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Economic Research Digest Quarter 2 2020

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:

- A range of analysis assessing how Covid-19 is impacting upon sectors, businesses and individuals.
- Exploring the themes and barriers to entrepreneurship across different groups.
- An assessment of the gender pay gap at a local and national level.
- A discussion of the key characteristics associated with high growth start-ups.
- Insight into the nature of the linkage between abandoned innovation and further innovation outcomes.
- Analysis of the relative importance of trade between the UK and EU countries.

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

Economic Outcomes

COMPETITIVENESS

***Ireland's Competitiveness Scorecard 2020*, published by the National Competitiveness Council, gathers a wide range of economic indicators that summarise Ireland's competitiveness position.**

- The evidence set out in this report indicates that, until early 2020 and the onset of the COVID-19 pandemic, the Irish economy remained internationally competitive.
- However, there are still several critical areas where Ireland currently falls behind competitor countries (for example placing behind Norway and Switzerland in human development index rankings; and positioning last in greenhouse gas emissions per capita), and improvements in these areas will be particularly important to Ireland's economic recovery in light of the unprecedented COVID-19 shock.
- As a small open economy, Ireland is especially exposed to global economic conditions, leaving the economy vulnerable to the COVID-19 related disruptions worldwide.
- The COVID-19 pandemic has had an unprecedented impact on the labour market with more than 1 million people receiving state supports in April 2020 through jobseekers-allowance, the COVID-19 Pandemic Unemployment Payment or the Temporary Wage Subsidy Scheme.
- There is mounting support within EU institutions for the idea of linking recovery strategies to Climate Action policy. Ireland is currently falling far behind its carbon emissions targets and environmental commitments. Early action on initiatives in Ireland's Climate Action Plan, and linking economic stimulus measures with environmental objectives can be an engine for growth and innovation.
- Government expenditure on capital projects has increased steadily over the past number of years following sharp cutbacks during the global financial crisis. It is essential that public investment does not suffer similar cutbacks during this economic disruption, as high-quality infrastructure boosts long-term economic growth and productivity.
- In certain sectors (i.e. the transportation and storage; and information and communication sectors), market inefficiencies, which result in higher costs, mean Irish businesses (particularly SMEs) face difficulties in being able to compete internationally. These costs can be in the form of direct financial costs on enterprises, including access to short-term liquidity and investment capital at affordable rates, as well as the cost of insurance and legal services.
- In the past Ireland has proven resilient and must remain flexible and ready to adapt to the new global conditions in the aftermath of COVID-19. It is important to ensure that the economy is on a sound footing and that society is ready to seize opportunities for a speedy and balanced economic recovery.

PRODUCTIVITY AND GROWTH

***Investment in knowledge-based capital and productivity: Firm-level evidence from a small open economy*, published by the Economic and Social Research Institute, examines the responsiveness of firm productivity to investment in knowledge-based capital.**

- In recent years, there has been an increased focus on investment in knowledge-based capital (KBC) as a source of innovation and productivity growth. KBC comprises a broad range of intangible assets such as research and development (R&D), computer software and datasets, organizational know-how, firm-specific human capital, designs, and other intellectual property assets.
- The results of this analysis indicate that investment in KBC is positively associated with firm productivity. On average, ceteris paribus, a 10% increase in the investment in KBC per employee is associated with a 3% productivity gain. However, this aggregate result hides heterogeneous effects across firm groups, which in small open economies are more evident than in large economies.
- Investment in KBC appears to be more important for productivity than investment in tangible assets which, over and above other factors, does not have a significant effect. A possible explanation for this observation might be the small variation over the analysed period in investment in tangible capital, as well as the limited impact on productivity due to pre-existing large stocks of physical capital.

- Investment in R&D is positively linked to firm productivity in some of the sub-samples of firms analysed, namely indigenous firms, manufacturing firms and exporters, with no distinction found among firms with different size.
- In the case of investment in non-R&D assets (IP assets, software, organizational and branding capital, and other intangibles), investment in software is most strongly associated with higher productivity (both economically and statistically). Higher investment in organizational and branding capital also appears to positively affect the productivity of the various types of firms analysed, with distinctions in terms of firms' ownership or sector of activity being more nuanced.
- In contrast, investing in intellectual property (IP) assets only affects the productivity of foreign-owned firms, medium sized firms and manufacturers.

LIVING STANDARDS, WELLBEING AND PROSPERITY

***Northern Ireland Poverty Bulletin 2018/19*, published by the Department for Communities, reports on issues such as income, housing tenure, caring needs and responsibilities, disability, pension participation, occupation, employment, savings and investments.**

- In 2018/19, the UK relative poverty (Before Housing Costs = BHC) threshold was £308, and the UK absolute poverty (BHC) threshold was £294. These thresholds are for a couple with no children.
- In 2018/19, the average income in Northern Ireland fell slightly to £478 per week compared to £491 per week in 2017/18.
- Across all of the population sub groups, relative poverty BHC is higher than absolute poverty BHC. In 2018/19 19% of individuals were in Relative Poverty BHC. This equates to 350,000 people. 16% of individuals were in Absolute Poverty BHC equating to 303,000 people.
- In 2018/19 the relative poverty threshold for a couple with no children was an income of £308 per week (BHC) from all sources. For a couple with children the threshold would be higher and for a single person (without children) the threshold would be lower.
- In 2018/19 the absolute poverty threshold for a couple with no children was an income of £294 per week (BHC).
- The absolute poverty figures presented below are BHC in 2018/19.
    - 16% of individuals were in absolute poverty, representing approximately 303,000 individuals. This is an increase on the 2017/18 estimate of 14%. This is a statistically significant increase.
    - 21% of children were in absolute poverty, representing approximately 92,000 children. This is an increase on the 2017/18 estimate of 16%. This is a statistically significant increase.
    - 16% of working-age adults were in absolute poverty, representing approximately 176,000 working-age adults. This is an increase on the 2017/18 estimate of 13%. This is a statistically significant increase.
    - 12% of pensioners were in absolute poverty, representing approximately 34,000 pensioners. This is a fall from the 2017/18 estimate of 14%. This is not a statistically significant decrease.

***Living standards, poverty and inequality in the UK: 2020*, published by the Institute for Fiscal Studies, examines how living standards were changing in the UK up to approximately the eve of the current Covid-19 crisis.**

- The COVID-19 crisis hit at a time when income growth had already been extremely disappointing for some years. Median household income was essentially the same in 2018−19 (the latest data) as in 2015−16. This stalling itself came after only a short-lived recovery from the Great Recession.
- The main culprit for the latest choking-off of real income growth had been a rise in inflation from 2016. This was partly due to the depreciation of sterling following the Brexit referendum.
- For people aged 60 or over, median income was 12% higher in 2018−19 than before the previous recession in 2007−08, while among the rest of the population it was only 3% higher. However, in recent years, income growth had stalled for old and young alike.
- Trends among low-income households had been worse still – they had experienced five years of real income stagnation between 2013−14 and 2018−19. This was entirely due to falls in income from

working-age benefits and tax credits, which offset growth in employment incomes. Working-age benefits were frozen in cash terms, so the rise in inflation from 2016 reduced their value in real terms by 5%.

- Workers whose livelihoods look most at risk during the COVID-19 crisis already tended to have relatively low incomes, and were relatively likely to be in poverty, prior to the onset of the crisis.
- In 2018−19, only 12% of non-pensioners lived in households with no one in paid work, down by a third from 18% in 1994–95. This progress is highly likely to be undermined by the COVID-19 pandemic.
- Despite temporary increases in benefits announced in response to the pandemic, the benefits system in 2020 provides less support to out-of-work households than in 2011. Average benefit entitlement among workless households is 10% lower in 2020−21 than it would have been without any policy changes since 2011, and among workless households with children it is 12% lower. These cuts in generosity are mainly due to the 'benefits freeze' and the introduction of universal credit; without the temporary increases, they would have been 15% and 16% respectively.

***UK Women in Work Index*, published by PWC NI, provides an assessment of Northern Ireland's gender pay gap at a local and national level.**

- The report shows that Northern Ireland has the smallest gender pay gap (GPG) of all regions, and the gap between the number of men and women in work has decreased (from 10% to 8%) and is now below the UK average (10%).
- The region has also seen an increase in the number of women entering the local workforce, which hit a joint record high in the last quarter of 2019, according to the Northern Ireland Statistics and Research Agency (418,000 in employment). Despite the increase, Northern Ireland remains 12th for female labour participation and highlights a key area for strategic action.
- A 2019 report from the Northern Ireland Assembly on the GPG highlighted that while this has decreased since 1998 when it stood at 22.7%, during 2018 women earned less than men in all of the nine occupation groups. The GPG in 2018 was 9.6%, a slight reversal from 2017 when it was 8.6%.
- Nationally, while the UK performs above the OECD average and is second only to Canada when compared to other G7 economies, its position has barely budged since 2000 when it stood in 17th position, despite improving its performance across all five indicators.
- Overall, the OECD countries achieved incremental gains to female economic empowerment. Iceland and Sweden retain the top two positions for the fifth year in a row, with Slovenia in third place. Czech Republic experienced the biggest improvement in its ranking of all OECD countries, rising four places from 23rd to 19th, whereas Estonia and Ireland recorded the biggest decline.

***Despite short-term relief, households could face debt problems as a result of the coronavirus (COVID-19) pandemic*, published by the Institute for Fiscal Studies, presents findings on how households are coping financially in light of Covid-19.**

- UK households hold around £230bn of unsecured or consumer debt – including loans, credit card debt, hire purchase agreements and overdrafts. This equates to an average £8,000 per household.
- The coronavirus pandemic, and the resulting social distancing policies that have inhibited normal working for many, is resulting in falls in household incomes. Such income falls have the potential to make existing debt more of a challenge for some households, particularly where debt repayments already absorb a significant share of household income.
- The crisis could also result in more households borrowing, or existing borrowers increasing their levels of debt, in order to cover expenses when incomes fall.
- Over one-in-five individuals live in a household where more than 10% of income is spent on unsecured debt repayments, one-in-ten are in households that spend over 20% of income on debt repayments and one-in-twenty are in households that spend over 30% of income on debt repayments.
- Looking across age-groups, those in their 30s and 40s are most likely to be making substantial debt repayments as a share of income. For example, 15% of those aged 35 to 39 are in a household spending over a fifth of its income on debt repayments, compared to 6% of those aged 65 to 69.
- Recent weeks have seen the Financial Conduct Authority introduce several measures designed to take financial pressure off households struggling with income falls. These measures could prove to be an important means of mitigating financial stress and its consequences for households in the

immediate-term – not least by avoiding defaults and the associated damage these cause to an individual's credit rating.

- However, further challenges remain. Individuals may well continue to face debt repayment problems, either due to additional debt being taken out to cover for falling incomes, household incomes failing to recover, or accruing interest increasing the burden of debt repayments.
- In the current economic climate, pay rises and new jobs may not be so forthcoming. The crisis therefore risks a new set of households getting 'stuck' in a difficult financial situation that may have consequences for years to come.

***Recessions and health: the long-term health consequences of responses to the coronavirus*, published by the Institute for Fiscal Studies, discusses some of the mechanisms through which shocks to macroeconomic conditions may affect health.**

- The lockdown and social distancing measures brought about by the coronavirus crisis, coupled with the direct effects of the virus on workers and firms, are having a huge impact on economies in the UK and around the world.
- An economic downturn has a number of effects on people's lives through increased unemployment, decreased employment, reductions in income and wealth, and increased uncertainty about future jobs and income. The health effects caused by these adverse macroeconomic conditions will be complex, and will differ across generations, regions and socio-economic groups.
- Groups that are vulnerable to poor health are likely to be hit hardest even if the crisis hits all individuals equally, but evidence is already emerging that the economic repercussions of the crisis are falling disproportionately on young workers, low-income families and women.
- Recessions have been shown to have large and persistent negative effects on health and mortality at the population level. One study finds that employment changes during and after the 2008 financial crisis had a strong adverse effect on chronic health for five broad types of health conditions, with the strongest effects being for mental health conditions.
- It is estimated that a 1% fall in employment leads to a 2% increase in the prevalence of chronic illness. To put this in context, if employment were to fall by the same amount as it fell in the 12 months after the 2008 crisis, around 900,000 more people of working age would be predicted to suffer from a chronic health condition.
- Those with pre-existing poor mental health will be particularly vulnerable. An adverse impact of recessions on mental health and mortality from suicide exists and has been documented across a number of studies.
- Reduced economic activity as a result of a recession and the 'lockdown' may also have some positive health impacts. Some unhealthy behaviours such as drinking, smoking and unhealthy eating have been shown to fall, on average, when there are negative income shocks. Reports already show reduced levels of air pollution in the industrial areas of China and Italy as well as London, and there is a clear link between mortality from certain cardiovascular and respiratory causes and air pollution.
- In facing this economic downturn, government intervention will play a key role in determining the eventual health effects of the resulting recession. The government will need to decide where resources are best used. Importantly, in recent years, the UK welfare system has evolved to protect incomes through the extensive use of in-work benefits.

***Financial impact of COVID-19 already being felt by Britons, especially younger generations*, published by Ipsos MORI, gauges the resulting financial impacts due to the Covid-19 outbreak.**

- A new Ipsos MORI online survey of 18-75-year olds finds that overall, almost half of Britons (46%) say they have needed to save more money or spend less as a result of the coronavirus outbreak. And it is younger people who are most likely to be resorting to accessing new credit, relying on overdrafts, loans from family and friends or using up savings to avoid the financial pinch.
- Overall, 16% say they are using up savings, and another 18% are considering it. But these are much more likely to be younger people – a quarter (25%) of young people say they have already needed to use up their savings, compared with 13% of 35-54s and 11% of 55-75-year olds.
- There is a similar story on overdrafts. Overall around one in ten say they have done this (11%), but this rises to 18% of 18-34s, compared with 11% of 35-54s and just 3% of those aged 55-75. And 16% of young people say they have needed to borrow from family or friends, four times more than those aged 35 or older.

- In terms of access to more formal finance, 4% of Britons say they have already taken out a loan in response to COVID-19, but this differs significantly by age. Only 1% of those aged between 35 and 75 have done this already while 1 in 10 (11%) of 18-34s say they have. Similarly, 11% of this age group have accessed a new credit card compared with only 2% of 35-54s and not even 1% of 55-75s.
- Despite this, 18-34-year olds are also more likely to say they are lending or giving their money to friends and family. Online 8% of Britons overall have done so but almost 1 in 5 (18%) of this younger generation have already done so. Whilst a quarter (26%) of the youngest age group are considering giving their money away compare to just 14% and 15% of 35-54s and 55-75s respectively.

***Return to spender*, published by the Resolution Foundation, analyses the early impacts of the coronavirus crisis on living standards.**

- While the effects of this crisis on the labour market have been bottom heavy, with lower earners most affected, falls in income have been more evenly shared across the income distribution. 37% of adults in the bottom 40% of working-age incomes report income falls since the outbreak began, compared to 35% of adults in the top 40% of incomes.
- The difference between earnings and income hits is explained by the fact that lower earners are quite spread across income quintiles; that many on the lowest incomes were not in work when the crisis began and so not exposed to the labour market shock; and that the social security system has played an important role in cushioning job loss and earnings falls at the bottom.
- Changes in spending, though, have a much stronger distributional gradient. 57% of adults in the top quintile of working-age family incomes have experienced falling outgoings, compared with 30% in the bottom quintile. Rather than being indicative of income falls, this is likely to reflect 'enforced saving' as a result of lockdown restrictions on non-essential spending.
- It is when looking at the combination of income and spending changes for the same adults that a particularly concerning distributional pattern is found. 38% of adults in the top income quintile have experienced no income hit alongside a reduction in spending – implying a strengthening of the household budget – compared to just 12% of those in the bottom quintile.
- This conclusion is reflected in survey respondents' assessment of their financial situations. For example, respondents' views of changes in their ability to manage financially show a much clearer gradient across income quintiles than do changes in income. Despite a deep recession being underway, respondents in the top quintile were as likely to say that their personal financial situation has improved as worsened (23% compared to 22%).

***The potential costs and distributional effect of COVID-19 related unemployment in Ireland*, published by the Economic and Social Research Institute, simulates the impact that Covid-19 related job losses will have on family incomes and the public finances.**

- As a result of the public health measures taken to contain coronavirus in Ireland and abroad, many businesses have reduced the size of their workforce or, indeed, closed down altogether. This has resulted in a sudden and significant increase in unemployment.
- The pandemic and subsequent policy response has led to an unprecedented rise in unemployment, with the Live Register showing an increase of 330,734 from February to March.
- Job losses have not and will not be evenly distributed across industry or occupation. Heavier job losses are projected to be experienced in the retail, accommodation and food service activities.
- It is estimated that before accounting for the Government's policy response, around 560,000 families will be financially worse off in the medium unemployment scenario where roughly 600,000 individuals lose their job. Most of these – 400,000 – would lose by more than 20% of their disposable income.
- Accounting for the measures announced by the Government, this figure falls to between 200,000 and 300,000 depending on how many are retained in work through the TWSS (Temporary Wage Subsidy Scheme) and whether employers make additional payments to eligible employees.
- While most instead see reductions of less than 20% of their disposable income, some low-earning working age families may be financially better off in the short-run. This is because the level of PUP (Pandemic Unemployment Payment) exceeds their income from work and they are allowed to retain eligibility for Working Families Payment.

- The results also show that, of the policy measures announced by the Government, the PUP does most to cushion family incomes, but at significant cost (almost €1 billion per quarter for the medium simulated unemployment shock). Notably, the TWSS adds little to the cost of the policy response as most employees will receive no more under this scheme than they would through PUP and some will receive less.
    - This feature of the scheme may, however, incentivise employees to seek unemployment or encourage firms to lay-off higher earners, for whom a lower or zero subsidy is paid. A central aim of the TWSS is for employers to retain links with employees for when business picks up after the crisis. Ensuring that both employees and employers have an incentive to take up this payment is important to ensuring it achieves this objective.

Innovation and Enterprise

INNOVATION

***Do firms really learn from failure? The dynamics of abandoned innovation*, published by the Enterprise Research Centre, assesses the dynamic and causal nature of the linkage between abandoned innovation and subsequent innovation outcomes at firms.**

- In a review of the literature on innovation failure, it is estimated that the proportion of innovative projects failing wholly or in part to be between 40% and 90%. However, lessons can be learned from failed and abandoned projects which may either encourage better selection of innovative projects in the future or allow more of them to be managed to fruition.
- Abandoned innovation can contribute to enhanced innovation performance. This effect is evident both for the probability that a firm will undertake product/service, process and organisational innovation but also for the share of new to the market innovation in firms' sales.
- It is also found that this effect proves stronger if firms also had abandoned innovation in the previous period. In other words, firms' innovation outputs benefit from the cumulative learning from the process of abandoned innovation undertaken during the two previous survey waves.
- Analysis suggests that, controlling for the effects of previous abandoned innovation, the innovation benefits of abandoned innovation are stronger where firms engaged in no prior R&D or training in the previous survey wave.
- To illustrate, note that previous studies have strongly linked both R&D and training to innovation quality and success. Firms undertaking R&D and/or training in prior period may therefore be expected to have stronger innovation portfolios in the next period. Firms with no R&D and/or training in the prior period might be expected to have weaker innovation portfolios in the next period.
- The analysis suggests the potential value of a dynamic approach to modelling the effects of cumulative learning and dynamic corrective mechanisms through abandoned innovation. This relates to other existing literatures on innovation portfolio management, strategic innovation management and open innovation and dynamic complementarities in innovation. This suggests the potential value of linking decisions to abandon innovations to firms' innovation strategic and innovation objectives and their operating context.

***R&D and innovation after Covid-19*, published by the Enterprise Research Centre, discusses how innovation and research & development may respond to Covid-19.**

- The Covid-19 crisis shares two significant similarities to the 2008-10 recession. First, both were exogenous shocks rather than business cycle fluctuations. Secondly, both have impacted firms through sharply reduced liquidity – the 2008-10 recession through a sharp reduction in the availability of commercial finance and the Covid-19 crisis through sharply reduced turnover. In both cases financial stringency has forced, and will be forcing, firms to make rapid strategic decisions about areas of spend and potential savings.
- Innovation – the introduction of new products, services and ways of doing business – will be a critical element of the recovery post-Covid-19. Undertaking R&D and innovation is always risky, however, with uncertain technical and commercial outcomes. Post-covid, firms with less financial slack may be less willing to make such risky investments. Weak market demand, and potentially volatility, may also reduce the incentives to innovate.
- The 2008-10 crisis suggests four key lessons for the current crisis:

- A sharp fall (perhaps by a third) in the proportion of innovating firms should be expected. Recovery to previous levels will be slow, 4-6 years perhaps.
- Firms' willingness to invest in intangibles will fall sharply with implications for future innovation and growth. Again, recovery is likely to be slow.
- While these short-term effects will be evident across almost all sectors and regions, recovery will be highly skewed by region and sector. Based on firms' engagement with wider innovation, recovery is likely to be stronger in services and larger firms.
- Regional recovery in R&D spending will be strongly shaped by clusters of industrial activity. Where recent growth has been slowest, recovery is likely to be weaker. A strong concentration of R&D activity in a particular sector (i.e. automotive) also makes recovery more vulnerable to sectoral conditions.

***Business Dynamism and COVID-19 – an early assessment*, published by the Enterprise Research Centre, analyses recent trends in company incorporations and dissolutions to assess the impact of Covid-19.**

- The 'lockdown' resulting from the COVID-19 outbreak appears to have had an immediate effect on the number of incorporations being filed at Companies House. There were just over 13,000 fewer incorporations in the period 23rd March to 15th April compared to the first three weeks of March.
- There was a slight fall in incorporations in March 2020 compared to the first two months of the year – down by about 5,000. This is also significantly lower than in March 2019 when there were just over 63,000 new incorporations but that may be more to do with a particular explanation related to the 2019 figures. Overall, there has been a slight dip in the number of new incorporations in March 2020.
- There has been a sharp increase in the number of dissolutions in March 2020 compared to March 2019 – an increase of just over 21,000 or 70.1%. There has been a rise in dissolutions between February and March 2020 by just over 8,000 companies (19.3% increase).
- London had the biggest absolute increase in company dissolutions (+6,431, or nearly a third of the total) followed by the West Midlands (2,685). When looking at individual regions, the West Midlands and Wales experienced more than a 100% increase in dissolutions. Northern Ireland was the region with the least dissolved firms along with showing the lowest adverse change in yearly figures.
- The increase in company dissolutions observed in March 2020 compared to March 2019 is driven by a large number of younger companies being wound up – that is, less than 6 years. Three-quarters of the increase is for companies aged between 1 and 5 years and almost 50% were less than 3 years of age.
- These younger firms are perhaps more vulnerable in the market place as they were established in a period of uncertainty anyway in 2018 and 2019 and any sharp downturn in demand as the COVID-19 crisis emerged would put them in a very precarious position.
- Overall, the data suggests that there has been higher levels of business closures and a concurrent lack of new businesses starting due to an understandable fear about what the future holds.

RESEARCH AND DEVELOPMENT

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

SECTORS AND TECHNOLOGIES

***Smart building: how digital technology can help futureproof the UK construction sector*, published by Green Alliance, discusses how emerging digital technologies can transform the construction sector.**

- The built environment plays a vital role in shaping communities. Buildings and their surroundings contribute to a sense of place and the way they are designed, built and preserved can have dramatic impacts on the health, social, economic and environmental well-being of a community. Despite this, we often fail to value and futureproof buildings, with negative consequences for people and nature.
- There is an urgent need to ensure all existing buildings are ready for a net zero world, cutting in-use carbon emissions while limiting the need for demolition and new build. Two thirds of UK homes have poor energy efficiency, and hundreds of thousands of buildings are sitting disused across the UK.
- Meanwhile, thousands of new developments are been built using unnecessarily high carbon materials and processes.

- Emerging Digital Technologies have the ability to influence and improve construction developments across a range of areas.
    - Design Process - Novel technologies can influence design right from the start, strengthening the business case for low carbon building management and reuse, and enabling resource efficient construction.
    - Better use of Buildings - Digital technologies can support the better use of buildings, limiting the need for new construction and helping to ensure long term, low carbon performance.
    - Maximise material reuse - Technology can be used to track materials. This can facilitate the recovery and repurposing of materials extracted at the end of a building's life.
- While these new technologies could be transformational, progress to adopt them has been limited. This is partly because the construction industry has a lower level of digital adoption compared to other sectors. The strong focus on new build has also limited efforts to use digital solutions to futureproof existing buildings and support reuse.

***How the Covid-19 crisis has affected NI based science and technology companies*, published by Matrix NI, assesses the changing dynamics of the business environment in light of the Covid-19 crisis.**

- The evolving Covid-19 crisis is affecting every science and technology orientated business in Northern Ireland. There are a number of aspects that would be considered a normal part of the jigsaw of business as usual that are being severely affected. These prevent companies from operating and present an existential threat.
- Lack of a single component can prevent major projects being delivered through factory gates. Investment issues loom large. Internal investment is not being made as, under these conditions, cash is king and liquidity is vital to survival.
- If activity is not occurring to work toward the return on any investment the taps may be turned down or off and new enterprises may not be funded as investors seek to shore up existing portfolio companies or retreat to weather the storm.
- As business needs change so must funding schemes. UKRI (UK Research and Innovation) and other funders are adapting quickly to prevailing conditions but the environment will continue to change for months to come so these agencies must too.
- There are some obvious losers in the current environment. Sectors that were key to NI's economic growth such as tourism, transport, retail and hospitality have been hit badly and may not fully recover.
- However, there will be opportunity. The life and health sciences sector is in overdrive understanding emerging needs and trying desperately to respond to them. The value of a communications infrastructure and remote storage and computing capacity are driving huge amounts of activity in the ICT/Digital sector. E-Commerce is booming and innovation around retail platforms and transactional activity will follow a change in consumer behaviour.
- These opportunities must be supported robustly to double down on the emerging opportunities to kick start an economic recovery. Pivot opportunities are also manifesting themselves as manufacturing firms are diversifying into the production of Covid-19 crisis associated needs on several fronts. Whether these represent long terms strategic value or not remains to be seen.

ENTREPRENEURSHIP

***What are the main barriers to entrepreneurship in underrepresented groups?*, published by the Enterprise Research Centre, discusses a range of barriers and key emerging themes relating to the way in which different groups appear to experience barriers to entrepreneurship.**

- The case for entrepreneurship as an enabler for individuals who experience disadvantage in accessing employment, to help them to transcend their circumstances, or as a tool to tackle discrimination and increase social inclusion, has been made repeatedly.
- Individuals who may experience disadvantage include migrants, ethnic minorities, women, people who identify as having disabilities and people with low educational attainment.

- However, research indicates that these groups can also experience significant barriers to setting up and sustaining their own businesses, and this is attributed to a range of factors including lack of skills and experience, discrimination, difficulty accessing finance and poor human and social capital.
    - Human capital is defined as an individual's personal skills, knowledge and experience, and social capital as the resources that an individual is able to access through their personal networks.
- This research explores the evidence on the main barriers that are encountered by aspirant entrepreneurs from disadvantaged groups attempting to establish and run their own businesses. Some barriers to entrepreneurship appear to be experienced in common by all or most groups, but others are specific to certain types of individuals.
- It is also likely that although different groups may experience ostensibly the same barrier, for example, difficulty in accessing finance, they may experience it in different ways and for different reasons.
- Research in this area has tended to focus primarily on exploring and elucidating the experiences of particular groups, such as migrants, or ethnic minority individuals, rather than on the barriers to entrepreneurship themselves.
- Four common barriers to entrepreneurship can be identified – inability to access finance, lack of human capital, lack of social capital and discrimination. These have been shown to be experienced in different ways by different groups.
- Although studies to date have identified and explored a range of barriers to entrepreneurship in a number of underrepresented groups, highlighting the distinction between barriers that are common to all groups and those which are unique to specific groups demonstrates that the picture is complex.
- Policies and interventions designed to address a particular barrier may not be appropriate or effective for all groups. Research carried out by the ERC highlights variation in the way that different kinds of entrepreneurs are engaged by existing support services and networks, and indicates that delivery of interventions requires tailoring to local and sectoral circumstances.

BUSINESS GROWTH

***From starting to scaling: How to foster start up growth in Europe*, published by the European Investment Bank, provides a better understanding of the key characteristics of high growth start-ups and offers an insight into what sets them apart from other start-ups.**

- Start-ups in general, but especially those with high growth, are important sources of innovation and job creation. Compared to start-ups with lower growth, high growth start-ups are more likely to develop new-to-world innovations and to adopt innovative technologies within their business, indicating that innovation drives firm growth.
- Typically, high growth firms are defined in line with the Organisation for Economic Cooperation and Development (OECD) definition as 'enterprises with average annual growth in employees or turnover greater than 20 per cent per annum over a three-year period, and with more than ten employees at the beginning of the period.'
- It is found that European high growth start-ups:
    - Are new-to-the-world innovators;
    - Hold the promise of high skilled job creation and growth;
    - Are hindered by the availability of finance;
    - Seemingly benefit from public start-up grants/investment.
- A recent European Investment Bank report shows that, Europe lags behind the US in terms of the number of start-ups by a factor of three. Three key factors that may contribute to this gap: a lack of private funding, difficulty in attracting talent and a lack of entrepreneurial recycling.
- Interestingly, attempts to explain the gap in start-up activity between Europe and the US sometimes point to differences in start-up or founder characteristics, for example in terms of growth ambition, founder experience or innovation rates, but no substantial differences are found. This indicates that the gap may be best explained by wider ecosystem-level differences.

GROWTH FINANCE

***[Small Business Equity Tracker 2020](#)*, published by the British Business Bank, provides an in-depth picture of equity finance for smaller businesses within the UK.**

- Equity finance in UK smaller companies reached record levels in 2019. Equity investment reached £8.4bn – up 24% on 2018 and over double the amount recorded in 2016. The number of deals also increased by 4% to 1,832.
- The UK tech sector remains the focus for equity investors, with 47% of investment going to tech companies. Equity investment in tech businesses increased by 27% in 2019 with £4bn invested, the highest amount to date. Software as a Service (£2.5bn), FinTech (£1.8bn) and Artificial Intelligence (£880m) were the verticals attracting the greatest amount of equity investment in 2019.
- There were emerging signs of market changes before Covid-19 which could have an impact on the pipeline of companies receiving future equity investment. Seed stage investment fell by 1% to £823m – although the scale of decline is small, there had previously been continuous year on year growth since 2011. The number of companies raising finance for the first time has been trending downwards since 2015 and in 2019 the number of follow on funding rounds exceeded the number of deals involving companies raising equity finance for the first time.
- Although it is currently too early to assess the full impact of Covid-19 on UK equity finance, the availability of equity finance to growing businesses is likely to be affected. The number of deals in Q1 2020 fell 15% since Q4 2019 but this is likely to underreport the full scale. Insights from the 2008 Financial Crisis, show the seed stage was hardest hit with the number of deals and investment value declining.
- London continues to dominate the UK's equity market – London based companies received 48% of equity deals and 66% of equity investment in 2018 – but other hotspots of equity activity continue to develop. Cities such as Manchester, Bristol, Oxford, Cambridge and Edinburgh all saw significant equity activity in 2019.

***Has demand for new loans changed during the COVID-19 crisis?*, published by the Central Bank of Ireland, sheds light on the financing needs of the Irish private sector between February and mid-April 2020.**

- Coinciding with the increase in confirmed cases of the COVID-19 virus, and the introduction of essential containment measures, credit enquiries for new lending applications fell in March 2020. By the end of the month, the total level of enquiries had decreased by 20% compared to February.
- These new enquiries data indicate that credit demand may have declined for mortgage and new consumption loans since the outbreak of COVID-19 in Ireland. Current restrictions may also be limiting market activity in the housing and large consumer purchase categories, as well as travel and holiday borrowing.
- Enquiries related to new mortgage applications for individuals fell by almost a fifth between February and March 2020. If such trends continue, there may be implications for demand in the housing market in the coming months.
- Although personal loans accounted for half of credit enquiries in March, this category declined by about 25% over the month, suggesting a lower appetite for new debt. Similarly, applications for new credit cards and car finance products reduced during the month.
- By contrast, enquiries related to overdrafts and in particular, those for business purposes did increase during March relative to February before falling back in early-April. Enquiries related to personal overdrafts initially increased but have since reduced.
- In contrast to consumers, overall company financing needs increased by one-fifth in March, mainly owing to overdraft requests. However, up to mid-April, the number of business-related enquiries was less than in February.
- Business overdraft enquiries increased significantly from mid-March following the initial government announcement, and peaked in the final week of March with a 280% increase on the final week of February.
- The Bank Lending Survey in April also shows similar patterns, with Irish banks reporting less demand for long-term loans and for fixed investment purposes in 2020 Q1 while some increases in loan demand for inventories and working capital were noted.

BUSINESS REGULATION

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

Succeeding Globally

TRADE

***Brexit and impact routes through global value chains*, published by the National Institute of Economic and Social Research, analyses the trade routes and relative importance of trade between the UK and EU countries.**

- Based on results, the UK continues to be an important source of value added for other EU countries, but its significance has slightly diminished during the past 15 years. Currently, the UK accounts for 7.2% of the total value of EU exports, while in the early 2000s, the share reached 8.3%.
- The analyses suggests that UK pass through trade is not a marginal issue. On average, approximately 18% of the EU countries' value added is generated in UK trade that passes through the UK to other countries. The most important next destinations are the US, Germany and France.
- The list of the top 10 most common next destinations includes six EU countries, highlighting the importance of EU countries as the UK's trading partners.
- When analysing the role of direct and indirect exports to the UK, results concerning EU countries suggest that, while direct trade to the UK is dominant, indirect linkages through other countries are not negligible.
- From the policy perspective, the results have several implications:
  - In trade negotiations, policymakers often refer to bilateral direct-trade volumes between countries or regions that are measured in gross terms. These figures are potentially misleading because they do not include indirect trade;
  - The impacts of tariffs and other trade barriers are potentially bigger than expected because, in many cases, components or other products cross the UK border several times;
  - Findings suggest that the UK is heavily involved in Global Value Chain's, including both backward and forward linkages to third countries.

***The challenge of Covid -19 for trade policy in the UK and globally*, published by Frontier Economics, discusses how Covid-19 may impact current and future trade, in particularly challenging circumstances.**

- The Covid-19 pandemic has had a profoundly disruptive effect on international trade, due to the effects of the virus itself, and the mitigation measures required to save lives and protect health.
- It is estimated that the fall in trade will be around 25% in 2020. This is greater than the forecast for global trade as a whole, and greater than for other trade partners outside the United States.
- The result reflects in part the structure of the UK's trade. Many of the hardest hit sectors include the manufacture of durables such as motor vehicles and equipment, air transport and travel and professional and business services. These sectors have been hit by falling demand, but also disruptions to supply.
- The Covid-19 shock comes at a challenging juncture for trade policy in the UK and globally. For the UK, the shock to trade potentially merges with a further shock caused by its exit from the EU single market.
- At a global level, one of the effects of the pandemic has been to generate a near free-for-all in the use of restrictive trade policies, particularly through the use of export restrictions on items such as food, medical equipment and medicines.
- Longer term, one of the key effects of Covid-19 will be to place the idea of resilience at the centre of trade policy. This is because in value chains of increasing complexity and length, a shock in one 'node' (a country or a region within a country) can cause widespread damage. Resilience is the ability to adapt to and recover from shocks. In this case, it would mean value chains that are less prone to disruption because they are less dependent on a particular 'node'.
- Businesses will undoubtedly ramp up resilience planning, because it is in their commercial interests to do so. However, left to their own devices, they are unlikely to invest in resilience to socially optimal

levels. The main challenge is to avoid resilience becoming a cover-up for protectionism and geo-political power plays, as it will do little to build actual resilience. To the contrary, a proliferation of protectionist measures and discriminatory trade practices will increase fragilities.

- The UK, as medium-sized economy exiting a large trade block, has every reason to fear such an outcome and therefore every incentive to prevent it from happening.

INWARD INVESTMENT

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

TOURISM

***Covid-19 - Tourism Industry Survey April 2019*, published by Tourism NI, gauges the uptake of government schemes and the impact on jobs whilst capturing industry concerns and views.**

- The research provides a better understanding on how existing government schemes may be refined and inform the design of any additional interventions, which may be required to support the tourism sector.
- Business Performance and Cash flow
  - 79% of businesses stated that Covid-19 would have a severe impact on their business in the short term (0-3 months) and 63% stated it would be severe in the longer term (4 months +) demonstrating a perceived worsening of the situation since March.
  - 73% of businesses who have had any loss of business state that 'none' of it will be covered by their current insurance.
- Workforce & Jobs
  - 50% of all businesses responding to the survey had reduced staff number. 427 businesses indicated that they had furloughed, laid off with pay or made temporarily redundant, nearly 9,000 staff (full time, part time and seasonal). 418 businesses indicated that they had permanently laid off nearly 1,300 staff (full time, part time and seasonal).
  - This equates to approximately 50% of the job growth achieved across the sector in the last 10 years.
- Access to Support
  - 33% of businesses stated they are not eligible for any of the three NI schemes (the Business Rates Holiday, COVID Small Business Grant and the Hospitality, Tourism & Retail Sector Grant Scheme) as they do not pay business rates. 47% of businesses indicated they are not eligible for the UK wide Coronavirus Job Retention Scheme as they do not operate a pay-as-you-earn scheme.
  - Eligibility criteria and/or a lack of understanding of eligibility is cited as a barrier to accessing support for a high number of businesses.

Economic Infrastructure

ENERGY

***Energy industry and COVID-19 (coronavirus): strategising for the 'new normal'*, published by PWC, proposes how companies, particularly within the Energy Industry, must start thinking strategically about how they will adapt as the pandemic and markets evolve.**

- The world has changed. The novel coronavirus has seen to that. For companies in all parts of the energy, utilities and resources sectors, it will be vital to combine effective scenario-planning with an examination of how different developments could affect their business in the short, medium and long term. Whatever the scenario, a number of issues will shape strategic thinking.
- As lockdown measures are relaxed, there will be no room for complacency about the upturn.
- Companies will therefore need to build a high degree of flexibility and continued resiliency into their short- and medium-term strategising. They will need to be ready to adjust operations up and down and not assume that recovery will be a continuous and linear process.

- As the crisis unfolded, companies had to move quickly to secure supply chains and manage component inventory. As the outbreak begins to be contained and economic activity revives, many will be re-evaluating their supply chain resilience.
- In production sectors such as chemicals and metals, a strong sentiment in favour of more localised and shorter supply chains is anticipated. For example, the sourcing of many precursors and starting materials being relocated closer to the final stages of production and end-user markets.
- As a minimum, companies should use their pandemic experience to inform wide-ranging reviews of their business continuity and crisis management strategies. Some companies will need to go further and implement structural measures to reduce risk.
- The experience of COVID-19 will almost certainly accelerate momentum towards new ways of working, automation and digitalisation. Companies that are further along the curve in digitising their operations have already benefited from greater built-in resiliency during the crisis, reducing dependence on human resources.
- Technological transformation will also have been given a boost by the experience of virtualisation and new ways of working by staff during the pandemic lockdown.
- Policy-makers and the public will reflect on the impact of lockdowns on reduced traffic, pollution and CO2 emissions. In many regions, they will have seen how renewable sources of electricity were able to supply 100% of demand. In others, it might be clear that the economics of individual power plants may no longer be viable. Will these experiences give added momentum to moves to deliver energy transformation? Or might a global recession push climate change and sustainability down the list of concerns?

TELECOMS

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

AIR ACCESS

***The flight path to net zero; Making the most of nature based carbon offsetting by airlines*, published by the Green Alliance, investigates how the Aviation industry can evolve to meet 'green' standards and minimise their negative impact on the Earth.**

- Aviation presents a serious challenge to the ability of the world to limit global heating and of the UK to achieve its net zero carbon obligation. Unlike most other sectors of the economy, aviation's emissions are projected to increase globally, and there is significant uncertainty about whether technology for zero carbon long haul flights will be commercially available by 2050.
- Short of stopping long haul flying all together, it is unlikely that aviation will achieve zero emissions by 2050. This means any remaining emissions will need to be offset by equivalent removal and storage of CO2 from the atmosphere to meet net zero.
- There has been significant interest from the aviation industry in the potential of carbon offsetting to help reduce its impact on the climate. UK airlines have announced plans to offset their emissions and there is an international agreement, the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), to offset growth in emissions between 2020 and 2035. This scheme is estimated to raise between £4 billion and £18 billion per year from airlines by 2035.
- It will be important to make the best use of this investment. However, offsets have a bad track record: at least 73% of Clean Development Mechanism (CDM) offsets are unlikely to deliver the emissions reductions claimed.
- There are two major problems with selling UK nature-based offsets to airlines, but it is believed that these can be mitigated.
    - First, there is evidence that the ability to purchase offsets can lead to less effort being made to reduce actual emissions, while the physics of climate change means that both rapid reductions in emissions and rapid increases in carbon removals will be required.
    - Second, because natural climate solutions are cheap and can be procured into the future, simply allowing the aviation sector to buy the bulk of cheap removal credits now means that sectors like agriculture or the public will have to pick up the bill for more expensive removals as they are developed.
- To limit these risks and take advantage of this new stream of funding for nature, it is proposed that the government should create a new 'office for carbon removal' to regulate the industry.

- Once the risks of offsetting are addressed, there will be considerable advantages in the approach described: it will fund vital carbon removals in parallel with action to reduce emissions, and it will allow high standard providers of carbon removals to show what a good carbon credit looks like.

***Covid-19: challenging time ahead for aviation*, published by Frontier Economics, highlights the changing dynamics and subsequent implications for the Aviation sector.**

- The Covid-19 pandemic means international aviation is at a standstill, with no clear view as to when it will restart and extreme uncertainty regarding the extent to which previously attained levels of traffic can be regained. Plainly, the path to any kind of recovery is fraught with difficulties.
- Not only will the authorities be slow to open up international passenger traffic, but the uptake of IT-based alternatives to business travel, and the traveller confidence are likely to have an extended impact on demand.
- Short-term measures of support always run the risk of bailing out firms that would have failed anyway. And any preferential treatment for legacy "flag carriers" over the newer challengers risks a retreat in the hard-fought for liberalisation of air transport.
- Moreover, in the absence of an effective vaccine, new operating procedures are likely be required of airlines and airports, to stem the transmission of the virus. But social distancing will have a profound impact on the economics of the sector. Airline and airport capacity will be drastically affected. Costs per passenger will rise.
- The point-to-point low-cost carrier business model will be severely challenged. Fares may be weak to begin with, but the underlying economics are likely to drive them up sharply. Airline operating models will have to change, and route networks likely to contract, reducing connectivity to smaller destinations.
- Lower levels of traffic will make it hard for airports to service the costs of recent investment, tending to drive up charges at exactly the least appropriate moment. National regulators will need to think hard about how to address this issue, smoothing the rise while maintaining investor confidence.

Government

NORTHERN IRELAND

***Charting a Course for the Economy*, published by the Department for the Economy, outlines a May 2020 approach by The Northern Ireland Executive to Coronavirus decision making, which includes a five step pathway to emerge from lockdown in a safe and sustainable way.**

- This paper proposes the first steps to take in the pathway to get the economy moving again.
- The pathway sets out five steps that will be taken when the time is right. There have been changes made in Step 1 in relation to opening garden centres, with an extension offered to other outdoor retailers (e.g., car retailers).
- A set of guiding principles for restarting the economy are provided which build on those set out in the Executive's Approach to Decision-Making, and reiterate that progress in restarting the economy is reliant on controlling the rate of transmission.
- The UK economy shrank by 2% in the first three months of 2020, falling by 5.8% in March alone, with the Office for National Statistics (ONS) stating there had been "widespread" declines across the services, manufacturing and construction sectors. However, the second quarter of 2020 is expected to be much worse.
- The shutdown of many industries in Northern Ireland has resulted in the widespread furloughing of workers. The latest available figures from HMRC indicate that some 8.4 million workers across the UK are on furlough and it is estimated that around 200,000 or more jobs or people will could well be furloughed in Northern Ireland. That is a huge dependency on temporary support and on top of this, there will be a number of workers in Northern Ireland who will have availed of the Self-Employment Income Support Scheme – perhaps tens of thousands.
- Taking the first steps and putting the pathway to recovery into action can help mitigate some of these stark economic warning signs, and provide "Forward Guidance" to businesses and employees to reduce uncertainty and facilitate planning.

- Most countries around the world have commenced an easing of lockdown, and governments have published roadmaps of a phased approach to easing lockdown restrictions to keep the level of transmission low but increase economic and social activity.
- Countries have taken a phased approach which means certain sectors cannot reopen until a previous phase has been successful in keeping transmission levels low. In addition, closer to home, the UK Government and Republic of Ireland have taken similar steps and produced their own roadmaps around potential stages of re-opening.

***Covid-19 and the Northern Ireland Economy: Macroeconomic and Sectoral summary*, published by the Department for the Economy, provides an assessment as of June 2020 of the impact of Coronavirus upon the Northern Irish economy.**

- The Covid-19 virus will have a devastating impact on economic activity in Northern Ireland. All sectors have been affected by the efforts to contain Covid-19 via a nation-wide lockdown.
- The Department for the Economy assesses that the Northern Ireland economy had been running 25% to 30% below normal during lockdown. This has been supported by recent figures released for UK GDP, where the Office for National Statistics (ONS) estimate that in April 2020 the economy was around 25% smaller than in February 2020.
- The Department for the Economy has been allocated £410m in totality (£225m in 2019/20:£185m in 2020/21) to assist, by way of grants, businesses in managing the immediate impact of Covid-19.
- Google data illustrates the scale of the decrease of mobility in Northern Ireland, particularly in retail and recreation, which soon after lockdown was down around 80% on figures from early March 2020.
- Locally, around 212,000 workers have been furloughed under the HMRC Job Retention Scheme and almost 70,000 under the Self-Employed Income Support Scheme. The Claimant Count increased by over 35,000 people in just two months. This gives a total of around 317,000 – i.e. over one-third of the region's workforce.
- The Claimant Count could plausibly exceed 100,000 before the end of 2020 or shortly afterwards. By way of context, anything above 106,000 has not been witnessed since the 1980s.
- While an economic recovery appears to be underway in Northern Ireland, with many sectors and businesses being reopened, there are still significant risks; in particular, there is a risk of economic and societal 'scarring' if long-term damage is done - if recovery to output and jobs is not swift.
- Scars from recessions can last for decades, as exemplified by former mining towns and villages in areas such as South Wales which still have poor economic indicators, a generation on from pit closures in the 1980s. There is a need to ensure that for this current generation, and those about to leave education and seek work, we do not repeat the period seen three decades ago.

ENGLAND

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

SCOTLAND

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

WALES

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

REPUBLIC OF IRELAND (ROI)

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

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