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Economic Research Digest Quarter 1 2021

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:

- The Short and Long-term Impact of Current Restrictions on the NI Economy.
- The IFS Deaton Review of Inequalities.
- A Matrix report on the Evaluation of Sector Opportunities for AI in NI.
- The Impact of Covid-19 on UK SMEs.
- How to Fast Track Innovation for a Green Industrial Revolution.

** 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

***On Firm Ground? The Impact of Covid-19 on Firms and what Policymakers Should do in Response*, published by the Resolution Foundation, analyses how the crisis has affected firms' finances, puts that in context compared to previous recessions, and assesses the ability of firms to contribute to the post-crisis recovery.**

- The report states that at this critical juncture – as both the vaccine rollout provides hope for an imminent start to the recovery, while the scale of the second wave means many businesses will face restrictions for months to come – policy makers must address two key policy challenges:
  - First, preventing viable businesses from failing in the coming months: the vaccine rollout means social distancing restrictions will begin to be lifted from the spring. But the continuation of some restrictions and the time that it will take for some firms' activity levels to bounce back means that it remains an immediate priority to avoid the liquidation of firms that have a long-term future. Mass failures of such businesses would slow the recovery significantly and increase the permanent economic scarring from the pandemic;
  - And second, ensuring that firms are in a position to facilitate a rapid recovery. It is the lifting of the virus-related restrictions that will guarantee that there is a recovery, but the ability of firms to grow will determine the strength of the recovery in employment and productivity, and so determine living standards for years to come.
- The report recommends the following actions for policymakers:
- Preventing short-term business failure:
  - Targeted grants to sectors directly affected by ongoing restrictions
  - Extend business rates relief for a further three months
  - Extend CJRS beyond April cliff-edge and announce a phase-out path
  - Delay start date for VAT deferral payments, and defer payments for January to March 2021 for 1 year
  - Expand and extend the existing Enterprise Finance Guarantee scheme
- Supporting a strong recovery:
  - Drive an improving health outlook, and provide certainty that the virus will remain supressed in future with strong health safeguards
  - Large-scale fiscal stimulus to drive a rapid recovery in private demand
  - Transfer part of the liability for Bounce Back Loans to the financial sector in exchange for a fee.

***UK Economic Outlook February 2021: Brexit Britain in Covid Recovery Ward*, published by the National Institute of Economic and Social Research, shows the pathway for recovery as the UK is faced with challenges from both the Covid-19 pandemic and a post-Brexit economy.**

- The resurgence of Covid-19 has led to a downward revision in forecasts of UK economic growth in 2021 made by the National Institute of Economic and Social Research (NIESR): from 5.9% to 3.4%, following a contraction of 9.9% in 2020.
- Early indications are that the lockdown in the first quarter is having a larger impact on activity than in November, but a smaller impact than the Spring 2020 lockdown.
- The Coronavirus Job Retention Scheme (CJRS) and the Self-employed Income Support Scheme (SEISS) have protected millions of jobs, costing the government an estimated £100 billion or 4.8 per cent of GDP, for the 2020-2021 fiscal year. In NIESR's main-case forecast scenario, unemployment is expected to rise significantly following the end of these schemes in April, reaching 7.5% or 2.5 million people by the end of the year.
- To prevent a rise in unemployment of the magnitude of the forecast, and to limit the economic and social 'scarring' from the public health crisis, the report recommends that the Chancellor should soon announce policies to support the labour market beyond April. The pace and path of the recovery will depend on state-contingent and targeted policy interventions.

- Public sector net debt, which increased to 99.4 per cent of GDP as of December 2020, is projected to peak at 111 per cent in 2023. The Budget comes at a crucial time in the fight against Covid-19. If Covid-19 support is withdrawn prematurely, or if consolidation is prematurely applied in response to the increase in public debt, the economic recovery will be delayed and the long-term economic impact of the pandemic exacerbated.
- The gaps opened by the Trade and Cooperation Agreement with the EU require implementing mitigation policies and structural reforms over several years as well as negotiating trade agreements with key trading blocs in the rest of the world.
- There are major risks to the downside associated with the roll-out and effectiveness of vaccines, the emergence of new Covid-19 strains and their effect on the path of the virus, which might imply the continuation of lockdown measures for a longer period, suppressing domestic demand.
- A slower than expected global recovery due to Covid-19 is also a major downside risk for the UK economy through lower trade.
- Successful mass vaccination of the UK population followed by a permanent easing of social distancing rules presents an upside risk to NIESR's forecast in 2021 and beyond.

***Recovering from the First Covid-19 Lockdown: Economic Impacts of the UK's Eat Out to Help Out Scheme*, published by the Centre for Economic Performance, evaluates some of the economic impacts of the UK's Eat Out to Help Out (EOTHO) scheme on the food service sector.**

- The hospitality sector was particularly hard-hit by restrictions introduced to stop the spread of COVID-19. The Eat Out to Help Out (EOTHO) scheme –implemented in August 2020 after the 1st national lockdown had ended– aimed to boost demand and protect jobs in the food service sector. Participating businesses in EOTHO offered a 50% discount from Monday to Wednesday, up to £10 per person, on food and non-alcoholic drinks consumed on the premises.
- To capture some of the effects from the policy, the report looks at footfall using daily mobility data from Google and employment using daily data on job posts from Indeed UK. This empirical strategy relies on the observed spatial variation in uptake of the scheme and exploits this variation, comparing locations with different take-up before and after the introduction of the policy.
- The results indicate that EOTHO induced higher footfall (by 5%-6%) associated with recreational activities, concentrated on specific days when the discount was available (Mondays to Wednesdays in August). However, the programme failed to encourage people to go out for other purposes and to eat out after the discount ended.
- EOTHO also increased recruitment in the food preparation & service sector. There was an increase in the number of jobs posts (by 7%-14%) on the Indeed website. No evidence can be found of an increase in the number of job posts in other industries, suggesting the effect on recruitment was concentrated on food establishments. As this indicator measures the flow of job adverts, a transitory effect on job posts could still imply a permanent increase in the number of employees.
- Over 160 million meals were claimed by the end of September 2020, with government spending £849 million on the policy. Data limitations as well as the interaction between different policies complicate any cost-benefit calculation of the programme. On top of that, there is evidence indicating the increase in footfall due to EOTHO had an adverse effect on new COVID-19 cases. Thus, any economic gains from the scheme may have come at the cost of more infections. Further research – using administrative data– is needed to assess the overall cost-effectiveness of EOTHO.

PRODUCTIVITY AND GROWTH

***Understanding the Role of IP Protection in UK Firms' Growth, Productivity and Innovation 1998-2016: Patents, Trademarks and Registered Designs Reconsidered*, published by Enterprise Research Centre, examines the contribution of UK registered patents, trademarks and registered designs to growth, productivity and innovation outcomes.**

- The report finds a strong positive association between the use of IP protection and firm performance. Use of IP protection is more consistently linked to productivity (turnover per employee) than to either turnover or employment growth.
- Findings also suggest no significant relationship between firms' patent holdings and either the propensity to innovate or the returns to innovation.

- Trademarks have a significant and positive effect on the probability that manufacturing firms introduce new product/service innovations. Effects in other sectors are weaker.
- Strong design effects are found. Firms holding registered designs are more likely to undertake new-to-the-market innovation and to have higher innovative sales than firms which do not have registered designs.
- Policy attention has often focussed predominantly on patenting as a driver of innovation, paying significantly less – if any – attention to the role of registered designs. This perspective seems mistaken, particularly where interest focuses on supporting innovation across the whole (service dominated) economy.
- For example, investments in technological development and patenting are currently prioritised in measures such as the UK R&D tax credits while other investments in intangibles are excluded. This means that in one recent study, while more than half of firms in the creative industries report conducting R&D, only 1:4 of these firms are eligible for tax credits under the current HMRC regulations.
- The results suggest the potential role of extending this support to firms' investments in developing registered designs which would have significant and positive innovation benefits.

***Long Covid in the Labour Market: The Impact on the Labour Market of Covid-19 One Year into the Crisis, and How to Secure A Strong Recovery*, published by the Resolution Foundation, examines the impact the third lockdown has had on the labour market.**

- The January lockdown does not appear to have led to a very significant additional deterioration of conditions in the labour market, but it remains in a fragile position.
- The labour market was in a fragile position heading into January. The number of employee jobs was down by more than 800,000 on the start of the year, following a sharp reduction during the first lockdown, and unemployment had been rising since the summer. In both cases, the deteriorating trend had stopped at the end of the year, with the general picture one of stability in November and December, suggesting the Job Retention Scheme (JRS) was doing its job in this period and essentially keeping the labour market frozen.
- The January lockdown has not had as significant a labour market impact as the first lockdown did in spring 2020. The main effect has been increased use of the JRS, with the number of workers on furlough rising from 4 million in December to 4.5 million in January, with all of this increase coming from a rise in the number of workers on full furlough (i.e. not working any hours). This is of course a significant increase, but is much smaller than the 9 million who were furloughed during the first lockdown.
- The length of the crisis means we should pay attention to the depth of the impact experienced by some individuals.
- Long-term unemployment (those unemployed for 12 months or more) stood at 357,000 in the three months to November 2020, up from 241,000 in the three months to May, and is likely to rise much higher in the coming years. But in addition to long-term unemployment, a new feature of this crisis is the large number of workers who have spent extended periods on full furlough. The number of workers who in January had been on full furlough for at least six months (475,000) is nearly as large as the number of people in January who are estimated to have been unemployed for at least six months (689,000).
- With job losses on the horizon, one-in-seven workers are already looking for a new job. The impact of the crisis so far has been large, with 7 per cent of those in employment before the crisis having already stopped working. But unfortunately, there are likely to be further job losses to come. One-in-twelve (8 per cent) of those in employment in January either expected to lose their job or had been told they would be made redundant, rising to more than one-in-five (21 per cent) of those who had spent more than six months on furlough.
- The report recommends that policy must continue to support firms and workers beyond April. Currently, the restrictions on economic activity are so broad that a continuation of the blanket JRS is warranted. And even when restrictions start to be pared back, blanket support should remain in place for at least two more months, given the lags in deploying and reallocating workers, and in consulting on and announcing redundancies. The Government should also pursue a range of policies to promote hiring, job creation, and to facilitate career changes where that is appropriate.

LIVING STANDARDS, WELLBEING AND PROSPERITY

***UK Poverty 2020/2021*, published by the Joseph Rowntree Foundation, highlights early indications of how poverty has changed in our society since the start of the coronavirus outbreak.**

- The report finds that part-time workers, low-paid workers, minorities, lone parents and private renters have borne the brunt of the economic and health impacts of the Covid-19 pandemic.
- While the unemployment rate has already risen from 3.9% in March to 4.9% in the three months up to October, we are still only at the foot of an oncoming wave of unemployment. The only uncertainty is how many people will lose their jobs. At the time of writing the most recent forecasts from the Bank of England and the Office for Budget Responsibility predicted that unemployment will peak in early 2021 at 7.5% and 11.9% respectively.
- Data on the social security system shows that between February and August 2020, an additional 560,000 private renting households were receiving help with their housing costs through Universal Credit or Housing Benefit, an increase of 36%.
- The following policies are recommended:
    - Despite government support to protect jobs during the pandemic, unemployment is still expected to rise in the coming months. Government has implemented a series of employability programmes, such as Kickstart, Job Entry Targeted Support and Restart, but there has so far been less investment in skills and retraining to help adults find work in new jobs and sectors. Further bold action is needed to retrain workers and create good quality new jobs.
    - Government must support people in the lowest-paid jobs, or people working part-time, to move into higher pay and access sufficient and secure working hours. Progress on the National Living Wage is positive. The Government must now bring forward the Employment Bill to reduce insecurity for low-paid workers by extending employment rights and investing in strong and effective enforcement.
    - The temporary £20 per week increase to Universal Credit and Working Tax Credit to be made permanent, extending this same lifeline to people on legacy benefits such as Jobseeker's Allowance and Employment and Support Allowance. The Government will then need to consider further improvements to the current system, to ensure it gives adequate support and provides a better service for people using it.
    - Now is the time to invest in social housing as part of a stimulus package, and to reverse the long-term trend of falling availability of social housing. This has meant more and more people are stuck in the expensive private rented sector.

***Who is Better Off? Measuring Cross-Border Differences in Living Standards, Opportunities and Quality of Life on the Island of Ireland*, published by the Economic and Social Research Institute, seeks to comprehensively explore differences in standards of living across a broad range of dimensions between Northern Ireland and the Republic of Ireland.**

- This report explores differences in standards of living in NI and RoI across a wide range of dimensions, including economic and social well-being and differences in income distribution so that any differences can be better understood. This is important in the context of an increased focus on north-south issues on the island of Ireland in recent times arising from the outcome of the Brexit referendum, the establishment of the Shared Island Unit in the Department of the Taoiseach and the ongoing discussion around potential constitutional change on the Island of Ireland.
- The research finds that substantial gaps exist in a number of areas including living standards, poverty risk and opportunities for advancement through education and life-long learning. These imbalances generally favour the Republic of Ireland.
- In particular, the report finds that equivalised (PPP adjusted) household disposable income, a reliable measure of income that is not subject to the drawbacks of other conventional metrics used to assess living standards, was $4,600 higher in RoI compared to NI in 2017.
- While general levels of income dispersion are similar across both regions, the proportion of individuals in households at risk of poverty is high in RoI before taxes and transfers, however, RoI rates of poverty risk fall substantially below those of NI after taxes and transfers have been taken into account.

- In particular, based on a poverty line of below 60% of average household income, 15.9% of individuals in RoI are at risk of relative poverty compared to 23.8% in NI. Taking the more extreme poverty line of 50% of average household income, the proportion of individuals at risk of poverty in NI was 14.3% compared to 8.9% in RoI based on the most recently available data. The analysis suggests that the tax and welfare system in RoI tends to be much more progressive, and effective in mitigating household poverty risk, than that which prevails in NI.
- There are also substantial differences with respect to opportunities (and / or take-up) related to human capital development. The data suggests that, in addition to much higher rates of educational disengagement between the ages of 15 to 19 which contributes to lower rates of third level attainment, pre-school education and life-long learning access (and / or take-up) also appear to be significantly lower in NI relative to RoI. Furthermore, the rate of early school leaving in NI was almost twice that of RoI in 2018.
- In 2018, children born in NI had a life expectancy 1.4 years lower than those born in RoI. The gap in life expectancy, at 1.5 years, is higher for new-born females. Life expectancy trends with respect to individuals aged 65, which typically favoured NI, were also found to have reversed since 2012 and by 2018 life expectancy among 65 year olds was 0.5 years higher among persons living in RoI.
- These findings are crucial for building an evidence base for issues such as a border poll but also to inform policymakers, the business community and public debate on north-south issues.

***The IFS Deaton Review of Inequalities: a New Year's Message*, published by the Institute for Fiscal Studies, reflects on how the Covid-19 pandemic has deepened already existing inequalities in our society.**

- The COVID crisis has exacerbated inequalities between the high- and low-paid and between graduates and non-graduates. Average graduate earnings were more than 60% above those for non-graduates pre-crisis. New divides have opened. Non-graduates were far more likely than graduates to work in a locked-down sector and far less likely to be able to work from home. By the third quarter of 2020, when compared with pre-pandemic levels, there had been a 7% reduction in the number of graduates doing any hours of paid work in a given week, but a 17% reduction in the number of non-graduates doing any hours of paid work (these reductions include those on furlough but not working any hours).
- The crisis has hit the self-employed and others in insecure and non-traditional forms of employment especially hard. Ten years after the financial crisis, the self-employed still had median earnings below 2008 levels. They have been especially likely to lose income and hours of work through the crisis, and numbers of self-employed have fallen nearly 10% over the year. The government has struggled to target support on those worst hit or to provide a comprehensive support package. The Self-Employment Income Support Scheme does not cover around 2 million people with some self-employment income, or a substantial additional number with incorporated businesses taking income in some combination of salary and dividends. This is an illustration of the difficulty the welfare state has in providing for those in non-traditional forms of employment.
- Educational inequalities will almost certainly have been exacerbated by the crisis. Pupils at private schools were twice as likely as state-school pupils to get daily online lessons during lockdown. Within the state sector, pupils from better-off homes were more likely to receive active support from schools and to have a better home learning environment. Since July, pupils from poorer areas and households have been more likely to miss days from school.
- Between March and July, mortality rates from COVID-19 were twice as high in the most deprived areas as in the least deprived. Deaths from COVID have been, if anything, even more socially graded than pre-existing disparities in other deaths.
- The crisis has had very different impacts on different ethnic groups. Mortality rates from COVID-19 among some black groups have been twice those among the white British. This is in part related to occupational differences. More than 20% of black African working-age women, for example, are employed in health and social care. Some ethnic groups have also had their livelihoods more disrupted, being much more likely than the population as a whole to work in locked-down sectors or to be self-employed.
- Through 2020, pensioners have on average reported becoming financially better off, whilst the young have borne the brunt of job and income loss. The generational divide that has opened up in recent years could also be exacerbated by another bout of ultra-low interest rates and quantitative easing which could push up asset prices. Fiscal policy post-pandemic must recognise this: it strengthens the case for tax and spending measures to lean in the opposite direction, rather than exacerbating the disparity as has happened over the last decade.

***Pandemic Pressures*, published by the Resolution Foundation, explores why so many low-income families report spending more, not less, since the start of the Covid-19 pandemic.**

- During the Summer and Autumn 2020, families with children estimated to be in the lowest pre-pandemic income quintile were twice as likely to report an increase in spending (36%) than a decrease (18%). Accounts from parents on a low income identify a number of reasons why this has been the case.
- Having children at home more has meant higher spending on food, energy and ways to entertain or distract children when so many outdoor leisure activities have been curtailed. Remote schooling in particular has proven very expensive, especially for those families that have had to buy a laptop or arrange for broadband access, for example.
- The cost of feeding a family on a low income has risen during the pandemic. A reduction in promotions and difficulties obtaining particular items, and the need to avoid the risk of infection has forced some families to use more expensive food stores that are closer to home or will deliver.
- This helps explain why, in September 2020, half of adults with less than £1,000 in savings report drawing down on them since February, and over half of adults in the lowest-income quintile using borrowing to a greater extent than they did pre-pandemic to cover everyday living costs.
- These pandemic pressures come after several years of weak living standards growth, with real incomes for the lowest-income households no higher in 2018-19 than in 2001-02. With tough new restrictions now in place to contain the spread of the more transmissible Covid-19 variant, parents on a low income face another difficult period without school or childcare, when costs once again look set to increase.

***The Living Standards Outlook 2021*, published by the Resolution Foundation, assesses how the hoped-for post-pandemic economic recovery might translate into a recovery for living standards.**

- Government support schemes have protected household incomes and jobs this year. Even though GDP in November 2020 was 8.5% below pre-pandemic levels, official working-age unemployment in Aug-Oct 2020 stood at just 5.1%, only 1.2 percentage points higher than a year earlier, and the report finds that typical non-pensioner real household incomes grew very slightly, by 0.1%, in 2020-21.
- Although the fall at median incomes is smaller than the inflation-driven fall that occurred after the financial crisis, the reduction at lower incomes is set to be significantly larger than seen a decade ago. Incomes at the 10th and 20th percentile of the distribution are projected to fall by around 10% and 5% respectively next year, leaving income at the 10th percentile no higher than it was in the early 2000s.
- Rising unemployment and the removal of the £20 uplift in Universal Credit in 2021-22 will also lead to a further 1.2 million people falling into relative poverty, 400,000 of whom are children, the biggest year-on-year rise in poverty rates since the 1980s.
- By 2024-25, the report projects that 23% of individuals will be living in relative poverty. Relative child poverty will also rise, with the roll-out of the two child limit and removal of the family element for families on benefits pushing over one-in-three (33.7%) children into poverty by the end of the parliament, 730,000 more than in 2020-21.
- Proceeding with current plans to remove the £20 increase would reduce the incomes of 6 million households by around £1,000, and mean the incomes of the poorest fifth of working-age households fall by over 4%. It would put the basic level of unemployment benefit at its lowest in real terms since 1990-91.
- Maintaining the current higher level of benefits would transform the living standards outlook for low-to-middle income households, more than halving the size of their projected income fall. It would mean that incomes at the 25th percentile of the distribution would grow by a projected 4% over this Parliament, compared to a less-than-1% rise.

***Getting Ahead on Falling Behind: Tackling the UK's Building Arrears Crisis*, published by the Resolution Foundation, examines how families have managed housing costs during the pandemic.**

- 9% of families in the social rented sector were behind with their housing payments in January 2021, alongside 6% of those renting privately and 2% of mortgaged home owners.

- These percentages translate into significant numbers: over 750,000 families were behind with their housing payments in January 2021, 300,000 of which contained dependent children.
- Close to one-quarter (24%) of private renters have seen their earnings fall during the last ten months, compared to one-in-six (16%) working-age adults with a mortgage.
- The survey conducted shows that twice as many privately-renting families entered the pandemic with no savings compared to mortgaged home owners (22% and 11% respectively).
- Despite widespread calls for forbearance in the face of the Covid-19 shock, 3% of private renting families have been able to negotiate a lower rent over the last ten months (a further 5% have been refused), compared to one-in-ten (10%) families with a mortgage who have received a mortgage holiday.
- More than half (56%) of private renter families with arrears are not in receipt of benefits, leaving them ineligible for a Discretionary Housing Payment.
- The higher incidence of arrears in the renter population is in part explained by the disproportionate labour market hit they have experienced during the pandemic. Close to one-quarter (24 %) of private renters have seen their earnings fall during the last ten months, compared to one-in-six (16%) working-age adults with a mortgage.
- Ultimately, it is important that the Government continues to support those hit worst by the Covid-19 shock over the coming fiscal year. Retaining the UC uplift of £20 a week is a priority if arrears are not to deepen or grow, as is getting right the phase-out of the JRS to avoid a large rise in unemployment. But policy action is also needed to help tenants and landlords manage existing arrears in an orderly way. Discretionary Housing Payments remain a key source of support for those on low incomes, budgets should be maintained in 2021-22 and councils allowed to roll over any underspend.
- But there is a large group who cannot access a DHP that are also under housing stress. For this group, a tenant loan scheme, along with requirements on landlords to mediate, would go a long way towards an equitable and efficient resolution of the incipient housing cost crisis.

***Earnings Outlook Q1 2021*, published by the Resolution Foundation, looks at the state of the labour market in light of a successful vaccine rollout and roadmap out of lockdown.**

- Earnings growth fell in the early months of the pandemic, and briefly became negative, driven in part by many furloughed workers receiving only 80% of their usual pay. But more recently, both nominal and real earnings have begun to grow at rates not seen since the early 2000s. This is in stark contrast to what happened to earnings after the financial crisis: nominal earnings growth fell, and real earnings growth turned negative. Earnings took more than a decade to return to pre-financial crisis levels, doing so for the first time only in the three months to February 2020, on the eve of the current crisis.
- On the surface, a return to earnings growth might seem like a boon for workers after over a decade of pay stagnation. But as the ONS has noted, at least part of this is down to compositional effects – as lower-paid workers have been more likely to lose their jobs, the average person still in work is higher-paid. In the last Earnings Outlook, it was noted that the main compositional drivers of earnings growth have been occupation, hours, and qualifications.
- Pay growth at the 75th percentile has remained relatively stable over the course of 2020, falling from 3.1% in Q1 2020 to around 2.5% thereafter. Pay at the 25th percentile, however, has been much more volatile – here, there was a much more discernible earnings fall in Q2 2020, likely in part to reflect the fact that low earners have been more likely to be furloughed.
- Some groups of workers have done better than others. The median pay change over the year to the second half of 2020 varies across different groups of workers. While the young and the low paid who are still in work have had above-average pay rises over the past year, these workers would normally experience a much larger pay boost in a normal year conditional on staying in work – and the typical pay rise for 18-24-year-olds has halved compared to 2019, from 12.3% to 6.0%.
- Pay changes also vary significantly by industry: sectors like manufacturing and education have been relatively immune to falling pay growth (at least among those who are still in work), but after accounting for inflation of 0.8%, the typical worker in sectors like professional services, construction, transport, and leisure and other services has seen a real pay fall. And altogether, 49% of employees – or more than 13.5 million people – had experienced a real pay fall in the second half of last year.

- Some of the sectors with below-average pay rises are those where the employment hit has been concentrated, too. In 2019, the typical worker in the hospitality sector saw their pay grow by more than 8% (accounted for in part by moves into higher-paying sectors); this year, the typical pay rise was just 0.5%. But others are more unexpected. The median worker in the professional services sector experienced a pay freeze, despite the fact that workers in this industry have been more likely than average to be able to work from home. Many of those in sectors that have been relatively sheltered from pandemic-related job losses and furloughing are nonetheless facing an economic hit.
- After the financial crisis, it took six years for average weekly earnings to start growing again in real terms. Returning to employment growth and a tight labour market as quickly as possible, alongside continued increases in the minimum wage to support lower-paid workers in particular, will be crucial for boosting living standards as the recovery takes hold.

Innovation and Enterprise

INNOVATION

***How to Fast Track Innovation for a Green Industrial Revolution*, published by the Green Alliance, investigates how to accelerate green innovation across the UK economy.**

- Green innovation will play a vital role in economic recovery, leading to higher productivity and jobs in new low carbon industries across the country. Most economic sectors still have a large environmental footprint, so greater innovation in green technologies and business models is necessary across all parts of the economy. This will help businesses reduce their negative environmental impacts locally and globally, and remain competitive in the low carbon transition.
- One clear conclusion is that innovation cannot only happen in a lab. Real world trials and the large scale adoption of novel solutions are needed to test their viability, and these depend on the right resources and infrastructure, policy and regulatory landscape, and market development. While investment in R&D is still essential, policies that promote learning by doing and deployment are required to bring about a resilient economic recovery in the 2020s.
- A green industrial revolution will only be possible once the barriers and policy gaps holding back innovation are overcome. These include limited incentives to invest in clean technology, unambitious regulation and a failure to link innovation efforts along value chains and across sectors.
- The report recommends six ways that the government should promote green innovation:
    - Set an overarching strategic framework, ensuring policy coherence across government and greater collaboration with business and civil society.
    - Create demand, including through fiscal incentives and public procurement, to accelerate the transition of novel solutions from niche to global markets.
    - Boost investment, by ensuring net zero and environmental goals are central to the remit of the new National Infrastructure Bank, establishing a new National Green Innovation Fund within it to provide a more comprehensive and systemic approach to funding green innovation and by rebalancing public investments, away from R&D and towards experimentation and the commercialisation of new green solutions.
    - Change the rules of the game, using progressive and performance based regulation to drive innovation, leveraging the UK's strong track record in pioneering regulatory 'sandboxes' to establish new 'green innovation sandboxes'.
    - Nurture innovation partnerships, by fostering cross sectoral and place based collaborations, supported by a government review of the capabilities and skills needed for green transformation.
    - Make infrastructure work for a green economy, by ensuring that all infrastructure decisions align with net zero and wider environmental goals, and through greater emphasis on natural and digital infrastructure.

***One Size Does Not Fit All: A Cross-Country Comparison of Policy Instruments used to Support Firm-Level Innovation and Science*, published by the Enterprise Research Centre, provides a better understanding of the mechanisms through which policy instruments impact firms' innovation and science outcomes.**

- The report analyses the innovation and science policy instruments available to firms across eight countries (Ireland, Germany, the United Kingdom (UK), Belgium, Denmark, Israel, Singapore, and Norway), covering the period 2007-2020 and highlights several key observations.
- Countries differ considerably in terms of the policy instruments employed to support firms' innovation and science activities. Nominally similar policy instruments targeted at firms in each country often differ significantly in terms of their country-specific design features. This makes like-for-like comparisons challenging.
- Since 2012, there has been a rapid growth in the use of R&D tax credits, which have become by far the largest innovation policy instrument in the UK, Ireland, and Belgium. Drawing on the example of these countries, Germany introduced an R&D tax credit scheme for the first time in 2020. However, other countries such as Denmark have not yet followed suit.
- Each country tries to implement the best possible mix of different policy instruments to impact firms' innovation and science outcomes, whilst also trying to find the most effective design for each individual policy instrument in the mix.
- When examining the science and innovation policy instruments available to firms across different countries, it is crucial to understand the process of policy experimentation, which takes place over a long time period. Policy goals change as the economic and social conditions in each country change over time. This results in alterations to specific policy instruments (e.g. increasing the level of support, or making certain instruments available only to SMEs), as well as the mix of policy instruments on offer to firms (e.g. Germany introducing the R&D tax credit in 2020).
- Examining changes over time is crucial to understanding how innovation and science policy instruments lead to firm-level impacts.
- Countries can learn from one another to improve the effectiveness of the innovation and science policy instruments they offer to firms. However, it is crucial that situational differences and policy synergies and overlaps are taken into consideration when comparing policy instruments across countries.

***Innovation Readiness in UK Foundation Industries*, published by the Enterprise Research Centre, provides an evidence-based understanding of the factors that shape innovation across six UK foundation industry sectors that are ceramics, cement, chemicals, glass, metals and paper.**

- Across the six foundation industry case-study sectors, there are approximately 7,000 businesses, which employ 253,825 people and generate a combined turnover of over £67.6 billion. As is the case more generally, the majority of businesses in the foundation industries are relatively small; there are just 700 medium-sized businesses (50 to 249 employees) and only 140 large businesses (250 or more employees).
- In the two decades up to 2016, the UK's foundation industries' share of GDP shrunk by 43 per cent, compared with an average decline across the OECD of 21 per cent. The UK now has one of the smallest foundation industry sectors relative to GDP in the OECD. Findings from in-depth interviews with industry representative bodies confirmed findings in the literature that the two most significant challenges facing the foundation industry sectors are; increased international competition and high energy costs alongside associated regulatory pressures to reduce emissions and environmental impacts.
- The research findings show that innovation in the foundation industries is driven by a number of factors. The most commonly reported drivers were: Increasing sales and market share, improving quality, maintain competitive advantage, reducing costs, and increasing production capacity. There is also a strong correlation between growth ambition and innovation. Innovation in foundation industry businesses often occurs in response to 'crises' rather than systematically or proactively.
- A key finding from the research is that that innovation in the UK's foundation industries is constrained by a number of structural factors. These barriers are important not just because they constrain innovation directly but also indirectly because they undermine the effectiveness of more focussed policy measures. They include:
  - High entry barriers and associated very low levels of churn.
  - Under-developed management and leadership skills.
  - Dispositions and mind-sets resistant to innovation.
  - Widespread reluctance to collaborate.

- Regulatory and other pressures to achieve profound reductions in carbon emissions.

- The policy recommendations to combat these barriers can be categorised into six broad headings:
  - Funding and partnerships
  - Firm-level capabilities
  - Promoting more positive mind-sets amongst businesses
  - The role of industry representative bodies
  - Market-led solutions, including lowering entry barriers
  - A stronger convening role for UK Research and Innovation (UKRI).

RESEARCH AND DEVELOPMENT

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

SECTORS AND TECHNOLOGIES

Evaluation of Sector Opportunities for AI in NI, **published by Matrix, analyses the results of a survey to explore how Artificial Intelligence (AI) can help Northern Ireland businesses into economic recovery.**

- Five sectors were identified as relatively attractive in comparison to other sectors subject to this study:
  - Advanced manufacturing, materials and engineering - The sector is one of the significant drivers of NI's economy. AI offers significant potential to reshape the sector in areas such as robotics and 3D printing. Relative to other sectors, interviewees saw a potential for the sector to have a distinct impact, as it is one of NI's key export sectors with some large companies already active in the space.
  - Biomedical R&D and pharmaceutical manufacturing - In comparison to other sectors, a positive assessment across many evaluation categories highlights the potential for the adoption of AI in the life sciences. While a small sector in NI's economy, there are already a range of complementary initiatives in NI, and the UK more broadly, to expand the impact of AI in the sector.
  - Cryptocurrency and cyber security - NI has a well-established cyber security cluster that combines academic excellence with cyber security innovation in large and smaller, specialised companies. Stakeholders made the connection between the academic cyber cluster and the emergence of the FinTech cluster. However, it is currently too small in terms of investment capital and the number of companies to compete distinctively nationally and regionally.
  - Finance, including FinTech - In comparison to other sectors, this sector is characterised by high AI maturity, both globally and in NI specifically. Given its strength in NI, there is some opportunity for distinct impact. This is also recognised by several interviewees who also point to the well-established cyber cluster as an area from which this sector will benefit. To build on its opportunity for distinct impact, it will be crucial that NI leverages the sector's largest players and start-ups, and builds on its expertise in building software.
  - Human health and social work - Relative to other sectors subject to this study, this sector offers a wide range of opportunities for the adoption of AI. It is one of the largest sectors of NI's economy, with many cross-cutting initiatives and companies active in the field. There is some distinct value within NI's centralised healthcare data. However, a key challenge for impact is the current lack of industry readiness in healthcare settings.

- There are however, challenges that face these sectors in the adoption of AI:
  - Research - Across the high performing sectors, research activities are being undertaken, and the City Deals have recognised these activities as well as the opportunities for improving collaboration across research clusters in these areas. However, the amount of sector-specific research is limited and AI research clusters are still of comparatively small scale. Research is generally less differentiated than in some other AI research clusters across the UK and the question of distinctiveness in AI was raised as a "hugely difficult question for NI".
  - Economy - The largest sectors of the NI economy by GVA are labour intensive with limited potential for AI. For the health and social care sector this holds true when looking at the

industry readiness at the end of the supply chain in healthcare settings. Northern Ireland is an SME driven economy, which is challenging for the adoption of AI.

  - AI transformation: The five sectors identified as relatively attractive are characterised by generally high AI maturity on a global scale. Yet globally, "for almost every industry, there are well established precedents of machine learning" and a sectoral approach risks "targeting an already saturated marketplace". These high performing sectors in NI face strong global competition which will make it difficult for them to achieve impact at scale.

- The report recommends to build an AI focused cluster with a responsive approach to sectors, strengthen collaboration across actors, sectors and borders, build on the 'levelling up' agenda and to align activities to national strategies and the AI Council to help these five sectors overcome the challenges faced when adopting AI.

ENTREPRENEURSHIP

***The impact of the COVID-19 Pandemic on UK SMES and their Response*, published by the Enterprise Research Centre, dissects the results of a survey of over 1000 SMEs relating to how they are coping during the pandemic.**

- The findings from ERC's survey of over 1,000 small- and medium-sized businesses on the effects of the COVID-19 pandemic echo trends seen in official data sources. The clearest effects of the COVID-19 pandemic have been on turnover and employment in SMEs. Over two-fifths of businesses have seen sales decrease in the past 12 months and just under a third have cut jobs. This contrasts sharply with previous expectations of growth.

- The hit to sales has been more visible amongst firms in the service sector with sectors such as recreation and hospitality particularly hard hit. This compares with modest signs of turnover growth in construction and wholesales and retail sectors.

- Businesses report the direct negative effects of the pandemic, such as the fall in demand and the need to pause business operations, being the main drag on activity. In addition, indirect impacts such as supply chain disruption and the cost of complying with COVID-19 restrictions presented further challenges for many SMEs. However, a minority of businesses noted the pandemic had created opportunities and others had taken away positives, such as a smooth transition to new working arrangements.

- The majority of SMEs had adjusted their business strategy in response to the pandemic. The most common change was to increase focus on cost reduction – a common tactic across businesses in most sectors. However, SMEs also reprioritised the introduction of new products and processes and the adoption of new digital technologies. These new strategies will have supported business efforts to find new ways of meeting customer demand and pivoting to new business models. Notably, SMEs that had experienced turnover declines during 2020 were more likely to increase their focus on new products, process and technologies.

- The survey probed changes to particular digital technologies through the pandemic. The most common shift was in the use of videoconferencing platforms. Increased used of online marketing was also a widely reported response to the challenges presented by the pandemic. In addition, increased uptake of newer technologies such as the Internet of Things and augmented reality was also reported, as SMEs appear to have pushed forward their digitisation journey. This could see many reap future rewards in terms of increased sales and improved productivity.

- However, the digital dash witnessed in 2020 is likely to slow with most SMEs not planning for further investment in new digital technologies in the short-term. Pressure on cash and the uncertain outlook will hold back future plans and small businesses are also up against the resources required to explore new technologies and the capacity in the business to introduce them.

- COVID-19 concerns are likely to persist in the short-term. Nearly three-quarters of SMEs in the survey pointed to economic uncertainty related to COVID-19 as an obstacle to running their business. However, this is not the only challenge weighing on businesses with Brexit-related challenges rising up the list of concerns.

***Covid-19 and the Self-Employed - Ten Months into the Crisis*, published by the Centre for Economic Performance, shows the continued adverse impact the Covid-19 pandemic has had on the self-employed.**

- The self-employed are continuing to be hit hard by the crisis, and in January 2021 under third lockdown their economic position in some dimensions has returned to be as bad as it was under the first lockdown of April 2020.
- In January 2021, the distribution of incomes and hours of self-employed workers is broadly similar to the first Covid-19 lockdown last spring. Throughout the crisis, there has also been a heavy reduction in new entrants to self-employment.
- There has been a strong increase in transitions from self-employment to employment, but this is driven by self-reclassification rather than actual changes in job. While some workers anticipate leaving self-employment due to the crisis, these numbers are not noticeably different to typical rates of self-employment exits.
- Through a hypothetical choice experiment, among self-employed workers for whom a similar employee position exists, the majority show a preference to remain self-employed as they would choose their current status over switching to being employees.
- Badly targeted self-isolation payments have acted to provide poor incentives for workers to isolate when necessary, due to the perceived losses in income.
- School closure during the recent lockdown has increased pressure on self-employed parents, with 80% of women with children being the primary figure in their home learning during the lockdown.
- Although available in multiple forms, government support fails to provide the desired relief to all self-employed workers, leaving more than half of them worse off as a result of the crisis.

BUSINESS GROWTH

***Northern Ireland High Growth firms 1998-2020 Update 11*, published by the Department for the Economy, provides high growth figures on businesses for the most recent period between 2016 and 2020, setting these in context with the previously published series of analytics on high growth and extending the entire period covered from 1998-2001 to 2017-2020.**

- The Inter-Departmental Business Register (IDBR) is utilised to identify the number of High Growth businesses in Northern Ireland by applying the Organisation for Economic Cooperation and Development (OECD) measure of High Growth, which is defined as any business employing 10 or more staff which experienced an annualised 20% or more growth in either employment or turnover over a 3-year period compared to a baseline year. The analysis was also extended to businesses employing less than 10.
- The total number of 'in scope' businesses (businesses where data existed in the base year and the following 3 years) for the latest period (2017-20) was 60,080; 7,540 employed 10 or more staff in the base year and 52,540 employed less than 10 staff in the base year.
- The High Growth rate for businesses employing 10 or more staff stood at 14% for the latest period. The number of High Growth micro businesses employing less than 10 staff in the latest period, 2017-20 (12,400) was more than the previous period 2016-19 (11,755).
- Micro businesses employing less than 10 staff as a group and over time, experienced higher and more sustained levels of High Growth rates than larger businesses, the high growth rate for micro businesses for the current period (24%) is the same as the previous period 2016-19.
- Only 2% of in scope businesses were High Growth businesses employing 10 or more staff, however they had turnover of £24.4bn accounting for 25% of total turnover for in scope businesses, continuing an upward trend from £9.3bn in 2017 which accounted for 13% of total turnover for in scope businesses.
- High Growth micro businesses had turnover of £10.4bn in 2020, accounting for 11% of total turnover for in scope businesses, these businesses accounted for 21% of in scope businesses.
- All High Growth businesses accounted for 36% of total turnover of in scope businesses compared to a share of 22% of the number of in scope businesses.
- The share of total turnover for in scope businesses accounted for by non-High Growth businesses has risen from 59% in 2009, peaking at 80% in 2013 and has gradually fallen to 64% for 2020.
- Between 2001 and 2019, the overall trend in the proportion of employment accounted for by High Growth firms has been downwards from 35% in 2011 to 20% in 2019, however there was a slight increase in 2020 to 22%.

***A Major Wave of UK Business Closures by April 2021? The Scale of the Problem and What can be Done*, published by the Centre for Economic Performance, presents an analysis of the financial health of UK businesses, which shows that immediate action is needed to prevent a wave of corporate failure in early April 2021.**

- A major wave of bankruptcies for UK firms looms as many current business support programmes expire at the end of March and April. The most recent survey data from the Office for National Statistics (ONS) suggest that almost 15% – more than one in seven – UK businesses are at risk of failure by early April 2021.
- This 'at-risk' group represents 390,000 registered businesses (1.9 million people covering 8% of employment in registered firms), or 906,000 of all businesses (2.5 million people covering 9% of employment). Micro enterprises with under ten employees are particularly vulnerable to closure.
- The potential increase in registered business deaths in the first quarter of 2021 would be unprecedented in recent history. If the entire at-risk group of 389,912 registered businesses identified were to permanently close in 2021Q1, then quarterly deaths would be up 356% compared to 2019Q1, or 226% compared to 2020Q1.
- The key issue is how to balance the need for protection to avoid the destruction of what would be viable businesses in normal times, against the need for reallocation as we adjust to a new post-pandemic world. Some businesses will simply not be viable going forward because of permanent structural changes to the economy such as the shift to online commerce, less international travel and more working remotely.
- The current policy trajectory must be altered in order to provide protection now and to map a path for post-pandemic prosperity. Loan subsidies will need to stretch well into 2021, but should be tapered as the economy improves. The report also recommends to move to a system of debt restructuring in the recovery period. There are various options, but a form of swapping debt for equity should be considered.

GROWTH FINANCE

***Back to the Start-up A Review of Business Start-Up Support in Northern Ireland*, published by UUEPC, assesses how Northern Ireland's performance in stimulating business start-ups.**

- The rate of business creation has been increasing since 2011-12, when Northern Ireland was in a recovery period from the previous recession. Using 2004 as a base year - when comparable data first became available - the overall increase in new Northern Ireland businesses created was 16%. However, while this increase in new businesses created can be seen within the context of a 6% increase in Wales, there were increases of 41% in England and 51% in Scotland between 2004 and 2019.
- The total early-stage entrepreneurship activity rate for Northern Ireland has almost doubled its rate from 3.7% to 6.6% between 2002 and 2019. However, the NI rate has remained low relative to the UK average, which saw TEA rising from 5.4% to 9.9% within the same period.
- 'Opportunity Perception' is the extent to which people perceive likely potential for entrepreneurial activity. Statistically, this has been significantly lower in Northern Ireland than England, with 31% perceiving good start-up opportunities in NI compared to 40% in England. In addition, and of significance, entrepreneurial activity is typically lower for women than men, with female rates of engagement particularly low, typically at around a third of male rates.
- With respect to survival rates, however, Northern Ireland has previously performed relatively well. Between 2002 and 2006, around 70% of new firms in Northern Ireland survived for three years compared to around 65% in the UK. Since 2010, survival rates across the UK have converged downwards and in 2015, Northern Ireland's rate of 57% was comparable to the UK and other devolved regions.
- COVID-19 has had a devastating impact, reinforcing feelings of uncertainty and crises of confidence amongst business owners and of course - those who might be considering starting a business. However, also to be considered will be many who are interested in, and keen to engage on business re-start following failure of their business through no fault of their own – but perhaps solely as a consequence of COVID-19 or Brexit.
- With all this in mind, the report asks policymakers to consider the following:
  - The extent to which the programme(s) supporting people already in business or already thinking of starting one, are sufficiently well designed to attract those who have not yet done so.

  - The extent to which programme design reflects the policy objectives of greater collaboration and simplification from the perspective of end-users.
  - The extent to which all of the above meets the needs and expectations of women as potential new entrepreneurs.
- The report concludes, noting that Northern Ireland also needs to celebrate entrepreneurial people, in every context, from business start-ups, to those who choose to grow their businesses, to those active in developing social enterprises, right through to entrepreneurial individuals within our health and social care sector, our universities and our communities.

BUSINESS REGULATION

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

Succeeding Globally

TRADE

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

INWARD INVESTMENT

***FDI Qualities Assessment of Ireland*, published by the National competitiveness and Productivity Council, examines the impact of foreign direct investment (FDI) attracted to Ireland from 2006 to 2016 as well as the spillover effects on the local economy.**

- The study shows that foreign investment played a key role in assisting Ireland to recover from the financial crisis and subsequent "great recession" of 2007-2009. In 2020, the foreign-owned sector in Ireland demonstrated a remarkable resilience in the face of the Covid-19 pandemic and all the indications are that the portfolio of foreign investors managed by IDA Ireland will register positive net employment growth for 2020.
- The study has highlighted that foreign investment in Ireland is deeply integrated into Global Value Chains and is a major contributor to trade, productivity, innovation, value-added and employment. Multinational Enterprises (MNEs) operating in Ireland are one of the principal reasons why the country is among the most globalised and export-oriented economies in the world.
- The analysis also makes clear that the MNEs operating in Ireland are a heterogeneous group comprising a sub-group of "frontier firms" whose performance across a range of variables is a multiple of that of the median foreign affiliate. The foreign sector is an important source of knowledge and other spillovers to the domestic economy, while the links between MNEs and domestic firms are in line with the experience of other small open economies.
- Limitations on the "absorptive capacity" of domestic enterprises (that are limited by their size and the capabilities gap between themselves and foreign firms), the very high export orientation of MNEs and the practical consequences of participation in global value chains arguably acts as a constraint on further "embeddedness" within the domestic economy.
- While the study identifies and acknowledges the numerous benefits of foreign investment in Ireland, it also highlights the presence of a degree of "concentration risk". Many of the benefits of foreign investment are derived from a small number of sectors especially Information and Communications and Biopharmaceuticals and a small number of home countries particularly the United States. In this context, IDA Ireland should continue its commitment to portfolio diversification in terms of the sectoral and geographical sources of future investment.
- Continuing and strengthening a collaborative approach between IDA Ireland and other government agencies in charge of enterprise development, trade, innovation, and skills development is important to design and implement policies that support the development of domestic firms' capabilities and linkages.

TOURISM

***COVID-19 Consumer Tracker*, published by Visit Britain, asks survey respondents (from 8th-12th February 2021) how likely they are to travel and go on holidays, comparing the results to that of previous surveys.**

- The national mood is unchanged at 6.5/10 and significantly fewer consider the 'worst is still to come' compared to the previous survey, falling by 13 percentage points to 21%.
- Only 16% of adults expect 'normality' by the end of June – a slight decline compared to the previous survey. 42% expect 'normality' to return during the July-September period though it's not until the final quarter of this year that the majority anticipate life returning to something close to normal (56%).
- Confidence in the ability to take domestic trips begins to rise during the Spring and Summer periods with evidence that levels are now stabilising. 32% are now confident a June trip could proceed as planned. However, confidence does not return to the majority of adults (63%) until October 2021 onwards.
- 13% anticipate taking a break in Spring (Apr – June) and 27% during the Summer (July – Sept). This compares to 14% and 27% respectively last survey. More positively, among those who are intending to take a trip this spring, 44% have now reached the planning and 31% the booking stages of their trips (versus 38% and 29% last survey).
- Own car continues to lead as the main transport mode for travelling to an overnight destination in Spring (62%) with the second preference 'train' rising to 17% (up from 10% the previous survey).
- The leading destination type for Spring trips is 'traditional coastal/seaside town' (33%) followed by 'countryside or village' (29%). City or large town is in 3rd place with 25%.
- The accommodation types most likely to be used on overnight trips this spring are 'camping/caravan' (37%) 'hotel/motel/inn' (36%) and 'commercial rentals' (e.g. holiday cottages) on 33%.

Economic Infrastructure

ENERGY

***Public Acceptance of New Renewable Electricity Generation and Transmission Lines*, published by the Economic and Social Research Institute, analyses a survey exploring the attitudes of people towards renewable electricity, and what this means for policy development in the Republic of Ireland.**

- Ireland has put forward ambitious targets for renewables (i.e. wind, solar) in electricity generation, growing from 36.5% in 2019 to 70% by 2030. In parallel, it is anticipated that electricity demand will be between 28% and 55% higher in 2030 compared to 2018. To meet anticipated growth in electricity demand, as well as achieve the renewable electricity policy targets, substantial investment in electricity infrastructure is required.
- However, new developments of large-scale power system infrastructure, such as wind farms and transmission lines, often face strong public opposition.
- Over three-quarters of people surveyed are positively disposed to wind turbines but just 36% are willing to accept the development of wind farms within 5 km of their homes. Acceptance levels for overhead transmission lines within 5 km of respondents' homes stands at 28%.
- There are regional variations in preferences. For example, the highest share of outright opposition to wind farms is in the Midlands, at 21% of respondents, and the lowest is in the Border region at 9%. Outright opposition to new transmission lines is highest at 44% in the South-West and lowest in the West at 18%.
- Accommodating public opposition to wind farm and transmission infrastructure into investment decisions leads to capital and operating cost increases, some of which will ultimately be absorbed by electricity customers. For example, where there is public opposition to on-shore wind farms, energy companies may switch investment to off-shore wind farms, which are more expensive to construct and operate.
- Under the four scenarios examined, capital costs are 12–13% higher when investments accommodate public preferences related to energy infrastructure rather than follow the least cost option. Total power system-wide costs are as much as 33% higher in the most extreme scenario examined.
- The research shows that the power system can accommodate the public's preferences for new energy infrastructure, although subject to additional costs. The research additionally shows that in the 2030 power system, comprising 70% renewables generation and substantially higher

electricity demand, system costs and electricity prices could dramatically escalate if there is a sharp deterioration in the public's acceptance of new energy infrastructure. The implication for policy and the wider electricity sector is that community and stakeholder engagement should remain a top priority.

***Smart Solar at Scale: Meeting the UK's Net-Zero Emissions and Clean Growth Targets*, published by Respublica, outlines why an increase in solar use and development is needed for the UK to reduce carbon emissions.**

- There are key challenges facing Government in this critical transition moment for UK energy. The cost of energy is chief among these. Uncertainty about short and long-term oil and gas prices can make it harder for suppliers to pass savings through to consumers, and for nations that are heavily dependent on imports of fossil fuels to control costs and plan their economies.
- In the UK, consumers have been increasingly frustrated by increases in energy bills – rising by 38% between 2007 and 2019. This despite improved energy efficiency, falling consumption and increased competition in the energy market.
- The UK energy system is based on a networked grid of large power stations using mainly non-renewable fuel and providing a minimum 'baseload' of electricity to supply the grid at any given time. This model of energy generation requires a constant source of power. And the conventional view is that while clean generation sources like wind and solar power are great for supplementing the energy mix, their intermittency is a huge issue.
- Smart solar + storage installations enable storage of on-site generation for later release; storage from the grid if prices are low; aggregation into trading networks to provide capacity on demand; and network management services to ensure the stability of the grid.
- Between the 21st and 28th June 2018, solar broke the record for weekly output, producing 533 gigawatt hours of power. And for about an hour on Saturday 30th June, solar was the number one source of electricity, with a share of more than 27%. A decade ago, solar contributed almost nothing to UK electricity supplies. Some developers now believe they can build without subsidies by going large-scale, increasing the number and size of solar farms and solar plants.
- Moving to a more flexible system could, in one scenario, unlock an additional 25% of wind energy that would otherwise have to be taken offline to protect the grid. Whereas our current course could see consumers paying to keep fossil fuel plants at half capacity in case of changes in demand, a flexible future could see solar, battery and demand-reduction assets in every neighbourhood employed to balance the grid, enabling all to participate.
- Achieving this will require the UK Government to address the regulatory barriers, which are entirely within their gift. Policymakers must now turn their attention to a comprehensive solution.

***The case for clean Air Zones*, published by Green Alliance, outlines how to ensure clean air zones are both fair and successful.**

- Every year, up to 4.2 million premature deaths worldwide are attributed to poor outdoor air quality. It is linked to major health issues, such as cancer, asthma and strokes. There are also concerns that people living in polluted areas and suffering from these health problems have been more vulnerable to the impacts of Covid-19.
- This problem is also economically damaging. Estimates suggest that the UK economy would save £1.6 billion annually by tackling air pollution, from a reduced number of premature deaths, fewer days off due to sickness and higher work productivity.
- The most effective way to reduce pollution is by designating clean air zones. These are specific areas where targeted action is taken, often in the form of charging the most polluting vehicles for entering the zone. They are designed to encourage the shift to cleaner vehicles and alternative modes of transport. Clean air zones are now found in over 250 cities across Europe, and there is comprehensive research demonstrating that they work.
- Despite this, there has been pushback in the UK, with claims that they are the wrong approach to reducing emissions and a suspicion that they may not be effective. Some believe they are a stealth tax, while others see them as unfairly penalising low income households, vulnerable groups and small businesses.
- The report makes the following recommendations to local authorities on how to make clean air zones beneficial for communities and businesses:

- Implement the most comprehensive form of clean air zone and communicate it as part of a broader transformation plan for the area - This should include a clear plan to mitigate the impact on local businesses and residents, with financial support where necessary. Wider transformation of the transport system should include targeted action to prioritise public transport and active travel, with reallocation of road space to buses, pedestrians and cyclists, and car free streets.
- Consult communities and businesses extensively on local transport reforms - The reason many schemes fail is due to poor local consultation. Local authorities must set a clear overarching vision for their area and work in partnership with people and businesses on the best ways to realise it in their local context.

- The report makes the following recommendations to central government:
  - Enshrine commitment to the WHO air pollution limit in law through the Environment Bill - This clear signal of intent by national government would indicate to local authorities and wider society that it is taking air pollution seriously. This should be supported by a national campaign to improve public perception of clean air zones and other action to reduce air pollution, making it clear their positive impact on public health, the economy and the environment.
  - Increase support to reduce emissions - Local authorities will need more support from central government to bring down local emissions, not only to improve air quality but also to tackle climate change at the local level. This requires long term, stable, dedicated funding for improvements to transport infrastructure. This should be based on a framework, created in partnership with local leaders, setting out the expectations of local authorities and the most effective actions they can take.

TELECOMS

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

AIR ACCESS

***COVID-19 and the Northern Ireland Economy: Air and Sea Access*, an independent report published by the Department for the Economy, aims to understand the implications of Covid-19 on accessibility to/from Northern Ireland given the region’s heavy reliance on air and sea access for trade, Foreign Direct Investment (FDI) and tourism.**

- Northern Ireland has a unique position in having a ‘sea barrier’ between it and the rest of the UK which makes connectivity by air and sea critical to how the region trades with Great Britain (and worldwide) and a major influence on how the local economy prospers and grows. Thus, connectivity matters hugely in terms of what has and will drive improvements in economic growth, productivity and job quality in Northern Ireland.
- The first half of 2020 witnessed a dramatic decline in Northern Ireland’s connectivity by air with threats to its connectivity by sea. For a period of up to three months the vast majority of domestic air routes did not operate. No air connections were available to Scotland and regions of England and Wales. This loss of supply is reflected in and reinforced by the collapse in demand for air travel. The Belfast - Heathrow route was down to 5% of normal passenger numbers in the Spring of 2020 while overall demand for air travel to/from Northern Ireland was as little as 0.5% of 2019 levels.
- The implications for the Northern Ireland economy of this significant loss of external connectivity, and in particular external domestic connectivity, is likely to have significant implications for business confidence, including the tourism and hospitality sectors, at least for the short to medium terms. Whether through trade, investment, tourism, jobs or studying Northern Ireland is connected to hundreds of countries globally and that has played a large part in ensuring that Northern Ireland becomes a more outward looking region in how it drives economic and wider growth.
- The report (written in November 2020) notes that an effective vaccine rollout suggests air travel could recover to around 90% of 2019 levels by 2023 or 2024. Conversely, the absence of such a turning point would lead to demand being suppressed significantly below 2019 levels for many years to come.
- Three recommendations are made to safeguard external domestic connectivity:
  - Air Transport APD discount scheme for domestic routes (Time Limited) - It is estimated the overall cost for Northern Ireland of implementing the proposal to introduce an APD

discount for the specified services at 100% would be in the range £1.5 - £3.5 million per month.
  - Public Service Obligations (PSOs) - Routes designated with PSOs in the UK are exempt from passengers being charged APD and therefore the PSO model could incorporate any existing APD discount on those routes designated PSO status.
  - Route Development Funds (RDFs) - An alternative to PSO designation is the use of Route Development Funds (RDFs). In combination with a co-operative marketing agreement it may be more attractive to Low Cost Carriers in enhancing service frequencies more tailored to business needs.
- It is vitally important that both the UK Government and the NI Executive seek to prioritise funding both now and over the recovery period in order to support maintenance of these vital external links, given the profound economic and social need that has been identified in this report for sustained connectivity between NI and GB.

Government

NORTHERN IRELAND

***Economic Recovery Action Plan*, published by the Department for the Economy, sets out a range of decisive actions to kick-start economic recovery in Northern Ireland and build a more competitive, inclusive and greener economy.**

- The Action Plan sets out what is possible if the resources are made available. Successful delivery of this action plan will require an additional £290m in 2021-22 (including the cost of delivery the High Street Stimulus Scheme). Recovery will not be completed in one year alone, and many of the actions set out within this plan will require funding beyond 2021-22.
- The Action Plan identifies four key areas for jump starting the NI economy:
  - Supporting a Highly Skilled & Agile Workforce – Investing in skills will help to ensure that NI businesses can rebuild and grow their markets, protect and strengthen their supply chains and maximise new opportunities. This investment will also enable our people to avail of new and better employment opportunities. Potential also exists to target NI's diaspora and to attract highly skilled 'returners' who can contribute to addressing key skills needs in high value sectors and, thereby, accelerate the growth of sectors of strategic significance.
  - Stimulating Research & Development and Innovation - NI has a rich history of pioneering leading innovations, however our performance in recent times has lagged behind other UK jurisdictions and other small advanced economies. It is imperative that we support both business and individuals to embrace innovative practices and utilise the available opportunities thereby unlocking our potential to become world class.
  - Promoting Investment, Trade and Exports - Promoting trade and investment will be an important part of recovery. The size of the NI market is relatively small and external sales provide a vital part of business growth in NI. There has been significant change across key markets over the past year as a result of COVID, leaving the European Union and the protocol. However, even in this challenging environment work must continue to increase exports and promote NI as a destination for inward investment in a very competitive environment.
  - Building a Greener Economy - Clean energy is an area where investment will increase globally. Energy efficiency offers the NI economy the opportunity to build resilience, increase productivity, create jobs, strengthen competitiveness and realise carbon, energy and cost savings.

***Short and Long Term Impact of Current Restrictions*, published by the Department for the Economy, looks at the impact of restrictions on the NI economy in the months and years ahead.**

- The impact of the current restrictions appear less severe in terms of output per month foregone than spring 2020. Many businesses have adapted to new modes of working and many consumers have changed spending habits. Notwithstanding, indications are that output over the past few months are well below normal levels and likely within the realms of a severe economic downturn (in normal times).

- As of 31 January 2021, around 106,000 employments were furloughed under CJRS and 62,000 availed of SEISS in Northern Ireland, totalling around 168,000 employments / jobs. Data from ONS suggests that only 85.2% of businesses were open / trading in Northern Ireland between 22 February 2021 and 7 March 2021. This is a substantially lower than proportions seen during September 2020.
- The direct impact of the latest restrictions in Northern Ireland falls mainly on hospitality, sport, arts, entertainment and recreation, as well as close contact services and retail. While there may have been some substitution of spend as households consumed other goods and services not subject to restrictions, there is still expected to have been a negative impact on output overall (compared to a counterfactual of continued recovery).
- The degree of scarring will be affected by how quickly the virus is brought under control, the pace of the recovery, and the effectiveness of policy in keeping workers attached to employers and viable firms in business. The pandemic is quite likely, however, to leave lasting 'scars' on supply capacity. These can arise through a variety of channels, including deferred or cancelled investment in physical capital and lower innovation as a result of the heightened uncertainty and increased levels of debt incurred during the pandemic.
- The unemployment rate increased by 1.2pps over the year. The annual change was statistically significant. The youth (16-24) unemployment rate was 12.1%. The NI economic inactivity rate (the proportion of people aged from 16 to 64 who were not working and not seeking or available to work) increased over the quarter (1.2pps) and the year (2.1pps) to 28.0%.
- As the restrictions get slowly lifted during 2021 pent-up demand should ensure that economic activity returns to much less depressed levels, while acknowledging that full recovery may not be immediate. As was the case in summer 2020, stimulus measures may be required, and could make bounce-back more swift.
- There are still significant risks if recovery of output and jobs is not swift and sustained. The roll-out of the vaccine, coupled with pent-up demand may stimulate a 'bounce back'. Nonetheless, it may take some time before economic activity fully returns to pre-pandemic levels and there is a risk of some economic 'scarring'.

ENGLAND

***Sustainable Warmth: Protecting Vulnerable Households in England*, published by the Department for Business, Energy & Industrial Strategy, explores how to ensure that people in fuel poverty have access to affordable, low-carbon warmth as the economy transitions to net zero.**

- A household is in fuel poverty if they are on a lower income and unable to heat their home for a reasonable cost. The Government is committed to ensuring these households have access to sustainable, low-carbon warmth during the transition to Net Zero. The Fuel Poverty Strategy for England sets out a plan to:
    - Invest a further £60 million to retrofit social housing and £150 million invested in the Home Upgrade Grant, contributing to the manifesto commitment to a £2.5 billion Home Upgrade Grant over this Parliament.
    - Expand the Energy Company Obligation (ECO), a requirement for larger domestic energy suppliers to install heating, insulation or other energy efficiency measures in the homes of people who are low income and vulnerable or fuel poor.
    - Invest in energy efficiency of households through the £2 billion Green Homes Grant, including up to £10,000 per low income household to install energy efficient and low carbon heating measures in their homes.
    - Extend the Warm Home Discount a requirement for energy companies to provide a £140 rebate on the energy bill of low income pensioners and other low income households with high energy bills, ensuring continuity for vulnerable or fuel poor consumers.
    - Drive over £10 billion of investment in energy efficiency through regulatory obligations in the Private Rented Sector. Additionally, lead the way in improved energy efficiency standards through the Future Homes Standard, and the Decent Homes Standard.
- These schemes and standards will drive sizeable energy bill savings. ECO3 was estimated to save low income households up to £300, the extended ECO scheme, ECO4, is expected to save households even more due to the focus on multiple measures. The proposed Minimum Energy Efficiency Standards are expected to result in £220 in average bill savings for private renters.

- These commitments are expected to be refreshed over time through revisions to this strategy. In practice, exactly how fast progress is made against the milestones and the 2030 target, and in exactly what ways, will depend on a range of decisions taken over time. The existence of the interim milestones and a long-term target will be important factors in decision-making on spending and fiscal events, alongside others such as affordability and wider carbon targets.

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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