Competitiveness Scorecard for NI

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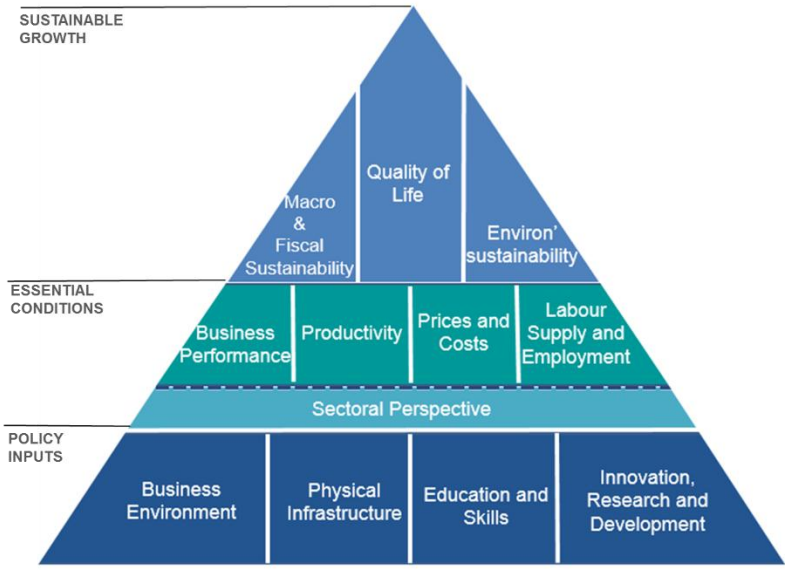
1. Executive summary

1.1 Benchmarking NI's relative competitiveness

The Competitiveness Scorecard benchmarks NI's competitiveness relative to a range of European and OECD countries over the most recent five-year period across more than 150 indicators. The methodology employed is based on the National Competitiveness Council's competitiveness scorecard that is used in the Republic of Ireland, with some revisions to take account of NI specific factors, including an NI perspective, a sectoral consideration and a more in-depth assessment of quality of life indicators in line with global competitiveness research.

Figure 1.1: UUEPC Competitiveness Scorecard



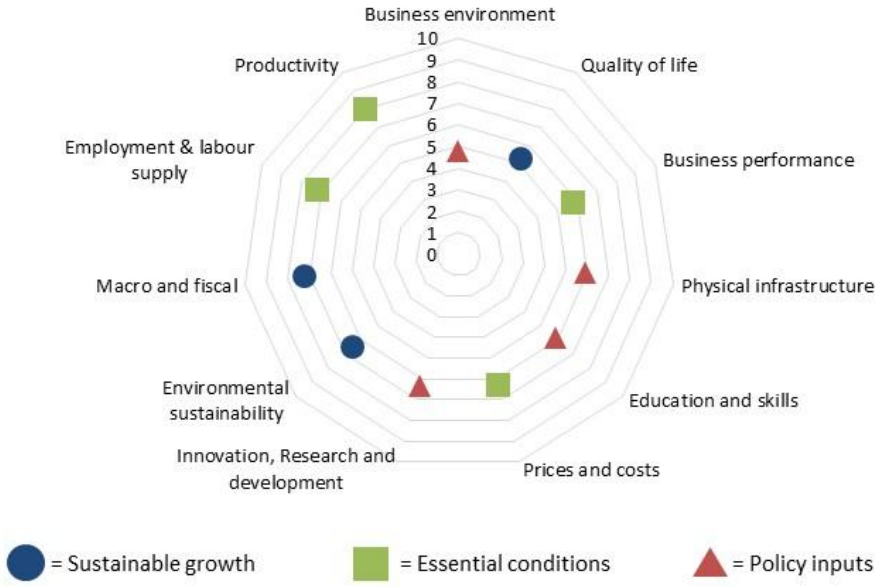
Source: UUEPC

1.2 Significant competitiveness challenges for NI to address

NI's competitiveness performance has improved slightly over the last 5 years, but remains below average for the countries analysed in the Competitiveness Scorecard. The results of the Competitiveness Scorecard provide an indication of the scale of the challenge facing NI across a large range of indicators. If NI is to deliver upon the economic aspirations in the Programme for Government and the Economic Strategy, NI must play to its relative strengths and improve performance in a number of areas.

NI's relative competitiveness in each element of the Competitiveness Scorecard is illustrated in figure 1.2. It shows that NI's business environment, quality of life and business performance pillars score most highly and that productivity, employment & labour supply and macro & fiscal are the lowest scoring.

Figure 1.2: Current relative competitive performance by components of the Competitiveness Scorecard



Source: UUEPC
Notes: Competitiveness performance is defined as the average decile placement of the indictors within that element of the Competitiveness Scorecard.

Table 1.1. illustrates that NI's relative competitiveness has improved marginally over the past five years. The most significant improvement was in the business performance pillar, driven by increasing business stocks, churn and exports. Physical infrastructure and macro and fiscal pillars also improved slightly. Education & Skills and Employment and Labour Supply were the only two pillars in which NI's relative performance deteriorated and whilst NI's performance improved, competitor nations advanced more rapidly, outpacing NI

Table 1.1: Relative competitive performance by components of the Competitiveness Scorecard over the past 5 years, in deciles

Pillar	5 years previous	Current	Change in decile
Business performance	7.2	5.8	1.4
Physical infrastructure	6.3	5.9	0.4
Macro and fiscal	7.6	7.2	0.4
Prices and costs	6.6	6.3	0.3
Environmental sustainability	6.5	6.5	0.0
Quality of life	5.3	5.3	0.0
Business environment	4.8	4.8	0.0
Innovation, research and development	6.4	6.4	0.0
Productivity	8.0	8.0	0.0
Education and skills	5.4	5.9	-0.5
Employment & labour supply	6.8	7.3	-0.5
Overall average	**6.2**	**6.1**	**0.1**

Source: UUEPC
Notes: Decile placements range from 1 – 10, with 1 denoting a strong competitive position and 10 a weak position. A positive figure in change in decile denotes an improvement in NI's relative competitiveness and vice versa.
The overall average is calculated using a simple average of all of the indicators in the scorecard

1.3 Sustainable growth

Sustainable growth – the top level of the pyramid – is the outcome of past competitiveness is an area where NI is below average. This outcome is influenced positively by high levels of life satisfaction and quality of life, strong environmental credentials and the stability provided as part of a larger, relatively strong economic unit. Negative factors include a small private sector, which generates limited tax revenue with which to fund public services and a subsequent deficit and issues with poverty.

1.4 Essential conditions

Essential conditions – the middle tier of the pyramid – are generally weaker where more than two thirds of countries are ahead of NI. These findings present a significant challenge for improving the sustainable growth tier in the future.

Employment has increased and unemployment rates have declined following the recession, helped by competitive labour costs, office rents, industrial water rates, a strong performance in FDI job creation and increasing export demand. Whilst the overarching data are positive, an examination of some more specific indicators reveals that the low skilled (NEET's), the long term unemployed and many youths are struggling to secure employment, which is in turn linked to high levels of benefit dependency. Productivity is a significant driver of the overall level of competitiveness as the weakest of the elements contained within the Scorecard, growing productivity will be a key policy challenge.

1.5 Policy inputs

Policy inputs – the foundation tier of the pyramid is the best performing tier of the Scorecard in terms of aggregated decile position, suggesting that improvements are likely in the tiers above as the impact of policy inputs feed through. Whilst the performance in this element is relatively strong in the context of the three tiers of the Scorecard, it demonstrates that NI is below average in international terms. These findings present a significant policy challenge for NI as it is at the policy input level where most impact can be made. As drivers of future competitiveness, NI will need to improve its performance on policy inputs in order to improve the economic environment and contribute to sustainable growth in the future.

Significant improvements have been made in terms of education and skills over the past five years. Despite these improvements, NI's relative competitiveness in this pillar has been eroded as other nations improved more rapidly, presenting a significant challenge to NI for the future. Issues are emerging in terms of literacy and the large proportion of the population with low qualifications are finding it difficult to secure employment. These issues will have longer term implications for benefit dependency and detachment from the labour market.

NI's Business R&D performance is strong, although a closer examination reveals that FDI companies are responsible for most of the increase and the subsequent decrease during 2014. R&D by FDI companies is of significant benefit to NI in terms of bringing new knowledge, skills and technology which can spill over into the broader economy. Over the past year, the main risks are that, whilst it may be difficult given the knowledge and people involved, that FDI companies might reduce spending or move the R&D to another location outside NI and also that spillovers can be limited if the research is in a niche area in which few companies in NI are involved. There is merit in further research to identify the barriers that might exist for domestic companies and explore what measures may be required to increase R&D in these companies.

Business environment is the best performing pillar of the scorecard, driven by strong UK credentials such as regulation. Physical infrastructure benefits from NI's advanced technological infrastructure, but dependence on imported fuels remains a significant issue.

1.6 Summary

The NI Competitiveness Scorecard provides a comprehensive overview of NI's relative competitiveness in more than 150 indicators within the eleven elements of the competitiveness pyramid. NI's relative competitiveness has improved slightly, but remains below average for the countries included in the analysis over the past five years.

These findings highlight the scale of the competitiveness challenge for NI. More importantly, it highlights that action must be taken in order to boost relative competitiveness in order to improve NI's performance and grow the economy, delivering higher standards of living for all of NI's citizens.

2. Introduction

2.1 Background

The Ulster University Economic Policy Centre (UUEPC) was commissioned by the Economic Advisory Group (EAG) and the Department of Enterprise, Trade and Investment (DETI) to ***investigate and deliver a range of economic competitiveness indicators relating to the Northern Ireland Economy***.

The members of EAG expressed the view that **the issue of competitiveness should be the central focus of the Group's research agenda** going forward and that further analysis and reporting should be undertaken to provide greater transparency to the competitiveness of the various factors that contribute to the Northern Ireland Economy.

The Terms of Reference (contained in Annex A) anticipated that the project would take a similar approach to the Republic of Ireland's National Competitiveness Council, emulating its Competitiveness Scorecard in order to assess NI's economic competitiveness in an international context.

2.2 What is competitiveness and why is it important?

There is no internationally agreed definition of economic competitiveness. For some, competitiveness can mean how well a country is doing relative to another country or groups of countries. For others, it relates specifically to a country's performance in terms of international trade, and for the remainder, it relates to whether a country is performing at its maximum economic potential.

As a result of these different perspectives on competitiveness, there are a range of definitions employed within the published academic research. Some of the most commonly used definitions include the World Economic Forum (WEF), Institute of Management Development (IMD) and Delgado, Ketels and Porter.

The WEF defines competitiveness as ***"The set of institutions, policies, and factors that determine the level of productivity of a country".***[1] They then go on to explain that the level of productivity determines the level of prosperity and rates of return to investments (capital and labour) 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."***

The IMD Competitiveness yearbook uses a similar approach, measuring ***"how well countries manage all their resources and competencies to facilitate long-term value creation."***[2]

Delgado, M., Ketels, C. and Porter, M. (2012) consider the issue from a different perspective and define foundational competitiveness as ***"The expected level of output per working-age individual given the overall quality of a country as a place to do business. Both the productivity of employed workers and the ability to employ a large share of the available labour force influence overall prosperity."***[3]

The WEF and IMD definitions focus on competitiveness in its widest sense relative to other countries, whilst Delgado, Ketels and Porter focus more narrowly on productivity of those employed

[1] http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf
[2] http://www.imd.org/news/IMD-releases-its-2015-World-Competitiveness-Ranking.cfm
[3] The determinants of national competitiveness, National Bureau of Economic Research working paper series. Working paper 18249. http://www.nber.org/papers/w18249.pdf

and potential of the available labour force. All definitions however, are concerned with maximising the rate of economic growth and wealth of the nation.

It is clear that 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]

In NI, domestic demand has been relatively subdued since the recession in 2008 and there are a number of challenges to deal with, such as welfare reform, the outworking of recent EU reductions in maximum levels of employment grant support. The next Programme for Government is being developed and with the NI Economic Strategy identifying competitiveness as a key aim, it would seem that there is an increasing recognition that international competitiveness will be key to achieving NI's economic ambitions.

2.3 Global indices of competitiveness

There are a range of publications that measure and report on competitiveness at country and regional level. There are a number of methodologies and definitions employed to measure competitiveness which are reflected in the range of outcomes.

The WEF assessed competitiveness in 144 national economies, providing insight to the drivers of productivity and prosperity. The aspects of competitiveness are reported across 12 pillars which compose the Global Competiveness Index. Approximately two thirds of the data are sourced from an Executive Opinion Survey and the remaining third are from publicly available sources.

The IMD World Competitiveness yearbook ranks the competitiveness performance of 60 countries across 338 criteria and two thirds of the data are from publicly available sources and one third from Executive Opinion Surveys.

As both of these reports focus on national economies, they do not provide data on how NI performs. However, the UK was ranked 9th in the WEF (out of 144 countries) and 16th out of 60 countries in the IMD. Ireland ranked 25th and 15th respectively.

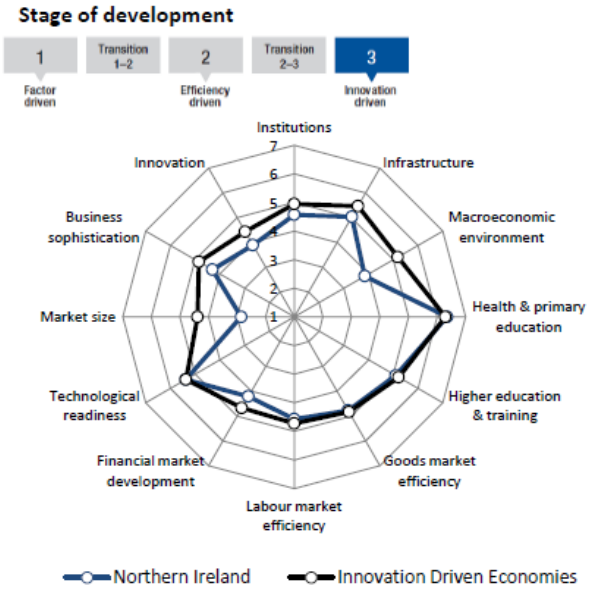
2.4 Previous competitiveness research in NI

SQW and Cambridge Econometrics published a Competitiveness Index for Northern Ireland[5] in June 2013 based on the WEF methodology. In summary, NI was ranked 42nd of the 145 countries ranked using the WEF index, scoring 4.46 out of 10. Ireland was ranked 27th and the UK 8th. Switzerland was ranked first, followed by Singapore, Finland and Sweden in that order.

[4] http://www.policy-network.net/pno_detail.aspx?ID=4922&title=The-eurozones-changing-philosophy-and-what-it-means-for-Britain
[5] http://eagni.com/fs/doc/publications/eag-competitiveness-index-report.pdf

Figure 2.1: Comparison of NI's competitiveness with innovation driven economies

	Rank /145	Score (1-7)
Overall	42	4.46
Basic requirements (20.0%)	**41**	**4.95**
Institutions	42	4.57
Infrastructure	34	5.04
Macroeconomic environment	118	3.86
Health & primary education	18	6.35
Efficiency enhancers (50.0%)	**40**	**4.48**
Higher education & training	**28**	**5.10**
Goods market efficiency	29	4.77
Labour market efficiency	45	4.57
Financial market development	60	4.21
Technological readiness	25	5.38
Market size	104	2.85
Innovation and sophistication (30.0%)	**33**	**4.10**
Business sophistication	41	4.31
Innovation	31	3.90



Source: SQW & Cambridge Econometrics Competitiveness Index for NI

The earlier research assessed NI's relative position across twelve pillars of competitiveness, many of which are similar to those used in the National Competitiveness Council methodology. NI performed relatively well in health and primary education, higher education & training and goods market efficiency and was at its weakest in terms of macroeconomic environment (which is to some extent due to historical factors and the fact that NI is a region of the UK, rather than a national economy) and market size.

Table 2.1: Pillars of economic competitiveness, Competitiveness Index for NI, 2013

Pillar	Score	Rank (1-145)
Pillar 1: Institutions	4.57	42nd
Pillar 2: Infrastructure	5.04	34th
Pillar 3: Macroeconomic environment	3.86	118th
Pillar 4: Health & primary education	6.35	18th
Pillar 5: Higher education & training	5.10	28th
Pillar 6: Goods market efficiency	4.77	29th
Pillar 7: Labour market efficiency	4.57	45th
Pillar 8: Financial market development	4.21	60th
Pillar 9: Technological readiness	5.38	25th
Pillar 10: Market size	2.85	104th
Pillar 11: Business sophistication	4.31	41st
Pillar 12: Innovation	3.90	31st
Competitiveness Index Score	**4.46**	**42nd**

Source: SQW

There were some limitations to the approach employed for the NI Competitiveness Index. These include:

1. Issues that arise as a result of adhering to a rigid index framework. The use of such a framework which prevents the inclusion of additional relevant indicators for NI that may provide insight to NI's specific issues.
2. As a national competiveness index, the WEF methodology includes many indicators that are set at a national level and are therefore outside the control of the NI Executive. This in turn means that the Executive have limited scope to influence policy for such indicators.
3. Approximately three quarters of the data compiled to construct the index were from an executive opinion survey, which raises the potential that the data could be skewed by opinion rather than evidence.

2.5 Economic context in NI

The NI economy enjoyed moderate growth during 2014 and 2015 as increasing consumer and business confidence, low interest rates and falling lower oil prices helped to boost domestic demand. UUEPC forecasts for 2016 predict that growth will continue, albeit at a moderate rate (1.7%) as consumer and business confidence is buoyant and the full impact of austerity, even in its current, more moderate guise, is yet to be felt in NI. Weaknesses in global conditions are having a negative impact upon published forecasts.

The reduction in the UK Corporation Tax rate to 18% by 2020 was a positive development for business, underlining the Government's commitment to ensuring that the UK has the most competitive tax regime in the G20[6] demonstrating the importance that the UK Government places on this aspect of competitiveness. The Stormont House Agreement, published in November announced that NI would be granted the power to vary the Corporation Tax rate to 12.5%, providing an additional policy lever to the NI Executive.

The impact of the UK Government austerity policy is expected to feed through to lower rates of economic growth in NI in the medium term to longer term. Whilst austerity is expected to be less severe than originally expected, the UK Government is aiming to balance its budget by 2019. A range of forecasts from key economic commentators in NI demonstrate that the majority expect economic growth to slow in the medium term.

Table 2.2: GVA forecasts[7]

NI GVA Forecasts	2015	2016	2017	2018	2019
UUEPC	1.9%	1.8%	1.6%	1.7%	1.7%
Ulster Bank	1.8%	1.0%	1.0%	1.3%	1.5%
Oxford Economics	1.5%	1.9%	2.0%	1.8%	1.9%
EY	1.7%	1.6%	1.7%	1.6%	1.9%
Danske Bank	1.7%	1.9%	2.1%	1.7%	
PwC	1.5%	1.4%	1.5%		
Average of all	**1.7%**	**1.6%**	**1.6%**	**1.6%**	**1.8%**

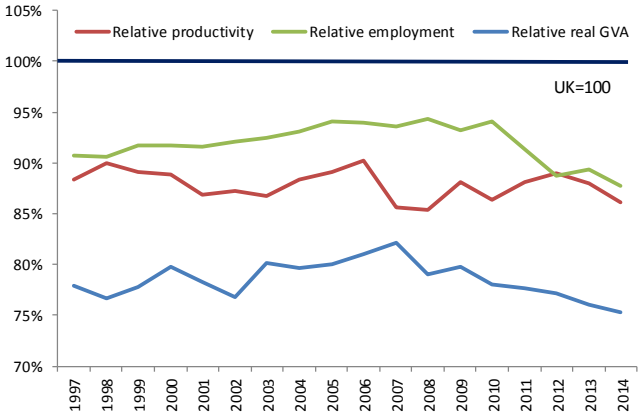
Sources: UUEPC Economic Outlook, Spring 2016
Ulster Bank, Autumn 2015
Oxford Economics, February 2016
PwC Northern Ireland Economic Outlook, February 2016
Danske Bank / Oxford Economics Quarterly Sectoral Forecasts, Quarter 1 2016
EY Economic Eye 2015, Winter 2015

[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/183408/A_guide_to_UK_taxation.pdf
[7] http://www.business.ulster.ac.uk/epc/docs/EPC%206-pager%20low%20res%20V2.pdf

2.6 Existing and future economic challenges

Over many decades, the key economic aspiration has been for NI to catch up to UK average levels of wealth. 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), this indicates the ambition contained within the Programme for Government[8] and Economic Strategy for NI[9] to rebalance the NI economy towards more and higher value added employment.

Figure 2.2 – NI Relative GVA per capita, productivity and employment rate, UK =100, 1997 - 2014



Sources: ONS, UUEPC
Note: Employment is based on workforce jobs measure, productivity is GVA per hour worked.

NI's relative competitiveness will, in its widest sense, be the ultimate determinant of economic success as it will allow firms to compete internationally, deliver sustainable wages to employees and standard of living increases for its citizens. This research will examine the factors that underpin competitiveness in NI and assess its relative position against a range of countries in more than 150 indicators.

[8] http://www.northernireland.gov.uk/pfg
[9] http://www.northernireland.gov.uk/economic-strategy

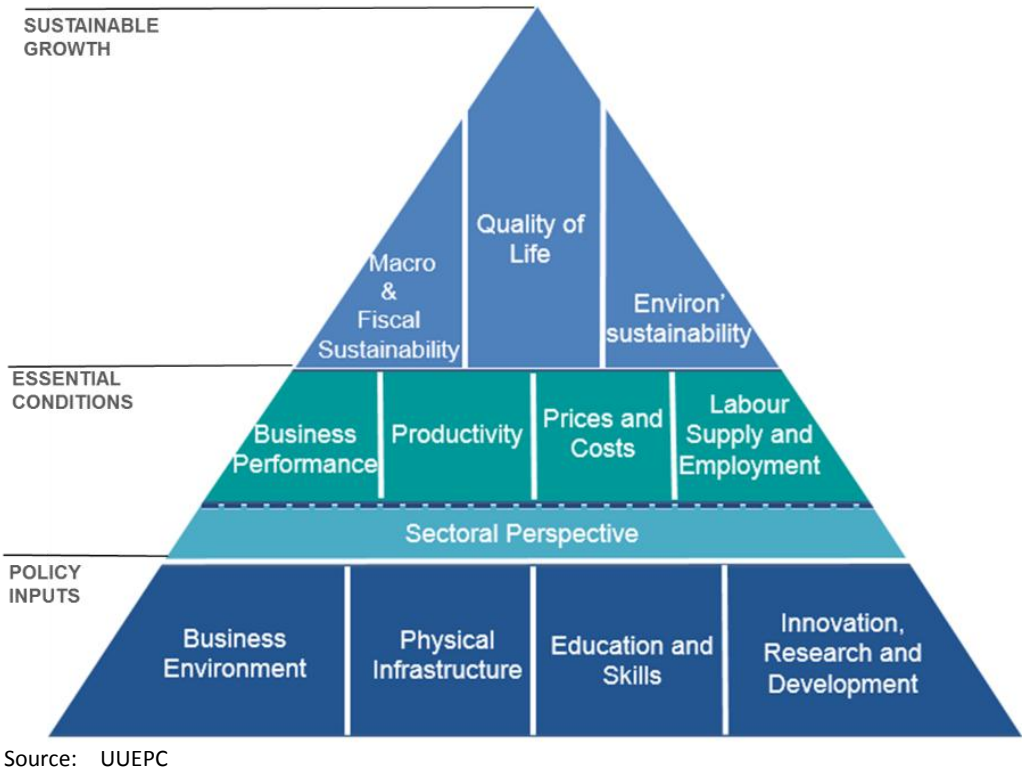
3. Methodology

3.1 The UUEPC Competitiveness Scorecard

The UUEPC competitiveness Scorecard is based upon the Republic of Ireland's National Competitiveness Council's (NCC) Scorecard, which was developed over the last two decades. In line with the NCC Scorecard the UUEPC approach is founded upon the three main themes of sustainable growth, essential conditions and policy inputs and includes more than 150 indicators. The broad base ensures that the Scorecard can identify strengths, weaknesses and changes in direction of travel across many policy areas, with the intention of signposting researchers and policymakers towards areas that require attention.

Where possible, the NCC approach, indicator framework and selection of countries used in the analysis and charts has been replicated exactly. However, as a regional economy within the UK rather than a national economy, data for a number of indicators are not readily available. In some cases, it is possible to use alternative data sources or to estimate a figure for NI using UK:NI relativities. In other cases, indicators have been removed from the scorecard and replaced with a suitable alternative. In a small number of cases, the indicators have been removed entirely as suitable alternatives are not available. Annex 4 provides a detailed comparison of indicators in the NCC Scorecard and the UUEPC Scorecard.

Figure 3.1: UUEPC Competitiveness Scorecard



Source: UUEPC

The UUEPC Scorecard differs from the NCC approach in a number of ways, in order to take account of NI's specific circumstances and current competitiveness research. The differences are the;

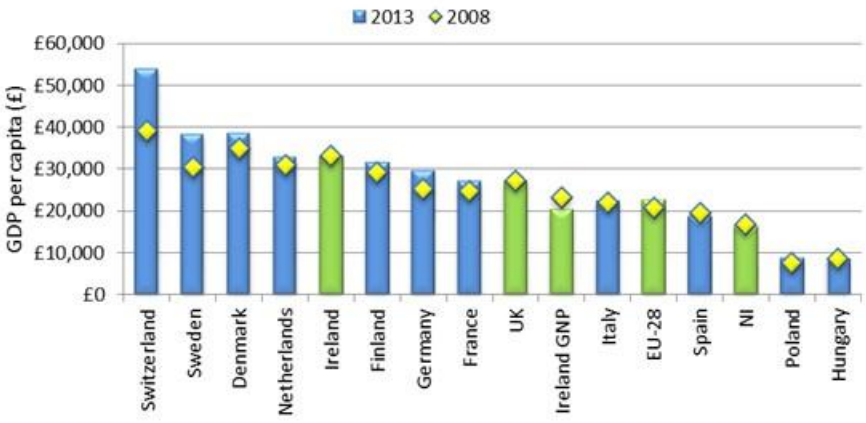
- **Addition of a UK regional perspective** to the research as this provides additional context for NI's performance in relation to the UK as well as other national economies, which can be useful from a policy perspective. There is the potential for the study to be expanded to include a number EU regional economies in the future, thereby providing a more in-depth assessment of NI's competitiveness from a regional perspective;
- **Augmentation of the coverage of Quality of Life indicators**. The reason for this change is that increasingly, measures of wellbeing are being used to assess national progress in conjunction with GDP growth rather than focussing solely on GDP;
- **Addition of a sectoral dimension** to a number of NI indicators in order to assess how the existing structure of the NI economy impacts upon competiveness;
- **Addition of factors relevant to NI** in the policy inputs section where factors such as motorisation rates, road, air and sea infrastructure are relevant to NI's future competitiveness; and
- **Dividing the knowledge infrastructure element** into Skills & Education and Research & Development.

3.2 How to interpret charts and summary tables

All charts and infographics are constructed with the objective of presenting information to the reader in a way that can easily accessible and understood. Some indicators are more challenging than others to interpret and the following guidelines will be useful when interpreting charts and infographics.

Figure 3.2: Gross domestic product per capita at current market prices, 2008-2013

Macroeconomic stability	Rank	Direction of change	Change in decile
GDP per capita at market prices (£)	18 / 34		=



The recession had a significant impact on the NI economy from 2008. The recovery took until 2012 to return to 2008 levels of GDP per capita. By 2013, few countries had recovered beyond 2008 levels. NI remains below the EU28, UK and Irish GDP and GNP levels.

Sources: Eurostat & ukforex
Note: Conversion from Euro's into Sterling is calculated using the average annual exchange rate

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. Colour coding in rankings. The total number of countries is provided to provide perspective and rankings are colour coded green for top third of rankings, amber for middle third and red for bottom third.
4. Where data is 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 decile is used to standardise NI's relative position as the number of countries available varies by indicator. The change in decile(s) is denoted by the number of arrows i.e. two upward arrows represents an improvement of two deciles.
7. It should be noted that the charts will not always include the full list of countries for which data is available (sometime 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 decile 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.

4. Sustainable growth

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

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

- Macroeconomic and fiscal stability: these indicators report on the level and growth of Income, expenditure and taxation;
- Quality of Life: as competitiveness underpins living standards for citizens in NI, this section examines wellbeing, happiness, income, poverty, life expectancy and civic engagement; 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 Macroeconomic and fiscal sustainability

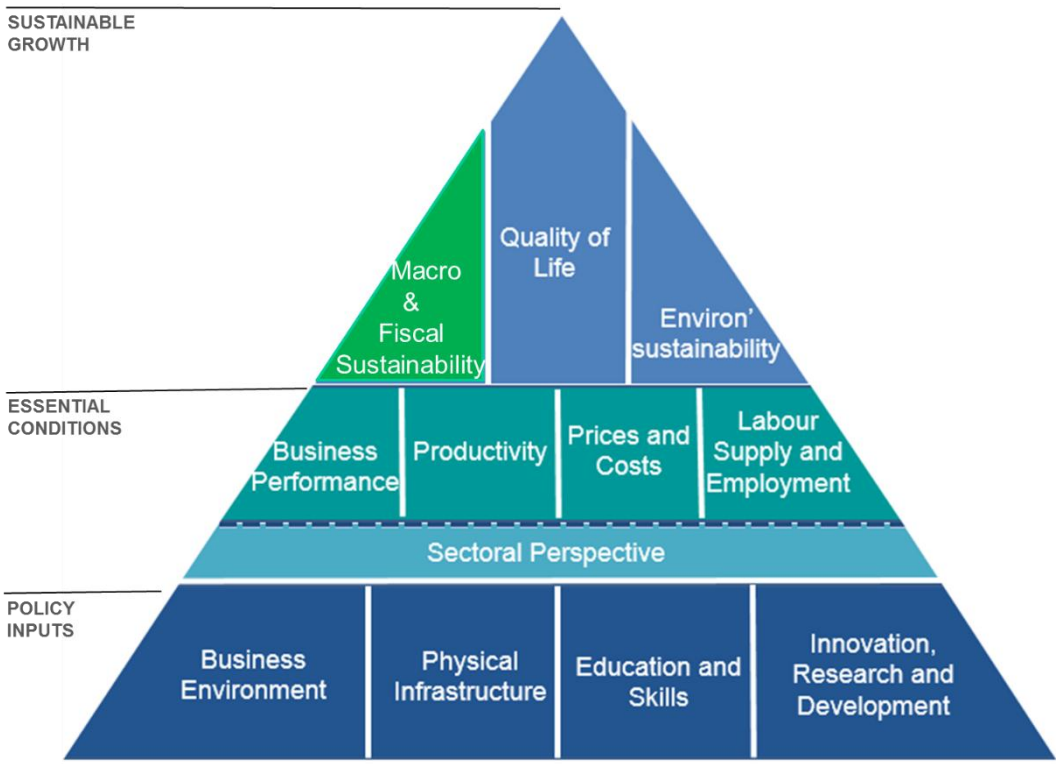
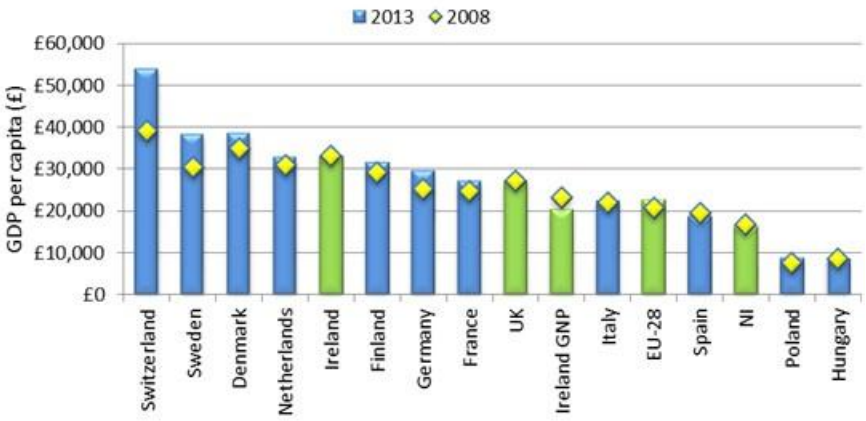


Figure 4.1.1: Gross domestic product per capita at current market prices, 2008-2013

Macroeconomic stability	Rank	Direction of change	Change in decile
GDP per capita at market prices (£)	18 / 34		=

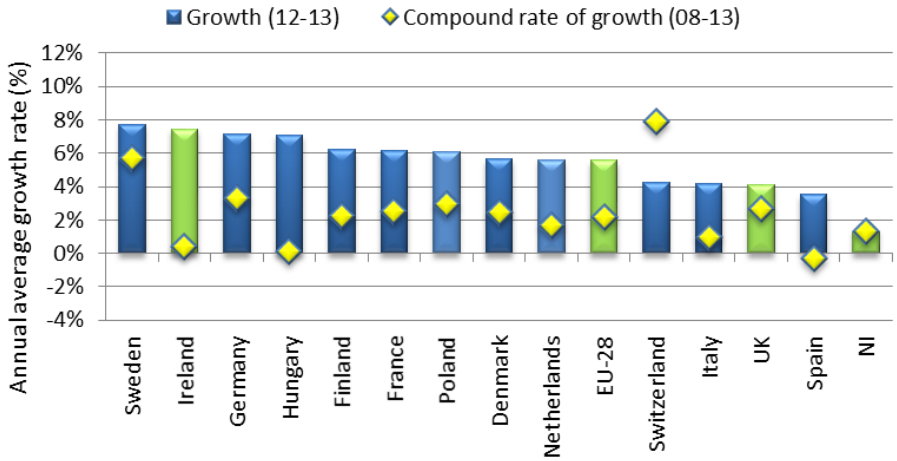


The recession had a significant impact on the NI economy from 2008. The recovery took until 2012 to return to 2008 levels of GDP per capita. By 2013, few countries had recovered beyond 2008 levels. NI remains below the EU28, UK and Irish GDP and GNP levels.

Sources: Eurostat & ukforex
Note: Conversion from Euro's into Sterling is calculated using the average annual exchange rate (€ = £0.796053 in 2008 & € = £0.849099 in 2013)

Figure 4.1.2: Average annual growth rate in gross domestic product per capita at market prices (purchasing power standard), 2008 -13.

Macroeconomic stability	Rank	Direction of change	Change in decile
Average annual growth rate of GDP per capita at market prices (%)	22 / 33		n/a

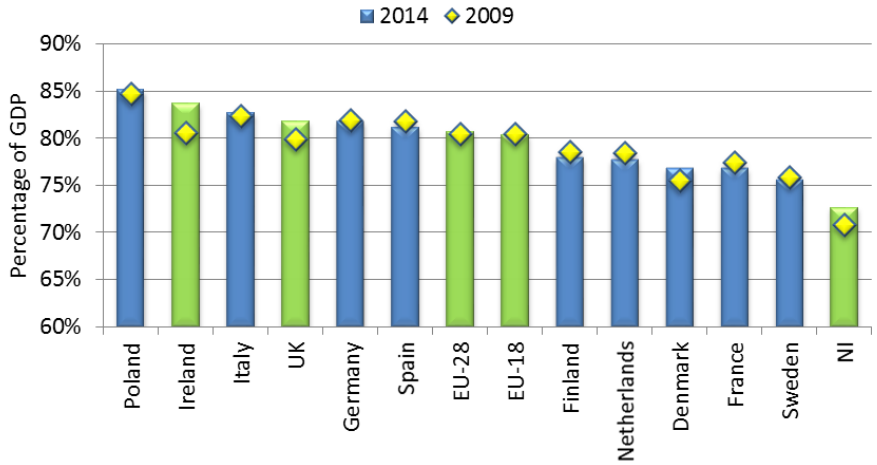


GDP per capita is growing at a moderate rate - 1.3% per annum. The rate of growth over the most recent year is equal to the five-year average, which are both below many of the comparator nations.

Sources: Eurostat & UUEPC

Figure 4.1.3: Private sector GDP as a proportion of total GDP, 2009-2014

Macroeconomic stability	Rank	Direction of change	Change in decile
Private sector GDP as a % of total GDP	31 / 31		=



NI's private sector is small relative to other nations and well below the Irish, UK and EU average levels.

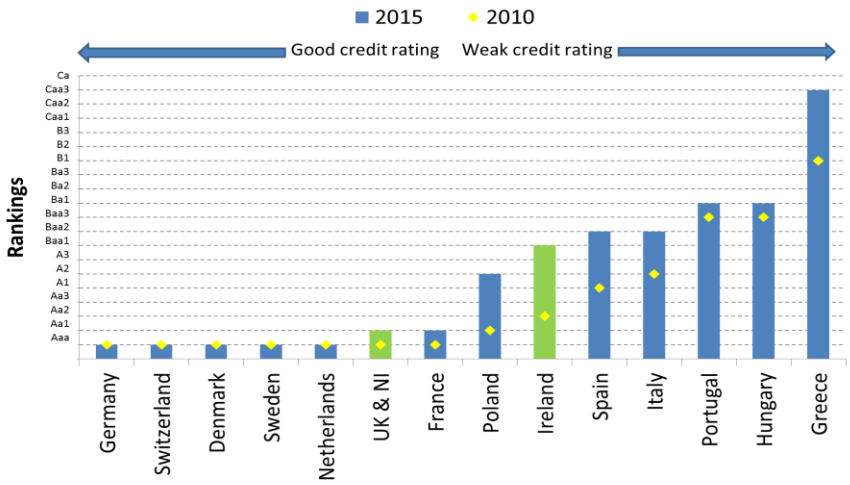
The private sector has grown, relative to the public sector in NI, the UK and Ireland, unlike many other countries.

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[10]. 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.

Figure 4.1.4: National credit ratings, 2010 - 2015

Macroeconomic stability	Rank	Direction of change	Change in decile
National credit ratings	8 / 28		↓↓



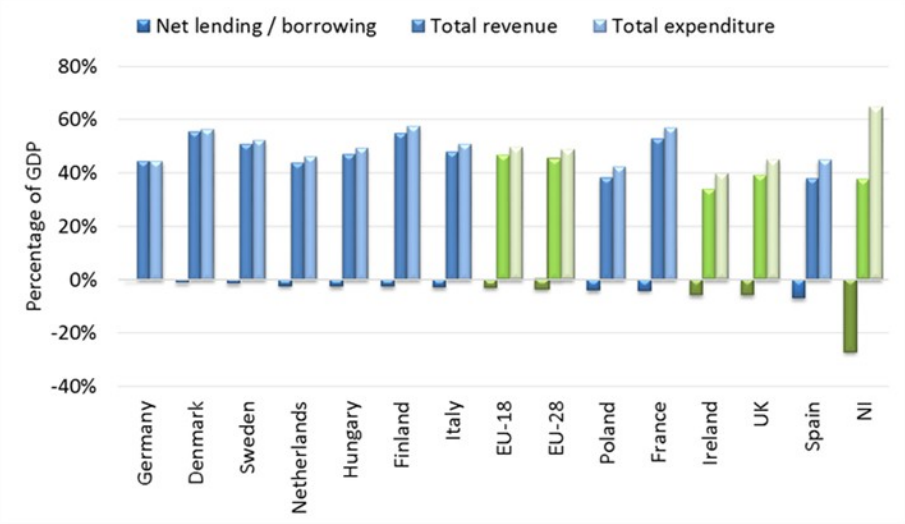
The stability of NI's macroeconomic environment is, to a large extent, determined by UK economic conditions. Whilst credit ratings have reduced in a number of countries, notably Poland, Ireland, Spain and Greece, the UK (and therefore NI) position has declined slightly from AAA to AA1 but is still relatively high.

Sources: Trading Economics & Moody Credit Ratings

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

Figure 4.1.5: Gap between total general government revenue and expenditure, 2008 - 2013

Macroeconomic stability	Rank	Direction of change	Change in decile
General government deficit/surplus	29 / 29		=



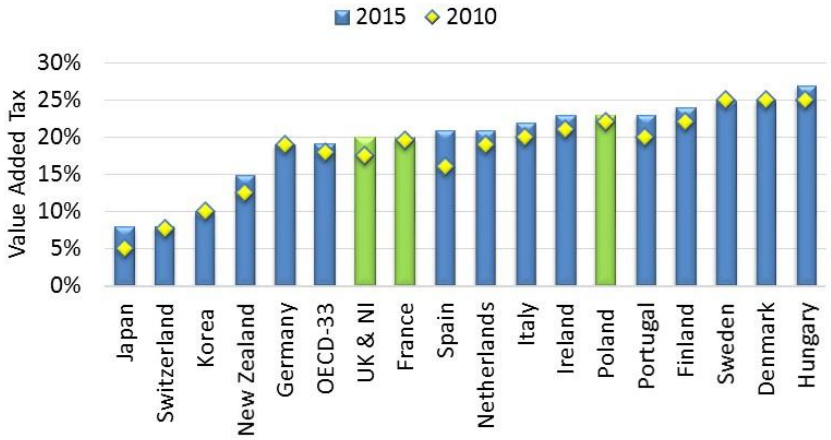
NI Government expenditure (65% of GDP) exceeded revenue (38% of GDP) resulting in a deficit of 27% of GDP, much higher than all other EU countries (EU average deficit of 3%).

It is worth noting that NI is governed as a region of the UK, rather than a nation state and therefore has much less control over taxation and significant elements of expenditure which are set at the UK national level (such as benefits and pensions). Fiscal transfers are not unusual within a political and monetary union, with wealthier regions supporting less wealthy areas. Nevertheless, the scale is important to recognise and linked regional tax raising powers may increase in light of Corporation Tax plans.

Sources: Eurostat, UUEPC, HMRC, Blue Book, ONS & HM Treasury

Figure 4.1.6: Value added tax (standard rate) (%), 2010 – 2015

Macroeconomic stability	Rank	Direction of change	Change in decile
Value added tax (standard rate) (%)	13 / 34		↓

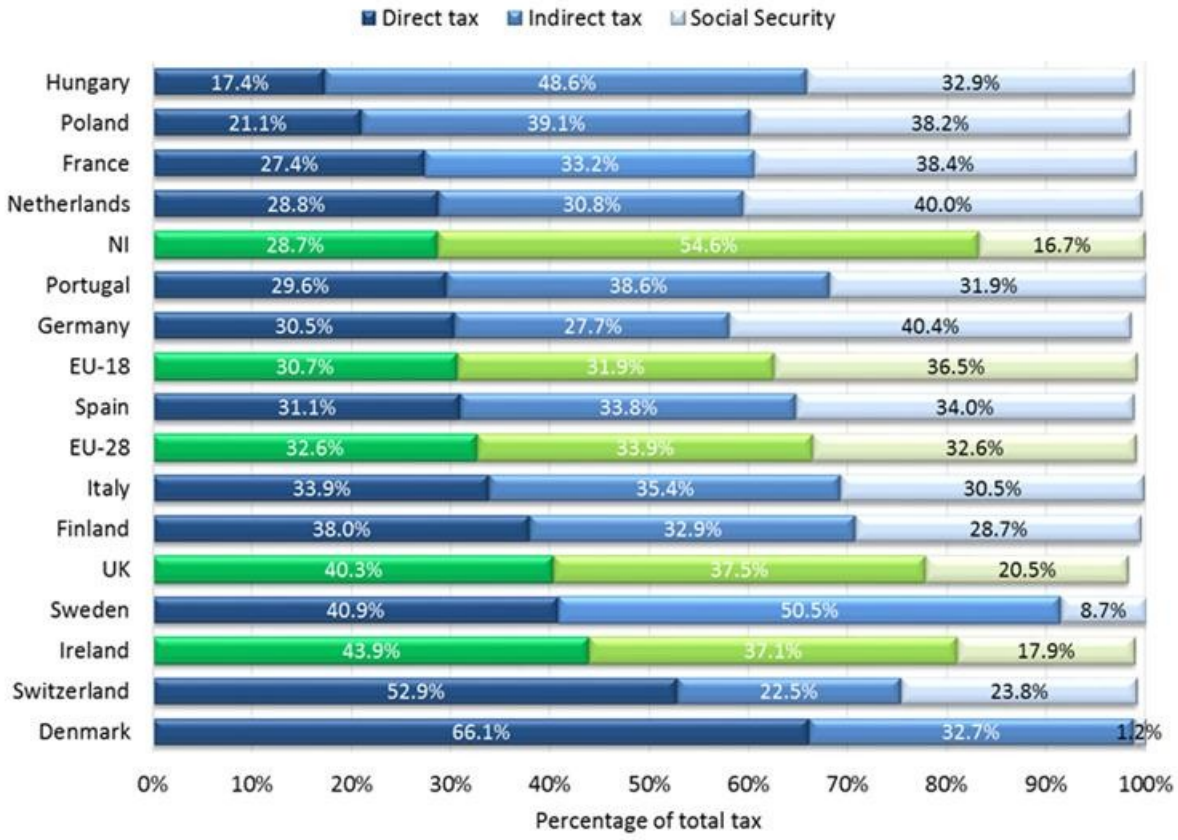


VAT is the primary source of indirect tax revenues for all countries. It is a tax on consumption and can be regressive. NI's VAT rate (of 20%) is set by the UK Government and is relatively competitive compared to other EU countries; however, it has increased from 17.5% in 2010.

Source: OECD

Figure 4.1.7: Breakdown of tax revenue, 2014

Macroeconomic stability	Rank	Direction of change	Change in decile
Tax revenue (Direct)	13 / 28	●	↑↑↑
Tax revenue (Indirect)	28 / 28	●	=
Tax revenue (Social Security)	3 / 28	●	=

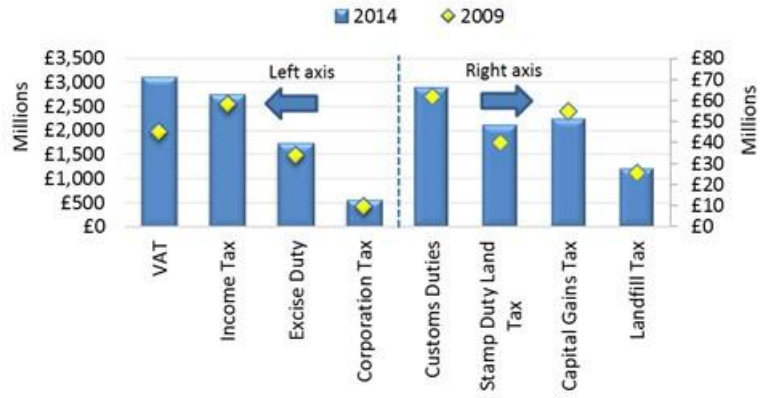


Indirect taxation in NI accounts for more than half (55%) of Government revenue, followed by direct tax (29%) and social security (17%). In contrast, direct tax makes up the majority of Government revenue, accounting for 41.7% and 46% of the total in the UK and Ireland respectively.

It is important to note that such revenue measures do not take account of the benefits which accrue as a result of these payments.

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

Figure 4.1.8: Tax revenue by category in NI, 2009-2014

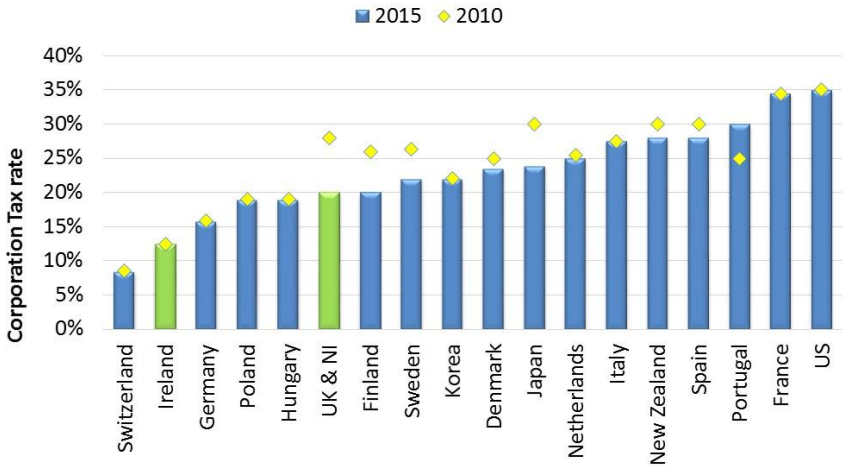


Over the period 2009-2014, NI's tax revenues (both direct and indirect) increased by 21%, from £9.3bn in 2009 to £11.3bn in 2014. A breakdown of revenue by type of tax shows that, revenue from VAT experienced the largest growth over the period (£1.1bn), as a result of increased economic activity and an increase in the rate to 20%.

Source: HMRC

Figure 4.1.9: Central government nominal corporate tax rate (%), 2010 - 2015

Macroeconomic stability	Rank	Direction of change	Change in decile
Central government corporate income tax rate (%)	9/35		↑↑↑↑↑



The Fresh Start Agreement[11] announced that the power to reduce the rate to 12.5% would be devolved to NI in 2018. Once implemented, the NI rate will be one of the most competitive of the countries included in this research.

Over the period 2008-2015, NI's (and the UK's) corporation tax rate has fallen significantly, from 28% and will reduce further to 18% by 2020, however the UK and NI still face tough competition from countries such as Switzerland and Ireland, where the rate has remained steady and low over the same period. The chart below reflects central statutory rates – effective rates in many counties can be significantly lower.

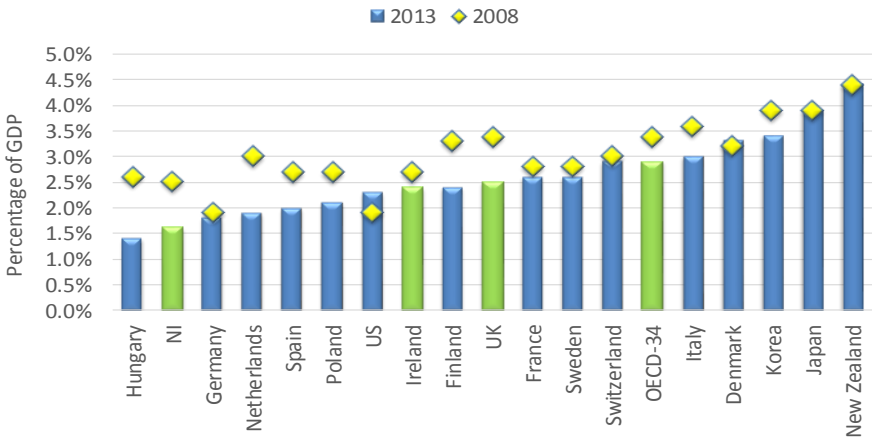
Source: OECD

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, such as the UK and NI, do not have a local Corporate Tax .

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

Figure 4.1.10: Corporation tax receipts (% GDP), 2007/8 - 2013/14

Macroeconomic stability	Rank	Direction of change	Change in decile
Corporation tax receipts (% GDP)	27 / 29		↓↓

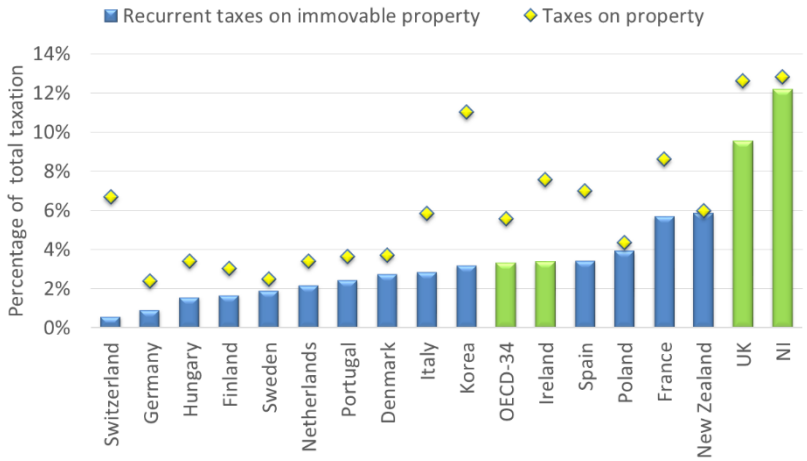


Corporation Tax receipts in NI accounted for 1.6% of GDP in 2013/14, down from 2.5% in 2007/08 and lower than the OECD average of 2.8%. Since 2008, Corporation Taxes as a proportion of national income have fallen across most countries, mainly a result of lower economic activity following the global recession.

Sources: OECD, HMRC, ONS & UUEPC

Figure 4.1.11: Recurrent and total property tax receipts, 2014

Macroeconomic stability	Rank	Direction of change	Change in decile
Total property tax receipts	30 / 30		=
Recurrent taxes on immovable property	29 / 29		=



Total taxes on property include several different elements (e.g. recurrent taxes on immovable property, recurrent taxes on net wealth, estate, inheritance and gift taxes, etc.). Total taxes on property in NI (12.8%) and recurrent taxes (12.2%) are the highest amongst all comparable countries, as a proportion of total taxation.

Sources: OECD & HMRC

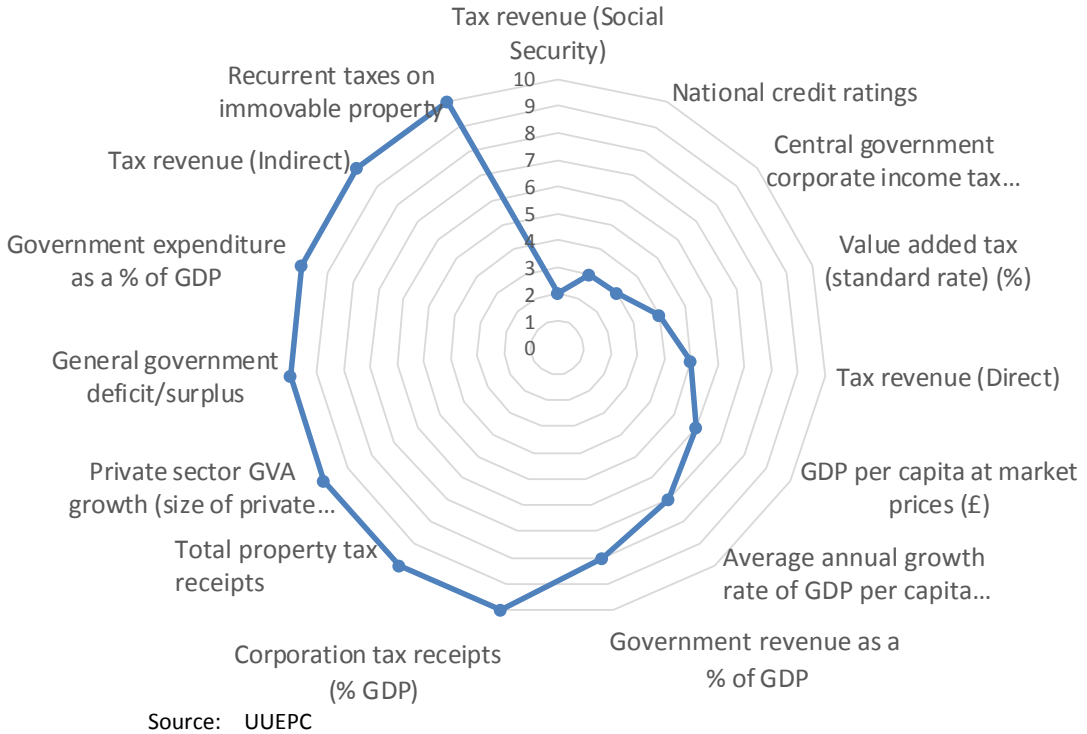
Macroeconomic and fiscal sustainability summary

NI's current position in the macroeconomic and fiscal sustainability element of the Scorecard is determined to a large extent by its historical competitiveness performance and also the relative performance of the UK economy in an international context. Over the past five years NI's relative position has improved, albeit from a low base.

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 NI from many of the challenges that may be faced by a smaller economy. For example, NI benefits from a relatively competitive credit rating, taxation system and the funding regime under the Barnett formula.

NI's private sector is relatively small and the general rate of growth remains subdued. The aim of NI's Programme for Government and Economic Strategy is to grow and rebalance the economy towards a larger and more vibrant private sector. The current UK Corporation Tax rate is relatively low at 20% and the Fresh Start Agreement announced plans to devolve the power to set the rate to the NI Executive. Implementing a 12.5% rate in NI may significantly improve competitiveness for this particular indicator, but it is important to note that the total impact is dependent upon other important factors such as the skill level and business costs.

Figure 4.1.12: Summary of decile placements for macroeconomic and fiscal sustainability indicators



Source: UUEPC

Figure 4.1.13: Summary of macroeconomic and fiscal sustainability indicators

Macroeconomic stability	Rank	Direction of change	Change in decile
GDP per capita at market prices (£)	18 / 34	🔴	=
Average annual growth rate of GDP per capita at market prices (%)	22 / 33	🟡	n/a
Private sector GVA growth (size of private sector - as a % of GDP)	31 / 31	🟢	=
General government deficit/surplus	29 / 29	🔴	=
Government revenue as a % of GDP	23 / 29	🟢	↑↑
Government expenditure as a % of GDP	29 / 29	🟢	=
National credit ratings	8 / 28	🔴	↓↓
Tax revenue (Direct)	13 / 28	🟢	↑↑↑
Tax revenue (Indirect)	28 / 28	🔴	=
Tax revenue (Social Security)	3 / 28	🔴	=
Value added tax (standard rate) (%)	13 / 34	🔴	↓
Central government corporate income tax rate (%)	9 / 35	🟢	↑↑↑↑↑
Corporation tax receipts (% GDP)	28 / 31	🔴	↓
Total property tax receipts	30 / 30	🟢	=
Recurrent taxes on immovable property	29 / 29	🟡	=

Source: UUEPC

4.2 Quality of life

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 more than just GVA per capita, which was the traditional indicator for benchmarking economic progress across countries and regions.

Government policies alongside company practices can combine to generate improvements in the quality of life that in turn can increase the attractiveness of a country or region and 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.

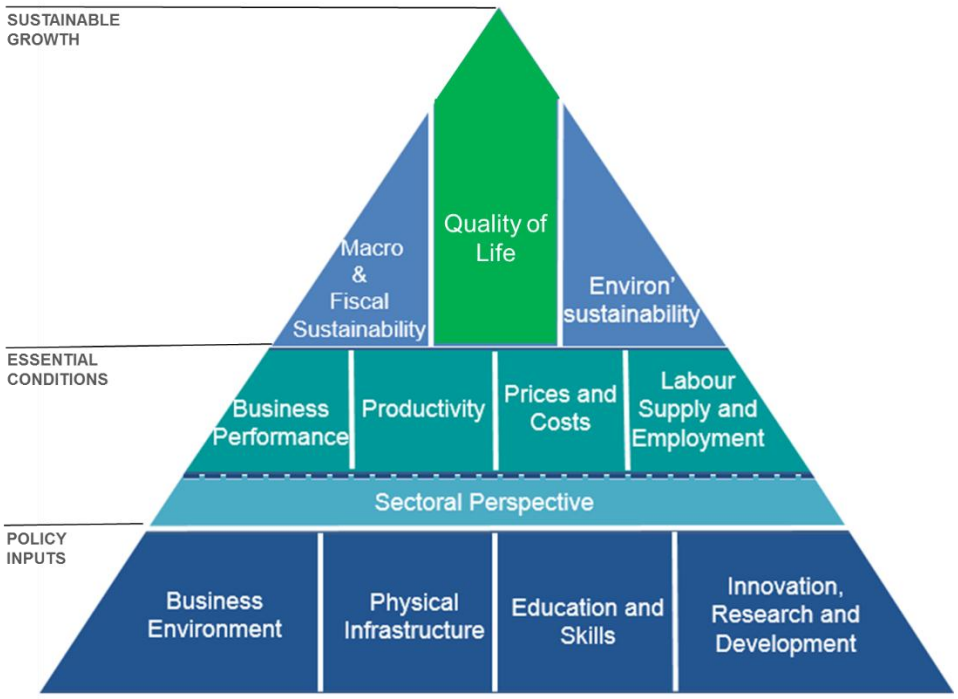
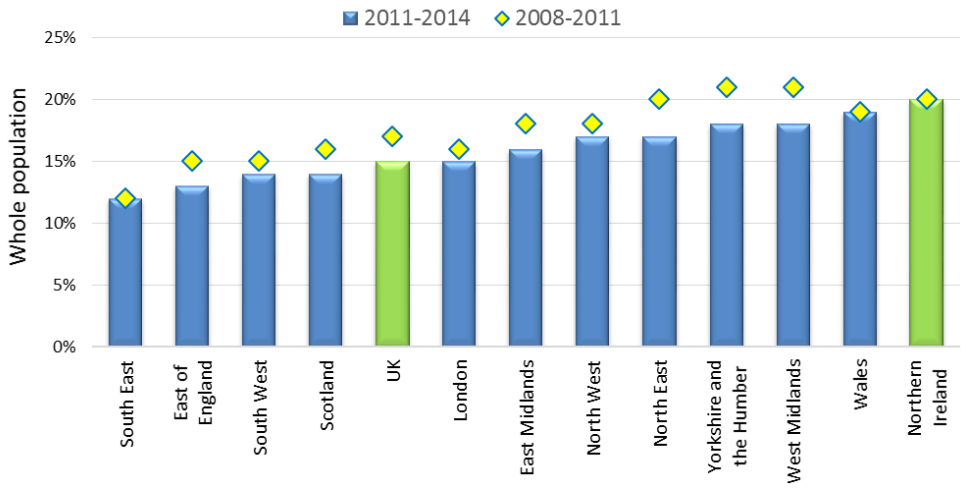


Figure 4.2.1: Proportion of population living in relative poverty before housing costs 2008/11 - 2011/14 (3-year average)

Quality of life	Rank	Direction of change	Change in decile
Relative low income levels (BHC)	12 / 12		↓↓



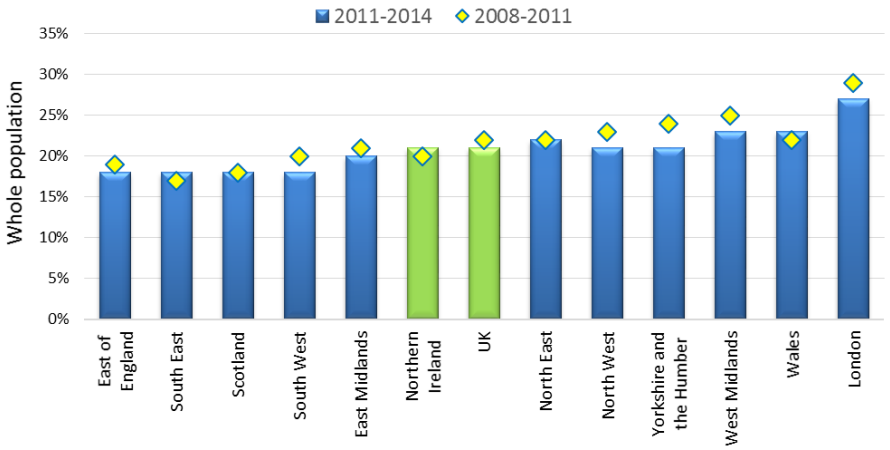
The proportion of the population at risk of poverty in NI before the consideration of housing costs is the highest of all UK regions (20% compared to a UK average of 15%).

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 3 year averages from 2008-2011 and 2011-2014

Figure 4.2.2: Proportion of population living in relative poverty after housing costs 2008/11 - 2011/14 (3-year average)

Quality of life	Rank	Direction of change	Change in decile
Relative low income levels (AHC)	5 / 12		↓



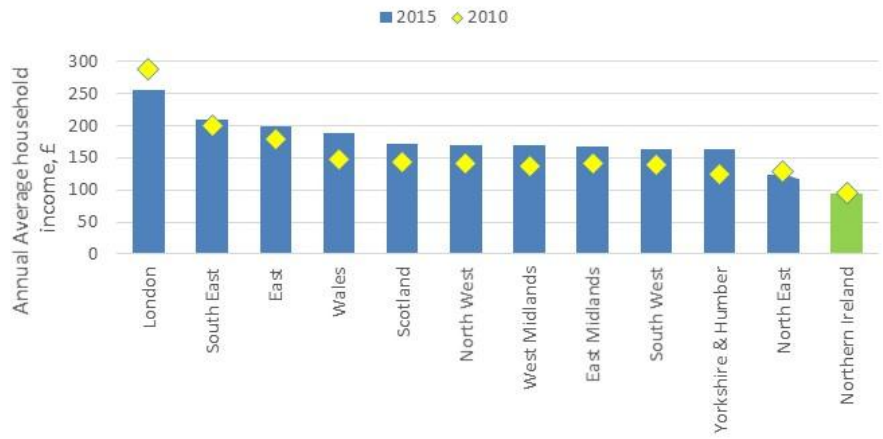
When housing costs (which are lower in NI than many other UK regions) are included in the calculation of relative poverty, NI's relative position improves to 6th, better than the UK average. This is the largest change of the UK regions, illustrating the impact of relatively lower housing costs

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.

Figure 4.2.3: Annual disposable income £ per week, 2010-2015

Quality of life	Rank	Direction of change	Change in decile
Disposable income per week	12 / 12		=



NI's average disposable income per week is the lowest of the UK regions.

Disposable income dipped after 2010, but increased markedly during 2015 to match 2010 levels.

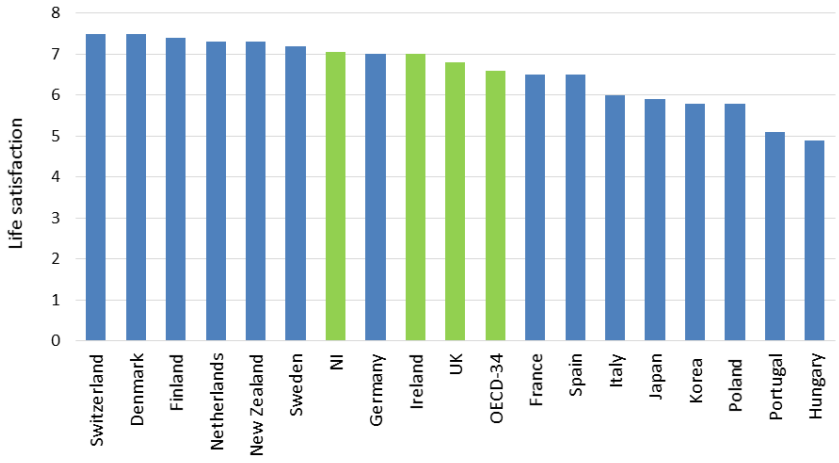
Source: ASDA income tracker

Note: Total household income minus taxes equals net income : Net income minus basic spend equals Asda income tracker

The Asda income tracker is a measure of 'discretionary income', reflecting the amount remaining after the average UK household has had taxes subtracted from their income and bought essential items such as: groceries, electricity, gas, transport costs and mortgage interest payments or rent. The income tracker measures the amount left over to spend on discretionary purchases such as leisure and recreation goods and services.

Figure 4.2.4: Life satisfaction, 2015

Quality of life	Rank	Direction of change	Change in decile
Life satisfaction	7 / 35	n/a	n/a



Among OECD countries, people in NI are amongst the most satisfied with their life.

This indicator demonstrates that life satisfaction is driven by a range of factors in addition to wealth, such as good health, community attachment and environmental factors.

Sources: OECD better life index & ONS Personal wellbeing in the UK

Notes: 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

Figure 4.2.5: UK regional well-being indicators, 2014/15

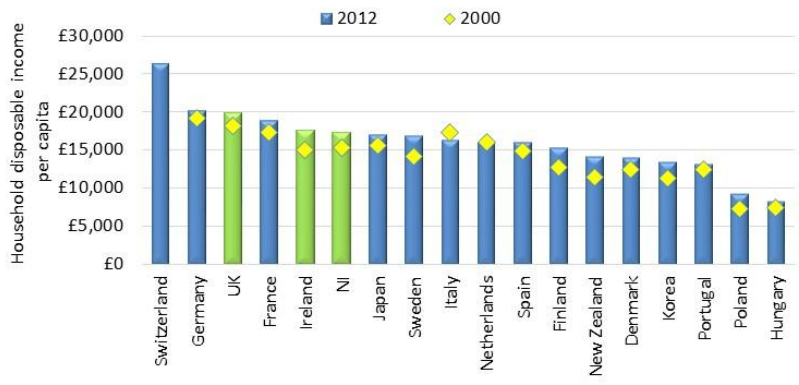
	High rating of satisfaction with their lives overall	Very high rating of how worthwhile the things they do are	Happiness yesterday rated as very high	Anxiety yesterday rated as very low
Northern Ireland	40%	45%	41%	43%
East Midlands	29%	34%	36%	43%
Scotland	29%	33%	34%	41%
North East	29%	33%	33%	40%
Wales	29%	34%	34%	41%
Yorkshire Humberside	28%	36%	35%	41%
South West	30%	36%	35%	40%
South East	30%	35%	35%	41%
UK	29%	34%	34%	41%
England	28%	34%	34%	41%
North West	29%	36%	34%	41%
West Midlands	27%	32%	32%	46%
East	29%	34%	34%	41%
London	25%	32%	31%	36%
NI ranking	**1**	**1**	**1**	**3**

Source: ONS

NI residents reported a greater level of life satisfaction, happiness and feelings of activity being worthwhile than any other UK region. It is also a region where people are generally less anxious. Despite the fact that incomes are lower and one fifth of the population live in poverty, life satisfaction is relatively high in NI. Given NI's past and the levels of recorded illness and poverty, this is a striking finding.

Figure 4.2.6: Real household disposable income per capita, 2000-2012

Quality of life	Rank	Direction of change	Change in decile
Household disposable income per capita	13 / 35		↑



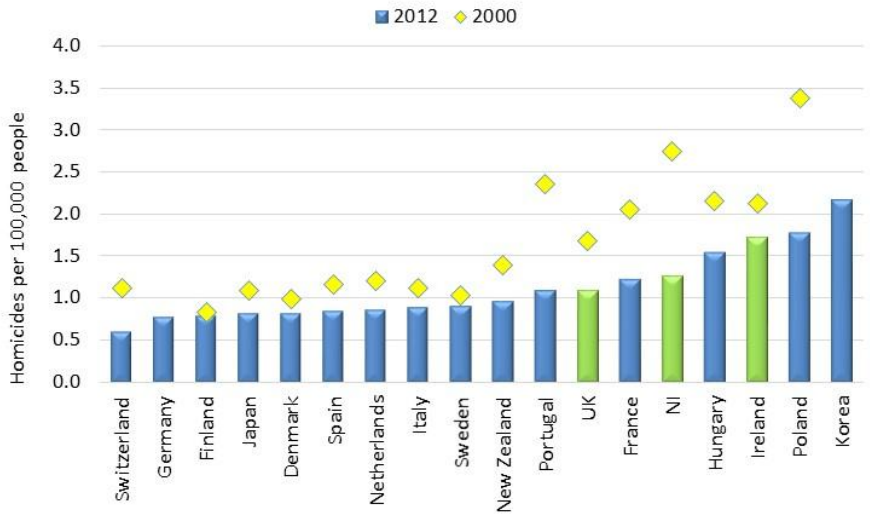
Over the period 2000-2012, household disposable income per capita in NI increased by 13%, to £17,291. NI performs relatively well in this area compared to the OECD average (£15,895 in 2012), however, it still lags behind both the UK (£19,862) and Ireland (£17,630).

Source: OECD

Notes: Data only available for "first" and "last" year within OECD regional well-being indicators
Data for 2000 not available for Switzerland
Data for 2007 not available and therefore, 2000 is used
The OECD Regional Well-Being survey provides two years of data, therefore the direction of travel and change in decile of the indicator are calculated using data from 2000 and 2012

Figure 4.2.7: Homicides per 100,000 people, 2000-2012

Quality of life	Rank	Direction of change	Change in decile
Homicide rate per 100,000 people	19 / 35		↑↑

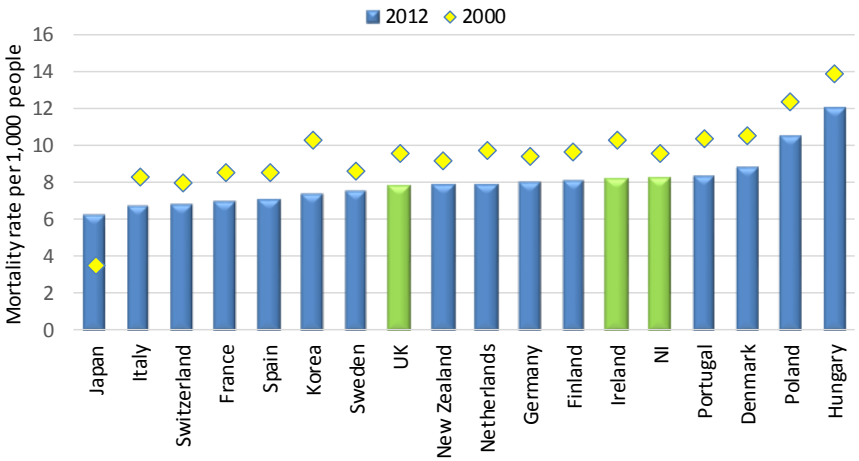


In 2012, NI's homicide rate (1.3 homicides per 100,000 people) was higher than the UK's, but lower than the rate for Ireland and the OECD average (2.1). The rate of homicides in NI has fallen considerably since 2000 (-54%, from 2.8 in 2000 to 1.3 in 2012).

Source: OECD
Notes: Data only available for "first" and "last" year within OECD regional well-being indicators
Data for Germany and Korea are not available for 2000
The OECD Regional Well-Being survey provides two years of data, therefore the direction of change and change in the decile of the indicator are calculated using data from 2000 and 2012

Figure 4.2.8: Deaths per 1,000 people, 2000-2012

Quality of life	Rank	Direction of change	Change in decile
Mortality rate per 1,000 people	23 / 35		↓↓

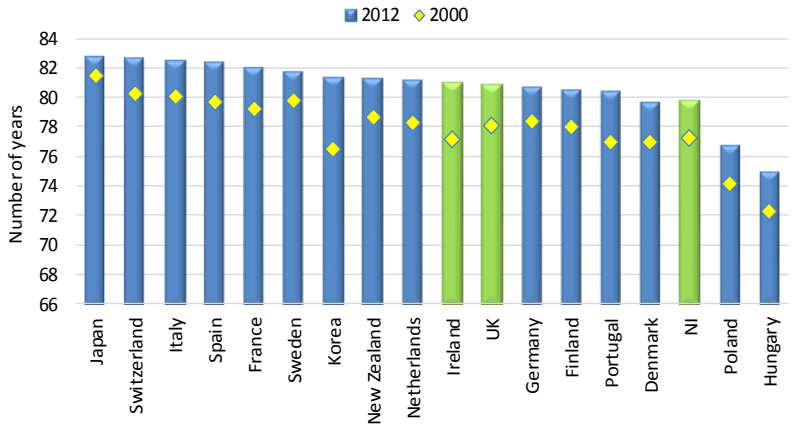


NI's mortality rate was marginally above the rate for Ireland and the UK. The mortality rate has declined since 2000.

Source: OECD
Notes: Data only available for "first" and "last" year within OECD regional well-being indicators
The OECD Regional Well-Being survey provides two years of data, therefore the direction of travel and change in decile of the indicator are calculated using data from 2000 and 2012
Data for 2007 not available and therefore, 2000 is used

Figure 4.2.9: Average life expectancy (years), 2000-2012

Quality of life	Rank	Direction of change	Change in decile
Life expectancy (number of years)	26 / 35		↓



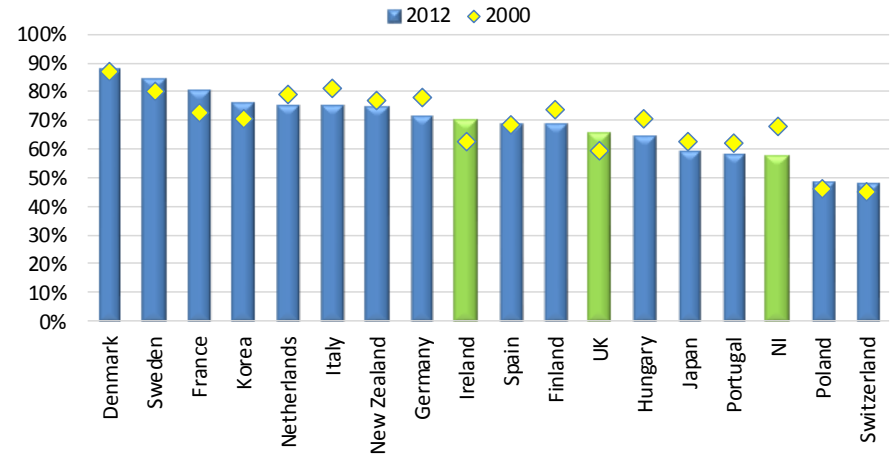
Life expectancy has increased in NI since 2000, although it lags the Irish and UK averages slightly. Average life expectancy increased the most in Ireland over the 12-year period, whilst NI and the UK witnessed improvements of a similar magnitude.

The change in decile shows that whilst average life expectancies are improving in NI, they are doing so at a lower rate than elsewhere.

Source: OECD Regional Well-Being Survey
Notes: Data only available for "first" and "last" year within OECD regional well-being indicators
The OECD Regional Well-Being survey provides two years of data, therefore the direction of travel and change in decile of the indicator are calculated using data from 2000 and 2012
Data for 2007 not available and therefore, 2000 is used

Figure 4.2.10: Voter turnout (as a % of registered voters), 2000-2012

Quality of life	Rank	Direction of change	Change in decile
Voter turnout	31 / 35		↓↓

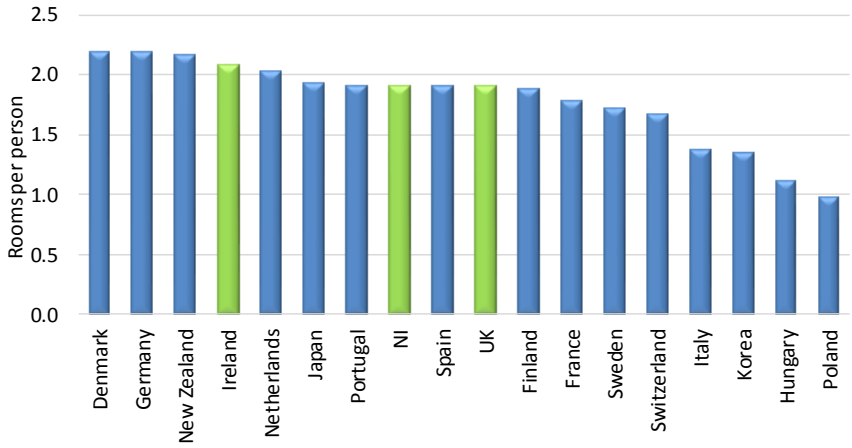


In 2012, NI had a civic engagement rate (% of registered voters who voted during the last elections) of 57.6%. This is relatively low compared to the UK (65.1%), Ireland (69.9%) and the OECD average (70.1%). Moreover, the rate in NI has fallen from 68% in 2000.

Source: OECD
Notes: The OECD Regional Well-Being survey provides two years of data, therefore the direction of travel and change in decile of the indicator are calculated using data from 2000 and 2012
Data for 2007 not available and therefore, 2000 is used

Figure 4.2.11: Number of rooms per person, 2007 – 2012

Quality of life	Rank	Direction of change	Change in decile
Number of rooms per person	13/35	n/a	n/a

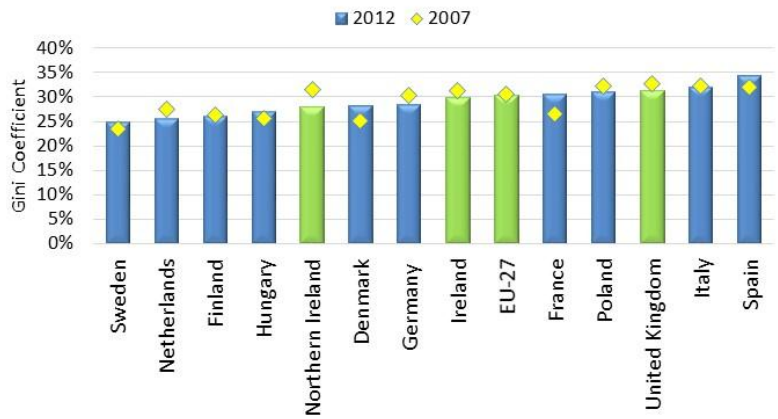


In 2012, the average number of rooms per person in NI was 1.9. NI compared favourably with the UK and OECD average, although Ireland edged ahead of NI. Whilst time series data is not available NI is in the top half of the rankings by country, which is a reasonable performance, although it should be noted that this indicator does not measure of the quality of the available housing stock.

Source: OECD
Notes: The OECD Regional Well-Being survey provides one year of data for this indicator
Data for 2007 not available

Figure 4.2.12 Gini coefficients, 2007-2012

Quality of life	Rank	Direction of change	Change in decile
Income inequality (Gini coefficient)	11/29		↑↑↑



The Gini coefficient is the most widely used summary measure of inequality in the distribution of household income. It is measured on a scale of 0% - 100% where the lower its value, the more equally household income is distributed across society. NI is a more equal society in terms of income distribution than both the UK and Ireland and is located within the third decile amongst the European countries. Generally, the level of inequality has been on the decline since 2008, with NI's figure decreasing from 32% to 28%. It would appear that this change is due to reducing incomes at the top end of the spectrum as a result of the recession, rather than a significant increase in incomes at the bottom end.

Sources: Eurostat, UUEPC &HBAI

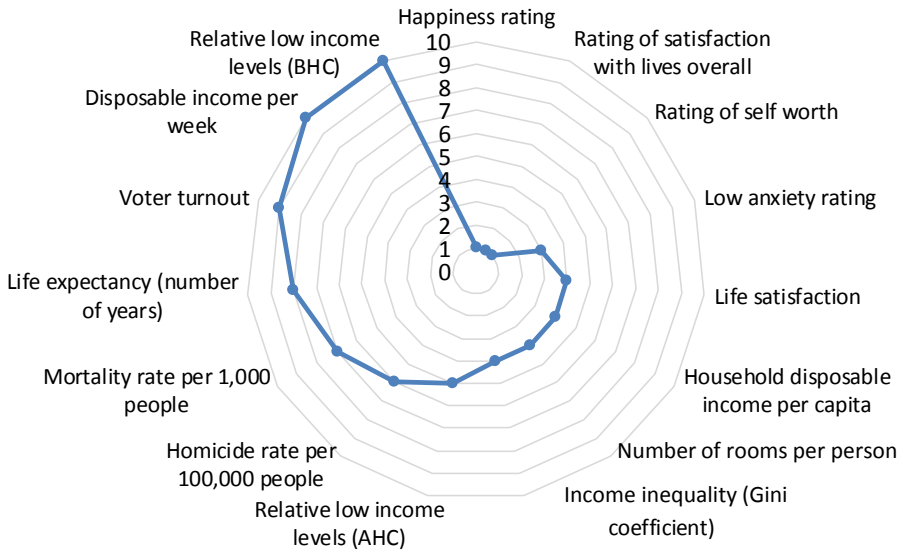
Summary of quality of life Indicators

Quality of life is one of the best performing pillars in the Competitiveness Scorecard, with a respectable mid-table performance (5.3). NI has improved in a number of indictors contained within this pillar of the Scorecard over the past five years. Household incomes have increased, homicide rates have reduced, 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 relatively high levels of poverty, illness and NI's past.

Poverty levels remain high, although lower housing costs in NI help to alleviate the issue relative to other regions of the UK and disposable incomes remain the lowest of the UK regions. Whilst the homicide rate has reduced markedly, it remains relatively high in an international context. Life expectancy has increased, but continues to lag the UK and Ireland. Civic engagement suffered from a large reduction over the five-year period with voter turnout reducing by 15%, ahead of only Slovenia, Mexico, Switzerland and Poland out of the 35 countries included in this measure.

The quality of life element of the Scorecard demonstrates that the wellbeing of a nation or region cannot be measured by national income alone. Despite low incomes, relative poverty and lower life expectancies, people in NI report that they are the most satisfied and happiest in the UK and therefore, it is clear that factors other than income play a large part in determining how happy or well people are.

Figure 4.2.13: Summary of decile placements for quality of life indicators



Source: UUEPC

Figure 4.2.14: Summary of quality of life indicators

International comparisons

Quality of life	Rank	Direction of change	Change in decile
Household disposable income per capita	13 / 35		↑
Homicide rate per 100,000 people	19 / 35		↑↑
Mortality rate per 1,000 people	23 / 35		↓↓
Life expectancy (number of years)	26 / 35		↓
Voter turnout	31 / 35		↓↓
Number of rooms per person	13 / 35	n/a	n/a
Life satisfaction	12 / 35	n/a	n/a
Income inequality (Gini coefficient)	11 / 29		↑↑↑

UK regional comparisons

Quality of life	Rank	Direction of change	Change in decile
Relative low income levels (AHC)	5 / 12		↓
Relative low income levels (BHC)	12 / 12		↓↓
Rating of satisfaction with lives overall	1 / 12		=
Rating of self worth	1 / 12		=
Happiness rating	1 / 12		↑↑↑
Low anxiety rating	3 / 12		↓

4.3 Environmental sustainability

The environmental sustainability of an economy has a direct impact on its competitiveness. For example, if pollution levels in an economy are high this could have a negative effect on health, which in turn can impact negatively upon both the size and productivity of the available labour stock

In addition, if an economy is heavily reliant on imported energy, domestic energy policy will have limited ability to influence prices, which could impact upon competitiveness and attractiveness of the area to potential investors.

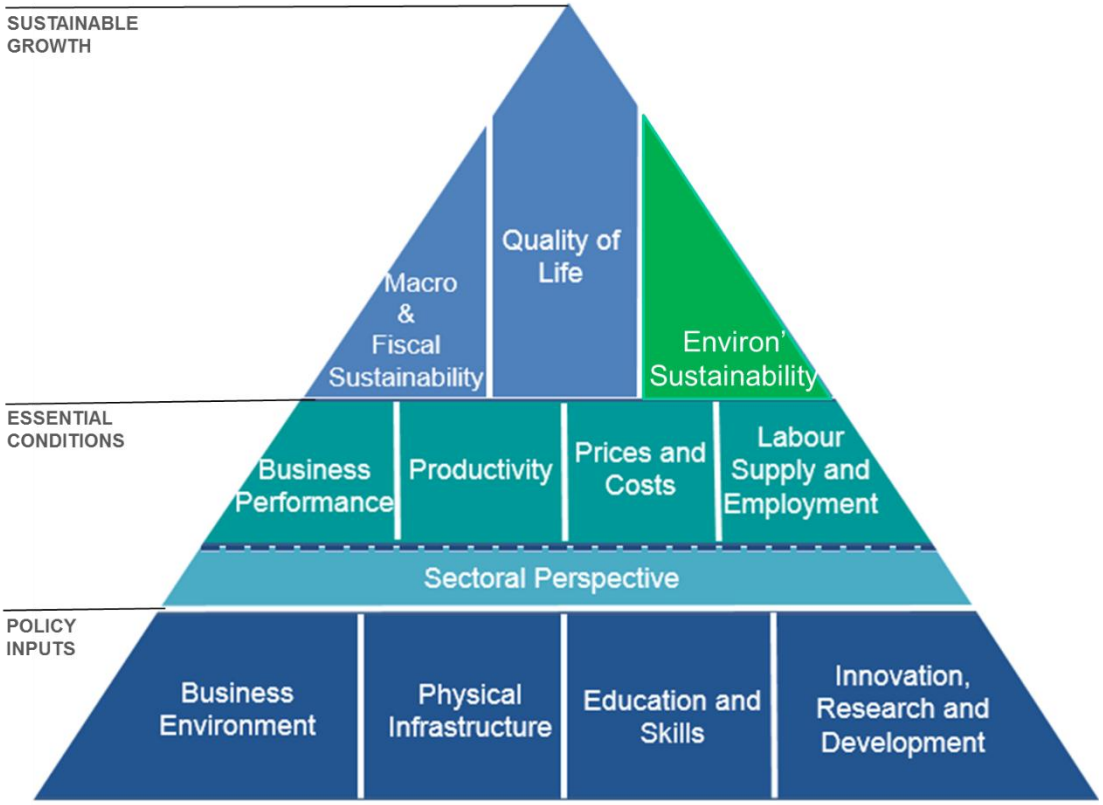
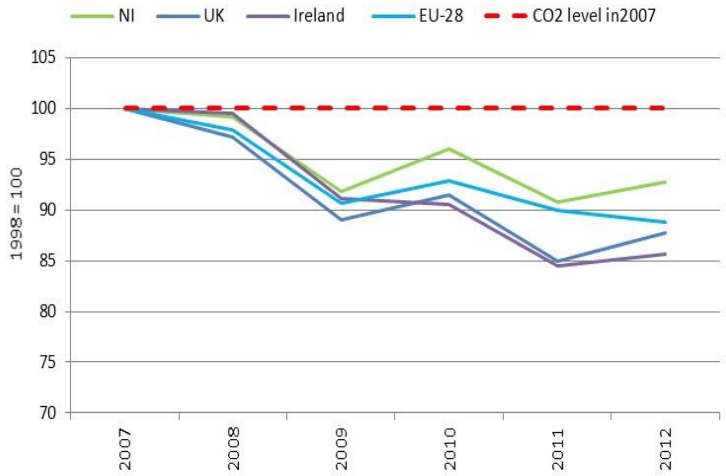


Figure 4.3.1: Total greenhouse gas emissions (indexed to 2007), 2007 – 2012

Environmental sustainability	Rank	Direction of change	Change in decile
Level of greenhouse gas emissions	18 / 32		↑↑

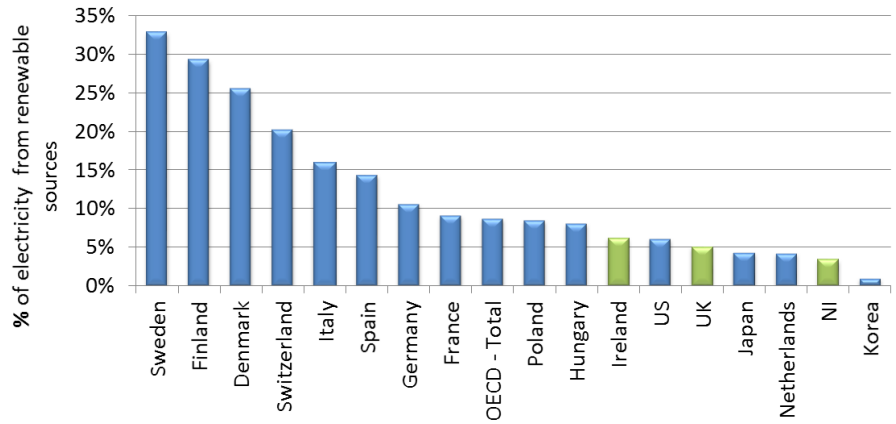


NI's CO^2 emission levels have been decreasing since 2007. NI is now ranked 18th of the 32 countries for which data is available. 2011 saw emissions reach their lowest levels since 2007.

Sources: Department for the Environment and Climate Change & European Energy Agency

Figure 4.3.2: Percentage of energy generated from renewable sources, 2013

Environmental sustainability	Rank	Direction of change	Change in decile
% of energy from renewable sources	34 / 35		=

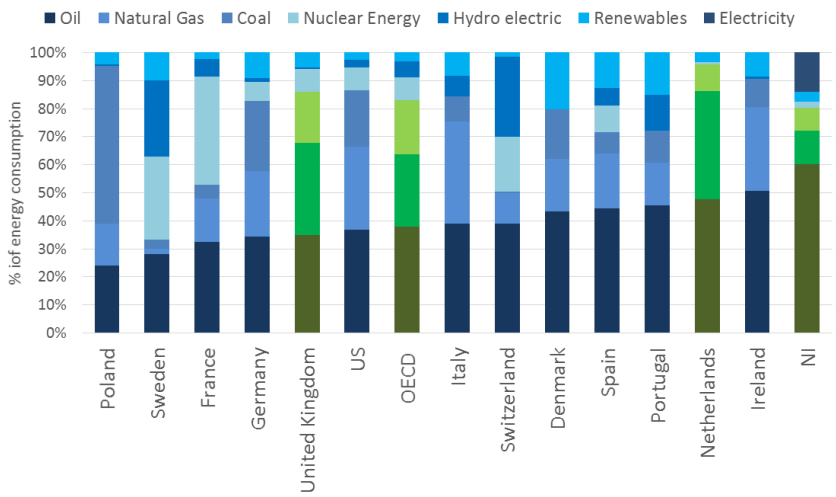


Renewable sources accounted for 3.4% of NI's energy requirements in 2013. Significant advances have been made in terms of renewable electricity generation, but these are small in relation to overall energy requirements.

Sources: DECC, DETI & OECD

Figure 4.3.3: Components of energy consumption per capita, 2013

Environmental sustainability	Rank	Direction of change	Change in decile
Oil dependency (% of total consumption)	29 / 29		n/a



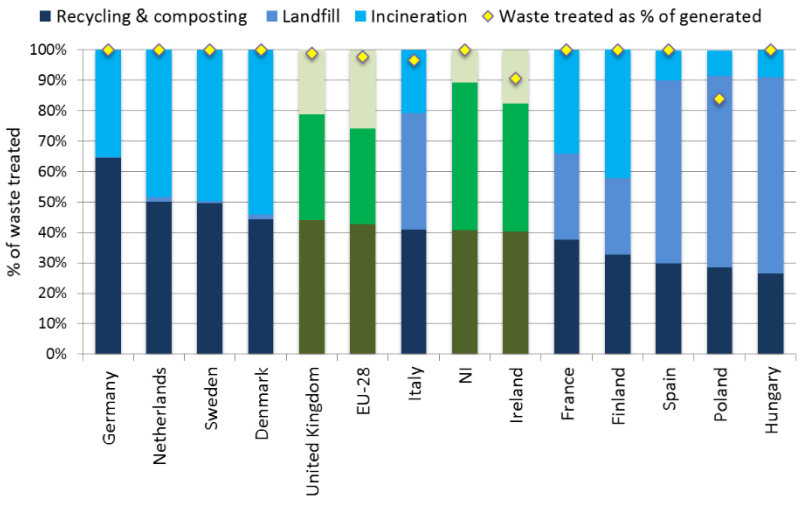
NI is heavily dependent on oil and gas imports to meet its energy consumption requirements - much greater than the OECD average of 38%.

Renewable energy accounted for 3% of NI energy consumption in 2013 which is equal to the OECD average of 3.1%.

Source: BP Statistical Review of World Energy 2014 & DUKES
Note: The data for manufactured fuels & petroleum products have been combined to calculate the total oil consumption for NI

Figure 4.3.4: Municipal waste generated and treatment, 2013

Environmental sustainability	Rank	Direction of change	Change in decile
Muncipal waste generated (KG per capita)	20 / 29		=



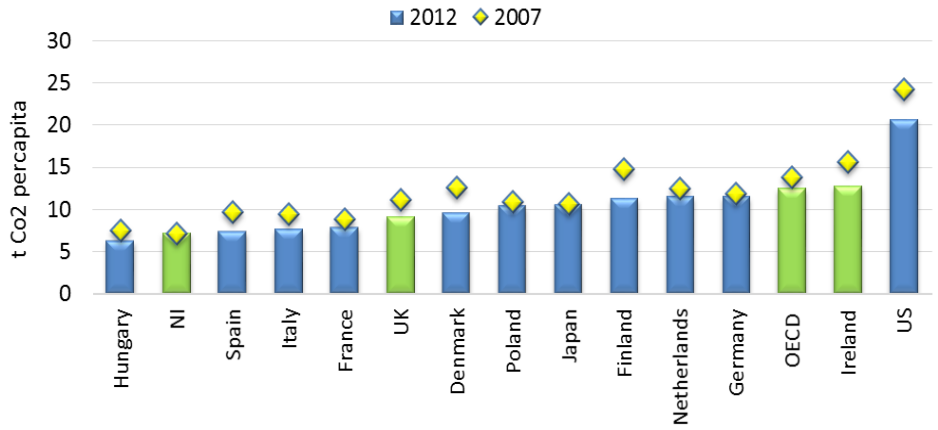
The amount of waste generated per capita in NI was 518kg during 2013, 8% more than the EU average (481kg). All of the waste generated in NI is treated, although 49% is landfilled, which is above the EU average of 43%.

Relative to other European countries, NI is less competitive in terms of waste generated and treated.

Sources: Eurostat & NI Environment Agency
Note: The direction of travel and change are calculated 2009 as a baseline

Figure 4.3.5: Greenhouse gas emissions per capita (t CO^2 per person), 2007-2012

Environmental sustainability	Rank	Direction of change	Change in decile
Greenhouse gas emissions (t CO2 per capita)	6 / 31		↑

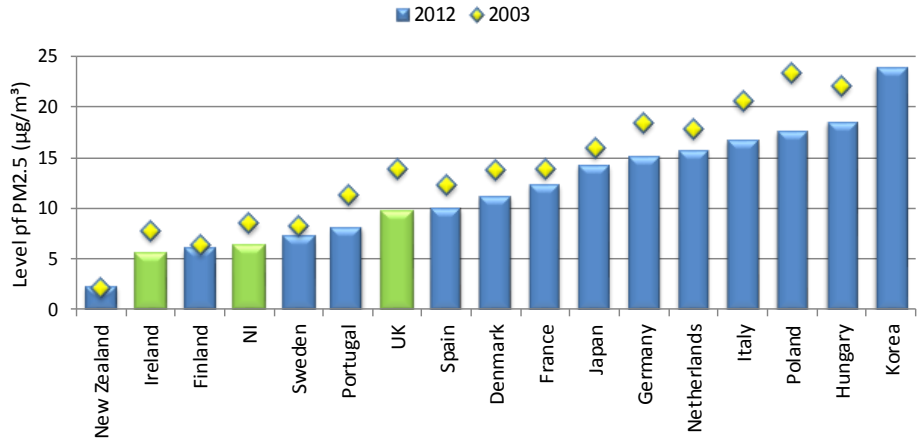


Over the period 2007-2012, greenhouse gas emissions per capita (t CO^2 per person) fell by 13% in NI, from 7.2t CO2 per person in 2007 to 7.1t CO^2 per person in 2012, due to both the recession and increasing demands for improved environmental efficiency. Overall, NI performs relatively well in this indicator and in 2012, had lower greenhouse gas emissions per capita than the UK (9.2) and Ireland (12.8).

Sources: Department for the Environment and Climate Change & OECD
Note: OECD EU rank excludes Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania

Figure 4.3.6: Exposure to air pollution (level of PM2.5), 2003 – 2012

Environmental sustainability	Rank	Direction of change	Change in decile
Exposure to air pollution (level of PM2.5)	7 / 35		↑



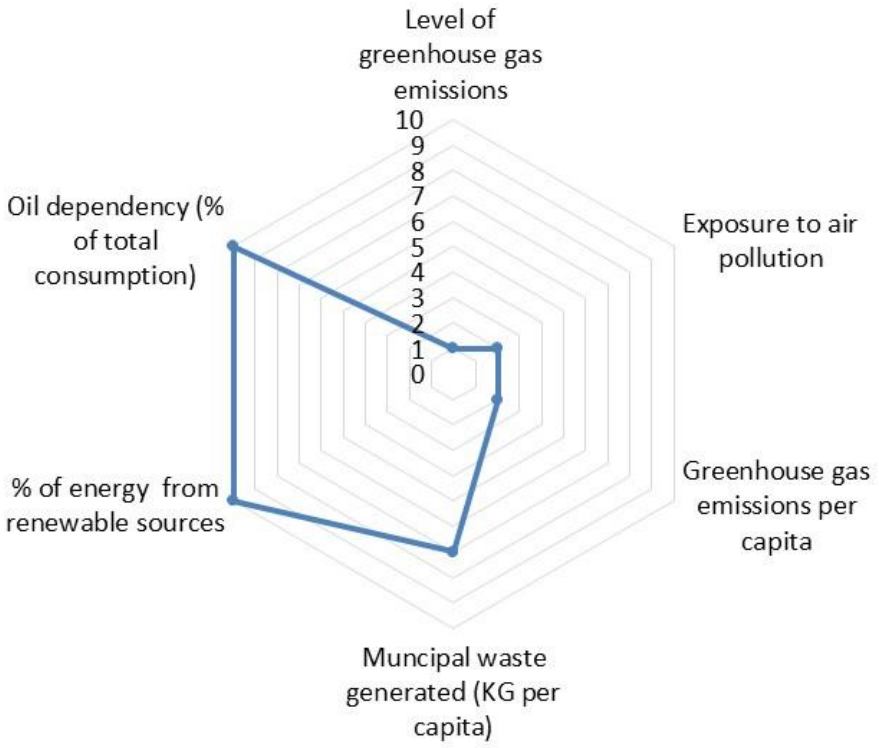
NI performed well in terms of air pollution, lower than most other EU countries and the UK average. It is encouraging to note the NI has improved its position over the past five years, from a strong base position. Given NI's geographical location on the west of Europe, and prevailing weather systems, it is reasonable to expect that levels of air pollution in NI and Ireland should remain low.

Source: OECD
Notes: The OECD Regional Well-Being survey provides two years of data, therefore the direction of travel and change in decile of the indicator are calculated using data from 2003 and 2012
Data for 2007 not available

Summary of environmental sustainability

NI performs very well in some elements of environmental sustainability, but very poorly in others, with the result that NI is below average in terms of its relative performance in this pillar (6.5). Environmental sustainability is a story of two halves, performing very well in terms of low levels of greenhouse gas emissions and consequently low levels of air pollution. In contrast, NI generates relatively high levels of waste per capita, is heavily dependent on imported oil and generates only a small proportion of energy from renewable sources despite large advances in this area. As a result, NI's dependency on imported fuels exposes NI to significant risks in terms of future price rises and security of supply.

Figure 4.3.7: Summary of decile placements for environmental sustainability indicators



Source: UUEPC

Figure 4.3.8: Summary of Environmental sustainability rankings by indicator

Environmental sustainability	Rank	Direction of change	Change in decile
Level of greenhouse gas emissions	18/32	●	↑↑
Greenhouse gas emissions per capita	6/31	●	↑
% of energy from renewable sources	34/35	●	=
Muncipal waste generated (KG per capita)	20/29	●	=
Exposure to air pollution	7/35	●	↑
Oil dependency (% of total consumption)	29/29	●	=

Source: UUEPC

5. Essential Conditions

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 in the Scorecard.

5.1 Business performance

The business performance of a location has a direct impact on the amount of profit a company can make. For this reason, all investors (both foreign and indigenous) will consider the business performance of a location before committing to set up a new entity or expanding its existing presence in the country. This, in turn, impacts income and employment levels throughout the economy and thus feeds through to government expenditure. The remainder of this sub-section considers 2 key business performance indicator areas; investment (including entrepreneurship) and trade.

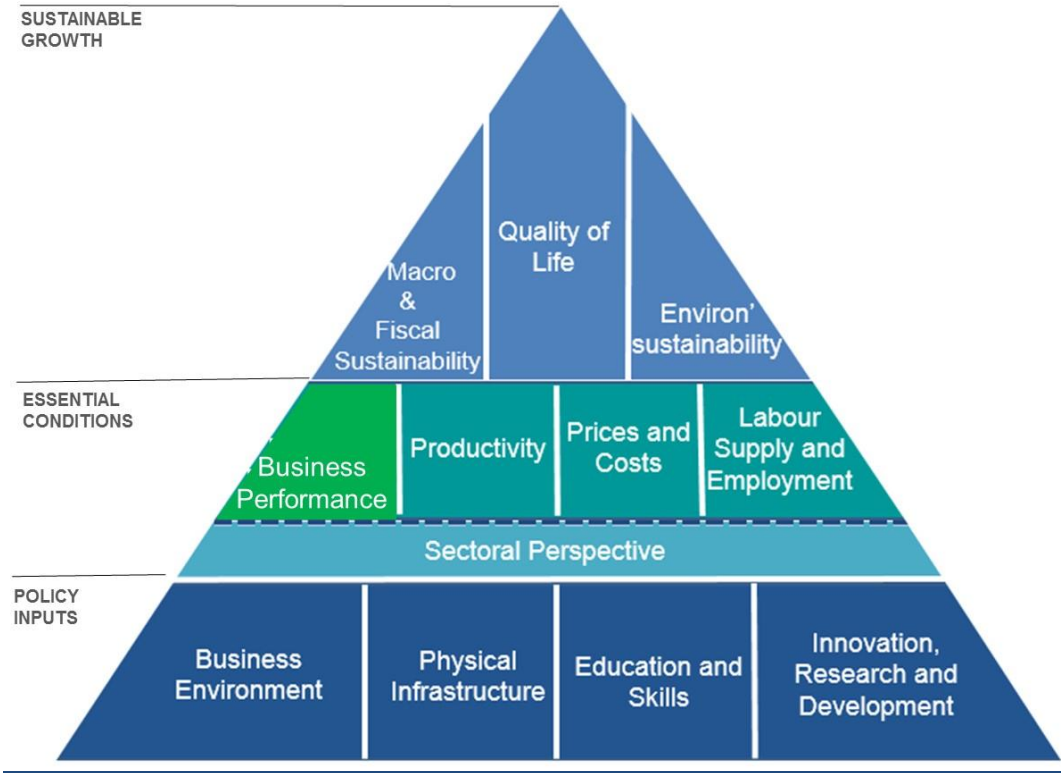
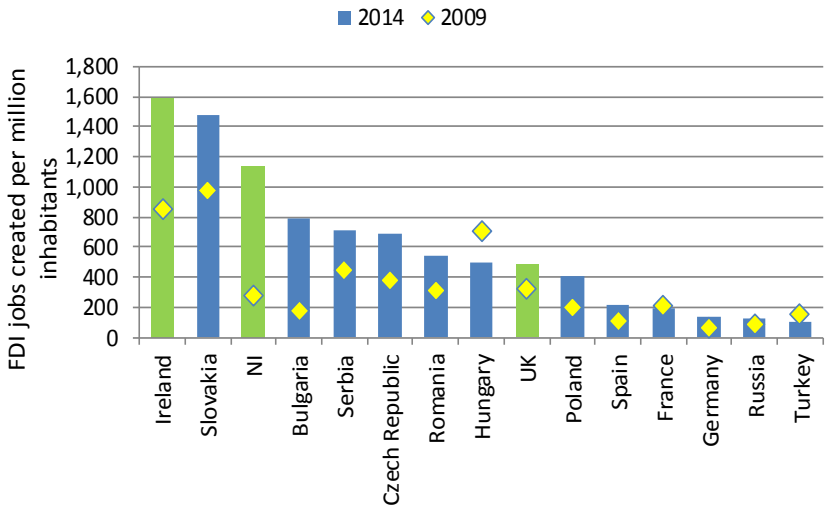


Figure 5.1.1: FDI jobs created per million inhabitants, 2009-2014

Business performance	Rank	Direction of change	Change in decile
FDI jobs created per million inhabitants	3 / 15		↑↑↑↑

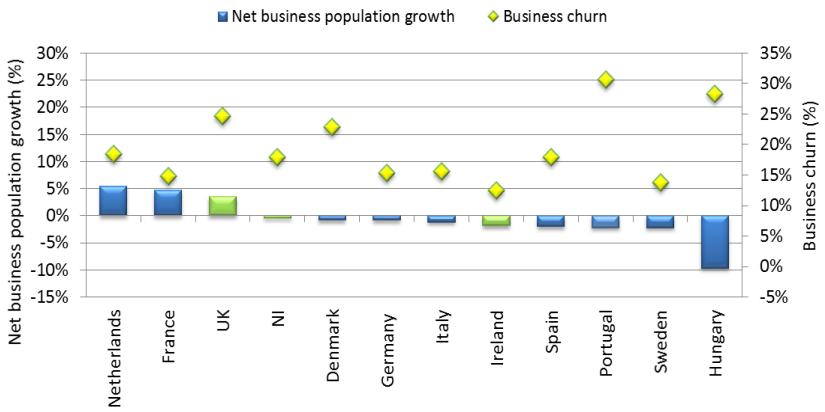


NI's performance on FDI job creation was very strong in relative terms and has improved significantly since 2009.

Sources: EY European Attractiveness Surveys (2015-2009), Invest NI & ONS
Notes: FDI jobs created figures are from EY survey for all countries with the exception of NI.
Job promotion figures for NI have been converted to jobs created, using the jobs promoted : jobs created conversion rate from the DETI / Invest NI SFA evaluation (69%[12]) and therefore comparison must be drawn, noting that different sources and methods are employed in the construction of this indicator

Figure 5.1.2: Net business population growth, 2013

Business performance	Rank	Direction of change	Change in decile
Net business population growth	15 / 29		↑
Business churn	17 / 29		↑↑



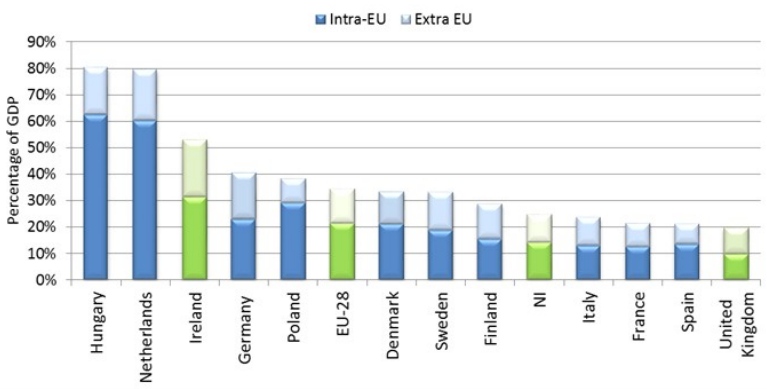
NI's business population has stabilised over the last year, with business creations and closures broadly in balance. The business environment has improved in NI, as it moves ahead of competitor nations in both of these indicators. "Business churn" presents the total number of births and deaths as a proportion of the enterprise population.

Sources: Eurostat & ONS
Notes: EU average data not available for net business population growth
The direction of travel and change in decile of the indicator are calculated using data from 2009

[12] http://www.detini.gov.uk/final_report_-_sfa_evaluation_2004-11.pdf?rev=0

Figure 5.1.3: Exports of goods, intra-EU and extra EU (% of GDP), 2012

Business performance	Rank	Direction of change	Change in decile
Exports of goods, intra-EU (% GDP)	22 / 29		=
Exports of goods extra-EU (% GDP)	19 / 29		=

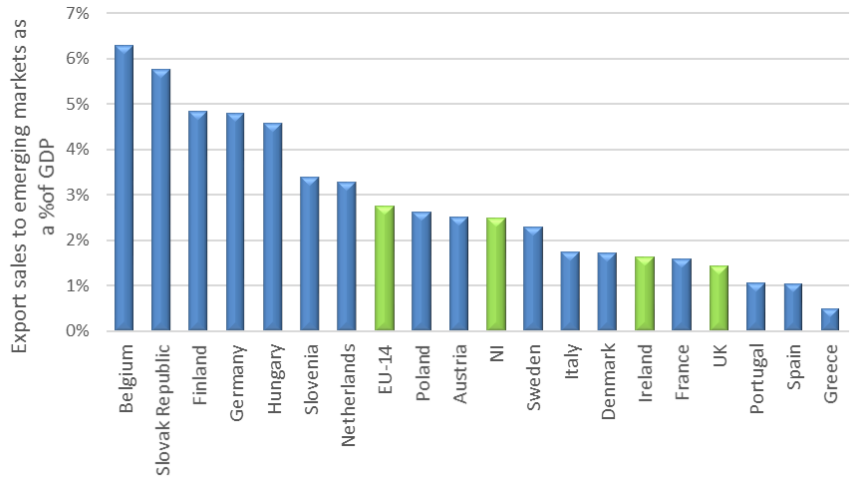


In 2012, NI exported goods amounting to 14% of GDP to EU countries, marginally higher than the 11% it exported to countries outside of the EU. NI is the only part of the UK to share a land border with a Eurozone country providing excellent trading opportunities. It is unsurprising that more than half of NI's EU-based exports are to Ireland.

Sources: Eurostat, ONS & DETI Broad Economy Exports (BEE) measure
Note: Earliest available BEE data is 2011 which is used as a baseline to calculate direction of change and decile change

Figure 5.1.4: Exports to emerging markets as a % of GDP, 2012

Business performance	Rank	Direction of change	Change in decile
Exports to emerging markets (% GDP)	12 / 21		n/a



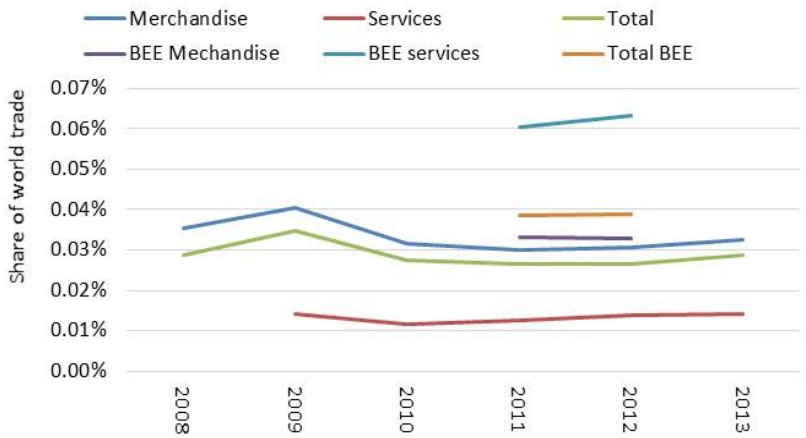
In 2012, NI's exports to emerging markets were 2.5% of GDP. This is more than a percentage point lower than the EU-14 average.

It is noteworthy that NI outperforms both the UK and Ireland in this indicator.

Sources: DETI Broad Economy Exports measure & National Competitiveness Council
Notes: EU-14 excludes Latvia, Luxembourg, Cyprus and Malta
The direction of change is calculated using one year of data. This is because the broad economy export data is only available for the years 2011 & 2012.

Figure 5.1.5: NI's share of world trade overall, merchandise and services (%), 2008 – 2013

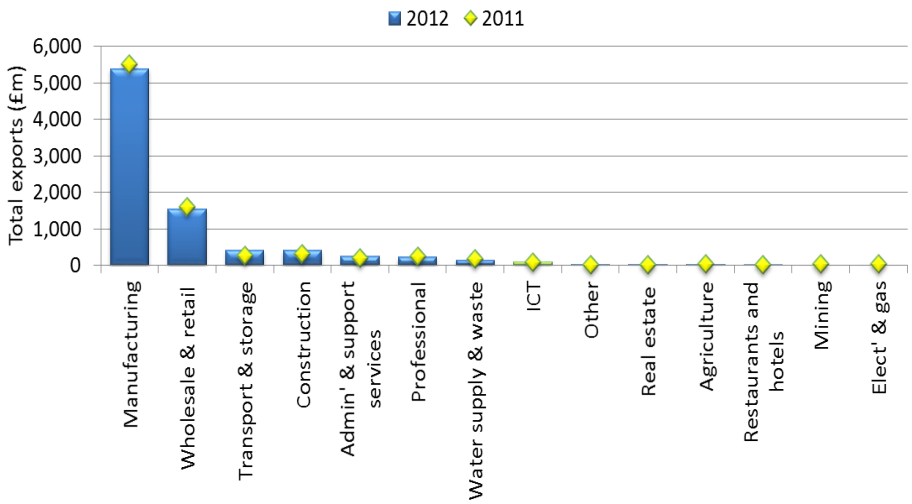
Business performance	Rank	Direction of change	Change in decile
NI's share of world trade overall merchandise & services (%)	n/a		n/a



Whilst the value of NI's manufacturing exports has been increased in value terms over the last decade, the rate of increase has been less than the rate of growth of global trade, meaning that NI's relative position has been eroded. Services have remained stable, but at a much lower value and proportion of world trade than manufactured goods. The Broad Economy Exports measure captures more service exports than the more narrowly defined exporting NI Services Survey, although only two years of data are available at present.

Sources: DETI Manufacturing Sales and Exports Survey, DETI Exporting NI Services survey, DETI Broad Economy Exports Measure & WTO
Note: 2008 data for services not available.
DETI Broad Economy Exports Measure only available for 2011 and 2012 at present.
Data excludes excise duty, but includes VAT

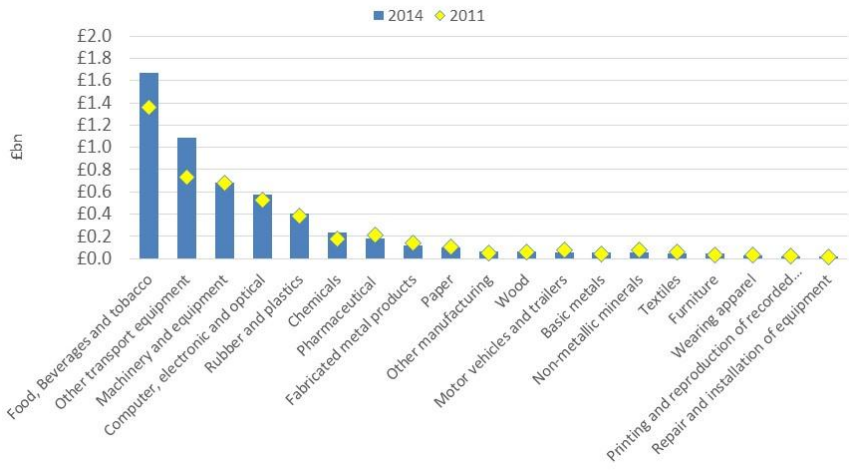
Figure 5.1.6: Total goods and services exports by sector from NI (£million, nominal terms), 2011 - 2012



Average annual growth in total exports, across all sectors, between 2011 and 2012 was 12%. In 2012, manufacturing remained the key contributor of NI export trade, accounting for 63% of total trade (£5.4bn). Data are in nominal terms and therefore the data reflects both changes in prices and volume of sales.

Sources: DETI Broad Economy Exports Measure
Notes: BEE data only available for 2011 and 2012 and therefore, five-year comparison is not included.
Data excludes excise duty, but includes VAT

Figure 5.1.7: Manufacturing exports by sector from NI, 2011-2014

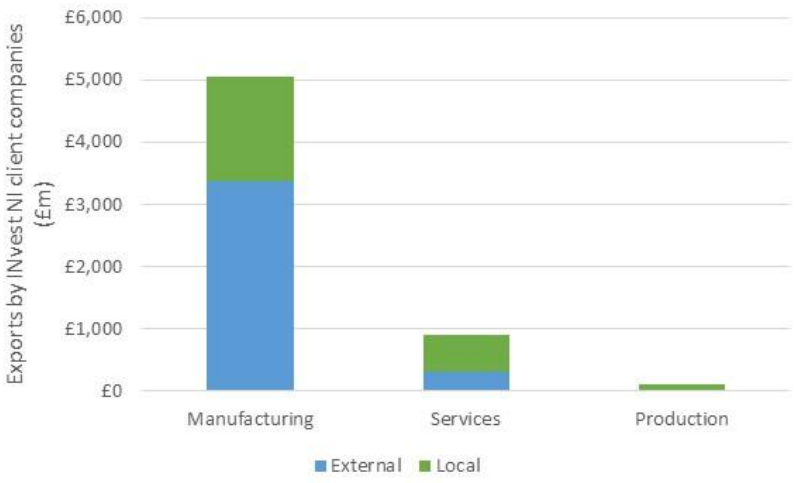


Source: DETI Broad Economy Exports Measure

Manufacturing exports have increased by 9% from 2011 to 2014.

The food, beverages and tobacco industry is the largest exporter of the manufacturing subsectors, accounting for 28% the total. Transport equipment was the largest driver of growth over the period (+49%). In contrast non-metallic minerals experienced the greatest decline (-32%) over the period.

Figure 5.1.8: Enterprise agency client exports from NI by sector and firm ownership, 2014

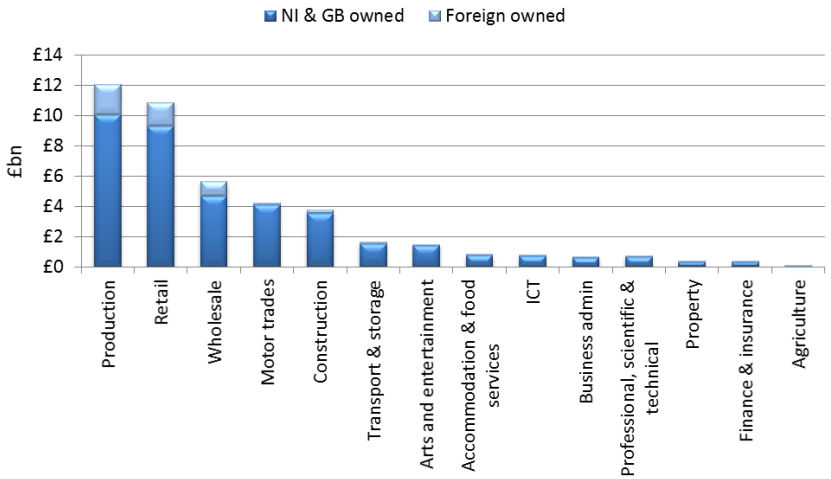


Source: Invest NI

Almost two thirds of exports by Invest NI client companies are from externally owned firms.

The manufacturing sector accounts for nearly 85% of all export sales by Invest NI client companies.

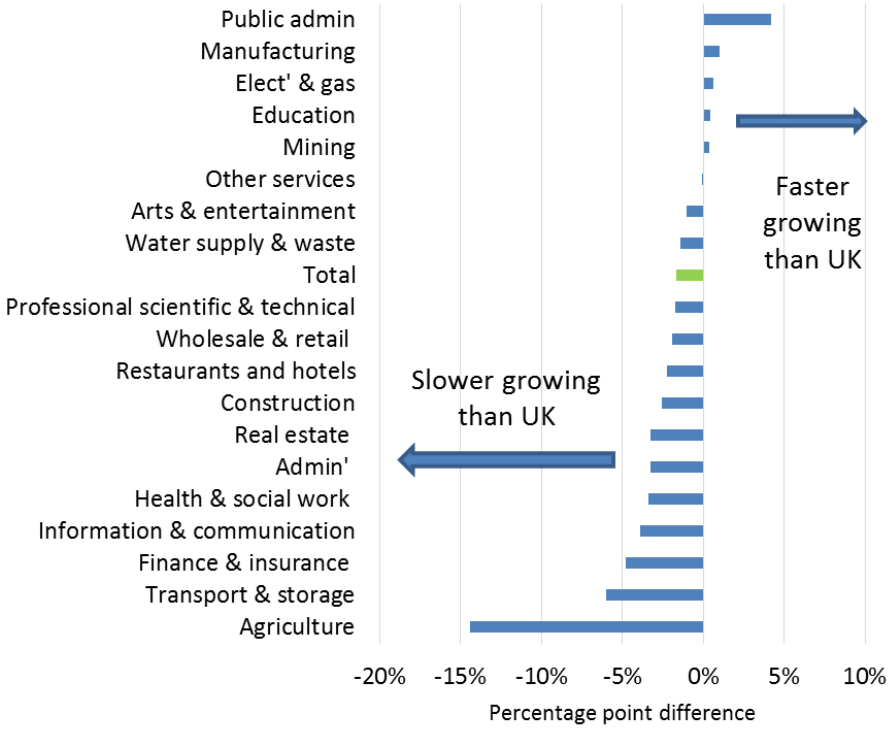
Figure 5.1.9: Direct expenditure in the economy by sector, 2014



Production industries spend the greatest amount within the NI economy totalling 28% (£12.1bn) of total expenditure, 20% (£2bn) of which is an injection from foreign-owned businesses. In 2013, foreign-owned businesses accounted for 12% (£5.2bn) of total expenditure in the NI economy

Sources: ABI & IDBR

Figure 5.1.10: Nominal GVA growth by sector in NI, 2013



GVA growth in NI is slower than in the UK.

One of the explanatory factors is that sectoral GVA growth lags their UK counterpart in the majority of sectors in NI. It is notable that the only sector which outstrips the UK rate by a margin is the public sector.

The majority of the private services sectors lag the UK growth rate by 2% to 5%.

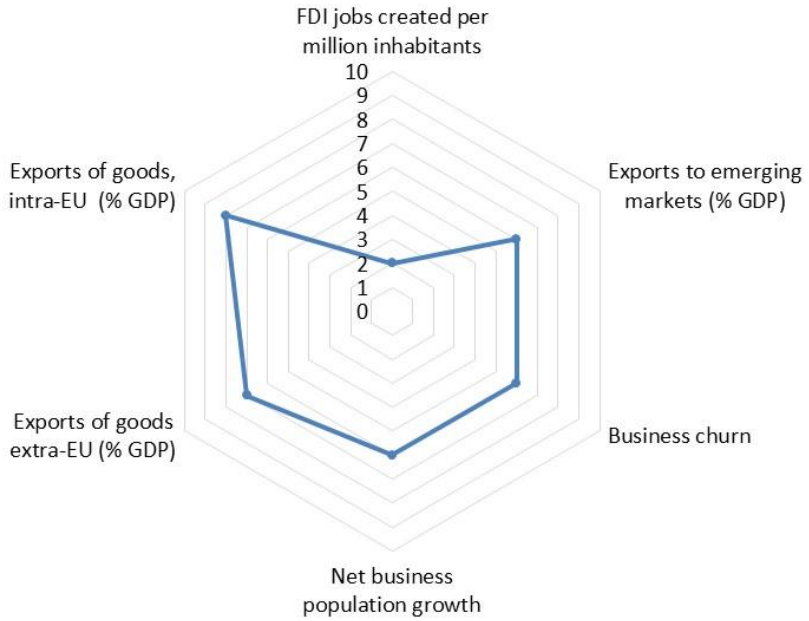
Sources: ONS & UUEPC

Business performance summary

This element of the Scorecard improved most over the previous five years (from 7.2 to 5.8). NI's record on FDI job creation performance is excellent, third placed behind Ireland and Slovakia and is the strongest of the indicators within this element of the Scorecard. NI firms are becoming more outward looking, which is welcome, 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, but it should be borne in mind that domestic firms account for the largest proportion of expenditure.

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. It is concerning that the only sector in which growth is more rapid, by a margin, is public administration. The majority of private services sectors industries lagged their UK counterparts, which demonstrates that the challenges in terms of rebalancing toward a larger and more vibrant private sector in NI.

Figure 5.1.11: Summary of decile placements for business performance indicators



Source: UUEPC

Figure 5.1.12: Summary of business performance indicators

Business performance	Rank	Direction of change	Change in decile
Net business population growth	15 / 29		↑
Business churn	17 / 29		↑↑
Exports of goods, intra-EU (% GDP)	22 / 29		=
Exports of goods extra-EU (% GDP)	19 / 29		=
FDI jobs created per million inhabitants	3 / 15		↑↑↑↑
Exports to emerging markets (% GDP)	12 / 21		n/a

Source: UUEPC

5.2 Productivity

Productivity is a measure of efficiency and is vital for economic growth. 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 high productivity and therefore economic growth. Measurement of productivity is difficult and 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.

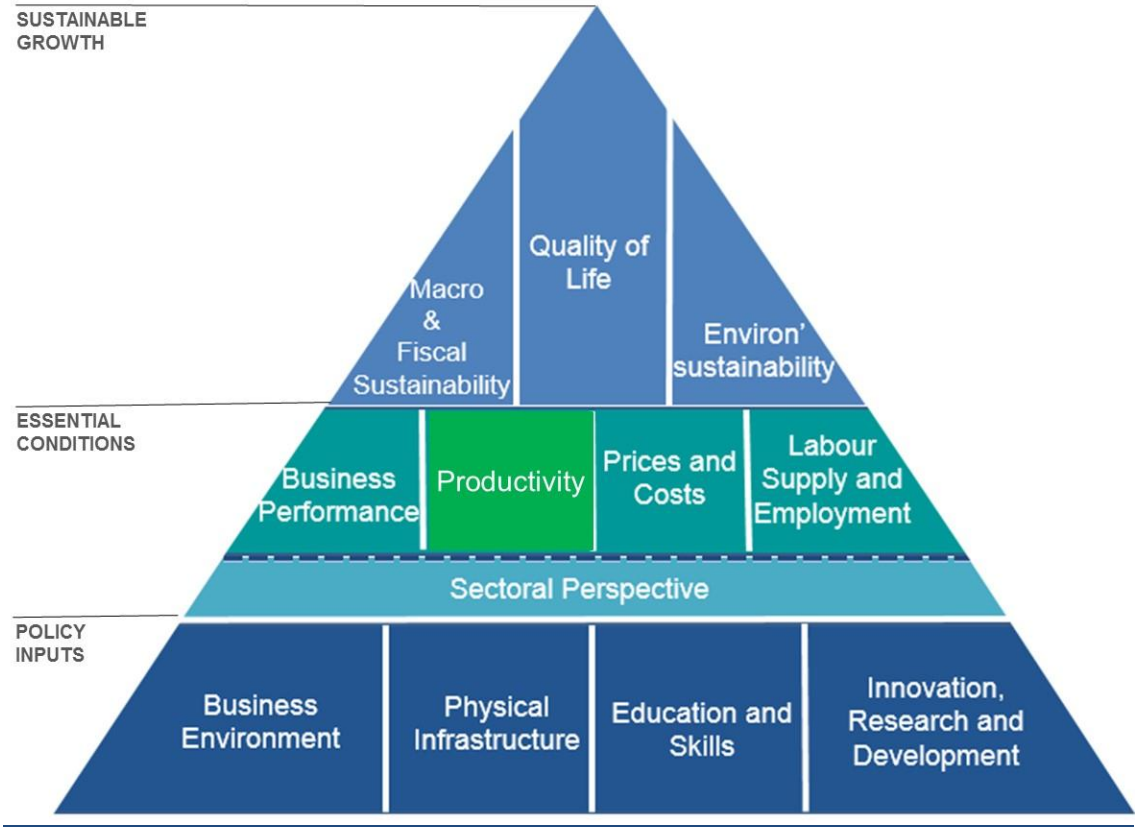
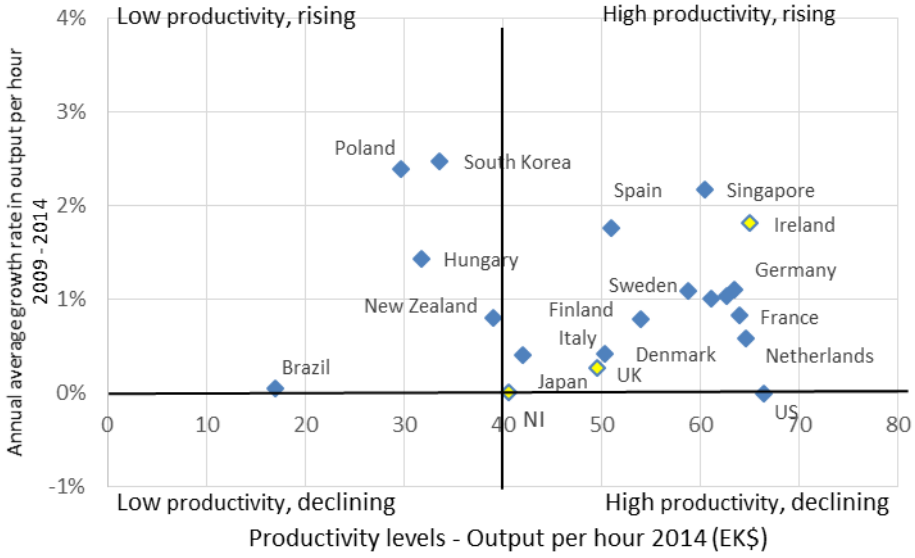


Figure 5.2.1: Productivity levels and growth rates, 2014

Productivity	Rank	Direction of change	Change in decile
Productivity levels (output per hour)	14 / 28		=
Productivity growth rates (output per hour)	23 / 28		n/a

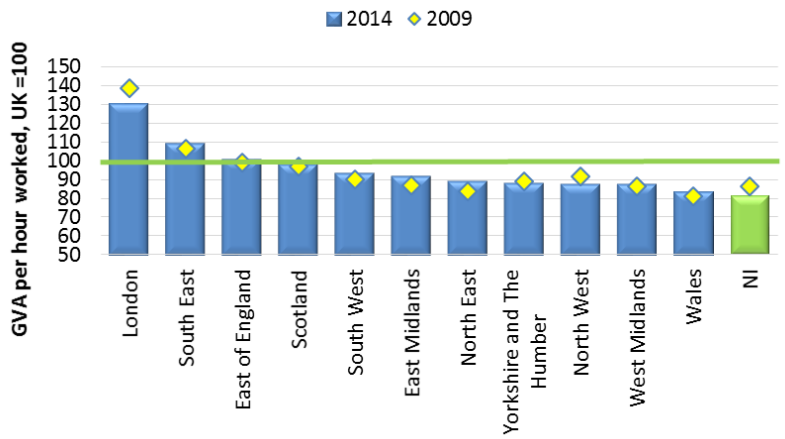


NI's relative productivity levels are just below average and have remained stable since 2009. UK levels are above average, but still declining. Ireland has posted a strong performance, increasing productivity from an already high base. This is partly a reflection of the differential in employment patterns as Ireland reduced employment more rapidly during the recession, whereas the UK did not.

Sources: The Conference Board Total Economy Database, ONS & UUEPC
Note: NI's output per hour worked has been calculated by applying ONS's relative figures to UK productivity figures from the Conference Board Total Economy Database.
Values are quoted in US$ using EKS purchasing power parities. EKS (Éltetö-Köves-Szulc) is a method for calculating a multilateral per capita quantity index from disaggregated price and quantity data.

Figure 5.2.2: GVA per hour worked (NI), relative to the UK, 2009 - 2014

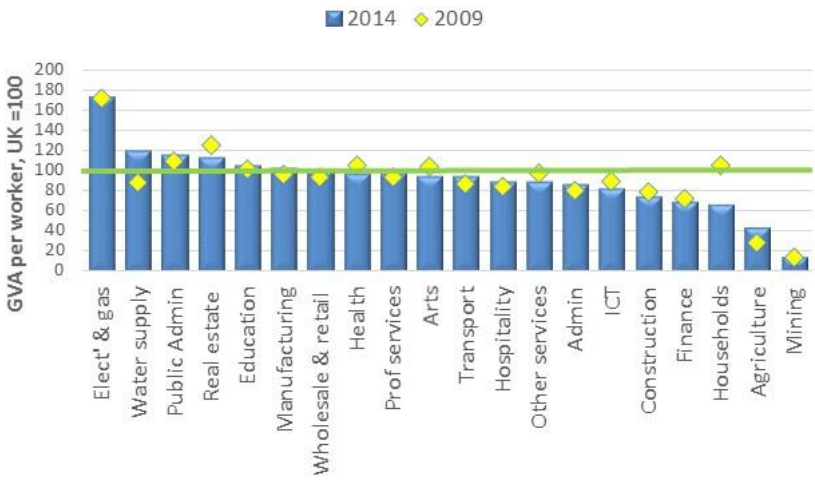
Productivity	Rank	Direction of change	Change in decile
GVA per hour worked (relative to UK)	12 / 12		=



NI's relative productivity is low compared to other UK regions (18 p.p below the UK average). This productivity gap is partly explained by NI's sectoral structure where the majority of people employed in the economy work in what are lower productivity sectors (e.g. agriculture & retail and other service sectors). Whilst absolute levels of productivity have improved, NI has not been able to improve its regional position.

Source: ONS

Figure 5.2.3: NI sectoral productivity, GVA per employee relative to the UK, 2009 - 2014

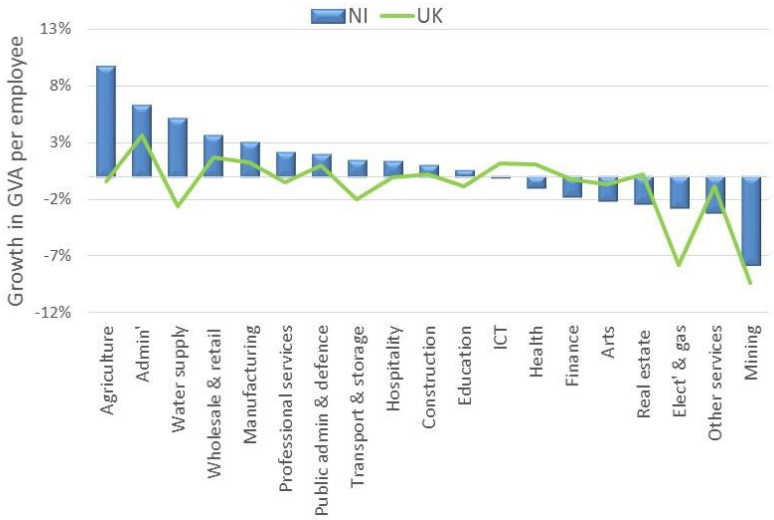


Sectoral productivity in NI lags the UK average in the majority of sectors. In the latest year for which data is available, two of the five sectors in which NI has higher productivity are in the public sector. Given that the public sector productivity is made up of wages per employee (as it does not generate profits), relatively high wages are reflected.

Productivity data does raise some questions – for example – it is difficult to understand why productivity in the public sector would be significantly higher than the UK and that agricultural productivity is so low. As a result, there is merit in further investigation.

Source: NOMIS & Regional Accounts

Figure 5.2.4: NI sectoral productivity growth, relative to the UK, 2009- 2014



Sectoral productivity has improved in the majority of sectors over the past five years.

Agriculture was the fastest growing sector – although from a very low base. Manufacturing and most of the externally focussed services sectors grew more rapidly than their UK counterparts.

Source: ONS

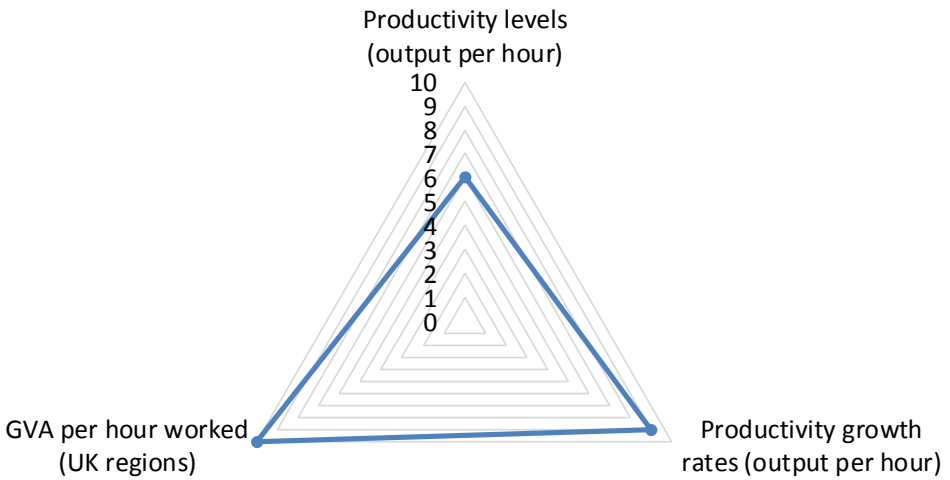
Productivity summary

In international terms, NI's productivity performance is weak, but stable. It is the weakest of the elements of the Scorecard with an average decile placement of 8.0, which means that more than four fifths of NI's competitor countries are ahead of NI on this aspect of competitiveness. If NI's relative productivity continues to lag comparator nations, it will continue to impinge upon NI's international competitiveness and longer term economic growth prospects.

In a UK context, NI ranks 12th of the 12 UK regions. This can be explained by a relatively high concentration of low productivity sectors in NI as well as lower productivity within sectors. This is partially due to the type of activity that is being undertaken in NI (such as hedge fund management within Finance in London and retail banking in NI, which are within the same sector, but are very different activities). It is encouraging that real productivity growth in the majority of NI sectors exceed the UK rate, although in absolute terms, NI still lags the UK in all but five sectors; two of which are in the public sector.

Data concerns clearly warrant further investigation, especially from a sectoral perspective as productivity is a key economic policy indicator.

Figure 5.2.5: Summary of decile placements for productivity



Source: UUEPC

Figure 5.2.6: Summary of productivity rankings by indicator

Productivity	Rank	Direction of change	Change in decile
Productivity levels (output per hour)	16/28		=
Productivity growth rates (output per hour)	25/28		n/a
GVA per hour worked (UK regions)	12/12		=

Source: UUEPC

5.3 Prices and costs

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.

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.

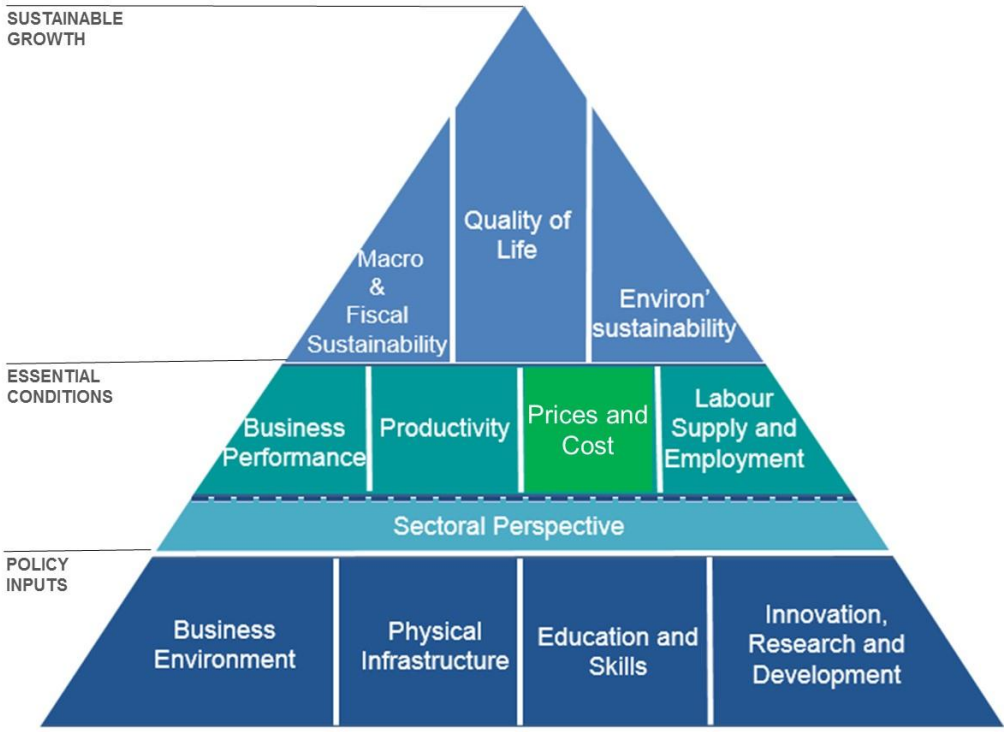
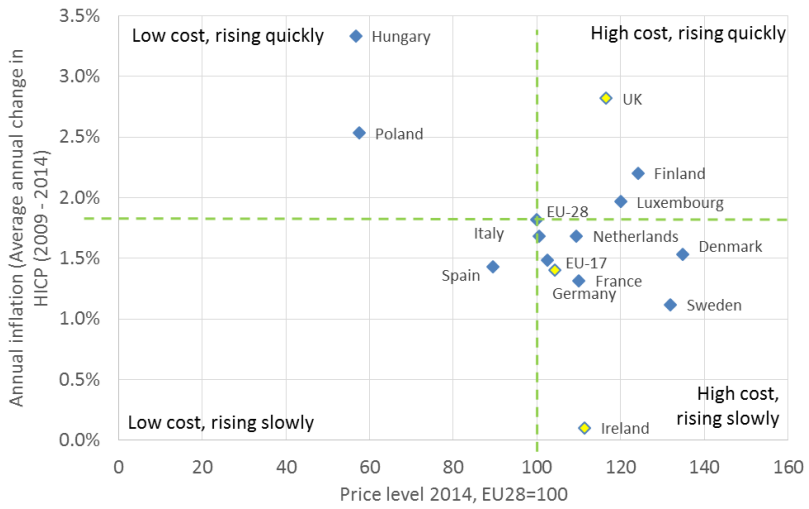


Figure 5.3.1: Consumer price levels and inflation, 2009 – 2014

Prices and Costs	Rank	Direction of change	Change in decile
Consumer price level - UK proxy	24/28		↓↓
Average annual change in HICP - UK proxy	26/28		n/a



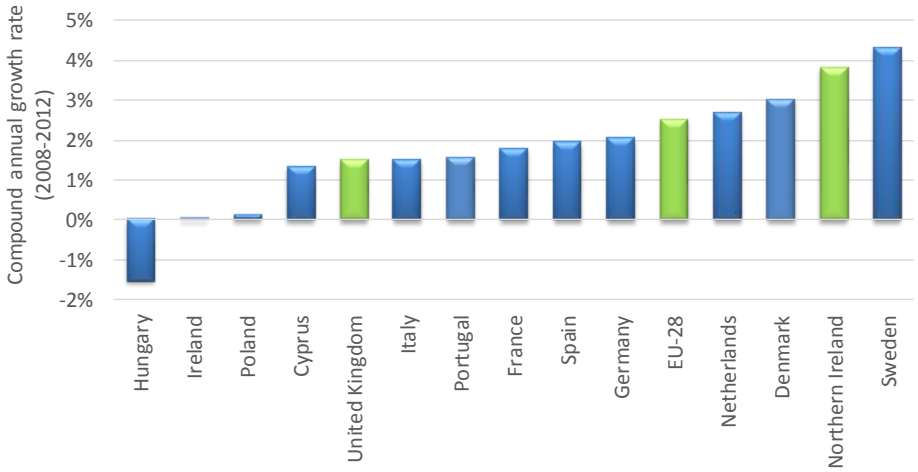
Consumer Price levels and inflation are published for the UK as a whole, without being broken down into regional perspectives. Therefore, UK data is used in this analysis as the best available evidence of price levels and changes in NI, although it is acknowledged that NI prices may exhibit different patterns, though 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.

UK prices are above the EU28 average and are rising reasonably quickly from 2009 -14. Over the period 2009-2014, average annual inflation in the UK was 2.9%, 0.8 p.p higher than the euro area-17 average. Ireland's prices are also relatively high, although with growth of just 0.1% over a five-year period Ireland is improving its cost competitiveness.

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

Figure 5.3.2: Annual growth in labour costs (nominal), 2008 – 2012

Prices and Costs	Rank	Direction of change	Change in decile
Annual growth in labour costs	26 / 29		n/a

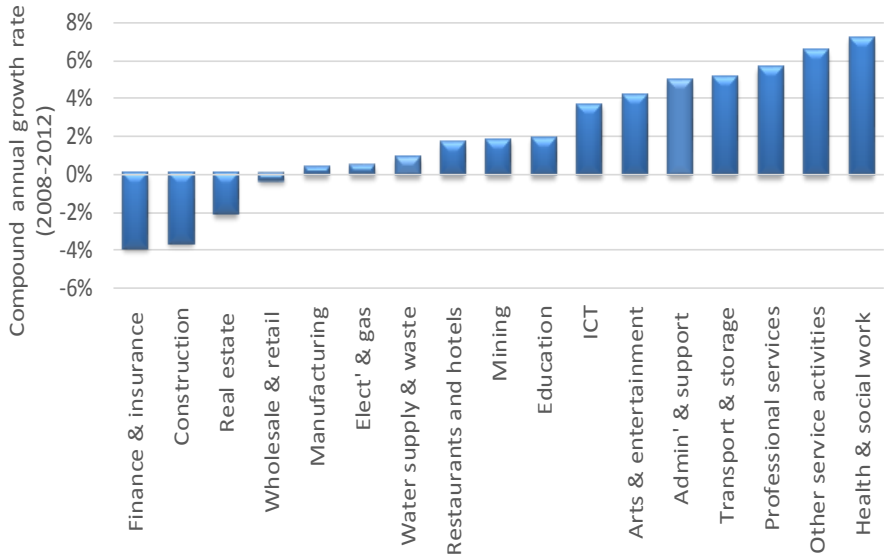


Labour costs in NI have been increasing rapidly at an average annual rate of 3.8%. This is the largest growth in labour costs after Sweden.

Further research will be required to understand the driving factors of the rapid increase.

Source: Eurostat
Note: Regional data only available on a 4-yearly basis
Includes industry, construction and services (except public administration, defence, compulsory social security)

Figure 5.3.3: Compound annual average growth rate in labour costs in NI by sector, 2008-2012

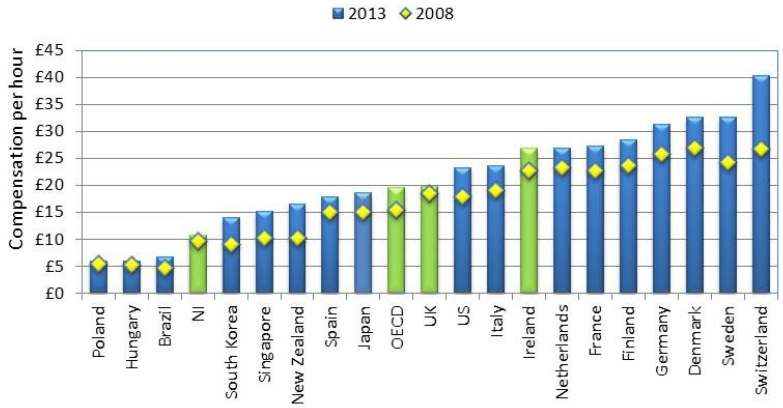


The health sector in NI has experienced an increase in labour costs of 7.2%, the largest increase amongst all sectors. In contrast, the financial and construction sectors have seen a fall in labour costs giving NI a competitive edge in these areas.

Source: Eurostat
Notes: Regional data only available on a 4-yearly basis
Public admin and defence excluded as 2008 data is not available

Figure 5.3.4: Hourly compensation costs in manufacturing, 2008 -2013

Prices and Costs	Rank	Direction of change	Change in decile
Hourly compensation costs in manufacturing	11 / 35		=

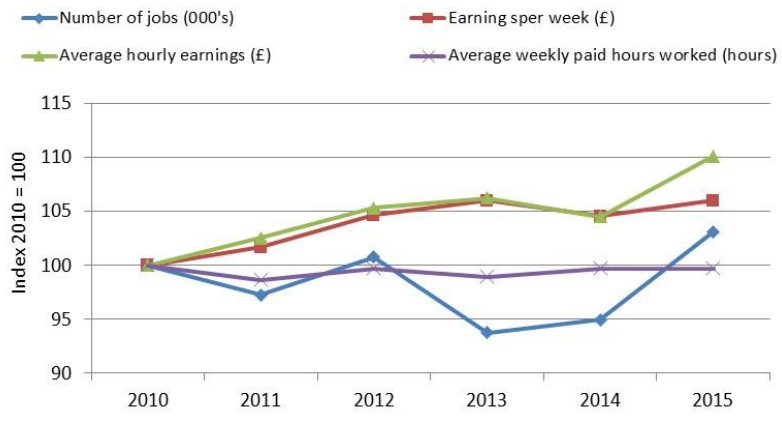


NI is a cost competitive location for manufacturing. In 2013, NI's hourly compensation costs in manufacturing ($17.1), lower than the OECD ($30.8), UK ($31.0) and Ireland ($41.2), indicating a high level of labour cost competitiveness and reflecting the sectoral structure of the manufacturing industry. However, over the period 2008-2013, the gap between NI and the UK has actually fallen (since 2008, NI hourly compensation costs in manufacturing have increased by 14% in contrast to a decline of 9% experienced by the UK), marking a decline in in relative competitiveness on this indicator.

Sources: The Conference Board International Labour Comparisons program, ASHE & BoE exchange rates
Note: Figures for NI based on Hourly gross full time wages in manufacturing (ASHE data).

Figure 5.3.5: Earnings per week, earnings per hour and hours worked, 2010 – 2015

Prices and Costs	Rank	Direction of change	Change in decile
Earnings per week	n/a		n/a
Earnings per hour	n/a		n/a
Hours worked	n/a		n/a

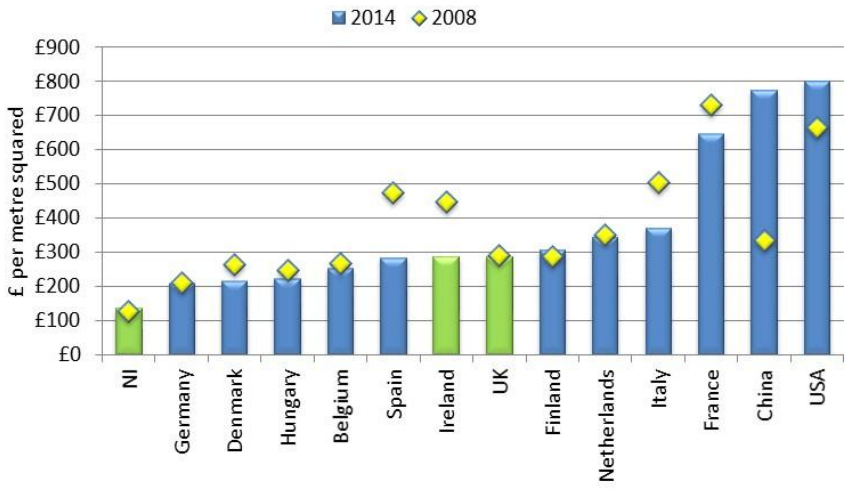


Firms can control labour costs in a number of ways. They can alter hours, overtime, bonuses and employment. Over the course of the recession in NI, firms controlled labour costs by reducing employment. For those who remained in work, the number of hours remained static and earnings increased by 10%. The most marked increase in earnings occurring during 2015.

Source: ASHE

Figure 5.3.6: Cost (per m^2) to rent a prime office space, 2008-2014

Prices and Costs	Rank	Direction of change	Change in decile
Cost (per m2) to rent a prime office space	1 / 30		=



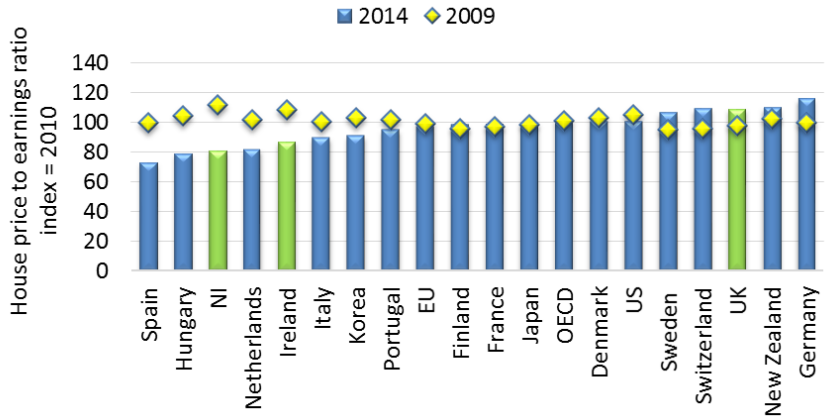
NI is the most cost competitive of the thirty locations analysed within the Cushman and Wakefield research. This makes NI an attractive location from a cost perspective, although it is evident that demand for prime office space is increasing, as prices are beginning to tick upwards.

Source: Cushman and Wakefield

Note: 2009 data not available and 2008 is used as the closest alternative.
Cities from Northern Ireland (Belfast), Bulgaria (Sofia), Portugal (Lisbon), Germany (Berlin & Frankfurt), Denmark (Copenhagen), Hungary (Budapest), Greece (Athens), South Korea (Seoul), Belgium (Brussels), Spain (Madrid), Ireland (Dublin), UK (London City, London West End, Birmingham, Glasgow, Edinburgh & Manchester), Finland (Helsinki), Netherlands (Amsterdam), Italy (Rome), India (Mumbai & New Delhi), Sweden (Stockholm), Switzerland (Geneva), France (Paris), China (Beijing & China), USA (Midtown New York) and Japan (Tokyo).
Direction of change and change in decile has been calculated based on 2008 data as 2009 is not available.

Figure 5.3.7: Affordability of house prices, 2009 – 2014

Prices and Costs	Rank	Direction of change	Change in decile
House price to earnings ratio, 2010 index	3 / 29		↑↑↑↑↑ ↑↑↑↑



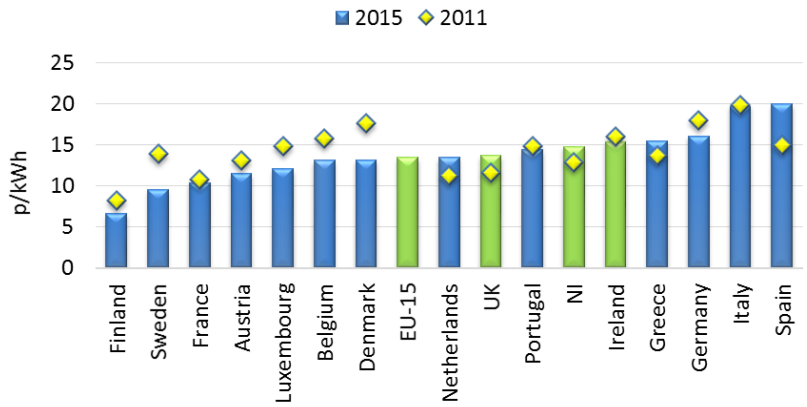
House prices reduced significantly in NI during the recession, although since 2012, prices have started to tick upwards.

When combined with increases in average earnings, affordability of the housing stock has improved significantly from 5 times the average wage to 4.

Sources: Halifax, UUEPC & OECD

Figure 5.3.8: Industrial electricity prices for very small electricity users exc. VAT, inclusive of CCL, £ per KwH, 2011-2015

Prices and Costs	Rank	Direction of change	Change in decile
Industrial electricity prices - very small users	11 / 16		↓↓↓

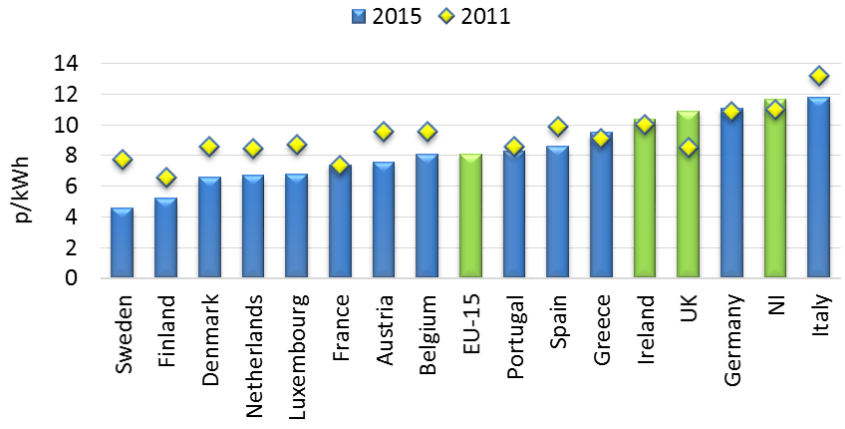


Within NI, 68% of industrial and commercial (I&C) electricity customers are categorised as very small. During 2015, NI prices (14.8p per kWh) were 8% higher than the UK average. Prices have increased by 15% over four years – a significant erosion of cost competitiveness for the sector.

Source: Utility Regulator NI
Notes: 2015 prices are from January to June
CCL = climate change levy. EU countries include Finland, France, Sweden, Austria, Netherlands, UK, Luxembourg, Belgium, Ireland, Denmark, NI, Portugal, Greece, Germany, Italy and Spain
Direction of change and change in decile has been calculated based on the earliest available data which is 2011

Figure 5.3.9: Industrial electricity prices for small / medium electricity users exc. VAT, inclusive of CCL, £ per KwH, 2011-2015

Prices and Costs	Rank	Direction of change	Change in decile
Industrial electricity prices - small/medium users	15 / 16		=

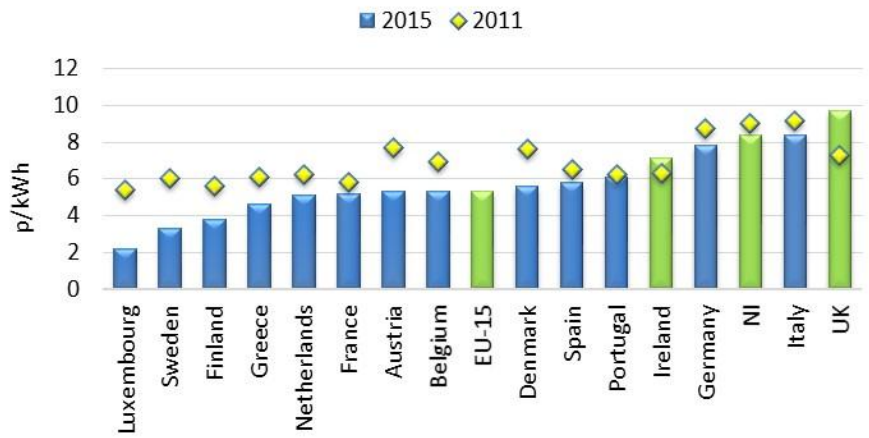


The challenge is greater for small / medium electricity users as NI is ranked 15th of the 16 countries for which data is available. Prices for these users have only increased marginally, although it is noteworthy that prices have decreased in more than half of the competitor nations, all but one of which already had lower prices than NI.

Source: Utility Regulator NI
Notes: 2015 prices are from January to June
CCL = climate change levy. EU countries include Finland, France, Sweden, Austria, Netherlands, UK, Luxembourg, Belgium, Ireland, Denmark, NI, Portugal, Greece, Germany, Italy and Spain
Direction of change and change in decile has been calculated based on the earliest available data which is 2011

Figure 5.3.10: Industrial electricity prices for large electricity users exc. VAT, inclusive of CCL, £ per KwH, 2011-2015

Prices and Costs	Rank	Direction of change	Change in decile
Industrial electricity prices - large users	14/16		=

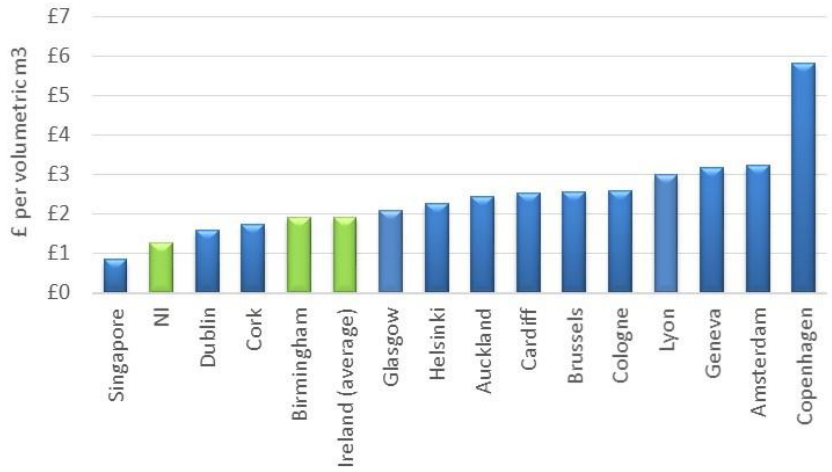


Whilst costs have been falling, electricity prices are a significant competitiveness challenge for large industrial electricity users as NI is ranked 15th of the 17 countries. Prices for large users have reduced slightly although it is noteworthy that prices have decreased in all but two other countries, in many cases quite significantly.

Source: Utility Regulator NI
Notes: 2015 prices are from January to June
CCL = climate change levy. EU countries include Finland, France, Sweden, Austria, Netherlands, UK, Luxembourg, Belgium, Ireland, Denmark, NI, Portugal, Greece, Germany, Italy and Spain
Direction of change and change in decile has been calculated based on the earliest available data which is 2011

Figure 5.3.11: Water costs, 2013

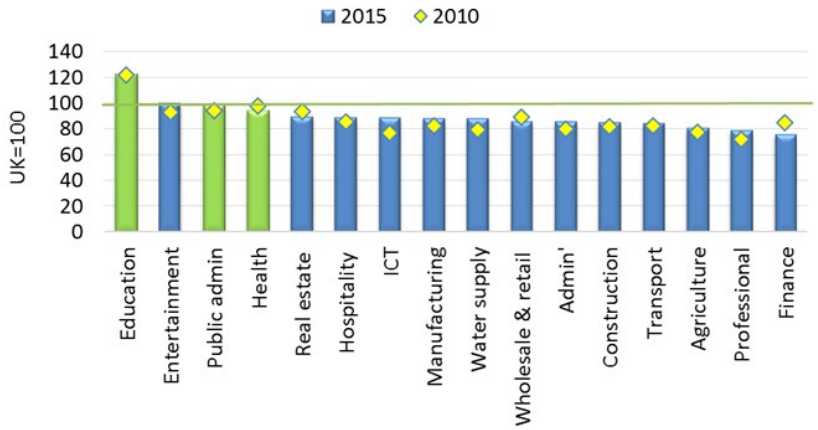
Prices and Costs	Rank	Direction of change	Change in decile
Non-domestic water charges (£m3)	2/16		n/a



NI is a very cost competitive location in terms of non-domestic water charges. Costs are lower than Irish and UK comparators.

Sources: Utility Regulator NI & Department for Jobs, Economy and Investment
Note: CCL = climate change levy. EU countries include Finland, France, Sweden, Austria, Netherlands, UK, Luxembourg, Belgium, Ireland, Denmark, NI, Portugal, Greece, Germany, Italy and Spain
Data for five years previous is not available

Figure 5.3.12: Earnings by sector relative to UK (UK =100), 2010 - 2015



Average earnings are significantly lower than the UK across many areas of the private sector. 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 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). Lower wages however, makes NI a relatively competitive area of the UK, especially in key sectors like professional services, finance and manufacturing.

Source: ASHE

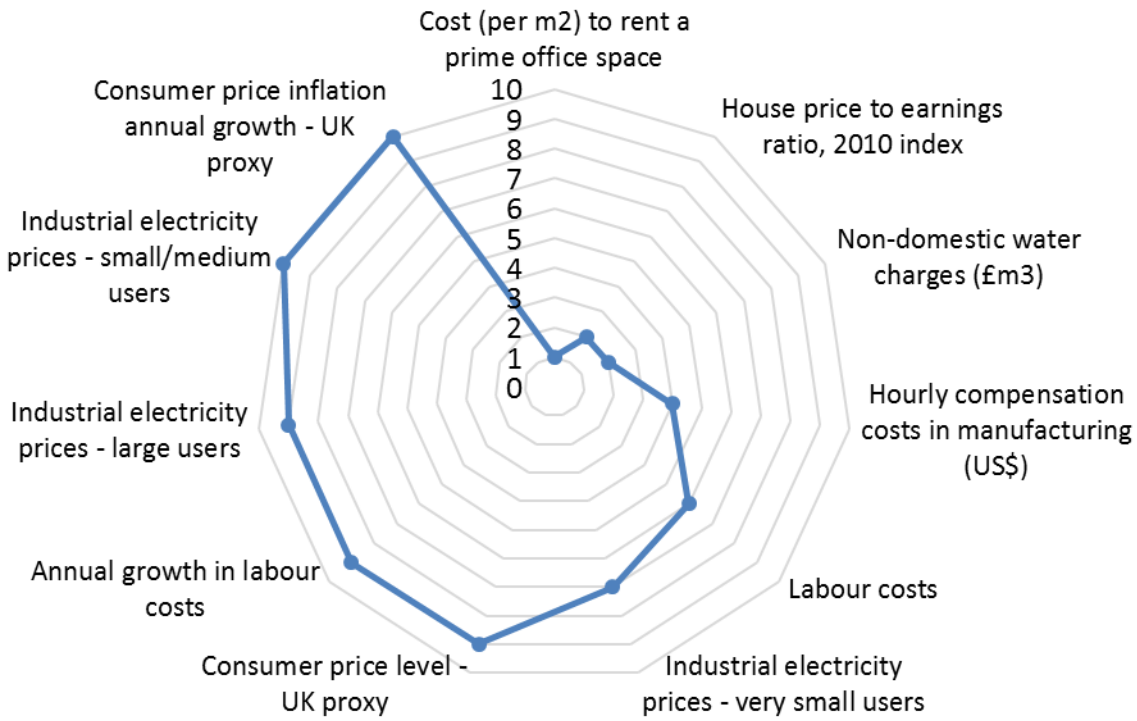
Price and costs summary

Prices and costs are from an overall perspective, relatively uncompetitive in NI. Despite some improvements, NI is almost two thirds of the way down the competitiveness table in this element of the Scorecard. However, a more detailed examination of the evidence reveals that NI is quite uncompetitive in certain areas (electricity prices, growth in labour costs and CPI inflation) and very competitive in other areas (cost of office space, water costs, house prices and manufacturing wages) which are among the lowest of the countries analysed.

Electricity costs are relatively high in NI. Prices for very small & small / medium users are relatively uncompetitive, although price rises have been subdued from 2011 – 14. Prices for large users, have declined, but this is only marginal when compared to the reduction in prices in many other countries.

It is a weakness for NI in the assessment of competitiveness is that price level and inflation data are not available for NI, only the UK as a whole. There is merit in developing a CPI for NI, which would provide the capability to compare price levels and inflation.

Figure 5.3.13: Summary of decile placements for prices and costs indicators



Source: UUEPC

Figure 5.3.14: Summary of prices and costs rankings by indicator

Prices and Costs	Rank	Direction of change	Change in decile
Consumer price level - UK proxy	24 / 28		↓↓
Average annual change in HICP - UK proxy	26 / 28		↓↓↓
Labour costs	17 / 29		=
Annual growth in labour costs	26 / 29		n/a
Hourly compensation costs in manufacturing	11 / 35		=
Cost (per m2) to rent a prime office space	1 / 30		=
Industrial electricity prices - very small users	11 / 16		↓↓↓
Industrial electricity prices - small/medium users	15 / 16		=
Industrial electricity prices - large users	14 / 16		=
House price to earnings ratio, 2010 index	3 / 29		↑↑↑↑↑↑↑↑
Non-domestic water charges (£m3)	2 / 16		n/a
Earnings per week	n/a		n/a
Earnings per hour	n/a		n/a
Hours worked	n/a		n/a

Source: UUEPC

5.4 Employment and labour supply

Understanding the resource endowments provided by the local labour market is an important element of assessing competitiveness. The size, skill profile and capacity of the labour pool will be of significant interest to potential investors. High levels of employment will in turn reduce the Government's unemployment benefit bill, increase revenues and the tax base.

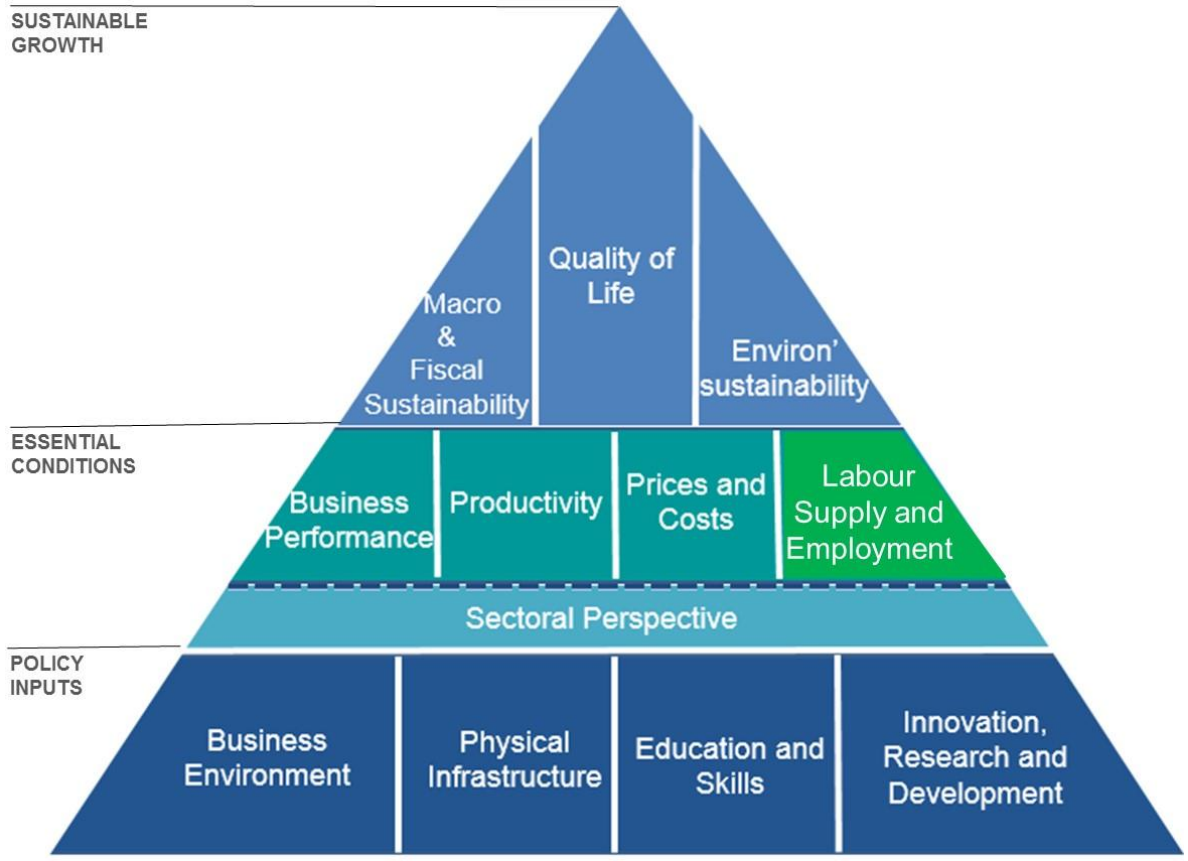
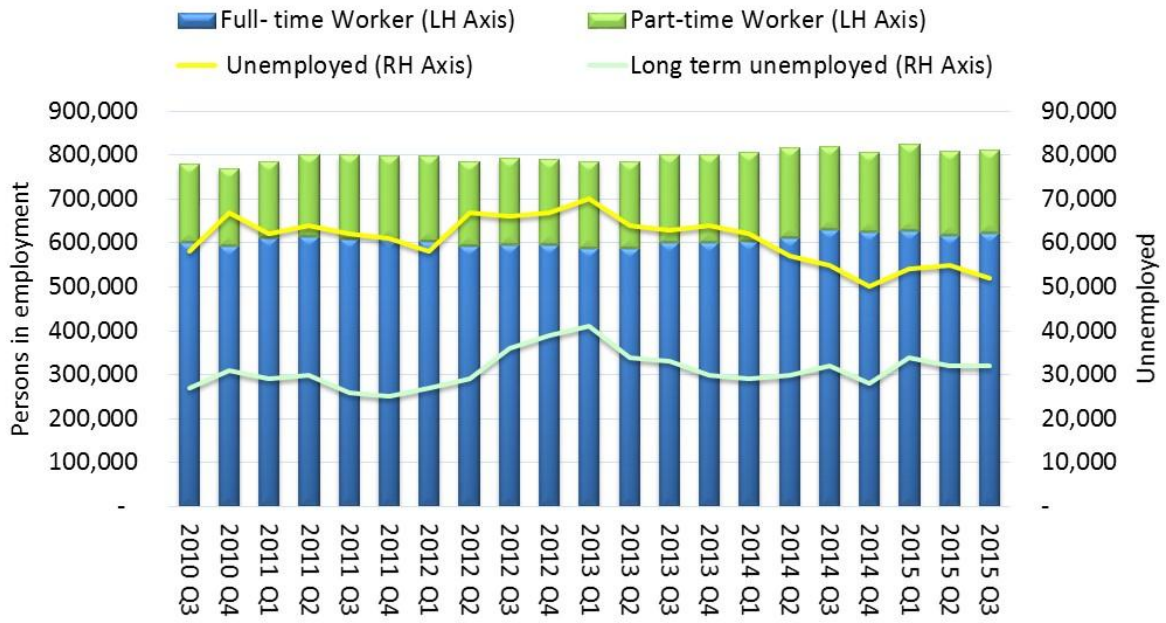


Figure 5.4.1: Employment, unemployment and long-term unemployment (000's, ILO), 2010-2015

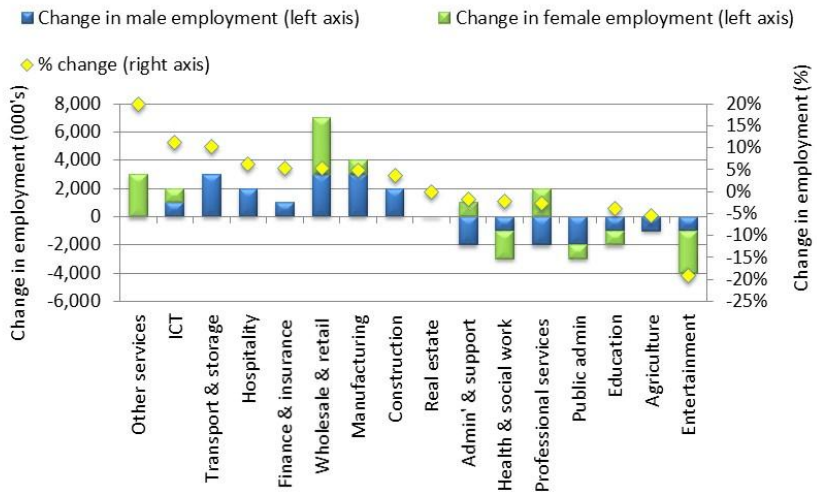
Employment and labour supply	Rank	Direction of change	Change in decile
Employment rate (%)	15/36		=
Unemployment rates (%)	11/34		=
Long term unemployment (% of unemployed)	27/36		↓



Employment increased by 33,000 over the five-year period as the NI economy recovered from recession. Part time work became slightly more prevalent until the end of 2013 when it dropped back slightly. Unemployment rose until 2013, when the trajectory changed and began to fall. Long term unemployment is a persistent issue. Whilst improvements have been made, reducing from 40,000 long term claimants, claimants are struggling to get back into employment.

Source: DETI LFS

Figure 5.4.2: Change in employment by sector and gender, 2014 – 2015 (September)

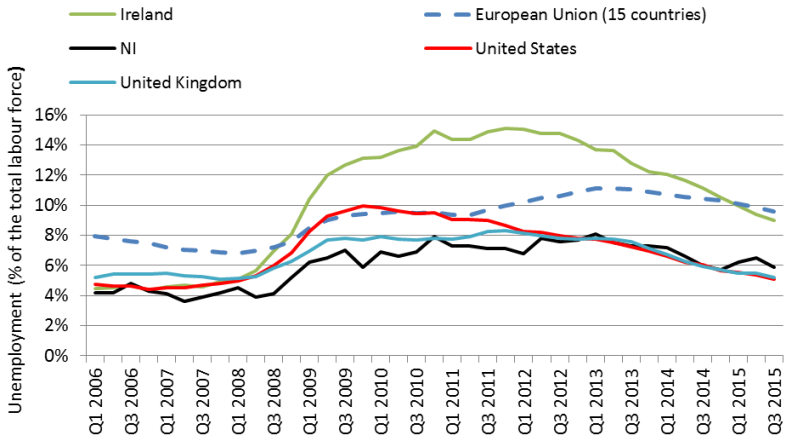


Over the year to 2015, employment growth in NI has been particularly strong in the Retail and wholesale, Manufacturing, Other services, Transport & storage and Admin and support sectors. A breakdown by gender shows that male employment growth has been strongest in the wholesale and retail, transport and manufacturing sector whilst female employment increased in the wholesale and retail, other services and professional services sectors. Employment in a number of sectors, particularly the entertainment, public administration and Health have declined over the year.

Source: ONS workforce jobs
Note: Sectors with less than 6,000 employees are excluded (Mining, Utilities, Water supply and households)
Sept 14 & 15 figures used

Figure 5.4.3: Unemployment (standardised rates) Q1 2006 – Q3 2015

Employment and labour supply	Rank	Direction of change	Change in decile
Unemployment (standardised rates)	6 / 29		↓



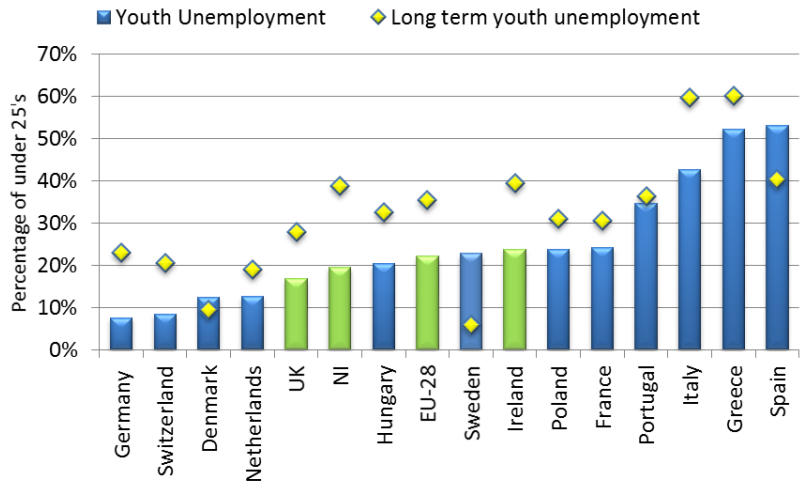
The standardised rate of unemployment in NI has declined from a peak of 8.1% in Q1 2013 to 5.9% in Q3 2015.

In recent years, unemployment rates have been converging between NI, the UK and the US, however, the gap between NI and Ireland & the EU average has remained.

Sources: Eurostat & DETI (LFS)
Note: The Labour Force is used as the denominator (employment plus unemployment) which ignores the level of economic inactivity

Figure 5.4.4: Youth unemployment and long term youth unemployment rate, 2014

Employment and labour supply	Rank	Direction of change	Change in decile
Youth unemployment rate	10/29		=
Long term youth unemployment rate	20/27		↓↓↓



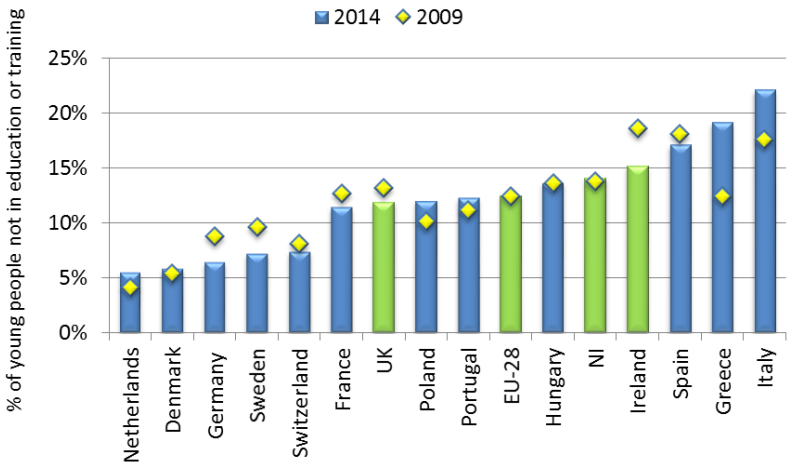
NI's youth unemployment rate was 20% of under 25's in 2014, between the UK, and EU and Irish benchmarks. Whilst NI's youth unemployment rate is in the middle of the spectrum when compared to other EU countries, the percentage of long term youth unemployment is particularly high at 39%, the eighth highest of the 27 countries analysed (behind Greece, Spain, Italy, Ireland, Greece, Croatia, Slovakia and Bulgaria).

The sizeable proportion of youths who are trapped in unemployment for the long period of time represent a large unutilised economic resource and significant economic and policy challenge.

Sources: Eurostat & LFS
Note: Annual averages of four quarters used from LFS

Figure 5.4.5: Young people not in employment, education or training, 2009 -2014

Employment and labour supply	Rank	Direction of change	Change in decile
Young people not in employment, education or training	21/29		=



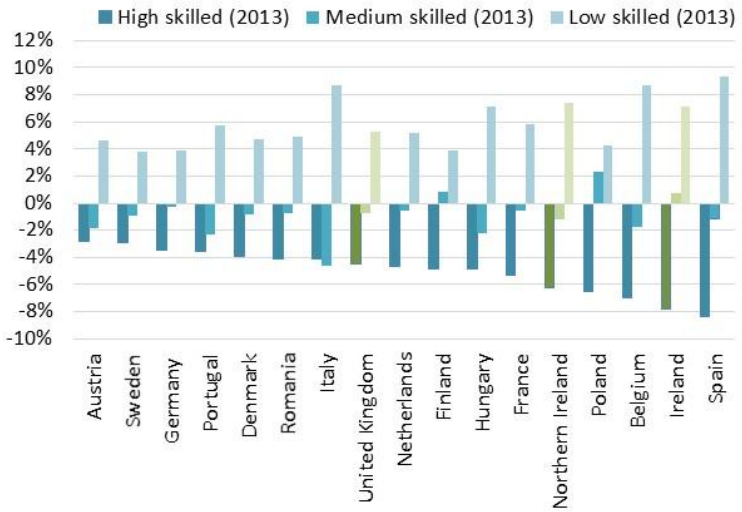
In 2014, the proportion of the youths who were inactive or not in education or training (NEET) was 14%, 2.2p.p higher than the UK, but 1.1p.p below Ireland.

This places NI in the bottom third of the countries analysed, with limited change over the past five years as the NI economy recovered from recession.

Sources: Eurostat & LFS

Figure 5.4.6: Skills mismatches, 2013

Employment and labour supply	Rank	Direction of change	Change in decile
Skills mismatch - high skilled	22 / 29		↑↑
Skills mismatch - medium skilled	21 / 29		=
Skills mismatch - low skilled	24 / 29		=



The skills mismatch measures the gap between the skills at a particular level in the population and those employed.

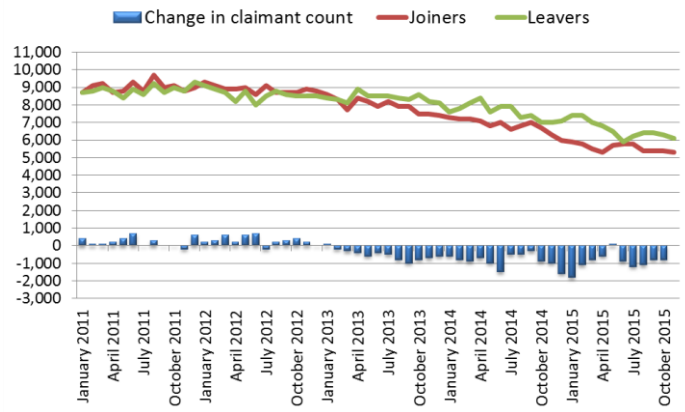
All countries have a greater proportion of the highly skilled in employment than in the working age population, suggesting that there is a relative shortage of highly skilled individuals. The reverse is true for low skills.

NI has a relatively large mismatch between demand and supply for high and low skills (with an undersupply of high skills and oversupply of low skills). Medium level skills are almost at equilibrium. Skills mismatches are more acute in Ireland for high skills and similar in terms of low skills.

Source: Eurostat & UUEPC calculations
Notes: High skilled corresponds to tertiary ISCED levels 5A, 5B and 6
Medium skilled corresponds to upper secondary and post-secondary non-tertiary ISCED levels 3A, 3B and 3C long programmes and ISCED 4
Low skilled corresponds to less than upper secondary ISCED levels 0, 1, 2 and 3C short programmes

Figure 5.4.7: Claimant count unemployment flow analysis, February 2011- November 2015

Employment and labour supply	Rank	Direction of change	Change in decile
Claimant count unemployment flow	n/a		n/a

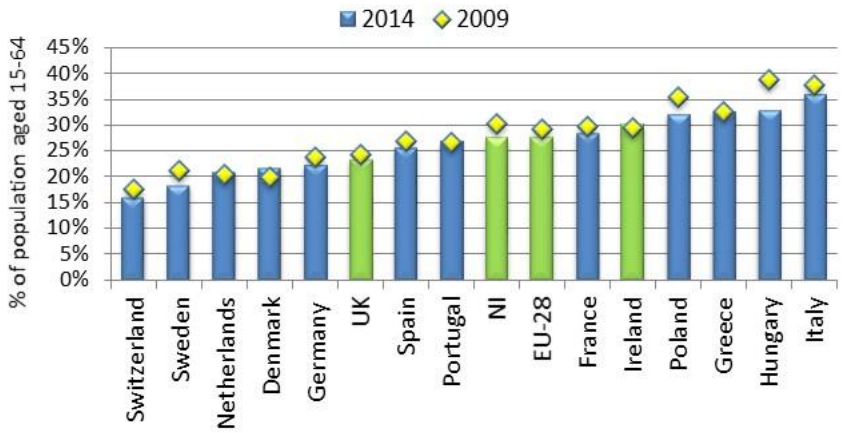


Since 2013, activity in NI's labour market has improved, with more people leaving the claimant count register than joining. Whilst unemployment is falling, there is still the potential for further improvements, for example towards levels that were witnessed prior to the recession.

Source: Claimant Count Unemployment

Figure 5.4.8: Economic inactivity rate, 2009-2014

Employment and labour supply	Rank	Direction of change	Change in decile
Economic inactivity rate (%)	18/34		=

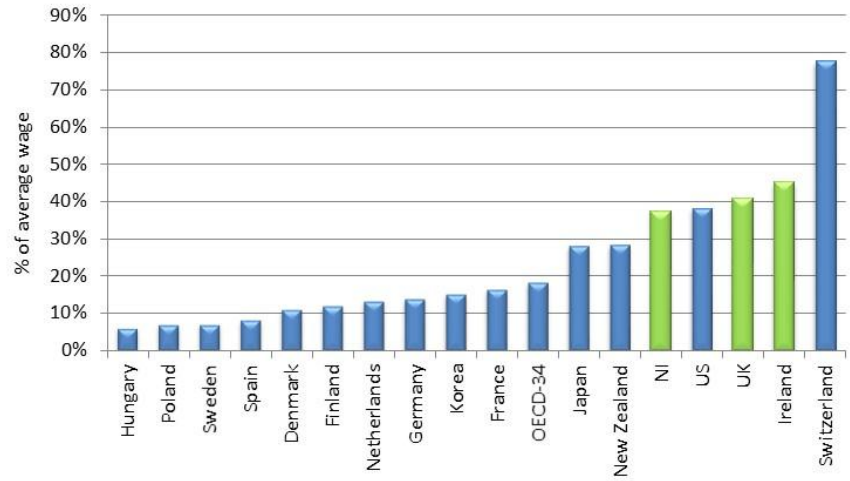


During 2014, 28% of NI's population aged 15-64 were classified as inactive. This is a reduction of 2 p.p. over the past 5 years. NI has performed relatively poorly in comparison to the UK where the rate is 5 p.p. lower at 23%. NI's inactivity rate is equal to the EU-28 average, although it is lower than Ireland (30%).

Sources: UK LFS & Eurostat LFS.
Note: Economically inactive as a proportion of the working age population

Figure 5.4.9: Childcare costs as a percentage of net income for two parents and lone parent, 2012

Employment and labour supply	Rank	Direction of change	Change in decile
Childcare costs as a % of net income	28/32		n/a



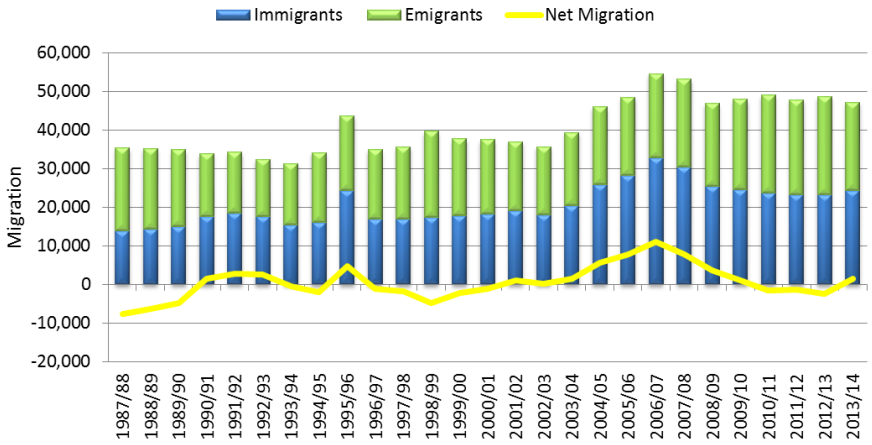
NI is a relatively expensive location for child care in comparison to other OECD countries. For a household with two adults, both earning the average wage, childcare costs amount to 38% of net income, compared to an OECD average of 19%.

For lone parents on the average wage, childcare costs in NI amount to 48.6% of net income compared to the EU average of 23.8% and an OECD average of 27.6%.

Source: OECD
Note: This indicator includes formal childcare costs, i.e. it does not include the economic value of informal childcare (by grandparents, other family and friends) which is difficult to measure and report on.

Figure 5.4.10: Net migration (000s), 1987/88 - 2013/14

Employment and labour supply	Rank	Direction of change	Change in decile
Net migration (000s)	n/a		n/a

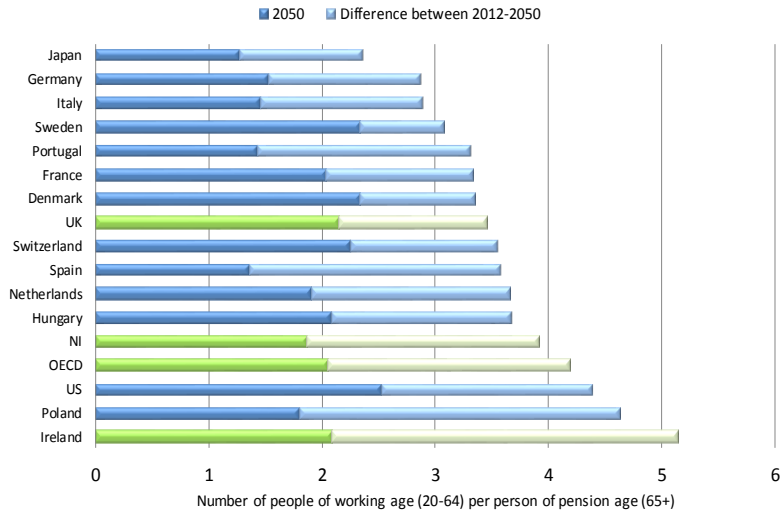


NI experienced fluctuations in emigration and immigration over the past three decades. As NI approached the peak of the boom in 2007/8, immigration exceeded emigration, helping to grow the available labour force. In recent years, patterns have reversed as more people leave than arrive in NI. It would be beneficial to understand the age profile and economic characteristics of emigrants and immigrants in order to gauge the potential economic and social impacts and there is merit in further research.

Source: NISRA

Figure 5.4.11: Number of persons of working age per dependent & change, 2012-50

Employment and labour supply	Rank	Direction of change	Change in decile
Number of persons of work-age per dependent & change, 2012-50	25 / 28	n/a	n/a



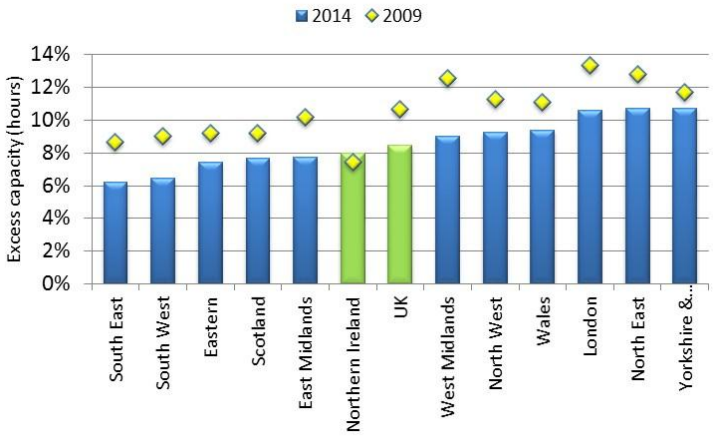
In 2012, there were 3.92 people of working age (defined as 20-64 years) in NI for every one person of pension age (65+ years). However, by 2050, this is expected to fall to just 1.87, thus illustrating the scale of the challenge associated with NI's ageing population.

Ireland has a particularly healthy ratio at this point in time, but is also expected to face similar challenges to NI by 2050.

Source: OECD

Figure 5.4.12: People who are under employed, 2009-2014

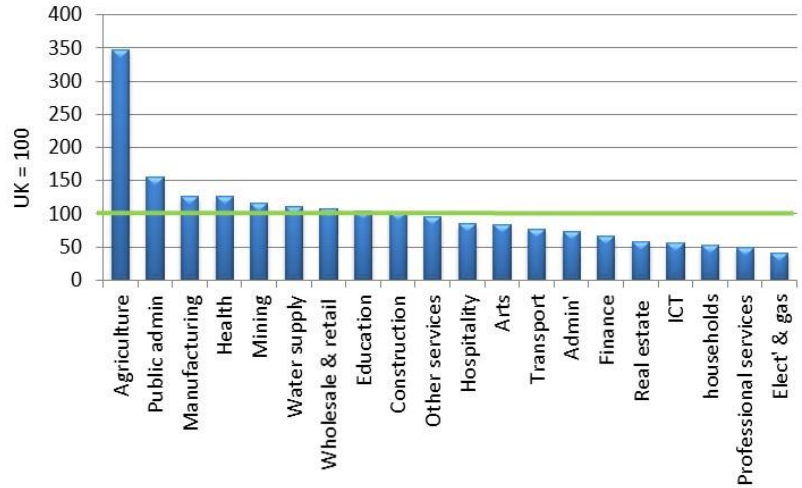
Employment and labour supply	Rank	Direction of change	Change in decile
People who are under employed	6 / 12		↓↓↓↓



The Bell-Blanchflower method[13] 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. All regions of the UK, with the exception of NI have lower levels of excess capacity than in 2009, indicating that these regional economies have strengthened. However, NI has remained static, dropping down the UK league table from first to mid-table.

Source: UUEPC, from Labour Force Survey

Figure 5.4.13: NI Employment by sector, relative to the UK, 2014



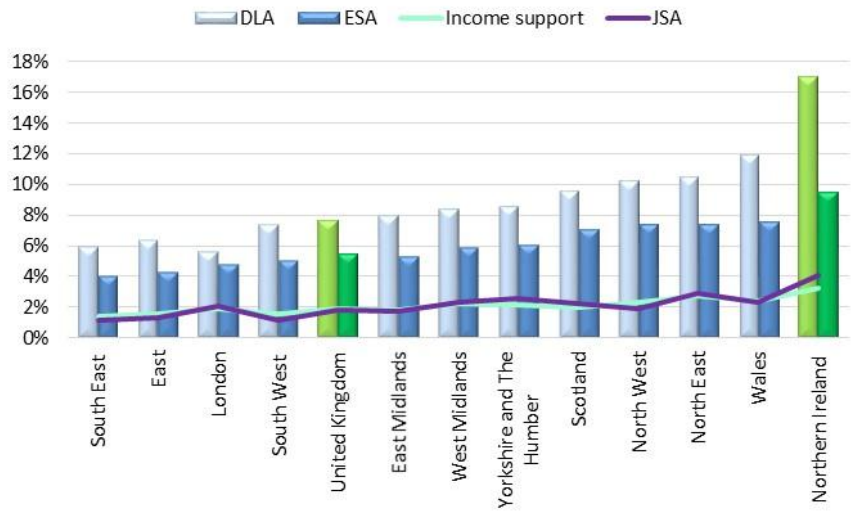
A relatively high proportion of NI's jobs are in Agriculture sector, Public Admin and Defence and Manufacturing. The two largest sectors are typically low value added. In addition, NI has a relatively low concentration of high value added sectors such as Professional, Scientific and Technical, ICT and Finance and Insurance etc.

Source: ONS Workforce Jobs series

13 http://www.theworkfoundation.com/Datalab/The-BellBlanchflower-Underemployment-Index

Figure 5.4.14: Benefit intensity (working age population per key benefit claimant) IB, JSA, 2014

Employment and labour supply	Rank	Direction of change	Change in decile
Benefit intensity (DLA as a % of WAP)	12/12		=
Benefit intensity (ESA as a % of WAP)	12/12		=
Benefit Intensity (Income Support as a % of WAP)	12/12		=
Benefit Intensity (JSA as a % of WAP)	12/12		=



When compared to all other UK regions, NI has the highest proportion (% of working age population) of benefit claimants across every major benefit.

Disability Living Allowance (DLA) in NI represents the largest group of benefit claimants and accounts for 17% of NI's working age population, compared to 12% in the next highest UK region, Wales (9p.p higher than the UK average of 8%).

Similarly, Employment and Support Allowance (ESA) is claimed by 10% of the working age population, compared to the UK average of 5%. Furthermore, Income Support is claimed by 3%, in line with the North East, but still higher than all other UK regions and Job Seekers Allowance (JSA) is claimed by 4% of the working age population compared to the UK average of 2%.

Sources: DSD & NOMIS
Notes: Direction of change and change in decile are calculated based on 2010 data
Personal Independence Payments were launched in GB in April 2013 and started to replace DLA for working age claimants.

Employment and labour supply summary

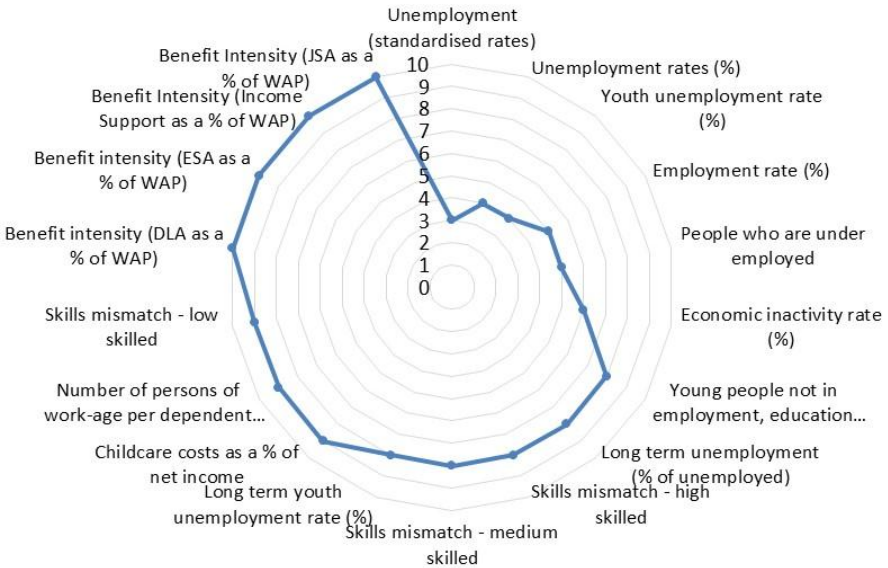
NI's performance within this pillar is weak, and is one of only two areas where NIs performance has deteriorated over the past five years. Almost three quarters of the countries analysed are now more competitive than NI on this pillar.

Many of the indicators have recovered to an extent following the recession, such as employment and unemployment. However, youth unemployment and long term youth unemployment remain persistently high, whilst improvements are evident in competitor nations – making these issues a significant policy challenge. The proportion of the population who are not in education, employment or training is also relatively large and increasing. High levels of benefit dependency are a persistent feature of the NI economy. There is an undersupply of highly skilled and an oversupply of low skilled workers in NI and migration is broadly in balance. Given the disequilibrium in skills it would be of significant benefit to better understand the skills profiles of emigrants and immigrants.

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 benefit dependency and lost economic potential for both the individuals and society. For parents, especially those with relatively low skills or working in low paid sectors, high childcare costs represent a significant barrier to re-joining the workforce. 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 some family and carers in terms of their employment options.

NI's sectoral employment profile reveals that a relatively high proportion of employees are in agriculture, the public sector & manufacturing with very low proportions in professional services, ICT and finance. These data demonstrate that most of the sectors that are successful in NI are domestically focussed (the exception being manufacturing) and that the underrepresented sectors are generally high productivity and externally focussed, highlighting the type of structural change that would be required in order to rebalance the NI economy.

Figure 5.4.15: Summary of decile placements for employment and labour supply



Source: UUEPC

Figure 5.4.16: Summary of employment and labour supply indicators

International comparisons

Employment and labour supply	Rank	Direction of change	Change in decile
ILO Employment rate (%)	15 / 36		=
ILO Unemployment rates (%)	11 / 34		=
ILO Long term unemployment (% of unemployed)	27 / 36		↓
Economic inactivity rate (%)	18 / 34		=
Unemployment (standardised rates)	6 / 29		↓
Youth unemployment rate	10 / 29		=
Long term youth unemployment rate	20 / 27		↓↓↓
Young people not in employment, education or training	21 / 29		=
Childcare costs as a % of net income	28 / 32		n/a
Net migration (000s)	n/a		n/a
Number of persons of work-age per dependent & change, 2012-50	25 / 28	n/a	n/a
Skills mismatch - high skilled	22 / 29		↑↑
Skills mismatch - medium skilled	21 / 29		=
Skills mismatch - low skilled	24 / 29		=

Source: UUEPC

UK regional comparisons

Employment and labour supply	Rank	Direction of change	Change in decile
People who are under employed	6 / 12		↓↓↓↓
Benefit intensity (DLA as a % of WAP)	12 / 12		=
Benefit intensity (ESA as a % of WAP)	12 / 12		=
Benefit Intensity (Income Support as a % of WAP)	12 / 12		=
Benefit Intensity (JSA as a % of WAP)	12 / 12		=
Claimant count unemployment flow	n/a		n/a

Source: UUEPC

6. Policy inputs

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

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

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.

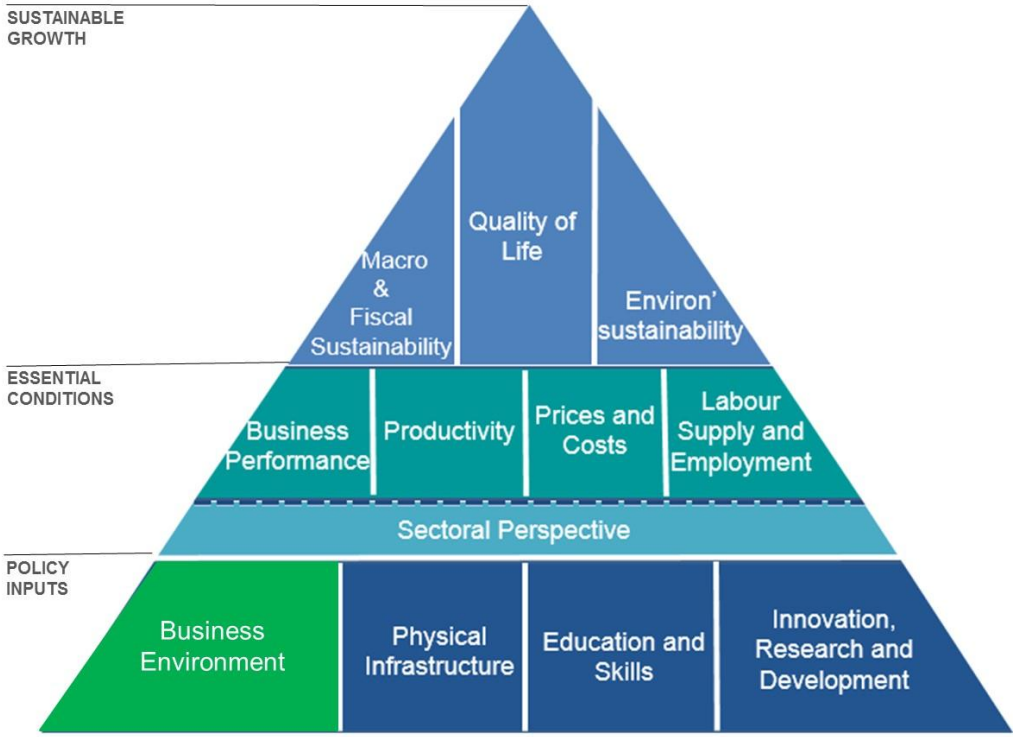
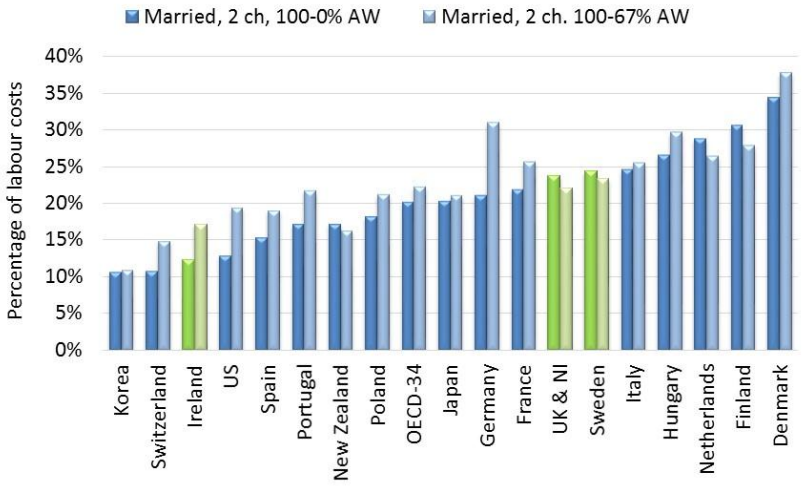


Figure 6.1.1: Income tax plus employee contributions (% of gross wage earnings) (Married, 2 CD, 100% & 167% AW), 2014

Business environment	Rank	Direction of change	Change in decile
Income tax + employee contributions as a % of GW (Married, 2 CD, 100% AW)	22 / 34		=
Income tax + employee contributions as a % of GW (Married, 2 CD, 167% AW)	18 / 34		=

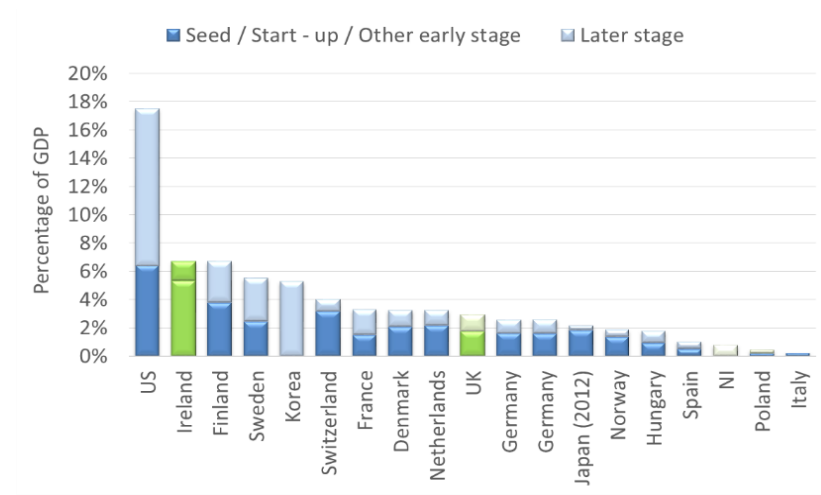


NI's income tax and employee contributions are set by the UK Government. In 2014, for a married couple with 2 children on a combined income of 167% of the average wage (i.e. a 2 earner family), 22.1% of total gross wage earnings contributed to income tax and employee contributions. This is relatively high compared to Ireland (17.2%), but much lower than Denmark (37.8%).

Source: OECD

Figure 6.1.2: Venture capital investment as a % of GDP, 2013

Business environment	Rank	Direction of change	Change in decile
Venture Capital Investment (% of GDP)	28 / 32		↑



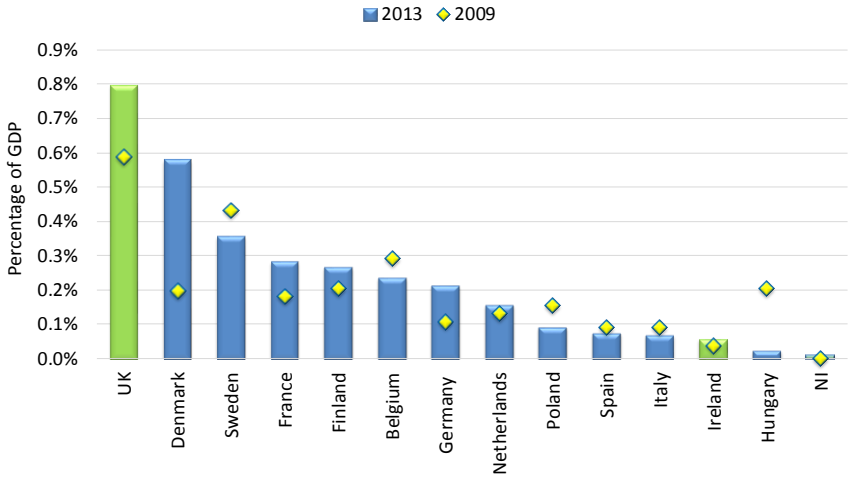
Venture capital (VC) is private capital typically provided to high-growth, risk taking companies. The total value of VC in NI was very low (£7m) during 2013, well behind the benchmark economies of Ireland and the UK. The US posted a very strong performance, although it should be noted that the approach is very much market led and access to other sources of start-up finance, for example, from Government vary on a country by country basis.

Sources: OECD, ECVA & BCVA

Note: 2013 is the latest available GVA data

Figure 6.1.3: Private equity investment (as a % of GDP), 2013

Business environment	Rank	Direction of change	Change in decile
Private equity investment (% of GDP)	19 / 21		=

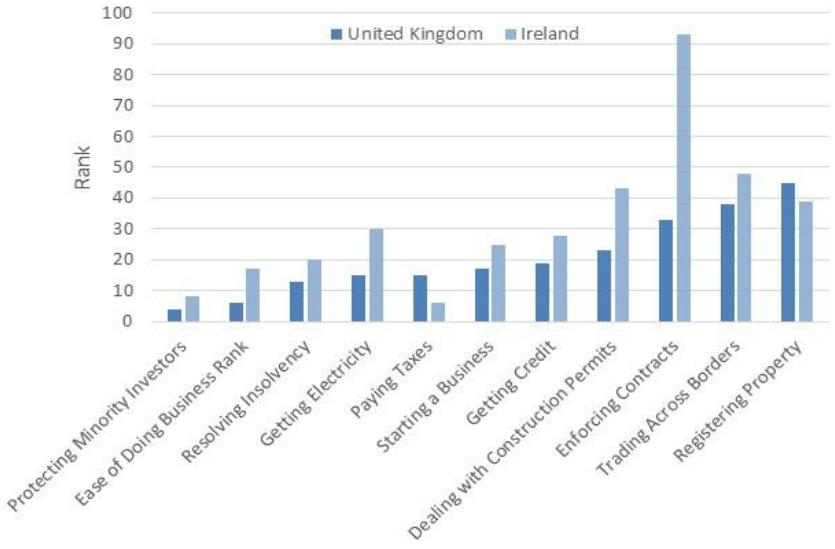


Private equity comprises all stages of financing (seed, start-up, expansion, replacement capital and buyouts). Private equity activity in NI is particularly low, although levels have been improving over the past five years.

Sources: OECD, ECVA & BCVA
Note: EU countries exclude: Croatia, Cyprus, Estonia, Latvia, Lithuania, Malta, Slovakia and Slovenia

Figure 6.1.4: Ease of doing business, 2015

Business environment	Rank	Direction of change	Change in decile
Ease of doing business	6 / 31	n/a	n/a



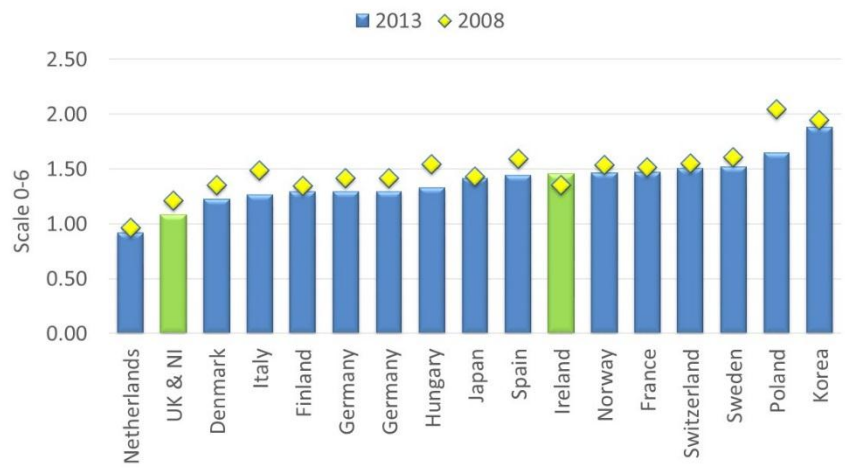
It should be noted that not published, and therefore, UK national data is used to proxy for NI as legislation is created and enforced across the UK. This indicator ranks the UK's performance across 11 different "Doing Business" metrics relative to all OECD countries. A direct comparison is provided with Ireland's performance.

While the UK performs very well in terms of protecting minority investors (ranked 2nd), ease of doing business (6th), and resolving insolvency (12th), its performance is weak in relation to registering property (22nd), getting electricity (22nd) and enforcing contracts (20th). Overall, the UK performance is ahead of Ireland, especially in terms of enforcing contracts.

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

Figure 6.1.5: Product market regulation (Scale 0-6), 2008 - 2013

Business environment	Rank	Direction of change	Change in decile
Product market regulation	2 / 19		↓



NI data is not available and therefore UK data is used in its place as regulations are applied across the UK. The OECD Indicators of Product Market Regulation are a comprehensive set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. Low scores indicate greater competitiveness and the UK performs well.

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

Figure 6.1.6: Regulation of professional services, 2013

Business environment	Rank	Direction of change	Change in decile
Regulation of professional services (Accounting)	5 / 19		=
Regulation of professional services (Legal)	3 / 19		=
Regulation of professional services (Architect)	6 / 19		=
Regulation of professional services (Engineering)	1 / 19		=

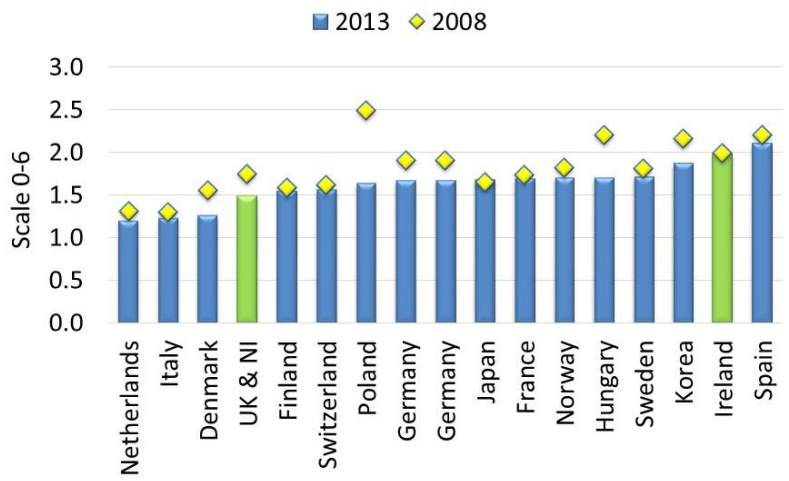
This indicator compares the level of regulatory restrictions which exist in professional services (specifically market entry and conduct regulations). In NI (where regulation is set by the UK), both accounting and legal services are more heavily regulated than engineering and architectural services. This trend is generally the same across most EU countries.

UK professional services are heavily regulated, in line with the Scandinavian Economies, which should give confidence to purchasers of these services, but also embed additional compliance costs and can act as a barrier to entry for new firms.

Source: OECD
Note: UK used as a proxy for NI
EU countries exclude: Bulgaria, Croatia, Cyprus, Germany, Latvia, Lithuania, Malta, Romania and Slovakia

Figure 6.1.7: Barriers to entrepreneurship (Scale 0-6), 2008 – 2013

Business environment	Rank	Direction of change	Change in decile
Barriers to entrepreneurship	6 / 19		=



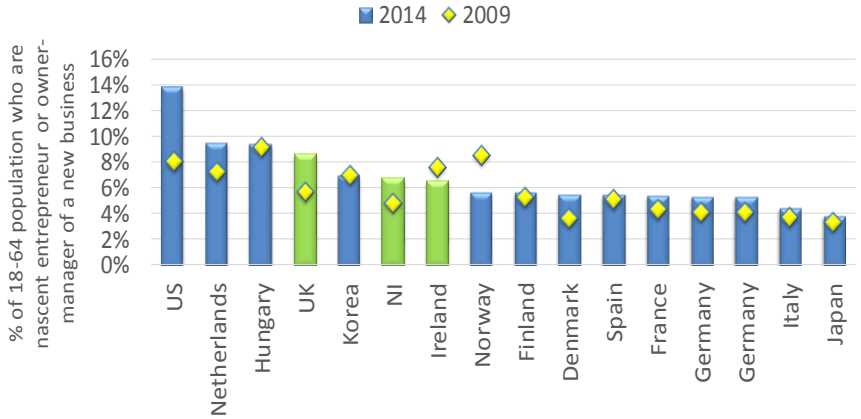
This indicator measures the complexity of regulatory procedures, the administrative costs placed on start-ups, and the regulatory protection of incumbents. The UK is relatively competitive (scoring 1.49 compared to an EU average of 1.6). NI's score has reduced in recent years, indicating increasing barriers to entrepreneurship.

Source: OECD product market indicators

Note: EU average excludes Bulgaria, Croatia, Cyprus, Germany, Latvia, Lithuania, Malta, Romania and Slovakia
UK used as a proxy for NI

Figure 6.1.8: Total entrepreneurial activity (% of 18-64-year-old population), 2009 – 2014

Business environment	Rank	Direction of change	Change in decile
Total entrepreneurial activity	10 / 24		↓



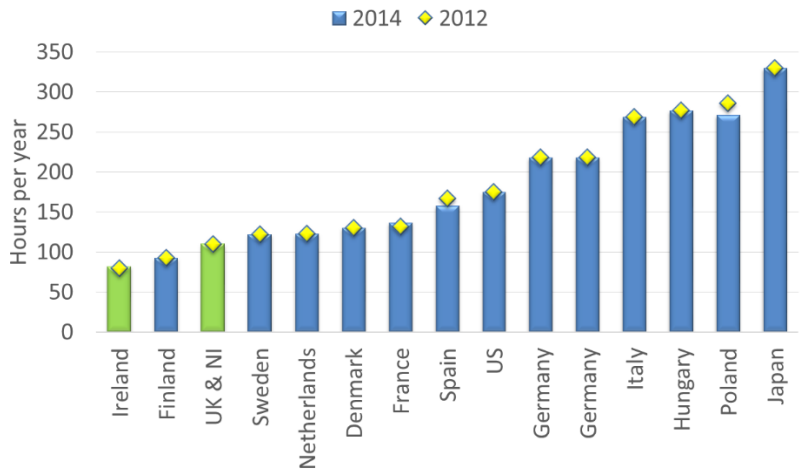
Throughout the period 2008-2014, entrepreneurial activity improved by 2p.p in NI, from 5% of the 18-64 year old population in 2009 to 7% in 2014. This was in line with the EU average of 8% in 2014, hence NI's relatively high score for this indicator.

Source: GEM Total Entrepreneurial Activity

Note: EU average excludes Bulgaria, Cyprus, Czech Republic, Latvia, Malta and the UK

Figure 6.1.9: Time to comply with tax payments (hours per year), 2012 - 2014

Business environment	Rank	Direction of change	Change in decile
Time to comply with tax payments (hours per year)	5 / 28		=



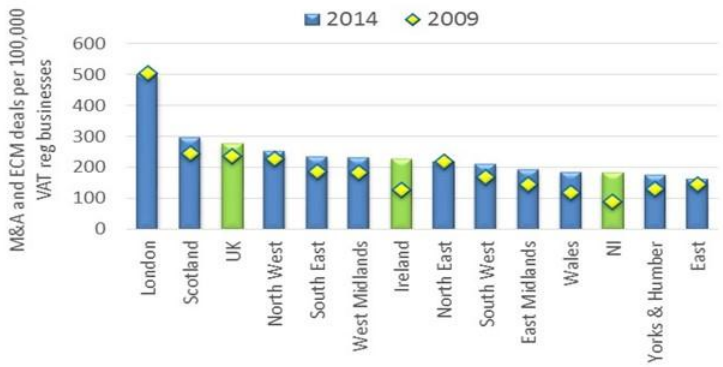
Sources: The World Bank

Notes: UK used as a proxy for NI
2008 data not available

This indicator measures the time required for tax compliance. Compliance activities relating to corporate, labour and consumption taxes are captured – these include time taken to prepare the tax figures, complete and file the tax returns, and paying the taxes. In NI, the UK is used as a proxy as it is part of the same taxation regime. UK which performs strongly in this indicator (110 hours per year in 2013 compared to an EU average of 189).

Figure 6.1.10: Number of M&A and ECM deals per 100,000 VAT registered businesses, 2009 – 2014

Business environment	Rank	Direction of change	Change in decile
Number of M&A deals per 100,000 VAT reg businesses	11 / 13		↑



When compared with all other UK regions, NI performs relatively poorly in M&A activity. Over the period 2009-2014, there were smaller numbers of M&A deals per 100,000 VAT registered businesses than any other UK region.

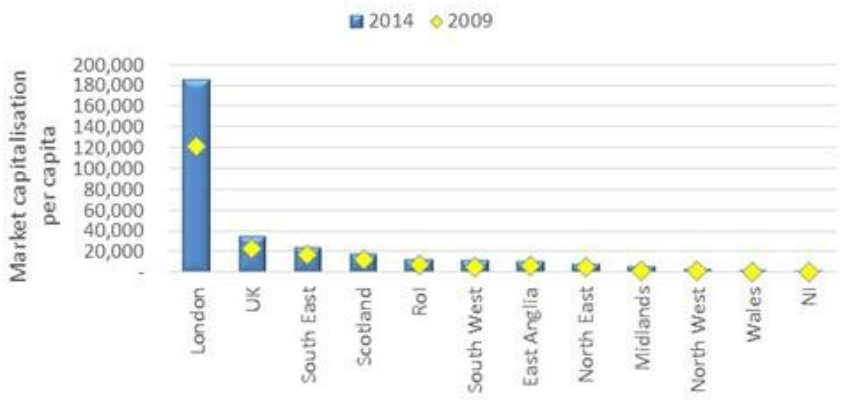
However, performance in this area does appear to be improving and in 2014 NI overtook the East and Yorkshire and Humber.

Moreover, the actual number of M&A deals per 100,000 VAT registered businesses in NI has increased year on year since 2010 (61 in 2010 to 183 in 2014).

Source: Experian Corpfin & UUEPC

Figure 6.1.11: Market capitalisation per head of population, 2009 – 2014

Business environment	Rank	Direction of change	Change in decile
Market Capitalisation per head of population	11 / 11		=

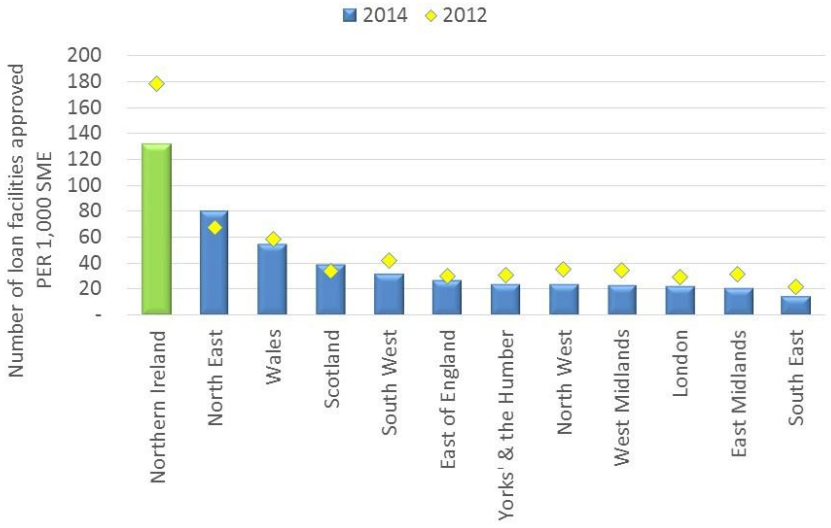


This indicator measures the total market value of the shares in all publicly traded companies that are headquartered in the region, per head of population. Relative to the other regions, NI has performed quite poorly and whilst values are increasing, this is from very a small base.

Source: London Stock Exchange

Figure 6.1.12: Number of SME loans approved per 1,000 SMEs, 2012 – 2014

Business environment	Rank	Direction of change	Change in decile
Number of loans approved per 1,000 businesses	1 / 12		=

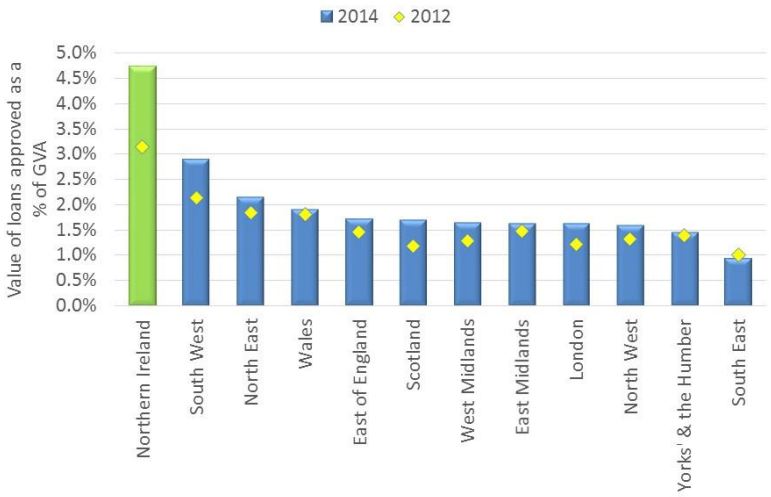


NI has the greatest number of loan approvals per 1,000 businesses according to BBA statistics. Following the recession, there were significant issues with access to finance in NI. However, there is a significant reduction in the loan rate since 2012.

Sources: BBA, BIS & IDBR
Note: 2009 data not available

Figure 6.1.13: Value of loan facilities approved as a % of GVA, 2012 - 2014

Business environment	Rank	Direction of change	Change in decile
Value of loan facilities approved (% of GVA)	1 / 12		=



In line with the number of loans approved, NI has the largest proportion of loans approved as a % of GVA according to BBA statistics. As a proportion of GVA, the value of loans approved has increased from 2012.

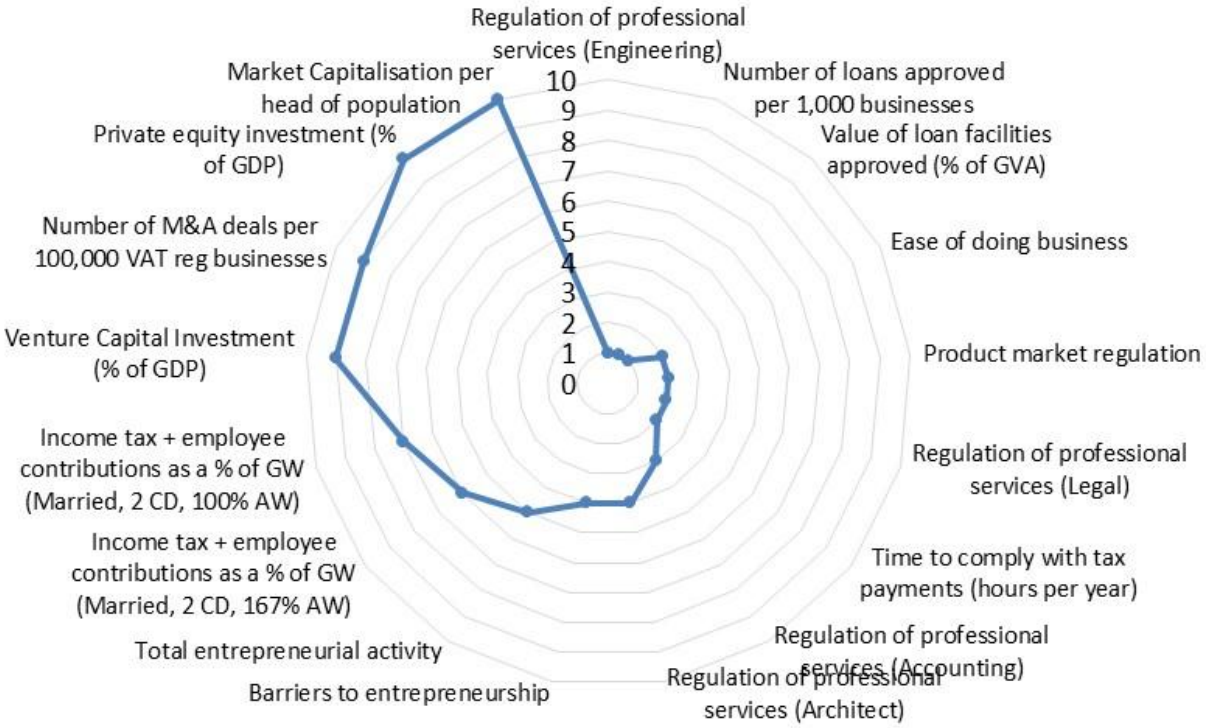
Sources: BBA, BIS & ONS Regional Accounts
Note: 2009 data not available

Business environment summary

NI benefits from a relatively competitive and stable business environment across a range of indicators. This is the best performing elements of the scorecard, at 4.8 in terms of decile placement. NI's relative position has not changed over the previous five years.

It is however, a story of two halves, scoring very well on a range of indicators relating to regulation, low barriers to entry and ease of doing business which are set within a UK framework and result in a mid-table performance. NI also scores particularly well against the other UK regions in terms of the number of business loans and value of business loans approved, but scores poorly on a number of indictors relating to other sources of finance. VC, M&A and private equity activity is extremely low in NI. It is not possible to determine whether this is an issue of limited supply or low demand but is an area that may merit further investigation as high tech start-ups often rely on these sources of finance.

Figure 6.1.14: Summary of decile placements for business environment indicators



Source: UUEPC

Figure 6.1.15: Summary of business environment indicators

Business environment	Rank	Direction of change	Change in decile
Venture Capital Investment (% of GDP)	28 / 32		↑
Private equity investment (% of GDP)	19 / 21		=
Ease of doing business	6 / 31	n/a	n/a
Product market regulation	2 / 19		↓
Regulation of professional services (Accounting)	5 / 19		=
Regulation of professional services (Legal)	3 / 19		=
Regulation of professional services (Architect)	6 / 19		=
Regulation of professional services (Engineering)	1 / 19		=
Barriers to entrepreneurship	6 / 19		=
Time to comply with tax payments (hours per year)	5 / 28		=
Number of M&A deals per 100,000 VAT reg businesses	11 / 13		↑
Market Capitalisation per head of population	11 / 11		=
Total entrepreneurial activity	10 / 24		↓
Number of loans approved per 1,000 businesses	1 / 12		=
Value of loan facilities approved (% of GVA)	1 / 12		=
Income tax + employee contributions as a % of GW (Married, 2 CD, 100% AW)	22 / 34		=
Income tax + employee contributions as a % of GW (Married, 2 CD, 167% AW)	18 / 34		=

Source: UUEPC

6.2 Physical infrastructure

The quality and extent of the physical infrastructures impact directly upon competitiveness through trade effects, the mobility of labour and quality of life. It also has the potential to impact upon the attractiveness of the country in the eyes of investors and highly skilled migrants.

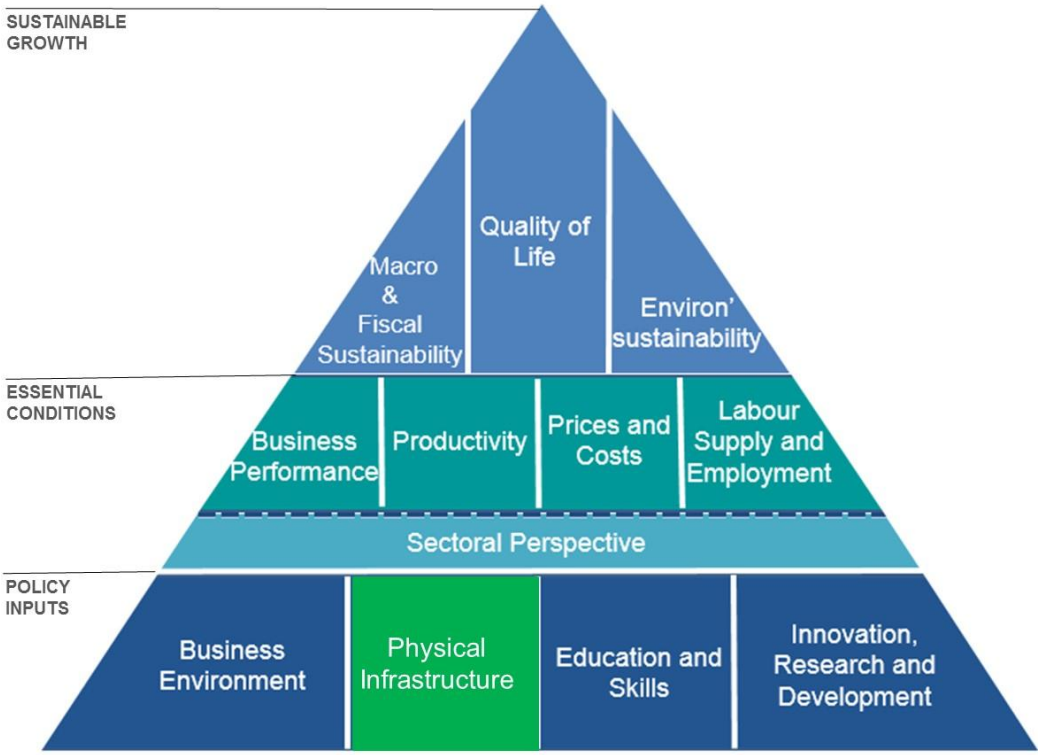
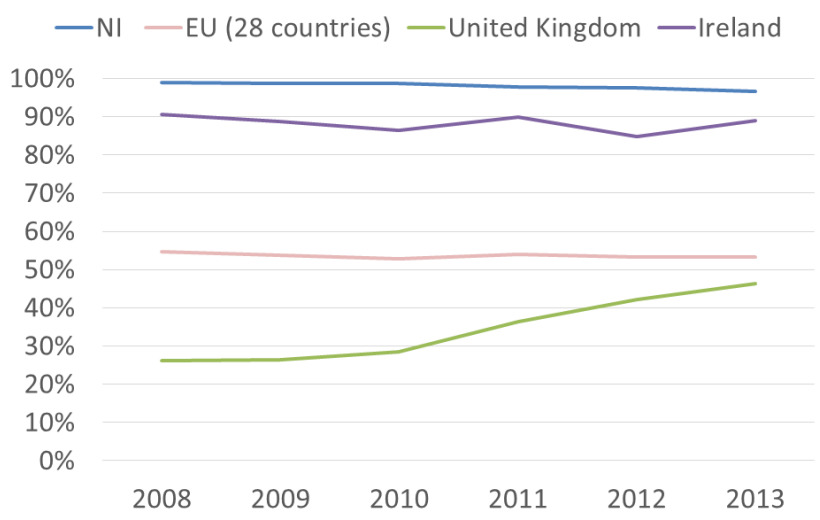


Figure 6.2.1: Energy import dependency, 2008 – 2013

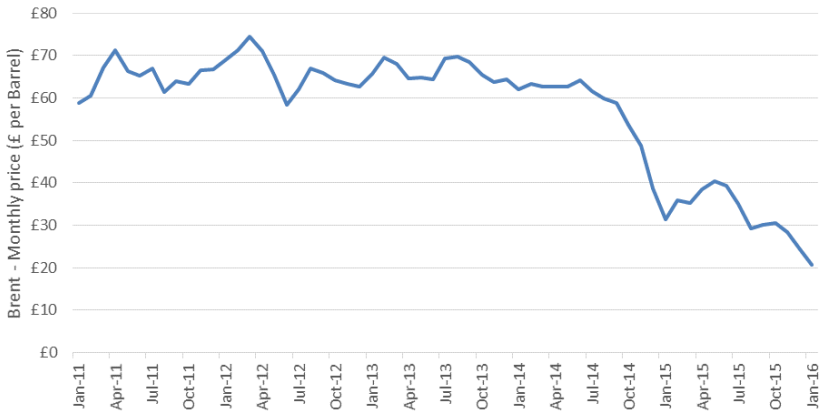
Physical infrastructure	Rank	Direction of change	Change in decile
Energy import dependency	27/29		=



NI is heavily dependent on imported energy (almost 97% in the latest year). The mix of fuel dependency is also markedly different to other areas of the UK – NI meets two thirds of its energy requirements through the use of petroleum products, whilst the UK average is two fifths. Global oil prices therefore have a much greater impact on NI than other areas of the UK and EU.

Sources: Digest of UK Energy Statistics (DUKES), Eurostat, DFP, UREGNI, UUEPC
Note: NI gas and electricity consumption data is sourced from UREGNI. Coal, manufactured fuels, petroleum and bioenergy is sourced from DUKES.

Figure 6.2.2: Crude oil barrel prices in Sterling, 2011 - 2016



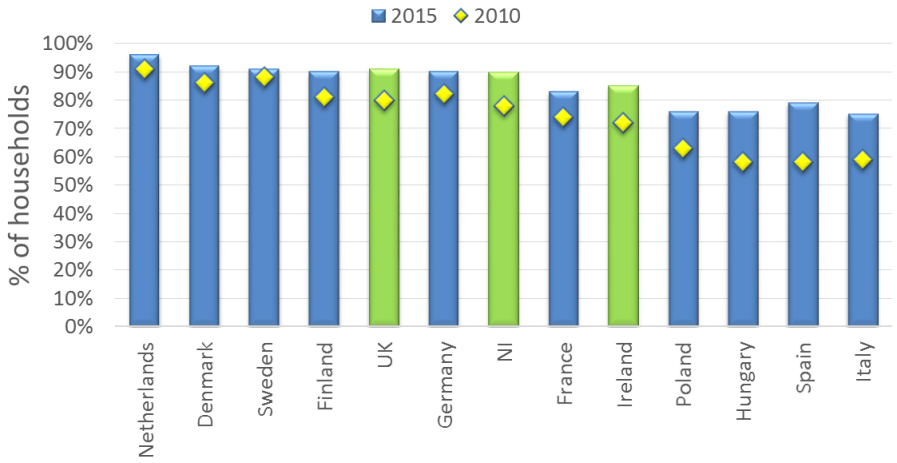
NI (and competitor countries) have benefitted from a marked reduction in global oil prices since 2014. They are now slightly more than a quarter of the peak level experienced during 2012.

This reduction will help to keep input prices and transport costs low and has helped households in terms of disposable incomes. Forecasters expect an increase in prices, but not a return to £70 per barrel in the near future.

Source: Indexmundi.com (Jan 2011 – Dec 2015) and World Bank (January 2016)

Figure 6.2.3: % of households with access to the internet, 2010-15

Physical infrastructure	Rank	Direction of change	Change in decile
% of households with access to the internet	6/29		=

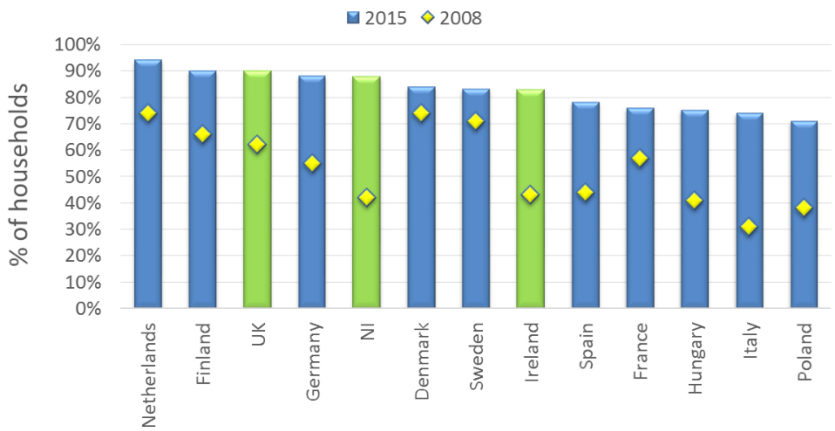


Access to the internet has improved significantly, growing from 78% in 2010 to 90% in 2015. This improvement has been relatively rapid, overtaking a number of other countries to secure a ranking of joint 6th. All countries exhibit good progress on this indicator however, and NI has maintained its relative position.

Source: Eurostat

Figure 6.2.4: Percentage of households connected to broadband internet, 2008 - 2015

Physical infrastructure	Rank	Direction of change	Change in decile
% of households with broadband internet	5/29		↑↑↑↑

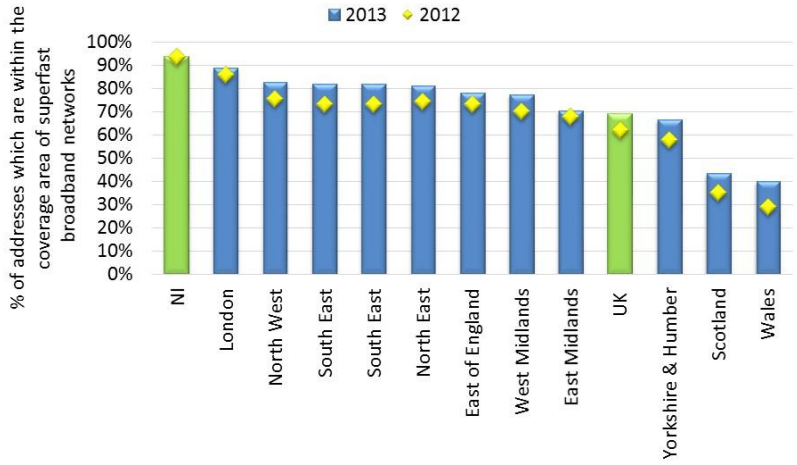


In 2015, 88% of households in NI had broadband internet, compared to just 42% in 2008. This is a relatively very strong performance, significantly improving NI's relative position, although it still lags the UK slightly.

Source: Eurostat
Note: 2008 data has been used to construct this chart and to calculate the direction of change and change in decile as Eurostat data for NI for 2009 & 2010 is not disclosed

Figure 6.2.5: % of premises within the coverage area of superfast broadband, 2012 - 2013[14]

Physical infrastructure	Rank	Direction of change	Change in decile
Superfast broadband availability	1/12		=

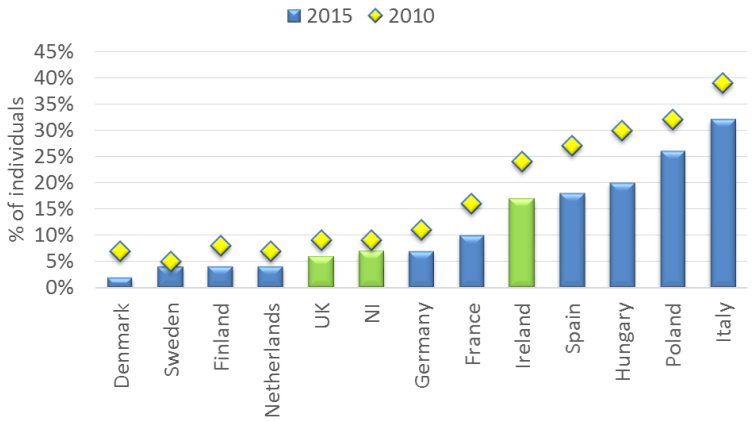


NI has exceptionally good coverage of next generation broadband, due to a large extent, to DETI's investment of £52m in the Next Generation Broadband project which completed in 2011[15]. It should be noted that being within the coverage area does not necessarily deliver superfast broadband, due to either geography in that lines running between cabinets and premises are often long enough to impair performance, or the fact that the user subscribes to a lower level of service. DETI are now implementing the Broadband Improvement Project focusing on rural areas to further extend basic and high-speed broadband services to 45,000 premises across NI at a cost of £23.7M.

Source: Ofcom Infrastructure report, 2014

Figure 6.2.6: % of individuals who have never used a computer, 2010-2015

Physical infrastructure	Rank	Direction of change	Change in decile
% of individuals who have never used a computer	7/29		=



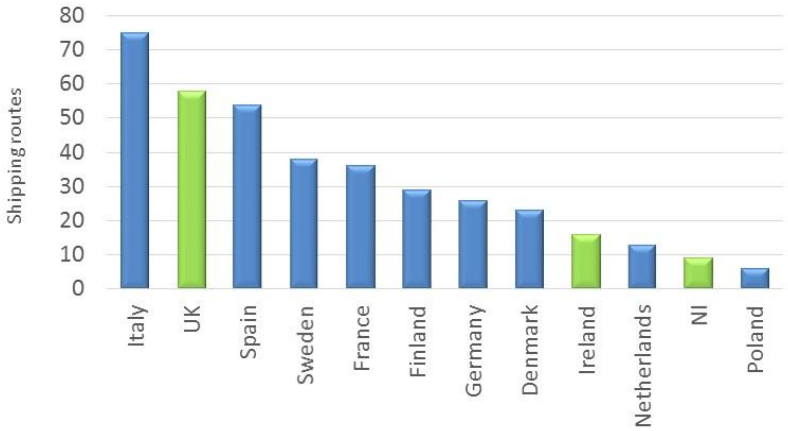
NI performs well in this indicator with a rank of 5. Just 7% of individuals in NI had never used a computer, compared to 9% in 2010. This is a marginally worse performance than the UK (6%), well ahead of the Irish benchmark.

Source: Eurostat

[14] "Super-fast broadband, or next generation broadband is generally taken to mean broadband products that provide a maximum download speed greater than 24 Mbit/s". Source: Ofcom, Review of the wholesale local access market.
[15] Ofcom Infrastructure report, 2014

Figure 6.2.7: Number of shipping routes, 2015

Physical infrastructure	Rank	Direction of change	Change in decile
Number of shipping routes	11 / 12	n/a	n/a

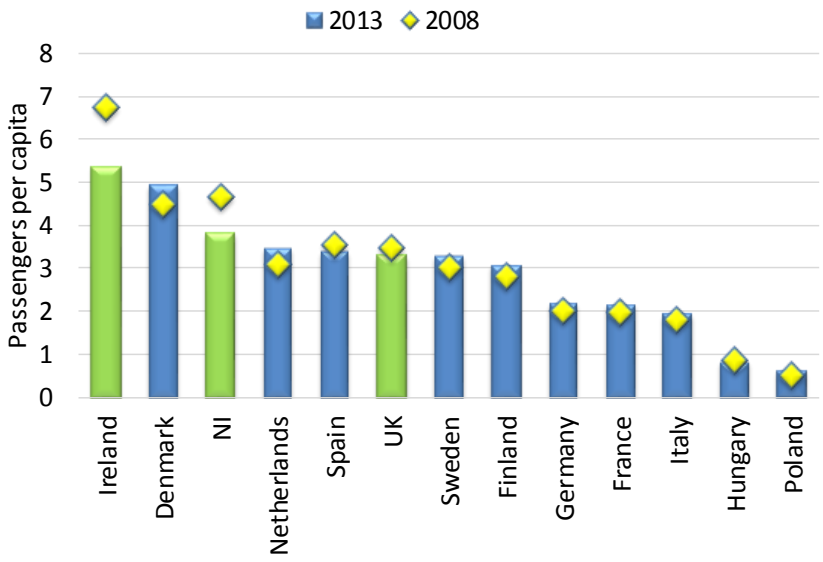


NI has a relatively low number of shipping routes compared to many other European countries, resulting in a low level of maritime connectivity.

Sources: Freightlink.com & aferryfreight.co.uk

Figure 6.2.8: Air transport of passengers per capita, 2008-2013

Physical infrastructure	Rank	Direction of change	Change in decile
Air transport of passengers per capita	7 / 29		↓

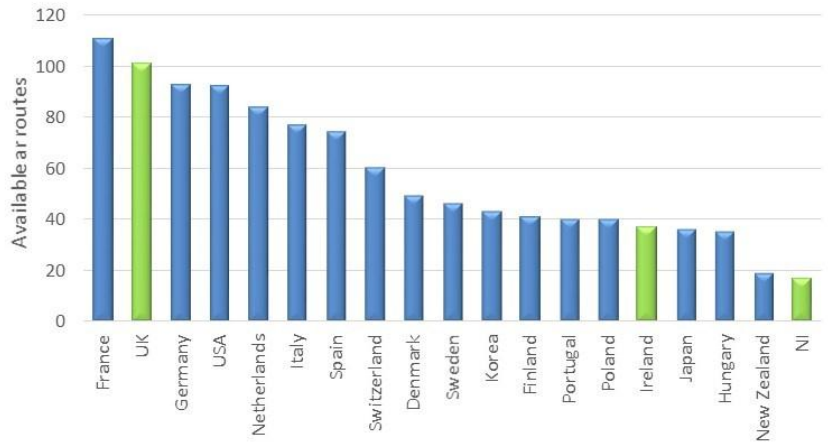


NI performs relatively well on air transport and in 2013, transported 3.8 passengers per capita by air, compared to the EU average of 3.05. However, NI's competitiveness in this area has fallen since 2008 when it ranked 5th and transported 4.65 passengers per capita. As a peripheral area of Europe, air travel is likely to be more important than some continental nations. Figures for Ireland will also include NI passengers who choose to commute from Dublin.

Source: Eurostat

Figure 6.2.9: Number of air routes (countries) available, 2015

Physical infrastructure	Rank	Direction of change	Change in decile
Number of air routes (countries) available	19 / 19	n/a	n/a

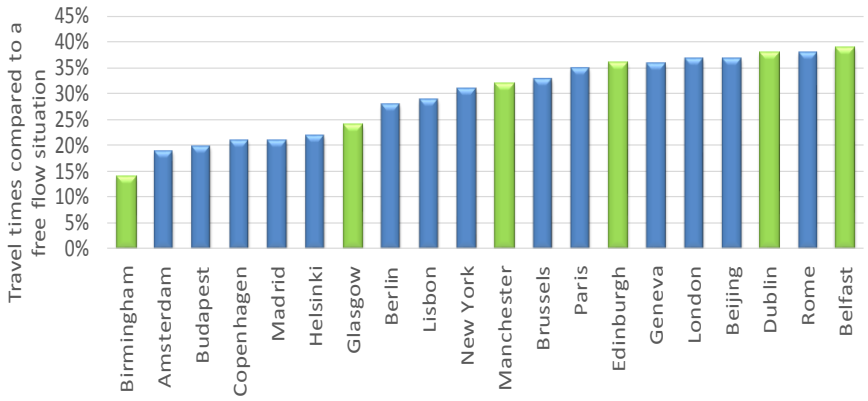


NI performs poorly on this indicator with fewer than 20 direct air routes. Whilst connectivity to London is good (air hub for the UK) and Dublin airport provides an alternative, travel options from NI are limited.

Source: Skyscanner.com (4/08/15)

Figure 6.2.10: Traffic congestion index, 2014

Physical infrastructure	Rank	Direction of change	Change in decile
Traffic congestion index	20 / 20	n/a	n/a



Source: Tom-Tom traffic congestion index

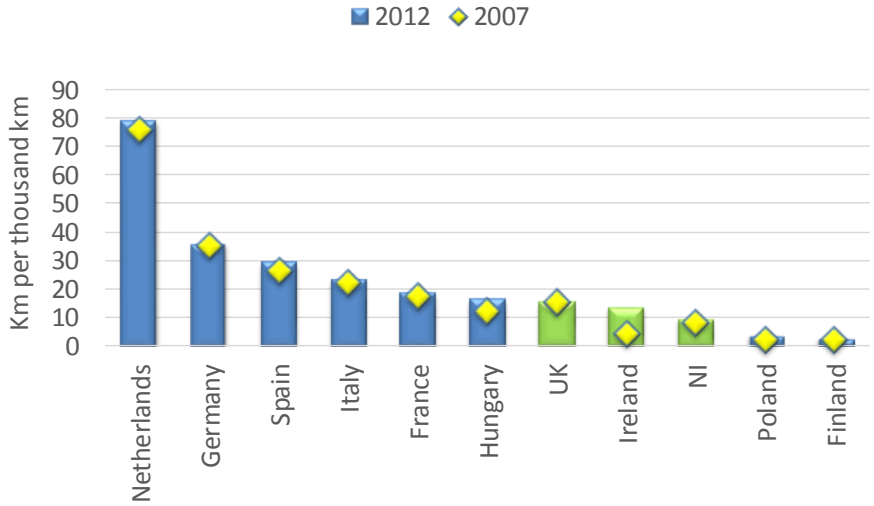
Note: Capital cities

Traffic congestion during peak hours in Belfast is relatively severe relative to cities in 23 other European countries.

This indicator measures the difference in congestion between peak and off peak times and may be exacerbated by much lower levels of congestion during off-peak periods.

Figure 6.2.11: Motorway Kms per 1000 sq. Kms, 2007 – 12

Physical infrastructure	Rank	Direction of change	Change in decile
Motorway Km per 1000 sq KM's	17 / 26		=



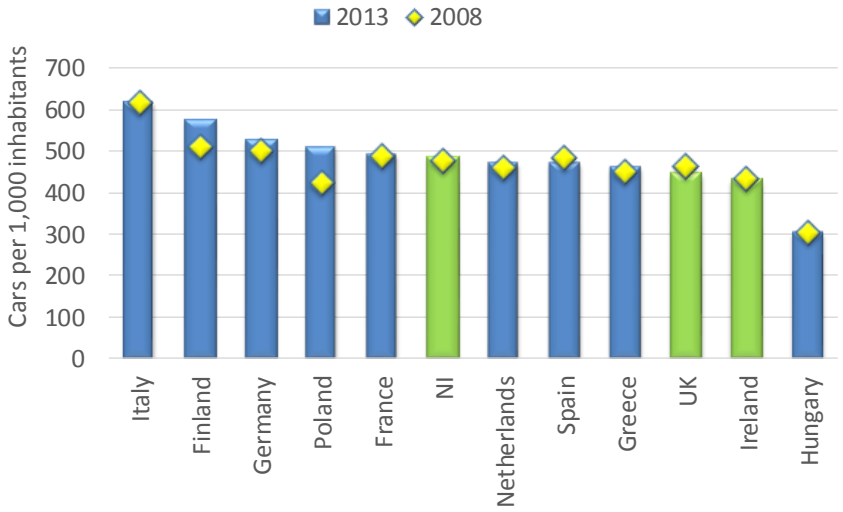
NI ranks mid-table in terms of motorway infrastructure.

NI's performance is comparable to Ireland and the UK, although it is clear that Ireland has lengthened its motorway network considerably over the period with the completion of a number of extension projects.

Source: Eurostat

Figure 6.2.12: Motorisation rate – passenger cars per 1000 inhabitants, 2008 – 2013

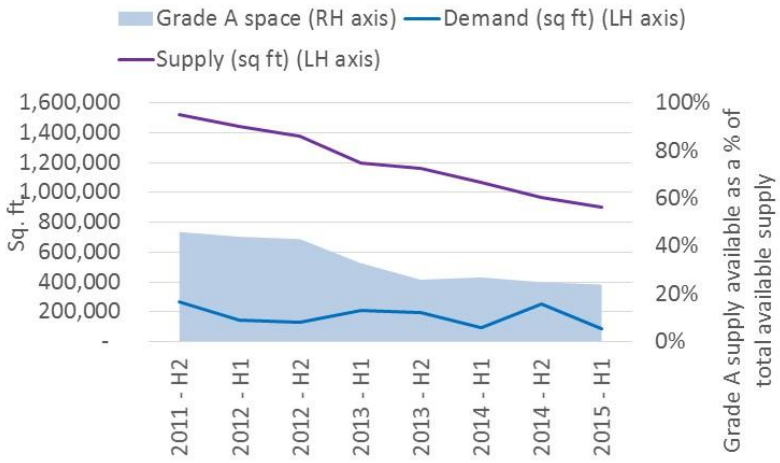
Physical infrastructure	Rank	Direction of change	Change in decile
Motorisation rate - cars per 1000 inhabitants	12 / 26		=



NI is often characterised as a "car dependent" region. However, an examination of the figures reveals that NI is average in this indicator. The rate of motorisation increased slightly from 2008, which should help to increase the mobility of the labour force.

Source: Eurostat

Figure 6.2.13: Service sector office space, 2011 - 2015



Demand has fallen during the first half of 2015 with the sale or rental of c87,500 sqft. This represents a third of total sales and rentals in the second half of 2014. It should be noted that c70% of sales and rentals in 2014 also occured in the second half of the year.

Supply of available office space reduced by 63,000 sqft with the amount of grade A space continuing to decline to 220,000 sqft.

Sources: CBRE & Belfast Marketview

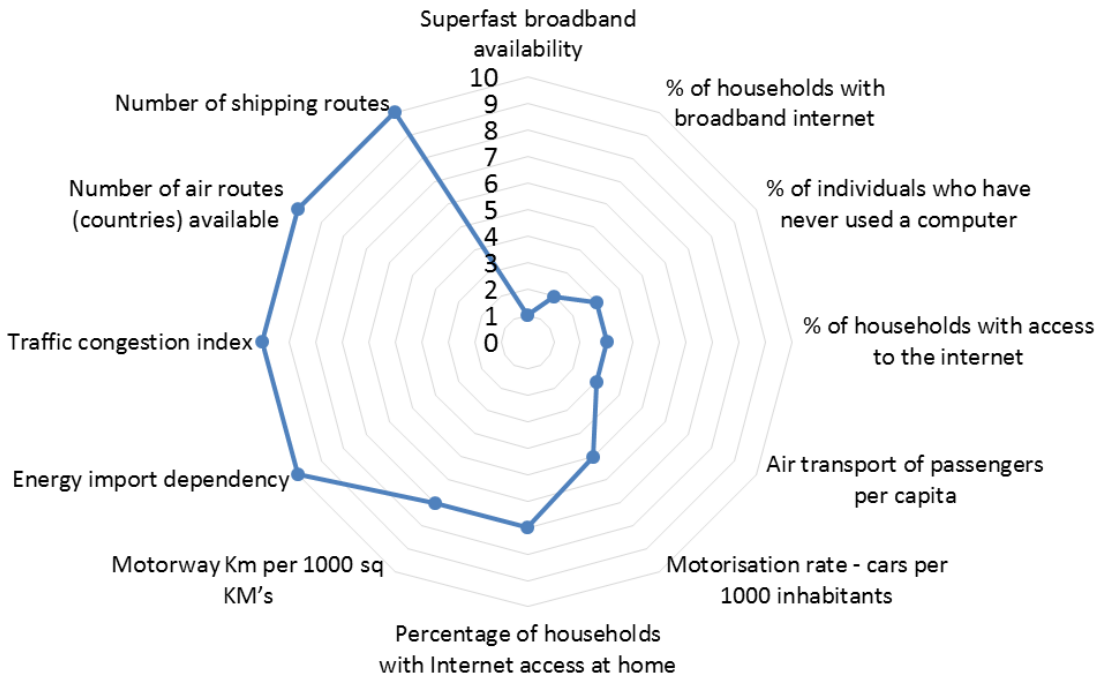
Physical infrastructure summary

NI's physical infrastructure has improved over the past five years from 6.3 to 5.9, resulting in an almost mid-table position in the Competitiveness Scorecard.

This pillar, like a number of others, is one of great contrasts. NI performs exceptionally well in terms of technological infrastructure - such as broadband connectivity, access and services and, starting from a strong base, has improved its relative position further in recent years. Information on the provision of technological infrastructure is good, however, it would be beneficial to have access to information on the usage costs. Physical infrastructure is also improving, posting a mid-table performance and maintaining NI's relative position. Air connectivity is relatively poor, 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, although one that will not be easily changed given NI's resource endowments. Oil prices have declined to almost a quarter of their peak price, which will prove beneficial for both businesses and consumers, both in NI and beyond. The large increase in energy generation from renewable sources detailed in the environmental sustainability element of the Scorecard represents a significant improvement, although NI is working from a low base and it will take time to catch up and move ahead of other nations.

Figure 6.2.14: Summary of decile placements for physical infrastructure



Source: UUEPC

Figure 6.2.15: Summary of physical infrastructure indicators

Physical infrastructure	Rank	Direction of change	Change in decile
Energy import dependency	27/29	🟢	=
% of households with access to the internet	6/29	🟢	=
% of households with broadband internet	5/29	🟢	↑↑↑↑
% of households with internet access at home	20/29	🟢	↑↑
% of individuals who have never used a computer	7/29	🟢	=
Air transport of passengers per capita	7/29	🔴	↓
Traffic congestion index	20/20	n/a	n/a
Motorway Km per 1000 sq KM's	17/26	🟢	=
Superfast broadband availability	1/12	🔴	=
Motorisation rate - cars per 1000 inhabitants	12/26	🟢	=
Number of air routes (countries) available	19/19	n/a	n/a
Number of shipping routes	11/12	n/a	n/a

Source: UUEPC

6.3 Education and skills

The stock 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.

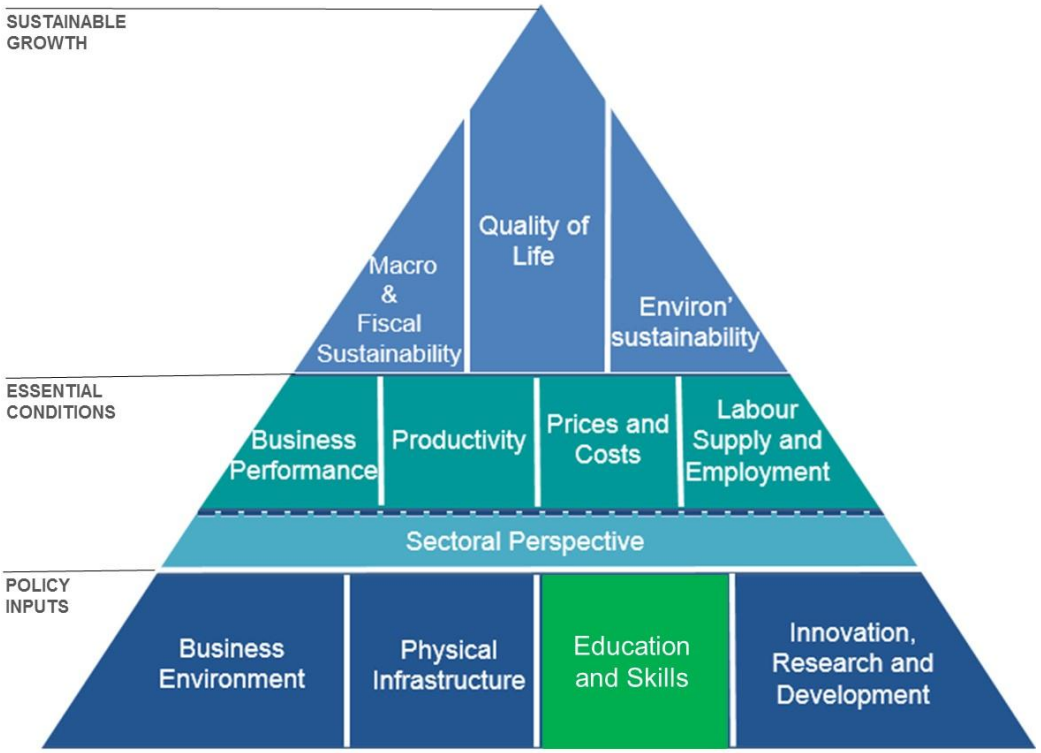
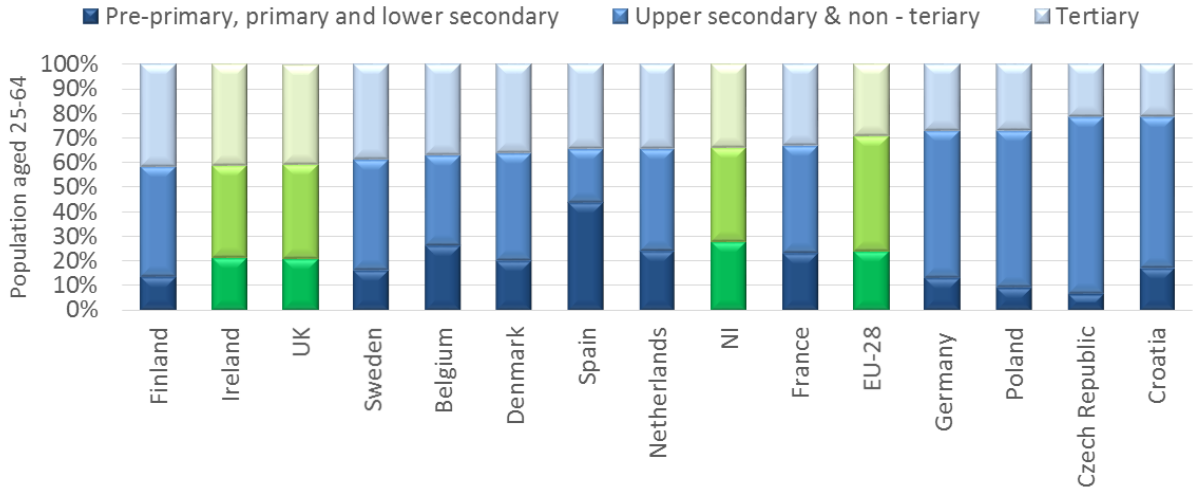


Figure 6.3.1: Educational attainment of population aged 25-64 by highest level of education (%), 2009 – 2014

Education and skills	Rank	Direction of change	Change in decile
Highest level of education (population aged 25-64) Pre-primary, primary and lower secondary	24 / 29		↓↓
Highest level of education (population aged 25-64) Upper secondary and non-tertiary	22 / 29		↑
Highest level of education (population aged 25-64) Tertiary	13 / 29		=

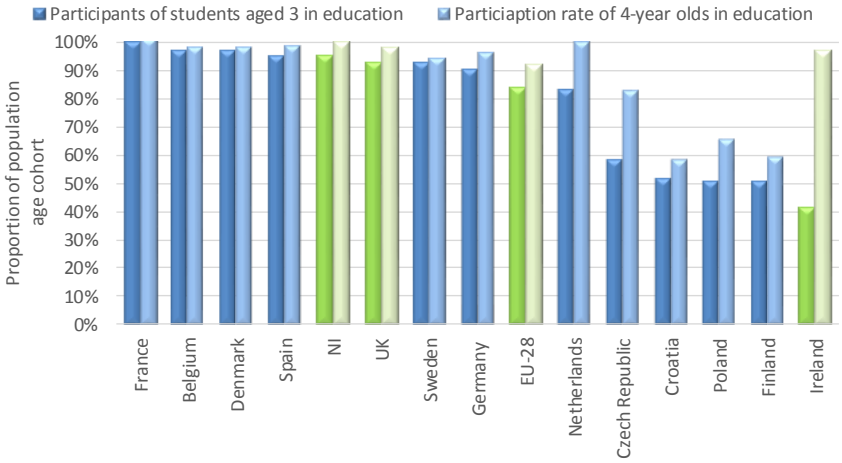


NI has improved over the past year to post a respectable mid-table performance in terms of higher education, ahead of the EU average, but still well behind Ireland and the UK. NI has a relatively large share of the population with low qualifications, greater than the EU average, Ireland and the UK, which is likely to act as a drag on competitiveness.

Source: Eurostat

Figure 6.3.2: Participation of 3 and 4 year olds in education (as a % of population age cohort), 2012

Education and skills	Rank	Direction of change	Change in decile
Participation of 3 year olds in education (% of population age cohort)	7 / 28		↓↓
Participation of 4 year olds in education (% of population age cohort)	3 / 29		↓



NI performs very well on this indicator with 95% of 3 year olds and 100% of 4 year olds* in NI in education, compared to an EU average of 76% of 3 year olds and 86% of 4 year olds. 99% of 3 year olds were reported to be in education in 2008 and the figure had reduced to 95% by 2012.

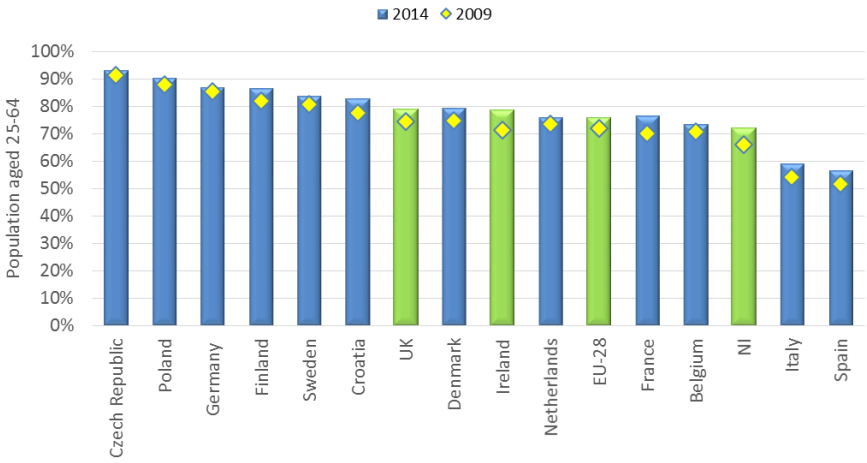
In Ireland, there was a significant increase in participation from 3-4 years as much of what is regarded as early childhood education in other countries is included in the Irish primary education system where children can be enrolled from four years old.

Source: Eurostat
Note: The EU average for 3 year olds excludes Greece
*The compulsory age of education in NI is 4, compared to:

- Cyprus, England, Malta, Scotland and Wales- age 5
- Austria, Belgium, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland and Turkey- age 6
- Bulgaria, Estonia, Finland, Latvia, Lithuania , Poland, Serbia and Sweden- age 7

Figure 6.3.3: Percentage of population aged 25-64 that has at least upper secondary education, 2014

Education and skills	Rank	Direction of change	Change in decile
% population aged 25-64 that has at least upper secondary education	24 / 29		=

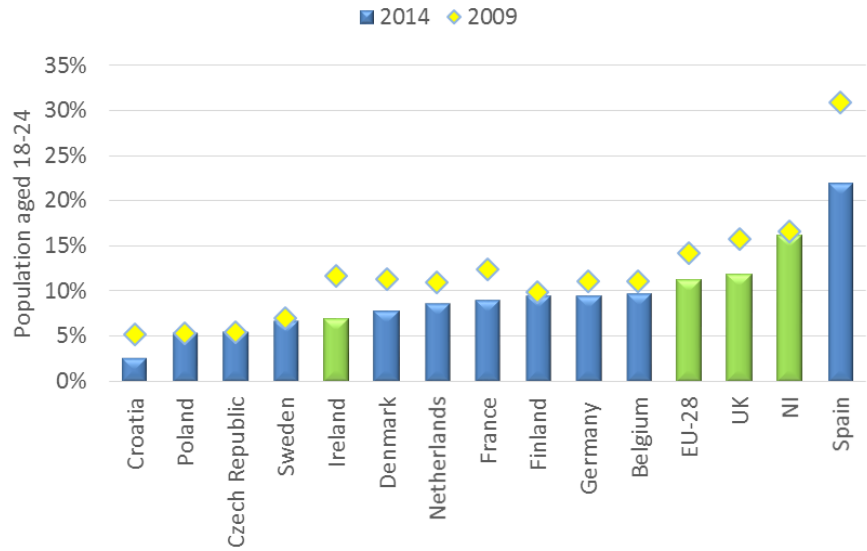


NI has a relatively low proportion of the population educated to at least secondary level (often regarded as an overall base level of skills). In 2014, 72% of 25-64 year olds had attained at least upper secondary education. Whilst improvements have been made in recent years (66% in 2009), NI has not been able to increase its regional ranking and is still considerably lower than the EU average of 76% and the Irish and UK benchmarks.

Source: Eurostat

Figure 6.3.4: Early school leavers as a percentage of population aged 18-24, 2009 – 2014

Education and skills	Rank	Direction of change	Change in decile
Early school leavers as a % of population aged 18-24	25 / 29		=



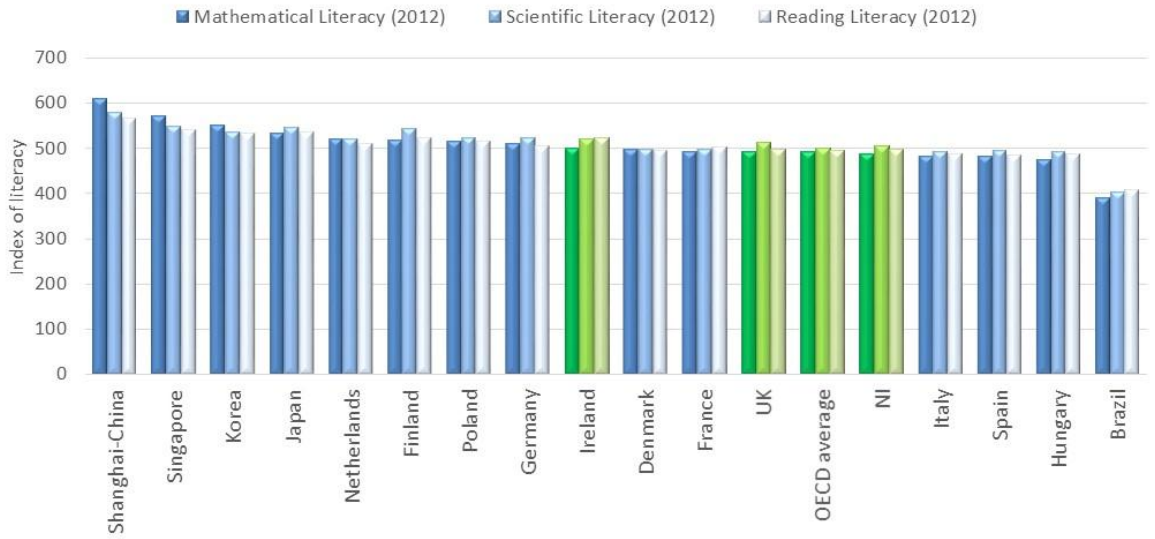
NI has a relatively large proportion youths who left education early.

Many other countries have improved significantly on this indicator over the last five years, whereas NI's improvement was marginal (from 17% to 16%).

Source: Eurostat

Figure 6.3.5: Scientific, mathematical and reading literacy of 15 year olds, 2009 - 2012

Education and skills	Rank	Direction of change	Change in decile
Scientific literacy of 15 year olds	14 / 33		↓
Mathematical literacy of 15 year olds	23 / 33		=
Reading literacy of 15 year olds	15 / 33		=



NI ranks mid-table in reading and science and at the lower end of the spectrum for mathematical literacy.

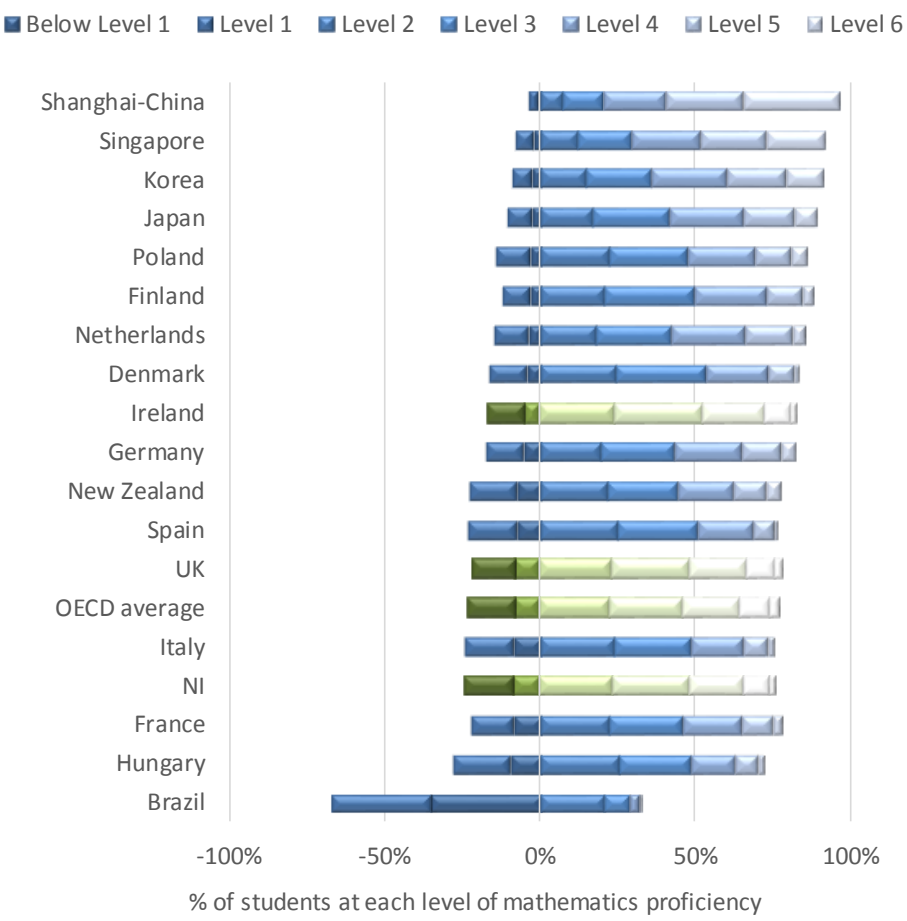
The literacy of NI's 15 year olds has declined over the most recent three year period. Ireland ranks significantly above NI, improving the average of its scores across all three categories by 1.1% over the three years from 2009. Improving literacy across all three areas is a key policy challenge for NI.

Source: PISA

Notes: OECD average includes: Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and Turkey
2009 data used to calculate direction of change and change in decile. 2007 data not available.

Figure 6.3.6: Percentage of students at each proficiency level on the mathematics scale, 2012

Education and skills	Rank	Direction of change	Change in decile
% of students at level 6 on the mathematics scale	25 / 32		=



NI's mathematics students are less proficient than their counterparts in the UK and Ireland. They also lag the OECD county average.

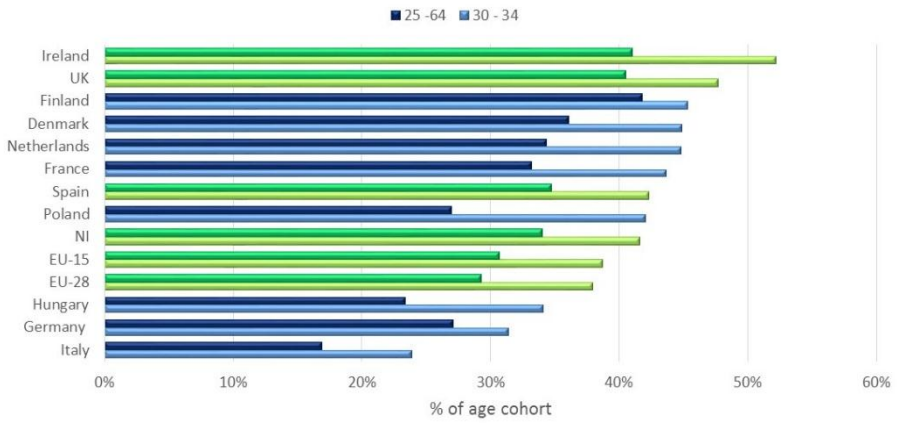
Whilst the direction of travel is positive, NI has not been able to improve enough to move up the country rankings.

Sources: PISA &NFER

Note: OECD average includes: Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and Turkey
2009 data used to calculate direction of change and change in decile.
2007 data not available.

Figure 6.3.7: Population by age cohort that has at least third level education, 2009 - 2014

Education and skills	Rank	Direction of change	Change in decile
Populationaged 30-34 that has at least third level education	15/29		↓
Population aged 25-64 that has at least third level education	13/29		=

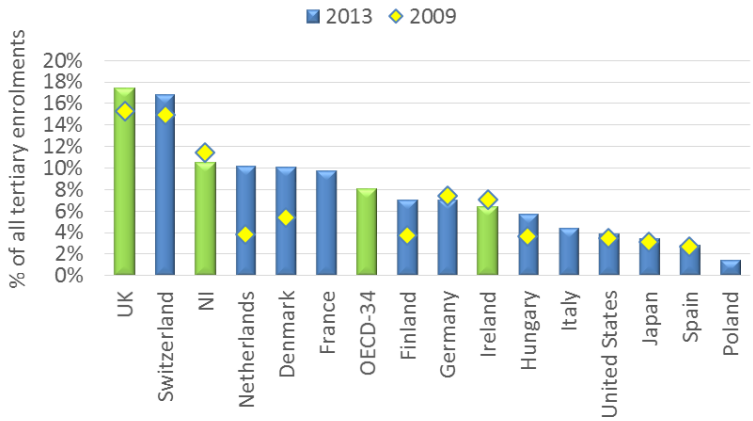


NI performs reasonably well on these indicators with a mid-table ranking and the proportion of the population groups increasing. However, the decile placements reveal that other countries have been increasing the proportion with third level education more rapidly moving ahead of NI in the league table.

Sources: Eurostat & OECD

Figure 6.3.8: International students (as a % of all students in tertiary education), 2009 - 2013

Education and skills	Rank	Direction of change	Change in decile
International students (as a % of all students in tertiary education)	7/31		↓

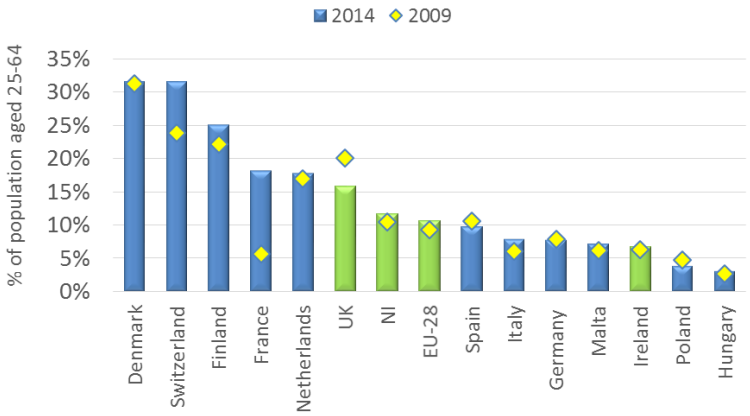


International enrolments reflect a combination of factors including cost and reputation. In 2013, international students comprised 10.6% of NI tertiary enrolments - behind the UK average (17.5%), but ahead of Ireland (6.4%). Again, whilst NI has been increasing the proportion of international students, some other counties have done so at a more rapid rate and moved ahead of NI.

Sources: OECD, HESA &UUEPC
Note: 2009 data used to calculate direction of change and change in decile as this is the earliest NI data available from HESA.

Figure 6.3.9: Lifelong learning (as a percentage of 25-64 year olds), 2009 – 2014

Education and skills	Rank	Direction of change	Change in decile
Lifelong learning (as a % of 25-64 year olds)	9 / 28		=

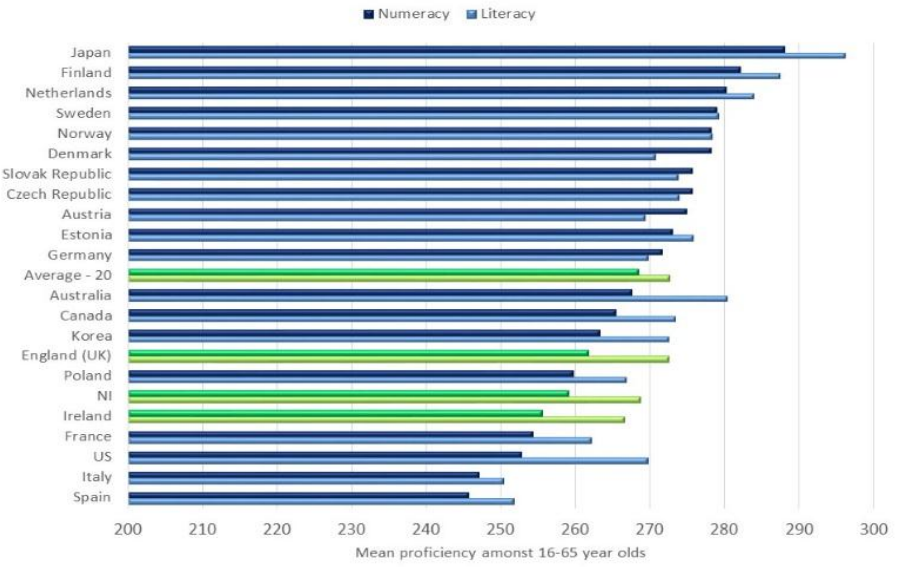


This indicator measures the percentage of people aged 25-64 who were engaged in education (both formal and non-formal) in the four weeks prior to the survey. NI ranks just above the EU average and participation has improved marginally since 2009. A breakdown by gender shows that NI females (11%) are more engaged in lifelong learning than males (9%).

Source: Eurostat

Figure 6.3.10: Proficiency in maths and reading (16-65 year olds), 2012

Education and skills	Rank	Direction of change	Change in decile
Proficiency in maths (16-65 year olds)	16 / 21	n/a	n/a
Proficiency in reading (16-65 year olds)	16 / 21	n/a	n/a



NI is well below the average in terms of both literacy and numeracy in the OECD's Programme for the International Assessment of Adult Competencies (PIAAC).

Both the UK and Ireland score below the OECD average in this survey, which gives cause for concern in terms of future productivity.

Source: OECD
Note: OECD countries include: Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, United States and Northern Ireland

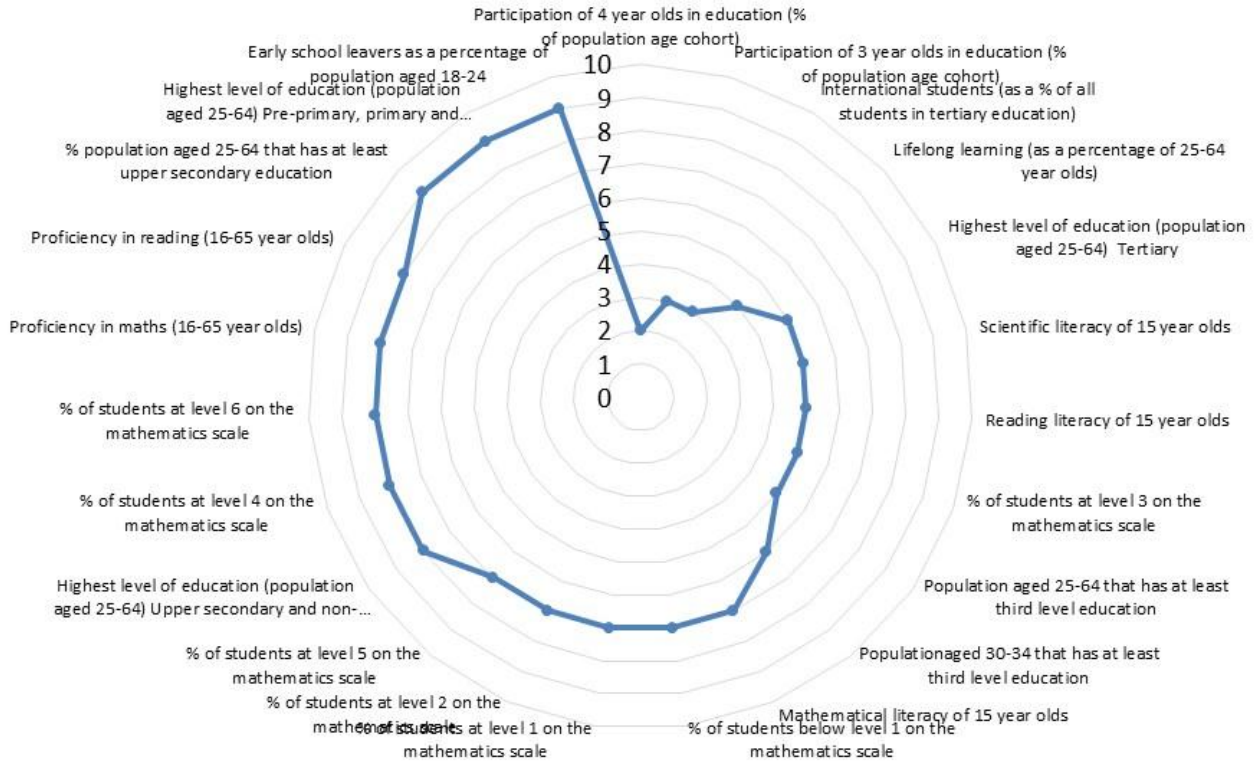
Education and skills summary

NI's performance in this element of the Scorecard has deteriorated from 5.4 to 5.9 over the previous five years. In absolute terms, NI's performance has improved in approximately half of the indicators and deteriorated in the remainder. In relative terms, other countries have improved more rapidly than NI, with the result that NI's comparative position has been eroded.

Participation rates rank well against competitor countries which provides a strong base in terms of the reach of education throughout the future labour force. For those completing their education, outcomes are average, or slightly below average for the countries analysed. Literacy, as measured by PISA presents some challenges, as scientific, mathematical and reading literacy of 15 year olds declined between 2009 and 2012. If this trend continues when the data for the survey undertaken is 2015 is published, it will result in difficulties for employers and economic development policy makers in future years.

The proportion of the population that have competed tertiary education has improved and NI ranks mid-table. However, issues persist with a relatively large proportion of the population with only primary level education and a relatively large proportion of early school leavers suggesting that there are challenges within the education system for the less able pupils.

Figure 6.3.11: Summary of decile placements for education and skills indicators



Source: UUEPC

Figure 6.3.12: Summary of education and skills indicators

Education and skills	Rank	Direction of change	Change in decile
Highest level of education (population aged 25-64) Pre-primary, primary and lower	24 / 29		↓↓
Highest level of education (population aged 25-64) Upper secondary and non-tertiary	22 / 29		↑
Highest level of education (population aged 25-64) Tertiary	13 / 29		=
Participation of 3 year olds in education (% of population age cohort)	7 / 28		↓↓
Participation of 4 year olds in education (% of population age cohort)	5 / 29		↓
% population aged 25-64 that has at least upper secondary education	24 / 29		=
Early school leavers as a % of population aged 18-24	25 / 29		=
Scientific literacy of 15 year olds	14 / 33		↓
Mathematical literacy of 15 year olds	23 / 33		=
Reading literacy of 15 year olds	15 / 33		=
% of students below level 1 on the mathematics scale	22 / 33		↓↓
% of students at level 6 on the mathematics scale	25 / 32		=
Population aged 30-34 that has at least third level education	15 / 29		↓
Population aged 25-64 that has at least third level education	13 / 29		=
International students (as a % of all students in tertiary education)	7 / 31		↓
Lifelong learning (as a percentage of 25-64 year olds)	9 / 28		=
Proficiency in maths (16-65 year olds)	16 / 21	n/a	n/a
Proficiency in reading (16-65 year olds)	16 / 21	n/a	n/a

Source: UUEPC

6.4 Innovation, research and development

The stock and quality of innovation, research and development in an economy is vital for economic growth. Companies that innovate, research and develop products and processes are leaders in their field, competing on uniqueness and value rather than cost. These companies employ highly skilled individuals, pay high wages and generate income to NI from export sales.

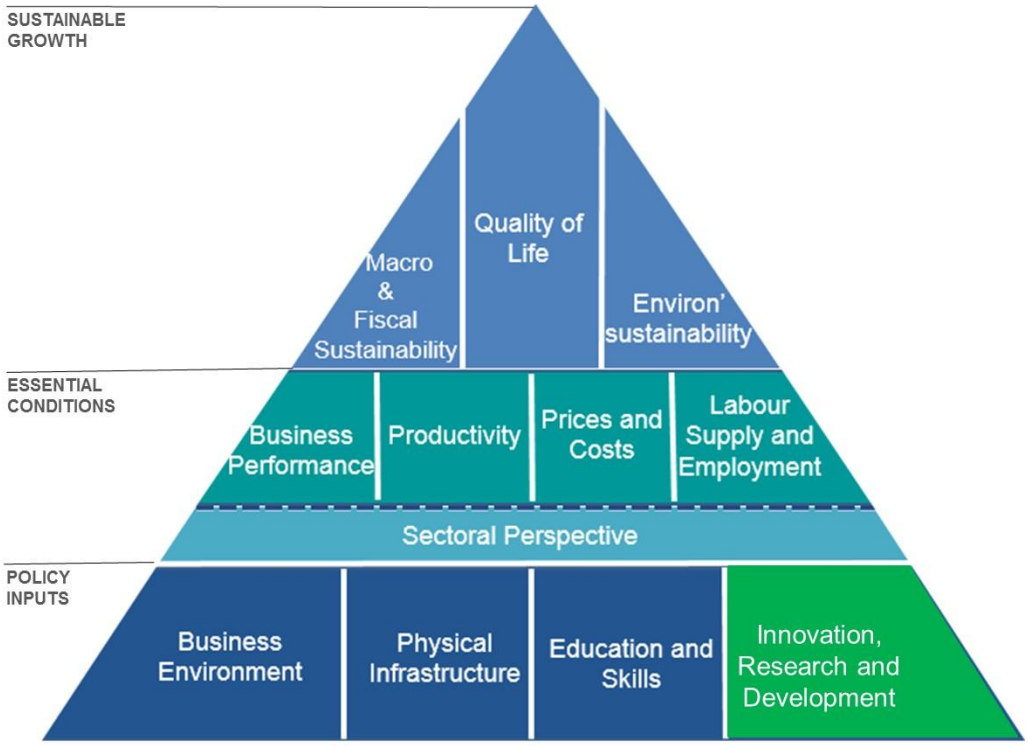
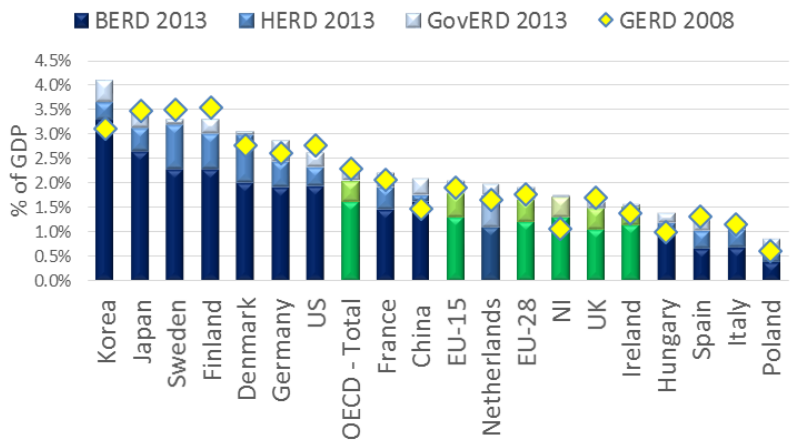


Figure 6.4.1: Expenditure on R&D as a percentage of GDP (business, higher education & Government), 2008 – 2013

Innovation, research and development	Rank	Direction of change	Change in decile
Expenditure on R&D as a percentage of GDP (HERD)	18/32		↓↓
Expenditure on R&D as a percentage of GDP (BERD)	13/31		↑↑
Expenditure on R&D as a percentage of GDP (GOVerd)	31/32		=



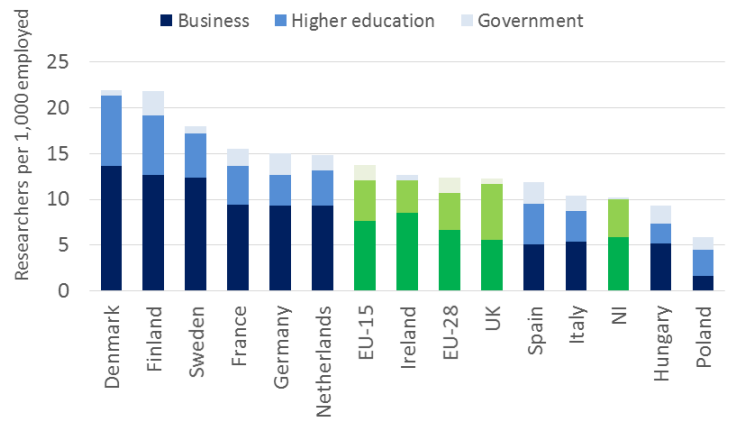
During 2013, NI's expenditure on R&D was equal to 1.8% of GDP. Business expenditure on R&D (BERD) accounted for the majority (1.3pp), with the remainder (0.5pp) of R&D expenditure by the higher education sector (HERD) and Government (Goverd).

NI's R&D performance has improved significantly over the last decade to catch up to UK and Irish levels. However, recently published data for NI reveals that BERD decreased from £480m in 2013 to £400m in 2014.

Sources: OECD, DETI, &UUEPC
Note: OECD countries exclude Australia, Iceland, Mexico and New Zealand
2013 data is the latest available for international comparison on Eurostat. 2014 data is available for NI

Figure 6.4.2: Researchers per 1,000 in total employment, 2013

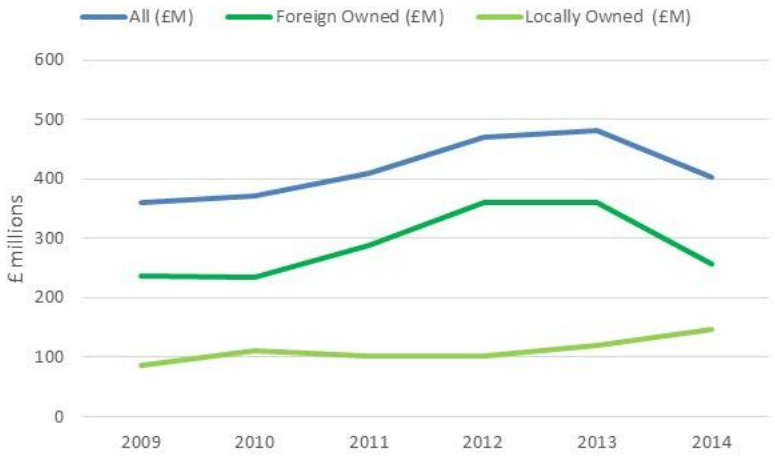
Innovation, research and development	Rank	Direction of change	Change in decile
Researchers per 1,000 in total employment, (Business)	14/29		=
Researchers per 1,000 in total employment, (Higher Education)	14/29		↓↓
Researchers per 1,000 in total employment, (Gov't)	29/29		=



During 2013, 10.2 researchers were employed in NI for every 1,000 people in employment – below the EU average of 13.8. A breakdown of researchers by sector shows that, businesses accounted for the majority of researchers in employment in 2013 (58%), followed by the higher education (40%) and Government sectors (2%). NI continues to lag the UK, Irish, EU and OECD averages despite significant growth in the number of researchers employed in NI.

Source: Eurostat

Figure 6.4.3: Business sector R&D expenditure by firm type, 2009 - 2014



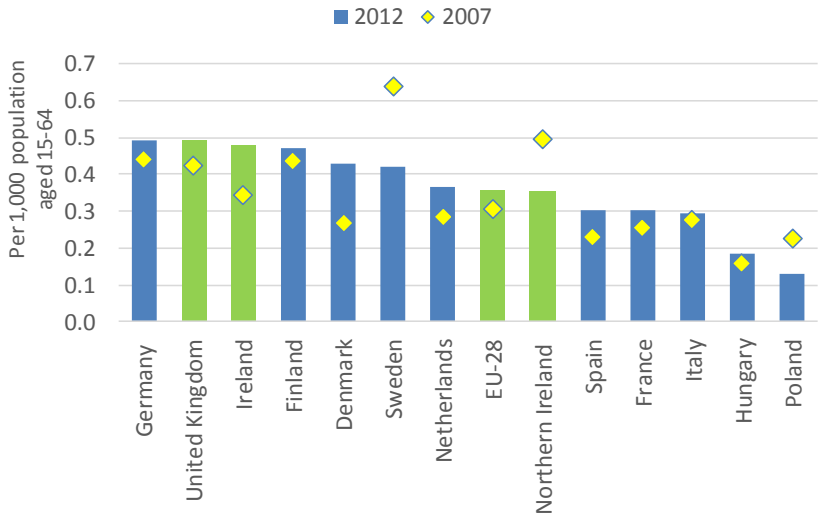
The majority of R&D NI was carried out by foreign owned companies (64%, £256.4m).

Foreign owned companies scaled back R&D expenditure by almost £100m (-29%). Expenditure by locally owned companies increased by 22% in contrast to almost £150m, however the increase was not enough to offset the reduction in expenditure by foreign owned firms.

Source: DETI R&D survey

Figure 6.4.4: PhD graduates per 1000 of population (aged 15-64), 2007 – 2012

Innovation, research and development	Rank	Direction of change	Change in decile
PhD graduates per 1,000 of population (aged 15-64)	14 / 29		↓↓↓↓

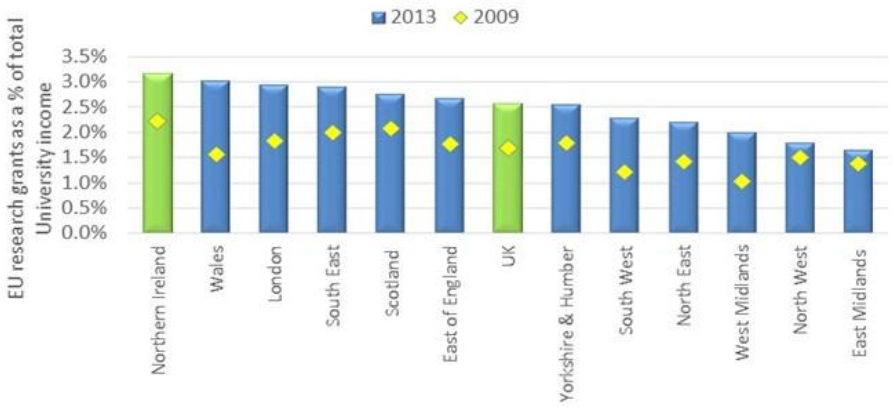


In 2012, NI had 0.35 PhD graduates per 1,000 people, a slight fall since 2007 (0.5). NI performs poorly in this area compared to both the UK (0.49) and Ireland (0.48), where the number of PhD graduates per 1000 of the population has increased since 2007.

Sources: HESA, Eurostat & UUEPC

Figure 6.4.5: EU research grants & contracts as a % of total university income, 2009 – 2013

Innovation, research and development	Rank	Direction of change	Change in decile
EU research grants and contracts as a % of total university income	1 / 12		=

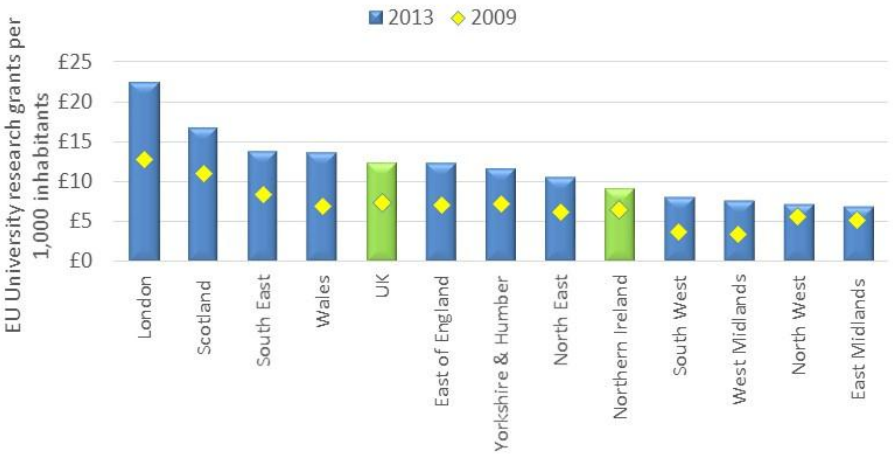


In 2013, NI had a higher percentage ratio of EU research grants and contracts to total income than any other UK region. Moreover, NI's performance in this area improved considerably throughout the period 2008 (2.2%) to 2013 (3.2%) allowing it to maintain its leading position, even as other regions performance also improved.

Source: HEIDI
Notes: Earliest available data is 2009
Does not include EU research grants and contracts to businesses

Figure 6.4.6: EU university research grants per 1,000 inhabitants, 2009 – 2013

Innovation, research and development	Rank	Direction of change	Change in decile
EU University research grant spend per 1,000 inhabitants	8 / 12		↓

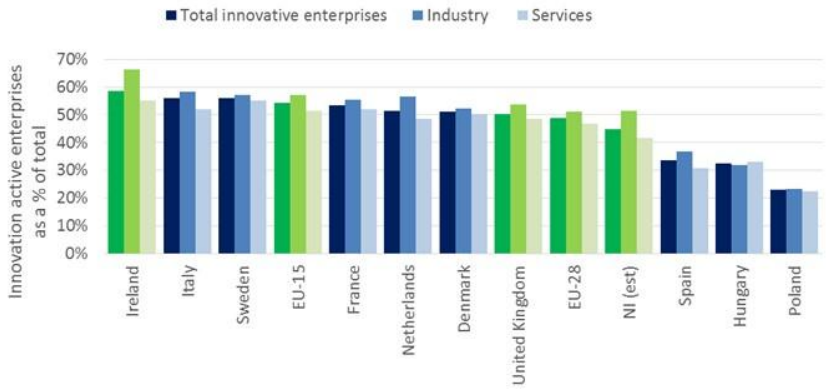


The value of EU research grants and contracts per 1,000 inhabitants demonstrates that NI ranks mid-table.

Source: HEIDI
Note: Earliest available data is 2009
Does not include EU research grants and contracts to businesses

Figure 6.4.7: Percentage of firms engaged in innovative activity, 2012

Innovation, research and development	Rank	Direction of change	Change in decile
Percentage of firms engaged in innovative activity (total)	17 / 28		↑
Percentage of firms engaged in innovative activity (industry)	14 / 28		↑↑↑
Percentage of firms engaged in innovative activity (services)	18 / 28		↑

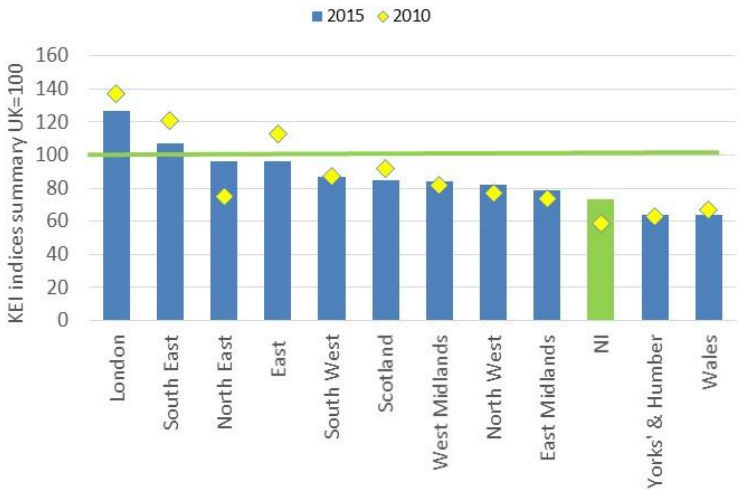


The proportion of firms engaged in innovative activity has risen over the past five years. NI is now close to the EU average.
A greater proportion of manufacturers engaged in innovative activity than services.

Sources: DETI & Eurostat
Notes: EU average excludes Greece
Direction of change and change in decile calculated using 2008 data as Community Innovation Survey is published on a 2 yearly basis

Figure 6.4.8: UUEPC knowledge economy index, 2010 – 2015

Innovation, research and development	Rank	Direction of change	Change in decile
UUEPC Knowledge Economy Index	10 / 12		↑

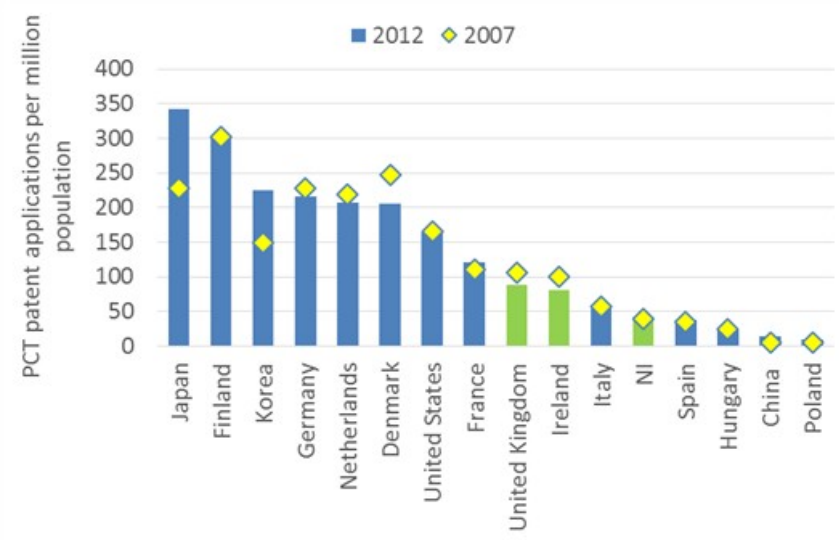


NI's Knowledge Economy is relatively small compared to other UK regions, ahead of just Yorkshire and Humber and Wales in 2015. However, in the last five years (2010-2015), NI's knowledge economy has grown at the second fastest rate of the UK regions, just behind the North West of England. As a result, the NI Knowledge Economy is catching up with the UK average.

Source: UUEPC
Note: The Knowledge Economy Index brings together 21 indicators of activity and outcomes for each region of the UK to calculate an overall index for each region. Pillars include core indicators (outcomes), investment, R&D and innovation.

Figure 6.4.9: PCT patent applications per million population, 2007 – 2012

Innovation, research and development	Rank	Direction of change	Change in decile
PCT patent applications per million population	21 / 32		=

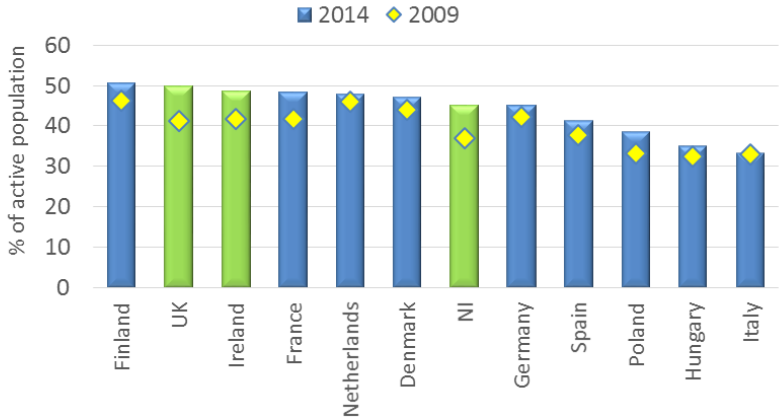


NI's patent performance is mid-table. Whilst there were slightly more patents per million population registered in 2012, other countries have also improved their performance, meaning that NI has not been able to improve its relative performance. NI continues to lag behind UK, Irish and OECD benchmarks.

Sources: OECD & Eurostat
Notes: 2012 is the latest data.

Figure 6.4.10: Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population, 2009 – 2014

Education and skills	Rank	Direction of change	Change in decile
Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population	14 / 29		↑↑

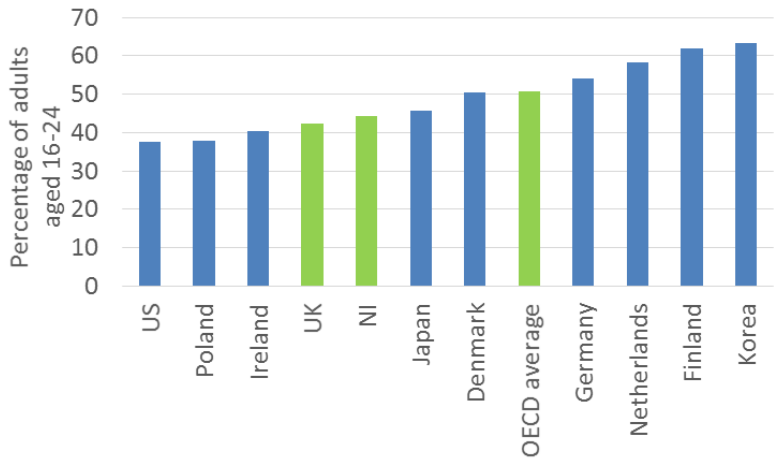


The proportion of people with tertiary education employed in Science and Technology increased over the past five years with the result that NI has improved its position to 14th of the 29 countries analysed and moved up by two deciles.

Sources: OECD, Eurostat
Notes: Direction of change and change in decile calculated using 2009 data. 2008 data not available.

Figure 6.4.11: Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments, 2013

Innovation, research and development	Rank	Direction of change	Change in decile
Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments	14 / 18		n/a



The proportion of young adults who are capable of problem solving in technology rich environments is relatively low, ranked 14th of the 18 countries for which data is available. Whilst NI is ahead of the UK average, it lags the OECD average.

Sources: OECD, Adults, Computers and Problem Solving: What's the Problem?

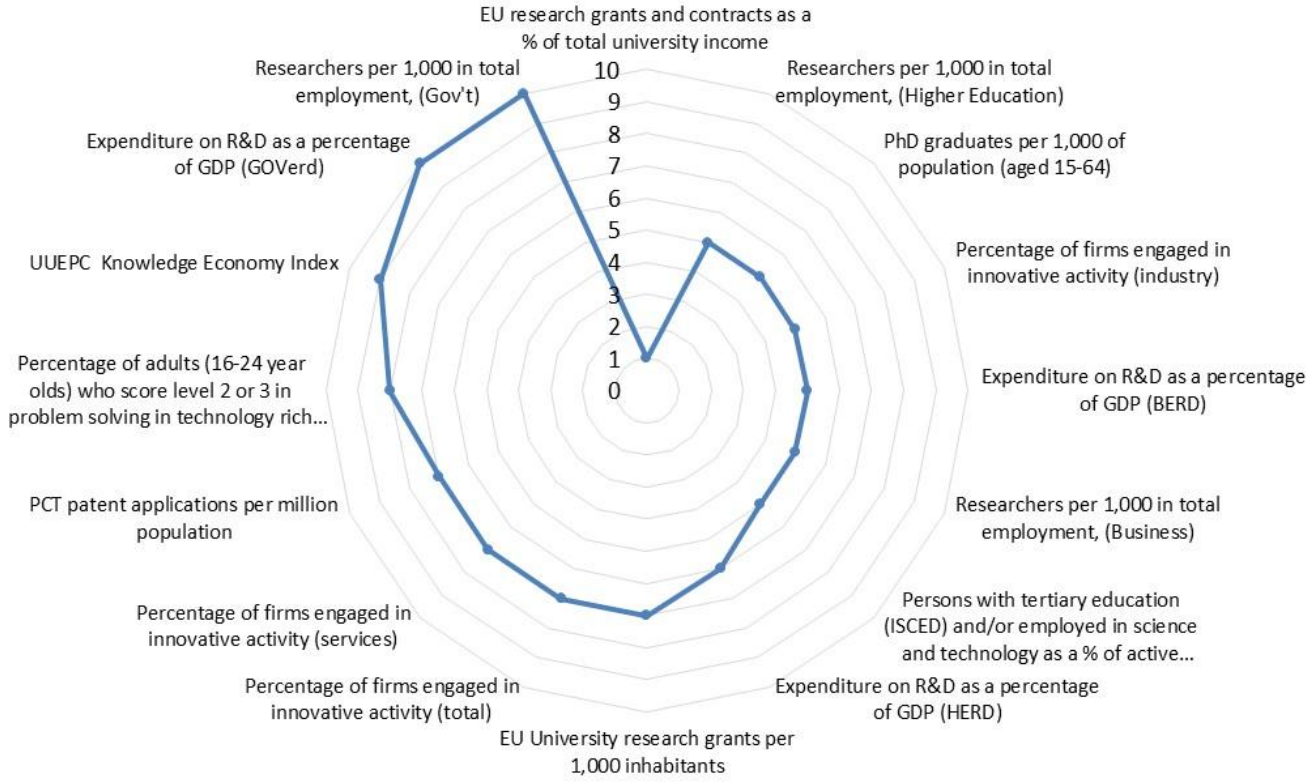
Innovation, research and development summary

NI's R&D and innovation performance is one of the relatively weaker areas of the scorecard, scoring 6.4 in the decile placements, but remaining stable over the past five years. This means that two thirds of the comparator nations are ahead of NI in this pillar of the scorecard.

The level of innovation activity is relatively low within NI firms, but has increased - especially in manufacturing firms. NI's knowledge economy has grown quite rapidly over the past five years, and from a low base, has managed to get to 10th of the UK regions. Patent application rates remain relatively low and the number of PhD graduates has reduced and is set to reduce further in future years. Problem solving abilities of young people in technology rich environments are also relatively low when compared to other countries.

Business Expenditure on R&D increased by 12% from 2009, but has reduced markedly over the last year, with foreign owned firms reducing expenditure by almost £100m, or 29%. However, domestic, firms and Higher Education expenditure on R&D both increased, going some way towards replacing the reduced BERD.

Figure 6.4.12: Summary of decile placements for innovation, research and development indicators



Source: UUEPC

Figure 6.4.13: Summary of innovation, research and development indicators

Innovation, research and development	Rank	Direction of change	Change in decile
Expenditure on R&D as a percentage of GDP (HERD)	18 / 32	🔴	↓↓
Expenditure on R&D as a percentage of GDP (BERD)	13 / 31	🟢	↑↑
Expenditure on R&D as a percentage of GDP (GOVerd)	31 / 32	🟡	=
Researchers per 1,000 in total employment, (Business)	14 / 29	🟢	=
Researchers per 1,000 in total employment, (Higher Education)	14 / 29	🔴	↓↓
Researchers per 1,000 in total employment, (Gov't)	29 / 29	🟢	=
PhD graduates per 1,000 of population (aged 15-64)	13 / 28	🔴	↓↓↓↓
EU University research grant spend per 1,000 inhabitants	8 / 12	🟢	↓
EU research grants and contracts as a % of total university income	1 / 12	🟢	=
Percentage of firms engaged in innovative activity (total)	17 / 28	🟢	↑
Percentage of firms engaged in innovative activity (industry)	14 / 28	🟢	↑↑↑
Percentage of firms engaged in innovative activity (services)	18 / 28	🟢	↑
UUEPC Knowledge Economy Index	10 / 12	🟢	↑
PCT patent applications per million population	21 / 32	🟢	=
Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments	14 / 18	n/a	n/a
Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population	14 / 29	🟢	↑↑

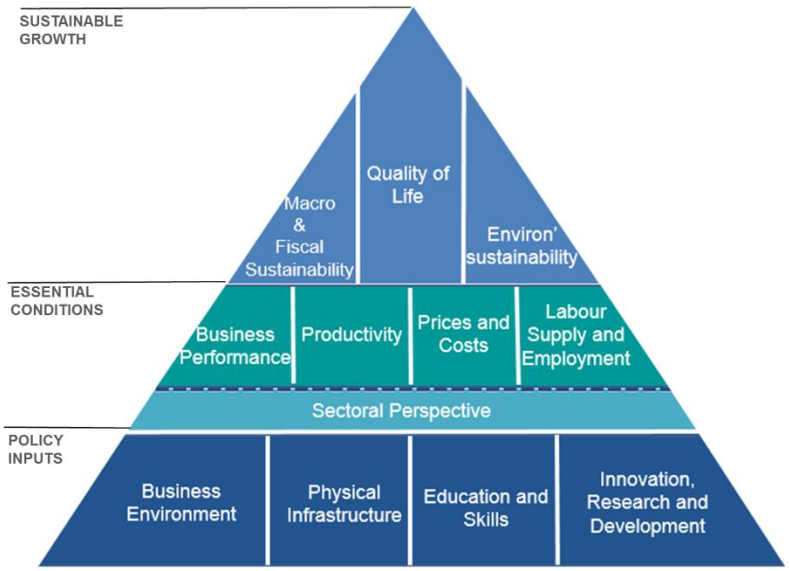
Source: UUEPC

7. Conclusions

7.1 Benchmarking NI's relative competitiveness

The Competitiveness Scorecard benchmarks NI's competitiveness relative to a range of European and OECD countries over the most recent five-year period in more than 150 indicators. The methodology employed is based on the NCC competitiveness scorecard used in the Republic of Ireland, with some revisions to take account of NI specific factors, include a sectoral perspective and a more in-depth assessment of Quality of Life. The methodology employed is illustrated in Figure 7.1.

Figure 7.1: UUEPC Competitiveness Scorecard



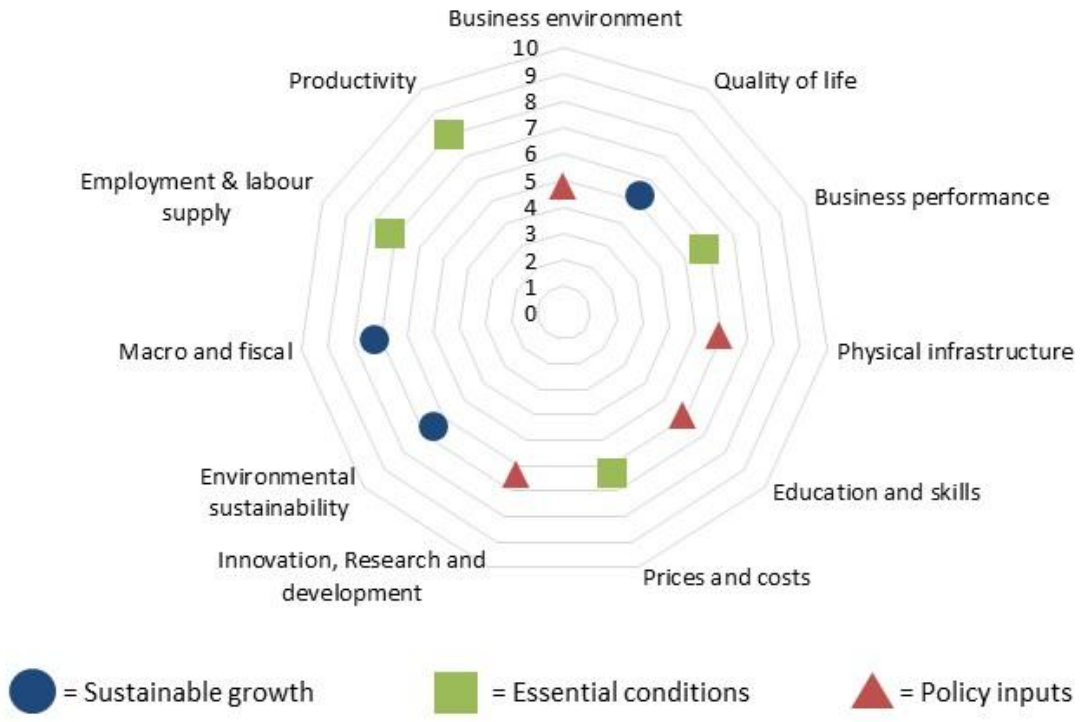
Source: UUEPC

7.2 Significant competitiveness challenges for NI to address

NI's competitiveness has improved marginally, but remains below the average of the countries analysed within the Competitiveness Scorecard. The average decile placement is 6.1, which means that almost two thirds of the countries analysed are relatively more competitive than NI. The results of the Competitiveness Scorecard provide an indication of the scale of the challenge facing NI across a large range of indicators. If NI is to deliver upon the economic aspirations in the Programme for Government and the Economic Strategy, NI must play to its relative strengths and improve performance in a number of areas.

NI's relative competitiveness in each element of the Competitiveness Scorecard is illustrated in Figure 7.2. It shows clearly that NI's business environment, quality of life and business performance score most highly and that productivity, employment & labour supply and macro and fiscal are the lowest scoring.

Figure 7.2: Current relative competitive performance by components of the Competitiveness Scorecard



Source: UUEPC
Notes: Competitiveness performance is defined as the average decile placement of the indictors within that element of the Competitiveness Scorecard.

NI's relative competitiveness has improved marginally over the past five years. The most significant improvement was in the business performance pillar (figure 7.3), driven by increasing business stocks, churn and exports. Physical infrastructure and macro and fiscal pillars also improved slightly. Education & Skills and Employment and Labour Supply were the only two pillars in which NI's relative performance deteriorated, both of which present a significant policy challenge if NI's economic fortunes are to improve. It is important to note that many indicators in Education & Skills and Employment & Labour supply did improve over the five years, but competitor nations improved more rapidly.

Figure 7.3: Relative competitive performance by components of the Competitiveness Scorecard over the past 5 years

Pillar	5 years previous	Current	Change in decile
Business performance	7.2	5.8	1.4
Physical infrastructure	6.3	5.9	0.4
Macro and fiscal	7.6	7.2	0.4
Prices and costs	6.6	6.3	0.3
Environmental sustainability	6.5	6.5	0.0
Quality of life	5.3	5.3	0.0
Business environment	4.8	4.8	0.0
Innovation, research and development	6.4	6.4	0.0
Productivity	8.0	8.0	0.0
Education and skills	5.4	5.9	-0.5
Employment & labour supply	6.8	7.3	-0.5
Overall average	**6.2**	**6.1**	**0.1**

Source: UUEPC

Notes: Decile placements range from 1 – 10, with 1 denoting a strong competitive position and 10 a weak position. A positive figure in change in decile denotes an improvement in NI's relative competitiveness and vice versa. The overall average is calculated using a simple average of all of the indicators in the scorecard

7.3 Sustainable growth

Sustainable growth – the top level of the pyramid – is the outcome of past competitiveness. NI's relative performance has improved, but remains below average.

This outcome is influenced positively by high levels of life satisfaction and quality of life, strong environmental credentials and the stability provided as part of a larger, relatively strong economic unit. Negative factors include a small private sector, which generates limited tax revenue with which to fund public services and a subsequent deficit, relatively high levels of poverty and dependence on imported fuels. Recent reductions in oil prices and the strengthening of Sterling mean that firms and consumers benefitted from relatively lower prices, both in NI and competitor nations. These lower prices will not, unfortunately, prevail indefinitely and NI will be more severely impacted by an oil price rise than other competitor economies. Significant advances have been made in terms of electricity generation from renewable sources and whilst a fifth of NI's electricity is from renewables, it provides only one fiftieth of total energy requirements.

7.4 Essential conditions

Essential conditions – the middle tier of the pyramid – are generally weaker with an average decile placement of 6.8, putting more than two thirds of countries ahead of NI. These findings present a significant challenge for sustainable growth in the future.

Employment increased and unemployment rates have declined following the recession, helped by competitive labour costs, office rents, industrial water rates, a strong performance in FDI job creation and increasing export demand. Whilst the overarching data are positive, an examination of some more specific indicators reveals that the low skilled (NEETs), the long term unemployed and many youths are struggling to secure employment, which is in turn linked to high levels of benefit dependency. These groups are likely to have limited links to the labour market and it will be a key policy challenge to ensure that these individuals are provided with opportunities to build their skills base and secure appropriate employment opportunities.

There are a number of challenges that will impact upon these essential conditions for competitiveness. The recent strengthening of Sterling will subdue export growth and make NI and the rest of GB a more expensive investment location from an FDI perspective. Wage costs, whilst competitive at this point in time, are increasing quickly and uncompetitive electricity costs will weigh on the competitiveness of energy intensive sectors. Very small electricity users will feel the pinch of the recent increase in electricity prices of one fifth.

The most significant challenge of this element of the scorecard is low and declining relative productivity levels. As a significant driver of the overall level of competitiveness and the weakest performance of the elements contained within the Scorecard, growing productivity will be a key challenge.

Sectoral issues have a large part to play in terms of productivity. NI has a high concentration of low value added sectors. In addition, within sectors, productivity is lower than in the UK. This demonstrates the issues are both in terms of the activities that are located in NI and also how efficient the activities are. The public sector exhibits relatively high and growing productivity (in the form of wage increases as there are little or no profits).

7.5 Policy inputs

Policy inputs – the foundation tier of the pyramid - is the most competitive of the three tiers, averaging 5.7 in terms of decile placement. In future years, these more competitive policy inputs should help to increase competitiveness in terms of essential conditions and macro and fiscal sustainability.

The policy inputs tier of the Scorecard may be more competitive than the other tiers, from an NI perspective, but it should be noted that more than half of competitor nations are ahead of NI. These findings present a significant policy challenge for NI as it is at the policy input level where most impact can be made. As drivers of future competitiveness, NI will need to improve its performance on policy inputs in order to improve the economic environment and contribute to sustainable growth in the future.

Significant improvements have been made in terms of education and skills over the past five years. Despite these improvements, NI's relative competitiveness in this area has been eroded as other nations have improved more rapidly, presenting a significant challenge to NI for the future. Issues are emerging in terms of literacy and numeracy and the large proportion of the population with low skills are finding it difficult to secure employment. These issues will have longer tem implications for benefit dependency and detachment from the labour market.

NI's Business R&D performance is strong, although a closer examination of the figures reveals that FDI companies are responsible for most of the increase and subsequent decrease, with expenditure reducing by almost £100m, or 29% over the year. R&D by FDI companies is of significant benefit to NI in terms of bringing new knowledge, skills and technology which can spill over into the broader economy. The main risk is that, whilst it may be difficult given the knowledge and people involved, that FDI can reduce R&D expenditure quickly, as demonstrated during 2014. There is merit in further research to identify the barriers that might exist for domestic companies and explore what measures may be required to increase R&D in these companies.

The business environment is the strongest performing pillar of the Scorecard, mainly driven by the overarching UK business environment (regulation etc.). Physical infrastructure has improved, mainly

as a result of NI's advanced technological infrastructure, but dependence on imported fuels remains a large issue for NI's energy infrastructure.

7.6 Summary

The NI Competitiveness Scorecard provides a comprehensive overview of NI's relative competitiveness in more than 150 indicators within the eleven elements of the competitiveness pyramid.

NI's relative competitiveness across the Scorecard has improved slightly, but remains below average for the countries included in the analysis. These findings highlight the scale of the competitiveness challenge for NI. They also underline the importance of boosting competitiveness further in order to grow the economy and deliver higher standards of living for all of NI's citizens.

8. Acknowledgements

UUEPC and the Economic Advisory Group would like to thank all of those involved in the Competitiveness Scorecard for their contribution throughout the development of the Scorecard and creation of the first report.

We would also like to acknowledge the crucial role that was played by a small number of individuals in providing advice and guidance:

- SQW and Cambridge Econometrics (for their previous work in this field)
- Frances Ruane, ESRI
- Adrian Devitt, RCSI (formerly DJIE)
- Conor Hand, DJIE
- Catherine Lynn, NISRA
- Robin Griffith, NISRA
- Sean Donnelly, NISRA
- Shane Murphy, DETI
- Thomas Byrne, DETI
- Nicola Laverty, DETI

Annex 1 - Terms of Reference

ECONOMIC ADVISORY GROUP TERMS OF REFERENCE

EAG PROJECT ON COMPETITIVENESS

JUNE 2014

INTRODUCTION

The Department of Enterprise, Trade and Investment (DETI), acting in its capacity as Secretariat to the Economic Advisory Group (EAG), requires a project to be undertaken to investigate and deliver a range of economic competitiveness indicators relating to the Northern Ireland Economy.

It is intended that this project will take a similar approach to how National Competitiveness Council (ROI policy advisory board for enterprise, trade, science, technology and innovation) as well as the ROI National Competitiveness Council assess economic competitiveness.

BACKGROUND

Previous EAG work on Northern Ireland Competitiveness Index

In March 2012 the Economic Advisory Group (EAG) commissioned Cambridge Econometrics (CE), in collaboration with SQW Ltd (SQW), to develop a Competitiveness Index to provide base case information on the Northern Ireland economy.

The Economic Strategy highlights improving economic competitiveness as an overall aim, utilising policies aimed at rebalancing and rebuilding in order to promote even and sustainable growth3. As part of the EAG's role in providing independent economic advice to the DETI Minister it was intended that the Index would enable the Northern Ireland Executive to assess Northern Ireland's competitiveness position. The objective of this project was as follows:

To create a comprehensive competitiveness index to measure the economic performance of Northern Ireland economy in both absolute and relative terms with competitor economies (regional and/or national). The Index's production should aim to follow a recognised methodology such as those used by the World Economic Forum (WEF) or the IMD and it will be expected that the researchers detail why their adopted methodology is the most appropriate.

Despite the Competitiveness Index for Northern Ireland Report being published June 2013, EAG members had a number of concerns in relation to its suitability as a basis for assessing economic competitiveness e.g. the use of survey data as a means of determining indicators.

Despite this, EAG members have expressed the view that the issue of competitiveness should be the central focus of the EAG's work going forward and that further work should be undertaken to provide greater transparency to the competitiveness of the various factors that contribute to the Northern Ireland Economy.

OBJECTIVES & OUTPUTS

The objectives of this project are:

- To produce a scoping paper for the next EAG meeting to be held on 14th of October. This paper should:
    - Review the approach that National Competitiveness Council has adopted, giving consideration to the pros and cons against other ways of assessing competitiveness;
    - Assess the applicability of the National Competitiveness Council approach to NI;
    - Highlight priority areas that are of most relevance for NI as a regional economy;
    - Identify indicators and data sources for each priority area, highlighting any potential constraints and considering how comparable the information is against other relevant benchmarks; and
    - Provide EAG members with a set of proposals and options for a competitiveness framework for Northern Ireland that is broadly in line with the National Competitiveness Council approach.

- Gain agreement from EAG on the framework to be taken forward at the October meeting.

- Undertake a comprehensive review of competitiveness in the priority areas and provide detailed commentary on the factors impacting on competitiveness.

- Present findings to EAG members and gain agreement on a final report that can be published by the EAG Secretariat.

- Provide an updateable framework to the EAG Secretariat.

DELIVERY

The project will be delivered by the Northern Ireland Centre for Economic Policy (NICEP). DETI currently has a Memorandum of Understanding with NICEP, part of which enables DETI to request two research projects annually. It is anticipated that this project will be taken forward as one of these projects.

The Project Manager, Thomas Byrne, will establish a Steering Group comprising of Bernard McKeown, Shane Murphy and Aidan McMahon to oversee progress on the project. The Project Manager will act as the nominated contact for day to day liaison with NICEP. It is anticipated that, through the Project Manager, specific timetables and project milestones will be developed with the Steering Group upon commencement of the project.

OUTPUTS

In accordance with the objectives listed above, it is anticipated that the outputs of the project will be:

- A scoping paper examining potential options;
- Agreed Framework to be taken forward;
- A report outlining analysis and findings (including methodology);
- Presentation to EAG members; and
- Updatable framework provided to EAG Secretariat.

ONGOING EVALUATION, MONITORING AND MANAGEMENT

On commencement of the project, the Project Manager and personnel from NICEP will meet to agree a project plan. Thereafter regular updates about the strands of work will be required as specified milestones are reached. The nature of the updates will be agreed with the Steering Group and / or Project Manager.

The Project Manager also expects NICEP to satisfy all of the requirements outlined below:

- Provide a regular update (regularity and format to be agreed at the project initiation) to the Project Manager, outlining the status of ongoing work;
- Rework any errors/unacceptable work at no cost to the EAG and within the timescales agreed;
- Where requested by the Project Manager, treat information provided by the Project Manager as being private and confidential; and
- The Project Manager will proactively and continually assess the impact of the research project undertaken under this contract.

6 months after the completion of the project the DETI Project Manager will ensure a full evaluation is carried out against the Terms of Reference to ensure appropriate delivery of the project.

TIMESCALES / CONTRACT PERIOD

The timescale for the project is expected to be limited to 12 months from project initiation.

It is acknowledged that the provision of an updateable framework on NI Competitiveness could facilitate follow on work that could involve regular updating of Northern Ireland's competitiveness and also a more detailed examination of certain aspects of competitiveness. For the avoidance of doubt any such follow on work would not be under this Terms of Reference unless NICEP and EAG agreement was in place to amendment or extend this Terms of Reference to achieve such an aim.

COSTS

As DETI currently has a contractual relationship with NICEP, it is anticipated that the project will be taken forward in accordance within the framework of this existing MOU with no additional cost to either DETI or EAG. Any additional costs that would be incurred in purchasing data that is not freely available (such as subscribing to commercial databases) must be highlighted in the scoping report.

INFORMATION

Further information about DETI is available at: www.economy-ni.gov.uk and further information about the EAG is available at: www.eagni.com

Annex 2 – Acronyms

Acronyms	Term
ABI	Annual Business Inquiry
AHC	After Housing Costs
ASHE	Annual Survey of Hours and Earnings
AW	Average Wage
BBA	British Bankers Association
BERD	Business Expenditure on R&D
BHC	Before Housing Costs
BIS	Department for Business, Innovation and Skills
Bn	Billion
BP	British Petroleum
BVCA	British Private Equity & Venture Capital Association
CCL	Climate Change Levy
CE	Cambridge Econometrics
ch	Children
Co2	Carbon Dioxide
DETI	Department of Enterprise, Trade and Investment
DFP	Department of Finance and Personnel
DLA	Disability Living Allowance
DSD	Department for Social Development
DUKES	Digest of UK Energy Statistics
EAG	Economic Advisory Group
ECM	Equity Capital Markets
EKS	Éltetö-Köves-Szulc
EPO	European Patent Office
ESA	Employment and Support Allowance
ESRI	Economic and Social Research Institute
EU	European Union
EVCA	European Private Equity & Venture Capital Association
EY	Ernst and Young
FDI	Foreign Direct Investment
NCC	National Competitiveness Council
G8	Group of 8 nations
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GovERD	Government Expenditure on R&D
Gov't	Government
GVA	Gross Value Added
GW	Gross Wage
HBAI	Households Below Average Income
HERD	Higher Education expenditure on R&D
HESA	Higher Education Statistics Agency

HICP	Harmonised Index of Consumer Prices
HM	Her Majesty
HMRC	Her Majesty Revenue and Customs
I&C	Industrial and commercial
IDBR	Inter Departmental Business Register
IMD	Institute of Management Development
ISCED	International Standard Classification of Education
JSA	Job Seekers Allowance
kg	Kilogram
kWh	kilowatt-hour
LFS	Labour Force Survey
M&A	Mergers and Acquisitions
MOU	Memorandum of Understanding
MSES	Manufacturing Sales & Exports
n/a	Not Applicable
NFER	National Foundation for Educational Research
NI	Northern Ireland
NICEP	Northern Ireland Economics Polcy Centre
NISRA	Northern Ireland Statistics and Research Agency
NOMIS	National Online Manpower Information System
OECD	Organisation for Economic Co-operation and Development
ONS	Office of National Statistics
p.p	Percentage Point
per m^2	Per metre squared
PhD	Doctor of Philosophy
PIAAC	Programme for the International Assessment of Adult Competencies
PISA	Programme for International Student Assessment
PM	Particulate Matter
PPS	Purchasing Power Standard
PwC	PriceWaterhouseCoopers
R&D	Research and Development
RCSI	Royal College of Surgeons in Ireland
ROW	Rest of The World
SFA	Skills Funding Agency
sqft.	Square Feet
t	Tonne
TED	Total Economy Database
UK	United Kingdom
UREGNI	Utility Regulator Northern Ireland
US	United States
UUEPC	Ulster University Economic Policy Centre
VAT	Value Added Tax
VC	Venture Capital
WAP	Working Age Population
WEF	World Economic Forum
WTO	World Trade Organisation

Annex 3 – The National Competitiveness Council's competitiveness pyramid

Annex 4 – Comparison of indicators in National Competitiveness Scorecard and UUEPC scorecard

Macroeconomic and fiscal sustainability

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
GDP per capita at market prices	Balance of payments	Size of private sector - Private sector GDP as a % of total GDP
Average annual growth rate of GDP per capita at market prices (%)	General government gross debt (% GDP)	National Credit ratings
Gap between total general government revenue and expenditure	Required improvement in underlying primary fiscal balance to achieve debt targets, 2012-2030	
Breakdown of tax revenue	Composition of debt (% GDP), 2012	
Tax revenue by category	Household borrowing per capita (Population aged 15-64) (€), 2013	
Corporation tax receipts (% GDP)	Components of economic growth (%) Will be added to 2016 report	
Value added tax (standard rate) (%)		
Central government corporate income tax rate (%)		
Recurrent and total property tax receipts		

Note: Indicators in Bold are transferred from Business environment

Quality of life

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
	In work-at-risk-of poverty by household type, 2012	Proportion of population living in relative poverty before housing costs 2008-2013
	At-risk of poverty after social transfers (% population), 2012	Proportion of population living in relative poverty after housing costs 2008-2013
	Perception of Social Cohesiveness, 2013	Annual disposable income per week, 2009-2014
	OECD better life index and GDP per capita (PPP), 2013	Life satisfaction, 2014
		UK Regional well-being Indicators, 2013/14
		Household disposable income per capita, 2000-2012
		Homicides per 100,000 people, 2000-2012
		Deaths per 1,000 people, 2000-2012
		Average Life Expectancy (years), 2000-2012
		Voter Turnout (as a % of registered voters), 2000-2012
		Number of rooms per person, 2012
		Gini coefficients, 2007-2012
		Rating of satisfaction with life overall
		Rating of self-worth
		Happiness rating
		Low anxiety rating

Environmental Sustainability

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Greenhouse gas emissions (Indexed to 2007), 2007-2012	Environmental performance index (Scale 0-100), 2012	Greenhouse gas emissions per capita
Percentage of energy from renewable sources		Exposure to air pollution (level of PM2.5)
Components of energy consumption per capita, 2012		
Municipal waste generated and treatment, 2012		

Business performance

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Net business population growth and churn	FDI inward stock (% GDP)	FDI jobs created per million inhabitants
Exports of goods, intra-EU and extra-EU (% GDP)	Rate of return to US-owned companies on their investments in foreign countries (%)	Manufacturing exports by sector
Exports to emerging markets (% GDP)	FDI outward stock (% GDP)	GVA growth by sector
NI's share of world trade overall, merchandise and services (%), 2008 – 2013	Ireland's world market share by sector (%) - difficult to align wih WTO data	
Total goods and services exports by sector	Participation in Global Value Chains, 2009	
Enterprise agency client exports, by sector and firm ownership	Gross fixed capital formation at current prices (General Government and Private Sector) (% of GDP), - Await DETI input output tables (Spring 2015)	
Direct expenditure in the economy by sector		

Productivity

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Productivity levels (GVA per employee),	Growth in total factor productivity (%)	GVA per hour worked, relative to UK
Productivity growth rates (GVA per employee)		GVA per employee by sector, relative to UK
		Growth in GVA per employee by sector

Prices & costs

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Consumer price level & Inflation (UK proxy)	Average annual inflation rate by commodity group, [Ireland] and Euro area	Earnings by sector
Annual growth in labour costs	Harmonised competitiveness indicator	Industrial electricity prices for very small electricity users
Average growth rate in labour costs by sector	Annual change in real unit labour costs	Industrial electricity prices for small / medium electricity users
Hourly compensation costs in manufacturing (US$)	Industrial electricity prices (excluding VAT)	Industrial electricity prices for large electricity users
Earnings per week, earnings per hour and hours worked	Business DSL and Cable Basket (>10 Mbps), € per month excluding VAT	
Cost (per m2) to rent a prime office space	Services Price Index	
Affordability of house prices	Legal fees - enforcing a contract (% of total claims)	
Water costs for industrial users (per cubed metre)	Non-life insurance density and penetration	
	Average annual gross and net earnings	

Employment & labour supply

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Employment (000's)	Replacement rates in at the national minimum wage (NMW) and percentages of the average industrial wage (AIE)	People who are under employed
Unemployment (000's)	Net replacement rates for long term unemployed	Benefit intensity (working age population per key benefit claimant) IB, JSA,
Long term unemployment (000's)	Implicit tax on a second earner returning to work (net transfers and childcare fees for households with 2 children and 67% of average earnings	Employment by sector, relative to the UK
Change in employment in by sector and gender	Public expenditure on active and passive labour market programmes (% GDP)	Skills mismatches, 2013
Unemployment (standardised rates)	Skills gap index	
Youth unemployment rate		
Long term youth unemployment rate		
Young people not in employment, education or training		
Live register flow analysis		
Labour market participation rates		
Childcare costs as a % of net income for two parents and lone parent		
Net migration (000s)		
Number of persons of work-age per dependent & change, 2012-50		

Business environment

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Venture Capital Investment as a % of GDP	Annual growth rate in outstanding credit, January 2004-January 2014	Total Entrepreneurial Activity (% of 18-64 year old population)
Private equity investment (as a % of GDP)	Demand for credit: Percentage of firms applying for a bank loan (new or renewal; excluding overdraft and credit lines) over previous six months, 2013	Number of M&A and ECM deals per 100,000 VAT registered businesses, 2009 – 2014
Ease of doing business - UK proxy	Success in accessing credit: Percentage of successful firms that applied for a bank loan (new or renewal excluding overdraft and credit lines), 2013	Market capitalisation per capita
Product market regulation (Scale 0-6) - UK proxy	Ratio of non-performing loans to total gross loans, 2013	Number of SME loans approved per 1,000 SME's, 2012 – 2014
Regulation of professional services - UK proxy	Interest rates for non-financial corporations by loan size (new business), January 2014	Value of loan facilities approved as a % of GVA, 2012 - 2014
Barriers to entrepreneurship (Scale 0-6) - UK proxy	Revolving loans and overdraft interest rates for non-financial companies, June 2010-	
Time to comply with tax payments (hours per year) - UK proxy	Average payment duration for settling an invoice (days), 2013	
Income tax plus employee contributions (% of gross wage earnings) (Married, 2 CD, 100% & 167% AW) - UK proxy	Income tax plus employee contributions (% of gross wage earnings) (Single, 100% & 167% AW) - UK proxy	
	Marginal rate of income tax plus employee contributions less cash benefits (% of gross wage earnings), 2012 – classified by marital status, number of children and wages relative to the average wage (AW) - UK proxy	

Physical infrastructure

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Energy import dependency	Perception of overall infrastructure quality (Scale 1-7), 2013	% of households with access to the internet
	Natural gas storage capacity (% consumption), 2011	% of households with broadband internet
	Fibre connections as a percentage of total broadband connections, June 2013	% of premises with superfast broadband
	Access to next generation broadband (as % of Household), 2013	% of individuals who have never used a computer
	Global e-Government development index, 2012	Number of shipping routes, 2015
	Average annual growth in net capital stock - Waiting on SUT's from NISRA	Air transport of passengers per capita
	Net capital stock (Ireland) (€ millions, 2009 prices), 2002-2012	Number of air routes (countries) available, 2015
		Traffic congestion index
		Motorway Km per 1000 sq KM's
		Motorisation rate - passenger cars per 1000 inhabitants, 2008-2013
		Crude oil barrel prices in Sterling, 2010 - 2015
		Service sector office space

Education and skills

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Educational attainment of population aged 25-64 by highest level of education (%),	Annual expenditure on educational institutions, per student ($US PPP)	Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments
Participation of 3 and 4 year olds in education (as a % of population age cohort),	Average annual hours of tuition by subject in primary school	Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population
Percentage of population that has at least upper secondary education	Problem solving abilities of 15 year olds, 2012	EPO patents applied for (OECD) replaced Triadic patents per million population
Early school leavers as a percentage of population aged 18-24, 2013	Average annual hours of tuition by subject in lower secondary education	EU funding as a % of total income UK regions, replaces EU research funding (€ per applicant, 2013 and success rate, 2012)
Scientific, mathematical and reading literacy of 15 year olds,	Maths, Science and Technology graduates (per 1,000 population aged 20-29 years),	UUEPC Knowledge Economy Index
Percentage of students at each proficiency level on the mathematics scale	Triadic patents per million population	
Population by age cohort that has at least third level education	EU research funding (Euros per applicant)	
International students (as a % of all students in tertiary education)	Summary innovation index, 2013	
Lifelong learning (as a percentage of 25-64 year olds)	Investment intensity in knowledge-based capital (% market sector value added)	
PIACC Indicator: Proficiency in maths and reading (16-65 year olds)		

Note: The NCC Knowledge infrastructure indictors has been split into (1) Education & Skills and (2) R&D & Innovation.

Innovation, research and development

In Forfas & UUEPC	In Forfas, excluded from UUEPC	Additional indicators
Expenditure on R&D as a percentage of GDP (Business, Higher Ed, Govt)	Maths, Science and Technology graduates (per 1,000 population aged 20-29 years),	EPO patents applied for
Researchers per 1,000 in total employment	Triadic patents per million population	EU research grants & contracts as a % of total income, 2009 – 2013
Business sector R&D expenditure by firm type	EU funding as a % of total income UK regions, replaces EU research funding (€ per applicant, 2013 and success rate, 2012)	EU university research grants per 1,000 inhabitants, 2009 – 2013
PhD graduates per 1000 of population (aged 15-64)	Summary innovation index, 2013	UUEPC Knowledge Economy Index
Percentage of firms engaged in innovative activity	Investment intensity in knowledge-based capital (% market sector value added)	Persons with tertiary education (ISCED) and/or employed in science and technology as a % of active population
		Percentage of adults (16-24 year olds) who score level 2 or 3 in problem solving in technology rich environments

Note: The NCC Knowledge infrastructure indictors has been split into (1) Education & Skills and (2) R&D & Innovation.