Appendix 7A

Table 7A.1. International comparison of regional inequality, all 27 countries

Country	80:20 ratio rank	90:10 ratio rank	Max:min ratio rank	Coefficient of variation rank	Overall rank
UK	4	1	1	1	1
Germany	7	5	2	3	2
Poland	10	2	6	5	3
Romania	5	8	5	4	4
Bulgaria	9	6	8	2	5
Turkey	3	7	7	10	6
Belgium	1	3	10	12	7
France	21	20	3	6	8
Switzerland	13	14	13	7	9
Hungary	12	12	9	9	10
US	14	17	4	18	11
Italy	2	9	12	16	12
Greece	15	13	14	13	13
Croatia	22	4	15	11	14
Korea	8	10	18	15	15
Netherlands	17	16	11	17	16
Czechia	26	27	16	8	17

Country	80:20 ratio rank	90:10 ratio rank	Max:min ratio rank	Coefficient of variation rank	Overall rank
Denmark	16	11	22	14	18
Austria	6	15	21	21	19
Spain	11	18	24	23	20
Slovenia	19	23	19	19	21
Japan	23	25	17	24	22
Norway	24	24	20	20	23
Portugal	20	19	23	22	24
New Zealand	18	21	27	25	25
Sweden	25	26	25	26	26
Finland	27	22	26	27	27

Note: Primary ranks (for all but the 'overall rank' column) are out of 27. A higher rank indicates a greater level of regional inequality. Overall rank is calculated as the rank of each country's mean ranking across all six of our measures of regional inequality in GDP per capita (the four shown in the table, along with the ratio of the maximum region to the median region, and the ratio of the maximum to the mean region).

Source: Authors' calculations using OECD.Stat regional GDP (accessed 19 August 2020).

Table 7A.2. Data sources for the three indices

Index and measure	Exact measure	Date measured	Source
Left-behind			
Formal education	% with NVQ4+ qualification	Jan–Dec 2019	ONS Annual Population Survey
Incapacity benefits	% of working-age population (16–64) receiving ESA or equivalent in UC[a]	Feb 2020[b]	Department for Work and Pensions (DWP)
Employment	Employment rate (%) for 16–64 population	Jan–Dec 2019	ONS Annual Population Survey
Pay	Median gross weekly pay, all employees, £[c]	Year to 5 April 2018	ONS Annual Survey of Hours and Earnings, table 8.1a
COVID			
Shut-down sectors	% of workers in LA working in shutdown sectors[d]	2018	ONS Business Register and Employment Survey
Furloughed workers	% of eligible employees ever using CJRS	To end of June 2020	HM Revenue & Customs CJRS statistics[e]
Job vacancy changes	% change in vacancies posted on Find A Job website, year on year, April–June 2019 to 2020[f]	To end of June 2020	DWP Find a Job website https://www.gov.uk/find-a-job

[a] Employment and support allowance has partially been integrated into universal credit (UC). We take the sum of those in each LA receiving ESA and receiving the UC equivalent. The denominator is the working-age population aged 16–64 from the Annual Population Survey.
[b] For UC claimants, month of February 2020; for legacy ESA claimants, quarter ending February 2020; for denominator, working-age population, December 2019.
[c] All employees including full-time and part-time employees.
[d] We measure the share of workers affected by lockdown using four-digit Standard Industrial Classification (SIC) codes as outlined in Joyce and Xu (2020). The measure is based on employee's place of work, not residence.
[e] Accurate as of 21 August 2020 release.
[f] Full details of the data can be found in Costa Dias, Norris Keiller et al. (2020).

A sense check of our left-behind index

To sense check our measure of being 'left behind' against standard measures of deprivation, we explore how our measure correlates with the 2019 Index of Multiple Deprivation (IMD) in England.[1] The IMD takes into account some of the measures used in constructing our measure of being 'left behind', but includes a richer set of inputs including more health measures, crime and housing, all of which may be associated with being left behind (MHCLG, 2019). We construct a measure of the share of LSOAs in each local authority that are among the most 20% most deprived LSOAs in the country.[2]

Figure 7A.1 demonstrates that there is a reasonably high correlation (0.70) between the two measures, with areas that are considered more deprived also coming out as more 'left behind' on our measure.

The most notable outliers lie below the trend line, and reflect areas that are relatively more deprived than their value from our left-behind index would imply. The top 10 outliers in this direction (shown in red in the lower part of Figure 7A.1), are all London boroughs such as Islington, Wandsworth and Lambeth. This likely reflects the significant within-borough variation present in London, where pockets of high deprivation can exist close to very wealthy areas, alongside some of the components of IMD such as housing which we do not capture. This illustrates the importance of not relying too heavily on any one measure, and is a reminder of the fact that there are many economically disadvantaged people living within otherwise prosperous areas.

As outlined above, some of this correlation may be driven by similar data being used in our left-behind index and the IMD for England. We therefore also explore the correlation between our measure and both the health and the crime aspects of

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[1] We use the Ministry of Housing, Communities and Local Government (MHCLG) English indices of deprivation 2019. This ranks each Lower Layer Super Output Area (LSOA) in England on a variety of measures, including on a combined Index of Multiple Deprivation (IMD). The IMD is comprised of seven domains (income, employment, education, health, crime, barriers to housing & services, and living environment), each of which is given a different weighting in the overall index. Each of these domains is comprised of several indicators itself. The data can be found at https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019.

[2] Specifically, we calculate the share of LSOAs in each local authority that are in the bottom fifth nationally for their overall IMD score, and the share that are in the bottom fifth nationally for the health and crime components separately.

the IMD, with crime not included at all in our left-behind index, and health not featuring directly. The health aspect of IMD includes measures of premature death, illness and disability, emergency hospitalisations, and mood and anxiety disorders, while the crime aspect captures rates of violence, burglary, theft and criminal damage (MHCLG, 2019). Figure 7A.2 shows that our measure of being 'left behind' is indeed correlated with both the health and the crime aspects of the IMD, in particular with health, with correlations of 0.71 and 0.46 respectively.
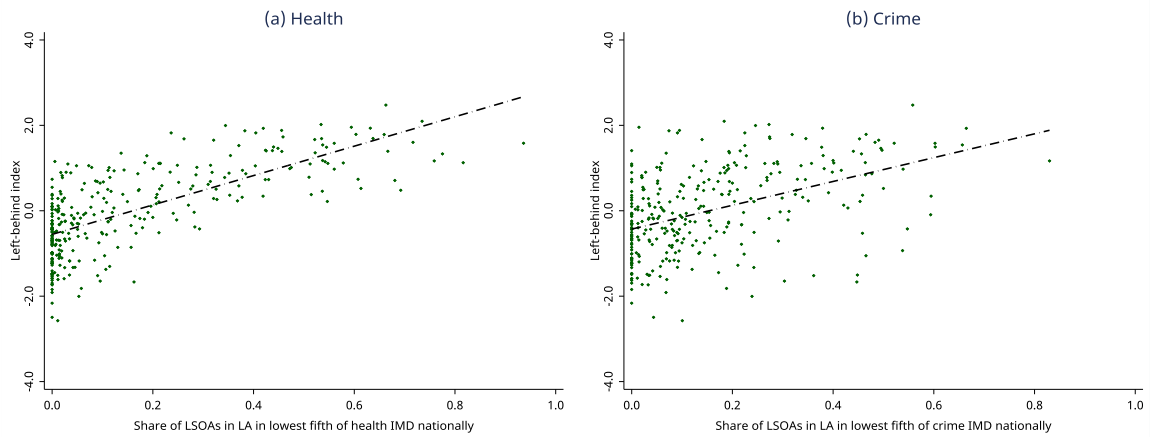
Figure 7A.1. Left-behind index correlation with 2019 Index of Multiple Deprivation in England
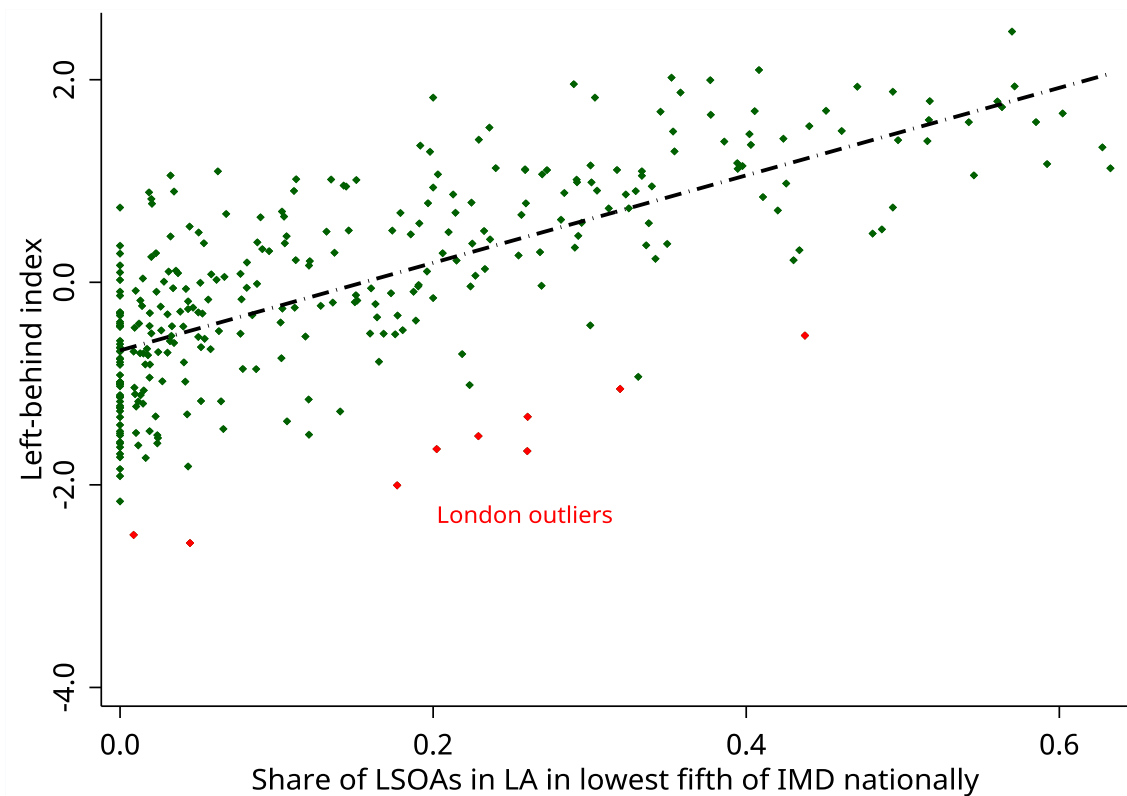
Note: We have recalculated the left-behind index for England only in order to compare it with the IMD for England. Versions of the IMD are also available for Scotland and Wales but are not directly comparable to the English measure.

Source: Authors' calculations using data underlying Figure 7.2 and MHCLG, English indices of deprivation 2019, https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019. See Table 7A.2 for full details of sources for left-behind index.

Figure 7A.2. Left-behind index correlation with 2019 health and crime components of Index of Multiple Deprivation in England

Note: We have recalculated the left-behind index for England only in order to compare it with the health and crime components of IMD for England.

Source: Authors' calculations using data underlying Figure 7.2 and MHCLG, English indices of deprivation 2019, https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019. See Table 7A.2 for full details of sources for left-behind index.