Department for the Economy
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Economic Research Digest
Quarter 3 2018

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:

- Reports on how the United Kingdom can solve the productivity problem.
- Key statistics regarding the UK's trade during 2017 with the Republic of Ireland.
- How ultrafast broadband should be implemented around Northern Ireland and the potential economic benefits in doing so.
- Information on record inward tourism numbers for the United Kingdom during 2017.

** 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.*

Contents

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Economic Outcomes

COMPETITIVENESS

***30 years of competitiveness research*, published by the International Institute for Management Development (IMD), is an article which helps define how "competitiveness" as a concept should be viewed and judged.**

- The economy or indeed the perception of a "highly competitive" economy, cannot be reduced to a few decisions on interest rates, taxation, budgets or debt. Today, no one disputes that the long-term prosperity of a nation and its people are based on economic but also social policies such as the management of education or social consensus. Specifically, competitiveness analyses, integrates and evaluates the totality of a nation's performance in a global environment.
- The strength of competitiveness is also to force nations to think about the longer term, beyond the quarterly fluctuations of GDP or the next elections.
  - For example, Switzerland's competitiveness is based on the diversity of its economy, education, the quality of its businesses, technology and social stability. These are all long-term competitive advantages that cannot be rapidly overturned. Such sustainability explains in part the strength of the Swiss economy when confronted with an economic crisis.
- Competitiveness is not an end but an extremely effective tool for achieving the prosperity of a nation. However, this concept, which characterizes the collective success of a country, should lead to a higher goal, one that is more relevant to people's everyday lives: as a sense of economic and social well-being.

***Ireland's competitiveness scorecard 2018*, published by National Competitive Council details how the Irish economy continued its expansion in 2017 and into 2018.**

- The report highlights that despite the economic outlook for Ireland remaining positive, the competitiveness of the economy is under threat. The sustainability of growth is threatened by the reliance of the economy on a small number of highly productive exporting companies and the increasingly globalised nature of the world making Ireland susceptible to negative economic shocks such as the outcome of Brexit.
- The report also identifies cost competitiveness and productivity as two critical factors which help contribute to overall competitiveness:
  - As the economy continues to grow, cost pressures are evident in key areas – particularly in relation to property, labour costs, credit and services prices, where Ireland performs below competitor countries. With the labour market likely to tighten further, upward pressures on labour costs can be expected in several sectors and across occupations. Measures to encourage labour force participation can help alleviate labour cost pressure.
  - Increasing productivity, particularly amongst SMEs, is vital. Productivity levels and growth rates in Ireland are strong, but skewed by globalisation activities. Performance is heavily influenced by a small cohort of enterprises, bridging the productivity gap that exists between the most productive and least productive is vital for sustainable growth prospects. Developing Ireland's infrastructure base is the fundamental challenge to improving productivity.
- Although Ireland's export performance is a major contributor to Ireland's economic growth, the range of products and services exported and the base of exporting enterprises is relatively concentrated. The significance of pharmaceuticals and chemical products is clear with these two commodity groups alone accounting for 45 per cent of exports. The top 15 commodities account for approximately 90 per cent of total goods exports from Ireland.
- The continuous digitalisation of the economy is altering the structure of long established business models, supply and value chains, productivity, consumption and competition patterns. Ireland's long-term productivity prospects will be dependent on the take up and diffusion of innovative technologies, infrastructure development, skills availability and reform of regulatory frameworks.

PRODUCTIVITY AND GROWTH

***Prospects for the UK economy*, published by the National Institute of Economic and Social Research (NIESR), forecasts how the economy will perform under a 'soft Brexit' scenario.**

- The central forecast under a 'soft Brexit' scenario is that the economy will grow at a pace that is consistent with its potential. This translates to annual GDP growth of 1.4 per cent this year and 1.7 per cent next year, which is broadly unchanged from the previous forecast. The risks to the GDP growth forecast are wider than before and tilted to the downside.
- The UK government is under increasing pressure to end fiscal consolidation. The government faces pressures to increase spending in a number of areas to maintain the quality of public services. The government has very recently promised new spending on the NHS and partially lifted the wage cap on public sector employees. Consistent with that, the central forecast assumes that government spending (as a share of GDP) will not fall as forecast by the Office of Budget Responsibility.
- The Bank of England will take account of continuing uncertainty when setting policy and also weigh the consequences of 'getting it wrong'. With the economy growing in line with potential, it is recommended that the MPC raises the Bank Rate gradually but also stand ready to move in either direction should circumstances change. The committee should emphasise the uncertainty (rather than the certainty) of its future policy stance in its communications and its willingness to reverse its decisions.

***The UK productivity puzzle through a magnifying glass: a sectoral perspective*, published by the Organisation of Economic Cooperation and Development (OECD), assesses the productivity problem and discusses what determines productivity levels within various sectors.**

- Half of the productivity shortfall is explained by non-financial services; information and communication the largest contributor, a fourth by financial services, and remaining fourth by manufacturing, construction and other production.
- The productivity puzzle started with the 2008 Recession, which hit productivity throughout the OECD countries. Most of the UK's sluggish productivity performance is structural rather than cyclical and mainly caused by poor within-sector total factor productivity.
- Large rises in labour supply in the form of self-employed workers, lower matching of skills to jobs and a weaker capital-output ratio (especially in housing and business services) may have slowed down productivity growth in non-financial services sector. Declining productivity in the financial sector is mainly linked to reduced risk-taking and leverage.
- Some causes of the productivity puzzle pre-date the crisis, including low tangible investment, too rapid expansion of financial services and weak innovation in the manufacturing sector.
- Since the crisis, there has been a marked increase in the dispersion of productivity performance across UK sectors. Measured by the difference between actual productivity and its level implied by the pre-crisis trend growth rate, dispersion in productivity has jumped.

***Solving the United Kingdom's productivity puzzle in a digital age*, published by McKinsey & Company, provides an understanding of why productivity growth has slowed sharply in the UK and creates a framework to accelerate growth.**

- While the United Kingdom ranks highly in broad measures of digital adoption, there are gaps. The country does well in internet access, basic digital skills, and the adoption of cloud computing but poorly in terms of the integration of information systems across the value chain, business process transformations, enterprise digitisation, and robotics. There are opportunities to boost productivity growth from digitisation but they come with adoption barriers, lags, and transition costs.
- UK investment was the lowest in the sample of advanced economies going into the crisis and fell further in the aftermath. The decline was mainly from a reduction in equipment and structures investment, while investment in intangibles such as software and R&D increased slightly. Weak equipment investment has implications for achieving labour savings and played a role in the productivity growth decline in manufacturing.
- The government should invest in skills development for existing and future workers and facilitate reskilling whilst also developing critical management skills.
- The UK should strive for accelerating digital adoption through information sharing, access to finance, greater collaboration, and a favourable policy environment for technology diffusion.
- Even with enhanced workforce skills and widespread technology adoption, the United Kingdom's productivity growth could be jeopardized by further boom and bust cycles or waning capital stock but this should be offset by promoting investment and exports to shore up economic resilience for the future.

LIVING STANDARDS, WELLBEING AND PROSPERITY

***The effects of taxes and benefits on UK household income: FYE 2017*, by the Office of National Statistics (ONS), provides an overview of how income inequality has changed over time by various taxes and benefits received in cash or kind.**

- According to this report, income inequality in disposable income - as measured by the Gini coefficient – slightly decreased in the 10 years to financial year ending 2017, falling by an average of 0.3 percentage points per year. This has failed to offset to the substantial increase in income inequality during the period 1978 to financial year ending 1991 where the coefficient increased by an average of 0.9 percentage points per year.
- Cash benefits had the largest effect on reducing income inequality, reducing the Gini coefficient by 13.5 percentage points from 48.9% for original income to 35.4% for gross income. Direct taxes acted to further reduce it, by 3.4 percentage points to 32.2%.
- Indirect taxes act to increase income inequality – the Gini coefficient of post-tax income was 4.2 percentage points higher than the coefficient of gross income (36.4% and 32.2% respectively). This means that overall, taxes had a negligible effect on income inequality.

***A minimum income standard for UK 2008-2018*, by the Joseph Rowntree Foundation details how much is needed to achieve a minimum acceptable standard of living in the United Kingdom today.**

- In 2018, new Minimum Income Standard (MIS) research recalculated from scratch the minimum budgets for pensioner and working-age households without children, while reviewing the budgets set in 2016 for families with children. It reflects on a decade of social and economic change.
- The report finds that the types of goods and services required for a minimum living standard have not changed greatly in a decade. In some cases, the specification of what and how much is needed has also remained more or less constant: for example, all households agree that a fabric sofa, rather than a leather one, is enough to meet people's needs. In other cases, changes in detail have affected the size of budgets, such as a reduction in some eating-out budgets.
- The minimum cost of living is being influenced not just by what goods and services are required, but also by how people buy them. The internet has offered new opportunities to compare prices and obtain discounts on some items, and, in the case of families with children, having a car widens shopping opportunities.
- New technologies become a recognised part of the minimum when they become widely used, moderately priced and important for the practicalities of everyday life. At this point, a basic 'entry level' version of the technology is considered necessary. For example, in 2008 the mobile phone specified by MIS was a cheap pay-as-you-go version for occasional use only, but in 2018 a low-cost smartphone was considered a normal and necessary accessory of everyday life.
- Public policy is affecting MIS in multiple ways. Free provision, for example of bus passes to pensioners, reduces costs. On the other hand, perceptions of reduced services, such as public transport and some healthcare provision, has increased what people feel they need to spend privately. Government messages can also influence what people think is important to spend money on, such as maintaining a diet that includes five portions of fruit or vegetables a day, securing good quality childcare to give children a fair start in life, and making sure children learn how to swim.
- Whilst a constantly changing structure of the economy, combined with inflation, have had different effects on overall MIS budgets according to household type, in general the past decade has shown a deterioration in the ability of people without work or in lower-paid work to afford a minimum standard of living.

***Income growth and income distribution: A long run view of Irish experience*, published by the Economic and Social Research Institute (ESRI) provides a long run perspective on the distribution of income during the past 30 years in the Republic of Ireland.**

- Income distribution in the Republic of Ireland (ROI) has been broadly stable during the past 30 years. There has been substantial growth in incomes right across the socio-economic spectrum i.e. from low income to high income families in the top percentage.
- While market income inequality in Ireland is towards the high end of the international spectrum, the redistributive impact of Ireland's tax and transfer system helps to ensure that inequality in disposable income is at a middle-ranking level.

- The paper establishes that from 1987 to 2014 discretionary changes to taxation and welfare systems resulted in the largest increases in disposable incomes for those families in the bottom 20% of income. Two key features emerge:

  1. In a long-run perspective, adjustment of tax and welfare parameters has been in line with, or slightly ahead of, growth in wages. This has helped to ensure that 'fiscal drag' has not reduced the incomes of those in employment, and has helped to provide a floor to incomes for those dependent on welfare which has at least kept pace with general income growth.

  2. In a short-run perspective, this system has helped to provide automatic stabilisation not just of incomes, but of inequality.

***Global Liveability Index 2018*, published by The Economist Intelligence Unit, assesses which locations around the world provide the best or the worst living conditions.**

- Every city is assigned a rating of relative comfort for over 30 qualitative and quantitative factors across five broad categories: stability, healthcare, culture and environment, education, and infrastructure.
- Each factor in a city is rated as acceptable, tolerable, uncomfortable, undesirable or intolerable. For qualitative indicators, a rating is awarded based on the judgment of in-house analysts and in-city contributors. For quantitative indicators, a rating is calculated based on the relative performance of a number of external data points.
- Vienna, ranks as the most liveable of the 140 cities surveyed and has succeeded in displacing Melbourne from the top spot, ending a record seven consecutive years at the head of the survey for the Australian city.
- Two other Australian cities feature in the top-ranked places: Sydney (5th) and Adelaide (10th), while only one other European city made the top ten- Copenhagen in Denmark. Copenhagen ranks in 9th place, after its score increased by 3.3 percentage points since the last survey cycle.
- The rest of the top-ranked cities are split between Japan (Osaka in 3rd place and Tokyo in joint 7th, alongside Toronto) and Canada (Calgary in 4th, and Vancouver and Toronto in 6th and 7th respectively).
- Two European cities fell out of the top 10 from 2017, Helsinki (from 9th to 16th) and Hamburg (from 10th to 18th).

***A new measure of poverty for the UK*, a report by the Social Metrics Commission, develops a new approach to poverty measurement that better reflects the nature and experiences of poverty for different families.**

- Compared to previous measures, the Commission's new measure makes significant changes to understanding who is in poverty. In particular it:
  - Better identifies people in poverty in families that include a disabled adult or child;
  - Better identifies people in poverty in working-age families with children;
  - Shows that fewer people in pension-age families are in poverty.
- This is because the measure takes account of both the way in which the costs of childcare and disability affect people's ability to make ends meet, and how those with significant liquid assets are able to use them to meet their current needs.
- Under the Commission's new measure, 14.2 million people in the UK population are in poverty: 8.4 million working-age adults; 4.5 million children; and 1.4 million pension age adults.
- 12.1% of the total UK population (7. 7 million people) live in persistent poverty, (over half of those who appear in the new in poverty measure). This means that more than one in ten of the UK population are in persistent poverty.
- The majority (68%) of people living in workless families are in poverty. This compares to just 9% for people living in families where all adults work full time.
- Of the 14.2 million people in poverty, nearly half, 6.9 million (48.3%) are living in families with a disabled person.

Innovation and Enterprise

INNOVATION

***From Lab to Leader: How consumer companies can drive growth at scale with disruptive innovation*, published by McKinsey & Company, describes how future growth is dependent on innovation at speed and scale.**

- Driving growth through innovation requires consumer-packaged-goods companies to evolve many of the assets and capabilities already in place within their company and adopt significantly different structures and new ways of working.
- Driving success at scale requires a new model. Innovative ideas can initially generate a lot of excitement and promise. But that drive often subsides when it needs to work with the full business to scale the idea. There is a broad range of elements in a new innovation system.
- To succeed businesses must establish cross-functional teams with a complementary set of problem-solving skills, such as people from insights, marketing, personnel, sales, and tech. The team should "live" together, using an agile development model, and ideally drive one to two initiatives at any given time.
- Focus on constant learning and de-risking throughout development. Rather than a standard checklist of activities and stages, teams should constantly identify and prioritize the greatest uncertainties in a concept and conduct quick tests to resolve them.
- Launching disruptive innovation doesn't mean a company always has to be the original inventor. Rather than focusing on first to market, it is recommended on focusing on first to scale.

***Notes from the AI [Artificial Intelligence] Frontier: Modeling [sic] the impact of AI on the world economy*, published by McKinsey & Company, considers both the possible benefits of AI and the costs related to implementation and disruption.**

- Based on early evidence, simulation suggests around 70% of companies adopting at least one type of AI technology by 2030, while less than half of large companies may be using the full range of AI.
  - AI could potentially deliver additional economic output of around $13 trillion by 2030, boosting global GDP by about 1.2% a year.
- Adoption of AI may follow an S-curve pattern—a slow start given the investment associated with learning and deploying the technology, and then acceleration driven by competition and improvements in complementary capabilities.
  - As a result, its contribution to growth may be three or more times higher by 2030 than it is over the next five years.
  - Initial investment, ongoing refinement of techniques and applications, and significant transition costs might limit adoption by smaller firms.
- AI may widen performance gaps between countries, companies and workers:
  - AI leader countries (mostly developed economies) could capture an additional 20 to 25% in economic benefits compared with today, while emerging economies may capture only half the benefits.
  - Frontrunner companies could potentially double their returns by 2030, while companies that delay adoption could fall behind.
  - Demand—and wages—may grow for workers with digital and cognitive skills and expertise in tasks that are hard to automate, but shrink for workers performing repetitive tasks.
- The pace of AI adoption and the extent to which companies choose to use AI for innovation rather than efficiency gains alone are likely to have a large impact on economic outcomes.
  - Similarly, how countries choose to embrace these technologies (or not) will likely impact the extent to which their businesses, economies and societies can benefit.
- The race is already on among companies and countries, but the trade-offs need to be understood and managed appropriately in order to capture the potential of AI.

RESEARCH AND DEVELOPMENT

***R&D tax incentives in EU countries: Does the impact vary with firm size?*, published by the National Institute of Economic and Social Research (NIESR), studies the effect of R&D tax incentives on the research activity of manufacturing firms based in France, Italy, Spain and the UK, over the period of 2007-2009.**

- In all countries except Spain, the effect of tax incentives on the research and development intensity of manufacturing firms was statistically significant but this finding is mainly driven by the behaviour of small enterprises.
- Although the propensity to exploit research and development fiscal incentives is higher among large companies, SMEs can get substantial advantages from this kind of support, especially in times of crisis: in fact the paper shows, not even in the presence of losses, R&D tax credits can be carried forward and often, as in France and the UK, SMEs may also obtain cash refunds.
- The evidence shows that €1 of foregone tax revenues generated a €0.7 increase in research and development in France, €1.5 in Italy and €1.6 in the UK.

***Shaping the future of drones in the UK*, published by Nesta, explores the current state and future ambitions for drones in urban environments in the UK from contrasting and complementary perspectives.**

- The report examined the wide array of tasks to which drones can be deployed. In partnership with five cities, five socially beneficial use cases were selected in order to explore their technical, social and economic aspects. They were: medical delivery within London, medical delivery across the Solent, traffic incident response in the West Midlands, fire response in Bradford and construction and urban regeneration in Preston.
- Drones can achieve cost and time savings to public bodies such as local government, emergency services and health service providers, through faster access to locations, more efficient service provision and the automation of certain processes, as well as by collecting information and generating relevant data to support more timely, transparent, and effective decision-making.
- Economic growth can therefore be achieved through efficiency gains to businesses and workers, and the creation and delivery of new skills, jobs, products and services.
- Environmental benefits from the use of drones include the ability to maintain urban spaces, monitor and ensure compliance with air pollution regulation, track changes in the environment, to reducing road traffic by replacing road vehicles with airborne drones for some types of delivery.

SECTORS AND TECHNOLOGIES

***Internationalisation, innovation and productivity in Services: Evidence from Germany, Ireland and the United Kingdom*, published by ESRI, examines the links between internationalisation, innovation inputs, innovation outputs and productivity in service enterprises.**

- Utilising a structural model with micro data from the Community Innovation Survey over the period 2006-2008 from Germany, Ireland and the UK the report highlights that:
- The predominant innovation types in service enterprises over the period analysed in the three countries are organisational and marketing innovations.
- The empirical evidence highlights the importance of internationalisation in the context of engagement in innovation and innovation outputs in all three countries. For all types of innovations, innovation rates are the highest in enterprises with international activities (foreign-owned and domestic exporters) in Ireland and the UK. In Germany, this is true only for domestic exporters with product innovations.
- The econometric analysis reveals that investment in innovation in service enterprises is more likely in larger enterprises and in enterprises with export markets. Conditional on investing in innovation, there is then a link between the internationalisation activities of service enterprises and the degree to which they invest in innovation. In comparison to enterprises that serve only domestic markets, in Ireland and the UK, the innovation expenditure per employee is significantly higher in foreign-owned enterprises, while in Germany, this was the case for German-owned enterprises with export markets.
- Innovation expenditure intensity is positively and significantly linked to all innovation outputs in Germany and the UK, while in Ireland this result holds true only in the case of marketing innovations.

- The results illustrate the importance of knowledge and technology transfer for successful innovation in service firms. Over and above enterprise size, innovation expenditure intensity (in Germany and the UK), foreign ownership (Ireland) and exporting, successful innovation in service enterprises appears to be positively associated with engagement in cooperation for innovation activities with other enterprises (suppliers and customers) and with knowledge providers (universities, public and private research institutes, consultants). In contrast, co-operation for innovation activities with competitors is associated with a lower probability to innovate.
- Innovation in service enterprises appears positively and significantly linked to labour productivity for all types of innovation in Germany and the UK. In Ireland, this positive link is statistically significant only in the cases of process and marketing innovations. In all three analysed countries, the largest productivity returns in service enterprises are found for marketing innovations. Given the specificities of services, this result is noteworthy and could be interpreted as indicating a positive link between marketing innovations and demand for new or improved services. It also highlights the importance of investment in intangible capital items such as organisational capital for productivity growth in services.
- The similarities and differences in the relationships between internationalisation, innovation and productivity in the three analysed countries may reflect their institutional framework for innovation policy as well as their structural characteristics such as economic size and engagement in internationalisation.
- Overall the findings suggest that innovation in service enterprises could benefit from many of the policies designed to incentivise and foster innovation in manufacturing enterprises, such as policies which enable firm growth, and which enhance innovation capability and co-operation in innovation activities with other enterprises and knowledge providers. In addition, the results suggest that targeting resources to foster marketing innovation in service enterprises would be beneficial in terms of productivity.

ENTREPRENEURSHIP

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

BUSINESS GROWTH

***United Kingdom Local Growth Dashboard*, by the Enterprise Research Centre (ERC), presents a set of growth metrics for start-ups and existing firms across a range of sub-national geographies in the UK.**

- Northern Ireland stands out as having above average proportions of start-ups, 2.7% compared to national average of 1.9%, achieving the £1m+ threshold after 3 years trading.
- Outer Belfast and the East of NI (combined) had the highest proportion in the UK (3.3%) which is consistent with the analysis in previous years. Wales (1.5%) and Scotland (1.3%) are below the UK average which is again consistent with a previous cohort of start-ups in 2013.
- The new productivity metric, designed by the ERC, reveals that only 8.4% of all job-creating employer enterprises in the UK achieved positive productivity gains (revenue per employee) while still increasing jobs over the period 2014-17. Perhaps surprisingly, Northern Ireland had the highest proportion in the UK at 11% while the proportion in Wales and Scotland was 7.4% for both home nations which was below the average of 8.5% for England.
- The report establishes that small groups of firms, whether start-ups scaling or more established businesses growing rapidly for the first or second time, have had a disproportionate impact on job creation. They are crucial to the growth of the UK economy and the re-balancing of the economy away from London and the South East but the evidence points to little impact on the 'productivity gap'. There is evidence of strong business growth underpinning the development of the Northern Powerhouse.

***Catching the peloton: The business investment race and how the tax system can help the UK to catch up*, published by the CBI UK, provides evidence of a problem of under-investment by businesses in the UK that is likely constraining productivity.**

- The UK has stood at the bottom of the G7 league for close to four decades in terms of business investment, and the gap in investment intensity between the UK and the rest of the G7 appears to have widened since the late 1990s. In 2017, business investment made up around 13% of GDP across the G7, compared to 9% in the UK.

- The UK now has lowest headline rate of corporation tax in the G20 and businesses place a high value on the strength of the UK's R&D tax credits scheme. Yet, there are significant gaps in the UK's tax incentive regime for investment, both in terms of the types of assets and compared to other G7 countries.
- There is more businesses can do to invest in their own success, including adopting readily available technologies and management best practices.
- Firms do face real economic obstacles, like longer-term issues weighing on the attractiveness of the UK's business environment: less competitive tax incentives to invest, comparatively poor-quality infrastructure and high energy costs, alongside low levels of R&D and training in human capital.
- The tax system can be an enabler of business investment. The UK Government has a range of tools at its disposal to support the business environment and firm decision-making, including investment in infrastructure and skills and improving firms' access to finance. However, tax policy is one of the few levers any government has at its disposal to affect the environment for business investment.
- The Government should increase the competitiveness of the UK's capital allowances regime. The present value of the UK's capital allowance regime performs badly against international benchmarks.

GROWTH FINANCE

***Infrastructure finance review: Insights from direct heat network investment in the UK*, by the Department of Business, Enterprise and Industry Skills (BEIS) identifies lessons learnt from relevant infrastructure sub-sectors that will help unlock third party finance for district heat/cooling networks in England and Wales.**

- The report recommends an acceleration in the deployment of third party finance in the district heat/cooling network projects under development and an increase the number and scale of district heat/cooling network projects executed in England and Wales.
- The key factors for the successful establishment and expansion of an infrastructure sub-sector are:
  - A revenue stream for raising infrastructure capital financing rather than seeking other, probably more costly, sources of capital. Typically the strongest form of this predictability and stability is achieved by a contract or a licence under economic regulation.
  - The business must have an adequate level of cash flow to remunerate the types of equity investment and debt which have appetite for the proposition, often described as an acceptable risk/ reward relationship for financing. The physical scope of projects proposed for financing needs to take account of this key requirement, in particular where there are choices in deciding the scope to include and the differences in the net cash flow generation of differing parts of the overall asset or network.
  - Visibility of sufficient value of similar future projects which could be small numbers of large projects or large numbers of smaller projects. The general view of respondents was that unique individual projects below £10-20 million capital value would probably suffer from a diseconomy of the effort needed by equity investors and lenders to get them developed and negotiated.

***Small business finance markets report 2018*, published by The British Business Bank, provides an in depth picture of the smaller business finance market.**

- Equity and alternative finance demonstrated strong growth in 2017, with bank lending volumes relatively flat.
- Small business finance markets have continued to provide significant volumes of finance to smaller businesses. Aggregate flows of finance saw significant double digit increases for many products, however bank lending was relatively flat, resulting in an increasingly diversified finance market for smaller businesses.
- Most notably, values of external equity finance received by smaller businesses rose rapidly, increasing by 79% in the first 3 quarters of 2017 compared to the first 3 quarters of 2016 (approx £2.54bn to £4.5bn).
- Peer-to-peer business lending also showed continued rapid growth, rising by just over 50% in 2017. Such lending is challenging traditional bank based models of lending, although it remains around only 3% of gross bank lending flows.
- Data on loan application rates to traditional banks showed a continuing decline in the share of SMEs seeking new loans to 1.7% of smaller businesses, the lowest figure since the SME Finance Monitor began in 2011.

- There has been a decline in SME confidence that they will get a loan when they apply, down to 43% in the 3 months to November 2017, compared to 58% in the previous 3 months which mirrors the broad decline in smaller business confidence levels.

BUSINESS REGULATION

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

Succeeding Globally

TRADE

***Irish – UK services trade and Brexit*, published by the Irish Department of Business, Enterprise and Innovation, examines the determinants of international trade in services using data from 50 countries.**

- Membership of the European Union had a positive impact on total services trade of approximately 25%, ceteris paribus.
- EU membership has a particularly strong impact on the levels of services trade in financial and business services, with the largest effect being more than twice as much trade in direct insurance between EU members compared to trade between EU and non-EU countries or pairs of non-EU members, controlling for other factors such as country size and distance.
- Irish services trade is concentrated in areas where EU membership has had a positive impact. Computer services and audio-visual services are sectors where EU membership has a considerably positive impact on trade.
- Removing the EU effect on Irish-UK trade in services shows trade flow reductions of 33% in for Irish services imports from the UK and a 45% reduction in exports.

***UK trade with Ireland*, published by the House of Commons briefing department, provides key statistics regarding the UK's trade during 2017 with Ireland.**

- In 2017, UK exports to Ireland were worth £34.0 billion; imports from Ireland were £21.8 billion, resulting in a trade surplus of £12.2 billion.
- The UK had a surplus with Ireland in both goods and services.
- Ireland accounted for 5.5% of UK exports and 3.4% of all UK imports.
- The UK has recorded a trade surplus with Ireland every year between 1999 and 2017.
- Ireland was the UK's 5th largest export market and the 9th largest source of imports.

***Export participation and performance of firms on the island of Ireland*, published by IntertradeIreland, examines firm participation in exporting, export performance and determinants of export destinations for firms across the island of Ireland.**

- Key findings from the report can be grouped under three broad themes reflecting the roles played by exporters, small firms and the cross-border aspect of trade.
  1. Exporting firms have systematically better outcomes across a range of key indicators, including employment and productivity. Expanding participation in exporting can therefore make an important contribution to the performance of the economy.
  2. Micro and small firms play a significant role in cross-border trade and support for their expanded export participation could help underpin economic growth.
  3. Cross-border trade has features closer to local trade than to international export activity, suggesting many firms regard the island as their local market and functional economy.
- Overall, the results suggests that the impacts of any changes in the cost of trading post-Brexit are liable to be felt most particularly by very small firms trading across the border. Firms large enough to have expanded broadly into the EU market already are more likely to have the resources and scale to continue exporting, either in their current markets or by diversifying into alternative locations.

TOURISM

***Strong growth in inbound tourism from mix of overseas markets in 2017*, published by Visit Britain, highlights a record year for inbound tourism to the United Kingdom.**

- The report highlights double-digit growth in visits and spend last year from China, the world's most valuable outbound market, with visits up 29% on 2016 to a record 337,000 and spending of £694 million, up 35%.
- Visits from the US, the UK's most valuable market for tourism spend, grew 13% to 3.9 million in 2017, the highest since 2000. Visitors from the US spent a record £3.6 billion, up 9%.
- Records were set for visits and spend from the Gulf Cooperation Council (all Arab states of the Persian Gulf except Iraq) and India. There were 562,000 visits from India, up 35% with visitors spending a record £454 million. There were a record 812,000 inbound visits from the Gulf Cooperation Council in 2017, up 5% with spend up 55%, to a record £2.2 billion.
- There were a record 25.6 million visits from the EU in 2017, with visitors spending £10 billion.
- There were 1.1 million visits from Australia in 2017, up 11%, with spending of £1.2 billion, up 13%.
- Overall, 2017 was a record-breaker for overseas visits to the UK and for the amount visitors spent across the country. There were 39.2 million inbound visits to the UK in 2017, up 4%, with visitors spending £24.5 billion, up 9%.

INWARD INVESTMENT

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

Economic Infrastructure

ENERGY

***Energy for the circular economy: an overview of energy from waste in the UK*, by Environmental Services Association (ESA), provides an overview of energy from waste and its current role in a more circular economy, and looks to the future to where the sector is heading.**

- Once economically recyclable materials have been collected, Energy from Waste (EfW) remains the best option for treating residual waste. As well as putting waste to further use, thereby upholding the principles of the Circular Economy, it provides sufficient reliable, decentralised, low-carbon electricity to power 1.8m UK homes and could support more low-carbon local heat networks recommended within the Governments' Clean Growth Strategy.
- Modern advances in EfW plants have significantly improved performance efficiency and emissions, as well as saving 200kg CO_2e per tonne of waste diverted from landfill. This can be further improved if the country recycles more and utilises more heat. This is achieved whilst keeping waste management costs down for councils and businesses.
- An opportunity now exists to further increase economic growth and energy security by bridging the capacity gap for residual waste for which there is no existing or planned treatment infrastructure. This gap is forecast to be at least 3.5M-6Mt/y in 2030, even with supportive measures for recycling. This excludes the reshoring of another 2.5Mt/y waste which will continue to be exported at the UK's cost, when it could be treated here and used to create jobs and to power a further 450,000 homes.
- The Environmental Services Association (ESA) estimates that, with the right policy support, up to £10bn of private sector capital will be unleashed across the sector, delivering 50,000 jobs, boosting GDP by £3bn each year and contributing to economic growth.
- The recommended solution that ESA proposes is addressing the residual waste capacity gap and for government to provide long- term regulatory certainty. Once waste reduction and recycling priorities have been set, the Government should work with industry to assess how much extra residual waste treatment capacity is needed and to enable its delivery. To this end, BEIS & Ofgem should set out a stable charging regime for electricity networks that will enable the transition to more low-carbon infrastructure.

***World Energy Investment 2018*, published by International Energy Agency, is a benchmark for measuring energy investment across the sector with a continuing analysis of the wide-ranging factors shaping energy investment decisions.**

- For the third consecutive year, global energy investment declined, to USD 1.8 trillion (United States dollars) in 2017 – a fall of 2% in real terms.
- Falling costs continue to affect investment trends, prices and inter-fuel competition across several parts of the energy sector.
- China remained the largest destination of energy investment, taking over one-fifth of the global total.
- Investment in electrification of transport and heating continued to show exponential growth in 2017, but investments in the direct use of renewables in transport and heat remain weak.
- There was a pause in the shift of investments towards cleaner sources of energy supply.
- Spending related to energy efficiency improvements remained relatively immune from the overall downward trend in energy investment worldwide.
- Investment in fossil fuel supply stabilised to around USD 790 billion in 2017 as a modest rise in oil and gas upstream spending was mainly offset by reduced investment in coal supply and in liquefied natural gas (LNG).

TELECOMS

***Delivering change: How cities can make the most of digital connections*, published by the Enterprise Research Centre (ERC), calls for a speeding up of investment in digital infrastructure and improvements in in digital skills provision and innovation.**

- The report provides actions cities can take presently to accelerate the improvements in digital infrastructure by eliminating barriers to operator's investment such as:
  - Creating an attractive market - working at the city scale to create common rules, rather than as individual local authorities, makes rollout simpler by avoiding regulation changes along and between neighbouring streets.
  - Making digital access work in new ways — dense fibre and mobile networks connecting every building and potentially lamppost in a city will likely require new arrangements to enable access to many times more sites than current digital networks require. New commercial models and the capacity in local authorities to enable or deliver new installations, maintenance and upgrades should be considered.
  - The government must also play an active role by including a requirement for the provision of high-quality digital infrastructure – mobile and fixed — in all new developments in the forthcoming National Planning Policy Framework (NPPF). This will reduce unnecessary disruption, costs and delays for residents or firms moving in.
- Digital skills provision and innovation should be improved as without action to increase the ability and desire of individuals, businesses and local authorities to capitalise on the potential of this public and private investment, then digital and economic divides are likely to widen further. Therefore:
  - Cities and businesses need to take a leading role in Local Digital Skills Partnerships (LDSP), helping to coordinate digital skills activities across many local stakeholders and ensure that evaluation and evidence are central to all interventions.
  - Cities should embrace the opportunity of existing digital technology to improve public services by adopting best practice, up-skilling the public sector workforce and improving procurement.

***Northern Ireland Broadband Industry Forum Report*, published by the Confederation of British Industry UK, gives an overview of the telecommunications industry and analysis on the state of broadband connectivity in Northern Ireland.**

- Ofcom's Connected Nations report on Northern Ireland (published 30 April 2018 and which includes data from January 2018) reported that Superfast broadband (>30 Mbps download speed) is now available to 88% of premises in NI versus 93% across all of UK.
- Across Northern Ireland 7% of premises don't have access to services that can deliver a broadband connection which provides download speeds of 10 Mbps or more and an upload speed of 1 Mbps or more.
- The percentage of premises that cannot get 2 Mbps has fallen slightly to 2% (or just over 18,000 premises).
- The report provides recommendations that, 100 Mbps should be deployed in Northern Ireland in areas receiving less than 30 Mbps.

- The networks deployed should be future proofed which means that fibre will be a large part of the solution with other hybrid technologies to support uneconomic/hard to reach communities.
- The skills and training shortages in the construction and telecoms industries in Northern Ireland will need to be addressed.
- Consideration to be given to the as yet not awarded Broadband USO supplier(s) and the successful supplier(s) deploying funding broadband contract(s).
- A single point of contact to promote good communication and collaboration across NI should be established.

Government

NORTHERN IRELAND

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

ENGLAND

***The future relationship between the United Kingdom and the European Union*, produced by the Department of Exiting the European Union (DExEU), explains the UK's government view on how the future relationship with the European Union would work**.

- Economic Partnership - At the core of the UK's proposal is the establishment by the UK and the EU of a free trade area for goods. This would avoid friction at the border and ensure both sides meet their commitments to Northern Ireland and Ireland through the overall future relationship.
- Security Partnership - The UK's vision for the future security relationship is underpinned by five key principles. The relationship should: protect shared operational capabilities that keep people safe, respect the sovereignty of the UK and the autonomy of EU decision making, have an institutional framework that delivers a practical and flexible partnership, be dynamic and keep pace with growing global challenges and evolving threats and be underpinned by appropriate safeguards.
- Cross-cutting and other co-operation – The UK and EU should agree to arrangements that support cooperation including:
  - Data protection arrangements that provide for the continued exchange and protection of personal data between the UK and the EU, and allow for ongoing cooperation between authorities.
  - A security of information agreement enabling the exchange of classified information.
  - A series of co-operative accords that enable the UK and the EU to work together in areas ranging from science and innovation to development and international action.
  - An agreement on fishing opportunities that establishes a framework for reciprocal and fair access to waters and the allocation of opportunities, based on the most up-to-date scientific methodology, promoting sustainable fishing and respecting the UK's position as an independent coastal state.
- Institutional Arrangements – The UK and the EU should establish arrangements that are:
  - Practical and flexible, so that it can support a wide range of economic and security cooperation;
  - Managed effectively through new forms of dialogue, so that it is sustainable;
  - Operational on a day-to-day basis, through administrative provisions and a proper parliamentary process;
  - Robust, with a mechanism for addressing disputes so they can be resolved fairly and quickly;
  - Accountable at home, so that people and businesses in the UK and the EU can be confident that their rights will be protected.

SCOTLAND

***Scotland's role in development of future UK trade arrangements*, a paper published by the Scottish Government, is a discussion on Scotland's role in the development of the UK's future trade arrangements, so that the interests of consumers, businesses, civic Scotland and others are taken into account.**

- The paper considers and examines the effectiveness of the current arrangements within the UK for agreeing trade policy and international trade deals, assesses the approach taken so far by the UK Government to future arrangements and sets out specific proposals for Scotland's future role.
- The seafood industry is an important example of a sector where Scotland may have very different considerations from the UK as a whole in negotiating a trade deal. In 2017, 92,000 tonnes of fresh Atlantic salmon worth £600m was exported from the UK (of which 99% was Scottish), representing a 35% increase in value and 26% increase in volume from 2016.
  - The EU is a vital market for Scottish seafood products, accounting for 77% of seafood exports in 2017 and, while the UK as a whole is a net importer of fish, Scotland is a net exporter to the EU and the rest of the world. Disadvantageous non-tariff barriers in particular could have a devastating impact on the export of fresh seafood.
- The report shows that the European Union market accounts for over 60% of exports for five sectors of the Scottish economy: Wholesale and Retail, Transportation and Storage, Rubber, Plastic and Non-Metallic Mineral Products, Wood and Paper Products with Printing and Refined Petroleum.
- The European Union is particularly important as a destination market for exports from the Coke and Refined Petroleum sector, accounting for more than 80% of international exports in that sector.
- Proposals set out by the report are:
  - A new statutory intergovernmental international trade committee should be established as soon as possible, in order to achieve the optimal trading arrangements for future relationship with the European Union.
  - Any new deals to be signed by all the countries of the UK.
  - The Scottish Government and Scottish Parliament - and other devolved administrations - must be involved in setting their priorities, and in business planning, to ensure that Scotland's interests are fully represented and promoted.

WALES

***Brexit and our land: Securing the future of Welsh farming*, is a consultation document by the Welsh Government proposing a new Land Management Programme to replace the Common Agricultural Policy (CAP) in its entirety, to continue supporting Welsh Farmers, after the United Kingdom exits the European Union in March 2019.**

- Following the United Kingdom's forthcoming exit from the European Union, the Welsh Government has proposed a new Land Management Programme that will replace the Common Agricultural Policy (CAP) in its entirety. The Programme consists of two over-arching schemes: the Economic Resilience scheme and the Public Goods scheme.
- The Economic Resilience scheme will provide targeted investment in physical and human capital i.e. to both land managers and their supply chains. The scheme will provide support to increase market potential, drive improvements in productivity, diversify, improve risk management and enhance knowledge exchange.
- The Public Goods scheme will provide support to deliver more public goods from the land. In return, it will provide a new income stream for land managers and make a significant contribution to addressing some of the most pressing challenges such as climate change, adverse air quality and poor water quality.
- There are strong links between the schemes and they will be designed and implemented in parallel. Many land managers will be able to benefit from both schemes.

REPUBLIC OF IRELAND (ROI)

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

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