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# Mapping Gaps

*Geographic inequality in productivity and living standards*

Stephen Clarke
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info@resolutionfoundation.org +44 (0)203 372 2960 @resfoundation resolutionfoundation.org

## Summary

Regional inequality is now a regularly discussed topic. However it wasn't always this way. Two key events over the last decade have pushed the issue up the political agenda. First, the financial crisis, perceived as a problem with its roots in London's financial districts that went on to affect the rest of the country, led to emphasis by politicians across the political spectrum on the need to 'rebalance' the British economy. Rebalancing was called for both industrially – more emphasis on manufacturing, less on services – and also geographically. The second event that has increased focus on regional inequality was the EU referendum. This was due to a clear geographic divide in the result, with only London, Scotland and Northern Ireland voting to remain in the EU and the other nations and regions of the country all voting to leave.

This focus on regional inequality is welcome. The evidence suggests that in terms of geographic differences in productivity, the UK is one of the most unequal countries in the OECD and is the most unequal of the G7 countries. And yet, although the financial crisis may have sparked greater interest in regional inequality, geographic variation in productivity has actually fallen slightly over the past decade. The coefficient of variance (a common measure of the dispersion of a distribution, expressed as a percentage of the mean) of output per hour worked in each of the 12 regions and nations of the UK is 13 per cent. This is below the 15 per cent of 2010 and is the same as its level in 2005.

Furthermore, most of the discussion about regional inequality tends to focus on differences in output, or productivity (output per hour or per worked), not differences in living standards as measured by household incomes. In this regard, geographic inequality is a lot lower than its 1990 peak. Back then typical household incomes, taking into account housing costs, had a coefficient of variance across the regions and nations of the UK of 13 per cent; that figure is now just 5 per cent. In 1990 household incomes in the South East were over 40 per cent higher than in Scotland, the poorest part of the UK at the time. Today, however, annual household incomes in the South East are just 20 per cent higher than in the North East, now the poorest part of the country. While internationally the UK is an outlier in terms of geographic differences in productivity, it is fairly typical of other OECD countries when it comes to differences in household incomes. The UK is more unequal than Germany and Japan, but less unequal than the US, Italy, Canada and Spain.

That said we should not be complacent about geographic inequality. There are good reasons to be concerned about high levels of inequality in terms of *productivity* even if this is not mirrored by high levels of inequality in terms of *household incomes.* In the long run, differences in productivity are likely to feed through into differences in living standards, and it is important to spread economic opportunities more equally across the country.

## Regional inequality is, rightly, a hot topic at the moment

Regional inequality is getting a lot of attention at the moment, and rightly so. The Prime Minister has spoken of the need to "rebalance the economy across sectors and areas in order to spread wealth and prosperity around the country."[1] The Chancellor has talked about "addressing regional inequalities".[2] Jeremy Corbyn has promised to create "a more prosperous and a more equal Britain, in which every region benefits,"[3] and the Chief Economist of the Bank of England has said that "I think [the issue of regional inequality] is right up there as among the most important issues that we face today as a country."[4]

Politicians are right to be talking about this. There is some debate, but the most comprehensive analysis by Professor Philip McCann of Sheffield University shows that, in terms of output and productivity at least, the UK is a lot more geographically divided than most other OECD countries.[5] A related question is the extent to which levels of geographic inequality in terms of output have changed over time. Second, we need to understand more about how these productivity differences affect people's living standards, and, third, how the UK compares to other countries in this regard. It is these three questions that this paper seeks to answer.

## Geographic differences in productivity have remained the same for over a decade

While differences in output and productivity across the UK remain stark, geographic divides in productivity are not increasing. Although regional differences in economic output per person have risen over the decade, economic output per hour worked (a better measure, which takes into account both the size of the working population and how many hours people are working), has not.

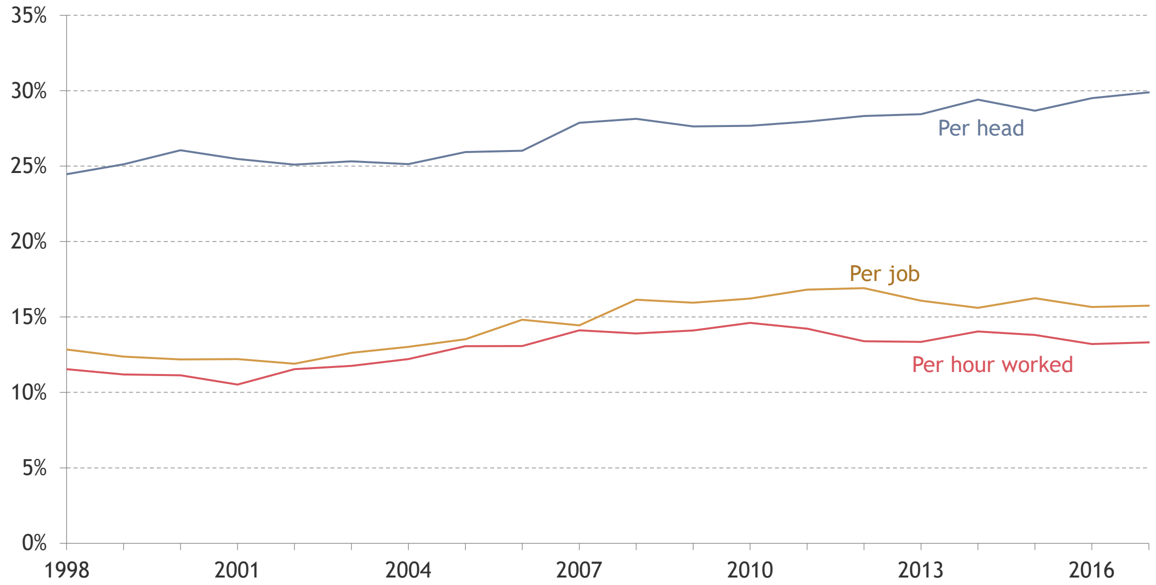
Figure 1 shows this. The coefficient of variance of gross value added (a measure of how much GVA varies across the 12 regions and nations of the UK, with a higher number representing larger distances from the average value) has risen when GVA is measured on a per head basis, but not when it is measured on a per job basis or on a per hour basis.[6] In terms of the latter it has fallen very slightly since 2010. The coefficient of variance is currently 13 per cent across the country (and the difference between the most productive part – London – and the least – Wales, is 56 per cent). This is the same level of variation as in 2005.

Productivity per person exhibits a different trend because London, with higher productivity levels, has increased output at a faster rate than other parts of the country by growing its workforce and working longer hours. The result is that, compared to other places, it has become more productive per person in the population, but not per job or per hours worked. Indeed if you exclude London from the calculation then the variance in output per head has not changed since the late 1990s.

[1] The Spectator, *Theresa May Conference Speech*, 5 October 2016
[2] Treasury Committee Oral evidence: Spring Statement 2019, HC 2056, 24 April 2019
[3] Jeremy Corbyn on Britain after Brexit, 26 February 2018
[4] K Ahmed, 'Britain's inequality map - stark and growing', BBC, 2 December 2016
[5] P McCann, *Perceptions of Regional Inequality and the Geography of Discontent: Insights from the UK*, January 2019
[6] Gross value added is output minus intermediate consumption and differs from GDP because it does not includes taxes or subsidies. It is the primary measure used to capture the value of the goods and services produced in a locale.

**Figure 1: Geographic inequality in terms of productivity has remained the same since 2005**

Coefficient of variance of gross value added across regions and nations of the UK



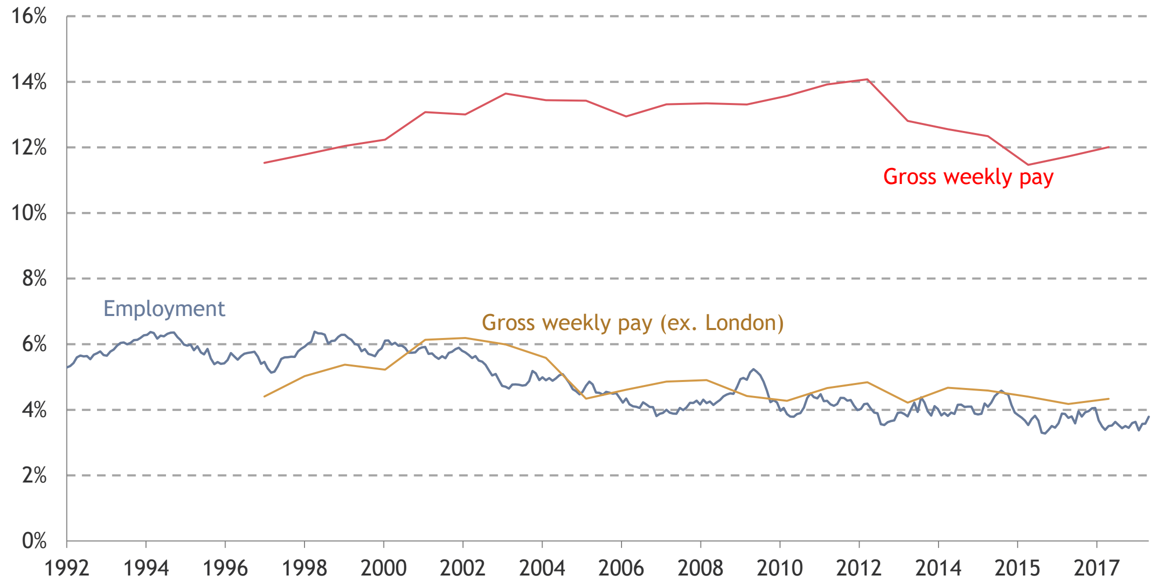

Notes: Coefficient of variance is the standard deviation of GVA divided by the mean, computed across the 12 regions and nations of the UK.
Source: ONS, *Nominal regional gross value added (balanced) per head and Region by industry labour productivity*

Indeed, when we look at the main two factors which determine people's market income – employment and earnings – we observe that these things have become more equally distributed across the regions and nations of the UK, shown in Figure 2. Differences in employment rates have been falling steadily since the early 1990s, due to employment rising fastest in lower-employment regions. In the early 1990s only the East Midlands, South East, South West and East of England had employment rates above 70 per cent, today everywhere does.

Figure 2 also shows that wage variation between regions and nations has been falling since 2012 and is no higher today than in the mid-2000s. Differences are actually falling (and variance is much lower) if London is excluded. Because Figure 2 shows variation in weekly wages, the series including London is inflated by the fact that hours worked have increased significantly in the capital since the crisis.

### Figure 2: Variation in earnings and employment are lower than they were in the mid-2000s

Coefficient of variance of employment rate and median gross weekly pay across regions and nations of the UK




Notes: Coefficient of variance is calculated as above for the 12 regions and nations of the UK.
Source: RF analysis of ONS, *Labour Force Survey*; ONS, *Annual Survey of Hours and Earnings*

## Geographic variation in household incomes has halved since 1990

While the levels of geographic inequality in output and productivity have not risen, they remain high. However, while important, measures of economic output are not the same as measures of people's living standards.[7] This is because although economic output per worker may (approximately) determine people's market income,[8] it is people's disposable income – that is, the income people have after paying taxes, receiving benefits and any other income (such as that from pensions and investments) – that determines their living standards. Furthermore it is not just people's own disposable income that determines their living standards but the disposable income available to them as members of a household.

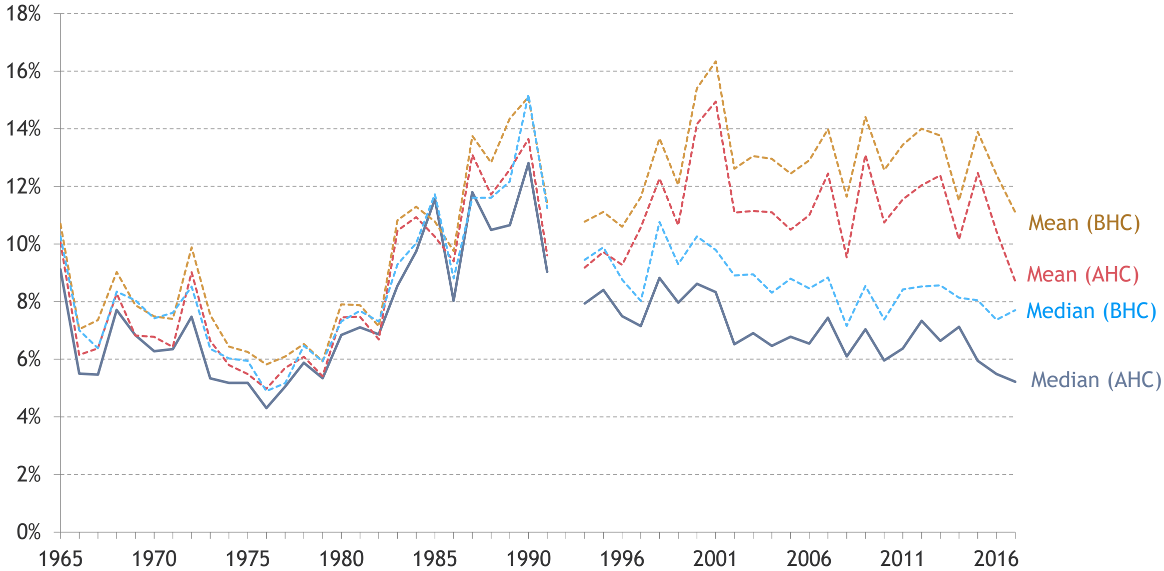
To properly measure how living standards differ across the country, Figure 3 shows how much mean and median household income per person, both before and after housing costs, vary across the regions and nations of the UK. It is worth noting that all measures of the variance in household income per person are much lower than output per person. While household incomes currently vary by between 5 and 11 per cent across the country (depending on the measure), output per person varies by 30 per cent.

[7] C Giles, 'Britain's regional divide is smaller than it first appears', *Financial Times*, 9 May 2019
[8] There is a clear relationship between differences in regional productivity and wages, however the relationship is not exact. As Figure 1 and Figure 2 show, weekly wages vary less than output per worker.

The best measure of living standards is arguably median household income after housing costs. Unlike the mean, the median provides a better reflection of the typical person's household income. It is also important to take into account housing costs as spending on accommodation is, for most households, the biggest and least avoidable outgoing, and can vary quite a lot across the country. The grey line in Figure 3 shows that geographical variation in typical household incomes, taking into account housing costs, has more than halved since its peak in 1990 (from 13 to 5 per cent) and is currently at its lowest level since 1979. In 1990, household incomes in the South East were over 40 per cent higher than in Scotland, the poorest part of the UK at the time. Today however annual household incomes in the South East, at £25,300, are just 20 per cent higher than in the North East (where the typical income was £21,000). Even if we do not take into account housing costs, the variation in median household incomes is still at the same level as a decade ago, having declined significantly in the late 1990s and 2000s.

## Figure 3: Geographic differences in household income are at their lowest level since the late 1970s

Coefficient of variance of equivalised household income (before, and after housing costs) across regions and nations of the UK




Notes: There is a break in the data between 1991 and 1994 and there was a change in the regional classification in 1994 with the 'Northern Region' being split into North West and North East and the East of England replacing East Anglia. Northern Ireland is not included in the years between 1994 and 2002.
Source: RF analysis of ONS, *Family Expenditure Survey (1961-91);* DWP, *Households Below Average Income (1994-2018)*

The picture is less rosy in terms of mean income because London and the South East have seen an increase in high-income households that is less prevalent elsewhere in the country. But, even on both mean measures (before and after housing costs), differences in income across parts of the UK are at the level they were at in the mid-1990s. It is worth noting that the picture of flat, or falling, geographic inequality contrasts with that using data collected in the national accounts. However, the national accounts data is an average (and so is skewed by high income households), is not equivalised (and so fails to correct for differing household sizes) and also includes housing costs. As such, the survey-based measures used here better represent the experiences of the typical household.

## Compared to OECD countries, the UK has average levels of geographic inequality in terms of household income

Geographic differences in household income may not have worsened, but are they high by international standards? Comparing geographic inequalities across countries is difficult because how you define the sub-national units can influence the results.[9] Nevertheless the OECD has attempted to compile data on comparative sub-national units at different geographic levels and has data on equivalised disposable household income.

Figure 4 shows how much household income varies across sub-national units within OECD countries. Because of data availability, the largest sub-national units are used, which for the UK corresponds to the 12 regions and nations used in the charts above. Compared to the middle- and high-income countries for which the OECD produces data, the UK has average levels of geographic living standards inequality, varying by around 14 per cent across the country according to the latest data (2015). It does have higher levels of geographic inequality than many other (largely northern) European countries, such as Denmark, Sweden, Norway, the Netherlands, Switzerland and Belgium. However, the UK is similar to other large developed countries, with higher levels of geographic income inequality than Japan and Germany, but lower levels than the USA, Spain, Canada, Italy and Australia. It is also worth noting that geographic income inequality as measured here does not take housing costs into account. Insofar as housing costs are more geographically unequally distributed across the UK than in other countries, this could also make the UK's position look worse than it is.

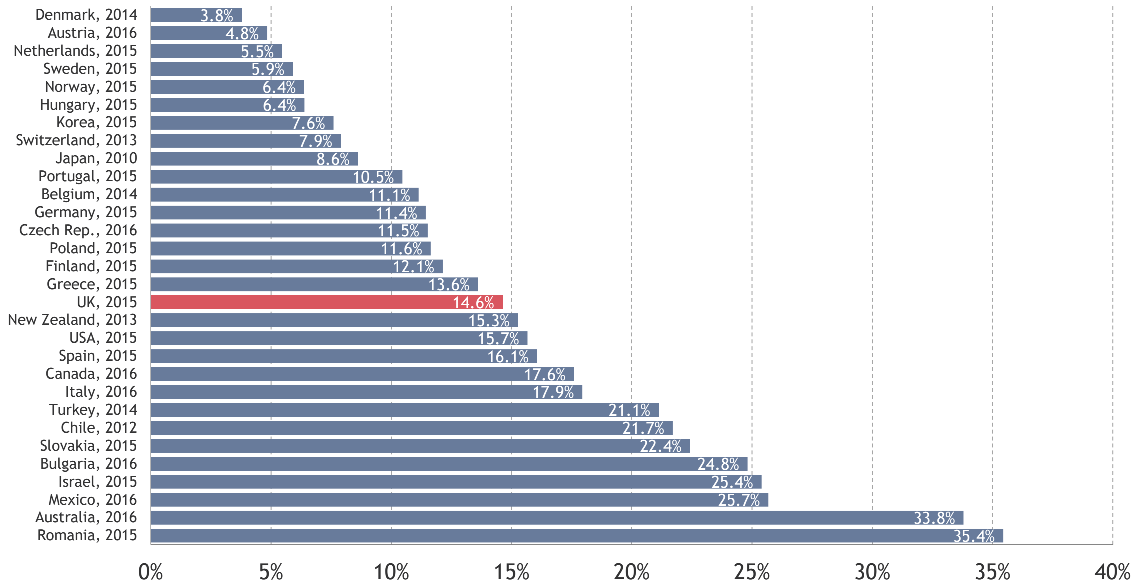
Internationally then, in terms of household income the UK does have higher levels of geographical inequality than some of our close peers, and higher than some other European countries. But compared to the OECD as a whole the UK is fairly typical, particularly compared to other large, developed countries. This is in stark contrast to where we stand internationally in terms of geographic differences in productivity.

There is not space here to fully understand why the UK performs better on this metric than it does in terms of output, but a quick look at the countries which the UK has lower geographic income inequality but higher output inequality offers some clues. The UK has higher geographic output inequality than the USA, Canada, Italy and Spain, but lower income inequality. Three of these countries are federal systems and collect and redistribute more revenues within sub-national units than the UK. Indeed in the UK all benefits, except for housing benefit and council tax reduction, are provided at equal rates at the national level. It is possible that – at least compared to similarly sized countries – the UK does a better job of redistributing income from high- to low-productivity places.

[9] P McCann, *Perceptions of Regional Inequality and the Geography of Discontent: Insights from the UK*, January 2019, has a good explanation of the different sub-national unit classifications and the pros and cons of each.

## Figure 4: The UK has fairly average levels of geographic inequality in household income compared to other OECD countries

Coefficient of variance of equivalised household income per household across 'TL2' sub-national units: 2010-16




Notes: The date refers to the year of the observation for each country. Coefficient of variance of disposable household income in national currency per household, current prices.
Source: RF analysis of OECD, *Regional Income*

## Differences in wages and employment across local authorities have fallen over time

It is of course possible that regional income inequality has remained relatively stable, while differences between local areas within regions have increased. The only way to assess this is to use national accounts data, because survey-based measures for local authorities are not available (due to sample sizes) and estimates using administrative data are not available over time (although in future these can hopefully be used).[10] The problem, however, is that national accounts-based measures suffer from the problems we outlined above – lack of equivalisation, the inability to produce median estimates, and the inability to take into account housing costs – and so will not be able to capture the situation for the typical household. Another approach is to examine the main determinants of household income: employment and earnings. Figure 5 shows that differences in earnings and employment across local authorities have declined since the turn of the millennium, perhaps suggesting that differences in household income have also narrowed (as they have at the regional and national levels). In support of this conclusion, past Resolution Foundation has shown that the fall in earnings differences between local authorities becomes more pronounced when an approximate measure of local weekly rents is subtracted.[11]

[10] ONS, *Admin-based income statistics: England and Wales, tax year ending 2016*, December 2018
[11] L Judge, *Moving matters: Housing costs and Labour Market Mobility*, Resolution Foundation, June 2019

**Figure 5: Variation in earnings and employment across local authorities has fallen over time**

Coefficient of variance of weekly pay and employment rates across local authorities: GB


Source: RF analysis of ONS, Local area *Labour Force Survey (1997-2003)*; ONS, *Annual Population Survey (2005-17)*; ONS, *Annual Survey of Hours and Earnings*

However, the national accounts data presents a different story. The coefficient of variance for gross disposable household income across local authorities in Great Britain has risen since 1997, albeit from only 23 to 28 per cent. However, given the limitations with this data we should be cautious about taking this as an accurate reflection of how geographic household income inequality has changed. Furthermore, when we exclude local authorities in London (where we know the increase in housing costs has been most pronounced), then the variation in household income across local authorities has remained constant over this period, at around 16 per cent.

## Conclusion

Although regional differences in living standards are at their lowest level since 1979, this does not mean we should be relaxed about geographic divisions. Although the UK redistributes income around the country (income inequality is lower than differences in economic output) and may do this better than some other countries (particularly some federal systems), big gaps in productivity persist.

Furthermore these differences in productivity are likely to drive differences in living standards over time, and even if national redistribution can continue to reduce inequality, variation in productivity and economic dynamism may have a real effect upon how people feel about where they live. Redistribution is no substitute for people believing that where they live has a positive economic future and provides opportunities for themselves, their friends and their family. That is why pursuing a more equitable distribution of economic opportunities across the UK should be a priority, something that devolution can help deliver if coupled with real local economic leadership. However, because national redistribution of income plays an important part in spreading the benefits of economic growth, we must not lose this as we aim to extend more political power, decision-making, and investment across the UK.

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- engaging with policy makers and stakeholders to influence decision-making and bring about change.

For more information on this report, contact:
**Stephen Clarke**, Senior Economic Analyst
stephen.clarke@resolutionfoundation.org | 0203 372 2953

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