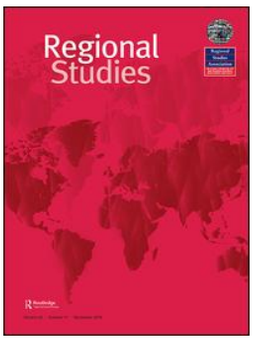

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Perceptions of regional inequality and the geography of discontent: insights from the UK

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POLICY DEBATES

Perceptions of regional inequality and the geography of discontent: insights from the UK

Philip McCann

ABSTRACT

This paper examines the issue of whether the UK displays high levels of interregional inequality or only average levels of inequality. The question arises due to major differences in public perceptions. Following on from recent UK public debates, the UK evidence is examined in the context of 28 different indicators and 30 different Organisation for Economic Co-operation and Development (OECD) countries. Answering this question involves a careful consideration of the ways in which we use different spatial units of analysis, different measures of prosperity and different indices of inequality in order to understand interregional inequality, and the issues that arise are common to all countries. In the specific case of the UK, the result is clear. The UK is one of the most regionally unbalanced countries in the industrialized world.

KEYWORDS

productivity; prosperity; regions; inequality

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INTRODUCTION

This paper examines the role of different spatial definitions, different units of measurement and different indices of regional performance in articulating the scale of interregional inequalities that a country faces. These issues would appear to be largely straightforward, but a careful examination of the issues at stake demonstrates that they are much less straightforward than is often imagined. The issues at hand have been sparked by a debate in the UK media involving high-level BBC journalists, the international magazine *The Economist* and a fact-checking website named Fullfact regarding the extent to which the UK is interregionally unbalanced. The debate focused on the appropriateness and relevance of using the various Organisation for Economic Co-operation and Development (OECD) regional and urban data sets and the ways in which these data can be interpreted in the particular case of the UK. While the specifics of the debate explained in this paper primarily concern the case of the UK, we also explicitly examine indices and measurements for a range of comparator countries. By developing a simple and consistent methodological framework, it becomes clear from this comparative exercise that the issues being debated go much wider and deeper than just the case of the UK, and are relevant for understanding the nature and scale of regional inequalities in all countries. This approach demonstrates that the UK is indeed one of the most interregionally unequal countries in the industrialized world, and this knowledge is essential for understanding the 'geography of discontent' and political shocks which are evident nowadays in many countries.

The paper is organized as follows. The next section discusses the background to the debate that recently arose in the UK media regarding the use and interpretation of regional economic data. This is followed by a discussion about the usefulness and interpretation of different measures of inequality. The paper then explains the logic, construction and use of the various OECD regional and urban data sets, and this allows one to revisit the debate between *The Economist* and FullFact in the light of the broader OECD data sets. The following section then expands on these comparisons and discussions from nine to 30 OECD countries and to 28 measures of inequality. As will be demonstrated, the UK is indeed one of the most interregionally unequal countries in the industrialized world. The final sections provide a discussion and some conclusions.

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THE BACKGROUND TO THE PROBLEM AND THE INTERREGIONAL PRODUCTIVITY DEBATE

As Krugman (1994, p. 11; added emphasis) famously remarked, '*Productivity* isn't everything, but, in the long run, it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.' In the UK and other countries severely hit by the 2008 Global Financial Crisis, this pithy comment has taken on enormous significance in recent years as productivity growth has fallen to close to zero. In the UK, enhancing our understanding of the so-called 'productivity puzzle' is now central to government efforts to regalvanize the economy in the post-crisis era. Yet, what is becoming clear in many countries is the fact that Krugman's observation is just as applicable to regions as it is to countries. The patterns of regional productivity underpin national productivity and the links between people's lived experiences and political responses depend crucially on local productivity as the key driver of local prosperity (McCann, 2018a). Numerous social surveys demonstrate that people whose life is primarily in prosperous regions tend to have a profoundly different view of the world, themselves and their opportunities for self-enhancement than those who live in low-productivity regions. Moreover, most people's perceptions of their prosperity and quality of life depends crucially not only on the productivity of the region in which they live and work but also on their awareness of the experiences of other regions. Such awareness obviously comes in part via different electronic, social and public media, but the most profound awareness comes from personal experience, something which is enhanced by geographical proximity. The resulting 'geography of discontent' (Hendrickson, Muro, & Galston, 2018; Los, McCann, Springford, & Thissen, 2017; McCann, 2018b) associated with large interregional inequalities in productivity have profound, and often dangerous, political economy implications for national governance and institutional systems (Chen et al., 2018; McCann, 2016; Rodriguez-Pose, 2018). Indeed, within an individual country, the geography of inequality is at least as important as interpersonal inequality as the source of political shocks because our democratic political systems are fundamentally geographical in nature (Rodriguez-Pose, 2018) in the form of electoral districts and wards. It is well known that intraregional or intra-urban inequality is typically greater than interregional inequality (OECD, 2018b). Indeed, intraregional and intra-city inequality still exists even in countries with very low interregional inequality. However, higher interregional inequality is associated with higher nationwide interpersonal inequality (McCann, 2016), so these two dimensions of inequality cannot be separated. Moreover, it is interregional inequality that is now fundamentally challenging many of our national institutional and governance systems. Yet, in spite of earlier warnings (Barca, McCann, & Rodriguez-Pose, 2012), this has been an issue that until very recently many people living and working in wealthy regions, business and media elites, as well as many scholars working in urban economics (Rodriguez-Pose, 2018), have tended to overlook entirely. In contrast, there is now a flurry of efforts aimed at urgently trying to understand, articulate (Hendrickson et al., 2018; Collier, 2018; Florida, 2017) and, wherever possible, identify possible responses to these shocks, even by scholars who previously would have eschewed such lines of thinking (Austin, Glaeser, & Summers, 2018).

The UK is a particular case in point. Many scholars (McCann, 2016) have argued that the UK is one of the most interregionally unequal countries in the industrialized world (Gal & Egeland, 2018). Wide-ranging evidence suggest that on many levels the UK economy is internally decoupling, dislocating and disconnecting, a reality which the UK's highly centralized, top-down, largely space-blind and sectorally dominated governance system is almost uniquely ill-equipped to address (McCann, 2016). Indeed, mainstream governance responses and policy debates barely address these issues (McCann, 2016) and they rarely ever appear as headlines in the mainstream London-centric UK media, and yet the paucity of national media coverage of these issues is dwarfed by the problematic scale of the issue.

A recent high-profile example of this disconnection between realities on the ground and public and media perceptions was highlighted in a recent series of very high-profile tweets. Between 3 and 6 November 2018, a debate arose initiated by very high-profile British television, radio and print-media commentators Jeremy Vine and Andrew Neil, amongst others, which contests whether the UK really does have high levels of interregional inequality in comparison with other countries.[1] This was sparked by Vine's reading and commenting on a diagram that first appeared in an article entitled 'Left in the lurch: Globalisation has marginalised many regions in the rich world', originally published in *The Economist* (21 October 2017) in which the differences in productivity (measured in terms of gross domestic product (GDP) per capita) between UK regions (defined as OECD TL3 regions) were compared with the equivalent (OECD TL3) differences in other countries. What was presented was the fact that these differences in the UK are vastly greater than in other countries, and *The Economist* therefore concluded that interregional inequalities in the UK are very high by the standards of industrialized countries.

The Economist's analysis was severely criticized as being misleading and giving the wrong impression by an article originally published on 26 September 2018 by the website FullFact.[2] The basis of the FullFact claim was that *The Economist* was in effect comparing apples with oranges rather than like for like. The FullFact article then went on to purportedly demonstrate: (1) the GDP per capita measures/indices that *The Economist* was using were inappropriate for this type of analysis because they were workplace based rather than residence based, and as such overinflated the apparent prosperity of places facing inward commuting and under-valued the prosperity of places facing

significant outward-commuting; (2) the TL3 spatial units involved were meaningless in that they were comparing small areas such as The Camden & City of London with places such as Stockholm,[3] Washington, DC, and Tokyo, whereas a more appropriate comparison unit for the UK data would have been somewhere like Manhattan;[4] and (3) as a result of the first two points FullFact therefore argued that only regions of similar size should be compared. On the basis of these points, FullFact argued that when data are used and interpreted appropriately, the UK displays only average levels of interregional inequality.

Both Vine and Neil were happy to accept, and even to advocate via their subsequent tweeted comments, that the FullFact argument that the UK has only average levels of interregional inequality was correct. Moreover, while their views were in part shaped by a FullFact article, the impression given by the language used in their tweets strongly suggests that the views of both men also predated the publication of their tweets, and that the FullFact article simply confirmed what they already had assumed to be the case, namely that the levels of interregional inequality in the UK are largely typical of other countries.

A few days later, on 9 November 2018, Alex Selby-Boothroyd, Head of Data Journalism at *The Economist*, also published a response[5] to the FullFact article where he explained the logic of the approach that *The Economist* had used in its article. In response to some of the issues raised by FullFact, he reiterated some of difficulties of using and interpreting these types of data, and acknowledged that using TL2 measures might solve some of the problems. He also suggested that to address the commuting problems inherent in using GDP per capita measures, it might be useful to use GDP per person working in an area.

Before we proceed to discuss the details of UK interregional inequality in the light of international evidence, and also to avoid any further misunderstanding, at this point it is important to state clearly the position the rest of this paper explains below:

- *The Economist* article was basically correct in its claim that interregional inequality in the UK is very high by international standards (McCann, 2016; Office for National Statistics (ONS), 2019). This can also be demonstrated more broadly by using a wider range of indicators and countries. Meanwhile, the FullFact article was basically incorrect in its arguments and interpretation and its claim that UK interregional inequality was only average in comparison with other countries, as were the views of both Vine and Neil.
- While in terms of data usage *The Economist* article is precise and correct (but requires careful interpretation), ironically the FullFact article makes exactly the same types of errors that it claims undermines *The Economist*'s article.
- The use of OECD regional and urban data sets require careful (internationally comparative) interpretation in the case of each country and the simultaneous use of different indices allows the better grounding any particular analysis.

THE MEASURES AND INDICES OF INTERREGIONAL INEQUALITY

The GDP per capita index – and its related index gross value added (GVA) per capita – are calculated at the workplace location, and GDP per capita is the index reported by *The Economist*. This is the standard approach used internationally for measuring the prosperity of the economy of different places. Measures such as GDP per capita not only include wage incomes in their construction but also payments to capital and landowners and investors and, as such, they therefore reflect the overall performance of the local economies in terms of incomes, profits, rents and wealth. They are the best overall measure of the value and dynamism of a local economy, and are the best proxy for a range of different issues, including the level of wages, opportunities for high value employment and career progression, opportunities for business investment, entrepreneurship and innovation. Assessing differences in the prosperity of regional economies within an individual country is therefore generally undertaken by calculating various measures of inequality in regional GDP per capita or regional GVA per capita.

A third index of prosperity that can also be used to assess regional inequality is that of per capita regional disposable income (RDI). This measures the value of people's wage/salary incomes, and these are measured at the residence location rather than the workplace location, as is the case with GDP and GVA. In a large region that is bigger than a typical travel-to-work area, the difference between the regional GDP (or GVA) per capita and RDI per capita values (relative to the national average) is an index of the interregional income-redistribution mechanisms operating within the national economy via the tax and benefits system, whereas in areas smaller than travel-to-work areas, these differences also reflect commuting patterns. As the FullFact article explains, in places facing huge inward employment commuting, the per capita GDP (and GVA) measures (when compared with national averages) will be significantly larger than the RDI measures, whereas in areas facing significant outward commuting, the reverse will be true.

While the RDI index is useful for understanding certain aspects of people's standards of living – such as their ability to buy a house and household consumer goods – it is much less useful for understanding the prosperity and dynamism of the economy, for two reasons. First, while RDI is heavily contingent on GDP or GVA, it also ignores all the investment, profit and wealth-related aspects of the economy which are included in the GDP and GVA measures. In the UK, this is especially important because interregional inequalities in wealth are greater than purely income inequalities (D'Arcy, 2018). As such, it cannot be a comprehensive proxy for the dynamism and prosperity of the local economy.

Second, RDI is heavily dependent on government policy and political priorities as well as the underlying dynamism of the local economy. A more progressive and (interregionally) redistributive tax system will generally narrow the relative

gap in RDI between high per capita GDP or GVA regions and low per capita GDP and GVA regions, whereas a less redistributive fiscal system will do the opposite. Yet, the structure of the fiscal system is something that can also change with shifting political and governance priorities; while a more progressive tax system ought to narrow the regional RDI gap relative to GDP or GVA, any movement towards fiscal devolution can also have the opposite effect depending on the scale and structure of the underlying fiscal stabilizer system.[6] The per capita RDI index is therefore dependent on a combination of both the per capita GDP (or GVA) indices and also political priorities.

In general, therefore, GDP per capita and GVA per capita indices are much more encompassing than purely measures of either per capita RDI for understanding the prosperity of places.[7] Each issue is well understood in economic geography and GDP (or GVA) per capita is almost always the preferred measure of local economic prosperity used around world in economic analyses. What *The Economist* did was simply accept standard practice.

THE REGIONAL AND URBAN DATA

Within an individual country, the differing sizes, shapes and definitions of cities and regions makes comparisons complicated because we need to find broadly comparable units of measurement in order to compare like with like. Moreover, the appropriate definitional unit also depends on exactly what it is we are trying to measure and why. When comparing cities and regions across countries, the situation becomes even more complex because data are collected and reported in different ways in different countries, depending on their administrative and governance structures. These points were raised in the FullFact article, although there is nothing new in these points. The problem was first raised more than 80 years ago, although the statistical properties of these issues have been well understood in economic geography for more than four decades under the umbrella term modifiable areal unit problem (MAUP) (Openshaw & Taylor, 1979).

Precisely because of these caveats, the work of the OECD over more than a decade has been explicitly to develop economic and social indicators of regions and cities that are broadly comparable across countries. This is done by developing a standardized classification system that allows for different types of subnational data from different countries to be grouped into categories that allow for meaningful cross-country comparisons. For present purposes, the OECD standardized classification system has three different dimensions to it, namely: the OECD Territorial Level 2 classification (TL2); the OECD Territorial Level 3 classification (TL3); and the OECD metropolitan Urban Data. These data sets are for the most part also standardized and consistent with the EU Eurostat Regional data sets, and are all publicly available.[8]

The OECD TL2 classification is the highest level of subnational national data disaggregation available for large regions within countries. For example, in the case of the UK, there are 12 such regions, with an average population of 5.45 million people; for TL2 regions in the United States, the average population size is 6.3 million; for French TL2 regions, it is 4.97 million; in Germany, it is 5.15 million; in South Korea, it is 7.32 million; in Australia, it is 3.1 million; in Canada, it is 2.79 million; in Mexico, it is 3.9 million; and in Belgium, it is 3.7 million. At the upper and lower extremes, we have Japanese TL2 regions with an average population of 12.2 million; and New Zealand regions with an average population of 335,000. Of the 33 countries in the OECD database, just four have an average TL2 population size < 1 million, three whose population is > 6 million, and 24 whose TL2 population sizes are between 1 and 4 million. The average size of the UK TL2 regions ranks as fourth in the OECD, after Japan, Korea and the United States, and the third largest relative to the national population after Korea and Japan.

The OECD TL3 classification is the next level below TL2 and describes smaller areas that are contained in groups inside the larger TL2 areas. In the case of the UK, there are 173 TL3 regions, with an average population of 378,000 people; for French TL3 regions, it is 672,000; for German TL3 regions, it is 204,000, in Australia, it is 494,000; in Mexico, it is 585,000; and in Belgium, it is 257,000. At the upper and lower extremes, we have Korean TL2 regions with an average population of 3 million and Canadian TL3 regions with an average population of 123,000. Of the 33 countries in the OECD database, there are just two whose average TL3 population size is < 200,000, four whose average TL3 population is > 800,000 million, and 27 whose TL2 population sizes are between 200,000 and 799,000. In terms of average population size, the UK TL3 areas rank as the 19th largest out of 33 countries, and are very close to both the OECD mean and medians for TL3 regions.

Unsurprisingly, because the TL3 regions are very much smaller than the TL2 regions (typically TL3 regions are < 10% of the size of TL2 regions), the interregional dispersion and variability in measures such as GDP per capita and RDI per capita is much greater for TL3 than for TL2 measures. Moreover, in general, the smaller are the regions compared with national population, the greater will be the expected dispersion and variability in measures such as GDP per capita and RDI per capita. By OECD averages, the UK has large TL2 regions (in both absolute and relative terms) and very typically sized TL3 regions. This suggests that, if anything, the UK TL2 structure ought to *reduce* the UK's measured interregional inequality relative to other countries, while the UK TL3 definitions will have no such effect. There is, however, just one exception to these broad principles, namely the fact that the UK is the only country in which London, as the UK's major urban area, is subdivided into various TL3 regions, whereas in other countries the dominant cities are not subdivided at the TL3 level. The only other exception is the United States, where the District of Columbia, a subdivision of the city of Washington, appears at the TL2 level. The TL3 classification system is the one used in the original diagram published in *The Economist*.

Finally, the OECD metropolitan Urban data set that is based on a different classification system (OECD, 2012)

defined according to both commuting flows and the contiguity of areas. This provides standardized data for urban areas of > 500,000 people, of which there are 15 such areas in the UK.[9] For example, the TL2 definition of Greater London is the one that is typically understood in the UK and which has a population of 8.1 million people, whereas the OECD metro definition of London has a population of 12.1 million and includes towns such as Guildford, St Albans and Reading and many small-town, intermediate rural areas close to London which exhibit high levels of outward employment commuting to London. The GDP per capita of the OECD metro definition of London is therefore, unsurprisingly, much lower than the TL2 definition of London contained within the official London boundaries of the London built-up area.

However, moving from the TL2 to the metro definition does not necessarily always imply increasing population. For example, the TL2 definition of Paris, which is the Ile-de-France definition most people are accustomed to, has a population of 11.9 million, while the OECD metro definition of Paris also has a population of 11.9 million (McCann, 2016). Meanwhile, the OECD metro populations of Birmingham and Manchester are 1.92 and 1.85 million people, respectively, both of which are markedly smaller than the standard UK understanding of the sizes of the West Midlands and Greater Manchester conurbations, which are currently 2.83 and 2.79 million, respectively. This is also the case for New York, which at 16.12 million is markedly smaller than the standard 20.3 million US standard metropolitan statistical area (SMSA) definition of the New York City metropolitan area. In contrast the OECD metro definition of Los Angeles has a population of 17.72 million, whereas the SMSA definition of Los Angeles has a population of 12.8 million. For almost all cities, the defined OECD metro urban areas are smaller than TL2 regions and larger than TL3 regions, but as with London, there are a very small number of exceptions.

The first point to make is that these three OECD data sets are by far the most detailed, accurate and representative data sets anywhere in the world for undertaking cross-country comparisons of the internal economic geography of different countries. Precisely which data set(s) will be used depends on the particular issue being addressed, but what should not be done is using data from different data sets interchangeably or mixed together. TL2 data should almost always only be compared with other TL2 data, TL3 with other TL3 data, metro urban data with other metro urban data. The only exception here is when comparison data are not available within a particular classification system, in which case comparison may sometimes be made with other classifications of data, although this should always be clearly noted, and appropriate caution in interpretation exercised.

AN ANALYSIS OF *THE ECONOMIST* VERSUS FULLFACT DEBATE

The Economist article used the simplest measure of interregional inequality, which is the absolute difference between the richest and poorest regions defined in terms of GDP per capita divided by national average GDP per capita. The countries it compared with the UK were other large OECD countries, namely: Spain, United States, France, Germany, Italy, South Korea, Japan and Sweden. In making the interregional inequality comparisons, *The Economist* article was entirely correct in only using a single data set classification scheme for its cross-country comparisons, and it chose to use the TL3 data set classification, except for the case of the United States for which GDP per capita data are only available at the TL2 level, exactly as reported. *The Economist* demonstrated that when calculated at the TL3 level, the UK is more unequal than any other industrialized country. The question here, then, is whether the results and interpretation of *The Economist* were simply an artefact of choosing the TL3 level as its particular comparison data set rather than a more general description of the UK economy. On both counts the answer is 'no'.

We can begin by undertaking more or less exactly same exercises, using the same nine countries as comparators, that both *The Economist* and FullFact used, but now we use the per capita GDP measures at both the TL2 and TL3 classifications. At each TL2 and TL3 level, data permitting, we can measure regional inequality in five different ways, namely:

(1) Calculate the ratio of the highest per capita GDP region divided by the lowest GDP per capita region.
(2) Calculate the absolute difference between the GDP per capita of the highest and lowest regions and divide them by the average GDP per capita for the whole country.
(3) Calculate the ratio of the highest 10% GDP per capita regions divided by the lowest 10% GDP per capita regions.
(4) Calculate the ratio of the highest 20% GDP per capita regions divided by the lowest 20% GDP per capita regions.
(5) Calculate the Gini coefficient of inequality across all regions.

At the TL2 level using GDP per capita as our regional index, we see that the UK is ranked as the third most interregionally unequal country in the group according to method (1) after the United States and Italy; the second most unequal country according to method (2) after the United States; the most interregionally unequal country according methods (3); and the second most unequal country according to methods (4) and (5) after Italy. However, the US result according to method (2) depends entirely on Washington, DC, being in the TL2 grouping.

With a population of only 681,170, the population of the District of Columbia is only 11% of the OECD metro population of Washington and < 7% of the standard Washington metropolitan definition (Washington DC–Baltimore–Maryland–North Virginia), which is used in the United States, and using this particular aerial measure alongside other TL2 data risks making exactly the same mistake that the FullFact article claims *The Economist*

was doing by using the Camden & City of London TL3 region in its article. Therefore, if we remove the District of Columbia and use the rest of the US TL2 areas, the UK now becomes interregionally the most unequal country in this particular OECD grouping according to method (2). As such, amongst this nine-country grouping, the UK emerges as the second most interregionally unequal country.

As above with GDP per capita, if we consider RDI, we can measure interregional inequality again in the same five different ways, namely:

(1) Calculate the ratio of the highest RDI region divided by the lowest RDI region.
(2) Calculate the absolute difference between the RDI of the highest and lowest regions and divide them by the average DI for the whole country.
(3) Calculate the ratio of the highest 10% RDI regions divided by the lowest 10% RDI regions.
(4) Calculate the ratio of the highest 20% RDI regions divided by the lowest 20% RDI regions.
(5) Calculate the Gini coefficient of inequality across all regions.

At the TL2 level amongst this particular group of countries, when using the RDI index, the UK is the 4th most interregionally unequal country after the Italy, the United States and Spain according to methods (1), (2) and (5), while according to methods (3) and (4), the UK is the third most interregionally unequal country after Italy and Spain.

We can now repeat these exercises at the TL3 level, although there are no GDP or RDI data for the United States at the TL3 level, and while GDP data are available for all the eight remaining countries at the TL3 level, in contrast RDI data are only available at the TL3 level for the UK, Sweden, Japan and Korea.

In doing so, we now see that when using GDP per capita, at the TL3 level the UK is the most unequal country according to all five methods. Similarly, if we use RDI, then amongst the reduced four-country grouping, the UK is again the most interregionally unequal country on all five methods.

As such, in terms of the nine-country comparison group of countries used by both *The Economist* and FullFact, the detailed evidence reported here therefore begs the question as to how the FullFact article could possibly come to the conclusion that the levels of interregional inequality in the UK were only average by international standards, and indeed rank only as the seventh out of the nine countries in the comparison group? The reason that this entirely erroneous conclusion was arrived at was because FullFact made precisely the mistake of mixing up different TL2 and TL3 data sets, exactly as outlined above. Moreover, it only reported one side of the inequality range, namely the most productive region relative to the national average, without also examining the range including the least productive regions.

The regional inequality bar chart constructed by FullFact mixes up TL2 and TL3 areas. TL3 areas are reported for Germany (Ingolstadt), France (Hautes-Seine),[10] South Korea,[11] Italy,[12] Japan, Spain and Sweden,[13] with TL2 areas reported for the United States (Washington, DC) and the UK (Greater London). The highest GDP per capita value is reported for Ingolstadt, a small town in Germany with a population of 133,000 people.[14] The next smallest region in the FullFact figure is the Basque region of Alava in Spain, with a population of 324,000, followed by Washington, DC, with a population of 680,000, through to Greater London, with a population of 8.2 million, and Tokyo, with a population of 13.6 million. Yet, the FullFact mixing in the same figure of TL2 and TL3 populations of such variations makes no sense whatsoever for comparison purposes and exacerbates the problems that it claims *The Economist* figure originally faced. The population range in the original figure reported by *The Economist* ranged from 256,000[15] in the case of Camden & City of London to 13.6 million in the case of Tokyo, a ratio of 1:53, whereas in the FullFact article that range is now doubled to 1:102. If instead FullFact had followed its own logic, as is made clear in the response by Selby-Boothroyd, they would have recalibrated everything in TL2 terms, although this itself is not without difficulties, as Selby-Boothroyd also observed.

AN OECD-WIDE COMPARATIVE EXAMINATION OF THE UK'S INTERREGIONAL INEQUALITIES

We can now consider these same measures and also a much wider range of inequality measures across both the OECD and EU where we have up to 28 total possible alternative measures of interregional inequality.

If we begin with the absolute difference in GDP per capita between the highest and lowest TL2 regions within a country divided by the national GDP per capita, we see that the UK ranks as the fifth highest out of 27 countries, behind Slovakia, the Czech Republic, Ireland, Canada and the United States. Canada's highest values are skewed by the oil and gas-rich arctic regions. If we also examine the ratio of the highest and lowest GDP per capita regions, again the UK ranks as the fifth highest, after the United States, Italy, Ireland and Slovakia. As we have seen, both the US results depend entirely on the inclusion of the District of Columbia as a TL2 region. Without this, the UK is more unequal on both measures than the United States at the TL2 level. At the TL3 level, the UK ranks as the most unequal country on both measures, as *The Economist* observed.

In order to avoid the problem that individual observations may skew the results and also that these results may be due to the particular small comparison group observed by both *The Economist* and FullFact, we can also use 16 other types of indicators/measures of interregional inequality across all the OECD industrialized countries, data permitting. To begin with, we can adopt a slightly different approach from the approach used above

by calculating the ratio of the GDP per capita in the top 10% of regions and that of the lowest 10% of regions in each country. For the 30 OECD industrialized countries (not including the quasi-developing economies of Mexico, Turkey and Chile) for which we have data, at the TL2 level, the UK is ranked as 27th in terms of inequality and the most interregionally unequal amongst all large countries with a population of over 11 million people. If we consider this at the TL3 level, the UK is ranked as the second most interregionally unequal country, and again it is the most unequal large country.

At the same time, if we consider the ratio of the top 20% of regions and the bottom 20% of regions, at the TL2 level the UK ranks as the sixth most interregional unequal economy, and again, except for one country (Italy), the only countries that are more unequal than the UK are all small and/or former Communist countries with < 11 million people, many of which are no bigger in size than individual UK cities. At the TL3 level, in terms of the ratio of the top 20% of regions and the bottom 20% of regions, the UK ranks as the fifth most interregionally unequal country, with small and/or former Communist countries being more unequal.

Similarly, if instead of GDP per capita we consider GVA per worker, we see broadly the same pattern. At the TL2 level, if we consider the ratio of the top 10% regions and the bottom 10% of regions, we see that the UK is the fourth most interregionally unequal economy, while in terms of the top and bottom 20% of regions, the UK is ranked as the fifth most interregionally unequal country. Again, in both cases, only small and former Communist countries are more unequal than the UK.

In terms of GVA per worker, at the TL3 level, if we consider the ratio of the top 10% regions and the bottom 10% of regions, we see that the UK is the second most interregionally unequal economy, while in terms of the top and bottom 20% of regions, at the TL3 level the UK is ranked as the sixth most interregionally unequal country. Again, in both cases only small and former Communist countries are more unequal than the UK.

Finally, in terms of RDI, at the TL2 level if we consider the ratio of the top 10% regions and the bottom 10% of regions, we see that the UK is the fourth most interregionally unequal economy; and the same is true when we consider the top 20% and bottom 20% of regions, with only Slovakia, Italy and Spain being more unequal. At the TL3 level, the UK is the most interregionally unequal country in RDI of the 11 OECD countries for which we have data calculated with respect to either the top and bottom 10% or 20% of regions.

Rather than looking at the top and bottom individual regions, the top 10% and bottom 10% regions, or the top and bottom 20% of regions, another approach to defining interregional inequality is to calculate inequality using a Gini coefficient. For GDP per capita, at the TL2 level the UK is ranked as the 10th most interregionally unequal country, whereas at the TL3 level, the UK is ranked as the most unequal country of the 28 countries for which we have data. For RDI using a Gini coefficient at the TL2 level, the UK is ranked as the fifth most unequal country, while at the TL3 level the UK is ranked as the most unequal country of the 11 OECD countries for which we have comparable data.

Another way for one to consider these issues is to use the OECD metro urban data for the UK and other OECD countries. However, here we have to consider these issues in a slightly different manner to TL2 and TL3 regions, because of the 30 OECD comparator countries we are considering, 10 do not have more than one OECD metropolitan urban area and another eight countries contain fewer than five OECD metropolitan urban area, so top/bottom 10% or 20% ratios are no different simply to the ratios of highest and lowest metro values, and Gini coefficient calculations are largely meaningless. Therefore, for the 19 countries for which we have comparable data, there are two measures: (1) we can calculate simply the absolute difference in GDP per capita for the highest and lowest cities and divide this value by the national GDP per capita; and (2) we can calculate the ratio of the GDP per capita of the highest and lowest cities. However, we have to acknowledge that these measures obviously suffer from exactly the same outlier/extreme value problems in TL2 and TL3 regions for which we instead used other measures such as top 10%/bottom 10%, top 20%/bottom 20% and Gini indices.

Allowing for these caveats, on the basis of the former measure – the absolute difference in GDP per capita divided by the national GDP per capita value – the UK ranks as eighth out of 19 countries, while on the latter measure – the ratio of top/bottom – the UK ranks as fifth highest out of 19 OECD countries.

The final way that we can consider these issues is to use Eurostat's NUTS-2 and NUTS-3 regional definitions[16] and compare UK interregional inequality with the other EU countries which are also full members of the OECD.[17] The OECD TL2 areas correspond to the NUTS-1 areas for four EU countries, namely Germany, the UK, France and Belgium, while in 14 EU countries, TL2 is the more or less the same as the NUTS-2 classifications. For all EU countries, the NUTS-3 area definitions largely correspond to the OECD TL3 definitions. As such, the NUTS-2 definitions typically sit between the OECD TL2 and TL3 classifications. Using these NUTS regional definitions, we can develop indicators that to some extent act as a bridge between the OECD TL2/TL3 construction and the OECD metro urban area construction by defining those NUTS-2 and NUTS-3 groupings that most closely replicate OECD metro areas of 250,000 people or more as functional regions in their own right, and distinct from other regions. This approach more closely measures the inequalities between large (functional) urban areas and either small town or non-urban areas. We can examine these issues using three measures, namely, the ratio of the highest and lowest 10% of GDP per capita regions, the ratio of the highest and lowest 10% of GDP per capita regions, and we can also calculate a coefficient of variation of regional GDP per capita.

Using this approach, in terms of the ratio of the highest and lowest GDP per capita NUTS-2 regions, the UK ranks as sixth of 22 countries, after Ireland, Germany and Italy, as well as Slovakia and Hungary. At the NUTS-3 level, the

UK ranks as sixth out of 20 countries, after Ireland, Germany and Poland, as well as Slovakia and Hungary. In terms of the GDP per capita ratio of the top 10% of NUTS-2 regions divided by the bottom 10% of NUTS-2 regions, the UK has higher values than all Western European countries, except Ireland, with only Hungary and Slovakia being the other two EU countries with higher ratios than the UK.

Alternatively, if we calculate a coefficient of variation for GDP per capita at the NUTS-2 regions, now France and Ireland are both slightly higher than the UK, and again Hungary and Slovakia still have higher ratios. Meanwhile, if we calculate the ratio of the GDP per capita of the top 10% of NUTS-2 regions divided by the bottom 10% of regions at the NUTS-3 level, we see that the UK ranks as the 11th most interregionally unequal country out of 22 behind six former Communist countries plus Ireland, Italy, France and Germany. On the other hand, if we calculate a coefficient of variation for GDP per capita at the NUTS-3 regions, again we see that the UK is the 11th most interregionally unequal country in Europe out of 22 EU and OECD countries behind five former Communist countries plus France, Italy, Greece and Ireland. In these particular types of NUTS rankings, the UK displays lower inequalities between large urban areas and either small town or non-urban areas than in countries such as France, as is already well known (Dijkstra, Garcilazo, & McCann, 2013; McCann, 2016).[18] Inequality in the UK is much more of a regional than an urban/non-urban phenomenon (McCann, 2016), with many of the most prosperous places in the UK being small towns and rural areas (ONS, 2017) and many of the least prosperous places being urban areas. Indeed, as explained in Appendix A in the supplemental data online, one-third of the UK's large urban areas are actually poorer than their own hinterlands and one-fifth are only very slightly more prosperous than their hinterlands, two-thirds of the UK large cities are less prosperous than the UK average, and the productivity growth of many of these has almost completely stalled since the 2008 crisis (Martin, Sunley, Gardiner, Evenhuis, & Tyler, 2018).

DISCUSSION

All these various results are summarized in Table 1, which reports each individual measure of interregional inequality and the UK's inequality ranking out of the range of countries for which comparable data are available. A higher ranking means that the UK is relatively more unequal on that particular measure. What we see is that across all 28 indicators the UK has a high ranking of interregional inequality. In terms of the country comparisons employed by both *The Economist* and FullFact, when we consider interregional inequality across all the available TL2, TL3, metro urban and NUTS-2 and NUTS-3 indicators, we see that across all 28 indicators the UK is more interregionally unequal than the United States on six measures, while the United States is more unequal than the UK on five measures, and they are equal on two measures. However, if the District of Columbia is removed for the reasons outlined above, the United States is more interregionally unequal compared with the UK on four measures, while the UK is more unequal compared with the United States on nine measures, and they are equal according to one measure. Similarly, the UK is more interregionally unequal than France according to 15 measures, and France is more unequal than the UK on four measures, and they are equal on two measures; Germany is more unequal to the UK according to four measures, while the UK is more unequal than Germany on 17 measures. Italy is more interregionally unequal to the UK on 10 measures, while the UK is more interregionally unequal than Italy on 11 measures. The UK is interregionally more unequal to Japan on 18 measures. Spain is more interregionally unequal than the UK according to three measures, while the UK is more unequal to Spain according to 19 measures. The UK is more interregionally unequal than South Korea according to 16 measures, while South Korea is more unequal to the UK on two measures. Finally, the UK is interregionally more unequal than Sweden on 16 different measures. In other words, across all the indicators used, the UK comes out as the most interregionally unequal country amongst this particular group of large advanced industrial economies.

Indeed, what comes out when we compare the UK with 30 OECD countries is that the UK is one of the most interregionally unequal countries in the industrialized world, and almost certainly the most interregionally unequal large high-income country. The only countries that are interregionally more unequal than the UK are Slovakia and Ireland.[19] In other words, across a very broad range of 28 indicators, the UK is interregionally more unequal than 28 other advanced OECD countries.[20] Amongst its own particular competitor peer group of large countries with similar or higher levels of income, the UK is much more unequal interregionally than any of its peers. Only Italy, with its longstanding problems of the Mezzogiorno, has somewhat nearly comparable interregional inequalities with that of the UK, although Italy's measures are very dependent on the fact that three of the four richest TL2 and NUTS-2 regions of Italy only have very small populations.[21] Meanwhile, the small number of measures where Germany is more unequal than the UK is entirely a legacy of the absorption of the former East Germany. All other rich OECD countries are much more interregionally equal than the UK. As such, in many ways the economic geography of the UK is more reminiscent of a much poorer country at an earlier stage of economic development (McCann, 2016). Moreover, the inequalities within the UK are also across such short distances with enormous local productivity variations evident within just a two-hour driving time, whereas within Spain comparable variations would only be evident across a seven-hour driving time, and in Italy and the United States across a 10-hour driving time. In the UK, it is the combination both of the magnitude and the proximity of the interregional inequalities that is so marked, and the productivity weakness of many regions of the UK acts as a severe drag on national productivity.

Table 1. UK interregional inequality rankings (number of Organisation for Economic Co-operation and Development (OECD) and European Union countries with comparable data).

Ratio top/bottom OECD TL2 regions GDP per capita	Difference top/bottom OECD TL2 area GDP per capita divided by national GDP per capita	Ratio top/bottom OECD TL3 regions GDP per capita	Difference top/bottom OECD TL3 area GDP per capita divided by national GDP per capita	Ratio top 10%/bottom 10% OECD TL2 regions GDP per capita
5/27	5/27	1/26	1/26	4/26
Ratio top 20%/bottom 20% OECD TL2 regions GDP per capita	Ratio top 10%/bottom 10% OECD TL3 regions GDP per capita	Ratio top 20%/bottom 20% OECD TL2 regions GDP per capita	Ratio top 10%/bottom 10% OECD TL2 regions GVA per worker	Ratio top 20%/bottom 20% OECD TL2 regions GVA per worker
6/26	2/27	4/26	2/25	5/25
Ratio top 10%/bottom 10% OECD TL3 regions GVA per worker	Ratio top 20%/bottom 20% OECD TL3 regions GVA per worker	Ratio top 10%/bottom 10% OECD TL2 regions RDI per person	Ratio top 20%/bottom 20% OECD TL2 regions RDI per person	Ratio top 10%/bottom 10% OECD TL3 regions RDI per person
3/27	6/27	4/27	4/27	1/11
Ratio top 20%/bottom 20% OECD TL3 regions RDI per person	Gini index regional GDP per capita OECD TL2 regions	Gini index regional GDP per capita OECD TL3 regions	Gini index regional RDI per capita OECD TL2 regions	Gini index regional RDI per capita OECD TL3 regions
1/11	9/26	1/27	5/26	1/11
Difference top/bottom OECD metro urban area GDP per capita divided by national GDP per capita	Ratio top/bottom OECD metro urban area GDP per capita	Ratio top/bottom GDP per capita EU NUTS-2 region (including metro urban regions)	Ratio top/bottom GDP per capita EU NUTS-3 region (including metro urban regions)	Ratio top 10%/bottom 10% GDP per capita EU NUTS-2 regions (including metro urban regions)
8/19	5/19	6/20	6/22	4/22
Ratio top 10%/bottom 10% GDP per capita EU NUTS-3 regions (including metro urban regions)	Coefficient of variation GDP per capita EU NUTS-2 regions (including metro urban regions)	Coefficient of variation GDP per capita EU NUTS-3 regions (including metro urban regions)		
11/22	5/23	11/22		

CONCLUSIONS

This paper has outlined the key issues involved when considering the national scale of interregional imbalances using different indices, spatial units and measures of regional inequality. A broad internationally comparative approach is advocated that involves considering as wide a range as possible of such indicators, while at the same time also being aware of the construction, purposes, advantages and limitations of each individual indicator. This type of broad approach better allows the realities of an individual country to be situated in an internationally comparable context.

Understanding these realities is also important for understanding many aspects of the 'geography of discontent'. Major differences in local productivity are a primary source of the geography of discontent and they are also a challenge to a country's institutional and governance structures. International evidence demonstrates that interregional inequality is neither beneficial for urban (Royuela, Ramos, & Veneri, 2014) or regional growth (de Dominicis, 2014) and that decentralized governance systems are associated with more interregionally equal growth patterns (Ezcurra & Pasqual, 2008; Ezcurra & Rodriguez-Pose, 2013), less dominance by an individual city-region (OECD, 2015), and with no effect on national growth. As such, it is likely that the enormous imbalances within the UK are heavily related to the over-centralized national governance system (McCann, 2016) and a significant devolution and decentralization of the UK national–subnational governance system would appear to be a key priority for helping to counter the geography of discontent.

However, this is especially difficult In the case of the UK, for three reasons.

- There is the overwhelming geographical myopia of London-centric 'national' media debates. Given the data discussed in this paper, which are all publicly available, it is very hard to understand how FullFact could have put forward the argument that UK interregional inequality is only average by international standards, and it is even harder to understand how high-profile frontline political and media commentators could have so readily accepted this argument. Indeed, these mistaken perceptions underline the scale of the governance–devolution challenge ahead.
- These difficulties are further compounded by the effects of Brexit, which are likely to undermine many economic and governance efforts aimed at galvanizing the UK's weaker regions (Billing, McCann, & Ortega-Argilés, 2019), even in situations where central government would like to be able to devolve and decentralize.
- A recently popular UK response to questions of the geography of discontent that is largely driven by psephological approaches, has advanced a 'cities versus towns' narrative (Jennings, Brett, Bua, & Laurence, 2017). As the data reported here show, this characterization is basically untrue in terms of the economic features of the UK. This political science narrative, which is already gaining traction in the media and political circles, adds yet another layer of resistance to a proper reconsideration and reorganization of the relationships between the UK regional economic and governance systems.

An improved general awareness of regional economic realities is essential for overcoming inaccurate national media and political narratives, and this is true both in the case of the UK and also in many other countries. The OECD and EU regional and urban data sets are an invaluable resource.

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NOTES

1. See https://twitter.com/i/moments/1059741476387778560?lang=en/.
2. See https://fullfact.org/economy/regional-inequality-figures-misleading/.
3. Technically, Stockholm County's 2017 population is 2,269,090.
4. The population of Manhattan at 1.67 million represents 0.51% of the US population of 326 million. In relative terms, the equivalent population for the UK would be 339,000, or almost exactly the same size as the TL3 area of Kensington & Chelsea (London) (338,960) and slightly larger than the TL3 area of Camden & City of London (258,655).
5. See https://medium.economist.com/the-challenges-of-charting-regional-inequality-a9376718348/.
6. In the UK, it is known as the Barnett Formula.
7. Measuring output per hour worked is also an option, but this ignored all the labour market participation features. By using such a measure at standardized geographical units, we still see that the UK is more interregionally unequal than half a dozen other EU comparator countries. See https://blog.ons.gov.uk/2018/11/23/mind-the-gap-why-the-uk-might-not-be-the-most-regionally-unequal-country/.
8. See http://www.oecd.org/cfe/regional-policy/regionalstatisticsandindicators.htm/.
9. For details, see Appendix in Appendix A in the supplemental data online.
10. Hautes-Seine's population is 1.61 million.
11. Ulsan's population is 1.15 million.
12. Milan's population is 3.2 million.
13. See note 3.
14. A town that most regular visitors to Germany have never heard of.
15. 2015 population data.
16. See https://ec.europa.eu/eurostat/web/nuts/background/.
17. We do not include Romania or Bulgaria as comparators for similar reasons that we did not include Mexico, Turkey or Chile in the previous discussions of OECD

TL2 and TL3 data. Also, Malta, Cyprus and Croatia are very small countries that are not full members of the OECD, so these are not included either.

18. Within the UK, the gaps between urban metropolitan regions and either small town or rural areas were falling between 2000 and 2007, although they have all very slightly risen since the crisis of 2008.

19. Slovakia is more interregionally unequal than the UK according to 14 measures; it is equal to the UK on two measures; and the UK is more unequal to Slovakia in eight measures. Ireland is more interregionally unequal than the UK according to 13 measures; while the UK is interregionally more unequal than Ireland on 12 measures.

20. Poland displays equivalent interregional inequality to the UK. It is more interregionally unequal than the UK according to 10 measures; the UK is more interregionally unequal than Poland on 10 measures; and they are both equal on two measures.

21. The richest TL2 region, Bolzano-Bozen, has a population of 524,256; Trento's population is 538,604; and Val d'Aosta's population is 126,883.

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