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*A Health Partnership for Northern England*

HEALTH EQUITY NORTH

# Health for Wealth 2025

## Building a Healthier North to boost UK Productivity

# Contents



**Health for Wealth 2025** Building a Healthier North to boost UK Productivity

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**Cite as:**
Simpson, J. et al (2025) Health for Wealth 2025: Building a healthier North will boost UK productivity, Health Equity North, Newcastle.

**Editorial team:**
Ruth Boston, Charlotte Thompson

**Acknowledgements:**
This report was produced by Health Equity North (HEN). HEN is funded by the Northern Health Science Alliance (NHSA) and the Universities of Liverpool, Manchester, Newcastle, and York. The authors are additionally funded by the Northern NIHR Applied Research Collaborations (ARCs; North East and North Cumbria [reference NHIR200173], Greater Manchester [reference NIHR200174], and North West Coast [reference NIHR200182]) and a Wellcome Trust award (221266/Z/20/Z). The work in chapter 6 was supported by the Economic and Social Research Council through The Productivity Institute [grant number: ES/V002740/1]. The project also received funding from Newcastle Health Research Partnership (NHRP) through the NHRP Research Fund. Fuse, the Centre for Translational Research in Public Health. The views expressed in this publication are those of the author(s) and not necessarily those of the Wellcome Trust, NIHR or the Department of Health and Social Care. The funders had no role in data analysis, decision to publish or preparation of this manuscript.

# Foreword

**Professor Dame Nancy Rothwell**

Poor health is a major contributor to economic inactivity. In the North of England, where poverty and deprivation are widespread, ill health is preventing even more people from working than in other regions of the UK. This gap is costing the UK economy a staggering £18.4bn a year.

The landmark Health for Wealth report published in 2018 made a clear case for improving health and inequalities in northern regions as a route to boosting productivity and economic growth and prosperity.

This updated report explores how the situation has evolved over the last seven years against a backdrop of a global pandemic and an ongoing cost of living crisis, both of which hit the North harder than most other areas.

Given these challenges, it is obvious that the latest evidence highlights a troubling current reality. Regional inequalities in health, wages and economic inactivity have deepened on average, with the divide between the North and the rest of England becoming more pronounced.

Health-related economic inactivity is currently 50% higher in the North than in the rest of England. Regional health inequalities account for over 40% of this gap, underscoring the urgent need for targeted interventions to improve health outcomes and boost workforce participation.

While there have been some pockets of growth in productivity within northern regions in recent years, there is still a long way to go to ensure other areas don't get left behind.
To deliver transformative economic benefits, there needs to be targeted and sustained investment in improving physical and mental health - particularly in areas of greatest need such as the North of England.

The findings and recommendations in this report are especially timely in light of the Government's Industrial Strategy and the NHS 10 Year Plan, aligning closely with current national priorities.

The report shows that urgent action is both justified and necessary. The problem is clear and well-defined, now solutions must follow.

# **Chapter 1:** Introduction

## Background

Stagnating growth and widening inequalities in health and productivity pose a formidable challenge for UK policymakers. The case for action is both clear and pressing: long-standing structural weaknesses in the economy, coupled with over a decade of declining health linked to austerity, have exacerbated the negative impacts of the COVID-19 pandemic, making the UK an international outlier in terms of stubbornly high rates of economic inactivity (McCartney et al., 2025). The current Labour government has committed to a strategy for tackling the economic and social decline by means of delivering economic growth (Labour Party, 2024). In this report, we argue that reducing regional health inequalities should form a crucial part of the government's strategy.

The previous Health for Wealth report by Bambra et al. (2018) has shown that improving health in the North[1] of England would generate substantial economic gains, equal to £13.2bn of UK gross value added (GVA) per year. However, since publication, many significant political, economic and population health developments have taken place. The most notable were the COVID-19 pandemic and the subsequent cost-of-living and health-related economic inactivity crises. These developments have undoubtedly had a marked impact on the relationship between health and productivity.

Indeed, evidence shows that the northern regions were disproportionately hit by the COVID-19 pandemic in terms of mortality as well as by the resulting economic problems, such as lost productivity (Munford et al., 2021). The cost-of-living crisis has also had disproportionate impacts on the North. Rates of child poverty, food poverty and fuel insecurity have all been greater in the North since the pandemic (Barnes et al., 2022). Rising inflationary pressures have also hit the northern regions harder, potentially due to poor insulation of homes and higher car dependency than in the rest of England (Centre for Cities, 2022).

Against this background, our aim was to investigate more recent developments in health and economic outcomes across the North and the rest of England, and crucially, to evaluate the role of improving health and reducing inequalities on employment and productivity. This could help inform the government's economic growth mission and, ultimately, reduce the entrenched social, economic and health inequalities across the country.

## Structure of the report

**Our report is structured as follows:**

**Chapter 2** provides an in-depth overview on how regional health and economic outcomes have evolved over the past decade (2013-2023). It further investigates the impact of the onset of the pandemic on these outcomes, exploring whether the strength of the association between health and productivity outcomes has changed since the previous Health for Wealth report by Bambra et al. (2018).

**Chapter 3** examines the impact on individual's economic outcomes (including employment and monthly pay) following a spell of ill general health; how it varies between the North and the rest of England; and identifies changes since the previous report. This is followed by a discussion on how we can support people with ill-health or disability into employment or help them remain employed.

**Chapter 4** investigates the differences in trends in health-related economic inactivity between the North and rest of England and uses decomposition methods to identify the key causes of the regional divide. It also investigates the differences in individual characteristics of the economically inactive due to ill-health and discusses implications for future policy.

**Chapter 5** provides quantitative estimates on the contribution of the regional health divides to the productivity gap between the North and the rest of England; identifies how much health would need to improve in the northern regions to increase UK productivity and compares these estimates to those in the previous Health for Wealth report.

**Chapter 6** investigates the impacts of mental health on productivity and economic prosperity using population-level data and explores the differences across the nine English regions.

**Chapter 7** concludes and provides overarching policy recommendations.

# **Chapter 2:** Regional Health Inequalities and the Productivity Gap

## Introduction

One of the key findings from the Health for Wealth report by Bambra et al. (2018) was the significant association between health and productivity, particularly in the North of England. In this chapter we investigate how regional health and economic outcomes have evolved over the past decade and explore whether the strength of the association between health and productivity has changed since the original report.

**More specifically, we focus on the following research questions:**

- How did health and economic outcomes evolve in the North and the rest of England over the period between 2013-2023?
- Did COVID-19 exacerbate existing regional inequalities in health and economic outcomes?
- What was the association between ill-health and economic outcomes over the past decade, both in England and by region? How does it compare to the association found in the Health for Wealth report by Bambra et al. (2018)?

Investigating regional inequalities in associations between health and productivity provides vital intelligence for UK policymakers concerned with improving UK economic growth in the post-pandemic era.

## Methods

### Data

We constructed a longitudinal dataset at Local Authority District (LAD) level over a period from 2013-2023[2]. There are currently 296 LADs in England; two of these (City of London and Isles of Scilly) were excluded from analyses due to their small population sizes.

### Economic Activity (Outcome Variables)

We obtained data on measures of economic activity from NOMIS, the official labour market statistics portal (ONS, 2025a). We collected information on measures of employment – the employment rate and the economic inactivity rate[3]. Additionally, we collected information on the median weekly wages[4] (from the Annual Survey of Hours and Earnings). For our measure of productivity, we obtained total Gross Value Added (GVA) data by local authority, and to calculate values per head[5], we divided the total GVA (in 2023 prices) in each local authority by its resident population. For statistical analyses, we used logged GVA values to express relative as opposed absolute change. Both GVA and population size estimates were also obtained from ONS (2025b).

### Health Variables

For measures of population health, we obtained data on the number of individuals receiving disability benefits (Personal Independence Payment (PIP) or its predecessor Disability Living Allowance (DLA)), obtained from the DWP (2025d) benefit statistics (Stat-Xplore). It has a high correlation with measures of self-reported health in the latest Census ($r=0.8$, $p<0.01$) and was therefore judged to be appropriate proxy for morbidity[6]. We also obtained age-adjusted mortality rates from the ONS (2025a).

### Additional Variables

Following the Health for Wealth report by Bambra et al. (2018), we obtained data on population size and age structure, income support benefit replacement ratio, and the percentage of adult population with no formal educational qualifications. All these data came from NOMIS (ONS, 2025), except for income support benefit levels which were sourced from DWP (2025d).

### Statistical Methods

Our longitudinal dataset consisted of repeated annual observations for each local authority. To investigate if the COVID-19 pandemic has impacted existing inequalities in health and economic outcomes, we implemented segmented linear regression models, with linear spline terms for year 2020 (indicating the onset of the pandemic).

To investigate the relationship between health and economic variables, we used fixed effects regression models to identify the effect of within local authority change in mortality or morbidity on economic outcomes. Utilising only within local authority variation means that we control for all time invariant confounders that could bias the results making it a more robust method than cross-sectional or between local authority comparisons. We additionally included year fixed effects to account for nation-wide shocks affecting all local authorities.

We estimated the effects of population level morbidity on wider economic outcomes in separate models for each outcome. Additionally, we estimated models for the whole country (England) as well as for the northern regions and for the rest of England separately.

## Results

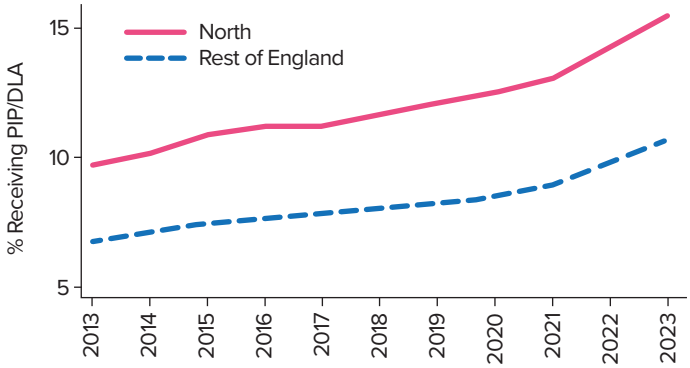
### Trends Over Time in Key Variables

As illustrated in Figures 1-18, the northern regions consistently perform worse in terms of both health and economic outcomes, with the North East having the worst outcomes, both before and after the pandemic. Since 2013, absolute gaps between the North and the rest of England have increased for all outcomes, except for employment (which has decreased by 18% (from 5.2 to 4.2 percentage points)), primarily due to the relatively greater increases in employment in the North West vs. all other regions between 2015-2016, consistent with ONS (2016) figures. The gaps in mortality and morbidity, on the other hand, have increased dramatically – rising by 15% and 62% respectively (i.e., from 146 to 167 deaths per 100,000; and from approx. 3 to 5 percentage points for morbidity). The corresponding increases in economic inactivity and wages were 8% and 5% respectively (from 3.8 percentage points to 4.1 percentage points; and from £53.9 to £56.8 per worker per week).While the absolute gap in GVA increased by 35% (from £5,371 to £7,262), there was a very slight decrease in the gap when measured in relative terms (from 28% lower productivity in the North in 2013 to 26% in 2023) – as indicated by largely parallel trends in Figure 13.

There are also interesting patterns when looking at the Midlands separately from the North and rest of England. Health-related outcomes in the Midlands tend to be in the middle between the North and rest of England whereas economic outcomes diverge. For example, employment rates in Midlands have consistently been closer to those in the rest of England (a pattern likely explained by much lower rates in the North East compared to the rest of the country). In terms of GVA, on the other hand, the average values in the Midlands are almost identical to

## 1. Morbidity

**Figure 1. Trends in morbidity between the North and the rest of England, as measured by the proportion of working-age population receiving PIP/DLA benefits**



those in the North, whereas those in the rest of England are much higher – a pattern likely explained by the London's significantly higher GVA values.

## Statistical Analysis Results

### Segmented Regression Results

Our results suggest that following the onset of the pandemic, the northern regions experienced greater rises in both morbidity and mortality (by 4.4 percentage points and 5.5 deaths per 100,000 respectively). In terms of economic outcomes, wages increased more slowly in the North – by around £1.90 less per week than in the rest of England since the pandemic; there were no statistically significant differences in terms of employment and economic inactivity. However, since the pandemic GVA per head increased faster in the North than in the rest of England by around 1%. This finding is in line with a recent analysis by the Productivity Institute (2025).

### Fixed Effects Results

We have found that decreasing the number of people with morbidity by 1% will increase employment rates by 0.58 percentage points in the North vs. 0.22 percentage points in the rest of England, although the estimates are not statistically significant for the rest of England and only borderline significant in the North. The sizes of coefficients are, however, higher than in the Health for Wealth report by Bambra et al. (2018) (where the corresponding percentages were 0.44 and 0.18), indicating that the relationship between health and employment has become stronger in recent years, especially in the North. We found no statistically significant relationships between morbidity or mortality and economic inactivity, GVA and wages.

## Discussion

### Summary of Key Findings

In summary, we have found that, over the past decade (2013-2023), there was an increase in gaps in both mortality and morbidity between the North and the rest of England. More specifically, the gap in mortality has increased by 15% and the gap in morbidity has increased over 1.5-fold – by 62%. The increase in the gap was impacted significantly by the onset of the COVID-19 pandemic. The North East consistently has the worst health and economic outcomes of all regions.

Gaps in most economic outcomes have also increased over the past decade, albeit to a lesser extent. Namely, the gaps in economic inactivity and wages increased by 8% and 5% respectively. The gap in employment rates between 2013 and 2023, on the other hand, has decreased by 18%, primarily driven by the relatively greater increases in employment in the North West vs. all other regions between 2015-2016, consistent with ONS (2016) figures. Similarly, the relative gap in GVA has decreased by 2%, mostly driven by the relatively faster growth in the Northern regions since the pandemic, especially in the North West and parts of Yorkshire, with Greater Manchester experiencing the greatest increases in productivity in the country over the past two decades (Productivity Institute, 2025; Northern Powerhouse Partnership, 2024) as well as between 2019-2023, with Cumbria having the second largest growth during this period (Spencer, 2025). These positive changes are seen across multiple sectors in the economy and thus are likely attributable to broad structural improvements to transport connectivity across the city region, as well as ambitious and strategic local leadership enabled through devolution (Spencer, 2025).

Despite these improvements, large gaps between the North and the rest of England remain, with the Northern regions currently experiencing 26% lower productivity than those in the rest of England.

### Implications for Policy and Practice

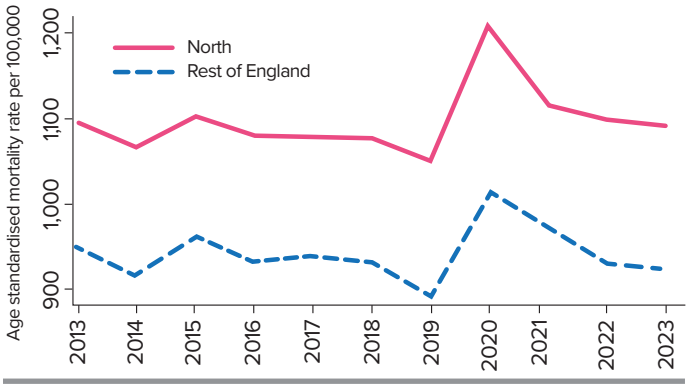
Our findings highlight the potential economic benefits of preventing poor health outcomes in the North. While the slight decreases in the productivity gap are promising, the gap remains large and thus it remains the case – and even more so now – that strategies for economic

**Figure 2. Trends in morbidity between the North, Midlands and the rest of England, as measured by the proportion of working-age population receiving PIP/DLA benefits**


**Figure 3. Trends in morbidity between the nine regions of England, as measured by the proportion of working-age population receiving PIP/DLA benefits**


### 2. All-cause mortality rates

**Figure 4. Trends in all-cause age-standardised mortality between the North and the rest of England**




growth are only likely to be effective if they address this major barrier to employment, particularly in the North. Improving population health in the North requires increased investment in prevention and in 'place based' public health interventions that focus on changing the social and environmental determinants of health inequalities.

Recent evidence suggests that one of the key social determinants of the North-South health divide is income. More specifically, a study by Simpson et al. (2025) found that, amongst the 20% most deprived local authorities in England, lower household income in the North was a key determinant of the life expectancy gap between the North and the rest of England. The study has further found that austerity and accompanying welfare benefit reductions have contributed to disproportionate income losses in the North, increasing health inequalities. Policies that could help reverse austerity-induced benefit losses, such as increases in benefits for families with children and pensioners, on the other hand, have been shown to be effective in reducing health inequalities (Simpson et al., 2021; Albani et al., 2022; Simpson et al., 2024a) Such policies are particularly pertinent in the context of the ongoing cost of living crisis and

increasing child poverty rates – both of which affect the northern regions disproportionately (Barnes et al., 2022).

We welcome the government's 10-Year Health Plan which posits a shift in focus from sickness to prevention in the NHS. It aims to achieve this by making the "healthy choice the easy choice" (Department for Health and Social Care, 2025) – focusing on digital technology, moving care from hospitals to the community, and implementing targeted, integrated approaches like social prescribing. However, while the plan's focus on prevention is a welcome step, there are concerns it requires more fundamental, cross-government commitment to tackle the underlying societal drivers of ill-health and health inequalities, such as widening income disparities, effectively.

The scale of this challenge should not be underestimated, however: after German reunification, it took 15 years and €2tn to close the East-West life expectancy gap for women and greatly reduce it for men (Rollison, 2021; Barr et al., 2025). One of the key contributors to reduced health inequalities were increased social security benefits (Simpson et al., 2024a) as well as greater devolution (Rollison, 2021). Policy initiatives, such as the recently launched English Devolution and Communities Empowerment Bill (UK Parliament, 2025) which has made health a statutory duty for Mayors and strategic authorities is therefore a welcome policy development. If it becomes law, the duty will require strategic authorities and Mayors to have regard to improving health and reducing health inequalities across the full range of their responsibilities, thus embedding the Health in All Policies approach, advocated by World Health Organisation (2012). To be successful, however, the initiative requires sustained adequate resources and a long-term commitment from the central government (Health Foundation, 2025).

**Figure 5. Trends in all-cause age-standardised mortality between the North, Midlands and the rest of England**

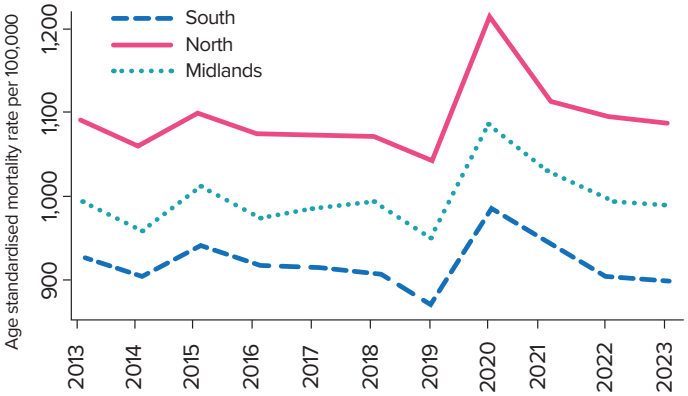
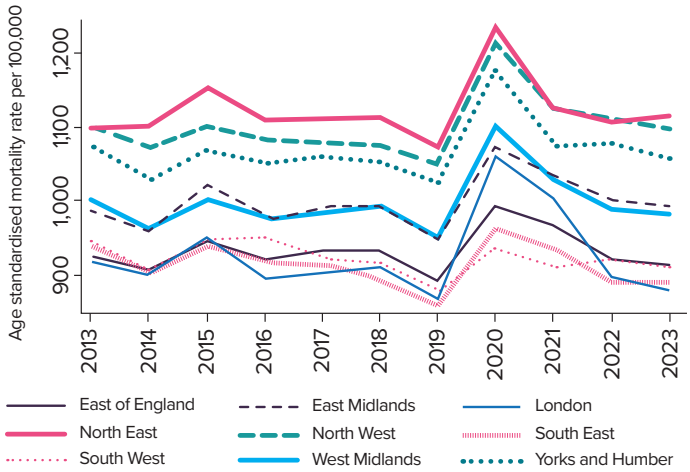



**Figure 6. Trends in all-cause age-standardised mortality between the nine regions of England**




### 3. Employment Rates

**Figure 7. Trends in employment rates between the North and the rest of England**

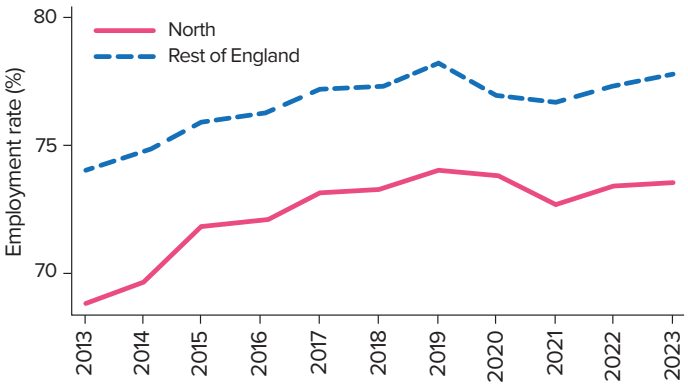



**Figure 8. Trends in employment rates between the North, Midlands and the rest of England**

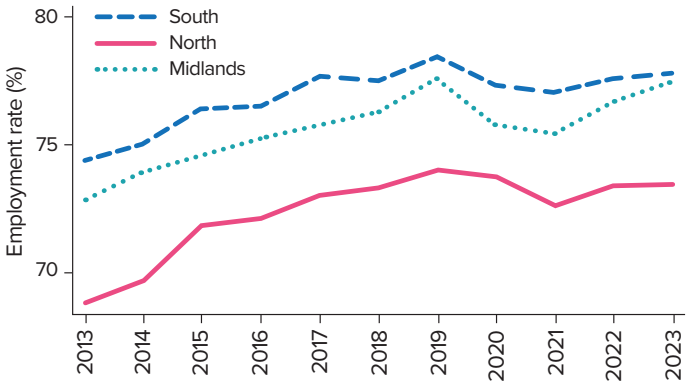
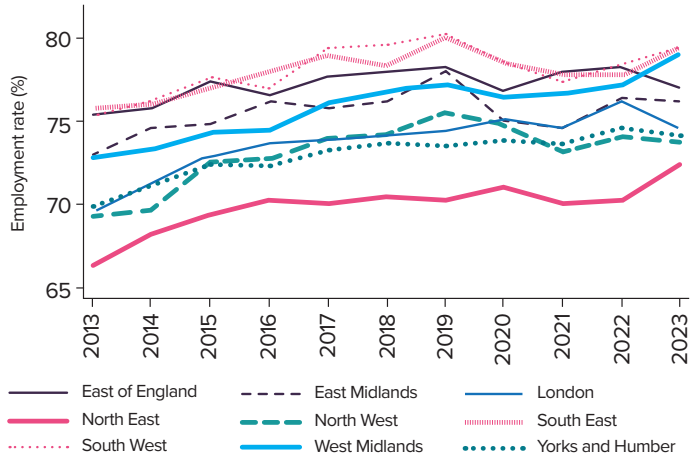



**Figure 9. Trends in employment rates between the nine regions of England**




### 4. Total Economic Inactivity

**Figure 10. Trends in economic inactivity between the North and the rest of England**

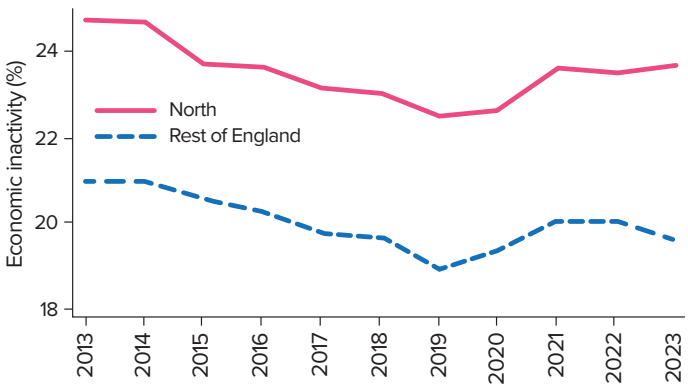


**Figure 11. Trends in economic inactivity between the North, Midlands and the rest of England**

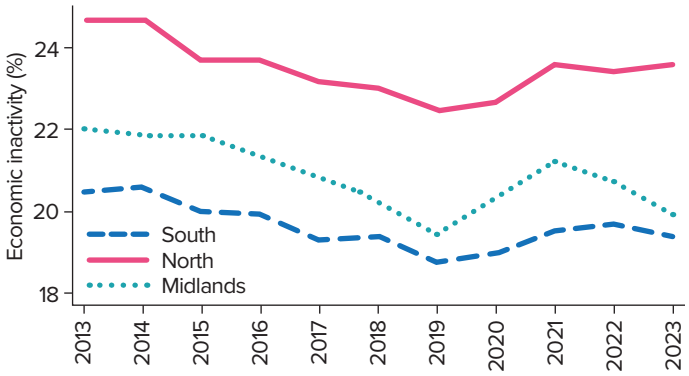
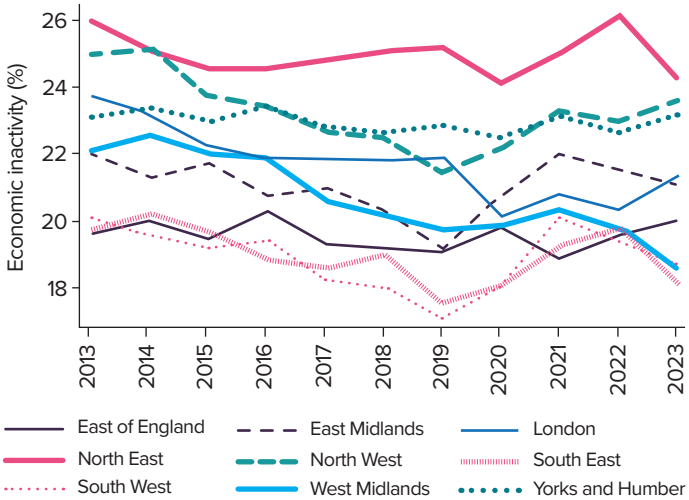



**Figure 12. Trends in economic inactivity between the nine regions of England**




## 5. GVA per head

**Figure 13. Trends in GVA per head between the North and the rest of England**

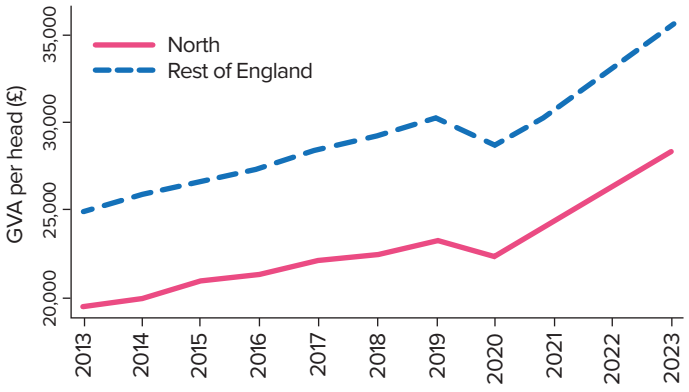



**Figure 14. Trends in GVA per head between the North, Midlands and the rest of England**

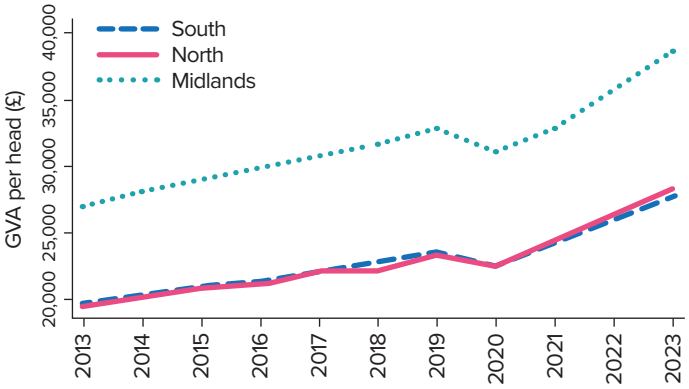



**Figure 15. Trends in GVA per head between the nine regions of England**


## 6. Median Weekly Wages

**Figure 16. Trends in median weekly wages between the North and the rest of England**

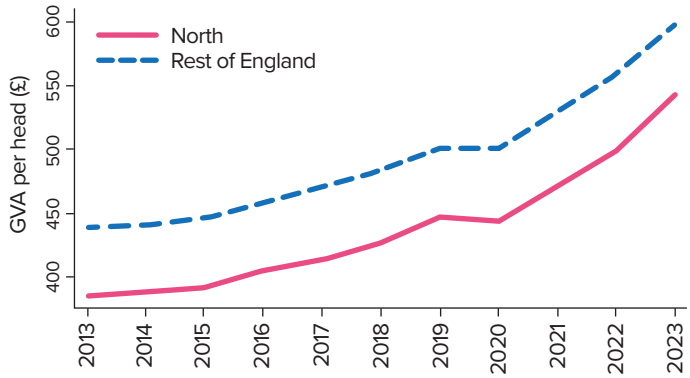



**Figure 17. Trends in median weekly wages between the North, Midlands and the rest of England**

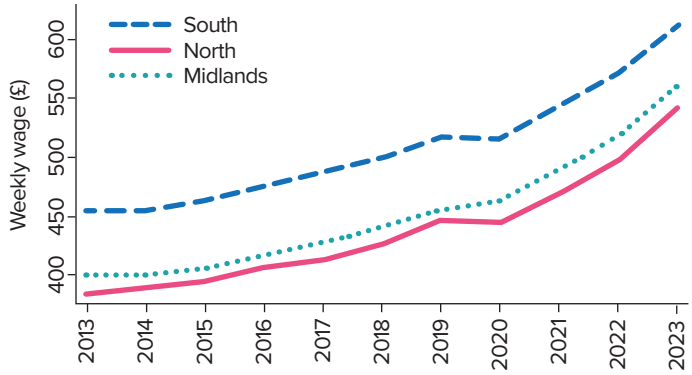
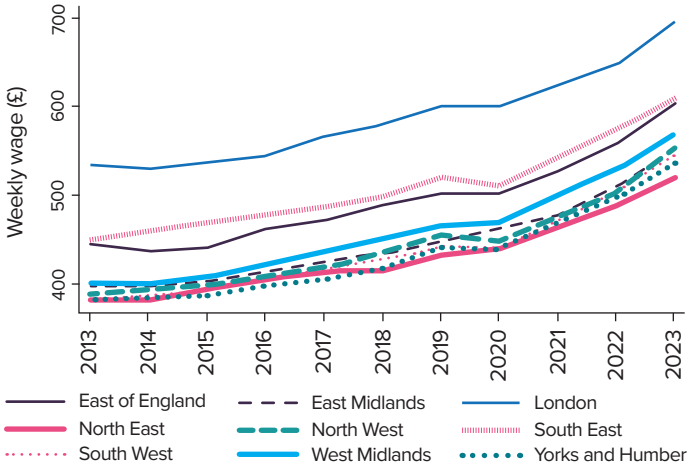



**Figure 18. Trends in median weekly wages between the nine regions of England**



# **Chapter 3:** Poor Health and Individual Economic Outcomes

## Introduction

In this chapter we examine what happens to an individual's employment and monthly pay following a spell of ill-health. We also discuss how we can support people with ill-health or disability into employment or help them remain employed.

### Background

The UK is an outlier internationally for having one of the widest disability employment gaps in Europe and potentially among developed nations, with a significant disparity between the employment rates of disabled and non-disabled people, equal to 24% (vs. EU-15 average of 18%) (Institute for Employment Studies, 2025). Regional divides are stark within the UK. According to the previous Health for Wealth report by Bambra et al. (2018), people in the North of England are 39% more likely to lose their job following a spell of ill-health compared with those in the rest of England. If they do get back into work, their wages were estimated to be 66% lower than those of a similar individual in the rest of England.
Our aim is to understand if these associations have changed since our previous report and the onset of the COVID-19 pandemic as well as the accompanying cost-of-living crisis.

### Research questions:

- What are the regional trends in employment rates of individuals with self-reported disabilities?
- How are individual's employment status and relative monthly pay affected following the onset of ill-health?
- Are there differences between the northern regions and the rest of England?

## Methods

### Data

To describe regional trends, we used regional-level data on employment rates of people with self-reported disabilities from NOMIS (the official labour market statistics portal). For individual-level analysis, we used data from Understanding Society: the UK Household Longitudinal Study (UKHLS), which tracks around 40,000 UK households each year (Institute for Social and Economic Research, 2025). We used all available waves 1-14, covering the period 2009-2023. UKHLS contains a rich set of socio-economic and demographic information on respondents, health status and the region in which they live. The data used for the individual-level analysis included the following variables:

### Economic Outcomes

We examined two employment outcomes: whether an individual was in employment and monthly pay (both self-reported measures).

### Health Variable

Our main indicator of health is self-reported health status[7]. To rate their health, people were asked in the survey: "In general, would you say your health is excellent, very good, good, fair or poor?" From this we classified people into "good health" if an individual responded with excellent, very good or good, and into "bad health" if they responded with fair or poor.

### Additional Variables

We used several widely used socio-economic variables to adjust for other influences on economic outcomes: age, highest educational qualification, number of children, and marital status. We did not adjust for fixed characteristics such as ethnicity as our statistical analysis method already controls for time invariant characteristics.

### Statistical Methods

We examined the effect of having a period of "bad health" on employment outcomes and how this differed for individuals in the North compared to the rest of England. We defined a spell of ill-health as individual's self-reported health falling from 'good' to 'bad' between any two consecutive waves. To estimate the effect of a spell of ill health we used a staggered difference-in-difference method whereby we compare the individuals who develop a spell of ill health to those who do not change their health status. We used the Callaway and Sant'Anna (2021) approach to estimation of average treatment effects, following an approach summarised in detail in Simpson et al. (2024b).

To mitigate possible selection bias, we used the doubly robust DiD estimator based on stabilised inverse probability weighting and ordinary least squares (Sant'Anna and Zhao, 2020). This estimator allows for matching based on observable characteristics. Our matching variables included potential confounding variables described in Chapter 2, including age, highest educational attainment, number of children, marital status, and urbanity of where the respondent lives.

To account for differences in education status, we estimated these models for individuals who attained GCSEs or below and those with A-levels or higher levels of educational qualifications, as we expected the change in health status to affect these two groups differently.

## Results

### Regional Trends

As shown in Figure 19, individuals with long-term health problems in the North are more likely to be economically inactive (for any reason)[8] than those in the rest of England, with the gap widening dramatically since the onset of the pandemic. Namely, at the start of the pandemic (2020), 49.6% of individuals with long-term conditions were likely to be economically inactive in the North vs. 48.5% in the rest of England (1.1 percentage point gap). By 2024, the gap between the North and rest of England has nearly quadrupled – increasing to 4.2 percentage points, with, 51.2% vs 47% of people with long-term conditions being economically inactive respectively. When we look at Midlands separately, we can see, much like with economic outcomes in Chapter 2, that Midlands is closer to the rest than the North of England in terms of trends. By region (Figure 21), most regions follow a similar pattern of stable or increasing proportion of economic inactivity amongst people with long-term health conditions, with the exceptions of London and the South East where the proportions have been on a downward trend both before and after the pandemic.

### Statistical Analysis Results

Our individual-level analysis results in Figure 22 show that individuals living in the northern regions are two times more likely to lose their job following a spell of ill-health than those in the rest of England (2.4% chance in the North vs 1.2% in the rest of England). This is a 28% increase compared to the association found in the previous Health for Wealth

**Figure 19. Economic inactivity rates among people with long-term conditions in the North and the rest of England**

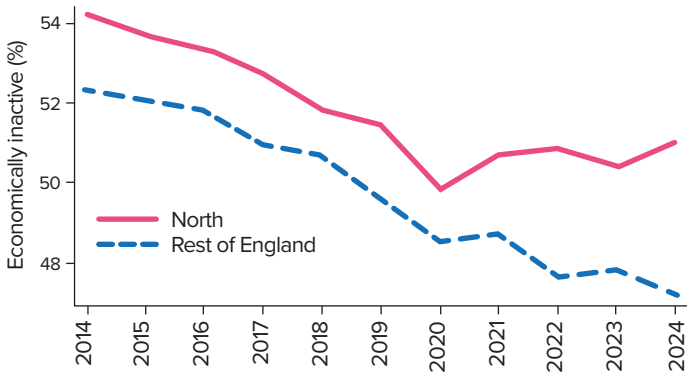


**Figure 20. Economic inactivity rates among people with long-term conditions in the North, Midlands and the rest of England**

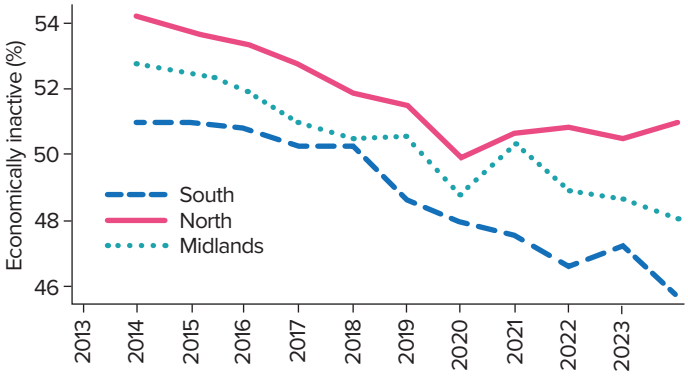
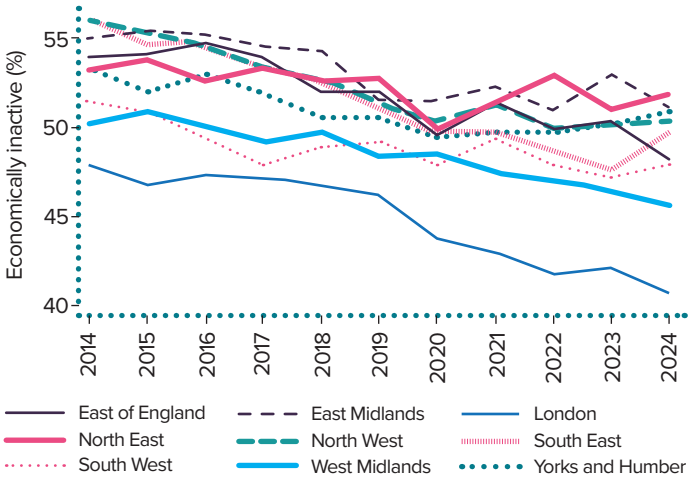



**Figure 21. Economic inactivity rates among people with long-term conditions in the nine English regions**




report by Bambra et al. (2018), where there was a 39% difference in the likelihood of job loss.

Additionally, there are stark educational inequalities in employment amongst those who develop a spell of ill health (Figure 23). In England, workers without an educational qualification are nearly five times less likely to remained employed following a spell of ill health, compared with those with at least an A-level qualification (1.1% vs 6.1%). In the North, this relationship is even more pronounced whereby individuals with no educational qualifications are nine times less likely to remain employed (16.5% vs 1.7%). In the rest of England, there is no statistically significant relationship between worsening health and remaining employed by educational attainment

In terms of relative monthly pay (Figure 24), we have found that a spell of ill health leads to a 2.3% decrease in monthly pay in England. In the north, the decrease in monthly pay is nearly triple the national average – equal to 6.6%. The decrease in the rest of England is almost identical to the national average but is not statistically significant. We have found no statistically significant differences by education, potentially owing to low sample sizes for this outcome.

## Discussion

**Summary of key results**

In summary, individuals with long-term health problems are much more likely to be economically inactive in the North than in the rest of England. Following the COVID-19 pandemic, the regional gap has nearly quadrupled from 1.1 percentage point difference to 4.2 percentage point difference between the North and rest of England.

Our individual-level analysis supports the aggregate level findings. We

**Figure 22. Probability of staying employed following a spell of health in England, the North and the rest of England**

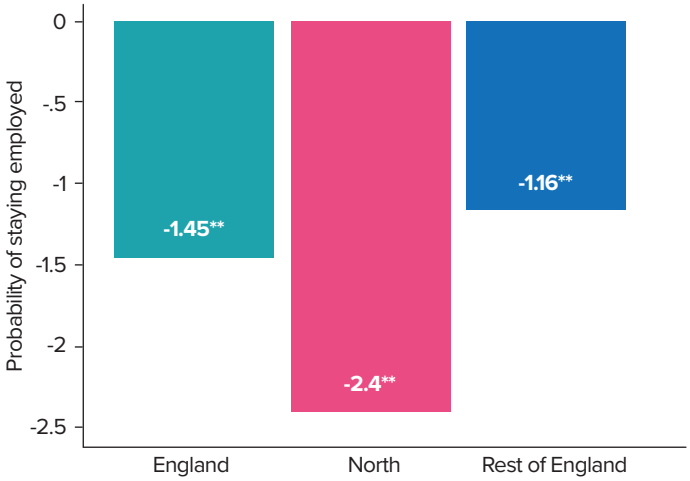



**Figure 23. Probability of staying employed following a spell of health in England, the North and the rest of England, by education level**

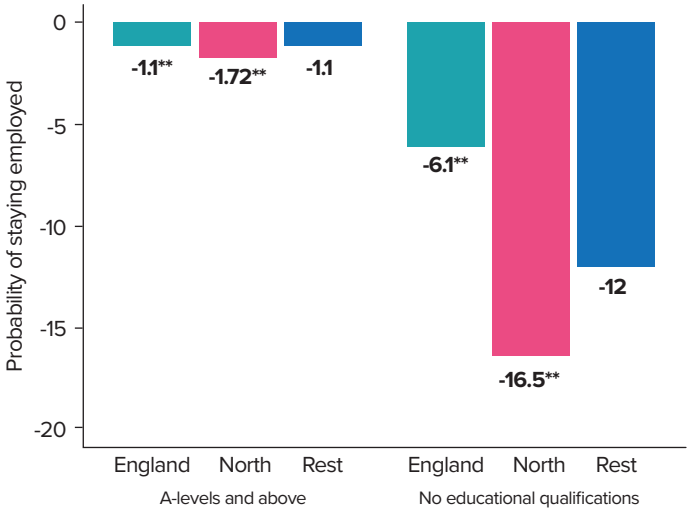
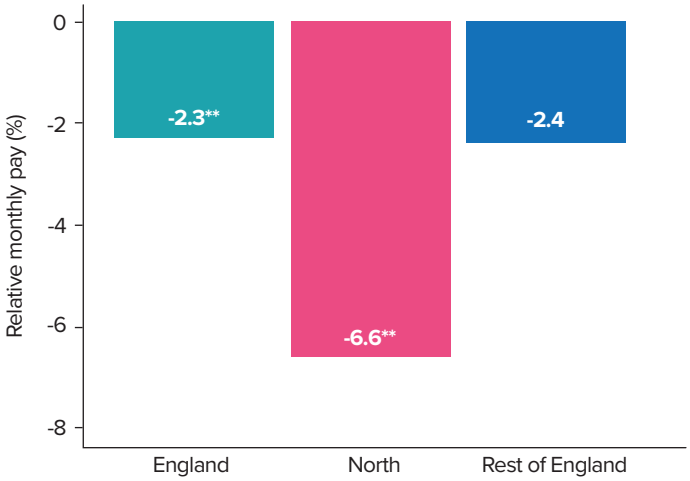



**Figure 24. Change in relative monthly pay following a spell of health in England, the North and the rest of England**




have found that people living in the northern regions are two times more likely to lose their job following a spell of ill-health than those in the rest of England (2.4% probability in the North vs 1.2% in the rest of England). There are also stark educational inequalities in employment outcomes following a spell of ill health, especially in the North – where people with no formal educational qualifications are nine times less likely to remain in their job following an onset of ill-health than those with A-level or higher

qualifications. Furthermore, workers with an onset of ill-health in the North suffer monthly pay losses that are nearly triple the national average – equal to 6.6% (vs. 2.3% national average). These results highlight the major and growing role of poor health on regional economic inequalities.

**Implications for Policy and Practice**

There are several national - and local-level policy recommendations that could help address the economic penalty of the onset of poor health in the North. There are two broad areas of intervention: supporting work retention and supporting return to work.

In terms of supporting work retention, the obvious key solution is preventing ill-health in the first place. Organisational interventions that adopt whole-system approaches and address upstream determinants of health (e.g., pay and working conditions) could be an effective way to reduce health inequalities (Siegrist et al., 2009). Similarly, flexible working interventions and policies could also help retain people with ill-health in employment (Institute for Employment Studies, 2022). We therefore welcome the recent legislation of Statutory Right to Request Flexible Working from the first working day (UK Parliament, 2024). However, the legislation is not without limitations. For example, there's no obligation for the employer to agree, only to consider the request reasonably. Additionally, the enforcement of the law is still limited and, crucially, it excludes the self-employed – a group disproportionately represented among people with disabilities (Work Foundation, 2023).

As for supporting return to work, stronger obligations for employers may need to be imposed to help the UK's work-disability gap to get closer to the European average (Institute for Employment Studies, 2025). Currently, the UK imposes relatively light obligations on employers regarding accommodations for employees with health conditions. Beyond financial aid by means of welfare benefits (PIP/DLA or ESA), the state's role in supporting individuals with health conditions in the labour market is minimal (ibid). In contrast, there are tighter regulations on employers in countries with lower disability-employment gaps, such as Germany, Denmark, and Spain. Similarly, Sweden implements tailored support to facilitate return to work with better access to health care (Koskela and Sauni, 2012). However, ultimately, a joined-up, system-wide approach to supporting those with ill health or disabilities to work is likely to be key to its effectiveness. An example of this could be effectively linking preventive and rehabilitative measures through co-ordinated actions across multiple policies (Institute for Employment Studies, 2025).

# **Chapter 4:** Health-related Economic Inactivity

## Introduction

In this chapter we aim to understand and explain the differences in trends in health-related economic inactivity between the North and rest of England. We also investigate the differences in individual characteristics of the economically inactive due to ill-health and discuss implications of the regional divides for future policy.

### Background

The rapid rise in economic inactivity since the COVID-19 pandemic has become a pressing policy issue in the UK. Since 2019, economic inactivity rates have been rising ten times faster than the growth of the working-age population, largely due to worsening population health (ONS, 2023; DWP, 2025a). Economic inactivity due to ill-health is now at its highest level since records began, with poor mental health and musculoskeletal problems being the main cited reasons (ONS, 2024). In England, as of December 2024, the number of people who are economically inactive due to short- or long-term health problems is approximately 2.2m people (6.3% of working-age population), causing major societal and economic losses in terms surging disability benefit costs and lost productivity (DWP, 2025a).

The burden of health-related economic inactivity is not shared equally amongst the nine English regions of the UK. As illustrated in Figure 25, economic inactivity rates due to ill-health are higher in the three northern regions (North East, North West and Yorkshire & The Humber) and lowest in London. The inactivity rates in North East are more than double compared with the rates in South East (9.5% vs. 4.5%), with the remaining southern regions having similarly low rates around 5%.

When looking at inactivity rates by sex (Figures 26-27), we see similar patterns. For women, the rates are highest in the North East and lowest in the South East (9.7% vs 5%). For men, inactivity rates are again the highest in the North East (9.4%) and lowest in the South East (3.9%), with the North East having nearly 2.5 times higher inactivity rates than those in the South East.

### Research questions

Against this background, we aim to answer the following research questions:

- How did patterns in health-related economic inactivity evolve over the past decade in the North and in the rest of England?
- What are the socio-demographic characteristics of the economically inactive due to ill-health in the North vs. in the rest of England?
- What are the relative contributions of contextual, compositional and political determinants to explaining the regional gap in health-related economic inactivity?

## Methods

### Data

To address the above questions, we draw on both aggregate and individual-level data, as described in Chapters 2 & 3. We use individual level data from the Understanding Society Survey (2009-2023) to describe the socio-demographic characteristics of the economically inactive due to ill-health in the North vs. the rest of England (Institute for Social and Economic Research, 2025). To investigate the trends and the contextual, compositional and political causes of health-related inactivity as well as its consequences on the regional productivity gap, we draw on LAD level data from the Annual Population Survey (ONS, 2025a), covering the period 2013-2024.

**Figure 25. Economic inactivity due to ill health in the nine English regions.**

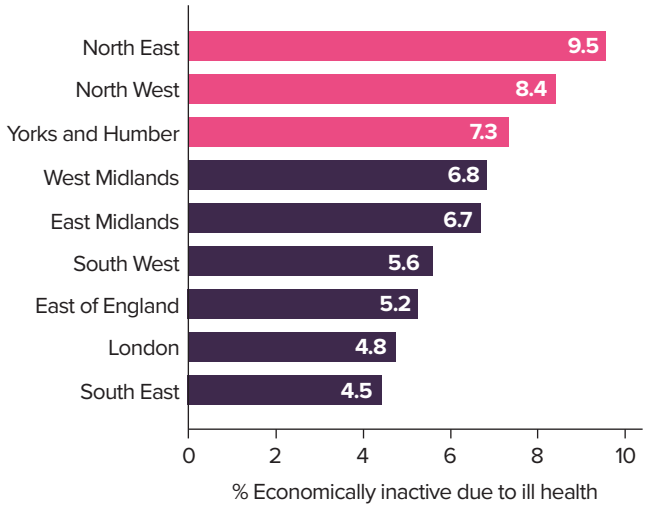
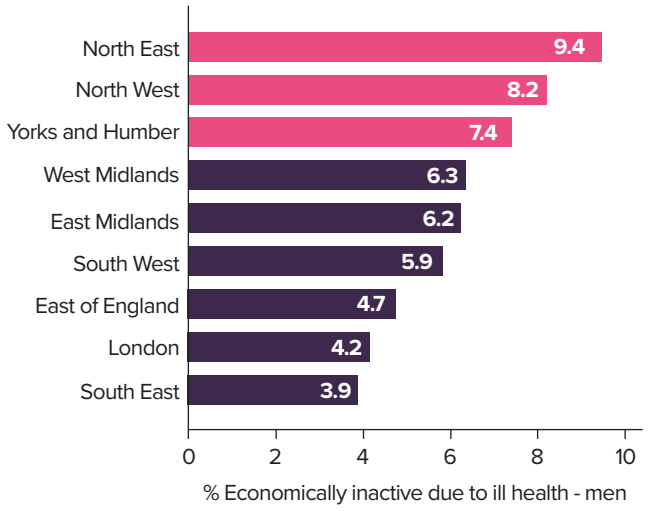



**Figure 26. Economic inactivity due to ill health in the nine English regions (women).**


**Figure 27. Economic inactivity due to ill health in the nine English regions (men).**




### Statistical Methods

To explore the differences in socio-economic characteristics of economically inactive individuals due to ill-health between the North and the rest of England, we used tests for equality between groups using linear regressions for continuous variables and Pearson $\chi 2$ tests for categorical variables.

To investigate the regional gap in health-related inactivity, we used statistical technique called decomposition models, as in the Health for Wealth report by Bambra et al. (2018). This breaks down how much of the health-related inactivity gap between the North and the rest of England can be explained by contextual, compositional and political factors. In our models, contextual factors included labour market characteristics such as unemployment rate and job density. Compositional factors of local populations included average levels of health (morbidity) and health behaviours (smoking and obesity), household income, educational attainment, age composition and ethnicity. Finally, we investigated political determinants, as measured by average welfare benefit losses per person between 2011-2015[9] (Seaman et al., 2024). To ensure that none of the above variables are highly correlated (i.e., follow the same trend), we estimated variable inflation factors (VIFs) for each variable and removed any variables indicating high (>10) levels of collinearity.

## Results

**Trends in economic inactivity due to ill-health over time**

Both the North and the rest of England experienced a surge in economic inactivity rates due to ill-health with the onset of the COVID-19 pandemic. More specifically, between 2020-2024, inactivity rates rose by 21% in the North vs. 15% in the rest of England (Figure 28), such that by 2024 there was a 2.8 percentage point (or 50%) difference in health-related economic inactivity between the North and the rest of England, with the average rate in the North equal to 8.4% and the rate in the rest of England equal to 5.6%. Health-related inactivity rates in Midlands have consistently been closer to those in the South of England than in the North, with the gap between Midlands and the South widening only briefly during the pandemic (Figure 29).

Looking by individual region (Figure 30), the inactivity rates due to ill-health have consistently been the highest in the North East, where inactivity rates started rising before the onset of the COVID-19 pandemic (since 2018), rising to its peak of 9% in 2022. Since 2018, the northern regions of North East, North West and Yorkshire & The Humber have experienced, on average, more than double rises in economic inactivity due to ill health compared with London (rising by 22% vs. 10% respectively).

**Socio-demographic characteristics of economically inactive due to ill health in the North vs rest of England**

According to data from the Understanding Society Survey (pooled across years 2009-2023), there are significant differences in the characteristics of economically inactive in the North vs. rest of England. For example, economically inactive individuals due to ill-health in the North (vs. rest) are:

- More likely to have mental health problems (71% vs. 68%)
- Younger, less likely to be closer to retirement (i.e., less likely to be older workers – i.e., to be in the 41-64-year category).
- Less likely to have a higher education degree (14% vs 16%)
- More likely to have at least three children (21% vs 15%)
- More likely to be private renters (14% vs 12%)

Full list and comparison of socio-demographic characteristics is illustrated in Table 1.

**Table 1. Socio-demographic characteristics of economically inactive due to ill-health in the North vs. the rest of England. Source: Understanding Society Survey (2025)**

| | North | Rest of England | Test of difference |
|---|---|---|---|
| **Poor mental health** | 2,842 (70.8%) | 7,663 (67.6%) | <0.001 |
| **Poor physical health** | 3,637 (90.7%) | 10,351 (91.3%) | 0.225 |
| **Sex** | | | |
| Male | 2,137 (44.8%) | 6,381 (45.1%) | 0.704 |
| **Age category** | | | |
| 16-25 | 242 (5.1%) | 724 (5.1%) | <0.001 |
| 26-40 | 958 (20.1%) | 2,346 (16.6%) | |
| 41-64 | 3,573 (74.9%) | 11,085 (78.3%) | |
| **Previous occupation** | | | |
| Management & Professional | 55 (24.6%) | 206 (26.9%) | 0.717 |
| Intermediate | 52 (23.2%) | 163 (21.3%) | |
| Manual | 117 (52.2%) | 397 (51.8%) | |
| **Partnership status** | | | |
| Partnered | 2,217 (46.5%) | 6,132 (43.4%) | <0.001 |
| Single | 2,546 (53.5%) | 7,984 (56.6%) | |
| White | 4,091 (85.9%) | 11,735 (83.2%) | <0.001 |
| **Highest qualification** | | | |
| Degree or higher | 644 (13.7%) | 2,190 (15.7%) | <0.001 |
| GCSE, A-levels or equivalent | 2,773 (58.9%) | 7,512 (53.8%) | |
| Below GCSE or other | 1,291 (27.4%) | 4,270 (30.6%) | |
| **Number of children** | | | |
| One | 434 (49.6%) | 1,234 (53.6%) | <0.001 |
| Two | 262 (29.9%) | 735 (31.9%) | |
| Three or more | 179 (20.5%) | 334 (14.5%) | |
| **Housing tenure** | | | |
| Owned | 1,651 (34.8%) | 4,841 (34.4%) | <0.001 |
| Rented social | 2,412 (50.8%) | 7,554 (53.7%) | |
| Rented private & other | 684 (14.4%) | 1,685 (12.0%) | |
| Observations | 4,773 (25.2%) | 14,155 (74.8%) | |

**Figure 28. Trends in economic inactivity due to ill health in the North and rest of England**

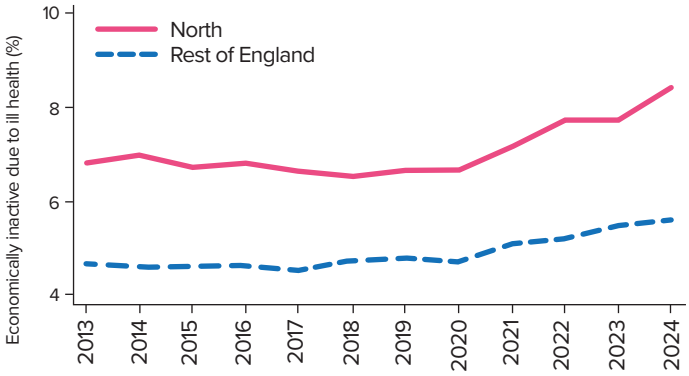



**Figure 29 Trends in economic inactivity due to ill health in the North, Midlands and rest of England.**

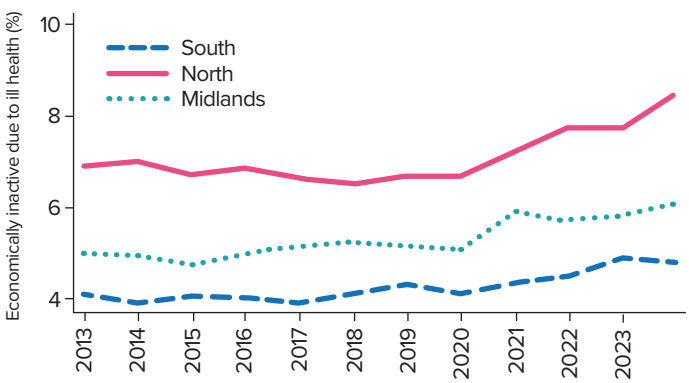
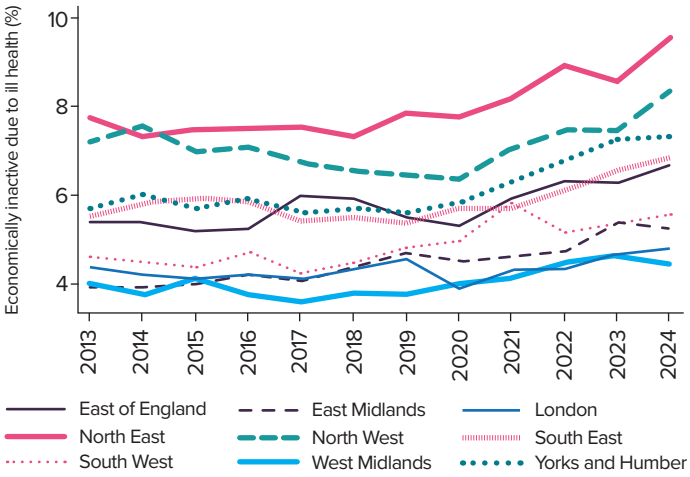


**Figure 30. Trends in economic inactivity due to ill health in the nine English regions**




**Results of the Decomposition Analysis**

The results of our analysis based on data pooled across years from 2009 to 2023 shows that the size of the gap in health-related inactivity is approximately 1.9 percentage points (6.4% rate in the North, 4.5% in the rest of England). In terms of decomposition of key causes, our results suggest that health and health behaviours explain 41% of the total gap in health-related economic inactivity (10% smoking, 4% obesity and 27% morbidity (measured by the proportion of PIP/DLA claimants in each local authority).Consistent with recent literature on determinants of disability benefit caseloads (Roberts and Taylor, 2022), we have found that labour market context is the next most important determinant, with unemployment explaining 20% of the gap. Welfare benefit losses explain 15% and compositional variables (other than health-related) explain the reimaging 8% of the 'explained' proportion of the gap. These results are illustrated graphically in Figure 31.

## Discussion

**Summary of key findings**

As of 2024, economic inactivity due to ill-health is 50% higher in the North than in the rest of England, with the average rate in the North equal to 8.4% and the rate in the rest of England equal to 5.6%. By region, the rates are the highest in the North East where 9.5% of the working-age population are economically inactive due to short- or long-term health problems. This is more than double the rates in the South East and London, with rates 4.5% and 4.8% respectively.

There are statistically significant differences in the characteristics of economically inactive due to ill-health in the North vs. in the rest of England. Economically inactive individuals in the North are more likely to have mental health problems, to be younger and to live in larger families (with at least three children), and more likely to be private renters.
There are also differences in trends: While most regions experienced rising economic inactivity due to ill-health at the onset of the COVID-19 pandemic, in the North East, the rates started climbing from 2018, rising by 22% since then – a growth rate more than double compared with London, where it rose by 10% during the same period.

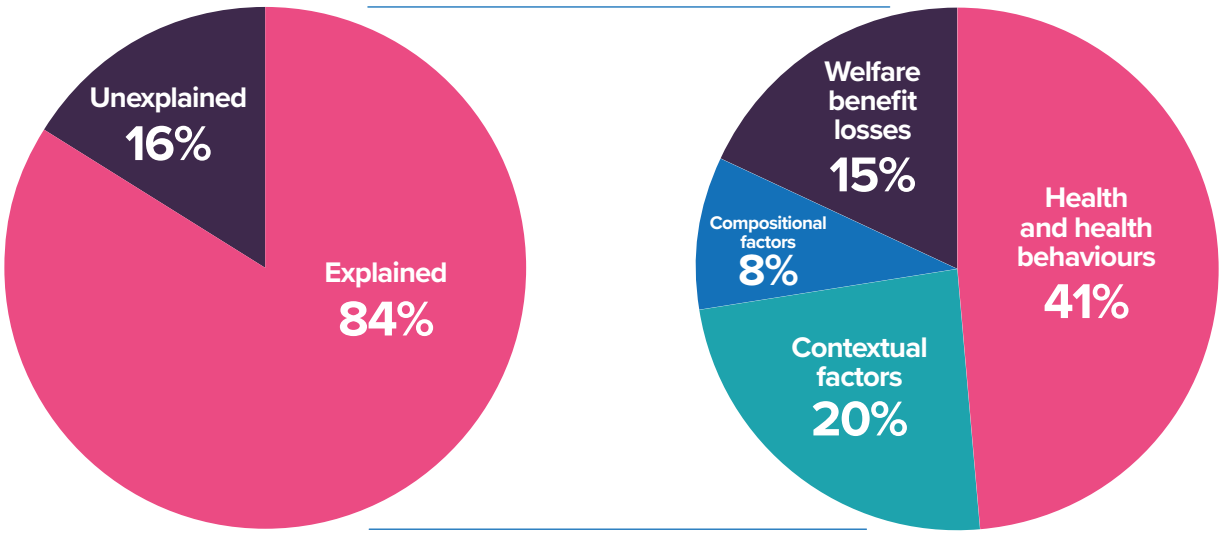
Finally, our decomposition analysis shows that, over the past decade, there has been an average 1.9 percentage point difference in health-related inactivity rates between the North and the rest of England. Health and health behaviours explain the greatest proportion of the regional gap (41%), with the labour market context (as measured by local unemployment rates) being the next most important determinant, explaining a fifth of the overall gap (20%).

**Implications for Policy and Practice**

In the context of low growth, stagnating productivity and the UK's poor international performance since the onset of the pandemic, health-related economic inactivity is currently high on the policy agenda. Incidence and prevalence of health-related economic inactivity clearly reflects wider health inequalities and poorly performing local labour markets, with the outcome being disproportional impact on the northern regions.

The importance of a more regional focus is reflected in recent initiatives such as Health and Growth Accelerators, currently being implemented in areas including South Yorkshire, North East & North Cumbria, and West Yorkshire. Led through the Integrated Care Systems, these Accelerators target those at risk of moving from long-sickness into inactivity (NHS England, 2024). Inactivity 'trailblazers' are also being launched in economic inactivity hotspots (DWP, 2025b), including the North East. Alongside these regional pilots, national programmes launched under the Get Britain Working White Paper (DWP, 2024) include Connect to Work, designed to support people with long-term health conditions and disabilities, and Youth Trailblazers, which test approaches to ensuring that young people not in education or training are supported into employment. Collectively, these programmes aim to coordinate health, work, and skills support by encouraging collaboration between regional and local government and the NHS. Despite ongoing investment, many challenges remain.
These challenges reflect the tensions between imperatives for increased productivity and growth and ongoing concerns regarding increased government spending and the maintenance of fiscal rules (IFS, 2024). The result has been increased scrutiny of the role of the benefits system

**Figure 31. Decomposition of causes of health-related economic inactivity**



in addressing health-related inactivity, with the primary policy aim to reduce welfare spend. This intention is made explicit in the White Paper (DWP, 2024), which states directly that reforms are intended not only to drive up employment and opportunity, skills and productivity but also drive down the benefit bill.

Contractionary measures to tighten disability benefit generosity and eligibility are likely to be counterproductive. Evidence shows that such measures have negligible impacts on employment and can harm population health, potentially leading to higher dependence on health-related benefits (Barr et al., 2010; Avram et al., 2018; Simpson et al., 2021). Instead, the persisting regional inequalities in health-related economic inactivity clearly indicate that efforts should focus on increasing economic opportunities and improving the health of the working-age population (Gregg, 2024). The investment should be proportional to need in each region – a strategy of 'proportionate universalism' (Marmot, 2013). Indeed, poor population health has been shown to be a key driver in the rising disability benefit caseloads (IFS, 2025), with concomitant impact on welfare spend (OBR, 2024).

In addition, there are extremely poor incentives for those in receipt of health-related means-tested benefits to work. Low-paid, insecure work and volatile labour markets have made health-related benefits more financially attractive, as has as the falling real value of most other out-of-work benefits since the onset of austerity (Health Foundation, 2023; Resolution Foundation, 2024). This is especially important in the northern regions, where the benefit replacement ratio (ratio of benefits to wages) is higher on average, given the relatively low wages in the North (Roberts et al., 2022). Efforts to reduce poor job quality (such as zero-hour contracts) and greater national minimum wage could help improve both work incentives and population health by addressing some of the key social determinants of health.

Relatedly, it is crucial to also address other important social determinants – such as housing, transport, environment, access to green space, and food security. These are all areas in which many northern areas suffer worse outcomes, and which therefore contribute to ill health and worklessness. A long-term sustained investment in all these areas is key to addressing the persisting regional health and productivity divides.

Finally, more healthcare spending on both treatment and prevention services is needed, particularly for mental health problems – a key driver of health-related economic inactivity. The current levels of investment in mental health services remain inadequate (Hartley, 2024). This likely disproportionately affects northern areas where mental health problems are more common overall and amongst economically inactive. Increases in ringfenced funding for public mental health services and expanding community-based prevention programmes are some of the potential policy initiatives that could help address the growing burden of mental-ill health and associated economic inactivity.

# **Chapter 5:** Increasing UK productivity by reducing regional inequalities

## Introduction

This chapter quantifies how the regional health divide contributes to the regional productivity gap and how much health would need to improve in the northern regions to increase overall UK productivity. We compare these estimates to those in the previous Health for Wealth report by Bambra et al. (2018).

Research questions

- How much of the gap in productivity, measured by GVA per head, can be attributed to differences in health?
- How much health contributes to regional productivity differences as measured by employment rate between the northern regions and the rest of England?
- How much health would need to improve in the northern regions to reduce inequalities in productivity by 10% between the North and the rest of England?
- How do all of the above figures compare to the results found in the previous Health for Wealth report by Bambra et al. (2018)?

## Methods

**Data for Aggregate-level analysis**
Our measures of health included the rates of mortality and morbidity in each local authority. To measure productivity, we used the GVA per head. For control variables, we obtained data on population size and age structure, income support benefit replacement ratio, and the percentage of adult population with no formal educational qualifications. These variables are defined in Chapter 2.

**Data for Individual-level analysis**
We supplemented the aggregate level analysis by performing individual-level analysis. To do this, we used data from Understanding Society, also known as the UK Household Longitudinal Study (UKHLS) (Institute for Social and Economic Research, 2025). We used waves 1-14 to utilise all available data (2009-2023). UKHLS contains a rich set of socio-economic and demographic information on respondents, health status and the region in which they live.

**Economic Outcomes**
In the individual level analysis, productivity gap was proxied by the employment gap. This was measured by a binary indicator of whether was in employment (paid or self) or not.

**Health Variable**
Our main outcome of interest was self-rated health[10]. To rate their health, individuals were asked: "In general, would say your health is excellent, very good, good, fair or poor?" From this we classified people into "good health" if an individual responded with excellent, very good or good, and into "bad health" if they responded with fair or poor.

**Additional Variables**
We used a set of well-known socio-economic controls to isolate the effect of health on the independent variable. We obtained information on age, gender, highest educational attainment, number of children, marital status, and urbanity of where the respondent lives.

**Sample Restrictions**
The only restriction we placed on our estimation sample is that respondents were of working age 16-64 years. We have data on 11,719 people living in the northern regions and 29,721 people living in the rest of England.

**Statistical Models**
We modelled the role of health in explaining the productivity difference between the North and the rest of England. In the aggregate level analysis, morbidity and mortality were combined to give a total measure of the effects of health on the productivity gap. In the individual level analysis, we used self-rated health as the total measure of the effects of health on the productivity gap. Productivity was measured as the difference in GVA per-head between the North and the rest of England in the aggregate level analysis and as the employment gap between the north and the rest of England in the individual level analysis.

We started by using a statistical technique called decomposition models, described in detail in the earlier Health for Wealth report by Bambra et al. (2018). Briefly, this breaks down how much of the GVA/employment gap between the northern regions and the rest of England can be explained by our measures of health.

To determine how much health would need to be improved to reduce the productivity gap between the North and the rest of England by 10%, we first multiplied the raw difference in employment rate by 0.1 (to account for the 10% change we were looking for). From this we subtracted the contribution of health to the productivity gap. We then divided this figure by the association between self-rated health and employment status, estimated using probit models with Mundlak (1978) correction, as described in Bambra et al. (2018).

Finally, to calculate the GVA gain from reducing health inequalities between the North and rest of England, we multiplied the total GVA gap per head by the contribution of health to the GVA gap multiplied by the size of the working population in the north in the latest analysis year (2023).

## Results

**Descriptive summary**
Across the pooled period of 2013-2022, rates of mortality were 16% higher in the North than in the rest of England, with the rates of morbidity being 45% higher in the North. Gaps in both mortality and morbidity have increased since the previous Health for Wealth report by Bambra et al. (2018)[11], by 37% and 27% respectively, indicating widening regional health inequalities since the period 2004-2017 (period of analysis in the previous report).

At the same time, between 2013-2022, the average gap in GVA per head between the North and the rest of England was approximately £6,669. In relative terms, GVA per head was approximately 30% lower in the North (£22,710 vs £29,379) – higher than what was found in the previous Health for Wealth report (where it was lower by 20%).

Our individual-level analysis estimates suggest that the gap in employment rates between the North and the rest of England is 2.7 percentage points – higher than what we found in the Health for Wealth report by Bambra et al. (2018) (2.1 percentage point gap), indicating an increase in inequality of 29%.

These summaries are illustrated in Table 2.

**Decomposition results**
Our decomposition results suggest that 36% of the GVA gap can be attributed to the poor health (mortality and morbidity) in the North – a greater proportion (by 20%) than the 30% reported in Health for Wealth by Bambra et al. (2018), with the relationship being driven by the gap in mortality rates and the contribution of morbidity being not statistically significant. The individual-level decomposition analysis suggests that 22% of the employment gap between the North and the rest of England can be attributed to poorer health in the North – a lower proportion than the 33.6% in the Health for Wealth report by Bambra et al. (2018).

**Association between health and employment outcomes**
When we consider the association between participating in employment and self-rated health, being in good self-rated health is associated with 5% increased likelihood of being in work in the North. However, at the aggregate level, we have found no relationship between reducing morbidity and mortality and the GVA gap.

Using the results above, alongside the decompositions, we can say that to reduce the employment gap between the northern health regions and the rest of England by 10%, population self-rated health problems need to be reduced by 4.4% – indicating a stronger relationship since the previous Health for Wealth report (equal to 3.7%) – an increase of 19%. by Bambra et al. (2018)

## Discussion

**Summary of key findings**
Rates of mortality and morbidity are significantly higher in the North than in the rest of England, with the gap in mortality equal to 16% and the gap in morbidity equal to 45%. These gaps have increased substantially since the previous Health for Wealth report by Bambra et al. (2018), indicating widening health inequalities since the pandemic. Gaps in productivity and employment have also increased, as has the contribution of health to explaining the productivity gap. We have found that the proportion of the gap attributable to poor health in the north is now 36% – a 20% increase since the previous report. The contribution of health to explaining the employment gap, on the other hand, is lower (22% vs 33.6% in the previous report). However, given the larger overall gap in employment rates, the importance of good self-rated health to improving employment outcomes has increased – from 3.7% in the previous report to 4.4% in the current analysis (an increase of 19%). Finally, we have found that the GVA gain from reducing health inequalities is now £18.4bn – a 13% increase since the previous report.

**Implications for Policy and Practice**
Our key findings of widening gaps in health and productivity and the increasing importance of good health for productivity give rise to several key policy recommendations.

First, there is a strong economic case for improving population health as a means of driving economic growth, alongside the more obvious social justice and equity considerations. Indeed, evidence from high-income countries, including the UK, shows that investing in public health yields substantial economic and social returns. A systematic review by Masters et al. (2017) has shown that for every £1 invested in public health, society could expect to see a return of £14.30 in overall health and social economic benefits. By contrast, cutting investment in public health (e.g., by reducing the public health funding in England to have greater 'efficiency savings') results in eightfold higher costs to the wider economy (ibid). This represents a vicious cycle whereby poor health drives poorer economic outcomes, which in turn result in yet poorer health (Bambra et al., 2025a).

Relatedly, policy proposals such as the most recent Spring statement of 2025 – to reduce the value of, and eligibility to, disability benefits – could potentially lead to greater future costs than the estimated welfare savings of £4.8bn by 2029-2030 (DWP, 2025c). Moreover, these reforms will likely widen the North-South divide by disproportionately affecting the northern regions as they include areas that already have the worst health and highest disability rates in the country (Bennett et al., 2025; Bambra et al., 2025b). Much like austerity-driven welfare benefit losses (Beatty and Fothergill, 2016; Simpson et al., 2025), such reforms will likely further deepen the North-South health divide and undermine the potential productivity gains from im

**Table 2. Differences in regional health and economic outcomes pooled across years 2013-2022, compared to estimates from the Health for Wealth report by Bambra et al. (2018)**

| | North | Rest of England | Regional Difference (2013 -2023) | Regional Difference (2004-2017) | Change in inequality since previous report |
|---|---|---|---|---|---|
| **Aggregate-level outcomes** | | | | | |
| Morbidity | 12.00% | 8.30% | 3.70 | 2.92 | Increased by 27% |
| Deaths per 1,000 | 10.96 | 9.42 | 1.54 | 1.12 | Increased by 37% |
| GVA per head | £22,710 | £29,379 | £6,669 | £4,754 | Increased by 40% |
| **Individual-level outcomes** | | | | | |
| Poor General Health | 19.38% | 16.84% | 2.5 | 2.4 | Increased by 4% |
| Employed | 66.51% | 69.60% | -2.7 | -2.1 | Increased by 29% |

# **Chapter 6:** Impacts of Improving Mental Health on Regional Productivity and Economic Prosperity

## Introduction

In this chapter, we explore the relationship between area-level measures of mental health and productivity as measured by GVA per head and by gross disposable household income, both nationally and by individual region. Owing to data limitations, we focus on pre-pandemic data only. Given that COVID-19 affected both productivity and mental health, it is likely that the relationship changed substantially, although that is not the focus of this chapter.

**Background**

One aspect of health that has been relatively overlooked in the literature on the interdependencies between economic prosperity and health is mental health. In light of the sharp rise in the prevalence of - and inequalities in - mental health conditions post-2009, further exacerbated by the COVID-19 pandemic, the importance of mental health has become even more evident (Bambra et al., 2023). The association between individual wellbeing - and by extension mental health - and economic performance has been extensively studied at the individual level (see the review by Bellet et al. (2024)). However, understanding of this relationship at the aggregate level remains limited. Population mental health may influence area-level economic prosperity through its impact on the labour force. Mental ill-health can reduce individuals' ability to work and exclude them from the labour market, thereby affecting local economic performance and prosperity.

This chapter aims to fill the evidence gap on the association between population mental health and economic prosperity at the area level. We study how changes in population mental health are associated with changes in economic prosperity, measured by household income and GVA per capita, paying special attention to regional differences.

Adopting a local area level approach has several strengths. Decision making about population mental health is made at the area level. Here, understanding ecological associations is key, particularly where funding is allocated to local governments or other regional decision-making bodies such as Integrated Care Boards (ICBs). This approach also allows us to rely on national statistics as measures of prosperity and productivity: gross disposable household income per capita and gross value added per capita. Importantly, an ecological approach allows us also to avoid atomistic fallacy, i.e. drawing conclusions about group level associations based on association at the individual level.

Several potential mechanisms may explain the association between population mental health and our economic indicators: 1) Unobserved area-level characteristics may influence both mental health and economic prosperity (e.g., individual optimism), 2) A causal effect of economic prosperity on mental health, whereby higher local prosperity increases individuals wealth, enabling greater investment in health and leading to better mental health, 3) A causal effect of mental health on economic prosperity, whereby better mental health enhances labour productivity and workforce participation, thus improving local economic outcomes. In this study, we aim to assess whether changes in population mental health are associated with changes in economic prosperity. To account for potential unobservable characteristics, we use a panel dataset at the Middle Super Output Area (MSOA) level from 2011 to 2019. The longitudinal nature of our data enables us to adopt a fixed-effects empirical strategy at the area level.

**Research questions**

1. What is the association between population mental health and economic prosperity (on the household side) and economic productivity (on the business side) during the period 2011-2019?
2. How does strength of association differ across different regions of England?

## Methods

**Data**

We constructed an annual panel dataset at the Middle Super Output Area (MSOA) level over the period 2011 to 2019. This covers 6,789 MSOAs which have on average a population of 8,062 inhabitants. We excluded MSOAs within the City of London and Isles of Scilly because of extreme values and the fact that both have very small populations.

**Outcome**

Our first outcome of interest is the Gross Disposable Household Income (GDHI) per capita measured in 2022 prices. GDHI gives insight into economic activity in the household sector. We also consider another outcome which is Gross Value-Added (GVA) per capita in 2022 prices. It is defined as the value of goods and services produced, less the cost of any inputs and as such is a measure of the economic activity. GVA captures the business side of economic activity. GVA is produced by individuals working in the area, which does not automatically mean they live in this area. To ease the interpretation of the results we use the log of these variables.

**Mental Health Variable**

Our main predictor of interest is the Small Area Mental Health Index (SAMHI) available from the Place-Based Longitudinal Data Resource (PLDR) (Darras and Barr, 2021). The index has been constructed based on mental-health related hospital attendances, prescription of antidepressants, depression prevalence, and number of recipients of incapacity benefit and employment support allowance for mental illness. It is a measure of mental ill health and "is proportional to the overall burden on the healthcare system" (Petersen et al., 2022). The SAMHI has been validated through use in other ecological studies (Petersen et al., 2022; Fahy et al., 2023). We reversed the score to ease the interpretation such that a higher score indicates better area-level mental health. The score is normalized so that a one-unit increase represents a one standard deviation increase in population mental health.

SAMHI has been constructed at the Lower Super Output Area level, the smallest area level available in England. We aggregated the index to the geographical level of our outcome, MSOA level. The aggregation to the MSOA level was done averaging the SAMHI values of the LSOAs within each MSOA. To account for the different sizes of LSOAs and MSOAs, we used as weights the population within each LSOA. Our measure is a mean weighted by the population. The variable covers all of England for the period 2011 to 2019.

**Additional variables**

Our control variables capture the number of potential workers (aged from 15 to 65 years) within the area as well as the age structure. There are the number of individuals being 15-19, 20-24, 25-29, 30-49, 50-59, 60-64, 65-74, 75-84 and more than 85 years old.

## Statistical Methods

To investigate the association between economic activity and mental health, we estimated ordinary least square regressions and include fixed effects at the year and MSOA level. This approach accounts for unobservable time invariant characteristics at the MSOA level. To account for potential reverse causality, we used the time lagged value of SAMHI. Our main coefficient of interest is the SAMHI coefficient. Multiplied by 100, it is to be interpreted as the percentage increase of economic prosperity associated with a one standard deviation increase of the mental health index.

We explored the differences of the association by regions by interacting the mental health variable with the regions.

## Results

**Regional inequalities in economic activity overtime**

The evolution of GDHI per capita and GVA per capita by regions show a small increase over our analysis period (2011-2019), as illustrated in Figures 32-33. There are regional differences which are consistent across measures and have been stable overtime. For both measures, London is consistently at the top of the distribution with the South East in second and at the bottom there is the North East. This is not surprising as regional inequalities in England have usually been crystallised along the north (North East, North West and Yorkshire & The Humber) vs rest of England divide, with widening inequalities over time.

**Statistical Analysis Results**

There is a positive and statistically significant association between gross disposable household income (GHDI) and population mental health in England overall, as measured by SAMHI. Our findings show that a one standard deviation increase in SAMHI is associated with a 1.9% increase in GDHI per capita the following year, corresponding increase of £436 per capita per year. At the national level, this implies that a one standard deviation increase in SAMHI is associated with an increase in GDHI of approximately £24,546 million. This figure is particularly noteworthy as it represents income directly available to households. We find no statistically significant relationship between SAMHI and GVA at national level.

As illustrated in Figures 35 and 36 and in Table 3, we see evidence of significant regional differences in the association for both GDHI and GVA outcomes. The significant association between population mental health and GDHI per capita seems to be mainly driven by the regions North East, North West, Yorkshire and The Humber, East Midlands and West Midlands which all have positive and significant coefficients. The highest positive coefficient is for the North East, whereby a one standard deviation increase in SAMHI is associated with 3.2% increase in GDHI ($p<0.01$), which translates to approximately £735 per capita. The differences are even larger when the outcome is GVA per capita, such that a one standard deviation increase in SAMHI is associated with 7.4% increase in GVA ($p<0.01$), or £2,218 per capita in the North East. Weighted by population size, the total economic gains (in GVA and GDHI) equal to £6.6bn[13]. The coefficients on GVA are not statistically significant for any other region. Interestingly, the coefficient for London is negative and significant: a positive change of population mental health is associated with lower GDHI per capita – a finding that requires further investigation.

**Figure 32. Trends in Gross Disposable Household Income (GDHI) per capita by region**

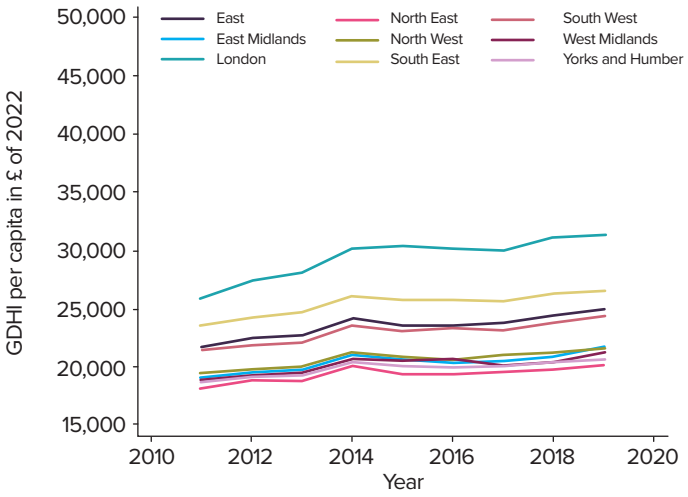



**Figure 33. Trends in Gross Value Added (GVA) per head by region**

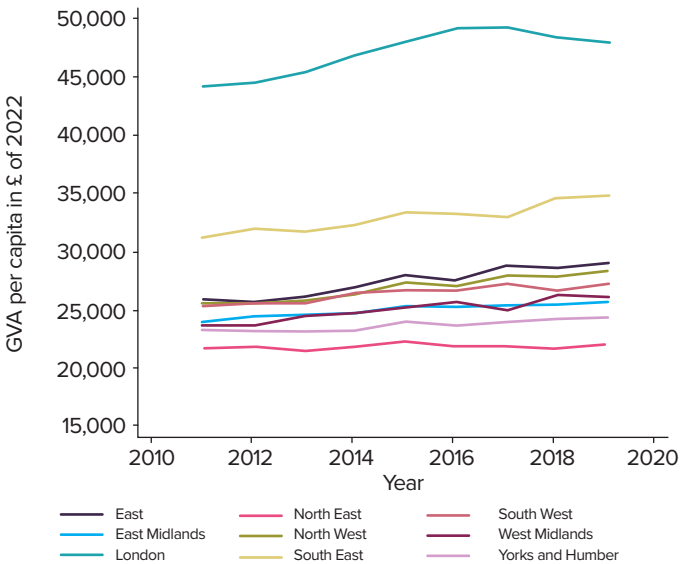
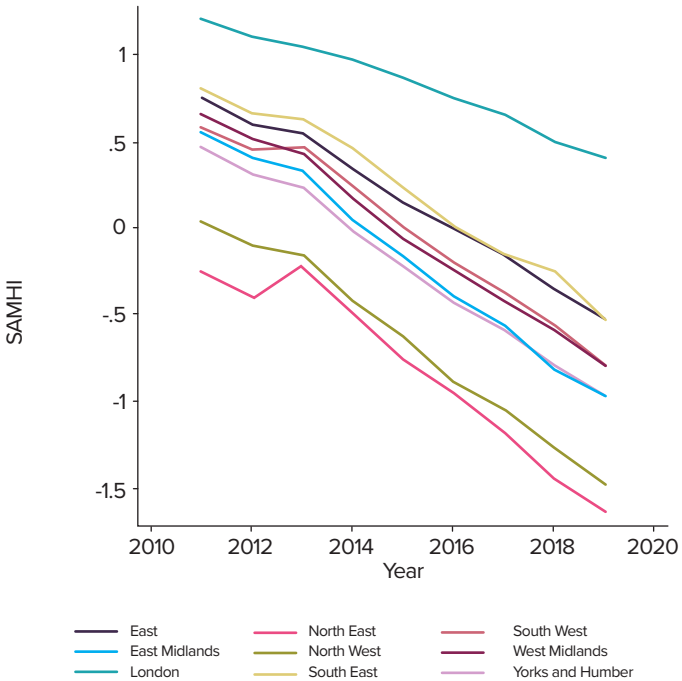



**Table 3. Change in GDHI and GVA per capita (in £) associated with one standard deviation increase in mental health (SAMHI) and total economic gains in GVA and GDHI weighted by regional population size**

| Region | Change GDHI per capita per year1 | Change GVA per capita per year |
|---|---|---|
| North East | 735*** | 2218*** |
| North West | 551*** | -15 |
| Yorkshire & The Humber | 482*** | 270 |
| East Midlands | 275*** | 390 |
| West Midlands | 413*** | -689 |
| East of England | 161 | -899 |
| London | -505** | 270 |
| South West | 23 | 420 |
| South East | 138 | 270 |

1*** is $p<0.01$; ** is $p<0.05$; *$p<0.1$

**Figure 34. Trends in population mental health as measured by SAMHI by region**



## Discussion

**Summary of key findings**

Our findings show that there is a positive relationship between improving population mental health and economic prosperity such that an improvement in population mental health is associated with higher gross disposable household income (GDHI) per capita the following year. These results remain robust to the inclusion of time in varying characteristics, with the association with GVA being not statistically significant.

We have found evidence of regional differences in the association for both outcomes, with the strongest regional variation observed for GVA per capita. This may be attributed to the fact that inequality in GVA per capita is greater than in GDHI per capita. While the average association for GVA per capita is not statistically significant, substantial regional differences exist. For instance, a one standard deviation increase in SAMHI in the North East is associated with a 7.4% (£2,218) increase in GVA per capita, with all other regions having no statistically significant associations. For the North East, there was also a positive association with GDHI per capita, such that a one standard deviation increase in SAMHI is associated with 3.2% (£735) per capita increase in GDHI, indicating the importance of improved mental health outcomes for economic prosperity in the North East. The total population-level economic gain from improving population health in the North East is approximately £6.6bn.

**Implications for Policy and Practice**

Improving population mental health should be recognised as a strategic lever for tackling economic inactivity and driving economic growth. Potential regional benefits are significant – e.g., in the North East, potential economic gains from improving population mental health amount to £6.6bn in terms of productivity and household prosperity. This helps make a compelling case for embedding mental health into employment and welfare policy. Current DWP (2024) reforms (e.g. Get Britain Working) focus heavily on tightening eligibility for disability benefits and reducing the value of health-related Universal Credit payments, while investing in personalised employment support. While these reforms aim to reduce long-term benefit dependency and incentivise work, they risk undermining mental health outcomes if not paired with robust public health investment. A more effective strategy would be to align welfare reform with mental health promotion, recognising that improving mental health is not only a health imperative but also a pathway to re-engaging economically inactive populations and enhancing national productivity.

**Figure 35. Association between SAMHI and GVA per capita by region**

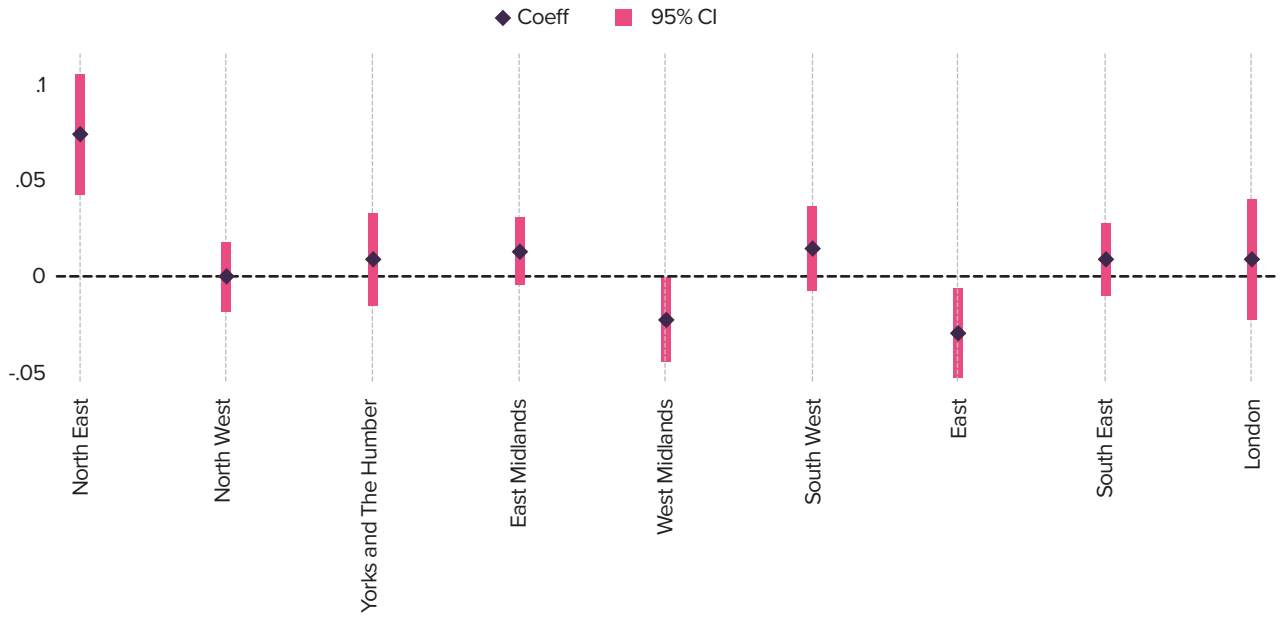
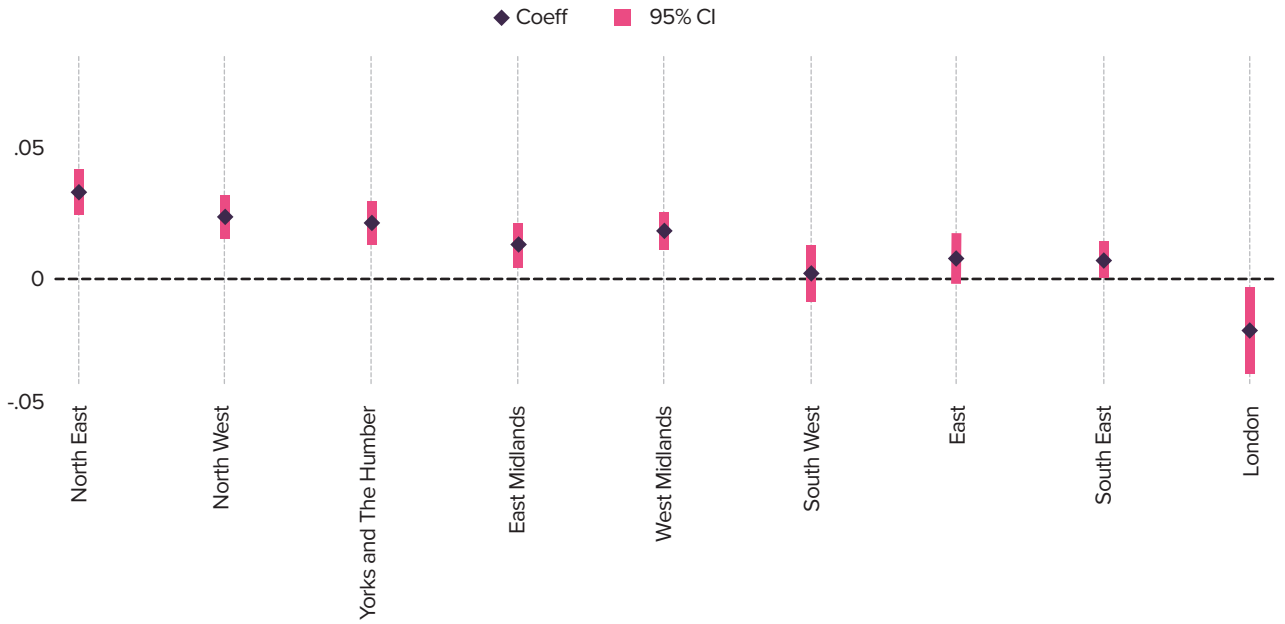



**Figure 36. Association between SAMHI and GDHI per capita by region**



# **Chapter 7:** Conclusions

The previous Health for Wealth report by Bambra et al. (2018) has identified a strong link between regional health inequalities and productivity. Its key finding was that reducing health inequalities between the North and the rest of England would yield substantial gains in productivity nationally – equal to £13.2bn in UK GVA (£16.bn when adjusting for inflation). Since the launch of the previous report, however, many notable social, economic and population health developments took place, most significantly the COVID-19 pandemic. In this report, we wanted to investigate the evolution of health and economic inequalities before, during and after these developments, and to assess if the relationship between health and productivity has changed.

Our findings show that both regional health inequalities and the role of health as a driver of productivity have increased significantly over the past decade. Namely, we have found that reducing regional health inequalities between the North and the rest of England would generate an additional £18.4bn in UK GVA – a 13% increase since the previous report by Bambra et al. (2018), when accounting for inflation. Thus, as the government pursues its economic growth mission, it should tackle the long-standing and widening regional health inequalities between the North and the rest of England. This would ultimately help unlock the dormant economic potential and raise national productivity.

## Summary of Detailed Findings

In summary, regional inequalities in health and productivity have widened in England over the past decade. Since 2013, the gap in morbidity between the North and the rest of England has increased by 62%, with the gap in mortality rising by 15% – increases mostly driven by the onset of the COVID-19 pandemic. Gaps in economic inactivity and wages have increased by 8% and 5% respectively, with the gap in productivity reducing slightly – by 2%, with the Northern regions experiencing greater growth, by 1%, since the pandemic. The North East has consistently had worst health and economic outcomes of all regions.

Individuals with long-term health problems are much more likely to be economically inactive in the North than in the rest of England, especially since the onset of the COVID-19 pandemic, when the regional gap has nearly quadrupled from 1.1 percentage point difference to 4.2 percentage point difference between the North and rest of England.

Relatedly, people living in the northern regions are two times more likely to lose their job following a spell of ill-health than those in the rest of England.

There are also stark educational inequalities in employment outcomes following a spell of ill health, especially in the North – where people with no formal educational qualifications are nine times less likely to remain in their job following an onset of ill-health than those with A-level or higher qualifications. Furthermore, workers with an onset of ill-health in the North suffer monthly pay losses that are nearly triple the national average – equal to 6.6% (vs. 2.3% national average).

Currently economic inactivity due to ill-health is 50% higher in the North than in the rest of England, with the average rate in the North equal to 8.4% and the rate in the rest of England equal to 5.6%. By region, the rates are the highest in the North East where 9.5% of the working-age population are economically inactive due to short- or long-term health problems. This is more than double the rates in the South East and London, with rates 4.5% and 4.8% respectively.

There are statistically significant differences in the characteristics of economically inactive people due to ill-health in the North vs. in the rest of England. Economically inactive people in the North are more likely to have mental health problems, be younger and to live in larger families (with at least three children), and more likely to be private renters.

There are also differences in trends: while most regions experienced rising economic inactivity due to ill-health at the onset of the COVID-19 pandemic, in the North East, the rates started climbing from 2018, rising by 22% since then – a growth rate more than double compared with London, where it rose by 10% during the same period.

Overall, over the past decade, there has been an average 1.9 percentage point difference in health-related inactivity rates between the North and the rest of England. Health and health behaviours explain the greatest proportion of the regional gap (41%), with the labour market context (as measured by local unemployment rates) being the next most important determinant, explaining a fifth of the overall gap (20%).

The relationship between reducing regional health inequalities and productivity has become stronger. We have found that the GVA gain from reducing health inequalities is now £18.4bn – a 13% increase since the previous report. There are also potential productivity gains from reducing regional mental health inequalities, which have also been rising since 2011, with outcomes consistently being worst in the North East – and thus where the economic gains from improving mental health are the largest – equal to approximately £6.6bn, highlighting the importance of tackling poor mental health in the region.

# Notes

1 Including the regions of North East, North West and Yorkshire and the Humber
2 Our analysis starts from 2013 because that is the latest year at which LAD-level mortality data is currently available (owing to ONS methodology changes in handling geographical boundaries). In the original report, the analysis period included 2004-2017.
3 Here we refer to total economic inactivity rate: the proportion of working age residents who are not in employment and not actively seeking employment (e.g., students, retirees, carers, long-term sick or disabled). The remainder of the working-age population are either employed or unemployed.
4 Adjusted for inflation in the survey.
5 GVA per head is a measure of an area's economic output by dividing its total Gross Value Added (GVA) by its resident population, providing a figure in pounds per person. Total GVA is a monetary measure of the value of goods and services produced in an area, industry, or sector of an economy.
6 Note, in the previous report our measure of morbidity was the number of individuals on incapacity benefits. However, since 2013 it has been gradually replaced by the Universal Credit, making it an unsuitable proxy for morbidity; also, as IFS (2025) note, data quality is better for disability benefits than for incapacity benefits.
7 This indicator was chosen because it most closely reflects the trends in morbidity (measured by the proportion of disability benefit recipients in the population) in administrative data. Other potential measures of health such as the presence of long-term limiting illness were impacted by the pandemic-related data collection issues and were therefore not considered reliable measures (IFS, 2025).
8 Note: here economic inactivity refers to total inactivity – i.e., economically inactive for any reason, not just due to ill-health.
9 Welfare reforms inducing the benefit losses included: Housing Benefit cuts, non-dependant deductions, Benefit Cap, Council Tax Support, Personal Independence Payment, Employment and Support Allowance, Child Benefit, Tax Credits, CPI and 1% up-rating (limiting the annual increase in value of benefits), and Universal Credit (work allowances and waiting times). For more detail on calculations see Seaman et al (2024).
10 This indicator was chosen because it most closely reflects the trends in morbidity (measured by the proportion of disability benefit recipients in the population) in administrative data. Other potential measures of health such as the presence of long-term limiting illness were impacted by the pandemic-related data collection issues and were therefore not considered reliable measures (IFS, 2025).
11 Note: these comparisons should be interpreted as indicative only as the analysis periods in Health for Wealth (2018) and in our current report overlap, likely making our estimates of change more conservative than when focusing solely on the period from 2019 onwards.
12 For individual-level analyses, the starting period was 2009 in both the current and previous report by Bambra et al., (2018).
13 Note: we calculated the total gain for the North East as it is the only region for which coefficients on both GDHI and GVA were statistically significant.

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