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Economic Relief in Recession: Poverty and Unemployment Benefits During the Great Depression in Britain

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Abstract

This paper assesses the distributional and poverty mitigation impacts of the British unemployment insurance system at the peak of the Great Depression. Initially designed as a true insurance program, by 1928 it had evolved into a large-scale social welfare program providing flat-rate benefits to up to two million workers. Using a novel dataset of wages at the industry and county level from January 1928 to December 1932, we analyze the extent to which the program redistributed income across earnings quantile, industry, and geographic groups. Our findings indicate that the program reduced earnings inequality across industries and counties by up to 32% and mitigated much of the economic distress of the Great Depression, especially for lower-paid workers and those in industries with high unemployment rates. This suggests that generalized, relatively cheap social welfare programs can be effective tools for providing broad-based support and mitigating poverty during crises.

JEL classification: J65, N34, J31, N14

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1 Introduction

The provision of social welfare is a key function of government, yet governments vary in their capacity to design and implement sophisticated social welfare programs. While advanced economies typically rely on sophisticated, targeted programs with means-tested optimal benefits levels, less developed economies are more reliant on generalized, flat-rate programs and sometimes fail to provide critical social welfare at all (Barrientos and Hulme 2009). For nations both with and without sophisticated social welfare provision, during times of crisis it often becomes necessary to extend broad-based temporary welfare support to the unemployed through increases in coverage, increases in benefits, or the establishment of temporary programs (Farber and Valletta 2015; Kroft and Notowidigdo 2016; Baldwin and Weder di Mauro 2020). While optimal levels of benefits for unemployment insurance and other social welfare programs have been extensively studied (Chetty 2008, for example), relatively less attention has been paid to broad-based social welfare programs for the unemployed in periods of crisis and their distributional consequences.

One example of such a program was the unemployment insurance system in Britain at the peak of the Great Depression. Though designed as a true insurance program requiring consistent contributions from workers prior to claiming benefits, by 1928 the government had considerably weakened the accounting principles on which the program was designed, making it more of a social welfare program than an insurance program. During the Great Depression, the British government used the unemployment insurance program as its primary vehicle of social support, transferring £249 million pounds (the equivalent of about £1.3 billion in 2023 prices) from 1930 to 1932 to those without a reliable income in a flat-rate weekly benefit available to most unemployed workers (Garside 1990, pp. 84-85).

In this paper, we explore the impacts of this large-scale unemployment insurance program in Britain during the Great Depression. We analyze the extent to which unemployment benefits redistributed income across earnings, industry, and geographic groups, and we consider the impacts on inequality and poverty. Rather than analyzing the program through a lens of optimal insurance, we argue that unemployment insurance in Britain during the Great Depression best resembles a simple flat-rate social welfare program, similar to other programs that governments still rely on in times of crisis. By exploring the consequences of this historically-significant example, we can advance our understanding of the design and implementation of social welfare programs during crises, especially in contexts with lower state administrative capacity.

To capture the impacts of the unemployment insurance program, we compare expected earnings losses over the Great Depression for different industry, wage, and geographic groups to a counterfactual scenario with no unemployment insurance program. This requires detailed data on wages disaggregated by industry and geographic area, which we collect at the monthly level from hundreds of pages of printed primary sources. We construct a new monthly panel of male wages at the industry and county level and then match that data to unemployment rates at the industry level and at the county level for the period January 1928 to December 1932. With these novel data, we first provide descriptive statistics on average wages at the county and sector level, the relationship between wages and unemployment rates at the industry level, and estimates of the replacement rate by sector. Then, we compare expected earnings (taking into account wages and the probability of unemployment) for workers in different industry, wage quintile, and geographic groups in the true scenario with unemployment insurance and in the counterfactual scenario without. We also estimate the change in earnings inequality over the Great Depression by industry and by county, with and without unemployment insurance. It is important to note, however, that these methods cannot capture all possible long-run or downstream impacts of unemployment insurance, so our analysis focuses only on the direct short-run distributional and poverty mitigation implications.

The results indicate the interwar unemployment insurance program provided essential and effective welfare support to a large share of the British workforce during the Great Depression. The flat benefit level, which is necessarily progressive in wages, is found to have redistributed income to lower-wage workers even once industry and county unemployment rates are taken into account. The overall effect of the unemployment insurance program was to reduce the inequality in expected earnings across industries by about 9.0% and to reduce the inequality in expected earnings by county by about 32.2%. The costs of the Great Depression were not just mitigated for lower-income workers — the program meaningfully shifted patterns in lost earnings by county and region, preventing the North of England and Wales from experiencing earnings losses commensurate with their disadvantaged unemployment positions. Similarly, by sector, unemployment rates were especially high in building and metal manufacturing at the peak of the Great Depression, yet the unemployment insurance program prevented a further concentration of earnings losses for these workers. Lastly, we estimate that in the absence of the unemployment insurance program, the number of industries with average earnings under the family poverty line would have increased by 22% and the number of counties by 44%.

This work makes several contributions to the literature. First, we examine the operation of a flat-rate welfare program targeted at unemployed individuals during a major economic shock. During the

COVID-19 pandemic, the United States recently resorted to this style of welfare program with the decision to disburse an additional \$600 weekly to unemployed individuals through the Federal Pandemic Unemployment Compensation (FPUC) supplement. Ganong et al. (2020) estimate expected earnings changes with and without the expanded unemployment insurance program in 2020 using the same methods employed in this paper, finding substantial distributional consequences of the program. Many other papers note the 2020 program's benefits for lower-income workers and evaluate possible disincentive effects (Larimore et al. 2022; Hornstein et al. 2023; Mitman and Rabinovich 2021; Marinescu et al. 2021). This paper contributes to this literature by examining a similar policy enacted in a major crisis, albeit in a different context. Interwar British replacement rates were substantially lower and the program achieved a larger scale.

Second, the British interwar experience offers insights into managing a crisis for developing or middle-income economies that have achieved a significant level of fiscal and legal development capacity but lack the administrative capacity to implement more targeted policies. A large body of literature has identified state capacity as a pre-condition for economic development (Acemoglu et al. 2015; Besley et al. 2022; Dincecco 2015). However, most of this literature studies the building and impact of fiscal and legal capacity on economic growth rather than the building of administrative capacity to implement redistributive and welfare policies. This paper illustrates how crisis conditions led to an expansion of Britain's unemployment insurance program which was ultimately effective at mitigating earnings losses. The interwar experience was essential in consolidating an administrative redistributive capacity that would fully develop after 1945.

Our article also contributes to the literature on poverty and unemployment in interwar Britain. Gazeley and Newell (2012) observe that the interwar period was when Britain finally moved away from having a significant share of the population in extreme poverty or destitution, despite the major economic crises in 1921 and with the Great Depression. Other works have discussed the impact of interwar employment loss and poverty on health, the negative consequences of which were mitigated somewhat by the unemployment insurance program (Gazeley 2003; Webster 1982; Whiteside 1987; Winter 1979). We contribute to this literature by evaluating the impact of unemployment insurance on expected earnings, presenting our results in terms of minimum consumption bundles for subsistence from Linsley and Linsley (1993), which are ultimately based on the pioneering surveys of poverty of Booth (1904) and Llewelyn Smith (1935).

Much has been written on the interwar unemployment program and the possible disincentive effects of unemployment benefits following Benjamin and Kochin (1979). The immediate larger debate (Collins 1982; Metcalf et al. 1982; Ormerod and Worswick 1982; Cross 1982; Hatton 1985; Eichengreen 1987) and more recent re-evaluations (Cole and Ohanian 2002; Hatton and Bailey 2002; Bowden et al. 2006) have focused on the extent to which generous unemployment benefits contributed to high unemployment rates. This paper contributes to this literature by providing new wage data that allows for more comprehensive estimates of replacement rates at the industry and county level, though we do not explore longer-run disincentive impacts of the unemployment insurance program.

This paper also contributes to the literature on wages in interwar Britain. Most work on interwar wages has relied on aggregate series (Beenstock and Warburton 1986; Broadberry 1986; Dimsdale et al. 1989, for example) or, recently, the incidence of wage increases and cuts (Lennard 2023). The present paper contributes data on wages at the industry and county level for every month 1928–1932. This unprecedented data offers a much richer level of disaggregation than previously available in any prior works.

The paper proceeds as follows. In Section 2, we provide background on unemployment insurance and the Great Depression in Britain. Section 3 describes the novel data collected for this analysis and the construction of the datasets used in the analysis. Section 4 sets out our empirical approach to capturing lost earnings during the Great Depression. In Section 5, we provide new descriptive statistics on wages by industry and county and on wages and unemployment using the new data collected for this project. Section 6 gives the results, providing expected earnings with and, counterfactually, without unemployment insurance by wage quintiles, industry, and geographic areas, as well as estimations of the program’s impact on inequality. Section 7 presents some additional evidence on poverty mitigation. Finally, Section 8 concludes.

2 Unemployment insurance and the management of the Great Depression

2.1 The Great Depression in Britain

The Great Depression was a global shock that caused a significant economic downturn in Britain with severe labor market impacts. The aggregate unemployment rate climbed over 20% during the downturn, a more than doubling of the number of workers unemployed. Yet unlike some other nations, Britain had experienced high unemployment throughout the 1920s, with unemployment rates averaging over 10%

between the 1921 downturn and the Great Depression. The lack of a full recovery from the shock of 1921 has been attributed to both structural and monetary forces — World War I had severely impacted Britain’s traditional export industries, and Britain’s commitment to return to the gold standard at its pre-war parity with the dollar exerted deflationary pressures. Mass unemployment became an increasingly salient social and political problem in the late 1920s, contributing to the 1926 General Strike and becoming a key issue of the 1929 General Election. The onset of the Great Depression in 1929 made the existing unemployment problem even more acute.

As the crisis of the global Great Depression intensified, the biggest shift in Britain’s policymaking came in September 1931 with their departure from the gold standard. This relaxation of monetary constraints was an immediate boost to employment in the export industries (Lennard and Paker 2023) and eventually led to more accommodating monetary policy and a reduction of interest rates (Ellison et al. 2024). A boom in home building and rearmament completed the recovery prior to World War II.

The Great Depression occurred in the context of a growing geographical divide in the British labor market. In 1931, the average unemployment rate reached 32.4% in Wales and 28.2% in the North West of England, whereas in London it was only 12.2% (Ministry of Labour 1937, p. 56). Paker (2024) shows that the “North-South” gap in unemployment rates between the North of England (and Wales) and the South of England grew rapidly from just over 2 percentage points in 1923 to over 12 percentage points during the Great Depression.

A leading cause of these differences in unemployment rates between regions was their differing industrial mix. Between 50-83% of regional unemployment rates in the interwar period were driven by differences in the composition of industries in regions (Paker 2024). The industries that bore the bulk of unemployment – especially textiles, mining, and heavy manufacturing – were often located in the depressed regions. The industry mix effect was especially prominent in the 1920s, while during the Great Depression, other regional factors contributed to a larger share of the differences in economic outcomes between regions.

Compared to other countries like the United States, Canada, and Germany, Britain had a relatively mild experience of the Great Depression with a less significant contraction in output. The prevailing explanations of this emphasize Britain’s early departure from the gold standard (Eichengreen et al. 1985, for example), though the resilience exhibited by the South of England may also have been important. However, Britain was the only country with a large-scale policy to mitigate income losses in the early

stages of the depression. While some states had explored unemployment insurance, notably Wisconsin in 1932, the United States' first analogous program was the Social Security Act of 1935 (Price 1985). Canada only implemented a similar program after World War II (Lin 1998). Germany was an initial leader in unemployment insurance, revising their program in 1927 to be a contributory scheme similar to Britain's program. Yet with the budget issues constraining the Weimar government in 1928, benefit levels and duration were reduced before the Great Depression (Fay 1950). In contrast, at the onset of the Great Depression, Britain adapted its unemployment insurance program to provide high flexibility in terms of access and duration of benefits to support unemployed workers during the crisis, and unemployment insurance became the primary form of social welfare provision.

2.2 Unemployment insurance in interwar Britain

The first unemployment insurance program in Britain was introduced in 1911.¹ Initially, the program covered only seasonally-volatile industries such as building, shipbuilding, mechanical engineering, and sawmilling, accounting for about 2.25 million workers (excluding women but including juveniles). The tripartite, flat-rate model had a fixed contribution from workers, employers, and the state to a national Unemployment Fund. After 26 weeks of contributions, workers who became unemployed could claim 7s. per week for a maximum of 15 weeks per year, after a six-day waiting period, regardless of their prior wage (Garside 1990, p. 33). The goal of the program was to provide temporary support for cyclical or seasonal unemployment, and its reasonable underlying accounting principles coupled with the relatively low national unemployment levels led the program to be fiscally sound.

After World War I, the program was expanded owing to concerns about potential unemployment at the end of the war. 11.75 million workers were brought under the scheme including men and women in manual industries and non-manual workers earning less than £250 per year. Some industries were deliberately excluded for their low risk of unemployment such as agriculture and domestic service.

While the original unemployment benefits program was based on sound accounting principles, a short-running separate program set other precedents. The Out-of-Work Donations scheme from 1919-1920 for ex-servicemen and civilian workers provided non-contributory benefits at higher levels. Additionally, those who had exhausted their initial entitlement were allowed to extend their benefits. The 1920 Unemployment Insurance Act merged this program with unemployment insurance, leading to an

¹More details on the interwar unemployment insurance program are provided in Appendix A.

increase in levels of benefits and the introduction of “uncovenanted benefits” for those genuinely seeking work without prior contributions.

In the context of the aftermath of the 1921 crisis and post-war adjustments, the unemployment insurance program was repeatedly made more generous throughout the 1920s until 1931. In 1922, a dependents allowance was introduced, and uncovenanted benefits were extended multiple times. The 1924 Unemployment Insurance Act made the program more generous by increasing benefits, reducing the waiting period before benefits could be claimed, and granting “extended benefits” to those who had exhausted their right to benefit but had made 30 contributions in the previous two years. The 1927 Act changed “extended benefits” into “transitional benefits” that had even more lenient contribution requirements, leading over 100,000 workers who had exhausted their right to benefits or had not made enough prior contributions to receive transitional benefits. Limits on the duration of time benefits could be claimed were also relaxed, and between April 1928 and November 1931 there was essentially no established limit for the duration of claiming benefits. While benefits levels were adjusted downward in nominal terms in 1927, the flat nominal payments became more generous with Britain’s return to the gold standard and the subsequent deflation. The primary countervailing force to these shifts to a more generous program was the requirement that claimants be “genuinely seeking work”, which was enforced more strictly in 1924 and 1927 and then greatly relaxed in 1930.

The unemployment insurance program in Britain up to the end of 1931 was therefore broadly non-contributory, providing generous flat-rate benefits (irrespective of prior wages), dependent allowances, and with few limits on the duration of benefits. Burns (1941) terms this era of unemployment insurance “Expanded Unemployment Insurance” reflecting its departure from tripartite accounting principles to instead serve more as a welfare program. Through the early stages of the Great Depression, the program was broad enough in terms of coverage, benefits, and duration to have redistributive implications.

The other major program in Britain aimed at mitigating poverty was poor relief, managed by local governments and supervised by the central government via the Ministry of Health. Those benefits played an important role as a last resort for the unemployed who were not covered by the unemployment insurance scheme, but the nature of the relief varied by location. Before 1920, poor relief mainly consisted of admission to ‘workhouses’ or similar institutions, although in some cases outdoor relief was provided (Burns 1941). With the rise of interwar unemployment, there was an increase in outdoor relief, though its specific nature varied by area. According to Burns (1941), around half of the relief was provided in kind

by the late 1920s. Yet the relevance of poor relief declined during the interwar period. Between 1920 and 1931, the share of poor relief in total paid benefits substantially decreased relative to unemployment insurance. In 1923, poor relief accounted for 20.9% of the total expenditure on social benefits,² but by 1929, this share had decreased to only 10% (Burns 1941). In 1931, there were 1,973,000 authorized claims to unemployment benefits, totaling £42.3 million of benefits,³ while only 59,000 individuals were supported by poor relief owing to being out of work (totaling £4.8 million of support⁴) (Burns 1941). Unemployment benefits, funded by the national government, were able to far outpace the level of poor relief benefits that local areas could support, and unemployment insurance became the primary source of social welfare during the 1920s and early Great Depression. Unemployment insurance therefore had the highest potential to impact redistribution in this period.

In 1931, Britain was in a difficult budgetary position at the peak of the Great Depression. Budget pressures were first addressed through the Anomalies Act in the summer of 1931, which made it more difficult for married women and seasonal workers to claim benefits. By the end of the year, the new National Government reformed the unemployment insurance system substantially by reducing standard benefits by 10%, introducing a means test for “transitional benefits,” increasing required contributions into the program, limiting the number of weeks benefits could be claimed, and increasing the required number of prior contributions before benefits could be claimed. This led to 800,000 exclusions from the system (Garside 1990, p. 64). These revisions were driven by a recognition that, through the end of 1931, the unemployment insurance program had been functioning more like a cash-transfer welfare program than an insurance program. The introduction of a means-tested “transitional benefit” in 1932 created two classes of workers: those who had a claim to benefits based on their rights and prior contributions into the program (often the short-term unemployed) versus those who required public assistance but had long-ago exhausted their rightful claim to benefits based on insurance principles (often the long-term unemployed). The latter were deemed to be on “transitional benefits” which became more stigmatized than to be on “standard benefits.” The means test not only limited benefits for those on “transitional benefits” but it also put them through an invasive and sometimes humiliating process. Even with these changes making the program more restrictive, Britain continued to move away from poor relief as its main welfare support system.

²An aggregate of unemployment insurance and poor relief benefits

³Approximately £2.83 billion in 2023 pounds

⁴Approximately £270 million in 2023 pounds

2.3 Unemployment insurance and other social welfare programs

Unemployment insurance, and more generally social insurance programs, are used by governments to mitigate the costs of negative economic shocks. In the case of unemployment insurance, most of the literature has focused on the analysis of optimal insurance models (Shavell and Weiss 1979; Hopenhayn and Nicolini 1997; Chetty 2008), which summarize the trade-off between the benefits of consumption smoothing and the potential moral hazard caused by the reduction in search efforts. Recent works have shifted focus away from the costs of unemployment insurance toward better estimates of its value (Landais and Spinnewijn 2021).

Unlike modern unemployment insurance programs, in the interwar British program, benefits levels had no association with the unemployed worker's former wage. A flat rate was paid to all beneficiaries according to their gender and number of dependents. This characteristic reveals that, rather than strictly smoothing workers' consumption across different states of employment, the rationale behind the interwar unemployment benefits program was to provide some sort of minimum income during unemployment periods.

This makes the interwar British unemployment program in some ways more similar to today's cash transfer programs than unemployment insurance programs. In developing countries, cash transfer programs account for a large share of government expenditure and have been subject to many empirical evaluations (Rawlings and Rubio 2005; Attanasio and Mesnard 2006; Ardington et al. 2009; Baez and Camacho 2011). Chetty and Finkelstein (2012) argue that governments in developing countries have limited scope for implementing expensive programs given their relatively low tax bases, so small cash transfers provide good coverage at a low cost. In a similar way, the interwar insurance program in Britain provided broad-based social welfare support at a relatively low cost through flat-rate transfers, and we evaluate its impact below.

3 Data

In order to explore the distributional and poverty-mitigation impacts of the unemployment insurance program during the Great Depression, we require detailed data on wages. Individual-level wage data for interwar Britain do not exist, and previous papers have relied upon highly-aggregated or low-frequency wage series primarily from Chapman and Knight (1953) and Capie and Collins (1983). We therefore

generate a new dataset of wages at the industry and county level from primary sources for each month in the early Great Depression. By matching this new dataset to the available data on unemployment rates at the county level and the industry level, we then can analyze the impacts of unemployment insurance during the Great Depression across sectors, the earnings distribution, and geographic areas.

3.1 Digitization of changes in wage rate data

Each month of the interwar period, the Ministry of Labour published a table in the *Labour Gazette* titled “Principal Changes in Rates of Wages Reported.” This table gives detailed information on changes in wages by industry and locality (a local area, county, region, or even the whole nation) that occurred in each month. The wage changes are described in text strings in the column “Particulars of Change” which typically gives both the old and the new wage in the industry and location. These details are provided in long tables encompassing in many cases five oversize pages in the *Labour Gazette*. We digitized these tables for 60 months covering the early period of the Great Depression in Britain, January 1928 to December 1932.

Within these approximately 300 pages of the *Gazette* that we digitized, over 3,000 wage changes at the industry and locality level were reported. Our next step was to parse the text string detailing wage changes in Python to extract the information on the wage change. For example, in March 1928 it was reported that the Packing Case Making industry had a wage change in Manchester, Salford, and Bolton. The particulars given were: “Decrease of $\frac{1}{2}$ d. per hour (1s. 8d. to 1s. 7 $\frac{1}{2}$ d.).” From this string, we extracted that the hourly wage decreased by 0.5d. in March 1928, that before this date the wage was 8d., and that after this date the wage was 7.5d.

However, not all of the text strings were this clean and easy to automate. For over 1,900 of the wage changes, we extracted the wage data by hand to account for differences across age groups and gender. This process, and the construction of the industry-county wage panel, is described in more detail in Appendix B. We restrict the observations to only those where a new wage was reported; to those explicitly for adult men or where no gender or age is reported; and to those with wages reported in hourly, daily, or weekly monetary values. Over the four years of our sample, this leaves us with 1,539 clean wage changes reported for male workers in specific industries and geographic areas.

3.2 Creation of the industry-county wage panel

The data reported in these digitized tables were not given in standardized geographic areas or by standardized industry classifications. To remedy this, our next step was to map the locality information reported in the tables to counties in England and Wales.⁵ To do this, we took the 759 localities reported in the data and mapped them by hand to 52 counties, noting the share of the county the locality represented by population using data from the 1931 *Census of England and Wales*. For example, the locality “West Ham” in our digitized tables encompassed 24% of the county Essex by population. In some cases, a locality was mapped to portions of multiple counties. For each reported wage change, this allows us to see which counties were affected by the wage change and what share of workers in those counties were in the geographic area of impact.

Next we standardized the industries by mapping them to the 100 standard industries that the Ministry of Labour used to classify workers in the interwar period. Of the 411 different industry descriptions given in the wage change data, only nine were unable to be matched to a standardized industry. Of the 100 industries in the standard classification, wage changes were reported at any time from 1928–1932 according to our mapping in all but 13 of them.⁶

We therefore have data on male wages by industry and county for the first month in which those wages were in place. Because we have comprehensive data on wage changes from 1928–1932, we can tell if the wage was changed again at a later date. If not, we assume that the going wage in that month is the same as it was changed to earlier in the data. Using this assumption, we can iteratively populate a monthly panel of counties with wage estimates for each of the 100 industries. We therefore only see wages for workers in an industry in a county if their wages were ever changed in the 1928–1932 period.

One complication in creating this panel is that some changes impacted only a fraction of the population in a county based on their described locality (e.g. like “West Ham” discussed above). We use this share as a weight when implementing the wage change. In cases where no wages had yet been reported in that industry in that county, then we take that wage as representative of the entire county, regardless of the share impacted. This process generates an estimate of male wages for 100 industries for each county in England and Wales in every month from 1928–1932, starting from whenever the first wage data was

⁵We drop the data from Scotland as information on the industrial composition of counties and regions in Scotland is not readily available. Subsection 3.3 describes why these data are necessary.

⁶The standardization of industries and of localities into counties means that in some cases, for the same industry and county, two wage changes are reported in the same month. In these cases, we take the weighted mean of the two changes, where the weights are based on the share of the population in the county in the impacted geographic area, as described above.

reported in that industry and county.

3.3 Other data used in the analysis

We match the new data on wages by industry and county with existing data on unemployment rates and the industrial composition of regions in order to analyze the distribution of lost earnings during the Great Depression.

Data on monthly unemployment rates for 100 industries, disaggregated by gender, come from Paker (2024). Because these unemployment data also derive from the Ministry of Labour *Gazette*, the industry standardization we have used in creating the new wage data for the present paper maps exactly to the unemployment rate data. Data on unemployment rates by counties is taken from Luzardo-Luna (2022). This data is available for all counties in England and Wales so matches exactly our new wage data. An important limitation of both of these data sources is that only workers who were eligible for unemployment insurance are included in these unemployment rates, though this was a program with broad coverage that included most manual workers and many non-manual workers as described above in section 2.2.

Because there are no industry-by-county or industry-by-region unemployment rates available, to use the industry and county unemployment rates it is necessary to aggregate our new industry-county wage data up to either the industry or the county level. To do this, we rely on weights from the 1931 *Census of England and Wales*. The *Census* provides the number of workers, employed and unemployed, in 50 industries in each of twelve geographic regions. Using the mapping provided in Paker (2024), we map these *Census* industries to the standard *Gazette* industries.⁷ We can then compute both the share of workers in a region in each industry and the share of workers in an industry in each region, which we use as weights. We also take population estimates from the 1931 *Census of England and Wales* to capture the share of the population of a region in each county in that region.

3.4 Minimum consumption bundles

The new industry-county wage panel we construct is a major data contribution, yet pre-decimalization 1930s wage values are difficult for the modern reader to understand. We therefore provide the raw wage data in the replication files and show all of our results in terms of representative minimum consumption

⁷For *Census* industries that map to multiple *Gazette* industries, we assume the workers are equally distributed across these industries.

bundles (MCBs). Each minimum consumption bundle is the amount needed for a single male adult to live at a subsistence level of consumption, including rent. We convert all nominal wages to real wages using the national CPI⁸ and then translate the wage unit into minimum consumption bundles using the real price of the bundle.

There are several constraints to establishing such a bundle. First, essential needs – and, therefore, poverty lines – change according to the historical period. Secondly, there is debate over the selection of the items that compose the bundle. Finally, the lack of statistical data at the local or regional level limits the construction of bundles for subgeographies.

Because of these constraints, we focus on the contemporary assessment. The pioneering works of Booth for London in 1889 and Rowntree for York in 1901 have served as a starting point for several generations of scholars interested in measuring the incidence of poverty (Booth 1904; Rowntree 1902). For the interwar period, a key reference is Rowntree's second survey for York, which is closer to our study period (Rowntree 1941). Linsley and Linsley (1993) took Rowntree's poverty lines for York excluding housing expenditure (Rowntree 1941) and used price information from Llewelyn Smith's *New Survey of London Life and Labour* (Llewelyn Smith 1935) to calculate minimum consumption bundles for various family compositions in terms of 1929 London prices.

We take the minimum consumption bundle from Linsley and Linsley (1993) for a family composed of a single male adult (246 pence in 1929) and adjust for housing expenditure by using Rowntree's original budget share for this item (17.9%). Our minimum consumption bundle is therefore 299.70d. in 1929, and, adjusting for inflation, 297.00d. in 1928, 308.33d. in 1930, 322.19d. in 1931, and 330.79d. in 1932. Using the minimum consumption bundle for a single adult male as the unit for an adult male wage avoids embedding assumptions into our analysis about typical family composition (which may have varied by county and industry); relative consumption between adult males, adult females, and children; and whether adult women and children also contributed to household income.⁹ It allows us to think of the adult male wage in terms of how many adult subsistence bundles that wage could have supported. As a reference point, the poverty lines in Linsley and Linsley (1993) suggest a single female needs 0.87 single male minimum consumption bundles for subsistence, a couple needs 1.30 bundles, a couple with one child needs 1.65 bundles, a couple with two children need 1.96 bundles, and a couple with three

⁸Regional CPI estimates are not available for this period.

⁹The impact of demographic changes on poverty during the interwar period goes beyond the scope of this article. However, according to Gazeley and Newell (2012), a reduction in average household size and a rise in labor participation were important factors in explaining the interwar escape from destitution.

children need 2.22 bundles.¹⁰ We explore these other consumption bundles as an additional exercise in Section 7.

4 Empirical approach

Our objective is to compare expected earnings for workers in different industry, wage quintile, and geographic groups in the true scenario with unemployment insurance to a counterfactual scenario without unemployment insurance. We also want to estimate the change in expected earnings inequality over the Great Depression by industry and by county, with and without unemployment insurance. These analyses will shed light on how unemployment insurance shaped the distribution of lost earnings over the Great Depression.

It is well known that unemployment rates varied significantly geographically and by industry in interwar Britain. Workers' expected earnings during the Great Depression depended not just on their replacement rate, but also on their risk of becoming unemployed. We therefore need to understand, from an *ex ante* perspective, how workers in different industries or geographic areas might have expected their income to change with the Great Depression without conditioning on employment status.

The data on wages by industry and county collected for this project, combined with the recently available detailed data on unemployment rates by industry and unemployment rates county, has made it possible to answer this question for the first time. However, our approach is still limited by a lack of individual-level data and a lack of data on unemployment rates by industry and by county. We therefore analyze expected earnings by industry and county or regional groups rather than at the individual level and use weighting schemes to aggregate from industry-county wage data to industry-level or county-level data that can be matched to the available unemployment rate data.

We can capture the expected weekly income for workers in group j at time t , $E_{j,t}$, as,

$$E_{j,t} = w_{j,t} \cdot (1 - u_{j,t}) + B_t \cdot u_{j,t} \tag{1}$$

where $u_{j,t} \in [0, 1]$ is the unemployment rate for group j at time t and $w_{j,t}$ is a weighted average weekly

¹⁰Naturally, the minimum consumption bundle changes according to household size, which is why household composition directly impacts it. In 1929 pence, Linsley and Linsley (1993) estimate poverty lines for a single female to be 213d., for a couple 321d., for a couple and one child 406d., for a couple with two children 481d, for a couple with three children 546d., and 58d. more for each additional child after that.

real wage for group j at time t . B_t is the level of unemployment benefits at time t , the same for workers in all industries and geographic areas. The replacement rate is therefore given by $\frac{B_t}{w_{j,t}}$.

The groups j that we consider, all in distinct analyses, are income quintiles of industries, six broad categories of industries, the counties of England and Wales, and the twelve *Census* regions of England and Wales. In all cases, we consider only male workers, using the male wages, male benefit levels, and, where available, male-only unemployment rates.

To explore lost earnings by income quintile of industry and category of industry, we created a national weighted average real wage for each industry from the industry-county panel data. We use the share of the regional population in each county from the *Census* as a weight to generate industry-region wage data. Then, we use the share of workers in an industry in each region, also from the *Census*, as a weight to get a national wage estimate.¹¹

To explore lost earnings by county and region, we create a weighted average wage for each county from the industry-county panel data. The *Census* gives the distribution of workers across industries for each region. We assume this distribution is the same for all counties in that region and use it as weights of the industry wages in each county.¹² To aggregate further to regions, we weight by county population.

We are interested in how the impact of unemployment insurance on expected earnings varied by income quintile, industry group, county, and region. Unemployment insurance payments were paid at a flat rate regardless of a worker's prior income, location, or industry, so long as the worker was in an industry covered by the interwar insurance program. Variations in expected earnings are thus driven by changes in the unemployment rate across these groups and differences in the replacement rate. We also estimate expected earnings in a counterfactual scenario with no unemployment insurance.

The counterfactual expected earnings without unemployment insurance, $E_{j,t}^c$, are given by,

$$E_{j,t}^c = w_{j,t} \cdot (1 - u_{j,t}), \quad (2)$$

which modifies Equation 2 to represent the case with unemployment benefits B_t of zero.

To measure estimated lost earnings during the Great Depression, we simply take the difference in

¹¹For example, say Oxfordshire had 20% of the population of its region Midlands 1. We would first weight the wages of Oxfordshire 20% in the Midlands 1 average for each industry. Then, if we are thinking of the car industry, say Midlands 1 has 80% of all workers in the car industry nationwide. Then, we would weight the Midlands 1 average wage for the car industry as 80% of the national wage estimate for the car industry.

¹²For example, if 90% of the workers in the Midlands 1 were in the car industry, we would weight Oxfordshire's car industry wages 90% in the average wage for Oxfordshire.

expected earnings between 1928 and 1932: $E_{j,1928} - E_{j,1932}$. The counterfactual without unemployment insurance is given $E_{j,1928}^c - E_{j,1932}^c$.

One further complication is that, when employed, workers were required to contribute into the national insurance scheme. As with the benefits level, the amount workers were required to contribute was a flat rate so impacted all workers equally. However, it is unclear if the wages in the primary sources underlying our industry-county wage panel are reported before or after this required contribution. Therefore, we do not adjust our expected earnings or counterfactual earnings for differences in this contribution.

We also measure whether unemployment insurance had an impact on earnings inequality at the industry and county levels. Unemployment insurance reduces the earnings penalty of unemployment, which disproportionately impacts certain groups, with the amount of this reduction varying with the replacement rate. It could therefore impact overall measures of inequality. We estimate the impact of unemployment insurance on expected earnings inequality by industry and by county in each year and for the whole period 1928–1932. We capture inequality in the standard ways by calculating the Gini coefficient and the 90:10 ratio.

A final reminder is that our analysis focuses on the distributional impact in the short run and does not explore potential long-term effects. We do not consider the supply-side effects of rising replacement rates on the probability of claiming unemployment insurance. We also do not explore how unemployment insurance impacted matching efficiency or how this may have varied by region or industry. These and other downstream or general equilibrium effects may also have impacted lost earnings and inequality during the Great Depression.

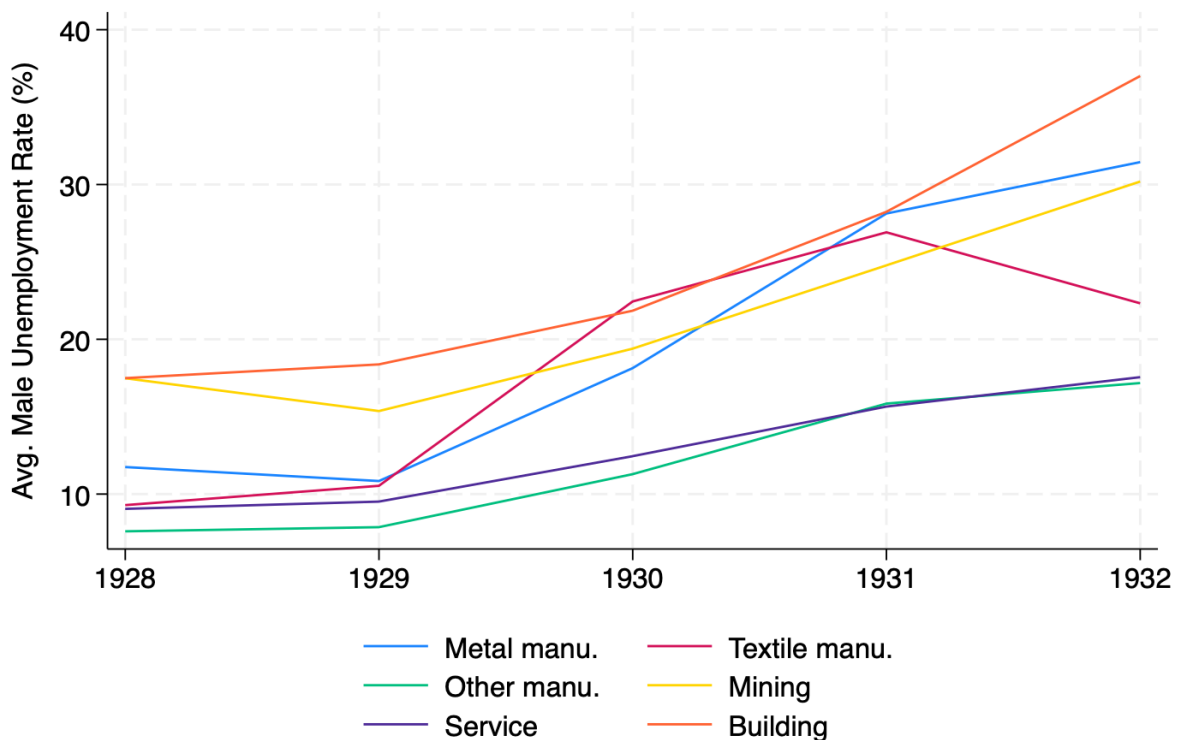
5 Descriptive statistics

Before evaluating the distributional consequences of unemployment insurance in interwar Britain, it is helpful to establish a baseline understanding of the geographic and industrial distribution of unemployment and income. The unprecedented detail of the new wage data collected for this paper allows us to consider earnings and replacement rates at a disaggregated level and to relate unemployment rates and wages at the industry level for the first time.

5.1 Unemployment

Unemployment varied significantly by industry and geographic area in interwar Britain. Figure 1 gives a sense of the scale of differences in unemployment rates by industry grouping over the Great Depression.¹³ At the peak of the crisis in 1931, unemployment rates were highest in building, textile manufacturing, and metal manufacturing. In contrast, unemployment rates were much lower throughout the period in service and other manufacturing. The textile industry also shows a higher level of volatility than other industries. This could be explained by its higher exposure to international trade, which deteriorated in 1929 but started to recover after 1931 when Britain left the gold standard.

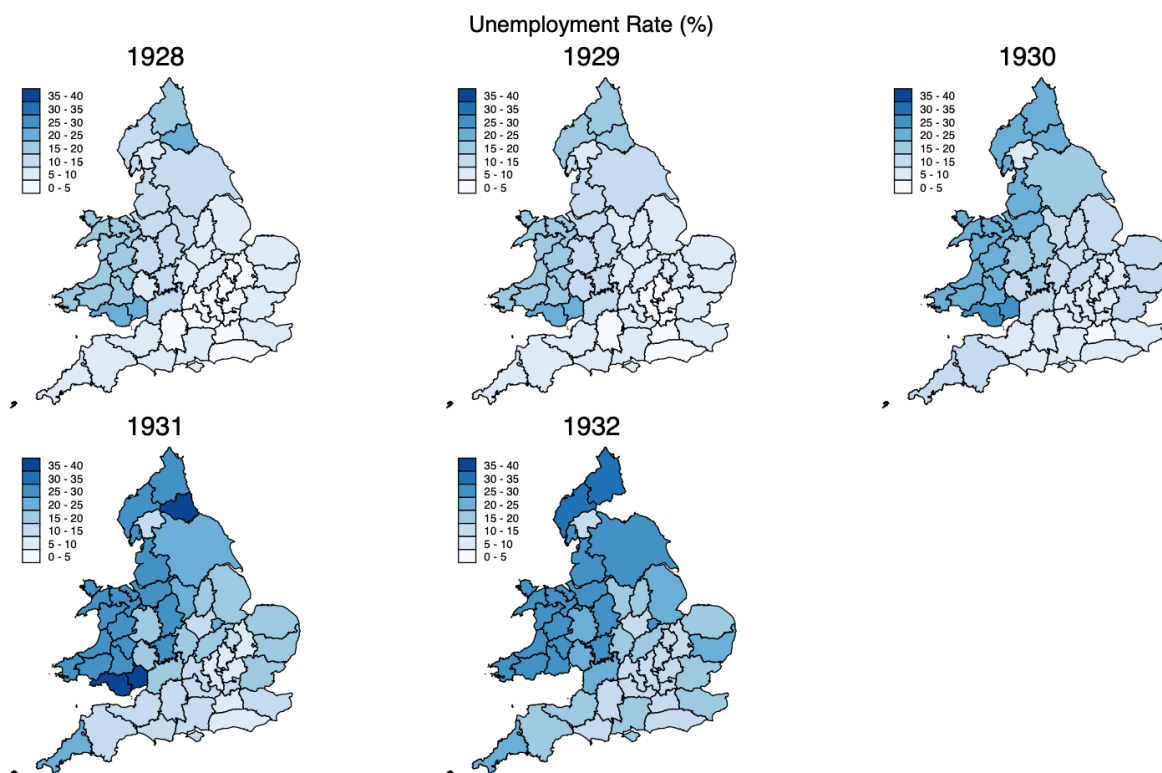
FIGURE 1: SECTOR UNEMPLOYMENT RATES, 1928–1932



Unemployment also varied geographically. Figure 2 shows that unemployment rates were generally higher in the northern counties of England and Wales than in the southern counties of England. As the Great Depression progressed, these disparities became more pronounced as some disadvantaged counties experienced unemployment rates over 30%. The growing North-South divide in unemployment rates over the course of the Great Depression is also evident.

¹³These unemployment rates only include workers covered by unemployment insurance, as described in subsection 2.2.

FIGURE 2: COUNTY-LEVEL UNEMPLOYMENT RATES, 1928–1932



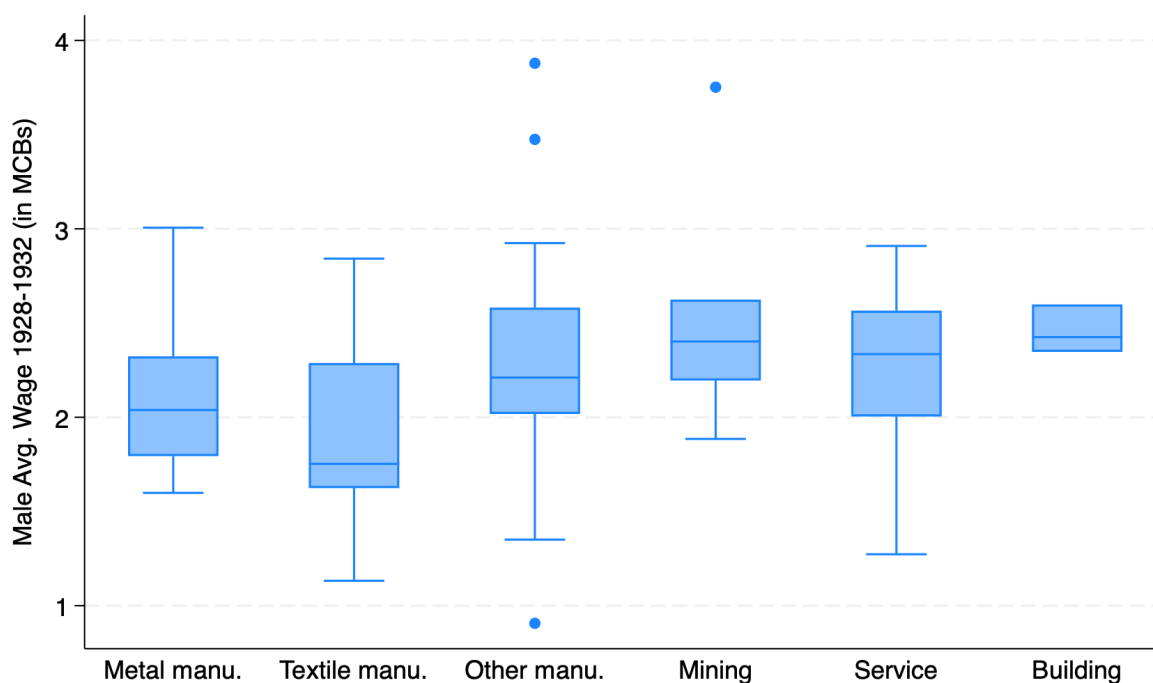
5.2 Wages

While unemployment patterns are relatively well-understood for this period, patterns in wages have been obscured by a lack of wage data at a fine level of industrial or geographic detail. The new data collected for this paper allow us to explore comprehensively male wages by industry and geographic area.

Figure 3 shows the distribution of average male wage for industries in each of the six sectors from 1. Wages were lowest for textile manufacturing workers and for metal manufacturing workers and highest for workers in mining and building. The widest distribution of wages was found among industries in other manufacturing. In all sectors, the median industry wage earned between 2 and 2.5 minimum consumption bundles. This indicates that single male workers earned more than twice their required income for subsistence, but those in male-breadwinning families with only one worker and children may have been closer to subsistence.

Because the unemployment insurance program provided a flat-rate benefit level, the wage data reveal directly variations in the replacement rate. For workers with a lower wage, the replacement rate is higher,

FIGURE 3: DISTRIBUTION OF AVERAGE INDUSTRY WAGES BY SECTOR FROM 1928 TO 1932



and for workers with a higher wage, the replacement rate is lower. Figure A1 in Appendix C gives the distribution by sector of the average replacement rate for each industry in that sector. As expected, sectors with lower wages in general had higher replacement rates. The median replacement rates varied from about 0.275 to 0.375.¹⁴

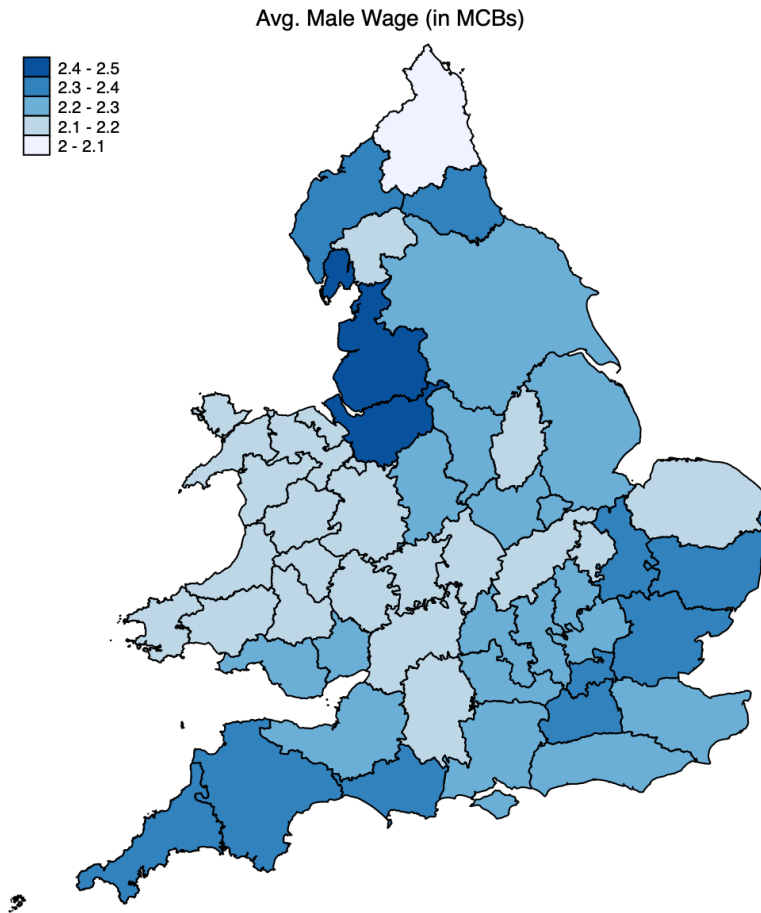
Figure 4 gives the average real male wage from 1928 to 1932 by county. Male wages were high in London and surrounding areas as well as in the South West. The highest male wages on average were in Lancashire and Cheshire. The lowest wages were in Northumberland.

5.3 Wages and Unemployment

The new data also allow us to relate wages and unemployment rates by industry. Figure 5 presents scatterplots for 1928 and 1931 of this relationship where each point represents one industry. In 1928, there is no relationship between wages and unemployment rates — high and low wage industries both had high and low unemployment rates. In 1931, we see that the lower-wage industries have slightly higher unemployment rates in general. This might suggest some moral hazard, as these lower wage industries would also have higher replacement rates, potentially inducing higher unemployment rates, or it could

¹⁴In these calculations, we assume all male wages were paid to men without dependents, so the flat-rate benefits level did not include a dependent allowance.

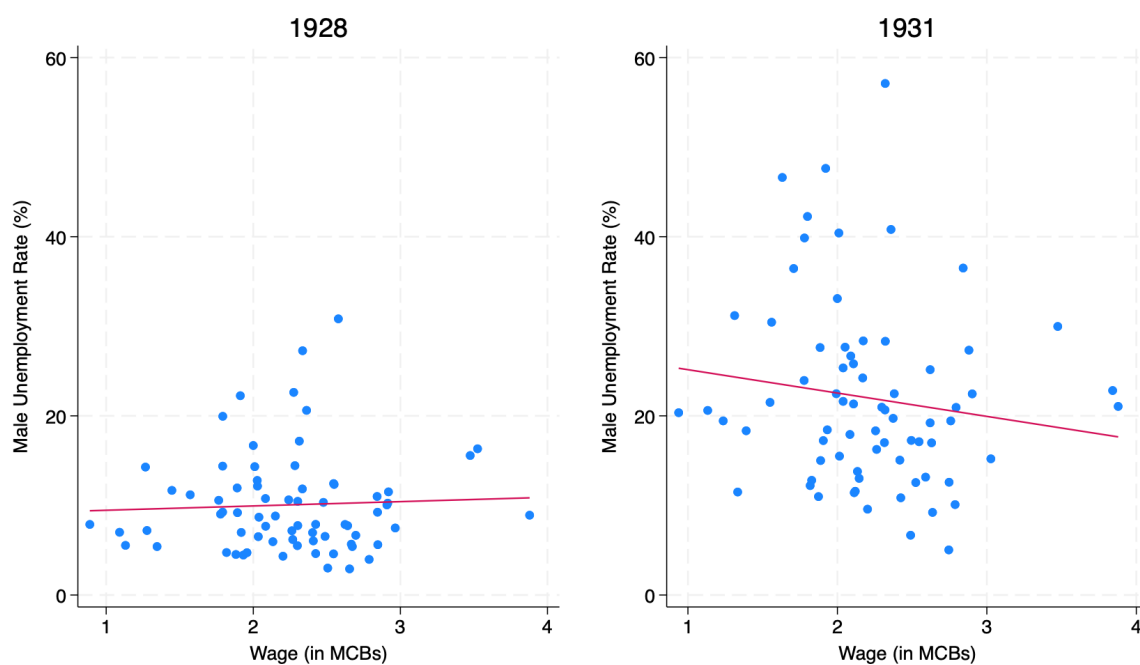
FIGURE 4: COUNTY-LEVEL AVERAGE MALE WAGE FROM 1928 TO 1932



simply reflect productivity differences or different cyclical sensitivity of the industries.

This lack of a strong correlation between wages and unemployment could also be a compositional effect based on industry location. Figure 4 shows that high-wage industries were located in relatively depressed counties in the North of England, such as Lancashire, but also in relatively low unemployment areas of southeastern England, such as Essex, Surrey, and Middlesex.

FIGURE 5: INDUSTRY-LEVEL WAGE AND UNEMPLOYMENT RATE, 1928 AND 1931



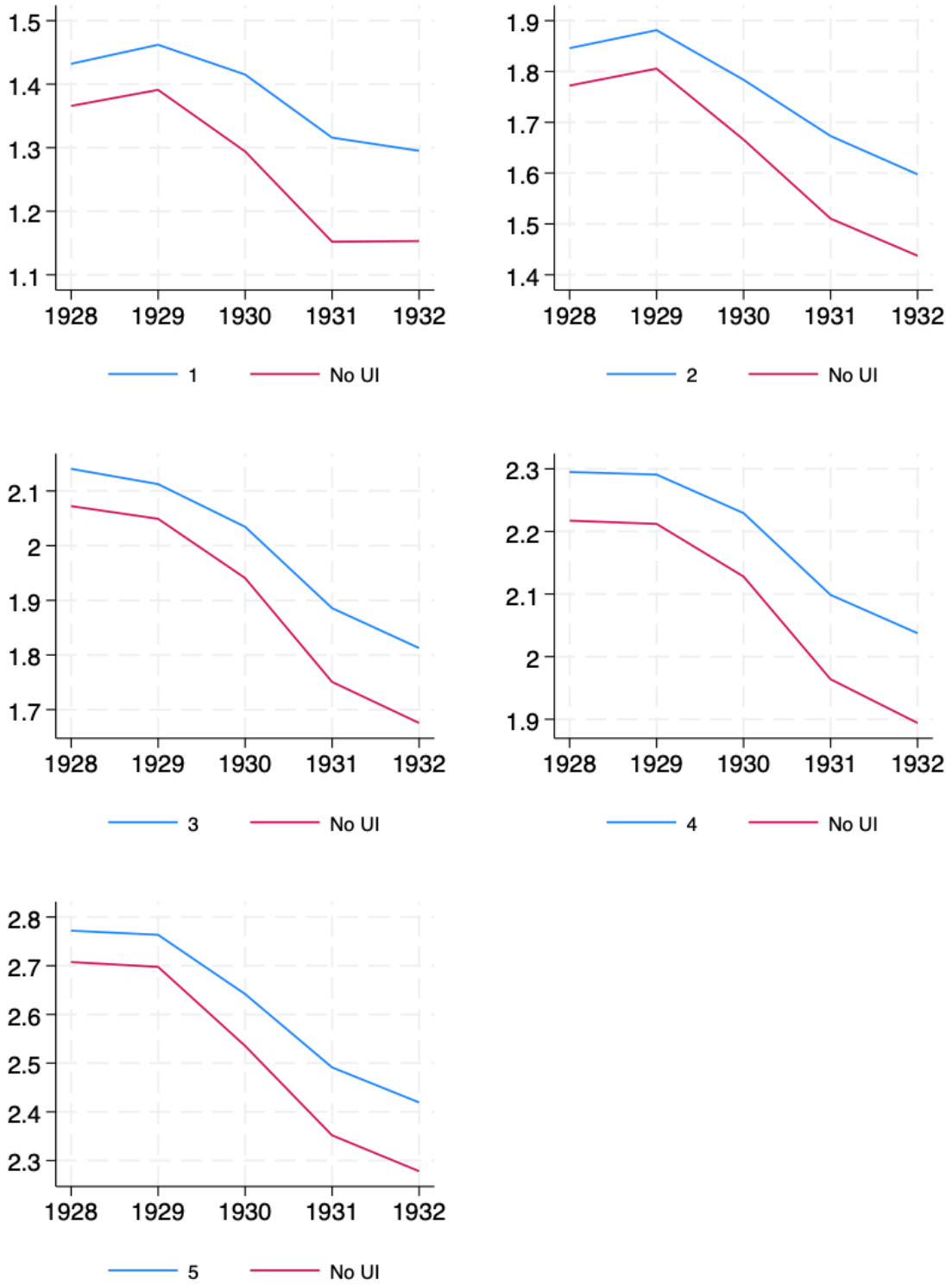
6 Results

As the previous section shows, unemployment rates and wages varied geographically and by industry during the Great Depression. The expected income of a worker over the course of the depression depended both on their risk of unemployment and on the extent to which the flat-rate unemployment insurance benefits could replace their income. Unemployment insurance therefore had distributional implications, which we analyze in this section across multiple dimensions: the earnings distribution of industries, sectors, geographic regions, and geographic counties.

6.1 Earnings quintiles

Did the unemployment insurance program redistribute income to workers with lower earnings? To answer this question, we sort the 100 *Gazette* industries into wage quintiles based on their average wage. Figure 6 shows the patterns in expected earnings of each wage quintile in the case with unemployment insurance (in blue) and in the counterfactual case without the unemployment insurance program (in red). The expected earnings are unconditional of employment status so take into account both the reported wages in the industry and the risk of unemployment in the industry.

FIGURE 6: EXPECTED EARNINGS BY INDUSTRY EARNINGS QUINTILE, WITH AND WITHOUT UNEMPLOYMENT INSURANCE



Over the course of the Great Depression, expected earnings declined for all wage quintiles, with especially dramatic declines for the third quintile and fifth quintile of the earnings distribution by industry. However, when we consider the counterfactual with no unemployment insurance, the change in expected earnings is greatest for the first and second earnings quintiles. In the counterfactual case of no unemployment insurance, wages would have fallen near subsistence (MCB=1) for a household with only a single male adult in the first quintile. When we consider that a household with a couple and three children required 2.22 bundles (Linsley and Linsley 1993), it is clear that unemployment insurance played an important role for workers in each of the first three quintiles, shielding them from a very severe decline in expected earnings, and increase in poverty, during the Great Depression.

FIGURE 7: LOST EARNINGS DURING THE GREAT DEPRESSION, BY WAGE QUINTILE



Figure 7 shows the expected lost earnings from 1928 to 1932 by earnings quintile and the lost earnings in the counterfactual case of no unemployment insurance. Lost earnings were greatest for workers in industries in the third and fifth quintiles. In the counterfactual case of no unemployment insurance, workers in these quintiles would have lost almost half of a minimum consumption bundle over the course of the Great Depression. Across all of the wage quintiles, absent unemployment insurance lost earnings would have been over a tenth of a minimum consumption bundle more severe. In relative terms, this is a greater advantage for the lower wage quintiles.

What we can conclude from this is that much of the benefit of the interwar unemployment insurance went to those in industries in the lower quintiles of the earning distribution. Because unemployment insurance was a flat payment that did not take into account worker’s prior incomes, it represented a more important share of earnings for the lower quintiles. For workers in the lower quintiles of the industry wage distribution, the unemployment insurance program prevented decreases in expected earnings that

would have been large enough to put families into poverty.

Because unemployment insurance had distributional consequences that benefited workers in lower-paid industries, what were the consequences for inequality across industries? To capture this, we can compute metrics of income inequality across the expected earnings for all 100 *Gazette* industries. We calculate the Gini coefficient and the ratio of the 90th to 10th percentile of industries' expected earnings in every year 1928 to 1932 and for the whole period, weighted by the total number of workers in the industry reported in the *Census*. We then do the same calculation but in the counterfactual case of no unemployment insurance.

Table 1 gives the results of this analysis. In every year 1928 to 1932, the Gini coefficient and 90/10 ratio are higher in the counterfactual case with no unemployment insurance. This indicates that the unemployment insurance program served to reduce inequality in earnings across industries. The difference between the counterfactual and actual case is greatest in 1931, a period of exceptionally high unemployment. When we look over the whole period 1928–1932, inequality in expected earnings between industries would have been much higher without unemployment insurance – the Gini coefficient would have been 9.0% higher, and the 90/10 ratio 6.3% higher. The interwar unemployment insurance program therefore appears to have reduced inequality in expected earnings between industries.

TABLE 1: CHANGE IN INDUSTRY EARNINGS INEQUALITY
WITHOUT UNEMPLOYMENT INSURANCE

	With UI		Without UI		% Difference	
	Gini	p90/10	Gini	p90/10	Gini	p90/10
1928	0.11522	1.647	0.12125	1.746	5.2%	6.0%
1929	0.11695	1.662	0.12133	1.751	3.7%	5.4%
1930	0.11587	1.544	0.12585	1.642	8.6%	6.3%
1931	0.12073	1.868	0.13783	2.036	14.2%	9.0%
1932	0.12242	1.816	0.14003	1.871	14.4%	3.0%
1928-1932	0.11371	1.666	0.12400	1.771	9.0%	6.3%

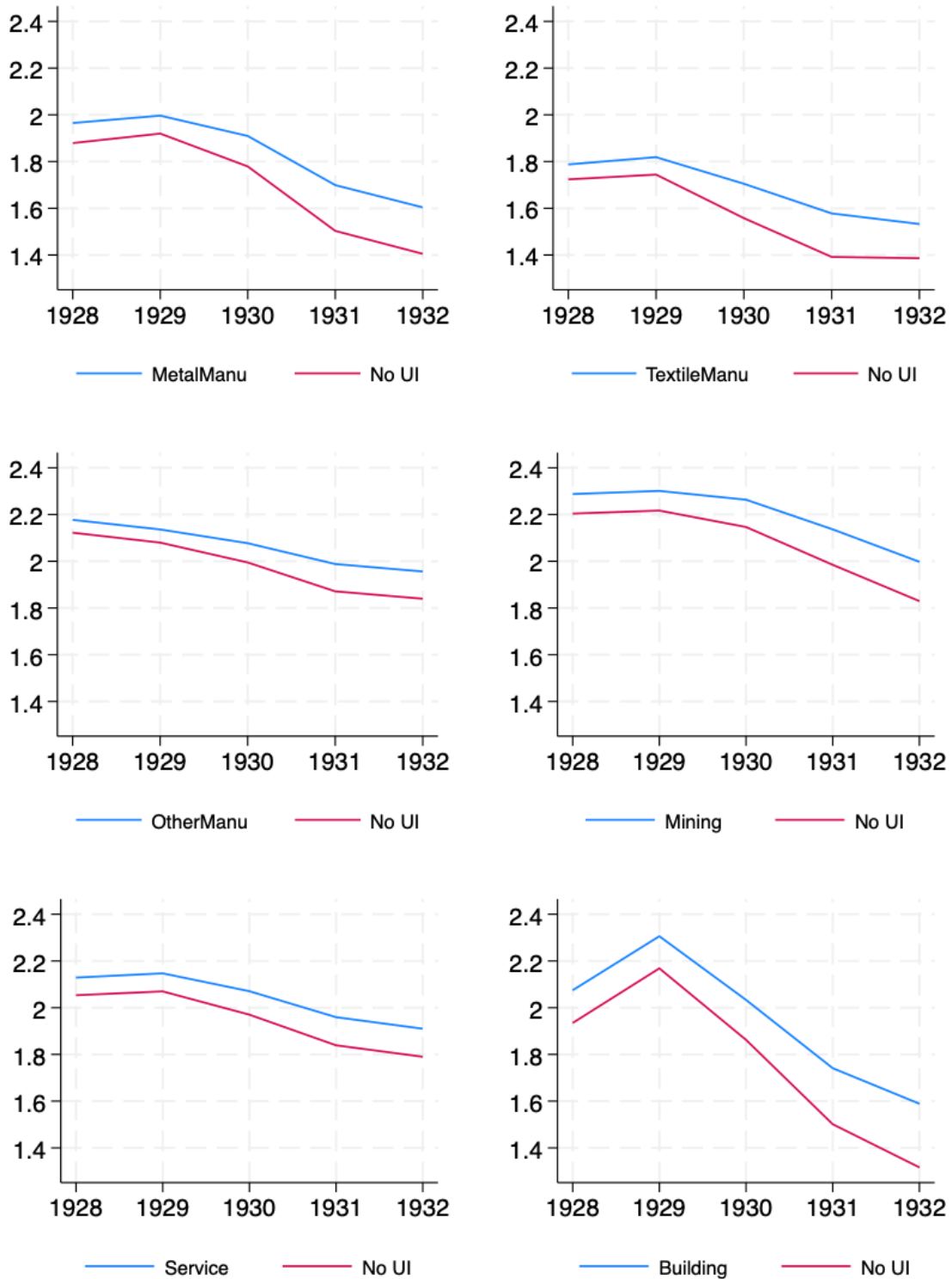
Gini coefficients and p90/10 are weighted by number in industry in the 1931 *Census*.

6.2 Industry categories

The interwar unemployment insurance program redistributed income to workers in lower-paid industries. Which industries benefited, and which lost out, from these distributional impacts? To explore this question, we can consider the average expected earnings over the Great Depression by category of industry. Figure 8 shows these patterns for the true case (in blue) and for the counterfactual cases with no

unemployment insurance (in red).

FIGURE 8: EXPECTED EARNINGS BY INDUSTRY CATEGORY, WITH AND WITHOUT UNEMPLOYMENT INSURANCE



Expected real earnings during the Great Depression were relatively flat for workers in service industries and in other manufacturing industries. In contrast, earnings declined dramatically for workers in building and moderately for workers in metal manufacturing. Without unemployment insurance, workers in all industries would have experienced a decrease in expected earnings over the course of the Great Depression. The industries that would have had the most significant additional loss of earnings during the Great Depression without unemployment insurance were metal manufacturing, textile manufacturing, and building.

FIGURE 9: LOST EARNINGS DURING THE GREAT DEPRESSION, BY INDUSTRY CATEGORY



These trends are clearly displayed in Figure 9, which shows the expected lost earnings from 1928 to 1932 by industry category, as well as the lost earnings in the counterfactual case of no unemployment insurance. The lost earnings during the Great Depression are especially dramatic for building, where workers lost over half of a minimum consumption bundle of income, yet would have lost over 60% of a bundle without unemployment insurance. Of all of the sectors, the metal manufacturing industries, the textile industries, and the building/shipbuilding industries benefitted the most from the interwar unemployment insurance program, while services benefitted the least.

As Figure 1 shows, these were exactly the sectors that experienced the greatest increases in their unemployment rates during the Great Depression. We can conclude that unemployment insurance benefited workers the most in the industry categories that experienced the highest unemployment during this period. For workers in industries that had lower unemployment rates, unemployment insurance was less advantageous, and their contributions were redistributed to those in more cyclically-sensitive industries.

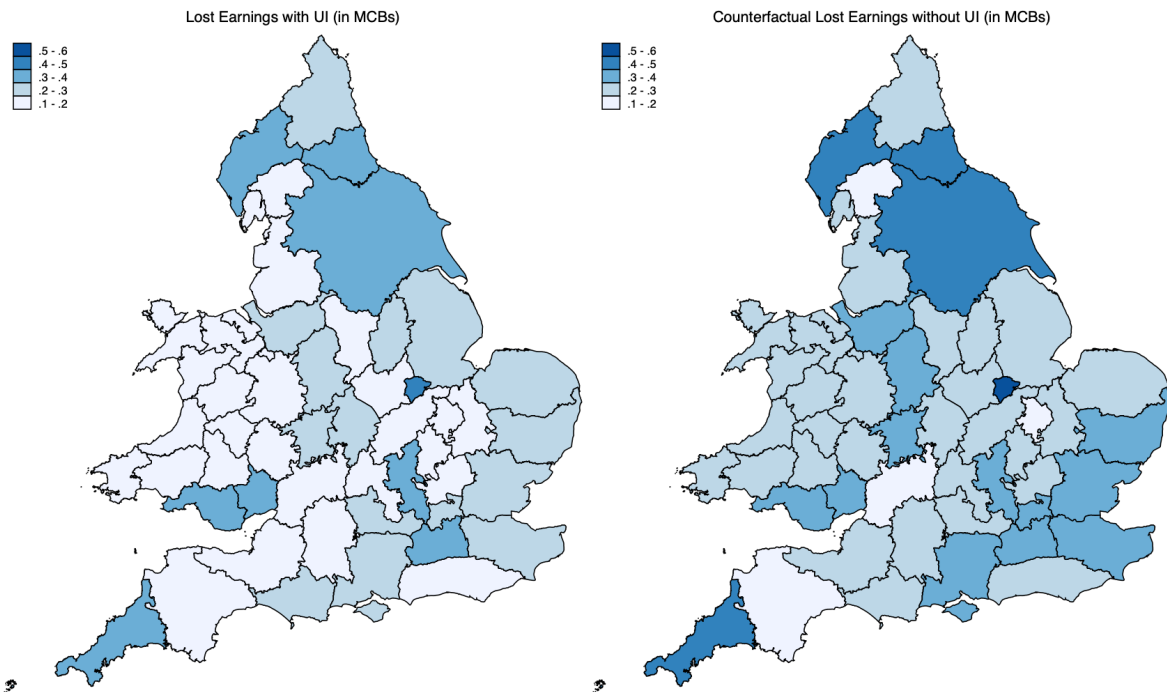
6.3 Geographic

Unemployment patterns varied significantly by geographic area, with an increasing gap in unemployment rates between the North of England and Wales, and the South of England. How did unemployment insurance impact geographic earnings distributions and inequality over the course of the crisis?

6.3.1 County-level

Figure 10 gives the estimated lost earnings from 1928 to 1932 by county in the true scenario with unemployment insurance and in the counterfactual scenario without unemployment insurance. Counties in the north of England, such as Durham and Yorkshire, and in the south of Wales received significant support from the unemployment insurance in preventing further divergence from the relatively prosperous south of England. It is clear that unemployment insurance not only protected earnings in all counties, but it also reduced the differences in lost earnings between counties. In particular, without unemployment insurance, North-South differences in lost earnings over the recession would have been more prevalent.

FIGURE 10: LOST EARNINGS BY COUNTY, WITH AND WITHOUT UNEMPLOYMENT INSURANCE



We can explore this statistically by evaluating how unemployment insurance impacted county-level inequality in expected earnings. In the absence of unemployment insurance, would there have been greater or lesser inequality across geographic areas in average expected earnings?

TABLE 2: CHANGE IN COUNTY-LEVEL EARNINGS INEQUALITY
WITHOUT UNEMPLOYMENT INSURANCE

	With UI		Without UI		% Difference	
	Gini	p90/10	Gini	p90/10	Gini	p90/10
1928	0.03381	1.199	0.04306	1.237	27.4%	3.2%
1929	0.04062	1.228	0.04904	1.262	20.7%	2.8%
1930	0.04052	1.228	0.05361	1.283	32.3%	4.5%
1931	0.04595	1.255	0.06448	1.362	40.3%	8.5%
1932	0.04314	1.251	0.05931	1.339	37.5%	7.0%
1928-1932	0.03981	1.205	0.05262	1.297	32.2%	7.6%

Gini coefficients and p90/10 are weighted by county population.

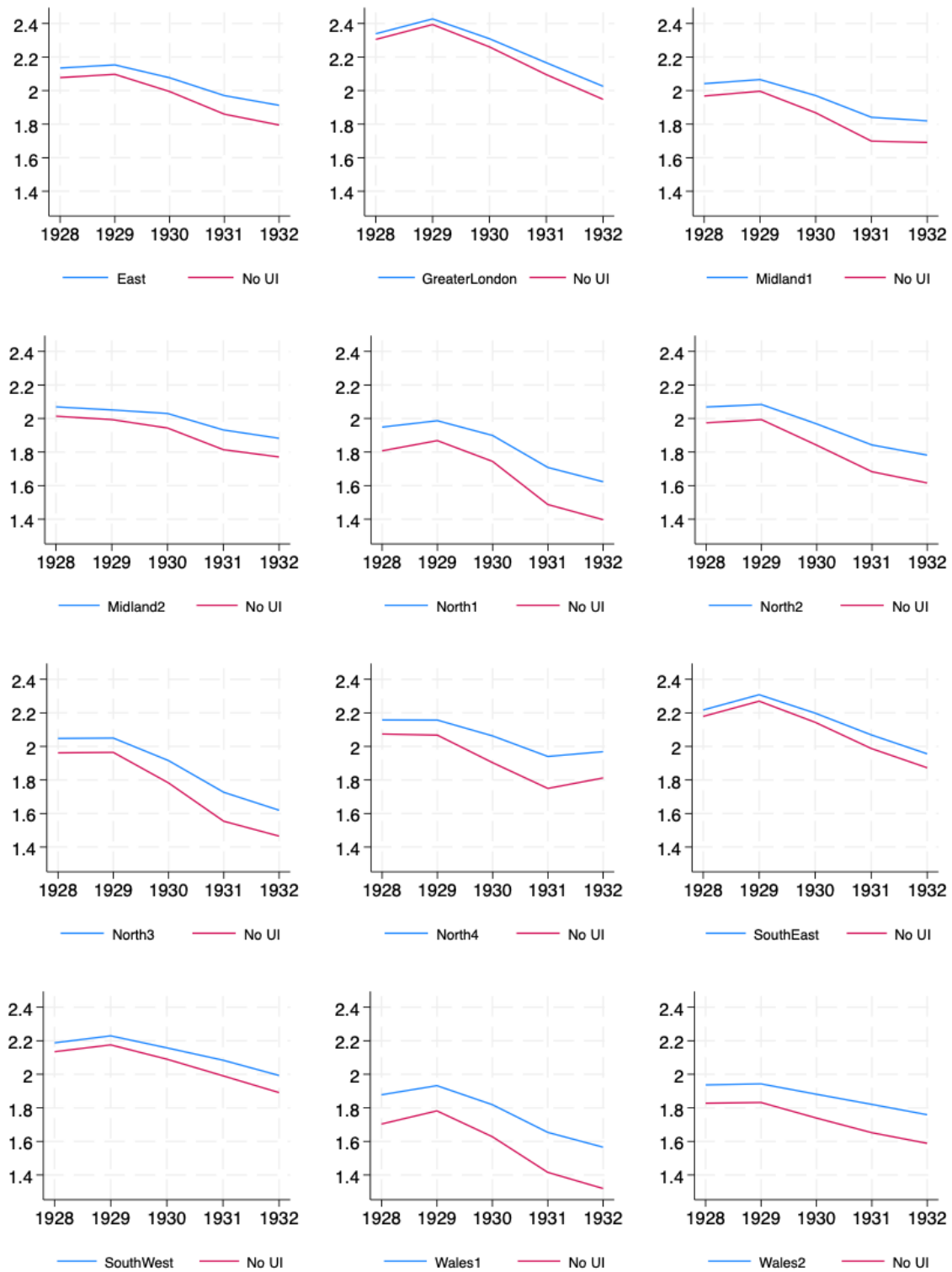
Table 2 gives the Gini coefficient and ratio of 90th to 10th percentile of the distribution of average expected earnings by county for each year 1928 to 1932 and for the whole period, weighted by county population. In the counterfactual case without unemployment insurance, the Gini coefficient and the 90/10 ratio would have been higher, indicating greater inequality in average expected earnings across counties. This difference would have been most pronounced during 1931, where the counterfactual case with no unemployment insurance would have led to a Gini coefficient 40.3% higher and a 90/10 ratio 8.5% higher. Over the whole period, without unemployment insurance the Gini coefficient would have been 32.2% higher, and the 90/10 ratio 7.6% higher. The impact of the unemployment insurance program was therefore to reduce the inequality in expected earnings for workers in different counties, reducing geographic inequality.

6.3.2 Regions

We can see these patterns even more clearly at the regional level. Figure 11 plots the expected earnings of workers in the twelve *Census of England and Wales* regions over the Great Depression. As above, the blue line plots the expected earnings in the case with unemployment insurance, and the red line plots the counterfactual case with no unemployment insurance.

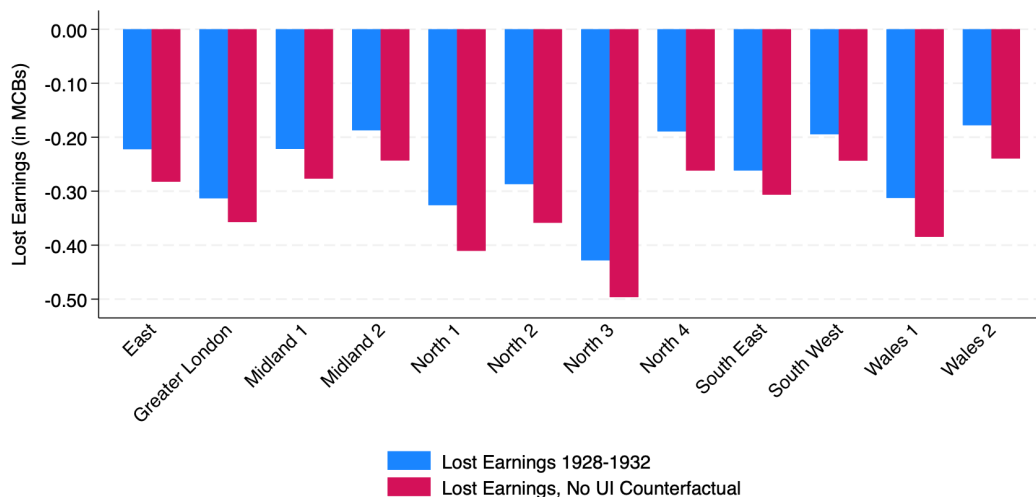
Expected earnings for workers unconditional on employment status decreased over the downturn as unemployment rates increased. Expected earnings decreased most significantly in North 1 (Durham area) and North 3 (Yorkshire area), as well as in Wales 1 (south of Wales). In contrast, they remained relatively flat in the East, the Midlands, and the South West. When considering the impact of unemployment insurance, without insurance expected earnings would have been much lower in North 1 (Durham area), North 4 (Lancashire area), and in Wales 1 (south of Wales). Greater London had a small decrease in ex-

FIGURE 11: EXPECTED EARNINGS BY REGION, WITH AND WITHOUT UNEMPLOYMENT INSURANCE



pected earnings over the period of the Great Depression, but the counterfactual with no unemployment insurance would not have changed these earnings substantially.

FIGURE 12: LOST EARNINGS DURING THE GREAT DEPRESSION, BY REGION



These patterns can be seen clearly in Figure 12, which plots the change in expected earnings from 1928 to 1932 for all of the regions and the lost earnings in the counterfactual case without unemployment insurance. North 3 (Yorkshire area) is most impacted by the Great Depression in terms of expected earnings, with an average earnings loss of over 0.4 minimum consumption bundles. Without unemployment insurance, however, these earnings losses would have topped 0.5 minimum consumption bundles. In contrast, Greater London, the South East, and the South West saw fewer benefits from unemployment insurance. North 1 (Durham area) and Wales 1 (South of Wales) appear to have benefited the most from unemployment insurance.

Unemployment insurance reduced the expected lost earnings from the Great Depression in all regions, but by varying amounts. These differences arise from the differing unemployment rates of the counties in those regions as well as from the differing average wage in each county and region. These results imply that unemployment insurance had some distributional impacts on earnings losses during the Great Depression. In the absence of unemployment insurance, North 1 (Durham area) and Wales 1 (South of Wales) would have been much worse off, while London and the South would have been relatively better off. The unemployment insurance program thus prevented even worse disparities in economic outcomes between geographic regions in England and Wales.

7 Additional Evidence on Poverty Mitigation

We have shown that the interwar unemployment insurance program redistributed to workers in lower-paid industries and in economically-disadvantaged geographic locations and sectors. This reduced industry- and county-level inequality in expected earnings. Yet we have interpreted all wages in terms of a single male's minimum consumption bundle, abstracting from issues of family composition.

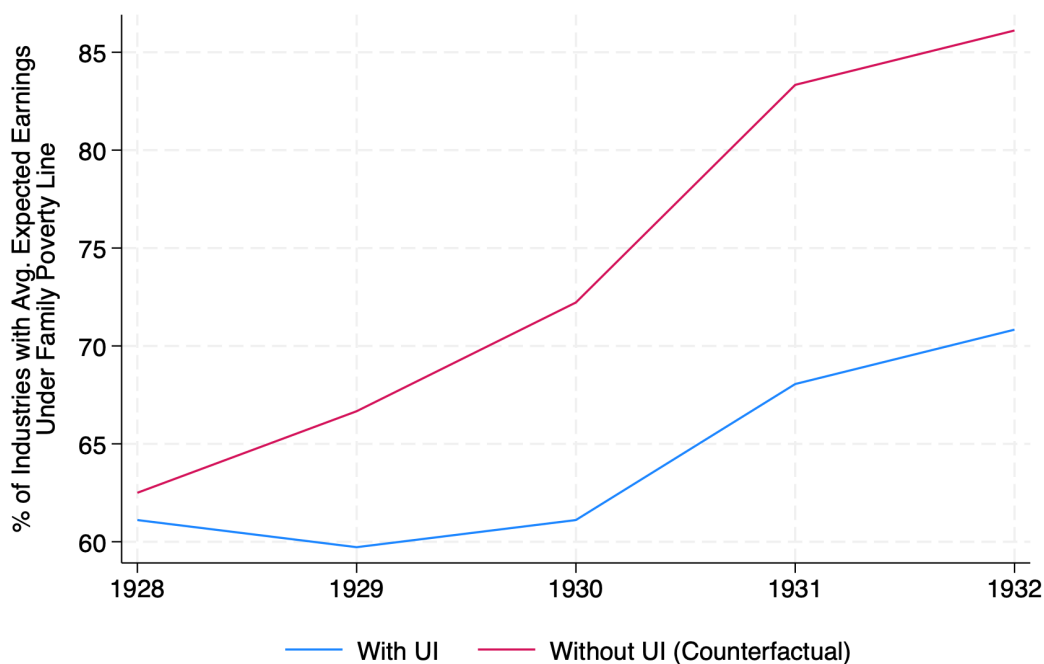
As an additional exercise, we can experiment with imposing the assumption that male wages were used to support a family. Specifically, we can assume that the male was the only worker in a family composed of a male, an adult dependent, and two children. While this was certainly not representative of all families, Gazeley and Newell (2012) note that the 1918 Sumner Committee reported the average household as having 5.6 persons (including 2.4 children) and that fertility declined overall throughout this period. An assumption of two children therefore seems appropriate. The assumption that the male was the only worker in a family is perhaps less tenable. We know from the wage reports that children as young as 14 worked, as did adult women. However, because we cannot see family income, we are forced to assume a male-breadwinner family structure. According to Lee (1979), female workers accounted for 30.6% of the employed population in 1931. However, a substantial portion of that group were single women, suggesting that male-only income was a prevalent structure for households with more than two members.¹⁵

Linsley and Linsley (1993) find that this family composition of a couple and two children requires 2.22 single male minimum consumption bundles for subsistence. What share of counties and industries had average earnings below this level? We can compute this for the true scenario with unemployment insurance and the counterfactual scenario without unemployment insurance to get a better sense of how the unemployment insurance policy impacted poverty at the family level. For these calculations, we adjust the unemployment benefit levels to those for a male worker with a single adult dependent and two child dependents, which increases expected earnings in the case with unemployment insurance relative to Section 6.

Figure 13 shows the share of industries with average expected earnings below the family poverty line of 2.22 single male consumption bundles. As expected, the share increases throughout the Great Depression. Yet what is most striking is the difference between the scenario with unemployment insur-

¹⁵Paker (2024) reports from the 1931 *Census of England and Wales* that of women in the labor force (employed or unemployed), 77% of them were single and only 16% were married.

FIGURE 13: SHARE OF INDUSTRIES WITH AVERAGE EXPECTED EARNINGS UNDER THE FAMILY POVERTY LINE



ance and the counterfactual scenario without unemployment insurance. For example, in 1931, 68% of industries had average earnings below the family poverty line, but in the counterfactual scenario without unemployment insurance, this would have been over 83%. Phrased another way, without unemployment insurance, over 22% more industries would have had average wages under the poverty line.

Figure A2 in Appendix C shows the share of counties with average expected earnings under the family poverty line. By the end of the Great Depression, all counties had average wages under 2.22 single male consumption bundles. In 1929, 57% of counties had average earnings below the family poverty line, while in the counterfactual scenario in the absence of unemployment insurance, 82% would have been below the family poverty line (an increase of 44%).

While these calculations are necessarily approximations, they show that, on a family level, the unemployment insurance program does appear to have meaningfully reduced the share of industries and counties with average earnings under the family poverty line.

8 Conclusion

Motivated by the role of social welfare programs in times of economic crises, this paper has explored the impacts of the British unemployment insurance program during the Great Depression. Despite its initial design as a tripartite insurance program based on prior contributions, unemployment insurance in interwar Britain evolved into a more generalized, large-scale welfare support system that transferred billions of pounds in flat-rate payments to unemployed workers. By collecting new data on wages at the county and industry level and linking this data with rich unemployment data, we are able to evaluate the effect of this large transfer program on poverty and inequality in interwar Britain.

We show that this program was crucial to mitigating the most severe poverty costs of the Great Depression. This suggests that broad-based, flat-rate welfare programs can effectively reduce income inequality and provide crucial support to lower-wage workers during crises, even in the absence of sophisticated administrative capacities to support more targeted interventions.

Specifically, the flat-rate benefits provided by this simple program effectively redistributed income toward lower-wage workers. Geographic and sectoral income inequality was reduced by 32.2% and 9.0% respectively relative to a counterfactual case with no unemployment insurance. The program shifted lost earnings away from the North of England and Wales, stemming somewhat the earnings losses that may have accrued in these areas given their disadvantaged employment situations. By sector, the unemployment insurance program prevented a further concentration of earnings losses for workers in struggling industries. We present additional suggestive evidence that in the absence of the unemployment insurance program, the number of industries with average earnings under the family poverty line would have increased by 22%, and the number of counties by 44%.

These results illustrate the role that simple flat-rate cash transfers can play in during major economic crises by simultaneously reducing earnings losses and addressing potential inequality through redistributing to lower-income workers. When crises have the potential to disproportionately impact workers in certain sectors or geographic areas, these redistributive implications are increasingly important.

The British program, with its lower replacement rates and broader access, provides an important historical comparison as evaluation continues of the United States' recent Federal Pandemic Unemployment Compensation (FPUC) supplement. The case also has relevance for middle and lower-income countries that may lack the administrative capacity for sophisticated means-targeted programs.

This work also develops our understanding of poverty in interwar Britain, shedding light on why these decades saw large reductions in destitution among the broader British population despite multiple, large-scale shocks. It brings a new angle to studies of the British unemployment insurance program that have focused almost exclusively on its impacts on employment. While unemployment insurance can generate moral hazard, our work is a reminder that these programs can also provide critical support for those at risk of poverty during large and unprecedented crises.

This suggests that highly-generalized, cheap social welfare programs can be effective tools for providing broad-based support during crises. Interwar unemployment insurance not only provided immediate relief to the millions of workers out of a job during the Great Depression but also reduced geographic and sector-based inequality – slowing the growth somewhat of regional and sectoral income disparities that are still a concern today.

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Appendices

Appendices

A Details of Unemployment Insurance in Interwar Britain

A.1 First unemployment insurance program, 1911

The first unemployment insurance program in Britain in 1911 covered only seasonally-volatile industries: building, construction of works, shipbuilding, mechanical engineering, construction of vehicles, iron-founding and sawmilling, about 2.25 million workers (Garside 1990, p. 33). Women were excluded from coverage, but juveniles could be covered. The program was designed with a tripartite, flat-rate model: regardless of a worker's wage, the worker contributed 2.5d per week, the employer 2.5d, and the state 1 2/3 d. per week to a national 'Unemployment Fund' from which benefits would be paid out (Garside 1990, p. 33). After 26 weeks of contributions while employed, if a worker became unemployed, after a waiting period of six days they could claim a flat 7s per week. The maximum number of weeks of benefits a worker could claim was the lower of one week for every five weeks of contributions or 15 weeks per year (Garside 1990, p. 33). For a worker who made the minimum 26 weeks of contributions and then became unemployed, this means that they could receive 7s per week for five weeks. The intention of the program was to insure against temporary cyclical or seasonal unemployment, and with the relatively low unemployment rates, the program was prosperous and fiscally sound: the Unemployment Fund increased from 3 million GBP at the start of World War I to 15 million pounds at the end of World War I.

In July 1916, the program was extended to cover all in 'munitions work' as well as additional industries— machined woodwork, repair of metal goods, chemicals, rubber, leather, bricks, wooden cases, and artificial stone – making up an additional 1.5 million workers (Garside 1980, p. 30). Women who were in munitions work were included in the scheme, but not women in any of the additional industries (Garside 1990, p. 34). This expansion was to pre-emptively address the problem of unemployment at the end of the war.

A.2 Out-of-Work Donations program, 1919

A separate program, the Out-of-Work Donations scheme, operated alongside National Insurance from 1919 to 1920 for ex-servicemen and civilian workers, including women juveniles. This was a non-contributory benefit program which provided 'free' unemployment benefits for a limited duration. The weekly benefit rate did not vary by industry or prior wage, but did vary based on the claimant's gender, whether they were a juvenile or adult, and whether they had any dependents. The original benefit levels were 24s per week for men and 20s for women with a maximum of 26 weeks for ex-servicemen and 13 weeks for civilians (Garside 1990, p. 35). For those with dependents, they received 5s extra per week. These payments were more generous than the existing National Insurance scheme (still at 7s per week) and were available to workers in insured industries, so most switched over. Fearing social unrest otherwise, benefits were extended to those who had already drawn the maximum weeks.

A.3 1920 Unemployment Insurance Act

The Out-of-Work Donations scheme was sunsetted for civilians in November 1919 and for ex-servicemen in March 1921, replaced by the 1920 Unemployment Insurance Act. The national unemployment insurance program was expanded dramatically to cover almost all workers in manual jobs and all non-manual workers earning less than 250 GBP per year – 11.75 million workers. The expanded unemployment insurance program deliberately included industries like agriculture and domestic service owing to their low risk of unemployment (Paker 2024). For the labor force (including employed and unemployed), Paker (2024) estimates that the national insurance scheme captured 79% of men and 65% of women listed as "gainfully occupied" in the 1931 Census of England and Wales. Among the unemployed, Feinstein (1972) estimates that 83.2% of the unemployed were counted by the national insurance scheme.

The benefits levels were much more generous than the original program, and, modeled after the Out-Of-Work Donations scheme, distinguished by gender and juvenile or adult, but without an extra benefit for those with dependents. The new benefits were 15s for men, 12s for women, 7.5s for girls, and 6s for boys (Garside 1990, p. 38). The waiting period for claiming benefits was reduced from six days to three days and the maximum weeks of benefit in a year was slightly reduced to the lesser of one week for every six weeks of contributions or 15 weeks in a year. These levels were set based on actuarial calculations assuming that unemployment rates would not exceed 6.6% (Garside 1990, p. 38).

The steep recession in 1920 caused these balanced calculations to be immediately adjusted. The Out-of-Work Donations scheme was extended for ex-servicemen, and anyone who had worked any four weeks since July 1920 (while not making contributions) was granted eight weeks of benefits in the first quarter of 1921 (Garside 1990, p. 38). Political pressure to increase benefits, extend the maximum length of benefits, and reduce require contributions in March 1921 led to benefits raised to 20s for men, 16s for women, for a maximum of 26 weeks in a year. 'Uncovenanted benefits' for workers who had not made prior contributions but were 'genuinely seeking work' were paid for 16 weeks March-November 1921 and from November 1921-July 1922 (Garside 1990, p. 39). This led to a fiscal crisis, so adult benefits were returned in July 1921 to their previous levels of 15s for men and 12s for women, the waiting period was extended back 6 days, and contribution levels were increased. However, some workers were able to claim covenanted benefited without making the minimum 20 contributions during the previous year and uncovenanted benefits were extended and allowed to be claimed for a total of 22 weeks rather than 16 (Garside 1990, p. 40). A means test was also briefly introduced in February 1922 to disallow those living with relative, married persons whose partners were working, short-time workers, and immigrants from claiming benefits (Garside 1990, p. 45).

In 1922, a dependent's allowance was established to improve the standard of living of families on unemployment insurance. Uncovenanted benefits were extended for a third and fourth separate period through October 1923. After this, the maximum entitlement to non-contributory unemployment benefits was set to 26 weeks with a gap of three weeks after the twelfth week (Garside 1990, p. 42).

A.4 1924 Unemployment Insurance Act

The 1924 Act restored the maximum weeks of benefits in a year to the lesser of one for each six weeks of contributions or 26 weeks a year, reduced the waiting period from six days to three days, and increased benefits. Uncovenanted benefits were renamed 'extended benefits' and were awarded to those who had exhausted the standard benefit for as long as they remained unemployed, if they had made 30 contributions in the previous two year, with no required gaps in coverage (Garside 1990, p. 44). The means test was revoked. Applicants for standard benefits were required to be genuinely seeking work, and those for extended benefits had to show they were normally in employment and that they were making 'all reasonable efforts' to find and accept employment. Unlike previously, these seeking work clauses had more teeth and required claimants to document their efforts to seek work. By the end of 1924, 5% of all

claimants of extended benefit failed the means test (Garside 1990, p. 45).

A.5 1927 Unemployment Insurance Act

A committee was appointed in November 1925 under Lord Blanesburgh to examine the issue of unemployment insurance. Their report, release January 1927, recommended a reduction of benefits for men and juveniles and no extended benefits. However, they recommended the elimination of the strict rule of one week of benefits for each six weeks of contributions. They also temporarily reduced the requirements for past contributions from 30 in the past two years to either 8 in the past two years or 30 ever. If these more generous requirements were met and participants were 'genuinely seeking work', workers could claim a year of unemployment benefits labeled 'transitional benefits' (Garside 1990, pp. 46-47). These changes were implemented in April 1928.

These adjustments led over 100,00 workers to be granted transitional benefits, putting the program in a precarious financial position (Garside 1990, p. 48). The only lever left in which economies could be made was the 'genuinely seeking work' clause. According to Garside, in 1927 10% of claims were rejects for an 'unsatisfactory attitude toward work' and in 1929, two-thirds of all disallowed claims were for failing to seek work (Garside 1990, p. 48).

A.6 1930 Unemployment Insurance Act

In 1929, the Exchequer contributions were increased to try to make the unemployment insurance program solvent, but the seeking work test was weakened (though probably made more fair) by the requirement that some cases were reviewed by local boards of assessors before claims were disallowed. It was increasingly recognized that to ask claimants to seek work in local areas in which no work was available was fatuous (Garside 1990, p. 49). The 1930 Unemployment Act abolished the seeking work test and instead ruled that claims could be disallowed if offers of work were refused. Claimants therefore did not need to show they were seeking work, but rather employment exchanges would need to prove that offers of work had been rejected. Additionally, the generous policy from the 1927 Unemployment Insurance Act reducing requirements for prior claims was extended through April 1931.

A change in accounting also led to 'transitional benefits' being paid directly by the Exchequer, rather than by the overdrawn Unemployment Fund.

A.7 1931

In October 1930, the Royal Commission on Unemployment Insurance was tasked with fixing the unemployment insurance system, which was overbudget and largely non-contributory at this point. There was increasing political pressure to separate contributory insurance from direct state relief for the unemployed and to address potential abuses of the system (Garside 1990, p. 52). The June 1931 report of the Royal Commission recommended a reduction of benefits, a yearly duration limit of 26 weeks, and an increase in all tripartite contributions. 'Transitional benefits' were further reduced, setting their level lower than standard benefits, and were recommended to become means tested for single adults, married women, and those on fixed incomes. Married women and seasonal workers also had to show they had not left employment and that they 'reasonably expected' to work in their locality in the future (Garside 1990, pp. 54-55). These proposals outraged labor leaders, and were not generally accepted in Parliament.

Instead, the government passed the 1931 Anomalies Bill in June 1931, whose main effect was to exclude married women from unemployment benefits. Married women had to show they had worked prior to marriage, were actively seeking work, and were likely to find it in their locality in the future, leading to 82% of claims by married women disallowed (Garside 1990, p. 56). This also impacted seasonal workers who had not worked in the offseason, leading to 75% of their claims disallowed (Garside 1990, p. 56).

After the failure of Credit Anstalt in May 1931, Britain's fiscal position became more dire, ultimately leading to devaluation in September 1931. The final report of the May Committee in July 1931 proposed a large reduction in government spending, almost 70% of which was to come from the unemployment insurance system (Garside 1990, p. 59). These reductions were to come through increased contributions, reduced benefit levels, duration limits, and the end of 'transitional benefits.' In response, another committee, the Economy Committee, recommended a different slate of policies with no reduction of benefit. A third committee, chaired by the Ministry of Labour, attempted to circumvent the need to end 'transitional benefits' (Garside 1990, pp. 60-62). The issue of reducing benefits levels contributed to the fall of the Labour Government at the end of August. The new National Government was able to put almost half of the cuts in government expenditure onto the unemployment insurance system, primarily through a 10% reduction in benefits, means tested 'transitional benefit,' and increased contributions. Importantly, a 26 week limit per year on the length of time one could claim unemployment benefits was introduced, and 30 contributions had to have been paid in the previous two years. This led to 800,000 exclusions from the system (Garside 1990, p. 64).

With the standard benefits now at a reduced level, 'transitional benefits' were paid at the same amount yet were subject to a means test from November 1931. They were assessed as a claim for public assistance, similar to the Poor Law, and carried some of the same stigma (Garside 1990, p. 67). Applicants could be awarded less than the full rate, and only about half were given the full rate between November 1931 and January 1935 (Garside 1990, p. 67). The 'means' needed to be awarded benefit was up to the local authorities, even though the national government was paying the costs, leading to significant discrepancies in the need one needed to demonstrate in order to claim benefits. This was tightened up somewhat with the Transitional Payments (Determination of Need) Act of November 1932 (Garside 1990, p. 70).

A.8 Unemployment Assistance Board, 1933-1937

The long-awaited final report of the Royal Commission on Unemployment Insurance recommended the formalization of this system through local Unemployment Assistance Committees that used household income to vary unemployment relief payments for those on 'transitional benefits' who had exhausted their rights to standard benefits. While this was not pursued with administration the local level, Part II of the 1934 Unemployment Act created the Unemployment Assistance Board at the national level to regulate relief for the unemployment not covered by insurance, paid from taxes (Garside 1990, pp. 72-73). This had the effect of formalizing a divide between those covered by unemployment insurance, based on contributions into the program, and those covered by unemployment relief, which was means-tested. The Unemployment Assistance Board began operation in January 1935, covering all workers on 'transitional payments' and later all unemployed workers on Poor Relief with a uniform rate scale based on household income and composition.

This division of workers into standard benefit recipients and those covered by the Unemployment Assistance Board led to two classes of workers — those on insurance, which was a matter of rights, and those on assistance, a matter of needs. This clearly separated the short-term unemployed, with viable claims to benefits, from the long-term unemployed, some of whom had exhausted their right to benefits many years ago. With this new division, unemployment benefits to those covered by insurance were made more generous: rates were increased, additional days of benefits were granted, allowances for dependents were increased, and waiting periods were reduced (Garside 1990, pp. 81-82) through 1938. The cyclical recovery helps make the insurance arm of the program solvent. For those covered by assistance, political action eventually led to assistance payments at least as large as transitional benefits had been

(Garside 1990, p. 80). The Unemployment Assistance Board was finally nationalized and standardized in the level of benefits paid out in 1937.

A.9 Measurement of unemployment

The operation of the unemployment insurance program generated the unemployment rates typically used in research on interwar Britain. Workers covered by the program were issued an unemployment book in July, and when they became unemployed they lodged their unemployment book at a local employment exchange. A count of the 'Books Lodged' on a given day in the month provides an estimate of the number of unemployed workers (complicated by the Two Months file). The counting of lodged books explicitly excluded any workers who were working in an uninsured trade, who were sick or dead, who had retired, who had moved, or who had been disqualified from claiming benefits, helping to avoid possible over-estimates of the unemployed in insured industries (Garside 1980, p. 35). The count could be underestimated if workers became discouraged and failed to lodge their book at the exchange. There was an obvious strong financial incentive to lodge one's book at the exchange for workers who could receive unemployment benefits. Additionally, registering at an employment exchange when unemployed was a condition of receiving poor-law relief in many areas, and from 1928 also ensured that unemployed workers were not required to make contributions into the Health Insurance program (Garside 1980, p. 35).

B More details on creation of the industry-county wage panel

Each month of the interwar period, the Ministry of Labour published a table in the *Labour Gazette* titled "Principal Changes in Rates of Wages Reported." This table gives detailed information on changes in wages by industry and locality (a local area, county, region, or even the whole nation) that occurred in each month. The wage changes are described in text strings in a column "Particulars of Change" which typically gives both the old and the new wage in the industry and location. These details are provided in long tables encompassing in many cases five oversize pages in the *Labour Gazette*. We digitized these tables for 60 months covering the early period of the Great Depression in Britain, January 1928 to December 1932.

Within these approximately 300 pages of the *Gazette* that we digitized, over 3,000 wage changes at the industry and locality level were reported. Our next step was to parse the text string detailing wage changes in Python to extract the information on the wage change. For example, in March 1928 it was

reported that the Packing Case Making industry had a wage change in Manchester, Salford, and Bolton. The particulars given were: “Decrease of $\frac{1}{2}$ d. per hour (1s. 8d. to 1s. 7 $\frac{1}{2}$ d.).” From this string, we extracted that the hourly wage decreased by 0.5d. in March 1928, that before this date the wage was 8d., and that after this date the wage was 7.5d.

However, not all of the text strings were this clean and easy to automate. For over 1,900 of the wage changes, we extracted the wage data by hand to account for differences across age groups and gender. For example, in July 1929 it was reported for the Electric Cable Manufacturing industry in Middlesex, Kent, Surrey, Sussex, Essex, Hertfordshire, Buckinghamshire and Berkshire that the wage change was the following: “Decrease of 1s. 11.5d. per week for men 21 years of age and over, of 1s. 5.5d. per week for youths 18 to 20 years, of 6d. per week for youths 14, 16, and 17 years, of 5.75d. per week for youths 15 years, of 1s. per week for women 18 years and over, and of 6d. per week for girls: pieceworkers’ wages to be correspondingly reduced. Rates after change: men 21 and over, 50s. 11d. to 56s. 9.5d.; youths 18 to 20, 35s. 3d. to 43s. 1d.; boys 14 to 17, 13s. 8.5d. to 23s. 6d.; women 18 and over, 26s. 6d. to 30s. 6d.; girls 14 to 17, 13s. to 17s. 6d. (excluding service bonuses in the case of female workers).” We expanded this into four wage changes representing the change for men, women, boys, and girls. In all cases, we populated the data for boys and girls for the youngest age offered and took the full adult wage as the wage for men and women.¹⁶ In this example, we therefore logged a 23.5d. per week decrease for men, a 12d. decrease for women, and a 6d. decrease for boys and girls. When ranges were given, we took the average, yielding in this example weekly wages that as of July 1929 were 646.25d. for men, 342d. for women, 223.25d. for boys, and 183d. for girls.¹⁷ In this wage change data, information on piece rates was reported inconsistently so was dropped. Additionally, any information on flat rate bonuses was included in the wage, but bonuses as a percent of output were necessarily excluded.

The resulting dataset from the Ministry of Labour *Gazette* has 3,233 observations of wage changes, prior wages, and new wages linked to industries, localities, gender, and whether they are for adults or children. We use only the data on the new wage after the change as this is the most consistently reported. We also restrict our observations to changes that were explicitly described as for adult men, or observations in which the gender and age range of the change is not given (making the assumption that it was for men). We also assume a fixed ratio of daily and hourly to weekly wages – that six daily wages

¹⁶We did not take intermediate ages under 18 because these were given in different age brackets for different records of wage changes.

¹⁷Similarly, if new wages were reported for multiple occupations or at different rates across towns within a locality, we took the average.

make up the weekly wage, and that 48 hourly wages make up the weekly wage. We drop observations where wages were not reported in hourly, weekly, or daily monetary amounts. Over the four years of our sample, this leaves us with 1,539 clean wage changes reported for workers in specific industries and geographic areas.

The data reported in these digitized tables were not given in standardized geographic areas or by standardized industry classifications. To remedy this, our next step was to map the locality information reported in the table to counties in England, Wales, and Scotland. To do this, we took the 759 localities reported in the data and mapped them by hand to counties, taking into account the share of the county the locality represented by population using data from the 1931 *Census of England and Wales*. For example, the locality “West Ham” we determined encompassed 24% of the county Essex by population. In some cases, the locality mapped to multiple counties. For example, the locality “Northamptonshire and Banbury District” we mapped to 100% of Northamptonshire and 12% of Oxfordshire. When a region such as North-East was given, or a country such as England was given, we mapped to 100% of all relevant counties in that area.¹⁸ For each reported wage change, this allows us to see which counties were affected by the wage change and what share of workers in those counties were in the geographic area of impact.

Next we standardized the industries by mapping them to the 100 standard industries that the Ministry of Labour used to classify workers in the interwar period.¹⁹ Of the 411 different industry descriptions given in the wage change data, only nine were unable to be matched to a standardized industry. Of the 100 industries in the standard classification, wage changes were reported at any time from 1928–1932 according to our mapping in all but 13 of them.

The standardization of industries and of localities into counties means that in some cases, for the same industry and county, two wage changes are reported in the same month. In these cases, we take the weighted mean of the two changes, where the weights are based on the share of population in the county in the impacted geographic area, as described above.²⁰

We therefore have data on male wages by industry and county for the first month in which those wages were in place. Because we have comprehensive data on wage changes from 1928–1932, we can tell if the wage was changed again at a later date. If not, we assume that the going wage in that month

¹⁸The complete mapping is provided in the replication files.

¹⁹The complete mapping is in the replication files.

²⁰Specifically, we find the total share of the county impacted by summing share of the population impacted, and then use each share divided by this total as the weight in the mean. If both wage changes impacted the whole county, then each change is treated equally, while if one impacted more of the county than the other, that one is weighted proportionally more.

is the same as it was changed to earlier in the data. Using this assumption, we can iteratively populate a monthly panel of counties with wage estimates for each of the 100 industries. We therefore only see wages for workers in an industry in a county if their wages were ever changed in the 1928–1932 period.

One complication in creating this panel is that some changes impacted only a fraction of the population in a county based on their described locality (e.g. like “West Ham” discussed above). We use this share as a weight when implementing the wage change. For example, if the wage in an industry in a county was 600d. per week and then a wage change to 650d. per week impacted a geographic area representing only 25% of that county, we would say the new wage in that industry in that county is 612.5d. per week.²¹ If no wages had yet been reported in that industry in that county, then we take that wage as representative of the entire county, regardless of the share impacted.

This process generates an estimate of male wages for 100 industries for each county in England, Scotland, and Wales in every month from 1928–1932, starting from whenever the first wage data was reported in that industry and county.

C Additional Figures

²¹ $650 * 0.25 + 600 * 0.75 = 612.50$

FIGURE A1: DISTRIBUTION OF AVERAGE INDUSTRY REPLACEMENT RATES BY SECTOR FROM 1928 TO 1932

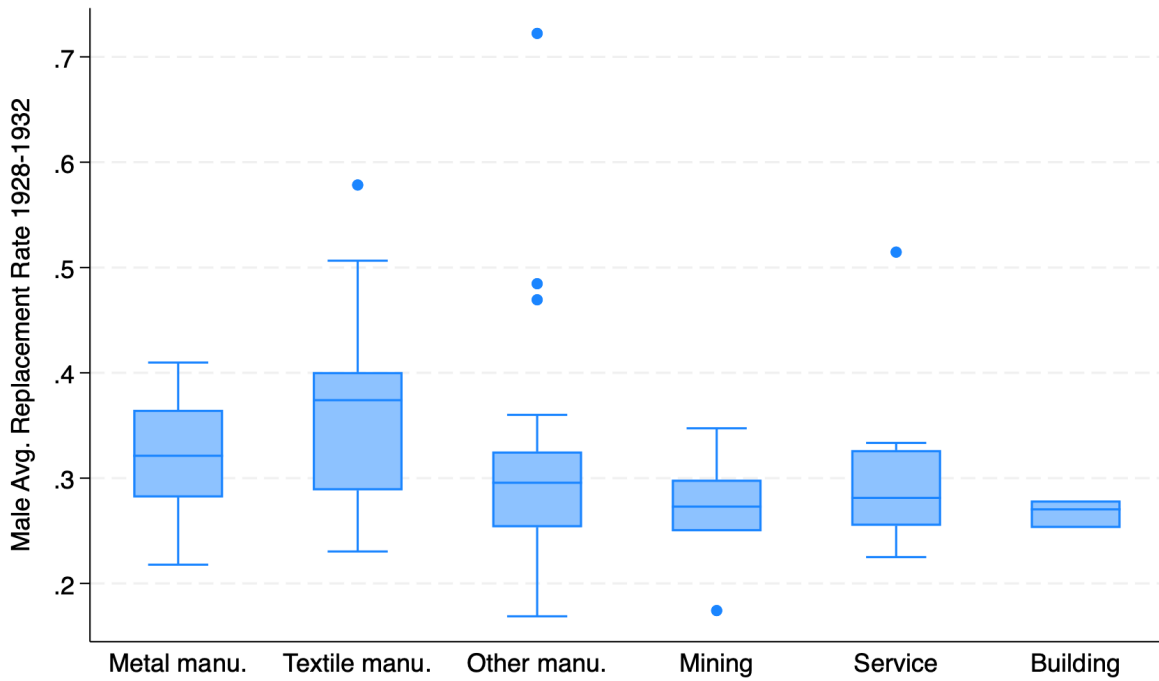


FIGURE A2: SHARE OF COUNTIES WITH AVERAGE EXPECTED EARNINGS UNDER THE FAMILY POVERTY LINE

