The Jobless Recovery After the 1980-1981 UK Recession

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Abstract

The brief recession from 1980–1981 in the UK led to a prolonged employment downturn, with the unemployment rate continuing to increase through 1984. A large literature has developed around the concept of jobless recoveries and their possible causes, focused primarily on the US from the 1990s. This paper argues that the employment recovery from the 1980–1981 recession in the UK can be considered an early example of a jobless recovery. Then, taking the US as a comparison case, possible causes of this jobless recovery are evaluated. Labor reallocation across industries, regional effects, and job polarization are considered in depth for the UK. Industry labor reallocation emerges as the major difference between the UK and the US during the early 1980s recession and recovery period, suggesting this was the key factor driving the UK’s jobless recovery.

JEL classification: N14, N34, J64, J21, E24,

Keywords: jobless recovery; industry labor reallocation; structural change; job polarization

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1 Introduction and historical background

“Sign on, sign on, with no hope in your heart, and you’ll never get a job, you’ll never get a job!”

Still sung at Liverpool football games by opposing teams, the “Sign On” chant is a living reminder of the severe and persistent unemployment that gripped the UK in the early 1980s. A parody of the Liverpool FC song “You’ll Never Walk Alone,” the chant was introduced in the 1980s when over three million people became unemployed after the brief recession of 1980–1981. “Sign On” highlighted the regional differences in unemployment that grew increasingly stark during the period — by singing “you’ll never get a job” to the Liverpool supporters, football fans from the south of England emphasized their economic superiority over the troubled Northern regions. The chant also exemplified the changing attitudes toward unemployment and welfare that characterized the Thatcher era by scorning and deriding “signing on” to the dole. Today, the chant serves as a reminder of devastation the prolonged employment downturn brought to some British industries and regions during the early 1980s, as well as of the long-lasting effects of this unemployment on policy and culture.

Though the early 1980s recession was a global economic downturn, its effects on employment in the UK were particularly severe and prolonged. Figure 1 shows that the unemployment rate climbed from 5.5% at the end of 1979 to a new peak of 11.9% in the spring of 1984, well after the end of the recession in 1981. From there, the unemployment rate decreased so slowly that it was still over 10% through the third quarter of 1987. This almost eight-year employment downturn was the UK’s worst in terms of persistence and severity since the interwar years and Great Depression.

This unemployment episode is especially puzzling when the performance of other areas of the UK economy are taken into account. By many measures, the UK had a strong economic recovery from the 1980–1981 recession. Figure 2 gives three key economic indicators for the UK during the five-quarter recession from 1980 to 1981. The left panel shows the negative real GDP growth over the recession dates but then a strong recovery afterward. The center panel tracks CPI over the same period. There was a dramatic increase in inflation in 1979, but the growth rate of the price level slowed during the recession dates and stabilized afterward. Finally, the right panel shows that productivity in terms of output per worker also trended upward during the recession recovery beginning in 1981. In the context of these indications of a strong economic performance after the recession, the employment recovery seems particularly poor.

The UK’s employment recovery also appears slow when compared to other countries. Table 1 gives the growth in employment after the end of the early 1980s recession for eighteen countries. The table is standardized for the different recession end dates for each country, and the final columns give the cumulative employment growth one and two years after the
**Figure 1: UK unemployment rate, 1976-1988**

Unemployment Rate

Source: ONS, Unemployment rate (aged 16 and over, seasonally adjusted) [MGSX]

**Figure 2: UK economic performance, 1979-1987**

Output source: FRED, Real Gross Domestic Product for United Kingdom, Percent Change, Quarterly, Seasonally Adjusted [CLVMNACSCABIGQU_PCH]. Inflation source: FRED, Consumer Price Index of All Items in the United Kingdom, Percent Change from Year Ago, Monthly, Not Seasonally Adjusted [GBRCPIALLMINMEI_PCI]. Productivity source: ONS, Output per Worker: Whole Economy: Percent Change per Annun SA: UK [A4YN_PDY]
Table 1: Cumulative growth in employment after early 1980s recession, international comparison

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<th>Country</th>
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<td>United States</td>
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Analysis using data from OECD Economic Outlook, Volume 1990 Issue 2, Tables R 1. “Growth of real GNP/GDP in the OECD area” and Table R 17. “Growth of employment in the OECD area.” Recession trough dates are taken as the last year in which real GNP/GDP growth was negative for the country, except for the cases with an (*). In these cases, real GNP/GDP growth was never negative, so the trough date is the last year in which it was less than 1%.

trough of the recession. While a handful of countries had meager employment growth during this period, two years after the end of the recession, the UK had the third worst employment performance of the eighteen countries listed. Only Spain and Belgium had slower employment growth two years after the trough, and neither country had real GDP growth that was as strong as in the UK. Many countries had much better employment growth two years after the end of the recession, including the US, Canada, Australia, Switzerland, and Denmark.

This paper thus seeks to understand why the recovery of employment after the early 1980s recession in the UK was so slow. After a brief historical background, the concept of jobless recoveries is introduced, and it is argued that the recovery from the 1980–1981 recession in the UK can be considered an early example of a jobless recovery. Then, after a comprehensive review of the jobless recovery literature, three possible drivers of the jobless recovery are considered in depth: the reallocation of labor across industries, regional effects, and job polarization. A comparison with the US, which did not have a jobless recovery, suggests that
the dominant cause of the UK’s jobless recovery was dramatic and swift structural change, captured by industry labor reallocation.

Historical background

The early 1980s recession in the UK is associated with two interconnecting storylines: oil production in the context of the Second Oil Crisis and the Thatcher government’s efforts to control inflation. These forces not only helped bring about the early 1980s recession, but they also shaped the monetary and fiscal policy response to the economic downturn.

The 1979 Second Oil Crisis was due primarily to the decreased oil output in the Middle East because of the Iranian Revolution. In late 1978, oil workers in Iran went on strike in protest against the Shah, Mohammed Reza Pahlavi. The Shah was forced to flee the country in January 1979, and oil production in Iran plummeted from over 5 million barrels a day to less than 500,000 barrels a day (Verleger 1979). Some of this decrease in production was compensated for by increased production in other nations, especially Saudi Arabia, early in 1979. Still, this 4% decrease in the global oil supply presented a serious global energy crisis. Panic conditions over the summer amplified the price shock, leading the price of oil to double to $39.50 per barrel from the spring of 1979 to the spring of 1980. The global oil supply fell an additional 10% after Iraq invaded post-revolutionary Iran, but this decrease in supply was met by increased output from oil fields in Siberia, the Gulf of Mexico, Alaska, and the North Sea.

The UK was in a unique position during this oil price shock. Oil production had increased dramatically in the UK after the 1973 oil crisis, which made developing oil fields in the North Sea more profitable. This increase in production in the late 1970s led the UK to become a net exporter of oil in 1980, right in the middle of the recession and the Second Oil Crisis. Figure 3 shows the net exports of crude oil in the UK from 1975 to 1990. The trade balance became increasingly less negative, and exports first outpaced imports in 1980. Domestic oil production thus partially shielded the UK from the effects of the 1979 oil price shock. Industries relying on oil as an energy input for production were still disadvantaged by the price shock. However, national income benefited from the increased value of oil production.

The pressure on the price level from the oil crisis exacerbated the inflationary challenges that the UK had been facing throughout the 1970s. Wage and price controls had been unsuccessfully used from late 1972 to try to stem inflation. In the mid-1970s, the climate of inflation led investors to believe the pound was severely overvalued, causing it to depreciate against the dollar. In 1976, fears of sterling depreciation led the Labour government, headed by James Callaghan, to borrow $5.3 billion from the US, in US dollars, to stabilize the pound (Burk 1989). Though the Bretton Woods era was over, policymakers believed that the currency’s
depreciation would cause economic instability and worsen inflation. Faced with continued devaluation, this costly attempt at managing the exchange rate forced the Labour government to request a $3.9 billion loan from the IMF later that year to pay back the US. The IMF imposed strict conditions on this loan, including cuts in government spending and the deficit. Importantly, though not required by the IMF, the external pressures arising from securing the loan led the Callaghan government to also commit to setting money supply targets — the UK’s first steps toward monetarism (Goodhart 1989). Monetarist policies had been coming into vogue, but the government had hesitated to announce official targets over the summer of 1976. The exchange rate crisis pushed the government to concede to monetarist pressures by suggesting money supply targets, which were then taken as formal targets by the financial sector (Davies 2012).

The loose money supply targeting, reduced government expenditure, and wage controls brought inflation down a little but did not solve the problem by the late 1970s. The Callaghan government set a new guidance in 1978 limiting public-sector pay rises to 5% in a further attempt to control inflation. This limit was taken as a general guideline by private-sector industries and was met by intense trade union opposition. Over the “Winter of Discontent” from 1978 to 1979, strikes and walkouts were held in many industries to negotiate pay rises well above 5%. The lorry drivers’ strike in January 1979 led to a 20% pay rise, which then became the standard request. The success of this early industrial action led to widespread strikes among private-sector workers as well as among public-sector workers such as gravediggers and waste collectors, who also secured pay increases. As a result of these strikes, 20 million
more working days were lost to industrial disputes in 1979 than in 1978.

The Conservative party led by Margaret Thatcher came to power in May of 1979. The Thatcher government was committed to reducing inflation and had no hesitation about pursuing monetarist monetary policies to achieve that goal. Inflation had increased from 8.4% to 17.2% from December 1978 to October 1979. In order to achieve the monetary targets set by the new government, the Minimum Lending Rate was increased to 17% in November. This sharp increase in interest rates contributed to the start of the recession early in 1980. It also impacted the exchange rate by attracting foreign capital inflows — by the end of 1980, the real exchange rate had appreciated 30% over its level at the end of 1978 (Maynard 1988, p. 60).

The Thatcher government’s Medium Term Financial Strategy (MTFS) was introduced in the 1980 budget with the explicit aim of reducing inflation. By linking fiscal and monetary policy, the MTFS presented a serious commitment to long-term monetarism and inflation control. Targets for the money supply were given for the 1980–1981 year as well as for the three years following. These monetary targets were paired with fiscal targets to reduce the amount of public-sector borrowing by about 1 percentage point as a proportion of GDP. However, as the scale of the recession became clear in the second half of 1980, the monetary targets were temporarily abandoned in order to lower interest rates.

The 1981 budget aimed to bring the monetary and fiscal targets of the MTFS back on track. The tightening of fiscal policy was especially severe, with the government targeting an almost 1.5 percentage point decrease in public sector borrowing as a percent of GDP through increased taxes and cuts in government spending. Many economists were outraged by the continued monetarist stance of the government, made worse by cutting fiscal expenditure during a recession. 364 economists signed a public statement expressing their discontent, published in The Times on March 30, 1981:

We, who are all present or retired members of the economics staffs of British universities, are convinced that:

There is no basis in economic theory or supporting evidence for the Government’s belief that by deflating demand they will bring inflation permanently under control and thereby induce an automatic recovery in output and employment;

Present politics will deepen the depression, erode the industrial base of our economy and threaten its social and political stability;

There are alternative policies; and

The time has come to reject monetarist policies and consider urgently which alternative offers the best hope of sustained recovery.1

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The worst fears of these economists were not realized, as the economy turned around sharply in the second half of 1981. Inflation fell dramatically and output growth brought the recessionary episode to a close. The Thatcher government continued to focus on fiscal restraint, but monetary targeting was no longer the central aim of the government’s policy.

**Comparison with the United States**

In many ways, the US experience was similar to that of the UK leading up to and during the early 1980s recession, making it a good comparison case. Specifically, there are important similarities between the UK and the US in the scale of the recession, in their position as domestic oil producers, and in their decisions to combat inflation with monetarist policies.

Table 2 gives the headline statistics for the recession in the UK and the US. One of the major differences is that the recession in the US was a “double-dip” recession, meaning that there were two output troughs with a short period of growth between them. The NBER classifies these as two separate, brief recessions. Each dip of the double-dip recession in the US represented about half of the peak-to-trough decline in the annualized GDP growth rate for the UK, making the recession in the US and the UK broadly comparable. The unemployment rate reached during the recession is also similar, given in the fourth column, of about 10%. However, while employment recovered almost immediately in the US, unemployment continued increasing after the end of the recession to almost 12% in the UK. It is also worth noting the slightly different dates of the recessions in the UK and the US. Though they start at the same time, the second dip of the US recession occurs after the recession concluded in the UK.

The US was also shielded somewhat from the effects of the Second Oil Crisis price shock due to domestic oil production. As in the UK, domestic oil production in the US was made more profitable by the 1973 oil crisis. Oil production increased in the US in the late 1970s as the Trans-Alaskan pipeline was operationalized and the Prudhoe Bay oil field was developed. Domestic oil production was further encouraged by the deregulation of domestic oil prices under the Carter and Reagan administrations. Figure 4 shows that, while the US did not
become a net exporter of oil, net exports became less negative leading up to the 1979 oil crisis, putting them in a similar (though less advantageous) position than the UK.

Like the UK, the US also faced a significant challenge in combating inflation. Under the Nixon administration, wage and price controls were put in place from 1971 to 1974, but these were largely ineffective, especially in the 1973 oil crisis conditions. Ford’s “Whip Inflation Now” program, which encouraged voluntary actions such as carpooling and starting vegetable gardens, also failed. Targets for monetary aggregates were set from 1975 and initially extended one quarter at a time. The Humphrey-Hawkins Act, signed into law by the Carter Administration in 1978, required the Federal Reserve to set annual targets for monetary aggregates and report on their progress to Congress. This foray into monetarism was gentle at first, similar to the UK, as the Fed continued to prioritize full employment.

After inflation increased dramatically in 1979, averaging 10.75% from January to September, the Fed held a secret meeting on October 6 to change policy. Under Chairman Volcker, the Fed determined that it was essential to limit inflationary expectations by taking a credible anti-inflationary stance. To do this, they changed their “tolerance ranges” for money supply growth into actual quarterly targets, allowing the federal funds rate to increase to find the level needed to meet the targets (Walsh 2004). The federal funds rate increased dramatically through the end of 1979, peaking in April 1980 at 17.6%. This monetarist policy was extremely similar to that pursued by the Thatcher administration at the same time. In both countries, the high interest rates contributed to the start of the recession in 1980.
The US did not have as strong an emphasis on fiscal measures to control inflation as the UK. However, the Carter administration did introduce the Special Credit Restraint Program (SCRP) in March of 1980, which depressed the money supply and caused a dramatic fall in interest rates. This program restricted bank lending to limit credit creation, increased the reserve requirements for large banks, and instituted a surcharge on the discount rate for large banks. The SCRP so effectively limited money supply growth that the federal funds rate fell to a level allowing the economy to once again expand. The Fed then had to override their money supply targeting system to keep monetary policy tight (Hetzel 1986). Their correction ended up overshooting the target, leading the federal funds rate to reach 19.04% in July 1981. This started the second dip of the US’s double-dip recession. Monetary policy was loosened, and eventually monetary targeting was abandoned with the end of the recession in 1982.

Thus, after facing difficulties controlling inflation in the 1970s, the US and the UK both experimented with monetarism over the 1979-1981 period. Though their flavors of monetarism differed slightly, this was a broadly similar monetary policy response to the challenges of inflation and recession. Taken with their domestic oil production and the similar dates and scale of the recession, the US makes an interesting comparison case for the UK during this period.

2 Jobless recovery from the early 1980s recession in the UK

To understand the persistent unemployment in the UK following the early 1980s recession, it is helpful to introduce the analytical framework of “jobless recoveries.” A recession is said to have a jobless recovery if output recovers but zero or negative employment growth persists for an extended period of time. Jobless recoveries are typically associated with the United States in the 1990-1991, 2001, and 2007-2009 recessions. However, it can be argued that the early 1980s recession in the UK had a jobless recovery, even once issues of recession dating and compositional effects are taken into account.

Jobless recoveries in the United States

The term “jobless recovery” was coined to describe the lackluster economic recovery of the United States following the early 1990s recession (Nasar 1991). Despite output beginning to expand in March 1991, unemployment continued rising for more than a year. The recovery was deemed jobless because of this GDP growth without commensurate employment growth.

Jobless recoveries were popularized as an analytical framework following the early 2000s recession in the United States, which also had a slow employment recovery. In 2003, Governor Ben Bernanke gave a speech summarizing some of this early research (Bernanke 2003). He noted that the best policy response to a jobless recovery depended critically on the cause of
Employment data from U.S. Bureau of Labor Statistics, All Employees, Total Nonfarm [PAYEMS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/PAYEMS.

the jobless recovery. This led to a wave of academic publications on jobless recoveries, seeking to identify possible causes of the phenomenon.

The employment recovery following the 2009 Great Recession in the United States was especially slow. It took over a year after the end of the output recession for employment to stop contracting, and then another four years for employment to reach its pre-Recession level. Figure 5 summarizes the experience of the United States in the five recessions from 1971 to 2019. The recessions ending in 1975 and in 1982 had a strong employment recovery from about two months after the recession trough. In stark contrast, the recessions ending in 1991, 2001, and 2009 all had a significantly delayed employment recovery after the end of the recession. The 2009 recession shows the most severe jobless recovery.

Recent research on jobless recoveries thus seeks to explain not only why output can rebound without employment, but also why recent recession recoveries in the US have been more jobless than earlier recoveries. Jobless recoveries have been most closely associated with the US in academic research and in popular media, and little is known about jobless recoveries in other developed countries.
Jobless recovery from the early 1980s recession in the UK

Most research on jobless recoveries has focused on the United States because their early 1990s, early 2000s, and 2009 recession recoveries were all jobless. However, a close examination of employment data for the UK over the same period reveals that the early 1980s recession was just as jobless as these later US recessions.

One way to observe jobless recoveries is to count the number of months it took for employment to rebound after the output trough of the recession was reached. Jaimovich and Siu (2020, p. 132) find that before 1990, it took 4 months on average for employment to expand after a recession in the US, while after 1990 it took 21 months on average. They also count the number of months it took for employment to recover to the level it was at when the recessions ended, finding that before 1990, it took 10 months on average, while after 1990 it took 54 months on average. Their calculations for the US recessions ending in 1975, 1982, 1991, and 2009 are given in the first two rows of Table 3.

The final two rows of Table 3 give the same calculations for the UK. These figures do not show a stark divide between pre-1990 and post-1990 recessions. Rather, the early 1980s recession in the UK stands out as an early example of a jobless recovery. It took 25 months for employment to stop contracting after the end of the recession in the UK, and it took 52 months for employment to recover to its level at the trough. Jobless recoveries thus seem to have begun earlier in the UK than in the US.²

The employment recovery following the early 1980s recession in the UK appears especially slow when compared to the employment recovery in the US from that recession. Figure 6 gives the change in employment from the level at the end of the recession in the US and the UK. Employment rebounds rapidly in the US after the end of the recession, but it continues to decline for many months in the UK. Thus, the early 1980s recession had a jobless recovery in

². It is also notable that the Great Recession ending in 2009 did not have a jobless recovery in the UK, while it had a prolonged jobless recovery in the US.
Further evidence for the early 1980s UK jobless recovery

To designate a recession recovery as jobless, it is important to consider two possible complications — recession dating and compositional effects.

A jobless recovery requires output to be expanding while employment is stagnant or contracting for many months. If the recession trough actually occurred at a later date than used in the analysis, one could falsely believe the economy was in a jobless recovery when in fact it was just in an extended recession. This makes the dating of the output recession important to clearly establish.

The early 1980s recession in the UK is typically considered to have been five quarters long, from the first quarter of 1980 through the first quarter of 1981. As shown above, employment did not stop contracting until the second quarter of 1983, indicating a prolonged jobless recovery. However, there is reason to be concerned that production had actually not begun expanding in a meaningful way after the first quarter of 1981. The national GDP estimates on which the traditional recession dates are based include output from the UK Continental Shelf. It is possible that North Sea oil production artificially inflated output growth during this time,
and that on-shore production remained in an extended recession.

Koop et al. (2018) reconstruct quarterly GVA estimates by region back into the 1970s, excluding production from the Continental Shelf. Their estimates suggest that the national recession was only two quarters longer than traditionally thought, through the third quarter of 1981. Additionally, their estimates by region show that all regions began seeing output expansion early in 1982. Thus, even with more generous recession dates excluding North Sea oil production, the recovery from the early 1980s recession was jobless for at least a year.

A second concern is compositional effects. National output measures are composed of the output from different regions of a country. It is possible for national output to show that a recession is over due to a strong recovery in some regions, even though other regions still face recession conditions. Burger and Schwartz (2018) find that these composition effects played a role in the early 1990s and early 2000s recession recoveries in the US. Many states had extended recessions after the national output trough, rather than jobless recoveries. The national jobless recovery phenomenon could thus be partially attributed to output figures improving in some regions while employment recovery dragged in other regions.

Using the regional GVA data from Koop et al. (2018), it is possible to explore whether compositional effects played a role in the early 1980s jobless recovery in the UK. Figure 7 demon-
strates that compositional effects did not drive this jobless recovery. Total job losses in each quarter are disaggregated by whether they occurred in a region with an extended recession, with a jobless recovery, or with a traditional recession recovery. Regions were in an extended recession if they had both output and employment contraction even after the national recession trough, in a jobless recovery if they had output growth but employment contraction, and in a traditional recession recovery if both output and employment were expanding.

Figure 7 shows that all regions had extended recessions through the second quarter of 1982 based on the Koop et al. (2018) GVA data. Consequently, a jobless recovery occurred uniformly in regions through the third quarter of 1983. While a jobless recovery continued in some regions through 1987, other regions began seeing employment recovery during those years. Thus, while compositional effects are important to consider when classifying a recession recovery as jobless, it is clear that the recovery from the early 1980s recession in the UK was uniformly jobless for almost two years.

3 Possible causes of jobless recoveries

Since 1990, every recession recovery in the US has been jobless, with unemployment remaining at a high level for months or years into the recovery despite output rebounding. In recent years, the academic literature on jobless recoveries in the US has flourished. There are three main strands of research on the causes of jobless recoveries: industrial reallocation and structural change, job polarization and technological change, and employment overhang and reorganization. This section summarizes the state of the literature surrounding each explanation before they are considered for the UK case in the rest of the paper.

Industry labor reallocation and jobless recoveries

The connection between industry labor reallocation and jobless recoveries was first put forth in an influential paper, Groshen and Potter (2003). They argue that permanent reallocation of jobs across sectors has increased since the 1980s in the US, and because labor reallocation is costly and takes time, recent recessions have consequently been more jobless. Their measure of reallocation compares industries’ job growth during a recession with their job growth one year after a recession to classify industries as experiencing structural losses, structural gains, procyclical flows, or countercyclical flows. Then, using a variety of descriptive statistics, they show that there was a shift toward permanent job losses rather than temporary layoffs in

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3. There are many other proposed explanations for jobless recoveries not discussed here including liquidity traps (Schmitt-Grohé and Uribe 2017), wage rigidities (Shimer 2012), declining business dynamism (Pugsley and Sahin 2019), on-the-job search (Eeckhout and Lindenlaub 2019), and unemployment benefits (Mitman and Rabinovich 2014).
the 2001 recession and that industries undergoing structural change accounted for a larger share of employment than during earlier recessions. They conclude that structural change played a larger role in the early 1990s and early 2000s recession recoveries than in previous US recessions.

The coarse measure of reallocation used in Groshen and Potter (2003) has been the subject of critique based in an older literature on the relationship of reallocation and business cycle unemployment. Lilien (1982) constructed a basic measure of structural shifts to argue that industry labor reallocation played a significant role in the cyclical unemployment of the 1970s. Abraham and Katz (1986) argued that Lilien’s measure confounded cyclical and structural effects: because industries have different cyclical sensitivities, reallocation can occur during business cycles without sectoral reallocation in a long-term structural sense. Based on this older debate, Aaronson, Rissman, and Sullivan (2004) criticize Groshen and Potter’s measure of reallocation for failing to take into account the differing cyclical sensitivities of industries. By constructing their own measure of reallocation, Aaronson et al. find that industry labor reallocation actually decreased in recent recessions. A recent paper by Chodorow-Reich and Wieland (2019), discussed below, also finds that reallocation has trended downward in the US since the early 1980s.

When considering the role of structural change in business cycles, however, the absolute trend in reallocation might not be as important as the relative volatility of reallocative and aggregate shocks. Garin, Pries, and Sims (2018) find that from 1984 to 2014, the moderation of business cycle volatility has increased the importance of reallocative (sector-specific) shocks relative to aggregate shocks in the US, even though the absolute volatility of reallocative shocks has remained constant. Using an islands model with two sectors of production, they show that the increased relative importance of reallocative shocks slows employment adjustment and also explains the declining procyclicality of productivity. When calibrated, their model explains salient features of the jobless recoveries in the US.

Two other papers provide support for the role of industry labor reallocation in jobless recoveries. Olney and Pacitti (2017) use state-level panel data to estimate the effect of deindustrialization on the length of employment recovery after a recession. They find that deindustrialized economies have slower recession recoveries and that the shift toward service industries in the US has lengthened recession recoveries by 40%. Chodorow-Reich and Wieland (2019) find that during a recession and recovery period, a one standard deviation increase in reallocation increases local unemployment rates by 0.5 percentage points by the employment trough. Though their work does not directly address disparities between output and employment recovery, it demonstrates that reallocation due to structural change intensifies unemployment during recessions — confirming somewhat Lilien’s original hypothesis.
**Job polarization, technological change, and jobless recoveries**

A related literature links jobless recoveries to the emergence of job polarization in recent decades in the United States. Job polarization, or the disappearance of routine occupations, has been accelerating in the United States since the late 1980s. Jaimovich and Siu (2020) connect the phenomenon of job polarization with jobless recoveries in a two-pronged argument. First, they find that job polarization is sparked by business cycle downturns, calculating that 88% of jobs lost in routine occupations occurred within a year of a recession. Second, they argue that jobless recoveries are due to jobless recoveries in routine occupations, rather than across all occupational classes. They find that in the pre-1990 recessions, employment in routine occupations rebounded within 12-16 months of the output trough. But, in the three most recent recessions, employment in routine occupations did not recover. Because employment in non-routine occupations was relatively constant during these recessions, they conclude that jobless recoveries in routine occupations caused the aggregate jobless recovery phenomenon.

The link between job polarization and jobless recoveries in the United States is bolstered by papers using alternative empirical strategies. Gaggl and Kaufmann (2015) use statistical methods to classify occupations into routine and non-routine clusters, and then identify a structural break around 1990 in these clusters’ cyclical dynamics. Burger and Schwartz (2018) find that the decline in a state’s routine employment share is a significant predictor of state-level jobless recoveries in a probit regression. Graetz and Michaels (2017) analyze a panel of 17 developed countries to conclude that technological change is causing the recent jobless recoveries through job polarization in the United States but not elsewhere. Finally, Waddle (2019) constructs a modified growth model where managerial resources are offshored during recessions that is consistent with jobless recovery outcomes.

**Employment overhang, reorganization, and jobless recoveries**

The previous explanations for jobless recoveries link the phenomenon to long-run trends in the US labor market. In contrast, some research finds that jobless recoveries emerge from firm or labor market dynamics over the business cycle. Particularly, if firms delay labor restructuring to recessionary periods, employment overhang could cause the jobless recovery phenomenon.

In an early contribution, Koenders and Rogerson (2005) note that the jobless recoveries of the early 1990s and early 2000s recessions in the US followed long expansionary periods. They propose a model in which firms accumulate staffing inefficiencies throughout long expansionary periods, putting off firm-level labor reorganization until recessions. The extended restructuring period of firing or non-hiring during business cycle downturns then delays employment growth following a recession.
Bachmann (2012) builds on this work by developing a quantitative model for the 1991 and 2001 recession recoveries. Like in Koenders and Rogerson (2005), in Bachmann’s model, the jobless recovery outcome is driven by employment overhang. Firms have excess employment at recessionary periods due to the costs of hiring and firing, so as the economy recovers, they do not need to hire right away. In some cases, they may increase employment on the intensive margin rather than the extensive margin during a weak recovery, deepening jobless recovery effects.

Similarly, Berger (2018) argues that firms “trim fat” by cutting costs during recessions, but his model links this restructuring to the trend of countercyclical productivity in recent US recessions. During expansionary periods, unproductive workers remain on firm payrolls because hiring and firing is costly, and because workers’ productivity might be initially unknown. During recessions, the least productive workers are laid off, which increases average labor productivity. This permits firms to meet the increasing demand during recovery periods without hiring, leading to a jobless recovery.

A central challenge of these models of labor overhang is distinguishing the three most recent US recessions from earlier recessions. If cyclical restructuring is a common feature of business cycles, why did earlier recessions not have jobless recoveries? Berger (2018) points to the reduction of unionization after the 1980s as the key change permitting the average labor productivity to increase during recessions. Bachmann (2012) notes that the early 1990s and early 2000s recessions were shallow relative to pre-1990 recessions, allowing for jobless recoveries due to restructuring. Lastly, Koenders and Rogerson (2005) circumvent the problem altogether by arguing that the 1970 US recession, which followed a long period of expansion, did in fact have a jobless recovery.

**Contribution to the literature**

Despite the significant progress that has been made, jobless recoveries have primarily been studied from a United States perspective. It is unclear whether other developed countries have experienced jobless recoveries, and if so, whether their jobless recoveries had similar drivers. The level and type of industry labor reallocation, job polarization, and cyclic firm restructuring all could vary across institutional settings, as well as the date at which jobless recoveries first emerged.

The present paper aims to address this limitation by identifying an early example of a jobless recovery in the UK. This pushes back the date at which jobless recoveries were thought to have begun (from the early 1990s to the early 1980s) and offers a cross-national comparison.

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4. Graetz and Michaels (2017) is a notable exception. There is also a growing literature on jobless recoveries in developing nations.
Industry labor reallocation and job polarization, two of the possible causes of jobless recoveries identified in the literature on the US, are tested for the early 1980s UK case. The analysis of industry labor reallocation is enhanced by considering the interaction of reallocation across regions and industries. However, cyclic firm restructuring and employment overhang are not considered in the rest of the paper. This is because these mechanisms are most significant in recessions that follow long expansionary periods, which was not the case for the early 1980s recession in the UK.

4 Industry labor reallocation and the jobless recovery

Employment recovery will take more time after a recession if significant labor reallocation across industries is occurring. This is because reallocation takes longer than simply recalling workers from temporary layoffs or rehiring workings in the same industries. In many cases, reallocation requires new jobs to be created in different sectors. It often involves costly search, retraining, or mobility for workers that are moving between industries. As the composition of industries changes in the economy, entirely new groups of workers might also be brought into the labor supply. These adjustments can all slow the responsiveness of employment to economic growth following a recession.

A large amount of industrial reallocation in the UK in the early 1980s could thus help explain the slow employment recovery, especially if similar levels of reallocation did not occur in countries with fast employment recoveries like the US. By evaluating how the industrial structure of both countries changed during this period, this section argues that reallocation was more dramatic and persistent in the UK than in the US during the early 1980s. This suggests that industry labor reallocation played an important role in the jobless recovery in the UK.

Data

Comparing the changes in industrial structure in the UK and the US requires similar data for employment by industry and geographic areas in both countries.

In the UK, the workforce jobs series offered by the Office of National Statistics (ONS) gives detailed industry and region employment data. The workforce jobs estimates are establishment-based, relying primarily on surveys sent to businesses and employers in the private and public sector. While workforce jobs data has been collected since 1959, workforce jobs by industry and region are only available to download from the ONS going back through 1981. This limits the usefulness of the ONS workforce jobs data for evaluating industry labor reallocation during the early 1980s recession.
The precursor to this series, however, was published in the *Employment Gazette* during the 1970s and early 1980s, covering the entire period of interest. Printed tables in Historical Supplements to the *Employment Gazette* conveniently summarize the monthly publications (UK: Department of Employment 1987, 1989). Digitizing Table 1.5 of the 1987 and 1989 Historical Supplements thus gives data on employment by industry and region for the entire recession and recovery period. The data are quarterly from June 1978, covering England’s eight Standard Statistical Regions, Scotland, and Wales.

Industrial employment data is available for the US in the Quarterly Census of Employment and Wages (QCEW). Like the UK’s workforce jobs data, the QCEW is establishment-based, constructed from unemployment insurance records and business surveys. Quarterly employment data is available on the state and county level from 1975 for detailed industry categories, thus spanning the entire recession-recovery period. Though the QCEW provides the best estimate of short-term changes in the industrial composition of employment, at very refined geographic areas and industry categories, some employment estimates are “non-disclosed” for privacy reasons. More details on how disclosure restrictions affected this analysis can be found in Appendix A. The analysis is limited to the private sector throughout in order to minimize the effect of disclosure restrictions.

**Sectoral change in the early 1980s**

Figure 8 shows the changing composition of industries in the UK and the US in the early 1980s. The highlighted regions indicate the recession dates for each country. After the recession, industries in the UK had extremely varied and persistent changes in employment. In contrast, industries in the US fared more similarly, with employment declining in many industries during the recession but then rebounding shortly after.

Comparing the experiences of specific industries, there are three additional conclusions. First, the contraction in manufacturing and in construction is more dramatic and more persistent in the UK than in the US. While manufacturing and construction rebounded in the US after the end of the recession, contraction continued for many years following the recession in the UK. Second, the mining and utilities sector declined steadily in the UK, whereas in the US, employment only contracted in this sector with the second recession. Finally, both countries had remarkable increases in employment in finance and in services. UK employment growth was dominated by banking and finance, while the US was buoyed by strong growth in education and other services.

While Figure 8 demonstrates significant differences in employment across industries during the recession and recovery, there are some outstanding questions. Should the changes in

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5. Sectors were standardized between the US and the UK as described in Appendix B.
employment by industry in the UK be interpreted as permanent, structural changes, or were they temporary changes due to different sensitivities of industries to the business cycle? How is the comparison complicated by the different recession dates for the UK and the US? Table 4 sheds light on these questions by presenting figures for complete recession-recovery periods in terms of employment. The time period analyzed for each country is the quarter just before the employment downturn through the quarter when national employment recovered to its pre-recession level. For the UK, this means that the table shows the changes in employment shares from the last quarter of 1979 through the third quarter of 1987, which is when the total number employed reached its level from the end of 1979. For the US, the corresponding dates are the first quarter of 1980 through the fourth quarter of 1983.

By analyzing the complete cycle of employment downturn and recovery, Table 4 nets out temporary changes in employment due to the business cycle. With nearly the same number of people employed, the second and third columns of the table show how the industrial structure of each country changed over the recession and recovery period. In general, it is remarkable how similar the industrial structures of the UK and the US were during this period. This is further evidence that the comparison between the two countries is a helpful one. However, it is also notable that the industrial structure changed more significantly in the UK than in the US over the recession-recovery cycle.

The decline in the employment share of manufacturing for the UK is particularly dramatic.
<table>
<thead>
<tr>
<th></th>
<th>Share of Emp. Pre-Recession</th>
<th>Share of Emp. Post-Recovery</th>
<th>Level Change in Emp. Share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United Kingdom (1979q4 - 1987q3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture, Forestry, Fishing</td>
<td>1.78%</td>
<td>1.68%</td>
<td>-0.09</td>
</tr>
<tr>
<td>Mining, Energy, Transport, Comm.</td>
<td>10.48%</td>
<td>9.31%</td>
<td>-1.17</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>34.55%</td>
<td>26.55%</td>
<td>-8.00</td>
</tr>
<tr>
<td>Construction</td>
<td>5.77%</td>
<td>5.12%</td>
<td>-0.65</td>
</tr>
<tr>
<td>Wholesale Distribution</td>
<td>9.70%</td>
<td>11.26%</td>
<td>1.56</td>
</tr>
<tr>
<td>Retail Distribution</td>
<td>10.36%</td>
<td>10.87%</td>
<td>0.51</td>
</tr>
<tr>
<td>Banking, Insurance, and Finances</td>
<td>7.85%</td>
<td>11.52%</td>
<td>3.67</td>
</tr>
<tr>
<td>Education and Services</td>
<td>19.50%</td>
<td>23.67%</td>
<td>4.17</td>
</tr>
<tr>
<td>Unclassified</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total Establishment Employment</strong></td>
<td><strong>20,641,750</strong></td>
<td><strong>19,426,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Share of Emp. Pre-Recession</th>
<th>Share of Emp. Post-Recovery</th>
<th>Level Change in Emp. Share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States (1980q1 - 1983q4)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture, Forestry, Fishing</td>
<td>1.39%</td>
<td>1.53%</td>
<td>0.14</td>
</tr>
<tr>
<td>Mining, Energy, Transport, Comm.</td>
<td>7.56%</td>
<td>7.61%</td>
<td>0.05</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>28.76%</td>
<td>25.03%</td>
<td>-3.73</td>
</tr>
<tr>
<td>Construction</td>
<td>6.20%</td>
<td>5.28%</td>
<td>-0.92</td>
</tr>
<tr>
<td>Wholesale Distribution</td>
<td>7.16%</td>
<td>7.20%</td>
<td>0.04</td>
</tr>
<tr>
<td>Retail Distribution</td>
<td>20.53%</td>
<td>21.14%</td>
<td>0.61</td>
</tr>
<tr>
<td>Banking, Insurance, and Finances</td>
<td>6.65%</td>
<td>7.30%</td>
<td>0.65</td>
</tr>
<tr>
<td>Education and Services</td>
<td>21.60%</td>
<td>24.67%</td>
<td>3.06</td>
</tr>
<tr>
<td>Unclassified</td>
<td>0.15%</td>
<td>0.24%</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Total Establishment Employment</strong></td>
<td><strong>73,196,104</strong></td>
<td><strong>72,936,272</strong></td>
<td></td>
</tr>
</tbody>
</table>

Analysis using UK data from 1987 and 1989 Employment Gazette Historical Supplements and US data from the QCEW. Public sector employment and public administration and defense excluded.
As a share of private sector employment, manufacturing fell from 34.55% of employment to 27.55% of employment at the end of the cycle. This decline of 8 percentage points is much more than the decline of about 4 percentage points in the US, bringing the share of manufacturing to a similar level in both countries.

The share of employment in education and services increased in both the UK and the US to around 24% of all employment. However, banking and finance saw a much more dramatic increase over the recession-recovery period in the UK than in the US. The employment share of banking and finance increased from 7.85% before the recession to 11.52% after the employment recovery — reaching a larger employment share than the US (7.30%).

Finally, there was a decrease in the share of employment in the mining, energy, water, transport, and communications sector in the UK but not in the US. However, the share of employment in this large category remained higher in the UK than in the US at the end of the cycle.

Taken together, Figure 8 and Table 4 demonstrate that the early 1980s recession and recovery coincided with more significant structural change in the UK than in the US. On a sectoral level, declining industries in the UK did not recover after the recession. In contrast, there was some rebound in employment for declining industries in the US during the recovery. This led the industrial composition of employment in the UK to change more dramatically over the recession and recovery period than in the US. There was an especially large decline in the share of manufacturing and increase in the share of banking and finance in the UK relative to the US.

5 Regional disparities and industry labor reallocation

One of the major narratives to emerge from the early 1980s recession and recovery was the growing divide between the economic performance of the south of England, led by London and the surrounding areas, and the north of England, Scotland, and Wales. This section explores these trends in regional employment, analyzing how these regional effects interacted with reallocation and might have contributed to the jobless recovery. While significant differences in regional employment performance are identified for both the UK and the US, unlike in the US, the divergent fates of regions in the UK is found to be primarily due to the differing composition of industries in each region.

Regional shifts in employment

Figure 9 shows the level change in the proportion of employment in each region in the UK and the US over the early 1980s recession and recovery. In both countries, the regional com-
position of employment changed significantly over the period, but regional adjustment seems more sensitive to the recession in the US than in the UK.

In the UK, there was exceptionally rapid growth in the share of employment in the South East region including London. East Anglia and the South West also expanded their share of employment, and there was a slight increase in share for the East Midlands as well. In contrast, there was a consistent, dramatic decline in the share of employment in the North West over the period. The West Midlands, North, Yorkshire, and Wales regions all also had steadily contracting employment shares. While the regional changes in employment across the UK were likely affected by the business cycle downturn, there is little change in the pattern of adjustment once the recovery begins.

In the US, there was an accelerated decline of employment share for the East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) during the recession, tapering off during the recovery. In the opposite direction, the employment share increased for the West South Central region (Texas, Louisiana, Oklahoma, and Arkansas) during the recession and then decreased during the recovery. The South Atlantic region (Maryland, DC, Virginia, Florida, Georgia, North Carolina, South Carolina, West Virginia, Delaware) also had consistent employment share growth, which picked up slightly during the recovery. Finally, the Pacific states, Mountain states, and New England states expanded their share somewhat over the period, while the West North Central, East South Central, and Mid-Atlantic states de-
Table 5: Change in regional share of employment over 1980s recession-recovery

<table>
<thead>
<tr>
<th>Region</th>
<th>Share of Emp. Pre-Recession</th>
<th>Share of Emp. Post-Recovery</th>
<th>Level Change in Emp. Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom (1979q4 - 1987q3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South East and London</td>
<td>33.04%</td>
<td>34.75%</td>
<td>1.72%</td>
</tr>
<tr>
<td>North West</td>
<td>11.86%</td>
<td>10.98%</td>
<td>-0.88%</td>
</tr>
<tr>
<td>West Midlands</td>
<td>9.93%</td>
<td>9.47%</td>
<td>-0.46%</td>
</tr>
<tr>
<td>Scotland</td>
<td>9.25%</td>
<td>8.90%</td>
<td>-0.34%</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>8.88%</td>
<td>8.40%</td>
<td>-0.48%</td>
</tr>
<tr>
<td>South West</td>
<td>7.00%</td>
<td>7.58%</td>
<td>0.58%</td>
</tr>
<tr>
<td>East Midlands</td>
<td>6.89%</td>
<td>7.09%</td>
<td>0.21%</td>
</tr>
<tr>
<td>North</td>
<td>5.51%</td>
<td>5.08%</td>
<td>-0.43%</td>
</tr>
<tr>
<td>Wales</td>
<td>4.55%</td>
<td>4.23%</td>
<td>-0.32%</td>
</tr>
<tr>
<td>East Anglia</td>
<td>3.09%</td>
<td>3.51%</td>
<td>0.41%</td>
</tr>
<tr>
<td>Total Establishment Employment</td>
<td>20,641,750</td>
<td>19,426,000</td>
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</tr>
</thead>
<tbody>
<tr>
<td>United States (1980q1 - 1983q4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East North Central</td>
<td>19.20%</td>
<td>17.33%</td>
<td>-1.87%</td>
</tr>
<tr>
<td>Mid-Atlantic</td>
<td>16.78%</td>
<td>16.77%</td>
<td>-0.01%</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>15.37%</td>
<td>16.23%</td>
<td>0.86%</td>
</tr>
<tr>
<td>Pacific</td>
<td>14.67%</td>
<td>15.00%</td>
<td>0.33%</td>
</tr>
<tr>
<td>West South Central</td>
<td>9.86%</td>
<td>10.67%</td>
<td>0.81%</td>
</tr>
<tr>
<td>West North Central</td>
<td>7.61%</td>
<td>7.28%</td>
<td>-0.33%</td>
</tr>
<tr>
<td>New Endland</td>
<td>6.19%</td>
<td>6.42%</td>
<td>0.23%</td>
</tr>
<tr>
<td>East South Central</td>
<td>5.58%</td>
<td>5.32%</td>
<td>-0.26%</td>
</tr>
<tr>
<td>Mountain</td>
<td>4.73%</td>
<td>4.98%</td>
<td>0.25%</td>
</tr>
<tr>
<td>Total Establishment Employment</td>
<td>73,196,104</td>
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<td></td>
</tr>
</tbody>
</table>

Analysis using UK data from 1987 and 1989 Employment Gazette Historical Supplements and US data from the QCEW. Public sector employment and public administration and defense excluded.

creased their employment share.

Table 5 shows the change in the regional distribution of employment for the UK and the US over the same recession-recovery periods as in Table 4. Comparing the regions with a growing employment share over the cycle, the South East region stands out for attracting significant employment growth, more than the top regions of the US. In contrast, there was a dramatic flight away from the East North Central region in the US that was larger than that from declining regions in the UK. This indicates that the dominant regional trend in the UK was the growth of employment in London and the South East, providing employment opportunities for workers when other regions were struggling. In contrast, the key story in the US was the deterioration of employment opportunities in the the East North Central region, possibly dispersing workers to other regions of the country.
**Industrial reallocation index for regions**

To better understand how these regional employment changes interacted with industry labor reallocation, an index of industrial reallocation can be constructed for each region. Adapted from Chodorow-Reich and Wieland (2019), this index relates the relative employment growth or decline in an industry in a region to the overall employment growth or decline in the region. The index is weighted by the importance of the industry in terms of employment share to the region.

The index is weighted by the importance of the industry in terms of employment share to the region.

The quarterly index of industrial reallocation is thus calculated as

\[
R_{a,t,t+j} = \frac{4}{j} \sum_{i} s_{a,i,t} \left| \frac{1 + g_{a,i,t,t+j}}{1 + g_{a,t,t+j}} - 1 \right|
\]

where

- \( s_{a,i,t} \) is the employment share of industry \( i \) in area \( a \) at time \( t \)
- \( g_{a,i,t,t+j} \) is the growth of employment in industry \( i \) in area \( a \) from time \( t \) to \( t + j \)
- \( g_{a,t,t+j} \) is the growth of employment in area \( a \) from time \( t \) to \( t + j \).

This index makes it easy to compare reallocation across geographic areas and across countries. A higher value of \( R \) indicates that there was more change in the industrial composition of a region over the time period. A lower value of \( R \) indicates little movement between industries in a region.

When computed for the whole of the UK and the whole of the US, this reallocation index reinforces the conclusions from Section 4. Figure 10 gives the quarterly movement of the index over the early 1980s period. Industrial reallocation peaked in the US during the two recessionary periods, recovering quickly between and afterwards. In contrast, industrial reallocation increased for the UK during the recession, but then persisted at an elevated level even after the recession through 1985. Additionally, a higher level of reallocation was reached in the UK than in the US. These results offer further support that industry labor reallocation was more significant and persistent in the UK than in the US during this period.

These national trends mask heterogeneous experiences across regions. Figure 11 gives the quarterly industrial reallocation for selected parts of the UK and the US, in the first and second panels respectively. In both sets of graphs, it is evident that reallocation had different levels and different trends by geographic area. Across all UK regions, reallocation was highest in East Anglia, Yorkshire, and Wales, and lowest in the South East and London, the South West and Scotland. In the US, New York had the lowest average reallocation over the period, followed by
Analysis using UK data from 1987 and 1989 Employment Gazette Historical Supplements and US data from the QCEW
Massachusetts, Alabama, and Georgia. Alaska had the most reallocation on average, followed by West Virginia, Wyoming, and North Dakota.

Figure 12 compares industrial reallocation across aggregated regions of both the UK and the US. In both countries, reallocation increased during the recession. The high levels of industrial reallocation in Wales just after the recession and in the Midwest during the first stage of the US recession are remarkable. The experiences of the UK and the US were otherwise fairly similar during the recession. In the UK, the Midlands, North and North West, and Scotland reached about 0.025 during the recession, which is similar to the level reached by the Midwest, South, and Northeast in the US during the second recession. The other regions in both countries are grouped around the 0.015 level. However, as in the national trends, reallocation fell more slowly after the UK recession than after the US recession.

Figure 13 compares the best performing and worst performing areas of the UK and the US in terms of their employment in tradable and non-tradable industries. The best performing areas are given by the gray lines, and the worst performing areas are given by the black lines. The solid lines indicate the tradable industries while the dashed lines indicate the non-tradable industries. In the UK, the worst performing area included the North, North West and Yorkshire regions, while the best performing area included the London, South East, and East Anglia regions. In both the best performing and worst performing areas of the UK, employment in tradable industries contracted significantly while employment in non-tradable industries shows moderate growth. This pattern is not seen in the US, where employment in tradables was relatively fine in the best performing South Atlantic division but still showed significant contraction in the worst performing East North Central division. Thus, non-tradable industries in the UK were struggling in similar ways in both groups of regions, while in the US, all industries in high-performing regions fared well. These comparisons suggest that the industry labor reallocation effect in the UK might be more significant than any regional effects, and that the opposite might be true for the US.

Regional shift-share analysis

To further probe the results of Figure 13, a dynamic shift-share model is used to decompose regional employment changes over the recession-recovery period in the UK and the US into industrial and regional effects.

A traditional shift-share analysis decomposes the changes in employment in a region or local area into three effects: a national growth effect, an industry mix effect, and a regional share effect. The national growth effect captures how the region would change if it followed the path of the national economy. The industry mix effect takes into account the national performance of the industries in the region. Finally, the regional share effect is the residual,
Figure 11: Industrial reallocation in selected UK and US regions

Figure 12: Industrial reallocation by region, UK and US

Analysis using UK data from 1987 and 1989 Employment Gazette Historical Supplements and US data from the QCEW

Figure 13: Employment growth in tradables and non-tradables, selected regions

Analysis using UK data from 1987 and 1989 Employment Gazette Historical Supplements and US data from the QCEW
which is the change in employment in the region due to regional factors other than the national trend or effects of the region’s industrial composition. A shift-share decomposition can thus shed light on the relative importance of industrial composition and pure regional effects in the regional employment trends seen in the UK and the US.

The traditional shift-share model is a comparative static model that considers only the starting and ending date of the analysis period, keeping the industrial composition of each region fixed. This can introduce bias in regions undergoing significant industrial reallocation, causing the industrial structure of the initial period to have outsize influence. The traditional shift-share model also holds the employment share of regions relative to the national economy constant, which can introduce bias when regional disparities are increasing over the period of analysis.

The dynamic model is a standard way to correct for both of these potential biases by allowing growth rates and the industrial structure to change in every year between the start and end dates of the analysis. The shift-share effects for each time increment, typically a year, are then added to give the total shift-share over the entire period.

The dynamic shift share decomposition of the change in employment $e$ in industry $i$ and region $j$ from time $t$ to $t + n$ is thus given by the formula:

$$e_{ij}^{t+n} - e_{ij}^t = \sum_{k=t+1}^{t+n} (NS)^k_{ij} + \sum_{k=t+1}^{t+n} (IM)^k_{ij} + \sum_{k=t+1}^{t+n} (RS)^k_{ij}$$

where:

- $(NS)^k_{ij}$ is the national share effect of the decomposition of the employment change from year $k - 1$ to $k$, defined:

$$NS^k_{ij} = e_{ij}^{k-1} \times g_n^k$$

- $(IM)^k_{ij}$ is the industry mix effect of the decomposition of the employment change from year $k - 1$ to $k$, defined:

$$IM^k_{ij} = e_{ij}^{k-1} \times (g_{in}^k - g_n^k)$$

- $(RS)^k_{ij}$ is the regional shift effect of the decomposition of the employment change from year $k - 1$ to $k$, defined:

$$RS^k_{ij} = e_{ij}^{k-1} \times (g_{ij}^k - g_{in}^k)$$
• $g_n^k$ is the national growth rate of employment from $k - 1$ to $k$

• $g_i^k$ is the national growth rate of employment in industry $i$ from $k - 1$ to $k$

• $g_{ij}^k$ is the growth rate of employment in industry $i$ in region $j$ from $k - 1$ to $k$

The dynamic shift-share decomposition is applied to the change in regional employment over the recession-recovery period for the UK and the US. The recession-recovery dates for the UK and the US are the same as those used in Tables 4 and 5. States in the US are aggregated into Census divisions for the analysis.

The results of the dynamic shift-share analysis are shown in Figure 14, which suggest that industrial mix effects were more important in the UK than in the US during the early 1980s recession and recovery. The change in employment in each region of the UK and the US is decomposed into the national share, industry mix, and regional shift effects, computed dynamically. In general, the decompositions for the UK indicate larger industrial mix effects and national effects, while the decompositions for the US indicate larger regional effects. These trends are even more apparent when comparing the regions with the most change over the period. In the UK, the South East (including London) attracted new employment over the period. Most of this additional employment is due to the industry mix effect rather than a pure regional effect. In contrast, the region of the US with the worst employment growth, the East North Central division, is dominated by a regional effect above and beyond industry mix effects. These results suggest that the regional disparities in employment observed in the UK during the early 1980s recession and recovery were in large part due to the differing fates of industries in this period.

In some ways, the regional employment effects of the early 1980s recession in the UK and the US were quite similar. The distribution of employment across regions in both countries changed significantly during the early 1980s period, with poor performing regions in the UK losing employment to growth in the South East, and the Midwestern US losing employment to regions like the South Atlantic and the West. Additionally, both countries had more significant industry labor reallocation in some regions than in others during the recession. However, as Figure 13 shows, tradable industries did poorly in high and low performing regions of the UK more than in the US. A dynamic shift-share analysis confirms that industrial mix effects played a larger role in UK regional employment changes than in the US. Therefore, the regional disparities in employment observed in this period in the UK were more significantly shaped by industry labor reallocation than those in the US.
6 Job polarization

Job polarization is the trend for routine, “middle-skill” occupations to disappear in the labor market. The center of a skill or wage distribution of jobs hollows out as the employment share of non-routine manual or service jobs increases at the low end of the distribution, while the share of jobs using abstract skills increases at the high end of the distribution. This creates an “hourglass” labor market with fewer opportunities for middle-skill workers with occupations involving routine tasks.

Job polarization in the US is typically understood to have begun in the late 1980s or early 1990s. Acemoglu and Autor (2011) write “During the 1980s (1979-1989), employment growth by occupation was nearly monotone in occupational skill; occupations below the median skill level declined as a share of employment and occupations above the median increased. In the subsequent decade, this monotone relationship gave way to a distinct pattern of polarization” (1071). The emergence of job polarization in the US thus coincided with the emergence of jobless recoveries in the early 1990s, leading Jaimovich and Siu (2020) to draw a connection between the two phenomena. Because of this prior literature, US job polarization is not re-evaluated in this section.

There is also a large literature on job polarization in the UK and Europe, some of which suggests that job polarization was occurring during the early 1980s. Goos and Manning (2007) in an early work find evidence of job polarization from 1975 to 1990 in the UK, arguing that this polarization was due to the decline of routine tasks (following Autor, Levy, and Murnane

This section differs from these thorough treatments of longer-term job polarization by exploring job polarization specifically during the early 1980s recession-recovery period. Given that job polarization might have been more significant in the UK than in the US during these years, the aim is to understand whether job polarization contributed to the early 1980s jobless recovery in the UK, and if so, to what extent. The findings of this section indicate that job polarization did occur over the 1979-1987 period, but in many cases this job polarization occurred between industries. This suggests that the reallocation of labor across industries was a larger factor than occupational polarization over these eight years.

**Data and methods**

Following the literature, the data for the analysis in this section comes from the Annual Survey of Hours and Earnings (ASHE), previous called the New Earnings Survey (NES). The longitudinal ASHE data is available as a confidential dataset from the ONS Secure Research Service. This dataset contains about 300,000 observations per year, taken as a 1% sample from HM Revenue and Customs records of employee payrolls. The data contain information on wages and hours worked that are linked to employees’ occupations, industries, and demographic characteristics. This allows for a detailed analysis of job polarization.

Using the ASHE, job polarization over the early 1980s is identified in this section in two ways. The first method captures the changing occupational structure by tracing the prevalence of abstract, service, and routine tasks. This method is common in the US job polarization literature, and a similar method has been applied to the post-1990 Labour Force Survey data for the UK in Dabla-Norries, Pizzinelli, and Rappaport (2019). The second method ranks occupations based on their average hourly earnings and then tracks how the employment share of each decile changes over time. This is the method used in Goos and Manning (2007) and Cristini, Geraci, and Muellbauer (2018), among others, which also rely on the NES-ASHE data. Both of the methods used to capture job polarization are discussed in detail before their results below.
Abstract, service, and routine scores

The first method of tracking job polarization computes the amount of routine, abstract, and service tasks in the economy each year based on the occupational composition. Using the ASHE longitudinal data, the occupational codes from 1975 are first mapped into occupational codes from 2010. These 2010 occupational codes are then linked to O*NET SOC classifications which specify the amount of abstract, service, and routine tasks within each occupational category. As the composition of occupations changes in the economy, so does the prevalence of abstract, service, and routine tasks. Thus, for each year, the average abstract, service, and routine tasks across the population indicates how occupational change has shifted the tasks undergone in the economy.

A strength of this method is that it captures the changing task composition of the economy. This aligns closely with the interpretation of job polarization as the decline of jobs with primarily routine tasks. Task-classified occupations thus offer a less noisy signal of job polarization than other methods that might capture routine jobs less directly. However, in the present historical application, this method has a major limitation because it depends critically on the classification of tasks in each occupation in 2010. While the O*NET task classifications are widely used in the literature, it is likely that occupations used different tasks in the late 1970s and early 1980s than they did in 2010. For example, in the 1980s the tasks of a travel agent might involve referencing paper fare sheets, calculating cost-effective travel routes, and issuing handwritten tickets. Travel agents today can largely automate the tasks of finding economical travel routes and arranging bookings, so instead have specialized in other areas of travel management, relying on more abstract skills to operate travel management technology or to handle the bespoke travel needs of various businesses. This limitation is more significant if the tasks of an occupation changed considerably between the early 1980s and 2010. Job polarization that caused the decline in the prevalence of some occupations, such as bank tellers, would still be captured accurately by this method.

Figure 15 shows the changing task composition on average in the UK from 1979 to 1987. The occupation of each respondent in the ASHE is assigned a score for the amount of abstract, routine, and service tasks involved in the occupation, and the average of each of these scores is then taken for the entire sample in each year. The occupational change over the time period then drives the shift in task composition. The solid line shows that routine tasks became less frequent over the period, indicating a decrease in the proportion of employment in occupations with significant routine tasks. In contrast, abstract and service tasks increased. This suggests that occupations with more routine tasks were declining in the UK while abstract and service-based occupations became increasingly important.

The trend in abstract, routine, and service tasks across occupations was extremely similar
Figure 15: Change in task composition, 1979-1987

Source: ONS confidential ASHE data

Figure 16: Change in task composition by gender, 1979-1987

Source: ONS confidential ASHE data
across the Standard Statistical Regions of England, Scotland, and Wales, as shown in Appendix C. Figure 16 shows the change in task composition by gender, which also demonstrates little difference. Finally, Figure 17 disaggregates between full-time workers and part-time workers. While the overall trend was the same, the decline of routine tasks in the part-time economy was not as steep as in the full-time economy.

**Shifts in occupational deciles**

The second method of quantifying job polarization ranks the occupations in the ASHE by their average hourly earnings. Using this ranking, occupations are sorted into deciles, with lower paid occupations in the lower deciles, and higher paid occupations in the higher deciles. This allows the middle-skill, middle-wage occupations to be identified. Then, keeping the ranking of occupations constant over time, the share of employment represented by each decile changes as the occupational structure shifts, capturing job polarization.

A strength of this method is that it captures job polarization in an intuitive way by sorting occupations into high, middle, and low skill categories that can be tracked over time. This method also avoids the mapping issues that arise when occupational codes from 1975 are translated into more recent occupational classifications. However, a drawback of this method is that it makes the assumption that the distribution of wages corresponds closely with the definition of skill that relates to job polarization. While this assumption is common in the literature, wages are only an imperfect proxy for the skill level of an occupation. It is also not necessarily true that the skill level of occupations as proxied by wages completely captures the notion of job polarization in terms of routine tasks within an occupation.

Figure 18 shows how the employment share of each occupational decile changed from 1979 to 1987. The occupational deciles were determined based on average hourly earnings in 1979, with the occupations with the lowest average hourly earnings in decile 1 and the
occupations with the highest average hourly earnings in decile 10. The bars give the change in the proportion of total employment classified into that occupational decile. The black bars calculate the raw share of employment based on the number of workers in each occupational decile as a proportion of total employment. The white patterned bars calculate the share of employment based on hours worked, capturing changes on both the extensive and intensive margin.

The U-shaped change in employment share by occupation deciles indicates that job polarization was occurring from 1979 to 1987. The employment share of the lowest two deciles and the highest three deciles increased over the period, while the employment share of the middle five deciles decreased. This indicates that the occupational composition of the economy was shifting away from the middle-skill occupations towards the upper and lower ends of the distribution. The scale of this change is modest. In terms of employment share by count, the lowest two deciles increased their share by about 0.9 percentage points each. Similarly, the topmost decile increased employment share by about 0.9 percentage points. There was variation in the decrease in employment share of the middle deciles, ranging from 0.3 percentage points to 1.8 percentage points.

Do these results depend on the year in which the occupations are classified by their aver-
age hourly earnings? As a robustness check, the occupational rankings are calculated for four different base years — 1975, 1979, 1983, and 1987. Figure 19 gives the change in employment share by decile from 1975 to 1990 for each of these base years. All of the base years yield a similar U-shaped pattern of employment share change over the period, indicating that the general trend of job polarization is robust to different specifications of the base year. However, it is interesting to note than over this extended period, the second decile shows a decrease of employment rather than an increase in employment as in the 1979-1987 case in Figure 18. This suggests that the job growth of the bottom end of the occupational ranking was weaker than the job growth at the top end. It is also worth noting that over this extended period, the shifts in employment share were larger in both directions. For the topmost decile, the employment share increased by 3.0 percentage points according to the 1979 occupational ranking, and the middle five deciles had employment share decreases of 0.6 to 2.3 percentage points.

**Between-industry and within-industry job polarization**

Both methods of identifying job polarization — tracking routine tasks and the employment share of occupational deciles — indicate that job polarization was occurring in the UK during the early 1980s. However, it is still necessary to distinguish whether this job polarization was mainly “within industry” or “between industries.” Within-industry job polarization refers to routine or middle-skill occupations disappearing within a certain industry as technological
change or offshoring changes the task composition of that industry. For example, bank tellers were an important component of the banking and finance industry in the past, conducting routine financial transactions. As banking transactions became more automated and accessible online, there are fewer routine tasks in the banking industry, and the occupation of “bank teller” is less important to the industry. In contrast, between-industry job polarization picks up on the effects of structural change and industrial reallocation. For example, as the industry of mining declines, so does the employment share of occupations typically associated with mining, such as “mining machine operator.” The within-industry component is what is typically thought of as job polarization, because the driving force behind between-industry effects is actually the larger processes of industry labor reallocation and structural change.

The overall trend of job polarization can be broken down into the between-industry and within-industry components by decomposing the change share of employment for each occupation decile. The between-industry component captures the change in the share of overall employment concentrated in an industry, weighted by the share of the industry that is in an occupation in the relevant decile. The within-industry component captures the change of the share of an industry that is in an occupation in the relevant decile, weighted by the share of that industry in overall employment. These components are captured by the shift-share formula:

\[ \Delta S_{d,t} = \sum \Delta S_{i,t} \omega_{d,i,t} + \sum \omega_{d,i,t} s_{i,t} \]

where the first term represents the between-industry component and the second term represents the within-industry component. More specifically,

- \( \Delta S_{d,t} \) is the change in the employment share of the occupational decile \( d \) from \( t \) to \( t + 1 \)
- \( \omega_{d,i,t} \) is the average share of industry \( i \) employed in the decile \( d \) at time \( t \)
- \( s_{i,t} \) is the average employment share of industry \( i \) at time \( t \).

Table 6 gives the results of this decomposition for all ten occupational deciles over the 1979 to 1987 period. Occupations are ranked by average hourly earnings as in the previous section, with 1979 as the base year. The employment share of each decile is given for 1979 and 1987, where the employment share is calculated by the proportion of workers. The final two columns show how the percentage point change is decomposed into within-industry and between-industry components.

---

6. The results are qualitatively similar when employment share by hours is used.
Table 6: Decomposition of decile employment share change, 1979-1987

<table>
<thead>
<tr>
<th>Decile</th>
<th>Emp. Share in 1979</th>
<th>Emp. Share in 1987</th>
<th>Percentage Point Change</th>
<th>Within Industries</th>
<th>Between Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15.84%</td>
<td>17.01%</td>
<td>1.17%</td>
<td>-0.02%</td>
<td>1.17%</td>
</tr>
<tr>
<td>2</td>
<td>14.82%</td>
<td>16.07%</td>
<td>1.25%</td>
<td>0.79%</td>
<td>0.44%</td>
</tr>
<tr>
<td>3</td>
<td>16.48%</td>
<td>16.37%</td>
<td>-0.12%</td>
<td>0.12%</td>
<td>-0.20%</td>
</tr>
<tr>
<td>4</td>
<td>9.23%</td>
<td>8.19%</td>
<td>-1.04%</td>
<td>-0.71%</td>
<td>-0.33%</td>
</tr>
<tr>
<td>5</td>
<td>7.71%</td>
<td>6.89%</td>
<td>-0.82%</td>
<td>-0.08%</td>
<td>-0.71%</td>
</tr>
<tr>
<td>6</td>
<td>6.50%</td>
<td>5.95%</td>
<td>-0.54%</td>
<td>-0.09%</td>
<td>-0.44%</td>
</tr>
<tr>
<td>7</td>
<td>5.83%</td>
<td>4.11%</td>
<td>-1.71%</td>
<td>-0.97%</td>
<td>-0.74%</td>
</tr>
<tr>
<td>8</td>
<td>6.45%</td>
<td>6.80%</td>
<td>0.36%</td>
<td>0.26%</td>
<td>0.09%</td>
</tr>
<tr>
<td>9</td>
<td>6.00%</td>
<td>6.49%</td>
<td>0.49%</td>
<td>0.88%</td>
<td>-0.40%</td>
</tr>
<tr>
<td>10</td>
<td>11.14%</td>
<td>12.10%</td>
<td>0.96%</td>
<td>-0.18%</td>
<td>1.11%</td>
</tr>
</tbody>
</table>

Source: ONS confidential ASHE data. Employment share by count. The final two columns may not add up to the total percentage point change due to rounding.

While there is some variation across the deciles, in some of the key deciles it is clear that a between-industry effect makes up most of the polarization result. In the first decile, the entire 1.17 percentage point increase in employment share is attributable to the between-industry component. Similarly, only the between-industry component accounts for the increased employment share of the tenth decile. In the fifth decile, which shows a significant decrease in employment share, over 85% of the effect is due to shifts between industries. Without the between-industry component, there would be little or no evidence of polarization in these deciles and thus no U-shaped pattern when the changes in employment share are considered for all deciles.

The importance of the between-industry effect indicates that the driving force behind the job polarization results for the UK in this period is actually the shifting industrial composition of the economy. While there is evidence for job polarization measured in terms of abstract, service, and routine tasks and by occupational deciles, much of this polarization is an empirical result of the changing industrial structure of the UK. Thus, these results offer additional evidence that reallocation was the key factor behind the early 1980s jobless recovery in the UK.

7 Conclusion

This paper has argued that the recovery from the 1980–1981 recession in the UK can be considered an early example of a jobless recovery. Taking the US as a comparison case, the interacting forces of labor reallocation across industries, regional change, and job polarization were
analyzed for both countries in the early 1980s. While the UK and the US were similar in many ways, the UK faced rapid, permanent industry labor reallocation at a level unseen in the US. The decline in the employment share of manufacturing and the increase in the employment share of banking and finance in the UK were especially large relative to the US.

Both the UK and the US had significant changes in their regional distribution of employment during the early 1980s period, but in the UK these were in large part due to the differing fates of industries. Industrial mix effects were more significant in the UK than in the US, and tradable industries suffered in both high and low performing regions. The regional disparities in employment that emerged in the UK thus reinforce industrial reallocation as the central difference between the UK and the US.

Finally, while job polarization was more significant in the UK than in the US over the recession and recovery period, a large portion of this polarization was between industries rather than within industries. These results thus offer additional evidence that labor reallocation across industries was the key factor behind the early 1980s jobless recovery in the UK.

This work has taken the first step toward analyzing the employment recovery from the 1980–1981 recession in the UK as a jobless recovery. The centrality of labor reallocation across industries directs future research toward theoretical and empirical questions about why this form of structural change was so rapid and persistent during these years of recession and recovery.
References


Appendices

A  Non-disclosed employment figures in the QCEW

The US Bureau of Labor statistics suppresses publication of data that could possibly identify individual employers in the QCEW. Disclosure restrictions only become an issue when industry-level analysis is conducted at the sub-national level, as the US totals include all observations. Disclosure restrictions therefore do not affect aggregate sectoral analyses such as in Figure 8 or Table 4.

On the state level, used to calculate industrial reallocation, 14.55% of observations of quarterly employment from 1975 to 1986 are not disclosed at refined industry categories. The majority of these cases are for industry categories located in local, state, and national government sectors. Only 4.3% of non-disclosed observations are in the private sector, so disclosure issues are minimized by restricting to the private sector. Restricting to the private sector leaves only 4.1% of observations undisclosed.

All of these suppressed observations fall into three broad industry categorizations: agriculture, mining, and non-classifiable industries. Fortunately, in agriculture and mining, undisclosed quarterly employment observations are more likely to be one-off occurrences rather than missing for long periods of time. This makes it possible to simply interpolate from the surrounding rows an estimate of quarterly unemployment in the quarters in which such data is unavailable. On the state level, this interpolation frequently yields “0” as many states do not have any activity in these sectors. The interpolation leaves no undisclosed employment counts for agriculture and mining.

Undisclosed employment figures are more pervasive in non-classifiable industries, but this catch-all category is not a focus of the analysis and is omitted in many of the figures.

B  Standardization of sectors between UK and US

Sectors are standardized in a straightforward way between the UK and the US datasets. The mapping is provided in Table 7 for replicability.

C  Abstract, service and routine task trends by region

Figure 20 demonstrates that the trend in abstract, routine, and service tasks across occupations was extremely similar across regions
<table>
<thead>
<tr>
<th>Sector and Industry</th>
<th>UK (SIC 1980)</th>
<th>US (SIC 1972)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing</td>
<td>0</td>
<td>A</td>
</tr>
<tr>
<td>Construction</td>
<td>5</td>
<td>C</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2, 3, 4</td>
<td>D</td>
</tr>
<tr>
<td>Wholesale Distribution</td>
<td>61-63, 66-67</td>
<td>F</td>
</tr>
<tr>
<td>Retail Distribution</td>
<td>64-65</td>
<td>G</td>
</tr>
<tr>
<td>Banking, Insurance, Finance</td>
<td>8</td>
<td>H</td>
</tr>
<tr>
<td>Education and Services</td>
<td>93-99</td>
<td>I</td>
</tr>
<tr>
<td>Mining, Energy, Water, Transport,</td>
<td>1, 7</td>
<td>B, E</td>
</tr>
<tr>
<td>Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Administration and Defense</td>
<td>91-92</td>
<td>J</td>
</tr>
</tbody>
</table>
Figure 20: Change in task composition by region, 1975-1995

Source: ONS confidential ASHE data. Y-axis gives the task score as a percent of the average from 1975-1995.
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