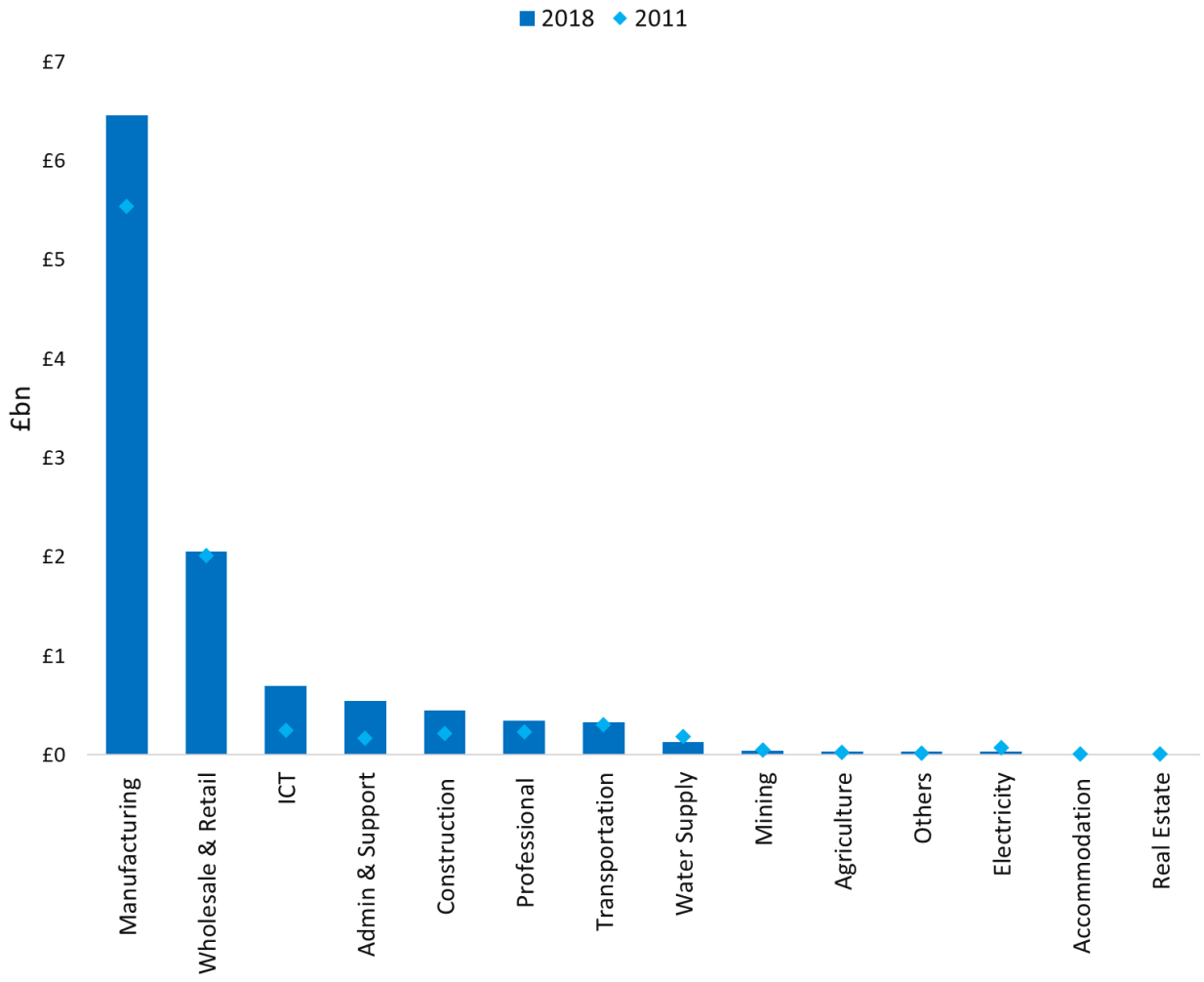
Figure 5.1.6: Enterprise agency client exports from NI by sector and firm ownership, 2013-2018



Source: Invest NI
Note: Exports as sales outside the UK, whilst external sales are those outside NI.

5.1.12. The majority of exports by Invest NI client companies are from externally owned manufacturing companies, which account for nearly £5bn of export sales in NI. Meanwhile locally owned manufacturing companies export £1.7bn. All Invest NI client groups have experienced growth in exports since 2013, helping to generate income from abroad.

Figure 5.1.7: Total goods and services exports by sector from NI (£bn) 2011-2018

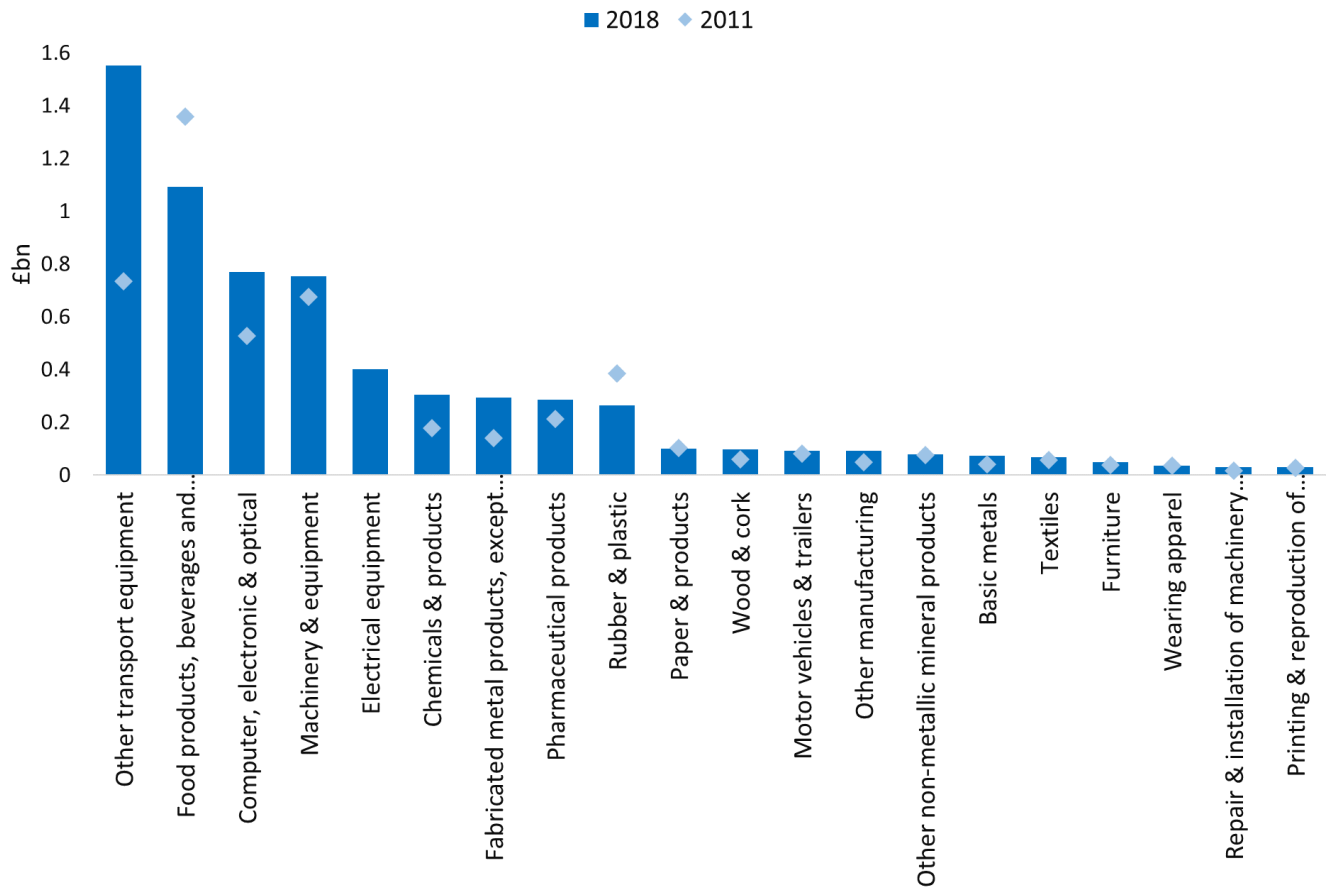


Source: NISRA
Note: Exports as sales outside the UK, whilst external sales are those outside NI.

5.1.13. The value of exports grew by 2.9% per annum on average from 2011 – 2018. Manufacturing generates the greatest value of export sales from NI at £6.5bn accounting for 58% of total exports. However, other sectors such as ICT and administration are growing more rapidly from a smaller base. Meanwhile, Wholesale & Retail exports have remained steady since 2011.

5.1.14. Data are in nominal terms and therefore the data includes changes in prices, inflation and sales volumes.

Figure 5.1.8: Manufacturing exports by product type NI, (£m), 2011-2018



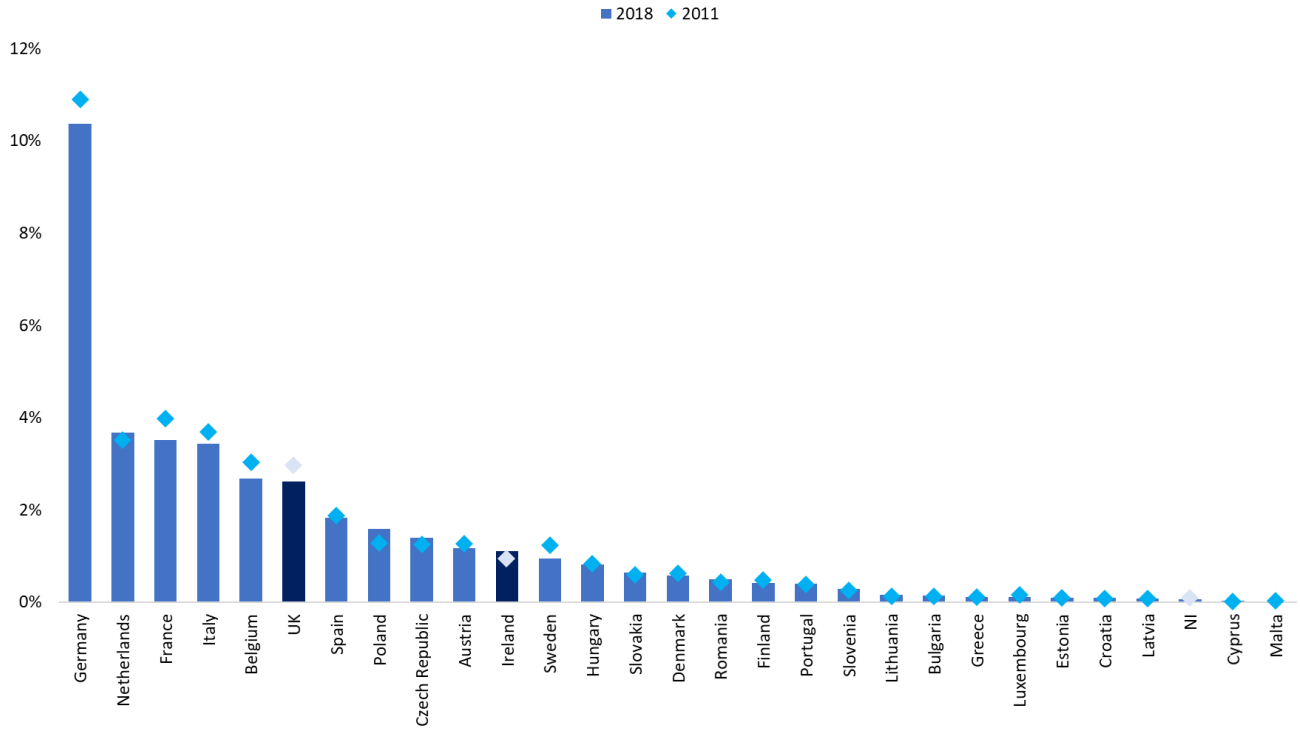
Source: DfE Broad Economy Exports Measure
Note: No 2011 data available for electrical equipment due to confidentiality restrictions

5.1.15. Manufacturing exports increased by 2.2% from 2011 to 2018. Transport equipment (which includes Bombardier) is the fastest growing and largest exporter of the manufacturing subsectors, accounting for 17% of total and moving from second to first place. Exports from the food, beverages and tobacco products sector have declined markedly, which is likely to be due to the closure of JTI, a formerly significant enterprise in this sector. This reduction has caused the sector to move into second place. Only two of the sub-sectors experienced a decline in exports over the period, illustrating that almost all subsectors shared in the success of the last decade.

5.1.16. A small number of externally owned manufacturers account for a large proportion of NI export sales. As such, the disruption posed by Brexit and the disruption to supply chains caused by COVID elevate the risk to NI from a few companies closing their NI operation, or making changes to their global supply chain network.

Figure 5.1.9: Manufacturing exports as a share of world trade, %, 2011-2018

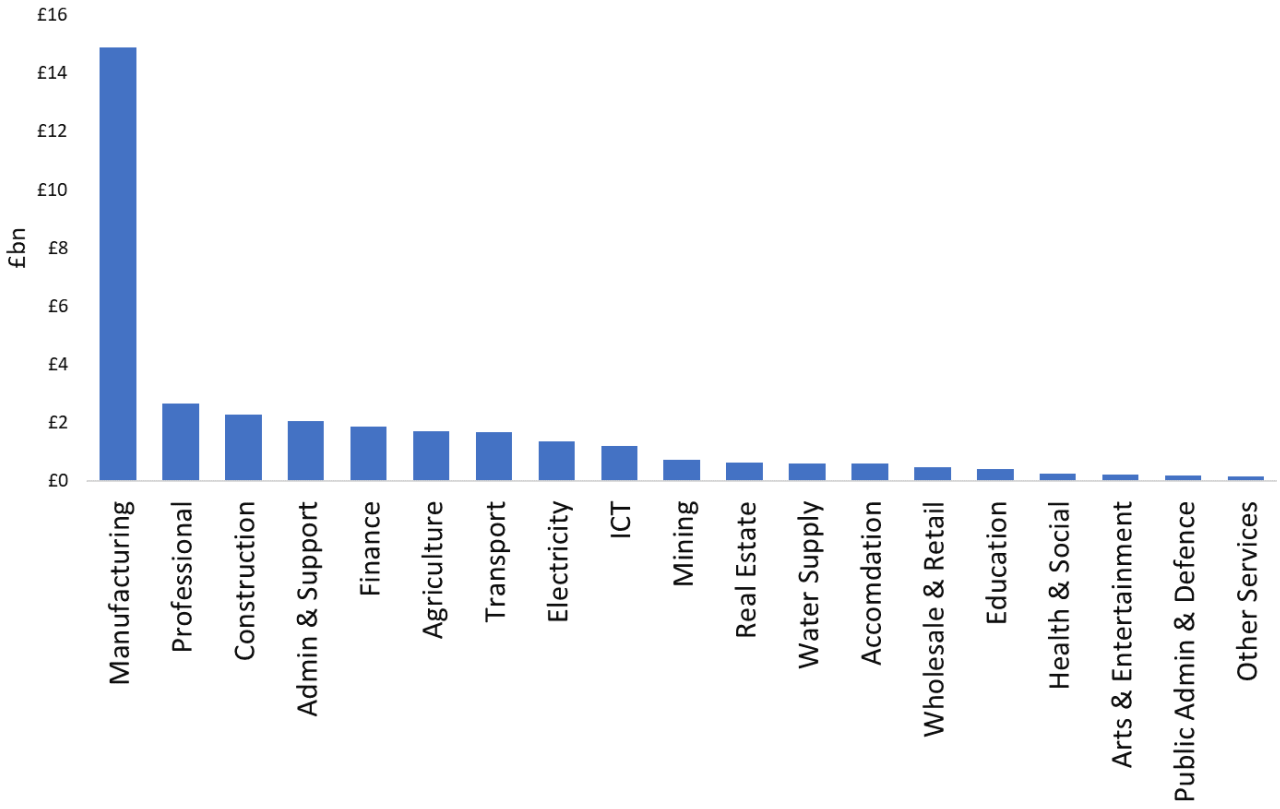
Business Performance	Rank	Direction of change	Change in decile	Year
Share of world manufacturing exports	31 / 34		=	2018



Source: WTO
Note: This indicator has updated the previous indicator 'NI's share of world trade overall, merchandise and services' as updated and comparable data was unavailable.

5.1.17. On an international scale NI has a 0.1% share in manufacturing exports as a share of world trade. The UK performs strongly in comparison at 2.6%, ranking 6th relative to comparator nations. Whilst it has declined slightly, Germany outperforms all other countries with a 10% share.

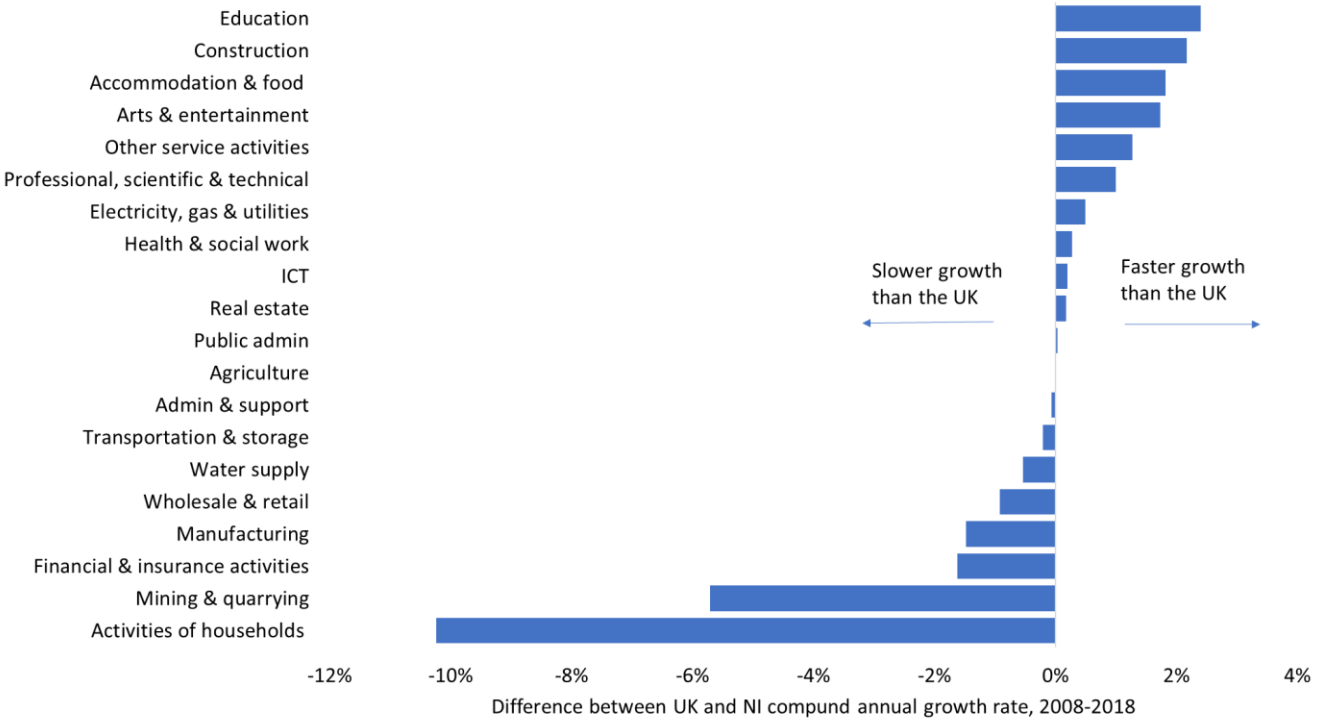
Figure 5.1.10: Direct expenditure in the economy by sector, (£bn), 2016



Source: NISRA
Note: Data were published in December 2019, however 2016 is the latest available year of data

5.1.18. Manufacturing enterprises spent the greatest amount within the NI economy (£14.8bn), accounting for 44% of total expenditure in 2016. The professional sector accounted for 8% of spending and construction spent 7%, highlighting the gap in spending between manufacturing and other sectors in 2016.

Figure 5.1.11: Nominal GVA compound annual growth by sector, NI & UK differential, 2008-2018



Sources: ONS & UUEPC

5.1.19. GVA growth in NI is relatively slower than in the UK. One of the explanatory factors is that sectoral GVA growth lags that of UK counterparts for the majority of sectors in NI, as illustrated above. Education – which is mainly public sector is the sector that outpaces the UK by most. Accommodation and food and Arts and entertainment are sectors that have contributed closing the growth rate gap with the UK but are obviously very significantly impacted by COVID-19.

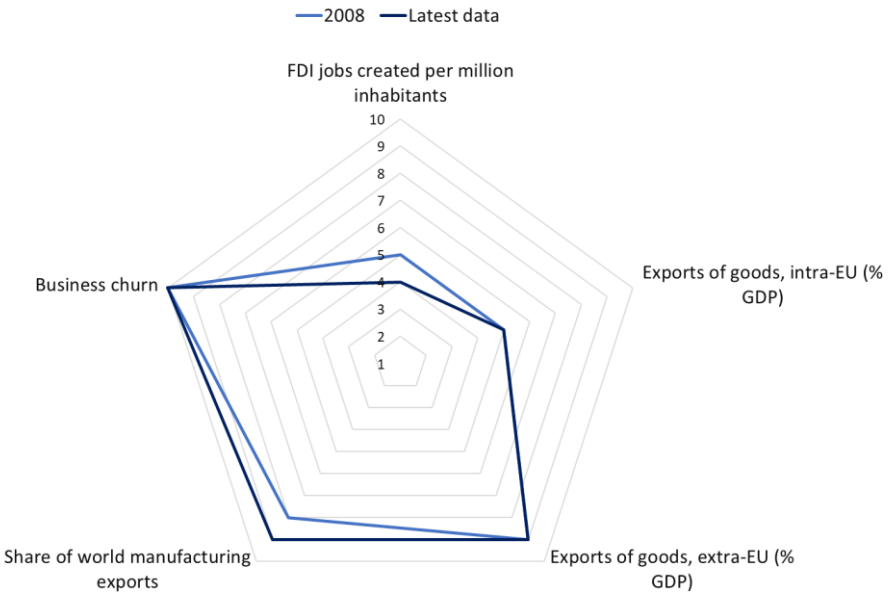
Business performance summary

5.1.20. NI's performance is below average when compared to competitor nations. While the enterprise population is relatively stable and growing, too few are focussed externally and the private sector remains relatively small. On the positive side, NI performs well in terms of FDI job creation. The arts and entertainment, and accommodation sectors, were growing rapidly – and outpaced the UK average, however the disruption caused by COVID-19 will have a significant negative impact on these sectors during 2020. In a relative competitive sense, the focus will be on how significant the impacts and restrictions are in other competitor nations, which depends on how well transmission and healthcare impacts can be managed.

5.1.21. NI firms have become more outwardly focussed, which is important for competitiveness and achieving scale, given the relatively small size of the NI economy. Manufacturers are the largest exporters, particularly the food and drink, transport equipment and machinery sectors. The contribution of external markets to the NI economy both in terms of job creation and exports is important as NI enters a post-Brexit world and therefore maintaining trade links and minimising frictions will be important.

5.1.22. An examination of NI's sectoral performance reveals that GVA growth is slower in the majority of sectors in NI when compared to their UK counterparts. The majority of private services sectors lag their UK counterparts, which demonstrates the ongoing challenges in terms of rebalancing toward a larger and more vibrant private sector in NI.

Summary of decile placements for business performance



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary of business performance indicators

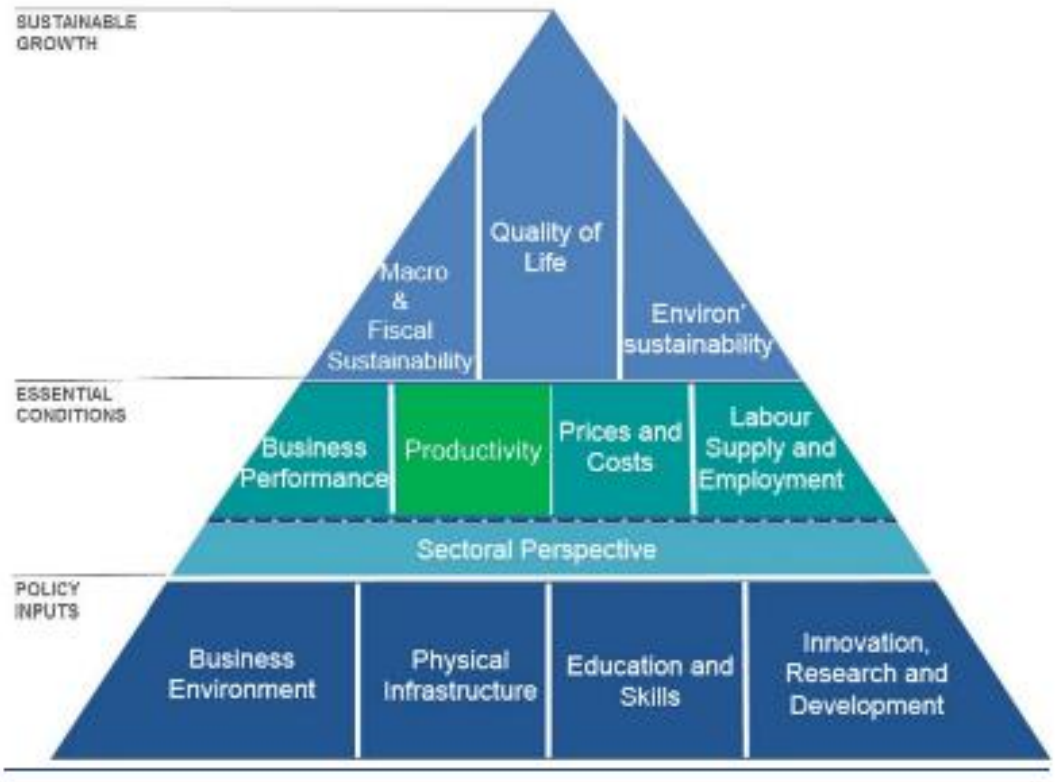
Business Performance	Rank	Direction of change	Change in decile	Year
FDI jobs created per million inhabitants	4 / 12		↑	2018
Business churn	27 / 27		=	2017
Exports of goods, intra-EU (% GDP)	12 / 29		=	2018
Exports of goods, extra-EU (% GDP)	26 / 29		=	2018
Net business population growth	19 / 24		n/a	2017
Share of world manufacturing exports	31 / 34		=	2018

Source: UUEPC

5.2 Productivity

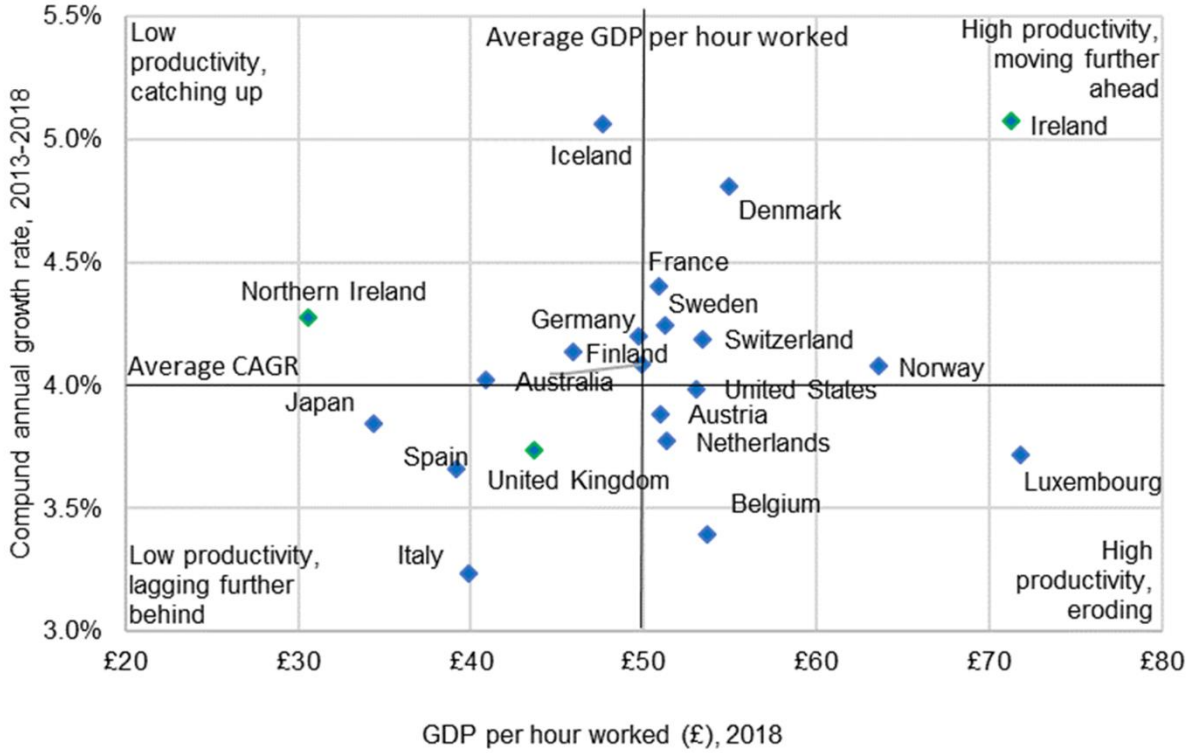
5.2.1. Productivity is a measure of efficiency and is a key driver of economic growth, incomes and standard of living. High productivity means that an economy is producing high levels of output for lower levels of input and vice versa. A range of factors including innovation, skills, investment, competition and enterprise can contribute to productivity and therefore economic growth.

5.2.2. Measurement of productivity is complex and at an aggregate level relies on accurate GDP or GVA data. There are some concerns in relation to the accuracy of regional data in an NI context, which means that care must be taken in the interpretation of the information presented.



Source: UUEPC

Figure 5.2.1: Productivity levels and growth rates GDP per hour worked, 2013-2018



Sources: ONS, CSO, OECD, FRED, ECB
Note: Ireland calculated as GNI per hours worked.

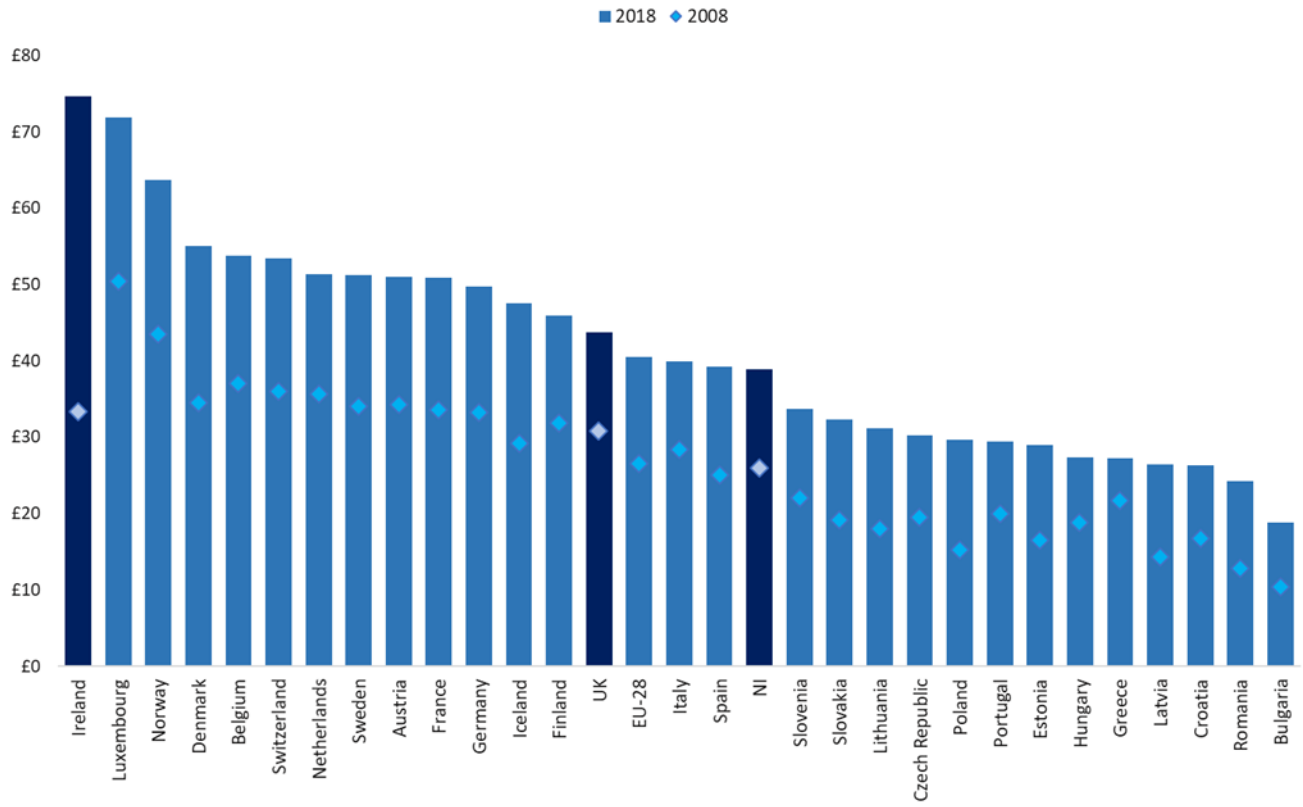
5.2.3. NI's productivity is relatively low, although growth outpaces the average and NI is catching up marginally to the average over the decade. The UK fares poorly in terms of both levels and growth. Rates of productivity growth are below average, compounding relatively lower productivity when compared to competitor nations.

5.2.4. In contrast, Ireland stands out as a high productivity and high growth economy (on the basis of GNI growth per capita), although some of the growth is as a result of reclassifying activities that were formerly offshore.

5.2.5. Whilst there is some degree of catch up, this chart illustrates NI's relatively weak position in terms of productivity. To illustrate the scale of the challenge it would require all workers to add more two thirds to their output in order to catch up to the average for competitor nations. At current growth rates it could take more than forty years to close the gap from 67% to 50%, illustrating the scale of the challenge.

Figure 5.2.2: Productivity levels GDP per hour worked, 2008-2018

Productivity	Rank	Direction of change	Change in decile	Year
Productivity levels (GDP per hour worked)	17 / 30		=	2018

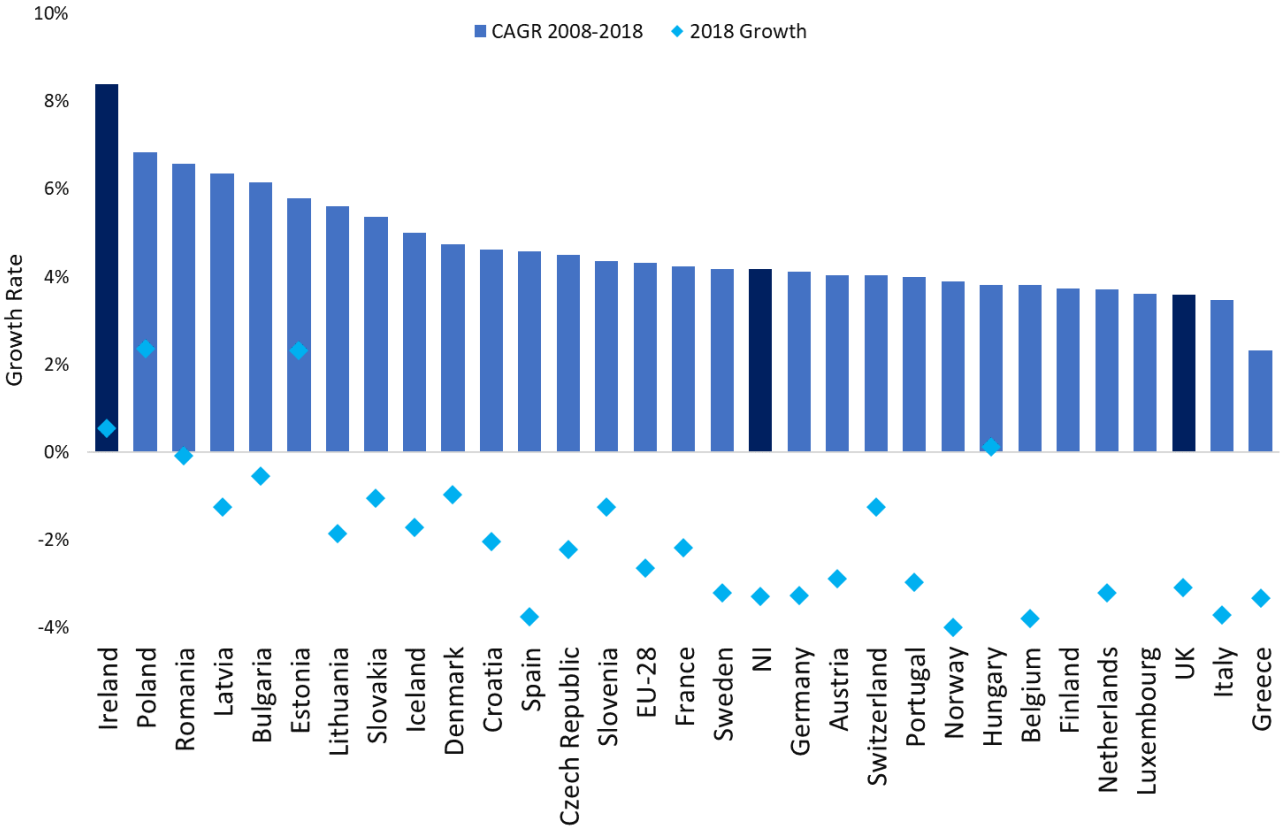


Sources: OECD, ONS, Statbank, Federal Reserve Economic Data
Note: GNI used for Ireland. Rank does not include EU-28.

5.2.6. GDP per hour worked in NI increased from £26 in 2008 to £39 in 2018. Whilst this is a positive development, illustrating an increase in productivity, all other countries have improved over the period. NI's productivity remains low relative to the UK (£44 in 2018) and Ireland (£75 in 2018). Ireland has experienced very rapid growth in GNI per capita (the domestic economy) since 2008, moving ahead of many competitor nations, in part due to strong growth in Irish owned enterprises and also the reclassification effects of aircraft leasing etc.

Figure 5.2.3: Labour productivity CAGR of GDP per hour worked, 2008-2018

Productivity	Rank	Direction of change	Change in decile	Year
Labour productivity (annual growth rate)	23 / 30		↓↓↓↓↓	2018



Sources: OECD, ONS & UUEPC
Note: Ranks are based on 2018 growth rate

5.2.7. NI's compound annual growth rate (CAGR) for GDP per hour worked (2008 – 2018) was 4.2%, above the UK (3.6%) but well below Ireland (8.4%), which is as a result of domestic growth and reclassification of some activities. This again, highlights the scale of the productivity challenge for NI.

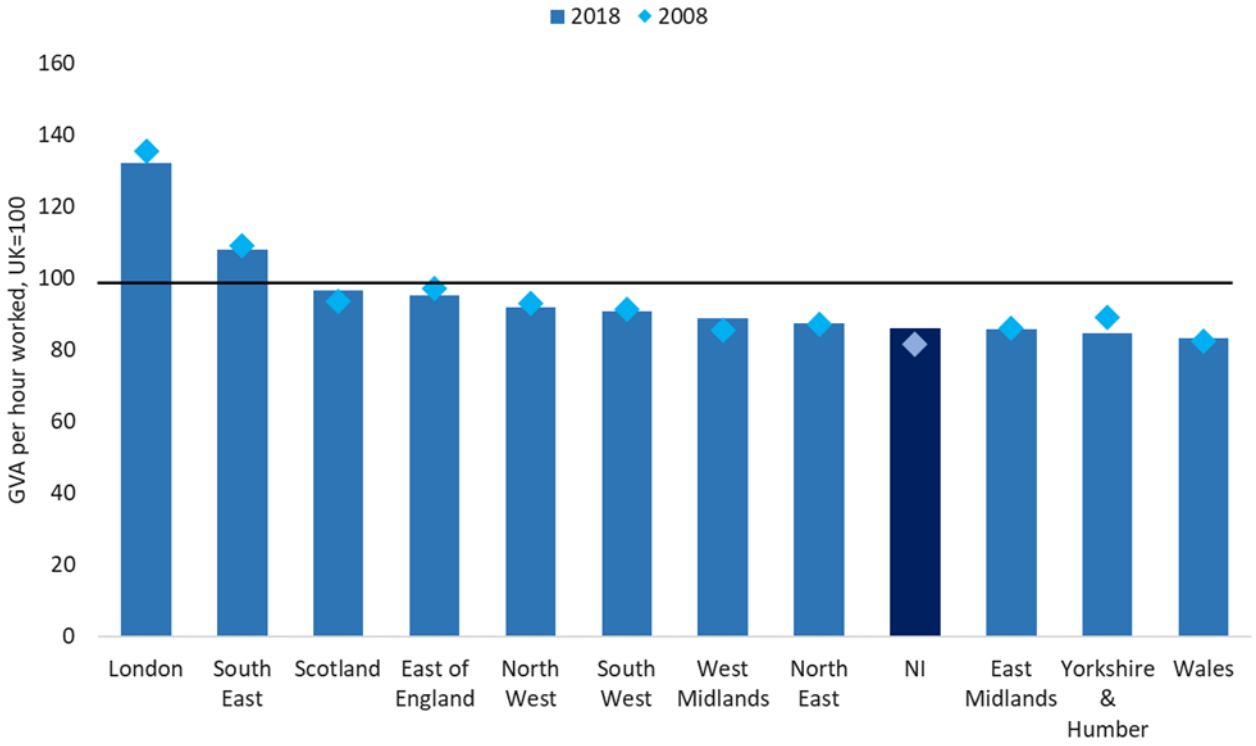
5.2.8. In terms of the annual growth rate for 2018, NI has experienced contraction (-3.3%), this is similar to the UK (-3.1%) and the majority of European countries and small open economies in the comparisons, showing a broader pattern of productivity contractions in the most recent year for which data are available. However, Ireland continued its strong performance in 2018 with an annual growth rate of 0.5% ranking it 3rd whilst NI is ranked 23rd.

5.2.9. NI's productivity is lower due to both the sectoral structure of the economy (a lower proportion of jobs in high productivity sectors and vice versa) and the fact that sectoral productivity lags that of its UK counterparts[11].

[11] https://www.ulster.ac.uk/__data/assets/pdf_file/0005/414662/Understanding-Productivity-in-NI-May-2019.pdf

Figure 5.2.4: GVA per hour worked (NI), relative to the UK, 2008-2018

Productivity	Rank	Direction of change	Change in decile	Year
GVA per hour worked (relative to the UK)	9 / 12		↑↑	2018

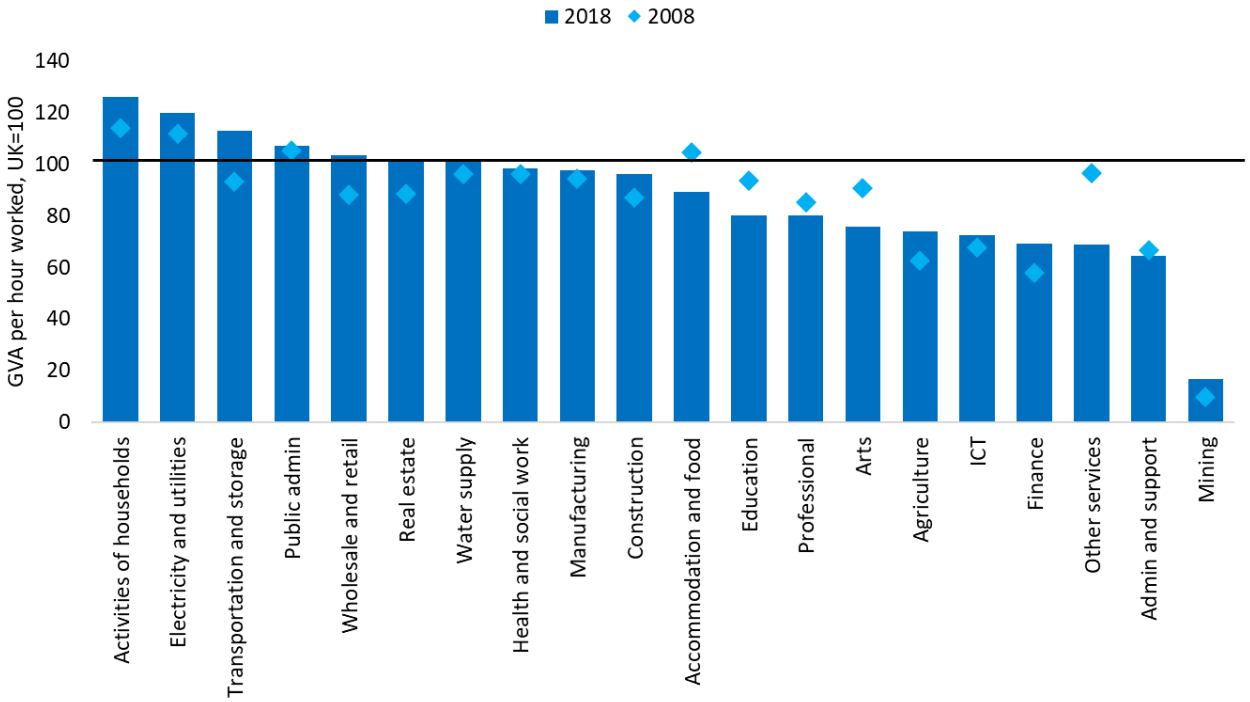


Source: ONS

5.2.10. Whilst NI's productivity has improved and moved ahead of other regions, it remains low compared to other most UK regions, ranked 9th place. GVA per hour worked totalled to £39 in NI whilst in London it was £46.

5.2.11. The productivity gap is partly explained by NI's sectoral structure where there are more employees in low productivity sectors and fewer in high productivity sectors, but it is also impacted by lower productivity within sectors relative to other parts of the UK.

Figure 5.2.5: NI sectoral productivity, GVA per employee relative to the UK, 2008-2018



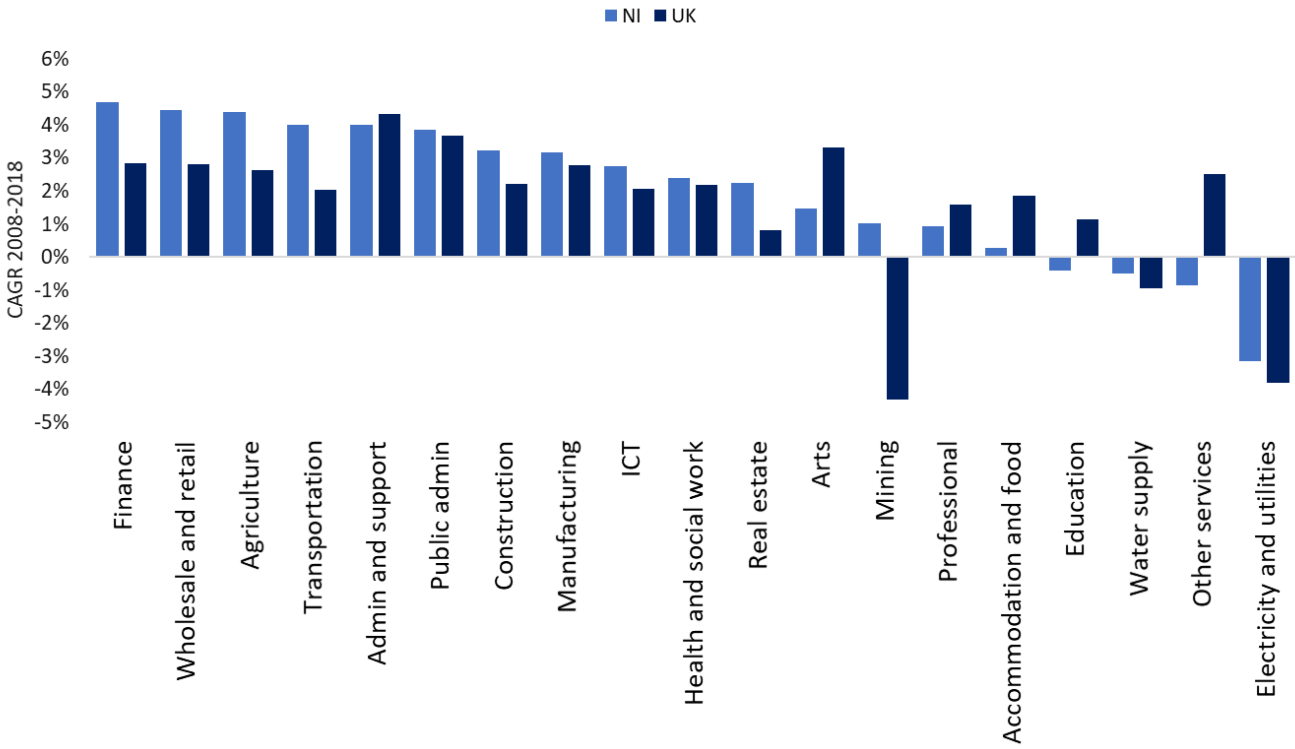
Source: ONS
Note: Nominal GVA used, 2007 data used for activities of households as 2008 is not available.

5.2.12. Sectoral productivity in NI lags the UK average in most sectors. Caution is urged in the case of the public sector, as Non-Market Capital Consumption (NMCC – which is a form of depreciation) is higher in NI and it, rather than higher wages, contributes to the relatively higher productivity in NI[12].

5.2.13. The productivity data does raise some questions that are worthy of further research. For example, Professional Services, Education, and Accommodation and Food Services have slipped further behind the UK average whilst ICT's productivity has improved only marginally. Given the focus on automation and digitisation as an area of growth and international trading potential, and the fact that these are areas in which NI continues to lag, there is merit in further investigation as to the reasons behind this.

[12] This issue is discussed further in Johnston R and Stewart N, 2019, "Understanding Productivity" paper. https://www.ulster.ac.uk/__data/assets/pdf_file/0005/414662/Understanding-Productivity-in-NI-May-2019.pdf

Figure 5.2.6: NI sectoral productivity growth, comparing annual growth rate of GVA per employee relative to the UK, 2008-2018



Source: ONS

5.2.14. Sectoral productivity has improved in the majority of sectors over the past five years. Finance, Retail and Wholesale, and Agriculture grew at more than 4% per annum, although from relatively lower bases, helping to close the gap with the UK. It is noteworthy that productivity grew more rapidly (or declined less rapidly in some sectors) than the UK average, helping NI to catch up with the rest of the UK.

5.2.15. This analysis necessarily focuses on sectoral productivity. Productivity enhancing interventions policy interventions are at the enterprise level and further research would be beneficial to understand the distribution of productivity and specific areas and impacts of existing interventions.

Productivity summary

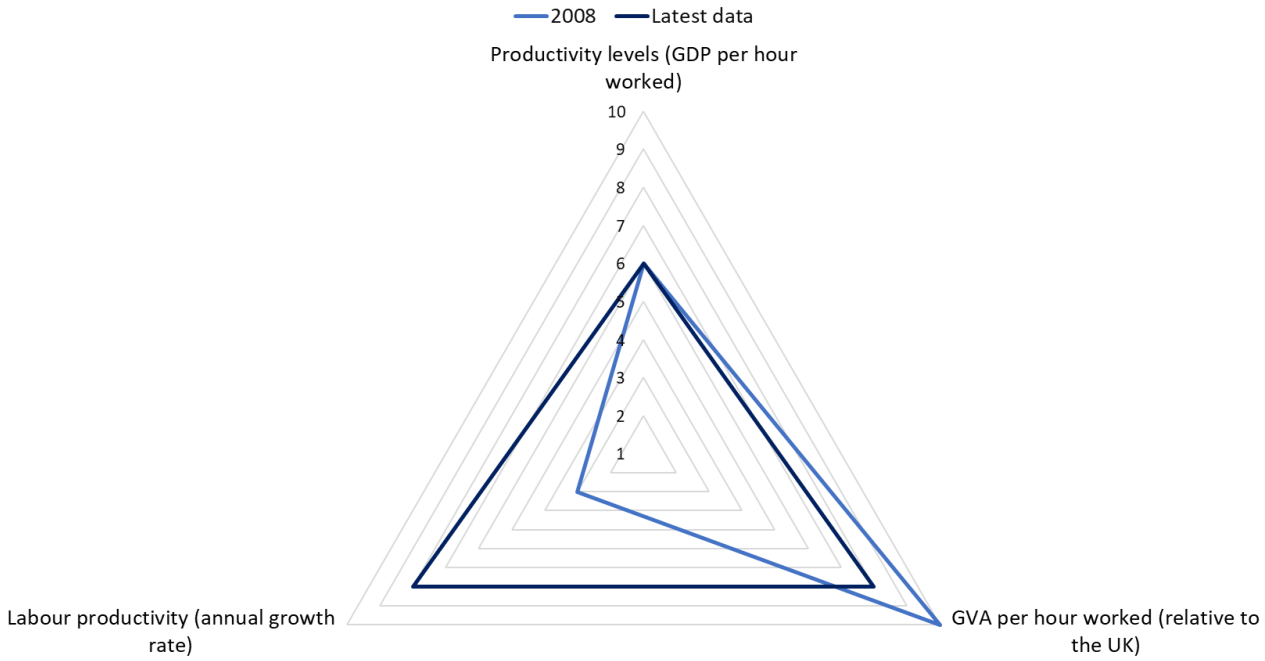
5.2.16. In international terms, NI's productivity performance is very weak, but showing some marginal signs of improvement in the latest available data. The productivity pillar is the weakest of the eleven pillars of the scorecard, which is concerning given its importance for raising the long-term trajectory of economic growth and contributing to higher incomes, standards of living and wellbeing.

5.2.17. In a UK regional context, NI ranks 9th of the 12 UK regions, which represents an improvement as it moved ahead of Wales, East Midlands, and Yorkshire and Humber. NI's relatively lower productivity can be partly explained by a greater concentration of employment in low productivity sectors and a lower concentration of employment in higher productivity sectors but is mostly due to lower relative productivity within sectors. This is partially a result of lower levels of capital investment, as well as the type of activity that is being undertaken in NI (such as retail banking in NI compared with hedge fund management in London, these very different activities being undertaken within the same sector.

5.2.18. It is encouraging that productivity growth in the majority of NI sectors exceeds the UK rate and that the decline is less rapid in others. This demonstrates that some progress is being made in terms of addressing lower sectoral productivity, however, at current rates of progress it will take four decades to reduce the average gap from two thirds to fifty per cent of the competitor country average.

5.2.19. Productivity can be challenging to measure and report, but nevertheless, it is a key economic development and policy indicator and further investigation at a sub-sectoral or enterprise level would be beneficial in terms of understanding the contribution and impacts of individual firms and others across the distribution.

Summary of decile placements for productivity



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary of Productivity

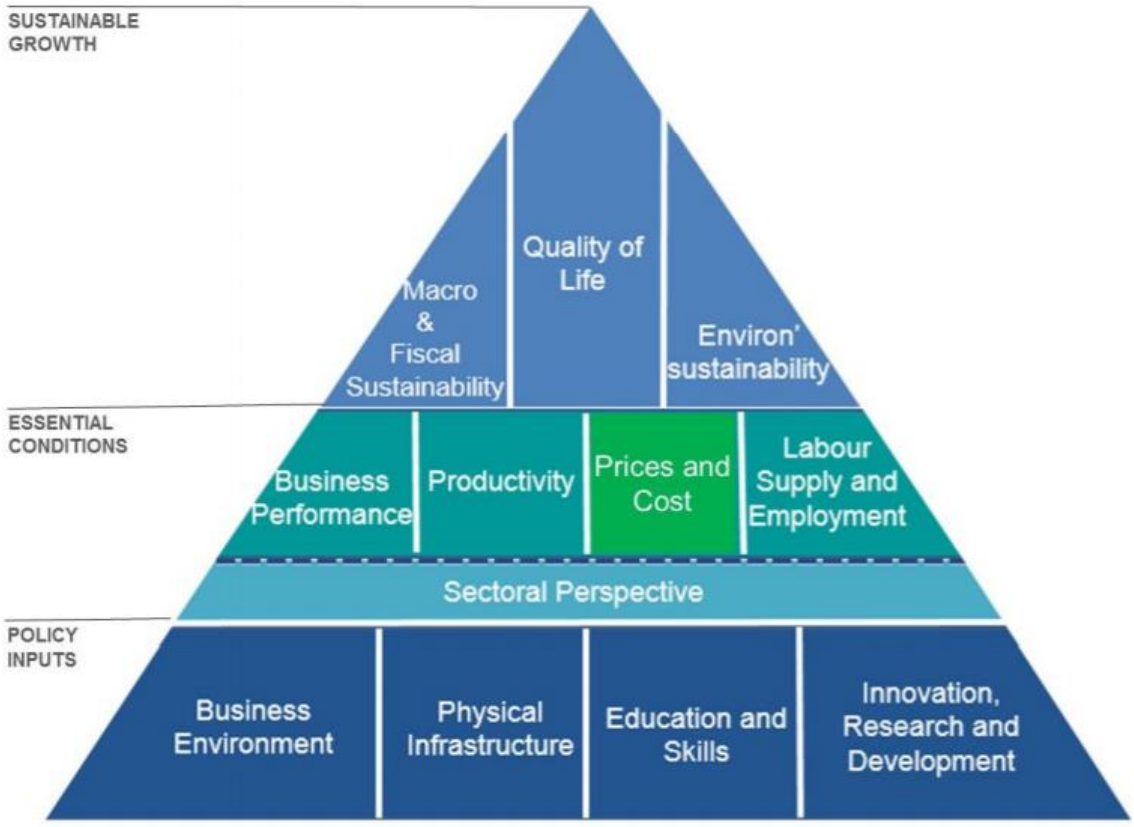
Productivity	Rank	Direction of change	Change in decile	Year
Productivity levels (GDP per hour worked)	17 / 30		=	2018
GVA per hour worked (relative to the UK)	9 / 12		↑↑	2018
Labour productivity (annual growth rate)	23 / 30		↓↓↓↓↓	2018

Source: UUEPC

5.3 Prices and costs

5.3.1. Prices and costs are a critical element of competitiveness. Increasing costs that are not underpinned by increases in productivity will impact negatively upon competitiveness and NI's product and service offering in international markets.

5.3.2. This section examines the overall level and rate of change in NI's prices and costs, as well as considering a range of specific business pay and non-pay costs.

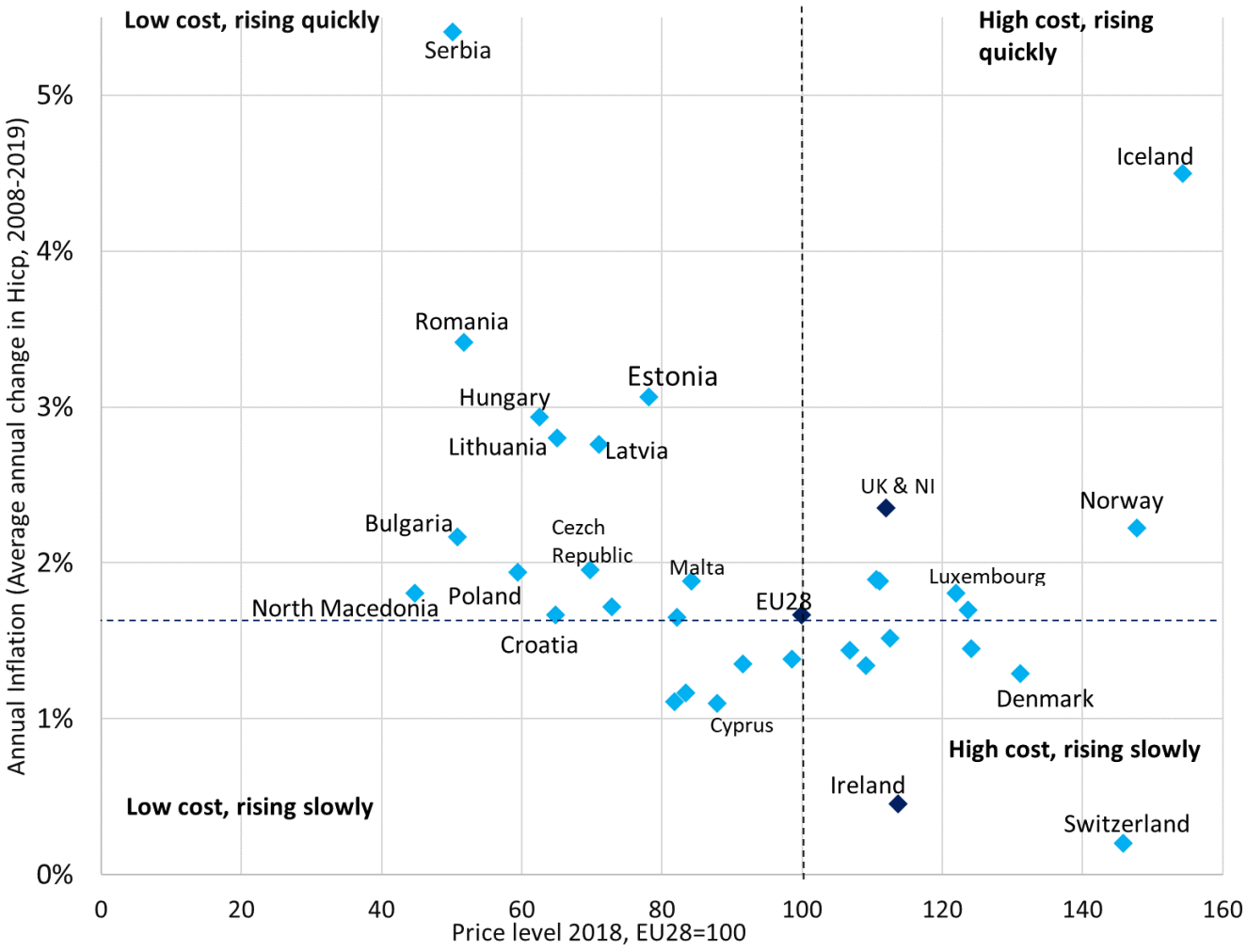


Source: UUEPC

Consumer prices and labour costs

Figure 5.3.1: Consumer price levels and inflation, 2008-2018/19

Prices and Costs	Rank	Direction of change	Change in decile	Year
Average annual change in HICP - UK proxy	20 / 33		↓↓↓	2019
Consumer price level - UK proxy	24 / 33		=	2018



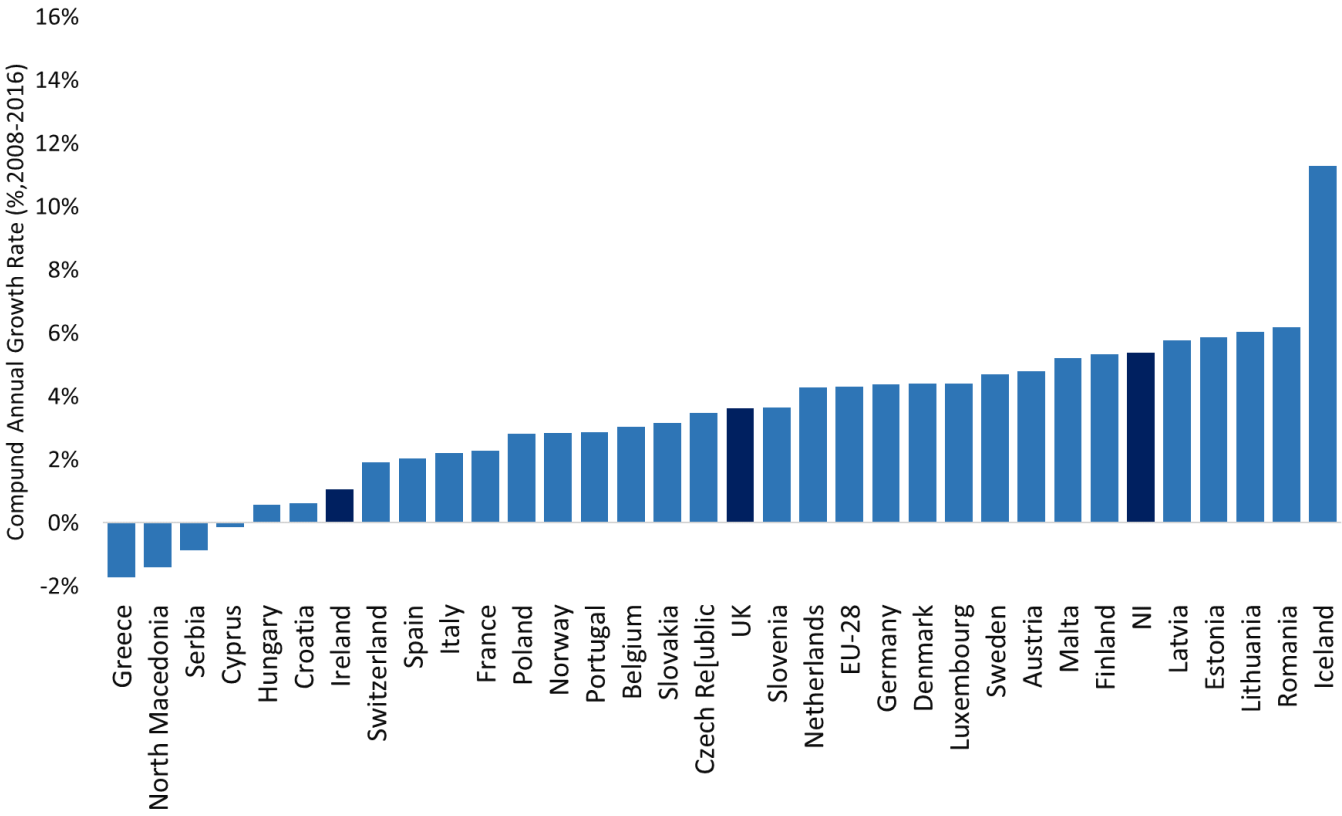
Source: Eurostat
Note: NI figures are not available and therefore UK figures are used as a proxy.

5.3.3. Consumer price levels and inflation are published for the UK as a whole and are not available at regional level. Therefore, UK data are used in this analysis as the best available evidence of price levels and changes in NI. It is acknowledged that NI prices may exhibit different patterns in the short term, but in the longer-term significant differences are not expected to remain. The development of a CPI for NI would be of benefit in terms of providing a robust evidence base in terms of prices.

5.3.4. UK prices are above the EU28 average and are rising, but at a similar rate to other countries, meaning that the UK's relative competitive position remains unchanged. Over the period 2008-18, average annual inflation in the UK was 2.4%, slightly above the EU28 average of 1.7%. Ireland's prices are also relatively high, although with growth of just 0.5% per annum over the decade Ireland has improved its cost competitiveness, despite the improvements, the 2018 price level of 114 remains above the UK level of 112.

Figure 5.3.2: Compound annual growth in labour costs (nominal), 2008-2016

Prices and Costs	Rank	Direction of change	Change in decile	Year
Annual growth in labour costs	29 / 34		=	2016

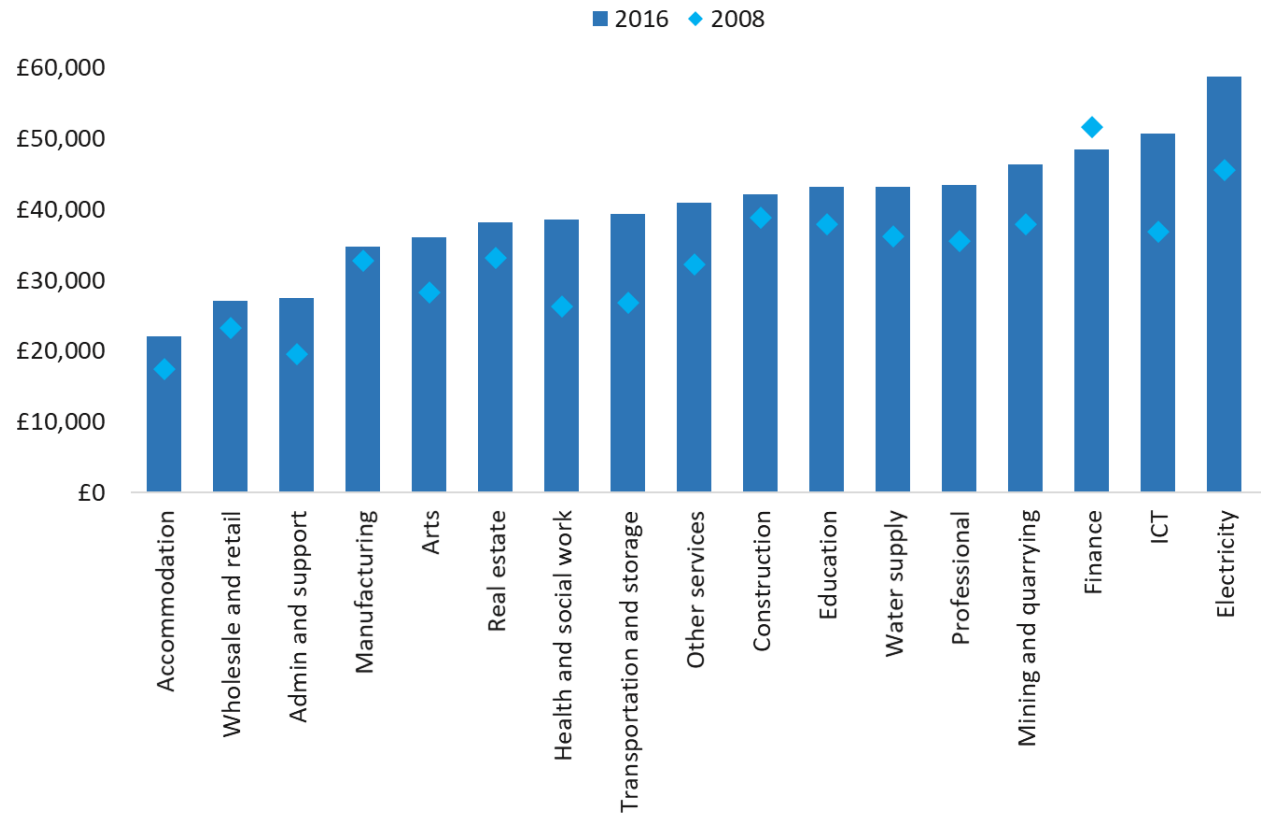


Source: Eurostat
Note: Data only available on a 4-yearly basis. Includes industry, construction and services (except public administration, defence, compulsory social security).
Currency- CAGR completed on is Euros.

5.3.5. Labour costs in NI have been increasing relatively quickly at a compound annual growth rate of 5.4%. The rate of change is greater than both the UK and Ireland. This may be in part due to increasing demand for labour, the sectoral employment composition, and increases in the National Minimum and National Living Wage.

5.3.6. Unfortunately, these data are only published on a four-yearly cycle and 2016 evidence is now very dated.

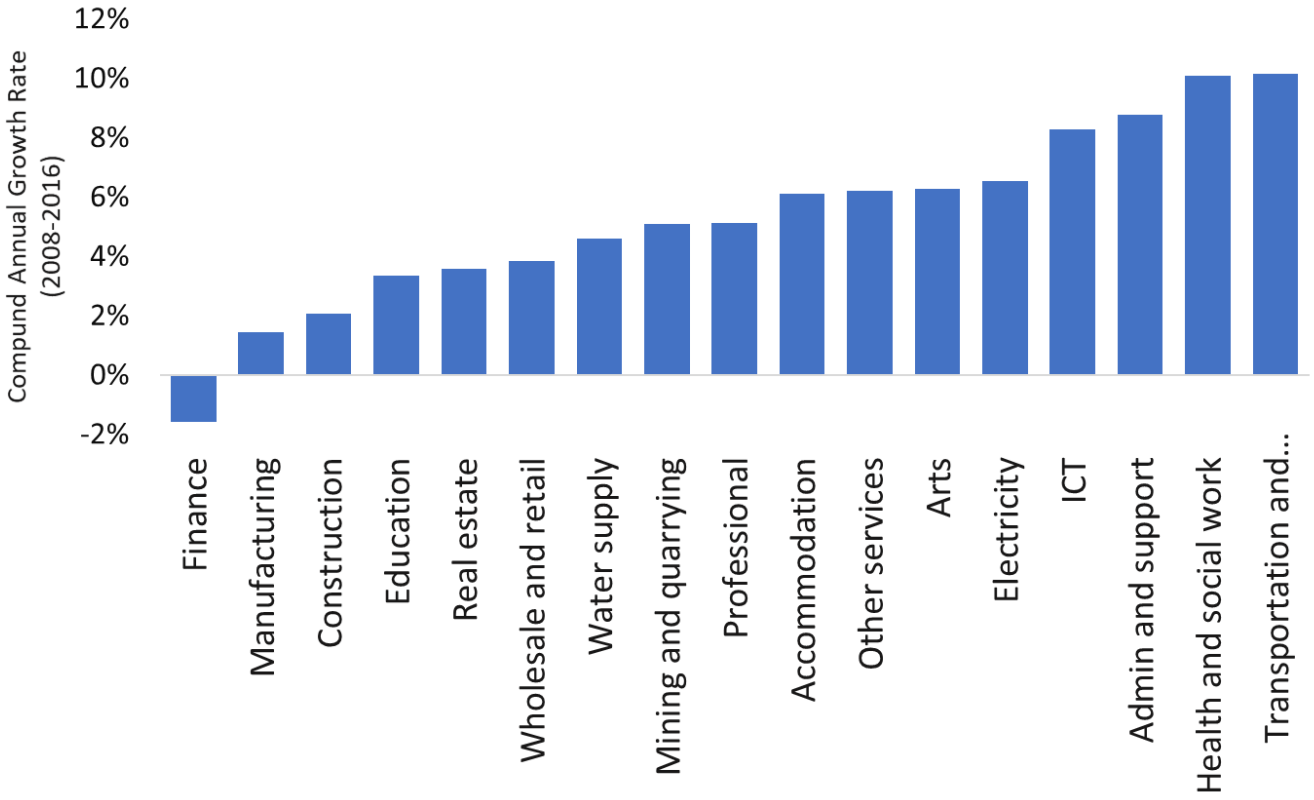
Figure 5.3.3: Change in total labour costs per employee by sector NI, 2008-2016



Source: Eurostat
Note: Data only available on a 4-yearly basis. Public admin and defence left out as no 2008 data are available.

5.3.7. Labour costs have grown across all sectors with the exception of Finance since 2008. The decrease in labour costs in Finance could be as a result of rationalisation at higher levels within the sector. Electricity and ICT are the two sectors with the largest labour costs, likely reflecting a high level of skills within their workforce and a restricted supply of labour which encourages wage bargaining.

Figure 5.3.4: Compound annual growth rate in total labour costs in NI by sector, 2008-2016



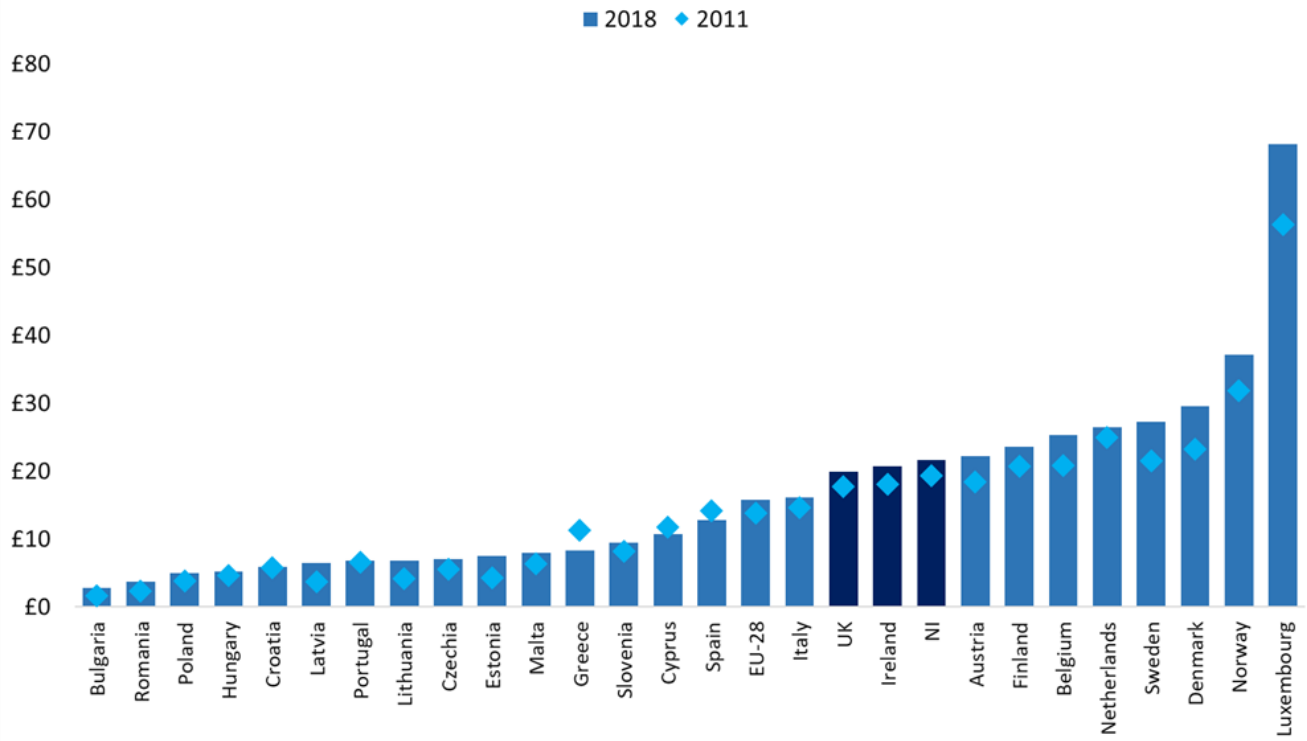
Source: Eurostat
Note: Data only available on a 4-yearly basis. Public admin and defence left out as no 2008 data are available.

5.3.8. Transportation and Storage, Healthcare, Administration and ICT have had labour cost increases of 8% per annum or more from 2008-16. This evidence is relatively dated, but it illustrates the year on year increases that will help attract workers to those sectors, potentially from outside NI. These increases may also erode competitiveness for those sectors that trade outside NI, and in terms of health care, place additional demands on already stretched budgets.

5.3.9. In contrast, Finance is the only sector in which total labour costs have reduced, indicative of the significant change that has taken place in the sector over the last decade, with headcount reductions and efficiency savings. Labour cost increases in Manufacturing and Construction sectors were also subdued, helping to maintain competitiveness.

Figure 5.3.5: Hourly compensation costs in manufacturing, 2011-2018

Prices and Costs	Rank	Direction of change	Change in decile	Year
Hourly compensation costs in manufacturing	20 / 28		=	2018

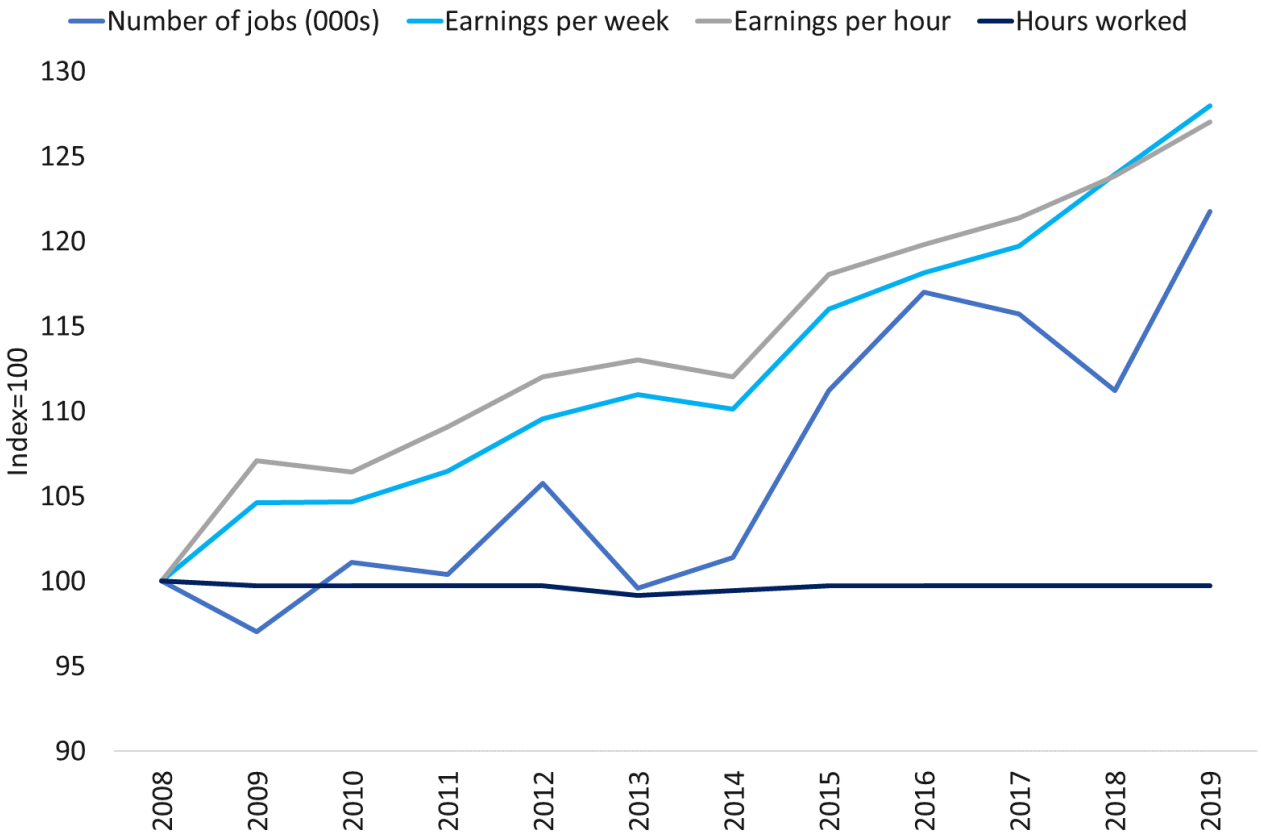


Sources: Eurostat, ONS, European Central Bank & UUEPC

5.3.10. NI is below average in terms of labour cost competitiveness for manufacturing. In contrast to the 2016 Competitiveness Scorecard report, in which NI was ranked 11th of 35 countries, NI has slipped to 20th of 28 countries. Interestingly, NI's labour costs are more expensive than Ireland, on average, which is surprising given the composition of the manufacturing sectors in each jurisdiction. Productivity increases of equal measure will be required in order to maintain competitiveness.

Figure 5.3.6: Earnings per week, earnings per hour, hours worked and number of jobs (2008=100), 2008-2019

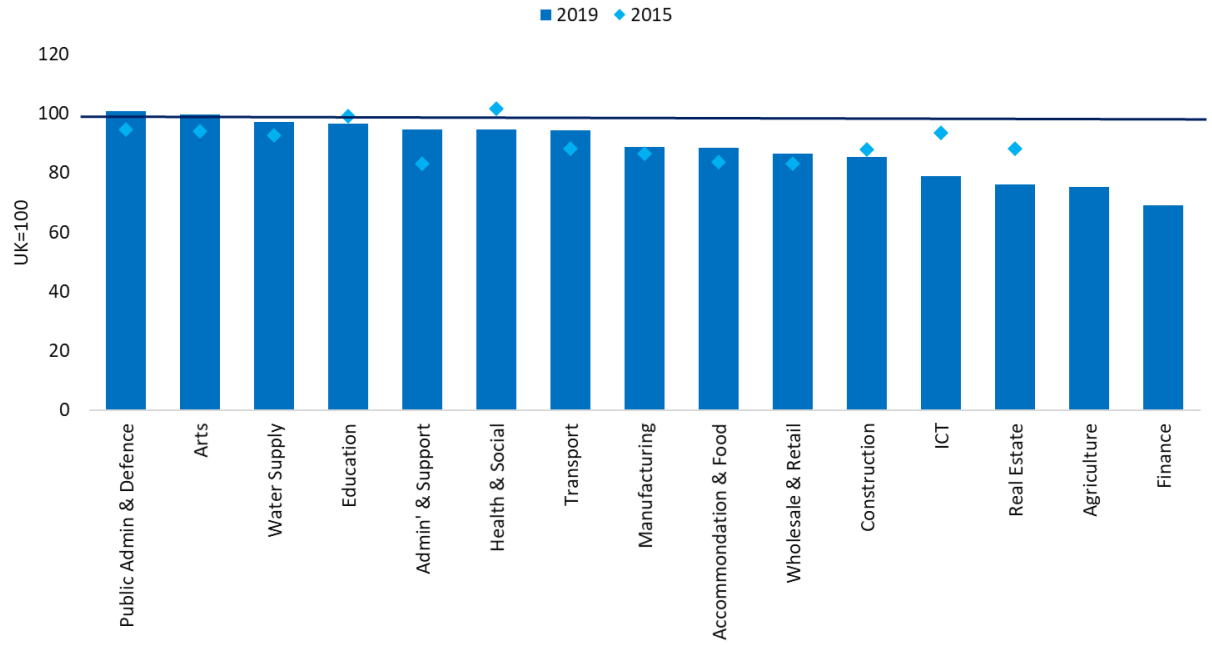
Prices and Costs	Rank	Direction of change	Change in decile	Year
Earnings per hour (2008=100)	N/A / N/A	●	=	2019
Hours worked (2008=100)	N/A / N/A	●	=	2019
Earnings per week (2008=100)	N/A / N/A	●	=	2019
Number of jobs (2008=100)	N/A / N/A	●	=	2019



Source: Annual Survey of Hours & Earnings
Note: Rankings are not available due to lack of comparability of international data

5.3.11. Firms can control labour costs in a number of ways. They can alter hours, overtime, bonuses and employment. Following the 2008 recession in NI, firms generally controlled labour costs through employment and hours worked. Since 2014, employment increased rapidly. Earnings (both hourly and weekly) increased over the decade, but with a marked elevation in the trend over the last five years. Meanwhile hours worked declined marginally.

Figure 5.3.7: Earnings by sector relative to UK (UK =100), 2015 - 2019



Source: Annual Survey of Hours & Earnings

5.3.12. Overall, average earnings in NI remain lower than the UK average across nearly all sectors. There is a smaller differential in the public sector as some wages are set at national rather than regional level. Lower wages are partly due to lower demand and also to the different functions that are located in NI such as retail banking in NI and hedge fund management in London, which are both within finance.

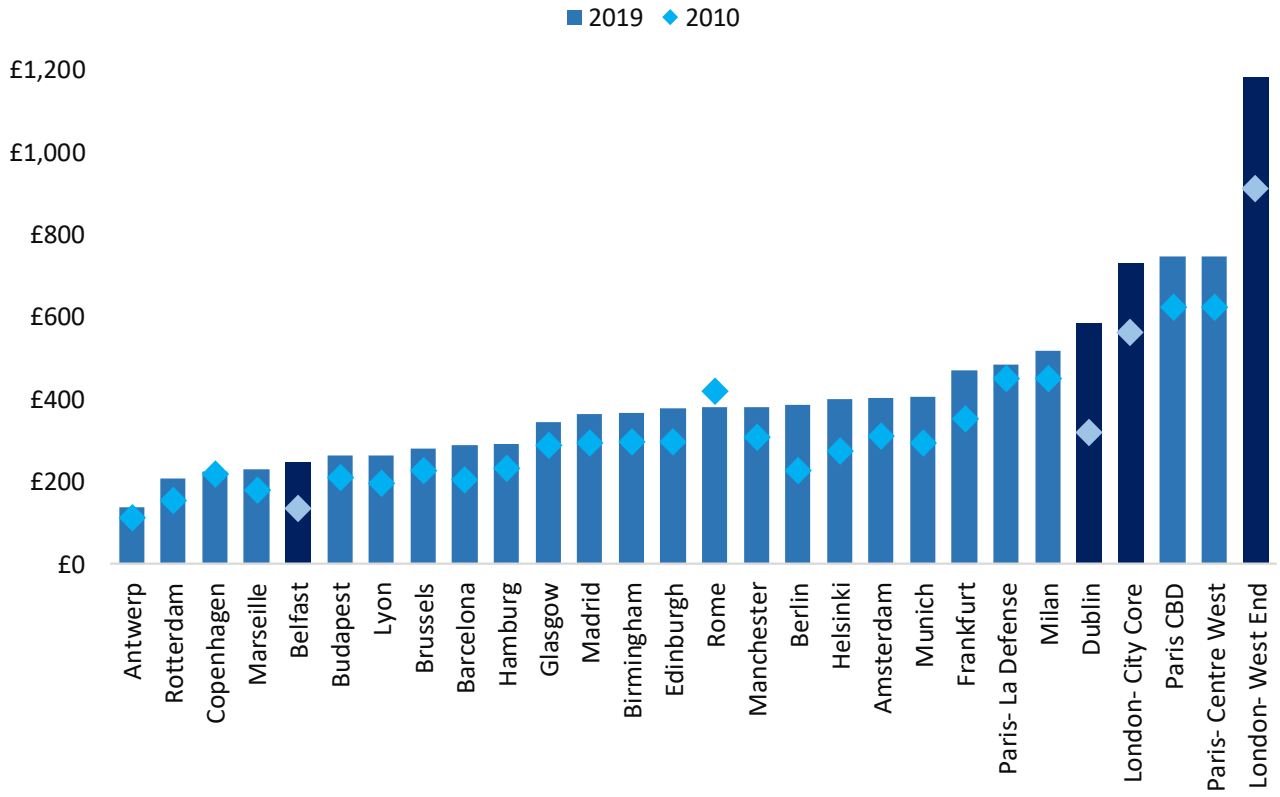
5.3.13. Lower average wages makes NI a relatively competitive area of the UK, especially in key sectors like professional services, finance and manufacturing which continues to be an attraction for FDI companies when choosing to set up in NI.

5.3.14. It is noteworthy that the gap between UK and NI earnings has widened in ICT and in real estate, suggesting that both sectors are becoming more competitive in terms of wages than their UK counterparts.

Business costs

Figure 5.3.8: Yearly cost (per m^2) in European cities to rent a prime office space, 2010-2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
Cost (per m^2) to rent a prime office space	5 / 28		↓	2019

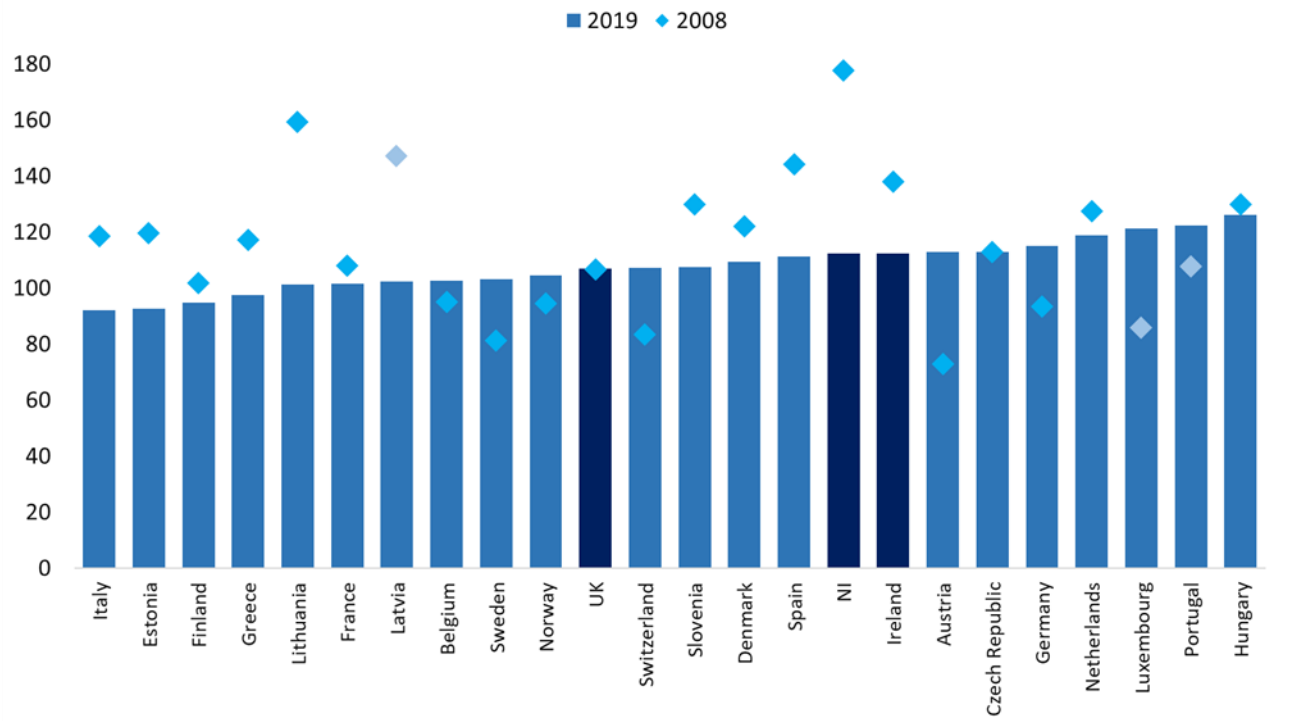


Sources: Cushman & Wakefield, OFX, European Central Bank & UUEPC

5.3.15. NI is a relatively cost competitive location to rent prime office space in comparison to the locations analysed within the Cushman and Wakefield research. This makes NI an attractive location from a cost perspective, although it is evident that demand for prime office space is increasing, as prices are beginning to tick upwards. As a result, NI has slipped from being the most cost competitive location to fifth place, however it still remains a much more cost-effective option than London or Dublin. This helps to make NI a relatively attractive location for FDI companies, potentially giving them access to UK, Irish and therefore European markets at a competitive cost level.

Figure 5.3.9: Affordability of house prices, 2015=100, 2008-2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
House price to earning ratio, 2015 index	17 / 25		↑↑↑	2019

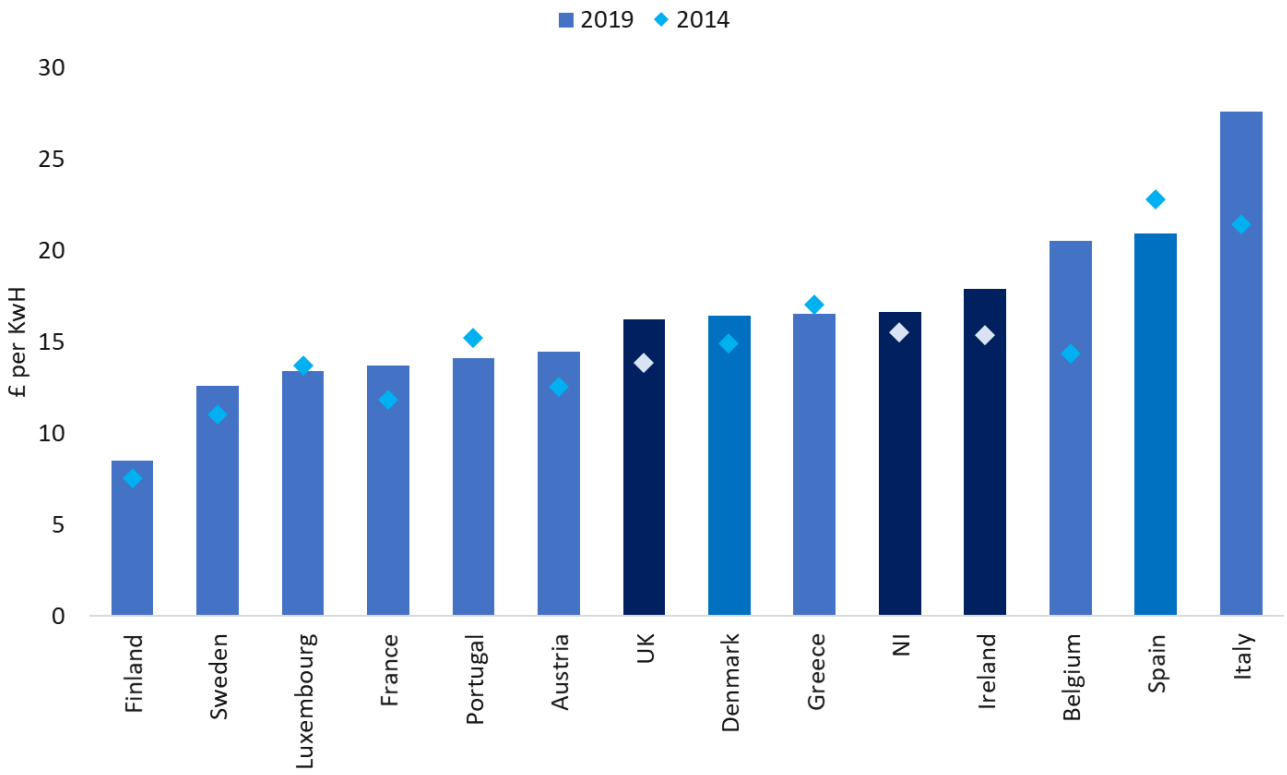


Sources: OECD & NI Department for Finance

5.3.16. NI's housing market boom, bust and recovery over the decade is evident within this data set, at the peak of the boom in 2008, NI's housing stock was the least affordable in the group of countries included. The 2016 Competitiveness Scorecard reported that NI's position had improved significantly and was ranked 3rd of 29 countries analysed, using 2014 data. However, by 2019, NI's relative position had deteriorated and now ranks 17th of 25. The house price to earnings ratio in NI was 112 during 2019.

Figure 5.3.10: Industrial electricity prices for very small electricity users exc. VAT, inclusive of CCL, £ per KwH, 2014-2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
Industrial electricity prices - very small users	10 / 14		↑↑↑	2019

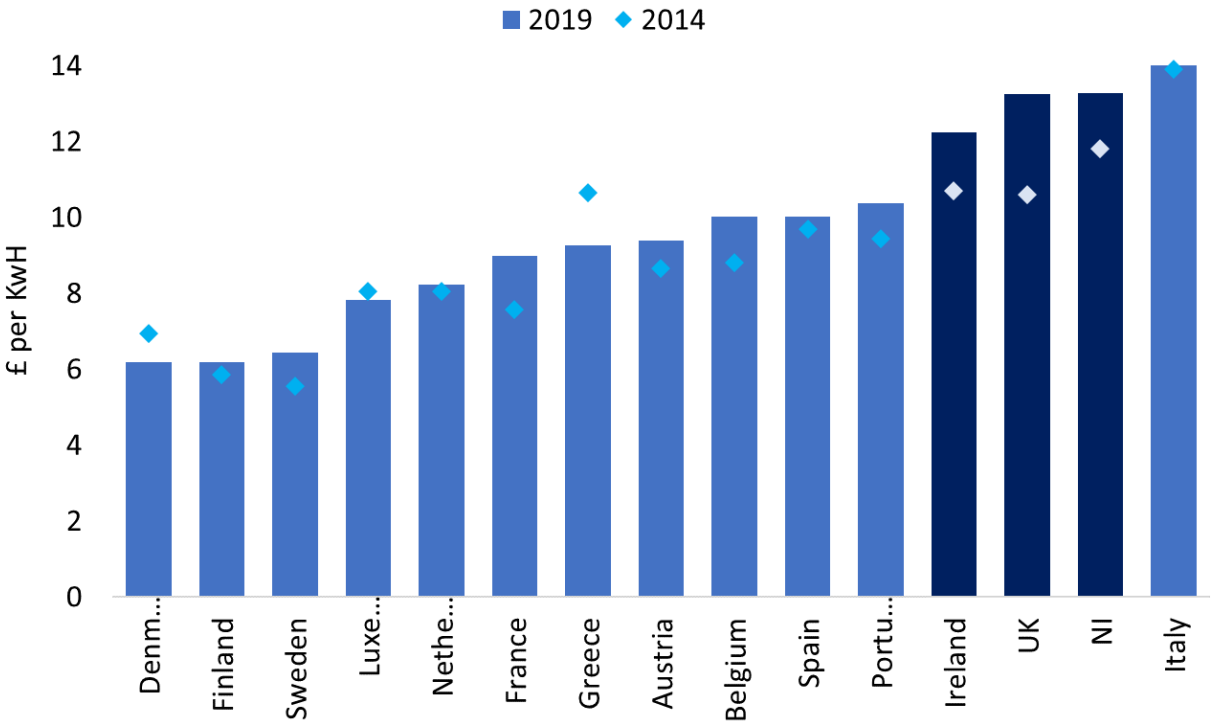


Source: DfE

5.3.17. Prices for very small electricity users in NI has increased slightly since 2014, from £15.50 per KwH to £16.60 per KwH in 2019. NI's overall position has improved slightly from 12th to 10th place in comparison with other countries.

Figure 5.3.11: Industrial electricity prices for small / medium electricity users exc. VAT, inclusive of CCL, £ per KwH, 2014-2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
Industrial electricity prices - small/medium users	14 / 15		=	2019

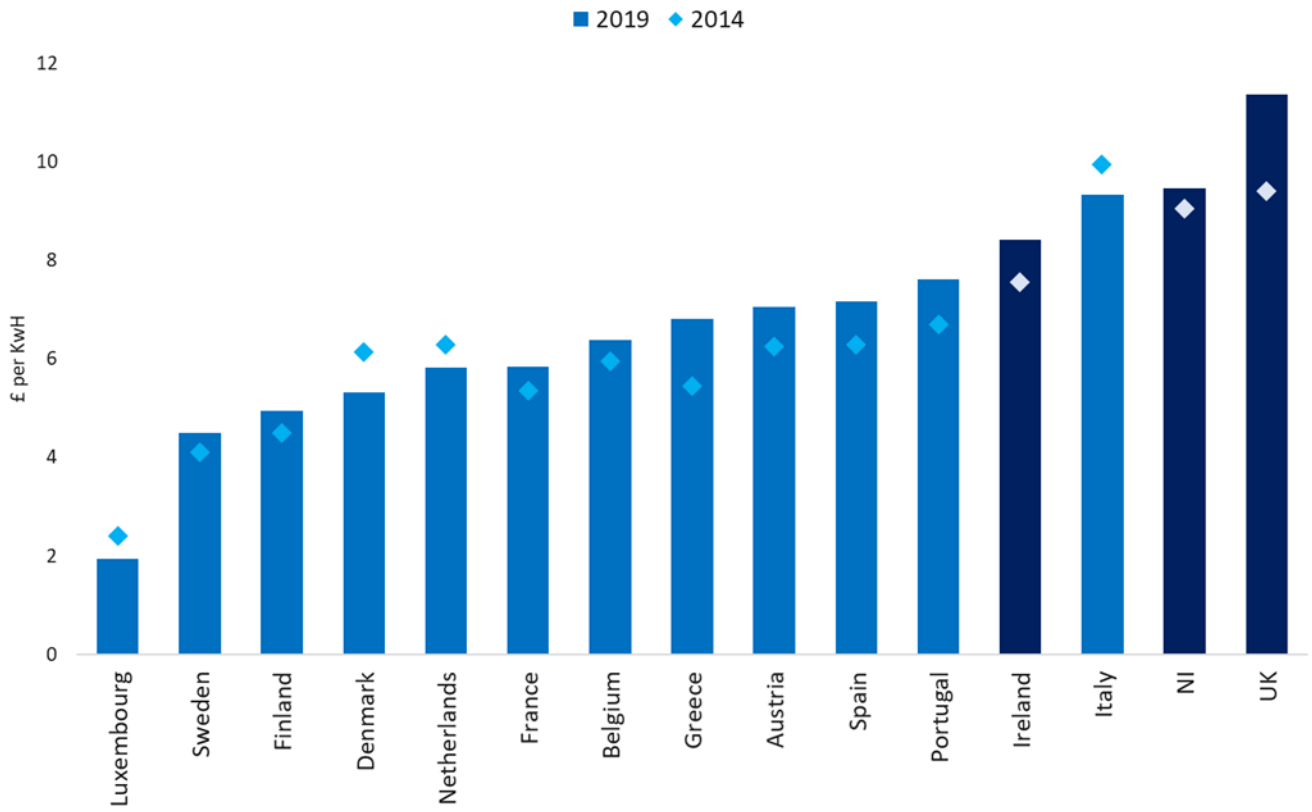


Source: DfE

5.3.18. NI is relatively uncompetitive in 14th place, regarding electricity prices for SMEs, at £13.28 per KwH, slightly above the UK average of £13.25 per KwH. This will prove a challenge to energy-intensive small and medium enterprises if they are competing internationally. Those competing only in the UK and Ireland are, however, doing so on a more even basis.

Figure 5.3.12: Industrial electricity prices for large electricity users exc. VAT, inclusive of CCL, £ per KwH, 2014-2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
Industrial electricity prices - large users	14 / 15		↓	2019

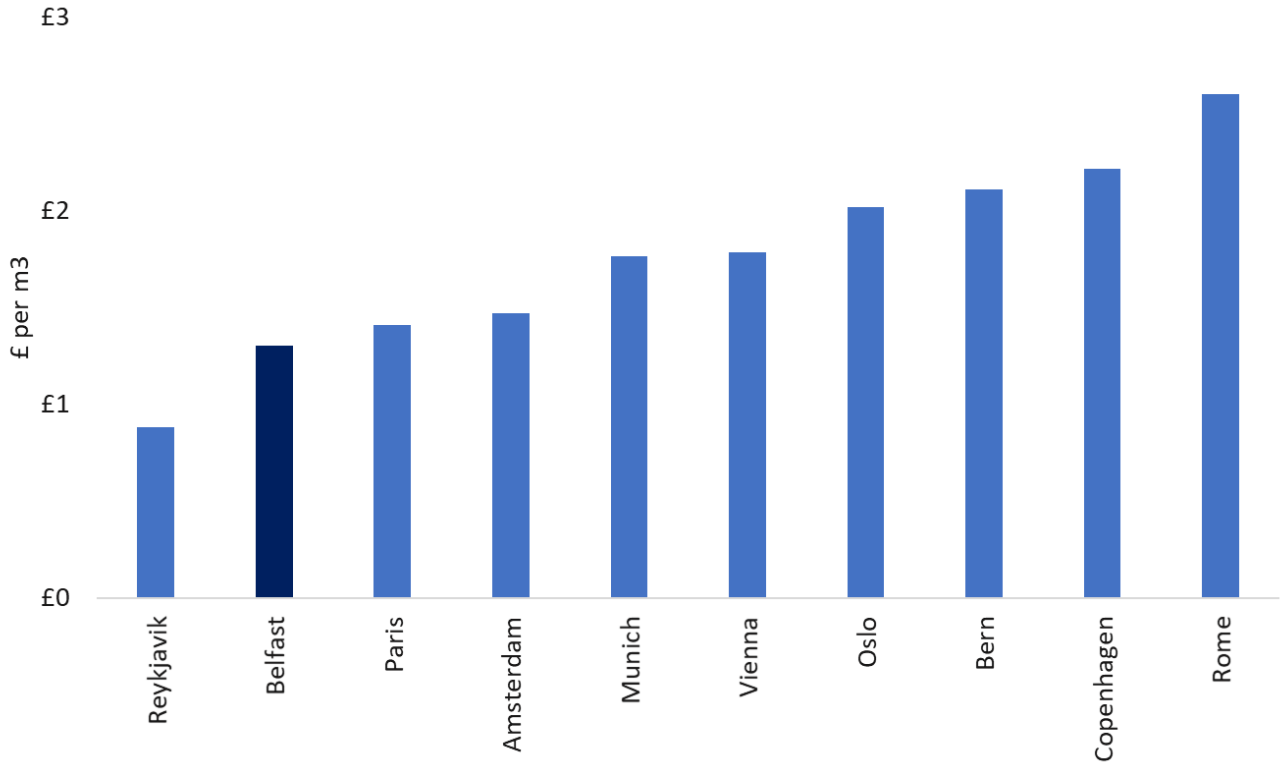


Source: DfE

5.3.19. Industrial electricity prices for larger businesses continue to be a significant competitiveness challenge for NI as the overall ranking deteriorated to 14th place out of 15 countries compared. Since 2014, charges for large companies have increased in NI, the UK and Ireland. Other countries such as Italy, Luxembourg, Denmark and Netherlands have been able to reduce costs since 2014. Again, energy intensive and internationally focussed large companies will find that relatively high electricity prices erodes their competitiveness and will need to be offset in other areas such as property and labour costs.

Figure 5.3.13: Non-domestic water costs, £ per m^3, 2019

Prices and Costs	Rank	Direction of change	Change in decile	Year
Non-domestic water charges (£m^3)	2 / 10		↑	2019



Source: IBNet Tariffs

5.3.20. Data are published for Belfast, although the same prices apply for all of NI. NI is a very cost competitive location for non-domestic water charges compared to other European cities. There are debates about the appropriate cost of what is, ultimately, a scarce resource and water charges ultimately enable investment in the water and sewerage infrastructure.

Prices and costs summary

5.3.21. Prices and costs are, from an overall perspective, relatively uncompetitive in NI as the second weakest of the competitiveness pillars. Despite some improvements, NI is almost two thirds of the way down the competitiveness table in this element of the Scorecard. Like many other areas, it is a story of two halves, in which NI is relatively uncompetitive in electricity prices, labour costs and CPI inflation and very competitive in other areas including the cost of office space and water.

5.3.22. Electricity costs are relatively high in NI in an international context, putting energy intensive exporters at a disadvantage. Prices for very small & small / medium users remain relatively uncompetitive, although price rises have been subdued from 2011 – 14. Prices for large users have declined however the declines are less than in competitor nations.

5.3.23. The impact of Brexit on prices and costs, remains to be seen, however the additional documentation that is required and the potential for tariffs to be imposed on certain products has the capacity to erode competitiveness further through increases in prices.

Summary of decile placements for prices and costs

Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

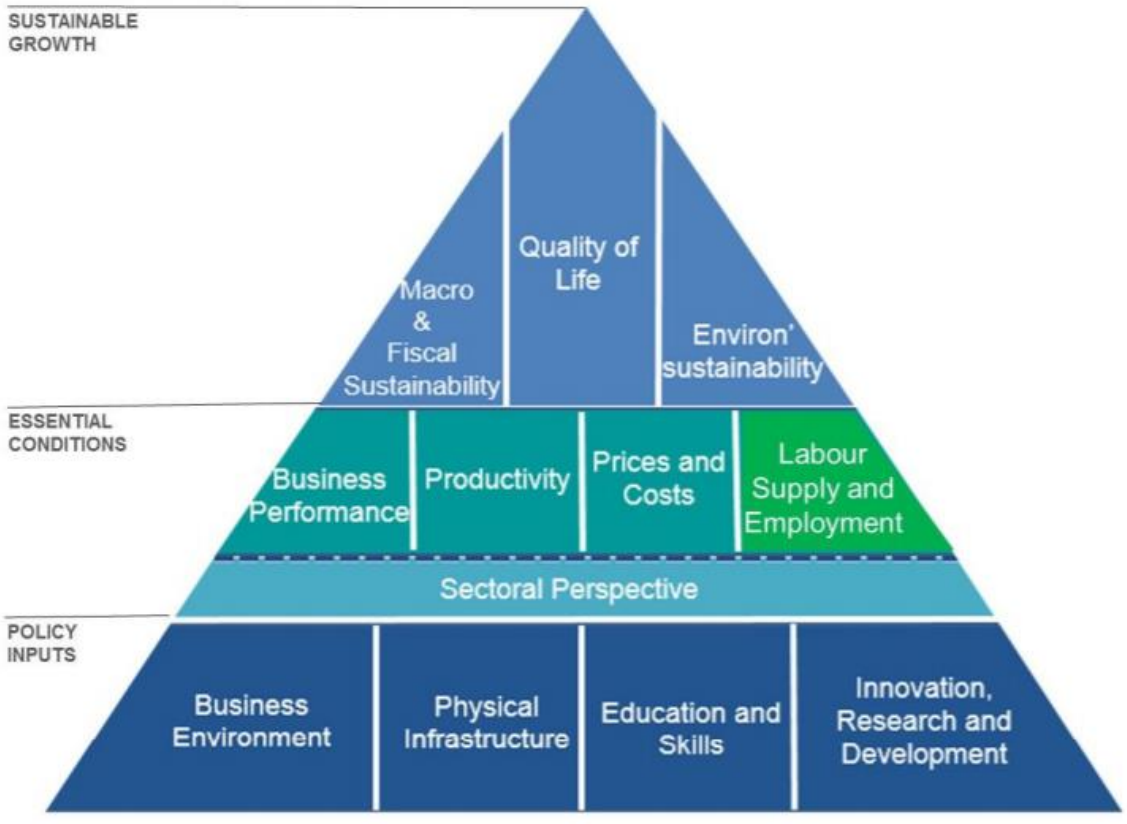
Summary of prices and costs

Prices and Costs	Rank	Direction of change	Change in decile	Year
Cost (per m^2) to rent a prime office space	5 / 28		↓	2019
Non-domestic water charges (£m^3)	2 / 10		↑	2019
Average annual change in HICP - UK proxy	20 / 33		↓↓↓	2019
Consumer price level - UK proxy	24 / 33		=	2018
Annual growth in labour costs	29 / 34		=	2016
Hourly compensation costs in manufacturing	20 / 28		=	2018
House price to earning ratio, 2015 index	17 / 25		↑↑↑	2019
Industrial electricity prices - very small users	10 / 14		↑↑↑	2019
Industrial electricity prices - small/medium users	14 / 15		=	2019
Industrial electricity prices - large users	14 / 15		↓	2019
Earnings per hour (2008=100)	N/A / N/A		=	2019
Hours worked (2008=100)	N/A / N/A		=	2019
Earnings per week (2008=100)	N/A / N/A		=	2019
Number of jobs (2008=100)	N/A / N/A		=	2019

Source: UUEPC

5.4 Labour supply and employment

5.4.1. The resource endowments provided by the local labour market and migration is an important element of overall levels of competitiveness. The quantity, skill profile and capacity of the available labour pool is an important component of the competitiveness of indigenous enterprises and of significant interest to potential foreign direct investors. Higher employment rates will generate income for the public sector in terms of direct taxes (income tax & national insurance payments to HMRC) and indirect taxes on consumption as earnings are spent throughout the economy. Lower non-employment rates reduce the cost of welfare support (again to Whitehall). When taken together, higher levels of employment, and reductions in non-employment, increase tax revenues and broaden the base which are then used to fund public services across the UK.

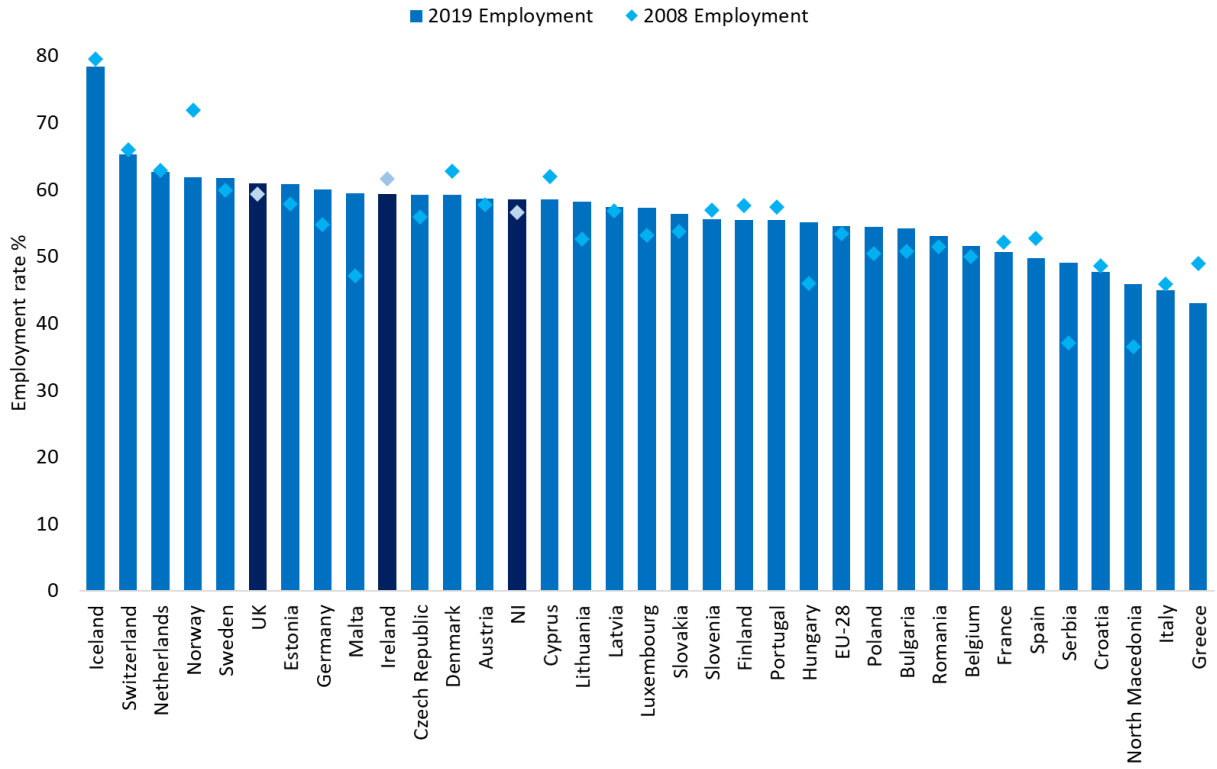


Source: UUEPC

Employment and Unemployment

Figure 5.4.1: Employment rate (% of whole population), 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Employment rate (%)	14 / 34		=	2019

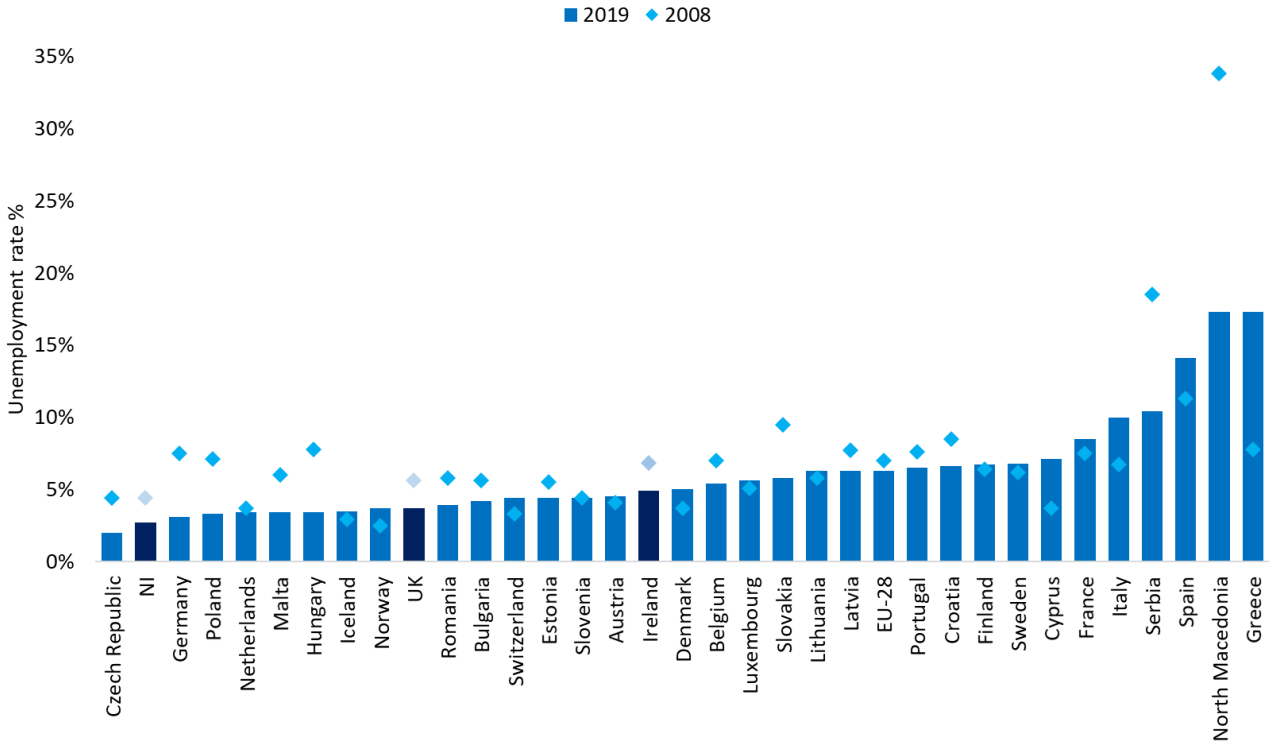


Source: Eurostat LFS
Note: Chart includes EU 28 countries + NI, Iceland, North Macedonia, Norway, Serbia, Switzerland and EU-28 average.
Serbia 2008 data is estimated using time trend.

5.4.2. NI employment rate was at a record high of 59% (of the whole population) in 2019, increasing steadily from 57% in 2008. This is a positive development for NI and helps to improve overall competitiveness.

Figure 5.4.2. Unemployment rate (% of whole population), 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Unemployment rate (%)	2 / 34		↑↑	2019

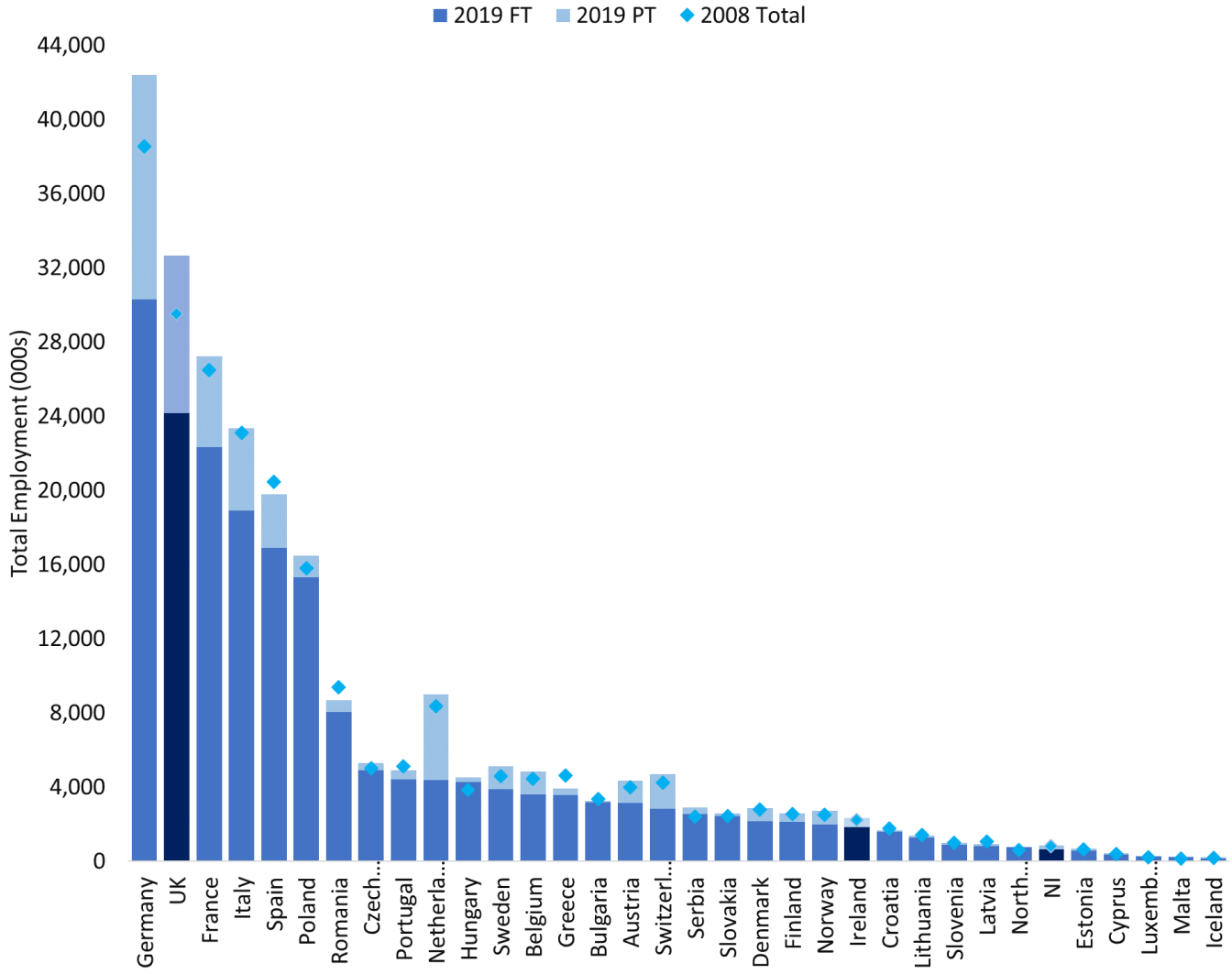


Source: Eurostat LFS

Note: Serbia 2008 data is estimated using time trend. Ranking excludes EU-28 average.

5.4.3. Unemployment was at a record low in NI in early 2020, falling to monthly low point of 2.3% prior to COVID-19 restrictions being implemented. The annual average rate for 2019 was 2.7%, improving from 4.4% in 2008. NI ranked 2nd place whilst the UK was 10th and Ireland 17th.

Figure 5.4.3: Employment Full-time and Part-time, 2008-2018

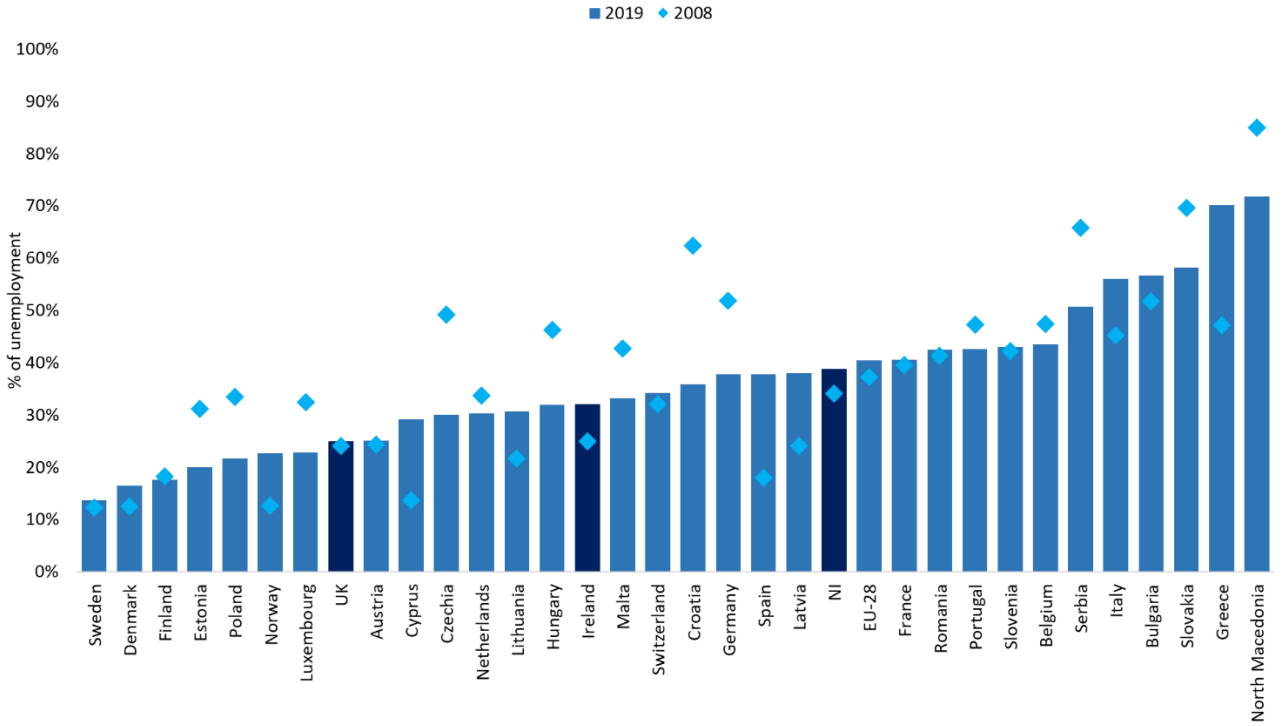


Sources: Eurostat & LFS
Note: Chart includes EU 28 countries + NI, Iceland, North Macedonia, Norway, Serbia, Switzerland. Serbia 2008 data is estimated using time trend.

5.4.4. Total employment has increased in NI with the majority of workers in full time employment - 657,000 full-time workers out of 869,000 employed in NI in 2019. Part time work has become more prevalent, increasing from 173,000 in 2008 to 210,000 in 2019.

Figure 5.4.4: Long-term Unemployed as a % of unemployed, 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Long term unemployment (% of unemployment)	22 / 33		↓	2019

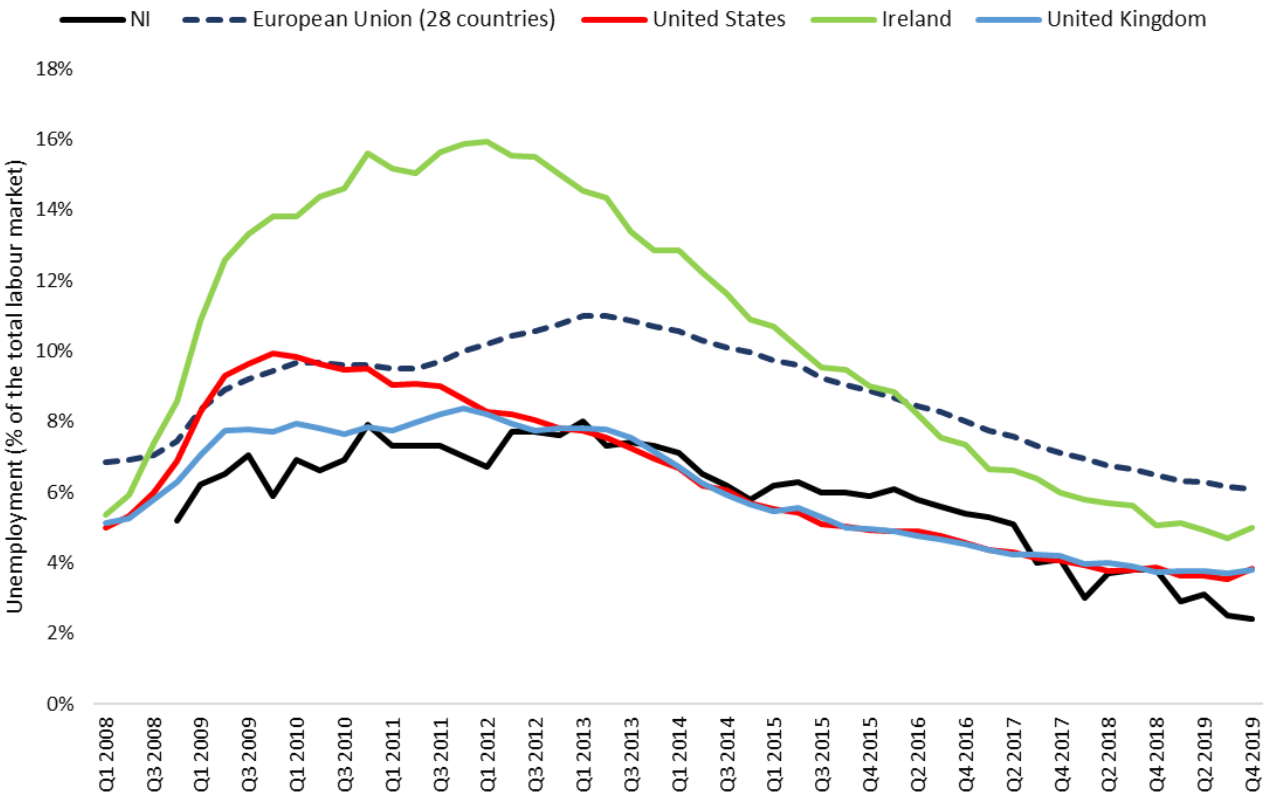


Sources: Eurostat & LFS
Note: Chart includes EU 28 countries + NI, Norway, Switzerland, North Macedonia, Serbia and EU-28 average.
Serbia 2008 data is estimated using time trend. Iceland not included due to missing data in 2008 & 2019.

5.4.5. Long-term unemployment continues to be a persistent challenge for NI as other nations have moved ahead. Almost 40% of those who are unemployed classed as long-term unemployed (unemployed for more than one year). This is an improvement from 2018 when the long-term unemployment rate was 52%.

5.4.6. NI is close to the EU-28 average for long-term unemployment but lags both the UK and Ireland by a significant degree.

Figure 5.4.5: Unemployment Standardised Rates, Quarter 1 2008-Quarter 4 2019

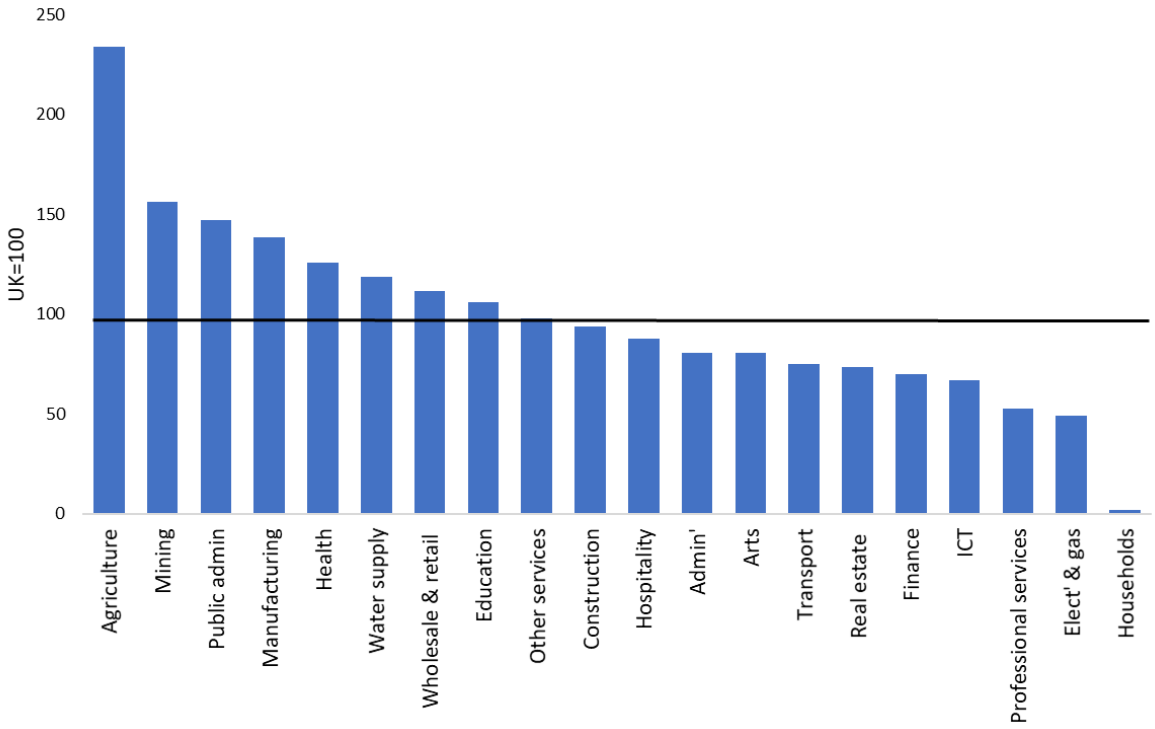


Sources: Eurostat and NISRA
Note: Q1 2020 data available for NI and Ireland but NI data is Dec-Feb so not used

5.4.7. NI's unemployment rate has remained relatively lower than many competitor nations following the 2008 recession, especially Ireland. It peaked at 8.1% in Q1 2013 and has declined in most quarters since then to a historic low of just 2.3% in early 2020.

5.4.8. In recent years, unemployment rates have been converging between NI, the UK and the US, however, the gap between NI and the EU average has remained reasonably constant. Post-COVID-19 it is already clear that this chart will experience an upward shift for 2020 across all the countries included, although policy initiatives such as the Coronavirus Job Retention Scheme (CJRS) and young workers programme may help to manage NI's and the UK's unemployment rates compared to other nations wither fewer or lower scale interventions, particularly the US.

Figure 5.4.6: NI Employment by sector relative to the UK, 2019

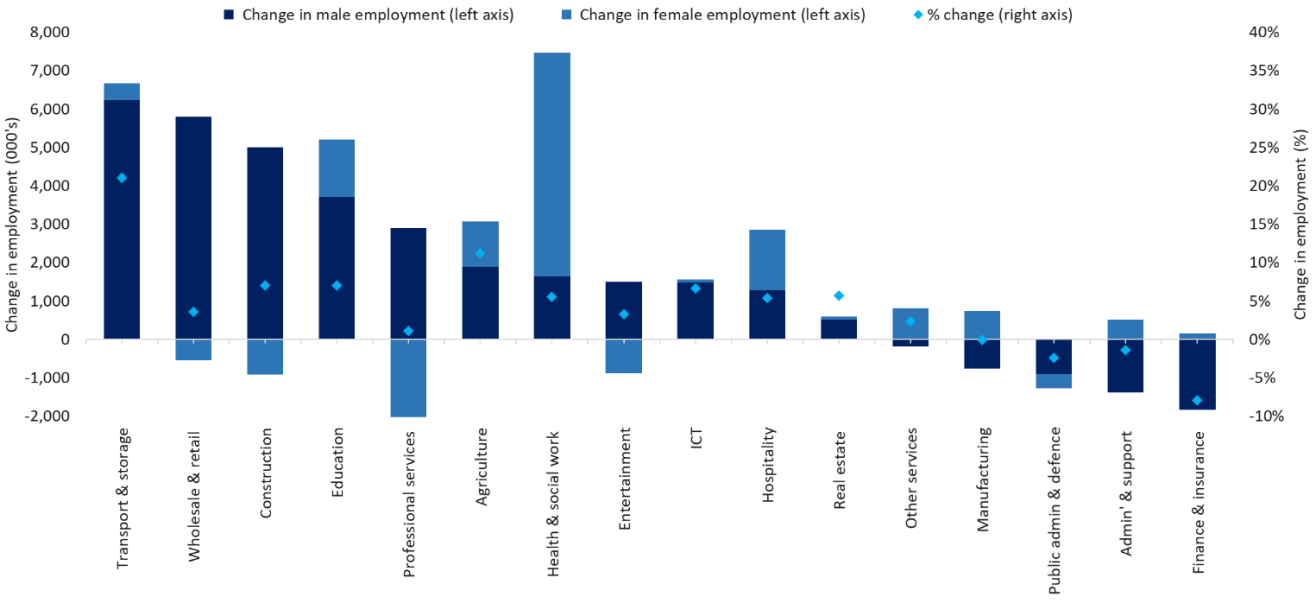


Source: ONS

5.4.9. A relatively larger proportion of employment in NI is in the primary industries - Agriculture and Mining. The public sector is also a relatively larger employer, with above average employment in Public Administration, Health and Education. NI also has a strong Manufacturing and Retail base – pointing towards its industrial heritage and consumption-oriented economy.

5.4.10. NI has a relatively low proportion of employment in higher value-added sectors such as Professional, Scientific and Technical, ICT, and Finance and Insurance. In terms of an overall perspective, NI has greater relative concentrations of employment in lower value-added sectors and lower concentrations in higher value-added sectors. This feature is a structural contribution to lower productivity and overall competitiveness.

Figure 5.4.7: Change in Employment by Sector NI, December 2018 – December 2019



Source: ONS
Note: Chart ranked using male employment, largest to smallest change.

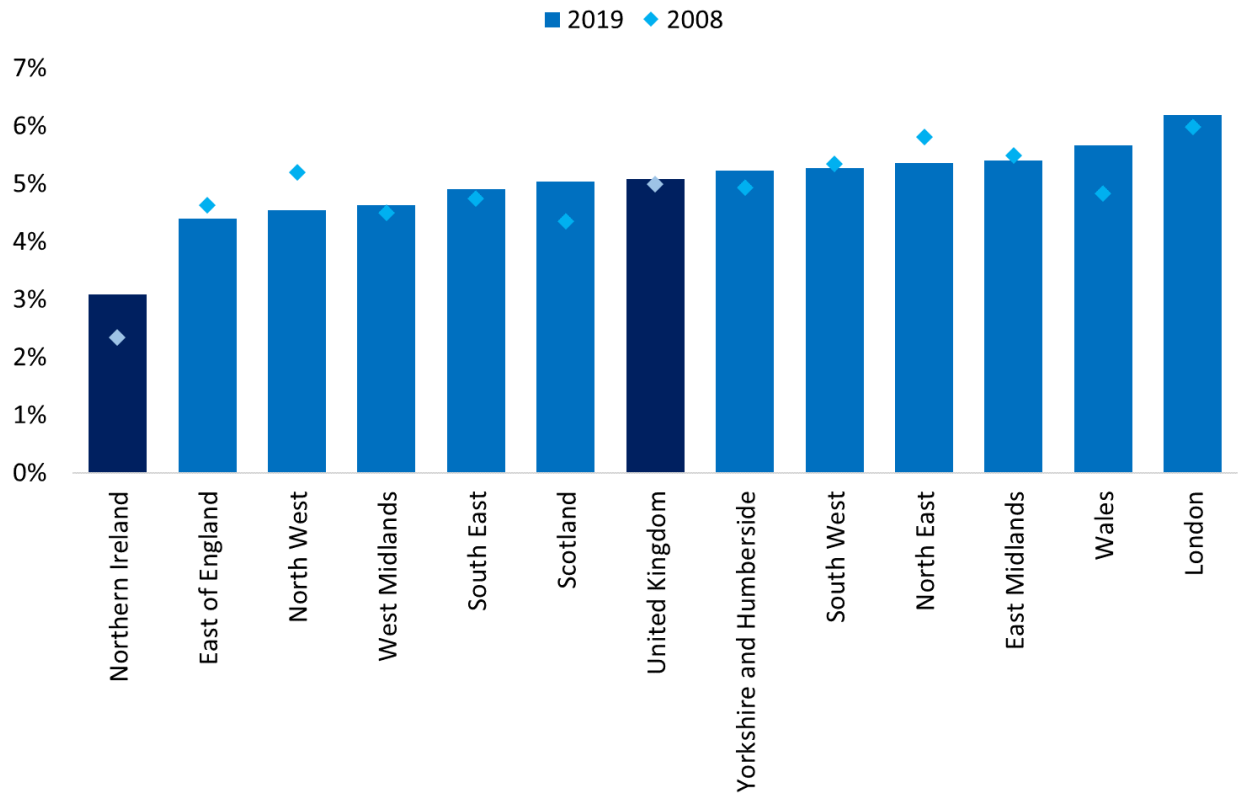
5.4.11. Health and Social Work, Transport and Storage, and Wholesale and Retail have exhibited the largest gains in employment over the year to December 2019. The growth in Healthcare employment is driven by additional female employees while Transport and Storage and Wholesale and Retail is driven by increases in male employment.

5.4.12. Interestingly, in Wholesale and Retail, Professional Services, and Entertainment, female employment decreased as the sector grew. At the opposite end of the spectrum, male employees have borne the reduction in employment in the sectors that have contracted over the last year.

5.4.13. COVID-19 has impacted severely on non-food retail, hospitality and arts and entertainment during 2020. These are sectors in which there are a large proportion of female, part time employees making them more vulnerable to the crisis.

Figure 5.4.8: People who are under employed (standardised measure of additional hours sought), 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
People who are under employed	1 / 12		=	2019



Source: UUEPC
Note: Rank excludes UK average.

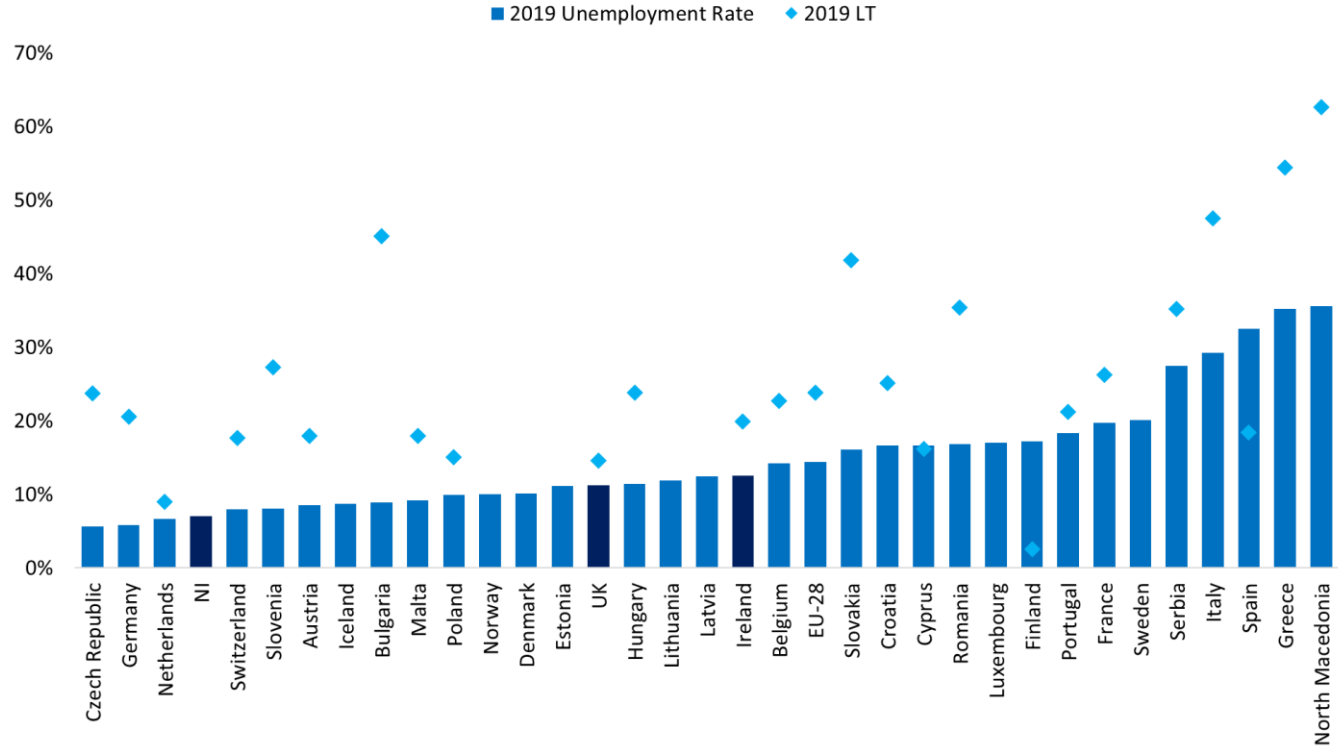
5.4.14. The Bell-Blanchflower method of measuring underemployment measures the excess supply of hours in the economy. This approach adds together the hours that the unemployed would work if they could find a job and the change in hours that those already in work would prefer, in order to calculate an estimate of the total number of potential hours that could be worked. This figure is then expressed as a percentage of the sum of hours worked and potential hours worked, to calculate the underemployment rate.

5.4.15. The number of hours sought in NI has increased slightly since 2008 from 2.3% in 2008 to 3.1% in 2019, however NI still has the lowest level of underemployment of the UK regions.

Youth Unemployment

Figure 5.4.8: Youth unemployment and long-term youth unemployment rate, 2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Youth unemployment rate	4 / 34		↑↑	2019
Long term youth unemployment rate (UK proxy)	3 / 24		↑↑	2019



Source: Eurostat
Note: Chart includes EU 28 countries + NI, Iceland, North Macedonia, Norway, Serbia, Switzerland and EU-28 average.
Serbia 2008 data is estimated using time trend.
Long term youth unemployment rate ranking excludes countries with missing 2019 data.

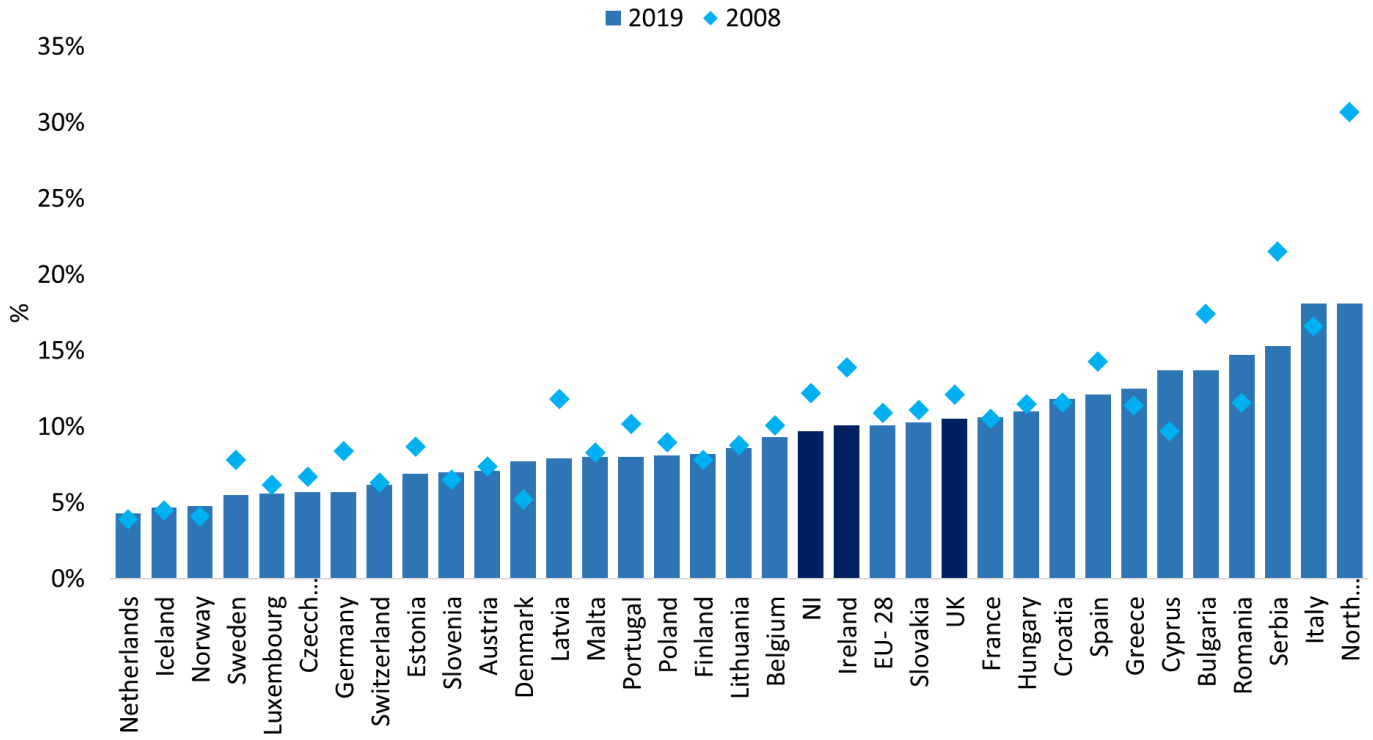
5.4.16. At 7% during 2019, NI's youth unemployment rate is relatively low compared to comparator countries, ranked just 3rd of the 34 countries. Interestingly, NI outperforms both the UK (11%) and Ireland (13%) as well as Scandinavian economies on this measure.

5.4.17. However, in terms of NI's long-term youth unemployment rate, no comparable data are available. This is because young people who are out of work for longer than six months are registered on government training schemes causing them to be counted as employed[13]. Whilst these schemes can help to develop skills it is unknown how many enter employment or return to unemployment.

[13] For more information see Steps 2 Success and/or Training for Success.

Figure 5.4.9: Young people not in employment, education or training (%), 2008 -2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Young people not in employment, education or training (%)	20 / 34		↑↑↑	2019



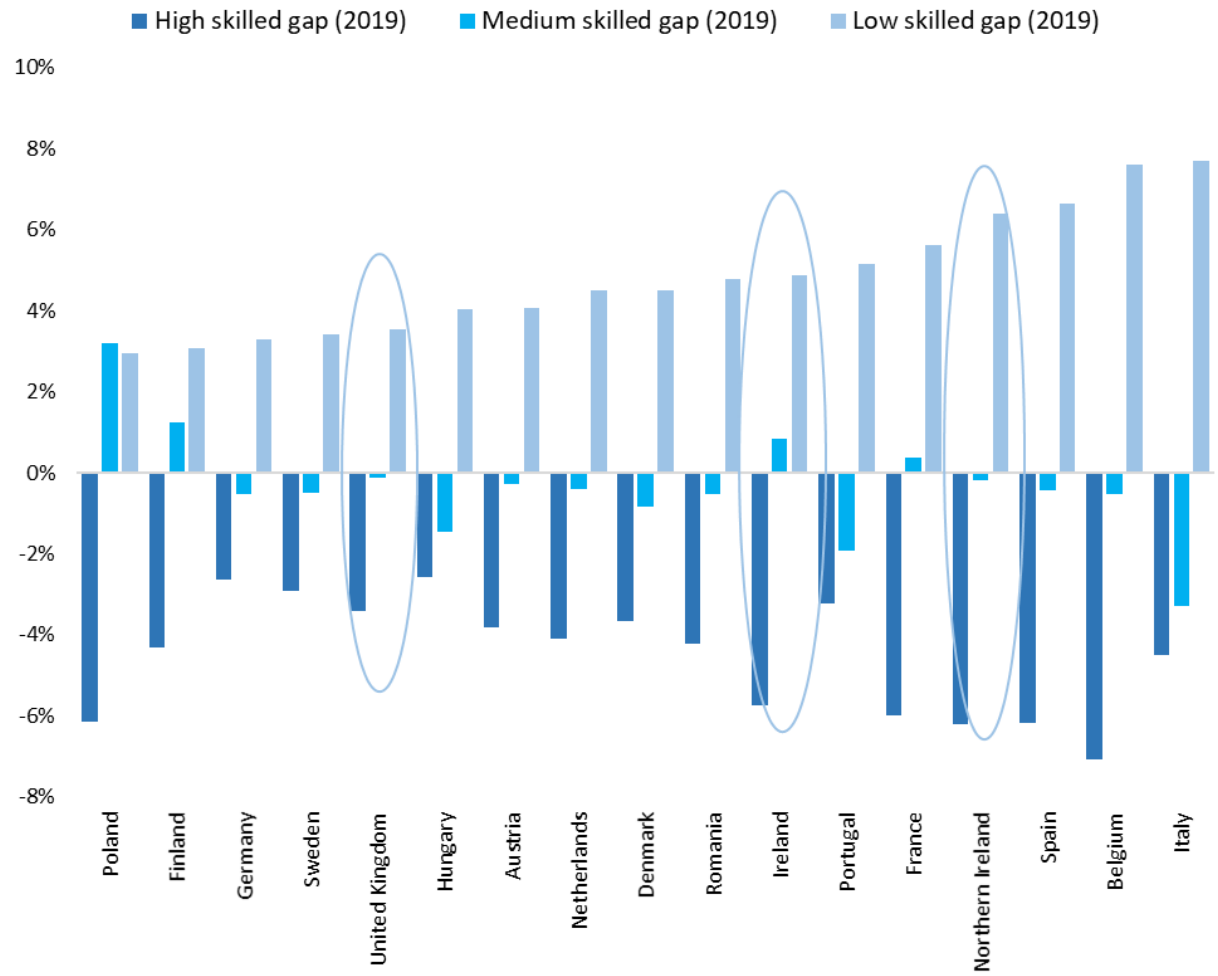
Source: Eurostat

5.4.18. NI has improved markedly in terms of the proportion of youths who are inactive or not in education or training (NEET). At 9.7%, this improvement and moves NI from the bottom third to close to the middle of the competitor rankings, ahead of the UK and Ireland.

Skills

Figure 5.4.10: Skills mismatches, 2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Skills missmatch - high skilled	3 / 29		=	2019
Skills mismatch - medium skilled	17 / 29		↓↓↓	2019
Skills mismatch - low skilled	25 / 29		=	2019

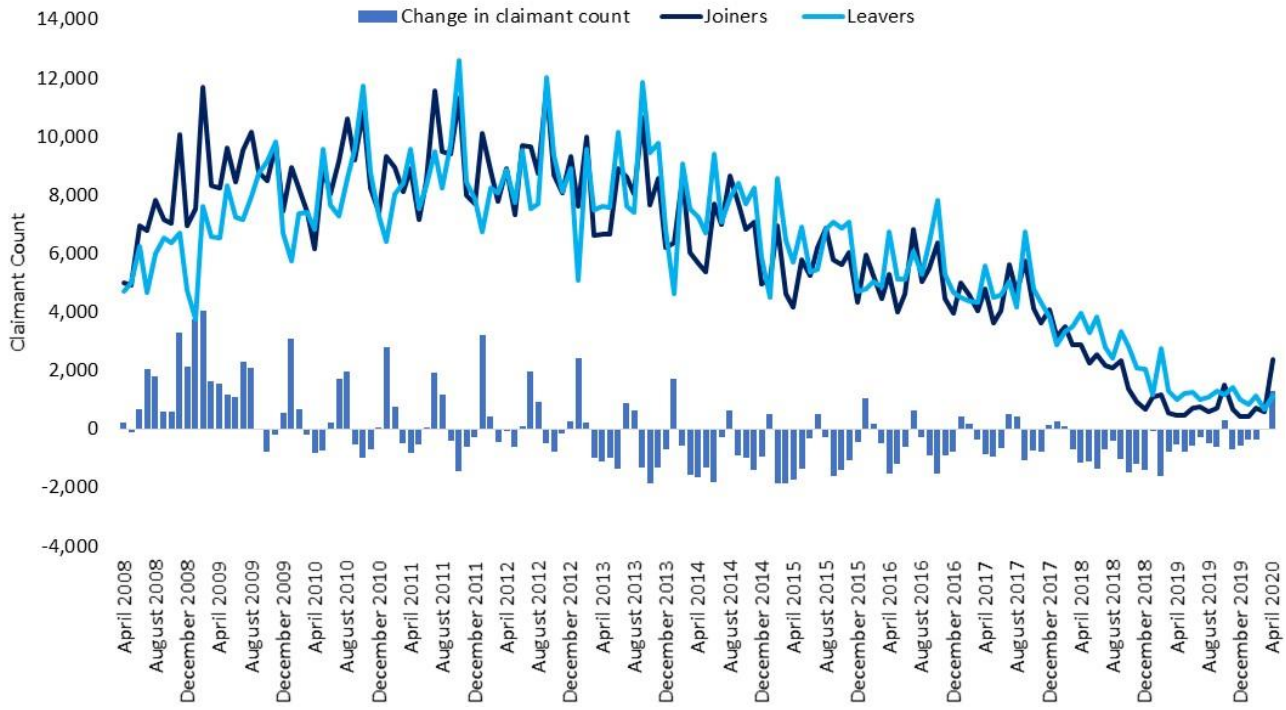


Source: Eurostat

5.4.19. The skills mismatch measures the gap between the skills at a specific level in the population and those employed. All countries have a relative shortage of highly skilled individuals and a surplus of low skilled individuals. NI is at the more challenging end of the spectrum with greater skills mismatches than competitors, especially for those with the lowest levels of formal qualification.

Benefit Intensity

Figure 5.4.11: Claimant count unemployment flow analysis, April 2008 - April 2020

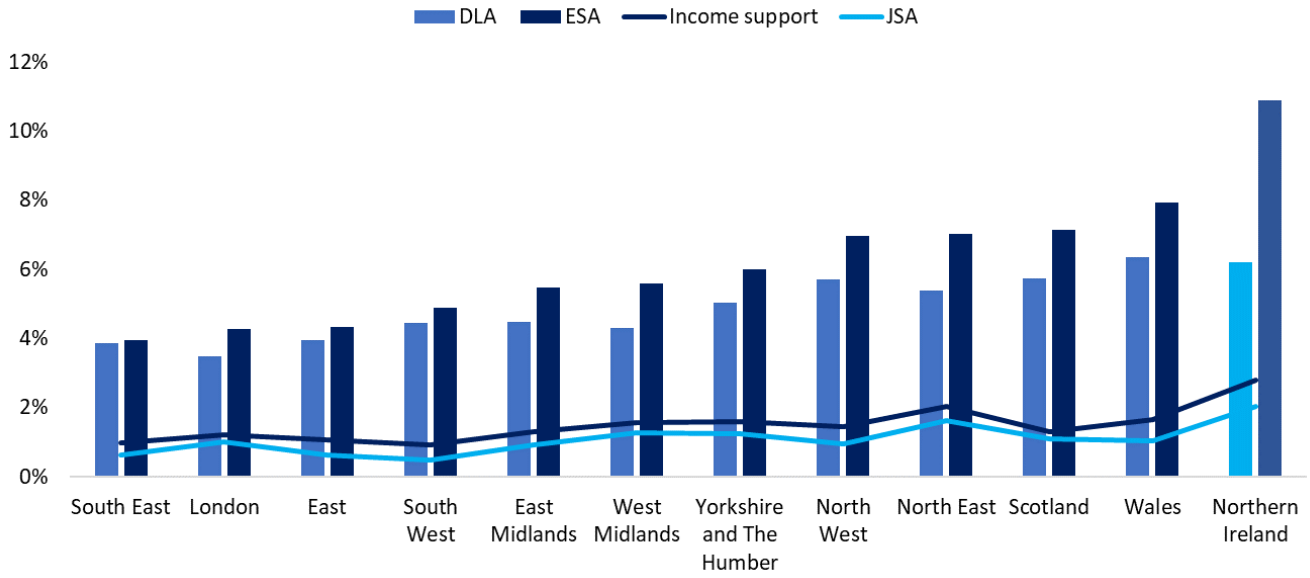


Source: NISRA

5.4.20. The flow into unemployment in NI doubled in the aftermath of the 2008 recession and then fluctuated between 6,000 and 12,000 until 2014, when increasing labour market activity provided more opportunity. The initial impact of the unfolding COVID-19 pandemic can be seen in April 2020, the first full month in which NI was subject to lockdown restrictions, with a significant and rapid increase in unemployment.

Figure 5.4.12: Benefit intensity (percentage of working age population per key benefit claimant), 2018

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Benefit intensity (DLA as a % of WAP)	11 / 12		↓↓↓	2018
Benefit intensity (ESA as a % of WAP)	12 / 12		=	2018
Benefit intensity (Income support as a % of WAP)	12 / 12		=	2018
Benefit intensity (JSA as a % of WAP)	12 / 12		=	2018



Source: ONS

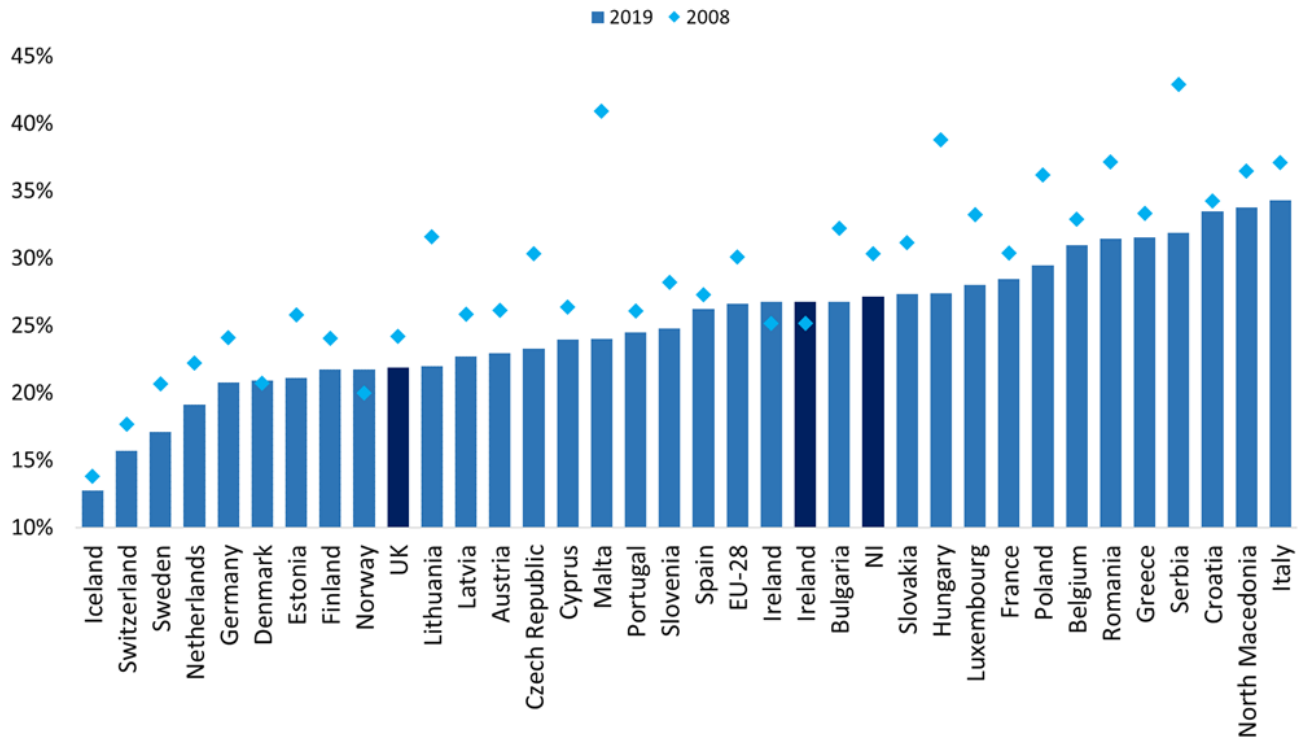
5.4.21. When compared to all other UK regions, NI had the highest proportion (% of working age population) of benefit claimants across all but one of the major benefits in 2018. Employment and Support Allowance (ESA) in NI represented the largest group of benefit claimants and accounted for 11% of NI's working age population, compared to 8% in the next highest UK region, Wales.

5.4.22. Meanwhile, Disability Living Allowance (DLA) is claimed by 6% of the working age population. Whilst this is relatively high compared to the other UK regions and the average, it has declined from 10% in 2017.

5.4.23. Income Support is claimed by just under 3%, which was the highest of the UK regions. Job Seekers Allowance (JSA) was claimed by 2% of the working age population.

Figure 5.4.13: Economic inactivity rate, 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Economic inactivity rate (%)	22 / 34		↓	2019



Source: Eurostat
Note: Chart includes EU 28 countries + NI, Iceland, North Macedonia, Norway, Serbia, Switzerland and EU-28 average.
Serbia 2008 data is estimated using time trend.

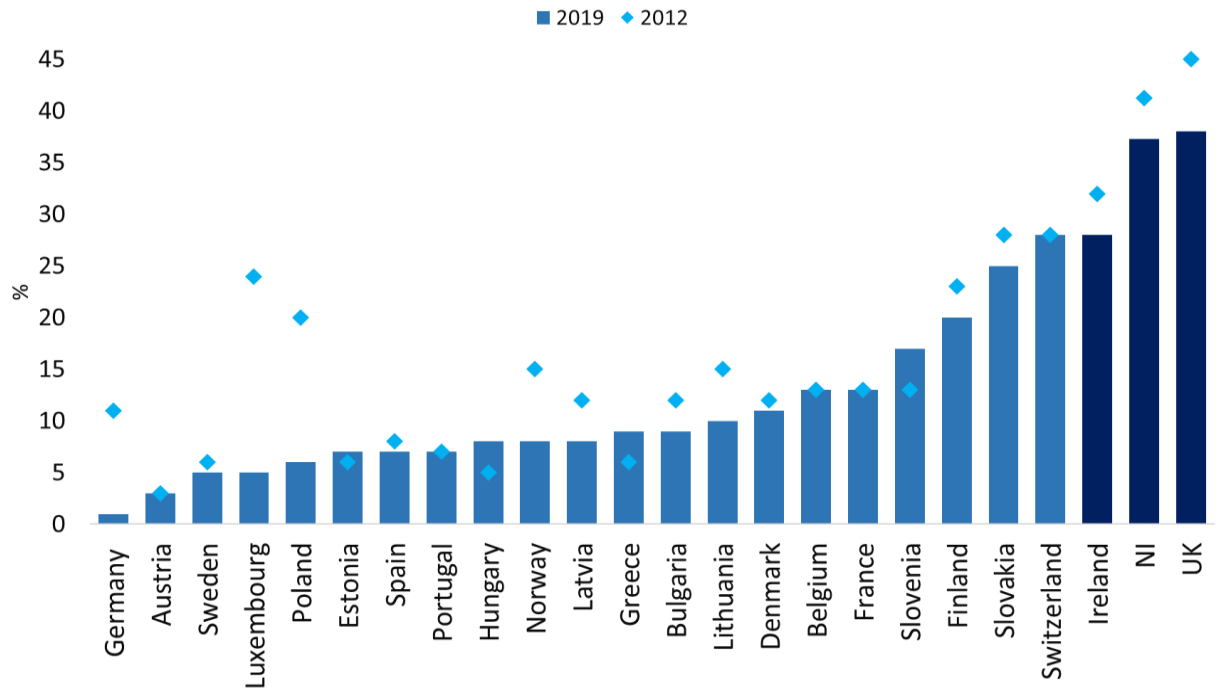
5.4.24. The economically inactive are defined as people who are not in employment or unemployed. There are many reasons why an individual may be inactive, for example, they might be studying, looking after family or long-term sick. As demand for labour reduces as a result of COVID-19 and Brexit, it is likely that economic inactivity will increase and become a more pertinent policy priority.

5.4.25. During 2019, 27% of NI's population aged 15-64 were classified as economically inactive. This is a reduction from 30% in 2008 although NI remains below average in international terms, as other nations have improved more rapidly. NI's inactivity rate is equal to the EU-28 and Irish rates.

Childcare and Dependency Ratio

Figure 5.4.14: Childcare costs as a percentage of average wage for a couple, 2012-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Childcare costs as a % of average wage	23 / 24		=	2019



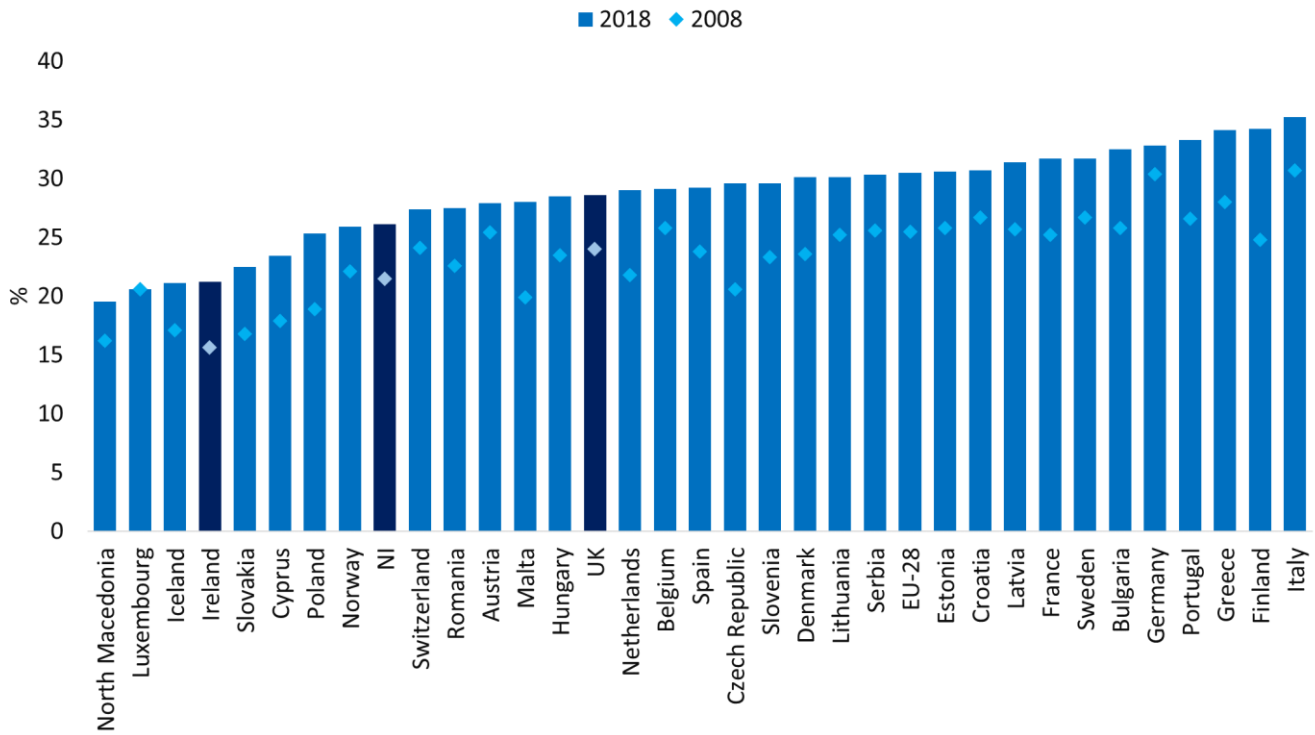
Sources: OECD and NI Childcare Survey
Note: Chart only includes 24 countries with 2019 data

5.4.26. Childcare costs are a major factor in a parent's ability to work. Often, it can be unaffordable to return to work because of these costs.

5.4.27. Whilst an improvement is evident over time, NI is still ranked 23rd out of the 24 countries compared, as childcare costs account for 37% of the average wage of a two-parent family. This makes NI a relatively expensive location for childcare in comparison to other European countries. The UK and Ireland also perform poorly in this indicator, making it a priority area for further research and policy intervention, especially as labour market flexibility will be required throughout the recovery phase as society learns to live with COVID-19.

Figure 5.4.15: Old age dependency ratio, percentage of working adults to individuals aged 65 plus, 2008-2018

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Number of person work age per dependent	9 / 34		=	2018

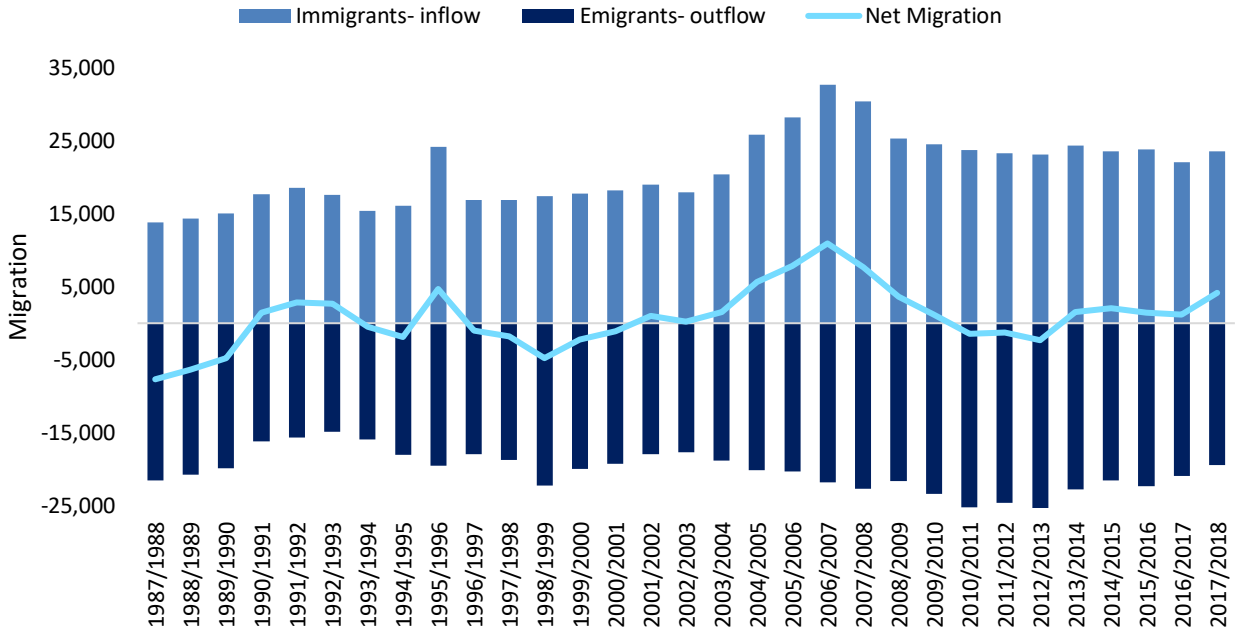


Sources: Eurostat & ONS

5.4.28. The pattern of old age dependency is similar across competitor nations. With lower birth rates and increasingly aged population profiles, the dependency ratio is increasing over time. In NI during 2018, there were 3.9 people of working age (defined as 20-64 years) for every person of pension age (65+ years). However, by 2050, this is forecast to reduce to just 1.9, illustrating the demographic challenge that will face NI in years to come. Ireland has a particularly youthful population, although the dependency ratio has increased over the decade and will continue to do so in the future.

Migration and Labour Supply

Figure 5.4.16: Net migration, NI, 1987/88 – 2017/18

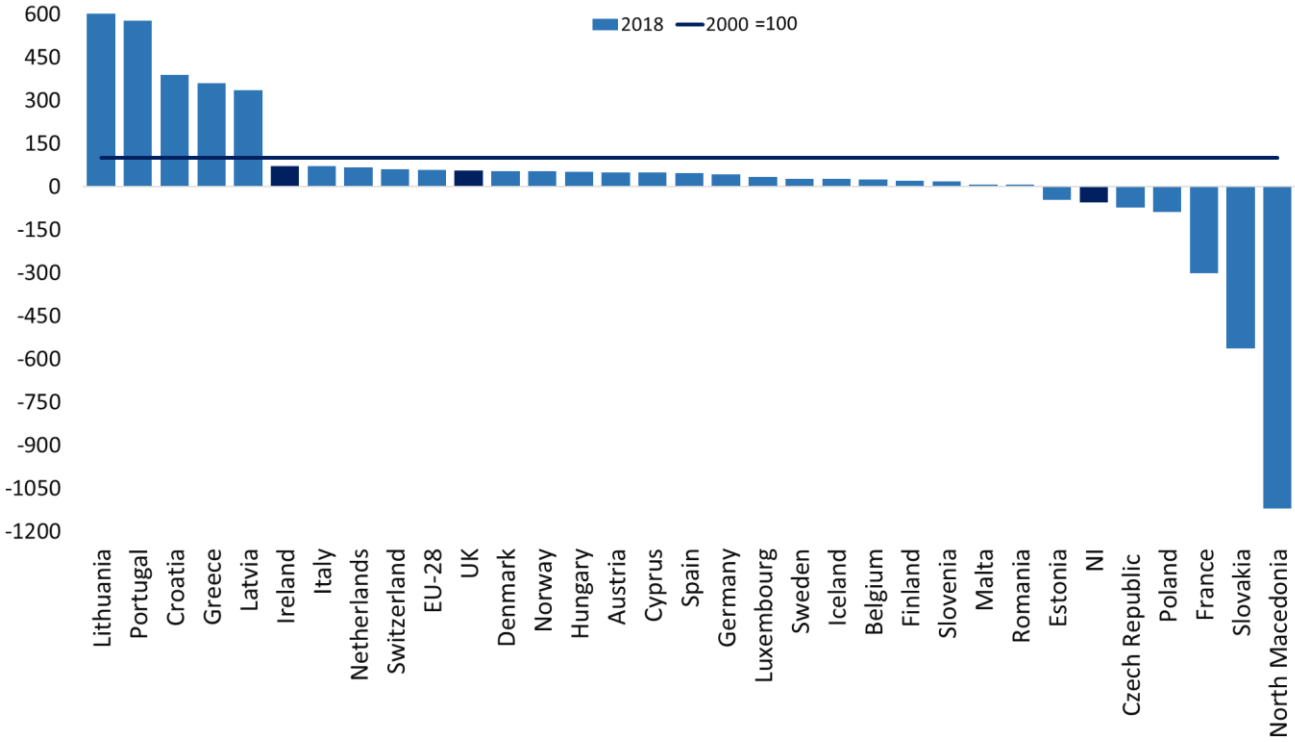


Source: NISRA

5.4.29. NI experienced fluctuations in migration over the past three decades. As NI approached the peak of the boom in 2007/8 and then again after 2014 when the labour market expanded, immigration exceeded emigration, helping to grow the available labour force. In examining these data further, it is evident that the immigrant profile to Ireland is generally more highly skilled than to NI, perhaps reflecting the sectoral and occupational demands from employers.

Figure 5.4.17: Net migration, indexed to 2000, 2000-2018

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Net migration (indexed to 2000)	27 / 32		=	2018



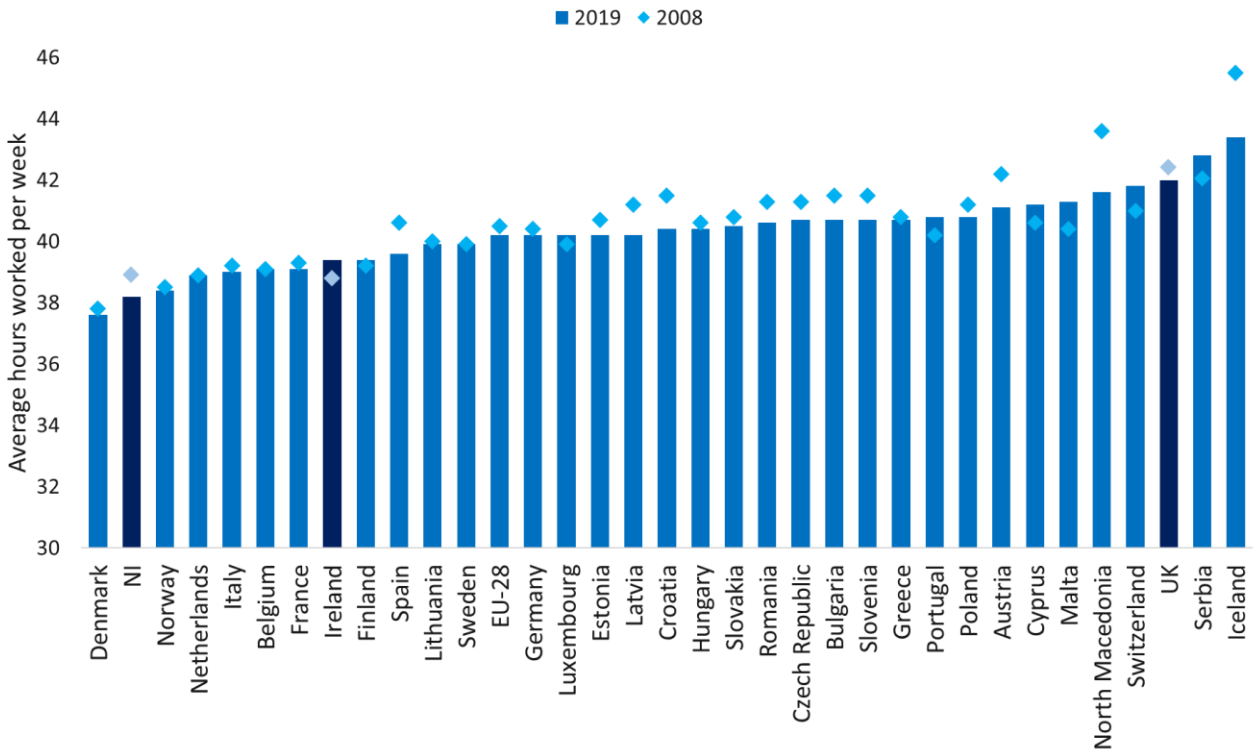
Sources: Eurostat & NISRA

5.4.30. In comparison to other European nations, NI is one of the lowest ranked areas for net migration, well behind Ireland and the UK. The Brexit decision will impact migration across the UK, making it perhaps more difficult for NI to continue to attract migrants into the labour market in order address labour market demands and shortages where they exist.

Working hours

Figure: 5.4.18: Average numbers of hours worked per week, 2008-2019

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Average hours worked per week	2 / 34		↑	2019



Sources: Eurostat & ASHE
Note: Chart includes EU 28 countries + NI, Iceland, North Macedonia, Norway, Serbia, Switzerland and EU-28 average.
Serbia 2008 data is estimated using time trend.

5.4.31. NI performs well in this indicator, ranked 2nd of the competitor nations. Average hours worked decreased to 38.5 and has been on a downward trajectory since 2008. This factor may contribute in part to the relatively strong performance in Quality of Life indicators such as wellbeing and can help to make childcare more manageable in NI. However, it is also indicative of lower levels of labour demand in NI.

Employment and labour supply summary

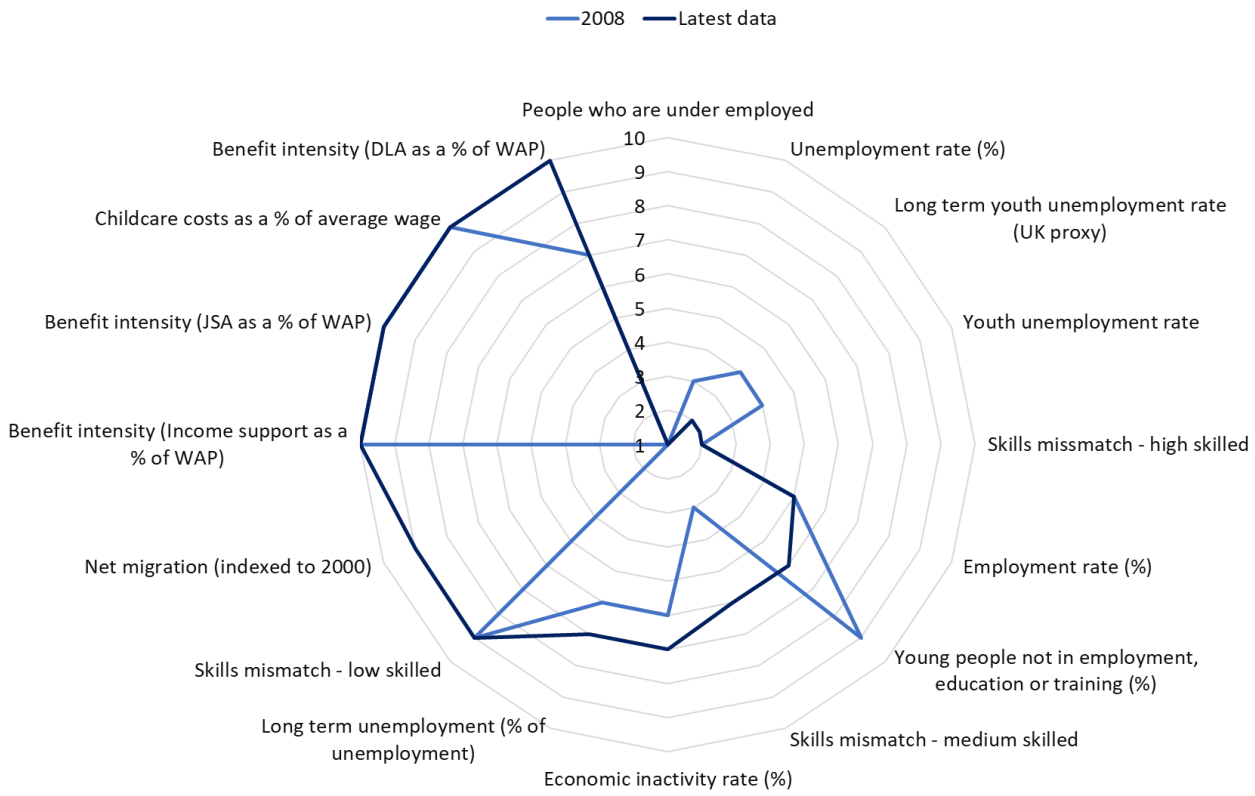
5.4.32. NI's performance within this pillar has deteriorated over the last decade, with the result that it is now the third weakest of the eleven pillars. Prior to the COVID-19 pandemic, NI was experiencing record high employment levels and record low unemployment, although economic inactivity remained a challenge. Many of these challenges have now been reset to levels last seen following the financial crisis in 2008 and could become more challenging as nationwide supports come to an end.

5.4.33. Youth unemployment and long-term youth unemployment have improved but remain relatively high in an international context. The proportion of the population who are not in education, employment or training is also relatively large. The COVID-19 pandemic is anticipated to impact significantly on those leaving education and seeking employment.

5.4.34. High levels of benefit dependency and skills mismatches, especially amongst those with the lowest levels of formal qualification have been a persistent feature of the NI economy, even when employment rates were high. Given the disequilibrium in skills it would be of significant benefit to better understand the skills profiles of emigrants and immigrants. As society learns to live with COVID-19, there is a significant risk that NEETs, youths and the long term unemployed will become increasingly detached from the labour market adding to the issue of benefits dependency and lost economic potential for both the individuals and society.

5.4.35. For parents, especially those with relatively low levels of formal qualification or working in low paid sectors, high childcare costs represent a significant barrier to re-joining the workforce, impacting negatively on labour supply and flexibility. NI's dependency ratio is also set to increase markedly over the next few decades, which will generate employment in some areas, but will also restrict the employment options of others, such as family and carers, narrowing the tax base.

Summary of decile placements for labour supply and employment



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary of employment and labour supply indicators

Employment and Labour Supply	Rank	Direction of change	Change in decile	Year
Average hours worked per week	2 / 34		↑	2019
People who are under employed	1 / 12		=	2019
Unemployment rate (%)	2 / 34		↑↑	2019
Skills missmatch - high skilled	3 / 29		=	2019
Youth unemployment rate	4 / 34		↑↑	2019
Long term youth unemployment rate (UK proxy)	3 / 24		↑↑	2019
Number of person work age per dependent	9 / 34		=	2018
Skills mismatch - medium skilled	17 / 29		↓↓↓	2019
Employment rate (%)	14 / 34		=	2019
Economic inactivity rate (%)	22 / 34		↓	2019
Young people not in employment, education or training (%)	20 / 34		↑↑↑	2019
Skills mismatch - low skilled	25 / 29		=	2019
Benefit intensity (DLA as a % of WAP)	11 / 12		↓↓↓	2018
Net migration (indexed to 2000)	27 / 32		=	2018
Long term unemployment (% of unemployment)	22 / 33		↓	2019
Childcare costs as a % of average wage	23 / 24		=	2019
Benefit intensity (ESA as a % of WAP)	12 / 12		=	2018
Benefit intensity (Income support as a % of WAP)	12 / 12		=	2018
Benefit intensity (JSA as a % of WAP)	12 / 12		=	2018
Unemployment (standardised rates)	N/A / N/A	N/A	N/A	2018

Source: UUEPC

6 Competitiveness: Policy Inputs

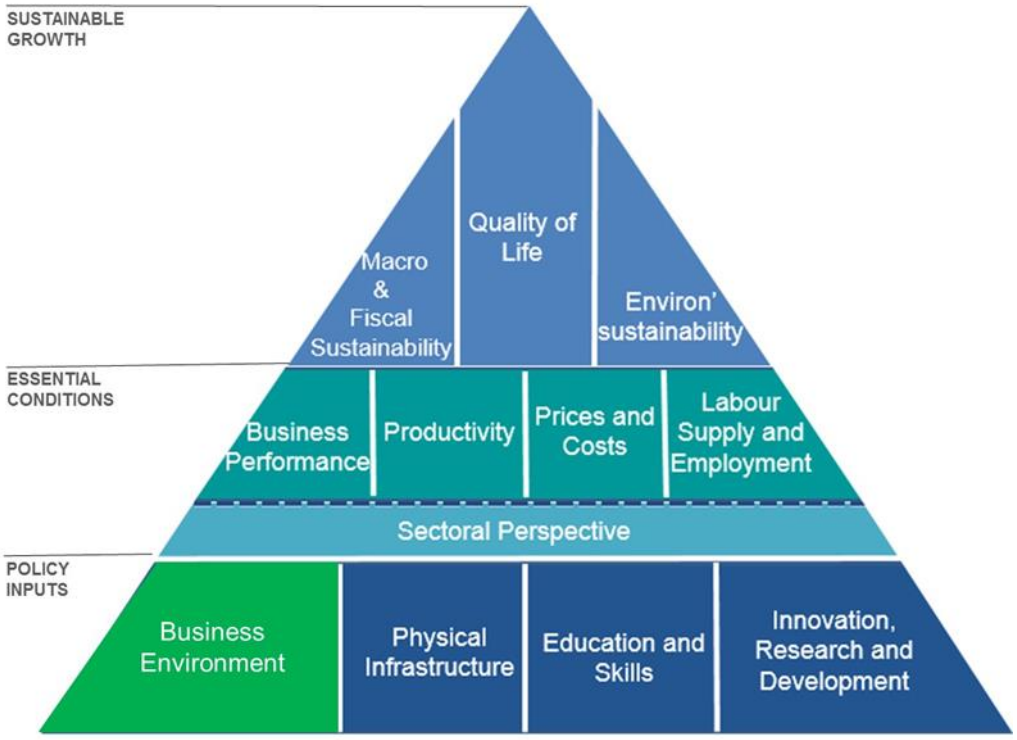
6.1. Policy inputs contribute to future economic competitiveness and are the areas in which policy makers can have the greatest impact.

6.2. The four elements contained within the policy inputs section are;

- Business Environment;
- Physical Infrastructure;
- Education and Skills; and
- Innovation, Research and Development.

6.1 Business environment

6.1.1 In order for firms to compete successfully in international markets the business environment must be conducive, imbue confidence and expectations of good quality and high standards, and should not impose unnecessary restrictions or costs on firms.

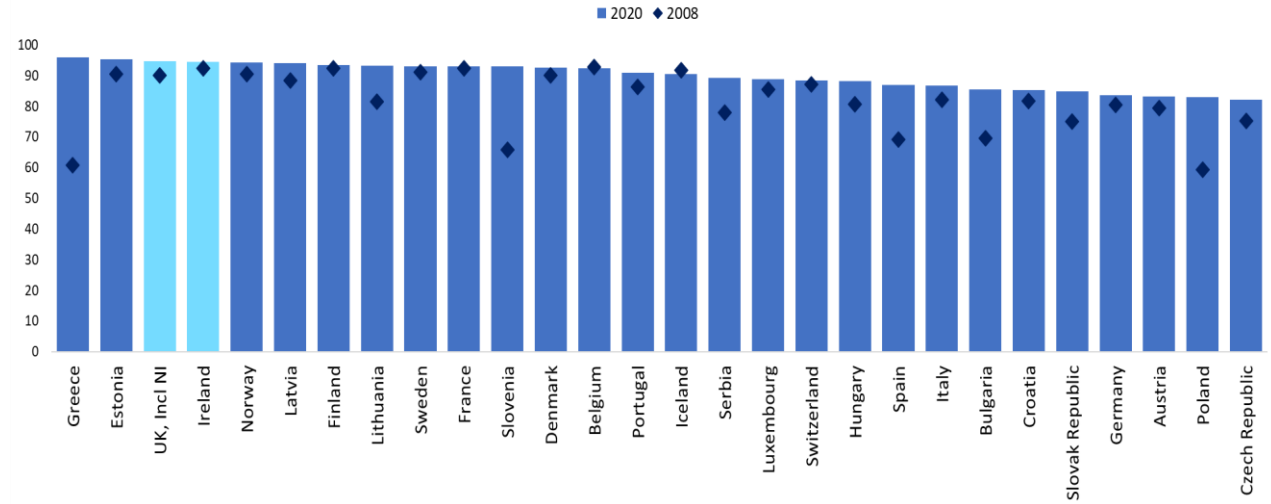


Source: UUEPC

Business Activity

Figure 6.1.1: Ease of Doing Business, UK & Ireland, 2008 - 2020

Business Environment	Rank	Direction of change	Change in decile	Year
Ease of doing business	5 / 28		↑↑	2020



Source: OECD
Note: UK used as a proxy for NI

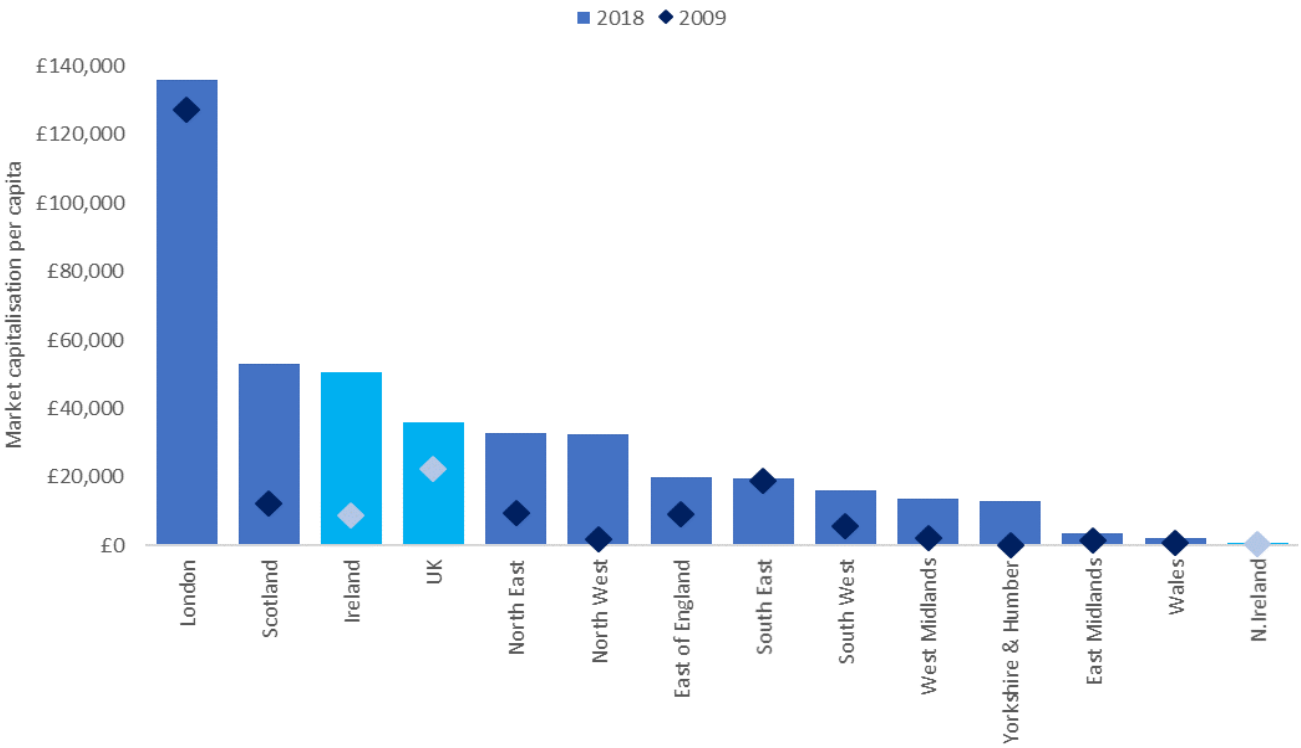
6.1.2 It should be noted that UK national data is used as a proxy for NI as regional data are not published, and the factors that apply to GB also apply to NI.

6.1.3 This indicator ranks the UK's performance across 11 different 'Doing Business' metrics relative to other OECD countries. Almost every country has improved in terms of doing business since 2008. The UK and Ireland performed well historically and have continued to build upon this strength in recent years. The UK, and therefore NI, has improved and more importantly, moved ahead of competitor nations.

6.1.4 When component indicators are investigated, the UK and therefore NI, performs very well in terms of "getting electricity" and "ease of doing business". However, its performance is weak in relation to registering property, enforcing contracts and getting credit.

Figure 6.1.2: Market capitalisation per head of the population, 2009-18

Business Environment	Rank	Direction of change	Change in decile	Year
Market capitalisation per head of population	13 / 13		=	2018



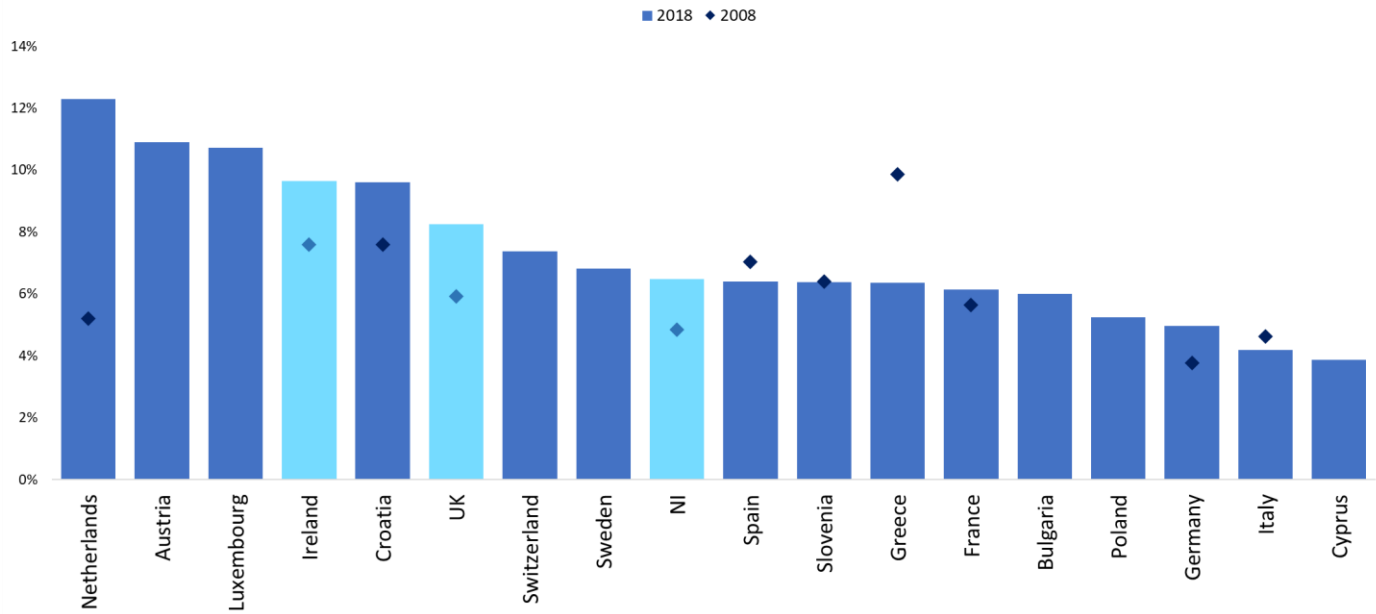
Source: London Stock Exchange
Note: Rank excludes UK.

6.1.5 This indicator measures the total market value of the shares in all publicly traded companies headquartered throughout the UK region per capita.

6.1.6 Relative to the rest of the UK regions and Ireland, NI continues to perform poorly. While market value has been increasing (£65 per capita in 2009 to £796 in 2018), it remains much lower than the UK average. Ireland, the North West of England and Scotland have improved most over the period.

Figure 6.1.3: Total entrepreneurial activity (% of 18-64-year olds), 2008-18

Business Environment	Rank	Direction of change	Change in decile	Year
Total entrepreneurial activity	9 / 18		↑	2018



Source: GEM Total Entrepreneurial Activity
Note: 2008 data are unavailable for Austria, Luxembourg, Switzerland, Sweden, Bulgaria, Poland and Cyprus.

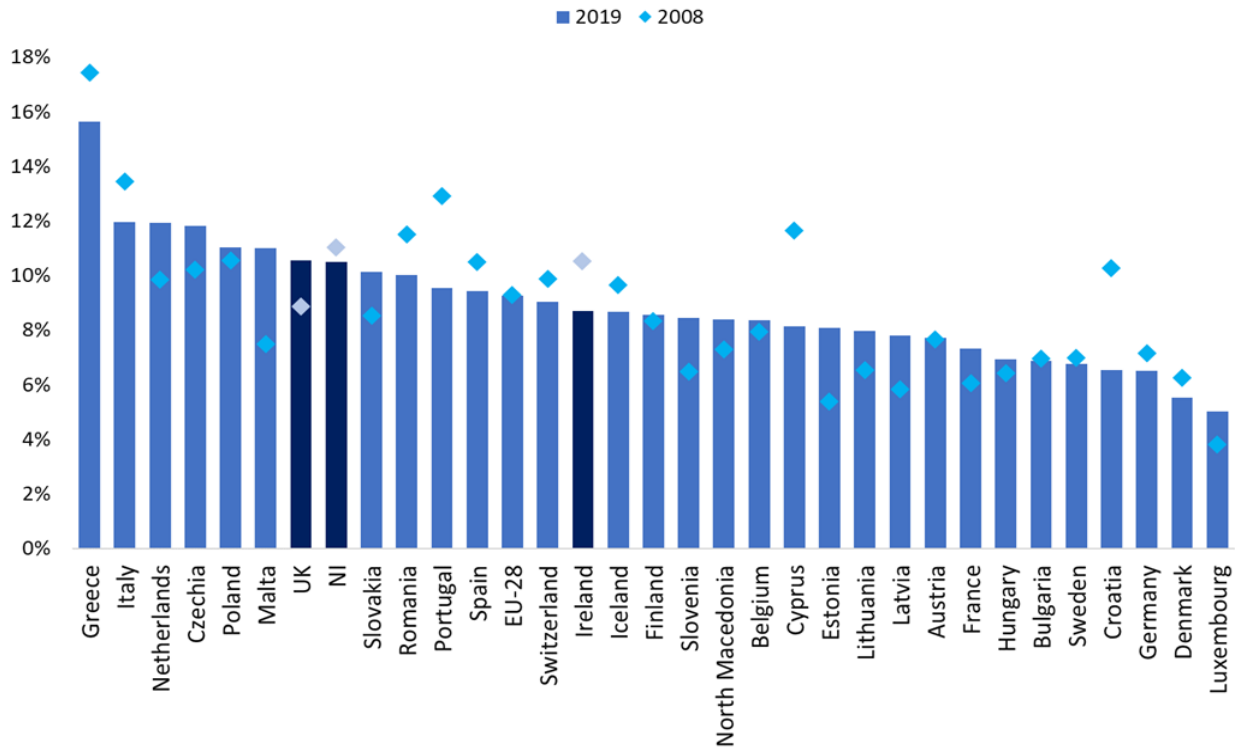
6.1.7 Total entrepreneurial activity (TEA) has improved in the majority of countries over the past decade. Ireland, the UK and NI have all improved by a roughly similar proportion.

6.1.8 TEA is now 6.5% in NI, improving from 4.8% in 2008, with NI ranked 9th out of 18 comparator nations. NI still lags the UK and Irish averages, however performance has improved markedly in recent years and moved ahead of international competitors.

Self-Employment

Figure 6.1.4: Numbers of persons self-employed, percentage of working age population, 2008-2019

Business Environment	Rank	Direction of change	Change in decile	Year
Self-employment levels (% of WPOP)	8 / 34		↓	2019



Source: Eurostat and Annual Population Survey
Note: The 2016 report included 'Barriers to Entrepreneurship' as an indicator, but this data has not been updated and so it has been replaced with 'Self-Employment Levels' as a new indicator of addressing entrepreneurship levels.
No data available for Serbia 2008, 2010 used as the earliest year of data.

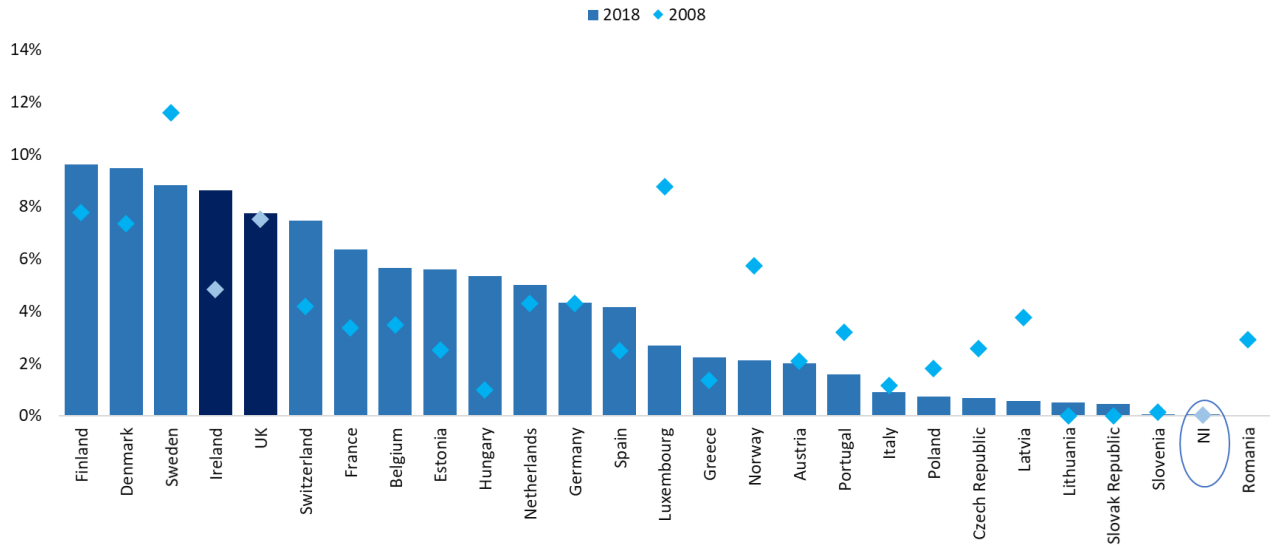
6.1.9 This indicator measures the percentage of the working age population who are self-employed. The UK and NI are relatively competitive, in the UK 10.6% of individuals are self-employed whilst in NI it is 10.5%, slightly above the EU average of 9.2%. The UK and NI's position may support the proposition that there are fewer barriers to entry for entrepreneurs than in many competitor nations and perhaps increasingly positive attitudes towards self-employment.

6.1.10 In contrast, Ireland's levels of self-employment have dropped since 2008 from 10.5% to 8.7% in 2019. This may be due to more significant barriers to entrepreneurship in Ireland than most competitor nations, driven by factors such as high start-up costs. It may also reflect wider employment opportunities within existing firms.

Investment Activity

Figure 6.1.5: Venture Capital investment as % of GDP, 2008 - 2018

Business Environment	Rank	Direction of change	Change in decile	Year
Venture Capital Investment (% of GDP) Seed/Startup/ other early stage - Total	26 / 27		=	2018



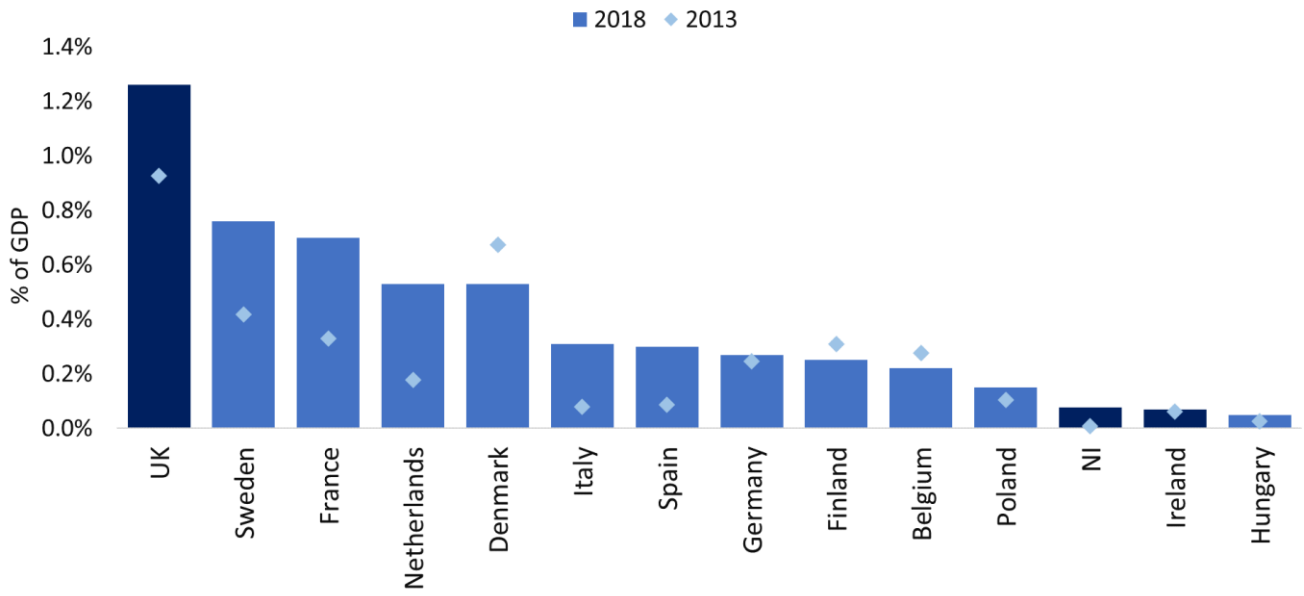
Source: OECD, BVCA & Invest Europe
Notes: The Romanian figures are likely to be a misstatement, given historical trends.

6.1.11 Venture capital (VC) is typically provided to high-growth, risk taking companies. Scandinavian nations are generally very strong performers in this area, however, the UK and Ireland both perform well relative to competitor nations and Ireland has improved significantly since 2008.

6.1.12 The total value of VC in NI in 2018 was £26m rising from £9m in 2008, whilst this is an increase for NI it is still well below the benchmark economies of Ireland, and the UK and other competitors. NI's overall position has remained unchanged over the decade.

Figure 6.1.6: Private equity investment (as % of GDP), 2013 - 2018

Business Environment	Rank	Direction of change	Change in decile	Year
Private equity investment	12 / 14		↑	2018



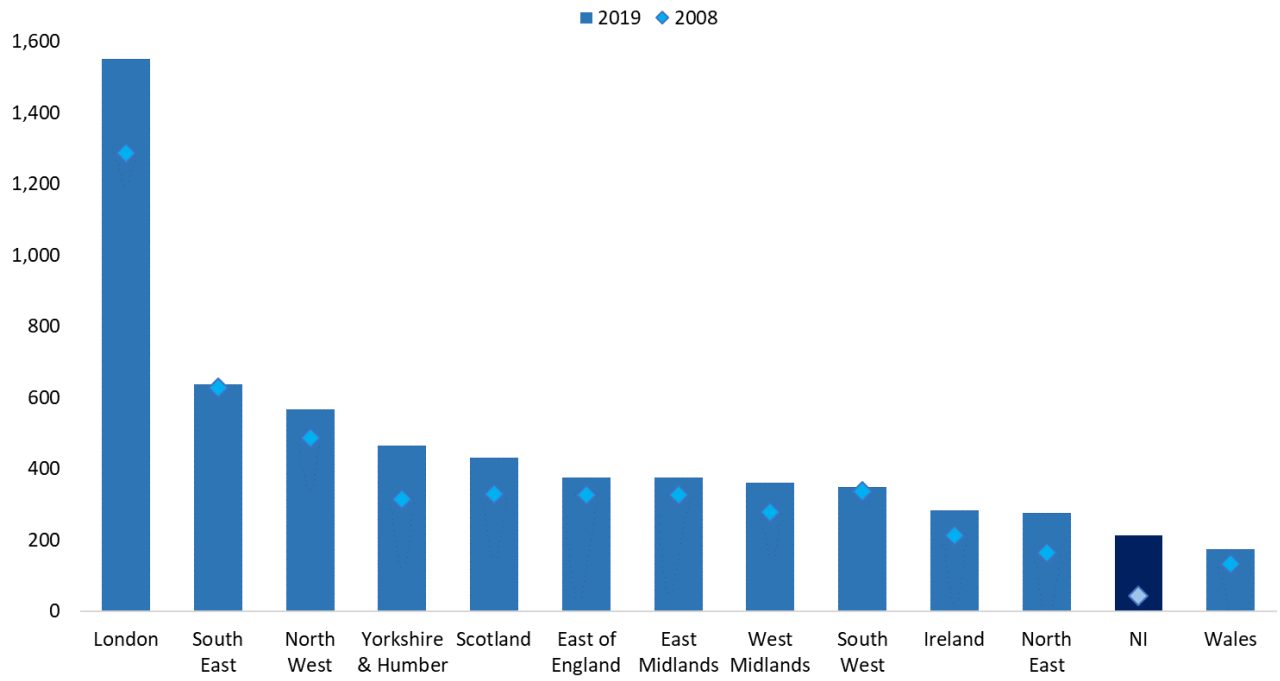
Sources: Invest Europe, BVCA & ONS

6.1.13 Private equity comprises all stages of finance, this includes seed, start-up, expansion, replacement capital, and buyouts. The UK leads this field, in terms of the countries for which data are available, ahead of the Scandinavian nations and Ireland.

6.1.14 NI's performance is weak at just 0.08% of GDP. Despite an improvement in NI's performance over the five-year period, it is now at 12th place out of the 14 countries compared.

Figure 6.1.7: Number of Merger & Acquisitions and ECM deals per 100,000 VAT registered businesses, 2008-2019

Business Environment	Rank	Direction of change	Change in decile	Year
Number of M&A deals per 100,000 VAT reg businesses	12 / 13		=	2019



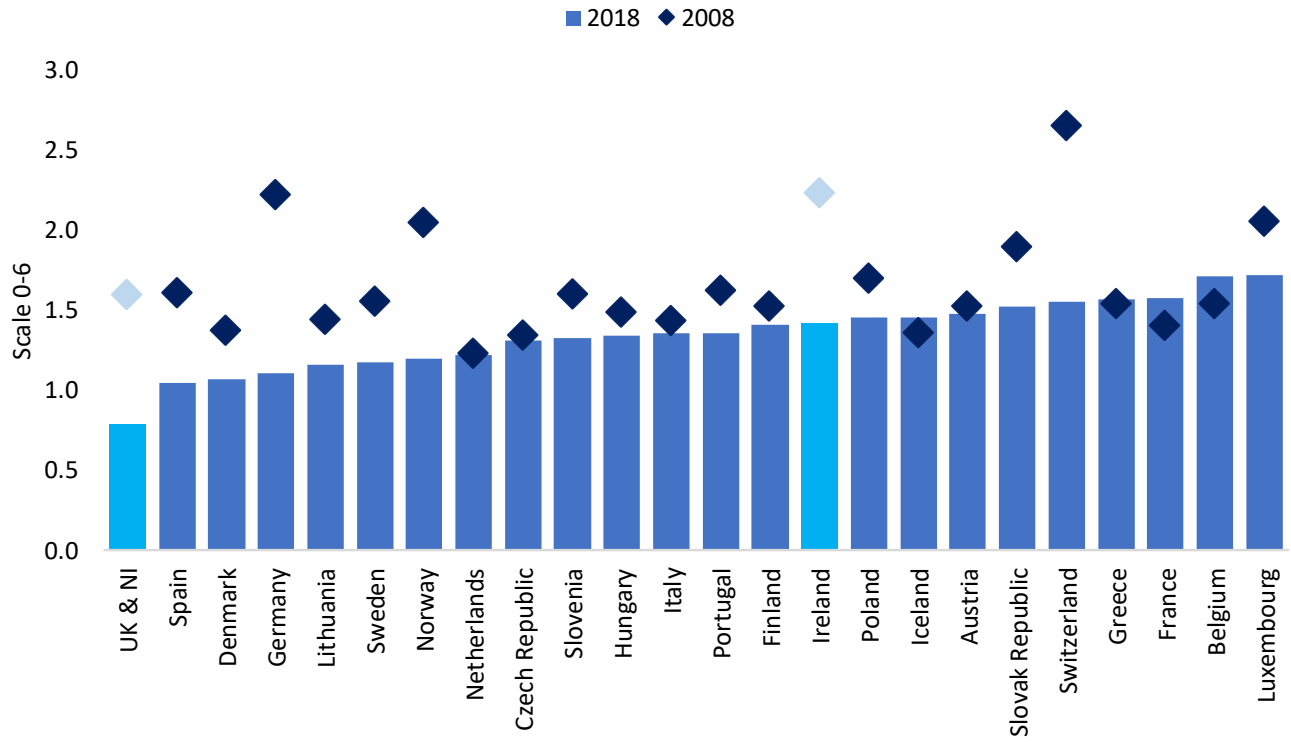
Sources: Experian Corpfin & UUEPC

6.1.15 When compared with all other UK regions, NI's performance in M&A activity is weak. However, NI has moved from bottom of the rankings to outperforming Wales in 2019, as the number of M&A deals per 100,000 VAT registered businesses in NI grew from 41 (2008) to 214 in 2019. M&A numbers are cyclical and can be volatile, and therefore care should be taken in interpreting this indicator.

Regulation and Compliance

Figure 6.1.10 Product market regulation (scale 0-6), 2008-2018

Business Environment	Rank	Direction of change	Change in decile	Year
Product market regulation (UK proxy)	1 / 26		=	2018



Source: OECD
Note: UK used as a proxy for NI

6.1.16 Regulation is a reserved policy matter and therefore UK figures are used for NI. The OECD indicators for product market regulation comprises of a comprehensive set of indicators that measure the degree to which policies promote or inhibit competition in those product markets where competition is viable. A low score indicates a greater competitive advantage, with the UK leading the field and improving markedly since 2008. Overall, NI continues to benefit from being part of the UK regulatory environment.

Figure 4.1.11: Regulation of professional services, 2018

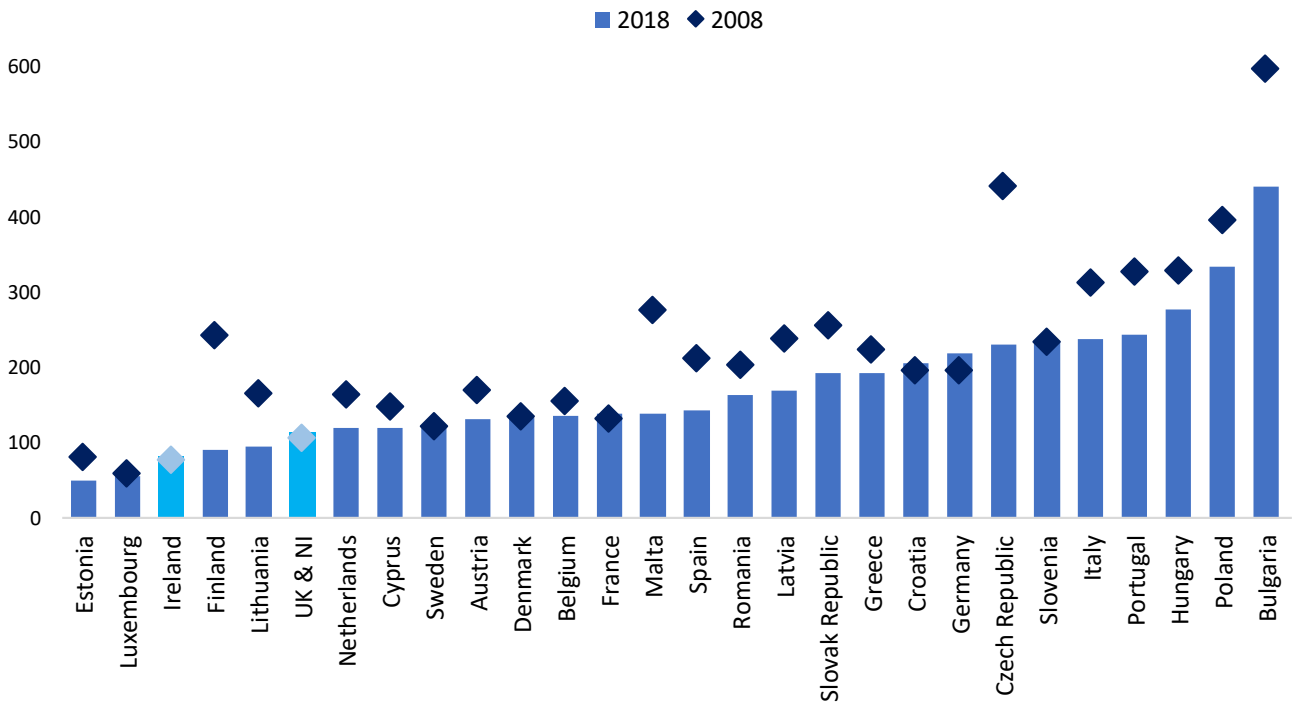
Business Environment	Rank	Direction of change	Change in decile	Year
Product market regulation of professional services - legal	2 / 26		↓	2018
Product market regulation of professional services - architecture	3 / 24		↑	2018
Product market regulation of professional services - engineering	5 / 22		=	2018
Product market regulation of professional services - accounting	12 / 18		↑↑↑	2018

Source: OECD
Note: UK used as a proxy for NI

6.1.17 This indicator compares the level of regulatory restrictions which exist within professional services, specifically around market entry and conduct of business regulations. The UK, and therefore NI as part of the same regulatory framework, performs relatively strongly in these indicators, on average.

Figure 4.1.12: Time to comply with tax payments (hours per year), 2008-2018

Business Environment	Rank	Direction of change	Change in decile	Year
Time to comply with tax payments	6 / 29		↓	2018



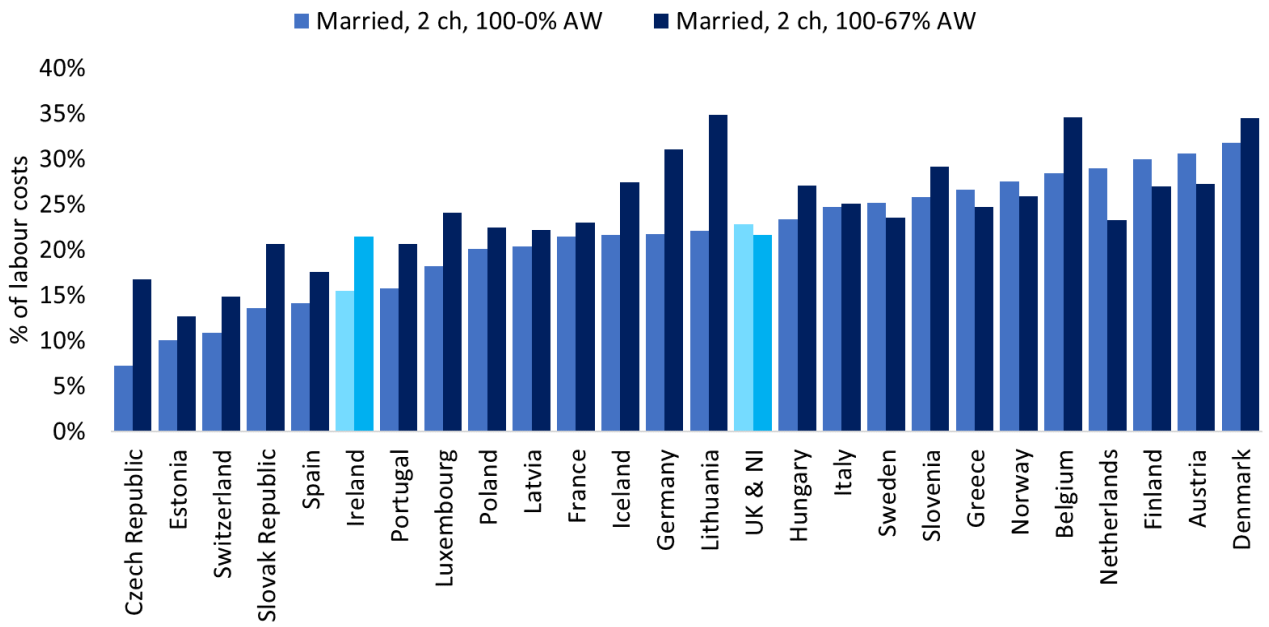
Source: PwC
Note: UK used as a proxy for NI, 2010 data used for Malta as no 2008 data available.

6.1.18 This indicator measures the amount of time required for tax compliance (for corporate, labour and consumption taxes) by country. This includes time taken to prepare tax figures, to complete and file tax returns and to pay taxes. As NI is part of the same tax regime as the UK, the UK data are used as a proxy.

6.1.19 Ireland performs strongly in this indicator requiring 82 hours (2018), whilst the UK (and therefore NI) also perform well, with 114 hours required per annum (2018), however this is an increase from 105 hours in 2008. While the UK and NI remain close to the top of the rank, other competitor nations have been able to move ahead of the UK (Finland and Lithuania), with the result that NI has slipped one decile.

Figure 6.1.13: Income tax plus employee contributions (% of gross wage earnings), (Married, 2 children, 100% & 167% AW), 2019

Business Environment	Rank	Direction of change	Change in decile	Year
Income tax + employee contributions as a % of GW (Married, 2 CD, 167% AW)	8 / 26		↑	2019
Income tax + employee contributions as a % of GW (Married, 2 CD, 100% AW)	15 / 26		↑	2019



Source: OECD
Note: UK used as a proxy for NI. Chart ranked 100% of the average wage smallest to highest.

6.1.20 Income tax and employee contributions within NI are set by UK Government and are not devolved to NI, consequently UK data is used here as a proxy. In 2019, for those married with 2 children on a combined income of 167% of the average wage (i.e. a two-earner family), 21.6% of total gross wage earnings were accounted for in income tax and employee contributions, much lower than countries such as Belgium and Denmark (both 34.5%). This is relatively high in comparison to other European countries such as Estonia (11.7%) and Switzerland (14.8%); Ireland also performs relatively well in this indicator at 20.8%.

6.1.21 The UK and NI are mid-table performers, and whilst they have improved over the decade, competitor nations have moved ahead in relation to higher earners. This is an important indicator, as in recent years, sentiment has shifted to the left in favour of funding better public services and the fiscal framework; borrowing rules or both will need to be amended to fund public services.

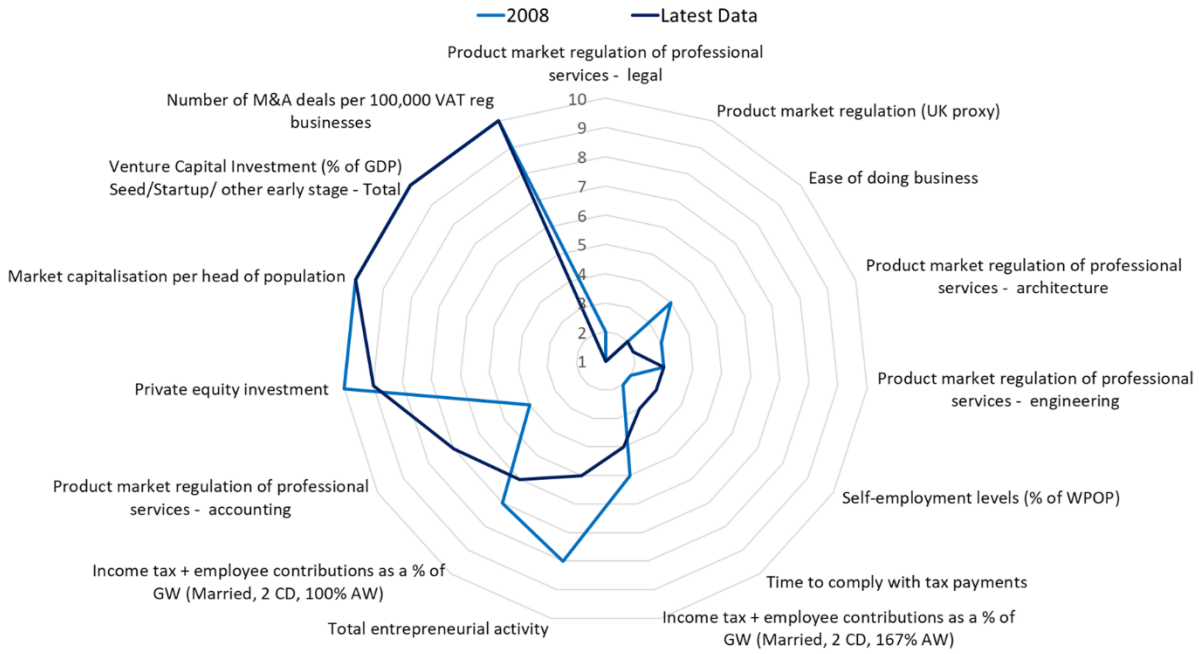
Business environment summary

6.1.22 NI benefits from a relatively competitive and improving business environment. The UK's strong performance in product market regulation, ease of doing business and ease of market access are areas of competitive strength and a key benefit to NI is being part of the UK framework in this context.

6.1.23 NI also made improvements in its relative competitive position, outstripping the performance of competitor nations. Total Early-stage Entrepreneurial Activity increased from 4.8% (2008) to 6.5% (2018).

6.1.24 NI performs less well on VC, private equity provision, and in terms of the value of publicly listed companies. The evidence gathered for the report does not allow for a conclusion to be drawn on whether this is an issue of limited supply or a low demand for risk capital. However, these indicators are improving over time, albeit from a very low base and therefore it will take a significant improvement and time for NI to move from the bottom rankings. These indicators are important areas that merit close policy attention as doing so may help to assist the wider business environment, such as assisting SME's, high-tech start-ups and businesses in their attempts to scale up, many of which will rely on these sources of finances. This will help to develop NI's overall level of competitiveness.

Summary of percentile placement for business environment indicators



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary of Business Environment indicators

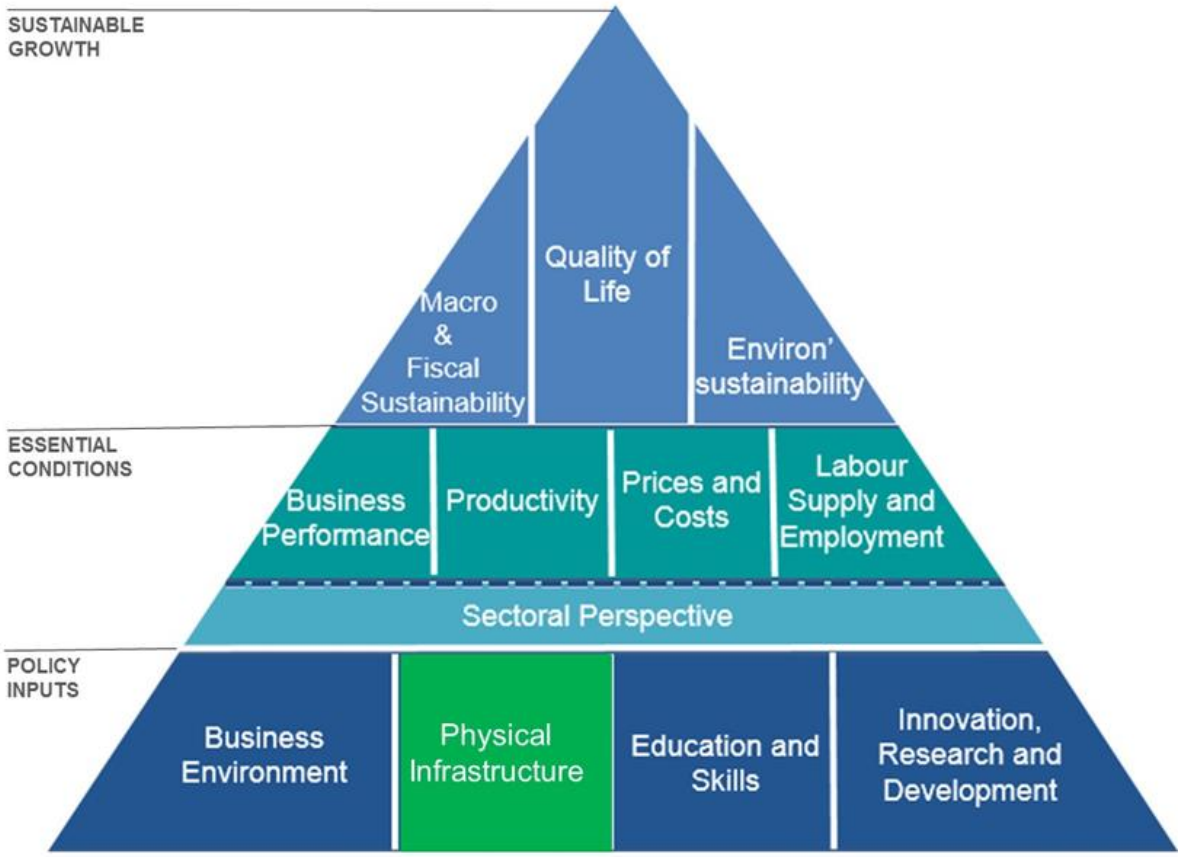
Business Environment	Rank	Direction of change	Change in decile	Year
Product market regulation (UK proxy)	1 / 26		=	2018
Product market regulation of professional services - legal	2 / 26		↓	2018
Product market regulation of professional services - architecture	3 / 24		↑	2018
Ease of doing business	5 / 28		↑	2020
Product market regulation of professional services - engineering	5 / 22		=	2018
Time to comply with tax payments	6 / 29		↓	2018
Income tax + employee contributions as a % of GW (Married, 2 CD, 167% AW)	8 / 26		↑	2019
Self-employment levels (% of WPOP)	8 / 34		↓	2019
Total entrepreneurial activity	9 / 18		↑	2018
Product market regulation of professional services - accounting	12 / 18		↑↑↑	2018
Income tax + employee contributions as a % of GW (Married, 2 CD, 100% AW)	15 / 26		↑	2019
Private equity investment	12 / 14		↑	2018
Number of M&A deals per 100,000 VAT reg businesses	12 / 13		=	2019
Market capitalisation per head of population	13 / 13		=	2018
Venture Capital Investment (% of GDP) Seed/Startup/ other early stage - Total	26 / 27		=	2018

Source: UUEPC

6.2 Physical and technological infrastructure

6.2.1 Physical and technological infrastructure examines both the quality and availability of infrastructure to the population in NI. High quality and accessible infrastructure can enable and assist trade, the mobility of labour and capital, and quality of life.

6.2.2 The quality of infrastructure – in the broadest sense of connectivity – also has the potential to impact upon the attractiveness of the country in the eyes of investors and highly skilled migrants.

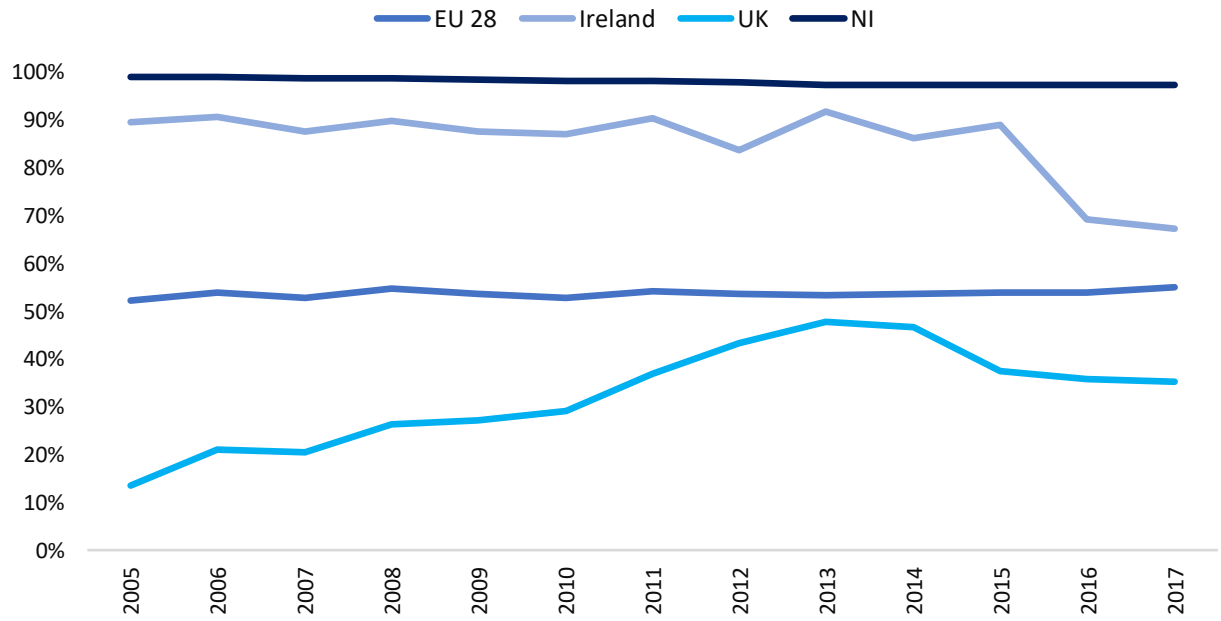


Source: UUEPC

Energy Dependency

Figure 6.2.1: Energy import dependency, 2005-2017

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Energy import dependency	32 / 33		=	2017



Sources: Eurostat, Gov.uk
Note: Rank excludes EU-28.

6.2.3 NI is heavily dependent on imported energy (just over 97% in 2017). The mix of fuel dependency is markedly different to other areas of the UK, as NI meets two thirds of its energy requirements through the use of petroleum products, whilst the UK average is two fifths. This means that any variation in global oil prices will have a much greater impact on NI than on other areas of the UK and EU.

6.2.4 It is worth noting the recent contrast with Ireland, which is reducing its dependency. Ireland has decreased its energy import dependency from 90% in 2005 to 67% in 2017.

Figure 6.2.2: Crude oil barrel prices in sterling, 2005-2019

Physical Infrastructure	Rank	Direction of change	Change in percentile
Crude oil barrel prices	n/a	n/a	n/a

Source: World Bank

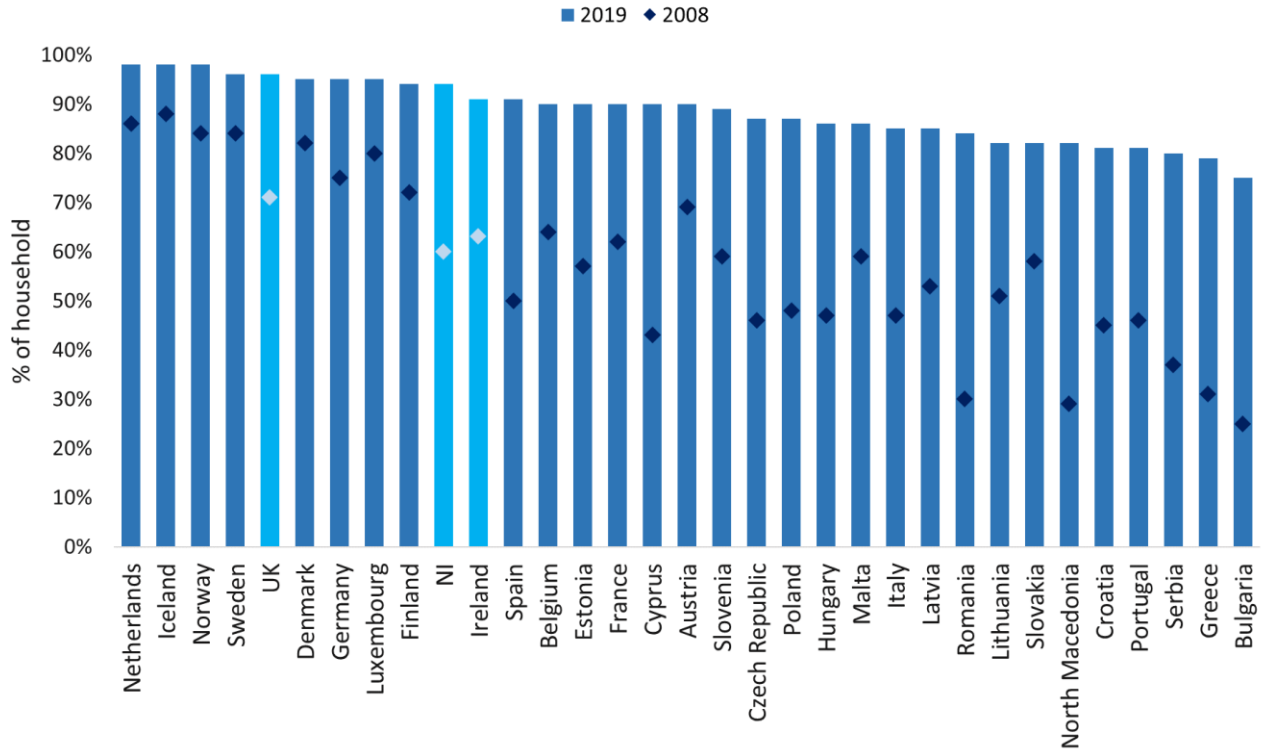
6.2.5 This indicator highlights the vitality of oil prices which can be dependent on wider global events and policies. Oil prices are on a general upward trajectory and prices are now around two thirds of the peak price experienced during 2012 (March 2012, £78.99 per barrel).

6.2.6 The reduction from 2014 to 2016 helped to keep input prices and transport costs down and contributed positively to household disposable incomes. However, the increase in price since 2014 has increased cost pressure and driven increases in Consumer Price Index (CPI) inflation. COVID-19 has caused a dramatic drop in oil prices to £16.96 per barrel in April 2020 from £47.55 in January 2020.

Internet and Broadband Access

Figure 6.2.3: Percentage of households with access to internet, 2008-2019

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
% of households with access to the internet	10 / 34		↑↑	2019



Source: Eurostat

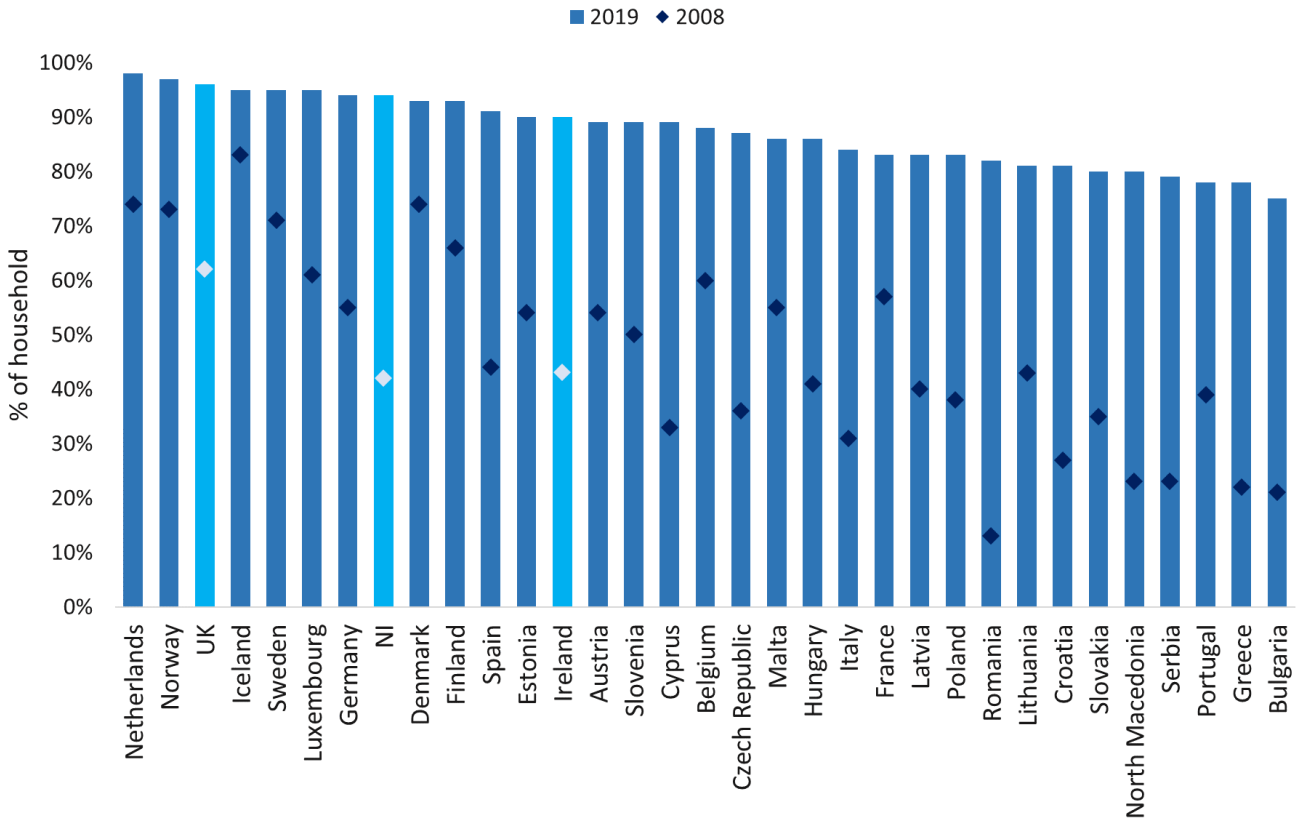
6.2.7 Household access to the internet has improved significantly in NI, growing from 60% in 2008 to 94% in 2019. This improvement has been relatively rapid, and NI ranks 10th out of the 34 countries included in the analysis.

6.2.8 The chart illustrates good progress for most countries, especially those that are improving from the lowest base. It is noteworthy that NI has improved its position relative to competitor nations and now ranks amongst Scandinavian nations –this is a positive achievement for NI.

6.2.9 This increase in access to the internet helps to boost competitiveness as it allows more people to perform activities such as working from home, support learning at home, social engagement and consumerism therefore helping to engage the NI public in economic and development activities from home. This level of access has also helped to support remote working required as a result of COVID-19 and supports more broadly, the digital economy.

Figure 6.2.4: Percentage of households connected to broadband internet, 2008-2019

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
% of households with broadband internet	9 / 34		↑↑↑	2019



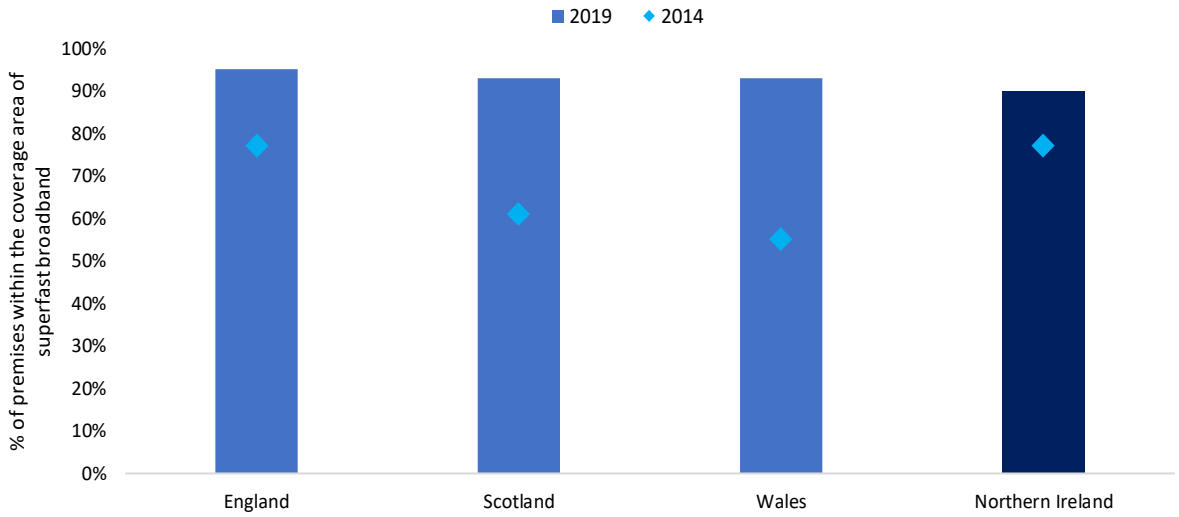
Source: Eurostat

6.2.10 In 2019 94% of households in NI were connected to broadband internet, compared to just 42% in 2008. This is a significant improvement from a relatively low base a decade ago. In comparison 90% of households have access to broadband in Ireland (2019) compared to 43% in 2008.

6.2.11 All countries have improved in this indicator, however NI's improvement was rapid, moving its relative position to 9th.

Figure 6.2.5: Percentage of premises within the coverage area of superfast broadband, 2014-2019

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
% of premises within the coverage area of superfast broadband	4 / 4		↓↓↓↓↓↓↓	2019



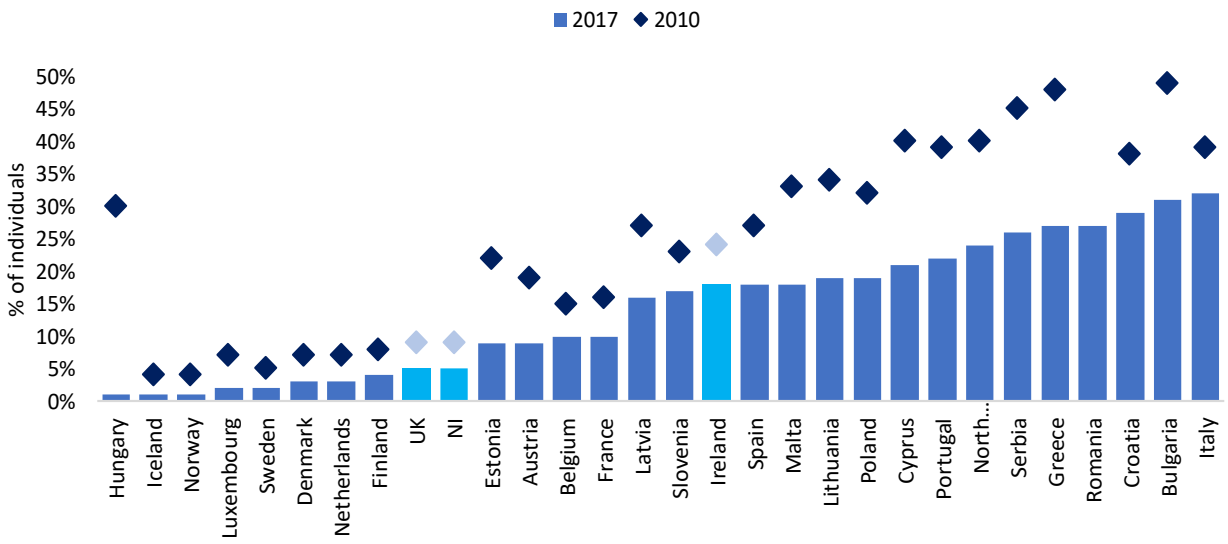
Source: Ofcom infrastructure report, 2019

6.2.12 NI has had relatively good coverage of next generation broadband; currently 90% of premises have superfast broadband compared to 77% in 2014. The rate of improvement has slowed, however, allowing Wales and Scotland to overtake NI.

6.2.13 The Department for the Economy (DfE) has invested £52m in Next Generation Broadband and £23.7m in the Broadband Improvement Project, both of which were complete in 2017. These projects have contributed to NI's improving access to broadband, however, it would appear that further investment will be required to close the gap with other parts of the UK to restore NI's relative competitive position.

Figure 6.2.6: Percentage of individuals who have never used a computer, 2010-2017

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
% of individuals that have never used a computer	10 / 31		=	2017



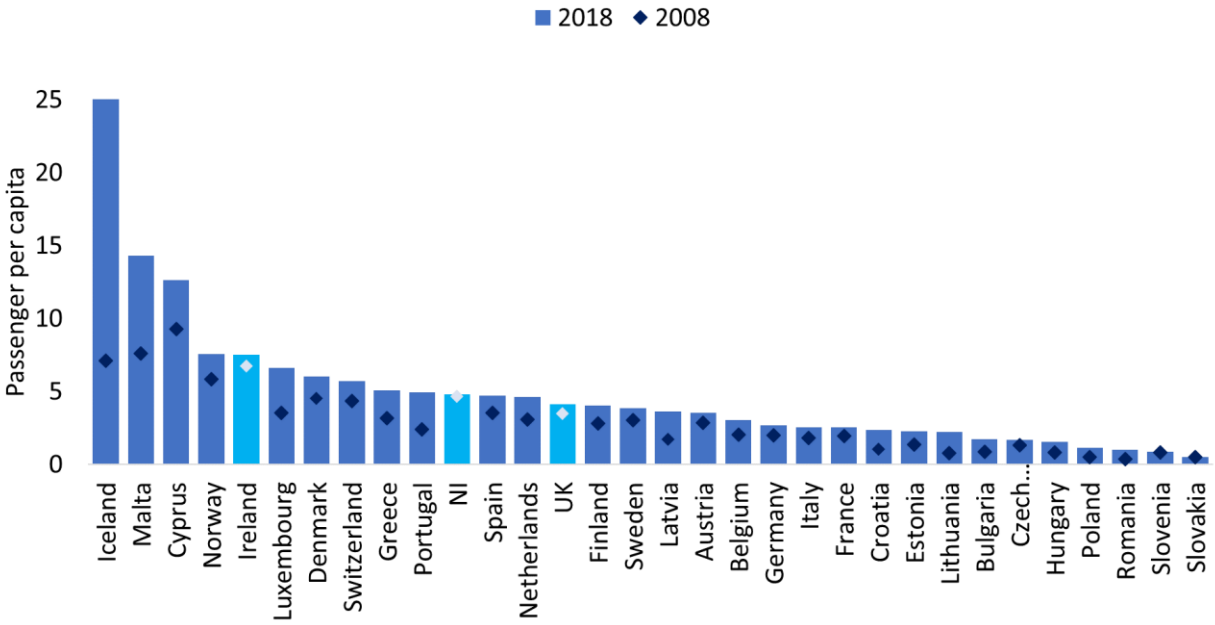
Source: Eurostat
Note: 2010 data not available for Serbia so 2009 data has been used.

6.2.14 NI performs relatively well in this indicator as just 5% of individuals in NI have never used a computer decreasing from 9% in 2010. This is on par with the UK's performance (5%) and well ahead of the Irish benchmark where 18% of individuals have never used a computer in 2017. This is however, an indicator that is three years old and it may be reasonable to assume that a degree of progress will be evident when more recent data are published.

Air and Maritime Transport

Figure 6.2.7: Air transport of passengers per capita, 2008-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Air transport of passengers per capita	11 / 32		↓↓	2018



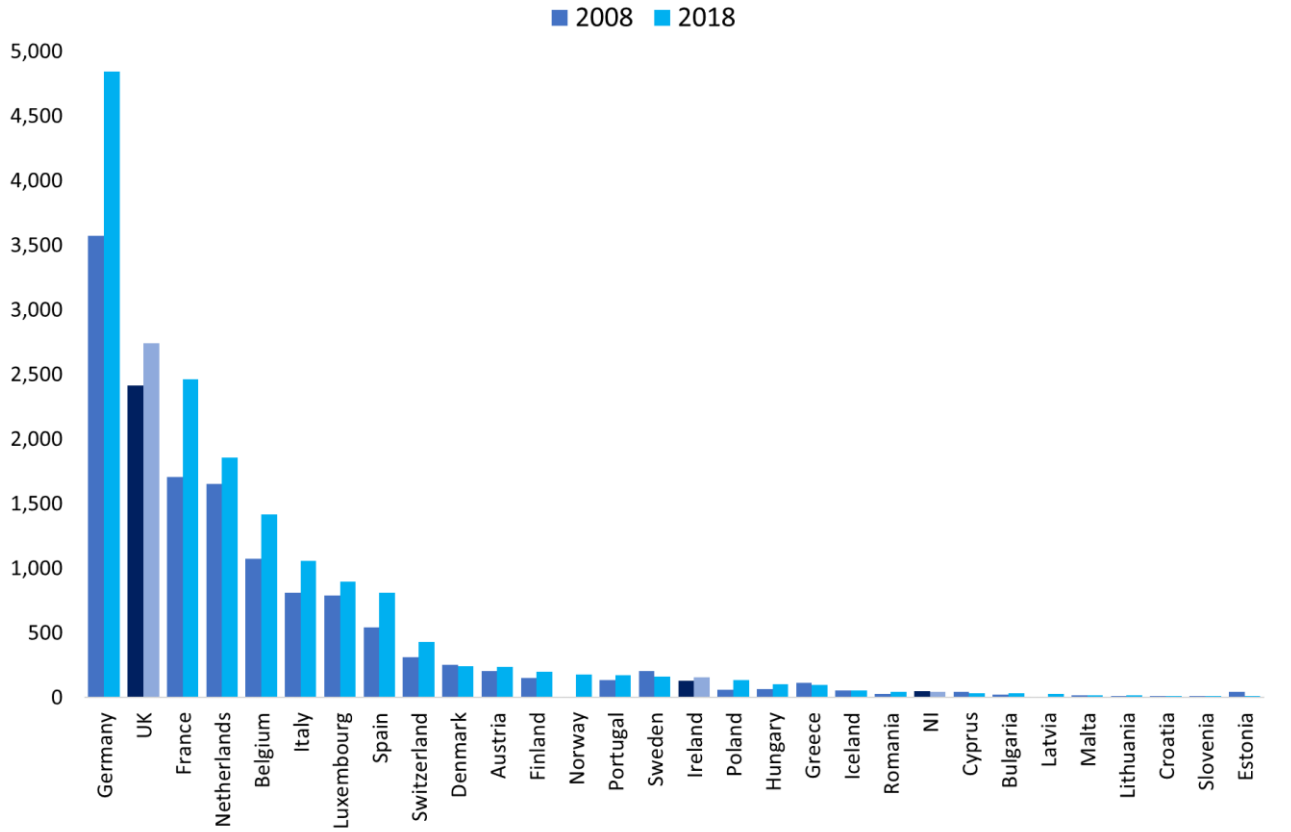
Source: Eurostat
Note: Rank excludes EU-28.

6.2.15 NI posts a mid-table performance in terms of air transportation and this has remained reasonably static over the decade. During 2018, 4.8 passengers per capita were transported by air, compared to 4.1 passengers per capita in the UK. Due to NI being in a peripheral area of Europe, air travel is likely to be more important than some continental nations. However, NI's competitiveness in this area has fallen since 2008 when it was ranked in 7th place to now being ranked 11th.

6.2.16 It should be noted that the passenger figures for Ireland will also include NI passengers who choose to fly from Dublin Airport to a range of international and domestic destinations. This contributes to Ireland transporting 7.5 passengers per capita during 2018.

Figure 6.2.8: Air transport of freight (loaded and unloaded, thousand tonnes) 2008-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Air transport of freight	22 / 30		↓	2018



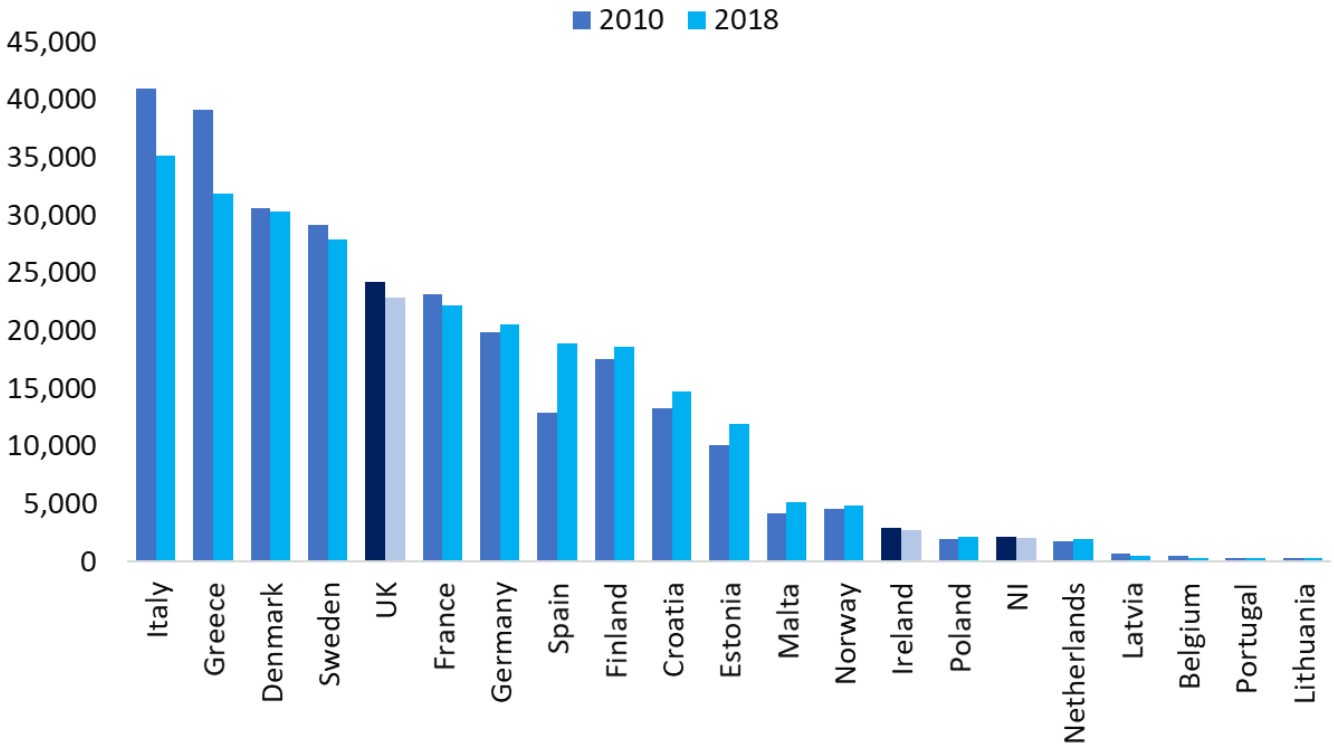
Source: Eurostat
Note: This indicator has been updated from the 2016 report which included number of air routes available.

6.2.17 Air transport of freight in NI (loaded and unloaded) has decreased since 2008 from 48 to 43 (thousand tonnes) in 2018. This may, in part, be due to substitution towards maritime transport of freight, which increased over the same period.

6.2.18 In comparison, the UK air transport of freight has increased from 2,411 (thousand tonnes) in 2008 to 2,741 in 2018 causing it to be ranked in 2nd place. Meanwhile Ireland has also increased from 127 in 2008 to 156 (thousand tonnes) in 2018.

Figure 6.2.9 Maritime transport of passengers (embark and disembark, total, thousands) 2010-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Maritime transport of passengers (embarked and disembarked total)	16 / 25		↑↑	2018



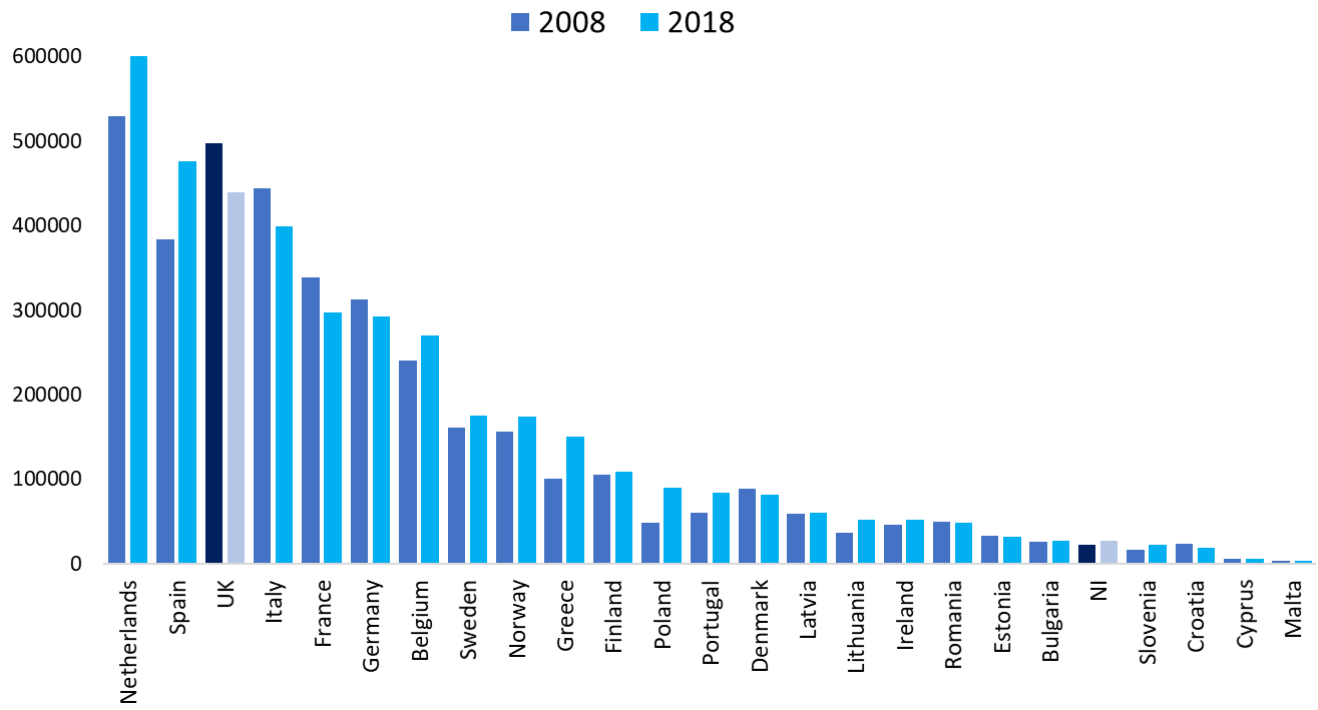
Source: Eurostat
Note: 2010 used as earliest data point due to inconsistencies in data.
Figure 4.4.9 and 4.4.10 have been used to update the previous indicator which addressed number of shipping routes.

6.2.19 Maritime transport has remained steady across most EU countries since 2010. For NI, maritime transport is a key method of domestic and international travel with nearly 1 million passengers on maritime travel in 2018. In comparison, in the UK there were over 12.3million maritime passengers in 2018.

6.2.20 Overall since 2010 NI's relative position has remained in 16th place, Ireland remains in 14th place and the UK has moved from 5th to 9th position.

Figure 6.2.10 Maritime transport of freight (loaded and unloaded, total, thousand tonnes), 2008-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Maritime transport of freight (loaded and unloaded total)	21 / 25		=	2018



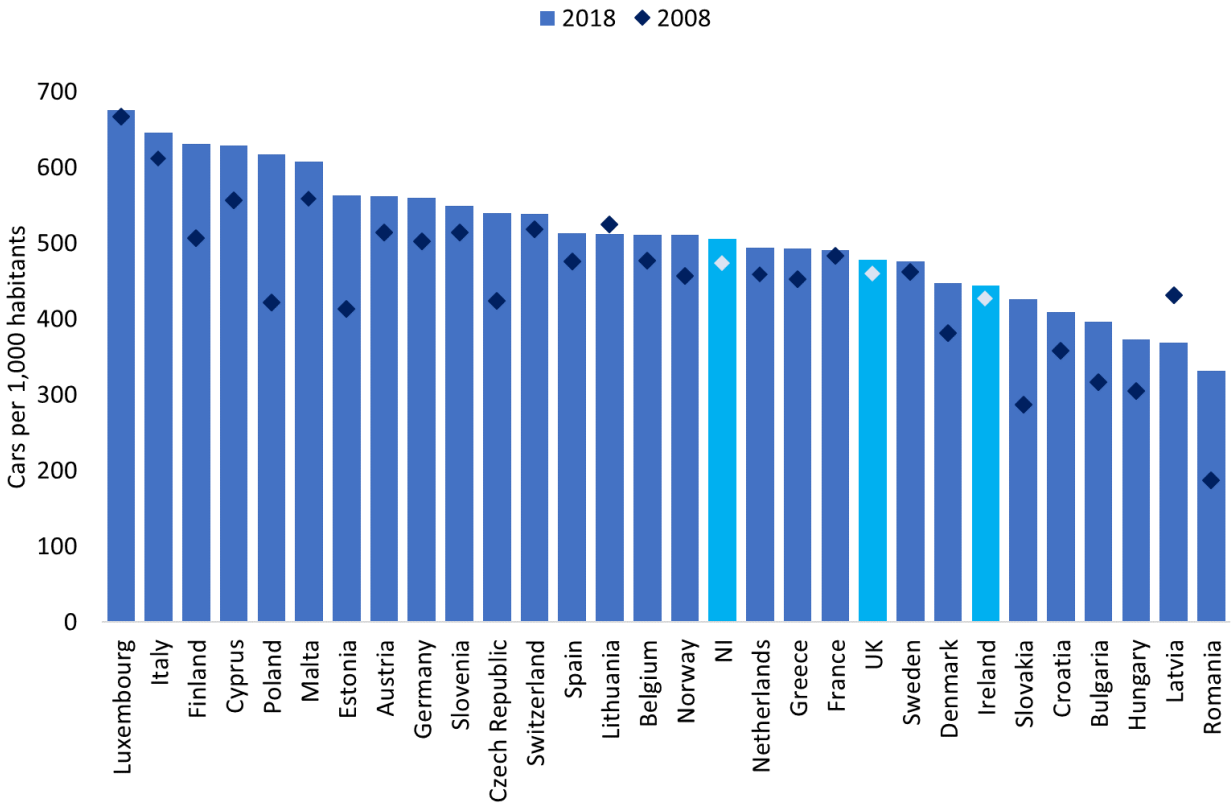
Source: Eurostat

6.2.21 Maritime transport of freight loaded in NI has increased from 7,200 (thousand tonnes) in 2008 to 10,400 (thousand tonnes) in 2018, whilst unloaded freight has increased from 15,850 (thousand tonnes) to 17,200 (thousand tonnes) in 2018. Whilst NI has increased the volume of maritime trade, the figures are well below the UK which was ranked in 3rd place for both loaded and unloaded freight.

Ease of Motorisation

Figure 6.2.11: Motorisation rate – passenger cars per 1,000 inhabitants, 2008-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Motorisation rate - cars per 1000 inhabitants	18 / 31		↓	2018



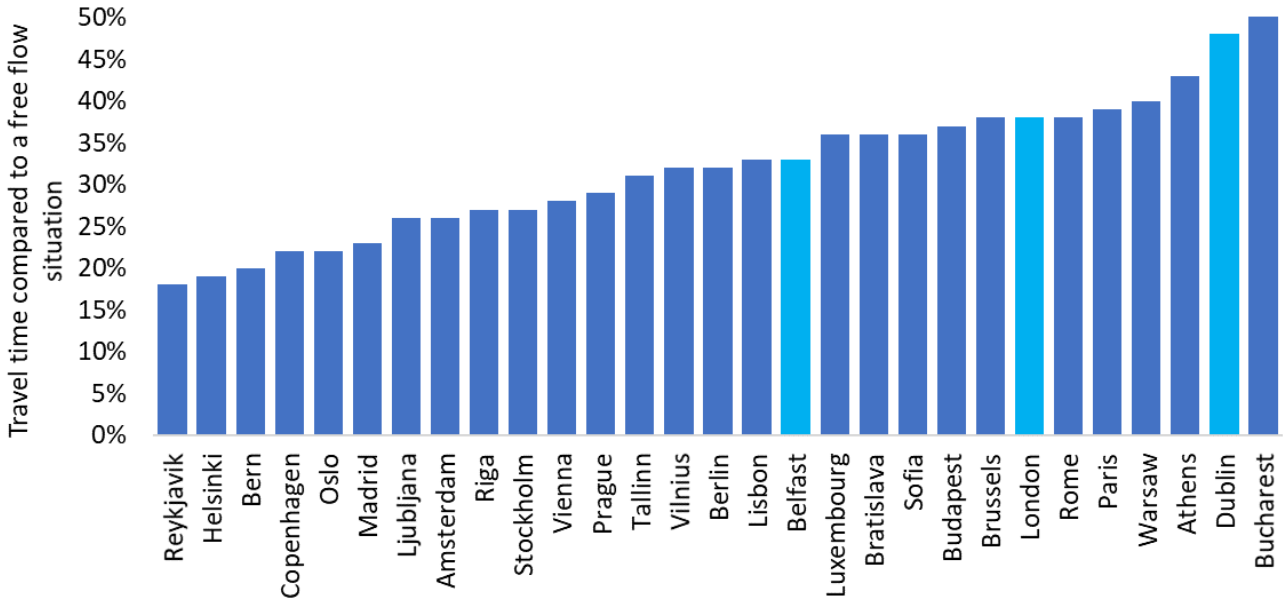
Source: Eurostat

6.2.22 NI is becoming more "car dependent" as a region with 506 cars per 1,000 inhabitants (2018). The UK average is 476 and Ireland has 478 cars per 1,000 inhabitants. Overall NI ranks mid table with many European countries having more cars per inhabitants.

6.2.23 Motorisation rates have increased slightly from 2008 for almost every country which helps to increase the relative mobility of the labour force. However, as environmental concerns rise and policies are implemented to meet 2050 net zero carbon targets, there could be a shift in future to a decrease in the motorisation rate as policy encourages more people choose greener methods of transport.

Figure 6.2.12: Traffic congestion index, 2019

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Traffic congestion index	16 / 29		#N/A	2019



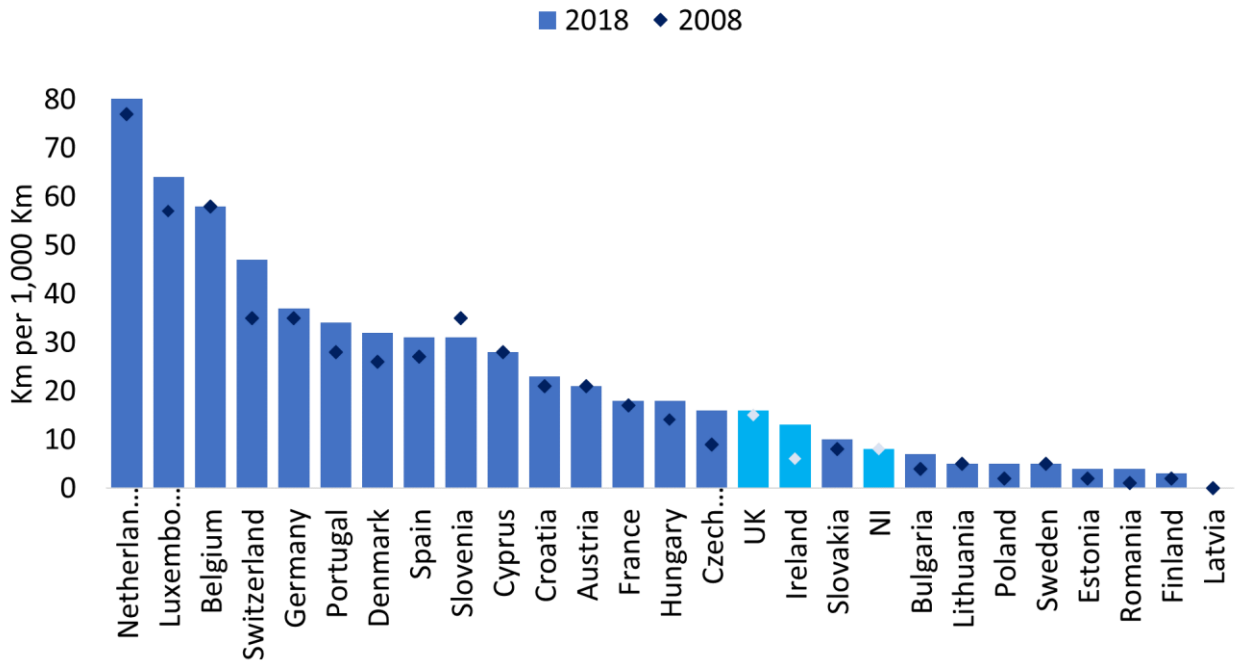
Source: Tom-Tom Traffic Congestion index
Notes: This indicator only focuses on capital cities.
2008 / 09 data are not available for a longer-term comparison of change in decile

6.2.24 This indicator measures the congestion in selected cities between peak and off-peak times but may be exacerbated due to much lower levels of congestion during off-peak periods. COVID-19 restrictions on movement and the shift to home working will have reduced congestion, the key will be in terms of relative congestion as countries are more or less impacted by restrictions.

6.2.25 Traffic congestion in Belfast is relatively severe in comparison to capital cities from a basket of countries, with a 34% congestion level. Belfast's congestion level, whilst high, is less of a challenge than in London (37%) or Dublin (45%).

Figure 6.2.13: Motorway Kms per 1,000 sq. Kms, 2008-2018

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
Motorway Kms per 1000 sq. Kms	20 / 29		=	2018



Source: Eurostat
Note: The reduction in motorway kilometres in the Netherlands is likely to be a statistical error.

6.2.26 Most countries have remained steady from 2008 to 2018, which is unsurprising given the cost of adding additional motorway infrastructure. NI has 8Kms of motorway per 1,000sq Kms and is ahead of some European countries but remains behind the UK. The evidence shows that Ireland has lengthened its motorway network considerably over the period since 2008, with the completion of a number of motorway extension projects with the assistance of EU structural funds. Ireland has more than doubled the number of motorways from 6Km motorway per 1,000sq. Kms (2008) to 13 (2018).

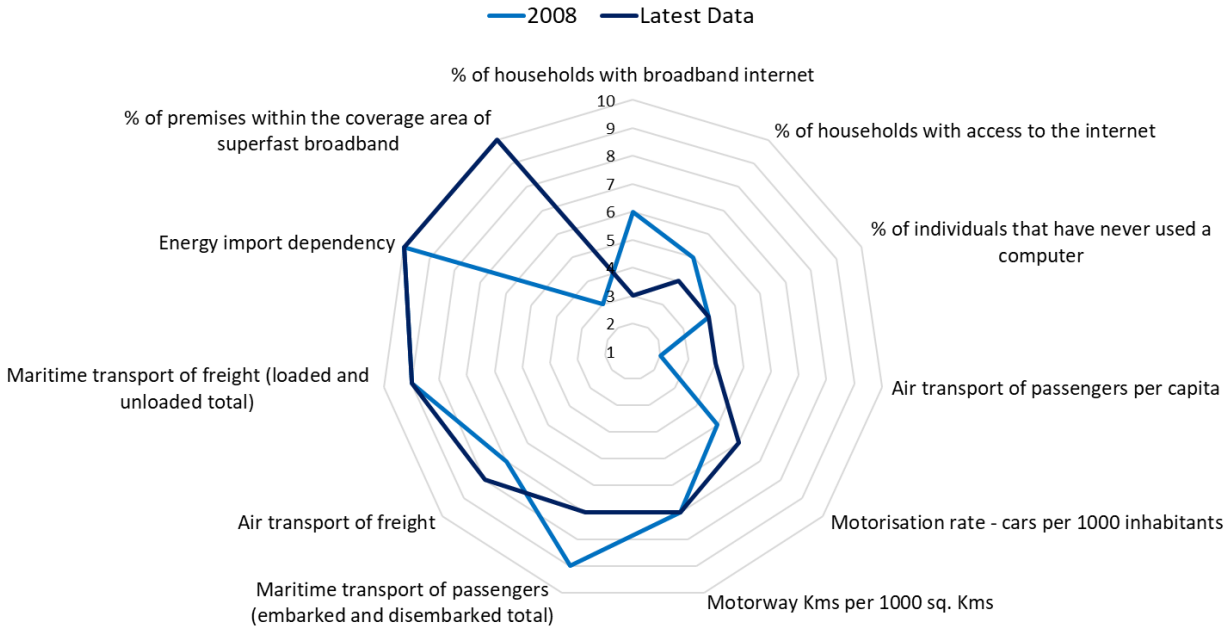
Physical infrastructure summary

6.2.27 The relative competitiveness of NI's physical infrastructure has improved across a range of indicators since 2016, boosting NI's competitiveness. The story is one of contrasts and more recently, disruption by COVID-19. NI performs exceptionally well in terms of technological infrastructure - such as households with access to the internet and broadband. This helps to make positive contributions towards NI's productivity, entrepreneurship, lifelong learning and social connectivity. These levels of access and network quality have sustained economic activity though remote working and also wellbeing, maintaining social contact whilst the ongoing COVID-19 pandemic causes restrictions on the movement and interaction of people. Additional information on the usage costs would be beneficial to understanding the provision of technological infrastructure.

6.2.28 NI is relatively uncompetitive in terms of physical infrastructure. For instance, the motorway network is not very extensive and air and maritime connectivity are relatively weak, although people may travel via Dublin or London in order to get to a range of international destinations. NI's dependence on imported fuel sources remains a significant challenge, and one that will not be easily changed, given NI's resource endowments.

6.2.29 Whilst both are important for boosting future competitiveness, evidence suggests that significant investment in both is required. The disruption caused by COVID-19 has increased the relative importance and impact of a competitive digital infrastructure. Future policy interventions will need to focus more on digitisation to maintain and boost competitiveness in the longer term.

Summary of decile placements for physical infrastructure indicators



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

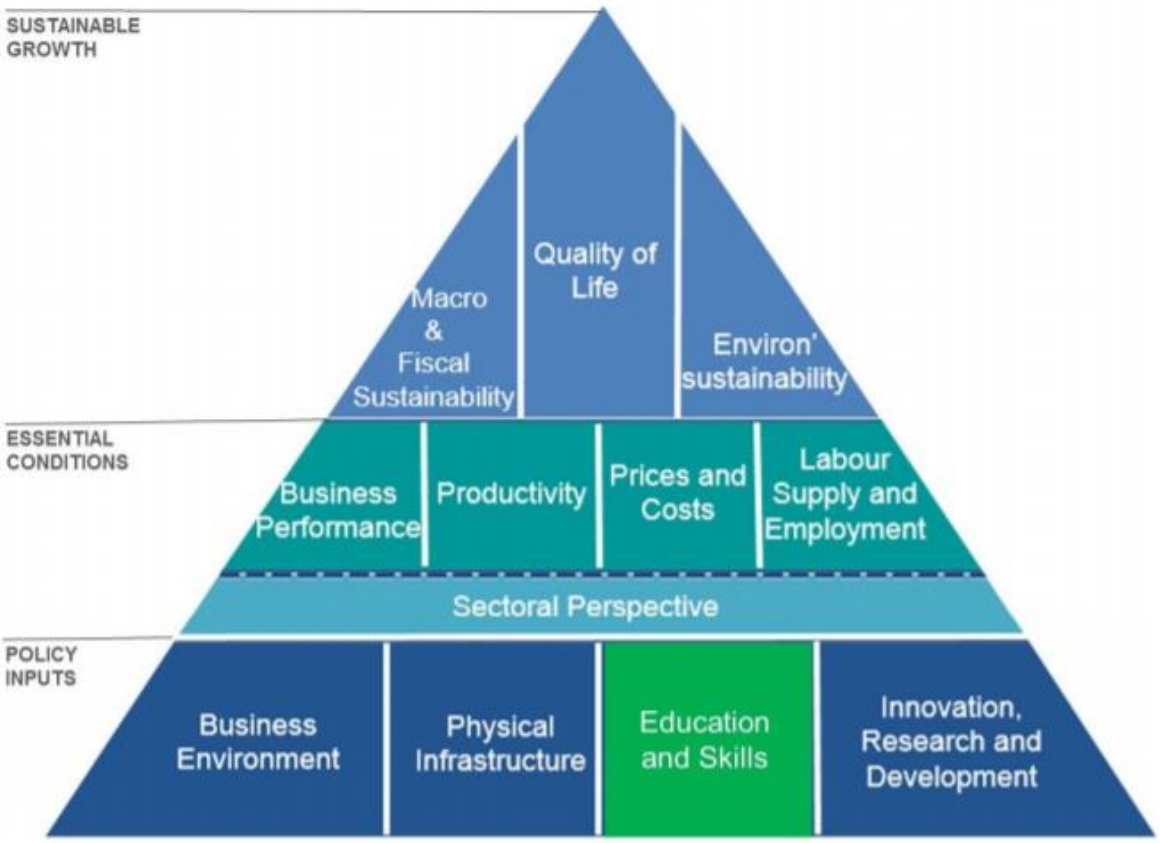
Summary of physical infrastructure indicators

Physical Infrastructure	Rank	Direction of change	Change in decile	Year
% of households with access to the internet	10 / 34		↑↑	2019
% of households with broadband internet	9 / 34		↑↑↑	2019
% of individuals that have never used a computer	10 / 31		=	2017
Air transport of passengers per capita	11 / 32		↓↓	2018
Maritime transport of passengers (embarked and disembarked total)	16 / 25		↑↑	2018
Motorisation rate - cars per 1000 inhabitants	18 / 31		↓	2018
Traffic congestion index	16 / 29		n/a	2019
% of premises within the coverage area of superfast broadband	4 / 4		↓↓↓↓↓↓↓	2019
Air transport of freight	22 / 30		↓	2018
Energy import dependency	32 / 33		=	2017
Maritime transport of freight (loaded and unloaded total)	21 / 25		=	2018
Motorway Kms per 1000 sq. Kms	20 / 29		=	2018

Source: UUEPC

6.3 Education and Skills

6.3.1 The supply and quality of education and skills in an economy is vital for economic growth. A highly skilled and dynamic labour force is more productive, innovative and attractive to foreign investors. Knowledge oriented sectors are more export intensive, helping to generate additional income and grow the economy. This pillar will address indicators which contribute to the skills of NI's labour force.

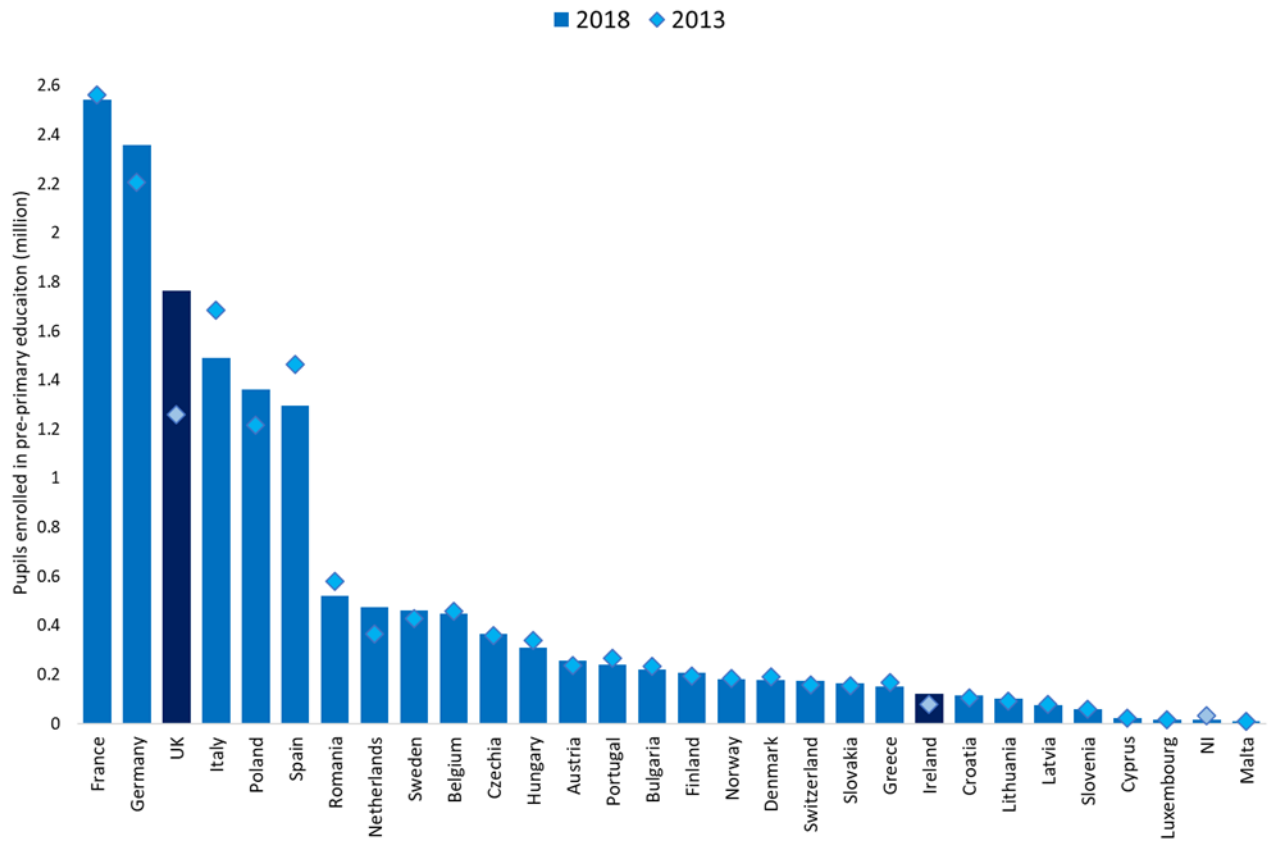


Source: UUEPC

Educational Participation and Attainment

Figure 6.3.1 Pre-primary education (million), 2013-2018

Skills and Education	Rank	Direction of change	Change in decile	Year
Pre-primary education	33 / 33		=	2018



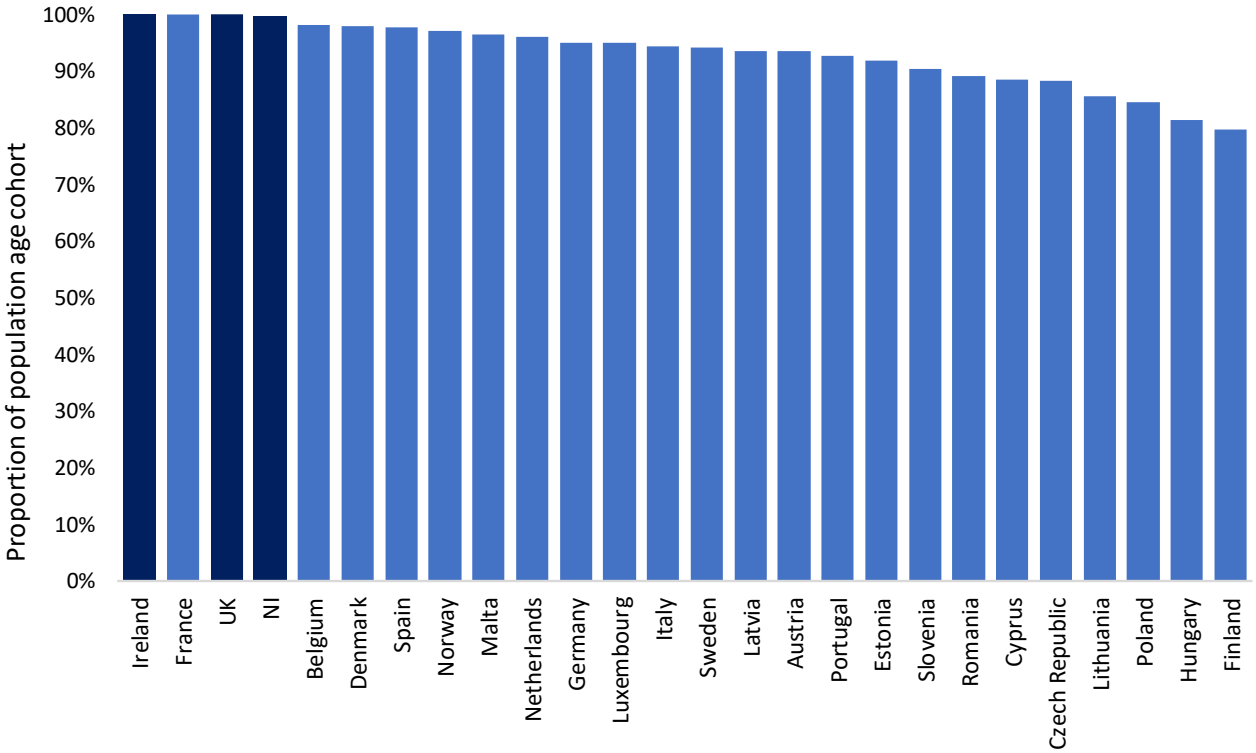
Source: Eurostat
Note: Rank is based on percentage of population enrolled.

6.3.2 This indicator measures the number of pupils enrolled in early childhood education per country whilst the index measures enrolment as a percentage of the EU average.

6.3.3 NI, whilst it does have a smaller population than competitor nations, has a significantly smaller number of pupils enrolled in childhood education and figures have dropped from 32,200 pupils enrolled (2013) to 15,000 in 2018. This signals a significant change in enrolment levels and the readiness of children for primary education. However, there has also been a decline in the number of children in this age group therefore there may be less demand for places, although the reduction is worthy of further research. Scotland is the only other UK region to also experience this decrease, whilst other regions have continued to increase enrolment since 2013.

Figure 6.3.2 Participation rate of 4-year olds in education (as a % of population age cohort), 2017

Skills and Education	Rank	Direction of change	Change in decile	Year
Participation rate of 4 year olds in education (% of population age cohort)	4 / 31		↓	2017



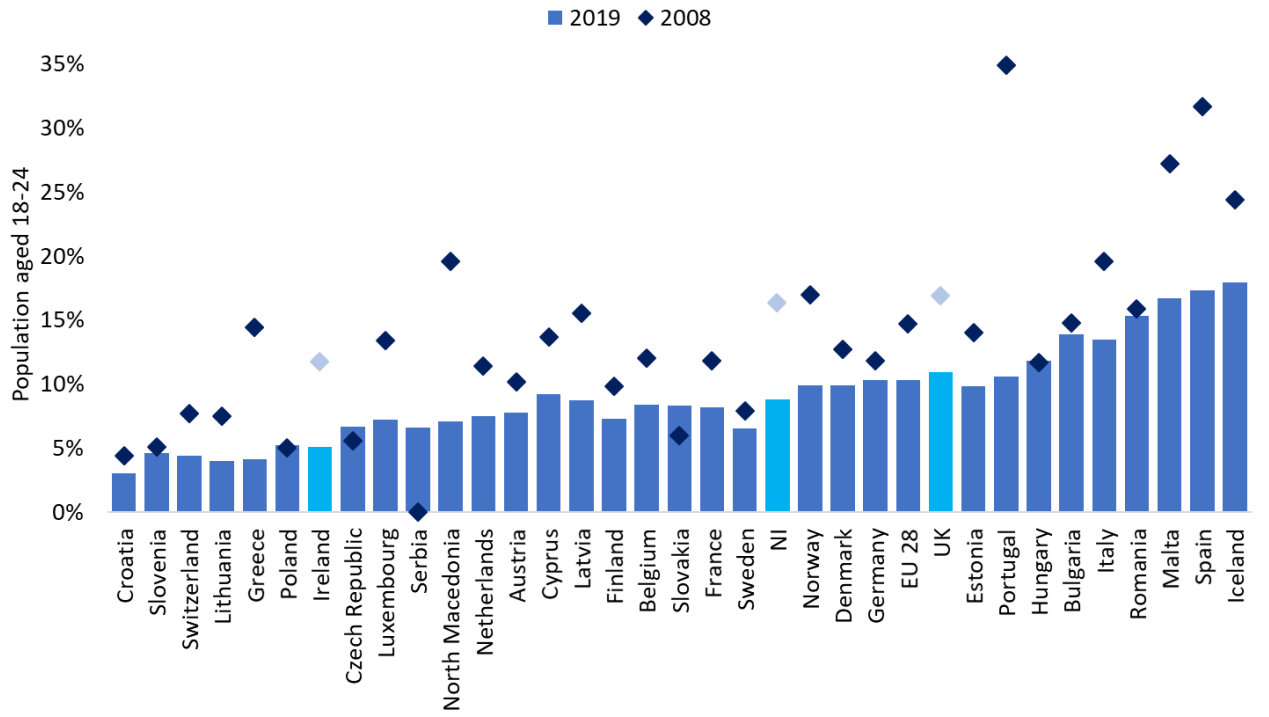
Source: Eurostat

6.3.4 The participation rate of 4-year olds in education in NI is high with 100% of children this age participating in education. This is on par with Ireland, France and the UK, and an increase from 97% on 2009.

6.3.5 It is worth noting that Finland's education system is highly respected globally and consistently produces world leading outputs, yet schoolchildren start their educational career at a later stage. Given Nis relative performance in this pillar, the drivers of high-quality outcomes in Finland in particular are worthy of further investigation.

Figure 6.3.3: Early school leavers as a percentage of population aged 18-24, 2008-2019

Skills and Education	Rank	Direction of change	Change in decile	Year
Early school leavers as a % of population aged 18-24	20 / 34		↑↑	2019

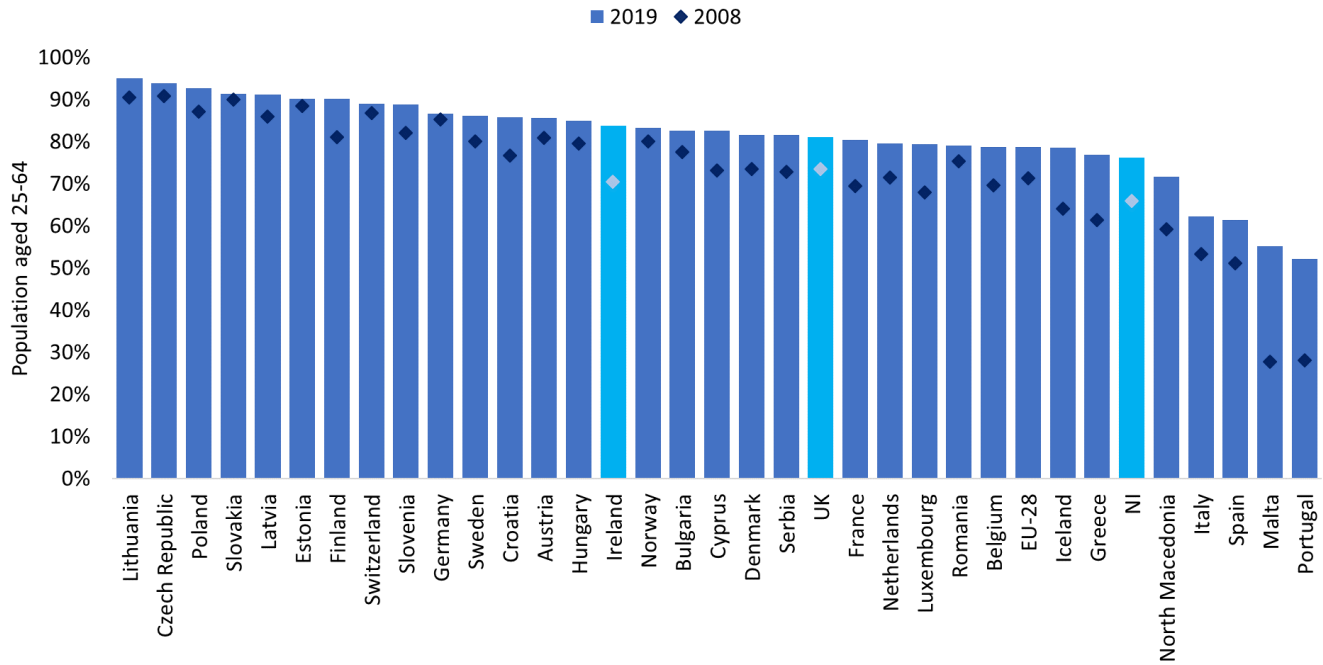


Source: Eurostat

6.3.6 In 2019, 8.8% of young people aged 18 to 24 left education early. Whilst this is high compared to competitor nations it is an improvement since 2008 when 16% of young people left early and better than the UK. Over the last ten years NI has significantly outperformed other countries and has increased its ranking in this measure, demonstrating that NI is improving.

Figure 6.3.4: Percentage of the population aged 25-64 that has at least upper secondary education, 2008-2019

Skills and Education	Rank	Direction of change	Change in decile	Year
% of population aged 25-64 that has at least upper secondary education	29 / 34		↓	2019

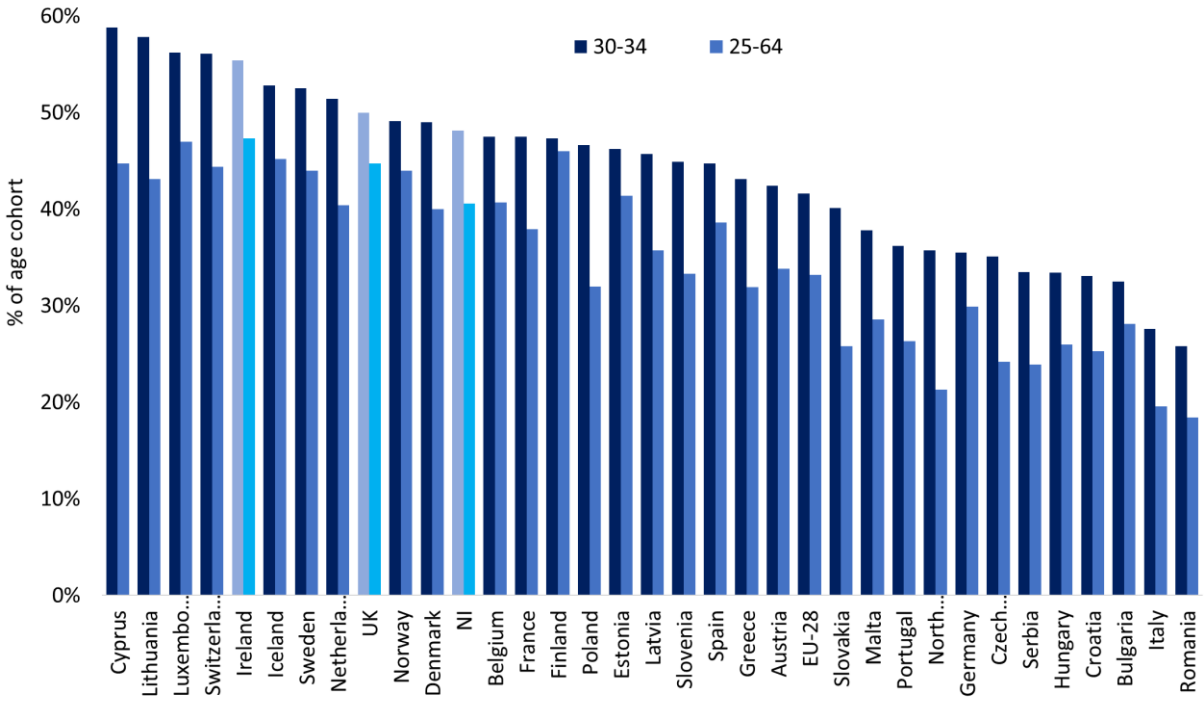


Source: Eurostat

6.3.7 NI has a significantly lower proportion of its population educated to at least secondary level education (often regarded as an overall base level of skills) compared to other EU countries. However, NI has made significant improvements since 2008 when only 66% of adults aged 25-64 had upper secondary education; in 2019 76% of 25-64 year olds had attained this level. Despite improvements being made in recent years, NI other nations have improved more rapidly, moving ahead of NI.

Figure 6.3.5: Population by age cohort that has at least third level education, 2019

Skills and Education	Rank	Direction of change	Change in decile	Year
Population age 30-34 that has at least third level education	12 / 34		↑	2019
Highest levels of education (population age 25-64) tertiary	13 / 34		=	2019

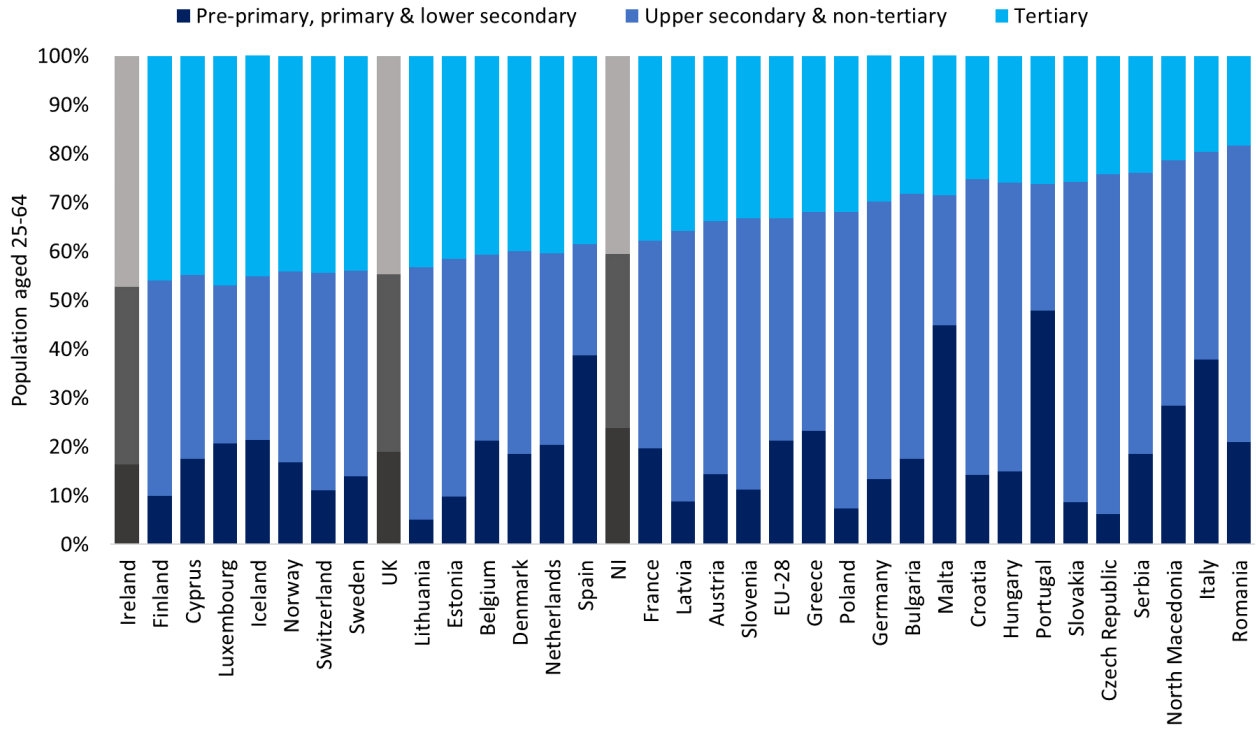


Source: Eurostat

6.3.8 In 2019, 41% of the NI population aged 25-64 had at least third level education, this is an improvement from 30% in 2008. For those aged 30 to 34 the ranking is 12th, whilst for those aged 25-64 the ranking is 13th, showing a slight improvement since 2008. In comparison, Ireland outperforms many European countries ranking 5th place with 47% of adults aged 25-64 having third level education; in the UK it is 45%.

Figure 6.3.6: Educational attainment of population aged 25-64 by highest level of education (%), 2019

Skills and Education	Rank	Direction of change	Change in decile	Year
Highest levels of education (population age 25-64) tertiary	13 / 34		=	2019
Highest levels of education (population age 25-64) pre-primary, primary post secondary	28 / 34		↓	2018
Highest levels of education (population age 25-64) upper secondary non tertiary	29 / 34		=	2019



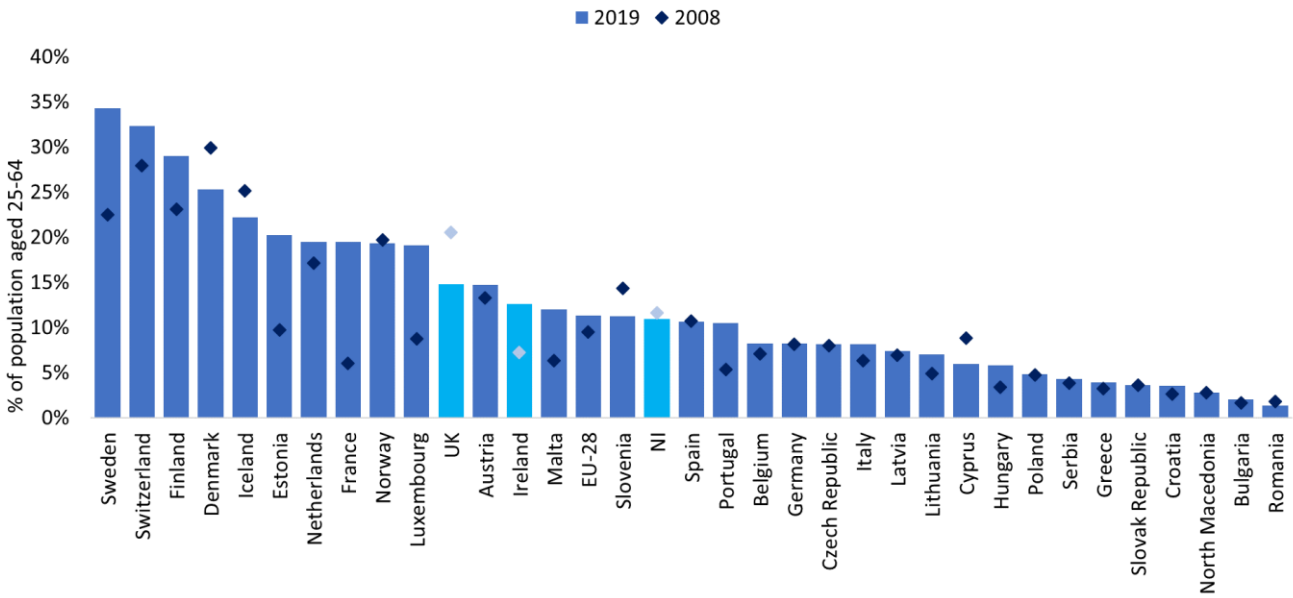
Source: Eurostat

6.3.9 NI's performance has improved in terms of the percentage of adults (aged 25-64) who have only pre-primary or primary post-secondary education, from 34% in 2008 to 24% in 2019. Other countries have also improved more rapidly, causing NI's overall position to remain static.

6.3.10 NI performed strongly for tertiary education with 41% of the population having this level of education compared to 30% in 2008, giving NI an edge over competitor nations. However, while it remains ahead of the EU average, it continues to lag well behind both the UK and Ireland. Part of the reason for this is that NI also has a relatively large proportion of the population with low qualifications eroding its competitive position.

Figure 6.3.7: Lifelong learning (as a percentage of 25-64 year olds), 2008-2019

Skills and Education	Rank	Direction of change	Change in decile	Year
Lifelong learning (as a % of 25-64 year olds)	16 / 34		↓	2019



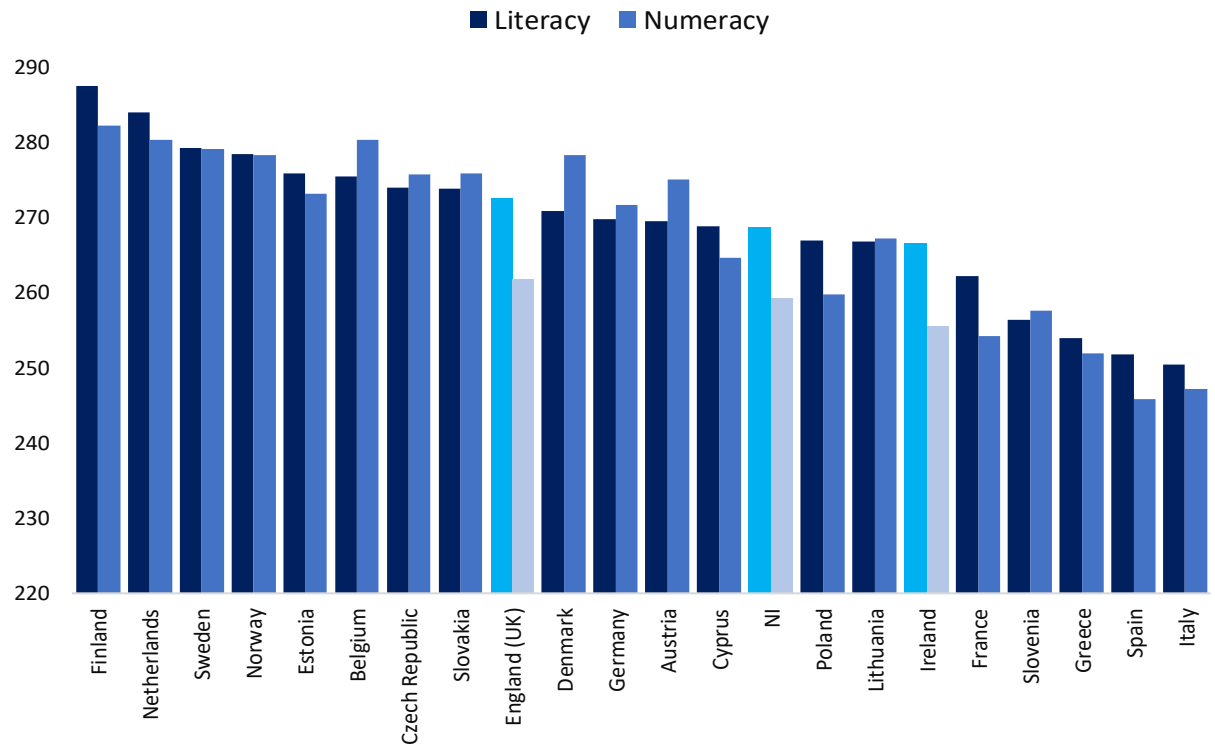
Source: Eurostat
Note: Rank excludes EU-28.

6.3.11 This indicator measures the percentage of people aged 25-64 who were engaged in education (both formal and non-formal) in the four weeks prior to the survey. NI ranks just below the EU average and the rate of participation has fallen from 11.6% in 2008 to 10.9% in 2019. Lifelong learning is particularly important for competitiveness and employability as the continuous development of skills is crucial given technological advancements and as illustrated in earlier charts, that workforce qualifications are relatively uncompetitive in an international context.

Proficiency in Maths, Science and Reading

Figure 6.3.8: Proficiency in maths and reading (16-65 year olds), average for PISA scale, 2015

Skills and Education	Rank	Direction of change	Change in decile	Year
Proficiency in reading (16-65 year olds)	14 / 22		=	2015
Proficiency in maths (16-65 year olds)	16 / 22		=	2015

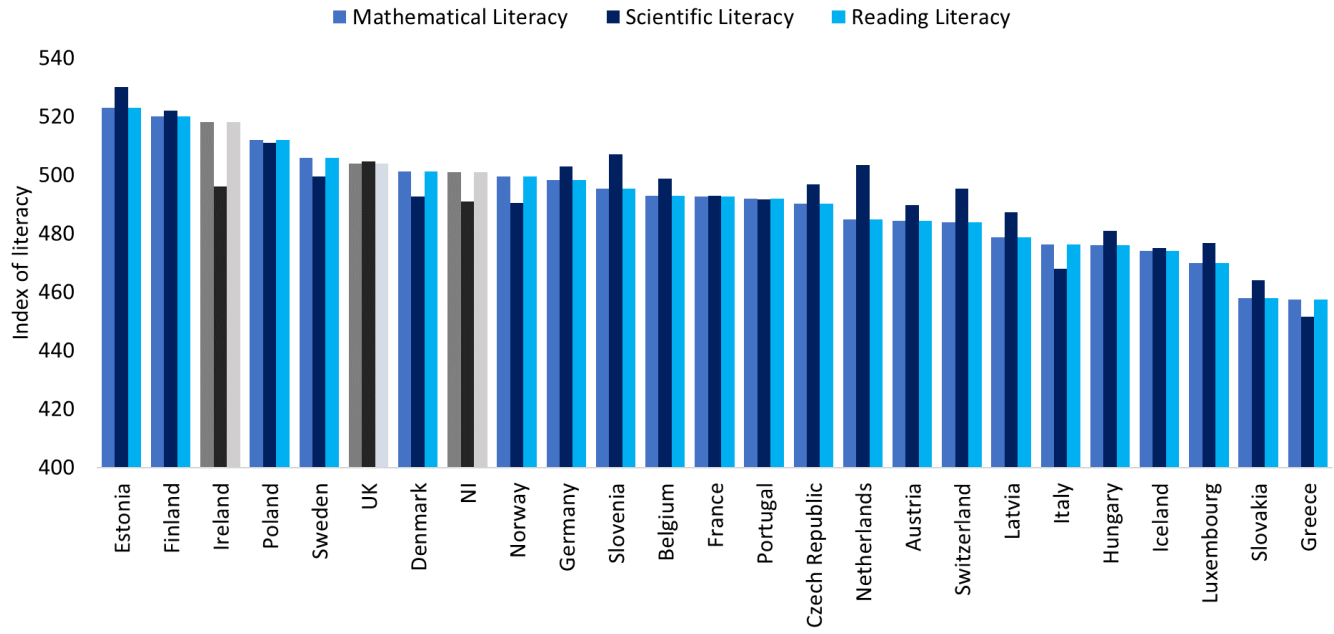


Source: PIACC

6.3.12 NI is below average in both literacy and numeracy rates. NI lags well behind the UK for both indicators, but does however, outperform Ireland in both. Literacy and numeracy skills are essential features in the labour market and overall competitiveness and so performance here should be a focus for future improvement.

Figure 6.3.9: Scientific, mathematical and reading literacy of 15-year olds, 2018

Skills and Education	Rank	Direction of change	Change in decile	Year
Mathematical literacy of 15 year olds	8 / 25		↑	2018
Reading literacy	8 / 25		=	2018
Scientific literacy of 15 year olds	16 / 26		↓↓↓	2018



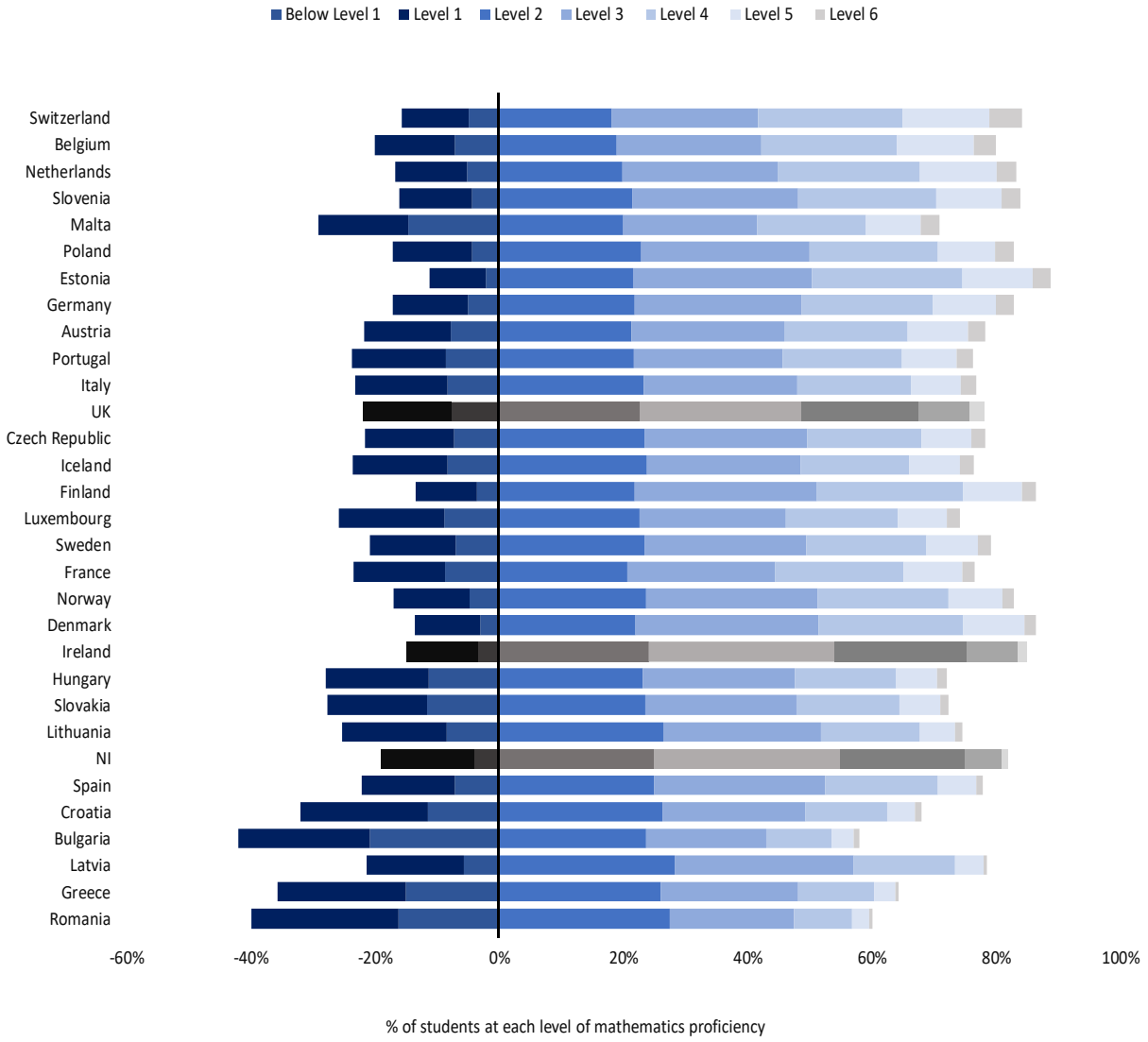
Source: PISA

6.3.13 NI ranks mid-table for each of the literacies: reading, science and mathematical. The literacy of NI's 15-year olds has declined in reading and science but improved in mathematics in the past three years. In comparison, Ireland ranks above NI across all three literacy rates, which points to all three areas as a key policy challenge for NI.

6.3.14 NI's performance in scientific literacy is concerning in the context of a more automated and digitised future as it has declined over time and other nations have moved ahead of NI.

Figure 6.3.10: Percentage of students at each proficiency level on the mathematics scale, 2019

Skills and Education	Rank	Direction of change	Change in decile	Year
Percentage of students at each proficiency level on the mathematics scales	25 / 31		↓	2019



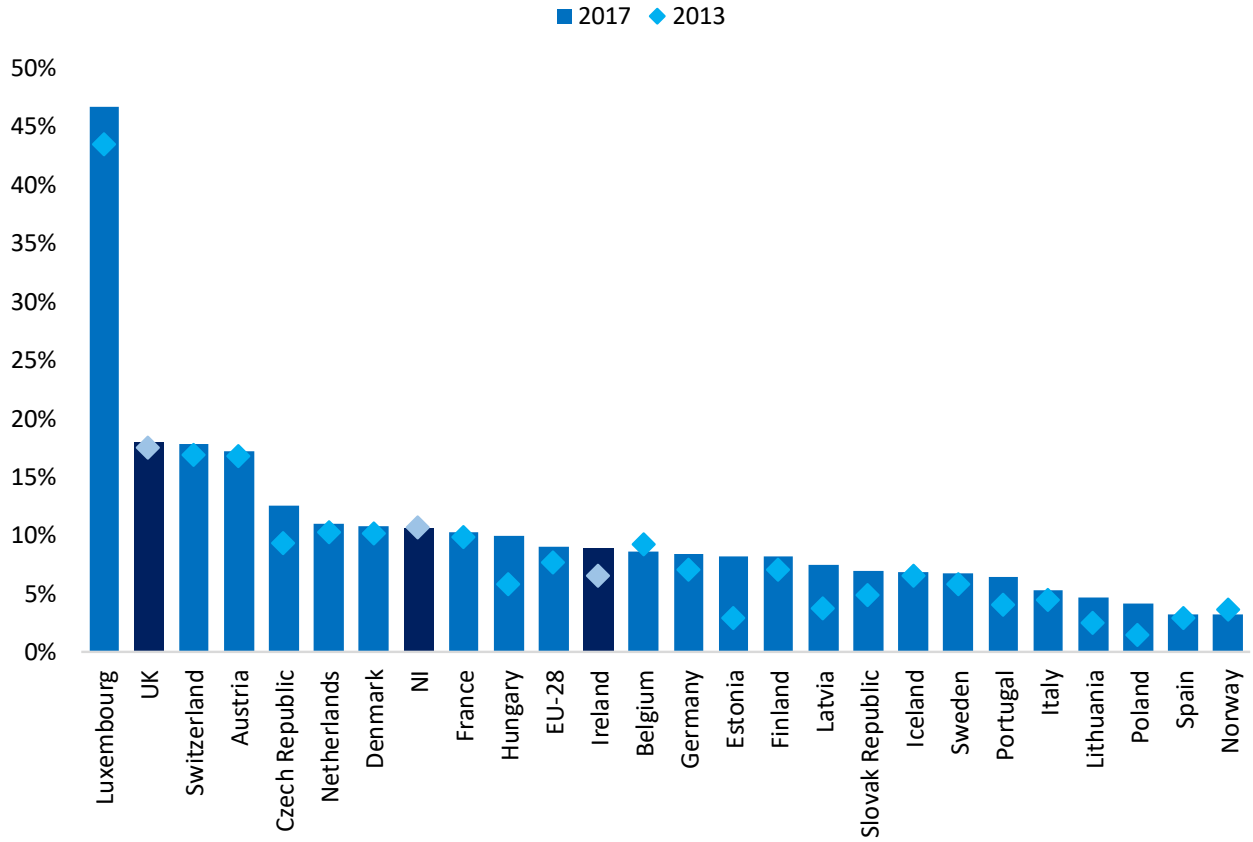
Source: PISA

6.3.15 NI's mathematics students are less proficient than their counterparts in the UK and Ireland. Only 1% of students have Level 6 in mathematics compared to 2% in the UK and 1.5% in Ireland; in NI the majority of students (30%) have Level 3. Whilst NI's overall level of proficiency in mathematics has increased, other nations have improved more rapidly, leaving NI behind.

International Engagement

Figure 6.3.11: International students (% of all students in tertiary education), 2013-2017

Skills and Education	Rank	Direction of change	Change in decile	Year
International students (as a % of all students in tertiary education)	8 / 25		↓↓	2017



Sources: HESA, OECD & DfE

6.3.16 Since 2013 NI has had a relatively high proportion of international students compared to other countries; ranking 8th out of the 26 countries analysed. In 2017, international students comprised 11% of NI tertiary enrolments – ahead of Ireland (9%). The UK performs strongly with 18% of enrolments comprised of international students. International enrolments reflect a combination of factors including both cost and reputation. Research suggests international students boost the NI economy by £170m[14]. However, Brexit may pose future challenges when attracting foreign students and staff and COVID-19 restrictions and online course delivery will mean that attracting international students to NI will become very much more challenging.

[14] Higher Education Policy Institute (2018); The costs and benefits of international students by parliamentary constituency; https://www.hepi.ac.uk/wp-content/uploads/2018/01/Economic-benefits-of-international-students-by-constituency-Final-11-01-2018.pdf

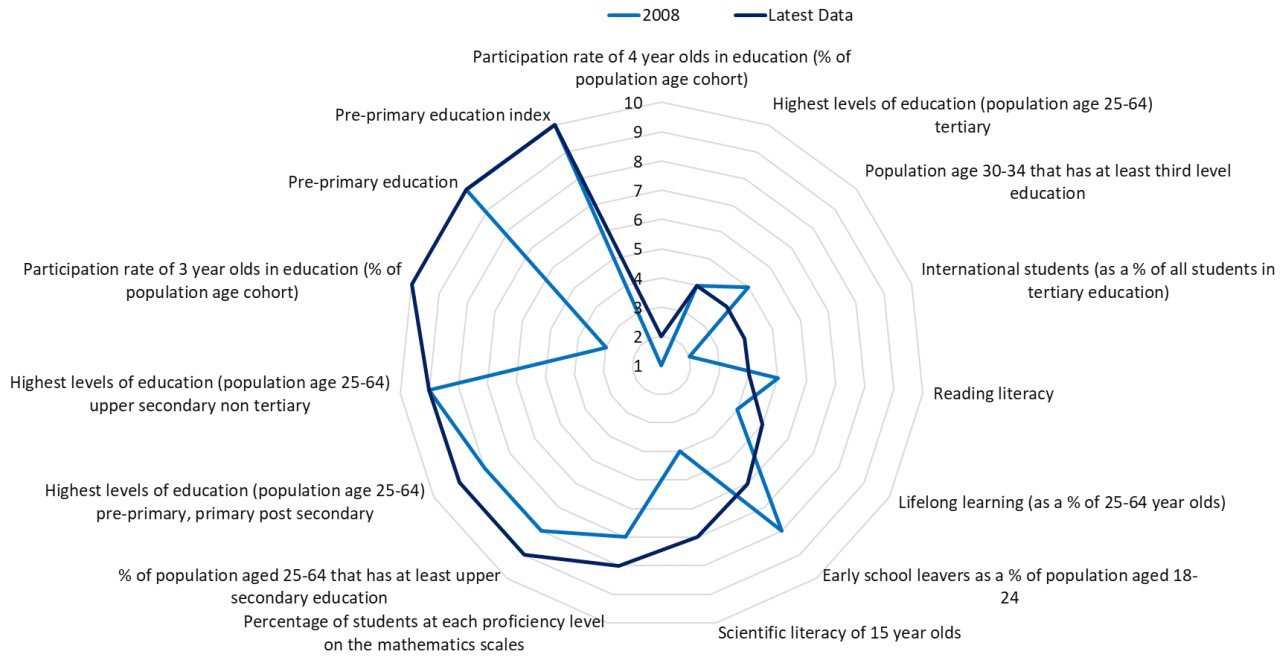
Education and skills summary

6.3.17 NI's overall performance in this element of the Scorecard has deteriorated markedly. Although NI has improved upon its historical performance in half of the education and skills indicators, when compared internationally competitor nations have moved ahead of NI all but three, underscoring the scale of the challenge.

6.3.18 The education and skills indicators present a range of challenges for policymakers that will take a great deal of time and resource to resolve, including early years, primary and secondary education, FE & HE and lifelong learning. Given that STEM subjects are in high demand, accelerated recently due to COVID-19, and which are expected to grow further throughout the fourth industrial revolution, specific policy focus should be directed towards science and literacy as NI's performance has deteriorated in each of these indicators.

6.3.19 Of the four drivers of future competitiveness, the erosion of NI's relative position is highly concerning as other countries will have access to a more plentiful supply of skilled and educated individuals in the future. This will in turn require NI to consider migration policies and attracting international students – both of which are made more challenging by Brexit and COVID-19 - in order to ensure that firms have access to the required number of skilled individuals in order to meet demand.

Summary of decile placements for education and skills indicators



Source: UUEPC

Notes: 1 is the most competitive and 10 the least competitive position on the spider diagram. Mathematical literacy of 15-year olds, Proficiency in reading (16-65 year olds) and Proficiency in maths (16-65 year olds) have been excluded from the summary diagram as there are no data for 2008.

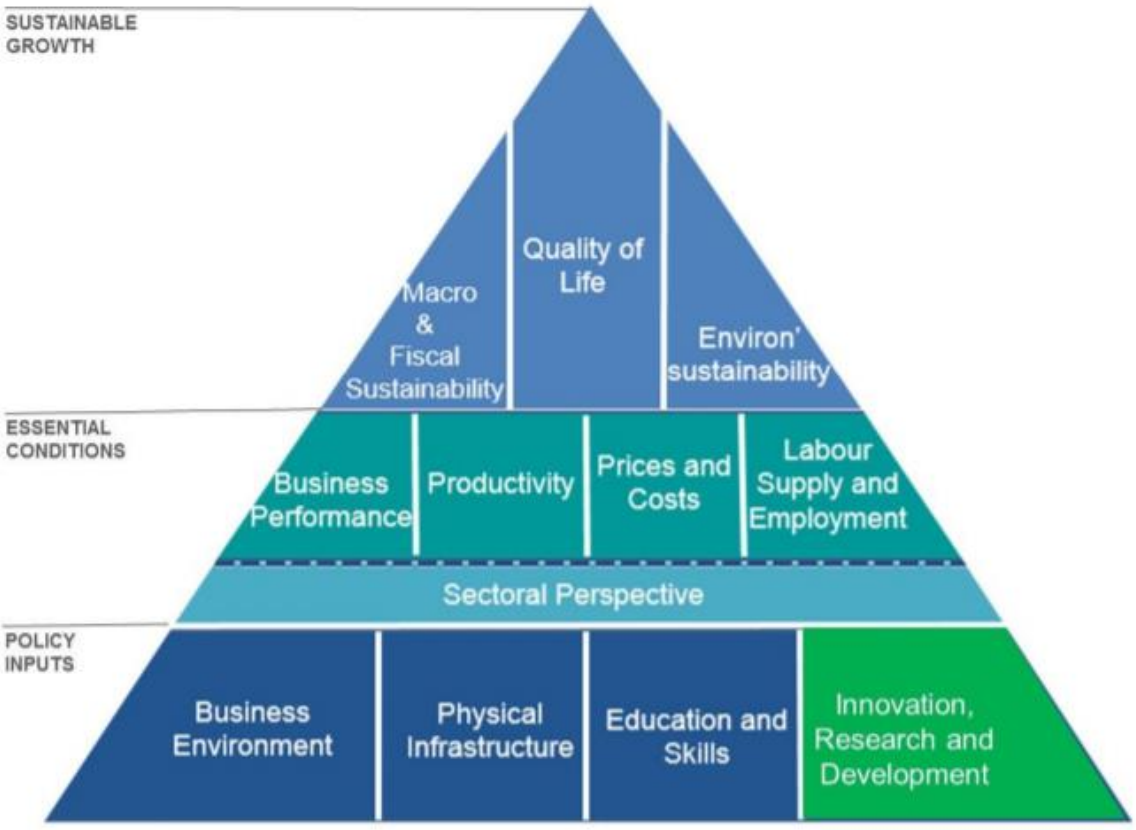
Summary of Education & Skills indicators

Skills and Education	Rank	Direction of change	Change in decile	Year
Participation rate of 4 year olds in education (% of population age cohort)	4 / 31		↓	2017
Mathematical literacy of 15 year olds	8 / 25		↑	2018
Reading literacy	8 / 25		=	2018
International students (as a % of all students in tertiary education)	8 / 25		↓↓	2017
Population age 30-34 that has at least third level education	12 / 34		↑	2019
Highest levels of education (population age 25-64) tertiary	13 / 34		=	2019
Proficiency in reading (16-65 year olds)	14 / 22		=	2015
Scientific literacy of 15 year olds	16 / 26		↓↓↓	2018
Lifelong learning (as a % of 25-64 year olds)	16 / 34		↓	2019
Early school leavers as a % of population aged 18-24	20 / 34		↑↑	2019
Proficiency in maths (16-65 year olds)	16 / 22		=	2015
Percentage of students at each proficiency level on the mathematics scales	25 / 31		↓	2019
Highest levels of education (population age 25-64) pre-primary, primary post secondary	28 / 34		↓	2018
Highest levels of education (population age 25-64) upper secondary non tertiary	29 / 34		=	2019
Participation rate of 3 year olds in education (% of population age cohort)	29 / 31		↓↓↓↓↓↓	2017
% of population aged 25-64 that has at least upper secondary education	29 / 34		↓	2019
Pre-primary education	33 / 33		=	2018
Pre-primary education Index	33 / 33		=	2018

Source: UUEPC

6.4 Innovation, research and development

6.4.1 Innovation, research and development (R&D) is a key driver of economic growth and competitiveness. Companies that innovate, and research and develop products and processes, are often leaders in their field, competing on quality, unique attributes and value rather than cost. These companies tend to employ highly skilled individuals, engage and collaborate with academia, pay higher wages and generate income to NI from export sales contributing positively to NI's overall competitiveness.

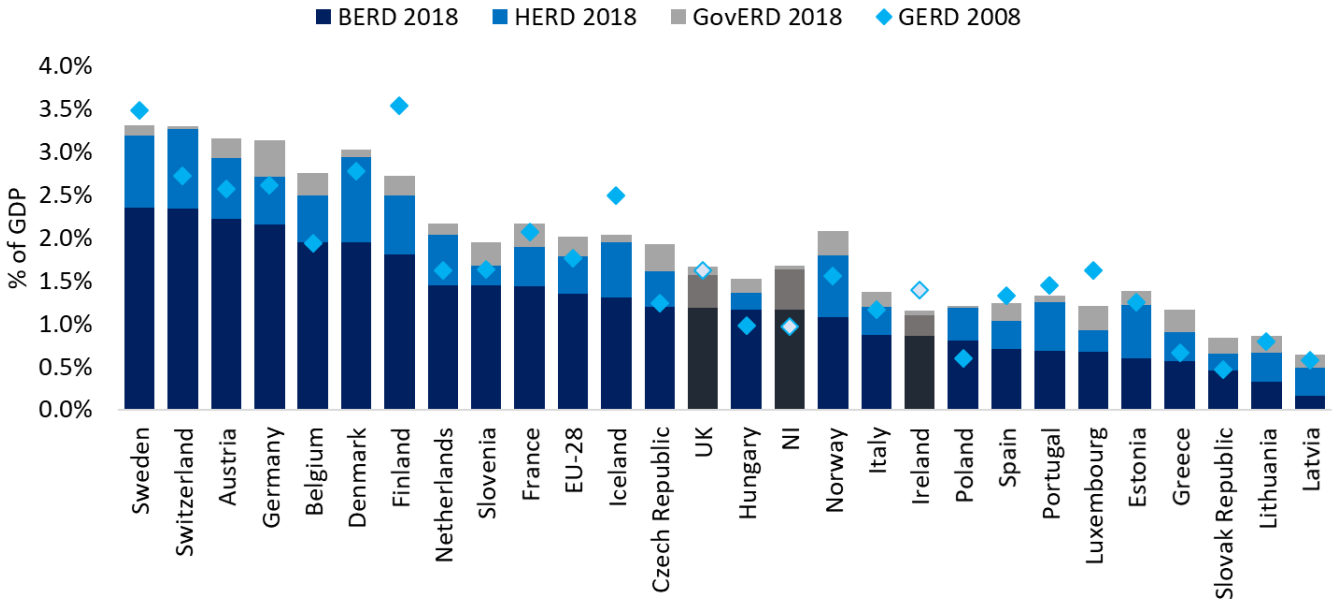


Source: UUEPC

Expenditure on R&D

Figure 6.4.1 Overall Expenditure on R&D as a percentage of GDP (business, higher education & Government), 2008-2018

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
Expenditure on R&D as a percentage of GDP (Higher Education)	12 / 26		↑	2018
Expenditure on R&D as a percentage of GDP (Business)	14 / 26		↑↑	2018
Expenditure on R&D as a percentage of GDP (Goverd)	25 / 26		=	2018

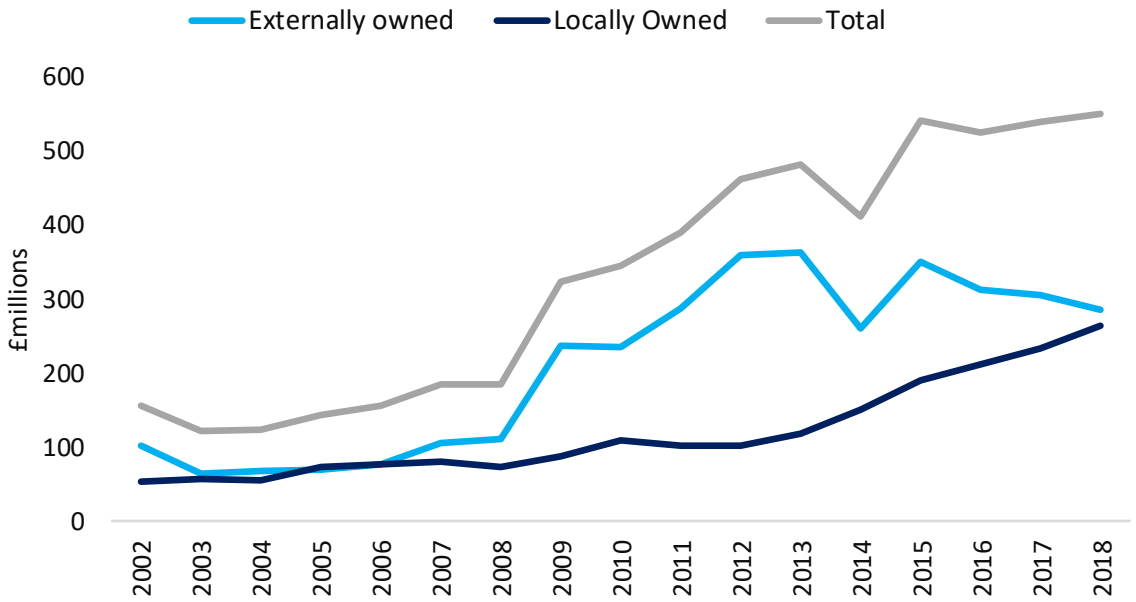


Sources: OECD & NISRA

6.4.2 NI's R&D performance has improved significantly over the last decade to surpass UK and Irish levels but remains behind the EU average. During 2018, NI's expenditure on R&D was equal to 1.7% of GDP (GERD), in 2008 this was 1.0%.

6.4.3 Business expenditure on R&D (BERD) accounted for the majority spent on R&D, at 1.2% of GDP. The Higher Education sector (HERD) spent 0.5% of GDP on R&D and Government (GovERD) 0.1%. The continued rise of R&D expenditure emphasises its importance to the wider economy and competitiveness.

Figure 6.4.2: Business sector R&D expenditure by firm type, 2008-18



Source: NISRA

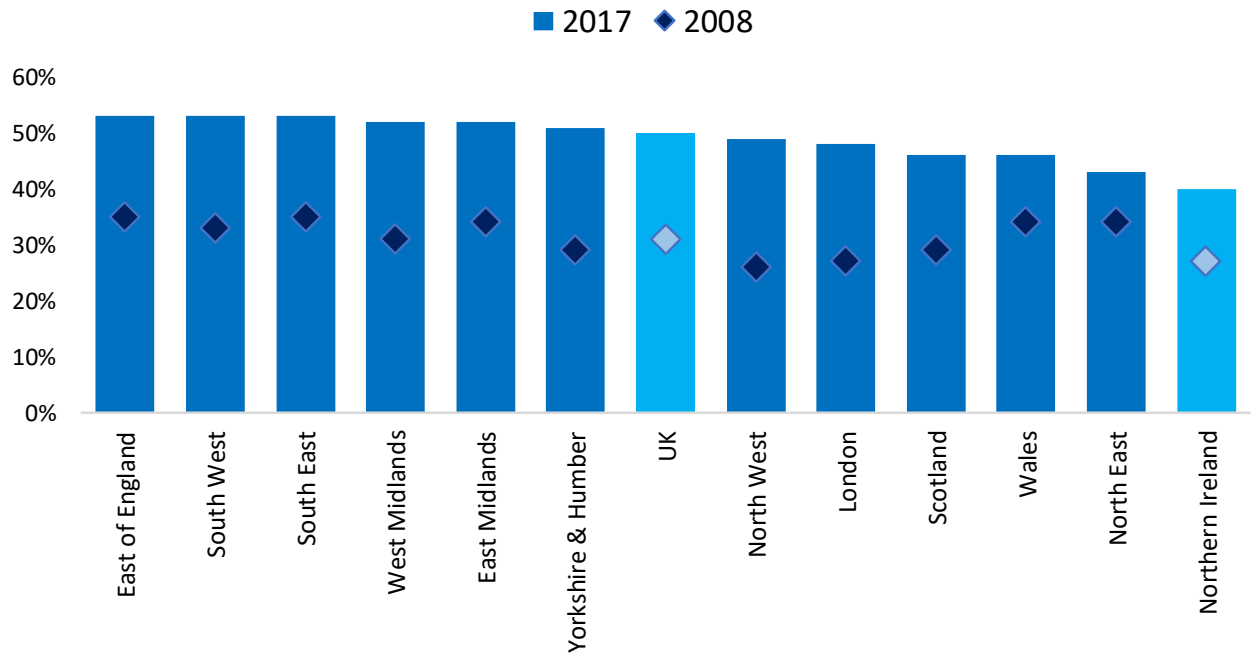
6.4.4 In 2018, businesses in NI spent around £550m on R&D, which marks a significant increase in annual expenditure of £340m since 2008. The majority of this expenditure is by foreign-owned businesses (52% of total).

6.4.5 Interestingly, expenditure by foreign owned companies decreased since 2015 from £350million to £285million in 2018. Expenditure by locally owned firms has been steadily increasing since 2008, from £73million to £264million in 2018 reflecting a reduction in the risk of losing R&D activity, should some of these enterprises closer their operation in NI and perhaps more importantly, ensuring that the knowledge, skills and spillovers remain within NI.

Innovative Activity

Figure 6.4.3 Enterprises engaging in innovation activity by UK region, 2008-2017

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
Enterprises engaging in innovation activity by UK region	12 / 12		↓	2017



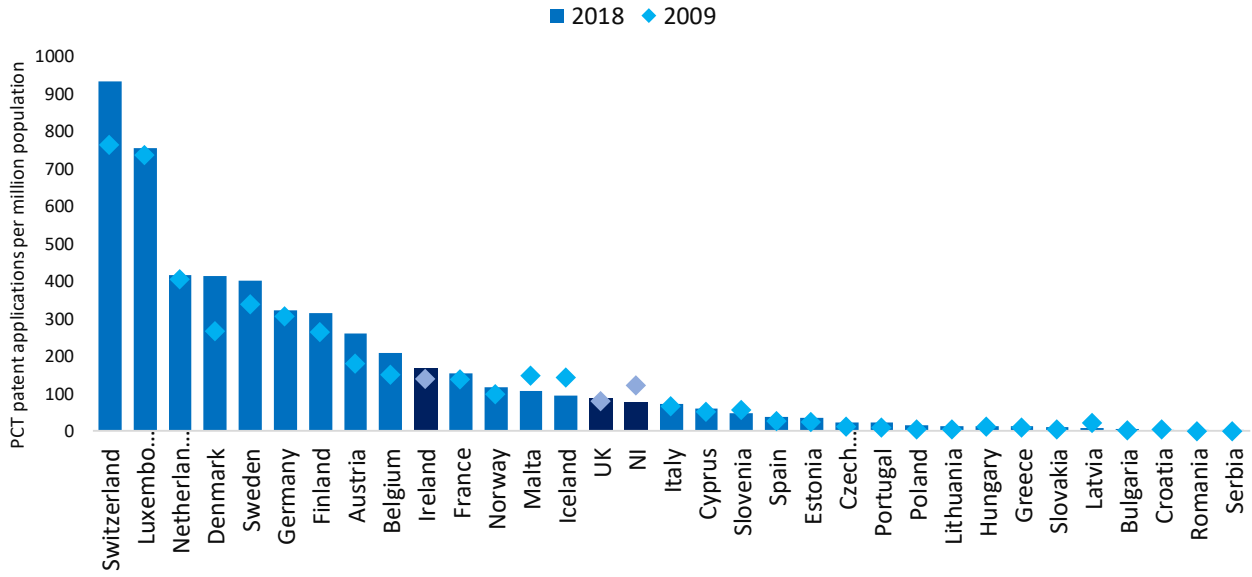
Source: UK Innovation Survey

6.4.6 In NI 40% of firms were engaging in innovative activity in 2017, up from 37% in 2008. However, whilst improvement has been made, other regions improved more rapidly with the result that NI is has moved back to 12th place.

Patent Applications

Figure 6.4.4: Patent Cooperation Treaty (PCT) applications per million population, 2009 Vs. 2018

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
PCT patent applications per million population	16 / 33		↓	2018



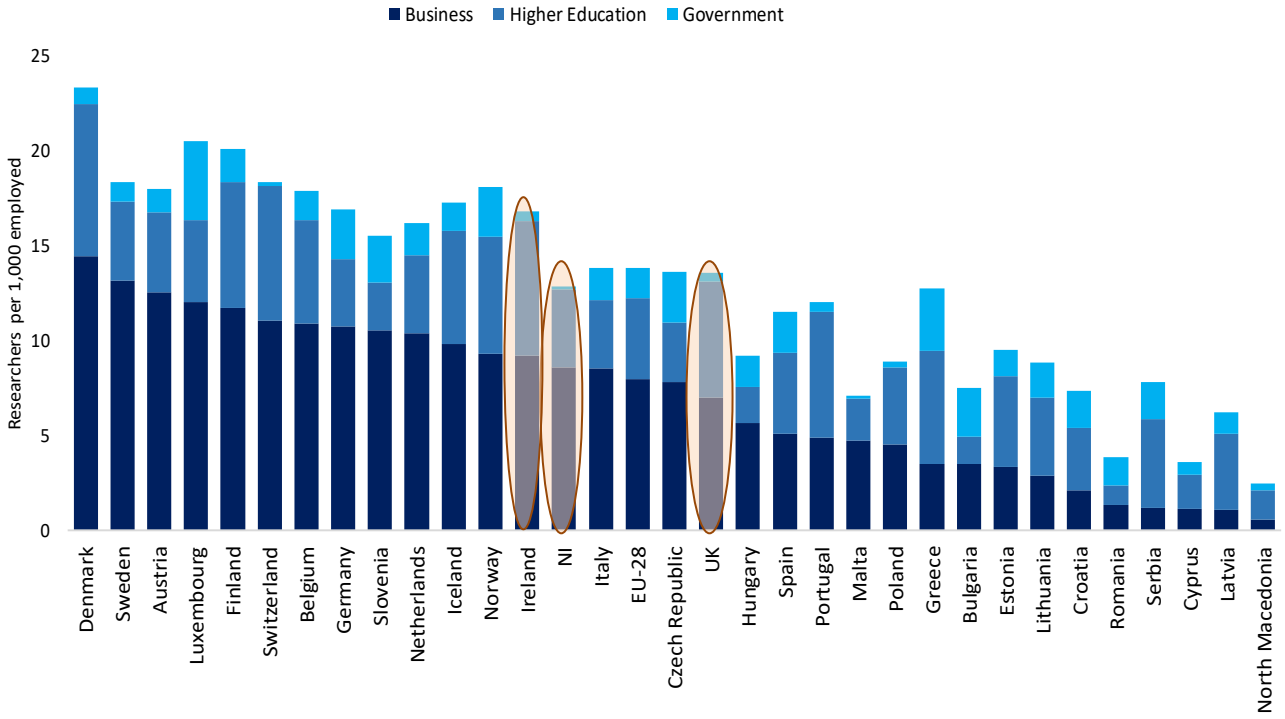
Sources: OECD, Eurostat & ONS

6.4.7 NI's performance in patent activity is mid table, ranked 16th out of 33 countries. The number of applications has decreased since 2009, from 119 (PCT applications per million population) to 76 in 2018. The UK increased from 77 (2009) to 87 (2018, PCT applications per million population), whilst Ireland's position has remained strong, increasing from 138 to 166 in 2018.

Employment in Research

Figure 6.4.5: Researchers per 1,000 in total employment, (2016 for NI), 2017

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
Researchers as a % of total employment (Government)	4 / 23		↑↑	2016
Researchers as a % of total employment (Business)	9 / 25		↑↑↑	2016
Researchers as a % of total employment (Higher Education)	11 / 28		↓	2016

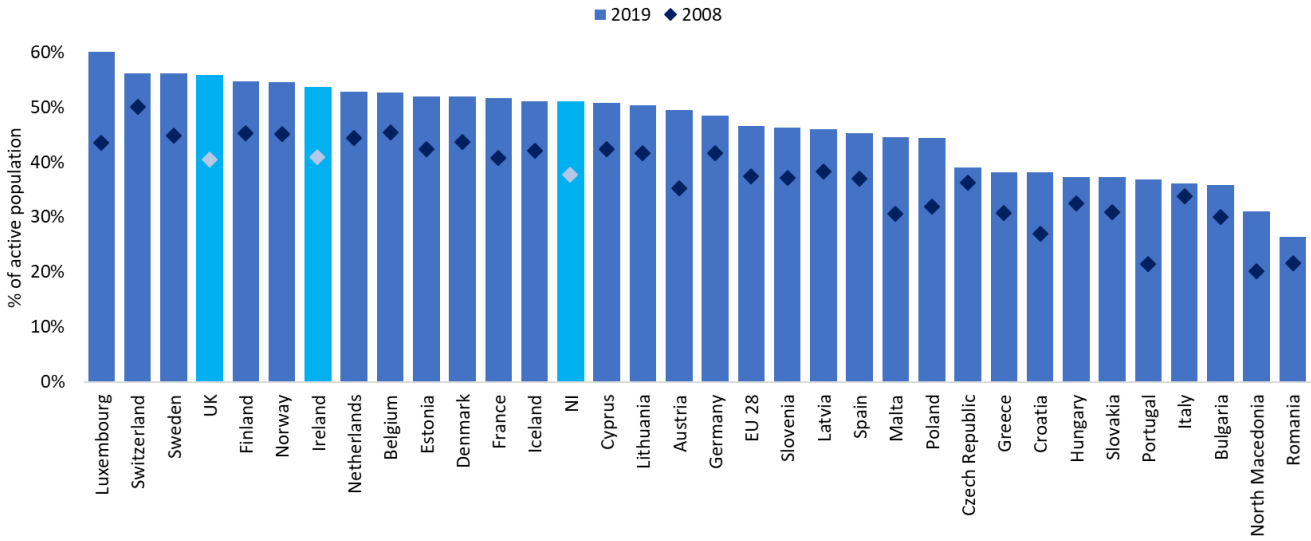


Source: Eurostat
Note: 2016 data used for NI as latest available

6.4.8 NI performs strongly in terms of the number of researchers employed per 1,000 in employment. A breakdown by sector shows that business accounted for most researchers in NI employment with 8.6 per 1,000 employed followed by followed by Higher Education (4) and government sectors (0.1). NI continues to lag Ireland although NI has overtaken the UK for the number of researchers in the business sector.

Figure 6.4.6: Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population, 2008-19

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population	14 / 34		↑	2019

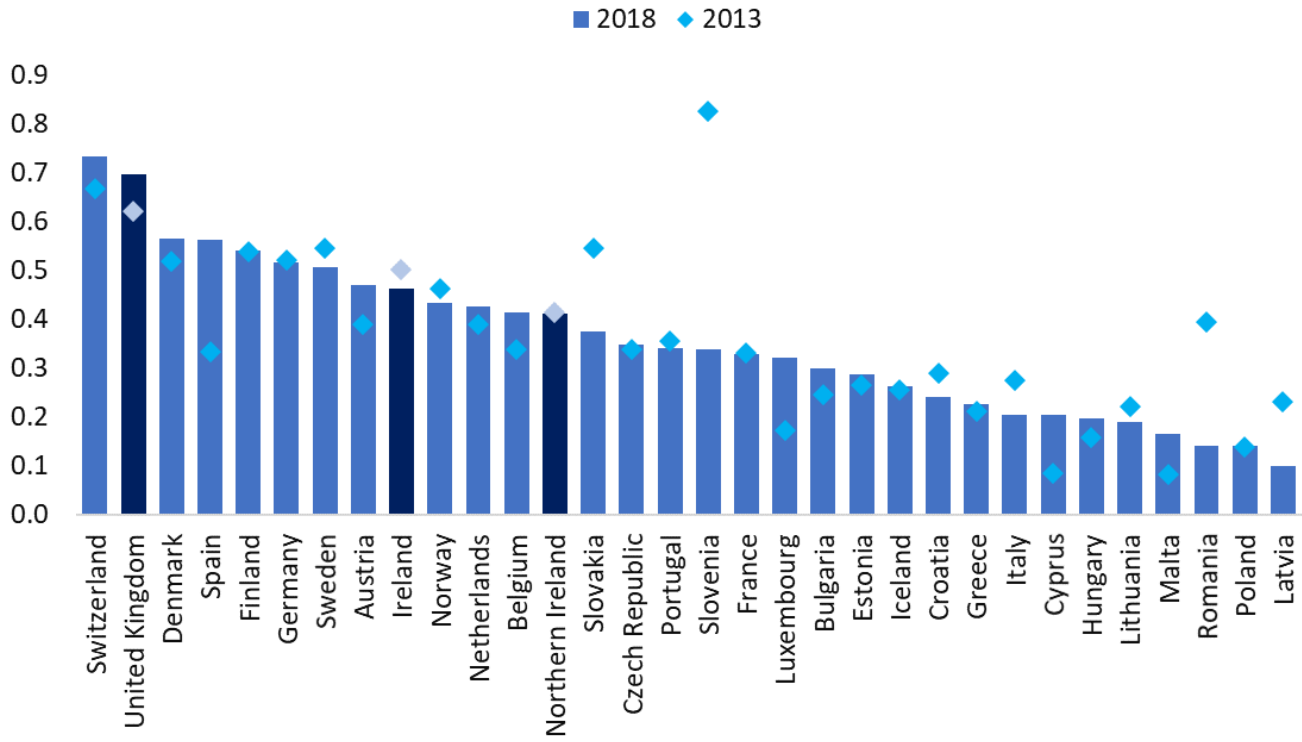


Source: Eurostat
Note: Rank excludes EU-28.

6.4.9 The proportion of people with tertiary education and/or employed in Science and Technology has increased from 38% to 51% resulting in NI improving its position to 14th out of the 34 countries analysed. The UK ranks 4th and has improved from 40% in 2008 to 56% in 2019, whilst Ireland has improved from 41% to 54%. The rise in proportion of people with tertiary education and/ employed in Science and Technology supports the growing demand for STEM skills within industry and the advancement of automation.

Figure 6.4.7: PhD Graduates per 1,000 of population (aged 15-64), 2013-18

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
PhD graduates per 1,000 population (aged 15-64)	13 / 32		=	2018



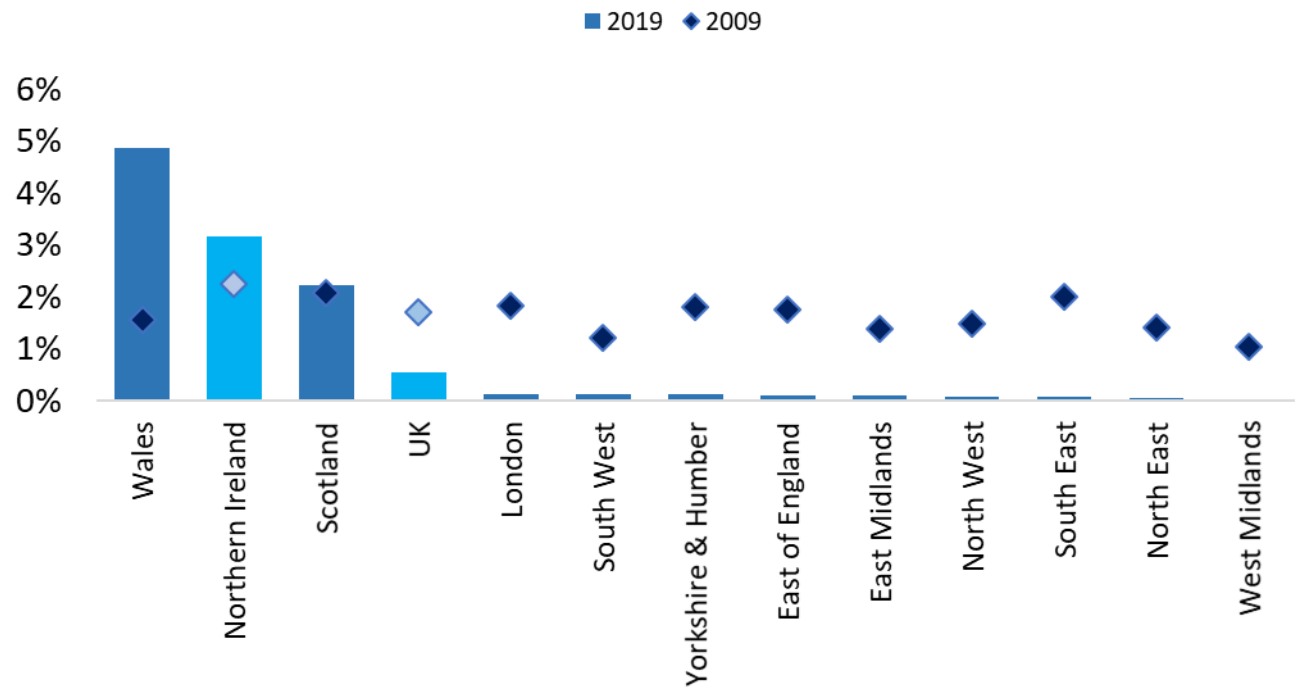
Source: Eurostat
Note: 2014 figures used for NI to represent 2013 due to data availability.

6.4.10 In 2018, NI had 0.413 PhD graduates per 1,000 people, a mid-table performance and a slight decrease from 2014 (of 0.415). NI's lags both the UK (0.70) and Ireland (0.46).

Research Grants and Contracts

Figure 6.4.8: EU research grants & contracts as a % of total university income, 2009-2019

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
EU research grants & contracts as a % of total university income	2 / 12		↓	2019



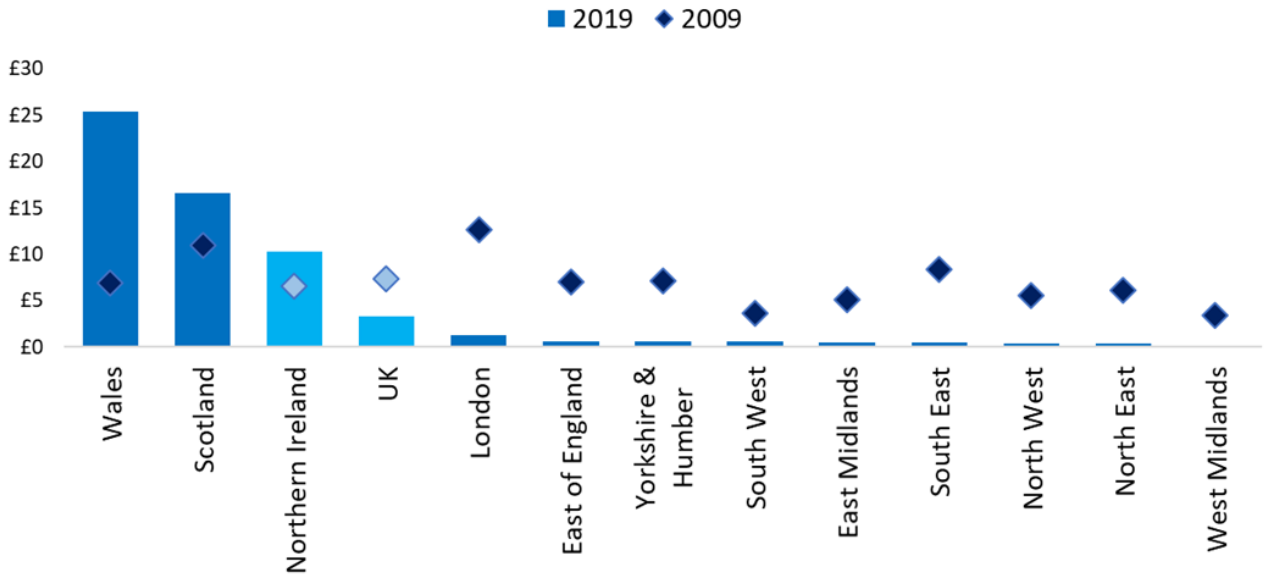
Source: Eurostat

6.4.11 In 2019, 3.2% of NI's total university income was in the form of EU research grants and contracts. This helped to put NI in the top three UK regions. Moreover, NI's performance in this area has improved considerably from 2009 when 2.2% of income was from EU research grants and contracts, helping NI to maintain its relative competitive position compared to other UK regions.

6.4.12 It remains to be seen what impact Brexit might have on this indicator and whether other UK sources of research funding will replace former EU sources. Over the last three years, there is evidence of other EU based research teams favouring collaboration with other researchers within the EU and all areas of the UK are likely to perform less well in this indicator as a result.

Figure 6.4.9: EU university research grants per 1000 inhabitants, 2009-2019

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
EU university research grants per 1,000 inhabitants	3 / 12		↑↑↑	2019



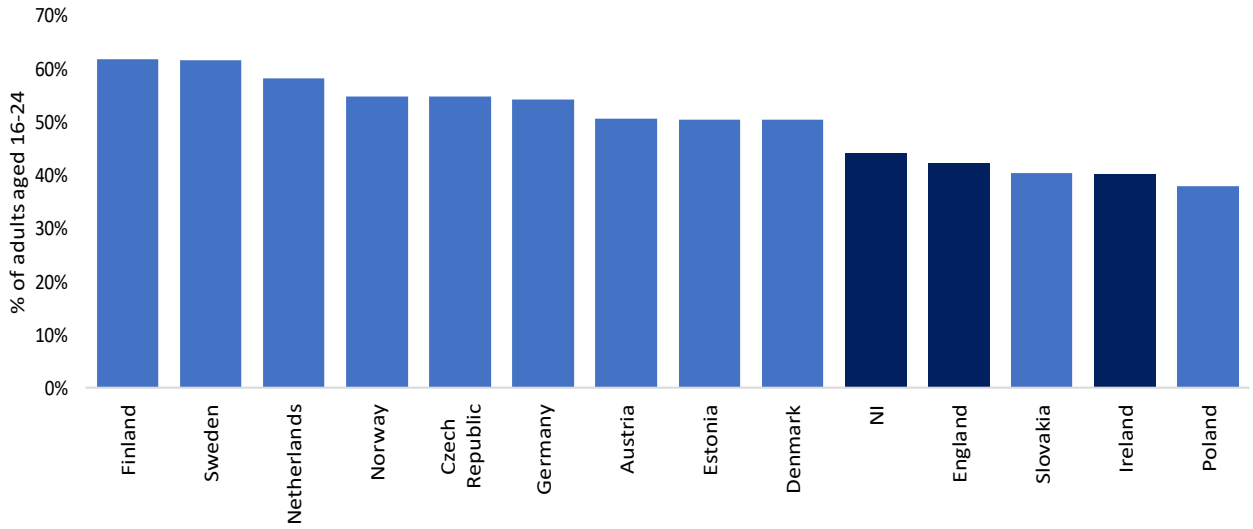
Sources: HESA, ONS & Eurostat

6.4.13 NI generates £10.27 in EU research grants per 1,000 inhabitants. NI performs well in this indicator relative to other UK regions, increasing from £6.47 in 2009, while most other parts of the UK have experienced a decline in grants.

Problem Solving Skills

Figure 6.4.10: Percentage of 16-24 year olds who score level 2 or 3 in problem solving in technology rich environments, 2015

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments	10 / 14		=	2015



Source: OECD

6.4.14 The proportion of young adults who are capable of problem solving in technology rich environments is relatively low, with NI, Ireland and England all ranked in the bottom third of the countries compared. NI is ahead of the England and Ireland averages but continues to lag the OECD average. Problem solving skills in technology rich environments will continue to be in demand as technology evolves and so it is important that policy helps to equip young adults with skills to prepare them for the future of work.

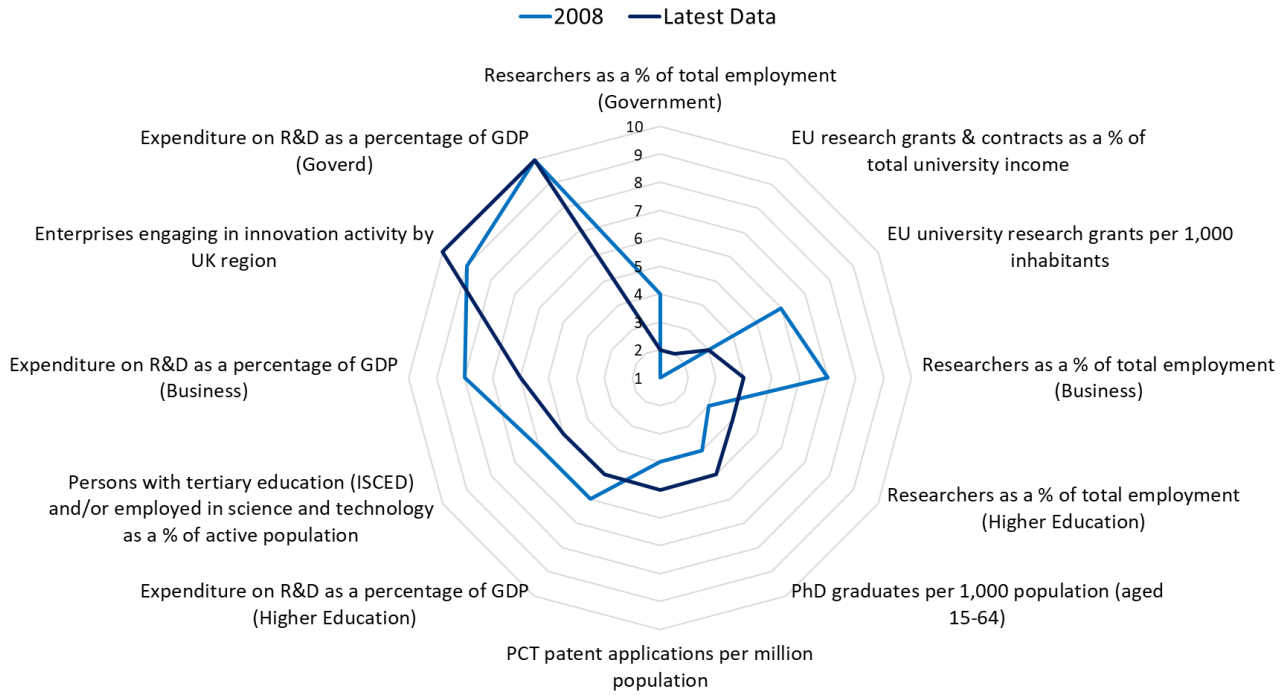
Innovation, research and development summary

6.4.15 NI's R&D and innovation performance is average in terms of the countries included in this analysis. Improvements are evident in a number of indicators in historical terms however competitor nations have improved at similar rates with the result that NI has more or less retained its relative competitive position in this pillar.

6.4.16 On a positive note, expenditure on R&D by firms has increased significantly from £184m in 2009 to £550m in 2018. Externally owned firms have historically driven this expenditure, since 2008 locally owned firms have continued to increase their R&D expenditure and contributed more than half of the total in 2018. This is a positive development showing the increasing capability and application of indigenous firms. However, it is important that externally owned firms also maintain and increase expenditure in order to drive and facilitate competitive R&D opportunities within NI.

6.4.17 NI continues to lag in terms of innovation activity and patent application numbers. Since 2009 applications have dropped from 119 (per million population) to 76 in 2018. The university perspective is mixed, with EU research grants and contracts increasing from 2.2% of total university income to 3.2%, ranking NI 2nd in this indicator, although Brexit does pose a significant risk to this funding scheme.

Summary of decile placements for innovation, research and development



Source: UUEPC
Note: 1 is the most competitive and 10 the least competitive position on the spider diagram.

Summary Table of Innovation, Research and Development indicators

Innovation, Research and Development	Rank	Direction of change	Change in decile	Year
EU research grants & contracts as a % of total university income	2 / 12		↓	2019
EU university research grants per 1,000 inhabitants	3 / 12		↑↑↑	2019
Researchers as a % of total employment (government)	4 / 23		↑↑	2016
Researchers as a % of total employment (business)	9 / 25		↑↑↑	2016
Researchers as a % of total employment (Higher Education)	11 / 28		↓	2016
Expenditure on R&D as a percentage of GDP (higher education)	12 / 26		↑	2018
PhD graduates per 1,000 population (aged 15-64)	13 / 32		=	2018
Expenditure on R&D as a percentage of GDP (Business)	14 / 26		↑↑	2018
Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population	14 / 34		↑	2019
PCT patent applications per million population	16 / 33		↓	2018
Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments	10 / 14		=	2015
Enterprises engaging in innovation activity by UK region	12 / 12		↓	2017
Expenditure on R&D as a percentage of GDP (Goverd)	25 / 26		=	2018

Source: UUEPC

7 Forecasting Competitiveness in NI

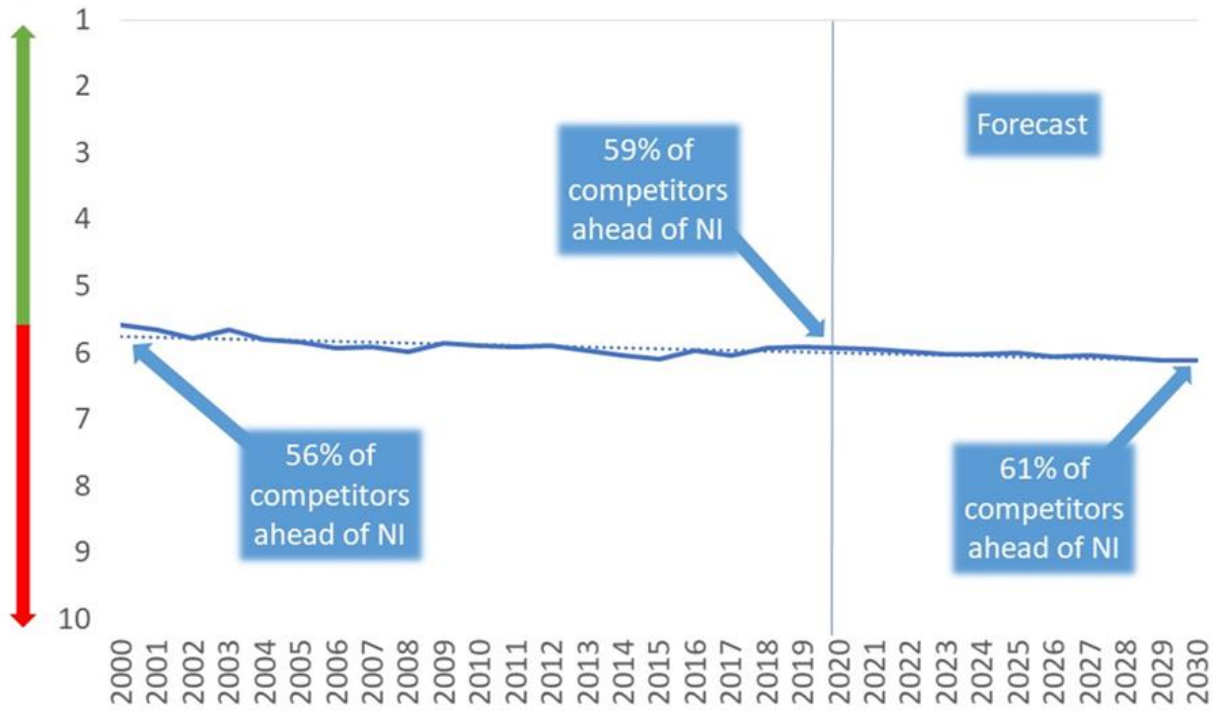
7.1. As part of this Competitiveness Scorecard update, forecasts have been developed for each indicator and country to 2030. The objective of this illustration of long run trends and potential future performance is to support policy makers and reinforce what is working well in NI. This will also help pinpoint where policy action can help to produce positive outcomes for NI in the longer-term.

7.2. The forecasts are based on the assumption that the status quo prevails in NI and competitor nations in terms of policy. As yet, it is too early to assess the impact of COVID-19 due to the lag of data publication, although it is reasonable to adopt the position that the areas of vulnerability will be the same prior and through COVID-19.

7.3. Figure 7.1 below shows that NI's overall competitive position lagged behind 56% of competitor nations in 2000, this figure has deteriorated to 59% in 2020. This lag is projected to continue and worsen into the next decade with 61% of competitor nations ahead of NI by 2030 if policy action is not taken[15]. The erosion of competitiveness may be slow, but in overall terms it means that standards of living, growth and inclusion are being eroded over time.

[15] To assist with reading the chart, 1 is ranked most highly and 10 is the lowest. Therefore over the past 20 years and looking ahead in to the next decade NI competitive performance is set to decline further unless significant change is delivered.

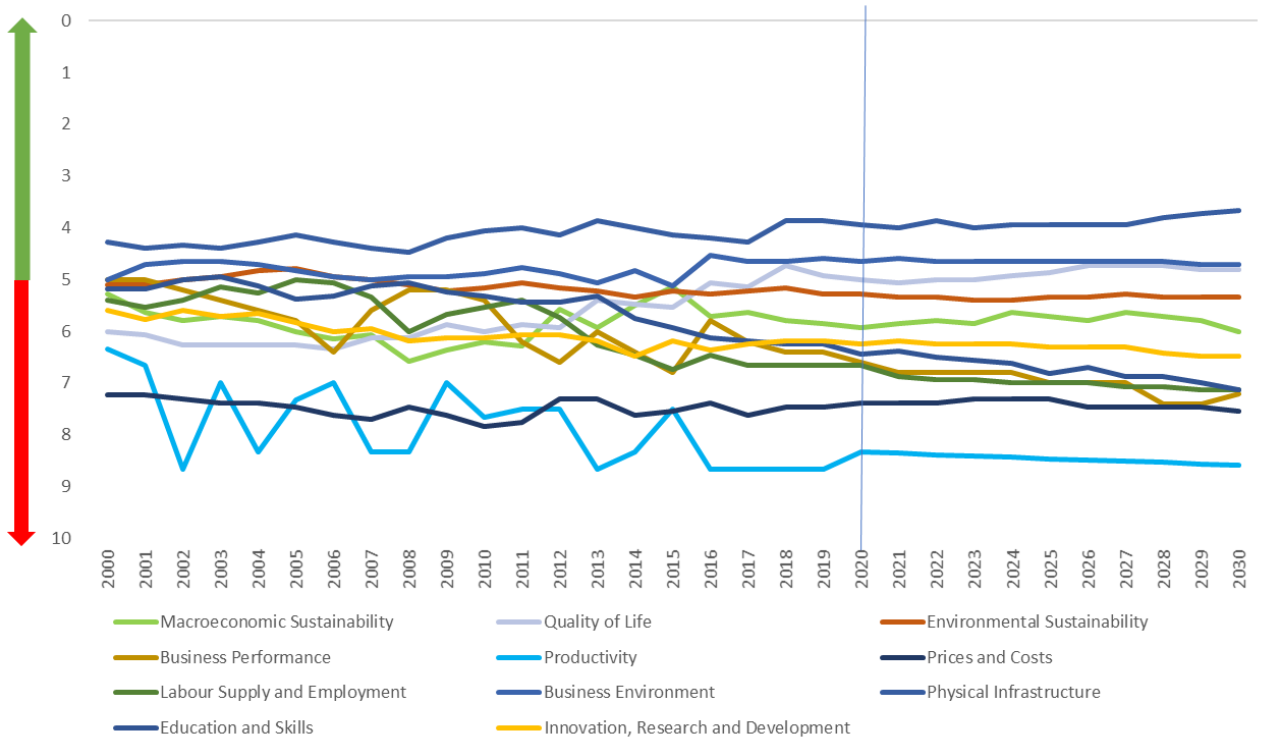
Figure 7.1. NI's Overall Competitiveness, 2000-2030



Source: UUEPC

7.4. Figure 7.2 below details NI's competitiveness forecasts within each pillar of the Competitiveness Scorecard. This chart highlights that NI's productivity, prices and costs, business performance, and education and skills are expected to remain challenging areas whilst labour supply and employment, and R&D&I are anticipated to continue their relative decline. Meanwhile NI will continue to make improvements in business environment and infrastructure. In the sustainable growth tier macroeconomic sustainability, quality of life and environmental sustainability are forecast to remain stable, although declines in competitiveness drivers and essential conditions will act as a drag in the longer term.

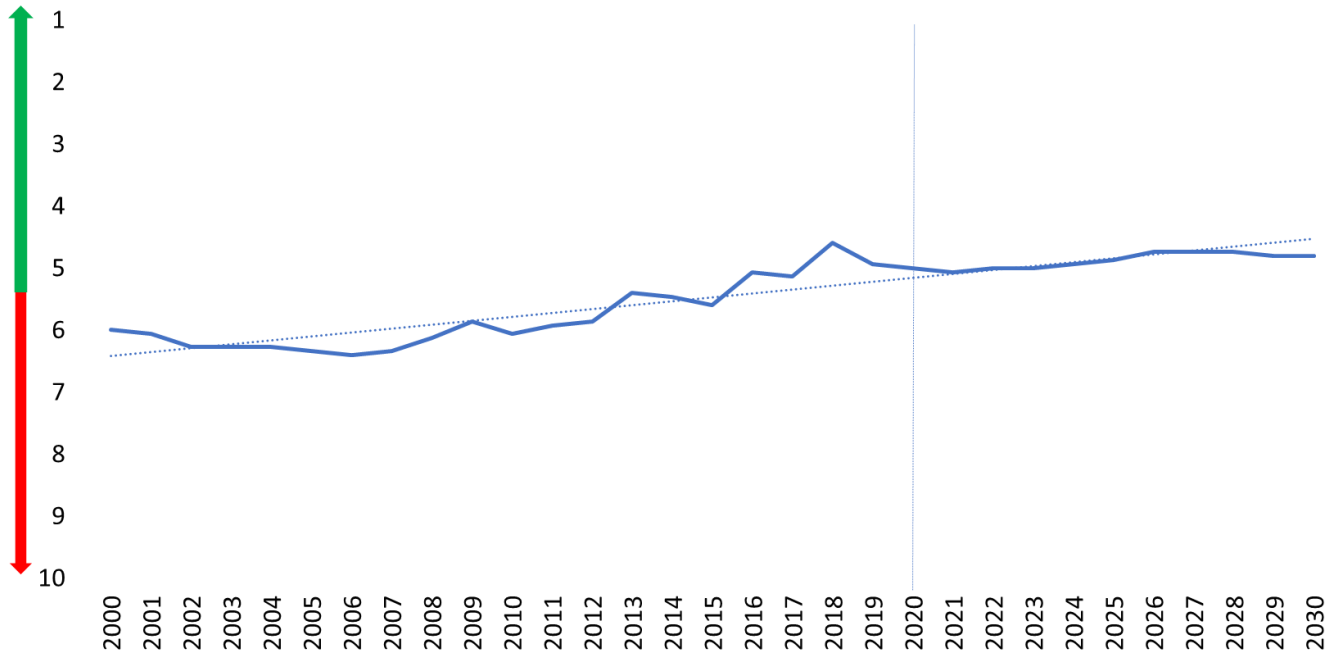
Figure 7.2: Forecasts for each pillar of the Competitiveness Scorecard, 2000-2030



Source: UUEPC

7.1 Quality of Life

Figure 7.1.1 Average Decile of Quality of Life indicators, 2000-2030



Source: UUEPC

7.5. Quality of life indicators are set to improve very slightly to 2030 based on historical trends for these indicators for NI and competitor nations.

7.6. Indicators that perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

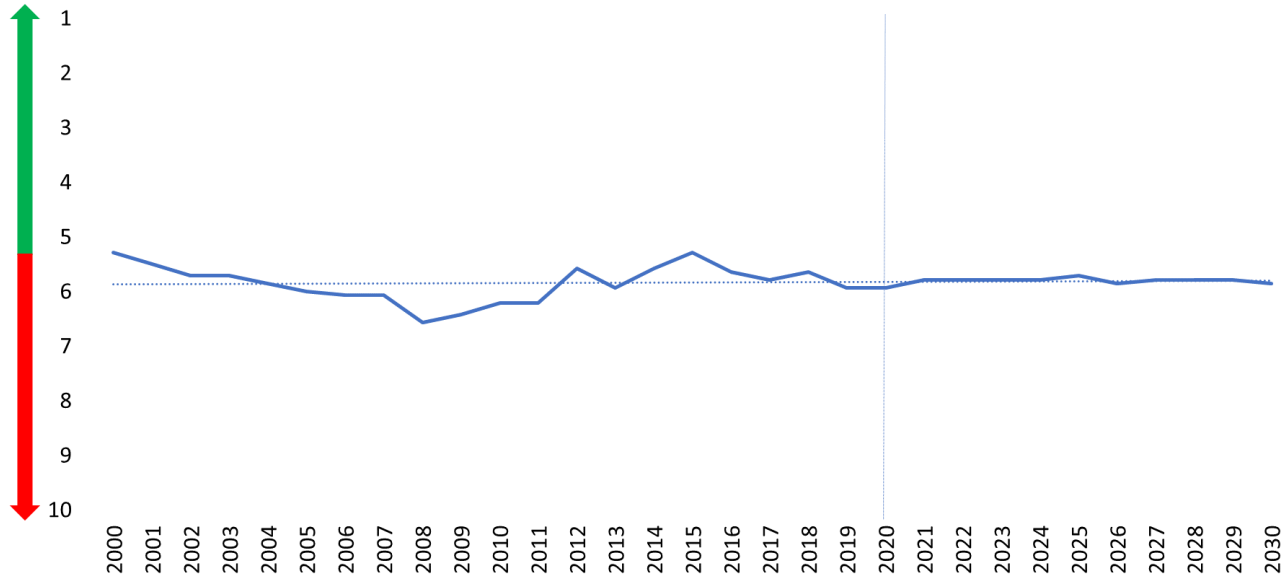
- Relative low-income levels (AHC);
- Life satisfaction;
- Worthwhile life;
- Happiness;
- Deaths per 1,000 people; and
- Distribution of income (Gini coefficients).

7.7. The weaker performing indicators (with a decile of 7 to 10 by 2030) are anticipated to be:

- UK nations Well-being indicators (Anxiety);
- Homicide rate per 100,000 people;
- Average life expectancy (years);
- Annual Disposable Income £ per week; and
- Suicide Rates.

7.2 Macroeconomic Sustainability

Figure 7.1.2 Average Decile of Macroeconomic Sustainability Indicators, 2000-2030



Source: UUEPC

7.8. Overall macroeconomic sustainability has varied over the last two decades, with some improvement in the austerity decade that followed the 2008 recession. Performance is expected to remain reasonably stable until 2030.

7.9. Indicators that perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

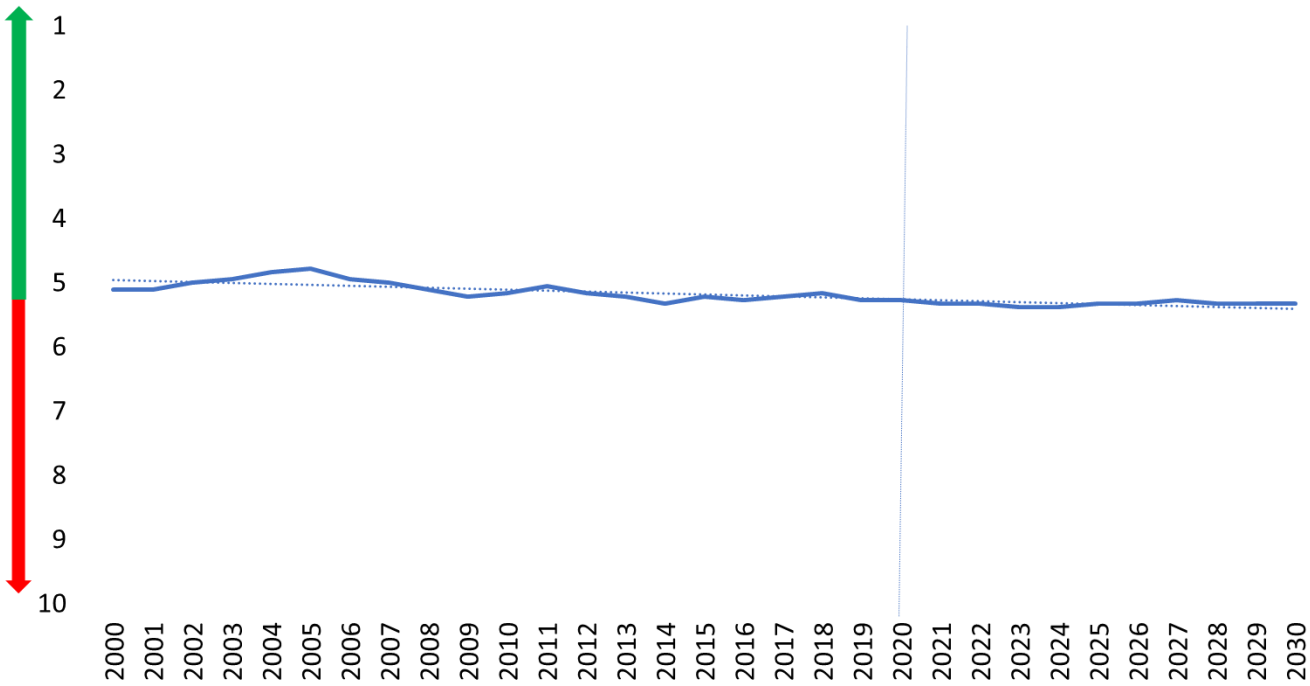
- Gap Between Total General Government Revenue & Expenditure;
- Gap Between Total General Government Revenue & Expenditure (Total Revenue);
- Breakdown of Tax Revenue (Direct Tax);
- Breakdown of Tax Revenue (Social Security); and
- Value added tax Standard Rate (%).

7.10. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Corporation Tax as % of GDP;
- Central Government nominal corporate tax rate;
- Breakdown of Tax Revenue (Indirect Tax);
- Gap Between Total General Government Revenue & Expenditure (Total Expenditure);
- Private Sector GDP as a proportion of total GDP; and
- Gross domestic product (GDP) at current market prices by NUTS 2 regions.

7.3 Environmental Sustainability

Figure 7.1.3 Average Decile of Environmental Sustainability Indicators, 2000-2030



Source: UUEPC

7.11. Climate change is an area in which significant attention is focused at present. All countries will be striving to meet 2050 targets, implement alternative fuels and heat sources etc. If NI moves quickly to develop and implement policy in this arena it could gain an early mover advantage.

7.12. Indicators that perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

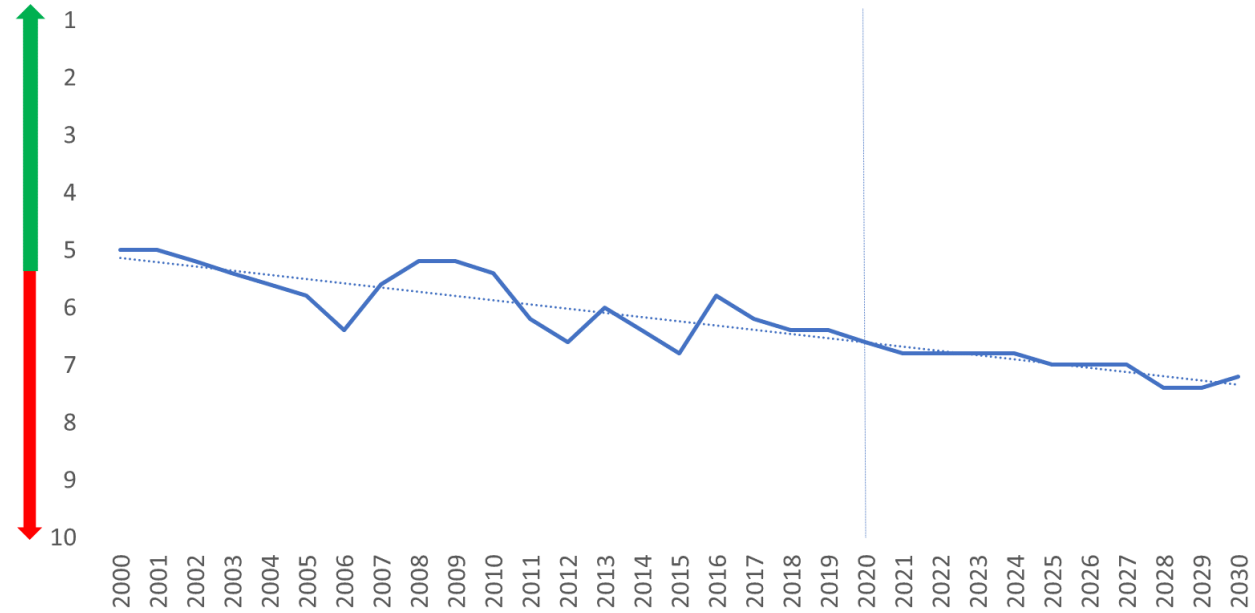
- Greenhouse gas emissions per capita;
- % of energy from renewable sources;
- Components of energy consumption Natural gas as % of total;
- Municipal waste generated and treatment, Total Waste; and
- Exposure to Air Pollution.

7.13. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Components of energy consumption, Total Consumption;
- Components of energy consumption, Oil;
- Components of energy consumption oil as % of total;
- Components of energy consumption Renewables as % of total;
- Municipal waste generated and treatment, Total treated; and
- Municipal waste generated and treatment, Recycling.

7.4 Business Performance

Figure 7.1.4 Average Decile of Business Performance Indicators, 2000-2030



Source: UUEPC

7.14. Business performance indicators has deteriorated significantly over the past two decades. This trend is forecast to continue, albeit at a less rapid rate over the next decade.

7.15. The indicator that performs well (with a decile from 1 to 3 by 2030) is anticipated to be:

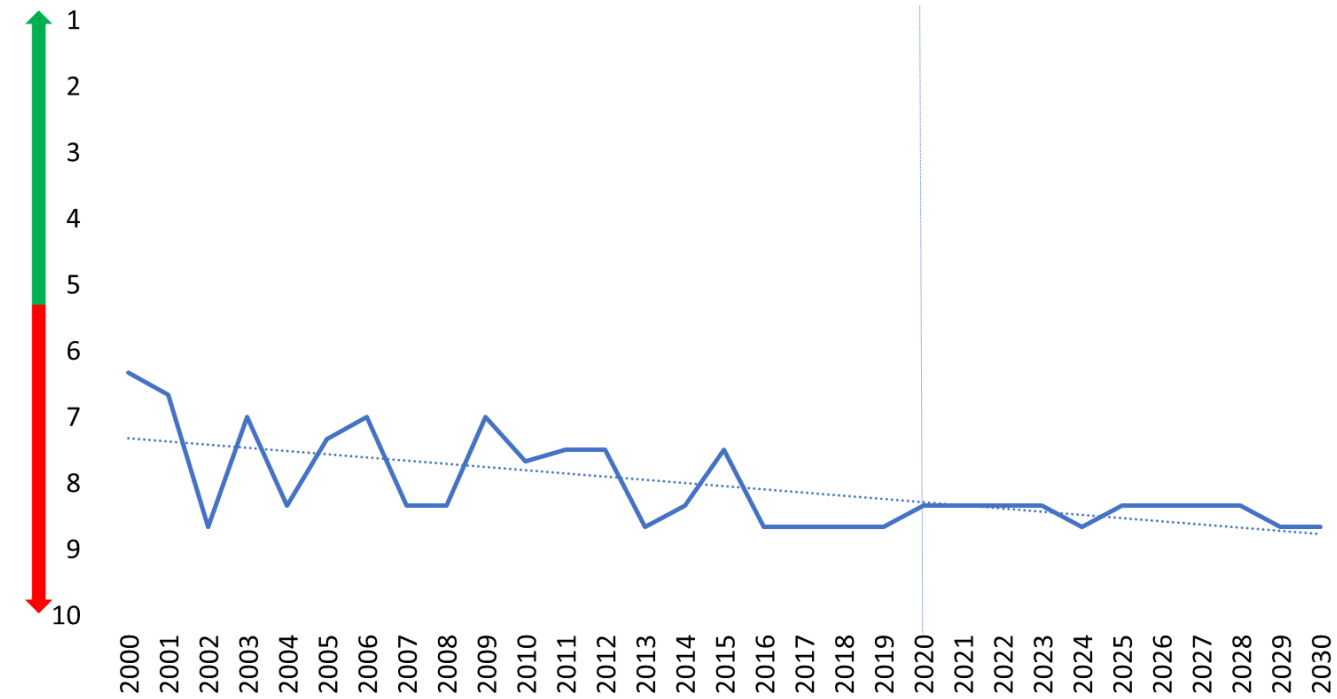
- Net Business population growth.

7.16. The poor performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- FDI jobs created per million inhabitants;
- Business churn; and
- Exports of goods, extra-EU (% GDP).

7.5 Productivity

Figure 7.1.5 Average Decile of Productivity Indicators, 2000-2030



Source: UUEPC

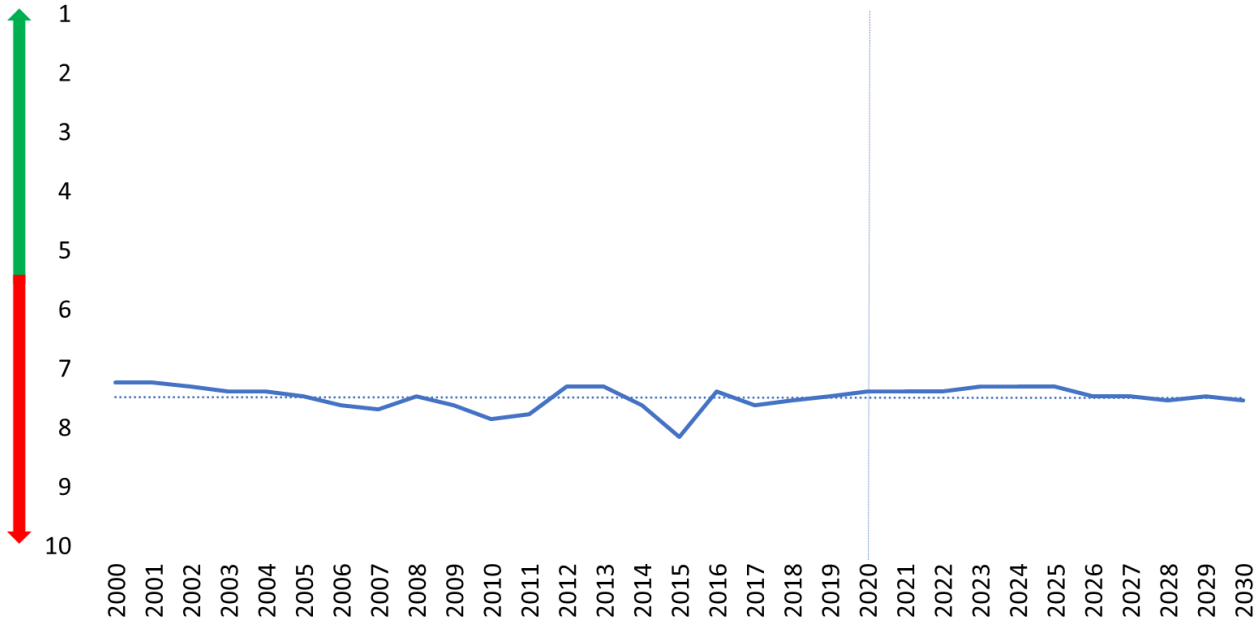
7.17. Productivity is the weakest of the Scorecard pillars, with NI's relative performance deteriorating over the last two decades. The rate of decline is expected to level out over the next decade as the majority of countries are already ahead of NI and those that are behind have some way to go to catch up with and move ahead of NI.

7.18. Al are anticipated to continue their relatively weak performance, in the bottom three deciles of the basket of countries. This includes:

- Productivity levels (GDP per hour worked);
- Labour productivity (annual growth rate); and
- GVA per hour worked (relative to the UK).

7.6 Prices and Costs

Figure 7.1.6 Average Decile of Prices and Costs Indicators, 2000-2030



Source: UUEPC

7.19. Prices and Costs indicators are an area of relative weakness in NI's competitiveness scorecard. Over the next decade, NI's performance is expected to remain relatively stable.

7.20. The indicator that is expected to perform well (with a decile from 1 to 3 by 2030) is anticipated to be:

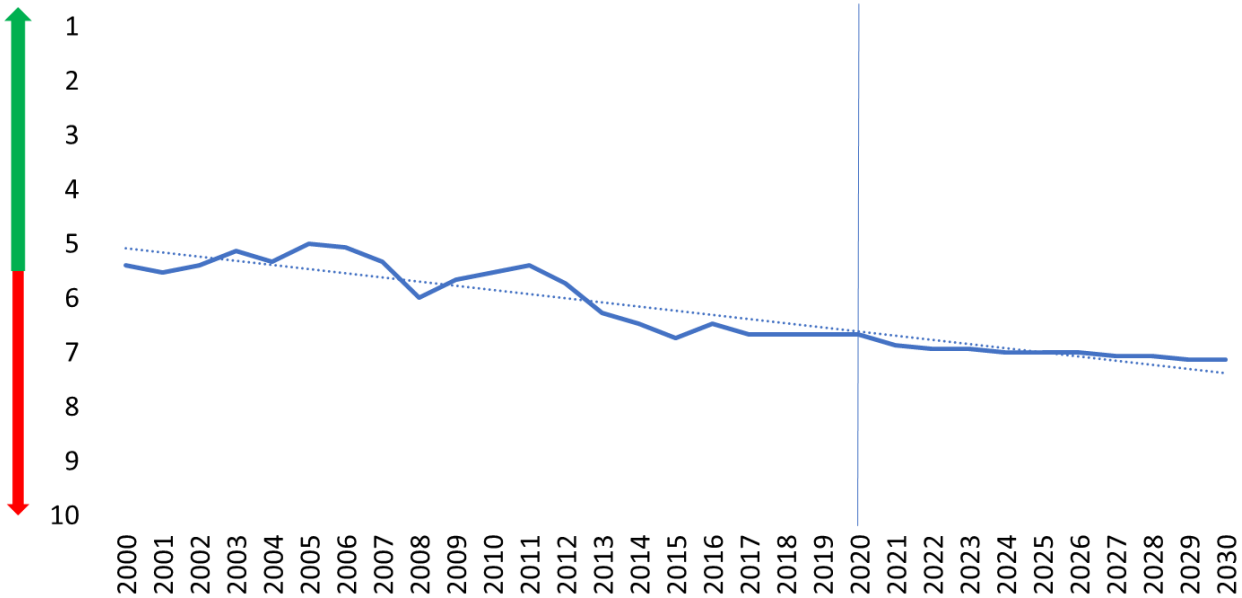
- Cost (per m2) to rent a prime office space.

7.21. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Consumer price level - UK proxy;
- Average annual change in HICP - UK proxy;
- Annual growth in labour costs;
- Hourly compensation costs in manufacturing;
- Earnings per week (2008=100);
- Earnings per hour (2008=100);
- Hours worked (2008=100);
- Industrial electricity prices - small/medium users; and
- Industrial electricity prices - large users.

7.7 Labour Supply and Employment

Figure 7.1.7 Average Decile of Labour Supply and Employment Indicators, 2000-2030



Source: UUEPC

7.22. Labour supply and employment is expected to continue its relative decline over the next decade, albeit at a more moderate rate as other countries move ahead of NI.

7.23. The indicators that are expected to perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

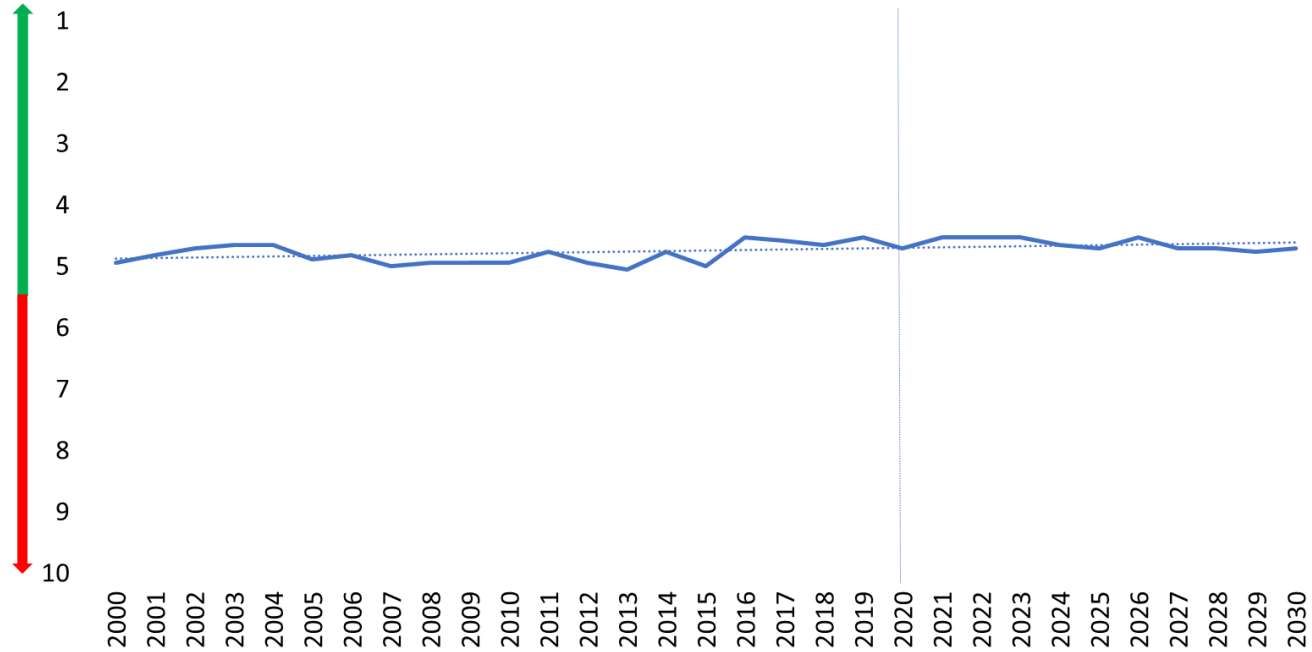
- Unemployment rate (%);
- Skills mismatch - high skilled; and
- People who are under employed.

7.24. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Long term unemployment (% of unemployment);
- Young people not in employment, education or training (%);
- Skills mismatch - low skilled;
- Economic inactivity rate (%);
- Childcare costs as a % of average wage;
- Benefit intensity (DLA as a % of WAP);
- Benefit intensity (ESA as a % of WAP);
- Benefit intensity (Income support as a % of WAP); and
- Benefit intensity (JSA as a % of WAP).

7.8 Business Environment

Figure 7.1.8 Average Decile of Business Environment Indicators, 2000-2030



Source: UUEPC

7.25. The Business Environment is one of the stronger pillars of the scorecard, which has improved slightly in recent decades. Over the next decade, performance is expected to be reasonably stable.

7.26. The indicators that are expected to perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

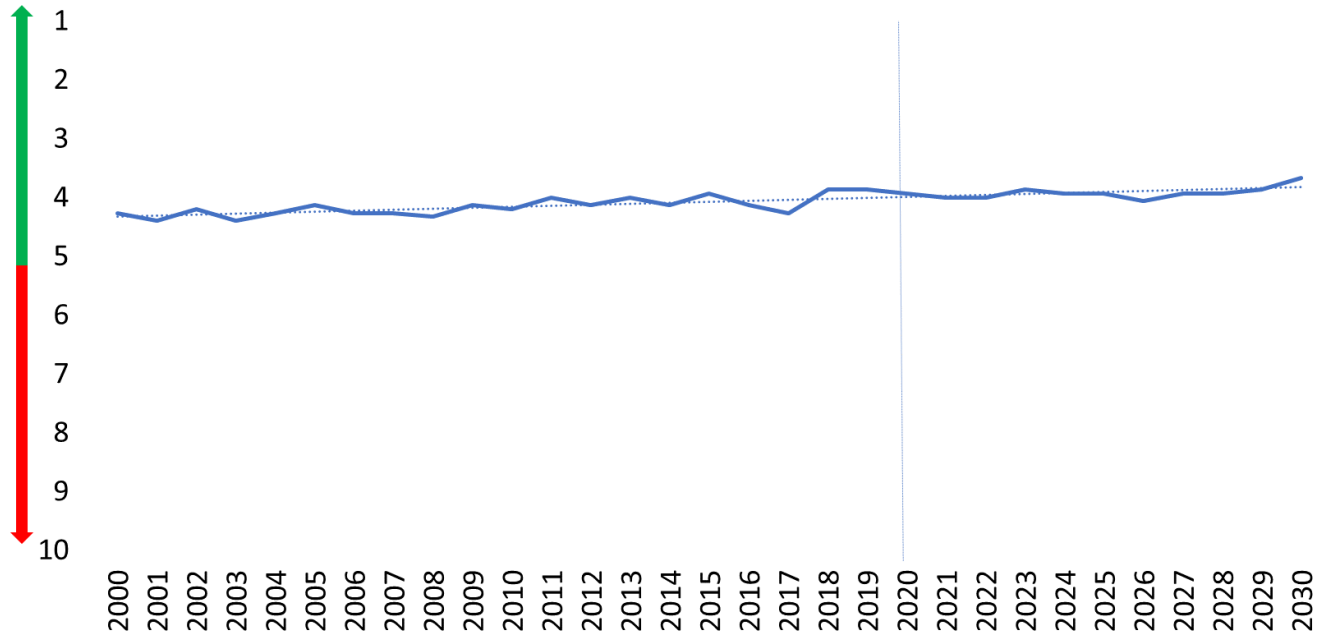
- Ease of doing business;
- Product market regulation;
- Product market regulation of professional services - Architecture;
- Product market regulation of professional services - Engineering;
- Product market regulation of professional services - Legal;
- SME Loans Approved per 1,000 SMEs; and
- Value of loan facilities approved (% of GVA).

7.27. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Venture Capital Investment (% of GDP) Seed/Start-up/ other early stage – Total;
- Private equity investment;
- Number of M&A deals per 100,000 VAT reg businesses; and
- Market capitalisation per head of population.

7.9 Physical Infrastructure

Figure 7.1.9 Average Decile of Physical Infrastructure Indicators, 2000-2030



Source: UUEPC

7.28. Physical infrastructure is one of the stronger pillars within the Competitiveness Scorecard due to the improvement in technological infrastructure over the past two decades. COVID-19 has accelerated demands upon the technological infrastructure, which could potentially see NI's performance improving in this pillar as it is already ahead of other nations.

7.29. The indicators that are expected to perform well (with a decile from 1 to 3 by 2030) are anticipated to be:

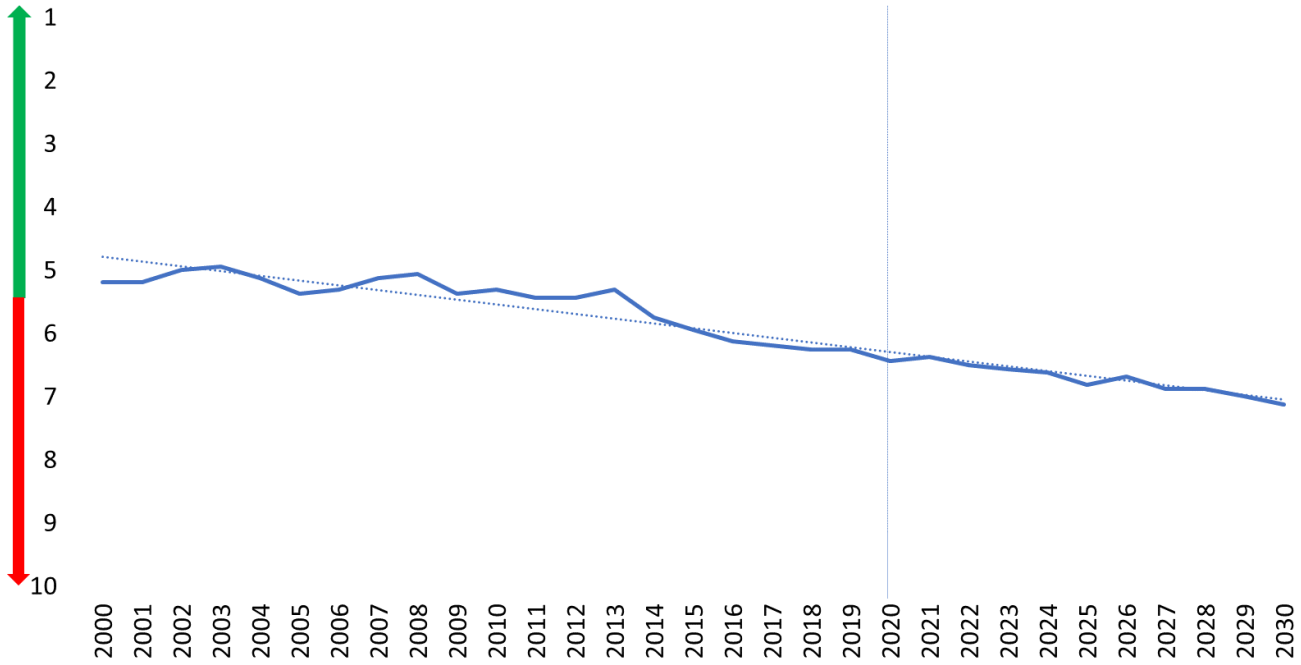
- % of households with access to the internet;
- % of households with broadband internet;
- % of premises within the coverage area of superfast broadband;
- % of Individuals that have never used a computer;
- Maritime transport of freight (unloaded) - per capita;
- Air transport of passengers per capita;
- Motorway Kms per 1000 sq. Kms; and
- Motorisation Rate - cars per 1000 inhabitants.

7.30. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Air transport of freight - per capita; and
- Energy import dependency.

7.10 Education and Skills

Figure 7.1.10 Average Decile of Education and Skills Indicators, 2000-2030



Source: UUEPC

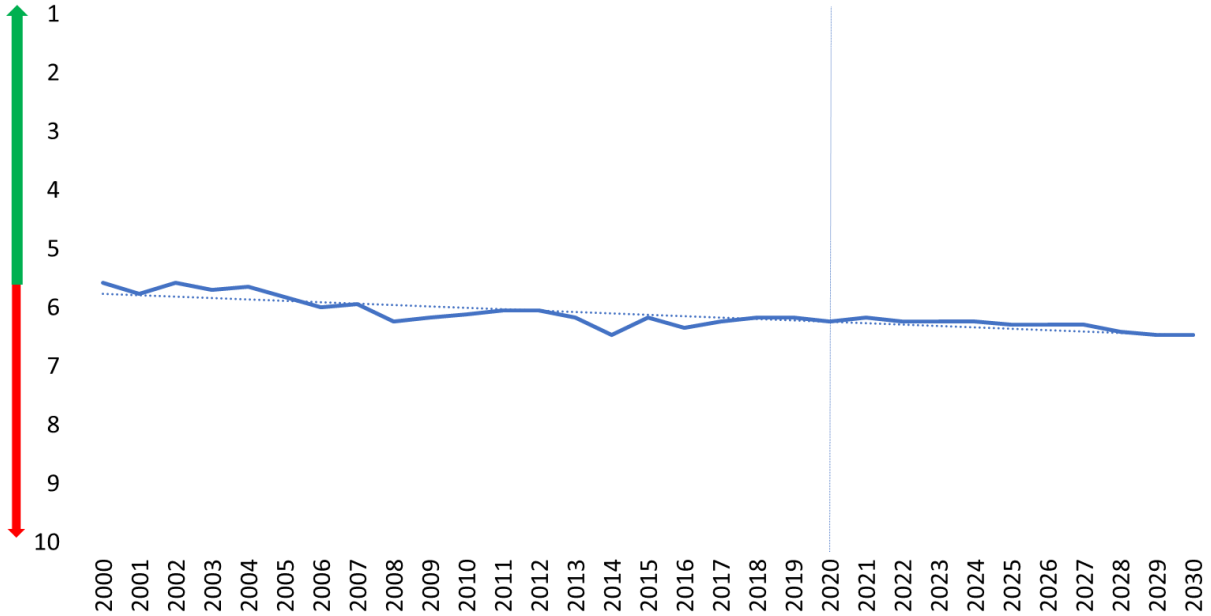
7.31. Education and skills is a pillar of the Scorecard that gives cause for concern. NI's performance has deteriorated markedly since 2013 and the trend is expected to continue as other countries move ahead of NI. The outputs from education and skills system are generally present in the labour market for four or more decades and are challenging to influence in the short term and therefore, it is important that a sustained, long term approach is adopted.

7.32. No indicators within this tier are set to have a decile performance of 1 to 3 by 2030. The poor performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Highest levels of education (population age 25-64) Tertiary;
- Participation Rate of 3-year olds in education (% of population age cohort);
- % of population aged 25-64 that has at least upper secondary education;
- Early School Leavers as a % of population aged 18-24;
- Scientific literacy of 15-year olds;
- Reading Literacy;
- Population age 30-34 that has at least third level education;
- Proficiency in maths (16-65-year olds);
- Proficiency in Reading (16-65-year olds); and
- Pre-primary education.

7.11 Innovation, Research and Development

Figure 7.1.11 Average Decile of Innovation, Research and Development Indicators, 2000-2030



Source: UUEPC

7.33. Innovation, research and development indicators are anticipated decline only slightly over the next decade as the decline of previous years moderates.

7.34. The indicator that is expected to perform well (with a decile from 1 to 3 by 2030) is anticipated to be:

- EU research grants & contracts as a % of total university income[16].

7.35. The weaker performing indicators (with a decile of 7 to 10 by 2030) within this tier are anticipated to be:

- Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments;
- Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population;
- PCT patent applications per million population;
- Enterprises engaging in innovation activity by UK region;
- EU university research grants per 1,000 inhabitants;
- Researchers per 1,000 in total employment (Govt);
- Researchers per 1,000 in total employment (HE); and
- Expenditure on R&D as a percentage of GDP (Goverd).

[16] Note this could be impacted by Brexit.

Summary of competitiveness scorecard forecasts

7.36. NI's competitiveness performance has deteriorated over the past two decades and this trend is expected to continue without significant policy innovation and intervention.

7.37. The benefit of the forecasting exercise is that it can act as an early warning system, illustrating how maintaining the status quo might impact across a range of indicators. It also points to areas in which policy intervention might make most impact, such as productivity and education & skills, where significant improvements would matter most for improving future competitiveness, living standards and funding public services.

7.38. The table below summarises NI's past and potential future performance, which makes for challenging reading as a deterioration is evident in six of the eleven pillars. Only two are expected to improve. This element of the scorecard should serve as an early warning system and call to action, in order to deliver a better and more sustainable future for all in NI.

Figure 7.1.12: Summary of NI's competitiveness performance, 2000, 2020 and 2030 forecasts

Tier	Indicator	Average decile (out of 10)			Change
		2000	2020	2030	
Sustainable growth	Macroeconomic Sustainability	5.3	5.8	5.9	-1
	Quality of Life	6.0	5.0	4.8	1
	Environmental Sustainability	5.1	5.3	5.3	0
Essential conditions	Business Performance	5.0	6.6	7.2	-2
	Productivity	6.3	8.3	8.6	-2
	Prices & Costs	7.2	7.4	7.5	0
	Labour Supply & Employment	5.4	6.7	7.1	-2
Policy inputs	Business Environment	5.1	4.6	4.8	0
	Infrastructure	4.3	3.8	3.7	1
	Education & Skills	5.2	6.4	7.1	-2
	R&D&I	5.6	6.2	6.5	-1

Source: UUEPC
Note: Deciles denote NI's relative performance, with 1 being the top performing decile and 10 the least well performing

8 Conclusions

Unprecedented times, unparalleled challenges

8.1. The economic context within which this report is published is unprecedented. The COVID-19 pandemic has significantly disrupted the economy with reductions in GVA estimated at -6.7% to -12.7%[17] during 2020, the largest and most rapid recession in NI's history. Restrictions are currently in place to control the transmission of the virus. How and where employees work has changed markedly, as have consumption patterns and a number of sectors that require face-to-face interaction remain largely closed. A range of policy supports are in place at national and local level, alleviating some of the worst potential impacts of the pandemic and associated restrictions.

8.2. There are other disruptions that are underway across the world and NI will be presented with both opportunities and challenges as a result. These include the fourth industrial revolution, the climate emergency, Brexit and an aging population.

8.3. The Competitiveness Scorecard provides an overarching framework and evidence base through which to consider the impact and vulnerabilities of these major disruptions to society, challenges that existed prior to COVID-19 and areas of strength that can support the economic recovery. Importantly, it brings together economic, social and environmental outcomes, encompassing these key objectives for society.

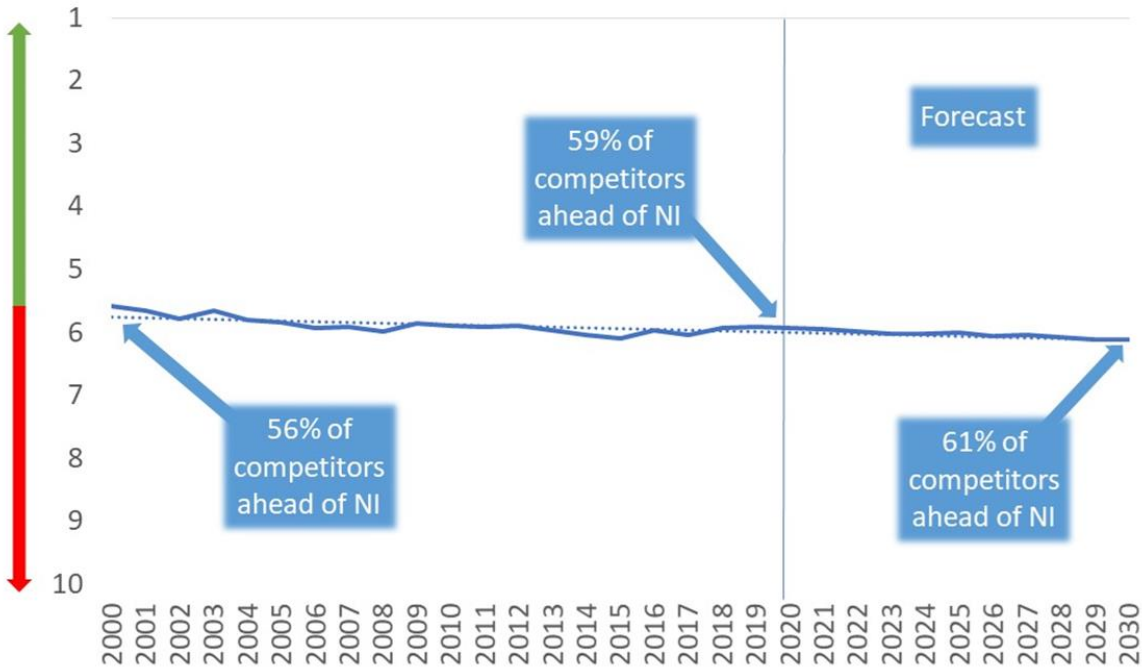
8.4. The focus of the Competitiveness Scorecard is on providing a robust and broad ranging evidence base. Taking this evidence base forward, UUEPC will publish a follow-on document during 2021 examining NI's competitiveness challenges and will make recommendations on ways in which NI can improve the competitiveness and sustainability of the economy to support the recovery and inclusion.

Slow erosion of competitiveness

8.5. A long-term perspective on competitiveness reveals a slow erosion over the last two decades and forecasts suggest that the pattern is likely to continue without significant policy change. It is important to note that in many indicators, NI has improved its performance over time, however competitor countries have improved more quickly and moved ahead.

[17] Sources: EY, Danske Bank, KPMG & UUEPC

Figure 8.1: NI's relative competitiveness, 2000-2030



Source: UUEPC

8.6. NI's performance is measured across eleven pillars, three of which have improved over the last decade. Quality of life has improved due to improvements in wellbeing, and the business environment and physical infrastructure have also improved, mostly due to UK wide regulation and improvements in NI's technological infrastructure. Unfortunately, NI's relative position has deteriorated in five of the pillars, with education and skills exhibiting the largest decline over the decade and productivity remaining low.

Table 8.1: Summary of competitiveness pillars

		Change in status
Sustainable Growth	Quality of Life	↑
	Macroeconomic & Fiscal Sustainability	=
	Environmental Sustainability	=
Essential Conditions	Business Performance	↓
	Productivity	↓
	Prices & Costs	↓
	Labour Supply & Employment	↓
Policy Inputs	Business Environment	↑
	Physical Infrastructure	↑
	Education & Skills	↓
	Innovation, Research & Development	=

Source: UUEPC

8.7. It will be important to consider NI's performance in the context of current and pre-existing challenges, as well as how other Governments are responding to both. The *NI Competitiveness Challenges* document that will be published during 2021 will consider how and where NI could improve, and which countries and policies could be considered to augment NI's performance and support the recovery and longer term-growth. Through a lens of competitiveness, five areas have been identified that will be critical to the economic recovery and will help to delivery sustainable and inclusive growth that can improve living standards for all in society.

Support work

8.8. The COVID-19 pandemic has had an unprecedented impact on the economy during 2020. At its peak, almost 333,000 self-employed and employees were being supported by the Coronavirus Job Retention Scheme and the Self Employment Income Support Scheme. Research indicates[18] that those who are young, have low levels of formal qualifications, are in low income occupations and in rural areas were vulnerable groups prior to the pandemic and have become more vulnerable as a result. It will be important, as these schemes come to an end in March 2021, that significant focus is on ensuring that unemployment – and particularly youth unemployment – does not become a long-term issue that scars the future potential of individuals that are impacted. Childcare costs also merit attention as they represent a significant cost and limit the flexibility of workers of returning to the labour force.

Seize green and digital opportunities

8.9. NI performs relatively well in terms of environmental sustainability; however, the climate emergency means that challenges in terms of how we travel, heat buildings and treat waste must be addressed. There are also a range of opportunities that, allied with NI's engineering skills and innovation base, will present design, manufacture and installation opportunities, creating an economic stimulus as well as delivering upon climate change objectives. There is also the opportunity to drive productivity and quality of life improvements that arise from working from home in a number of sectors.

8.10. The fourth industrial revolution is underway, creating a range of opportunities in jobs and sectors, however a range of tasks and, in a small proportion of cases whole jobs may be displaced. Research[19] shows that digitisation creates more jobs than it removes and therefore should be part of the recovery plan. COVID-19 has accelerated the pace of digitisation and therefore enterprises and

[18] https://www.ulster.ac.uk/__data/assets/pdf_file/0020/603074/COVID-19-and-the-NI-Economy_Report.pdf
[19] https://www.economy-ni.gov.uk/sites/default/files/publications/economy/automation-in-northern-ireland-main-report.pdf

individuals should be supported to invest and upskill to enable them to take opportunities when they are presented.

Skill up for the Future of Work

8.11. The erosion of competitiveness in the Skills & Education pillar is a serious concern as it is now the weakest of the four pillars within the Policy Inputs tier of the Competitiveness Scorecard. The output of the skills and education system represent the inflow to the labour force and these weaker outcomes will ultimately inhibit competitiveness, employability and the earning potential of many individuals over the next four or more decades.

8.12. The evidence shows that NI's performance has improved in a historical context, however, competitor nations are improving more quickly with the result that NI's competitiveness has eroded over the last decade. Prior to the pandemic and acceleration of digitisation, NI already had an oversupply of lower level skills and an undersupply of degree level and above - and recent developments have exacerbated the challenges.

Raise productivity to boost incomes and standard of living

8.13. Productivity is the weakest of the eleven pillars, with NI lagging behind the UK, Irish and competitor country average by a significant degree. It will be important for NI's future that strategic public investments are made that focus on high quality infrastructure projects, particularly in terms of digital infrastructure. This will boost competitiveness and productivity and help to maintain NI's competitive position. It will also be necessary to support enterprises and individuals by investing in sectors, capital and skills that boost productivity. This could provide a comparative advantage and, higher incomes and, enable firms to pay higher wages boosting, standards of living.

Focus internationally

8.14. NI is a small open economy that has been successful in improving its external focus and export orientation in recent decades. However, it still remains highly fiscally dependent, which is likely to become a more significant challenge in the medium term as the Government moves to repair public finances, most likely by raising taxation. Global trade and travel are both likely to be significantly disrupted for years to come and Brexit will create challenges in terms of attracting labour for certain sectors.

8.15. In order to boost standards of living, sustainable incomes and inclusive growth, NI must continue to focus on external markets and opportunities, even though the domestic economy and healthcare issues dominate debate at present. Lessons can also be learned from a range of competitor nations including the Nordics, northern Europeans and closer to home – both Ireland and the UK.

8.16. NI is faced with a range of challenges; however, these now present the opportunity to reframe policy issues and respond in different ways. The New Decade, New Approach[20] refers to a Competitiveness Fund and has a clear focus on driving better outcomes for society.

Looking forward

8.17. In conclusion, NI must pursue a flexible and data-driven policy framework that can adapt to the evolving global, local and healthcare needs of society. Whilst immediate policy discussions are necessarily focussed on saving lives and avoiding the healthcare system becoming overwhelmed, it will be important to ensure that the economy is on a footing that is as strong as possible in order to make the most of any opportunities and support a balanced economic recovery.

8.18. The five areas detailed above are of particular importance to support NI's recovery from the COVID-19 pandemic and beyond, focusing on the areas of greatest need in order to boost future competitiveness and sustainability. These issues will be further discussed in the forthcoming NI Competitiveness Challenges report that will be published during 2021.

[20] https://static.rasset.ie/documents/news/2020/01/new-decade-new-approach.pdf