

# Towards a robust, resilient wellbeing economy for Scotland

---

Analytical Annex to the Report of the Advisory Group  
on Economic Recovery

### Contents

1.	Introduction .....	3
2.	Business - economic capital .....	4
2.1	Pre-crisis analysis.....	4
2.2	What has changed? .....	7
2.3	Key issues.....	11
3.	People – the human dimension .....	13
3.1	Pre-crisis analysis.....	13
3.2	What has changed? .....	16
3.3	Key issues.....	22
4.	Community - Social capital.....	25
4.1	Pre-crisis analysis.....	25
4.2	What has changed? .....	28
4.3	Key issues.....	30
5.	Environment - Natural capital and the climate emergency .....	32
1.1	Pre-Crisis analysis – Natural Capital.....	32
1.2	Pre-crisis analysis - Climate Emergency .....	35
1.3	COVID: What has changed? .....	38
1.4	Key issues.....	39

## Table of figures

Figure 1 - Gross fixed capital formation as a % of GDP	5
Figure 2 - Total Expenditure on Research & Development as a percentage of GDP (%), Selected Countries, 2001 - 2017	6
Figure 3 - Net balance business turnover the year to April 2020	7
Figure 4 - UK Consumer sentiment indicator	9
Figure 5 - Consumer spending	10
Figure 6 - UK CPI inflation and Interest rate	11
Figure 7 - Actual and projected natural change and net international and rest of UK migration in Scotland	14
Figure 8 - Estimated and projected age structure of the Scottish population, mid 2016 and mid 2041	14
Figure 9 - Projected population by age, 50% less EU migration variant and principle projection, Scotland and UK, 2016-2041	15
Figure 10 - Total number of persons temporarily away from paid work, seasonally adjusted, Jan-Apr 2017 to Jan-Apr 2020	17
Figure 11 - UK Employment %age growth. employees & self-employed (16+), seasonally adjusted compared to Feb-Apr 2015	18
Figure 12 - Paid employees, seasonally adjusted, UK July 2014 to May 2020	19
Figure 13 - UK Claimant count, seasonally adjusted, between Jan 2008 and May 2020	19
Figure 14 - Number of vacancies in the UK, seasonally adjusted, Between March to May 2002 and 2020	20
Figure 15 - UK total actual weekly hours worked (people aged 16 years+), seasonally adjusted, Aug-Oct 1992 to Feb-Apr 2020	20
Figure 16 - GB average weekly earnings annual growth rates, seasonally adjusted, Jan-Mar 2001 to 2020	21
Figure 17 - Claimant Count in Scotland	22
Figure 18 - Social capital index	26
Figure 19 - Social capital - Urban Rural	27
Figure 20 - Social Capital - Variations across local authorities	27
Figure 21 - Social capital measures during the Covid-19 pandemic	28
Figure 22 - Map of local C19 response initiatives with example	29
Figure 23 - Percentage Change in asset value by service from 2010, Scotland [2016]	33
Figure 24 - Global warming relative to 1850-1900 (°C). Source IPCC	35
Figure 25 - Scottish Greenhouse Gas emissions, 1990 to 2017, Values in MtCO <sub>2</sub> e	36
Figure 26 - Scotland's Carbon Footprint, 1998-2016. Values in MtCo <sub>2</sub> e	37
Figure 27 - Daily electricity demand from Start of March - 2020 vs 2019	38

# 1. Introduction

This collection of material draws together the main elements of the background analysis that informed the work of the Advisory Group on Economic Recovery.

There is a section on each of the four capitals, each of which looks broadly at the issues before and after the crisis and includes a summary of available analytical material.

Each section concludes with a discussion of the issues raised. This analysis informed the initial deliberations within the Group.

These sections have not been revised in the light of the Group's subsequent discussions. Nor do they reflect the wealth of written inputs that the Group received from organisations, businesses and individuals over the course of its work. These will be included in a further publication analysing the responses, which will themselves be published in due course.

The post-crisis economic analysis has, however, been updated to acknowledge, as far as possible, the emerging data up to Thursday 18 June 2020.

## 2. Business - economic capital

### 2.1 Pre-crisis analysis

The wider macroeconomic situation in Scotland is covered in section 2 of the main report whilst regional and sectoral issues are picked up in Section 4, so the analysis in this section focuses on more microeconomic aspects of business and public investment in economic capital. Wider economic issues are picked up in again section 2.2 with the exception of labour market issues which are covered under the People pillar.

At a high level, overall levels of public infrastructure investment in the UK are low on an international basis as a percentage of Gross Domestic Product (GDP) and the situation in Scotland, in terms of larger public infrastructure, is constrained by the choices of UK Government. Whilst capital spending is devolved in Scotland, the amount of funding received through the block grant is based on UK Government spending and the nature of Scotland's income tax powers means there is relatively limited scope for any significant extension.

Despite this, since 2007, the Scottish Government has supported the transport system with over £20 billion of investment across trunk roads, rail, buses, ferries and air services as well as active travel, including delivery of the iconic £1.35 billion Queensferry Crossing and the M8/M73/M74 Motorway Improvements projects. The Borders Railway opened in 2015. It's the longest new line built, in the UK, for over a century, and takes passengers between Tweedbank and Edinburgh in less than an hour. Since opening, the line has had a significant economic and social impact on the area, with passenger numbers increasing each year through 4 million journeys.

Scotland has also diverged from the rest of the UK in terms of Housing. The SG is spending over £3 billion to deliver at least 50,000 affordable homes, of which 35,000 will be for social rent, by March 2021<sup>1</sup>. This investment, in partnership with councils, housing associations and developers, will leverage economic output in the region of £1.4 billion per year, supporting around 10,000 to 12,000 jobs per annum in the construction and related industries. This investment compares favorably with the equivalent figure for the UK.

---

<sup>1</sup> More information on Scottish Government's More Homes Initiative can be found here: <https://www.gov.scot/policies/more-homes/affordable-housing-supply/>

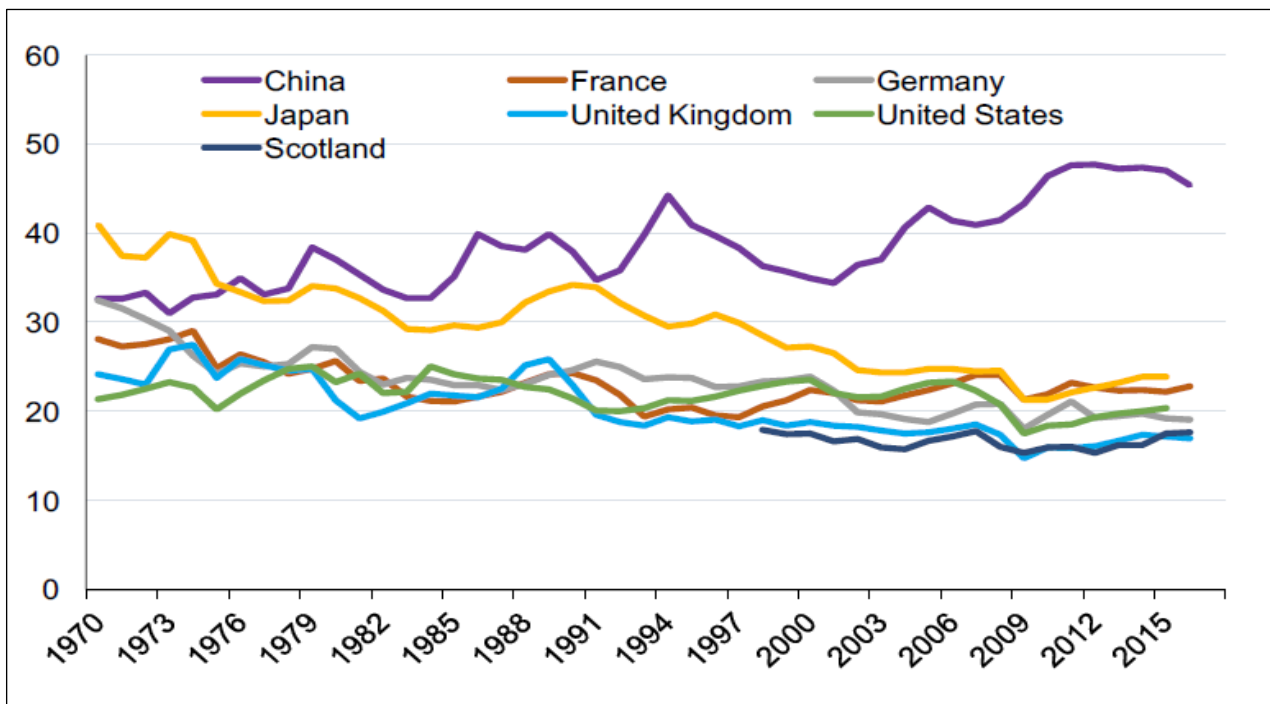


Figure 1 - Gross fixed capital formation as a % of GDP

However, more generally, across the UK as a whole there is a long-standing problem of underinvestment compared to other advanced economies. In 2016, public and private investment was 17% of GDP – the fifth lowest of the EU countries and ranking 118<sup>th</sup> in the world. See Figure 1. Only Greece, Cyprus, Portugal and Lithuania were lower in Europe, while all other major advanced economies invest significantly more. As with most Western countries, the level of investment in the UK has been falling for much of the past half century, with Scotland demonstrating a similar pattern. This has potentially contributed to low growth in productivity which means that the UK as a whole has lost the gains in made earlier in the twenty first century and has fallen behind comparator countries such as France, Germany and the United States.

The public infrastructure aspects of this gap are being addressed in Scotland through the National Infrastructure Mission<sup>2</sup>:

“To maintain competitive economic conditions in an increasingly global market, and to deliver a long term boost to Scotland’s economy, we will drive forward a National Infrastructure Mission and steadily increase Scotland’s annual infrastructure investment until it is £1.5 billion higher by the end of the next Parliament than in 2019-20. On current estimates that would mean around £7 billion of extra infrastructure investment by the end of the next Parliament.”

In terms of innovation, Scotland’s relative performance lags behind comparator countries. According to the European Commission’s Regional Innovation Scoreboard Scotland is classed as an innovation ‘Follower’ and ranks around the middle of EU countries across a composite of innovation indicators. Scotland’s country comparators all perform more strongly. For example, Switzerland is classed as an innovation ‘Leader’, as are the majority of regions in Sweden, Finland and Denmark (though regions within these countries have more mixed performance).

<sup>2</sup> <https://economicactionplan.mygov.scot/investment/infrastructure/>

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

Scotland's overall expenditure on R&D as a percentage of GDP is low relative to comparator countries, pointing to a possible issue. It has been relatively flat over time and lower than the OECD and all comparator countries, with the exception of Ireland since 2004. See Figure 2.

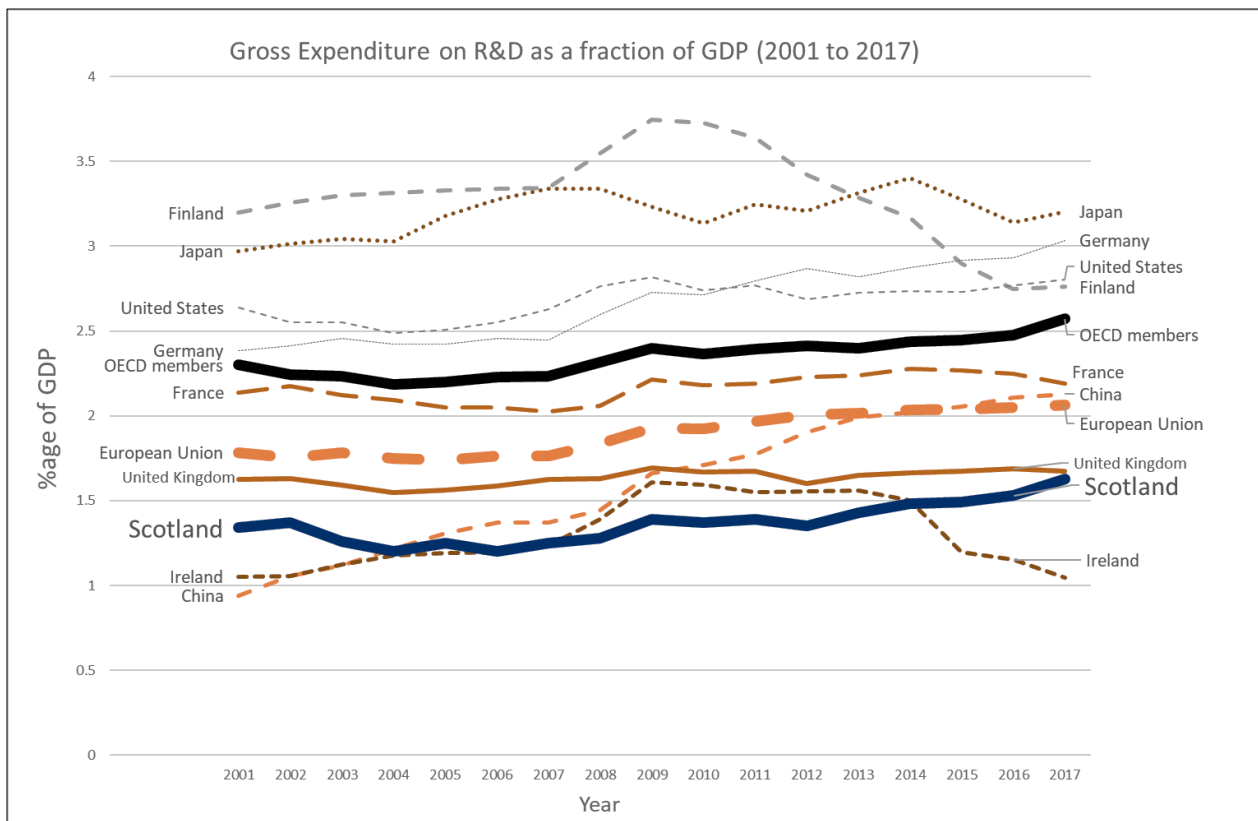


Figure 2 - Total Expenditure on Research & Development as a percentage of GDP (%), Selected Countries, 2001 - 2017

Source: OECD, Scottish government

Within this, Scotland performs particularly poorly in terms of Business Expenditure on R&D (BERD), ranking 5<sup>th</sup> amongst 6 comparator countries. On Intellectual Property (IP) registrations to the UK Patent Office, Scotland performs worse than the UK, though performance has improved in recent years.

However, a unique feature of the Scottish investment landscape lies in the success and volume of investment by universities and other academic institutions. For example, in 2012 Scotland's higher education R&D expenditure (HERD), as a percentage of GDP, was the 4<sup>th</sup> highest in the OECD, with half of Scotland's university research being assessed as world-leading or internationally excellent. Scotland's high levels of intellectual capital, as demonstrated by our research, looked at alongside the low levels of R&D expenditure, underscored by the relative lack of technology based companies in Scotland, is a key area of opportunity.

## 2.2 What has changed?

On the back of significant global trade headwinds in 2019, many businesses have faced supply chain disruption and a fall in demand for exports in 2020 as the coronavirus pandemic has spread internationally and lockdown measures across countries have impacted on demand and output.

Early evidence on the impacts in Scotland was published in the SG Monthly economic brief on 8 June<sup>3</sup>.

Between 4th May and 17th May, 77% of Scottish exporters (whose financial performance was outside normal expectations) reported that they are exporting less than normal compared to 62% of importers (UK: 74% of exporters and 60% of importers).

16% of Scottish exporters (UK: 17%) during the pandemic reported that their exports had not been affected, compared to 29% of importers (UK: 28%). HMRC data for trade in goods in the UK, showed that in March 2020 the total value of exports of goods (EU and non-EU) have fallen by 15% to £28.8 billion compared to March 2019.

HMRC also published data on Scottish ports activity for non-EU trade only. Scottish port data shows a slight drop in activity in Scottish ports compared to March 2019, and provides an early indication of the impact of COVID-19 on Scottish trade in goods. Compared to March 2019, non-EU exports leaving Scottish ports fell by 28% and non-EU imports entering Scottish ports fell by 24%.

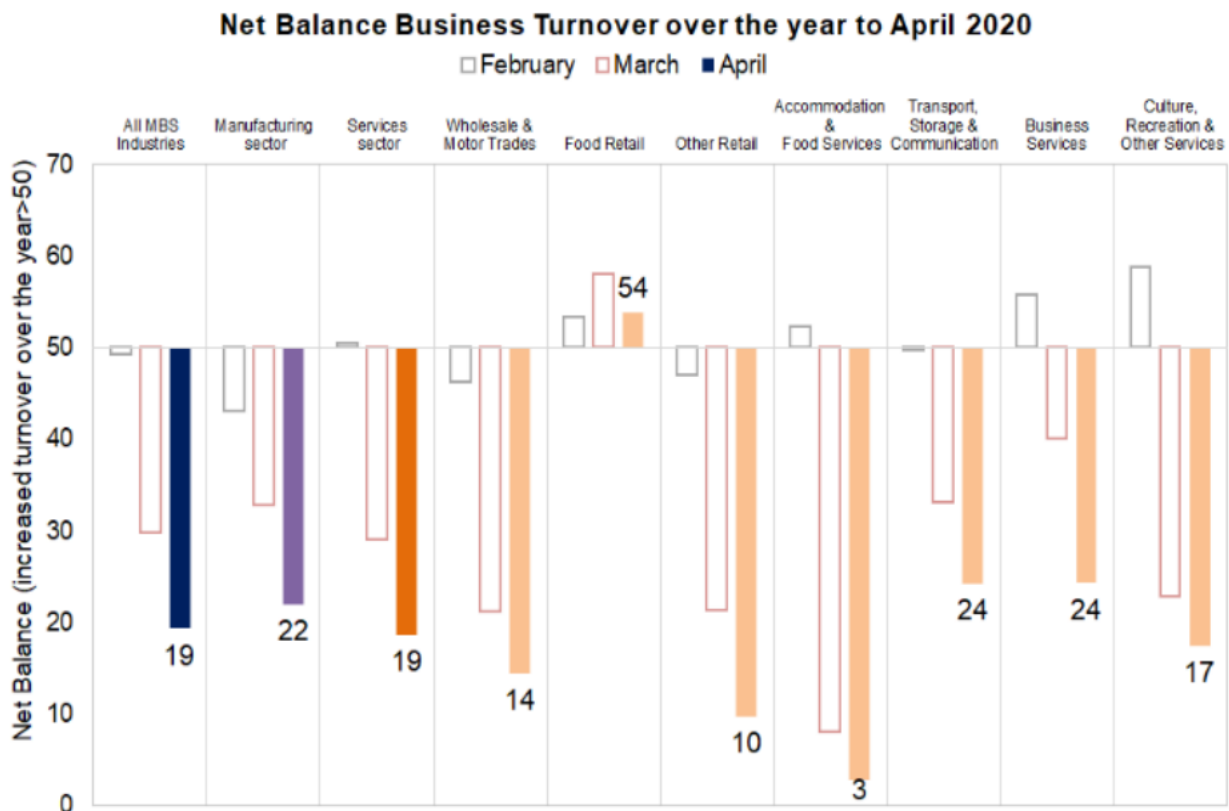


Figure 3 - Net balance business turnover the year to April 2020

Source: SG, new experimental statistics analysis from ONS Monthly Survey

<sup>3</sup> <https://www.gov.scot/publications/monthly-economic-brief-2/>



## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

Over the year to April 2020, business turnover in Scotland has decreased for most companies across almost all sectors and decreased to a larger extent than in March (19, down from 30), capturing the full month of lockdown measures. The 'Food Retail Industry' was the only industry with most businesses reporting an increase in business turnover, however also to a lesser extent than in March. The industry with most businesses reporting a decrease in turnover was in the Accommodation & Food Services Industry, followed by 'Other Retail'.

These trading issues are reflected in early data on the cash reserves of businesses. The BICS survey<sup>4</sup> reported that, of the businesses that had not permanently stopped trading between 4th May – 17th May:

- 36% of Scottish businesses had cash reserves to last between 0 to 6 months (UK: 42%).
- 36% of Scottish businesses had cash reserves to last more than 6 months (UK: 30%).
- 2.9% of Scottish businesses reported they had no cash reserves at all (UK: 4%).

In terms of company closures, Quarterly Companies House data for Scotland reported a slight increase in the number of company dissolutions in Q1 2020. Between January and March 2020, there were 6,378 dissolutions in Scotland (UK: 136,978). Compared to Q4 2019, the number of dissolutions increased slightly by 1% (UK: +13%). Monthly data, which is only available for the UK as a whole, for March 2020 showed that the number of dissolutions increased by 7,453 (23%) compared to March 2019.

On the consumption side of the economy, physical distancing measures, alongside more fragile household finances and weakening consumer sentiment is impacting demand in the economy and overall saving and consumption patterns. UK consumer sentiment has fallen sharply since the end of March, reflecting weaker expectations about the performance of the economy and personal household finances and in May remained low at minus 34 but is 5 points higher than its lowest level during the financial crisis.

---

<sup>4</sup> ONS Business Impacts of COVID-19 Survey (4 – 17 May).

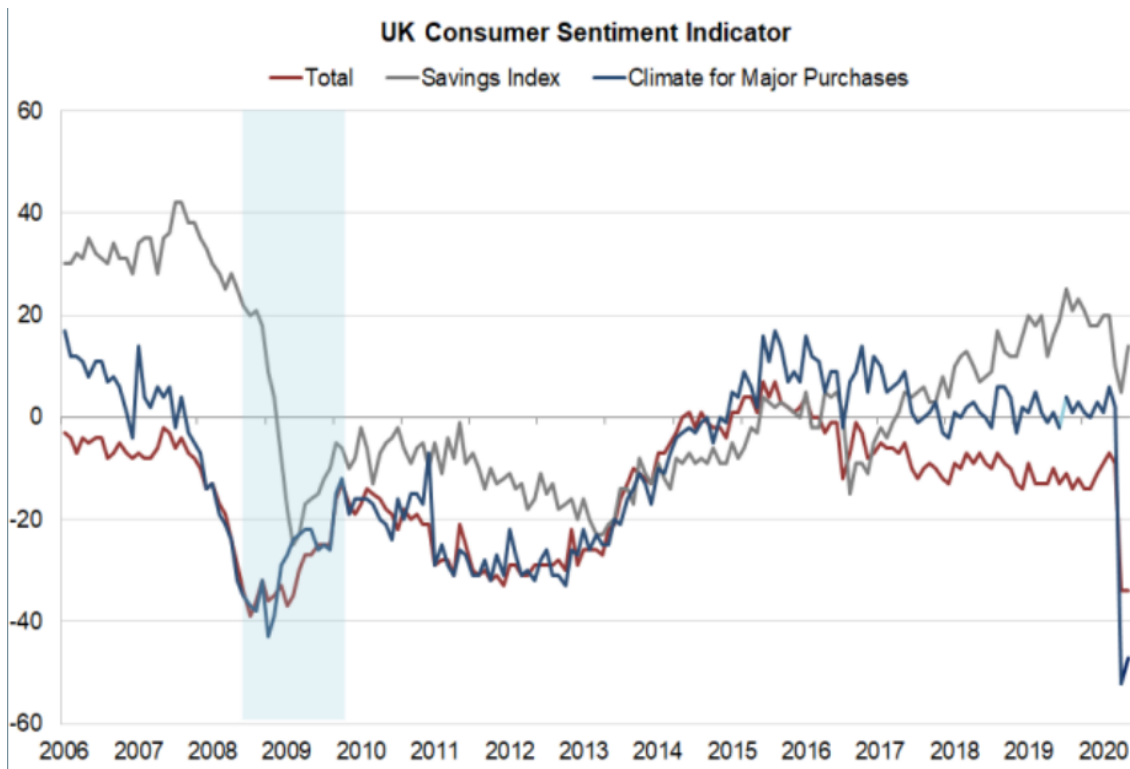


Figure 4 - UK Consumer sentiment indicator

Source: GfK. Macrobond

Compared to April, households in May reported small improvements in economic and household financial expectations for the next 12 months and a pick-up in attitudes towards savings. Consumer spending data from Barclaycard showed a 36.5% fall in UK consumer spending over the year to April 2020 following a fall of 6% in March. Spending on essentials declined by 7.5% due to a 59% drop in fuel spend, while non-essential spending declined by 48% driven by large falls in travel spend (-87%) and spending in bars, pubs and clubs (-97%). Digital subscriptions continued to increase in popularity with strong growth of 50% potentially reflecting increased demand through home working, learning and entertainment. Spending in supermarkets rose 14% as people prepared more meals at home.

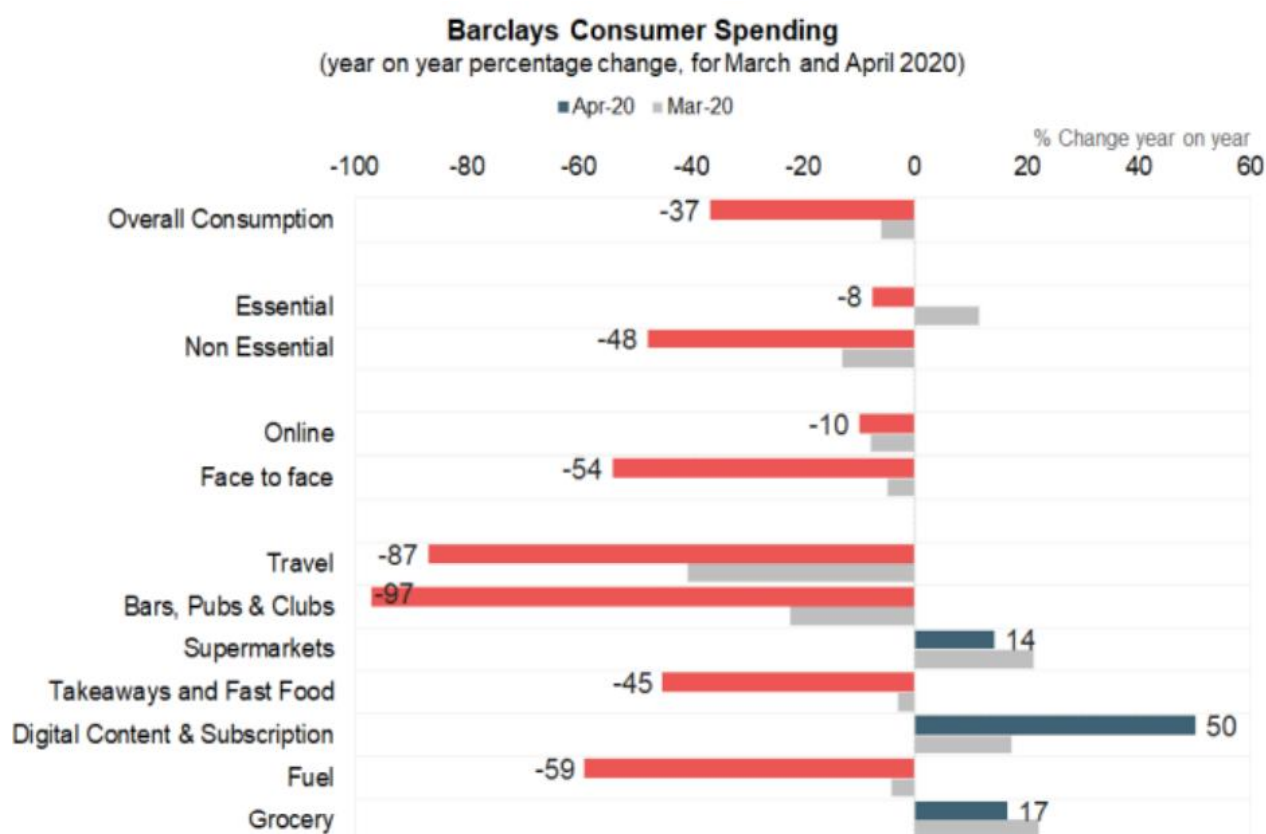


Figure 5 - Consumer spending  
Source – Barclays card data

The fall in consumer spending in April amid lockdown, has contributed to a sharp fall in UK net unsecured lending. Gross lending to consumers fell to £11.8 billion in April, almost half its level than at the start of the year, while repayments on credit cards and other loans also fell in April (by 19%). Overall the level of gross lending to consumers in April was more than offset by the level of repayment and net unsecured lending to households fell by £7.4 billion over the month.

In terms of retail sales, Scottish Retail Consortium data on retail sales for April reported an annual decrease of 40.3% in total retail sales in Scotland; its biggest fall on record. The decline in retail sales in April was mainly driven by a fall in non-food retail sales. Over the year to April, non-food retail sales fell by 71.4%, while food retail sales fell by 2.3%. The fall in food retail sales in April likely reflects the unwinding of stockpiling undertaken in March, however the combination of lockdown measures, increased pressure on incomes and weaker sentiment are likely impacting the overall fall in retail sales.

This fall in demand, alongside the fall in oil price to record lows has placed downward pressure on inflation at the start of 2020. The Consumer Prices Index including owner occupiers' housing costs (CPIH) 12-month inflation rate was 0.9% in April 2020, down from 1.5% in March 2020 and fell to 0.5% in May. Key downward contributions to the rate came from falling energy and fuel pump prices. The largest offsetting upward contributions came from a rise in recreational goods.

## UK CPI Inflation & Interest Rate

— Consumer Price Index (CPIH) — Interest Rate

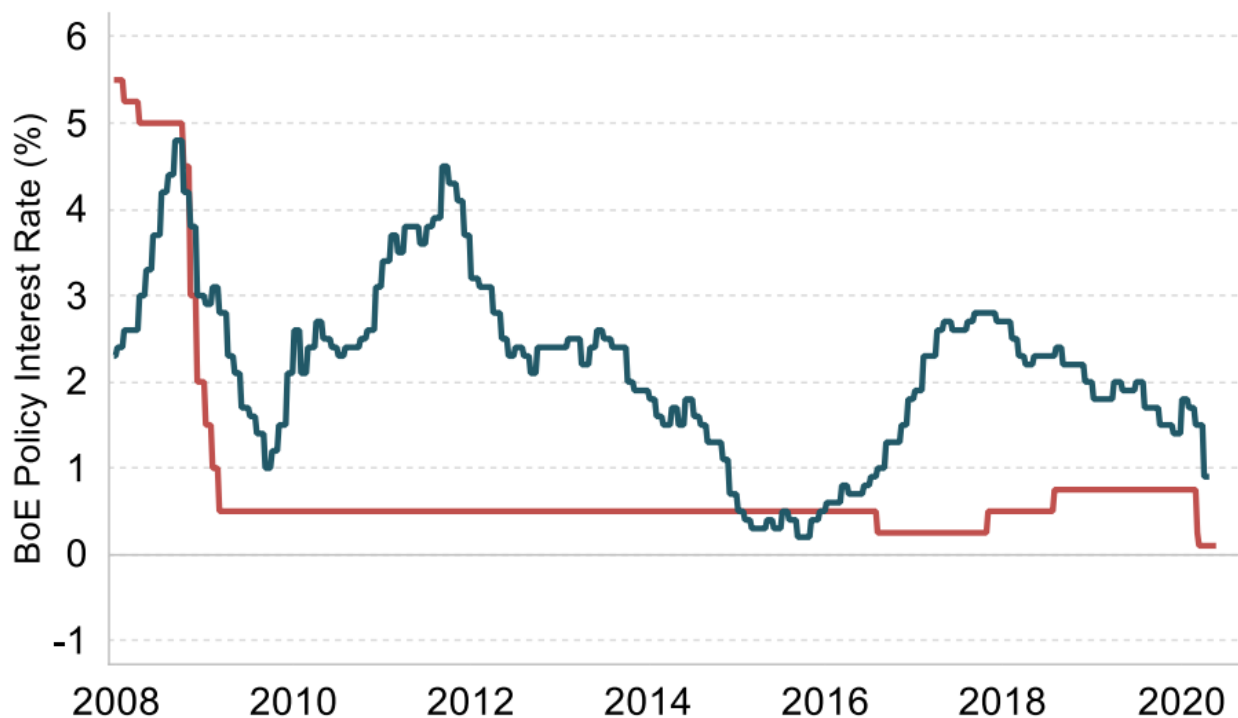


Figure 6 - UK CPI inflation and Interest rate

Source: Macrobond

The Bank of England reduced the Bank Rate to 0.1% in March 2020 and in their current central scenario analysis project inflation to fall to 0.6% in 2020 and 0.5% in 2021 before picking up to target at 2.0% in 2022. On the 18<sup>th</sup> June, the Bank's Monetary Policy Committee voted to increase the level of quantitative easing by £100bn which was smaller than some had been predicting.

### 2.3 Key issues

As the analysis above shows, the productive potential of the Scottish economy is facing an unprecedented shock but the businesses secured during lockdown will help ensure jobs in recovery.

The context post-crisis will be different for different sectors. There is a need to distinguish between immediate circumstances and the longer-term implications – for much of the economy, the issue is simply debt and short-term survival, but for some sectors dependent on travel (tourism, travel, airports, HE and FE) the situation is much graver. The overall fiscal position is very tight – the temporary boost through Barnett consequentials has been consumed by health and care spend.

Financial resources are likely to be tight and this situation may worsen. So we must look to leverage private investment or provide government backstops to other forms of capital-raising. This will need to be done systematically, consistently and professionally. But the crisis should not deflect attention from the long-term challenges facing Scotland – the climate emergency, place-based inequality and population resilience and that there remains a clear mission-based role for the Scottish National Investment Bank.

## **Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex**

Scotland's universities are a key strength but one that will be under financial pressure from reduced (international) student numbers. How to ensure that the current strengths are maintained and how the wider education sector including colleges can contribute will be crucial.

Scotland has other strengths within its business sectors: tourism and hospitality, higher education oil services, health life sciences, some renewables, data sciences, quantum/nano-tech, advanced manufacturing, premium food and drink, financial services. Some such as oil services have issues beyond COVID-19 whilst others such as tourism, hospitality, higher education and premium food and drink will also have a Brexit effect. Sectors will need to reconfigure their businesses – the challenge is innovation and safety. Decluttering and focusing the economic development landscape will enable limited resources to be focused where there is future potential.

In all of this the relationship between Scotland and the UK Government will be crucial but the collective effort in lockdown can be matched in recovery.

## 3. People – the human dimension

### 3.1 Pre-crisis analysis

Over the last year, before the crisis, Scotland had seen a 16,000 fall in the employment and a 20,000 increase in inactivity which is somewhat out of step with the picture across the rest of the UK. In the 3 months to March 2020 the employment rate was 74.7%; the unemployment rate 4.1%; the inactivity rate 22.1% and the Youth Employment rate (16-24 yrs) - 53.6%; (with associated unemployment rate 12%; and inactivity rate 39.1%).

In the year to December 2019, Scotland had 330,000 self-employed workers, up slightly on 321,000 in the previous year and which represents 12-13% of Scotland's workforce.

Scotland also faces a significant demographic challenge with a large increase in the pension age population and small decrease in the working age population projected in the next 25 years. In addition, Brexit is likely to change the patterns of inward migration to Scotland, with implications for specific sectors and occupations. For example, looking to the longer term, in 2018, the Scottish Government published a discussion paper<sup>5</sup> on the impact of Brexit on migration and the specific Scottish impacts in terms of the population challenges we face as a nation.

Powers over immigration are reserved to the UK Government under the Scotland Act 1998 but inward migration brings benefits to Scotland's demography, economy and society. The demographic benefits of migration are made clear in projections from NRS and ONS of Scotland's future population growth. There are projected to be more deaths than births in every year going forward. Each year for the next 25 years all of Scotland's population growth is projected to come from migration. UK Government policy and the impact of Brexit means that international migration to Scotland is projected to decline, further inhibiting Scotland's population growth.

---

<sup>5</sup> <https://www.gov.scot/publications/scotlands-population-needs-migration-policy/>

**Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex**

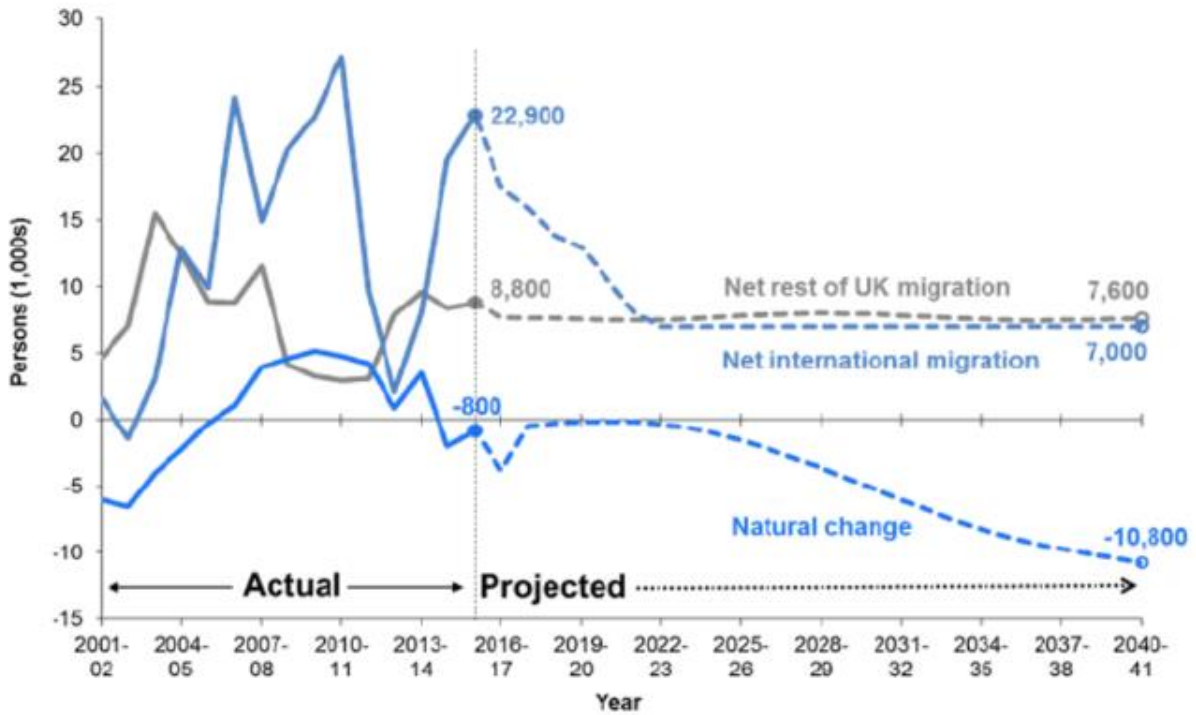


Figure 7 - Actual and projected natural change and net international and rest of UK migration in Scotland  
Source ; NRS

The age profile of the population will also change. The proportion of the population of state pension age will increase by 25% in the coming years as the Baby Boomer generation reaches retirement. People aged 75 and over are projected to be the fastest growing age group in Scotland, increasing by 79% over the next 25 years.

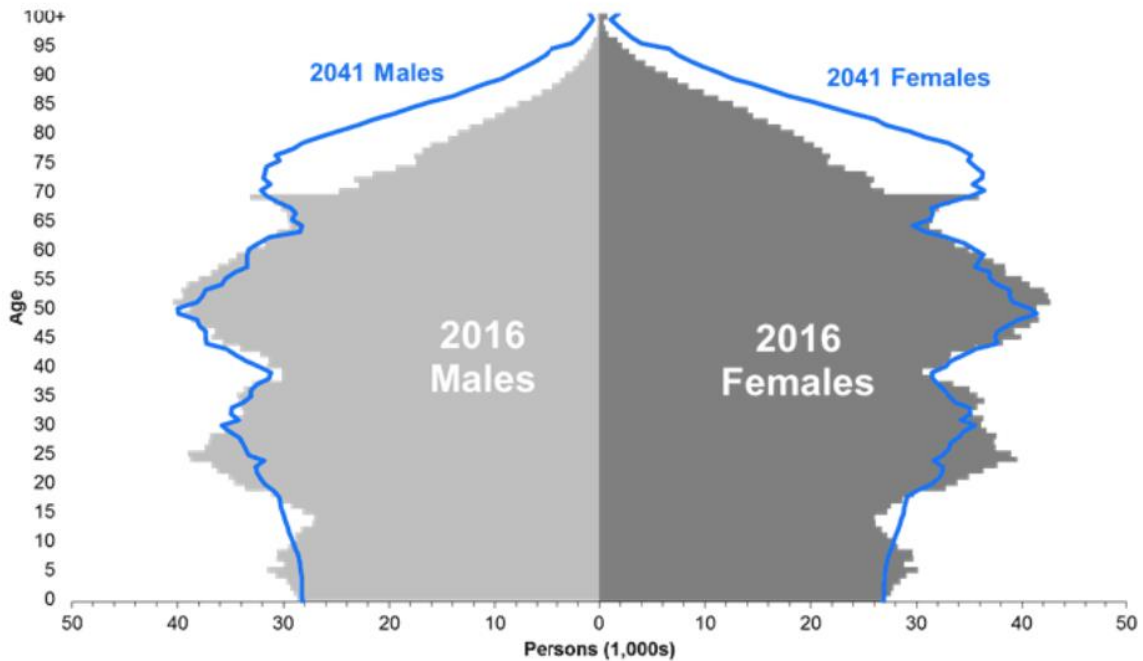


Figure 8 - Estimated and projected age structure of the Scottish population, mid 2016 and mid 2041  
Source : NRS – National population projections (2016-based)

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

The prospect of people in Scotland living longer, healthier lives is welcome, and increasingly many people of state pension age continue to work and contribute to the economy in that way. It is also the case that people in the oldest age categories become more likely to need access to health and social care services to support them in old age. Those essential public services will require a buoyant working age population with appropriate skills that over the last decade has been supported by inward migration from EU countries. A fall in inward migration from the EU is projected to have a greater impact on the level of working age population in Scotland than for the UK as a whole.

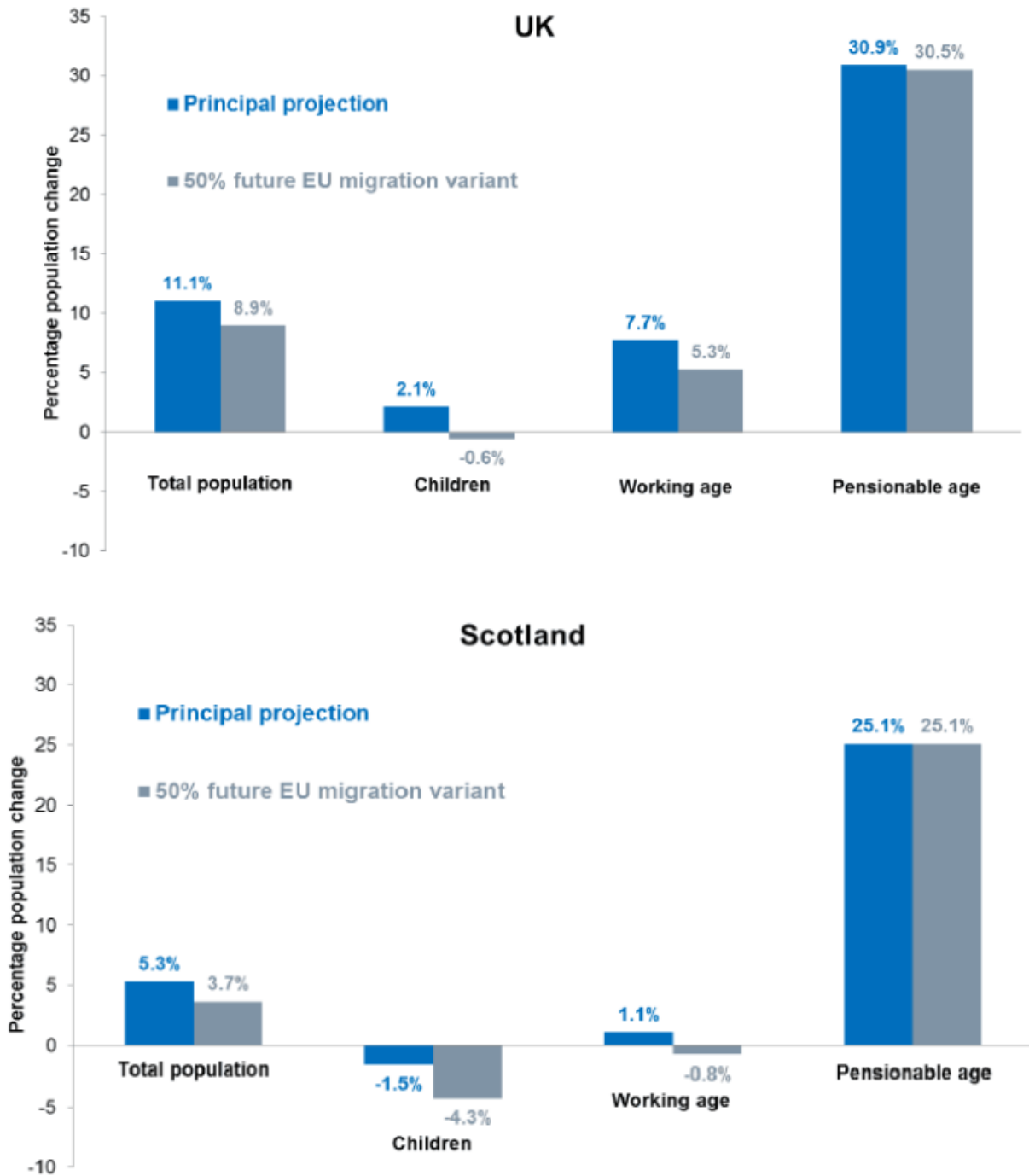


Figure 9 - Projected population by age, 50% less EU migration variant and principle projection, Scotland and UK, 2016-2041



## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

Turning to skills, while the stock of medium-low skills has continued to fall year-on-year since 2007, there has been a persistent decline in job-related training over the past 15 years and an increase in skills under-utilisation. In 2018, 42.3% of employed graduates in Scotland were working in non-graduate roles five or more years after graduating. The proportion of establishments with at least one employee with skills and qualifications more advanced than required for their current job role was 35% in 2017, increasing from 32% in 2015.

400,000 employees (16.9% of people in employment) in Scotland earned less than the real Living Wage (£9.00) in 2019, decreasing from 473,000 in 2018. That said, the proportion of employees earning less than the real Living Wage has fallen from 20.1% in 2016 to 16.9% in 2019. In 2019 real wages in Scotland increased by 0.4% – the lowest pay increase across the 12 countries and regions of the UK. Real wages remain below 2008 levels in both Scotland and the UK. In the year to December 2019 Scotland had 116,000 temporary workers. This is about 4-5% of the total workforce and is down slightly from previous years. There were 187,000 underemployed workers in Scotland in 2019 (a rate of 7.1%), a slightly fall over the year and there were 69,000 zero-hour contracts in Scotland in 2019, a slight decrease from 72,000 in 2018.

This wage structure of the population have implications for the use of Scotland's tax powers as well as for wellbeing.

There were estimated to be 2.5m adults paying income tax in Scotland in 2019-20.  
Around 1m workers in Scotland earned just £14.5k to £24.9k and paid income tax at the basic rate of 20%.  
Around 0.87m adults earned between £14.55k - £43.4k and paid income tax at the intermediate rate of 21%.  
Around 50% of Scotland's working age working population pay the basic rate of income tax or less.  
The median gross annual salary was £24,631 in 2019 - at the top end of the basic tax rate.

### 3.2 What has changed?

The fast-moving nature of the current situation means that this section draws more on *experimental data* (data that has not gone through the normal, full National Statistics processes) than would be normal in usual circumstances in order to present as up to date a picture as is possible.

Pre-COVID 19 levels of employment, unemployment and inactivity will not be sustained and the characteristics contributing to the under performance of the Scottish labour market will have worsened. The impact on the Scottish labour market is likely to be severe and long lasting and to have a disproportionate negative effect on lower paid and lower skilled jobs, on women and young people and people with a disability.

Estimates suggested that between 15% and 35% of jobs are at risk across OECD countries. The UK Government estimates an unemployment rate of 7% - 8% over the next two years. Both the Bank of England and the OBR forecasts now suggest a deep and potentially quite long-lasting recession in the UK (and elsewhere). Evidence of previous recessions of the 1980's, 1990's and post 2008, suggests that the negative effects on the labour market take around 7 years to dissipate.

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

There will be a differential impact of on workers based on several characteristics including sector, geography, class, age, and gender.

It is estimated that 750,000 people in Scotland could be furloughed this quarter, and a further 150,000 jobs could be lost as a direct consequence of the crisis. This would amount to 900,000 people, or one in three of workers in Scotland. We already know that more than 110,000 Universal Credit claims were made in Scotland in the five weeks to April 7<sup>th</sup>.

Workers in the sectors subject to enforced shutdown are likely to be the most vulnerable. They are more likely to have been furloughed or laid off. Low earners are 7x more likely than high earners to work in these sectors. 1/3<sup>rd</sup> of employees in the bottom 1/10<sup>th</sup> of the earning distribution work in shut down sectors v 5% in top 10%. Women are a 1/3<sup>rd</sup> more likely than men to work in shut down sectors and the under 25s 2.5x more likely to work in shut these sectors.

As the furlough scheme is wound down there is likely to be a significant spike in unemployment, particularly in the sectors (such as hospitality and non-essential retail) that have been shut down for the longest period. Lower skilled/paid workers are less likely to be in jobs that can be undertaken remotely and are more likely to have been furloughed or laid off.

The latest ONS Business Impact of Coronavirus Survey<sup>6</sup> results (covering 4-17 May) show that the proportion of the UK workforce on furlough, in businesses that have not permanently stopped trading, was highest in the Accommodation and Food Services (83.0% furloughed) and Arts, Entertainment and Recreation (72.6%) sectors. For Construction (40.5%), Transport and Storage (36.9%), and Admin and Support Services (31.0%) rates of furloughing were also higher than the average rate for all industries (28.1%). Furloughed rates were lowest in the Health and Social Work (6.1%) and Education (10.0%) sectors. Across almost all UK industries who responded, the proportion of the workforce made redundant was less than 1%.

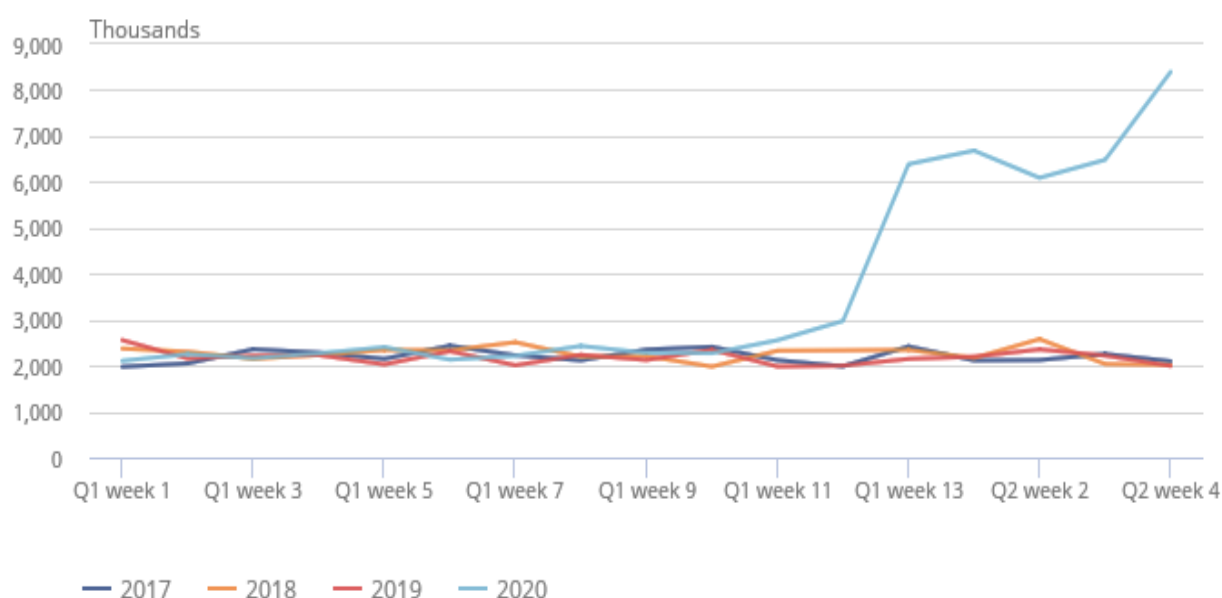


Figure 10 - Total number of persons temporarily away from paid work, seasonally adjusted, Jan-Apr 2017 to Jan-Apr 2020

<sup>6</sup> <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/coronavirusandtheeconomicimpactsontheuk/4june2020>

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

But there are signs that this may not be maintained over time as the Job Retention Scheme moves towards its end. If the experience from previous recessions is repeated, many companies that survive the impact of the shutdown may choose, due to reduced capacity and capability, to adopt a 'low road' survival strategy, which would have a detrimental impact on investment in capital equipment, fair work, skills development and innovation and in industrial relations.

Whilst it is early to say if these predictions will remain valid in the longer-term particularly if mitigated by policy responses, data that is already available at a UK level, reinforces the extreme nature of the situation. The UK Labour market review<sup>7</sup> published on 16 June, with the most recent data, at the time of publication, does not present a positive picture.

Labour Force Survey (LFS) data, covering the period up to end of April 2020, show weakening employment rates, with the self-employed and men seeing some reduction in employment.

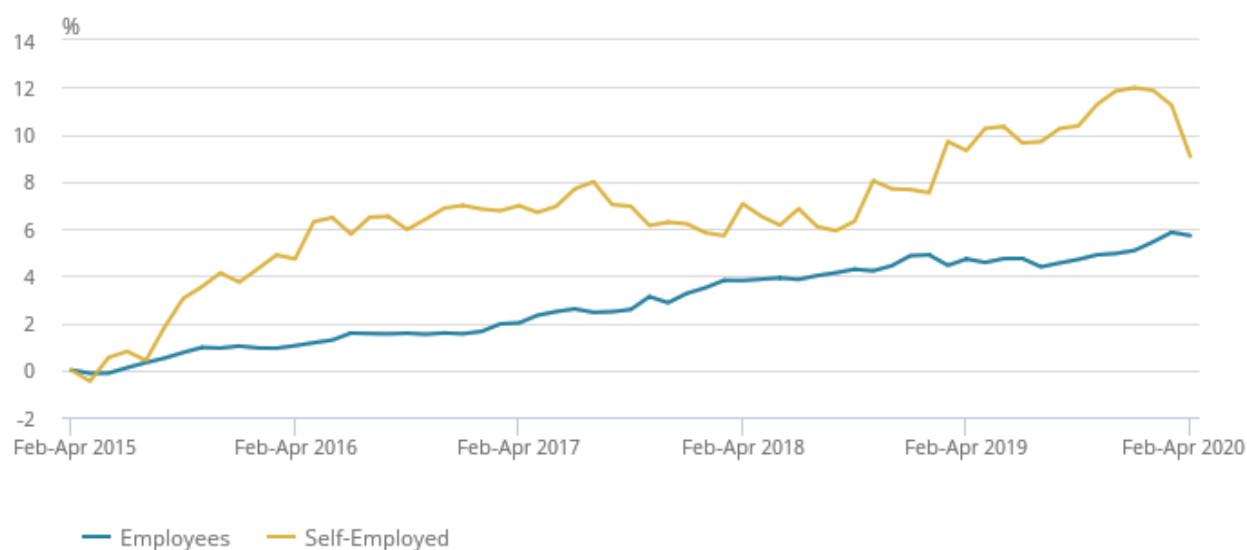


Figure 11 - UK Employment %age growth. employees & self-employed (16+), seasonally adjusted compared to Feb-Apr 2015

Source: ONS Labour Force Survey

Early indicators for May 2020 suggest that the number of employees in the UK on payrolls is down over 600,000 compared with March 2020.

<sup>7</sup> <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/june2020>

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

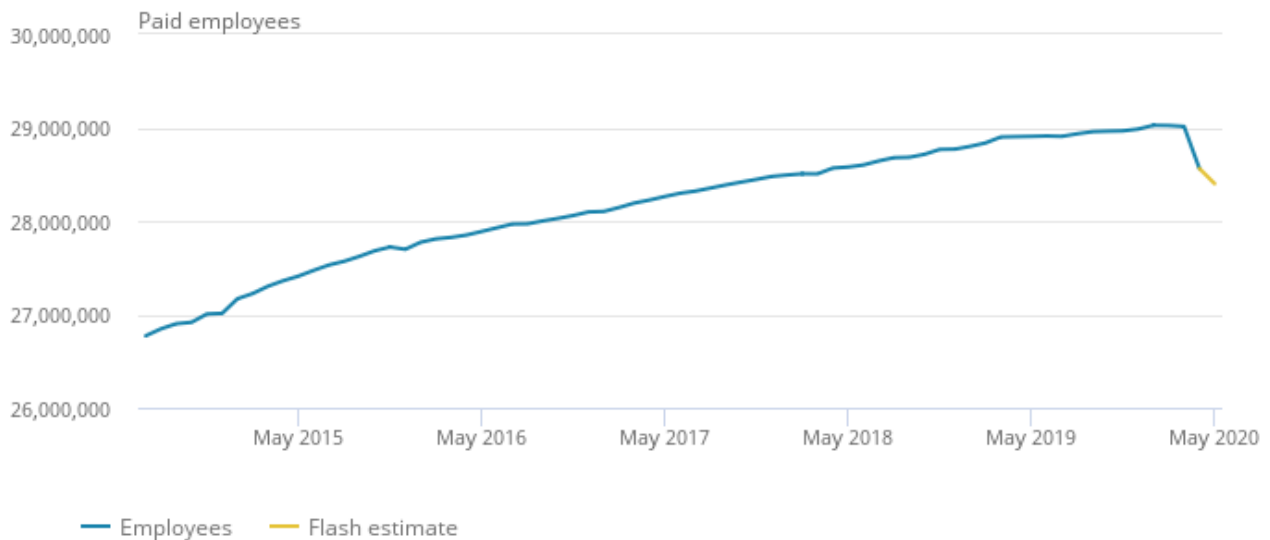


Figure 12 - Paid employees, seasonally adjusted, UK July 2014 to May 2020

Source: HMRC – Pay as you earn real time information

The Claimant Count increased in May 2020 to 2.8 million. This represents a monthly increase of 23.3% and an increase of 125.9%, or 1.6 million, since March 2020 although some of the change is due to greater eligibility due to changes to Universal Credit. Experimental Scotland data is reported in the main report.

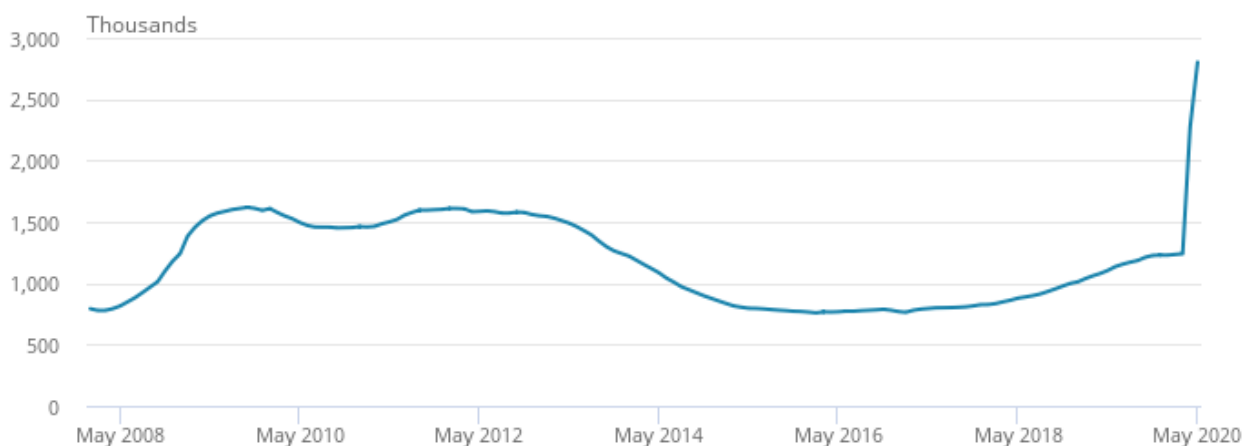


Figure 13 - UK Claimant count, seasonally adjusted, between Jan 2008 and May 2020

Source: DWP

And the number of vacancies in May has fallen to a record low - There were an estimated 476,000 vacancies in the UK in March to May 2020; this is 342,000 fewer than the previous quarter and 365,000 fewer than a year earlier; experimental single-month estimates indicate a decrease of approximately 60% of vacancies for May 2020 compared with March 2020.

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

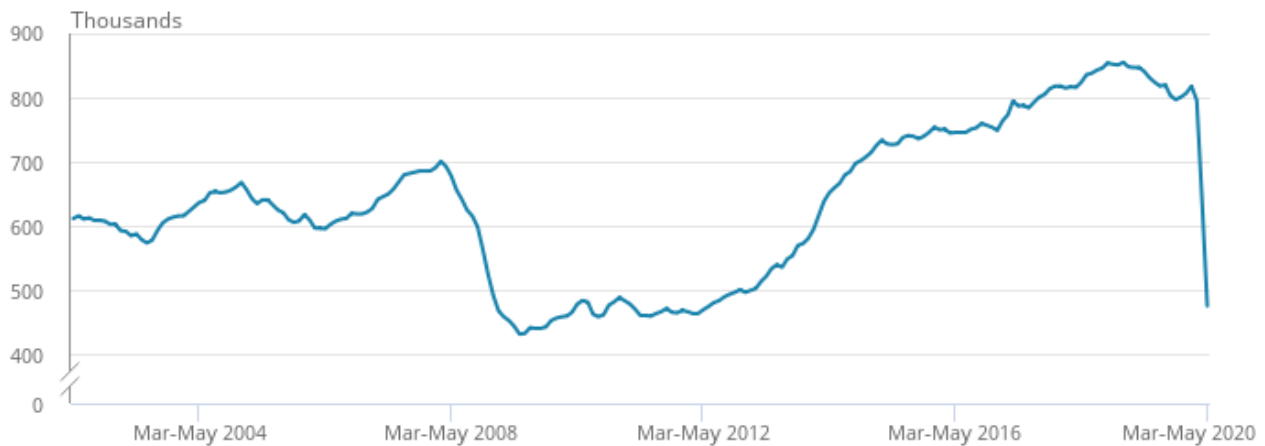


Figure 14 - Number of vacancies in the UK, seasonally adjusted, Between March to May 2002 and 2020  
Source : ONS Vacancy Survey

Workers may choose to work less hours, due to family/caring responsibilities or a lack of confidence in returning to 'normal' working arrangements. This would correspond with existing trends in working hours, with average hours having fallen over the last fifteen years despite near full employment and an increasing population.



Figure 15 - UK total actual weekly hours worked (people aged 16 years+), seasonally adjusted, Aug-Oct 1992 to Feb-Apr 2020

Source ONS – Labour force survey

It remains to be seen if changes in working arrangements and behaviours during the crisis will endure and what the longer term effects will be on worker wellbeing (including mental and physical health); workplace innovation (job design and work organisation); productivity, etc. There may also be a change in employee attitudes to work and to the hierarchy of demands workers make of employers in relation to health and safety, pay, working hours, training and development and employee voice, for example. And this may interact with different demands placed by employers on workers.

Employee average pay growth slowed notably in April 2020, and the three months to April saw total pay fall in real terms for the first time since January 2018; pay declined in industries where furloughing was most

prominent, many of these being the lowest-paying industries, in particular accommodation and food service activities.

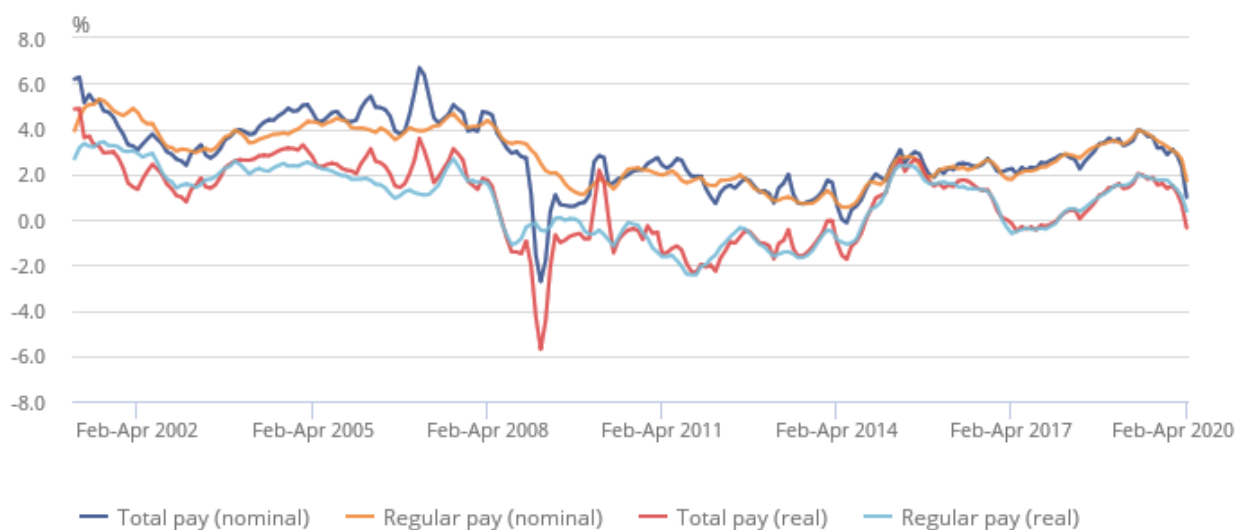


Figure 16 - GB average weekly earnings annual growth rates, seasonally adjusted, Jan-Mar 2001 to 2020

Source : ONS – Monthly wages and salaries survey

Scottish data, where available, confirms the UK position. For example, Burning Glass Technologies data shows online job postings in Scotland in April were 54% lower than this time last year, reflecting the significant drop in demand for staff from employers. The largest regional declines over the year were seen in Aberdeen City and Shire (-64%), West Lothian (-63%), and Glasgow (-60%), but every area in Scotland has seen at least a 33% fall in job postings on last year.

We are just beginning to see the impacts of COVID-19 on the labour market with the most recent labour market figures for the period until April 2020 and for youth to March 2020. Over the quarter February – April 2020 rates for unemployment increased to 4.6%, employment decreased to 74.3% and inactivity decreased to 22.1%. There were 127,000 people unemployed in Scotland up 30,000 since the last quarter. It should be noted that furloughed workers are recorded in the employment category as they are only temporarily away from work.

Youth labour market (16-24 year olds) is already beginning to show Covid-19 impact. For the year April 2019 - March 2020 compared to the previous year, the employment rate was significantly lower, a drop of 3.6% to 54.8% and the unemployment rate was slightly lower at 8.8%. Over a third of those working in accommodation and food services are aged 16-24, a sector particularly hit by lockdown measures, and those in this age group more likely to have non secure contracts.

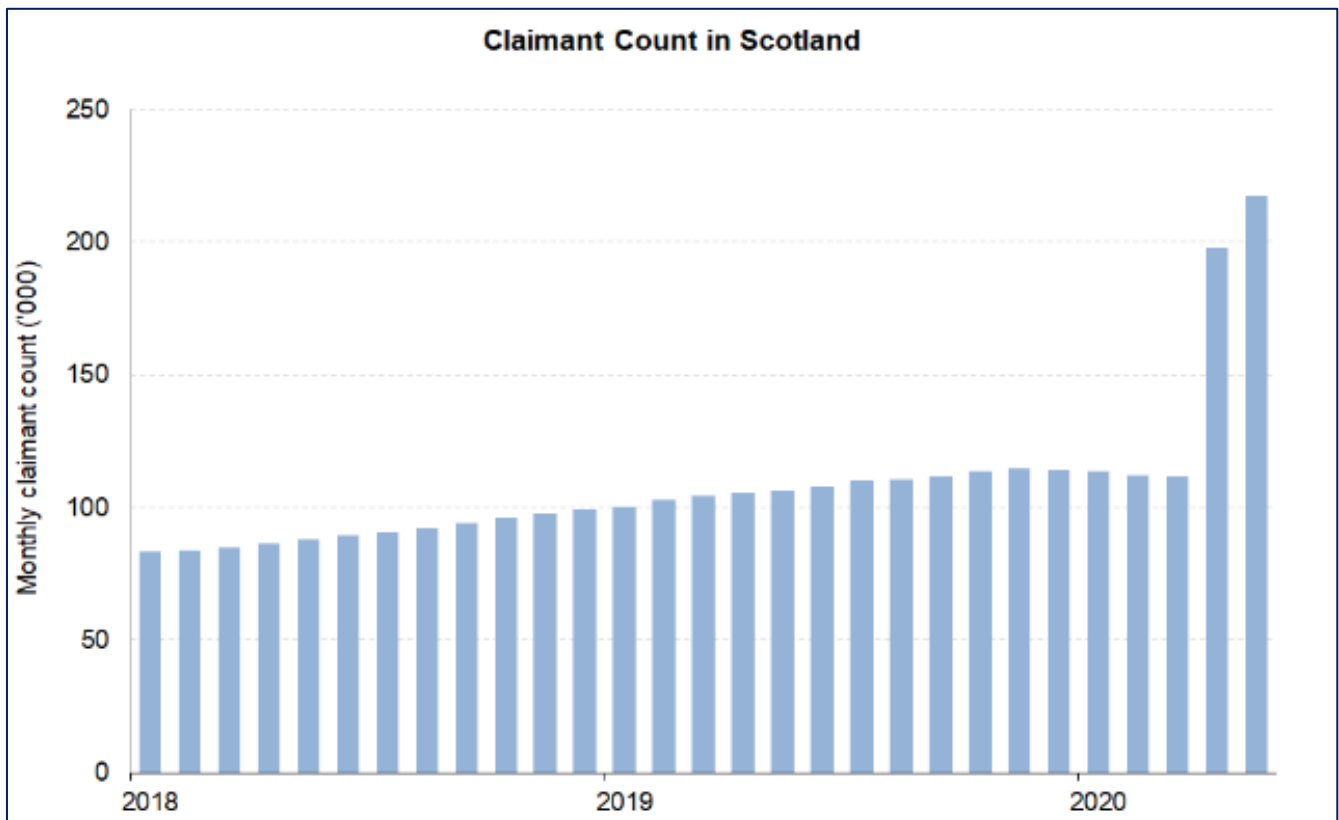


Figure 17 - Claimant Count in Scotland  
 Source : ONS Experimental claimant count

### 3.3 Key issues

1. **A substantial reduction in employment and an increase in unemployment, inactivity and underemployment is likely to be the main economic challenge facing Scotland in the short to medium term and, if not tackled effectively, for the next decade.** This will have significant social and economic costs.

**Supply side interventions**, including to upskill and retrain workers will be necessary to support transitions within and from specific sectors, organisations, as will new Intermediate Labour Market measures to support those most at risk access training and supported work. The PACE offer that supports workers facing redundancy transition into new jobs or retraining opportunities should be expanded to provide more proactive support.

The impact on young people is likely to be significant. Those sectors subject to enforced shutdown, employed 30% of all employees under 25 yrs, compared to 13% of those over 25.

Many workers who have lost or will lose their jobs will not have done so because they lack skills and if demand is not stimulated no amount of retaining or upskilling will do anything other than move them up the job queue.

This will require **reconsideration of the Scottish Government’s approach to industrial strategy, economic development and job creation and the work of the Enterprise and Skills Strategic Board in driving greater cooperation** between the skills and enterprise agencies. The Board’s work on Business Models and

Workplace Innovation will be critical in supporting businesses adapt to the post COVID environment, particularly in addressing the workplace/organisational change required.

The **business models of companies** (and the 'growth strategies' of sectors and governments) based on expanded international trade will come under extreme pressure. There will be a need for policy and the **actions of the economic development agencies** to address this and to consider how policy supports 'labour intensive' sectors, the foundational economy, community wealth building, the circular economy, the sectors at the front line in building resilience to future public health emergencies, particularly social care, and to accelerate the just transition to a NZC economy.

### **2. Changes in what constitutes the 'workplace' and how work is undertaken – remote and home working; flexible working; workplace ergonomics, safe working, etc, will be accelerated by the crisis.**

The crisis has exposed the lack of resilience and the instability of the UK's 'flexible labour' market and has impacted significantly on those with atypical employment contracts that make their employment status precarious. This demands a reconsideration of the approach to labour market regulation and enforcement, not least in relation to workplace health and safety; the definition of a 'worker'; working hours; minimum wages; flexible working; and collective rights.

Addressing the work/workplace implications of the crisis demands an understanding of the evidence and a framework to consider and implement change. In the absence of legislative power over employment and trade union law and labour market regulation, Scottish policy has adopted a 'voluntarist approach' to addressing the work/workplace/labour market implications of other economic disrupters (climate crisis, demography, AI, Brexit) through the approach to fair work.

The Fair Work Convention's **Fair Work Framework** offers a means of addressing the workplace/employment implications of the COVID 19 recovery. Its **emphasis on the importance of 'effective voice'**, is critical in giving workers a full say in how the workplace and the nature and quality of work should evolve.

**Fair Work principles** should be part of any decision making framework applied to the economic response to Covid-19.

### **3. This crisis has also raised significant issues in relation to how work is valued.**

Many of those identified as 'key workers' in tackling this 'life and death' crisis have hitherto been neither respect nor rewarded as such. Large sections of the workforce in our health and social care sectors; in food production, processing, distribution, and sales; in education and childcare; key public services; in local and national government; in utilities; and in transport, are amongst the lowest paid and face economic disadvantage on multiple levels

This raises major issues about work roles that will be important in building the resilience need not just to deal with any future public health crisis but to cope with immediate and ongoing economic and societal turbulence. This requires a reappraisal of policy across the dimensions of fair work – opportunity; respect; fulfilment; reward; and effective voice.



## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

It also demands consideration of the role of unions and collective bargaining, codetermination and industrial democracy, to ensure that the workforce is full involved in the work/workplace response to the crisis.

4. The **interrelationship between work and social security to manage economic shocks and transitions** has been highlighted by the crisis.

The principles that underpin the JRS, while atypical in the UK, are the norm elsewhere in Europe (Germany; Norway; Sweden – where unemployment benefit levels are linked to a high % of previous wages). The inadequate levels of levels of SSP; the inadequacy of Universal Credit; the case for and against UBI all require consideration.

There are several strategies and policy approaches currently in Scotland that provide a strong foundation on which to build a sustained recovery that meets the objectives of the NPF to build a fairer and more sustainable economy and society with inclusive growth, NZC, fair work and wellbeing at its heart.

These include the Fair Work Action Plan and the Fair Work Convention; the Future Skills Action Plan; the expanded Apprenticeship family; the approach to skills planning and alignment and the development of 'meta skills'; PACE; the Labour Market Strategy; the Youth Employment Strategy; the Childcare Strategy; the Enterprise and Skills Strategic Plan; the evolving work on Business Models and Workplace Innovation; Curriculum for Excellence; the Scottish Credit and Qualifications Framework; and the impending reports of the Infrastructure Commission and the Just Transition Commission. It is important that these and other relevant strategies and policy approaches are reviewed to ensure that they are aligned to addressing the human capital challenges presented by the COVID 19 crisis.

## 4. Community - social capital

Of the four capitals, social capital is arguably the one over which Scottish Government exercises greatest stewardship in the context of devolution. It is a capital which needs to grow in order to meet ever greater demands, and there are actions that can be taken to increase it. We argue that social capital is essential to economic recovery as it:

- Builds trust
- Supports the social infrastructure that is central to recovery.
- Is itself an economic contributor

While growth in social capital is possible, it is also possible to deplete it and evidence from around the world makes it clear that social capital can be depleted by:

- High levels of inequality and division
- Extreme insecurity and fear
- Inadequate support and recognition.

Without a strong social infrastructure there is no chance of an economic recovery. The four capitals are inter-dependent and together provide a framework for economic renewal and recovery.

### 4.1 Pre-crisis analysis

Scotland has pride in a long history of social solidarity and action, and has a strong civil society, but one that is - at least compared to England - very closely aligned with government. However, like England it has been clear for some time that the statutory sector is [heavily dependent upon the institutions](#), networks and groups that support and shape social capital. The high levels of social capital allow for high levels of volunteering and mutuality, but also – through the arts, heritage and cultural sectors, are responsible for developing a sense of national identity, pride and strength which is important both locally and nationally. Scotland is well served by endowed and non-endowed foundations, including Carnegie UK which operates across the UK and Ireland, Corra Foundation which has its origins in TSB Scotland but is now fully independent, Standard Life Foundation, and the Robertson Trust all of whom have played a part in moving the agenda forward in Scotland.

The National Performance Framework, the Scottish Government's wellbeing framework, discussed in section 3 of the main report includes a vision of wellbeing that depends on inter-relationships between the four capitals and shows how together they can produce beneficial outcomes. There is scope to develop measures

that better demonstrate the depth and diversity of contribution to creating social capital and dependency upon it for a healthy and successful society.

The Scottish Government measures social capital in Scotland through the Scottish Household Survey. This gives an insight into social capital from individual and community perspectives. This looks at four themes of 'social capital': social networks, community cohesion, social participation and community empowerment.

The survey questions provide analysis of social capital trends since a 2013 baseline and aggregated into a 'data index' which tracks changes in measured social capital elements. Perhaps unsurprisingly there are clear variations across local authority areas, between urban and rural areas and also those areas with higher or lower levels of deprivation – as well as different levels of social capital associated with personal characteristics such as, gender, age, disability and employment status<sup>8</sup>.

Published in February 2020 immediately before the lock-down in the UK, for example, the following figures illustrate the movement in four indices since 2013, by urban/rural classification and by variations across local authority areas. *Figure 18* shows the overall change in the index and *Figure 19* provides more detail on the differences between areas.

### Social Capital Index - Change since 2013

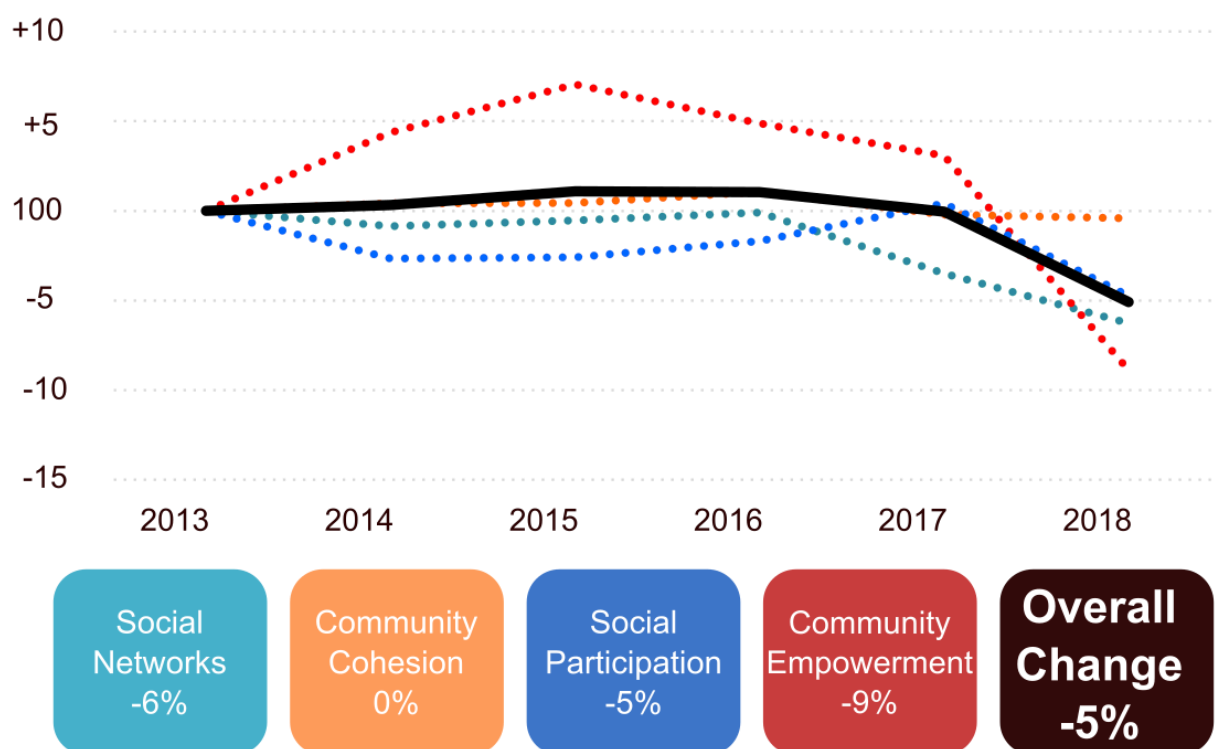


Figure 18 - Social capital index

Source : Scottish Household Survey

<sup>8</sup> <https://www.gov.scot/publications/social-capital-scotland-measuring-understanding-scotlands-social-connections/>

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

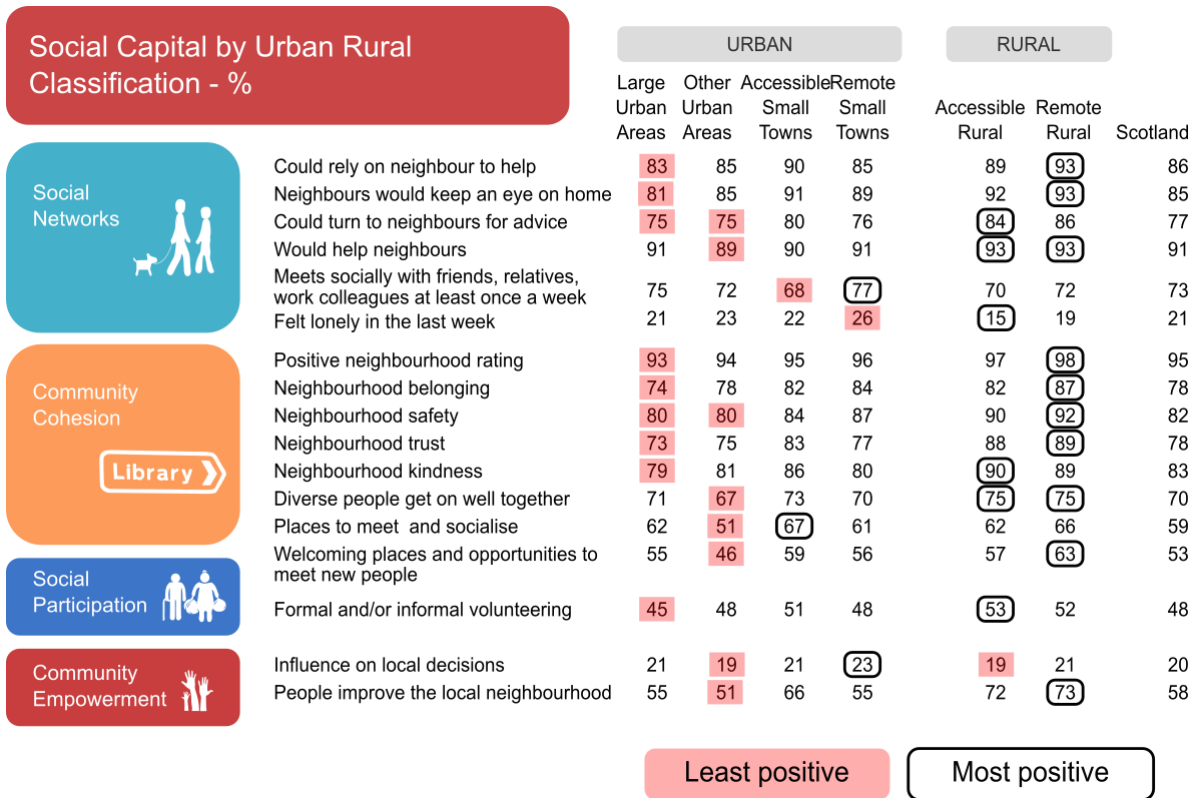


Figure 19 - Social capital - Urban Rural

The highest and lowest three outlying areas in the diagram represent measures of social capital and key indicators are elaborated on, at a local authority level in Figure 20.

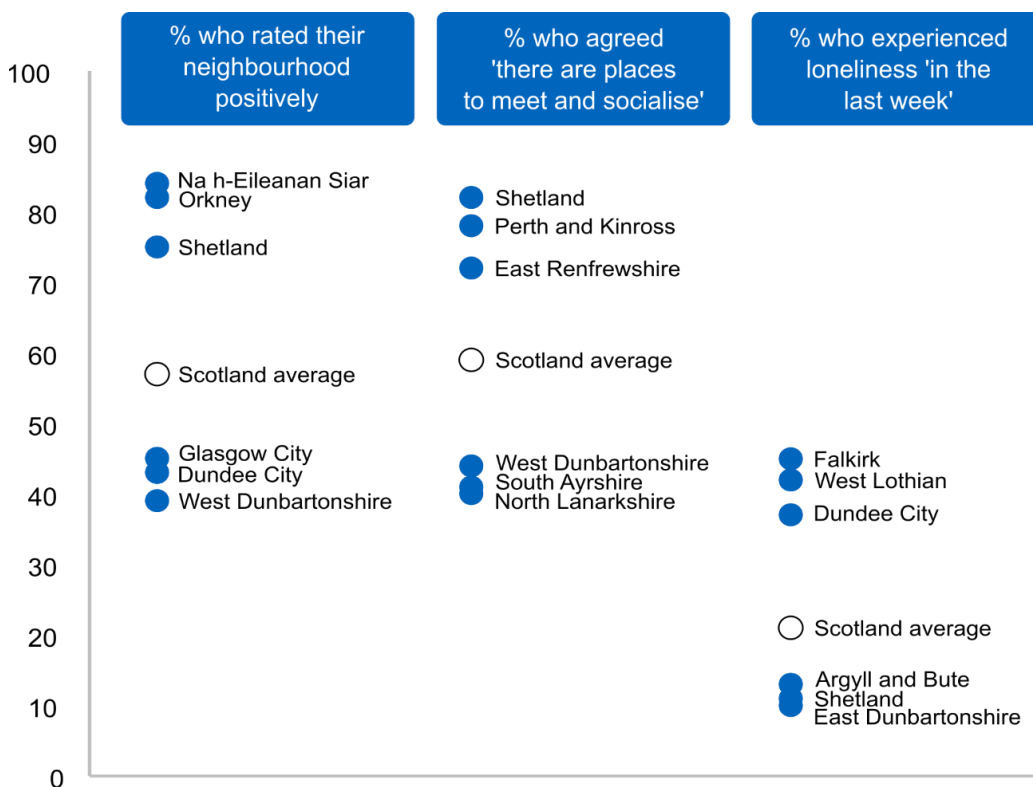


Figure 20 - Social Capital - Variations across local authorities

Source: Social capital in Scotland; The Scottish Government, 14 February 2020

## 4.2 What has changed?

The Covid-19 virus and control measures, introduced in March 2020, involved an unprecedented shut-down of the places where social capital is usually generated and maintained. Most of the usual hubs of social connection have been unavailable to, in physical workplaces, schools, shops, businesses, public transport, sport and leisure, and cultural religious and community meeting spaces and events.

Evidence suggests a high level of public compliance with the control measures (Ipsos Mori surveys, undertaken at the end of March, showed up to 77% of people were only leaving home for essential trips, 77% were avoiding gatherings with family and friends, and 41% of workers were working from home).

Along with the high levels of compliance there have been reductions in social interactions within and across groups. *Figure 21*<sup>9</sup> highlights some of the trends during the Covid-19 pandemic compared with the baseline measure in the National Performance Framework. This shows that there are reduced numbers of people who feel they can rely on their neighbours for help, lower levels of neighbourhood belonging, higher levels of loneliness and lower levels of neighbourhood safety.

Social Capital Measure	NPF (2018)	Covid-19 Survey Waves (Ipsos Mori, 2020)							
		2-4 April 2020	9-12 April 2020	16-19 April 2020	23-26 April 2020	1-3 May 2020	8-11 May 2020	15-18 May 2020	22-25 May 2020
Survey Fieldwork dates	2018								
% who agree they could rely on someone in neighbourhood for advice/support	77	51	53	50	-	57	52	52	51
% who felt lonely in the last week	21	-	-	-	-	-	-	-	59
% who felt a positive sense of neighbourhood belonging	78	-	-	-	-	-	65	62	49
% who feel safe in neighbourhood at night	82	-	-	-	-	-	75	73	-

Figure 21 - Social capital measures during the Covid-19 pandemic

The impact of these changes may be mitigated in the recovery phase, but some of the effects of lockdown may be longer-term if, for example there are longer term reductions in the availability of businesses, community venues, services, and if increased isolation leads to increased levels of loneliness and mental health effects.

The crisis has revealed the lack of resilience of the organisations in the sector, their very thin margins and the absence of useable reserves of any sort. But it has also revealed the breadth and depth of the reach, the capacity within civil society and its role in the economy of Scotland. It should also be noted that providers of

<sup>9</sup> NB. Although the survey questions are consistent over time, these surveys used a different research method. The Scottish Household Survey 2018 used fact to face surveys, and Covid surveys used web panel polling. Ipsos MORI - data was collected online as part of a multi-country survey on the Global Advisor platform. The sample (n=500) is broadly representative of the adult population aged 16-74. Data is weighted to reflect the age and gender profile of the Scottish population aged 16-74.

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

social care, social housing, arts, culture and heritage – all vital to the functioning of Scotland’s economy, are run by organisations that in the charitable or not for profit sector.

This and the wider community response is illustrated by an interactive map produced by the Scotland’s Regeneration Forum (SURF)<sup>10</sup> that currently provides details of 112 cross-sector Covid-19 response initiatives. This is expected to rise to over 150 in mid-July when the current data gathering process ends.

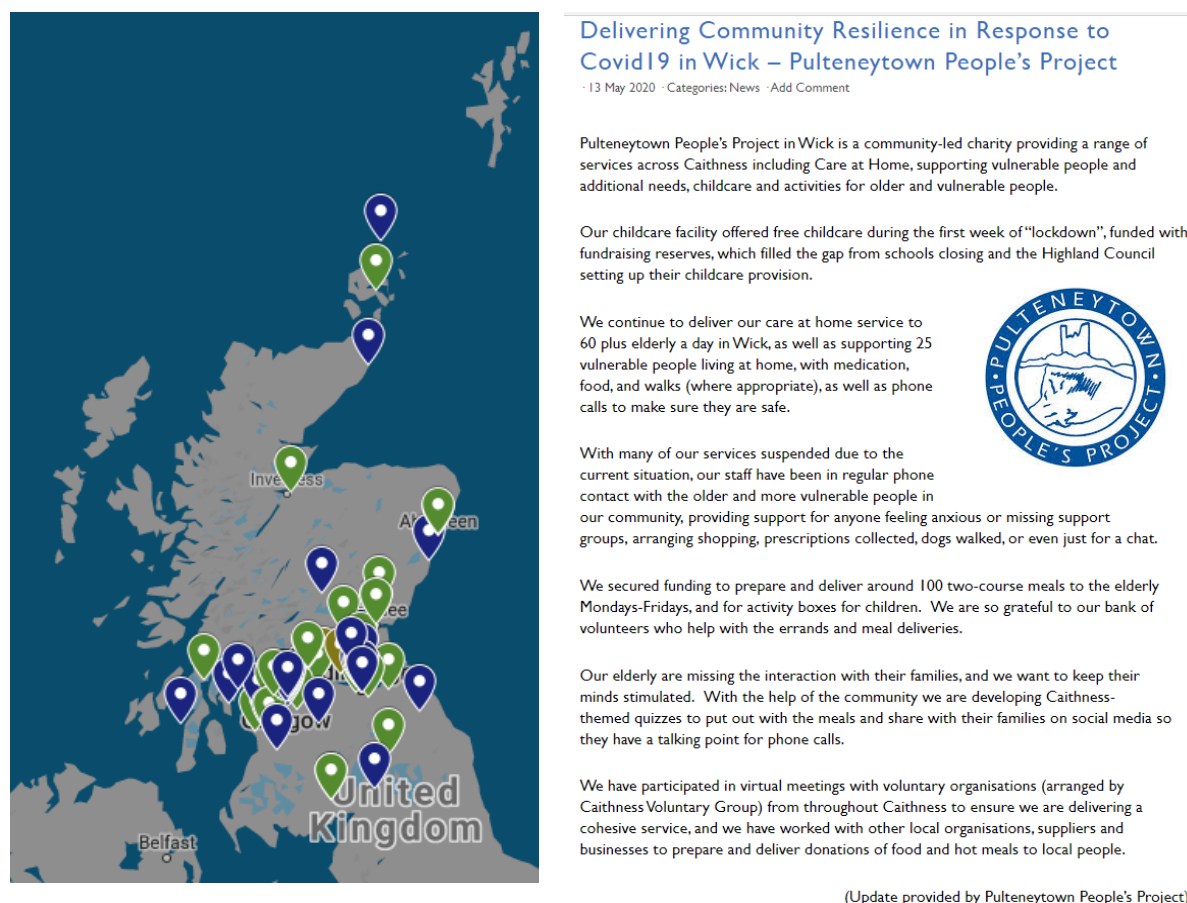


Figure 22 - Map of local C19 response initiatives with example  
Source : SURF. For full detail on the example, see footnote<sup>11</sup>

There is a renewed interest in the importance of roles that were perhaps too easily dismissed as lower status and less valued – public service in general and, care and health workers in particular. The pandemic has had a levelling effect in some ways – we are all vulnerable to it. Community and localism have emerged as important with many examples of mutual support, community support schemes, compliant behaviour for the greater good and so on. There is a fundamental need for a strong and resilient economy. There is a renewed opportunity to develop our collective understanding of social capital, how it permeates and supports the success of the other pillars and how all parts of economy and society can contribute and be valued for that.

<sup>10</sup> See <https://www.surf.scot/projects/building-back-better/showcasing-community-resilience/>

<sup>11</sup> <https://www.surf.scot/delivering-community-resilience-in-response-to-covid19-in-wick-pulteneytown-peoples-project/>

### 4.3 Key issues

The pre-Covid-19 recommendations for increasing social capital remain important, (including better integration through the design of local and national policy and practice, tackling inequalities, and investing in the social infrastructure) but there are further needs that are associated with the recovery from Covid-19 including recovering the capital lost in the pandemic period, through reduced interaction and reduced access to community life, public services and resources.

Issues include:

- Access to capital
- Building resilience and capability plus capacity
- Procurement to ensure it drives capacity, rather than erodes it.
- The risks faced by the generation of young people leaving school or college into a deep recession – and the potentially scarring effect over their lives of unemployment at this stage.
- Improving the physical estate
- Hearing the voice of the dispossessed and normally unheard – part of building confidence
- Enabling the cultural sector to flourish in the longer term.
- Reducing inequalities and closing opportunity and attainment gaps
- Developing business led employment initiatives
- Understand how to measure contribution /success of SC across the 4 pillars
- The importance of care – both the formal care sector and wider community care and support
- The role of digital in reducing isolation and enabling new sorts of networks to develop
- Significant levels of participation, through volunteering and other means
- Reductions in travel and what that means for migrants, students etc.

Social Capital is not diminished or depleted by being used, conversely it is depleted by not being used. Arguably across the spectrum of what could be defined as social capital, or contributing to the growth of social capital, there should be a focus on a 'growth' mission. There is a pressing need in the post coronavirus era to build trust, consensus, reciprocity, co-operation in order to ensure that the economy recovers. This has driven our recommendations that are detailed in the main report.

In addition, there is further work that needs to be commissioned outside this process to develop metrics for social capital to measure impact & help develop greater understanding of what it is and how it can be used. This includes measures for engagement – individual, community, etc – how can people be facilitated or to facilitate in becoming the architects or co producers of the recovery, to understand how greater social capital can support the recovery of economic capital, and social capital as a resilience builder.

This raises issues around:

- reducing inequalities and social exclusion as a key part of building social capital which in turns supports the success/resilience of the other capitals
- policy mapping to understand the full range of diverse and diffuse policy levers that lead to social capital
- analysis to understand the social as well as economic value of infrastructure in private, public and third sector

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

- in a post-Covid landscape where behaviour returns to normal, what are the lasting effects of the virus on social capital, across places, population subgroups, sectors and organisations.

And there are interesting international experiences to draw on. For example, "Building Resilience and Social Capital in Post-Disaster Recovery", Aldrich. D. This takes a look at the role of social capital in the Japanese recovery from the Fukushima accident in 2011.]



## 5. Environment - natural capital and the climate emergency

For this pillar we make the key distinction between two overlapping concepts – natural capital and the specific impact of global climate change and the SG commitment to achieving net-zero carbon by 2045 – the Climate Emergency.

### 1.1 Pre-Crisis analysis – Natural Capital

Scotland's rich and diverse natural environment is one of our most important national assets. It is fundamental to our health, wellbeing and our way of life. Our natural capital is as important as physical, social and human capital in driving economic performance. Continuing to protect, restore and enhance it will be a vital part of a successful Green Recovery.

Scotland's natural environment underpins many of our key industries, and contributes to sustainable and inclusive growth in a number of different ways.

- It provides the products which come from nature – such as food, timber and energy.
- It facilitates economic growth by providing clean water, air and flood protection.
- And it supports jobs and investment by attracting businesses and visitors to Scotland.

Our Natural Capital Accounts estimate the value of thirteen services being supplied by Scottish natural assets. This includes some elements of output from industries mentioned above (tourism, agriculture etc) but also include benefits which are not captured in traditional economic accounting - including carbon sequestration and air pollutant removal.

In 2016, these natural assets provided an annual flow of benefits worth £3.9 billion, with a total lifetime value of £196 billion. To put into context, that is greater than annual GVA contributed by the Electricity and Gas Supply sector. Of course, the real value of our natural environment will be much greater, since many of the services provided by our natural environment cannot easily be quantified.

Despite its importance and the progress made in Scotland to date, many aspects of our natural environment are degraded and under threat. We know that significant action is needed to restore the health and vitality of the natural systems that sustain us.

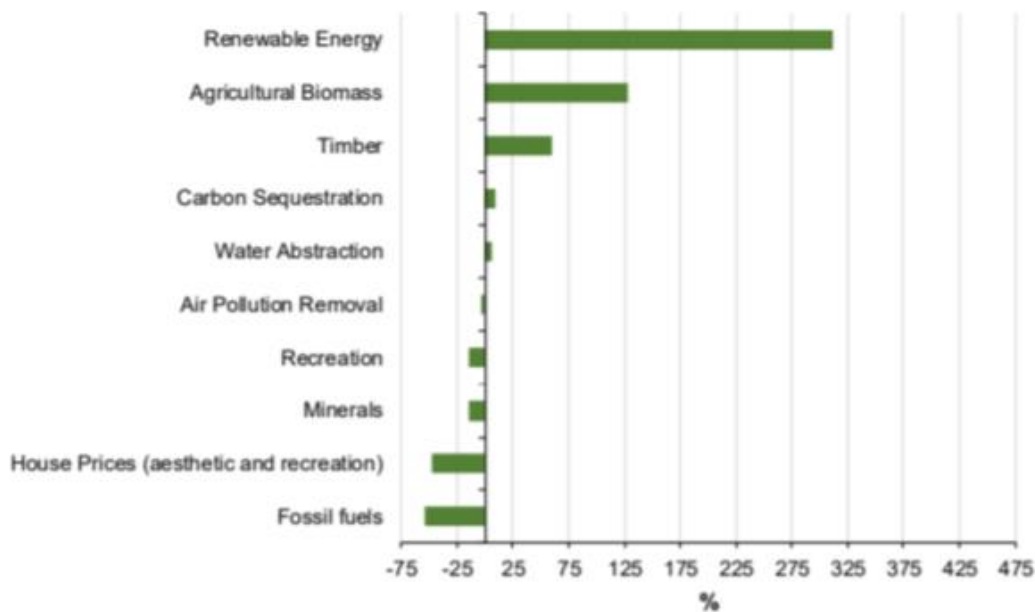


Figure 23 - Percentage Change in asset value by service from 2010, Scotland [2016]

Source: ONS

### Biodiversity

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published a Global Assessment, which identified an unprecedented decline in nature and accelerating rates of species extinction with significant impacts on people around the world. This decline has serious impacts for people across the world - through implications for economies, livelihoods, food security and quality of life. The current response to biodiversity loss has been insufficient, but it is not too late to make a difference through transformative change.

The 2019 State of Nature Report (produced in partnership between eNGOs and all of the UK national conservation agencies) represents the first agreed evidence base setting out the state of biodiversity across the UK. It reports continuing biodiversity loss in Scotland, and across the rest of the UK. As part of this biodiversity loss, the indicator of average species' abundance of 352 terrestrial and freshwater species has fallen by 24% since 1994. There has been very little change in the rate of decline in the last 10 years. Furthermore, 11% of species in Scotland are classified as being at threat of extinction.

The report identified the main drivers of biodiversity loss as agriculture; hydrological change; climate change; urbanisation; invasive non-native species, pests and pathogens; pollution; and woodland management.

### Air Quality

There has been marked progress in air quality in Scotland. Levels of the main air pollutants have declined significantly over the last three decades, through major reductions in industrial pollution and improvements in vehicle technology and fuel quality. Between 1990 and 2017, nitrogen oxides have decreased by 71%, fine particulate matter (PM) by 63% and sulphur dioxide by 96%.

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

While domestic and European air quality targets are being met across much of Scotland, there are still hotspots of poorer air quality in some urban areas. However, there is a clear downward trend in numbers of monitoring sites exceeding air quality objectives – for nitrogen dioxide from 14 in 2013 to 6 in 2018, for fine PM from 17 in 2013 to 2 in 2018.

### Forestry

Scotland's forests and woodlands provide us with a range of environmental benefits which contribute to improvements in people's quality of life such as clear air, water and renewable energy. They also provide clear economic contribution through the production of timber and other wood fibre, through recreation and tourism,

In the last 100 years, forest and woodland cover in Scotland has increased from around 5% to 18.5%; this percentage is higher than the rest of the UK but is still well below the European Union (EU) average of 38%. Scotland's forest and woodland area now covers more than 1.4 million hectares one third of which is owned by Scottish Ministers, on behalf of the nation, as part of the National Forest Estate. Over 975 000 hectares is privately or community owned. This includes globally important areas of Atlantic rainforest and Caledonian pine forest which are of very high value to biodiversity, but fragmented and restricted in range. Woodlands face pressure from fragmentation, browsing and grazing, new pests and pathogens. Climate change exacerbates these drivers.

### Land Management

Agriculture is the dominant use of land, covering over 70% of Scotland. Historically, intensification of agricultural practices (e.g. increased use of fertilisers, continuous cropping etc) has caused damage to natural habitats and biodiversity loss. However, recent increases in environmentally-friendly agricultural practices have contributed to improved environmental outcomes. The terrestrial breeding bird index farmland section has shown a 14% long-term increase (1994–2017), and 40% of Scotland's agricultural area are now classified at High Nature Value farmland (due to a high proportion of semi-natural vegetation and low-intensity farming practices).

Scotland's land also has an important role to play in the response to the Global Climate Energy. Scotland has 60% of the UK's internationally important peatlands, which have a key role in carbon capture and sequestration.

### Waste and Circular Economy

Reducing waste and moving to a more circular economy (where the demand for raw materials is reduced through increase re-use and re-purposing of materials) is an important part of protecting our environment and supporting our economy. The tonnage of household waste generated in Scotland fell by 2% between 2017 and 2018, to 2.41 million tonnes. The volume of household waste sent to landfill has dropped by 15% since 2014.

Alongside waste reduction, movement towards a more circular economy can benefit the environment (by reducing waste and emissions) and the economy (by contributing to economic resilience and through support innovative industries).

### 1.2 Pre-crisis analysis - Climate Emergency

#### Global context

Climate change is global phenomena with the potential to alter economies, society and communities the world over. Those changes are happening already. The science linking climate change to human activity is overwhelming. The contribution of developed countries like Scotland to the stock of atmospheric greenhouse gases on both an historic and ongoing basis provides a clear responsibility on us to take meaningful actions now to reduce and mitigate our impact and, where we can, support other countries to do so as well.

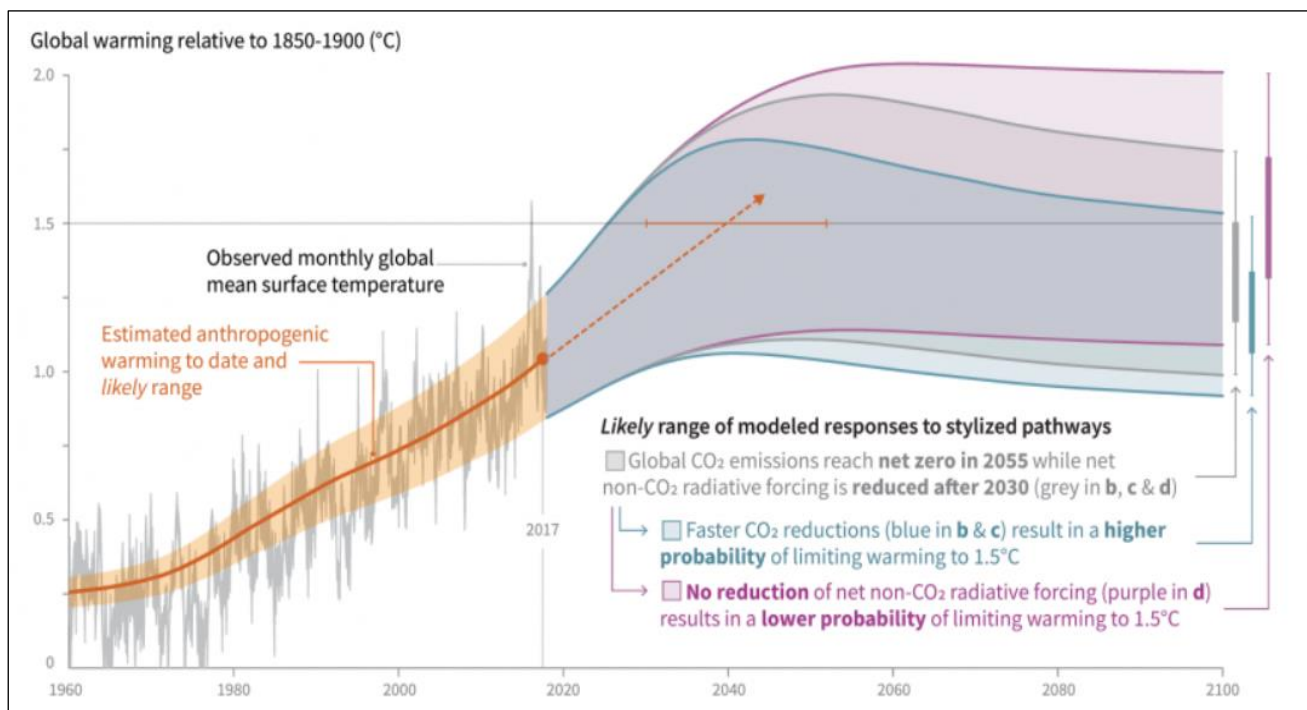


Figure 24 - Global warming relative to 1850-1900 (°C). Source IPCC

Figure 24 shows current estimated, and future, projected Global warming relative to pre-industrial levels.

Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.

The Paris climate change agreement<sup>12</sup> has the central aim to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. This is due to the reduced effects (which are still likely to be significant) of limiting global temperature rises to this level.

<sup>12</sup><https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

## Scottish Context

The pattern of greenhouse gas emissions arising from life and economic activity is tracked through two separate but overlapping methods; territorial emissions: source or territorial emissions and; consumption-based or footprint emissions. Together, these two measures give a good overview of Scotland's overall contribution to climate change.

Source emissions are a measure of greenhouse gases emitted within the territorial area of Scotland, for example from transport, from industrial processes and from heating our homes. Using this measure, Scotland has made steady progress in reducing its emissions over time. Between 1990 and 2017, there was a 46.8 per cent reduction in estimated emissions, a 35.6 MtCO<sub>2</sub>e decrease (figure x). The most significant contributors to this reduction were:

- Fall in Energy Supply emissions (such as power stations) (-16.7 MtCO<sub>2</sub>e; a 73.5 per cent reduction)
- Fall in Business and Industrial Process emissions (such as manufacturing) (-5.7 MtCO<sub>2</sub>e; a 39.7 per cent reduction)
- Fall in Waste Management emissions (such as Landfill) (-4.3 MtCO<sub>2</sub>e; a 72.0 per cent reduction)
- Fall in Agriculture and related Land Use emissions (-4.0 MtCO<sub>2</sub>e; a 29.4 per cent reduction)

Scottish Greenhouse Gas Emissions, 1990 to 2017. Values in MtCO<sub>2</sub>e

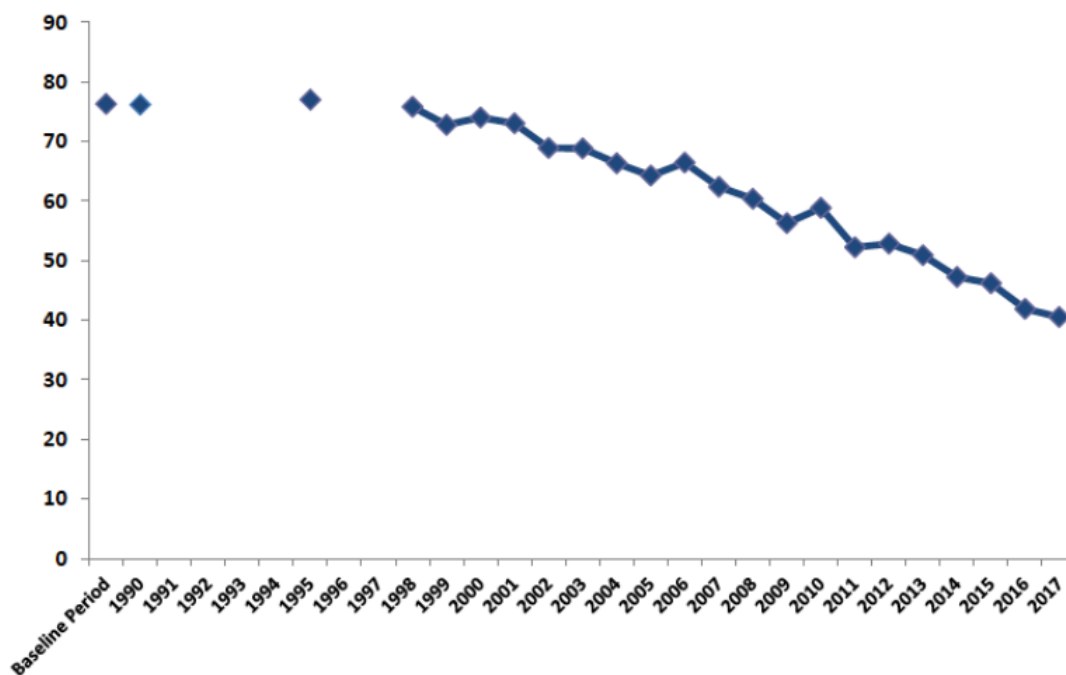


Figure 25 - Scottish Greenhouse Gas emissions, 1990 to 2017, Values in MtCO<sub>2</sub>e

Source: Scottish Government

The carbon footprint is a measure of Scotland's consumption-based emissions. These are the emissions associated with our consumption of goods and services. Like source emissions, this includes emissions from activities like transport and from heating homes, but it also includes estimates of the emissions embodied in the things that are imported (and excludes those from the things that are exported to be consumed

elsewhere). Using this measure, emissions have fallen more slowly reflecting the relatively higher carbon intensity of imports, in particular from China.

Between 1998 and 2016, Scotland's carbon footprint fell by 12.3 per cent, from 84.1 MtCO<sub>2</sub>e in 1998 to 73.8 MtCO<sub>2</sub>e in 2016.

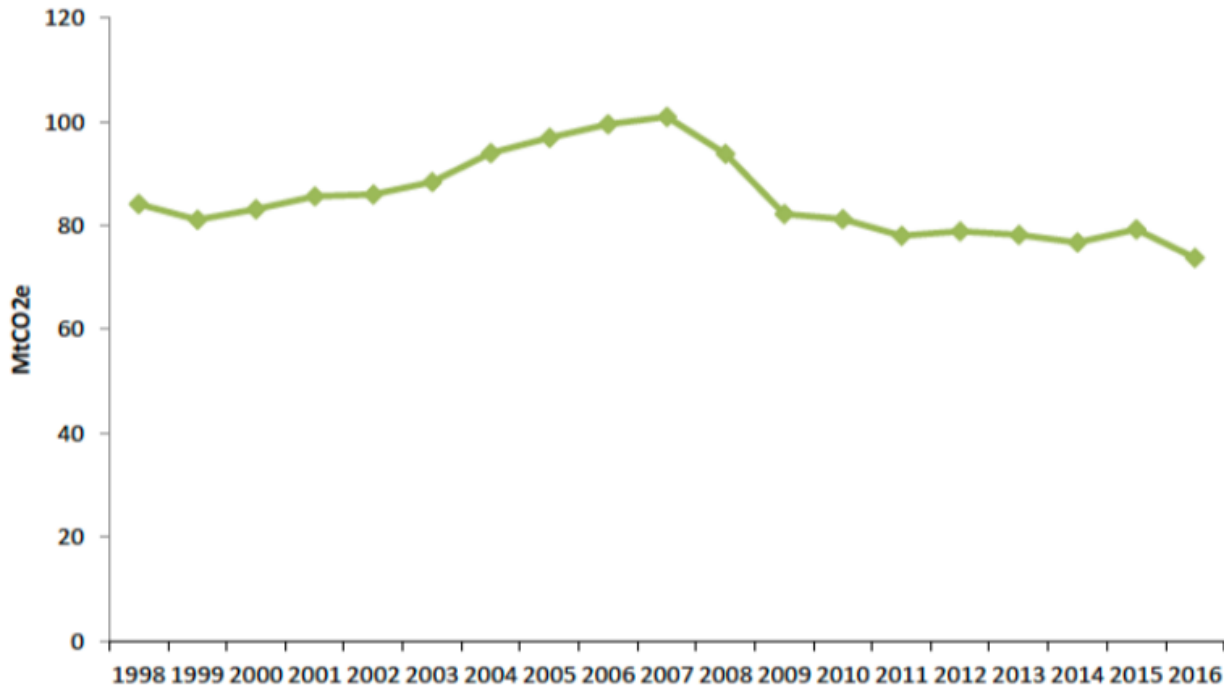


Figure 26 - Scotland's Carbon Footprint, 1998-2016. Values in MtCo<sub>2</sub>e

Source: Scottish Government

### **Net Zero: Scotland's Approach**

The [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#) received Royal Assent on 31 October 2019. The Act amends the Climate Change (Scotland) Act 2009 by setting lower targets for the reduction of greenhouse gases emissions and makes provision about advice, plans and reports in relation to those targets. The targets are as follows:

The Scottish Ministers must ensure that the net Scottish territorial emissions account for the year—

- (a) 2020 is at least 56% lower than the baseline,
- (b) 2030 is at least 75% lower than the baseline, and
- (c) 2040 is at least 90% lower than the baseline.
- (d) 2045 is 100% lower than the baseline – i.e. net zero emissions.

The objective is to contribute appropriately to the world's efforts to deliver on the Paris Agreement

A Just Transition Commission has been established to provide independent advice on a net-zero economy for Scotland that is fair for all. The Commission will report to Scottish Ministers with practical, realistic and affordable recommendations for action in early 2021.

### 1.3 COVID: What has changed?

While it is too early to establish the long-term impacts which the COVID-19 lockdown might have on the natural environment and on greenhouse gas emitting activities, there is some information about certain topics.

The most significant changes are the result of the government-mandated 'lockdown', which required people in Scotland to only leave their homes for essential travel and local exercise. This has led to 39-49% of adults in employment in Great Britain working from home.<sup>13</sup> These changes have had impacts on travel, home energy use and food waste, which all have implications for climate change.

There have been unprecedented decreases in the number of journeys by car, rail, bus, ferry and plane, but there have been substantial increases in walking and cycling journeys. The dramatic drop in road traffic within Scotland's cities, which has had a positive impact on air quality (particularly through decreases in nitrogen dioxide). Analysis of nine urban air quality monitoring stations shows decreases from 49% at Atholl Street, Perth to 72% at Hope Street, Glasgow. However, levels have not fallen by as much some people may have expected, despite large reductions in traffic. This is because much of urban ambient nitrogen dioxide is from emissions of heavy diesel vehicles, and relatively small numbers of trucks and buses contribute disproportionately to pollution levels. As people return to work there are indications that public transport may be avoided and that a greater reliance on car for commuting and other journeys may be observed.

Overall demand for electricity and gas has fallen during lockdown as increases in home energy use have been more than offset by falls in the business and industrial sectors. See Figure 27.

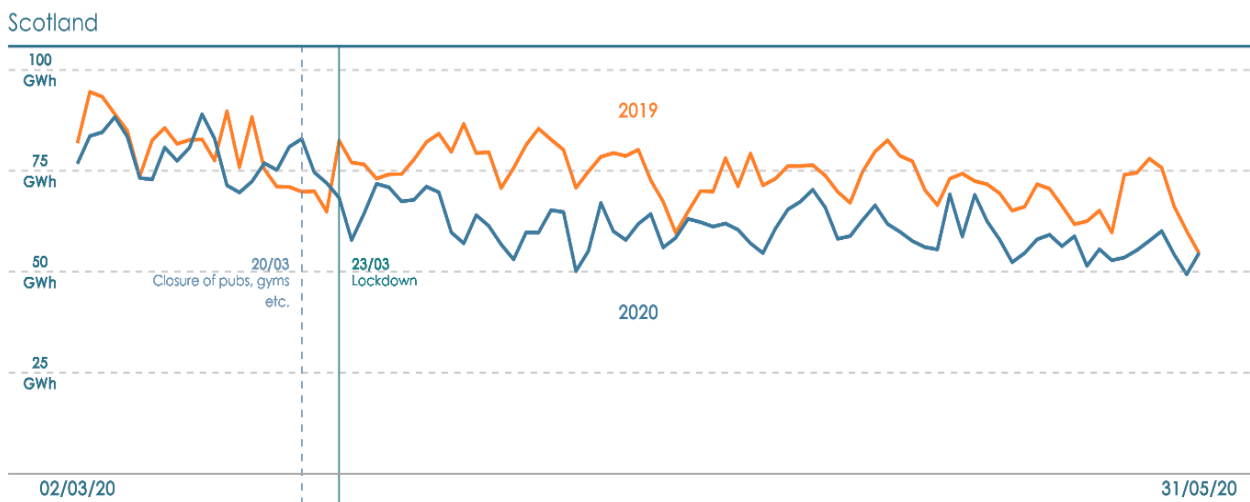


Figure 27 - Daily electricity demand from Start of March - 2020 vs 2019

Source: National Grid

There have also been changes in peoples' behaviours and attitudes towards the environment. Evidence suggests that, across the UK, over 50% of households are throwing away less food waste (which has a substantial impact on the environment). Furthermore, around 80% of people in Scotland report they will make

<sup>13</sup> See:

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/29may2020>

## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

an effort to reuse products more often and purchase more environmentally friendly products as a result of COVID-19. Polling from 22 April indicates that 66% of the UK public believe that climate change is as serious as COVID-19 in the long term and 58% support a green recovery that prioritises climate change.

A key question is the extent to which any positive pro-environment behaviours and attitudes can now be enhanced or made to stick.

Piers Forster (Director of Priestley International Centre for Climate and a member of the CCC): “We're still generating electricity in the same way, we're still heating our homes in the same way and we're still driving cars that take the same petrol and diesel that they always have done... [The coronavirus crisis] tells us we need to do far more than just change our behaviour.”

Dr Ajay Gambhir (Grantham Institute for Climate Change, Imperial College London): “Although it's still too early to say how persistent behaviour changes might be, it is important to capture the notion that such changes can occur when it's apparent that lives are more important than business-as-usual GDP growth. Taking advantage of some of the inevitable responses to coronavirus, such as less unnecessary air travel for business meetings and more home-working, supported by better videoconferencing facilities, could be powerful short-term actions worth embedding for the longer-term fight against climate change”.

### 1.4 Key issues

#### Issues around Natural Capital – a view from Scottish Rural College

The industries underpinned by Scotland's natural capital will therefore have an essential role to play in supporting economic recovery. For example:

- Renewable Energy – on both sea and land – which currently provides around 90% of Scotland's energy needs <sup>i</sup>.
- Oil and Gas – worth over £16 billion <sup>ii</sup> – utilises natural assets primarily associated with Scotland's marine areas, including growing decommissioning activity and expertise.
- Food and Drink Manufacturing – worth £14 billion <sup>iii</sup> – utilises clean water and local barley to underpin the international brand of Scotch Whisky and growing Gin reputation;
- Tourism – worth £10.5 billion <sup>iv</sup> to the Scottish economy – utilises our internationally renowned landscapes, biodiversity and natural heritage;
- Agriculture - worth nearly £4 billion <sup>v</sup> - provides safe, nutritious food for the Scottish population and uses its resources to generate income from national and international markets;
- Forestry – worth £1 billion <sup>vi</sup> – which provides sustainable construction material and is a vital component of carbon sequestration in the fight against global warming;
- Fisheries – worth nearly £300 million <sup>vii</sup> – where our aquaculture sector has an international reputation for producing much sought-after salmon and shellfish from cold, clean Atlantic waters.

**Source:** *Scottish Rural College*

<sup>i</sup> March 2020: <https://www.gov.scot/publications/quarterly-energy-statistics-bulletins/>

<sup>ii</sup> Paper 4.1 : <https://www.gov.scot/publications/just-transition-commission-meeting-papers-september-2019/>

<sup>iii</sup> <https://www.gov.scot/policies/food-and-drink/>

<sup>iv</sup> <https://www.scottish-enterprise.com/learning-zone/research-and-publications/components-folder/research-and-publications-listings/scotlands-tourism-facts>

<sup>v</sup> <https://www.gov.scot/publications/agriculture-facts-figures-2019/pages/1/>

<sup>vi</sup> <https://forestry.gov.scot/publications/326-the-economic-contribution-of-the-forestry-sector-in-scotland>

<sup>vii</sup> <https://www.gov.scot/publications/scotlands-marine-economic-statistics/pages/32/>

There has been a trend over many decades, both in Scotland and globally, of environmental degradation and the overuse and misuse of the natural world. This is exemplified by the unfolding disaster of climate change and by the catastrophic loss of biodiversity but covers multiple other harms which diminish our wellbeing,



## Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex

reduce the opportunities of future generations and constrain our economic capacity and productivity over the long run: poor air quality, lack of green spaces, contaminated water bodies, degraded soils, marine pollution. In some cases, the dramatic policy response to the COVID crisis has brought a temporary respite and a glimpse of how things could be different. Reduced emissions, better air quality, a leap in active travel and a greater appreciation for the natural world. We find ourselves in a moment of opportunity and of risk, where we can make bold changes for a better, greener economy or misstep and lock in the technologies and patterns and behaviours of the past.

To take the positive path, we first need to see the underpinning role that the assets given to us by nature have in all aspects of a wellbeing economy. We need to focus on nature itself, to protect and restore our natural capital and take responsibility for our contribution to climate change. But this can't be achieved just through 'environment policy', there needs to be a green thread through all aspects of the recovery, embedded and integrated in the actions of government, of business and of individual households.

Scotland already has a host of pro-environmental policies and programmes and initiatives which are all pushing in the right direction and which can now be boosted, broadened and intensified. The recently introduced goal of net-zero greenhouse gas emissions by 2045, with incredibly challenging interim targets, is a case in point. These targets, in line with international practice, are based on territorial emissions; the production and the release of greenhouse gases as a result of activities within Scotland. Embedding and mainstreaming Circular Economy principles will not only support achievement of the net-zero targets, but also ensure that we are acting to reduce the embedded emissions in the products and services which we import. A too single-minded approach to meeting the net zero territorial emissions targets could result in severe unintended consequences; the closure of key Scottish industrial activities with attendant job losses, while the associated emissions are simply offshored, potentially to a more polluting location and thus making the problem worse at a global level. It is critical that all decisions to limit emissions in Scotland are taken in the context that climate change is a global not national phenomena. Measuring the global as well as national emissions impacts of our choices is crucial and embedding circular economy principles – resource efficiency; reuse, repair and remanufacture; recycling and reducing waste - should be a key part of that.

Much of Scotland's natural capital is in the land and the key to unlocking the necessary improvements to a whole range of natural assets lies in how that land is managed. For too long, we have wasted money by paying farmers and land managers to do the wrong things. More than 70 years ago, Frank Fraser Darling described the Highlands as a "devastated landscape" and a "wet desert". Now, with the unfortunate coincidence of Brexit, we have an opportunity to boldly redirect the substantial CAP funding toward nature-based solutions such as peatland restoration which support multiple objectives including climate mitigation, flood protection and biodiversity enhancement while at the same time boosting the rural, tourism and nature-based economies. Now is the time for fresh approaches which can be tested and piloted, within the framework of 'stability and simplicity' which will mark the Scottish transition to a post-CAP world.

The task of mitigating our contribution to climate change is a generational challenge. Transformational change is required and the policy response to COVID has given us a taster of what rapid, radical change feels like and the sort of energy and focus that it requires. Taking carbon out of our economy and out of our lifestyles will require sustained investment and the creation of new jobs, industries and supply chains. And we must do this in a way which ensures that global emissions are reduced, not simply relocated, for example by facilitating industrial decarbonisation which supports competitiveness. The fastest ways to reduce emissions is to close

## **Towards a robust, resilient wellbeing economy for Scotland: Analytical Annex**

the Grangemouth oil refinery, close down the North Sea oil and gas industry, and move quickly to get rid of the major remaining Scottish industry. This would clearly be a disaster for jobs and the recovery but also probably increase global emissions. We must be streetwise and realise that if a recovery plan is to be constrained by only providing support for “green” companies, then this could be the result.

Non-traded sectors and activities such as domestic heating, energy efficiency and ground transport are all ripe for an aggressive programme of investment and innovation which will deliver emissions reductions, well-paid jobs and potential opportunities in supply chain development. There is also now an opportunity for Scotland to lever some of its natural advantages: the almost limitless quantities of renewable energy potential from wind, wave and tidal power can be used to generate electricity surpluses to export to the rest of the UK and elsewhere and to generate ‘green’ hydrogen to use in the heat and transport sectors; the geology of the North Sea in combination with the pre-existing pipeline infrastructure leaves Scotland almost uniquely placed to become a centre for the transport and storage of carbon captured from combustion processes.