

# **Lockdown, Learning Loss and Rural Locations:**

**A review of the literature on the effects of COVID-19 on the poverty related attainment gap and rural Scotland.**

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## Introduction

COVID-19 has impacted almost every aspect of daily life. One of the largest challenges for families was the closure of schools during lockdown. On 20<sup>th</sup> March 2020 schools and early learning centres across Scotland closed. Schools only remained open for children of key workers or vulnerable children and 684,797 pupils (99% of the pupil population) commenced learning from home. During the first lockdown schools were closed from March-August 2020 (Black, 2020). Despite reopening for the autumn term, disruptions continued through pupil isolations. A second national lockdown in January 2021 resulted in another nationwide school closure with a phased return: 22<sup>nd</sup> February (Primary 1-3 returned), 15<sup>th</sup> March (Primary 4-7 returned), 12<sup>th</sup> April (secondary pupils returned for some in-person lessons) (Scottish Government 2021a and Scottish Government 2021b).

All pupils have been affected by school closures. However, online learning experiences have differed between pupils from different backgrounds. The effects of COVID-19 lockdowns appear to have been worse for those living in poverty. Initial reports suggest that disadvantaged pupils have disproportionately suffered the negative consequences of distanced learning from home. COVID-19 has exacerbated the inequalities driving the pre-existing attainment gap between high and low-income students in Scotland (Audit Scotland, 2021). Therefore, the pandemic is likely to have widened the Scottish attainment gap.

This report summarises research to date from Scotland, the UK and further afield looking at the effect of COVID-19 on the attainment gap. This report also looks at research on the impact of Covid-19 in rural areas and whether there is evidence of a differential impact on the attainment gap in rural Scotland.

The school environment can be an equalising factor between pupils from different backgrounds (Black, 2020). The COVID-19 school closures have been the longest break in school and in person teaching, in living memory (Black, 2020). This has resulted in pupils from different backgrounds learning in very different environments.

Much of the existing literature focuses on learning loss, the impact of which is already researched in relation to summer holidays. Learning loss, particularly among low-income pupils, occurs throughout the summer holidays due to an absence of instructional time (Stewart, Watson and Campbell, 2018). The 'accumulated disadvantage' from summer holidays may account for two thirds of the poverty attainment gap (Andrew et al., 2020a). The attainment gap grows at a faster rate in school holidays than throughout the academic year. Therefore, the effects on learning loss and the attainment gap during COVID-19 school closures, when pupils are expected to continue learning at home in different environments, are likely to be extreme and further widen the attainment gap.

However, learning loss is not the only issue. Additionally, this report discusses potential driving factors behind the COVID-19 attainment gap and the long run implications for education. Furthermore, the effect of COVID-19 on Scottish rural communities and economies is examined and initial conclusions are drawn on the effects of the pandemic on the rural attainment gap.

## COVID-19 Learning Losses

COVID-19 related school closures have had an impact on all pupils. Numerous studies have identified significant learning losses across all pupils in multiple countries, globally. However, the evidence suggests that these losses have been disproportionately greater for deprived pupils living in poverty.

- The Department for Education (2021) report identified significant learning losses across primary and secondary school pupils in England in reading and mathematics. The learning loss values were calculated as the difference between the expected progress and the actual progress observed in autumn 2020. On average, primary school pupils lost 1.8 months in reading and 3.7 months in mathematics. Secondary school pupils experienced a learning loss of 1.7 months in reading. Learning losses were much larger for disadvantaged pupils (measured by Free School Meal (FSM) eligibility in the last six years): reading learning loss of 2.2 months for primary and secondary pupils and 4.5 months in mathematics for primary pupils.
- Rose et al. (2021) identified the academic consequences of the first lockdown for Year 2 English pupils comparing Key Stage 1 test scores in autumn 2020 with a standardised sample from 2017. Average attainment gaps of two months for reading and mathematics were found across all year 2 pupils. An additional seven-month gap was found between disadvantaged and non-disadvantaged pupils, identified using FSM eligibility. This gap was larger than previous estimates.
- Blainey and Hannay (2021) showed similar learning losses between Spring 2020 and 2021 for English Primary pupils. High FSM schools experienced double the decline in standardised test scores across all subjects, in comparison to low FSM schools. These losses were more pronounced among younger years.

Learning losses due to COVID-19 school closures have also been identified in the US and across Europe.

- Engzell, Frey and Verhagen (2021) identified learning losses for Dutch primary pupils, following their eight-week school closures. They found learning losses for all pupils, equivalent to 7.9 weeks, but that these losses were 60% larger for pupils from less-educated families. They add that learning losses are likely to be higher in other countries due to their shorter lockdown and strong infrastructure and internet access.
- Kogan and Lavertu (2021) showed an average learning loss equal to a third of a school year for third-grade students in Ohio. They found that losses were 0.052 standard deviations greater for disadvantaged pupils and that losses were greatest in districts with fully remote learning, compared to those with blended or in-person teaching.
- Pier et al. (2021) examined the learning losses in both English and mathematics from autumn 2019 to autumn 2020, for grade 4-8 pupils in California. They identified greater losses for younger years over multiple assessment methods. In addition, they found that losses were much greater for pupils from socioeconomically disadvantaged backgrounds and pupils for whom English is not their first language. Furthermore, where they found learning gains in older year pupils, disadvantaged pupils still experienced learning losses, creating a wider gap between pupils.

Most studies looked at here have documented the learning losses from the original Spring 2020 lockdown. Learning losses could be greater due to the additional disruptions to in-person learning from isolations and subsequent lockdowns.

### Drivers of COVID-19 Attainment Gap

There are several potential drivers behind the COVID-19 attainment gap resulting in pupils facing disadvantage experiencing greater learning losses. Considerable differences have been documented between the remote learning experience of pupils from deprived and non-deprived households including:

- **Learning Time:** pupils spent less time learning in lockdown.
- **Parents Ability:** parents who are less educated, have poor English or are unable to work from home were less able to help with home learning.
- **English as an Additional Language:** pupils with English as an additional Language struggled to maintain language skills at home and their families were less able to help with school work.
- **School Resources:** high-income pupils received better learning resources and 'active help' from schools.
- **Home Digital Resources:** some pupils were less able to access online learning materials due to a lack of access to a device or stable internet connection.
- **Home Study Space:** some pupils had less access to a sufficient study area to learn at home.
- **Food Insecurity:** food insecurity increased for families in poverty so some pupils lacked adequate nourishment for efficient learning.
- **Learning Loss Recovery:** some pupils have shown slower recovery and higher COVID-19-related absence rates following the reopening of schools.

#### Learning Time:

Pupils from more well-off families have been found to have spent a greater amount of time learning in lockdown.

- Andrew et al. (2020a) found disparities in both the quality and the quantity of work completed by English pupils (aged 4-15) based on their family's income. Pupils from better-off families spent 30% more time learning while at home in the spring 2020 lockdown, the equivalent of 92 hours. These pupils were also more likely to have access to online classes and individualised private tuition. Furthermore, well-off students in secondary school were found to be 20% more likely to submit their schoolwork during this time.
- Andrew et al. (2020b) found that learning time during lockdown was strongly associated with family income among primary school pupils. Learning time differed by 1.5 hours a day between pupils at the top and bottom of the income distribution. This gap did not exist prior to the pandemic. Across secondary pupils the association between family income and learning time existed prior to the pandemic and lockdown did not increase this existing inequality between pupils.

- Cullinane and Montacute (2020) found English middle-class pupils in the first lockdown were 30% more likely to engage in live and recorded online lessons than working-class pupils. 44% of middle-class pupils spent more than four hours a day learning, compared to 33% of working-class pupils. Furthermore, they reported a difference of 19% between most and least advantaged state schools in terms of receiving 75% of schoolwork set.
- Bayrakdar and Guveli (2020) identified a 0.4 hour a day difference in learning time between pupils based on free school meal eligibility for primary and secondary pupils.

### **Parents Ability:**

Less educated parents, parents who do not speak English or those who are unable to work from home were less able to supplement teachers and aid home learning.

- Smith and Barron's (2020) survey of UK frontline workers identified parents' challenges as a barrier to home learning for families in poverty. The biggest challenges they identified were parents' mental health, literacy and education difficulties and challenges helping multiple children across different age groups and education levels.
- Cullinane and Montacute (2020) highlighted parent's confidence in supporting their children in home learning was dependent on their education level: 75% of parents with a postgraduate degree, 60% of parents with an undergraduate degree and less than 50% of parents with school qualifications or lower, felt confident in their ability to support their child.
- Pensiero, Kelly and Bokhove, (2020) found that for both primary and secondary UK pupils, hours spent learning per day was highest for pupils whose parents were working from home, were employed in a 'service class' occupation (defined as large employers, managers or professionals) and had access to their own laptop. Learning times dropped incrementally for pupils whose parents did not work from home, parents who were employed in non-service occupations, pupils who had to share a computer and pupils from single-parent families.
- Bayrakdar and Guveli (2020) found pupils whose parents had a degree spent more hours per day learning in lockdown than those with only A level or GCSE qualifications across primary, secondary and high-secondary school. They showed similar gaps in time spent learning at each stage for pupils from single parent households, who may have less available time to support home learning than those living with two parents.
- Eivers, Worth and Ghosh (2020) found differences in pupils' learning time depending on parents' education level: 15% more pupils spend at least three hours a day on school work if their parents have a degree, compared to having only GCSEs or no qualifications.

### **English as an Additional Language:**

Pupils who speak English as an additional language also experienced additional learning losses.

- The Department for Education (2021) report found an additional gap in reading of 0.6 months for UK secondary pupils with English as an additional language.
- The Scottish Government (2021c) found many pupils struggled to maintain their language skills in lockdown if their families did not speak English at home.
- Glass et al. (2021) highlighted that pupils with English as an additional language struggled to access their normal learning and language support while learning from home.
- Smith and Barron (2020) found parents who struggle with English were less able to support their children while learning from home.

### **School Resources:**

Throughout lockdown schools had autonomy over how to deliver teaching. This resulted in substantial differences in the resources provided by schools between high- and low-income pupils.

- Andrew et al. (2020a) showed that children from higher-income families were more likely to receive individualised resources from their school including ‘active help’ through online classes, video calls or online messaging. They found a gap of 12% at primary and 17% at secondary between the highest and lowest-income fifth of families who reported receiving ‘active help’ from schools.
- Andrew et al. (2020b) identified a strong association between income and learning resources. A primary pupil in the 10<sup>th</sup> income quartile was 50% less likely to be provided active school resources than a pupil in the 90<sup>th</sup> quartile (23 percentage points). This gap was present, but smaller at 10 percentage points, for secondary schools. Pupil’s learning time improved with the provision of active resources and the availability of active resources accounted for 14% of the learning loss gap between the poorest and richest primary school pupils. This was twice as strong as the effect of access to a home study space or a digital device. They argued that a school’s actions and lack of provision of active resources may have increased educational inequalities and driven the widening of the attainment gap.
- Bayrakdar and Guveli (2020) found the provision of online teaching, offline learning material and checking school work were the strongest factors in explaining variation in pupil’s home learning. Adequate resource provision mitigated the negative effect of lower parent’s education and decreased the additional learning losses of deprived pupils by 50%.

However, many deprived schools may have chosen to avoid online lessons due to the digital divide and their pupil’s lack of access to digital resources.

- Andrew et al. (2020a) showed that poorest state schools were more likely than private and rich and middle state schools to provide home learning packs.
- Cullinane and Montacute (2020) highlighted a gap of 13% in laptop provision between the most affluent and most deprived state schools. However, they note that more deprived schools may lack the funds to provide laptops for all as the need is greater and therefore chose to not provide any and to focus resources on providing more essential basics such as food.

### **Home Digital Resources:**

In addition to differences in school provided resources, wide disparities in home resources for deprived and non-deprived pupils have been documented. The most essential requirements to access online learning from home are a digital device and a stable internet connection. The lack of access to either of these has created a digital divide between pupils.

- 28% of the frontline workers interviewed in Smith and Barron's survey (2020) believed the digital divide was the greatest barrier to home education for children living in poverty.
- Cullinane and Montacute's teacher survey (2020) highlighted 15% of teachers in deprived schools reported over a third of their pupils did not have access to an electronic device, in comparison to 2% of teachers in wealthy state schools. They showed similar results for access to an internet connection (12% vs 1%).
- The CPAG (2021) survey of low income families in Scotland across both lockdowns highlighted the challenges faced by low income families throughout the pandemic. The report highlighted the continued lack of resources in 2021: 35% of low-income families still lacked adequate resources and 25% of pupils on FSM did not have their own device to access learning. The report also identified a lack of access to printing facilities, limiting pupil's ability to participate in offline lessons, which schools in more deprived areas favoured due to pupils' lack of digital access.

### **Home Study Space:**

The other key difference in access to home resources and learning environments for deprived pupils was access to study areas within the home.

- Bayrakdar and Guveli (2020) highlighted that pupils who lacked sufficient resources, including an adequate study space, learned less, regardless of additional time spent on schoolwork.
- The CPAG (2021) survey identified a lack of sufficient space and furniture as a key challenge for home learning for pupils from low-income families.
- Andrew et al. (2020a) highlighted 58% of low-income primary students in their sample did not have access to their own study space, compared to 35% of pupils from well-off families. A much smaller gap of 4.7% was found for secondary pupils.

### **Food Insecurity:**

Pupils from low-income families were more likely to experience food insecurity. This can affect education as pupils lacking basic nourishment struggle with the concentration required for academic achievement (Smith and Barron, 2020).

- Observatory of Children's Human Rights Scotland, (2020) identified an increase in food insecurity due to the COVID-19 pandemic and estimated 16% of the UK population faced food insecurity. 124,000 Scottish pupils were eligible for FSM in 2019. This

number is likely to have increased as the number of low-income families have increased following the COVID-19 pandemic.

- CPAG (2021) reported that over 45,000 Scottish children were living in poverty but were not eligible for FSM. Furthermore, nearly 50% of low-income families surveyed, who were eligible for FSM did not receive them in lockdown.
- Black (2020) highlighted that breaks from schools, such as summer holidays, increased food insecurity for low-income families as children were not at school to receive their free school meals.
- The Poverty and Inequality Commission (2020) reported that the Scottish Government announced a £70million Food Fund to reduce food insecurity and provide free school meals for pupils in lockdown. However, the autonomy granted to local authorities in deciding their own FSM policy resulted in inequalities in the services provided between local authorities as the value and method of free school meals provision differed. The value of support varied from £2-4 a day. Some local authorities provided supermarket vouchers over a cash payment, limiting choice and options, both of supermarkets, and items within the supermarket. Families voiced a preference for cash payments, however only 10 out of the 32 local authorities provided cash payments in the first months of the pandemic.

### **Learning Loss Recovery:**

Some recovery of lockdown learning loss has been observed since in person schooling has recommenced. However, this recovery is limited for disadvantaged pupils.

- Juniper Education (2021) recorded recovery over the autumn 2020 term across mathematics (14.1 percentage points), reading (12.2) and writing (10.8) for English Year 2-6 pupils. However, these recovery rates are much slower for disadvantaged pupils across all year groups, with a gap as wide as 5.5 percentage points.
- Sosu and Klein (2021) identified a higher COVID-19-related absentee rate for disadvantaged pupils. Socioeconomically deprived areas have a higher exposure to the virus, so these pupils were more likely to have to isolate and miss in-person learning, compared to their more well-off peers. By the start of December 2020, the COVID-19-related absence rate for pupils living in the most deprived quartile in Scotland was twice as high as pupils in the lowest quartile. These COVID-19-driven attendance disparities further limit disadvantaged pupils' ability to recover from lockdown learning losses if they are having to learn from home while their more affluent peers are in school.

### [Long Run Implications on Education](#)

COVID-19 is likely to have a long run impact on education, that if not corrected, could result in 'a cohort of pupils who carry disadvantage throughout their lives' (Scottish Government, 2020 p65).

The COVID-19 pandemic and distanced learning has widened the existing attainment gap. The differences in learning losses documented for low and high-income pupils are the equivalent



of undoing a third (reading) and two thirds (mathematics) of the progress made in the last 10 years to close the attainment gap present in English primary schools (Department for Education, 2021). If focus is not placed on closing this widened attainment gap, there will be long run educational implications for disadvantaged pupils.

Pupils at key transition points, including examination years, are most vulnerable to these long-term impacts. The cancellation of formal examinations in 2020 and 2021 resulted in pupil grades being decided by teacher's assessment and predictions. This is a disadvantage to pupils who may have performed better in final examinations, than their earlier academic performance reflects (Observatory of Children's Human Rights Scotland, 2020). Furthermore, pupils from low socio-economic backgrounds may have been less likely to have their grades accurately predicted (Scottish Government, 2020). The lack of formal exam assessment has resulted in a widening of the attainment gap between the most and least deprived students from the 2021 cohort. The most deprived pupils were more than twice as likely to have their Higher or Advanced Higher grades fall (Brooks, 2021). This may result in long term disadvantages for pupils who are unable to access the Higher Education required to obtain better jobs and break the self-perpetuating cycle of deprivation and poverty, that is driven by educational inequalities.

Poverty has increased due to COVID-19 lockdown and restrictions. Lockdowns have increased the everyday cost of living for families. Food, heating and entertainment was required throughout the day, which increased food, gas and electric bills (Smith and Barron, 2020). 90% of low-income families in the CPAG (2021) survey reported spending more on essential bills throughout lockdown. Furthermore, low-income families reported that money concerns increased throughout the 2021 lockdown, compared to the 2020 spring lockdown.

COVID-19 lockdowns and restrictions have had a significant impact on the economy. The OECD predicts at least a two year recovery before the global economy returns to its pre-crisis level (Highlands and Islands Enterprise, 2020). The immediate economic consequences of the pandemic could result in long run poverty and subsequent educational effects. There are well documented links between poverty, income reduction and parental job loss and children's educational attainment and outcomes (Scottish Government, 2020). Furthermore, existing educational disadvantages may be exacerbated by the COVID-19 pandemic as family's poverty levels worsen and the economic downturn makes it harder to move out of poverty.

## Rural Scotland and COVID-19

Rural areas and communities in Scotland have felt the impact of the COVID-19 pandemic in different ways to those in urban communities. These effects may exacerbate or mitigate the above educational impacts of COVID-19 and distanced learning for disadvantaged pupils living in poverty.

### **Rural Vulnerabilities to COVID-19:**

Several characteristics of rural areas have resulted in COVID-19 vulnerabilities and have limited rural communities' ability to adapt and respond to the economic and social challenges presented by the pandemic.

- **Non-diversified economy and exposure to vulnerable industries.** Rural communities often have a strong reliance on few key industries. Economic pressures have been magnified for rural economies that are heavily reliant on COVID-19-vulnerable industries (Currie et al., 2021). The Scottish Government identified COVID-19-vulnerable sectors as manufacturing, construction, agriculture, retail and wholesale, accommodation and food services and arts, entertainment, and recreation. Highlands and Islands had a greater share of employment in these vulnerable sectors (39%) compared to Scotland (37%) (Highlands and Islands Enterprise, 2020). In Harris, 50-85% of the population relied on the tourism and hospitality sector (Glass et al., 2021). Unlike urban diversified economies, rural areas were unable to rely on more stable industries to provide economic support throughout the pandemic.
- **Labour market.** Rural labour markets had a large proportion of the employees that were not eligible for government's help through the Coronavirus Job Retention Scheme (CJRS) or Self-employed Income Support Scheme (SEISS) such as seasonal, casual, freelance, self-employed or employed in multiple part-time jobs (Glass et al., 2021). 3.8 million workers in the UK were unprotected by the Government's financial support schemes. 40% of these workers were self-employed prior to the pandemic (Kempson and Evans, 2020). Rural populations have higher levels of self-employment: Highlands and Islands account for 11% of Scotland's self-employed but only 9% of Scotland's employees. Rural self-employment levels exceed the Scottish average in agriculture and fishing (27% vs 25%), manufacturing (17% vs 9%), construction (13% vs 11%), distribution hotels and restaurants (12% vs 9%) and banking, finance and insurance (9% vs 7%) (Highlands and Islands Enterprise, 2020). Self-employed workers have been affected worse by COVID-19 as a higher proportion are employed in vulnerable sectors. Self-employed workers experienced additional problems accessing Government Financial help and needed to provide self-assessed tax return information (Highlands and Islands Enterprise, 2020).
- **Business size.** Rural economies have a larger proportion of small to medium enterprises (SMEs) compared to Scotland. SMEs accounted for 66.9% of private sector employment in the Highlands and Islands, 16.3% higher than the Scottish average. SMEs have also struggled accessing government financial aid during the pandemic compared to larger private and public organisations (Highlands and Islands Enterprise, 2020).

- **Financial vulnerability.** Many rural residents are considered financially vulnerable due to work insecurity and unreliable local employment (Shucksmith et al., 2021). Volatility of rural employment, often in low-paid, temporary or seasonal contracts results in irregular, unpredictable and volatile incomes. Rural income volatility creates problems for household budgeting and centralised benefits systems, often resulting in benefit overpayment and surplus repayment at a rate too fast for low-income households to cope with. Furthermore, gaps between paydays and assessment periods impact benefit eligibility (Shucksmith et al., 2021).
- **Aging population.** Rural communities have a higher proportion of older people in the population compared to urban areas. Therefore, a greater share of the population was more vulnerable to illness and hospitalisation throughout the pandemic (OECD, 2020). The economically active population age is also skewed higher than average, so rural labour forces were more likely to need to shield, limiting the available labour force for jobs that could not be conducted from home (Philipson et al., 2020).
- **Digital divide.** Rural areas have less access to sufficient internet connection required to work, socialise, and access services digitally. 19% of rural survey respondents reported poor or very poor internet connection (Generation Scotland, 2021). 27% of rural premises in Scotland are unable to access the minimum download speed required to meet basic online needs (Palmer-Abbs, Cottrill and Farrington, 2021). Many rural residents, in particular older generations, also lack the digital skills required to use the internet (Plunkett Foundation, 2020). The digital divide between urban and rural areas has exacerbated existing inequalities and resulted in digital exclusion for many (Currie et al., 2021).
- **Distances to services.** Rural areas have less local access to services due to centralisation of provision of public services. Travel bans and digital access issues have limited access to centralised services for rural residents throughout the pandemic. Rural populations have had limited access to specific medical facilities including intensive care beds and COVID-19 testing centres and support care at home. Travel restrictions and reduced public transport also limited rural access to cheaper, larger supermarkets (Glass et al., 2021). This lack of access to services has resulted in rural dependency on supply chains. Rural communities are placed at the end of the supply chain and are most exposed to supply chain disruptions (Scottish Government, 2019). This became apparent during the panic buying stage at the outbreak of the pandemic, where rural and island communities could not access key food and household items locally (Glass et al., 2021).
- **Cost of living.** The cost of living in rural areas is higher than urban areas due to fuel poverty, a lack of affordable housing and distances to services increasing transport costs (Shucksmith et al., 2021). Fuel poverty, where households spend more than 10% of income on fuel is a significant problem for rural areas (Comhairle nan Eilean Siar, 2020). 56% of Western Isles households are in fuel poverty, compared to an average of 27% of Scottish households (Shucksmith et al., 2021).

- **Brexit Vulnerability.** The Scottish Government's 2019 Brexit Vulnerability Index identified areas most vulnerable to the consequences of Brexit. Rural locations, in particular island communities, were considered most vulnerable. The six Scottish local authorities with the highest share of vulnerable datazones were Na h-Eileanan Siar (53%), Shetland Islands (50%), Argyll and Bute (49%), Dumfries and Galloway (47%), Highland (43%) and Orkney Islands (34%). The index calculation was based on access to services, share of the population of working age, income deprivation, population change, workers in Brexit sensitive industries, European Commission payments received and EU worker migration (RESAS, 2019). These economic factors, excluding EU payments, are also those likely to be most affected by the COVID pandemic. Therefore, these rural areas most vulnerable to Brexit changes are likely to be the most vulnerable to the COVID-19 pandemic (Highlands and Islands Enterprise, 2020).

### The Effect of COVID-19 for Rural Communities

Rural economies have suffered as a consequence of the pandemic. It is predicted that the rural Scottish economy will take longer to recover from the effects of the COVID-19 pandemic due to a greater impact to date and a higher proportion of self-employed individuals, SMEs and businesses in vulnerable sectors and industries (Highlands and Islands Enterprise, 2020).

The COVID-19 pandemic affected rural economies and communities in a number of ways:

- **Unemployment:** rates of unemployment, furlough and benefits claims were greater, or increased faster in rural areas, compared to Scottish averages.
- **Tourism:** rural employment is heavily reliant on the tourism industry, which was disproportionately affected by travel restrictions and global lockdowns.
- **Agriculture:** supply, demand and labour issues driven by the pandemic negatively impacted the rural agriculture sector.
- **Food Insecurity:** rural communities suffered food insecurity due to reliance on supply chains that prioritised larger, more central areas during the food shortages at the beginning of lockdown.
- **Mental Health:** several rural residents faced isolation, loneliness and mental health problems throughout the COVID-19 lockdown that were exacerbated by their rural location and lack of digital access.

#### Unemployment:

The key impacts of the pandemic on rural employment were decline in quantity of work, decline in wages (through furlough or wage-cuts) and decline in income self-employed workers (through reductions in demand, input supply disruptions or mobility and travel restrictions) (Comhairle nan Eilean Siar, 2020).

Unemployment increased at a greater rate in rural areas: 118% in Highlands and Islands compared to 95% in Scotland (Highlands and Islands Enterprise, 2020). Generation Scotland (2021) RuralCovidLife survey identified that 15% of rural participants experienced a change in

employment status, 18% were furloughed under CJRS and 24% were concerned for their job security.

The proportion of workers placed on furlough was higher in certain rural areas. In Highlands and Islands 72,3000 employees were furloughed between March-June 2020, accounting for 33% of eligible employments, compared to 32% for Scotland. Highland had the highest furlough rate in Scotland (35%). However, other rural local authorities varied in comparison to the Scottish average: Moray (34%); Argyll and Bute (31%); Orkney (27%); Shetland (25%); Outer Hebrides (24%). If furloughed workers were included in unemployment rates, the rate for Highlands and Islands would be greater than the Scottish rate. Highlands and Islands would increase from 5.7% to 31%, compared to 6.4% to 29% for Scotland (as of June 2020) (Highlands and Islands Enterprise, 2020). Rural economies had a greater percentage of furloughed workers in vulnerable sectors. Three of the four Scottish local authorities ranked highest were Argyll and Bute (32% employed in at-risk jobs), Highland (29%) and Orkney Islands (28%) (Highlands and Islands Enterprise, 2020).

Applications for Universal Credit also increased at a faster rate for rural areas. Within the UK applications for job seekers allowance and universal credit increased by 88%, compared to 59% in urban areas (Plunkett Foundation, 2020). Universal credit applications in the Outer Hebrides tripled due to the pandemic (Comhairle nan Eilean Siar, 2020). In March and April 2020 the claimant rate in Perth and Kinross more than doubled. Furthermore, new client demand for financial advice services in Harris increased by 50% (Shucksmith et al., 2021).

### **Tourism:**

Rural economies have been particularly vulnerable to the COVID-19-related decline in tourism, as it is a key rural employer. Accommodation and food services accounted for 10% of employment in Highlands and Islands. 75% of employments in this sector were furloughed between March and June 2020 (Highlands and Islands Enterprise, 2020). Reliance on the tourism sector in Harris was estimated at between 50-85% (Glass et al., 2021).

The international tourism industry is expected to have decreased by 60-80% in 2020 (OECD, 2020). Prior to the pandemic, the Highlands and Islands experienced 2.6million overnight visitors and 14.4million day visitors, accounting for a visitor spend per year of roughly £1.5billion. GDP for the accommodation and food services sector in Scotland has decreased by 70% (March-May 2020), compared to an overall Scottish GDP decrease of 17% (Highlands and Islands Enterprise, 2020).

Many tourism businesses have experienced substantial financial losses due to cancellations, decreases in bookings and declines in visitors (Highlands and Islands Enterprise, 2020). In May 2020, 26% of tourism businesses in Perthshire reported planning redundancies (Glass et al., 2021). Rural tourism and hospitality businesses have faced additional difficulties in reopening in line with government regulations, following lockdown. Smaller businesses may not have been able to meet the additional costs of providing PPE, screens and additional cleaning procedures, following the financial burden of lockdown. In addition, many faced high running costs which may not have been met due to operating at a limited capacity or the reduction in

demand and spending due to a lack of visitors and tourists. Furthermore, poor weather and wildlife constraints (including the presence of midges) limited the ability to provide outdoor seating options required for reopening (Glass et al., 2021).

Despite a decline in international tourists, there was potential for an increase in domestic tourism as travel restrictions eased, but borders remain closed. The 560 Insight Scottish Tourism Index found that 53% of Scots had planned a holiday for 2020, of which 44% planned to visit the Highlands and Islands (Highlands and Islands Enterprise, 2020). However, VisitScotland (2021) revealed that 35% of tourism businesses in Scotland did worse than expected when reopening in summer 2020. 80% of businesses that reopened reported lower turnovers than in an average year and 34% of island responders reported not reopening at all.

### **Agriculture:**

Agriculture is another key rural employer negatively affected by the COVID-19 pandemic. Highlands and Islands account for 25% of the national agriculture and fishing workforce in Scotland (Highlands and Islands Enterprise, 2020). One issue faced by the rural agriculture sector was labour shortages. Travel restrictions and border closures limited labour supply for businesses reliant on seasonal/ temporary migrant workers (OECD, 2020). Decreases in demand were a significant issue for areas within the rural agriculture industry, in particular suppliers of the tourism, hospitality and aviation sectors. The fall in demand drove down prices of certain products, including milk, which resulted in 25% of UK dairy farms becoming financially unviable (OECD, 2020). Rural agriculture businesses also faced tighter credit conditions and supply shortages and delays (OECD, 2020). Transport and logistics services also faced disruptions, culminating in food chain disruptions (OECD, 2020). Changes in demand reconfigured supply chains, which required businesses to adapt to survive. For example, switching supply from the hospitality and the 'out-of-home consumption' sector to 'in-home consumption' supply chains including supermarkets, box delivery schemes or online sales. However, this required significant costs so was not a viable option for many small rural businesses (Philipson et al., 2020).

### **Food Insecurity:**

At the outbreak of the pandemic, rural communities were disproportionately impacted by food insecurity due to their dependence on national and global supply chains. Rural food and drinks distribution is heavily reliant on external transport links to connect markets (Comhairle nan Eilean Siar, 2020). Island communities faced food shortages from supply issues as small ferry operators were unable to complete deliveries due to harbours shutting and employees self-isolating (Sindico et al., 2020). Local independent community shops lacked supplies of basic goods and essentials because restocking larger supermarkets was prioritised, following consumer bulk-buying emptying supermarket shelves. Rural shoppers were forced to travel beyond travel restriction boundaries, against government guidance, to access food and other essential goods, incurring additional costs from travel expenses and potentially inflated prices (Plunkett Foundation, 2020). However, as restrictions continued, consumer demand and

supply chains stabilised. Furthermore, many local businesses adapted to online ordering and takeaway 'eat-from-home' meals (Comhairle nan Eilean Siar, 2020). Food banks have also played a significant role throughout the pandemic in providing emergency support for low-income rural households that were unprotected or under-provided for by state welfare provisions (Shucksmith et al., 2021).

### **Mental Health:**

Rural communities were more likely to suffer feelings of loneliness and mental health problems from social isolation due to the COVID-19 pandemic. 38% of respondents in the Generation Scotland (2021) RuralCovidLife survey reported some form of loneliness. The young, women and remote rural areas were worst affected. Feelings of isolation and loneliness were exacerbated for rural residents who lacked adequate broadband connection or the digital skills required for socialising online (Plunkett Foundation, 2020). Lockdown has added additional challenges for the mental health of young rural residents, who reported feeling isolated from friends and social support structures and confined to small, isolated communities with very few similar-aged or like-minded residents (Philipson et al., 2020).

A US study of rural high school pupils found 25% of pupils struggled with their mental health throughout the pandemic and that loneliness was a factor driving anxieties. Students from minority groups, low socioeconomic backgrounds, older year groups and females were the worst affected (Gazmararian et al., 2021). Rural US populations were also found to be at a higher risk for suicides and that suicide risk factors have been exacerbated by the COVID-19 pandemic (Monteith et al., 2020).

### [The Effect of COVID-19 on Rural Education](#)

COVID-19 has increased financial difficulties and poverty for rural low-income households in Scotland. As there is a clear link between poverty and education, it is likely that the COVID-19 pandemic will have a long run effect on rural education and educational inequalities. However, there are gaps in the literature and more research needs to be conducted on the specific effects of the COVID-19 pandemic on the Scottish rural attainment gap.

Preliminary evidence has identified some challenges faced by rural pupils throughout the pandemic, which has affected their education. It appears that rural pupils living in poverty have faced additional challenges, which consequently may have increased the rural attainment gap.

- **Digital divide.** Rural students' ability to access online classes and resources was limited by lack of access to a device or an internet connection. Those with internet access may still have faced slow downloading speeds which were not compatible with multiple devices of other family members requiring internet at the same time (Glass et al., 2021). After controlling for broadband availability, income, education level and employment sector were all predictors of having a broadband connection (Davies,

2021). Therefore, rural students from lower-income, less educated and less skilled families were more likely to have issues accessing online learning resources, thus in turn limiting their ability to learn from home.

- **Social isolation and mental health.** Mental health problems, which were found to be more prevalent in rural pupils from low income or minority families, were exacerbated by COVID-19 lockdowns. This may have had a negative effect on education as students were more anxious and distracted, limiting their ability to focus on their studies (Gazmararian et al., 2021).
- **Food insecurity.** Rural pupils living in poverty were more likely to have experienced food insecurity as a consequence of the economic downturn and rural supply chain challenges. Low-income families were less able to afford the inflated prices at local community shops or the transportations costs to access cheaper supermarkets (Shucksmith et al., 2021). FSM uptake increased in some rural areas, including the Outer Hebrides, which increased by 10% between March and August 2020 (Comhairle nan Eilean Siar, 2020). Food insecurity may have been a factor affecting the rural attainment gap. Lack of food potentially reduced concentration and limited pupils' ability to focus on learning (Smith and Barron, 2020).

In addition, potential benefits of the pandemic on rural education should be studied. These may include an increase in available learning time due to the removal of lengthy school commutes (previously documented by Falch, Lujala and Strøm (2013) and Dickerson and McIntosh (2012)). Another potential benefit to rural education was the high furlough rates in rural Scotland, which may have resulted in more parents being present and available to aid their children with home learning, as suggested by Andrew et al. (2020a).

In conclusion, there is some evidence of COVID-19-related factors which have influenced rural education. However, additional research needs to be conducted to gain a better understanding of the impact of the COVID-19 pandemic on the rural attainment gap in Scotland.



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