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Economic Research Digest

Quarter 1 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:

- Continuing focus on the potential impact of Brexit - on trade, investment, the costs of goods and services and of what any future UK-EU relationship may look like.
- Analysis on poverty trends for the UK, NI, Scotland and Wales.
- Reports focused on productivity and how consumer living and wellbeing could be affected by Brexit.
- In depth research on the impacts of automation, when it could happen and the associated risks.

** 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.*

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Economic Outcomes

COMPETITIVENESS

The Inclusive Development Index 2018 **published by World Economic Forum (WEF), measures how countries perform on eleven dimensions of economic progress in addition to GDP.**

- The Inclusive Development Index has 3 pillars; growth and development; inclusion and; intergenerational equity (sustainable stewardship of natural and financial resources).
- Norway is the best performing advanced economy in 2018, with a consistently strong performance: it ranks second on one of the Index's three pillars (Intergenerational Equity and Sustainability) and third on each of the other two (Growth and Development, and Inclusion).
- Small European economies dominate the Index, (1. Norway, 2. Iceland, 3. Luxembourg, 4. Switzerland, 5. Denmark, 6. Sweden, 7. Netherlands, 8. Ireland, 9. Australia and 10. Austria), with Australia the only non-European economy in the top 10.
- Of the G7 economies, Germany (12) is ranked highest, followed by Canada (17), France (18), United Kingdom (21), United States (23), Japan (24), and Italy (27).
- In many countries, there is a stark difference between individual pillars: for example, the US ranks 10th out of the 29 advanced economies on Growth and Development, but 26th on Intergenerational Equity and Sustainability and 28th on Inclusion; France, meanwhile, ranks 12th on Inclusion, 21st on Growth and Development, and 24th on Intergenerational Equity and Sustainability. Low scores on the latter pillars suggest an economy may be storing up problems for the future.

Worldwide Cost of Living 2018: Which global cities have the highest cost of living? **published by the Economist Intelligence unit assesses the findings from the latest worldwide cost of living survey.** ***This article requires a subscription to access.***

- The ten most expensive cities in the world are: Singapore; Paris; Zurich; Hong Kong; Oslo; Geneva; Seoul; Copenhagen; Tel Aviv; and Sydney.
- In 2018 Singapore retains its title as the world's most expensive city for the fifth consecutive year in a top ten that is largely split between Asia and Europe. Seoul is the only other city in the top ten that has maintained its ranking from the previous year. In the rest of Asia, Hong Kong and Sydney join Singapore and Seoul in the top ten. Within Western Europe it is non-euro area cities that largely remain the most expensive.
  - With west European cities returning to the fold, the region now accounts for three of the five most expensive cities and for one-half of the top ten.
- Low inflation has pushed Tokyo and Osaka out of the top ten in the cost of living ranking covering 133 cities worldwide. The Japanese capital, which was the world's most expensive city until 2013, has moved seven places down the ranking in the past 12 months.
- Conversely, Seoul, which was ranked 21st five years ago, is now in sixth position.
- Tel Aviv, which was ranked 34th just five years ago, is now the ninth most expensive city in the survey. Currency appreciation played a part in this rise, but Tel Aviv also has some specific costs that drive up prices, notably those of buying, insuring and maintaining a car, which push transport costs 79% above New York prices. Tel Aviv is also the second most expensive city in the survey in which to buy alcohol.
- With the dollar weakening against other currencies, no North American city ranks among the ten most expensive cities, although New York and Los Angeles remain highly ranked in 13th and 14th place respectively, compared with ninth and 11th position last year.
- Currency fluctuations continue to be a major cause for changes in the ranking. In the past year a number of markets have seen significant currency movements, which have in many cases countered the impact of domestic price changes.
- The UK has already seen sharp declines in the relative cost of living owing to the Brexit referendum and related currency weaknesses. In 2018 these are expected to translate into further price rises as supply chains become more complicated and import costs rise. These inflationary effects could be compounded if sterling were to stage a recovery.

PRODUCTIVITY AND GROWTH

Productivity, technology & working anywhere **by the Work Foundation, aims to contribute to understanding how the adoption of digital technologies in organisations can drive smarter working and support missing business improvements.**

- There are many positive business benefits that technology potentially brings, for instance greater digital connectivity can:
  - Unlock the business value from external networks as well as internal capability;
  - Enhance collaboration across value chains through crowd working (organise the outsourcing of tasks to a large pool of online workers rather than to a single employee) and outsourced "virtual" projects teams, involving core employees, international workers and outsourced freelancers;
  - Encourage working across disciplines as boundaries blur, supporting fertilisation and hybrid functions;
  - Support leaner, flatter management structures and more agile distributive leadership; and
  - Smarter, intelligent operations.
- There is a strong link between technology and improving work practices, and in the role technology plays in facilitating the increasing prevalence of smarter working, especially more mobile working and supporting distributed teams.
- Over two thirds of businesses saw a direct link between their productivity and the technology available to them but a similar proportion said that their productivity had not increased in the last three years.
- The research is supported with survey responses from 1,000 knowledge workers and 500 managerial level employees within medium and large organisations across the UK.
  - 80% of workers in the survey acknowledged the positive effect access to technology can have on their productivity levels.
  - When asked which factors will most affect their productivity levels in the future, respondents at employee level recorded technology (53%) and changing working practices such as flexible working (45%) as the top two influencers. The managers surveyed agreed with these sentiments, with training and skills (51%), stronger leadership (46%) and better technology (44%) listed as key industry drivers.
  - 36% of all respondents have seen their offices merged or downsized since they've been in their roles, with workers stating that 'hot-desking' (45%) and remote / flexible working (24%) were two alternatives commonly put forward in light of these changes.
  - 71% of workers based in an office location claimed they are not given the opportunity to work remotely or away from their usual workplace.
  - Only 8% of workers believe remote and flexible working is 'actively encouraged' by their organisation and measured though outcomes and outputs of staff, and 32% of workers claim their organisation restricts flexible working to certain job roles and levels.
  - 34% of managers admitted they believe future of work practices such as flexible working and hot-desking will actually worsen productivity levels at their workplace.
  - Further, 23% of managers, whose organisation offers remote / flexible working or across sites, also admitted thinking that those who work away from HQ or the main office are less productive than their HQ-based counterparts.

Relative regional consumer price levels of goods and services, UK: 2016 **by ONS assesses the UKs relative regional consumer price levels (RRCPLs) providing an indication of a region's price level compared with the UK average. Wales, Northern Ireland, Scotland, London and regions of England have been used in the comparison.**

- In 2016, prices in London were on average 7.0% higher than the UK average price level;
  - With the exception of the communication division, where there is no observed regional variation in price levels, London has the highest RRCPL for all nine divisions; Food & non-alcoholic beverages, Alcohol & tobacco, Clothing and footwear, Household & housing services, Furniture & household goods, Transport, Recreation & culture, Restaurants & hotels, Miscellaneous goods & services. The highest RRCPL being for recreation and culture, which is 14.8% above the UK average, closely followed by restaurants and hotels, 13.0% above the UK average.

- The relative price level of Northern Ireland was the lowest of all the UK regions, with prices on average 2.3% lower than the UK as a whole;
  - Northern Ireland is the only region that has a RRCPL lower than the UK average for all nine divisions (again, with the exception of communication), the lowest being miscellaneous goods and services, where prices are 6.6% below the UK average.
- There is little difference in prices for food and non-alcoholic beverages across the different regions, while categories relating to service industries such as restaurants and hotels showed greater price dispersion in 2016.
- Overall, RRCPLs for England (excluding London) and Scotland, of 98.7 and 100.4 respectively, are close to the UK average, while Wales is 1.5% below the UK average.

Productivity: The route to Brexit success **by McKinsey looks at the United Kingdom's post-Brexit future.**

- A survey of the country's regions and sectors shows an economic divide; on one side is London and high-productivity traded sectors, such as pharmaceuticals, financial services, and technology. On the other side are slow-growing regions and lower-productivity industries, such as retail, construction, and government.
- Some forecasters have predicted that Brexit will lead to a slowing of the UK's GDP growth during the next few years, although early forecasts of a dramatic fall in 2016 or 2017 output have been scaled back. This shock could exacerbate existing weakness in demand, a phenomenon that is common across many Western economies.
- The potential economic impact of Brexit in the medium term (until 2030) will vary significantly, depending on the terms of the exit. Joining the European Economic Area (the Norwegian model) is widely believed to be the least costly, while a Free Trade Agreement (the Canadian or Swiss model) is seen as better than reverting to World Trade Organization rules (the China model). In brief, the more difficult it is for UK companies to gain access to the single market, the greater the medium-term economic hit will be to the United Kingdom.
- The United Kingdom's weak productivity has already hit households: recent research suggests that a large majority of them had flat or falling income from 2005 to 2014, creating the possibility that children in Britain will grow up to be poorer than their parents.
- Brexit thus exacerbates the United Kingdom's productivity challenge. The historical challenge was how to lift up the less productive sectors, companies, and regions. This challenge could become more difficult, because a reduction in trade and a weakening of the currency could lower the competitive pressures on domestic businesses. The new challenge is to also support the most productive, traded sectors of the economy.
- The consequences are expected to include a reduction in trade, reduced foreign direct investment (FDI), and lower availability of skills. Only a small proportion of projected GDP losses, however, is forecast to come from these direct effects. The vast majority is expected to come from the knock-on effects on UK productivity.
- After the United Kingdom leaves the European Union, its greatest opportunity may lie in increasing economic engagement, especially trade, with the rest of the world.
  - Britain could be released from Europe's common external tariff and be free to negotiate its own trade agreements - To date, the European Union has ratified trade deals with countries that account for less than a third of the value of the United Kingdom's trade with non-EU countries.
  - That means a large proportion of UK imports and exports are not covered by a trade deal and are subject to tariff and nontariff barriers.
  - An International Monetary Fund study suggests that negotiating new free-trade agreements that reduce all tariffs to zero could lead to productivity gains worth more than 0.6% of GDP.
- Although UK companies may experience a financial impact from Brexit, it could also create opportunities in the following areas;
  - Nn intense war for talent;
  - Improve workforce productivity to mitigate upward wage pressures;
  - Improve competitiveness to counteract the impact of trade barriers;
  - Reorient international trading strategies to the world beyond Europe and reassess strategies for trading with the European Union;

- Play a part in shaping the future; and
- Immediate opportunities to invest in the United Kingdom.

Going for Growth 2018 **by OECD reviews the main growth challenges faced by advanced and emerging economies.**

- A robust and widespread pick-up in activity creates favourable conditions for the successful implementation of structural reforms, which are necessary for the current upswing to be turned into stronger and sustainable long-term growth for all - however, this opportunity risks being wasted.
- In 2017, the pace of reforms has, on average across countries, remained similar to the relatively slow pace observed in the last two years. In both advanced and emerging economies, there are little signs of a return to the higher pace observed a few years back.
- In 2017, policy actions across advanced economies have been implemented in just over one tenth of the 2017 Going for Growth priority areas (employment, productivity and inclusiveness), while reforms are underway in about one third of them.
  - In emerging-market economies, even fewer concrete actions have been fully implemented. Further reforms are in the process of implementation, covering one quarter of Going for Growth priority areas.
- Notwithstanding the subdued reform pace, some bold actions have been taken – over one third of actions implemented in 2017 can be viewed as "major steps".
  - For example, Greece and Italy implemented major programmes to strengthen social protection, while France passed a long-overdue reform to improve the functioning of its labour market. Japan launched a new plan to significantly increase childcare capacity. Argentina passed a comprehensive tax reform.
- The intensity of reforms has also varied across policy areas:
  - Among reforms to boost skills acquisition and innovative capacity, actions taken to increase the size and efficiency of R&D support have been particularly widespread.
  - The bulk of actions taken to promote business dynamism and knowledge diffusion have focused on strengthening physical and legal infrastructure as well as on making product market regulation more competition-friendly.
  - A particularly high number of significant actions have been taken in the area of social benefits, which is important for social cohesion.
- To further help workers to cope with potentially rapid changes in jobs and tasks, more reforms are needed in complementary areas, such as improving active labour market and housing market policies to facilitate the job-market transition and mobility. A coherent reform strategy is crucial to reap synergies, manage trade-offs and ensure that the benefits are broadly shared over time.

LIVING STANDARDS, WELLBEING AND PROSPERITY

UK Poverty 2017 **published by the Joseph Rowntree Foundation (JRF) examines poverty rates in the UK, and looks at how figures have changed over the past two decades.**

- Poverty among children and pensioners has risen in the last few years.
  - In 1994/95, 58% of lone parents lived in poverty, falling to 41% in 2010/11 before rising again to 46% in 2015/16. In 1994/95, 45% of children in families with three or more children lived in poverty, falling to 32% by 2012/13 before rising again to 39% in 2015/16.
  - Nearly three in ten pensioners lived in poverty; by 2011/12, this had fallen to only 13%, driven mainly by falls in poverty among single pensioners. More recently, however, pensioner poverty has started to increase again, reaching 16% in 2015/16.
- 47% of working-age adults on low incomes spend more than a third of their income (including Housing Benefit) on housing costs. More than a third of working-age adults receiving Housing Benefit now have to top it up out of their other income to cover their rent.
- Disability is strongly linked to poverty – 30% of people in families with disabled members live in poverty, compared to 19% of those who do not. More broadly, adults in the poorest fifth of the population experience worse physical and mental health than those who are better off.
- Data suggests that children's educational attainment overall has risen across the UK but that the gap in attainment between children from richer and poorer backgrounds remains stubbornly large.

- In England and Northern Ireland, at age 16, young people from poorer backgrounds are around a third less likely to achieve good qualifications;
- In Wales they are about half as likely;
- In Scotland a fifth less likely (although this is not directly comparable with other parts of the UK as attainment data in Scotland is available by area rather than family's circumstances).

Poverty in Northern Ireland 2018 **published by the JRF examines trends in poverty and related issues in Northern Ireland, and compares these to the situation both in the UK as a whole and in England, Wales and Scotland.**

- The latest data shows that 370,000 people in Northern Ireland live in poverty. This figure consists of 110,000 children, 220,000 working-age adults and 40,000 pensioners. This briefing accompanies UK Poverty 2017, which looked at trends in poverty in the UK as a whole (found in the Living Standards, Wellbeing and Poverty section of this report).
- Poverty in Northern Ireland (20%) is slightly lower than in England (22%) or Wales (27%), but it is higher than in Scotland (18%).
- Poverty among pensioners has fallen considerably over the last decade, from 19% in 2003/06 to 14% in 2013/16. Working-age adults without children are now at higher risk of poverty than ten years ago from 20% in 2003/06 to 24.8% in 2013/16.
- Northern Ireland has higher worklessness and lower employment than elsewhere, and the proportion of people in poverty in workless households has increased slightly over time, in contrast with the UK as a whole. There were 14% of working-age households workless in 2016.
- This suggests that the employment rate continues to be a major factor affecting poverty rates in Northern Ireland, and that raising the employment rate could lead to falls in poverty.
- The gap in educational attainment among richer and poorer children has narrowed slightly but remains very large. The gap in 2016 was 21% which is a slight improvement from the 28% recorded in 2013.
- There are more people with no qualifications (16%) and fewer people with higher-level qualifications (31%) in Northern Ireland than in the rest of the UK.
- One in ten households in the poorest fifth in Northern Ireland faces problem debt.
- Nearly two-thirds of people in the poorest fifth are not paying into a pension, increasing their risk of future poverty.

Home-owners and poverty in Northern Ireland **by JRF looks at circumstances, living conditions and finances of contemporary home owners who experience poverty or have inadequate incomes.**

- Twice as many of Northern Ireland's mortgaged households are behind with their mortgage repayments (14%) compared to the whole of the UK (7%). Across the UK, the lowest income bands are almost twice as likely again to be behind with their mortgage payments, suggesting around a quarter of mortgaged households in poverty are in mortgage arrears in Northern Ireland.
- Northern Ireland's households with mortgages had more than three times the incidence of negative equity (11%) than those across the UK (3%). The value of their loans exceeded the value of their homes by an average of £35,293, although indications were that this was more prevalent among professional home-owners than those in poverty.
- Working households form the majority of households struggling with mortgage debt and thus are unable to claim any help with housing costs. The current UK safety net is therefore mis-targeted. In addition, as people wait 39 weeks before payment, it is not provided when needed.
- Local policymakers should develop processes that give a smooth exit from home-ownership when it has become unsustainable. These should include mortgage rescue or assisted voluntary sales, depending on household circumstances.
- There are 22% of outright owners and 11% of mortgaged households in poverty before housing costs (BHC). This includes 14% of outright owners and 17% of mortgaged households in poverty after housing costs (AHC) and, although not in poverty, 34% of mortgaged households had inadequate incomes as indicated by being below the Minimum Income Standard.
- Northern Ireland had the third highest rate of mortgaged households paying over 25% of their net income on housing costs among all regions of the UK (30%), with only London and the south of

England paying more. Northern Ireland also had the fourth highest rate of mortgaged households paying over 35% of net income on housing (11.3%) and the third highest paying over 45% (6.3%).

***Poverty in Scotland 2017* by the JRF assesses the trends in poverty and related issues in Scotland, and compares these to the situation in the UK.**

- The poverty rate for pensioners in Scotland fell from 31% in 1994/97 to 17% in 2003/06. This trend continued until 2008/11, since then the poverty rate has remained constant (at 12%).
  - The poverty rate among pensioners living alone fell dramatically between 1994/7 and 2003/06 (from 37% to 17%), but has since levelled out (still 17% in 2013/16).
  - The rate among pensioners living in a couple fell more gradually, but the fall has continued into more recent times (25% in 1994/97, 17% in 2003/06 and 9% in 2013/16).
- Child poverty in Scotland fell from 32% to 25% between 1994/97 and 2003/06, and then to 23% in 2013/16. Child poverty in the UK as a whole started at a similar level (33% in 1994/97), but fell less sharply between 1994/97 and 2003/6 (from 33% to 29%), and then remained at the same level in 2013/16 (29%).
- The group with the highest poverty throughout the last two decades is lone parents:
  - This has been due to a steep net rise in the lone parent employment rate over this period, along with the introduction of tax credits, although this did fluctuate, with a dip in employment after the Great Recession.
  - In 1994/97, 57% of lone parents in Scotland lived in poverty, but this fell to 45% in 2003/06 and 37% in 2013/16.
- Couples without children have always had the lowest poverty rates and this has not changed greatly in 20 years. In Scotland in 1994/97, 9% lived in poverty. That rose to 11% in 2003/06, and the figure was the same in 2013/16. These rates have remained similar to the UK as a whole over the last 20 years.
- Couples with children have the next lowest poverty rates, which have also stayed fairly steady: 21% in 1994/97, 16% in 2003/06, and 18% in 2013/16. The latest poverty rate in Scotland (18%) is lower than for the UK as a whole (22%).
- The one group that has seen a rise in poverty in Scotland are single people without children. In 1994/97, 19% were in poverty, rising to 25% in 2003/06 and further to 27% in 2013/16.

***Poverty in Wales 2018* published by JRF examines the trends in poverty and related issues in Wales, and compares these to the situation in the UK.**

- The poverty rate for Wales (27%) is higher than for England (22%), Scotland (18%) and Northern Ireland (20%) and has generally been so for the past 20 years.
- 710,000 people in Wales live in poverty. This figure consists of 185,000 children, 405,000 working-age adults and 120,000 pensioners.
- Overall poverty rates have seen a gradual decline in Wales over the last 20 years.
- Pensioners have the lowest poverty rate, followed by working-age people without children. Poverty is highest among families with children.
- Among pensioners, the poverty rate in Wales fell from 26% in 1994/97 to 18% in 2003/06. It continued to fall until 2010/13 (14%), but has since increased again, so that the rate in 2013/16 was the same as in 2003/06 (18%).
  - These patterns are broadly in line with the rest of the UK, except for the recent trends among pensioners living in a couple. The poverty rate for this group has remained unchanged in Wales between 2003/06 and 2013/16, but has fallen over the same period from 17% to 12% in the UK as a whole.
- In 1994/97, Wales had the highest rates of working-age poverty compared to England, Scotland and Northern Ireland, at 24%. This fell to 21% by 2003/06 but has since risen again to 23%, and remains higher than all other regions.
- Child poverty in the UK as a whole started at a lower level (33% in 1994/97), but fell less sharply between 1994/97 and 2003/06 (from 33% to 29%), and is at the same level in 2013/16 (29%), although it decreased to 27% in the intervening period before rising again. The child poverty rate in Wales is not similar to England but higher than Scotland or Northern Ireland.

Inequality in Europe **published by European Investment Bank (EIB) focuses on automation and job polarisation.**

- Modern technological possibilities compete in particular with the jobs of low and medium skilled workers, and thus threaten to replace these jobs or at least put downward pressure on their relative wages.
- Automation might impact income distribution through different channels;
  - Technological unemployment – the threat that more machines will increasingly replace human work.
  - A fall in the labour share, which is the result of automation increasing the relative compensation of the input factor capital as opposed to labour.
  - The platform economy can facilitate monopoly power and rule out competition.
  - Automation can impact workers differently – making high skilled workers more productive but substituting for low-skilled workers, adding to inequality in the wage distribution.
- Studies estimates that 47% of jobs in the US are at high risk of replacement in the next two decades. The estimated risks of jobs replacement range from telemarketers (99%) to recreational therapists (0.28%). 9% of jobs in the OECD countries will become automatable, on average, in the near future.
- There are mixed empirical evidence on current developments. An extra robot per 1000 workers reduced the employment to population ratio by 0.18%-0.34%.
- In the case of Europe, the study has found no negative relationship between robots and employment- while robots have roughly tripled over the last two decades, employment has been slightly on the rise until 2007, before declining due to financial crisis.

Collaboration in Cities: From Sharing to 'Sharing Economy' **published by the World Economic Forum (WEF), provides an insight into what sharing cities are and what the challenges and issues there are in the sharing economy.**

- The 'Sharing Economy' refers to organized interactions in which individuals or entities exchange with others the untapped "surplus" or "idle" capacity of their assets, typically for some type of payment or service. Three features distinguish the sharing economy from traditional markets or community sharing practices;
  - The use of digital technologies to match buyers and sellers – Online platforms enable real time measurement of idle capacity and connect users.
  - Capitalizing on idle capacity – Owners of an asset can capitalise on its spare capacity when not in use either for money or exchange.
  - Trust-verification – A model that allows users to build trust with each other, peer review ratings, and provide validation.
- Sharing economy platforms have experienced rapid growth, with companies having a total market value of $4.3 trillion and directly employing 1.3 million people. They are also one of the biggest catalysts of innovation in recent years: in 2014, only nine platforms were responsible for 11,585 patents in the USA.
- The pros of a sharing economy is that it can create a sense of community among strangers, which helps to facilitate trust and social inclusion.
  - Sharing can also supplement peak demand i.e. a tourist location can benefit from a sharing platform through which multiple owners make accommodation available peak season rather than turning to additional construction.
  - However, sharing models could also result in excess supply. For example in China companies like MoBike (bike-sharing) have created a surplus of bikes at rental stations, rather than improving the use of existing assets.
- The economic, social and environmental drivers of participating in the sharing economy vary across socio-demographic groups and between users and providers. Some are motivated to share because:
  - They want to expand their social circle with like-minded new connections; to establish a network of loyal customers for repeat transactions; environmental consciousness; and access to superior quality goods that are too costly to own.
- However issues and challenges arising from sharing economic models include: establishing trust and reputation; ensuring safety and security; uncertain effects of social equality; more "exclusive" than

"inclusive"; accountability and transparency in collective/collaborative governance; and guiding sharing towards improving public infrastructure and services.

What drives employment growth and social inclusion in EU regions **published by London School of Economics (LSE) assesses how the key factors behind EU growth strategies – infrastructure, human capital, innovation, quality of government – condition employment generation and labour market exclusion in European regions.**

- The European Union is undertaking an effort to counterbalance the effect of the crisis on unemployment by trying to get people back into work.
  - The Juncker Commission has set up a plan of investments of (estimated) €315 billion over 2015-2017, expected to bring significant support to the areas of Europe with the highest job losses.
  - Employment generation is further targeted by other strategies, such as Europe 2020, aimed at producing inclusive economic growth with "a strong emphasis on job creation and poverty reduction".
  - However concerns remain about the 'inclusiveness' of these measures.
- The findings of the analysis, stress that the economic factors behind employment growth are not always the same as those conditioning the evolution of social exclusion.
- As a consequence, targeting job creation and social inclusion goals requires different policy options depending on the specific needs of regions. While in the better-off EU regions innovation capacity contributes to employment growth, the presence of a highly-educated population drives employment in the less developed areas.
- Improving the productivity and job quality of low-skilled workers in the United Kingdom is difficult as little is known about how vulnerable workers with low levels of education and training are conditioned by structural economic and labour market factors.
- The formulation of policies sensitive to the needs of the weakest workers would help to ensure the participation in the labour market of those in the workforce facing the higher risk of marginalisation, lightening the burden on the European welfare systems, and reducing economic and social disparities in Europe.

A New Bargain: people, productivity and prosperity **by Respublica reviews the case for a refreshed approach to employees, unions and collective bargaining to support a stronger UK economy.**

- The UK may be experiencing some of its highest ever employment levels, but the country has one of the lowest levels of productivity with a long tail of unproductive companies and low-skilled jobs.
- This productivity challenge is likely to get more acute as the UK attempts to address; the economic implications of Brexit, adapting to the pace of technological change, and increasing global competition.
- But, the economic questions are not just about productivity. Britain also faces a prosperity challenge. People do not feel the economy works for them. A decade on from the 2008 financial crisis, for many pay has either stagnated or fallen;
  - Nearly three-quarters of people think more should be done to improve the quality of jobs, and less than one in ten think all jobs are fair and decent. Three million people are in insecure work.
  - The economic model is profoundly wanting in the distribution and sharing of income and reward. It is deeply resistant to any shift in the creation, ownership and distribution of assets.
  - There is a growing power imbalance between employees and employers. Modern working practices, as the Taylor Review showed, can often entrench low skills and low pay, further calcifying labour mobility.
- The economic challenges facing Britain require a New Bargain between government, industry and employees. The productivity puzzle, economic implications of Brexit and the changing nature of the economy cannot be dealt with by 'business as usual'. A new approach which harnesses the role of unions and the productivity power in people is required.
- 8 recommendations are made;
  - Establish a 'New Bargain' focused on people, productivity and prosperity;
  - New powers for workforces to be consulted on change, efficiency and fairness in a business and a right to a new 'Workforce Red Card' warning system;
  - Develop and build institutions to bring about industrial progress and accord;

- Commit to 'Employee Voice Deals' through sector deals in the Industrial Strategy;
- Establish a 'Productivity Partnership Fund' to drive people-led productivity gains in business;
- Support and enable unions to become 'lifelong learning banks';
- Celebrate businesses and sectors with good union relations and widen the employee voice agenda; and
- Create and support employee share ownership.

Brexit and Irish Consumers **by BEIS examines the contribution of UK imports to overall household expenditure in Ireland and their exposure to tariffs and other cost increases from possible restrictions on trade.**

- Since the decision of the UK government to leave the EU there has been significant evidence put forward that the potential introduction of trade barriers could impact negatively on Irish exporters and on the Irish economy overall.
- The UK is a significant source of imports into the Irish economy with 28% of Irish goods imports originating in the UK in 2016 as compared to the UK accounting for 14.6% of Irish goods exports.
- A number of characteristics of different household income levels play an important role;
  - Firstly, the share of goods in the household basket declines considerably as household income increases, with households in higher income deciles spending 35% of their income on goods compared to 53% in the third decile.
  - Secondly, looking at specific categories of goods, they find that the share of household expenditure on food declines considerably as household income increases. This is an important determinant of the overall results as food products have the highest tariff listings in the EU's WTO tariff schedule, which is assumed would be the fall-back position in the absence of a trade deal or transition agreement by the Brexit deadline of March 2019.
- Comparing tariff and non-tariff barrier cost increases across consumer and intermediate inputs shows consumer goods to be considerably more exposed to changes in trade regime. The WTO tariff impact on products used as intermediate inputs for further processing is 2.5 % whereas the impact on consumption products is over 7%.
- A similar pattern applies to estimates of non-tariff barriers which also fall disproportionately heavily on final consumption products, most notably food.
- Aggregating over the individual price increases for each product and weighting them by the importance of that product in household consumption gives an estimate of potential increases in the level of CPI. This estimate ranges from 2% in the non-tariff barrier scenario to an impact of 3.1% when both tariffs and non-tariff barriers are applied.
- These increases are the equivalent of between €892 and €1,360 in the annual cost of its consumption basket for the average household. This assumes no change in consumer spending patterns.
- Given the size of the possible increases for some product categories, some change in consumer behaviour away from these products would be likely although the authors of the paper did not model this explicitly. The extent of switching would depend on a number of factors such as the range of substitutes available and their prices. In some instances, the effect could be of a reduction in the number of varieties on offer in certain product groups if the price increases considerably.

Innovation and Enterprise

INNOVATION

The future of work: how G20 countries can leverage digital-industrial innovations into stronger high-quality jobs growth **published by Economics Ejournal assesses the new wave of innovation which is currently unfolding worldwide.**

- A new wave of innovation is beginning to disrupt industry on a global scale. It constitutes a tremendous opportunity for faster productivity growth, but also a potential disruption to a number of economic sectors and to job markets. Academic research and the public debate have focused mostly on the threat that innovation poses to jobs and wages. This article suggests;

- These same technological disruptions make human capital more important than ever for companies' strategies;
- Greater attention needs to be devoted to new forms of complementarity between new technologies and human capital.

- While some jobs will be displaced, the greatest impact of innovation will come in the way that many jobs will be transformed; the evidence to date supports the view that innovation will once again result in more and better jobs—but much work needs to be done to optimize the transition.
- In particular, more effort should be devoted to;
  - understanding what new skills will be needed, and how existing jobs will change;
  - upgrading education and professional training schemes;
  - reforming labour market institutions to support a future where a larger share of workers will change jobs and employers more frequently, and more people will work independently in a crowdsourcing or "gig economy" framework;
  - reforming social benefits systems and bolstering social safety nets to smooth the economic transition and cushion the impact on the worst-affected workers.
- As innovation disrupts a growing number of industries, human capital strategies will need the collaboration of companies, educational institutions, governments and multilateral policy agencies.
- The G20 could and should champion a comprehensive approach to leverage digital-industrial innovations for faster job creation and growth, with measures to re-align demand and supply of skills, labour market reforms, redesigned social safety nets, measures to promote digital innovation and facilitate the adoption of skills-augmenting technologies.

- Private sector companies should strengthen training programs. International cooperation, standards harmonization and interoperability will be essential to maximize the benefits and minimize the disruptions—the G20 can therefore play a key role.

RESEARCH AND DEVELOPMENT

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

SECTORS AND TECHNOLOGIES

***Density-based spatial clustering* published by BEIS identifies industrial clusters in the UK.**

- Research shows that businesses in clusters benefit from agglomeration externalities such as knowledge spill overs, better access to relevant skills, and reduced costs due to supply chain integration. The concept of an economic cluster can also extend beyond simple co-location however this analysis focuses on this aspect.
- Being able to identify business clusters could help provide evidence for the location of sector strengths across the UK. The analysis described in this document uses an innovative approach building clusters from the bottom up using location data for individual business premises from the Inter-Departmental Business Register (ONS).
- Clusters have often been examined using case studies. These can provide detailed information on the relationships within a sector or specific geographic area however the findings may not hold across the whole of the UK.
- Other approaches have used data on the concentration of activity within existing administrative boundaries. Clusters however frequently form across multiple areas. Analysis restricted to local boundaries therefore may not provide evidence of these clusters as their effect will be diluted across different areas.
- Variation within boundaries is also lost under this approach. Certain sectors may be concentrated around particular infrastructure however this precision is lost.
- Any new approach to identify business clusters needed to overcome the limitations of its predecessors. It was also important that the methodology:
  - Was able to make use of location data for individual businesses;
  - Did not prescribe the number of clusters in advance;
  - Was based on business density rather than the distance between them;
  - Did not force all locations into a cluster; and,

- Produced results which reflected the true shape of the cluster.

- The new approach was applied to 15 sectors (Advertising and Marketing, Automotive, Broadcasting, Ceramics, Electricity Generation, Libraries, Maritime, Movies, Oil and Gas, Performing Arts, Pharma, Publishing, Rail transport, Robotics, Steel and Iron); and worked best for sectors which are more heavily reliant on fixed infrastructure.
- Clusters generally formed across existing administrative boundaries. This was expected and supports the view that looking at the statistics based on these boundaries can supress clusters.
- In addition, clusters often captured major cities and urban areas, this was unsurprising given these areas have the largest population density.
- For sectors which rely on fixed infrastructure the results were clearer. For example, in the cases of oil and gas, maritime and iron and steel clusters are distinct and concentrated in particular parts of the country.
- By contrast creative industries and service sectors, such as libraries and electricity generation, are characterised by clusters covering a high proportion of the UK. In many cases it appears that the algorithm is picking out urban areas. Arguably these are not sectors which would be expected to cluster spatially however this does emphasise that this method is more suited to specific sectors.
- Even in sectors where the results do not show definitive clusters it can be possible to identify groups of similar areas in terms of local units and employment.

Five trends transforming the Automotive Industry **published by PricewaterhouseCoopers (PWC) suggests 5 trends for the automotive industry to leverage for future prosperity.**

- PWC highlight that since the introduction of the smartphone, it has become clearer that customers are quick to adopt highly complex technologies. This report proposes 5 trends it believes are driving the transformation of the automotive industry and how companies should leverage these trends for their future prosperity.
- Companies need to promote the idea of EASCY (electrified, autonomous, shared, connected and yearly updated) as the car of the future will be EASCY.
  - It will emit less exhaust fumes and noise into its environment because it is electric.
  - It will take up less personal time and space because it moves autonomously.
  - It will be more accessible because users will not need a driving licence to use it.
  - It will be more affordable because it will no longer have to be bought outright but can instead be paid for in small amounts per use.
- The focus needs to be on the user;
  - Younger, technically savvy generations will be a significant driver in the development of more sustainable and convenient mobility solutions in the next few years.
- Companies need to plan for what the future of mobility will look like - 40% of personal mileage in Europe in 2030 could be autonomous. Personal mileage in Europe could rise by 23% by 2030 to 5.88 trillion kilometres.
- Companies must also have the knowledge of who exactly is mobile and why - the foreseeable trends of social "personas" suggest that autonomous and shared forms of mobility will increase greatly in significance by 2030.
- Furthermore companies need to assess how the global automotive market is changing - five of the top 20 companies with the highest R&D investment are manufacturers, but they do not feature among the 10 most innovative enterprises.

Artificial intelligence: Construction technology's next frontier **published by Mc Kinsey and Company reviews the engineering and construction sectors which may be behind the curve in implementing artificial intelligence solutions.**

- The engineering and construction (E&C) sector is worth more than $10 trillion a year, and while its customers are increasingly sophisticated, it remains severely underdigitized.
- However, a shift is coming - stakeholders across the project lifecycle—including contractors, operators, owners, and service providers—can no longer afford to conceive of AI as technology that's pertinent only to other industries.

- Adjacent industries, such as transportation and manufacturing, are already in the process of breaking down the barriers between one another and operating more as ecosystems (for example, solutions, tools, and algorithms that were industry-specific are more likely to become effective having impact across industries)—increasing the threat of competition from market entrants that have not traditionally been capital project players.
- Predictions for where and how AI can infiltrate construction appear across three categories;
  - Examining where AI solutions are beginning to emerge in construction today.
  - Exploring AI-powered applications and use cases that have already made an impact in other sectors and that can be applied in the construction industry.
  - Assessing additional machine learning algorithms and their potential E&C applications.
- There are several steps that all stakeholders can take to get ahead of the curve in AI;
  - Identify high-impact use cases based on a firm's starting points
  - Dedicate a significant portion of R&D investment to digital capabilities immediately
  - Embrace the ecosystem concept and understand solutions from other industries
  - Adapt the talent capabilities of the company
  - Change internal processes to accommodate the innovation that AI will bring

The Size and Growth of the UK Economics Consultancy Market **published by CEBR looks at the economic consultancy sector and assess how it is one of the most dynamic and fast growing sectors in the economy.**

- The UKs economic consultancy sector is equivalent to 9% of the annual value of North Sea oil output and exceeded cinema box office takings. Indeed, the industry's revenues are more than double the advertising revenues of the whole commercial radio sector in the UK.
- In 2016/17 it was estimated that the sector achieved £1.53 billion of sales, up 7.7% on 2015/16.
- The sector has been growing strongly in recent years. In 2013/14 economic consultancy activity generated sales of £1.11 billion, meaning that over the past three years total sector sales have grown at an average rate of 11.3%. In inflation-adjusted terms this is equivalent to an average growth rate of 9.7% per annum.
- Economics consultancies use their specialist knowledge to provide independent expert advice to clients, which can include large corporations, law firms, regulators and government bodies. Though all firms in the sector utilise the tools of economics to help clients, firms vary widely in their focus. For example, while some firms specialise in forecasting macroeconomic variables other provide expert testimony on anti-trust and competition matters.
- The latest available data show that there are 108 UK firms operating either partially or fully in the sector. 44% of these firms are headquartered in London. After London, Oxford and Cambridge are the industry's most significant centres in the UK, together accounting for around 10% of firms.

Telematics: Poised for strong global growth **published by McKinsey and Company examines the expanding array of telematics devices and services, combined with focused government mandates that will help the technology break into the mainstream.**

- After decades as a niche feature, telematics- a type information technology which deals with the long-distance transmission of computerized information, is merging into the automotive mainstream;
  - Research on car-data-monetization trends and characteristics suggests that this value pool could be as large as $750 billion by 2030.
- While current adoption rates remain low across markets, they could grow significantly through the first part of the next decade, according to the GSM Association, an organization comprised of mobile-network operators. There are two reasons for this;
  - First is the increased willingness of governments to mandate specific telematics services, such as emergency-call capabilities, which is already happening in the European Union and Russia.
  - Second is the increasing appetite from consumers for greater connectivity and intelligence in their vehicles.
- Car telematics has the potential to increase road safety, improve driving behaviour, align insurance premiums with actual need via usage-based insurance (UBI), and boost car-insurance-industry profitability.

- It also seems clear that telematics can bring additional benefits to individuals, corporations, and governments beyond insurance and road-safety improvements. Examples include driving-style improvements to boost fuel economy, location-based services such as stolen-vehicle recovery, real-time tracking, vehicle-finder services, vehicle-maintenance alerts, and fuel and routing optimization.

The Automation Impact **published by Localis assesses the impact of automation; when it will happen and the associated risks.**

- The places where automation should cause most concern to people and policymakers are predominantly in the Midlands. Towns such as Corby and North Warwickshire, contain a high proportion of people working in the industries at highest-risk of automation.
- If a 'big bang' moment occurs as expected, where a large proportion of jobs in these industries are automated in a short amount of time –cliff-edge automation – these are the places whose local economies and workforces will be worst impacted.
- The impact of automation will not be uniform across one industry. In manufacturing, for instance, lower-skilled jobs are far more likely to be automated. This means that a place like Leicester, where manufacturing makes up an eighth of employment and half of that is low-skilled, will be more acutely impacted than Coventry, where manufacturing also makes up an eighth of employment however only a fifth is low-skilled.
- The pace and timing of automation's impact on an industry depends on both the tasks its workforce performs and the general skill level of its workforce. Jobs in the advanced manufacturing and engineering industry, for instance, are relatively 'safe' from automation because they require a higher level of skill and dexterity than a robot is likely to provide in the near future.
    - This contrasts starkly with lorry driving and warehouse packing where jobs are likely to disappear very quickly as driverless cars are rolled out across the country. Their workers will struggle to find work in industries and occupations which necessitate skills that a robot cannot provide.
- The research in this report shows, that the impact of cliff-edge automation on low-skilled jobs will hit the north of England and Northern Ireland hardest. The regions with the highest proportion of low-skilled jobs in the manufacturing industry are in Northern Ireland (37.9%) and the East Midlands (36.1%). The regions with the highest proportion of low-skilled jobs in the transport and storage industries are all in the north of England (East Midlands - 47.2%, West Midlands – 46.9%) and Northern Ireland (45.7%).
- London and the South East will be least impacted. They have significantly lower exposure to automation-driven low-skill job losses in both sectors.

5 steps to protect services post-Brexit **published by CBI suggests 5 steps that the Government must take in order to protect the UK's services sector post-Brexit.**

- The UK services sector is a great British success story. Accounting for 80% of the UK's GDP and 4 in 5 jobs across the country, the UK is the world's second largest exporter of services.
- UK services are in demand all over the world, but the EU is the single largest destination for them – worth £90 billion annually to the UK economy – with hundreds of thousands of jobs, companies and individuals benefitting from the services UK firms provide on both sides of the Channel.
- To secure a strong future for services businesses after Brexit the Government must;
    - Remove the cliff-edge for trade in services by quickly agreeing comprehensive transitional arrangements; taking legislative steps in the withdrawal and transition agreements to ensure contracts agreed before Brexit are still valid in the days after; smoothly transposing the UK's stand-alone WTO schedule of commitments; and re-signing the 2005 Hague Convention.
    - Ensure access to talent and the mobility of people on both sides of the Channel, by negotiating a reciprocal agreement on intra-company transfers and posting of workers; negotiating a dynamic mutual recognition agreement for professional qualifications; adopting a preferential route for EU migration that allows UK services to continue to access the people and skills they need to thrive.
    - Secure an adequacy decision for the UK's data regime to maintain the free flow of data between the UK and EU.
    - Negotiate ambitious mutual market access for service businesses by aligning with the rules of the EU Single Market for some important sectors; ensuring mutual access to public procurement markets.
    - Invest in regulatory co-operation between the UK and the EU, and the UK and the rest of the world, by negotiating a mechanism for continued regulatory and supervisory cooperation between

the UK and EU; remaining committed to the use of international standards and regulations across the globe; and striving to lead the way globally in emerging areas of services trade.

A year to go: how Brexit will affect UK industry **by Economist Intelligence Unit explores how Brexit will affect trade, regulations and jobs within six sectors of the UK economy.**

- This report suggest two scenarios for Brexit trade talks - the core scenario is a comprehensive free trade deal with the end result likely to be a more comprehensive trade deal than that negotiated by the EU and Canada in 2016.
- The alternative scenario is a no-deal Brexit scenario where it is to be assumed that the UK/EU are not successful in the talks, leading to a total breakdown in negotiations.
- The following key points are highlighted;
  - It is anticipated that the UK economy will carry on growing in 2018-22 under the core scenario and a hard Brexit scenario. If the UK leaves the EU without a trade deal by 2022 the UK's nominal GDP will be 2.7% lower than in the core scenario.
  - After Brexit London will retain its status one of the world's leading financial centres, along with New York and Singapore, and it will also remain Europe's leading financial hub. There is also a large degree of inter-dependence between the UK and EU financial services sectors, just as there is for the trade in goods between the UK and the EU.
  - The healthcare and life sciences sector is likely to see exports shrink under the core scenario, but the worst-case scenario—a shortage of much-needed medicines—will be avoided through regulatory agreements. The slower economic growth predicted under a no-deal Brexit scenario would dent tax revenue and consumer spending. Unless policies are adopted to mitigate the effect, this would result in total health spending per head being £90 (US$125) lower in 2022 than it would be under a softer Brexit.
  - The automotive sector faces a huge challenge: without a UK-EU FTA, large-scale production in the UK would become difficult. UK vehicle-makers will try to expand in other export markets, but will also need to stimulate domestic demand. Under a no-deal Brexit vehicle sales would be 13.1% lower by 2022 than under the core scenario. Cumulatively, the industry would sell around 840,000 fewer vehicles between 2019 and 2022 than under the core scenario.
  - The loss of EU workers and disputes over regulation will affect most consumer goods manufacturers, as well as the food sector. Unless agreements are reached over mutual recognition, the effect is likely to push down exports and push up the prices of imports still further. The biggest impact of a no-deal Brexit would be on retail spending, which could be 13.4% lower in nominal terms in 2022 compared with the core scenario.
  - In terms of energy policy, the UK will continue to forge ahead on emissions reductions and decarbonisation. However, the task will become more difficult and energy costs may rise if it exits Europe's internal energy market. Energy consumption would be 2.9% lower by 2022 if the UK leaves the EU without a deal and the economy slows as expected.
  - The UK's exit from the "digital single market" will primarily affect telecoms operators with significant business on the continent. However, there may also be an effect on investment in innovation, as well as on the prices that UK consumers pay when using their mobile phones abroad. Investment in mobile technology could be 3.5% lower by 2022 under a no-deal scenario.

Readiness for the Future of Production Report 2018 **by World Economic Forum looks at the future of emerging technologies and the preparedness for this.**

- The Fourth Industrial Revolution, and emerging technologies such as; the Internet of Things, artificial intelligence, robotics and additive manufacturing, are spurring the development of new production techniques and business models that will fundamentally transform production.
- Both the speed and the scope of technological change, combined with the emergence of other trends, add a layer of complexity to the already challenging task of developing and implementing industrial strategies that promote productivity and inclusive growth.
- These technologies are also driving new, more distributed and connected value chains.
- In a dynamic and changing world, the World Economic Forum System Initiative on the Future of Production seeks to help usher in a sustainable production future that is:
  - Solution-driven: technology can tackle and solve challenges that have previously been insurmountable.
  - Human-centric: technology can unlock human potential by unleashing creativity, innovation and productivity in new ways.

- Sustainable: technology can promote sound production processes that minimize negative environmental impact, conserve energy and resources and enable carbon neutrality.
- Inclusive: employees, companies and countries at different stages of development benefit from Fourth Industrial Revolution technologies and the transformation of production systems.

- Recent changes put the competitiveness paradigm of low-cost manufacturing exports as a means for growth and development at risk, countries need to decide how to best respond in this new production.
- Countries need to first understand the factors and conditions that have the greatest impact on the transformation of their production systems and then assess their readiness for the future. Subsequently, governments (together with industry, academia and civil society) can take suitable policy actions to close potential gaps related to their readiness for the future of production.

ENTREPRENEURSHIP

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

BUSINESS GROWTH

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

GROWTH FINANCE

***Innovative green-technology SMEs as an opportunity to promote financial de-risking* published by Economics Ejournal argues that G20 countries need to recognize and engage small medium enterprises (SMEs), and especially low-carbon technology SMEs, as key economic actors in the effort toward climate mitigation and sustainable development.**

- One major long-standing hurdle for SMEs has been the lack of appropriate forms of finance, with the severity of financing constraints varying across countries and sectors. It is estimated that the percentage of SMEs unserved or underserved by the formal financial sector is between 19% and 23% in developed economies, and rises to 26%–32% in developing countries.
- Three recommendations can help ensure the G20 can promote the financing of the transition towards sustainability and resilience by leveraging low-carbon innovation:
  - Promote a reporting system to help monitor the scale-up of green-technology SMEs- by tracking the health of emerging green technology firms as well as the resilience of financial institutions to climate stress test scenario.
  - Include green-technology firms in green finance platforms – this will ensure finance information asymmetries are addressed for opportunities presented by green-technology firms; accelerate the formation of capital markets around green technologies to mitigate and adapt to climate change; ensure publically funded R&D returns to society through spill over benefits; and enable green-technology SMEs to become engines of sustainable growth.
  - Leverage public funds and public support to signal innovative green-technology SMEs to private investors.
- There are several examples of how public money can be used to de-risk the scale up of low carbon innovation and intervention and where low-carbon SMEs can be turned into a signal to mobilize private capital to support low-carbon innovation by SMEs:
  - Public investment in demonstration projects and proof of concept at commercial scale; public procurement budgets for innovative, low-carbon SMEs and requirements for major government suppliers to develop relationships with them; dedicated credit lines; risk-sharing facilities; Climate Mitigation and Environmental Performance Contracts (public-sector initiatives to facilitate the absorption of required technologies by Energy Services Companies).

***Equity CrowdFunding Resource* published by InterTradeIreland assesses whether Equity Crowd Funding is any different than the usual sources of start-up funding.**

- Equity Crowd Funding has established itself as a real complement and alternative to traditional equity funding sources for High Growth Potential Start-Up and Growth Stage businesses in the UK and Ireland in recent years.
- Equity Crowd Funding is the process whereby people (i.e. the 'crowd') invest in an early-stage unlisted company (a company that is not listed on a stock market) in exchange for shares in that company. A shareholder has partial ownership of a company and stands to profit should the company

do well. The opposite is also true, so if the company fails investors can lose some, or all, of their investment.

- Raising Equity Crowd Funding is not very different to raising equity capital from Angels and VCs in the following ways;
  - Still need a strong investment proposition; still need to have a business plan; still need to have a fundraising campaign; still need to hustle a network of investors in the real world; still need to consider class of shares, use of nominee structure; still need to consider what tax benefits there may be for individual investors; sead investor and/or endorsements still count; and still need the best calibre of advisers you can get.
- However Equity Crowd Funding is different to Start-Up funding in the following ways;
  - Sourcing and managing a high volume of new shareholders; settlement/completion; sommunications capability needs to be at a higher level; sharing "sensitive" information; public risk of failure; valuation setting; and non-monetary benefits.
- Previously only wealthy individuals, venture capitalists and business angels could invest in start-ups. Equity Crowd Funding platforms have helped democratise the investment process by opening the door to a larger pool of potential investors dubbed "the crowd".

Financing SMEs and Entrepreneurs 2018 **by OECD.** ***This article requires a subscription to access.***

- This report looks at the core indicators on SME financing, provides additional information on recent developments in capital market finance for SMEs, crowd funding and related activities, and findings of demand-side surveys.
  - This report looks at 43 countries: Australia, Austria, Belgium, Brazil, Canada, Chile, the People's Republic of China, Colombia, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Greece, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Latvia, Luxembourg, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Russian Federation, Serbia, the Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom and the United States.
- New lending to SMEs declined in 15 out of 25 countries for which comparable data were available, despite more favourable credit conditions and low interest rates (the median interest rate value (3.58%) charged to SMEs fell by 0.82% points) - due to this, alternative sources of finance became more widely used. This then coincided with the improvements in the operating environment for SMEs which can be seen by a drop in bankruptcies and payment delays, and a brighter outlook for macro-economic indicators.
- Other results highlighted that:
  - Leasing and hire purchases rose in a majority of countries in 2016 – often by more than 10%.
  - Factoring and invoice discounting volumes show a similar pattern.
  - Venture capital investment increased in two-thirds of participating countries.
  - The global private debt market grew by almost 15% between 2015 and 2016.
  - P2p lending, equity crowdfunding and invoice trading continued to grow very rapidly in 2016.
  - Survey data show that credit became more accessible in 2016 – exceptions include Brazil and the Russian Federation.
- In several countries policy makers are seeking to address intra national disparities in SME's access to finance; such initiatives include the introduction of local subsidiaries of national SME development funds or local development centres and programmes to stimulate digitalisation and entrepreneurship in lagging regions.

How to get better private finance deals for infrastructure **by the Institute for Government provides suggestions on how the Government could improve private finance deal in regards to infrastructure.**

- The Government has consistently stated that it wants to secure more private investment in UK infrastructure, at a good price. To date, ministers have failed to address the barriers that are preventing this from happening. If the Government is serious about achieving this objective it needs to take action in three areas;
- The Government must develop the civil service's in-house commercial skills;

- Ministers must understand investor perspectives when making policy
- The Government must outline a clear infrastructure pipeline. Currently, there are meant to be two infrastructure pipelines – lists of planned infrastructure projects – in the UK, but only one has been published.

Change, what change? **by Frontier Economics examines how 2018 might be the year that banking is transformed but that only 11% of large UK businesses are fully aware of the reforms.**

- Open Banking regulation (including the second payments services directive PSD2) will allow third-party businesses to gain access to banking data and payments mechanisms.
- Regulators and policy-makers are hoping that this will kick-start innovation and invigorate retail competition through new digital services and new business models.
- As part of the Ipsos MORI Captains of Industry Survey 2017, leaders of the UK's top companies were questioned about their understanding of the new regulations. Ipsos MORI conducted 100 interviews with participants from the top 500 companies by turnover and the top 100 by capital employed in the UK. Participants were Chairmen, Chief Executive Officers, Managing Directors/Chief Operating Officers, Financial Directors or other executive board directors between September and December 2017.
- Just 11% of businesses said they were fully aware of Open Banking and PSD2, and a further 15% described themselves as "aware but not in detail".
- The limited awareness revealed by the survey is striking considering the vast array of services that will be made possible or easier as a result of PSD2. These are likely to include:
  - 'Pay by Bank': customers will soon be able to pay for products and services directly from their bank account, without the need for a card. Sharp retailers may find this is one way to drastically reduce interchange costs and increase click-through rates if the newer payment processes can be made smoother.
  - Smarter financing comparisons: PSD2 will allow customers to instantly compare different credit and financing options for large purchases – such as using a new credit card in place of store credit, or vice versa.
  - Better switching tools: granting third-party access to bank accounts will allow new tools to be developed to switch financial products. The use of these tools could be extended to other sectors including energy and telecoms.
  - Better customer insight: the directive will release a raft of customer financial information which may be valuable to retailers. For example, the new data could help refine customer segmentation and market design techniques. They could also enable retailers to improve their credit scoring and thereby compete more effectively both in the area of store finance and against rivals in their own markets.
  - New marketing channels: aggregation services are expected to spring up to provide customers with a single interface for all their financial services. These aggregators will open up a new channel for reaching customers. The General Data Protection Regulation (GDPR) will also enter into force this year, reducing any advantages that incumbent businesses may enjoy through mining their customers' data. This could further increase the importance of the new channel. Retailers would do well to consider partnerships with third parties, or even developing their own aggregation tools, particularly if they can leverage a trusted brand.

BUSINESS REGULATION

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

Succeeding Globally

TRADE

Statistics on UK trade with the Commonwealth **published by House of Commons Library assesses commonwealth membership, trade statistics, the international context, trade with different commonwealth countries and the largest commonwealth trading partners.**

- UK exports to the Commonwealth were worth £48.5 billion in 2016 ; British imports from the Commonwealth were £45.9 billion resulting in a trade surplus of £2.6 billion – a deficit in goods was more than offset by a surplus in services.
- The Commonwealth accounted for 8.9% of UK exports in 2016 – roughly the same as UK exports to Germany.
- The Commonwealth accounted 7.8% of UK imports – roughly the same as UK imports from China.
- UK trade with the Commonwealth was heavily focused on five countries – Australia, Canada, India, Singapore and South Africa.
- Including the UK, there are 53 Commonwealth member states, with a combined population of 2.4 billion.
    - Commonwealth countries vary greatly in their economic development – in 2017, Australia and Singapore had a GDP per capita of over $50,000 while six Commonwealth countries had a GDP per capita of less than $1,000.
- The UK's largest Commonwealth trade surplus was with Australia and was worth £4.1 billion, followed by Singapore (£2.7 billion) and Canada (£1.2 billion). The UK's largest Commonwealth trade deficit was with India and was worth £3.9 billion, followed by Bangladesh (£1.9 billion) and Sri Lanka (£1.0 billion).
- UK's 10 largest Commonwealth export markets in 2016 were; Australia, Canada, Singapore, India, South Africa, Nigeria, Malaysia, New Zealand, Maita and Cyprus.
    - Combined, Australia, Canada, Singapore, India and South Africa accounted for 71% of UK exports to the Commonwealth and 66% of UK imports from the Commonwealth.

Trade: Key Economic Indicators **published by House of Commons Library assesses the UKs key economic indicators in terms of trade for the year 2017 looking at the balance of trade, goods and services and the current account balance of the UK.**

- In 2017, the UK's exports of goods and services totalled £622 billion and imports totalled £651 billion. The EU accounted for 44% of UK exports of goods and services and 53% of imports in 2017.
- Overall, the UK imports more than it exports producing a trade deficit. A deficit of £136 billion on trade in goods was partially offset by a surplus of £107 billion on trade in services in 2017;
    - The overall trade deficit was £29 billion in 2017.
- The UK had a trade deficit with the EU of £71.6 billion in 2017 and a trade surplus of £42.9 billion with non-EU countries.
- The trade deficit with all countries widened to £6.4 billion in the three months to February compared with £5.9 billion in the three months to November.
- Exports decreased by 0.5% over this period. Imports decreased by 0.2% (both figures in cash terms).
- The current account, which includes investment income and transfers as well as trade, saw a deficit of £82.9 billion in 2017, compared with £113.6 billion in 2016.
- The current account deficit was 4.1% of GDP in 2017 compared with 5.8% in 2016. The current account deficit was £18.4 billion in Q4 2017 (3.6% of GDP), down from £19.2 billion (3.7% of GDP) in Q3 2017.

Internationalisation of European SMEs 2018 **published by the British Business Bank applies a particular focus on SMEs in France, Germany, Italy, Spain and the United Kingdom.**

- International trade is a key engine for growth and welfare. This is particularly true for France, Germany, Italy, Spain and the United Kingdom, which are not only the largest economies in Europe but also among the largest traders on the continent. Together they account for more than half of all intra- and extra-EU trade flows.
- France;
    - Compared to their European counterparts, French SMEs are less likely to export and seem to experience more difficulties when engaging in exports.
    - The third largest contributor to EU trade in 2016, French exports of goods and services amounted to EUR 656 billion (representing 10.1% of total EU exports and 29% of French GDP), while French imports reached EUR 694 billion (11.6% of EU total imports and 31% of French GDP).

- France is the third largest contributor to EU exports and to EU imports, which is consistent with its rank in terms of GDP.

- Germany;
  - Germany is deeply integrated in the world economy – both with regard to international trade and investment flows.
  - The key export markets of German SMEs are geographically close countries within the European Union.
  - With exports of EUR 1,207 billion and imports of EUR 955 billion in 2016, it was the largest international trader of merchandise goods after China and the US. It is also among the most active international traders of services.
  - In 2016, Germany exported services worth EUR 254 billion, placing it third behind the US and the UK in the ranking of service exporters.

- Italy;
  - Since 2010, export volumes have increased from 25.2% to 29.8% of GDP in Italy.
  - Unlike SMEs in most EU countries, Italian SMEs make up the lion's share in trading volumes as they export and import significantly more than large enterprises.
  - In 2017, both Italian exports and imports expanded strongly at an annual rate of 7.4 % and 9 % year-on-year respectively. The expansion of exports is diversified and attributable to many target countries: +8.2 % for non EU countries and +6.7 % for EU countries. The trade surplus reached EUR 47.5 billion (EUR 81.0 billion net of energy).

- Spain;
  - Foreign trade in goods and services shows a positive balance in Spain since 2012. This surplus has been growing since then due to the bigger growth of exports compared to the evolution of imports.
  - The overall volume of Spanish exports of goods and services amounted to EUR 407 billion in 2016 (32.9 % of Spanish GDP). Imports of goods and services were EUR 370 billion in 2016 (29.9 % of GDP).
  - Spanish SMEs export and import relatively more frequently than SMEs in other countries but the average operation is smaller, reflecting the smaller size of Spanish SMEs.

- United Kingdom;
  - Of the five largest economies in the EU, the UK is the only country which exports more to countries outside of the EU than it does to those within.
  - The UK is as an open economy with about 28% of the goods and services produced sold abroad, while around 32 % of what is bought are imports. These equate to roughly EUR 670 billion and EUR 750 billion respectively.
  - For SMEs already exporting, language skills and administrative procedures are the most readily identified barriers to trade, whilst non-exporters highlight a lack of specialised staff and financial constraints.

Global Imbalances and the Trade Slowdown **published by the Peterson Institute for International Economics assesses trade growth since the late 1990s.**

- Global trade volumes plummeted 13% in 2009, many times the 2% decline in real GDP growth experienced in the depths of the Great Recession. While the trade collapse shocked economists, the slowdown in trade growth since 2011 has been an even bigger surprise. Real trade grew more than twice as fast as real GDP from 1990 to 2007, and more than 1.5 times as fast even before 1990, but since 2011 trade has grown only slightly faster than GDP.

- Global imbalances are calculated as the sum of the absolute values of the countries' current account balances relative to the sum of their incomes. When savings and investment in the large countries are equal, global imbalances will be close to zero. When some countries, such as China, Japan, Korea, and the Gulf countries, expanded their surpluses, and others, like the United States and several Southern European countries, expanded their deficits, the measure of global imbalances grew.

- The rapid trade growth period was associated with rapid export growth in Asia and rapid import growth in the Americas. During the slowdown, trade in Europe also slowed markedly, but it was more balanced, linked to slowing growth associated with the euro crisis.

- Researchers have explored a number of potential explanations for the recent change in the relationship between income growth and trade growth. Most point to a decline in demand, especially for investment goods that weigh heavily in trade flows, as the main factor.
- The unprecedented trade growth that followed the rise of cross-border capital flows is linked to widening trade imbalances. Similarly, the recent period of slow trade growth is associated with a narrowing of global imbalances.
- From this perspective, the dramatic trade slowdown stems not just from weak global growth but also from weaker growth combined with a return to more balanced capital flows.
- An alternative view however is that the export-led growth policies in Asia, especially China, fuelled strong trade growth in the late 1990s and early 2000s and widening imbalances.
- Those policies effectively shifted export growth from the future to that period, resulting in slower trade growth in recent years as pressure for more balanced trade increased.
- An important implication for the East Asian surplus countries is that they will now need to rely more on domestic reform and less on export-led growth. Over time, a new wave of global income and trade growth could result if the roles reversed and surplus East Asia absorbed a higher share of global capital flows.

An Assessment of Brexit Risks for 54 Industries: Most Services Industries are also Exposed **published by City-REDI, looks at the economic consequences of Brexit on the UK, its regions, sectors and cities.**

- In the UK economy as a whole, slightly more than 2.5 million jobs are exposed to the trade effects of Brexit.
  - Across the 20 industries where jobs are most at risk the majority are in the administrative and support services (0.5 million jobs), whereas postal and courier activities are at the bottom with approx. 50,000 jobs at risk.
- For as many as 15 out of 54 industries, more than 20% (up to 36%) of value added is at risk.
  - For some of these industries such as the fisheries (32%), chemicals manufacturing (33%) and motor vehicles manufacturing (21%), the findings are to be expected.
  - However, alarm should also be sounded regarding a number of services industries such as "professional, scientific and technical activities" (36%), "activities auxiliary to financial services" (31%) and "wholesale trade" (24%). These services are not only exported directly to EU countries, but also sell intensively to UK manufacturing firms exporting to the EU.
- 40 industries would grow if all products previously imported from the EU were purchased at identical costs from domestic sources.
  - In many manufacturing industries and in agriculture, the positive impacts reach double-digit levels (49% and 33% respectively).
  - 14 industries would contract and in four of these the changes are sizable: "activities auxiliary to financial services" (-27%), "film, TV and music industry" (-7%), "professional, scientific and technical services" (-22%), and "fisheries" (-15%). With the exception of transportation services, services industries will not grow much.

The Future UK-EU Relationship **published by CBI, assesses the debate on the future economic relationship between the UK and the EU.**

- Two models had been presented regarding the future UK-EU relationship: A comprehensive free trade agreement (FTA) modelled on the EU's agreement with Canada (CETA); or Norway's model of membership of the European Economic Area (EEA) (note that businesses in Norway have the automatic right to provide any services in the EU and vice versa).
- For business, the difference between the two models is significant for two main reasons: services trade and the treatment of rules. In addition, both models are different to EU membership as neither Norway nor Canada are in customs union with the EU.
- Businesses in Norway have the automatic right to provide any services in the EU and vice versa. This is true for all services, including highly regulated ones. The EU single market in services is not complete, and some EU countries have a reputation for discriminating in practice against Foreign Service providers more than others, such as in defence where the UK offered up €17.6billion of contracts to EU and France offered up just €4.9billion. However, overall this arrangement makes doing business easier, and Norway does 66% of its trade in services with the EU.

- In contrast, preferential trade in services in CETA, the most ambitious of the EU's agreements, can best be described as patchy.
- While the EU and Canada have agreed free trade of postal, telecommunications, energy and maritime transport services, and mutual access to public procurement contracts, CETA does not provide anything like free trade for some important sectors. This includes some aviation services, electricity and cultural services. If the UK and the EU were to agree nothing more than the 'global standard of trade deals', it would fall far short of current or Norway's arrangements. In particular, the UK's 758 exporting TV channels, 5,476 UK and 8,008 EU financial service firms, would be unable to provide services across borders from their current locations.
- For Canada and the EU, this agreement is an acceptable state of affairs in a way that it would not be for the UK and EU, because services trade is less important to Canada in general (5% of Canada's output is services exports compared to the UK's 12.1%) and between Canada and the EU in particular. The UK's top exports to the EU are financial services and business services, Canada's are pearls, semi-precious stones and precious metals.
- The difference between Norway's deal and a CETA-style free trade agreement is a concern for businesses.
- Overall estimates of the difference are scarce, but research suggests the reduction in UK-EU trade in services under an FTA would be the same as if the UK and EU traded under WTO rules, though goods trade would be more supported.
- This concern is concentrated in some sectors more than others, but these happen to be sectors that are particularly important to the UK economy. The concern is also concentrated in particular regions of the UK. While most service exports originate from London and the South East, the North East and West Midlands send about half of their services exports to the EU, making them more proportionally exposed.

TOURISM

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

INWARD INVESTMENT

***Bankers without Borders* published by the World Bank Group focuses on International Banks and their role in shaping the economy.**

- International banks can play an important role in shaping financial and economic development. They may bring much-needed capital, liquidity, and technological expertise to host countries. In return, however, they will expect high returns, diversification benefits, and growth opportunities. In fact, historically such international activities have been essential to banking.
- An extensive body of literature is devoted to studying the role of foreign banks in the domestic banking sectors that host their brick-and-mortar operations and their impact on local bank competition, financial stability, and access to credit. The bulk of the research published from the late 1980s to the early 2000s found that a foreign bank presence had generally positive effects on banking sector competition, efficiency, and stability, with more mixed results on access to credit.
- New evidence also reveals that a foreign bank presence fosters higher rates of business formation, but that these effects are much stronger in economies with tougher legal enforcement.
- Cross-border bank credit has expanded rapidly in recent decades, and has become an important part of global banks' business activities. Cross-border bank claims worldwide doubled during the period 2001–14.
- The United Kingdom is the second-largest attractor of investments, absorbing 11% of the total, but Nordic economies such as Sweden are also becoming leading fintech centers globally.
- An important part of this growth was transactions involving developing nations as a source and destination of funds. For example, cross-border bank claims to developing economies expanded by a factor of three during the same period. The rise in cross border bank credit to and from economies occurred in parallel with the rapid growth of other financial transactions, deepening developing countries' integration into global financial markets.

How to Identify Target Sectors for Inward Investment? **By WAVTEQ looks at how to develop a sector strategy to attract inward investment.**

- This report on Economic Development Organizations (EDOs) and Investment Promotion Agencies (IPAs) looks at how to develop a sector strategy to attract inward investment.
- Using case studies from Africa, Europe and North America, the first part of this report provides an overview of four technical methods currently being using in economic development to identify target sectors for inward investment attraction; Location Quotients; Revealed Comparative Advantage in Exports; Location Benchmarking and Competitive Positioning; and Direct Investment Demand Analysis.
- Building upon existing technical methods, this new model of Revealed Comparative Advantage in Foreign Direct Investment (RCAFDI) is presented and tested for the world's leading FDI locations: for Canada, China, France, Germany, India, Russia, UK, US and the EU-28 the sectors in which each country has a revealed comparative advantage for FDI are identified.
- To demonstrate how the RCAFDI model can also be applied at the sub-national level, the sectors where Canadian Provinces and Cities have a comparative advantage for FDI within North American Free Trade Agreement (NAFTA) are also identified.
- Over the last 2 years, WAVTEQ have successfully applied the model of RCAFDI to many of their economic development clients in both developed and developing countries to inform the identification of target sectors for FDI.
- By providing open access to the model, this report hopes that it can be used directly by other economic development organizations and related institutions.
- WAVTEQ is launching, in 2018, the first Domestic Direct Investment (DDI) tracking databases.
- The DDI databases will enable the model of RCA to be applied to identifying target sectors for domestic investment as well as for foreign investment. Providing a new scope for developing sector targeting strategies that are differentiated for attracting domestic investors vs. foreign investors.

European Cities and Regions of the Future 2018/19 – Regions **by fDI looks at which locations have investment potential for the future.**

- In June 2016, the UK voted to leave the world's largest trading bloc, ending decades of co-operation on economic and regulatory matters that covered everything from trading and finance to product safety.
- Since the UK's vote to leave, many companies have made investment decisions that suggest they see a future in the UK.
- In October 2016, Netherlands-based ING announced it was to create 60 jobs in London, which would be relocated from Belgium and the Netherlands. The finance group stated that even in the light of Brexit, the city still had plenty to offer investors by way of talented workforce.
- Other companies see the advantages offered by the uncertainty of the Brexit process.
- Australia-based mineral and exploration company Peak Resources stated that the expected devaluation of the pound made operating costs more affordable, and any UK efforts to maintain (and potentially improve) its competitiveness on a world stage in a post Brexit age could present investors with opportunities. In establishing its manufacturing facility in the UK in December 2016, Peak Resources joined a chorus of investors from Amazon to Snapchat who continue to sing the UK's praises.
- London won top billing as overall European City of the Future for 2018/19. In the five years to September 2017, London welcomed 1880 foreign investments, the highest of all 301 cities included in the ranking, attracting more projects than Paris and Dublin combined.
- Rising from fifth place in 2016/17's ranking, the Irish region of Dublin has placed second and has also been named fDi's Northern European Region of the Future, top small European region overall, as well as top small region for Economic Potential and Business Friendliness. Nearly 9% of all companies in the Dublin region are in the knowledge-based sector, testament to the area's reputation as a location for high-quality investments

Economic Infrastructure

ENERGY

The contribution of reversible air to air heat pumps towards the Renewable Energy Directive **published by BEIS reviews the UKs progress against the Renewable Energy Directive (RED) target; as 15% of UK energy consumption is to be sourced from renewables by 2020.**

- Since 2008, the UK has included heat from heat pumps, where evidence for the stock and performance has been readily available. Previously, ground source, air source, and exhaust air heat pumps were included, using industry body sales figures to estimate the stock in addition to Eurostat default assumptions and the results of a previous heat pump research study. Typical capacities were estimated using data collected to support the Renewable Heat Incentive (RHI).
- There are three types of systems which can be considered to be Reversible Air to Air Heat Pumps (RAAHPs);
  - Single split air conditioners; systems where a single indoor unit is connected to a single outdoor unit, both ducted and un-ducted.
  - Multi split air conditioners; systems where multiple indoor units are connected to a single outdoor unit, with all units operating simultaneously.
  - Variable refrigerant flow (VRF); systems where multiple indoor units that can be in heating and cooling mode simultaneously are connected to one or more outdoor unit.
- In order to estimate the quantity of heat generated, how heat pumps are used in situ (as opposed to relying on manufactures' specifications), are required. Delta Energy and Environment identified that the majority of installed RAAHPs are within the commercial sector and therefore determined that the following research approaches should be pursued;
  - A telephone based survey of 100 SMEs which use RAAHPs for heating.
  - An online survey of energy managers representing larger groups and companies active in the UK and using RAAHPs at some (or all) of their sites.
  - Interviews of installers active in the UK air conditioning market.
  - Desk based research including the analysis of previous scientific work in this area as well as market research of prices and efficiencies.
  - Review of market data collected by the Building Services Research and Information Association (BSRIA).
- Results indicated that:
  - In 2016, 512 thousand tonnes of oil equivalent (ktoe) were generated by RAAHPs.
  - Total installed capacity of RAAHPs meeting the minimum eligible for reporting progress towards the RED was 20GW in 2016.
  - Heat generated by all heat pumps increased by a factor of over four.
  - Renewable heat (as measured on a RED basis) increased from 6.2% (as reported in DUKES 2017) to 7.0 per cent in 2016.
  - 73 per cent of RAAHPs were used for heating at least some of the time (the remainder were either used only in cooling mode or weren't able to provide heating).
  - There were 3.6 million single and split type systems operating in 2016, and 0.3 million variable flow rate systems.

A new direction for UK resource strategy after Brexit **published by the Green Alliance outlines two critical challenges to manage effectively on resources policy over the next two years to achieve a good outcome post-Brexit.**

- Firstly, managing divergence from existing EU waste and resource governance - differing environmental standards create 'non-tariff barriers' and competitive distortions that harm trading arrangements. It will be necessary to retain or recreate the governance institutions ensuring adherence to legislation, including laws on waste, recycling, chemicals and product standards, and to guarantee sufficient equivalence so the UK can continue trading freely with the EU.
- Secondly, the creation of new policies - failing to update and improve legislation once it is transposed risks opening an unpopular and environmentally harmful domestic policy gap after March 2019. The

UK should focus its efforts on enhancing resource efficiency and productivity to suit the UK's particular circumstances.

- To fulfil these tasks and avoid obstructions to future trade with other European nations, the Green Alliance recommend that the UK should,
  - Continue to co-operate on ecodesign standards and apply them domestically;
  - Negotiate full access to the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) regime;
  - Maintain waste policy principles and co-operate on evolving regulations; and
  - Ensure an effective governance regime.
- At the same time as preparing for Brexit, Defra is formulating a new resource and waste strategy for England. To avoid problematic gaps and to ensure this strategy is fit for the future outside the EU, they recommend it includes the following;
  - New targets, including for recycling, that increase resource efficiency and productivity;
  - Mandatory food waste collections from households and businesses; and
  - Extended producer responsibility, accounting for the full lifecycle of products.

TELECOMS

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

OTHER INFRASTRUCTURE

Delivering effective and inclusive infrastructure **by ESRC looks at how increased investment in national and local infrastructure across the UK is fundamental to increasing productivity and economic growth.**

- Infrastructure is the foundation that prosperous economies and societies are built and function upon. However, ineffective infrastructure business models are providing poor value to taxpayers, consumers and businesses – impacting negatively on the future of infrastructure services such as sanitation, drinking water, heating, mobility and communication.
- Researchers from the ESRC have drawn on findings from their evidence base, as well as analysis and discussions with a wide range of infrastructure stakeholders (including local communities, business, and local and national government), to outline a set of five priority areas and 14 policy recommendations – addressing the challenges of effective infrastructure delivery locally and nationally.
- To adopt a broader, integrated and more holistic appreciation of infrastructure;
  - A broader definition of infrastructure, to include the full range of opportunities from alternative business models, should be used.
  - Reforms in policy, institutions and regulation are needed to facilitate an integrated approach to local infrastructure across different sectors.
- To enable greater action at the local scale that reflects the distinctive nature of local areas but also connects with the national level.
- To facilitate and capture all forms of long-term value;
  - Measures of social and environment value must be incorporated into infrastructure appraisal frameworks to achieve the widest possible set of mechanisms to capture revenue and other values.
  - Employ a new approach to infrastructure economics that recognises the long-term and system-wide value of infrastructure provision and the alternative forms of investment necessary to realise this value.
- To align organisational capabilities and apply 'circular economy' principles for more efficient infrastructure delivery;
  - Infrastructure design should be grounded in circular economy principles (maximum use and recycling of resources) to consider the whole-life material and resource demands of infrastructure pipelines, to identify opportunities to reduce overall energy consumption and waste.
- Accelerate uptake through practical action and demonstration;

- Develop alternative business models by collaborating with the widest range of stakeholders, and integrate the assessment of a broad range of values with the design of engineering solutions.

Government

NORTHERN IRELAND

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

ENGLAND

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

SCOTLAND

Scotland's place in Europe: People, Jobs and Investment **published by the Scottish Government, presents analysis of the implications for Scotland's economy if the UK exits the European Union.**

- Continued EU membership has consistently been shown to be the best outcome for businesses in Scotland and its consumers, workers, and for the economy as a whole. These benefits primarily come from the four key channels:
  - Trade- EU membership allows Scottish companies to trade on an almost unrestricted basis within the world's largest Single Market, which allows Scotland to grow its operations and create new jobs.
  - Investment- unimpeded access to EU markets ensures Scotland remains an open economy that is attractive to inwards investors.
  - Migration and labour mobility- the free movement of people allows Scotland to attract workers that the economy needs in order to fill skills gaps and help address the challenges of an aging population.
  - Productivity- having an open, internationally focused economy inside the European Single Market results in increased competition, specialisation, innovation and investment and in turn boosts Scotland's competitiveness and productivity.
- The EU is Scotland's most important international export market. In 2015, Scottish companies' exports to countries within the EU were estimated at £12.3bn, which is 43% of Scotland's total international exports and supports hundreds of thousands of jobs created across Scotland.
- Foreign Direct Investment (FDI) is a key feature of the contemporary global economy, and one from which the UK, and especially Scotland, has derived considerable benefits.
  - There are 2,350 foreign-owned firms in Scotland employing around 318,000 people. Of these foreign firms 1,040 (44%) are EU owned and employ around 122,000 people in Scotland.
  - EY estimate that since 2002, FDI into Scotland has supported around 43,000 jobs. Current uncertainty, and a changed future relationship with the EU, creates the risk that potential new investors will re-evaluate their investment projects and future flows of FDI will move elsewhere.
- Should the UK pursue a WTO-style relationship, Scotland's GDP would be around 8.5%, or £12.7bn (in 2016 cash terms), lower by 2030, compared to continued full EU membership. This is equivalent to a loss of around £2,300 per year for each person in Scotland.
- A Free Trade Agreement relationship would mean Scotland's GDP would be 6.1% (£9bn in 2016 cash terms) lower by 2030.
- Should the UK remain in the Single Market by participating in the European Economic Area (EEA) this impact could be significantly mitigated, with Scottish GDP estimated to be around 2.7% (or £4bn in 2016 cash terms) lower.

Scottish Expert Advisory Panel on the Collaborative Economy Report **published by the Scottish Government recommends a number of actions for Scotland to take advantage of the growing use of digital, collaborative platforms and tackle some of the challenges they can pose in certain sectors.**

- The 'collaborative economy' (refers to a hybrid market model of a peer-to-peer exchange) has become synonymous with a very small number of platforms, however this belies the very long tail of activity on less well-publicised platforms and the huge potential to actively shape the collaborative economy in new sectors and industries.
- The need for the Scottish Government to seize the opportunity to shape or else be shaped by digital, collaborative platforms is probably the biggest message coming out of this work. That means working with existing platforms, but perhaps more importantly, it means creating the right environment for innovation; to develop and support new platforms that meet currently unmet needs within Scotland, which can deliver more than just economic value.
- Government should provide the resources to develop a secure, trusted place for people to access accurate information regarding their rights and responsibilities in the collaborative economy. This might be best delivered in partnership with an intermediary such as Citizens Advice Scotland, union or union-based organisations, and importantly, must be accessible from all collaborative economy platforms operating in Scotland. The Scottish Government to identify dispute resolution available to consumers in the collaborative economy, identifying any gaps and how these can be addressed.
- An example of some of the recommendations and actions include;
  - The Scottish Government should take an active role in encouraging TrustSeal in its evolution toward a focus on regulatory recognition; particularly with a view to making clear the local rules and regulations for different providers, operating in different geographies.
  - More understanding, attention and support should be given to collaborative or peer to peer tourist activities that also attract tourists to less congested areas of Scotland.
  - Local government and regulators should experiment with predictive analytics in high density usage areas like central Edinburgh, to target their very limited regulatory enforcement resources towards those properties most likely to be at risk. The use of predictive analytics has been highly effective in New York to target rogue landlords and properties at risk of fire.
  - Platforms should be encouraged to step in to address gaps, working with the Association of Independent Professionals and Self-Employed, where those offering services are genuinely self–employed, to offer illness and injury cover, and actively experiment with ways to give their platform workers an effective voice in decisions, including through trade unions.

Fair Start Scotland (FSS) April 2018-March 2021 **published by Scottish Government assesses Scotland's new, devolved employability service.**

- Employability plays an essential role in delivering the Scottish Government's aims of tackling poverty, supporting inclusive growth, promoting social justice and creating a fair and prosperous Scotland. The Scottish Government is committed to supporting those furthest from the labour market and those at risk of long term unemployment into work.
- From 3 April 2018, Scotland's new, devolved employability service, Fair Start Scotland, will develop this Scottish approach to employability, based on the principles of:-
  - Delivery of a flexible 'whole person' approach;
  - Services that are responsive to those with high needs;
  - A drive towards real jobs;
  - Services designed and delivered in partnership;
  - Services designed nationally but adapted and delivered locally; and
  - Contracts that combine payment by job outcome and progression towards work.
- Fair Start Scotland aims to design and deliver a high quality service that maximises delivery of real and sustained job outcomes, to targeted individuals, treating them with fairness, dignity and respect. The focus of support will be on those further from the labour market for whom work is a realistic prospect. The intervention aims to establish and transition to a distinctly Scottish Service that creates a strong platform for future employability services, a nationally consistent service, delivered locally and utilising private, public and third sector capabilities, and integrate and align such services in order to maximise value for money.
- Fair Start Scotland will be a voluntary service and aims to support a minimum of 38,000 starts. The majority of participants will be those who are furthest from the labour market.

WALES

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

REPUBLIC OF IRELAND (ROI)

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https://eprints.kingston.ac.uk

Smart Specialisation Hub
www.smartspecialisationhub.org/

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

Work Foundation
www.theworkfoundation.com

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http://www.worldbank.org/

World Economic Forum (WEF)
https://www.weforum.org