

Contents

The **Economic Research Digest** monitors recently published research across a number of economic areas relevant to the work of the Department for the Economy such as competitiveness, innovation, enterprise, trade, FDI, tourism and infrastructure. The Skills Research Digest deals separately with recently published skills and labour market research.

In each case, we provide a short summary of the key points and web links to the full article or report*. A full list of sources can be found at the end of the publication.

Highlights this quarter include:

- An examination of Northern Ireland's productivity and economic performance.
- In-depth analysis on the shock absorption capacity of firms in Ireland and Northern Ireland.
- An overview of the UK's geographical pattern of trade over the last 10 to 15 years.
- A detailed picture on the production and consumption of individual fuels and of energy as a whole.
- How process automation at scale is now regarded as feasible and beneficial.

** Links are correct at the time of publication, however it is likely that some will break over time. The list of sources has more general links, which should help the reader to track down the original report.*

Economic Outcomes	1
COMPETITIVENESS	1
PRODUCTIVITY AND GROWTH	1
LIVING STANDARDS, WELLBEING AND PROSPERITY	2
Innovation and Enterprise	4
INNOVATION	4
RESEARCH AND DEVELOPMENT	5
SECTORS AND TECHNOLOGIES	5
ENTREPRENEURSHIP	7
BUSINESS GROWTH	7
GROWTH FINANCE	9
BUSINESS REGULATION	9
Succeeding Globally	9
TRADE	9
INWARD INVESTMENT	9
TOURISM	9
Economic Infrastructure	10
ENERGY	10
TELECOMS	11
AIR ACCESS	11
Government	12
NORTHERN IRELAND	12
ENGLAND	12
SCOTLAND	12
WALES	12
REPUBLIC OF IRELAND (ROI)	12
Sources	13

The Economic Research Digest is issued by:

Analytical Services, Department for the Economy ✉ analyticalservices@economy-ni.gov.uk

The research summarised here presents the views of various researchers and organisations and does not represent the views or policy of the Northern Ireland Executive or those of the authors.

COMPETITIVENESS

[Ireland's Competitiveness Scorecard 2019](#), published by the National Competitive Council, provides a statistical assessment of Ireland's competitiveness performance.

- The report states that all major indicators – the international competitiveness rankings, Ireland's Harmonised Competitiveness Indicator, productivity statistics, GDP growth, and employment figures – suggest that the Irish economy is performing well in aggregate. However, there are still overarching areas that should be addressed.
- It is forecasted that Ireland's GDP will continue to grow quickly, while inflation remains subdued, although there are a number of downside risks for Ireland's economic growth. In 2019, domestic observers forecast that Irish GDP will grow by between 3.8% and 4.2% while inflation is forecasted to be in the range of 0.7% to 1.3%.
- The report also identifies productivity and public investment as critical factors which help contribute to overall competitiveness:
 - The latest productivity data, shows that Ireland is a very productive economy. However, a small number of firms deliver most of Ireland's productivity performance, while there are many domestic firms where productivity is stagnating.
 - The majority of trade in goods was accountable to the pharmaceuticals and chemicals sector representing 58% of Ireland's total goods exports, up from 45% in 2017. Trade in services suggest a similar concentration, with computer services dominating services exports in 2018 at 43%, just below the 46% recorded in 2017.
 - In Ireland, public investment at 1.9% of GDP is still substantially below international peers (the UK spends 2.4% of GDP on public investment). These below average investment figures may have contributed to the negative perceptions of Irish infrastructural quality exhibited in a World Economic Forum survey. However, the Government has recognised this issue and is acting, facing a delicate balancing act to ensure that increased infrastructure investment does not push the economy towards overheating.
- Domestically, discussions have turned to the possibility that the Irish economy might start to overheat or operate beyond capacity, which would undermine international competitiveness and threaten sustainable economic growth. This is likely to be a concern as prices could rise unsustainably if the economy operates beyond potential with implications on Ireland's competitiveness.

PRODUCTIVITY AND GROWTH

[UK companies complacent on productivity](#), published by the Centre for Economics and Business Research, highlights firms' behaviour towards human capital investment and the associated costs with inefficient labour productivity.

- New research has revealed that nearly two-fifths of large UK companies called their productivity levels "very concerning" but big firms are investing only 0.25% of their annual turnover to remedy the problem.
- A survey by the Centre for Economics and Business Research (CEBR) and analytics firm Concentra Analytics shows that a third of large organisations are spending less than £10,000 a year on developing knowledge of where their staff's productivity can be improved.
- It comes as Britain continues to be gripped by a productivity crisis. UK productivity – output per hour worked – fell for the third successive quarter in the first three months of the year, according to official figures released in July.
- Increasing productivity is central to improving living standards, as it creates wealth. But the Bank of England has said productivity is around 20% below where it would have been had it continued at pre-financial crisis levels.
- CEBR and Concentra said their report had "uncovered a spray and pray approach to driving productivity". They said companies did not know "whether their people are in the right place, or doing the right thing".

- Instead large companies were snapping up new technologies and encouraging changes such as automation without properly thinking through how they could best be used to increase workers' productivity.
- The researchers spoke to 400 businesses in the UK and US with more than 1,000 employees.
- CEBR economists estimated in the report that UK GDP could grow by £10.4bn in the coming years if employers develop a better understanding of how their employees' productivity can be boosted.

LIVING STANDARDS, WELLBEING AND PROSPERITY

[The Northern Ireland Economy: Problems and Prospects](#), published by Trinity College Dublin, examines the performance of the Northern Ireland economy in recent decades.

- As a result of the policies pursued by the Northern Ireland administration over the last 20 years productivity in Northern Ireland has fallen relative to the UK average. In turn, UK productivity has itself performed very poorly over the same period. This is the central problem of the Northern economy.
- The key factor behind the poor productivity performance in Northern Ireland has been the low rate of investment in physical and human capital. In particular, the failure to reform the education system to provide equal opportunity for children of different abilities means that Northern Ireland today has the highest rate of early school leavers. This failure has been shown to have a very high economic and social cost.
- The dependence of the Northern Ireland economy on very large transfers leaves it very vulnerable to shocks. Brexit will have serious negative consequences. Possibly more serious for Northern Ireland are the changes taking place in the internal politics of the UK. Any move to reallocate some of the transfers currently going to Northern Ireland to other poor English regions could prove very disruptive for Northern Ireland and its standard of living.
- The best outcome for Northern Ireland is one where future UK governments commit to providing continuing large transfers to Northern Ireland for at least a further decade in return for a change in economic policy in Northern Ireland aimed at moving the economy onto a sustainable growth path. This will involve some pain up front as resources are reallocated. In particular, while it will be very difficult to achieve the necessary transformation in the education system, this is essential if Northern Ireland is to prosper in the long term.

[Global Liveability Index 2019](#), published by the Economist Intelligence Unit, assesses global locations' living conditions based on a range of relevant factors.

- Vienna remains the most liveable of the 140 cities surveyed by the Economist Intelligence Unit. After displacing Melbourne from the top spot in 2018, ending a record run of seven consecutive years, Vienna retained its position at the head of the survey in 2019. The two cities continue to be separated by 0.7 percentage points, with Vienna scoring 99.1 out of 100 and Melbourne 98.4.
- Two other Australian cities feature in the top ten: Sydney (3rd) and Adelaide (10th), while only one other European city, Copenhagen in Denmark (9th), scores among the best.
- The other top ranked cities are split between Japan (Osaka in 4th and Tokyo in joint 7th) and Canada (Calgary in 5th, and Vancouver and Toronto in 6th and joint 7th, respectively).
- The cities within the top ten remain unchanged from 2018, but there has been some movement in their ranking. Sydney has risen from fifth to third, no other city in the top ten saw a change to its score.
- Overall, the index remains dominated by medium-sized cities in wealthy countries. These cities have well-funded public healthcare systems, compulsory and high-quality education, and functional road and rail infrastructure. The provision of these services is assisted by the presence of fully democratic electoral systems and generally low levels of corruption.

[The Living Standards Audit 2019](#), published by Resolution Foundation, looks at both the recent and longer-term trends in the UK living standards.

- Average disposable household incomes have roughly tripled since 1961, after accounting for inflation. But the last two-year period (2017-18 and 2018-19) looks to have been the worst on record outside of recessions. For typical income, an average annual growth of -0.3% has been estimated, which if confirmed would be even weaker than the early 1990s recession.

- This period of weak growth post-referendum comes on the back of both the financial crisis as well as an earlier mid-2000s slowdown for some, with only a short period of healthy income recovery between 2012-13 and 2016-17.
- The groups most at risk of relative poverty have also changed. Parents living in couples, up to the age of 35, are now more likely to be living in poverty than a single pensioner age 80 or over. And over half of pre-primary school children living with only one parent are in poverty.
- Relative inequality remains high by international and historical standards, following rapid increases in the 1980s, but there has been only a small rise since then (for incomes after housing costs). Increases in employment since the mid-1990s, particularly among parents, have helped to hold down inequality while the distribution of housing cost rises has pushed it up.
- New analysis of different forms of working-age income finds that men and women have contributed in roughly equal measure to overall income growth over the past 25 years, despite men starting from a higher base. Average annual female employment income has grown by £6,100 (or 70%) since 1994-95, while male employment income has grown by £7,100 (or 44%).
- The economy has relied on other forms of growth. Population growth has accounted for over-two thirds (65%) of overall GDP growth since 2007, compared to just 15% pre-crisis. Conversely, productivity growth has gone from accounting for the large majority (60%) of overall growth to just 22% post-crisis.
- Employment growth has continued to support incomes, while the previous long-term decline in the length of the working week has paused. Whilst dramatic falls in mortgage interest costs have taken housing from being a drag on disposable income growth pre-crisis to being a boost overall – though not everyone has benefited from this change.

Measuring Poverty 2019, published by the Legatum Institute, provides a detailed overview of the extent and nature of poverty in the UK today.

- There are 14.3 million people in poverty in the UK. This includes 8.3 million working-age adults, 4.6 million children and 1.3 million pension-age adults.
- On average, those in poverty have moved closer to the poverty line now than would have been the case in 2000/01. However, 31% of people in poverty (4.5 million people) are more than 50% below the poverty line, and this proportion has not changed since the millennium.
- Just under half (49%) of those in poverty (7 million people) are in persistent poverty, meaning they are in poverty now and have also been in poverty for at least two of the previous three years.
- The poverty rate for people living in families where all adults work full time is just 10%, compared to 58% where all adults work part time and 70% in workless families.
- Poverty rates vary across the UK. Compared to the UK average of 22%, poverty rates are higher in Wales (24%) and London (28%) and lower in the South East (18%), Scotland and Northern Ireland (both 20%).
- One in five (18%) people in poverty live in a family where no one has any formal qualifications. This compares to 9% of those not in poverty.
- One in ten (8%) people in poverty rarely or never feel close to others, compared to 4% of those not in poverty.
- Over two thirds (69%) of people in poverty live in families where no adult saves, compared to 38% of those in families not in poverty.
- As the UK's employment rate has increased, the proportion of working-age adults in poverty who are workless has fallen to 52%.

Attitudes of people on low income work, published by the Joseph Rowntree Foundation, reports on the impact of economic change on the working lives of people on a low income.

- This report discusses the impact that economic change has had on the working lives of people on a low income. It finds they are very positive about work, but want more from the labour market and expect more from employers and the Government.
- There are three things that British workers expect from employers:

- Four-fifths (77%) of all respondents believed that employers should pay a wage that covers the basic cost of living. There were no differences in views across the income groups.
 - Two-thirds (67%) of all respondents felt that employers should be responsible for training employees to do their job effectively. The majority of workers in the sample were keen to progress at work. Three-fifths (59%) hoped to progress in the next five years, with the remaining two-fifths (38%) wanting to stay at their current level. Despite small differences, aspiration for promotion did not vary significantly between income groups.
 - Seven in ten (70%) of the poorest fifth of the sample felt that employers should always be expected to allow part-time or flexible working, compared with three-fifths (60%) of the richest fifth.
- British workers expect the Government to make sure that employers pay a decent wage, and to top up the incomes of working families on low incomes.

Innovation and Enterprise

INNOVATION

[Incentivizing responsible and secure innovation; Principles and guidance for investors](#), published by the World Economic Forum, highlights the importance of investors having a proactive approach to cybersecurity.

- To build and maintain trust in the digital domain, cybersecurity must be at the forefront of business strategy and innovation. It is vital that institutions continue innovating to extract the value that the Fourth Industrial Revolution brings. This innovation, however, must be conducted responsibly, with a focus on security.
- Moreover, once a technological product has been released, it becomes difficult and more expensive to upgrade security, involving patching difficulties and complications arising from halt of operations for security upgrade, and so on.
- Security needs to be integrated into the innovation strategy from the start, incorporated from the design stage and engineered into every system and every component of every system, implemented from the very beginning and throughout the development process.
- In the long term, prioritising security is in the interest of investors as they look to protect and increase their financial returns.
- Investors need to take a proactive approach to cybersecurity when considering investing. The following examples showcase the real economic and business impact that cyber breaches can incur:
 - Verizon Communication's acquisition of Yahoo – as a result of Yahoo disclosing two data breaches, Verizon reduced their acquisition price from \$4.83 billion to \$4.48 billion (\$350 million price reduction).
 - Marriott International's acquisition of Starwood - as a result of an identified security breach in Starwood's network, Marriot not only overpaid for a brand that got damaged and incurred loss of trust among its customers, additionally the cyber incident could result in up to \$1 billion in regulatory fines and litigation costs.

[Growth dynamics in Industrial Robotics](#), published by McKinsey & Company, examines what is shaping the global industrial-robotics space.

- The use of robots is growing due to technological advances that support an increase in the number of applications. There are now robots for most applications from materials handling to assembly.
- In addition, there has been an improvement in sensors, such as tactile and vision systems, that increases the set of applications for robots and makes them simpler to implement. There has also been an increase in computing power, giving robots AI capabilities.
- Against this backdrop and at this stage of development, manufacturers and system integrators should investigate how they can facilitate more adoption, more value, and further growth by bringing additional simplicity in three areas:

- Simpler to apply - Potential end users will be increasingly likely to envision use cases for robots as the choice of robots and the talent with the requisite skill set to bring the robots online becomes more available. Simulation software can further close the gap between conceivability and installation by helping end users prove their design before committing to the final investment.
- Simpler to connect - Readily available industrial connections, simpler integration of end effector, systems input/output, and communication can make robotics easier to implement within existing structures.
- Simpler to run - Interactive or interconnected interfaces put even complex programming tasks in the hands of frontline operations, making factories less dependent on expert suppliers and engineering departments.

RESEARCH AND DEVELOPMENT

[No relevant material sourced for this quarter's release.]

SECTORS AND TECHNOLOGIES

[Economic Impact of the Geoscience Industry on the Northern Ireland Economy](#), published by Ulster University Economic Policy Centre, assesses the contribution of the Geoscience Industry to the Northern Irish economy.

- The full economic impact of the geoscience industry to the wider NI economy is calculated to be 83,700 jobs, £3.7 billion in Gross Value Added and £1.8 billion in wages. This indicates that NI employment in the geoscience industry is similar to the agriculture sector and the knowledge economy, while the GVA total is close to that produced by the construction industry.
- It is the 5th highest paid sector in NI, with employees in the geoscience sector earning 9% more than the NI average wage of £25,935 (2017).
- During the recession, output (as measured by GVA) remained stable and the industry is the 7th biggest sectoral contributor to the NI economy.
- Geoscience firms are externally focussed with 43% of sales (£2.9 billion) going outside NI.
- The businesses also account for a significant proportion of business expenditure on R&D (15% of the NI total).
- When compared to other UK regions, the NI geoscience industry has above average shares of the region's employment and business stock. In terms of employment, the NI geoscience industry has the 4th largest share of regional employment in the UK. However, it is below the UK regional average for some key economic metrics – such as productivity levels, the wage premium, and share of GVA.
- The industry has given rise to an NI specialism in the development and production of materials handling equipment, a recent addition to the engineering tradition in the economy and one linked to the extraction and processing of the natural resources. This suggests that the geoscience industry is a strong supporting sector within the economy and has the potential for spin offs such as engineering innovation.

[Automation at scale: The benefits for payers](#), published by McKinsey & Company, proposes how process automation at scale is now feasible for most payers, whilst highlighting potential uses and benefits.

- Recent developments in technologies such as robotics and machine learning have made it easier for companies to achieve process automation at scale, and this change is fundamentally transforming how the companies operate, greatly improving their efficiency and often increasing consumer satisfaction. Analysis by the McKinsey Global Institute (covering more than 800 jobs and over 2,000 work activities) showed that:
 - Globally, almost half of the activities employees perform—which account for nearly \$16 trillion in wages—could potentially be automated using existing proven technologies.
 - Automation will transform far more jobs than it will eliminate. Less than 5% of occupations could be completely automated using current technologies. However, at least 30% of employee activities in about 60% of occupations could be automated.
 - Among the industries studied, the automation potential ranged from 27 to 73%; in healthcare, it was 36%.

- The workforce is aging and contracting. Especially in developed societies, the workforces of many payers (those companies that may invest in automation) are shrinking as employees reach retirement age—and finding replacements is increasingly difficult. Automation can help payers effectively manage natural attrition and ensure that the remaining workforce is focused on high-value work.
- At most payers, core systems cannot easily be modified, which makes it difficult to implement necessary operational changes. Frequently seen problems include the absence of standardisation and integration, workflows that span multiple disconnected systems and often require duplicative manual data entry, a complex demand-management structure, and less-than-optimal IT service provider relationships.
- Automation at scale is one lever that can address these problems. It is most effective if deployed as a key element of a payer's holistic digital process transformation. Successful approaches are usually owned by strong business leaders who are looking beyond cost reduction. By taking a holistic perspective when undertaking automation efforts, the leaders ensure that freed-up employees are dedicated to new tasks with the highest business value, which often enables new consumer-facing business models.

[Building value with Blockchain Technology: How to evaluate Blockchain's benefits](#), published by the World Economic Forum, discusses challenges faced by business leaders when realising the true value of the technology.

- Blockchain is a system of decentralised digital lists, or ledgers, containing records referred to as "blocks". Blocks hold information in a secure, transparent, and permanent way that everyone can access.
- Many of the executives overseeing large-scale and advanced blockchain initiatives stress the technology's value as a data-sharing mechanism. However, it is challenging to convene diverse operations and businesses to implement the technology across the trade chain.
- As a result, many organisations choose to bring the smallest number of necessary parties to the table before opening it up for additional parties – with the hope that early use-cases will serve as an incentive for other parties to join in the future. Due to their relationships and organisational structure, common infrastructure operators and market-wide collaboration platforms may be well placed to succeed in this space.
- The technology has the potential to simplify and optimise complete value chains through the sharing of simplified real-time data with increased efficiency. As the technology is intrinsically decentralised and distributed, blockchain can help remove bottlenecks and put pressure on low-value intermediaries to take up overdue technology and structural improvements or simply leave the market altogether.
- One additional theme uncovered is the way in which blockchain can stimulate innovation around both products and processes. New opportunities to innovate will arise as external data becomes more trustworthy and improvements in automation, smart contracts and digital identity and assets continue.
- While this theme was prevalent among executives, only 17% of survey respondents noted "new business products and services" as a top-three advantage of blockchain technology – potentially indicating that the broader populations prioritise short-term gain while executives think longer term.
- Some 51% of survey respondents identified "missing out on developing new products/services" as the number-one expectation if they do not invest in blockchain technology in the near future. The other two most common answers were missing out on speed/efficiency gains (23%) and missing out on cost savings (15%).

[State of the maritime nation report 2019](#), published by Maritime UK, highlights the vital role of the UK Maritime Sector to the British economy based on figures from 2017.

- The UK Maritime Sector facilitates 95% of all UK trade and is larger than both the automotive and aerospace industries. The report found that the Maritime sector supported a total of £46.1 billion to the UK's GVA in 2017, an £8.3 billion increase since 2010.
- The sector's direct GVA contribution was £17 billion in 2017, a 25% increase compared to 2010 (£13.6 billion). The report reveals that for every £1 in GVA directly contributed by Maritime, the sector supports another £2.71 in GVA across the UK economy.

- An inspection of the regional breakdown of GVA yields similar results, with London, Scotland and the South East making the largest direct contributions to GVA in 2017. Northern Ireland was estimated to directly contribute 1.3%, valued at £220 million, to GVA.
- The highest concentrations of business turnover directly generated in 2017 were in London (£12.3 billion, 26%), the South East (£10.3 billion, 22%) and Scotland (£9.9 billion, 21%). The business turnover directly related to the Maritime sector for Northern Ireland in 2017 was estimated to be £770 million, accounting for 1.6% of the UK's total.
- The report finds that the direct employment is concentrated in Scotland, London and South East England. London (42,000) and Scotland (41,000) both respectively make up 19% of the UK maritime workforce, while the Maritime Sector in Northern Ireland is estimated to directly create 3,300 jobs, providing a total of £150 million in income for those involved.

ENTREPRENEURSHIP

[Global Entrepreneurship Monitor: UK 2018 report](#), published by the GEM Research Consortium, tracks the entrepreneurial landscape in the UK.

- Total early-stage entrepreneurial activity in the UK in 2018 was 7.9%.
- The 2018 UK rate was lower but not significantly different to 2017 (8.7%) but exceeded the previous long-run rate of around 6% which prevailed until 2010.
- The UK early stage entrepreneurial activity rate compares favourably to France (6.1%) and Germany (5.0%) but is lower than that of the US (15.6%); the gap with the US is due largely to differences in the nascent entrepreneurship rate rather than the new business owner rate.
- In total, 1 in 5 individuals of working age in the UK were engaged in some type of entrepreneurial activity or intended to start a business within the next three years. This is similar to 2017 and, again, higher than the historical trend.
- 8.5% of working age adults expected to start a business within the next 3 years compared to 7.6% in Germany; both rates were lower than those in France (20.4%) and the US (18.5%).
- All the entrepreneurial activity measures in the UK remained unchanged from 2017.
- In 2018 the male entrepreneurial activity rate stood at 10.5% and the female rate 5.2%; there were no significant changes in either rate since 2017. The ratio of female to male early-stage entrepreneurship varies across the UK regions.
- Those aged 25-34 in the UK are significantly more likely to be involved in early stage activity than 45-54 year olds and 55-64 year olds.
- Unlike in previous years, in 2018 immigrants have similar levels of entrepreneurial activity as the UK resident population. In particular, it is the rate for ethnic minority immigrants which is significantly lower than in 2017 and is perhaps an early indication of the 'chilling' effect of Brexit on the decision-making of these individuals. They no longer see the UK in 2018 as a place to start their new business venture by either choosing other countries or delaying their decision to start-up in the UK.
- The entrepreneurial activity rate for immigrants was 7.2% compared to a rate of 8.0% for the life-long resident population. Similar to life-long residents, and those that have lived abroad, immigrants are primarily driven into entrepreneurship by opportunity motivations.

BUSINESS GROWTH

[UK Local Growth Dashboard 2019](#), published by Enterprise Research Centre, presents a set of growth metrics for start-ups and existing firms across the UK.

- This report presents a set of growth metrics for start-ups and existing firms across a range of sub-national geographies in the UK with a specific focus on each of the 38 English Local Enterprise Partnership (LEP) areas. Alongside these metrics it provides some other contextual data for each LEP including the changing sectoral composition of local economies over time.
- The Local Growth Dashboard can be used as source of evidence to inform discussions on priorities in business support concerning small business growth.

- There is a high degree of variation in start-up rates across the UK. London and the South East have the largest rate of start-ups. Generally, start-up rates in Scotland, Northern Ireland and Wales are much lower than in England.
- Northern Ireland stands out as having above average proportions of start-ups (2.7%) generating above £1 million in revenues after three years trading. Wales (1.4%) and Scotland (1.6%) are below the UK average of 2%.
- 8.3% of all job-creating employer enterprises in the UK achieved positive productivity gains (revenue per employee) while still increasing jobs over the 2015-18 period. Northern Ireland had the highest proportion in the UK at 11.1% while the proportion in England, Wales and Scotland was 8.4%, 7.1% and 7.3% respectively.

[Shock Absorption Capacity of Firms in Ireland and Northern Ireland](#), published by InterTradeIreland, examines how the capacity of firms to absorb shocks can be assessed using detailed firm-level patterns of risk exposure across Ireland and Northern Ireland.

- Combining shock absorption capacity indicators with information on cross-border and EU trade flows provides insight into how dispersed across firms a post-Brexit shock to trade costs might be. It also reveals the extent to which this might be clustered in firms that have varying abilities to deal with changes in their external environment.
- Goods firms tend to have higher levels of productivity than services firms and, amongst Irish firms, those which are foreign-owned show a much higher degree of productivity compared to domestic firms.
- Irish goods firms have a productivity distribution similar to those in Northern Ireland when domestically-owned firms are considered. Foreign multinationals located in Ireland have considerably higher productivity.
- 35.5% of Irish goods firms are in the lowest risk group, i.e. with the highest absorptive capacity, compared to 26.5% for Northern Irish goods firms.
- The proportion of services firms in at-risk groups is similar for Ireland and Northern Ireland (at 47.2% and 46.1% respectively).
- North-South trade is quite dispersed across almost all levels of shock absorption capacity. This implies that any disruption to this trade flow would be widely felt across firms.
- For NI goods firms, 43% of exports to the rest of the EU are accounted for by firms within the higher shock absorption capacity (lowest risk) groups. Firms in the lower risk absorption capacity (highest risk) groups, on the other hand, account for 10.9% of the exports of goods firms to the rest of the EU, with a total of 57% of exports to the rest of the EU being undertaken by firms in overall at-risk categories.
- The findings of the report imply that small, largely locally orientated firms with some cross-border trade are likely to be most exposed to any changes in trade costs.

[Regional Risks for Doing Business 2019](#), published by the World Economic Forum, offers a business perspective on the impact of global risks.

- Concerns about “cyberattacks” are top among business leaders in the four largest European Union (EU) economies: Germany, France, Italy and the United Kingdom. In late 2018 and throughout 2019, European countries have experienced cyberattacks and data-theft attacks on state agencies and large businesses.
- Economic issues remain a big concern for European business executives, with “asset bubble” ranking second regionally. After years of persistently low interest rates, the European business sector could be worried that the housing market will react negatively if interest rates were to start rising again. At the same time, housing prices have continued to increase in certain countries, such as in Portugal and Ireland, where they have risen by over 10% compared to 2018.
- Despite no military hostilities in Europe, “interstate conflict” has moved up to the third highest risk for doing business across the continent. Continued geopolitical tensions between the EU/United States and Russia due to the unresolved situation in Ukraine, make it difficult for Russia’s neighbouring regions to ignore the possibility of an interstate conflict.
- The top mover in the region compared to 2018 is “energy price shock”, which rose eight places to become the fourth major risk. Moreover, relatively stable low oil prices and the prospect of sharp increases due to heightened geopolitical tensions and unpredictable events, such as the recent

attacks on Saudi Arabia's oil industry, have sparked economic fears over higher energy prices. Additionally, the transitional costs from the region's number-one energy source, coal, to greener energies threatens to add further burdens on energy prices.

- Europe continues to recover from the 2008–2009 financial crisis, but the region is, at the same time, facing decreasing growth forecasts compared to 2018. It is therefore not surprising that “fiscal crises” ranks fifth in the region. Arguably, positive signs, such as record low bond rates or lower EU-wide unemployment rates than before the 2008–2009 financial crises, do not conceal the uncertainty about how Brexit, the European Central Bank's economic stimuli, a further reduction of record-low interest rates and a new round of quantitative easing could affect businesses in Europe.

GROWTH FINANCE

[No relevant material sourced for this quarter's release.]

BUSINESS REGULATION

[No relevant material sourced for this quarter's release.]

Succeeding Globally

TRADE

[Geographical pattern of UK trade](#), published by Parliament Briefings UK, distinguishes changes in the UK's balance of trade and trade flows between the UK and main trading partners over the last 10 to 15 years.

- In 2018, the UK exported £634 billion of goods and services and imported £665 billion, resulting in a trade deficit of -£31 billion. This was equal to -1.5% of GDP, up from -1.2% in 2017.
- The UK recorded a trade deficit in goods – UK exports of goods were £351 billion while imports were £489 billion, resulting in a deficit of £138 billion. This was equal to -6.5% of UK GDP, down from -6.7% in 2018.
- The UK recorded a trade surplus in services – UK exports of services were £283 billion while imports were £176 billion, resulting in a surplus of £107 billion. This was equal to 5.1% of GDP, down from the record high of 5.5% in 2017.
- Taken as a bloc, the EU is the UK's largest trading partner. In 2018 the EU accounted for 46% of UK exports and 54% imports and 7 of the UK's 10 largest export markets and sources of imports. However, the EU's share of UK trade has generally declined in recent years - in 2002, the EU accounted for 55% of UK exports and 58% of imports.
- Looking at individual countries, the USA is the UK's largest export market. In 2018, the US accounted for 19% of UK exports, followed by Germany, though UK exports to Germany were around half those to the US. Germany was the UK's largest source of imports, accounting for 12% of total imports, followed by the US at 11%.
- UK trade with China has expanded rapidly since the turn of the century. In 1999, China was the UK's 26th largest export market and 15th largest source of imports, accounting for around 1% of both exports and imports. In 2018, China was the UK's 6th largest export market and 4th largest source of imports, accounting for 4% of exports and 7% of imports.

INWARD INVESTMENT

[No relevant material sourced for this quarter's release.]

TOURISM

[Hotel Forecast 2020](#), published by PWC, discusses the recent Northern Irish Hotel performance.

- Open Championship-related demand and screen tourism driven by Game of Thrones combined with a focused drive by Visit Belfast to double out-of-state tourists to the city contributed to a

10% jump in rooms sold during the 12 months between June 2018 and June 2019, an increase five times that of the national average.

- The Open, one of the biggest sporting events ever held in Northern Ireland, delivered a 27% gain in revenue per available room (RevPAR) over the same month in 2018, highlighting the pronounced impact sports events can have.
- However, the increase in visitors was not sufficient to balance the increase in new rooms across the city (up 494 to 5,287), with overall room availability increasing by 20% and total occupancy levels falling by 8.5%.
- In 2018, Belfast enjoyed above average growth (4.6%) in RevPAR; but fortunes sharply reversed in 2019 with a percentage change of -15.4%. This is the greatest decrease across all 22 cities analysed in the report; average RevPAR across the UK regions fell by 1.8%.
- The report suggests the UK hotel industry is at a pivotal point. Looking ahead to 2020, while performance will vary widely by geography, segment and business model, the outlook is cautious. In terms of economic growth, Belfast is predicted to lag behind the UK average rate of 1.4%, with growth of around 1% in 2019. Scotland and the South East could well be the best-performing regions.
- Uncertainty and prospects of weaker economic growth is likely to impact domestic business demand and consumer expenditure on holidays and hotel accommodation. Meetings of all sizes make up a good portion of many cities' hotel business and currently this market remains soft.
- These combined with additional pressures in high industry cost inflation, recruitment and retention, means that companies need to adopt efficiency programmes and embrace tech-enabled solutions to increase efficiency, reduce processes, manage data and enhance the customer journey.

Economic Infrastructure

ENERGY

[Innovative funding models and technologies to drive investment in new wave of low carbon energy](#), published by the Department for Business, Energy & Industrial Strategy, proposes how new nuclear power and technologies could be rolled out to decarbonise the UK's energy sector.

- For new nuclear projects to be successful in a more competitive energy market, it is essential that there is a sustainable funding model that can attract private finance at a cost that represents value for money to consumers.
- The Government has recently set out proposals to explore the use of the Regulated Asset Base (RAB) approach to attract significant private investment for future nuclear power in the UK. This alternative model could reduce the cost of financing infrastructure and risk for developers while limiting the impact on consumer's bills in the long-term.
- RAB models, typically used for funding UK monopoly infrastructure, involve an economic regulator who grants a licence to a company to charge a regulated price to users of the infrastructure.
- The RAB approach has the potential to reduce the cost of raising private finance for new nuclear projects, thereby reducing consumer bills and maximising value for money for consumers and taxpayers.
- The research suggests that a RAB model for new nuclear projects would need to have the following features:
 - Government protection for investors and consumers against specific remote, low probability but high impact risk events.
 - A fair sharing of costs and risks between consumers and investors, set out in an Economic Regulatory Regime (ERR).
 - An economic regulator to operate the ERR.
 - A route for funds to be raised from energy suppliers to support new nuclear projects, with the amount set through the ERR, during both the construction and operational phases.

- Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs) are part of the advanced nuclear technology sector which covers a range of new innovations under development.
- Modular Reactors are smaller than conventional nuclear power station reactors and are designed so that much of the plant can be built in a factory and transported to site for construction. They usually fall into 2 categories – either smaller water-cooled reactors which are evolutions of existing nuclear power station reactors (known as SMRs), or Advanced Modular Reactors (AMRs) which use new cooling systems or fuels and potentially offer new uses for nuclear energy.

[Digest of UK Energy Statistics 2019](#), published by the Department for Business, Energy & Industrial Strategy, provides a detailed picture on the production and consumption of individual fuels and of energy as a whole.

- In 2018, UK energy production was up 2.9% on a year earlier. The rise was due to an increase in primary oil and renewable fuel production. Primary oil production rose by 9%, while the combined output of wind, hydro and solar fuel rose by 12%. Overall fossil fuel production increased, despite coal production falling by 15%.
- Imports and exports in 2018 were both up; overall net imports decreased and accounted for 36% of energy used in the UK.
- Primary energy consumption was nearly unchanged on 2017 but on a temperature adjusted basis primary energy consumption was down 1.1% continuing the downward trend of the last ten years.
- Final energy consumption rose by 1.1% as demand for heating increased during February and March 2018 with temperature adjusted final energy consumption up by 0.2% on 2017 levels.
- Fossil fuels remain the dominant source of energy supply, but now account for 79.4%, a record low level. Supply from renewables increased, with their contribution accounting for 11% of final consumption on the EU agreed basis.
- In 2018, there was a continuation of the switch in the main sources of electricity generation away from coal and gas to renewables. Generation from coal fell by 25%, gas fell by 3.8%, whilst renewables rose by 12%. Renewables' share of generation was at a record high level of 33% in 2018, up from 29.2% in 2017, due to increased wind, solar and plant biomass capacity.

[Consumer prices index UK: Fuel Components](#) published by the Department for Business, Energy & Industrial Strategy, analyses changes in quarterly and annual price indices for a range of fuels purchased by UK domestic consumers.

- Prices paid for all domestic fuels rose by 9.6% in current terms between Q2 2018 and Q2 2019.
- Domestic electricity prices, including VAT, rose by 13% in current terms between Q2 2018 and Q2 2019. Domestic gas prices, including VAT, rose by 6.2% in current terms between Q2 2018 and Q2 2019.
- The price of solid fuels rose by 3.6%, and the price of liquid fuels decreased by 1.8% between Q2 2018 and Q2 2019.
- Prices paid for all domestic fuels increased by 7.5% in real terms between Q2 2018 and Q2 2019. Between Q1 2019 and Q2 2019 prices for all domestic fuels rose by 9% in real terms.
- Domestic electricity prices, including VAT, rose by 11% in real terms between Q2 2018 and Q2 2019. Domestic gas prices, including VAT, rose by 4.2% in real terms between Q2 2018 and Q2 2019.
- The price of solid fuels rose by 1.6% in real terms and the price of liquid fuels decreased by 3.7% in real terms between Q2 2018 and Q2 2019.

TELECOMS

[No relevant material sourced for this quarter's release.]

AIR ACCESS

[Improving Northern Ireland's Aviation Connectivity](#), published by Oxford Economics, analyses the state of Northern Ireland's current aviation connectivity.

- Aviation connectivity directly facilitates the international movement of people and goods (via air freight). However, by enabling connections between individuals and firms, it can also help to drive the spread of ideas, and hence to spur innovation and technological development.
- Analysis highlights the importance of proximity and language in influencing the strength of Northern Ireland's economic relationships with its international partners. The UK remains Northern Ireland's most important economic partner, accounting for over half of total inbound visitor expenditure and export sales. Other English speaking economies, such as the United States, Canada, and Australia, also feature strongly in these country rankings.
- Across Europe, Germany and France are the two most important markets for Northern Ireland, whereas economic linkages with non-English speaking markets outside the EU are limited.
- Compared to a set of eight benchmark markets (Singapore, Republic of Ireland, Denmark, New Zealand, Scotland, Finland, Israel and Estonia), aviation connectivity in Northern Ireland is currently relatively low. Using a measure of weighted seats per capita, aviation connectivity in Northern Ireland in 2017 was, for example, less than half that enjoyed by residents of the Republic of Ireland. Based on this measure, aviation connectivity in Northern Ireland was higher than in just two of the other eight benchmark economies: Israel and Estonia.
- Northern Ireland's aviation connectivity, adjusted for changes in market size, has grown relatively slowly compared to most of these benchmark economies. Aviation connectivity growth in Northern Ireland has been slower than in all its peer markets except Scotland and the Republic of Ireland.
- Potential policy levers that are available to the Northern Ireland Executive to support the development of chosen priority routes analysed include: discounted Air Passenger Duty (APD), Public Service Obligations (PSOs), co-operative marketing agreements and Route Development Funds (RDFs).

Government

NORTHERN IRELAND

[No relevant material sourced for this quarter's release.]

ENGLAND

[No relevant material sourced for this quarter's release.]

SCOTLAND

[No relevant material sourced for this quarter's release.]

WALES

[No relevant material sourced for this quarter's release.]

REPUBLIC OF IRELAND (ROI)

[No relevant material sourced for this quarter's release.]

Sources

Bank of England

<https://www.bankofengland.co.uk>

Catalyst Inc

<http://www.catalyst-inc.org>

CBI UK

<http://www.cbi.org.uk>

CBRE

<https://www.cbre.com>

CBRE UK

<https://www.cbre.co.uk>

Central Bank of Ireland

<https://www.centralbank.ie>

Centre for Business Research (CBR)

<https://www.cbr.cam.ac.uk>

Centre for Economic Policy Studies (CEPS)

<https://www.ceps.eu>

Centre for Economics and Business Research (CEBR)

<https://cebr.com>

Centre for Enterprise and Economic Development Research (CEEDR)

<http://www.mdx.ac.uk>

Centre for European Economic Research (ZEW)

<http://www.mdx.ac.uk>

Department for Digital, Culture, Media and Sport

<https://www.gov.uk/government/organisations/department-for-culture-media-sport>

Department for Exiting the European Union

<https://www.gov.uk/government/organisations/department-for-exiting-the-european-union>

Department for the Economy

<https://www.economy-ni.gov.uk>

Department of Finance

<https://www.finance-ni.gov.uk>

Department of Jobs, Enterprise and Innovation (DJEI)

<https://www.dbei.gov.ie/en>

Department of Transport, Tourism and Sport

<http://www.dttas.ie>

Dept for Business, Energy & Industrial Strategy (BEIS)

<https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy>

Economic Advisory Group (EAG)

<http://eagni.com>

Economic and Social Research Council (ESRC)

<http://www.esrc.ac.uk>

Economic and Social Research Institute (ESRI)

<http://www.esri.ie>

Economics Ejournal

<http://www.economics-ejournal.org>

Economist Intelligence Unit

<http://www.eiu.com>

Enterprise Research Centre (ERC)

<https://www.enterpriseresearch.ac.uk/>

European Association of Research and Technology Organisations (EARTO)

<http://www.earto.eu>

European Commission - Enterprise and Industry - Growth publications

<http://ec.europa.eu>

European Investment Bank (EIB)

<http://www.eib.org>

Eurostat

<http://ec.europa.eu>

Federation of Small Businesses (FSB)

<https://www.fsb.org.uk>

GEM Consortium

<http://www.gemconsortium.org>

Green Alliance

<http://green-alliance.org.uk>

HM Treasury (HMT)

<https://www.gov.uk/government/organisations/hm-treasury>

Imperial College London - Business School

<https://www.imperial.ac.uk>

Institute for Fiscal Studies (IFS)

<https://www.ifs.org.uk>

Institute for Government

<https://www.instituteforgovernment.org.uk>

Institute of Economic Affairs

<https://iea.org.uk/publications>

International Institute for Management Development (IMD)

<https://www.imd.org>

InterTradeIreland

<http://www.intertradeireland.com>

Invest NI

<https://www.investni.com>

Ipsos MORI

<https://www.ipsos.com>

Irish Exporters Association (IEA)

<http://www.irishexporters.ie>

Joseph Rowntree Foundation

<https://www.jrf.org.uk>

Journal of Business Research

<https://www.journals.elsevier.com>

Kiel Institute

<https://www.ifw-kiel.de>

Legatum Institute

<http://www.li.com>

LSE - Centre for Economic Performance (CEP)

<http://cep.lse.ac.uk>

LSE - Spatial Economics Research Centre (SERC)

<http://www.spataleconomics.ac.uk>

McKinsey UK

<https://www.mckinsey.com>

National Assembly for Wales

<http://www.assembly.wales>

National Competitiveness Council (NCC)

<http://www.competitiveness.ie>

National Economic and Social Research Council (NECS)

<http://www.nesc.ie>

National Institute of Economic and Social Research (NIESR)

<https://www.niesr.ac.uk>

Nesta

<http://www.nesta.org.uk>

Nevin Economic Research Institute (NERI)

<https://www.nerinstitute.net>

NI Assembly Research and Information Service (RaISe)

<http://www.niassembly.gov.uk>

NI Council for Voluntary Action (NICVA)

<http://www.nicva.org>

NI Science and Industry Panel – MATRIX

<http://matrixni.org>

NISRA

<https://www.nisra.gov.uk>

OECD iLibrary

<http://www.oecd-ilibrary.org>

Open Europe

<https://openeurope.org.uk>

Organisation for Economic Development and Co-operation (OECD)

<http://www.oecd-ilibrary.org>

Oxera

<https://www.oxera.com>

Oxford Economics

<https://www.oxfordeconomics.com>

Oxford Review of Economic Policy

<https://academic.oup.com>

Parliament Briefings

<https://researchbriefings.parliament.uk>

Peterson Institute for International Economics (PIIE)

<https://piie.com>

PricewaterhouseCoopers (PWC NI)

<http://www.pwc.co.uk>

PricewaterhouseCoopers (PWC)

<http://www.pwc.com/>

Queen's University Belfast – Economics

<http://www.qub.ac.uk>

Queen's University Belfast - Research Centre in Sustainable Energy

<http://www.qub.ac.uk>

Resolution Foundation

<http://www.resolutionfoundation.org>

ResPublica

<http://www.respublica.org.uk>

Scottish Enterprise

<https://www.scottish-enterprise.com>

Scottish Government

<http://www.gov.scot>

Small Business Research Centre (Kingston University London)

<https://eprints.kingston.ac.uk>

Taxpayers Alliance

<http://www.taxpayersalliance.com>

Technical Research Centre of Finland (VTT)

<http://www.vttresearch.com>

Technopolis

<http://www.technopolis-group.com>

The Executive Office (TEO)

<https://www.executiveoffice-ni.gov.uk>

Tourism NI

<https://tourismni.com>

Trinity College Dublin

<http://www.tcd.ie>

Ulster University Economic Policy Centre

<https://www.ulster.ac.uk/business/epc>

University College Dublin (UCD)

<http://researchrepository.ucd.ie>

University of Ulster - Business Management Research Institute (BMRI)

http://uir.ulster.ac.uk/view/research_institutes/

Visit Britain

<https://www.visitbritain.org>

Visit Scotland

<http://www.visitscotland.org>

Wavteq

<http://www.wavteq.com>

Welsh Government

<http://gov.wales>

World Bank

<http://www.worldbank.org/>

World Economic Forum (WEF)

<https://www.weforum.org>