

## Dead-end relationship?

Exploring the link between productivity and workers' living standards

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Matt Whittaker

The strength of the relationship between productivity growth and median pay growth – and what it means for the way in which the gains from economic growth are shared across the workforce – has been questioned in recent years, with evidence of a 'decoupling' of the two across a number of advanced economies. Such divergence appears in the UK from the early-1990s. However, the story – and the conclusion we should draw – is far from straightforward. The good news is that productivity growth in the UK does still flow through to pay growth. The bad news is that the former has been in very short supply over the last decade. Restarting the productivity growth engine must therefore be a priority, and understanding and supporting the needs of workers in a changing labour market should be central to that strategy.

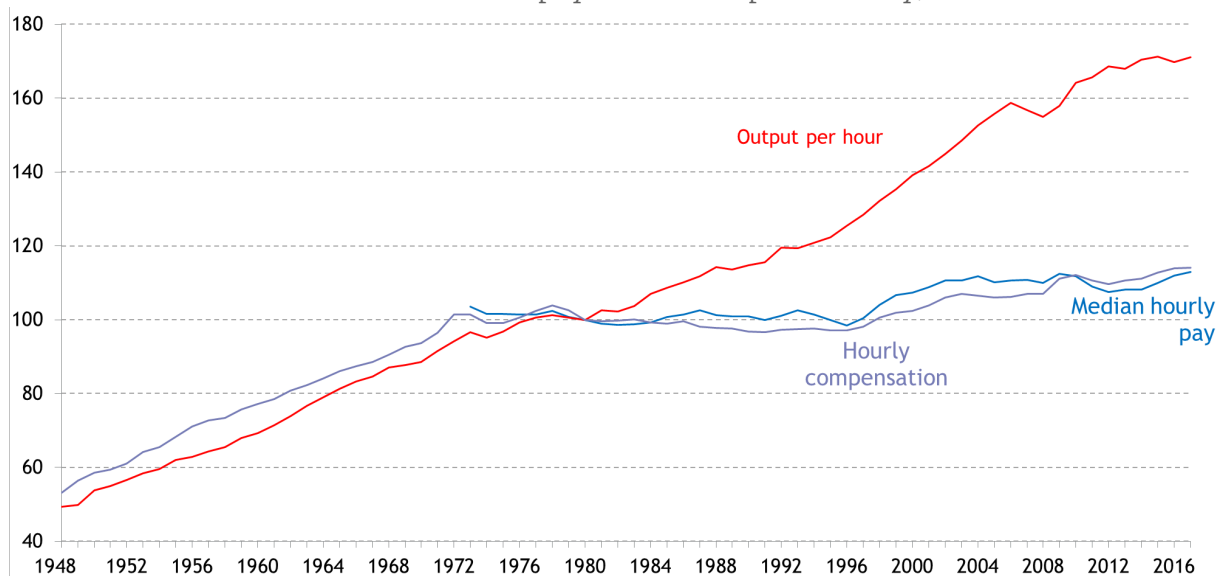
### Pay growth has 'decoupled' from productivity growth across many advanced economies

Median weekly pay in the UK stood at £439 in 2018, still 1.8 per cent lower than the £447 that had been recorded in 2004 (after adjusting for inflation). The depth and duration of the pay squeeze endured in this period is unprecedented in modern times, and stands in direct contrast to growth of 20.9 per cent over the preceding 14 years. Of course, it owes much to the financial crisis of 2008, with the UK enduring a very sharp drop in wages in the immediate aftermath. But the subsequent pay recovery has been sluggish too and, relative to historical norms, pay growth was already slowing *before* the crisis hit. This pattern has been repeated elsewhere too, with other advanced economies suffering even longer – though typically less severe – pay growth slowdowns. The implication is that there may be more than the financial crisis at play here, with some common structural cause potentially at hand.

One oft-cited possibility is the presence of a 'decoupling' between productivity growth and median pay growth that is affecting all advanced economies. That is, the notion that the gains from economic growth no longer flow smoothly through to the pockets of employees in the middle of the pay distribution in the way they did over the post-WWII decades. Certainly the experience of the US lends itself well to this argument. As Figure 1 shows, the evolution of real-terms median hourly compensation (pay plus non-wage compensation) reached a very clear turning point in the early-1970s. Median weekly pay grew by a meagre 9.1

per cent between 1972 and 2017, with this 45-year stagnation standing in sharp contrast to sustained strong growth in output per hour worked.

Figure 1 **Median earnings have very clearly decoupled from economic growth in the US**  
 Indices of real-terms median pay and labour productivity, 1980=100: US



Notes: Wages from the CPS ORG are the hourly wages of a population subsample that includes all wage and salary workers with valid wage and hour data, whether paid weekly or by the hour. In order to be included, respondents had to be 16 and older and employed in the public or private sector (i.e. the self-employed were excluded). Net productivity of the total economy covers the growth of output of goods and services less depreciation per hour worked. Output is deflated using the GDP deflator, while pay is deflated using the CPU-U-RS deflator (covering the inflation experienced by urban consumers, measured as an average across US cities).

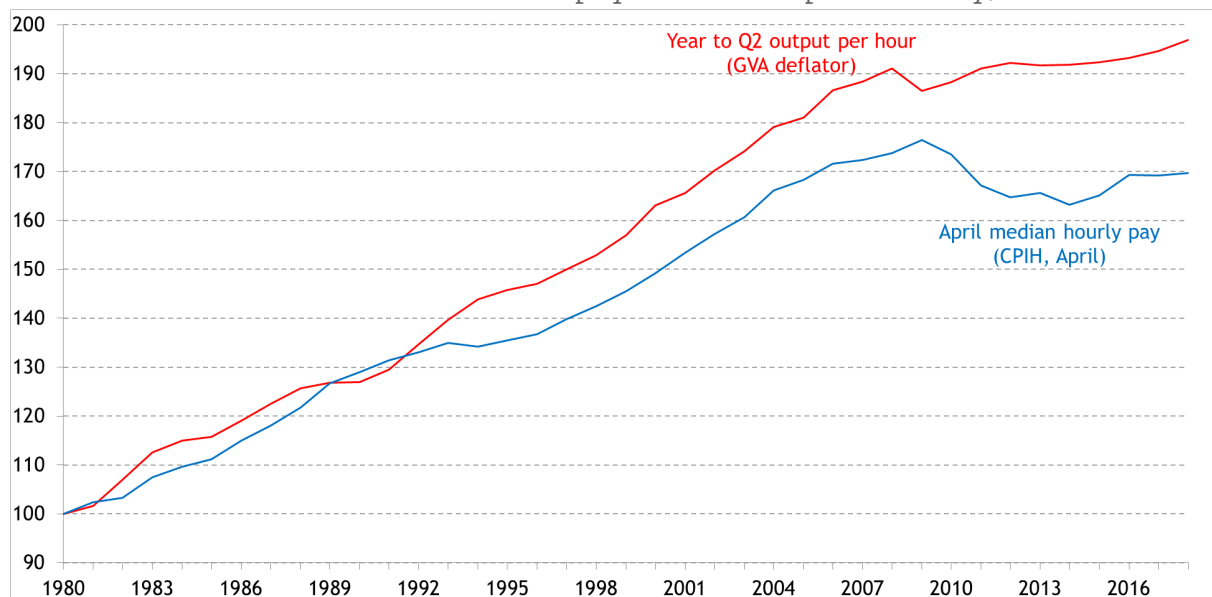
Source: The Economic Policy Institute's State of Working America Data Library

The divergence elsewhere has been less dramatic, but the [OECD has identified](#) some form of decoupling of pay from productivity taking place in around two-thirds of countries in the period since the mid-1990s. But what of the UK experience?

### UK 'decoupling' looks somewhat different, with many different factors at play

On the face of it, decoupling *is* present in the UK economy, as evidenced in Figure 2. But on closer inspection the story differs in important ways from the US one. First there is the question of *scale*, with the wedge that opened up between productivity growth and median employee pay growth over the period from 1980 to 2018 standing at 24 percentage points in the UK – less than half the 58 percentage point divergence recorded in the US over the same period. Second there is the question of *timing*, with a sustained gap between productivity and median pay growth only really arriving in the UK after 1990 – rather than the early-1970s as is the case in the US.

Figure 2 **Decoupling also appears to be present in the UK, but the pattern is different**  
Indices of real-terms median pay and labour productivity, 1980=100: UK



Notes: Data cover hourly wages of all employees and total output (GVA at basic prices) per hour worked by all workers (including the self-employed). Output is deflated using the GVA deflator, while pay is deflated using the CPIH deflator. CPIH is only available as a 'National Statistic' from 2005 onwards. The ONS has modelled a historical CPIH series from 1988, by supplementing the CPI measure of inflation with measured changes in those housing cost elements comprising the Owner Occupied Housing (OOH) series that CPIH includes. The OOH series can't be measured in a directly comparable way to the 2005-2018 CPIH series, but is instead based on movements in Council Tax/rates in the RPI and private rents in the RPI (1998-95)/CPI (1996-2004). Appropriate weights are calculated using National Accounts data. Before 1988, we construct our own version of the CPIH by adjusting the RPI for both the estimated 'formula effect' (which drives a difference between RPI and CPI) and the imputed rents deflator from the National Accounts. This construction adds inevitable uncertainty, but the result closely matches the ONS's historical estimate for CPI. Median wage data refers to April, so we contrast this with GVA in each year in the four quarters ending Q2 (on the basis that pay is a product of observed, rather than projected, productivity).

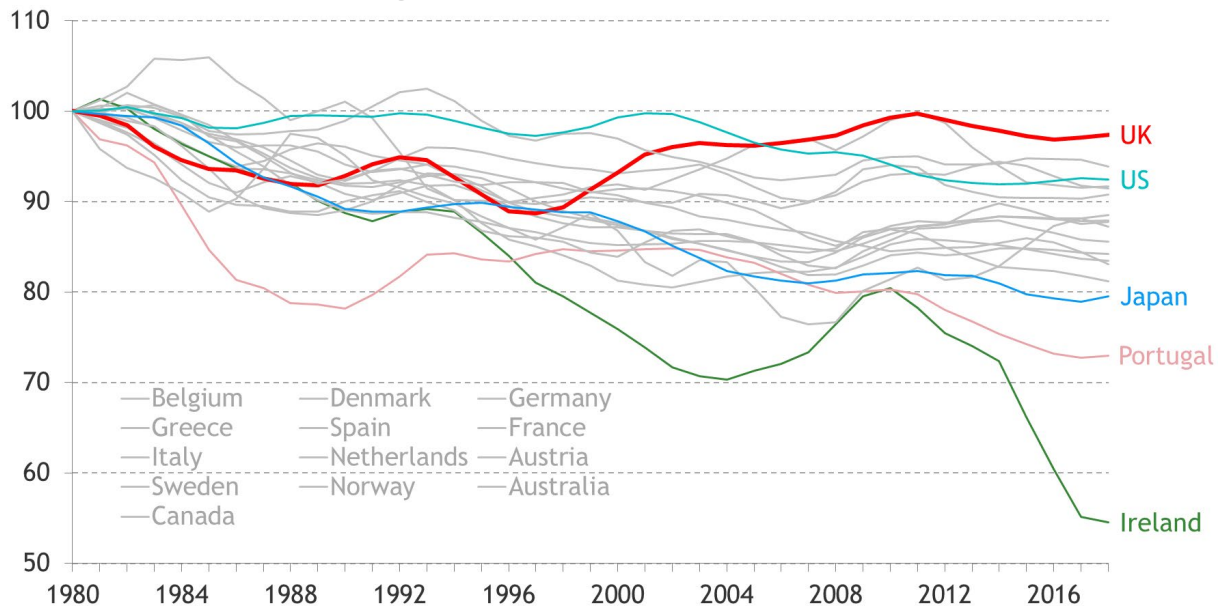
Source: RF analysis of ONS, *National Accounts*; ONS, *Annual Survey of Hours and Earnings*; ONS, *New Earnings Survey*

Third, and most importantly, UK decoupling also appears to have very different *causes* from those playing out in the US and elsewhere. For many, the notion of decoupling is a proxy for the declining share of national income flowing to workers – that is, a falling 'labour share' of income. That phenomenon is said to derive from the rise of globalisation, technological progress and diminished worker power – forces which have been at play across advanced economies. Yet this particular dog hasn't barked in the UK; or at least not very loudly.

The labour share *did* fall in the UK over the course of the 1980s but, as Figure 3 shows, it subsequently rebounded – marking the UK out as something of an international outlier. Overall, a modest 2.6 per cent reduction in the UK's labour share between 1980 and 2018 compares with falls of 7.6 per cent in the US, 11.5 per cent in Germany, 12.1 per cent in France, 16.9 per cent in Australia and 20.5 per cent in Japan. The drop in the labour share therefore accounted for less than one-fifth (19 per cent) of the 24 percentage point wedge that opened up between productivity and median pay in the period after 1980: UK decoupling has not been the product of workers securing a shrinking share of the pie.

Figure 3 **The UK labour share has risen since the mid-1990s, bucking the international trend**

Indices of labour share of income in selected advanced economies, 1980=100 (three-year averages)



Notes: The labour share is depicted here by 'real unit labour cost', which equates to employee compensation per employee divided by GDP per worker (i.e. including the self-employed). For each country, the chart shows the evolution of the labour share relative to its 1980s level – the lines say nothing about differences in labour share *levels* across countries.

Source: RF analysis of European Commission AMECO dataset

Given the UK has been no less exposed to the economic challenges assumed to underpin labour share decline in other countries over recent decades, this exceptionalism is worth digging into. It does not appear to be the product of any shift in the UK's industrial mix or of outlier performance in any one sector, but rather the presence of economy-wide factors. A tightening labour market – with the 16-64 employment rate rising from 69.9 per cent in 1996 to 72.7 per cent in 2002 – is likely to have played a key role, by strengthening the bargaining power of workers in this period. The introduction and development of the National Minimum Wage likely played a part too, directing an increasing share of the income pie to workers.

What then *does* explain decoupling of median pay from productivity growth in the UK? Different factors have dominated in different sub-periods, with at least some of the drivers likely reflecting cyclical rather than structural drivers.

For example, the UK is somewhat unusual internationally in the extent to which the share of overall labour compensation distributed as *pay* has declined over time – in particular in the period between 1990 and 2008 – accounting for one-third (34 per cent) of the 24 percentage point decoupling of median pay from productivity. That trend was driven by a small increase in the share of compensation accounted for by employer National Insurance contributions and by a more marked increase in the share taken up by employer pension contributions (covering both a rise in pension coverage following the introduction of auto-enrolment and a marked increase in the payments made by firms to plug deficits in their deferred benefit

pension schemes). As such, while the UK's labour share of income has bucked the international trend, the *wage* share of income trend has more closely matched the norm.

Focusing more closely on the decoupling of the last decade, we see that it owes much to a divergence between the producer deflator used to inflation-adjust national output (capturing the change in prices of all domestically-produced goods, including those that are sold and consumed abroad) and the consumer deflator used to inflation-adjust pay (capturing the change in prices paid by households when doing their weekly shop, including those goods and services that are imported from elsewhere). The large sterling devaluation that followed the financial crisis (associated with the UK's financial sector reliance) and the more modest one that followed the EU referendum served to lift the consumer deflator significantly above the producer deflator and produced a terms of trade drag for workers in the UK that has contributed to the widening of the wedge between productivity and pay. Indeed, that's really the *only* source of decoupling in the last decade. Over the longer term however, this deflator effect has pulled in different directions, actually pushing *against* decoupling when we take the 1980-2018 period as a whole. It is not a structural inevitability.

By far the biggest driver of longer term UK decoupling has instead been the change in the distribution of pay observed over the period. The difference observed in mean and median pay trends accounts for 95 per cent of the overall 24 percentage point wedge recorded between 1980 and 2018. But this is not a story of ever-widening wage inequality. Growth across the earnings distribution over this period has actually been U-shaped: pay has increased the most at the top, but minimum wage policies have also supported solid growth at the bottom – it is wages in the second quartile which have grown the least.

At first glance, the decoupling story is a neat one: directly linking the slowdown in median pay growth recorded across a range of advanced economies over recent decades to the various points at which the gains from growth can escape the grasp of the typical employee. It is especially powerful in the US, where median pay has barely grown relative to inflation since the early 1970s. It is, however, also a complex story: relying on macroeconomic data that can be subject to uncertainty and revision, and highly sensitive to the choice of start and end years.

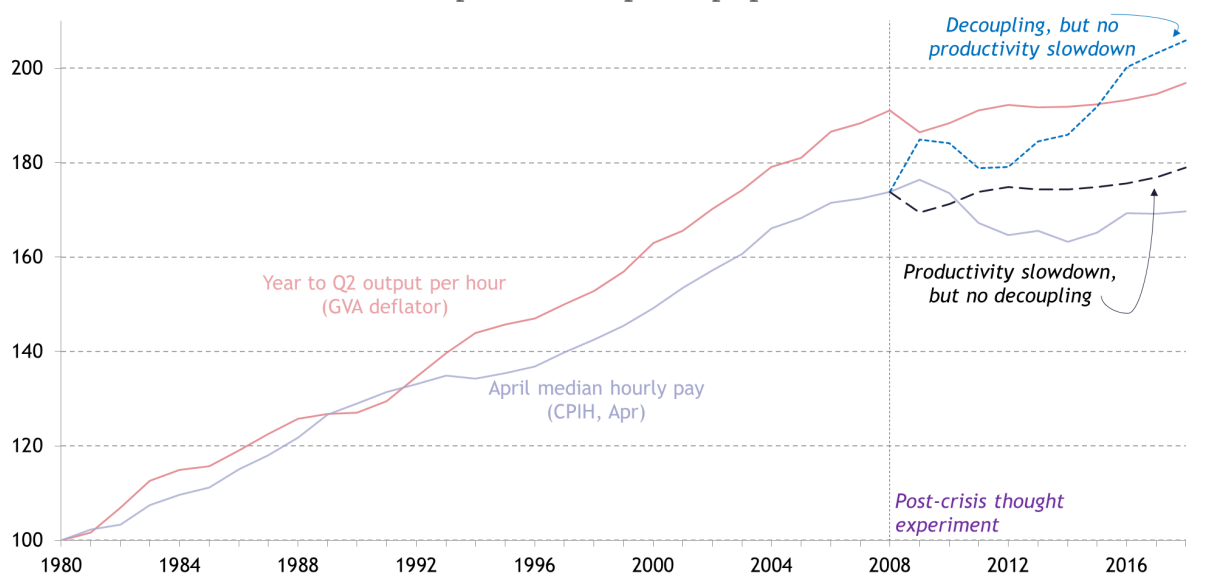
The case of the UK encapsulates this complexity. Productivity growth and median pay growth have diverged over the last 38 years in a way that points towards a decoupling experience that is smaller and more recently established than the one endured in the US. But there is much going on beneath the headline, with the drivers of this apparent decoupling shifting from business cycle to business cycle. There is good reason for being concerned about the link between median pay growth and productivity growth in the UK – just not necessarily for the reasons often assumed. It is hard to look at the UK experience and conclude that the feed through from productivity growth to pay growth is fundamentally 'broken'.

**It is the collapse of productivity growth rather than any breakdown in the relationship between wages and productivity which explains the pay squeeze of the last decade**

What is clear from all of this, is that productivity growth remains centrally important to pay prospects in the UK. The terms of trade drag associated with the divergence of producer and consumer deflators has certainly played a key role in holding back real-terms wage growth since the financial crisis, but the impact is slight relative to the role played by the slowdown in productivity growth itself.

Figure 4 presents a simple thought experiment to illustrate this point. It recreates the productivity and median pay trends for the period from 1980 to 2018 set out in Figure 2, but adds two additional post-crisis scenarios. In the first, the 4.8 percentage point decoupling that occurred over the course of the 2008-2018 period (driven entirely by deflator divergence) no longer arises. Instead, median pay growth moves precisely in line with productivity. In the second, the productivity stagnation that characterises the post-crisis decade no longer applies. Instead, output per hour continues to grow at its historical average of 2.2 per cent a year. Median pay then grows in line with a 4.8 percentage point decoupling from productivity.

**Figure 4 Had productivity growth continued at its trend rate after 2008, median pay would likely have been much higher today**  
Indices of real-terms productivity and pay, 1980=100: UK



Notes: In the 'post-crisis thought experiment' period, we increase the productivity measure in line with the average growth rate recorded between 1980 and 2008 (2.2 per cent). We then maintain the same relationship between our counterfactual median pay measure and this constructed productivity one as exists in the outturn data between productivity and median pay.

Source: RF analysis of ONS, *National Accounts*, ONS, *Annual Survey of Hours and Earnings*; ONS, *New Earnings Survey*

Under the first scenario, median hourly pay would stand at £13.40 in 2018 instead of £12.78 – an increase of 4.9 per cent, and equivalent to an extra £1,230 a year for a full-time employee earning the typical hourly pay rate. Under the second scenario however, median hourly pay



would be 21.8 per cent higher in 2018 than it actually was. It would stand at £15.56, providing a full-time median-earning employee with an extra £5,500 a year.

This is of course a highly simplified approach. We can't disentangle productivity and decoupling in the way suggested in this thought experiment: the post-crisis sterling devaluation was itself a reflection of lower long-run productivity growth expectations in the UK, causing pay growth to more quickly adjust to the new reality than output growth did (resulting in the observed decoupling). Were productivity growth to have been stronger than it was in the post-crisis decade then we might not have recorded the same remarkable growth in employment (indeed, we might well argue that the post-crisis pay moderation associated with sterling depreciation directly fed through into higher employment and lower productivity growth). And there is no guarantee that a faster-growing economy would result in the same balance between labour and capital and between wages and non-wage compensation for example.

The potential scale of the effect is revealing nonetheless. And the conclusion is clear: namely that restarting wage growth and supporting household living standards rests above all else on restoring productivity growth to its former levels (or vice versa, potentially). All boats *can* still be lifted, but for this to happen it's imperative that the tide starts rising again.

In part that means reversing the business investment picture, with recent weakness explaining around two-fifths of the overall under-performance of productivity growth in the post-crisis decade. Moving beyond today's uncertain political and economic backdrop would certainly help (business investment has fallen in five of the last six quarters, with firms understandably delaying decisions until such time as the Brexit outlook clears), but the need to improve the way in which firms adopt innovative technologies and working practices is likely more structural in nature. And on that front, it's important that any focus on boosting productivity recognises the extent to which the world of work is changing.

The robots have not arrived to take our jobs yet – indeed, our economy could do with a few more of them – but new technologies *will* alter the way we work over the coming years. That will bring disruption that – in the short term at least – will disadvantage some workers more than others. And it will require us to place a growing emphasis on worker mobility (in terms of jobs and in terms of location), skills (with a growing need for retraining options over the life course), confidence (supporting risk taking and opportunism) and power (harnessing new technology to bring workers together in innovative new ways). That won't happen by accident, but it has the potential to bring significant reward.

Given the good news about the relative ongoing strength of the relationship between productivity growth and pay in the UK, the hope must be that the prioritisation of a restoration of improvements in output per hour – via a strategy that places workers at its heart – has the power to deliver direct and obvious benefits to all in society.