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Real wage and productivity stagnation

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Abstract

The UK's economic performance since the global financial crisis has seen real wage growth stagnating for over fifteen years and weak productivity growth with most, but not all, of the wage stagnation overlapping with the productivity slowdown. This paper studies these stagnation patterns in detail for the UK, and places them in international context where the country does not fare well as it both drops down wage and productivity growth rankings across countries. There has been a longer term decline in the influence of labour market institutions in affecting worker wages as the changing balance of power between workers and employers has played a role in the emerging wedge between wage and productivity growth in the stagnation period. The paper concludes with a policy related discussion of possible sources where sustained wage growth could re-emerge, and thereby generate improvements in living standards, in the future.

Keywords: real wage growth, productivity growth, employer and worker power.

JEL codes: J31, J38, J42, J51

I. Introduction

The real wage stagnation experienced by UK workers over the past 15 years has been the previously unprecedented longest spell of workers experiencing no average wage growth in real terms for well over a century. In the years following the global financial crisis, workers on average have not had a real terms wage increase and are no better off than they were back in 2008. At the same time, productivity growth has stalled and at best only featured sluggish growth relative to the long period of steady growth that predated the global financial crisis.

A similar broad pattern of wage and productivity slowdown is seen in other countries, but typically the extent of economic stagnation has proven less severe. This has been especially the case for real wages, but also for productivity as the UK's growth of both has fallen sharply down the international rankings. A cumulating need to get out of the mire of stagnation has become more and more pressing, as living standards of the majority of UK citizens have fallen back. The UK has experienced common aspects of global stagnation, but with additional factors causing a bigger slowdown. Among these are the austerity programme of the government and associated welfare reforms (Innes and Tetlow, 2015; Fetzer, 2019), the economic effects of the decision to leave the European Union (Dhingra and Sampson, 2022), and dire levels of public and private investment that have restricted economic growth (Odamtten and Smith, 2023). The economic stagnation featuring a lack of living standards improvements through anaemic real wage growth and poor economic growth performance has been a significant factor hindering the capacity of the UK to be able to deliver core welfare services as well as other public services.

This paper studies the extent of real wage and productivity stagnation, documenting the patterns of change over the past half-century with consistently defined data and making it very clear the norm prior to the global financial crisis was one of long periods of rising real wages and steady productivity growth. But in the past 15 years, this norm was broken as real wages stagnated and productivity barely grew.

Empirical evidence is offered on both, by focusing specifically on the UK case and by placing it into international context by comparison with the experiences of other countries. The stagnation of both real wages and productivity are closely connected, and this is the case in all of the countries considered. But in the UK setting, it is not only weak productivity growth that accounts for real wage stagnation. Additional factors have driven the more severe stagnation that UK workers have experienced. This paper considers, in particular, the shifting long-term role of labour market institutions in affecting wages and the division of rents between firms and workers. The balance has moved strongly in favour of employers and away from workers, and this is also an important feature of wage determination in the era of real wage stagnation.

The paper is structured as follows. Section II shows the evolution of real wages in the labour market since 1980, revealing the post-2008 stagnation and comparing it internationally. Section III considers productivity trends, and explores their connection to the real wage stagnation, again first with a UK focus and then compared to elsewhere. Section IV considers the wage and productivity stagnations together and the emergent gap between them in the UK. It assesses the changing impact of labour market institutions in affecting wages and the wage-productivity stagnation gap, with an assessment of its role in the economy reaching the now persistent stagnation of real wages over the past 15 years. Section V contains a discussion about means by which economic stagnation could be halted, including how policy could raise wage growth to boost workers' living standards. Section VI concludes.

II. Real wage stagnation

(i) Real wages

Figure 1 shows annual real weekly earnings from 1980 to 2023. It plots the Office for National Statistics (ONS) headline average earnings series (AWE), expressed in real terms in 2023 consumer prices. The bigger part of the 44 years covered in the chart saw real consumer wages growing. In the latter third of the period, covering, broadly, the last 15 years since the global financial crisis of 2007/8, real wages stopped growing faster than prices and stagnated. Over what has now become an extended period from 2008 onwards—the longest in history since consistent wage records exist—there has consistently been no growth in average real wages.

Figure 1 shows that in 2023, the average weekly wage of £667 was almost double the 1980 wage expressed in current prices of £340. This corresponds to an annual growth rate over the entire 1980–2023 period of 2.2 per cent. Expressed this way, the labour market appears as delivering real wage growth to workers over time, so that wages grow faster than prices, leading to improved living standards for workers.

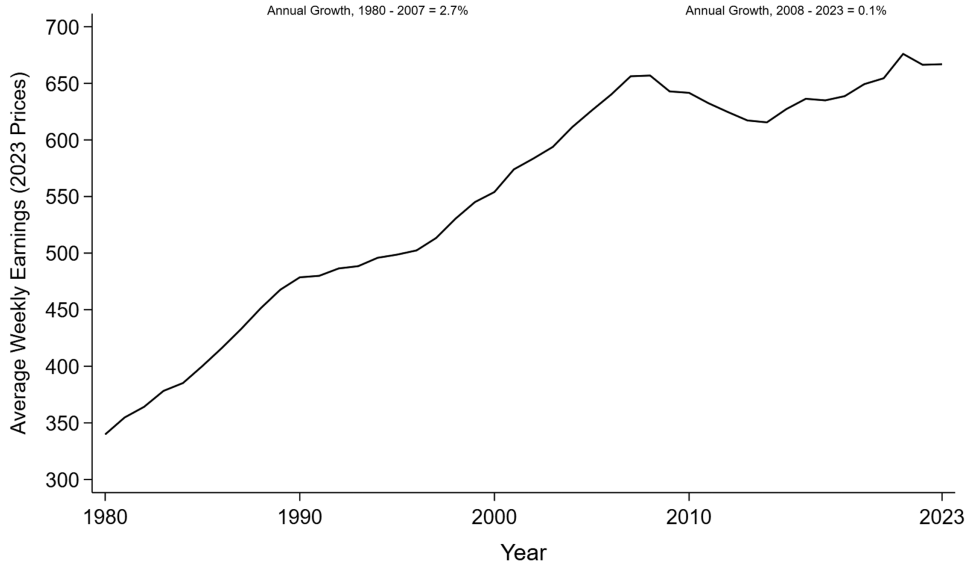

Figure 1: Average real wages, 1980–2023

Notes: Real average weekly earnings for the whole economy, total pay, expressed in 2023 consumer prices (CPIH deflator) from ONS.

The growth rate, however, was neither smooth nor uniform across time as the flattening out of the wage line in the latter years shows. In fact, by 2007 the real wage was £656, and only £11 a week higher in 2023. Breaking down the real wage growth into two time periods, 1980 to 2007 and 2008 to 2023, makes the scale of the growth stop and the stagnation very clear. The annual growth rate up to 2007 was a healthy 2.7 per cent. In the next 15 years, it averaged 0.1 per cent a year.

The same pattern of real wage stagnation since 2008 is clear in other commonly featured wage series, for hourly and full-time weekly earnings measures, including the Annual Survey of Hours and Earnings (ASHE) and the Labour Force Survey (LFS). See the Appendix charts Figure A1*a* for ASHE average real hourly earnings and Figure A1*b* for LFS average full-time weekly earnings. Both have an average annual growth rate of 0.0 per cent between 2008 and 2023.

Thus, the scope for earnings to deliver improvements in living standards for British workers vanished over time. By 2023, it reached a point where real wage growth has stalled for the longest period for which comparable records exist, dating back to at least Victorian times in the late nineteenth century.[1]

(ii) The international position

The UK real wage stagnation relative to the period before compares relatively poorly with other countries. Table 1 draws on a consistent wage measure—annual full-time earnings, from the Organization for Economic Cooperation and Development (OECD)'s database—for 19 countries from 1991 through 2023. It shows the UK's real wage growth from this different wage measure corresponds closely to the AWE measure already considered, with real wages growing by 1.2 per cent a year over the whole period, and by 2.4 per cent prior to 2008, and with full stagnation after that.

The full time period UK real wage growth was quite similar to the average across 18 countries, with the 1.2 per cent a year figure compared to an 18 country average of 0.9 per cent. The UK's rank among the countries was sixth out of 19. But looking at the whole period masks the big turnaround that occurred. It turns out that UK real wages were growing third fastest at 2.4 per cent a year between 1991 and 2007, a full 1.1 per cent faster than the 18 country average. But the fall to zero per cent growth from 2008 to 2023 mean the UK was leapfrogged by a lot of the other countries. The drop in ranking is a significant and dramatic one—down to 16th out of 19 countries.

The final column of Table 1 starkly reveals the scale of stagnation relative to what was going on before. Real wage growth across the two periods fell by 2.4 per cent year in the UK, the biggest fall of all 19 countries. The average drop across the 18 countries was –0.8 per cent a year, so UK workers fell back by 1.6 per cent a year with the entirely lacklustre real wage growth they experienced.

Figure 2 shows cumulative annual growth rates for the 19 countries, with the UK line in black and the other countries in grey. Up to just before 2008 the UK's relative real wage growth was strong compared to other countries. Afterwards growth stopped as it fully flatlined. Thus the 15 years of wage stagnation and stalled living standards were not only bad within the UK, but also saw the country's labour market dropping back compared to other countries where, although some degree of wage slowdown was usually the case, it did not materialize as full

Table 1: Real wage growth (annual %) relative to OECD countries, 1991–2023

	1991–2023	1991–2007	2008–23	Change: (2008–23) – (1991–2007)
A. Relative comparison				
UK	1.2	2.4	0.0	–2.4
Average in 18 countries	0.9	1.3	0.5	–0.8
UK – average	0.3	1.1	–0.5	–1.6
B. Rank				
UK rank	6th	3rd	16th	19th

Notes: Data on annual earnings (average annual wages per employee in full-time equivalent unit in the total economy) deflated to 2023 country-specific consumer prices from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

[1] The Trades Union Congress dates it back even further, referring to the 'worst pay squeeze since the Napoleonic wars (1798–1822)' (Bell, 2023).

stagnation. Apart from the four countries at the bottom, whose wages stagnated both before and after 2008 (especially Italy and Japan), in most countries whose real wage growth was positive in the former period, it was also positive, though reduced, in the latter period. The UK is the exception in that regard, hence the sharp drop down the rankings that materialized with the greater wage stagnation then elsewhere.

III. Productivity stagnation

(i) GDP per hour

Figure 3 shows what has happened to UK productivity, based on ONS data measuring GDP per hour worked, from 1980 to 2023. At first look, the growth patterns seem highly similar to the real wage trends shown in Figure 1. There is a healthy growth rate of productivity up to the global financial crisis, slowing to stagnation afterwards. The annual growth rate was 2.2 per cent per year from 1980 to 2007, and it fell not quite to full stagnation, but to 0.4 per cent a year from 2008 to 2023.[2] Thus, productivity also stalled, which is immediately suggestive that the real wage stagnation came about because of the growth slowdown. One point to note, however, which is returned to again below, is that the pre-/post-2008 productivity growth gap of –1.8 per cent a year is smaller (in absolute terms) than the real wage growth gap of –2.6 per cent a year.

(ii) The international picture

Table 2 and Figure 4 show results for productivity growth from the same exercise as was done for real wage growth using the international data.[3] They show the productivity position has strong similarities, but without getting to be quite as stark as the fully vanishing growth seen for wages. The UK drop down the rankings is seen again, with the second worst performance relative to before the global financial crisis. The trends in Figure 4 show a fall back, but the UK fell back to be just at the lead of the pack of countries whose productivity growth stalled relative to before, but whose performance was similar over the full 1991–2023 period (i.e. below the top performers, but above those weak throughout).

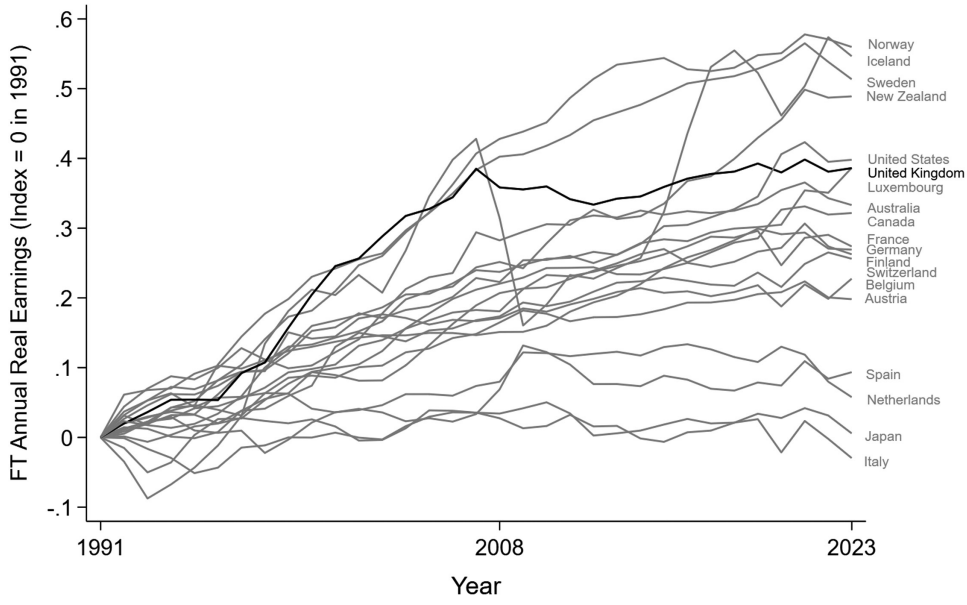

Figure 2: Real wage growth, 19 OECD countries, 1991–2023

Notes: Data on annual earnings (average annual wages per employee in full-time equivalent unit in the total economy) deflated to 2023 country-specific consumer prices from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

[2] Figure A2 shows the same chart for GDP per worker, with a highly similar pattern, of a slightly lower 1.8 per cent a year growth rate from 1980 to 2007, and a fall to the same 0.3 per cent a year rate of growth post-2008.

[3] An analogous Table A1 and Figure A3 are given for output per worker in the Appendix.

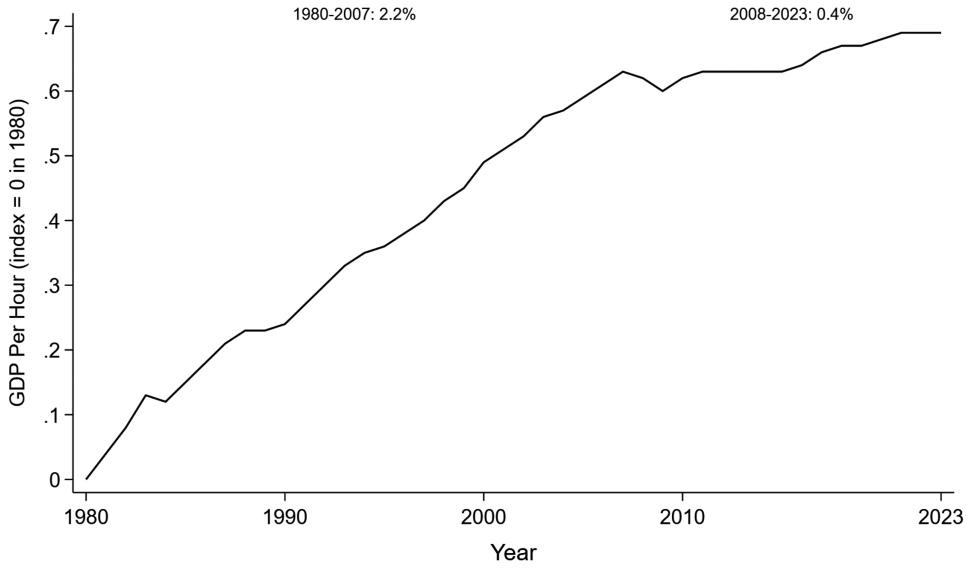

Figure 3: GDP per hour

Notes: UK Whole Economy GDP per hour worked, from ONS.

Table 2: Real GDP per hour (annual %) relative to OECD countries, 1991–2023

	1991–2023	1991–2007	2008–23	Change: (2008–23) – (1991–2007)
A. Relative comparison				
UK	1.4	2.4	0.4	–2.0
Average in 18 countries	1.2	1.9	0.7	–1.2
UK – average	0.2	0.5	–0.3	–0.8
B. Rank				
UK rank	5th	4th	14th	18th

Notes: Data on GDP per hour deflated to 2023 country-specific prices and PPP from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

IV. Wage and productivity stagnation

Considering the extent of wage and productivity stagnation together, basic economics suggests that in the longer term wages and productivity grow in line with one another, as they have done for many periods in the past, and this indeed was largely the case up to 2008. This would imply one-to-one stagnation patterns also, and there is some evidence of this. However, it is also evident that the mapping of the two over the past 15 years has not moved one to one in the UK, whereas in other countries it has.

Figure 5 considers wage and productivity stagnation together, from the cross-country comparison. The stagnations are quite strongly correlated, with a Spearman rank correlation of 0.60 (p-value = 0.00), and most countries are on or very close to the 45-degree line. Notably the UK is off the line, however. It has experienced a by now prolonged episode of both stagnations, but with more real wage than productivity stagnation.[4]

Of course, the bulk of the UK wage stagnation can be attributed to productivity stagnation. But not all of it. The gap in the international OECD data is 0.4 per cent a year. From the UK data in the same time window (with arguably a better wage measure) it is 0.6 per cent a year, so while productivity matters a lot, there is something else over and above productivity at work in accounting for real wage stagnation. From all of the various wage series considered earlier—the

[4] The other country off the 45-degree line in this period is Finland, with an opposite pattern to the UK where productivity grew less than real wages. This is another case of a prolonged episode involving deviations of wage growth from productivity growth, in the case of Finland arising from demand shocks (Nokia and exports falls) that further propagated through value chain linkages (Calligaris *et al*., 2023).

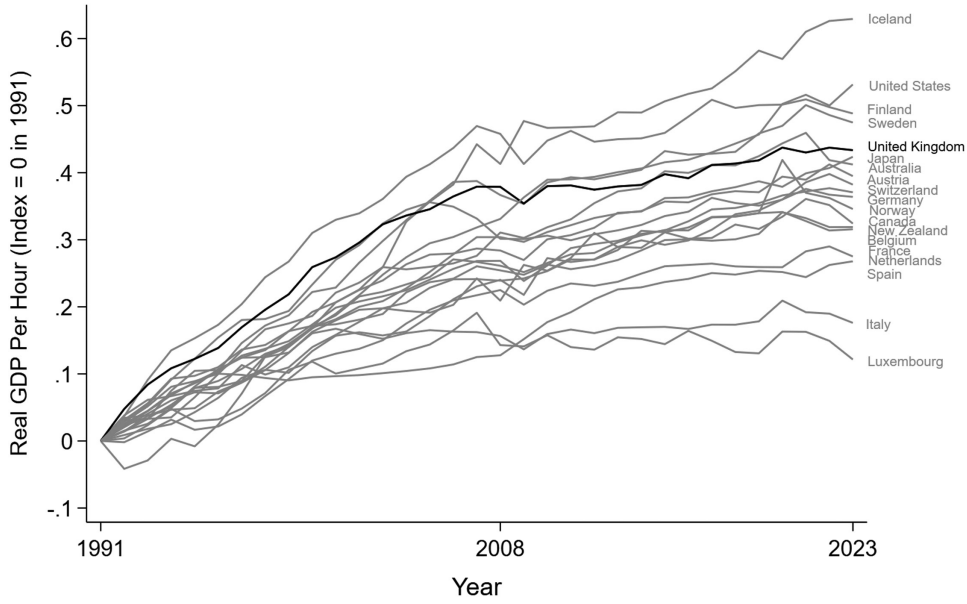

Figure 4: Real GDP per hour growth, 19 OECD countries, 1991–2023

Notes: Data on GDP per hour deflated to 2023 country-specific prices and PPP from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

AWE headline weekly earnings and the OECD full-time annual earnings, plus the hourly ASHE and full-time weekly LFS numbers in the Appendix—there is a wage-productivity stagnation gap of the order of 0.5 per cent a year.

Previous discussions of whether episodes of a decoupling of wage growth from productivity growth occur are relevant. Some of the UK work on the productivity puzzle (see Pessoa and Van Reenen, 2013, 2014) carefully considered this, concluding that up to around 2010 in the UK the extent of decoupling was actually rather limited. This is the case here up to 2008, where growth rates of the two are aligned, but in the past 15 years they have diverged with a partial decoupling. The productivity stagnation of around 2.0 per cent a year, and the wage growth of about 2.5 per cent a year, suggest that approximately four-fifths of the wage stagnation is down to weak productivity growth, but that for the other fifth something else is going on.

Figure 6 draws these patterns out in more detail by presenting an accounting decomposition of UK real wage growth for two time periods, 1991–2007 and 2008–23, with clear differences across the two. The growth rate of the real weekly consumer wage is approximately decomposed into productivity growth, the change in the labour share, the change in the relative price of consumption to value added, and the wedge from employer social contributions (this decomposition comes from Thwaites (2024), with data aligned into the two sub-periods of focus). Figure 6 makes it clear that productivity growth is a key driver of real wage growth, but that both showed extremely lacklustre growth rates in the post-2008 years of stagnation to date.[5] It is also worth noting some other sources from the decomposition that speak to a divergence between productivity and wage growth, and these are returned to below.

(i) Labour market institutions

One possible, and plausible, factor in the something else dimension is the role of union decline and more broadly the shifting balance of power between workers and employers. Over the years, research has considered the role of unions and bargaining power shifts in explaining rising inequality,[6] but far less frequently making connections to the stagnant real wages.[7]

[5] Comparing levels of wages across countries, the lower UK wage growth resulted in a slip down from 11th to 15th in the cross-country rankings of purchasing power parity (PPP) adjusted wages from the OECD for the same 19 country comparison between 2008 and 2023.

[6] US work pioneered by Freeman (1980, 1982) and DiNardo *et al.* (2004) which was further developed by Card (2001) to deal with differential selection by workers with different characteristics into union jobs, and UK work including Gosling and Machin (1995), Machin (1997), and Bell and Pitt (1998), presents decompositions of how much of rising wage inequality can be attributed to union decline.

[7] Machin (2016) is an exception and considers both the UK and US, showing cross-region patterns of real wage stagnation correlate positively with union decline.

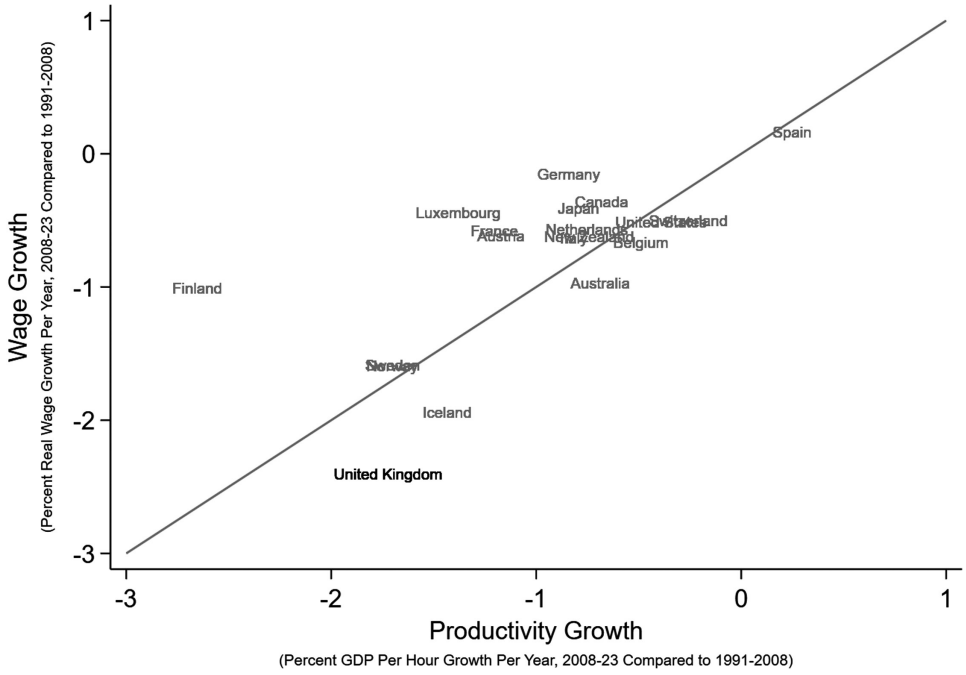

Figure 5: Real wage and productivity growth, 2008–23 relative to 1991–2007

Notes: Data on annual earnings (average annual wages per employee in full-time equivalent unit in the total economy) deflated to 2023 country-specific consumer prices and GDP per hour deflated to 2023 country-specific prices and PPP from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

Figure 6: Decomposition of UK real wage growth

Notes: Decomposition in annualized log differences of real consumer wage growth into contributions from growth in productivity (gross value added per worker), changes in the labour share (compensation/value added), relative prices (gross value-added deflator/CPIH), employer social costs (compensation/(wages and salaries)), wage/compensation (AWE/(wages and salaries)), and a residual term. Presented as in Thwaites (2024), but for time periods made consistent with the focus of this paper.

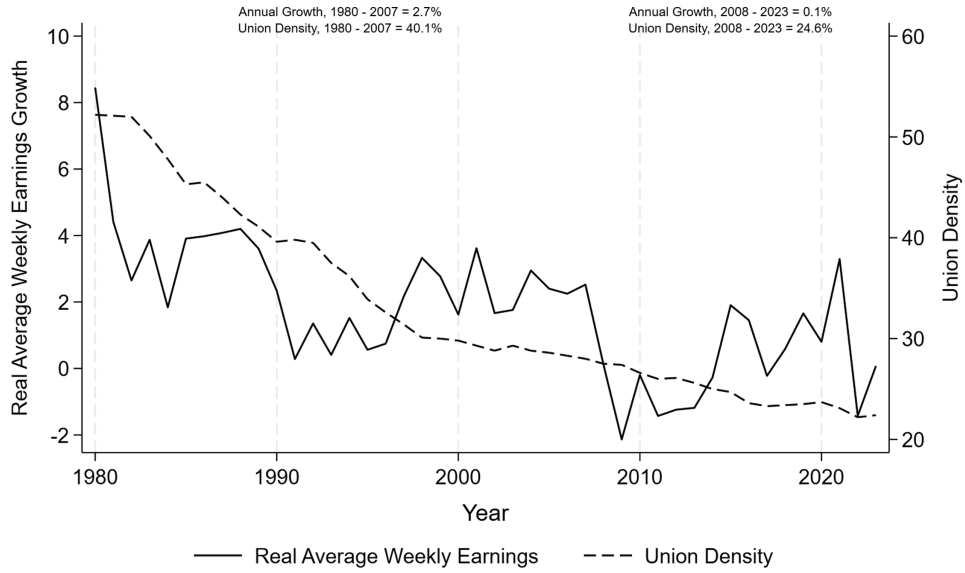

Figure 7: Real earnings growth (annual) and union density, 1980–2023

Notes: Real average weekly earnings for the whole economy, total pay, seasonally adjusted, expressed in 2023 consumer prices (CPIH deflator) from ONS. Union density from Department for Business and Trade (2023).

Table 3: Union density (%) relative to OECD countries, 1991–2023

	1991–2023	1991–2007	2008–23	Change: (2008–23) – (1991–2007)
A. Relative comparison				
UK	29.1	31.9	25.2	–6.7
Average in 18 countries	36.8	38.6	34.2	–4.4
UK – average	–7.7	–6.7	–9.0	–2.3
B. Rank				
UK rank	9th	9th	10th	13th

Notes: Data on union density from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

Four related aspects that connect a shifting power balance in wage determination to stagnating real wages can be considered:

Union decline

The sizeable decline in unionization rates of UK workers, and that the decline has been much sharper than in other countries, is well known. Both these dimensions display a clear association with lower real wage growth. Figure 7 plots annual real wage growth, the solid line with percentage growth rates on the left axis, against union density, the dotted line with per cent union membership on the right axis. It shows much slower real wage growth in the second, lower union density period. Between 1980 and 2008, when real wage growth averaged 2.7 per cent a year, union density was higher at 40.1 per cent than it was between 2008 and 2023 when it had fallen further to 24.6 per cent and real wage growth at the same time stagnated to 0.1 per cent a year.

In terms of international comparison Table 3 shows that union decline, even from a 1991 start year, is larger in the UK. And, as with wage and productivity stagnation, the UK falls in international rankings of union density rates over time. The UK drop in union membership as shown here, but also in terms of collective bargaining

Table 4: Union wage differentials, 1983, 2007, and 2023

Union log(FT weekly wage) differentials			
	1983	2007	2023
Union member	0.082 (0.011)	0.048 (0.009)	0.027 (0.017)
Controls for age, gender, degree, private, region	Yes	Yes	Yes
Sample size	5,359	8,817	3,553
Percent union wage differential	8.5	4.9	2.7

Notes: Estimated log(FT weekly wage) gaps between union and non-union members from 1983 General Household Survey and the Labour Force Surveys of 2007 and 2023. Standard errors in parentheses. The percent union wage differential is calculated as [exp(β) – 1]X100, where β is the estimated conditional union/non-union log wage gap from a regression relating the log wage to a union membership dummy and the controls listed in the table.

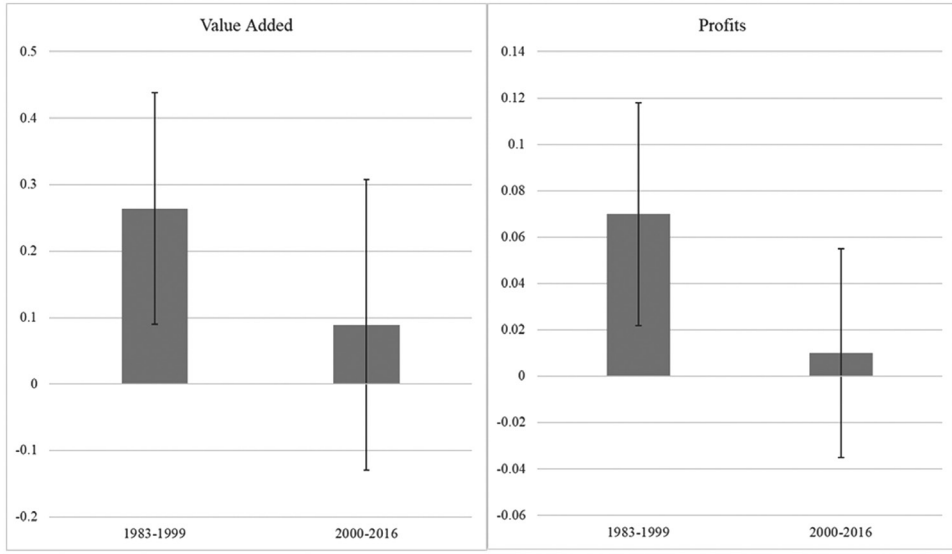

Figure 8: Declines in rent sharing, 1983–2016

Notes: From Bell *et al.* (2024). Based on firm-level data covering the top 300 UK firms from 1983 to 2016. The left-hand chart shows rent sharing estimates based on value added per worker, the right-hand chart based on profits per worker. The bars show estimates of rent-sharing elasticities, with associated 90 per cent confidence intervals.

coverage, means that union density by 2023 was barely half what it had been at its peak around 1980. This huge drop over time features a particularly marked decline in the private sector, where union density and coverage rates are now barely in double figures (respectively at 12 and 15 per cent in 2023).[8]

Falling union wage differentials

Not only did the extent of unionization fall so sharply, but even where unions still operate, their scope to raise wages of their members has been significantly eroded. There is still evidence of a positive union wage differential, but it has significantly dropped. Table 4 shows estimates of the union wage differential based on UK microdata on individuals from the General Household Survey in 1983, and the Labour Force Survey in 2007 and 2023. The union wage differential falls to a third of what it was at the start of the 1980s, and by almost half in the stagnation period The average union wage differential was 8.5 per cent in 1983, dropping to 4.9 per cent by 2007, and further to 2.7 per cent by 2023.

[8] In 2023, union density is 12 per cent and union coverage is 15 per cent in the private sector. Of course, there have also been public sector drops. By 2023, public sector union density is 49 per cent and union coverage higher at 68 per cent. For more detail both on the current picture and prior trends, see Department for Business and Trade (2023). See also the below discussion, in section 5, about an increased role of government in pay setting for public sector workers on introduction of Pay Review Bodies.

Declines in rent sharing

It is not just unionized workers whose wage growth position has deteriorated. A well-established literature over the years has produced evidence that when firms earn economic rents then workers share in these rents. As productivity and profits rise, so do wages through rent sharing (Card *et al*. (2018) and Manning (2011) review the now sizeable literature).[9] Figure 8 reproduces a chart from Bell *et al*. (2024) which shows UK evidence of a falling share of economic rents going to workers over time. They estimate rent-sharing elasticities for the top 300 UK firms from 1983 to 2016. The figure shows evidence of rent sharing in two sub-periods, 1983–99 and 2000–16. But the rent-sharing magnitude falls sharply, providing evidence of a fall in the extent of rent sharing (of value added and of profits) over time. A falling share of rents going into workers' wages also contributes to the slowdown in real wage growth. See also Stansbury and Summers (2020) for US evidence, and the case study of the UK automobile industry by Norris Keiller *et al*. (2024).

Management pay setting

Further to the first three aspects, going hand-in-hand with falling union presence and power to raise wages, and a reduction in the sharing of rents in union and non-union settings, the nature of wage determination in UK firms has featured moves to more decentralized wage bargaining where unions still bargain with firms and, where they do not (now the considerable majority), to management unilaterally setting wages. Recent evidence produced for the Economy 2030 Inquiry (Altunbunken *et al*., 2022) has discussed both. As unions have declined, employers and managers have assumed a dominant position in determining workers' pay and working conditions. In the private sector, unilateral wage setting by managers has become near universal: among private-sector establishments with 10 or more employees, 87 per cent used this type of wage setting in 2011. And in the public sector, where collective bargaining still has a role, with coverage of workers still relevant for two-thirds of workers in 2023, the pay review bodies who set pay have also reduced the wage setting impact of unions through significant pay restraint since 2010.

V. Halting economic stagnation

The evidence presented so far emphasizes that the prolonged period of real wage and productivity stagnation raises significant questions about detrimental effects on living standards. It naturally leads to the further question about whether real wage growth, and ergo improvements in living standards, can be improved. In the coming years, where could real wage growth to improve living standards come from?

First and foremost in formulating a coherent response to this question is the productivity angle. This is the principal issue in thinking about where real wage growth can come from since the real wage and productivity stagnations mostly overlap. If it is possible to dig a way out of the productivity hole, then presumably that generates wage growth. More detail on a range of possibilities that could stimulate productivity is in Van Reenen and Yang (2023). Recent high profile discussions about the need for a new economic strategy for the UK—the Economy 2030 Inquiry (Resolution Foundation and Centre for Economic Performance, 2023)—also examine ways to get productivity up, with an aim to get Britain growing again to combat economic stagnation. One focus has been placed on low levels of investment (in capital and skills) and R&D expenditures that characterized the UK over the stagnation years.[10] And, as Susskind (2024) persuasively argues, there is a pressing need to take on the challenges and ideas emerging from the new types of technology that are becoming increasingly prevalent in modern society to foster and harness growth in the future.

Second, in terms of the remaining wedge between wage and productivity stagnation, reconfiguring the power balance between workers and firms offers scope for real wage growth to return. This is backed up by looking at the position relative to other countries, many of whom have not seen such shifts in relative bargaining power, or if they have by nowhere near as much as the UK. Thus the UK's relative position has slipped significantly with the past 15 years of wage stagnation.

Third, government policy is not at all removed from these discussions about whether real wage growth can return. In fact, quite the contrary. It is often heard that few policy levers offer scope for government to affect wages and their growth. In such discussions, the only concession offered seems to be about minimum wages. But that has

[9] The term 'rent sharing' has its origins in the literature on wage bargaining. It has become widely used to describe a relationship between wages and rents regardless of the underlying model.

[10] Overall investment as a share of GDP was in the range of 15–17 per cent through the stagnation period, which is lower than previous UK levels and lower than the shares of other G7 countries (see Chadha and Samiri, 2022). Public-sector investment dropped very sharply. R&D expenditure as a share of GDP has also fallen over time, and is lower than other competitor countries.

been one of the only successes in the labour market during the era of real wage stagnation. Machin (2024) considers real wage growth for different groups of workers, showing evidence that low-wage workers on the minimum wage received above inflation wage increases during the stagnation era.

Taking a negative position on scope for policy to affect wages and their growth seems overly pessimistic. From past experience, there are identifiable sources of both upward and downward wage pressure that can give insight into where real wage growth can come from. Examples where policy has affected wages, even in the stagnation period, can be identified. For one example, take the case of the EU referendum that resulted in Brexit. This was a clear policy decision to have a vote, and one which, because of the outcome to leave the EU, adversely affected wages.

Figure 9, taken from Costa *et al*.'s 2024 study of what happened to real wages following the June 2016 vote to leave, shows wage reductions ensued from the referendum result. The study leverages the large exchange rate depreciation that occurred with the referendum outcome to show that wages were reduced for workers employed in places where the depreciation generated a cost shock resulting from inputs becoming more expensive. This is shown in the left-hand chart of Figure 9 which shows an event study chart comparing the 3 years after the referendum where real wages grow much slower for workers in above median depreciation industries. This also translates into a drop in aggregate real wages, which is shown clearly in the right-hand chart and is quantified in the Costa *et al*. (2024) study.

This is one example. And it links to the earlier discussion about what else is going on over and above the lack of real wage growth resulting from productivity stagnation. Consider again the decomposition of real wage growth in Figure 6. Interestingly, in the post-2008 time period of stagnation the real wage growth decomposition features a terms-of-trade component which enters negatively, in line with the big exchange rate depreciation that occurred due to Brexit resulting in lower real wage growth.

Other, selected, examples of where adverse wage shifts due to government policy in the recent past have arisen include: public-sector wage freezes; austerity-related cuts impacting pay more generally; local authority funding of care homes. All of these adversely impacted real wage growth, with some occurring over and above connections of wages to productivity. They also suggest that if policy interventions not designed to suppress wage growth were targeted in the opposite way, including those that could restore bargaining power to workers, this could generate real wage growth. The general point is that there are policy possibilities that could generate real wage growth and improve living standards that could halt the prolonged and continuing stagnation of the past 15 years. These potentially matter for many of the issues about the future of the welfare state and public service delivery that are considered in other contributions to this issue of the *Oxford Review of Economic Policy*.

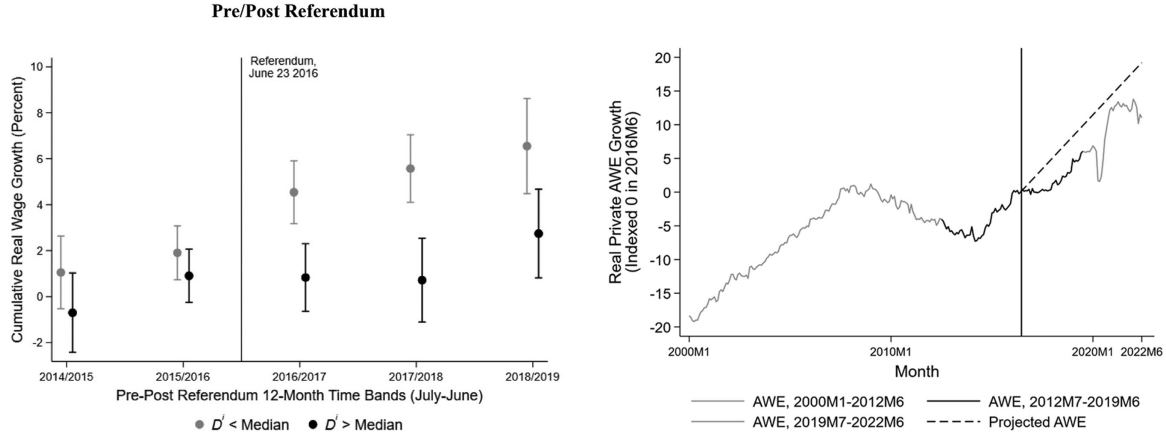

Figure 9: Real wage growth before and after the June 2016 EU referendum

Notes: The left-hand chart from Costa *et al*. (2024) shows event study difference-in-differences estimates of real wage growth for 2-digit industries experiencing above and below median exchange rate depreciations due to the Brexit vote for 2 pre-referendum years (running July–June each year) and 3 post-referendum years relative to 2012/13 and 2013/14. Coefficient estimates and 95 per cent confidence intervals shown. The right chart is from an earlier version (Costa *et al*. 2022) and shows annual growth rate of private-sector real annual weekly earnings (AWE, deflated by CPIH) from monthly ONS data running from January 2001 (2001M1) through June 2022 (2022M6). The vertical solid line denotes the Brexit referendum month June 2016 and the dotted project earnings growth comes from forecasting post-referendum real wage growth from the pre-referendum data.

VI. Conclusions

The UK economy has experienced economic stagnation over the last 15 years. Four wage series show that wages have grown no faster than prices as real wages have fully stagnated since 2008. Productivity measures of output per hour and worker reveal near stagnation also, with around four-fifths of the wage stagnation overlapping with the productivity slowdown. These stagnation patterns are studied for the UK alone, and also in international context, where the country does not fare well. It both drops down wage and productivity growth rankings across countries, and sees a more rapid decline in the role of labour market institutions in affecting worker wages. The changing balance of power between workers and employers has played a role in the emerging wedge between wage and productivity growth (the other fifth of economic stagnation) in the stagnation period. The paper concludes with a policy related discussion of sources of wage growth, and therefore improvements in living standards, for the future.

Appendix

Table A1: Real GDP per worker (annual %) relative to OECD countries, 1991–2023

	1991–2023	1991–2007	2008–2023	Change: (2008–23) – (1991–2007)
A. Relative comparison				
UK	1.2	2.0	0.3	–1.7
Average in 18 countries	0.9	1.5	0.2	–1.3
UK – average	0.3	0.5	0.1	–0.4
B. Rank				
UK rank	$_{5}$th	$_{3}$rd	$_{11}$th	$_{15}$th

Notes: Data on GDP per worker deflated to 2023 country-specific prices and PPP from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

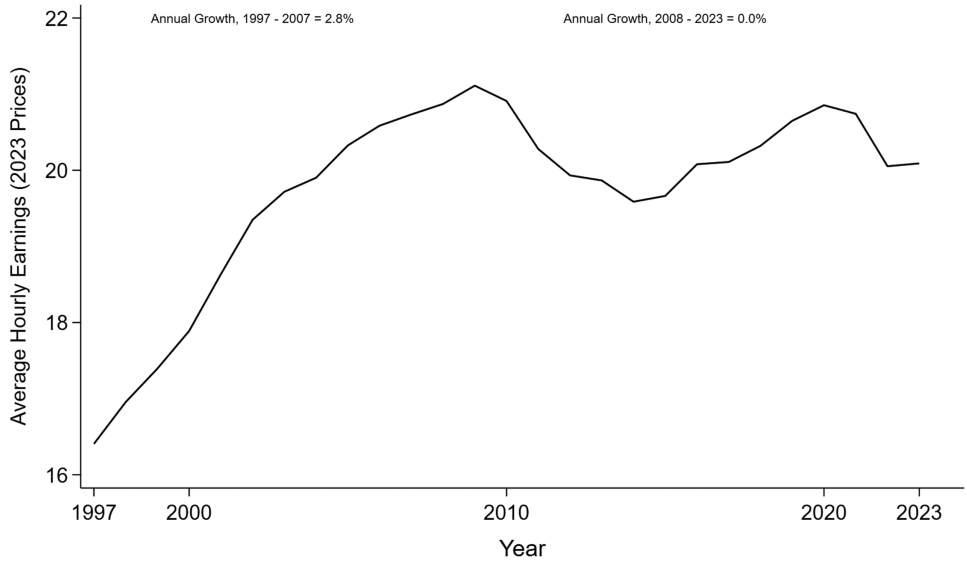

Figure A1a: Average real hourly wages, 1997–2023, ASHE

Notes: Real average hourly earnings from the Annual Survey of Hours and Earnings, expressed in 2023 prices (CPIH deflator).

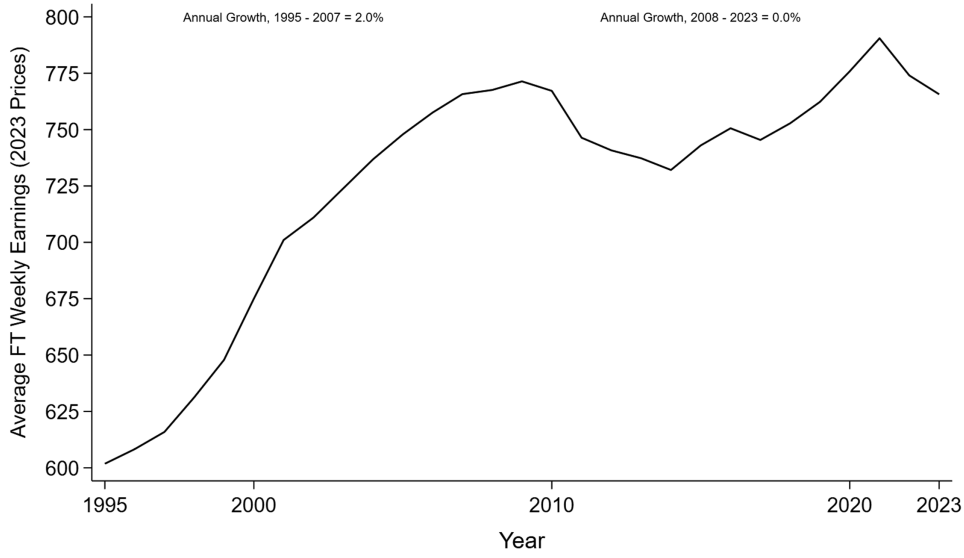

Figure A1b: Average real wages, 1995–2023, LFS

Notes: Real average full-time weekly earnings from the Labour Force Survey, expressed in 2023 prices (CPIH deflator).

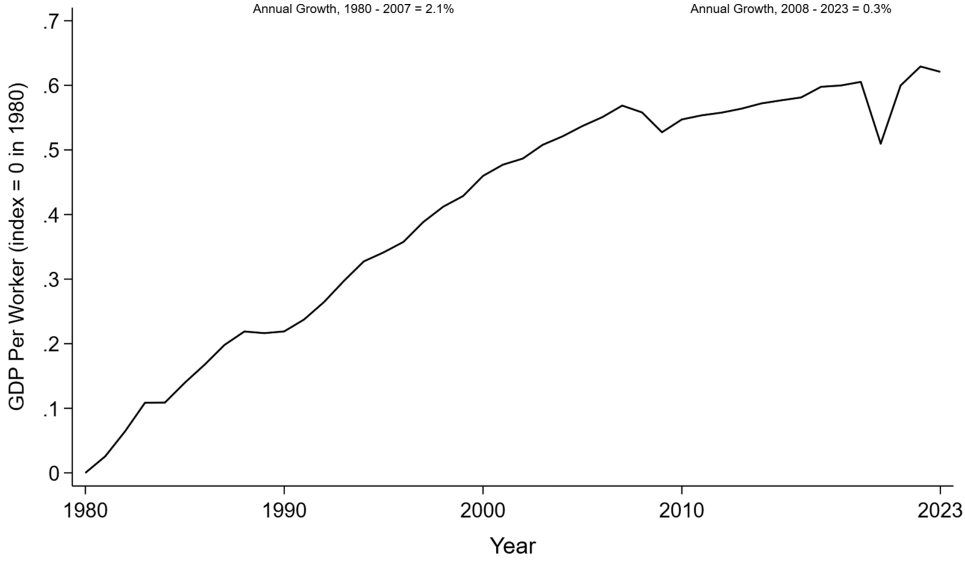

Figure A2: GDP per worker

Notes: UK Whole Economy GDP per worker, from ONS.

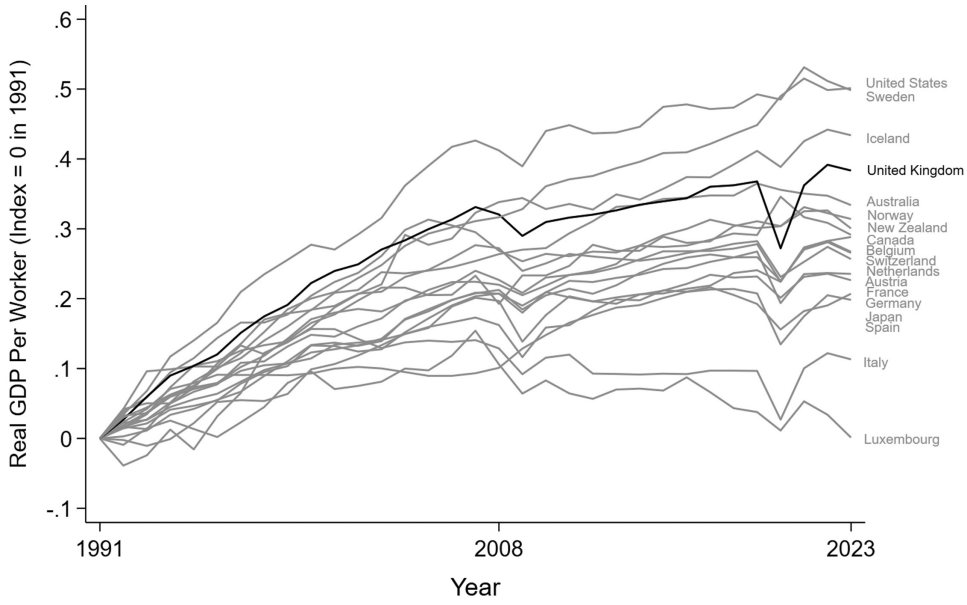

Figure A3: Real GDP per worker (annual %) relative to OECD countries, 1991–2023

Notes: Data on GDP per worker deflated to 2023 country-specific prices and PPP from OECD Data Explorer. The 19 countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, US.

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