



Ministry of Housing,
Communities &
Local Government



The English Indices of Deprivation 2025

Deprivation in Rural Areas: A Supplementary Report

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Preface

The English Indices of Deprivation are the official means for identifying the most deprived areas in England. The Indices are used widely by the Ministry of Housing, Communities and Local Government (MHCLG) and other government departments. Local policy makers and communities can also use this tool to ensure that their activities prioritise the areas with greatest need for services.

The English Indices of Deprivation 2025 is the seventh release in the series of statistics produced to measure multiple forms of deprivation at a small spatial scale. Following formal user consultation, engagement with key user groups and data providers, and a significant programme of work by the research team, the Indices of Deprivation 2025 introduces a number of key enhancements to data and methodologies, whilst retaining the same overall conceptual model as the earlier Indices of Deprivation 2019, 2015, 2010, 2007, 2004 and 2000.

This report focuses on deprivation in rural areas. It is a supplementary report that forms part of the overall suite of Indices of Deprivation 2025 outputs, which also comprise the Indices of Deprivation 2025 Statistical Release, Technical Report, Research Report, data tables, associated guidance documentation, and responses to frequently asked questions, all of which are published by MHCLG and can be accessed at:

www.gov.uk/government/statistics/english-indices-of-deprivation-2025

Acknowledgements

The English Indices of Deprivation 2025 were developed by a joint research partnership led by Deprivation.org and Oxford Consultants for Social Inclusion (OCSI).

David McLennan (Deprivation.org) and Stefan Noble (OCSI) were the joint principal investigators.

The core research team comprised David McLennan, Michael Noble, Helen Barnes, Gemma Wright and Katrin Gasior from Deprivation.org, and Stefan Noble, Katie Leach, Ben Mason and Emma Plunkett from OCSI.

Bowie Penney oversaw the work on behalf of the Ministry of Housing, Communities and Local Government, and played a vital role in securing access to key datasets and coordinating the input from a wide range of stakeholders.

Stephen Hall at the Department for Environment, Food and Rural Affairs (Defra) provided guidance and support, and led on stakeholder engagement, which helped to shape this report.

Sara Ferguson at Queen's University Belfast undertook the literature review of deprivation in rural areas, which is included in full as an appendix to this report. The literature review formed a key component of the IoD 2025 work programme in respect to rural deprivation.

Karen Bloor, Adrián Villaseñor, Nils Gutacker and Veronica Dale at the University of York played an integral part in the development of the Health Deprivation and Disability Domain. Jon Fairburn at the University of Staffordshire advised on the development of the Living Environment Deprivation Domain and produced the air quality indicator. Glen Bramley at Heriot-Watt University advised on the development of the Barriers to Housing and Services Domain and produced the housing affordability and core homelessness indicators. Chris Dibben from the University of Edinburgh and Chris Lloyd from Queen's University Belfast undertook a thorough review of the core statistical methods employed across the project, while Chris Lloyd also performed independent external quality assurance on the key data processing steps and resultant outputs. The Building Research Establishment (BRE) produced an updated version of the housing in poor condition indicator, and Noise Consultants Ltd produced noise exposure data that fed into the construction of the noise pollution indicator.

David Avenell undertook geographic information systems work and produced the thematic maps for the accompanying Research Report, while Luke Murray at OCSI provided additional project support.

The research team would also like to thank all the suppliers of data. Particular thanks are extended to those analysts who helped to shape the design of the new or enhanced deprivation indicators, as this often required extensive data development work. This includes analysts at the Ministry of Housing, Communities and Local Government; the Department for Work and Pensions; the Home Office; the Department for Transport; the Office for National Statistics; Ordnance Survey; the Department for Environment, Food

and Rural Affairs; the National Police Chiefs' Council; and each of the 39 police forces across England. The project team and MHCLG would like to extend special thanks to Lancashire Constabulary for hosting a research team member for a number of months during the construction of the Crime Domain.

Chapter 1. Introduction

1.1 Overview

- 1.1.1 The Ministry of Housing, Communities and Local Government (MHCLG) commissioned Deprivation.org and Oxford Consultants for Social Inclusion (OCSI) to produce the English Indices of Deprivation 2025 (IoD 2025). The project remit was to review, update, enhance and develop the Indices of Deprivation from its previous 2019 release, with particular consideration of recent changes to the policy and data landscapes, such as changes to the benefits system due to the roll out of Universal Credit, the impacts of the pandemic, the current cost-of living pressures, and deprivation in rural areas. The update addresses all lead actions from the [Indices Futures: Updating the English Indices of Deprivation](#) consultation (MHCLG, 2022) ¹.
- 1.1.2 This report focuses on the conceptualisation and measurement of deprivation in rural areas, and documents the work undertaken in this respect during the construction of the IoD 2025.

1.2 Purpose and structure

- 1.2.1 This report considers how deprivation can manifest in a specifically rural context, how it may be quantified or measured, and how this may be improved in future.
- 1.2.2 Deprivation has been measured at a small area level across England for many decades. This report focuses on the most recently commissioned profiles based on the Indices of Deprivation 2019 (IoD 2019) and the Indices of Deprivation 2025 (IoD 2025).
- 1.2.3 The IoD 2025 builds on earlier indices, all of which aimed to measure deprivation consistently across the whole of England in such a way that the most deprived areas could be identified. However, questions have been raised by some parts of the user community about how past indices have identified deprivation in rural areas. The IoD 2025, and this report in particular, attempts to critically review these questions, as raised in the consultation, and address them as far as practicable.
- 1.2.4 As noted above, the scope for the development of the IoD 2025 was to review, update, enhance and develop the Indices from its most recent 2019 release. This included fully considering responses to the user consultation and incorporating its lead actions, wherever appropriate and technically feasible. The scope included a review of each of the domains of deprivation and underlying components to ensure each remains robust, incorporates the most accurate available data, and aligns to current experiences and circumstances, as far as is practically possible. Importantly, this also extended to reviewing and assessing the methodology and statistical techniques used in the process of its construction.

¹ Ministry of Housing Communities and Local Government (MHCLG) (2022) Indices Futures: Updating the English Indices of Deprivation (IoD) consultation - <https://www.gov.uk/government/consultations/indices-futures-updating-the-english-indices-of-deprivation-iod-consultation/outcome/indices-futures-updating-the-english-indices-of-deprivation-iod-consultation-government-reponse>

- 1.2.5 As part of the IoD 2025 suite of work, MHCLG and the Department for Environment, Food and Rural Affairs (Defra) commissioned an additional research review to ensure that the circumstances of rural deprivation were fully considered at all stages of the development of the IoD 2025. This work specifically included the following areas of focus:
- a. Consider what deprivation in rural areas is and how it might differ from deprivation in urban areas.
 - b. Test for, identify, explore and detail any potential bias the Indices outputs may contain towards more urban areas.
 - c. Identify and review alternative data sources or methods that could be used to reflect deprivation in rural areas, particularly when dispersed.
 - d. Develop and incorporate guidance that considers the use of the Indices and highlights how/when their use may/may not be sufficient to reflect the circumstances of deprivation in rural areas and recommend alternative measures, indices or approaches where appropriate.
 - e. Prepare a specific rural focused report, or part thereof, that demonstrates how deprivation in rural areas has been considered as part of the updated Indices.
- 1.2.6 The purpose of this report is to document the process of this review, outlining how rural deprivation has been explicitly considered in the development of the IoD 2025. Its primary aim is to explain the programme of work that was undertaken, the evidence and analyses that informed it, and the data- and methodology-related enhancements that were incorporated into the IoD 2025.
- 1.2.7 Although this report does include a limited amount of rural-specific analysis of the IoD 2025, this is not its main focus. Instead, the focus is on demonstrating how rural issues have been systematically reviewed and embedded into the process of constructing the IoD 2025. The report conveys how the work on rural deprivation developed gradually and incrementally over the course of the project, and how it shaped a number of enhancements that were introduced in the IoD 2025.
- 1.2.8 The report also includes some analyses of the IoD 2019. These analyses were undertaken as an important component of the IoD 2025 review stage. They allowed the research team to examine how the IoD 2019 had captured rural deprivation, to assess the impacts of different methodologies, and to identify possible opportunities for refinement. The analyses of the IoD 2019 therefore served as a foundation for the methodological enhancements introduced in the IoD 2025.

1.3 Background and approach

- 1.3.1 The consideration of rural deprivation in the IoD 2025 formed part of a broader programme of work. This programme comprised several interrelated components:
- a. Data and Methods Review: A systematic examination of the indicators, domains and methodologies used in the previous IoD 2019, with specific attention to how they represented rural areas.
 - b. Literature Review: A wide-ranging independent review of academic and policy studies on poverty, deprivation, and inequality in rural areas, which identified

distinctive rural issues such as access to services, transport disadvantage, housing affordability, fuel poverty and labour market constraints.

- c. Stakeholder Engagement: Inputs from the 2022 [Indices Futures: Updating the English Indices of Deprivation](#) consultation and additional discussions with stakeholders, experts and practitioners, which highlighted certain user concerns about the potential (in)visibility of rural deprivation in existing measures.

- 1.3.2 These streams of work were conducted in parallel and were mutually reinforcing. Emerging findings from the literature review, for example, informed the review of data and methods, while insights from the data review helped shape the interpretation of the literature. This iterative approach ensured that the design of the IoD 2025 was informed by both conceptual evidence and practical considerations. The work presented in this report was therefore fully integrated and embedded into the overall programme of IoD 2025 development.

1.4 Why rural deprivation matters

- 1.4.1 Research has consistently shown that deprivation is not confined to urban areas. Scholars such as Woodward (1996), Burholt and Naylor (2005) and Short (2006) have emphasised the mismatch between dominant discourses of rurality (focusing on affluence, idyll and quality of life) and the lived realities of rural poverty and isolation. Cloke et al. (1994) described rural deprivation as often being ‘hidden’ within otherwise affluent populations. In short, while deprivation in cities may appear to be more concentrated (hence some authors’ reference to the ‘visibility’ of urban deprivation), rural deprivation can also be significant, though often more dispersed and therefore potentially harder to measure.
- 1.4.2 These insights underline the importance of explicitly considering rural issues in national measures. The IoD 2025 were designed to ensure that potential differences in the rural experience of deprivation were fully considered. The Indices research team acknowledged the concerns raised by some parts of the user community that area-based statistics can risk underestimating or misrepresenting rural disadvantage. The aim of this report is to demonstrate how these concerns have been investigated and how, wherever possible, enhancements have been made to the Indices to improve the measurement of deprivation.
- 1.4.3 The literature recognises many similarities in how deprivation is experienced in both urban and rural areas, with issues relating to employment, income, health, education, access to services, housing and crime, all of which are measured in the IoD 2025. Nevertheless, area-based deprivation measures are often critiqued in the literature relating to their implementation in rural settings. Whilst the overarching domains within the Indices may indeed be reflective of the concept, some commentators consider that the details of the specific indicators (including the data sources and weightings they receive) may result in rural deprivation being misrepresented. Moreover, given the geographically dispersed nature of many rural areas, it has been suggested that the implementation of national indices could potentially prove problematic. This is largely because these indices have been argued to be better designed to capture concentrated deprivation and so may fail

to capture the substantial variation which exists within geographically larger rural areas with their more dispersed populations.

- 1.4.4 The question has therefore arisen as to whether there are any limitations, biases or gaps in the way in which the previous IoD 2019 (and earlier iterations) were constructed that might inadvertently fail to properly identify deprivation in rural areas. More specifically, questions have been raised in the literature as to whether rural deprivation is different or distinct (in part or in whole) from deprivation in urban areas, and whether rural deprivation has been captured adequately by the previous Indices; and, if it has previously been inadequately captured, can this be remedied? The literature also recognises that rural areas are not homogenous, and people's experiences of rurality and deprivation vary. This report seeks to examine these questions and others in the context of the IoD 2025.

1.5 Structure of this report

- 1.5.1 Section 2 of this report summarises the key concepts of rurality and deprivation as discussed in the literature.
- 1.5.2 Section 3 presents a short analysis of deprivation in rural areas using the IoD 2019, as these analyses provided the IoD 2025 research team with an invaluable account of how deprivation was contoured between and within rural (and urban) areas in the IoD 2019.
- 1.5.3 Sections 4 and 5 summarise the main issues as raised in the literature regarding potential challenges of measuring rural deprivation, and critiques of the indicators, domains and methodologies that comprised the IoD 2019. These two sections also contain a short 'response' to each set of issues, explaining which could and could not be addressed during the IoD 2025 and itemising the changes that have been made to address the challenges and critiques.
- 1.5.4 Section 6 presents a short analysis of deprivation in rural areas using the IoD 2025, as well as a brief analysis of change over time between the IoD 2019 and IoD 2025. The interpretation of change over time is challenging as any change in deprivation scores or ranks between the IoD 2019 and IoD 2025 may reflect the occurrence of 'real change' in deprivation levels between the two time points, or it may alternatively reflect 'measurement change'. Here, measurement change refers to inclusion of new or modified indicators, changes to statistical techniques, changes to the weights of the indicators or domains, and different methods of combining the indicators. It also refers to changes in the area units used to define neighbourhoods. In practice, it is impossible to confidently distinguish between the effects of 'real change' and the effects of 'measurement change', so caution must be exercised in any consideration of change over time.
- 1.5.5 Finally, Section 7 offers guidance on how best to use the IoD 2025 and makes recommendations for additional research that would enable further enhancements to be incorporated into a future update to the Indices.

Chapter 2. Key concepts

2.1 Overview

2.1.1 This section summarises some key concepts to help frame this work within the broader IoD 2025 release context:

- Deprivation
- Deprivation data in England
- Statistical small area geographies
- Population estimates for small areas
- Indices of Deprivation
- Deprivation rankings
- Rurality and 'rural areas'
- Deprivation in rural areas

2.2 Deprivation

2.2.1 The IoD 2025 contains a thorough discussion of the concept of deprivation, and how it is related to, yet conceptually distinct from, that of poverty. Whilst there is an extensive body of academic literature on the topic of deprivation (and poverty) in the UK and internationally, the Indices of Deprivation have been centred on the seminal work of Professor Peter Townsend, who posited that people are in poverty if they lack the financial resources to meet their needs, whereas people can be regarded as deprived due to a lack of resources of all kinds, not just income². 'Deprivation' thus refers to people's unmet needs, whereas 'poverty' refers to the lack of resources required to meet those needs. The Indices of Deprivation framework follows Townsend, in defining deprivation in a broad way to encompass a wide range of aspects of an individual's living conditions. In other words, deprivation is a multi-dimensional concept. Please see the detailed discussion of the concept of deprivation that is presented in the IoD 2025 Technical Report.

2.3 Deprivation data in England

2.3.1 The choice of whether to use survey, administrative or Census data to underpin deprivation measurement and analysis is often determined by the geographical level at which the measurement and analysis is undertaken.

Household survey data

2.3.2 The key strength of household survey data is that surveys can be designed to address a particular research need. The questions asked within a survey can

² 'Townsend, P. (1979) *Poverty in the United Kingdom*, London, Allen Lane and Penguin Books'

provide a high degree of nuanced understanding of particular socio-economic challenges, including multi-dimensional deprivation.

- 2.3.3 However, while household survey data can provide valuable information on levels of deprivation at the national level (e.g. the [Family Resources Survey](#), [Health Survey for England](#)), these survey data are not best suited to measuring deprivation levels for smaller geographical areas, such as neighbourhoods. This is because surveys are based on samples of the population of interest and are not designed to be representative down to small geographical areas. When survey data are used to estimate deprivation at small area level, these estimates are derived through statistical modelling rather than direct measurement.

Decennial Censuses

- 2.3.4 The decennial Census contains a number of variables that are relevant to deprivation measurement. The key strength of the Census is that it should, in theory, cover every person in the country (although an element of non-response is acknowledged). The data collected through the Census can be analysed at a range of geographical levels, including for fine-grained small area geographies. However, the two main limitations of the Census are that it is only undertaken every ten years, and it only contains a relatively small number of deprivation-specific variables. As such, the Census alone would not facilitate a broad multi-dimensional measurement of deprivation. A further concern relating to the latest 2021 Census is that it was undertaken during the COVID pandemic, which means the Census results are not necessarily representative of the post-pandemic period.

Administrative microdata

- 2.3.5 The primary source of data for measuring deprivation at neighbourhood level is the increasing array of administrative microdata that is collected and managed by government and non-government organisations. These administrative microdata sources hold valuable information at unit record level about individual people, households or events. These record-level data can then be aggregated to area level to provide deprivation measurements for the chosen geographical units.
- 2.3.6 Examples of administrative microdata include claimants of social security benefits; exam scores of pupils attending state schools; records of admissions to hospitals for different health-related reasons; applications for housing support for homeless households; and records of crimes and incidents of anti-social behaviour. As these administrative microdata are often incredibly sensitive, they are typically held in anonymised form by the data owning organisation and only processed under strict protocols.
- 2.3.7 Some of the key strengths of administrative microdata are that they are routinely collected for operational purposes (so do not require extensive and expensive primary data collection, as is the case with surveys and censuses), which means they are typically up-to-date (whereas a survey may not be fielded each year, and the Census only takes place every ten years), and they can be aggregated from unit record level to a range of geographies, from small area level (i.e. 'neighbourhoods'), through to Local Authority District (LAD), regional and national levels.

2.4 Statistical small area geographies

- 2.4.1 When undertaking analyses of deprivation at sub-national level, the choice of geographical unit is vital. The choice of geographical level often involves a trade-off between geographical accuracy on the one hand, and statistical availability and reliability on the other hand. In short, smaller geographical units have the potential to provide a more fine-grained and spatially nuanced account of deprivation than larger geographical units, but there are fewer deprivation indicators available for the smallest geographical units and those indicators that are available may be less robustly measured than at higher levels of aggregation.
- 2.4.2 There is no perfect geography for measuring deprivation at sub-national level, and the issues of spatial nuance, indicator availability and statistical reliability must be explicitly acknowledged as stated above.
- 2.4.3 Prior to the 2001 Census, most sub-national deprivation analyses were conducted at Local Authority District (LAD) level or electoral ward level (with some examples of analyses at Census Enumeration District (ED) level³). For instance, the English Indices of Deprivation 2000 was conducted at ward level, as this was the best small area geography available at the time of construction in the late 1990s⁴. However, the ward geography had a major limitation in that wards could vary greatly in population size, from over 30,000 people in some wards to just a few hundred people in other wards. This vast difference in population size between the constituent geographical units meant that it was difficult to compare wards on a like-for-like basis. Ward boundaries can also be updated at irregular intervals, meaning the consistency and longevity of any outputs produced at this scale can be brief. Although ward boundaries are still published today, the limitations noted here mean that they are of limited value for undertaking present day deprivation analysis.
- 2.4.4 The 2001 Census saw a major development, with the construction and publication of statistical output geographies. These 2001 statistical output geographies were constructed *after* the enumeration and initial processing of the 2001 Census records. The statistical output geographies were explicitly designed to generate small geographic areas of similar population size and similar population characteristics (amongst other factors), drawing upon the unit record level data collected for the 2001 Census. These 2001 statistical output geographies therefore addressed the major criticism of the ward geography, in that the new statistical geographies had roughly similar population sizes and so could be confidently compared against one another on a like-for-like basis.
- 2.4.5 The 2001 Census statistical geographies were subsequently updated as part of both the 2011 and 2021 Census programmes. There is an extensive suite of material available on the Office for National Statistics (ONS) website describing these statistical geographies, providing links to download the digitised boundaries (for mapping purposes) and lookup tables that show how the different geographical units relate to each other⁵.

³ For example Northern Ireland Assembly (Jan 2002) Measures of Deprivation: Noble V Robson

https://archive.niassembly.gov.uk/research_papers/research/0202.pdf

⁴ Noble, M et al (1999) Measuring Multiple Deprivation at the Local Level, Social Disadvantage Research Centre, University of Oxford

⁵ For further details, see <https://www.ons.gov.uk/methodology/geography/ukgeographies>

2.4.6 The statistical output geographies can be summarised as follows:

- Output Area (OA)
- Lower layer Super Output Area (LSOA)
- Middle layer Super Output Area (MSOA)

2.4.7 OAs are the smallest level of output geography and represent the basic building blocks for the other levels. LSOAs are composed of spatially contiguous OAs, while MSOAs are composed of spatially contiguous LSOAs. These geographies therefore represent a nested hierarchy. OAs, LSOAs and MSOAs also all nest within their parent LADs.

2.4.8 Table 2.1 shows the number of OAs, LSOA and MSOAs across England (using the current 2021 definitions) and some associated population statistics:

Table 2.1. 2021 Census Statistical Geographies				
2021 Census unit of geography	Number of areas in England	Mean total population size (2021)	Minimum population size (2021)	Maximum population size (2021)
Output Area (OA)	178,605	316	98	4,502
Lower layer Super Output Area (LSOA)	33,755	1,674	999	9,899
Middle layer Super Output Area (MSOA)	6,856	8,240	2,053	18,475

2.4.9 As noted above, the issue of population size plays an important role in determining the availability and reliability of small area deprivation measures. Typically, the smaller the geographic unit of analysis, the fewer deprivation-related data sources are available, often due to concerns about potential disclosure when indicators are based on small numbers of cases. Relatedly, to minimise the risk of potential disclosure associated with areas with small populations, data owners will impose disclosure control techniques, such as rounding, Barnardisation, or other forms of data perturbation. The relative effects of such disclosure control adjustments are typically greater for smaller geographical areas.

2.5 Population estimates for small areas

2.5.1 Population estimates form a critical part of deprivation analyses, as they are often the basis for the denominators of deprivation rates or scores. The ONS produces an annual time series of small area level population estimates for England and Wales, which are consistent with the official LAD level Mid-Year Estimates.

2.5.2 Population estimation is an inherently difficult process, drawing upon multiple input data sources, utilising multiple assumptions, and imposing various internal and external constraints.

2.5.3 It is widely acknowledged that the level of uncertainty in population estimation reduces as the size of geographical unit of analysis increases. Therefore, population estimates at LSOA level are likely to be more reliable than population

estimates at OA level, and population estimates at LAD level will likely be more reliable than population estimates at LSOA or OA level.

- 2.5.4 When considering the potential ways in which deprivation measures can be constructed at sub-national level, it is important that the reliability of the denominators (i.e. the population estimates) is borne in mind, as well as considering the reliability of the socio-economic data that form the numerator of the deprivation rates and scores (e.g. counts of income deprived people, or counts of crimes recorded).

2.6 Indices of Deprivation

- 2.6.1 The IoD 2025 provide a set of relative measures of multidimensional deprivation for small geographical areas across England. The model of multiple deprivation which underpins the Indices is the same as that which underpinned its predecessors (most latterly, the IoD 2019) and is based on the idea of distinct dimensions of deprivation which can be recognised and measured separately.
- 2.6.2 There are seven different domains of deprivation measured in the IoD 2025:
- Income Deprivation
 - Employment Deprivation
 - Education, Skills and Training Deprivation
 - Health Deprivation and Disability
 - Crime
 - Barriers to Housing and Services
 - Living Environment Deprivation
- 2.6.3 These dimensions (or domains) of deprivation are experienced by individuals living in an area. Each of these domains is based on a basket of indicators. As far as is possible, each indicator is based on data from the most recent time point available.
- 2.6.4 Almost all the component indicators are based on administrative microdata on individuals, households or events which, when aggregated to small area level, form the numerators of the respective indicators. Most indicators are then expressed as deprivation rates or scores by combining the indicator with the appropriate indicator denominator (typically based on the ONS small area population estimates, as described above).
- 2.6.5 The IoD 2025 is constructed at LSOA level, using the 2021 Census LSOAs. The two previous iterations of the IoD, in 2015 and 2019, were based on the 2011 Census LSOAs, while the earlier IoD 2004, IoD 2007 and IoD 2010 all used the 2001 Census LSOAs. As such, the LSOA geography has formed a central component of the IoD methodology for over 20 years. As is discussed at various relevant points in this report, each iteration of the IoD has reviewed the geographical units available at that time in order to ensure that the best possible geography is used for each Index. From the IoD 2004 through to the IoD 2025, the LSOA geography has been deemed the most suitable geography for the purposes of IoD construction and analysis.

- 2.6.6 The Index of Multiple Deprivation 2025 (IMD 2025) combines information from the seven distinct domains to produce an overall relative measure of deprivation. The IMD 2025 is the official measure of deprivation in England.
- 2.6.7 To construct the IMD 2025, the seven domains are combined using explicitly stated domain weights, as shown in the table below:

Table 2.2. Domain weights used to construct the Index of Multiple Deprivation 2025	
Domain	Domain weight (%)
Income Deprivation Domain	22.5
Employment Deprivation Domain	22.5
Health Deprivation and Disability Domain	13.5
Education, Skills and Training Deprivation Domain	13.5
Barriers to Housing and Services Domain	9.3
Crime Domain	9.3
Living Environment Deprivation Domain	9.3

- 2.6.8 In addition to the composite IMD 2025, there are seven domain-level indices reflecting each of the seven domains, and two supplementary indices: the Income Deprivation Affecting Children Index (IDACI) and the Income Deprivation Affecting Older People Index (IDAOPI).
- 2.6.9 A range of summary measures are also available for higher level geographies including LADs, upper tier local authorities, Built Up Areas, Local Enterprise Partnerships, Local Resilience Forums, and Integrated Care Boards. These summary measures are produced for the overall IMD 2025, each of the seven domains and the supplementary indices.
- 2.6.10 The IMD 2025, the seven domain indices and the supplementary indices, together with the higher area summaries, are collectively referred to as the Indices of Deprivation 2025 (IoD 2025).
- 2.6.11 Further details on all parts of the IoD 2025 construction process are set out in the IoD 2025 Technical Report, including in-depth discussion of component indicators and constituent methodologies, quality assurance checks, and a fuller description of how the Indices have evolved over the past 25 years.

2.7 Deprivation rankings

- 2.7.1 As articulated in the IoD 2025 Technical Report, an area can be characterised as deprived relative to other areas on a particular dimension of deprivation, on the basis that a higher proportion of people in the area are experiencing the type of deprivation in question. In other words, the experience of the people in an area gives the area its deprivation characteristics.
- 2.7.2 The area itself is not deprived, though the presence of a concentration of people experiencing deprivation in an area may give rise to a compounding deprivation effect, but this is still measured by reference to those individuals. Having attributed the aggregate of individual experience of deprivation to the area, it is possible to

say how deprived that area is on that particular dimension, *relative to other areas across the country*.

- 2.7.3 A key function of the IoD 2025 outputs is the ability to rank LSOAs from least deprived to most deprived on the IMD 2025 and, if required, on each domain of deprivation. The domain and IMD *rankings* are the key data outputs that should be used when analysing the LSOA level results. These rankings show whether each LSOA is more deprived or less deprived than every other LSOA in England on the chosen measure.
- 2.7.4 For the Education, Health, Crime, Barriers and Living Environment Domains, due to the data transformations that are conducted during domain construction, it is not possible to interpret the LSOA domain *scores* in any 'absolute sense' (i.e. if one LSOA has a deprivation *score* twice as large as another LSOA, this does not mean that one LSOA is twice as deprived as the other). Rather, analyses should only be undertaken in a 'relative sense' using the deprivation *rankings* to compare how each LSOA ranks in relation to all other LSOAs on the selected measure of interest.
- 2.7.5 For the Income and Employment Domains, however, the domain scores *can* be interpreted in an absolute sense as well as a relative sense. For these two domains, if an LSOA has a deprivation score twice as large as another LSOA, it does mean that the level of deprivation is twice as high in an absolute sense. This is because these two domains are constructed to reflect the actual percentage of people who are experiencing that form of deprivation in every LSOA. The other five domains cannot be interpreted in this straightforward way.
- 2.7.6 Further details on how all the IoD 2025 outputs are constructed, along with guidance on how the outputs should and should not be used, are provided in the IoD 2025 Technical Report and accompanying IoD 2025 Research Report.

2.8 Rurality and 'rural areas'

- 2.8.1 The independent academic literature review on deprivation in rural areas undertaken as part of the IoD 2025 development process (included in full as the Appendix to this report) highlights the difficulty of imposing a simple singular definition of 'rurality'. What might constitute rurality, in terms of the social, economic, cultural, demographic, and environmental attributes and challenges, may be open to subjective judgement (Woodward, 1996; Burholt & Naylor, 2005; Short, 2006).
- 2.8.2 As a consequence, the definition of 'rural areas' (and their distinction from 'urban areas') is also contested in the literature (Martin et al., 2000; Farmer et al., 2001; McAreavey, 2023). For example, rural communities in England have been described as including, amongst others, small remote middle-class hamlets, working-class coastal villages, commuter townlets, and former mining communities or 'pit villages' (Bagley, 2023). McAreavey (2023) highlights the ongoing emphasis placed upon socio-cultural constructs of rurality. These constructs, which infiltrate popular discourses, reflect certain aspirations, migration and vacation decisions, and ways of thinking and living associated with what are perceived as rural areas. They often include quaint, scenic landscapes, a romanticised quality of life, and the existence of affluent, cohesive rural communities, which often does not reflect the

lived reality of life in rural communities. Powell et al. (2013) introduce the concept of a rural 'anti-idyll' which is characterised by dullness, boredom, and deprivation, all of which are associated with insufficient rural activities, resources and transport, marginalisation, conflict between different demographic groups, and social exclusion.

- 2.8.3 The challenge of defining what constitutes a 'rural area' is further illustrated by the work of Scott et al. (2007), who found that there were approximately 30 different definitions of rurality used across UK Government departments at that time. This lack of a simple singular definition of rurality and 'rural areas' does pose an inherent difficulty for research that seeks to explore rural deprivation because any rural/urban categorisation that is applied empirically may imperfectly represent the varied lived experiences within different communities.
- 2.8.4 For the purpose of this IoD 2025 report on deprivation in rural areas, the official Rural Urban Classification (RUC) is used to differentiate between rural and urban areas (and, where relevant, to distinguish between different *types* of rural area). As is discussed below, the RUC has a number of strengths as a tool for empirical analysis, but also a number of limitations that must be borne in mind.

Rural Urban Classification (RUC)

- 2.8.5 The Rural Urban Classification 2021 was released by ONS in March 2025 and represents the third iteration of this statistical classification system.
- 2.8.6 The first iteration of the RUC was based on the 2001 Census data and is referred to as the RUC 2001. In that programme of work, Bibby and Shepherd (2004) developed a new definition and classification of rural places, which distinguished rural areas as being places with a population of fewer than 10,000 persons, and then further broken down into sub-categories according to both sparsity and settlement morphology. The RUC 2001 was constructed at both 2001 OA level and at 2001 LSOA level⁶. Although referenced here as an important foundation for subsequent developments, the RUC 2001 is not used within the analyses presented in this report.
- 2.8.7 Bibby and Brindley (2013) then updated the classification to be based on the 2011 Census, including moving to the 2011 Census OA and LSOA geographies. An enhancement over the original RUC 2001 was the added differentiation between urban areas according to conurbation/city/town location. The RUC 2011 is suitable for analysing rural deprivation as measured in the IoD 2019, as both are based on the 2011 LSOA geography. The RUC 2011 is therefore used accordingly in analyses of the IoD 2019 presented in this report.
- 2.8.8 The 2021 RUC was developed by ONS in collaboration with Defra and the Welsh Government and introduces a number of notable enhancements over the 2011 version, as well as moving to the new 2021 OA and LSOA geographies. The basic distinction between rural and urban areas based on the 10,000-population settlement size remains in the RUC 2021, but a key enhancement relates to the shift away from the notion of 'sparsity' to the notion of 'connectedness'⁷ in the

⁶ With the LSOA level classification being derived from the underlying OA level classification.

⁷ Specifically, this is measured as 'relative access' to major towns and cities (populations of over 75,000 people).

classification types of rural area. The RUC 2021 is used in the analyses of the IoD 2025 presented in this report.

- 2.8.9 Tables 2.3 and 2.4 below show the component categories of the RUC 2011 and RUC 2021 and quantify the number of LSOAs in England that were classified in each group in each RUC.

Table 2.3 RUC 2011 breakdown of classification groups		
RUC 2011 Classification category	Number of LSOAs	% of LSOAs
Urban major conurbation	11,523	35.1%
Urban minor conurbation	1,208	3.7%
Urban city and town	14,456	44.0%
Urban city and town in a sparse setting	59	0.2%
Urban Total	27,246	83.0%
Rural town and fringe	2,937	8.9%
Rural town and fringe in a sparse setting	119	0.4%
Rural village and dispersed	2,361	7.2%
Rural village and dispersed in a sparse setting	181	0.6%
Rural Total	5,598	17.0%
TOTAL	32,844	100.0%

Table 2.4 RUC 2021 breakdown of classification groups		
RUC 2021 Classification category	Number of LSOAs	% of LSOAs
Urban: Nearer to a major town or city	26,199	77.6%
Urban: Further from a major town or city	2,002	5.9%
Urban Total	28,201	83.5%
Larger rural: Nearer to a major town or city	2,038	6.0%
Larger rural: Further from a major town or city	849	2.5%
Smaller rural: Nearer to a major town or city	1,684	5.0%
Smaller rural: Further from a major town or city	983	2.9%
Rural Total	5,554	16.5%
TOTAL	33,755	100.0%

- 2.8.10 Table 2.5 shows the combined rural and urban LSOA count and total population in RUC 2011 and RUC 2021.

Table 2.5 Rural and Urban populations using the RUC2011 and RUC2021		
	RUC 2011	RUC 2021
Rural LSOAs	5,598	5,554
Rural Population	9,292,255	9,499,757
Urban LSOAs	27,246	28,201
Urban Population	45,436,003	47,612,372
% LSOAs Rural	17.0%	16.5%
% LSOA Population Rural	17.0%	16.6%

- 2.8.11 As Table 2.5 illustrates, at the time of the IoD 2019, there were 5,598 rural LSOAs, with a population of 9.3 million people. This comprises 17.0% of all LSOAs, and 17.0% of the total population. This is broadly comparable to the RUC 2021, where 16.5% of LSOAs in England were defined as rural, comprising 5,554 LSOAs and 9.5 million people.
- 2.8.12 On average, based on the 2021 Census population counts, rural LSOAs had a mean population size of 1,660 people, which is similar to the mean population size of urban LSOAs (1,668). As the LSOA population size is relatively standardised across both rural and urban LSOAs, it is appropriate to make statistical comparisons between rural and urban LSOAs, even though rural LSOAs account for the majority of the national land area while urban LSOAs account for the majority of the national population.
- 2.8.13 In summary, it is important to note that the RUCs are *data-driven typologies* that provide a nationally consistent framework for analysis. These features represent both a strength and an acknowledged limitation: the consistent application over all small areas in the country means that these classifications can be used to analyse rural-urban differences across the IoD 2019 and IoD 2025; but the quantitative criteria for classifying areas into ‘rural’ and ‘urban’ (and the respective sub-categories of each) cannot truly reflect all the local nuances in how rurality might be subjectively defined and experienced in different local contexts across the country.
- 2.8.14 As such, although the RUCs provide a valuable tool for exploring rural deprivation, and are used for this purpose in this report, they do not (and could not reasonably be expected to) perfectly delineate between different notions of rurality and the complex forms of lived experience of rural deprivation.
- 2.8.15 Challenges related to area classification summarised here, alongside those of geography and concepts of rural, are examined further in subsequent sections.

2.9 Deprivation in rural areas

- 2.9.1 The concept of deprivation in rural areas can be understood in many different ways. The academic literature has interpreted rural deprivation through several complementary lenses. Some studies (for example, Cloke et al., 1994; Shucksmith, 2000) highlight the *hidden* nature of rural disadvantage, how dispersed populations and social heterogeneity can mask hardship within otherwise affluent contexts. Others (Woodward, 1996; Burholt & Naylor, 2005; Short, 2006) have contrasted the idyllic representations of rural living with the lived realities of low pay, insecure employment, high housing costs, limited transport and service accessibility, and social isolation. More recent work has emphasised how these structural and spatial factors interact, producing forms of deprivation that differ in character, though not necessarily in severity, from those found in urban settings.
- 2.9.2 In this report, *deprivation in rural areas* is taken to mean the multiple forms of social and material disadvantage experienced by people living in areas classified as rural by the official Rural Urban Classifications 2011 and 2021 (RUC 2011 and RUC 2021). As noted above, these classifications are data-driven and provide a consistent national basis for analysis, while recognising that they may not always align with how communities perceive themselves.

- 2.9.3 The IoD 2019 and 2025 are area-based measures: they rank small geographical areas from least deprived to most deprived, with the objective of reflecting the lived realities of deprivation experienced by individuals living within the respective small areas. The analyses presented in this report overlay the IoD 2019 and IoD 2025 results onto the RUC 2011 and RUC 2021 area classifications. This enables consistent national comparisons across all types of areas while preserving the small area focus that allows deprivation to be assessed as evenly as possible across the country.
- 2.9.4 The following analyses presented in Section 3 profile multiple deprivation in rural areas using the IoD 2019, which provided a valuable input into the review of data and methodologies that was undertaken in the early phase of the IoD 2025 development process. Then, in Sections 4 and 5 of this report, the main issues that were raised about potential limitations, biases or gaps in the definition and measurement of rural deprivation in the IoD 2019 are documented and discussed.

Chapter 3. Profile of multiple deprivation in rural areas using the IoD 2019

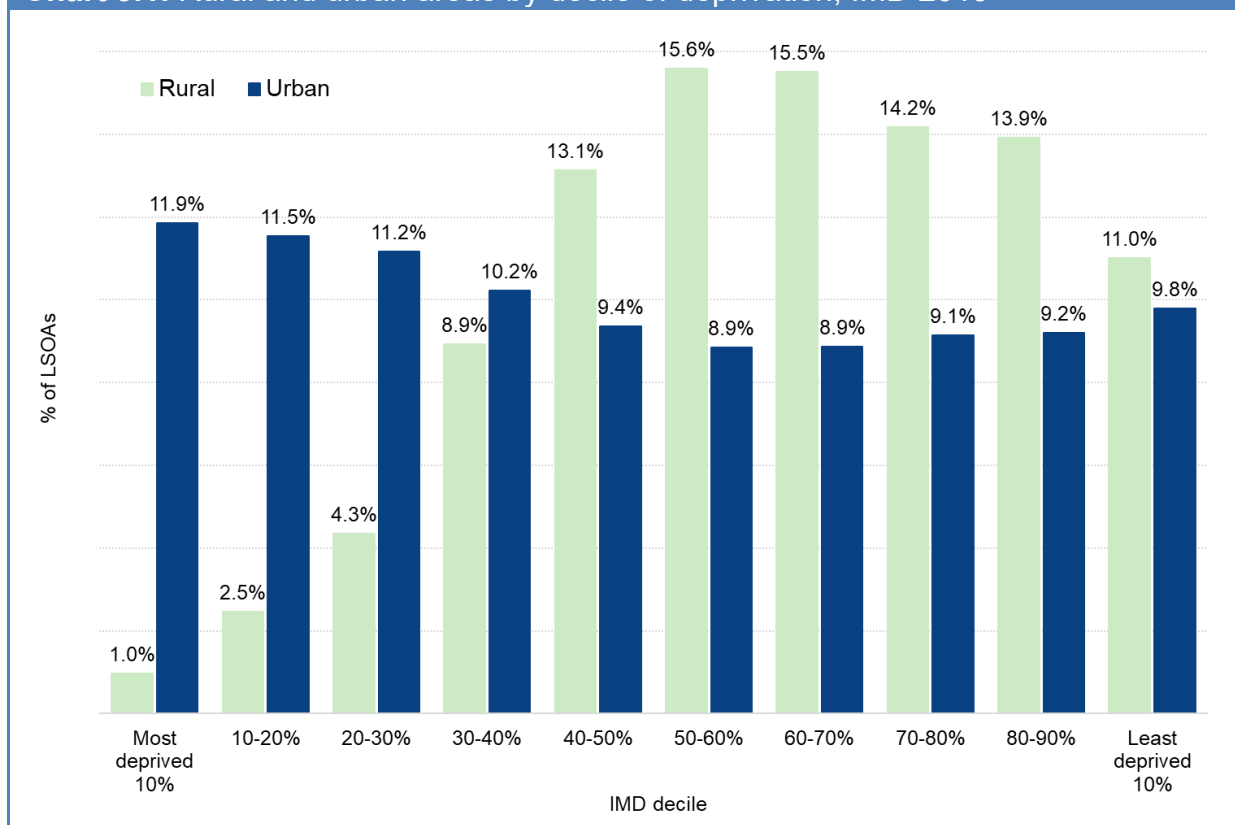
3.1 Overview

- 3.1.1 In this section, a profile of deprivation is presented using the IoD 2019. A full description of the IoD 2019 is available in the Technical Report (McLennan et al., 2019) and the Research Report (Noble S. et al., 2019). The ONS Rural Urban Classification 2011 (RUC 2011) at 2011 Lower layer Super Output Area (2011 LSOA) level is used to classify rural and urban areas. Some analyses presented here also utilise the earlier IoD 2015 (which, like the IoD 2019, was constructed on the 2011 LSOA geography).

3.2 Profile of deprivation in rural areas using the IMD 2019

- 3.2.1 Chart 3.1 below shows the proportion of rural and urban LSOAs in each decile of deprivation on the Index of Multiple Deprivation 2019 (IMD 2019). This uses the 2011 RUC and 2011 LSOAs.
- 3.2.2 It is important to emphasise that the IMD does not assert a binary classification of 'deprived' and 'non-deprived' on LSOAs. The IMD presents a continuous measure of deprivation, allowing all LSOAs in the country to be compared against one another in a relative ranking, from least deprived to most deprived. There is no formal 'cut off' or threshold on the LSOA rankings above or below which an area is regarded as deprived or non-deprived.
- 3.2.3 Users of the IMD often focus on the 'most deprived decile' of LSOAs, but this should not be taken to imply that only these 10% of LSOAs are deprived.
- 3.2.4 Using deciles of the LSOA ranking is, however, a helpful way to summarise key information and, as such, this report does make use of the decile distribution, including presenting some results with a focus on the most deprived deciles. It must also be emphasised that the other deciles of the LSOA distribution also contain levels of deprivation, albeit to a relatively lesser extent.
- 3.2.5 Chart 3.1 shows that only 1.0% of rural areas were within the most deprived 10% of LSOAs in England on the IMD 2019, compared with 11.9% of urban areas.
- 3.2.6 Rural areas were also under-represented in the most deprived 10-20% of areas (2.5%) and the most deprived 20-30% of areas (4.3%). In total, only 435 rural LSOAs were ranked among the most deprived 30% of LSOAs in England: 7.8% of all rural areas, compared with 34.6% of urban areas.
- 3.2.7 By contrast, more than 70% of rural areas ranked among the least deprived 50% of LSOAs in England.

Chart 3.1. Rural and urban areas by decile of deprivation, IMD 2019



Change between the IMD 2015 and IMD 2019

- 3.2.8 Chart 3.2, below, shows the proportion of rural areas in each decile of deprivation on the IMD 2015 and IMD 2019. The IMD 2015 and IMD 2019 were composed of very similar indicators, and were constructed for the same 2011 LSOA geography, and so were relatively comparable over time in terms of data and methods. Both these indices can be analysed according to the 2011 RUC.
- 3.2.9 The distribution of deprivation between rural and urban LSOAs remained fairly consistent between the IMD 2015 and IMD 2019. Nevertheless, there is some evidence that rural areas were identified as marginally more deprived in the IMD 2019, with a slightly higher proportion of LSOAs ranked among each of the five most deprived deciles in 2019 compared with 2015. For instance, the proportion of rural LSOAs ranked among the three most deprived deciles increased from 6.9% in 2015 to 7.8% in 2019.
- 3.2.10 However, rural areas were disproportionately represented among the least deprived areas in both years, with approximately 25% of rural areas ranked among the least deprived 20% of all LSOAs nationally in 2015 and 2019.

Spatial distribution of rural deprivation using the IMD 2019

- 3.2.11 Chart 3.3 shows the breakdown of the most deprived rural areas on the IMD 2019 by RUC 2011 classification. LSOAs are grouped into 'town and fringe' or 'village and dispersed' based on settlement density and described as 'in a sparse setting' where the wider area is sparsely populated.

Chart 3.2. Rural areas by decile of deprivation, IMD 2015 and IMD 2019

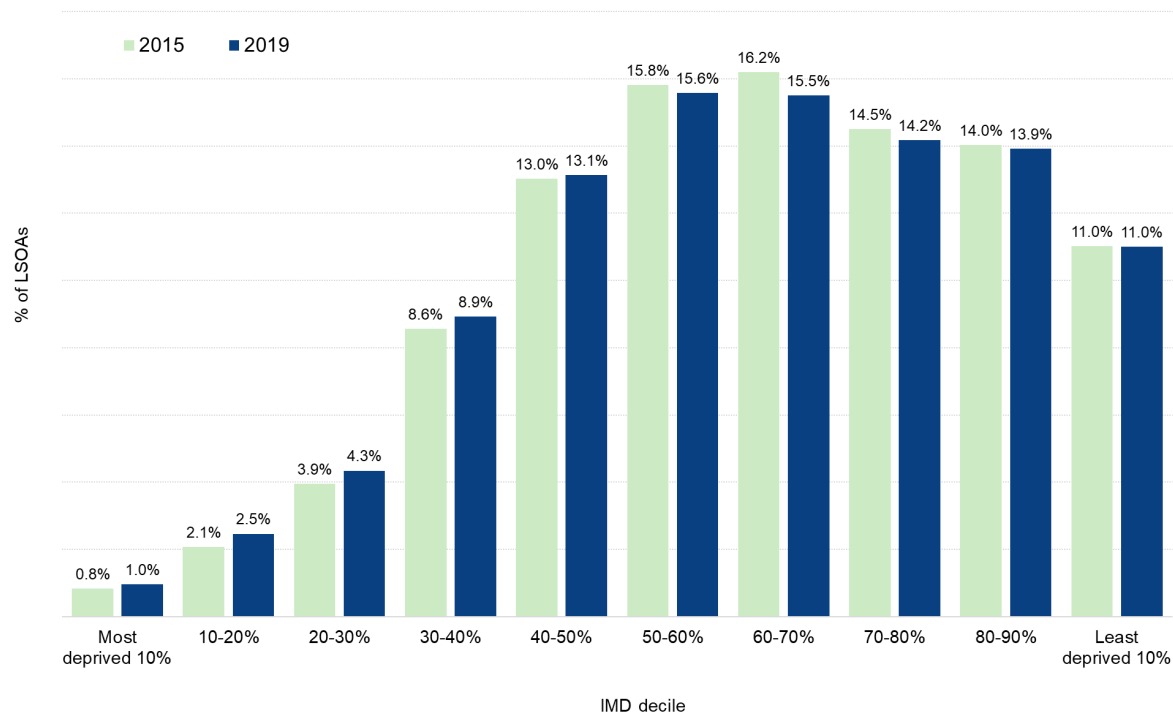
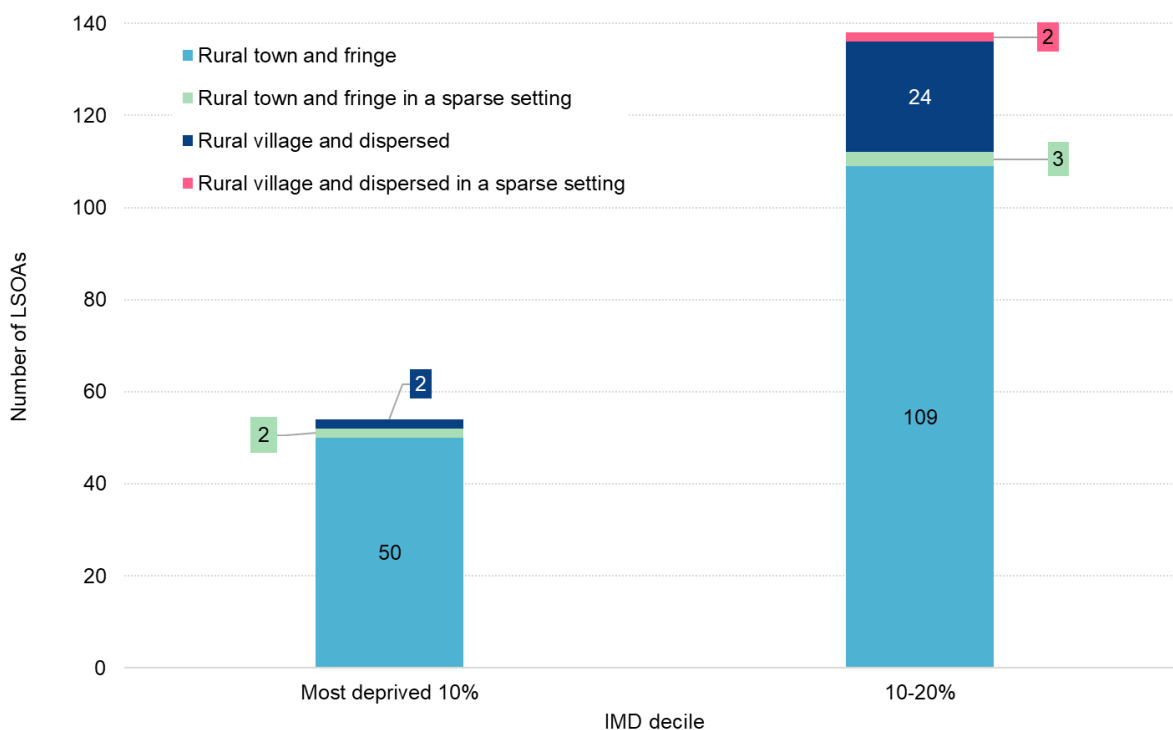


Chart 3.3. Rural areas in the most deprived 20% by classification



3.2.12 As shown in Chart 3.3, the majority of the most deprived rural areas were in the 'rural town and fringe' classification group. Only two LSOAs in the most deprived

10% were 'rural town and fringe in a sparse setting', while another two LSOAs were found in 'rural village and dispersed' areas (note that none of the most deprived 10% of LSOAs were in the 'rural village and dispersed in a sparse setting' classification group).

3.2.13 The table below lists the 20 most deprived rural LSOAs on the IMD 2019. To help interpretation, the area names of the parent Middle layer Super Output Area (MSOA) are included⁸.

LSOA	MSOA name (for spatial context)	Local Authority District	IMD 2019 Rank
E01021988	Jaywick & St Osyth	Tendring	1
E01006248	Leigh East & Higher Folds	Wigan	135
E01020752	Easington & Hawthorn	County Durham	221
E01011792	Kinsley & Fitzwilliam	Wakefield	230
E01024580	Sheppey East	Swale	322
E01026112	Wainfleet All Saints	East Lindsey	482
E01020807	Spennymoor East & Ferryhill West	County Durham	496
E01020841	Shildon	County Durham	584
E01024618	Sheppey East	Swale	591
E01019097	Flimby, Ellenborough & Broughton Moor	Allerdale	723
E01020901	Coundon North	County Durham	794
E01020898	Crook North & Tow Law	County Durham	906
E01013084	Withernsea East & Patrington	East Riding of Yorkshire	915
E01020902	Coundon North	County Durham	988
E01027542	Newbiggin	Northumberland	1,124
E01020873	Coundon North	County Durham	1,184
E01020790	Thornley & Wheatley Hill	County Durham	1,217
E01022045	Jaywick & St Osyth	Tendring	1,253
E01028001	Carlton & Langold	Bassetlaw	1,262
E01020775	Murton North & Parkside	County Durham	1,447

3.2.14 The coastal LSOA 'E01021988' in Jaywick, within Tendring LAD, was the most deprived LSOA in the whole of England on the IMD 2019⁹. Coastal areas were heavily represented among the 20 most deprived rural areas, with 10 of the 20 most deprived rural LSOAs located in coastal communities. Former mining communities also feature, with 14 of the 20 most deprived rural LSOAs located in former mining areas or ports associated with mining activities, including nine LSOAs in County Durham.

⁸ Note that these MSA names have been drawn from the latest ONS 2021 MSA naming convention, and attached to the relevant 2011 LSOAs, as presented in Table 3.1.

⁹ As noted in Chapter 6, although this LSOA was classed as 'rural' according to the RUC 2011, it was later classed as 'urban' in the RUC 2021.

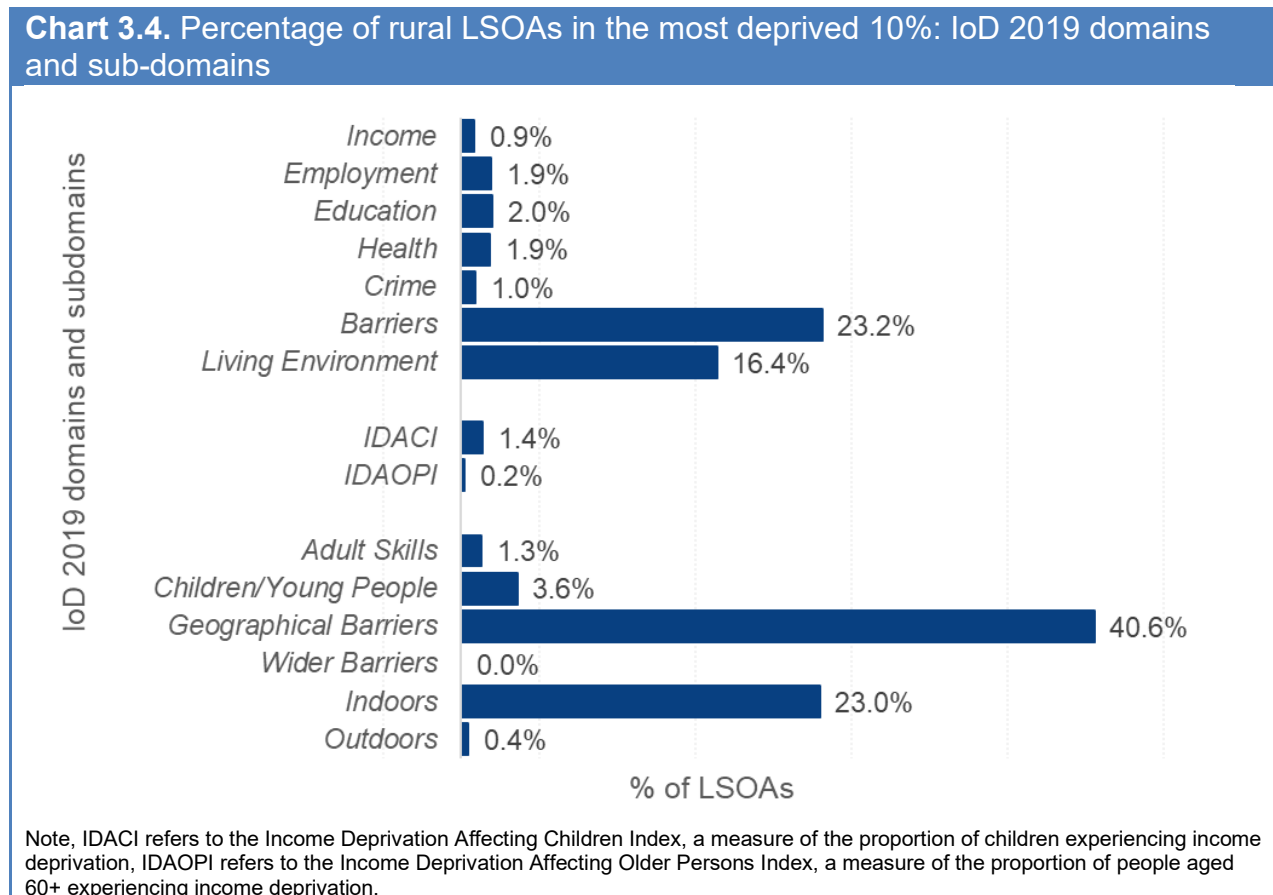
3.2.15 Indeed, 12 rural LSOAs in County Durham were ranked among the most deprived 10% of all LSOAs in England, notably higher than across other local authorities (as shown in the table below).

Table 3.2. Index of Multiple Deprivation 2019, Local Authority Districts with rural LSOAs ranked among the 10% most deprived of all LSOAs in England		
Local Authority District	Region	Number of LSOAs in the most deprived national decile
County Durham	North East	12
Wakefield	Yorkshire and The Humber	5
Northumberland	North East	4
Allerdale	North West	3
Doncaster	Yorkshire and The Humber	3
East Riding of Yorkshire	Yorkshire and The Humber	3
Swale	South East	3
Tendring	East of England	3
Wigan	North West	3
Barnsley	Yorkshire and The Humber	2
Cornwall	South West	2
Redcar and Cleveland	North East	2
Bassetlaw	East Midlands	1
East Lindsey	East Midlands	1
Hyndburn	North West	1
King's Lynn and West Norfolk	East of England	1
Mansfield	East Midlands	1
Mendip	South West	1
Newark and Sherwood	East Midlands	1
Rotherham	Yorkshire and The Humber	1
Weymouth and Portland	South West	1

3.2.16 Deprived rural LSOAs were disproportionately located in the North East and Yorkshire and The Humber regions, with 18 deprived LSOAs in the North East and 14 in Yorkshire and The Humber. Seven of the nine regions of England contained at least one rural LSOA ranked among the most deprived 10% of all LSOAs in England (the exceptions being the West Midlands and London).

3.3 Profile of deprivation by domain and sub-domain using the IoD 2019

3.3.1 Chart 3.4 shows the proportion of rural LSOAs ranking in the 10% most deprived of all LSOAs in England on each domain and sub-domain of the IoD 2019 (as a proportion of all rural LSOAs).

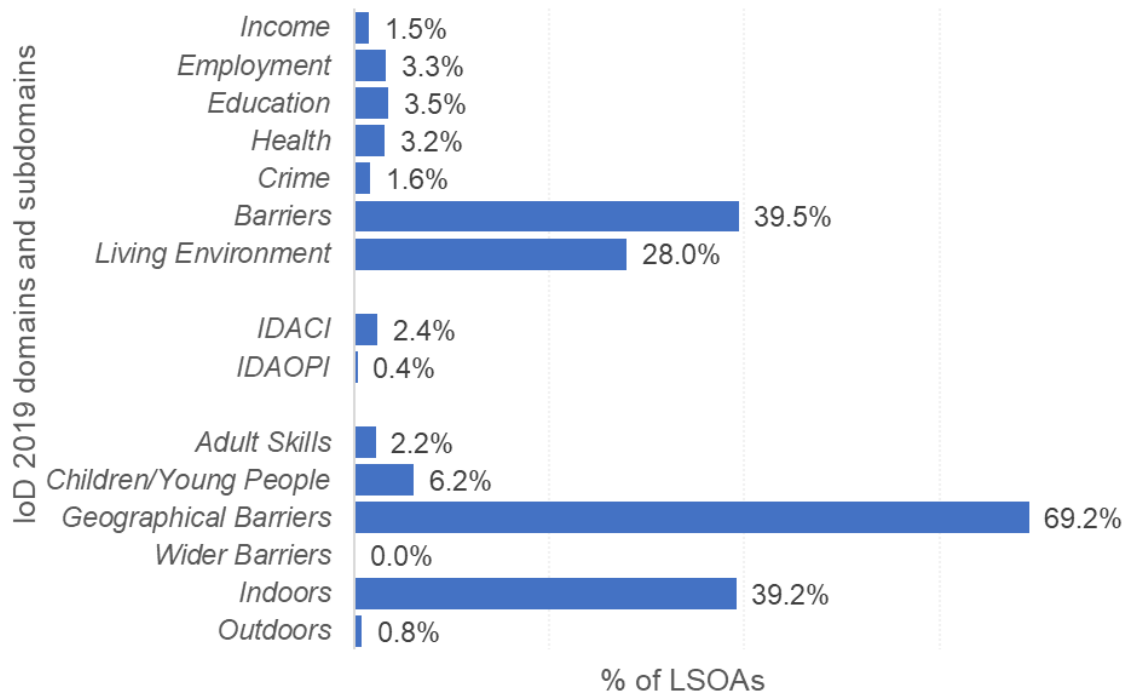


3.3.2 This chart shows that rural areas showed notably higher levels of deprivation on the IoD 2019 Geographical barriers sub-domain (which measured road distance to key services), with more than 40% of rural LSOAs ranked among the most deprived 10% in England on this measure. Rural areas were also ranked as relatively more deprived on the IoD 2019 Indoors Living Environment sub-domain, which captured housing in poor condition and households lacking central heating: 23% of rural LSOAs were ranked in the 10% most deprived on this sub-domain. This reflects the typically older housing stock in rural areas, with 28% of rural residential properties being built prior to 1919, compared to 18% of those in urban areas¹⁰.

¹⁰ Defra (October 2025) Statistical Digest of Rural England: 2 – Housing
https://assets.publishing.service.gov.uk/media/68ee6473e7b6794c076bbe3d/2_Housing_15_10_2025.pdf

3.3.3 Chart 3.5 shows the proportion of LSOAs ranked in the 10% most deprived that were classified as rural (as a proportion of all areas ranked in the 10% most deprived).

Chart 3.5. Percentage of most deprived 10% LSOAs in rural areas: IoD 2019 domains and sub-domains



Note, IDACI refers to the Income Deprivation Affecting Children Index, a measure of the proportion of children experiencing income deprivation, IDAOPI refers to the Income Deprivation Affecting Older Persons Index, a measure of the proportion of people aged 60+ experiencing income deprivation.

3.3.4 Again, the chart shows that rural areas are disproportionately represented in the Geographical Barriers sub-domain, with 69% of all areas ranked in the 10% most deprived on this measure being rural. This reflects that people in rural areas often have to travel longer distances to access key services.

3.3.5 Rural areas were also disproportionately represented among the LSOAs ranked in the most deprived 10% on the IoD 2019 Indoors Living Environment sub-domain, with rural LSOAs comprising 39% of all LSOAs ranked in the 10% most deprived.

3.3.6 Rural areas were considerably less likely to be ranked among the most deprived 10% on the other measures.

3.4 Profile of deprivation in rural areas using the component indicators from the IoD 2019

3.4.1 Analysing individual deprivation indicators reveals a more nuanced picture. The table below compares levels of deprivation in rural and urban areas on selected indicators of the IoD 2019¹¹.

Table 3.3. Levels of deprivation in rural and urban areas on selected underlying indicators in the Indices of Deprivation 2019		
Indicator	Rural	Urban
Income		
People experiencing income deprivation	7.8%	13.8%
Children experiencing income deprivation (IDACI)	9.7%	18.2%
Older people experiencing income deprivation (IDAOP)	8.7%	15.7%
Employment		
Working age adults experiencing employment deprivation	6.8%	10.5%
Education		
Working age adults with no or low qualifications or who cannot speak English or cannot speak English well	26.4%	31.0%
Geographical barriers		
Road distance to a post office (km)	1.6	1.0
Road distance to a primary school (km)	1.3	0.8
Road distance to a general store or supermarket (km)	1.6	0.5
Road distance to a GP surgery (km)	2.6	1.0
Wider barriers		
Household overcrowding	3.0%	9.9%
Owner-occupation unaffordability score	52.1%	63.5%
Private rental unaffordability score	38.3%	50.4%
Indoors living environment		
Housing lacking central heating	2.6%	2.7%
Housing in poor condition	29.0%	17.5%

3.4.2 It is evident that none of the indicators listed in Table 3.3 were exclusively urban specific (or indeed exclusively rural specific).

3.4.3 Rural areas generally had higher levels of deprivation than urban areas on the housing in poor condition indicator, with 29.0% of rural households living in housing in poor condition in 2019, compared with 17.5% of urban households. This is likely to reflect the older housing stock in rural areas.

3.4.4 Less surprisingly, rural areas also tended to have higher levels of deprivation on the measures of road distance to key services, reflecting the relative scarcity of these services in rural areas.

3.4.5 In contrast, there was a greater concentration of deprivation in urban areas on the measures in Table 3.3 relating to income, employment, adult skills, and barriers to housing.

¹¹ The indicators shown in this table are a subset of the indicators that were published as part of the Indices 2019 release. Not all the indicators that composed the IoD 2019 can be published at LSOA level and/or summarised in the form presented in Table 3.3.

- 3.4.6 While the evidence above suggests that a relatively small proportion of rural *areas* are identified as highly deprived, a considerable number of people living in rural areas have been identified as deprived using the IoD 2019 metrics.
- 3.4.7 The table below shows the number of people who were experiencing deprivation on 2019 metrics that were living in rural areas for the Income and Employment Deprivation Domains, the Income Deprivation Affecting Children Index (IDACI), the Income Deprivation Affecting Older People Index (IDAOPI), and Adult Skills sub-domain.

Table 3.4. Rural share of deprivation (Percentage of people experiencing deprivation living in rural areas)		
Domain	Count	Share of total deprived population
Income	721,900	10.3%
Employment	333,300	10.6%
Income Deprivation Affecting Children Index	153,500	8.7%
Income Deprivation Affecting Older People Index	247,900	14.0%
Working-age adults with no or low qualifications or who cannot speak English or cannot speak English well	1,158,100	14.5%

- 3.4.8 The table below shows the number of households who were experiencing deprivation on selected housing-related metrics from the IoD 2019 that were living in rural areas.

Table 3.5. Rural share of deprivation (Percentage of households experiencing deprivation living in rural areas)		
Domain	Count	Share of total deprived households
Household overcrowding	115,500	6.0%
Housing lacking central heating	97,400	16.4%
Housing in poor condition	1,203,800	26.1%

- 3.4.9 A considerable number of people living in rural areas experienced income deprivation, with almost 722,000 rural residents identified as income deprived on the IoD 2019 Income Deprivation Domain (10.3% of all people experiencing income deprivation). This is despite, as shown in the earlier analyses (see Section 3.3), only 0.9% of rural areas were ranked among the most deprived 10% in England on the 2019 Income Deprivation Domain (making up 1.5% of all income deprived areas in the most deprived decile of that domain). This clearly illustrates the challenge of focusing only on the ‘most deprived decile’ of LSOAs to the exclusion of all others.
- 3.4.10 A similar pattern can be seen for the other domains:
- Only 3.3% of LSOAs in the most deprived 10% of the Employment Deprivation Domain were in rural areas; however, 10.6% of people experiencing employment deprivation live in rural areas (333,300 people).

- Only 2.4% of LSOAs in the most deprived 10% on the Income Deprivation Affecting Children Index were in rural areas; however, 8.7% of children experiencing income deprivation live in rural areas (153,500 children).
- Only 0.4% of LSOAs in the most deprived 10% on the Income Deprivation Affecting Older People Index domain were in rural areas; however, 14.0% of older people experiencing income deprivation live in rural areas (247,900 older people).

Chapter 4. Challenges and critique regarding the selection of domains and indicators

4.1 Overview

- 4.1.1 In this section, detailed consideration and response is given to issues raised regarding potential limitations or gaps in the selection of domains and indicators in the IoD 2019 with respect to rural areas. The section takes into account responses to the 2022 Indices public consultation exercise, as well as inputs from key stakeholders, an independently conducted literature review about deprivation in rural areas in England (included in full as an Appendix to this report), and additional empirical analysis. This section also summarises the substantive changes between the IoD 2019 and the IoD 2025, with a focus on the ways in which these revisions aim to address the potential gaps, challenges and critiques to methodology and indicators with respect to rural areas.

4.2 Income Deprivation Domain

- 4.2.1 Five main issues have been raised regarding the Income Deprivation Domain with respect to rural areas: income instability; hidden poverty; take-up rates of benefits in rural areas; the ‘rural premium’; and fuel poverty.

Income instability

- 4.2.2 The literature review on deprivation in rural areas (see Appendix) highlights a number of ways in which people living in rural communities may experience income instability, such as low paid employment in insecure and/or seasonal agricultural jobs, which may be coupled with a cultural reluctance to claim benefits or tax credits. Using the Rural Urban Classification 2011 in England, Defra (2021) compared both the median workplace-based and resident-based earnings in rural areas against those in (non-London) urban areas, and found that, on both measures, the earnings were lower in rural areas.
- 4.2.3 *IoD 2025 Response:* In order to better reflect insecure and seasonal patterns in low income, the IoD 2025 team proposed using twelve sequential monthly snapshots of administrative data for the Income Deprivation Domain, and this was explored with data analysts at DWP¹². The hope was that by using twelve sequential months of income data, those people whose income from employment or self-employment varies across the year would be captured during periods when they were earning a low income.
- 4.2.4 Unfortunately incorporating twelve sequential monthly cuts of data was not possible for two reasons: 1) The Tax Credit and Housing Benefit components of

¹² Previous iterations of the IoD could not use monthly time cuts as the distinction between income-based and contribution-based claimants of JSA and ESA could only be made via the use of a special August benefit scan undertaken once each year (hence the August time point adopted for previous iterations of the Income Deprivation Domain).

the domain needed to be sourced from DWP's Registration and Population Interaction Database (RAPID), which provides an annualised view of income over the entire tax year, and so monthly snapshots were not possible; 2) most importantly, it was necessary to select a time point which was unaffected by the uneven geographic rollout of managed migration of legacy benefit and tax credit claimants i.e. a time point for which each Jobcentre area was subject to the same benefit regime. Following extensive consultation with DWP, the March 2024 snapshot was identified as the only time point which could address both of these considerations. Please see the accompanying IoD 2025 Technical Report for more detail.

- 4.2.5 However, people experiencing insecure employment will be included in the Universal Credit Intensive Work Search Regime (IWS) and therefore will be included in the new IoD 2025 Income Domain measure, provided their earnings are below the Administrative Earnings Threshold (AET).

Hidden poverty

- 4.2.6 A range of academics cited in the literature review have referenced the potential for poverty in rural areas in the UK to be 'hidden' (see Section 8.4 and 8.5 of the literature review in the Appendix for more details).
- 4.2.7 First, when mapped using statistical data, areas of low income can be more visible in spatially condensed and homogeneous LSOAs rather than in a large (sparsely populated) heterogeneous LSOA with a mix of incomes. A RuSource briefing highlighted that low income households in rural areas are less likely to live in the same specific localities as other deprived households (Spedding, 2008). The report found that 58% of those in the lowest income quintiles within village and hamlet sized settlements lived in areas that were in the least deprived two IMD quintile areas (the 40% least deprived areas). This issue is considered in more detail below in Section 5 and explored in Section 3.4 above.
- 4.2.8 Second, a culture of self-reliance in rural areas may result in people attempting to conceal their low income status (also relevant for the issue of take-up of benefits, as discussed below). Commins (2004) highlighted that as land and property ownership can serve to be a basis for status within rural communities, this may also serve to conceal struggles to maintain incomes and ensure survival, further contributing to the issue of cultural invisibility surrounding rural deprivation.
- 4.2.9 Third, the idea of the 'rural idyll', described in Section 2, can serve to counter claims that poverty occurs in rural areas.
- 4.2.10 *IoD 2025 Response:* Activities such as the public consultation and the dedicated literature review on rural deprivation commissioned as part of the IoD 2025 help to raise the profile of the challenges faced by people in rural areas, and have resulted in changes to the measurement of deprivation where feasible. Changes have been made to the Income Deprivation Domain (and each of the other domains) in response to this, with new measures introduced as well as refinements to existing indicators (as outlined in more detail throughout this section). For instance, moving the Income Deprivation Domain to an 'After Housing Costs' approach should help to capture low income people living in rural areas where housing costs are relatively high. The previous IoD 2019 did not take account of housing costs in the

Income Deprivation Domain, so this represents an important enhancement for the IoD 2025.

- 4.2.11 The Indices research team, together with key stakeholders, also explored whether a shift from LSOA to OA level analysis would be conceptually valid and technically feasible and, if so, whether this might capture deprivation in rural areas more effectively. However, as noted in Section 5, it was not possible to move the IoD 2025 onto the OA geography due to limitations of data and disclosure concerns identified by key data suppliers, and so the IoD 2025 is produced at LSOA level.

Take-up rates of benefits

- 4.2.12 Some respondents to the public consultation recommended that an adjustment should be made to the income domain numerator to take into account estimates of benefit take-up, due to a concern that a culture of self-reliance in rural areas may make some potential applicants reluctant to apply.
- 4.2.13 *IoD 2025 Response:* We acknowledge that there are many reasons why people may not claim the benefits or tax credits to which they might be eligible, and we are aware that the potential for take-up may be lower within certain communities. However, any attempts to adjust administrative data-based statistics for differences in take-up would require a number of generalised assumptions to be adopted, which would be impossible to empirically validate and so this cannot be implemented at this time. It is recommended that primary research should be commissioned to explore the issue of take-up rates in rural and urban areas.

Rural Premium

- 4.2.14 The rural premium refers to the way in which people's expenditure on goods and services can be higher in rural areas due to reduced service availability and accessibility, less choice, and higher transport costs. Rural residents may encounter a higher cost of living (including food, fuel, and childcare costs), and this 'rural premium' can serve to further compound income deprivation (Martin et al., 2000; Leckie et al., 2021; McCartney and Hoggett, 2023).
- 4.2.15 For example, Milbourne and Kitchen (2020) and Bosworth et al. (2020) have argued that costs associated with personal transport in rural areas can be viewed as excessive because, when it is available, public transport is considered by many to be expensive, unreliable, and inconvenient, and that consequently there is an increased reliance upon modes of private transport which has associated financial implications for rural residents (Milbourne and Kitchen, 2014; Bosworth et al., 2020). Furthermore, Williams and Doyle (2016) found that fuel prices in rural areas are often higher, which can have additional financial implications on both rural residents and businesses.
- 4.2.16 The Minimum Income Standard (MIS), which provides details on the income required to meet the cost of a basket of goods and services for a particular household type, was developed by Bradshaw et al (2008). In employing the MIS, it became possible to estimate the cost of living for different groups in both rural and urban areas. Milbourne and Doheny (2012) found that households in rural areas do face additional costs, much of which is due to personal transport and domestic fuel costs. Williams and Doyle (2016) estimated that people living in rural areas typically need to spend 10-20% more on everyday requirements than those in

urban areas; and McKendrick and colleagues (2011) found that to enjoy the same standard of living as their urban counterparts, single working-age adults needed to earn at least £15,600 per year in rural towns, £17,900 in villages and £18,600 in hamlets and the remote countryside to reach a minimum living standard, compared with just £14,400 in urban areas.

- 4.2.17 Relatedly, a briefing by ACRE (2023) explored how the recent and ongoing cost-of-living crisis in the UK was playing out across rural areas. Reinforcing the intersection of income deprivation with other forms of deprivation, the ACRE authors emphasised that low-income households in rural areas were particularly struggling with respect to fuel poverty, a lack of affordable houses, and the various costs of accessing services.
- 4.2.18 *IoD 2025 Response*: Although there is evidence from the literature that rural households face additional costs, there is little information available in national administrative microdata (e.g. DWP benefits data and HMRC tax data) to reflect this within the IoD. However, the challenge of high-cost housing in many communities is now acknowledged within the Income Deprivation Domain of the IoD 2025, as this measure is now based on an 'After Housing Costs' (AHC) approach, whereas previous indices used a 'Before Housing Costs' (BHC) approach, which did not take account of any rural premium relating to rural housing costs. This has been possible because of the availability of claimant housing costs in the new Universal Credit monthly administrative dataset and the availability of similar Housing Benefit datasets for the whole country.
- 4.2.19 We also consider the additional barriers experienced as a result of poor access to services in the Barriers to Housing and Services domain which has been enhanced to take into consideration the availability and frequency of public transport and the additional time costs associated with poorer provision.

Fuel poverty

- 4.2.20 The issue of fuel poverty was raised as a challenge faced by people in rural areas (i.e. when a household's energy costs are higher than a household's income can sustain). The consequences of being unable to adequately heat one's home are numerous, as summarised here: 'Living in cold and damp homes contributes to a variety of mental stressors, as well as physical discomfort. Being in debt can give rise to mental health concerns; it may lead to people cutting back on food to save for energy bills. It can also lead to spatial shrink in the home, if people only heat one or two rooms. Energy poverty presents some of the largest environmental inequalities across a range of cohort types including rural/urban areas, ethnicity and—most especially—income groups.' (WHO, 2019, p.52)
- 4.2.21 According to the 2021 Fuel Poverty Strategy, a household is in fuel poverty if their home has a Fuel Poverty Energy Efficiency Rating of band D or below, and if, after subtracting their modelled energy costs and housing costs, their residual income is below the poverty line (Massey and Waters, 2023). A report by ACRE in 2023, based on government figures, estimated that the cost of lifting a household out of fuel poverty can be as much as £956 in a rural area, compared to the national average of £443, with prices being particularly high in rural villages, hamlets, and isolated dwellings. In England, a recent government fuel poverty report stated that 'households living in rural areas have the highest fuel poverty rate of 15.9% in 2022 [compared to the England average of 13.4%]' (DESNZ, 2023), whereas the

End Fuel Poverty Coalition has suggested that this may be an underestimate and the actual figure may be as high as 27% (ACRE, 2022).

- 4.2.22 *IoD 2025 Response*: Although we acknowledge that fuel poverty is an important concept and living in fuel poverty can have serious negative effects on physical and mental outcomes, we have not included this as a separate indicator in the Income Deprivation Domain of the IoD 2025 for two main reasons: (1) an indicator of fuel poverty at LSOA level would need to be based on modelled data, as no suitable administrative data exists on actual energy costs or actual housing costs; and (2) there would be considerable overlap with those people captured as income deprived using the existing domain approach, and so it would no longer be possible to ensure no double-counting.
- 4.2.23 It is also important to note that a key driver of fuel poverty is the quality of housing, and the IoD 2025 now includes a new indicator of housing quality in the Living Environment Deprivation Domain based on Energy Performance Certificate (EPC) administrative data.

Summary of changes to the Income Deprivation Domain in the IoD 2025

- 4.2.24 The IoD 2025 introduces major changes in response to the full roll-out of Universal Credit (UC) and the availability of the DWP's RAPID database. The domain now includes:
- UC claimants 'out-of-work' conditionality categories.
 - UC claimants 'in-work' conditionality categories whose equivalised income is below 70% of the national median After Housing Costs (AHC).
 - Housing Benefit families below the same 70% AHC threshold.
 - Tax Credit families below the 70% AHC threshold (to ensure consistency with transition groups).
 - Revised asylum seeker measure, excluding temporary accommodation cases and focusing on those in dispersed accommodation.
 - Raised deprivation threshold: from 60% of median income (before housing costs) in IoD 2019 to 70% of national median (after housing costs) in IoD 2025

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

- 4.2.25 These changes expand coverage to a broader, more robust, measure of income deprivation which takes into consideration housing costs, making the measure more reflective of real disposable income. For rural areas, this should better reflect low-income working households and capture those facing higher housing costs, even though direct measurement of the 'rural premium' remains outside the scope of available data. In addition, the extension of the measure to capture those with incomes below 70% of the median income better captures low paid and insecure work, directly responding to rural stakeholders' concerns about seasonal employment and in-work poverty.

4.3 Employment Deprivation Domain

- 4.3.1 Three main issues were raised as requiring consideration in the Employment Deprivation Domain: hidden employment deprivation; the related issue of take-up rates of benefits; and the decline of agriculture, forestry and fishing industries.

Hidden employment deprivation

- 4.3.2 In 2021, the unemployment rate in rural areas (2.7%) was slightly lower than that in urban areas (4.1%) (Defra, 2023). However, as Haase and Pratschke noted, albeit within an Irish context, 'long-term adverse labour market conditions in rural areas tend to manifest themselves either in agricultural underemployment or in emigration... In both cases, the (rural) unemployment rate is likely to vastly understate the real extent of labour market disadvantage' (2005; p.7). Within the literature it has been argued that local rural economies, some of which can be fragile, operate differently from urban economies (Cloke, 1997; Monk et al., 2000; Smith et al., 2018).
- 4.3.3 As opposed to unemployment per se, employment deprivation in rural areas has been found to be associated, at least in part, with issues including: under-employment and seasonal employment; 'in-work poverty' caused by lower wages and lower average incomes; more restricted job opportunities; and inadequate access to jobs by public transport (Bagley, 2023; Cloke et al., 1997; Martin et al., 2000). Deas (2003) has argued that many of these broader employment-related issues may be more widespread in rural areas than narrowly defined unemployment, but due to greater difficulties in quantifying them, they may not be included within deprivation measures (Deas et al., 2003), with a continued reliance upon the use of administrative data concerning the uptake of out-of-work benefit support. It has therefore been argued that the true extent of these types of deprivation in these areas may be concealed, and the low-waged, low-quality, part-time, seasonal, and sometimes informal nature of employment in the countryside may be masked (Cloke et al., 1997).
- 4.3.4 *IoD 2025 Response:* To better capture the issue of seasonal employment, we have included 12 months of benefit claims in the IoD 2025 Employment Deprivation Domain, to take into account variations in employment at different times of the year. Furthermore, as noted above, the low wages due to in-work poverty will be captured in the Income Deprivation Domain of the IoD 2025 for those in receipt of in-work means-tested benefits. The issue of access to job opportunities has also been taken into account as a component of the refined Geographical Barriers sub-domain (see below).

Take-up rates of benefits

- 4.3.5 The issue of benefit take-up, or rather non-take-up, was referenced above in relation the Income Deprivation Domain, but it is equally relevant in terms of the Employment Deprivation Domain. For instance, McCartney and Hoggett (2023), argued that there is a common culture of independence and self-reliance pervading rural communities, and a stigma surrounding reliance upon government support. These factors have been shown to result in a reduced uptake of welfare support, with those who are eligible opting instead to rely upon employment within the

informal labour market (Cloke et al., 1997; Bailey et al., 2016). This could lead to lower take-up of the benefits that are used as the basis for the Employment Deprivation Domain, thereby potentially underestimating the true level of deprivation in some rural areas.

- 4.3.6 *IoD 2025 Response:* We acknowledge there are many reasons why people may not claim the out-of-work benefits to which they might be eligible, and that the potential for take-up may be lower within certain communities. However, any attempts to adjust administrative data-based statistics for differences in take-up would require a number of generalised assumptions to be adopted, which would be impossible to empirically validate and so this cannot be implemented at this time.
- 4.3.7 There are relatively few (if any) robust alternatives to using benefits data at small area level to capture those involuntarily excluded from the labour market. One exception to this is data from the 2021 Census, however, this has other limitations as it is less up-to-date and updatable than data from administrative sources, and was conducted during the COVID-19 pandemic lockdown period, when labour market patterns were severely disrupted. A recent JRF study on destitution which is based on analyses of surveys and qualitative interviews/focus groups, sought to capture the experiences of hard-to-reach groups that might not be engaging with public services such as the benefit system; although this adds important insights, the study cannot be used to provide sufficiently robust data available at LSOA level to indicate the numbers of people who are employment deprived but unable to claim benefits.
- 4.3.8 It is recommended that primary research should be commissioned to explore the issue of take-up rates in rural and urban areas.

Summary of changes to the Employment Deprivation Domain in the IoD 2025

- 4.3.9 The IoD 2025 retains the core structure but expands the indicator set. The following indicators are retained: Job Seeker's Allowance (JSA), Employment Support Allowance (ESA), Incapacity Benefit (IB), Severe Disablement Allowance (SDA), and Carer's Allowance (CA). In addition, a range of new indicators have been added:
- New Style JSA and New Style ESA (successors to contribution-based benefits).
 - Income Support (IS) claimants.
 - UC claimants in the 'Planning for Work' and 'Preparing for Work' conditionality groups.
- 4.3.10 For the IoD 2025, the domain is based on data for 12 consecutive monthly time points (across the tax year 2022/23), rather than four quarterly time points (as was the case in the IoD 2019), to better capture cyclical and seasonal employment patterns. The working-age range has also been extended to 18–66, aligning with pension age.

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

- 4.3.11 The expansion of the data collection period to cover 12 consecutive monthly time points addresses rural concerns by recognising seasonal cycles in rural labour

markets. While non-take-up remains an acknowledged limitation (in both rural and urban areas), the inclusion of Universal Credit will ensure broader coverage of in-work conditionality groups to capture issues of under-employment.

4.4 Education, Skills and Training Deprivation Domain

- 4.4.1 The two main issues that were raised with respect to the Education, Skills and Training Deprivation Domain in rural areas were lower educational attainment levels, and the importance of capturing digital connectivity and skills.

Educational attainment levels

- 4.4.2 The literature review in Appendix to this report refers to statistics published by Defra in 2018/19 that reflect lower educational attainment levels in rural areas. For example, the proportion of the working age population with National Vocational Qualification Level 4 or an equivalent qualification was 44.7% in predominantly urban areas, compared to only 35.4% in predominantly rural areas; attainment levels for English and Maths GCSE results were lower for pupils in rural areas than in urban areas; and a fifth of 16-year-olds in rural areas were reported to have attained no GCSEs (Bagley, 2023). Ovenden-Hope and Passy (2019) have suggested that the more limited availability of local employment opportunities in rural areas may in part lead to reduced motivation to succeed academically. There have also been strong links made with the issue of access which, as highlighted in the following sections, is a central feature of rural deprivation. People living in rural areas may have reduced or restricted physical access, for example, to higher or further education institutions, due to their uneven geographical spread (Gibney, 2013; Elliot, 2018; Playford et al., 2023), but also reduced or restricted digital access, for example to e-learning resources and other digital training opportunities (Townsend et al., 2015; Leckie, Munro, and Pragnell, 2021).
- 4.4.3 *IoD 2025 Response*: Measures of children's educational attainment, young people's access to higher education, and adult qualifications are all incorporated in the IoD 2025, and disadvantage experienced by residents of rural areas will be captured in the domain. Access to educational opportunities including Higher and Further Education facilities have been incorporated in the enhanced Geographical Barriers domain (see below).

Digital connectivity and skills

- 4.4.4 A recent Pragmatix Advisory report in 2021 entitled '*Rural recognition, recovery, resilience and revitalisation*', which focused on the strengthening of economies and addressing deprivation in rural and coastal communities in England, drew attention to the measurement of educational deprivation in rural areas, and referred to the absence of measures of digital training or digital education in the IoD 2019 (Leckie, Munro, and Pragnell, 2021). The authors stressed the particular importance of digital connectivity and skills in a context of limited access to services.
- 4.4.5 *IoD 2025 Response*: Although there is a growing body of evidence on digital skills demand (e.g. Ma et al., 2024), there is currently a lack of robust data on digital qualifications at neighbourhood level. However, a measure of broadband

connectivity is now included in the IoD 2025 Barriers to Housing and Services Domain which may be an important factor in facilitating the development of digital skills (see Barriers to Housing and Services Domain section, below).

Summary of changes to the Education, Skills and Training Deprivation Domain in the IoD 2025

4.4.6 The key changes are as follows:

- Removed indicator: Staying on in education post-16, reflecting the raised participation age to 18.
- Revised absence indicator: now covers primary, secondary, and special schools (IoD 2019 only covered secondary).
- New indicator: Persistent absence (10%+ sessions missed).

Impact of the changes in the IoD 2025 on issues relating to potential rural deprivation

4.4.7 The IoD 2025 continues to include measures of low attainment and limited access to higher education. While it was not possible to include a direct measure of digital skills at small-area level, due to an absence of robust and comprehensive administrative data on this topic, the IoD 2025 indirectly addresses this issue through the new broadband speed indicator in the Barriers to Housing and Services Domain.

4.5 Health Deprivation and Disability Domain

4.5.1 The literature review identified that akin to income and employment deprivation, health deprivation has more commonly been presented as an urban problem, with rural areas being reported as having better physical health compared to their urban counterparts. For example, several scholars have reported that both males and females in rural areas report higher life expectancies (Kyte and Wells, 2010; Allan et al., 2017; Defra, 2022).

4.5.2 The main issues to arise from the literature and consultation exercise relate to social isolation, benefit take-up rates in rural areas, the effect of poor access to services on life expectancy, and mental health.

Social isolation

4.5.3 The literature highlights the potential for social isolation in rural areas and how this can negatively affect individual wellbeing (Cloke, 1997; Muller et al., 2021). With accessibility challenges being more heightened and salient in rural areas, this has been suggested to lead to an increased risk of isolation, with some demographic groups, such as elderly persons, being particularly vulnerable (De Koning et al., 2017; Kelly et al., 2019; Bosworth et al., 2020). Examples of studies that examine the relationship between social isolation and accessibility in rural areas include Heenan (2011) and McGuire et al. (2022) in a Northern Irish context. A report by Rural England also noted that ‘although a complex range of factors contribute to the prevalence of loneliness, future demographic changes including the ageing of

the population and family dispersal, suggest that loneliness may be a particularly acute issue for rural areas which have higher proportions of older residents, more rapidly ageing populations, and more acute accessibility issues' (2016; 2).

- 4.5.4 *IoD 2025 Response:* While large scale surveys such as the Community Life Survey explore questions related to self-perceived loneliness, there is currently a lack of robust data on prevalence of loneliness at neighbourhood level. The IoD 2025 indirectly captures the impact of social isolation caused by physical isolation. The new Connectivity Score, includes component measures of average travel times by walking, cycling and public transport for visiting friends at a private home, as well as access to leisure destinations. This represents a change from previous approaches to capturing accessibility, which looked at services but not at social infrastructure.

Take-up rates of benefits

- 4.5.5 The issue of non-take-up of benefits, as discussed above in relation to the Income Deprivation Domain and Employment Deprivation Domain, is also of relevance to the Comparative Illness and Disability Ratio (CIDR) indicator in the Health Deprivation and Disability Domain.
- 4.5.6 *IoD 2025 Response:* As noted above, sufficient data on this issue is still lacking. Low take-up could lead to lower counts on CIDR in some rural areas. However, it is not possible to apply adjustments to the observed data due to lack of robust information on take-up at small area level.

Mental health

- 4.5.7 Mental health in rural areas has been identified as an area of health policy concern, intensified by recent pressures including the cost of living and labour shortages (House of Commons, 2023). Research from the House of Commons has found that people living in rural areas can be subject to isolation and other negative factors, and suicide rates have been found to be higher amongst agricultural workers (House of Commons, 2023).
- 4.5.8 *IoD 2025 Response:* The IoD 2019 included an indicator of mood and anxiety disorders, and deprivation levels were higher on average for rural areas than urban areas on that measure. The IoD 2025 has expanded this indicator to capture broader mental health conditions.

Summary of changes to the Health Deprivation and Disability Domain in the IoD 2025

- 4.5.9 The following changes have been made to this domain:
- CIDR: revised to include health-related Universal Credit caseloads (in addition to legacy benefits).
 - An enhanced composite mental health indicator: based on factor analysis of four sources (benefits data, prescribing data, hospital admissions for mental health, suicide records).

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

- 4.5.10 The enhanced mental health indicator strengthens coverage of this issue, which rural stakeholders noted as underrepresented in the IoD 2019. While social isolation is not directly measured, the broader coverage of health conditions provides a more sensitive measure of rural health inequalities.

4.6 Crime Domain

- 4.6.1 Three main points arose in the literature review and consultation regarding the Crime Domain in relation to rural areas: (i) the potential under-estimation of rural crimes; (ii) questions around whether the crime types selected for the domain had an overly urban focus; (iii) and concerns that the domain's denominators might not fully reflect the true at risk populations in urban areas, leading to an overestimation of crime rates in urban LSOAs.

Under-estimation of crimes

- 4.6.2 Criticisms have been raised within the literature concerning the allocation of police time and resources in rural areas, with suggestions that reported farm crime is not taken seriously by the police; visibility of police officers in rural areas being limited; and levels of trust and confidence in the police to address these problems being diminished (Yarwood, 2010). Consequently, some authors have suggested that criminal activity experienced in these areas may go unreported (Jones, 2012; Morris et al., 2020), and it has been posited that this could instigate a damaging cycle whereby rural crime is then officially underestimated, and hence further deprioritised by authorities. This leads to perceptions of poor police response, which in turn discourages reporting, and starts the cycle again (NRCN, 2018).
- 4.6.3 *IoD 2025 Response:* Although the issue of under-reporting, and therefore under-estimation, of crimes in rural (and urban) areas is important, there is insufficient evidence available at small area level to confidently adjust the data in the domain at this time.

Urban focus of measured crime types

- 4.6.4 Yarwood (2001) discussed how popular discourses suggest that crime is typically not deemed to be problematic in rural areas, while other commentators have pointed to empirical evidence showing the concentration of crime in urban centres (Pateman, 2011, NRCN, 2018, Defra, 2022), particularly in relation to robberies, residential burglaries, vehicle offences, violence and sexual offences.
- 4.6.5 However, crime does also occur in rural settings, and rural communities have been found to experience a range of crime-related challenges, such as agricultural theft (tractors, quads, livestock, machinery, fuel), vehicle speeding, wildlife crimes, illegal clearing of trees, illicit entrepreneurship, dog attacks, and fly tipping (Marshall and Johnson, 2005; Smith and McElwee, 2013; Somerville et al., 2015, NRCN, 2018).

- 4.6.6 *IoD 2025 Response:* People in both rural and urban areas can be victims of each of the crime types that were included in the four composite indicators constructed for the IoD 2019. Rural crime types including theft of tractors and quad bikes farms etc are already counted under the theft indicator. For some other issues, such as fly tipping, it is not possible to incorporate these into the domain as they are typically dealt with by the local council rather than the police, and so will not be included within police statistics.
- 4.6.7 A number of enhancements have, however, been made to the Crime Domain for the IoD 2025: (1) the set of composite indicators included in the domain has been expanded from four to eight, giving a more comprehensive account of crime and disorder occurring in all types of neighbourhood; (2) one of the new indicators in the domain relates to anti-social behaviour and is based on police incident data, which should pick up neighbourhood disorder that does not meet the threshold for being recorded as a crime; and (3) the time period of data underpinning the indicators has been increased to draw upon six years of data for the recorded crime indicators, compared to two years in the IoD 2019, which should increase the robustness of the data through including higher numbers of crimes¹³.

Omission of certain at-risk groups in the denominator

- 4.6.8 In the 2022 Indices Futures public consultation exercise, some respondents questioned whether the Crime Domain is skewed towards identifying crime deprivation in urban areas more than rural areas, due to the omission of certain at-risk groups from the denominator. Such at-risk groups might include students, shoppers, and night-time visitors as part of the night-time economy. These are all types of non-resident population of an area, all of whom could potentially be a victim of a crime. The reason for the concern is that the exclusion of these groups from the denominator could result in deprivation rates appearing to be higher in urban areas that have larger non-resident populations.
- 4.6.9 *IoD 2025 Response:* Most analyses of crime rates use a denominator that consists only of the resident population. However, The Crime Domain of the IoD has always supplemented the resident population with an estimate of the non-resident population, in acknowledgement of the issue noted above. The Crime Domain of the IoD 2019 (and earlier) therefore always did use an 'at-risk population' denominator for the 'violence', 'theft' and 'criminal damage' indicators. Using these 'at-risk' denominators does go some way towards reflecting the higher non-resident populations in city and town centres who are also at risk of victimisation in those urban centres. The IoD 2025 Crime Domain also uses 'at-risk population' denominators for all indicators other than burglary (which again uses an at-risk properties denominator). We have reviewed the data sources and methods and are not able to expand the at-risk population denominator further, due to lack of suitable data at LSOA level on non-resident populations such as shoppers and visitors, etc. Whilst no statistical denominator can ever perfectly reflect the constantly changing populations of any LSOA, irrespective of rural or urban location, the Crime Domain denominators do explicitly acknowledge the

¹³ Note that two years of police incident data were used for the anti-social behaviour indicator, to mitigate against differences in the way police forces dealt with anti-social behaviour during the COVID pandemic.

importance of denominators and the domain is explicitly designed to address this issue.

Summary of changes to the Crime Domain in the IoD 2025

4.6.10 The following key changes have been made for the IoD 2025:

- Expanded set of indicators: this domain is now based on eight indicators, including seven based on recorded crime, plus one based on police incidents of anti-social behaviour.
- Expanded data time period: The seven recorded crime indicators are based on a six-year data time period, to better reflect the underlying level of crime at LSOA level. The anti-social behaviour indicator is based on two years of police incident data to post-date the COVID pandemic (see IoD 2025 Technical Report for more details).
- Updated denominators: considerable work was undertaken to explore possible refinements to the denominators for this domain. The final denominators still take account of non-resident population and non-residential properties, in order to reflect the higher non-resident population/properties that are typically found in town and city centres. These denominators therefore act to 'deflate' crime rates in urban areas compared to what would be observed if simple resident population / residential properties denominators were used, as is often the case in other research.

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

4.6.11 This broader crime typology reduces the risk of urban bias and acknowledges additional crime types and broader forms of disorder that affect rural as well as urban communities. Although some issues (e.g. fly tipping) remain unmeasured, the expanded indicator set improves overall representation.

4.7 Barriers to Housing and Services Domain

4.7.1 This domain comprises two sub-domains: the Geographical Barriers to Services sub-domain and the Wider Barriers sub-domain. The main points that arose in the literature review and consultation regarding the Barriers to Housing and Services Domain and rural areas relate to improving the measurement of geographical barriers to services; and increasing the number of indicators in each of the sub-domains.

Geographical Barriers sub-domain

4.7.2 One of the most distinguishing characteristics of rural areas is geographical dispersion, which typically also means lower population densities and greater distances from population centres. Reflecting this, access to services has been identified as an important central component of rural deprivation, and features frequently within any discussions concerning this concept (Higgs and White, 1997; Jordan et al., 2004; Fecht et al., 2018). Furthermore, the issue of access in rural, remote and island communities has been identified as compounding many other

deprivation characteristics, including employment, education, and health (McCartney and Hoggett, 2023).

Improving the measurement of geographical barriers to services

- 4.7.3 The IoD 2019 measured geographical barriers to services with four indicators that were constructed using information on road distances to four key services. However, it has been suggested in the literature that road distance may not be the most appropriate means of measurement in rural areas given that it fails to adequately capture important factors such as car availability and the costs of both transport and service use (Niggebrugge et al., 2005). A range of studies looking at rural deprivation have emphasised the importance of taking into consideration the provision, frequency and demise of public transport (Niggebrugge et al., 2005; Milbourne, 2014). The consultation also highlighted the challenges of the quality and frequency of public transport in rural areas.
- 4.7.4 *IoD 2025 Response:* This sub-domain has been fundamentally overhauled for the IoD 2025 and is now based entirely on the recently constructed Department for Transport (DfT) Connectivity Tool. It captures geographical barriers to a wider range of services with greater sophistication. This greater sophistication is achieved by taking into account the purpose of travel (see below); the mode of travel, consisting of walking, cycling, and public transport; and the time of day, covering the morning 'rush hour', (07:00-10:00), mid-day (10:00-16:00), evening 'rush hour' (16:00-19:00) and night time (19:00-07:00)¹⁴. Car travel is explicitly not included as a form of travel in the DfT Connectivity Tool, and therefore not reflected in the IoD 2025 Connectivity Score indicator. The exclusion of car travel is an important feature of the IoD 2025 Connectivity Score, as it acknowledges the challenges that many households face in accessing services if they do not own (or have easy access to) a car.

Additional services

- 4.7.5 The IoD 2019 measured geographical barriers to four key services (GP surgery, primary school, food store, and post office). The literature review highlights the importance of this sub-domain for rural areas, particularly as rural areas may be less likely to meet the population thresholds required for the provision of new, or continuation of existing, services (Moseley and Owen, 2008; Cabras et al., 2019) which in turn compounds rural deprivation (McCartney and Hoggett, 2023; Bagley, 2023). Defra (2022a) have highlighted that secondary schools, Further Education colleges and hospitals should be considered in quantitative assessments of accessibility in rural areas.
- 4.7.6 *IoD 2025 Response:* As noted above, the Geographical Barriers sub-domain has been significantly enhanced for the IoD 2025 as it is now based on the DfT Connectivity Tool. This composite measure takes into account connectivity relating to six main purposes: business (employment); education (secondary school, special needs establishments, pre-school nursery, further education, primary school, university); entertainment/public activity (including places such as historical sites, arena/stadium, amusement park, pub/nightclub, campsite, theatre, allotment,

¹⁴ For further details about the Connectivity score see DfT (2025).

recreation and sports ground, bingo hall, cinema, theatre, concert hall, museum, library, spiritual or religious sites); shopping (bank, gardening retail, petrol retail, food retail, retail generic and shops, Royal Mail infrastructure); health (generic health buildings, hospitals, GPs); and visiting friends at a private home. As such, it covers a far more comprehensive set of activities than has been possible in previous Indices.

Wider Barriers sub-domain

- 4.7.7 The Wider Barriers sub-domain in the IoD 2019 focused exclusively on access to housing, but the literature review and consultation process highlighted additional factors that should ideally be considered in this sub-domain, including digital connectivity, and access to employment opportunities.

Homelessness

- 4.7.8 Research from the University of Kent and the University of Southampton found that there has been a rise in homelessness in rural areas in recent years (Tunaker et al., 2023). This supports other research on homelessness in the UK and abroad, which has found that rural homelessness is often hidden, invisible and under-reported, and that rural homelessness may require targeted and specific interventions that are different from those in urban areas (e.g. Cloke et al., 2002; Gibbons et al., 2020).¹⁵
- 4.7.9 The 'Homelessness' indicator in the IoD 2019 measured the rate of acceptances for housing assistance under the homelessness provisions of the 2017 Homelessness Reduction Act for each local authority. It is acknowledged that this indicator has the potential to miss certain segments of the homeless population, as it only covers those households that applied for homelessness assistance with their local authority and were accepted by the local authority. A concept of 'Core Homelessness' has been developed by academics in conjunction with the UK national charity Crisis. Core homelessness seeks to capture the number of households experiencing the most extreme and immediate forms of homelessness. The work with Crisis revealed that a high proportion of people who are classed as homeless under the concept of core homelessness would not be recorded in mainstream surveys or censuses (because they would not be regarded as being 'usually resident' in private households, which is often a criterion for inclusion in surveys/Censuses). Furthermore, for the same reasons, these individuals may not be able to register with local authority homelessness services, and therefore may not be picked up through the existing IoD 2019 homelessness indicator. Current estimates are that less than half of core homeless households have applied to councils as homeless¹⁶. There is also evidence of a considerable overlap between

¹⁵ See for example, Cloke P, Milbourne P and Widdowfield R (2002) *Rural Homelessness: Issues, experiences and policy responses* Policy Press Bristol, Gibbons A, Madoc-Jones I, Ahmed A, Jones K, Rogers M, and Wilding M (2020) 'Rural Homelessness: Prevention Practices in Wales'. *Social Policy and Society* 19, no. 1 (January 2020): 133–44. <https://doi.org/10.1017/S1474746419000368>

¹⁶ Destitution in the UK Survey cited in Glen Bramley (06 October 2025) *New indicator of Core Homelessness Technical Note*, Institute for Social Policy, Housing and Equalities Research, Heriot-Watt University

the concepts of 'core homelessness' and 'destitution', with a sizeable proportion of people classified as 'destitute' also classified as 'core homeless'¹⁷.

- 4.7.10 *IoD 2025 Response*: To account for the broader group of homeless people who may not be captured via the statutory homelessness measure, the IoD 2025 also now includes an LAD level indicator of core homelessness which incorporates the groups identified in the paragraph above. This provides a more comprehensive account of homelessness in rural and urban areas than has been possible previously.

Digital connectivity

- 4.7.11 The issue of digital connectivity is acknowledged as a particular challenge in many rural areas for several reasons. With the closure of physical service access points, there may be a greater reliance upon digital services for certain activities including shopping, banking, and other tasks such as claiming social welfare support, stewardship grants or agricultural subsidies (Townsend et al., 2013; Wilson and Hopkins, 2019). It has also been noted that the physical isolation of businesses in rural areas can make it difficult to reach customers and to access required resources for manufacturing or delivering services and products. Access to broadband can reduce some of these barriers by providing opportunities for teleworking and video conferencing (Skerratt and Warren, 2003; Townsend et al., 2013), however, broadband speeds have been identified as being lower in rural areas than urban areas, and 4G and voice call coverage have also been found to be more limited in rural areas compared to urban areas. For example, the average broadband download speed in rural areas was recorded as 51mb/s, compared to 84mb/s in urban areas (Defra, 2021).
- 4.7.12 *IoD 2025 Response*: A new indicator on average broadband speed has been incorporated into the Wider Barriers sub-domain of the IoD 2025 to measure digital connectivity.

Patient to GP ratio

- 4.7.13 Access to health care professionals is of increasing importance due to the rise in recorded levels of poor health (Scott et al., 2007; Williams and Doyle, 2016). The inclusion of such an indicator in the Wider Barriers sub-domain was therefore explored for the IoD 2025.
- 4.7.14 *IoD 2025 Response*: An LSOA-level measure of the patient-to-GP ratio has been included as a new indicator in the Wider Barriers sub-domain of the IoD 2025. The patient-to-GP ratio measure is intended to capture the ability to access services based on service availability (rather than the geographic location of services which is the focus of the Geographical Barriers sub-domain).

Access to employment

- 4.7.15 Access to employment was raised in the Indices consultation and rural literature review as an evidence gap that should be explored for the Indices of Deprivation.

¹⁷ Glen Bramley (06 October 2025) New indicator of Core Homelessness Technical Note, Institute for Social Policy, Housing and Equalities Research, Heriot-Watt University

4.7.16 *IoD 2025 Response*: This issue is now addressed by the inclusion of geographic access to employment centres as part of the new Connectivity Score indicator within the Geographical Barriers sub-domain of the IoD 2025 (see above).

Summary of changes to the Barriers to Housing and Services Domain in the IoD 2025

4.7.17 The following key changes have been introduced into the IoD 2025:

- The road distance measures in the Geographical Barriers sub-domain have been replaced by the Connectivity Score indicator, developed by DfT. This covers 33 service types across health, education, shopping, employment, leisure, and visiting friends. It accounts for travel mode (walking, cycling, and public transport) and time of travel.
- Overcrowding: now measured by both rooms and bedrooms, capturing hidden overcrowding.
- Homelessness: updated to reflect statutory duties under the Homelessness Reduction Act and supplemented with a new Core Homelessness indicator at LAD level, capturing hidden and informal forms of homelessness.
- New indicators: broadband speed and patient-to-GP ratios.

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

4.7.18 The introduction of the Connectivity Score measure responds directly to rural concerns that road distance alone inadequately captured accessibility challenges, by incorporating metrics of availability, frequency and travel times by walking, cycling and public transport. Importantly, for the IoD 2025, travel by car is excluded as a potential means of accessing these services, in order to ensure that the lived experience of life in less accessible areas (particularly rural areas) is fully acknowledged.

4.7.19 Moreover, the expansion of the measure to cover access to a wider range of services and travel purposes as well as access to employment opportunities address some of the gaps in the evidence base highlighted in the literature review. The introduction of broadband speed and access to GP patient-to-GP ratios directly address rural concerns about digital exclusion and access to health services. The introduction of a measure of Core Homelessness directly addresses requests to include homeless households not captured in statutory records.

4.8 Living Environment Deprivation Domain

4.8.1 The main points concerning rural areas that arose in the literature review and consultation regarding this domain related to energy efficiency and energy costs for the Indoors Living Environment sub-domain of the IoD. Several additional indicators for this domain were also recommended for consideration.

Energy efficiency and energy costs

- 4.8.2 The literature review identified that the energy efficiency of rural homes is reportedly lower than in urban areas, making rural properties more difficult and more expensive to heat. Houses in rural areas have also been identified as being harder to modernise, because they are typically older and larger compared to those in urban areas (Smith et al., 2010). Furthermore, for those rural homes that are not connected to a mains gas supply, it has been highlighted that this results in a greater reliance upon costly liquid gas, oil, and electric storage heaters, all of which are highly susceptible to market price fluctuations (Stewart and Bolton, 2024). In England, it is estimated that 56% of rural properties are off the gas grid compared to only 9% in urban areas (ACRE, 2023), and this rural figure rises to an estimated 76% in some sources (Nagle, 2023).
- 4.8.3 Separately, it has been suggested that limited local activities and poor transport provision in rural areas could result in residents spending more time within their homes, leading to increased fuel usage and thereby costs (Williams and Doyle, 2016). Coupled with the higher fuel prices it has been suggested that each of these issues could heighten vulnerability to fuel poverty which is increasingly being viewed as a rural challenge (Williams and Doyle, 2016; Fecht et al., 2017) (see also Section 4.2).
- 4.8.4 *IoD 2025 Response*: The IoD 2025 includes a new measure of housing quality at LSOA level based on Energy Performance Certificate (EPC) data. The average (mean) EPC score across all residential properties has been calculated for every LSOA in the country. As not every residential property has a valid EPC rating, a multi-stage imputation process was first adopted to generate an expected EPC score for every property without a valid certificate in the source data. This imputation process was based on a nearest neighbour approach, drawing upon properties of similar type in the proximate geographical location. For instance, an older period, stone built, detached rural property without a valid EPC rating would receive an expected EPC rating based on the observed EPC ratings of other older period, stone built, detached properties in the proximate area.
- 4.8.5 The IoD 2019 indicator on households lacking central heating has been removed from the IoD 2025 as this form of deprivation is now better measured via the new EPC-based indicator.
- 4.8.6 Other potential data sources were also explored as part of the IoD 2025 construction process, including data from the Department for Energy Security and Net Zero (DESNZ) on the domestic gas network. However, after extensive review, these other sources were rejected in favour of the new EPC-based data source.

Summary of changes to the Living Environment Deprivation Domain in the IoD 2025

- 4.8.7 The following changes were made to this domain for the IoD 2025:
- Indicator removed: the IoD 2019 indicator measuring lack of central heating has been dropped due to declining relevance nationally.
 - New indicator: housing quality based on EPC data, capturing energy efficiency (which is based on a wide set of input criteria reflecting the quality of housing).
 - New indicator: households lacking access to a private outdoor space.

- New indicator: noise pollution, reflecting environmental quality.
- Weighting: the method of combining indoor and outdoor sub-domains has been revised to reflect more up to date information on the time spent inside and outside the home.

Impact of the changes in the IoD 2025 on issues relating to rural deprivation

- 4.8.8 These revisions improve the sensitivity of the domain to rural housing quality and energy efficiency issues.

4.9 Additional key issues for consideration

Rural-specific analysis of the country-wide IoD

- 4.9.1 Some authors have asserted that there is greater heterogeneity in rural areas than is highlighted by original index analyses, and claim their findings have mirrored the experiences and knowledge on the ground (Fecht et al., 2017). By removing all areas classified as urban, and then rescaling IMD values for rural areas only, Defra (March 2023 Statistical Digest of Rural England – Communities and Households) identified multiple pockets of relative rural deprivation located amongst wider areas deemed to be relatively less deprived, particularly across central England. Similarly, within a Scottish context using the SIMD, McCartney and Hoggett (2023) chose to rank data zones *within* urban-rural classification strata. In doing this, they argued that they could better identify people who were (income) deprived in rural areas.
- 4.9.2 *IoD 2025 Response*: It is a legitimate use of the IoD to analyse a sub-set of areas (in this case the sub-set of rural LSOAs).

Dedicated IoD for rural areas

- 4.9.3 Fecht et al. (2017) contend that current approaches to deprivation measurement fail to ‘fully capture the fragmented and often very local nature of rural material deprivation’ (Fecht et al., 2017; p.424), and recommended that additional research should be undertaken to identify additional and/or alternative input variables. The authors argued that this would produce a more rural specific deprivation measure which might better reflect the experience and nature of deprivation in rural areas.
- 4.9.4 Burke and Jones (2019) developed their own index of rural deprivation and subsequently applied it within Norfolk to explore its validity and applicability. This entailed them ‘bundling’ existing IoD indicators deemed relevant in both rural and urban areas (in Norfolk) into one domain, and those they deemed relevant only to rural settings into a separate domain.
- 4.9.5 Other scholars who have attempted to develop specific sub-components of rural deprivation within their analyses include: Hodge et al. (2000) who identified six domains reflecting areas of policy; Haase and Pratschke (2012) who devised three rural specific dimensions based upon analyses of other deprivation indices and the literature; Thomson et al. (2014) who developed five domains based upon

governmental strategic outcomes; and Farmer et al. (2001) who identified five themes based on a literature review.

- 4.9.6 *IoD 2025 Response*: The construction of dedicated multi-dimensional measures of deprivation for rural areas is technically feasible and has already been achieved in a variety of ways (see above examples). However, the English Indices of Deprivation is predicated on the principle that all component indicators and methodologies must be relevant and measurable in all types of area across the whole of England. It would not be conceptually appropriate or technically feasible to include an indicator (or use a methodology) that was only relevant in urban areas or only relevant in rural areas. As such, the IoD 2025 does not include a rural-specific measure as part of the package outputs. Moreover, constructing and using a separate rural-specific index alongside the IoD 2025 would potentially confuse outputs and complicate funding practice. Current government guidance also emphasises applying rural proofing within national appraisal and allocation frameworks, rather than substituting bespoke metrics that fragment the evidence base¹⁸. Even proponents of rural-specific adaptations acknowledge that rural-only indices could alter resource allocation in untested ways and therefore warrant caution (Burke & Jones 2019; Fecht et al. 2018).

Migration dynamics

- 4.9.7 McAreavey and Brown indicate that some rural areas in the UK have been the 'destination of increasing numbers of migrants, both international and internal, many of whom exist in the margins of society, experiencing poverty and hardship' (2019; p.5). For example, they highlighted that international migrants are disproportionately represented in lower paid jobs which have little security, including those within agricultural, horticultural, and food processing industries, and they also live in lower quality housing. Rural areas have also been central to counter-urbanisation processes over the last century, with people moving to rural areas from towns and cities. This can lead to challenges such as older middle-class residents failing to fully integrate themselves into the local community (Bagley, 2023) and demographic changes, all of which has led to a more 'differentiated countryside'.
- 4.9.8 *IoD 2025 Response*: Migratory flows into and out of rural areas are an important topic of research but are not, in themselves, direct measures of deprivation, and so cannot be included as indicators within the IoD 2025. Instead, by using the most up-to-date time point for the indicators of the IoD 2025, it is intended that the indicators capture the latest possible 'snapshot' of deprivation in an area.

¹⁸ Department for Environment, Food & Rural Affairs (2017) '*Rural proofing: Practical guidance to assess impacts of policies on rural areas*'

Chapter 5. Challenges and critique regarding the methodological construction of the IoD

5.1 Overview

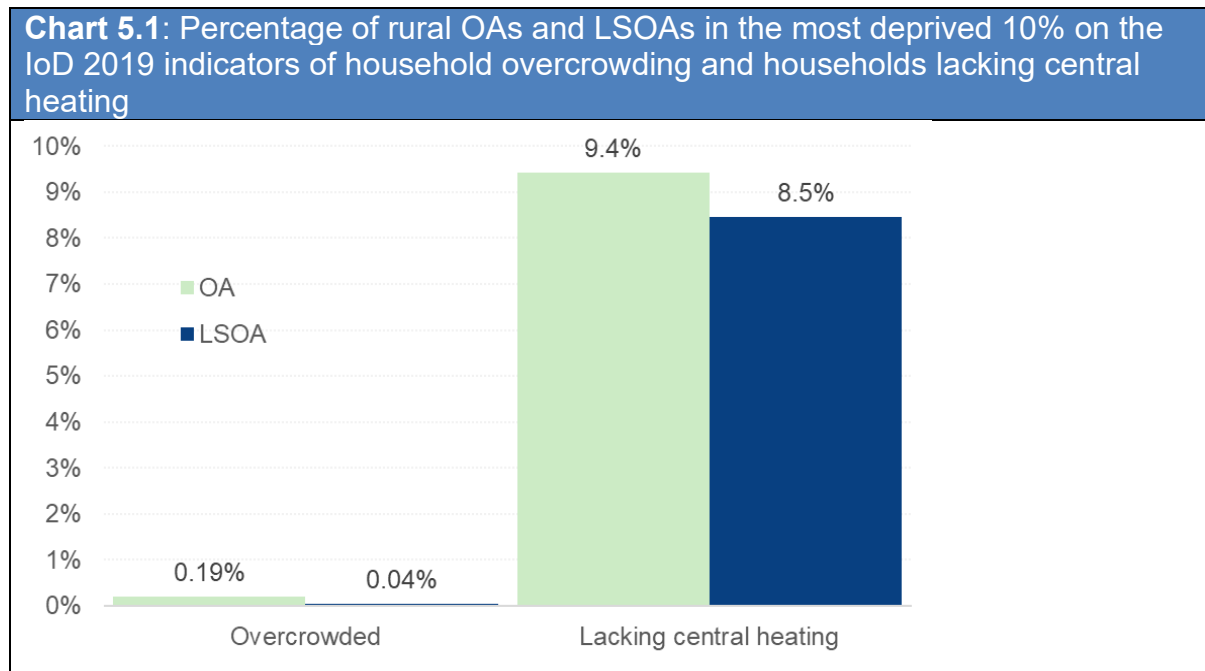
- 5.1.1 This chapter considers methodological issues relating to the construction of the IoD 2019 and, in particular, addresses points that have been raised about possible methodological limitations for certain types of area. The issues covered here relate to: population heterogeneity and dispersion and the related issue of spatial scale (granularity of the data); a statistical technique that is used for dealing with unreliability (shrinkage estimation); a statistical technique that is used for combining certain indicators (factor analysis); the combining of sub-domains into domains (in the case of three of the seven component domains); and the selection of domain weights for the construction of the overall IMD.

5.2 Population dispersion, socio-economic heterogeneity and spatial scale

- 5.2.1 Deprivation scores as measured in the IoD are constructed at LSOA level. In rural areas, these are typically *spatially* larger entities containing geographically dispersed populations and therefore typically have lower population densities than urban LSOAs. For example, a statistical bulletin released by the ONS indicated that on average in 2020, LSOAs in England classified as ‘countryside living’ have a population density of 63 people per square kilometre, compared to around 1,000 people per square km for ‘suburban living’ and ‘industrious communities’, to nearly 11,000 people per square kilometre in ‘inner city cosmopolitan’ LSOAs (ONS, 2021; p.3).
- 5.2.2 It is therefore possible that deprivation may also be more geographically dispersed *within* rural LSOAs than within urban LSOAs, and Clelland and Hill (2019) argued that the IMD approach may not fully capture deprivation which is not geographically concentrated. This is because, in more dispersed rural settings, deprivation scores at LSOA level may mask or conceal unique characteristics and substantial sub-LSOA variation which may exist across a more expansive geographical area. Consequently, very small pockets of deep deprivation in otherwise less-deprived rural areas may be overlooked as they are too small to be recognised by LSOA level statistical measures.
- 5.2.3 *IoD 2025 Response*: Previous iterations of the IoD were undertaken at ward level, with a large variation in population sizes. In order to ensure that areas were treated more consistently across the whole of England, a shift was made to using LSOAs which have a much more common and consistent population size. LSOAs are a standard statistical geography designed to facilitate small area analysis. They are produced by the ONS and revised with each Census. Using LSOAs means that, irrespective of the area classification, deprivation levels can be compared consistently across England. This serves the main aim of the Indices release.

- 5.2.4 The issue of geographical dispersion of deprivation discussed above is directly related to the issue of socio-economic heterogeneity, in other words the extent to which small geographical areas contain populations with a mix of deprivation levels. In the Scottish context, McCartney and Hoggett (2023) have written about the challenge of heterogeneous populations. They stated that this meant that a somewhat large proportion of income and employment deprived people living in rural, remote and island areas were ‘missed’ in area-based deprivation index analyses, because at area level these deprived minorities are hidden by the less-deprived majority. Although Leckie, Munro and Pragnall (2021) suggested that deprivation in rural areas does tend to be found within rural towns and villages, with support from other studies (McKendrick et al., 2011; Jones 2015), they also acknowledged that this may still only consist of a few isolated houses along a street or on the edge of a village, as opposed to being characteristic of the entire neighbourhood. Bertin et al. (2014; p.2) note that ‘rural populations are more heterogeneous than their urban counterparts, with some of the poorest people interspersed amongst very wealthy landowners, commuters, and professionals’.
- 5.2.5 Relatedly, Boswell et al. (2022) created the concept of ‘nested deprivation’, which they define as very small pockets of deprivation that might occur in just one housing estate or even one row of flats within neighbourhoods that are otherwise not particularly deprived. The authors highlighted that aggregate statistics and sweeping narratives concerning deprivation can overlook the ‘nested deprivation’ that often exists within areas across the UK, and specifically emphasised the challenges associated with living in a nested deprivation neighbourhood within a relatively affluent and geographically dispersed context. The authors highlighted that ‘inequality in contexts of nested deprivation is acute and immediate. For individuals living in nested deprivation, economic, social, and political inequality is in-your-face, not through the television set...People living in nested deprivation are not so much the ‘Left Behind’ as the ‘Never acknowledged’” (2022; p.170-171).
- 5.2.6 The IoD 2025 research team acknowledge that LSOA-based measures could potentially obscure local level differences between individual postcodes or Output Areas within LSOAs, leading to a lack of resource support for those people living in small pockets of deprivation nested within otherwise less-deprived LSOAs.
- 5.2.7 To explore the impact of spatial scale, two of the IoD 2019 indicators that were derived from the 2011 Census were constructed at both Output Area (OA) and LSOA level: Household overcrowding and Housing lacking central heating. As noted above, the IoD 2019 indicator on housing lacking central heating has been removed from the IoD 2025, as only a small proportion of households nationally now lack central heating, and this form of deprivation is now better measured as part of the new EPC-based indicator in the IoD 2025. Therefore, data on central heating are presented in Charts 5.1 and 5.2 simply as a means of illustrating the point regarding spatial scale.
- 5.2.8 The illustrative analyses here are restricted to two Census-based indicators from the IoD 2019, because none of the indicators based on administrative data were constructed at OA level for the IoD 2019. Furthermore, due to limitations to data availability and/or access, it has not been possible to obtain administrative data at OA level for the IoD 2025. Therefore, the issue of spatial scale, comparing OA and LSOA level results, can only be examined using the Census-based deprivation indicators, as shown in Charts 5.1 and 5.2.

5.2.9 Chart 5.1 shows the proportion of rural LSOAs and OAs ranking in the 10% most deprived on the household overcrowding and household central heating measures (as a proportion of all rural areas).

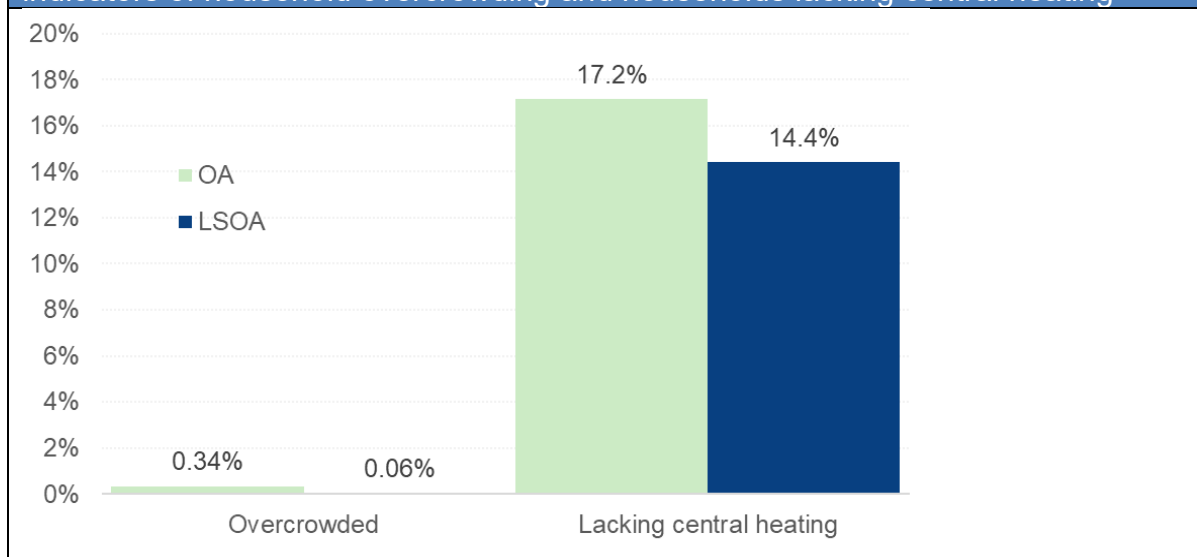


5.2.10 As can be seen in Chart 5.1, a slightly higher proportion of rural areas are identified as being within the most deprived decile at OA level than at LSOA level:

- 9.4% of rural OAs ranked in the most deprived 10% of OAs nationally on the households lacking central heating measure, compared with 8.5% of rural LSOAs.
- 0.19% of rural OAs ranked in the most deprived 10% of OAs nationally on the overcrowded households measure, compared with 0.04% of rural LSOAs.

5.2.11 Chart 5.2, below, then shows the proportion of OAs and LSOAs ranked in the 10% most deprived on the household overcrowding and household central heating measures that are classified as rural (as a proportion of all areas ranked in the 10% most deprived).

Chart 5.2: Percentage of deprived OAs and LSOAs in rural areas on the IoD 2019 indicators of household overcrowding and households lacking central heating



5.2.12 Chart 5.2 also shows that a slightly higher proportion of rural areas are identified as being amongst the most deprived decile at OA level than at LSOA level:

- 17.2% of OAs ranked in the most deprived 10% on the households lacking central heating measure are rural, compared with 14.4% of LSOAs.
- 0.34% of OAs ranked in the most deprived 10% on the overcrowded households measure are rural, compared with 0.06% of LSOAs.

5.2.13 Burke and Jones (2019) considered the use of OAs and LSOAs for undertaking deprivation analyses, and concluded that, perhaps surprisingly, when compared with smaller, more granular OA level geography, it remained unclear which geographical level was more effective at capturing rural disadvantage. One potential explanation advanced was that pockets of rural deprivation may exist on a considerably smaller scale than even the OA level can capture (Jones, 2015).

5.2.14 Another issue relating to spatial scale that was identified in the literature as potentially causing difficulties in interpreting IMD results, and therefore in obtaining a more comprehensive understanding of deprivation in rural settings, arose when contending with small numbers of areas being included within some sub-categories of the rural urban classification. For example, in their development of their own rural deprivation index, Burke and Jones (2019) argued that due to smaller frequencies, there was a need to combine some of the classes reflecting sparsity with other rural classes, in order to meet eligibility criteria for conducting statistical analyses. Again, this could serve to hinder the aim of obtaining a comprehensive understanding of rural deprivation.

5.2.15 *IoD 2025 Response:* When comparing levels of deprivation at an area level it is an unavoidable fact that a homogeneous area with high levels of deprivation will have a higher deprivation score than a heterogeneous area containing a mix of high and low levels of deprivation (whether urban or rural). This does not mean that deprivation should be disregarded in heterogeneous areas; rather, it emphasises a

key strength of the IoD, in that it provides a continuous ranking of areas from least deprived to most deprived, with all areas containing deprivation to some degree.

- 5.2.16 As part of the development of the IoD 2025, the feasibility of constructing a sub-LSOA level IoD was explored and examined in the review of methodology. However, a sub-LSOA-level IoD is not possible currently due to data limitations, statistical disclosure and statistical reliability concerns. The LSOA level continues to provide the most optimal balance of data availability and reliability for the IoD 2025.
- 5.2.17 However, there has been an enhancement to the suite of higher level summaries that have been made available as part of the Indices release. Where previously, higher level data was only available for large geographies such as LAD or Local Enterprise Partnerships, data for the IoD 2025 has now also been released for the Built Up Area (BUA) geography. BUAs are constructed based on the geographically contiguous built environment to recognise villages, hamlets, towns and cities based on their physical environment (i.e. the towns and villages that people live in) rather than arbitrary administrative boundaries. This allows IoD data to be investigated based on actual settlements where most people live and identifies a large number of rural towns with high levels of deprivation, which would not be captured using LAD data. However, the huge variation in population size between different BUAs (ranging from Birmingham BUA through to small village BUAs), means that the BUA geography is not suitable for comparing all BUAs within the Indices release. It is recommended that the BUA level data published as part of the IoD 2025 package of outputs should therefore only be used for comparing BUAs of roughly similar population size. More guidance on this is available in the related data file.

5.3 Shrinkage estimation

- 5.3.1 The IoD methodology uses the shrinkage estimation technique to deal with statistical unreliability in LSOA scores, with LSOA level indicator scores 'borrowing strength' from a higher-level geography, which is deemed to be statistically more reliable than the small area LSOA score. For the IoD 2019 and earlier, the LSOA indicator scores have borrowed strength from the parent LAD average for the respective indicator. Fecht et al. (2017) raised a concern that the technique may distort the results for rural areas, particularly those which are located in largely urban LADs. The review of the methods undertaken as part of the IoD 2025 development process considered this criticism but concluded that the effects of shrinkage in heterogeneous local authorities will be quite limited in situations where the standard error for the estimate is large (i.e. outlier LSOA values are arguably more plausible in heterogeneous local authorities). It is also possible that this atypical high or low small area value is simply due to random error, and therefore the 'pulling up' or 'pulling down' the LSOA score towards the LAD level is appropriate. Nevertheless, the key recommendation for change that emerged from the IoD 2025 methods review was that the shrinkage technique be modified such that it does not simply take into account the entire LAD average, but rather the average of 'similar' LSOAs within the LAD (i.e. those LSOAs that are of same area type classification).

- 5.3.2 *IoD 2025 Response:* The shrinkage estimation technique used in the IoD 2025 has been modified, with shrinkage now of similar LSOA type within an LAD. This will mean that, for instance, rural LSOAs will only borrow strength from other similar LSOAs during the shrinkage adjustment, rather than all LSOAs within the parent LAD. For further details see the IoD 2025 Technical Report.

5.4 Factor analysis

- 5.4.1 Maximum Likelihood factor analysis is a statistical technique that can be used to combine indicators that are measuring the same underlying (latent) construct, but which are produced on different measurement scales or using different metrics. For example, although it is possible to calculate the percentage of a population that is income deprived in the Income Deprivation Domain, this is not possible in the Health Deprivation and Disability Domain. Fecht et al. (2017) raised the concern that factor analysis may distort the results for rural areas, particularly those which are located close to urban centres.
- 5.4.2 *IoD 2025 Response:* This issue was examined as part of the review of the IoD 2025 methodology. The team noted that although using a different type of factor analysis (Generalised Factor Analysis) might be an alternative approach, it would require a major change to the Indices methodology, for possibly only marginal improvement in estimation, and so the authors of the statistical review recommended that the IoD 2025 continues to use Maximum Likelihood factor analysis.

5.5 Sub-domains

- 5.5.1 Three of the domains are comprised of sub-domains: (i) the Education, Skills and Training Deprivation Domain; (ii) the Barriers to Housing and Services Domain; and (iii) the Living Environment Deprivation Domain. For each domain separately, the respective sub-domains are assigned weights in order to combine them into a domain score. The table below shows the weights that are used for the sub-domains in the IoD 2019 and IoD 2025.
- 5.5.2 For the Education, Skills and Training Deprivation Domain and the Barriers to Housing and Services Domain, the respective sub-domain weights are unchanged. However, the weights for the sub-domains in the Living Environment Domain have been slightly modified. At the time of the IoD 2019, the sub-domain weights for the Living Environment Domain had been determined based on people's reported time spent indoors versus outdoors, as measured by the 2000 Time Use Survey. For the purpose of the IoD 2025, ONS updated the ratio using the 2014/15 Time Use Survey, and so the weights have been slightly adjusted to reflect an increased amount of time spent indoors. As noted in the IoD 2025 Technical Report, the 2014/15 Time Use Survey is the latest available that permits the necessary breakdown between 'indoors' activities and 'outdoors' activities.

Table 5.1. Sub-domain weights per domain		
Sub-Domain	IoD 2019 weight (%)	IoD 2025 weight (%)
Education, Skills and Training Domain		
- Children and Young People sub-domain	50	50
- Adult Skills sub-domain	50	50
Barriers to Housing and Services Domain		
- Geographical Barriers sub-domain	50	50
- Wider Barriers sub-domain	50	50
Living Environment Domain		
- Indoors sub-domain	66.7	70
- Outdoors sub-domain	33.3	30

- 5.5.3 A concern was raised in the literature that although rural LSOAs may have high levels of deprivation in the Indoors living environment sub-domain, the process of combining this sub-domain with the Outdoors living environment sub-domain might serve to downplay the challenge of rural housing quality (Roberts and Henwood, 2019; Roberts, 2020).
- 5.5.4 A similar concern was raised in relation to the combination of sub-domains for the Barriers to Housing and Services Domain. Although the literature suggests that rural areas are more likely to be deprived on factors related to the Geographical Barriers sub-domain compared to urban areas (Burke and Jones, 2019), this may be downplayed by combining it with the Wider Barriers sub-domain (Leckie, Munro, and Pragnell, 2021).
- 5.5.5 *IoD 2025 Response:* The method of combining the sub-domains to form domains is the same as for combining the domains to form the overall IMD. Specifically, the sub-domain LSOA scores are standardised by ranking, then transformed to an exponential distribution, and finally combined with explicitly stated sub-domain weights. This means that LSOAs that are ranked as highly deprived in either of the respective sub-domains of a given domain will feature prominently in the overall domain ranking. This technique is used in order to limit the extent to which deprivation on one sub-domain is cancelled out by a lack of deprivation on the other sub-domain.
- 5.5.6 Importantly, in relation to the Living Environment Deprivation Domain, the sub-domain weights are based on empirical evidence (derived by ONS) on the average proportion of time spent 'indoors' versus 'outdoors' (using the ONS Time Use Survey). For the Barriers Domain, the sub-domains are weighted equally, in the absence of any external empirical evidence to determine that alternative weights should be used.

5.6 Domain weights

- 5.6.1 The seven domains are combined to form the overall composite IMD using a set of domain weights. The greater the weight of a particular domain, the more it is taken

into account in the overall IMD. The table below shows the domain weights that were used in the IoD 2019 and IoD 2025.

Table 5.2. Domain weights	
Domain	Domain weights (%)
Income Deprivation	22.5
Employment Deprivation	22.5
Education, Skills and Training Deprivation	13.5
Health Deprivation and Disability	13.5
Crime	9.3
Barriers to Housing and Services	9.3
Living Environment Deprivation	9.3

- 5.6.2 As part of the Indices consultation, a concern was raised of perceived urban focus of the IMD due to the higher weighting assigned to the Income Deprivation Domain and Employment Deprivation Domain, which in combination make up 45% of the total weight.
- 5.6.3 *IoD 2025 Response:* This issue was examined as part of the review of the IoD 2025 statistical methodology, but no strong evidence was found for altering the domain weights. This is in line with previous statistical reviews¹⁹.

¹⁹ Dibben, C., Atherton, I., Cox, M., Watson, V., Ryan, M. and Sutton, M. (2007) *Investigating the impact of changing the weights that underpin the Index of Multiple Deprivation 2004*. London: Department for Communities and Local Government.

Chapter 6. Profile of multiple deprivation in rural areas using the IoD 2025

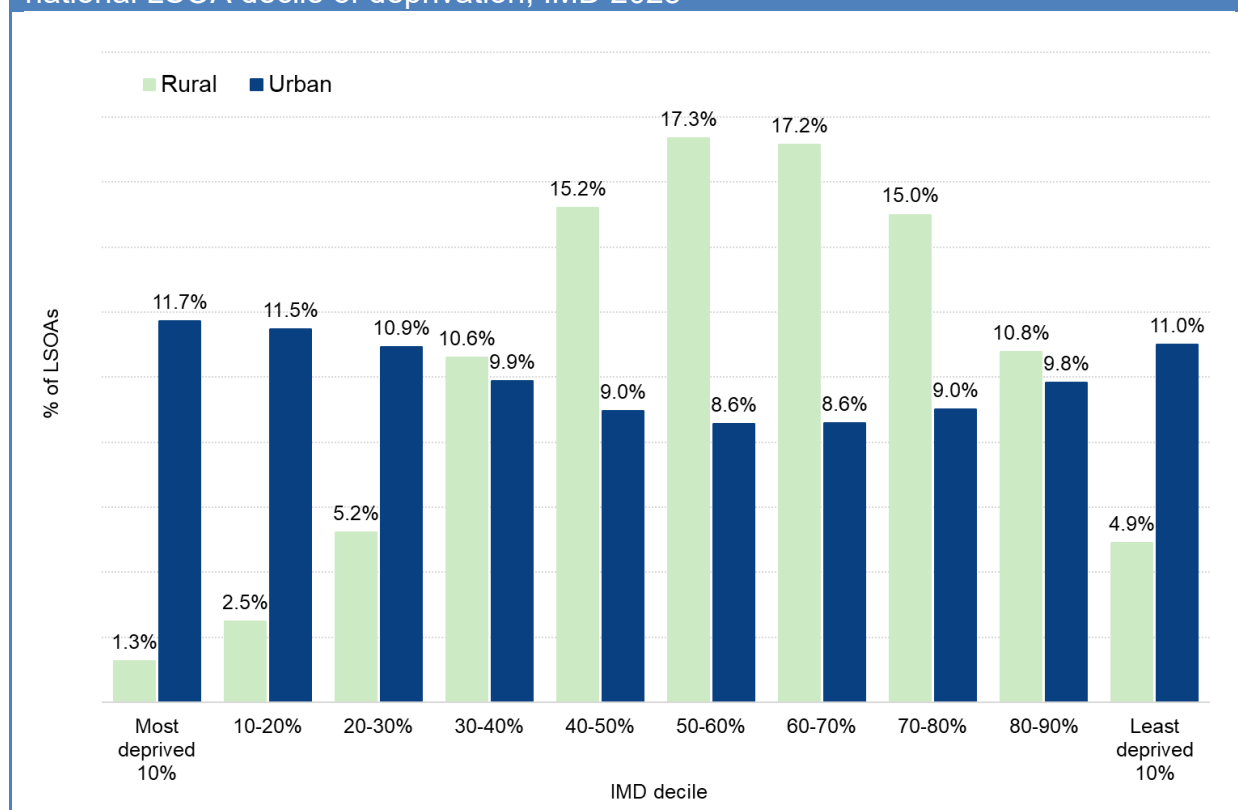
6.1 Overview

- 6.1.1 In this section, a profile of deprivation is presented using the IoD 2025. The official Rural Urban Classification 2021 (RUC 2021) at LSOA level is used to distinguish between rural and urban areas for this analysis.
- 6.1.2 Based on the RUC 2021, a total of 5,554 LSOAs across England were defined as rural, equating to 16.5% of all LSOAs.

6.2 Profile of deprivation in rural areas using the IMD 2025

- 6.2.1 Chart 6.1, below, shows the proportion of total rural LSOAs (and, for comparison, the total of all urban LSOAs) that rank within each national LSOA decile of deprivation on the IMD 2025. In this chart, the green bars relate to the rural LSOAs, and the blue bars relate to the urban LSOAs.

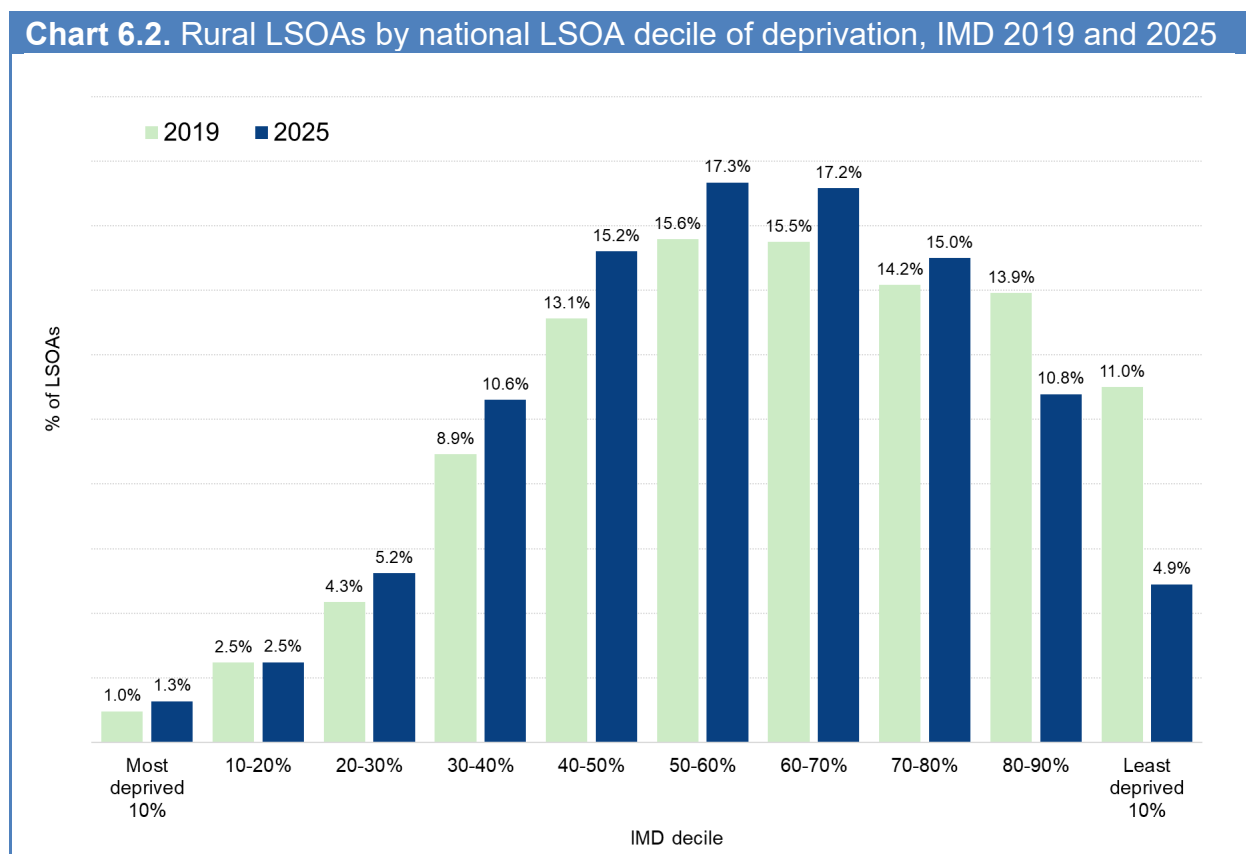
Chart 6.1. Proportion of total rural LSOAs (and proportion of total urban LSOAs) by national LSOA decile of deprivation, IMD 2025



- 6.2.2 In total, just 71 of the 5,554 rural LSOAs are ranked in the 10% most deprived LSOAs nationally on the IMD 2025, equating to 1.3% of all rural LSOAs. In contrast, 11.7% of urban LSOAs ranked within the most deprived 10% of LSOAs nationally.
- 6.2.3 An additional 2.5% of rural LSOAs are ranked in the most deprived 10-20% of LSOAs nationally, with a further 5.2% of rural LSOAs ranked in the most deprived 20-30% of LSOAs nationally. In total, therefore, the underlying data show that only 500 rural LSOAs are ranked among the most deprived 30% of LSOAs in England, reflecting 9.0% of all rural LSOAs, compared with 34.1% of urban LSOAs.
- 6.2.4 By contrast, more than 65% of rural LSOAs rank among the least deprived half of LSOAs in England.

Change between the IMD 2019 and IMD 2025 for rural LSOAs

- 6.2.5 Chart 6.2 focuses solely on rural LSOAs, and shows how these rural LSOAs were distributed across the national LSOA decile distribution according to the IMD 2019 and IMD 2025. In this chart, the green bars show the distribution of rural LSOAs across the national deciles of the IMD 2019, while the blue bars show the distribution of rural LSOAs across the national deciles of the IMD 2025.



- 6.2.6 The distribution of rural LSOAs across the national deciles of deprivation remained fairly consistent between 2019 and 2025. However, over the distribution as a whole, rural areas tended to rank as somewhat more deprived on the IMD 2025 compared with the IMD 2019. One notable difference was that there was a fall in

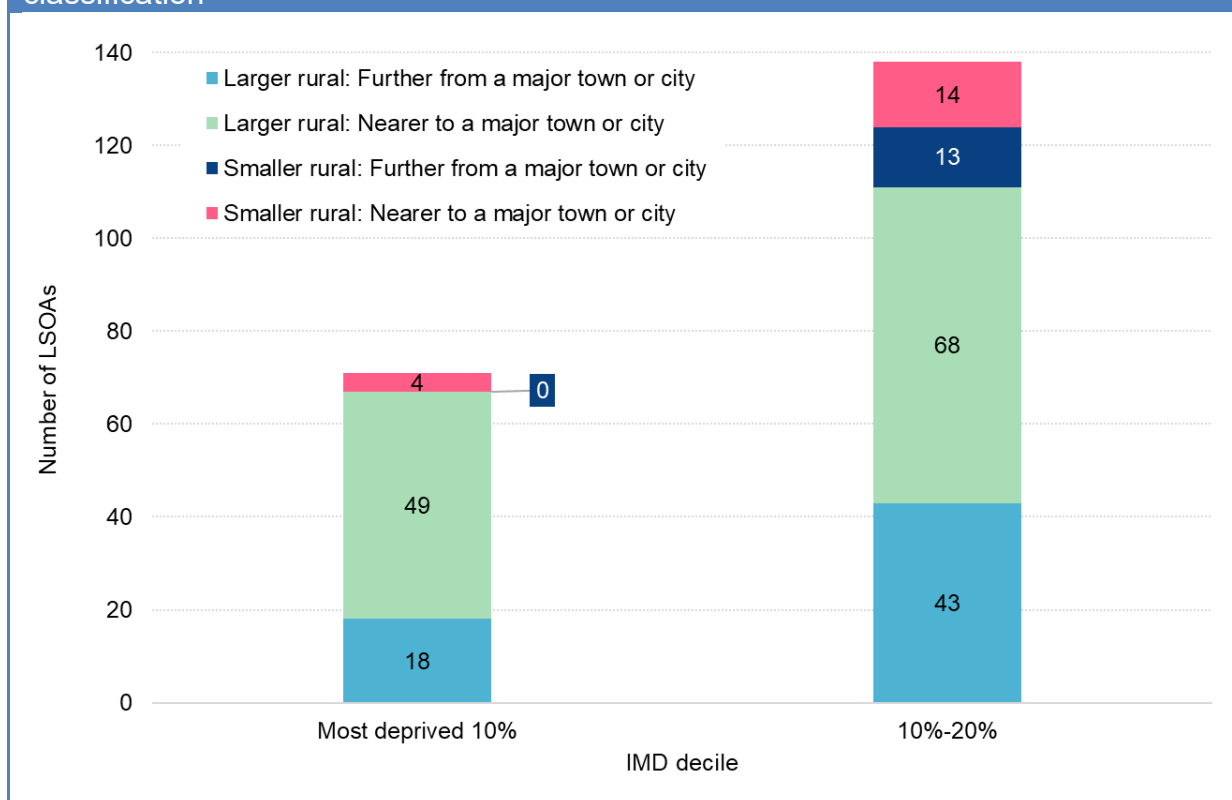
the proportion of rural areas ranked in the least deprived decile on the IMD 2025: 4.9% of rural LSOAs ranked in the least deprived national decile on the IMD 2025, compared with 11% on the IMD 2019.

- 6.2.7 Moreover, a higher proportion of rural LSOAs ranked among each of the deciles from 1 (i.e. most deprived) through to 8, when comparing the IMD 2025 with the IMD 2019. Within this, the proportion of rural LSOAs ranked among the 30% most deprived areas (i.e. deciles 1 through to 3) increased from 7.8% in the IMD 2019 to 9% in the IMD 2025.
- 6.2.8 Overall, therefore, rural LSOAs as a whole can be seen to rank somewhat higher (i.e. more deprived) on the IMD 2025 than was the case on the IMD 2019. However, as noted earlier in this report, and in the accompanying IoD 2025 Technical and Research Reports, these changes in deprivation rankings between the two indices may be due to a combination of 'real change' in deprivation levels and 'measurement change' due to enhancements to indicators and constituent data and methodologies.

Spatial distribution of rural deprivation using the IMD 2025

- 6.2.9 Chart 6.3, below, shows the breakdown of the rural areas by RUC 2021 classification, with a focus on those rural LSOAs that ranked within the most deprived 20% of LSOAs nationally on the IMD 2025. The RUC 2021 classified LSOAs as 'Larger rural' or 'Smaller rural' based on settlement size and sparsity, as well as their distance from major towns or cities.

Chart 6.3. Rural LSOAs in the most deprived 20% of LSOAs nationally by RUC 2021 classification



6.2.10 As shown in Chart 6.3, the majority of the most deprived rural areas were in the ‘*Larger rural: Nearer to a major town or city*’ classification group. Only four LSOAs in the most deprived 10% were found in ‘*Smaller rural: Nearer to a major town or city*’ and none were ‘*Smaller rural: Further from a major town or city*’.

6.2.11 The table below lists the twenty most deprived rural LSOAs on the IMD 2025.

LSOA	MSOA name (for geographical context)	Local Authority District	IMD 2025 Rank
E01020752	Easington & Hawthorn	County Durham	41
E01020807	Spennymoor East & Ferryhill West	County Durham	121
E01020739	Blackhall	County Durham	147
E01011792	Kinsley & Fitzwilliam	Wakefield	186
E01020841	Shildon	County Durham	350
E01020873	Coundon North	County Durham	561
E01020902	Coundon North	County Durham	571
E01026112	Wainfleet All Saints	East Lindsey	577
E01026048	Ingoldmells & Chapel St Leonards	East Lindsey	586
E01020901	Coundon North	County Durham	600
E01007511	Bentley & Toll Bar	Doncaster	637
E01013084	Withernsea East & Patrington	East Riding of Yorkshire	740
E01019097	Flimby, Ellenborough & Broughton Moor	Cumberland	790
E01007492	Askern, Campsall & Norton	Doncaster	793
E01034506	Chilton	County Durham	823
E01024580	Sheppey East	Swale	896
E01022045	Jaywick & St Osyth	Tendring	924
E01027542	Newbiggin	Northumberland	926
E01012099	Brotton	Redcar and Cleveland	983
E01028001	Carlton & Langold	Bassetlaw	990

6.2.12 The rural LSOA ‘E01020752’ in the coastal area of Easington & Hawthorn in County Durham is the most deprived rural LSOA in England on the IMD 2025. Coastal areas are heavily represented among the 20 most deprived rural LSOAs, with 10 of the 20 most deprived rural LSOAs located in coastal communities²⁰. Former mining areas also feature heavily, with 14 of the 20 most deprived rural LSOAs located in former mining areas or ports associated with mining activities, including eight in County Durham. Indeed, 23 rural LSOAs in County Durham are ranked among the most deprived 10% nationally in England, notably higher than across other LADs (as shown in Table 6.2, below).

²⁰ Note that there is no single agreed definition of what constitutes ‘coastal areas’, so for the purpose of interpreting Table 6.1, the Indices research team used subjective researcher judgement as to which LSOAs might reasonably be regarded as coastal communities. This subjective judgement is only applied to the interpretation accompanying Table 6.1 in this report: no subjective judgement affected any of the IoD 2025 empirical work.

6.2.13 LSOA 'E01021988' in 'Jaywick & St Osyth' within the Tendring LAD is ranked as the most deprived LSOA in the whole of England on the IMD 2025, as it also was on the IMD 2019. However, while this LSOA was classified as a 'rural' LSOA under the RUC 2011 that was used to analyse the IMD 2019 (see Chapter 3 of this report), this LSOA is now classified as an 'urban' LSOA under the new RUC 2021, which is used to analyse the IMD 2025 here in Chapter 6. Therefore, this LSOA is not present within Table 6.1. This illustrates the importance of reviewing the deprivation rankings in the context of the Rural Urban Classification of the time, as changes to the classification system will affect the distribution of deprivation results between the rural and urban categories.

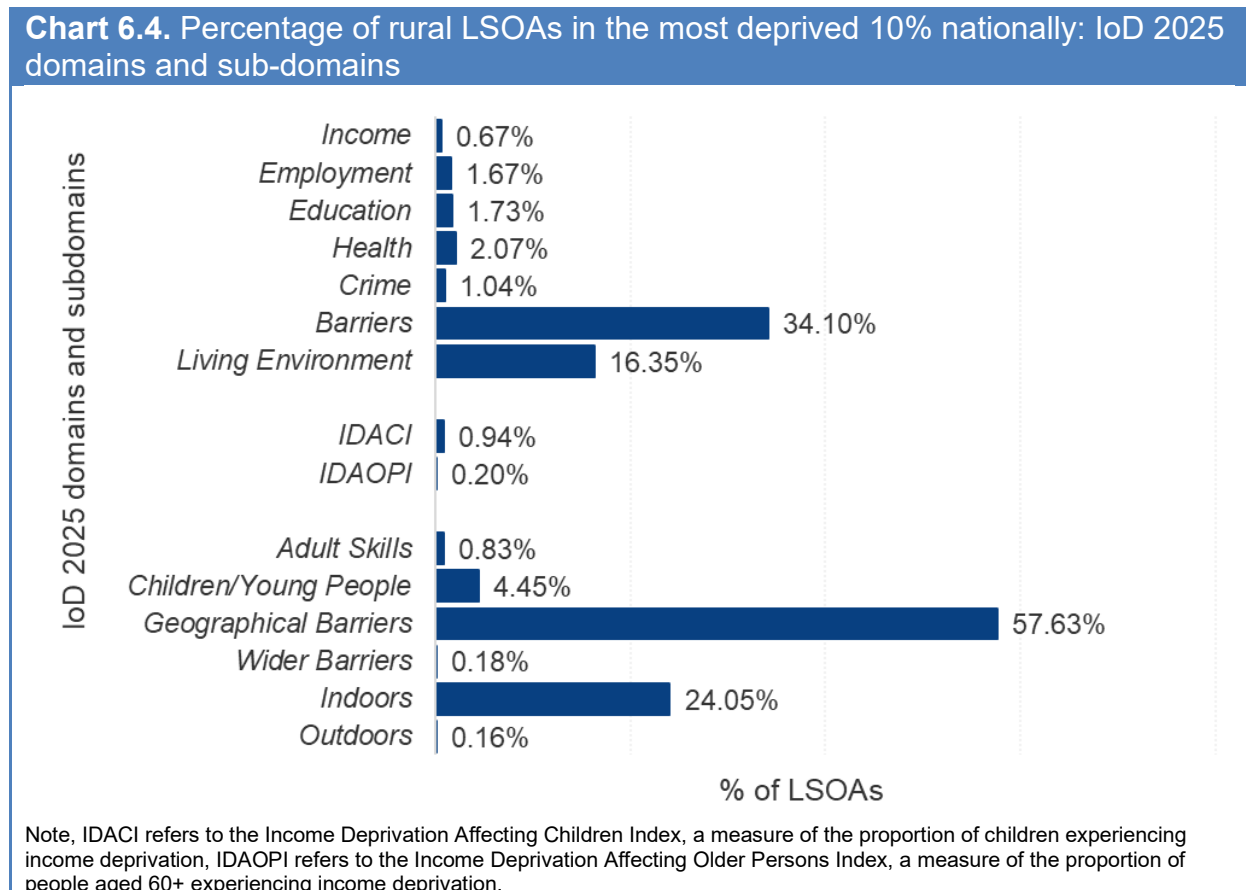
Table 6.2. IMD 2025: Local Authority Districts with rural LSOAs ranked among the 10% most deprived in England

Local Authority	Region	Number of LSOAs in most deprived national decile
County Durham	North East	23
Wakefield	Yorkshire and The Humber	6
Doncaster	Yorkshire and The Humber	5
Redcar and Cleveland	North East	5
Cumberland	North West	4
Northumberland	North East	4
East Riding of Yorkshire	Yorkshire and The Humber	3
East Lindsey	East Midlands	2
Cornwall	South West	2
Barnsley	Yorkshire and The Humber	2
Rother	South East	1
Rotherham	Yorkshire and The Humber	1
Folkestone and Hythe	South East	1
Cheshire West and Chester	North West	1
Mansfield	East Midlands	1
Chesterfield	East Midlands	1
Wigan	North West	1
Hyndburn	North West	1
Isle of Wight	South East	1
Gateshead	North East	1
Swale	South East	1
Dorset	South West	1
South Holland	East Midlands	1
Bassetlaw	East Midlands	1
Tendring	East of England	1

6.2.14 The highly deprived rural areas listed in Table 6.2 are mainly located in the North East and Yorkshire and The Humber regions. Seven of the nine regions contain at least one rural LSOA ranked among the most deprived 10% (the exceptions being the West Midlands and London).

6.3 Profile of deprivation by domain and sub-domain using the IoD 2025

6.3.1 Chart 6.4 shows the proportion of rural LSOAs ranking in the 10% most deprived nationally on each domain and sub-domain of the IoD 2025 (as a proportion of all rural areas).

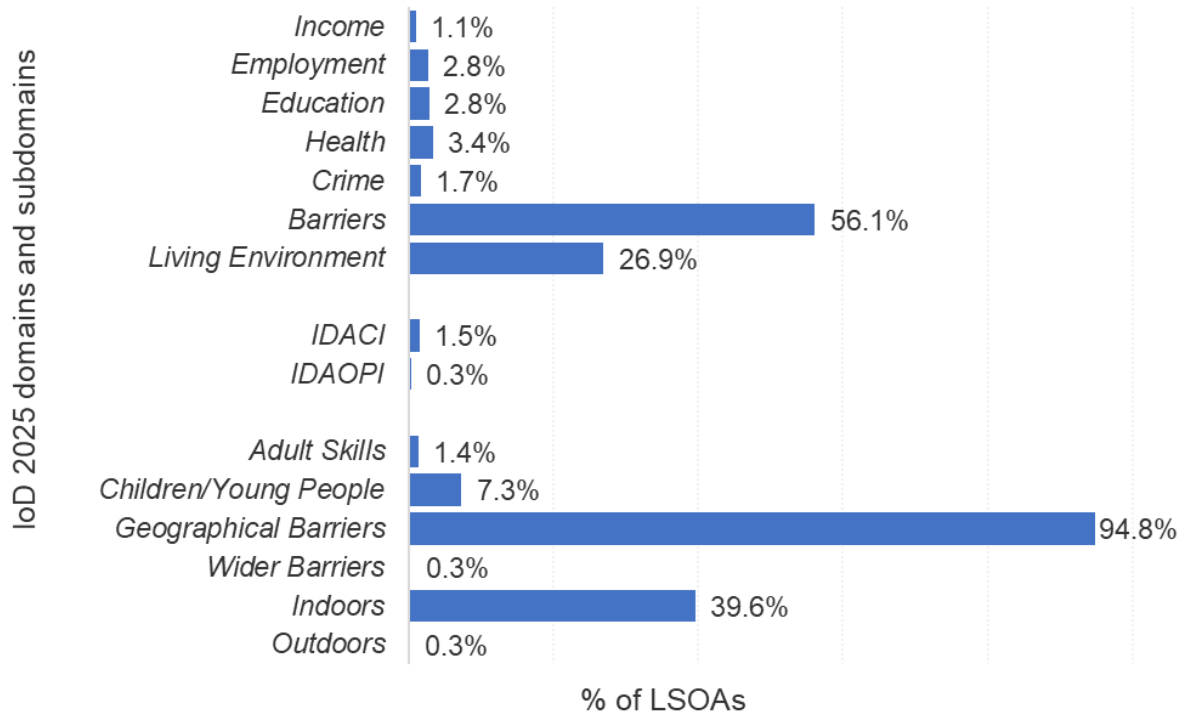


6.3.2 Rural areas show notably higher levels of deprivation on the Geographical Barriers sub-domain (which measures travel time to key services by walking, cycling and public transport), with more than 50% of rural LSOAs ranked among the most deprived 10% in England on this measure.

6.3.3 Rural areas are also disproportionately represented among the LSOAs ranked in the 10% most deprived on the Indoors Living Environment sub-domain, which captures housing in poor condition, low home energy efficiency, and lack of private outdoor space: 24% of rural LSOAs are ranked in the 10% most deprived on this sub-domain.

6.3.4 Relatedly, Chart 6.5 shows the proportion of LSOAs ranked in the 10% most deprived nationally that are classified as rural (as a proportion of all areas ranked in the 10% most deprived).

Chart 6.5 Percentage of 10% most deprived LSOAs nationally that are rural areas: IoD 2025 domains and sub-domains



Note, IDACI refers to the Income Deprivation Affecting Children Index, a measure of the proportion of children experiencing income deprivation, IDAOPI refers to the Income Deprivation Affecting Older Persons Index, a measure of the proportion of people aged 60+ experiencing income deprivation.

6.3.5 Rural areas again present prominently on the Geographical Barriers sub-domain, with approximately 95% of all LSOAs nationally that are ranked in the 10% most deprived being classed as rural.

6.3.6 This is also again evident on the Indoors Living Environment sub-domain with rural LSOAs comprising approximately 40% of all LSOAs ranked in the 10% most deprived nationally.

6.3.7 It can be seen that rural areas are considerably less likely to be ranked as highly deprived on the other measures.

6.4 Profile of deprivation in rural areas at indicator level using the IoD 2025

6.4.1 Analyses of individual deprivation indicators reveals an even more nuanced picture. Table 6.3, below, compares levels of deprivation between rural and urban LSOAs on selected indicators, capturing the proportion of people or households experiencing these forms of deprivation in the IoD 2025.

Table 6.3. Levels of deprivation summarised for rural and urban LSOAs on selected underlying indicators in the Indices of Deprivation 2025		
Indicator	Rural	Urban
Income		
People experiencing income deprivation	14.1%	25.0%
Children experiencing income deprivation (IDACI)	23.4%	38.9%
Older people experiencing income deprivation (IDAOPI)	10.0%	18.8%
Employment		
Working age adults experiencing employment deprivation	9.2%	14.1%
Education		
Working-age adults with no or low qualifications or who cannot speak English or cannot speak English well	19.3%	24.9%
Wider barriers		
Household overcrowding (rooms)	2.4%	7.3%
Household overcrowding (bedrooms)	1.4%	5.0%
Households unable to afford to enter owner-occupation	47.1%	62.1%
Households unable to afford to enter the private rental market	20.0%	41.3%
Indoors living environment		
Housing in poor condition	27.8%	14.2%

- 6.4.2 Table 6.3 shows that, on average, rural areas recorded higher levels of deprivation than urban areas on the ‘housing in poor condition’ indicator, with 27.8% of households in rural LSOAs living in housing in poor condition, compared with 14.2% of households in urban LSOAs.
- 6.4.3 In contrast, there are greater levels of deprivation in urban LSOAs than rural LSOAs, on each of the measures relating to income, employment and barriers to housing.
- 6.4.4 As already illustrated in Chapter 3 using the IoD 2019, and as is again evident based on the results of the IoD 2025, although a relatively small proportion of rural *areas* are identified as highly deprived, a considerable number of rural *people* are recognised as deprived on the indicators underpinning the respective Indices. This is explored further in Table 6.4, below.
- 6.4.5 Table 6.4 shows the number of people or households living in rural areas that are deprived on the Income and Employment Deprivation Domains, the IDACI and IDAOPI, and other selected indicators.

Table 6.4. Rural ‘share’ of national deprivation counts (i.e. the proportion of the indicator numerator count that is located in rural LSOAs)		
Domain	Rural ‘count’ of deprived population / households	Rural ‘share’ of national deprived population / households
Income	1,336,300	10.1%
Employment	511,100	10.7%
Income Deprivation Affecting Children Index	363,600	9.4%
Income Deprivation Affecting Older People Index	320,100	13.6%
Working-age adults with no or low qualifications or who cannot speak English or cannot speak English well	948,900	12.8%
Household overcrowding (rooms)	96,800	6.4%
Household overcrowding (bedrooms)	55,600	5.4%
Households unable to afford to enter owner-occupation	934,100	9.5%
Households unable to afford to enter the private rental market	396,000	6.3%
Housing in poor condition	1,222,100	28.8%

- 6.4.6 While Chart 6.4 showed that only 0.7% of rural areas are ranked among the 10% most deprived LSOAs in England on the Income Deprivation Domain (and Chart 6.5 showed that these constituted just 1.1% of the most deprived decile of LSOAs on that domain), Table 6.4 shows that a considerable *number* of people living in rural LSOAs experience income deprivation, with more than 1,336,000 rural residents identified as income deprived on the IoD 2025 Income Deprivation Domain (which equates to 10.1% of the total number of income deprived people across the country).
- 6.4.7 A similar pattern can be seen for the other domains:
- Just 3.3% of LSOAs in the most deprived decile of the Employment Deprivation Domain are in rural areas; however, 10.1% of people experiencing employment deprivation live in rural areas (511,100 people).
 - Just 1.5% of LSOAs in the most deprived decile on the IDACI are in rural areas; however, 9.4% of children experiencing income deprivation live in rural areas (363,600 children).
 - Just 0.3% of LSOAs in the most deprived decile on the IDAOPI are in rural areas; however, 13.6% of older people experiencing income deprivation live in rural areas (320,100 older people).
- 6.4.8 This analysis demonstrates that many deprived people live in less deprived areas. Therefore, focusing *only* on the most deprived decile of the LSOA distribution can risk overlooking a notable number of people experiencing deprivation. This is particularly the case in socio-economically heterogeneous neighbourhoods, as can be found in some rural areas, where deprivation is more dispersed across the LSOA. A key strength of the IoD 2025 is that it quantifies the level of deprivation across all LSOAs in the country, so the entire distribution of deprivation scores can support evidence-informed policy decisions.

6.5 Profile of deprivation for rural Built Up Areas

- 6.5.1 Analysis of the IoD 2025 for rural Built Up Areas (BUAs) provides an additional perspective on the geography of deprivation across England. BUAs are defined by the Office for National Statistics (ONS) and encompass a diverse range of settlements, from large cities and towns to smaller market towns and villages. For the analysis of rural deprivation, BUAs offer a useful additional lens.
- 6.5.2 As the set of BUAs produced by ONS does not contain an official coding to differentiate between rural and urban BUAs, the Indices research team imposed a rural-urban distinction for the specific purpose of this report. If a BUA is composed wholly of rural LSOAs (based on the LSOA 2021 RUC), then the BUA is regarded as rural for this report. However, if any of the component LSOAs in the BUA is classified as urban, then the BUA is regarded as urban for this report.
- 6.5.3 It is also important to note that in order to summarise the IMD 2025 results for rural BUAs, it was necessary to draw upon an ONS lookup-table that linked the BUAs with the 2021 LSOAs. This enabled the Indices research team to aggregate the IMD 2025 data from LSOA level to BUA level. The LSOA populations were similarly aggregated to BUA level for this analysis.
- 6.5.4 Caution should always be applied when comparing deprivation levels between BUAs, as there is considerable variation in their population size and composition. For instance, the populations of the largest urban BUAs range to over 1 million people (e.g. Birmingham BUA), whilst at the other end of the spectrum, small rural BUAs may only have around 1,000 population. The population sizes of the BUAs classed as rural for the purpose of this report typically range from around 1,000 to around 10,000 people.
- 6.5.5 Table 6.5 shows the rural BUAs with the highest levels of deprivation according to the computed 'average rank' higher level summary measure.

Table 6.5: The most deprived rural BUAs on the Average Rank summary measure of the Index of Multiple Deprivation 2025

	BUA name	BUA population size (mid-2022)	LAD name
1	Toll Bar	1,474	Doncaster
2	Leysdown-on-Sea	2,047	Swale
3	Lynemouth	1,664	Northumberland
4	Coundon and Leeholme	3,028	County Durham
5	Carlin How	1,407	Redcar and Cleveland
6	Barrow Hill	1,406	Chesterfield
7	Higher Folds	4,233	Wigan
8	Lingdale	1,910	Redcar and Cleveland
9	Grimethorpe	6,163	Barnsley
10	Trimdon Colliery	1,509	County Durham
11	Frizington	1,124	Cumberland
12	Chapel St Leonards	3,199	East Lindsey
13	Cornforth	2,457	County Durham
14	Point Clear	1,735	Tendring
15	Warden	1,405	Swale
16	Ferryhill	8,338	County Durham
17	Wainfleet All Saints	2,739	East Lindsey

18	Evenwood	2,234	County Durham
19	Shildon	10,450	County Durham
20	Chopwell	3,316	Gateshead

The rural BUAs with the highest levels of deprivation are concentrated in former mining communities in the north of England and coastal communities along the east coast.

Chapter 7. Conclusion and recommendations

7.1 Overview

- 7.1.1 The purpose of the Indices of Deprivation is to provide a consistent, accurate and robust measure of relative deprivation at a small area level across England.
- 7.1.2 The Indices suite of resources provides users with a robust and sensitive framework for identifying and understanding local patterns of deprivation across the country. The methodological enhancements introduced in this IoD 2025 update have strengthened the capacity of the Indices to reflect the complex forms of deprivation experienced in rural areas. These improvements ensure that rural disadvantage is better represented in national and local analyses as far as is practicable, to support decision making and policy targeting.

7.2 Summary of improvements in the IoD 2025 with respect to measuring rural deprivation

- 7.2.1 The IoD 2025 introduces a series of enhancements to the data and methods used to measure deprivation in rural areas. These improvements stem from stakeholder consultation, empirical evidence, and the findings of the rural deprivation literature review.
- 7.2.2 Some of the key enhancements to the IoD 2025, which will improve the measurement of deprivation in rural areas, are as follows:
 - In the Income Deprivation Domain, the adoption of an 'After Housing Costs' (AHC) approach represents a major methodological advance, recognising the high cost of housing and living expenses in many rural areas (i.e. the 'rural premium').
 - In the Employment Deprivation Domain, the measures are now based on data across twelve consecutive monthly snapshots, capturing seasonal fluctuations typical of agricultural and tourism-dependent local economies.
 - The Health Deprivation and Disability Domain now integrates a wider range of administrative sources to produce a more comprehensive mental health indicator, capturing conditions prevalent in rural communities and addressing stakeholder concerns about under-representation of rural health inequalities.
 - The Geographical Barriers sub-domain of the Barriers to Housing and Services Domain is now based on the Department for Transport's Connectivity Tool, which captures the availability, frequency and travel time to services by walking, cycling, and public transport. Car travel is explicitly excluded from the Connectivity Tool. Excluding car travel from this domain better represents the lived experiences of residents in less accessible areas. This is a major advance for the measurement of deprivation across rural areas.
 - Though social isolation remains difficult to quantify directly, the improved measures of connectivity and access to social and leisure infrastructure will help to reflect its effects indirectly.

- The Wider Barriers sub-domain of the Barriers to Housing and Services Domain introduces new indicators on digital connectivity, GP access, and core homelessness, directly addressing rural challenges concerning service availability, digital exclusion, and hidden homelessness.
- The Crime Domain has been expanded from four to eight indicators, including introducing a new measure of anti-social behaviour, and using data for a longer time period than previously possible. These changes will therefore lead to a greater breadth of crime types being reflected in the domain, which will give a more comprehensive account of crime and disorder in rural communities.
- The Living Environment Deprivation Domain contains a number of new indicators, including a housing quality indicator based on Energy Performance Certificate (EPC) data, reflecting the poorer energy efficiency typical of rural housing stock and the consequent risk of fuel poverty. The new measure replaces the outdated central heating indicator and captures a broader spectrum of rural housing deprivation.

7.3 Effective Use of the Updated Indices

7.3.1 Public bodies, local authorities, and delivery partners are encouraged to use the revised Indices as a strategic tool for evidence-based planning and resource allocation. Some examples of how the Indices can be effectively used to tackle rural deprivation are as follows:

- Combine the Indices with local intelligence. The Indices provide a consistent national framework, but rural deprivation is frequently characterised by small, dispersed populations and locally specific challenges. Combining Indices data with local knowledge, additional local-level information, and community insights, will improve interpretation and action.
- Target resources effectively. Authorities can use the updated measures to identify pockets of deprivation that may be masked by broader affluence within rural districts, ensuring that local funding and interventions reach those most in need.
- Integrate into strategic policy frameworks. The Indices can inform local development plans, rural proofing exercises, transport and infrastructure strategies, and equality impact assessments.
- Embed the Indices in rural-proofing and equality assessments. By integrating the data into policy development and impact assessments, decision makers can better account for the distinct ways deprivation manifests in rural settings.
- Monitor outcomes and service equity. The Indices form one part of the evidence base available for assessing whether public investment is reducing inequalities between rural and urban communities, and for evaluating the accessibility and effectiveness of local services.

7.3.2 By utilising the Indices in ways such as these, local and national decision makers can develop evidence informed policies to tackle rural deprivation.

7.4 Points to consider when using the IoD 2025 to identify rural deprivation

- 7.4.1 The IoD 2025 provides a statistical account of deprivation across small geographical areas and allows for the identification of the most deprived areas. However, each small area will contain a mix of people. It is important to acknowledge that many non-deprived people live in highly deprived areas, and many deprived people live in relatively less deprived geographical areas.
- 7.4.2 Those areas that are not identified as relatively deprived by the LSOA-level Indices are not necessarily *affluent* areas. It may be the case that some areas with a high proportion of people experiencing deprivation also contain a relatively high proportion of people who have high levels of income or wealth (i.e. where there is high inequality between residents living in the same area). The Indices do not capture or compare relative levels of wealth or affluence, so a lower ranked area could be described as being less deprived, but cannot be described as being more affluent or richer. Similarly, the least deprived area in the country should not be described as the most affluent or richest. For example, the measure of income deprivation is concerned with people on low incomes who are in receipt of benefits and have an income below 70% of the median after housing costs. An area with relatively few people on low incomes may also have relatively few people on very high incomes. Such an area may be ranked among the least deprived in the country, but it is not necessarily among the most affluent. Similarly, an area with a relatively large proportion of people on low incomes may also contain a relatively high proportion of people with very high incomes.
- 7.4.3 In addition, the IoD methodology is designed to distinguish between areas at the most deprived end of the distribution, but not at the least deprived end. Differences between areas across the least deprived end of the distribution are therefore less well defined than those between areas at the most deprived end of the distribution.
- 7.4.4 The purpose of the IoD is to measure as accurately as possible the relative distribution of deprivation at a small area level at a snapshot in time, but this sometimes comes at the expense of 'backwards' comparability. When exploring changes in deprivation between the IoD 2025 and previous versions of the Indices, users should be aware that changes can only be described in relative terms, and with the caveat that changes in LSOA rank may be due to 'real change' and/or 'measurement change'. Fuller guidance can be found in IoD 2025 Statistical Release and Research Report.

7.5 Recommendations for Further Development

- 7.5.1 While the improvements to the Indices represent a significant step forward, there remain areas where further work would enhance their value for rural policy and planning:
 - 1. *Take-up rates and service engagement.* It is recommended that new primary research be commissioned to explore differences in take-up rates between rural and urban areas. Understanding how and why residents in rural areas

engage differently with public services and benefits will enable more nuanced interpretation of administrative data.

2. *Exploration of smaller spatial scales.* It is recommended that options for producing deprivation measures at a smaller spatial scale continue to be explored. As noted in this report, LSOAs currently provide the best statistical geography for measuring deprivation, based on a balance of geographical accuracy, data availability and data reliability. However, if many new deprivation datasets become available at OA level in the future, this would merit further consideration.
3. *Linking local and national datasets.* Strengthening data linkages between national indicators and local authority intelligence would enhance the Indices' capacity to capture rural-specific deprivation, particularly in sparsely populated areas.
4. *Community and stakeholder validation.* Ongoing engagement with local authorities, rural networks, and community organisations will ensure that future updates remain grounded in lived experience and policy relevance.
5. *Rural-specific analysis.* The IMD 2025 is expressly designed to measure multiple deprivation consistently across the whole country, and we would not recommend developing a separate rural-only IMD. However, it is a legitimate use of the IMD to analyse rural areas with a specific analytic lens, to support policy interventions targeted at rural areas. Using the Rural Urban Classification 2021, in combination with the IoD 2025 data at LSOA level, can help users identify otherwise hidden pockets of deprivation in rural areas.

7.6 Final Reflections

- 7.6.1 The enhanced Indices of Deprivation represent a vital instrument for improving the evidence base underpinning rural policy. Used effectively, they can support a more equitable distribution of public resources, inform rural-proofed policy design, and strengthen accountability for reducing spatial inequalities. Their full potential can be realised through continued collaboration between national and local government, ongoing methodological refinement, and a commitment to understanding rural deprivation in all its dimensions.

Appendix: Independent literature review on deprivation in rural areas

The following pages present the independent academic literature review on deprivation in rural areas that was commissioned by the Indices research team during the early phase of the IoD 2025 development.

Rural Deprivation in England – Review of the Literature

Dr. Sara Ferguson, Queen's University Belfast
February 2024

Executive Summary

This literature review was conducted as part of the project to update the English Indices of Deprivation (IoD). In broad terms, it provides insights into the lived experience of deprivation in rural areas, and how these experiences may be distinctly different to experiences of deprivation in urban areas. To address this overarching aim, the review was tasked to tackle four specific objectives:

1. Critically review key conceptual and empirical literature on rural deprivation.
2. Highlight dimensions and/or indicators of deprivation particularly salient in rural areas, covering both existing IoD domains and indicators, and potential new/refined measures.
3. Summarise the main criticisms of existing IoD in relation to measuring deprivation in rural areas, and the extent to which practical solutions are offered to these criticisms.
4. Document other researchers' attempts to measure deprivation in rural areas.

The findings of this review are informing and supporting the Indices research team in their efforts to ensure that deprivation in rural areas is explicitly acknowledged and robustly measured within the forthcoming IoD 2025.

As part of this critical review of the key conceptual and empirical literature on rural deprivation, several dimensions of deprivation (and a number of specific indicators) were identified as being particularly salient in rural areas across England. Indeed, Commins emphasised that *'rural poverty and especially material deprivation have particular characteristics which raise implications for the choice of indicators, and for theorising about the importance to be attached to different manifestations of deprivation'* (2004; 72). Although this quote was expressed in relation to an Irish context, it is equally valid for England and the other UK nations.

However, despite there being a particularly dynamic period in the 1990s when rural deprivation received much scholarly attention, the comprehensiveness of our understanding of these dimensions could be called into question. Generally, deprivation has received ample scholarly attention for several decades. Yet, this has typically been on either a nationwide level, or within the context of urban areas given that this is where a large proportion of the population lives. On the contrary, rural deprivation as a standalone concept remains somewhat underexplored. This may be partially explained by our understandings of both rurality and deprivation, of which there are no absolute agreed definitions. Internationally, nationally, and even

regionally, there are also variations in scale, cultures, regulatory structures, and welfare regimes to consider in rural areas; all of which make it increasingly challenging to obtain a complete understanding of how deprivation may be experienced in these areas. Popular discourses of rurality, whereby these spaces are often presented idyllically, have also been found to be at odds with the realities of rural deprivation, further contributing to it being somewhat invisible within the research and policy arena. Nevertheless, the literature, as supported by statistics (including those derived from the IoD), argues that the existence of poverty and deprivation in rural areas cannot be denied, and continues to make a case on the importance of (further) exploring rural disadvantage as a distinct concept. Across England, whilst rural areas in general have typically been identified as being less deprived than their urban counterparts, there are some rural areas whereby higher levels of deprivation have been identified. Furthermore, similar to how deprivation may be manifested differently in urban and rural areas, there is evidence that people's experiences of deprivation may also differ at a more spatially nuanced, level, for instance according to varying urban/rural settlement typologies.

Existing area-based deprivation measures, including the English IoD and its headline measure, the Index of Multiple Deprivation (IMD), strive to incorporate consistent indicators and measures which are reflective of deprivation across all parts of the country, including their respective social, economic and physical environments. Similar indices have been developed for Wales, Scotland and Northern Ireland, although each index has its own nation-specific formulation. Across the literature, the seven domains currently encapsulated within the English IoD (income, employment, education, health, crime, the living environment, and access to housing and services) have all been identified as contributing towards our understanding of the concept of deprivation within rural settings. However, it is important to note that, whilst on a general level, these domains are important within both urban and rural settings, the details, which are reflected within the various sub-domains and associated indicators, do demonstrate a certain degree of disparity. Moreover, within the rural context, the literature suggests that the interplay of these various domains and dimensions is of particular significance, with the challenge of access, both geographical and digital, being of integral importance.

Therefore, whilst many of the existing area-based deprivation measures have already successfully incorporated several of the identified rural dimensions and indicators as identified by the literature, the evidence published to date indicates that there does remain specific aspects which have been insufficiently addressed. There are reflections within the literature concerning the nature of rural spaces, the characteristics and distinctiveness of rural deprivation, and the development and implementation of area-based deprivation measures. These reflections highlight a number of criticisms which can be, and have been, directed towards these measures in relation to measuring deprivation in rural areas. Consequently, there have been concerns raised that rural deprivation may be being to some extent misrepresented by existing nationally based indicators which have been suggested to potentially have an urban bias. Firstly, some of the most notable concerns raised include the challenge of overcoming the issue of geographical scale and addressing ecological fallacy. Area-based deprivation measures such as the IoD are presented as being particularly useful for, and capable in identifying, *concentrated* deprivation. On the contrary, *dispersion* is often a key characteristic of rural spaces. Rural deprivation,

which can often be particularly localised, may therefore be concealed and so more difficult to identify. Secondly, there is an argument that although these measures may contain appropriate domains, the concept of rural deprivation is not being adequately reflected as a consequence of inappropriate indicator choices and domain weightings.

Although there have been some, albeit few, attempts to overcome these challenges, the continued implementation of existing deprivation measures, including the IoD, emphasises the irrefutability of their value. Nonetheless, there remains scope for further research to continue to enhance our understanding of the concept and measurement of rural deprivation. With this, it may then be possible to further augment the undeniable utility of these indices by tailoring them with additional appropriate data. In doing so, this may help us to better understand different challenges relating to deprivation and disadvantages in different geographical contexts.

1 Introduction

*“Many residents of English rural and coastal communities benefit from a high quality of life, the characteristics of which cannot be obtained in the cities and suburbs. From the outside, the chocolate box thatched villages, quaint (former) fishing harbours and breath-taking scenery paint an idyllic picture. **But life in the countryside or on the coast has its own often distinct challenges with its own problematic social and economic consequences.**”* (Leckie, Munro and Pragnel, 2021, pg.9).

Although not fitting with the idyllic image of the countryside presented across popular discourses, and occasionally even being denied by those living in these areas (Milbourne, 2011), scholars have been making a case for the importance of exploring rural disadvantage or deprivation as a distinct concept for decades. However, despite the 1990s witnessing a particularly focused emphasis on enhancing our understanding of rural deprivation in the UK (see Woodward, 1996; Cloke et al., 1997), this remains incomplete. In 2004, Commins remarked that *‘it is remarkable how little concern there has been about the specific features of rural poverty and rural social exclusion’* (pg.60), signifying that there was limited systematic information, no comparative surveys among EU Member States, and little coverage of poverty and exclusion in rural areas. Almost two decades later, several scholars including Black et al., (2019) and Bagley (2023) were still accentuating this point. Both noted that in contrast with rural studies in the USA and elsewhere in Europe, few UK-based studies have investigated the impact of economic change and austerity on rural communities. Subsequently, Bagley (2023) reasserts the importance and need for continued research into specific localities beyond the metropolis, especially within disadvantaged rural communities across the UK.

Whereas local authorities across England undeniably dedicate both time and resources to the analysis of local deprivation in their areas, very few have conducted focused analyses of deprivation according to settlement type. As part of the South-West Rural Deprivation study conducted in 2009 by OCSI, it was emphasised that although rarely done, there is a need for good data on all settlements, and

settlement types, in order *‘to target programmes to the right areas, support funding applications, and help local communities with the evidence-base to support the development of community and parish plans’* (OCSI, 2009, p.3.). Moreover, with the recent large reductions in central government contributions to councils, many local authorities have subsequently lost a large proportion of their spending power. Both Vera-Toscano et al., (2023) and May et al., (2020) have highlighted that many of these cuts have been spatially uneven, with poorer areas, including those in rural settings, being hit particularly hard. Therefore, it could be argued that it is particularly important for these areas to be picked up by area-based deprivation or poverty measures. If they are not, then these already disadvantaged rural areas may continue to struggle to access support and become progressively more deprived.

McAreevey and Brown highlight that, on both sides of the Atlantic, scholars have *‘grappled with the difficulties of conducting comparative research on rural issues in general, and on rural poverty and inequality in particular’* (2019, p.1). These research challenges stem from international variations in scale, definitions, cultures, languages, regulatory structures, and welfare regimes. Generally, nations differ in how they conceptualise rural and rurality. There is a similar situation with the concept of ‘deprivation’. For several decades there has been debate on the most appropriate way to conceptualise this normative construct. This has led to a wide variety of uses, and it becoming conceptually chaotic within rural-specific studies (Woodward, 1996). It is also possible that because a large proportion of the population in European and North American countries live within urban areas, the issues of poverty and deprivation in non-urban areas have largely been overlooked. Using the Republic of Ireland as an example, Commins cited the Combat Poverty Agency who stated that *‘rural poverty has been understood in public debate as a limited issue of ‘poor areas’, ‘poor communities’ and ‘poor farmers’*” (2004, p.60.). Consequently, this rudimentary understanding of rural poverty has led to the neglect of crucial questions such as; What is different about poverty in rural areas? Who within rural communities are vulnerable to poverty and what factors affect their life chances? How is rural poverty and deprivation generated and ‘reproduced’?. To address these questions, and in acknowledging that there is a unique distinctiveness in rural areas, there is potentially a need for new or different appropriate indicators of rural deprivation and poverty to be identified.

Several area-based deprivation indices, which strive to incorporate consistent indicators and measures across all small geographical areas, have been developed over the last number of decades for each nation within the UK. Dating back to the 1970s, these have typically been presented as being able to assess the experiences of deprivation for populations living in *both* rural and urban areas (Schuurman et al., 2007). However, as will be explored within this review of the literature, multiple scholars have referenced arguments concerning the distinctiveness of deprivation in rural areas (see Martin et al., 2000; Commins, 2004). This could mean that rural deprivation may be being to some extent misrepresented by existing nationally based indicators (Cullingford and Openshaw, 1982; Smith et al., 2018). Indeed, when addressing the topic of rural deprivation in Scotland, Thomson (2016) alluded to urban-rural disparities within the literature, arguing that there is an urban emphasis within deprivation indices which makes it difficult to determine which are the most important issues affecting people in rural areas.

The broad purpose of this literature review is therefore to obtain a more comprehensive understanding of rural deprivation as a concept and identify suitable indicators which could potentially be integrated into current or new deprivation measures.

2 Defining Rurality

Although various definitions have been advanced, there has been no absolute agreed definition of rurality, and it remains subject to ongoing debate (Martin et al., 2000; Farmer et al., 2001; McAreavey, 2023). As part of Thomson's rural deprivation evidence summary and review on how well it is captured by the Scottish Index of Multiple Deprivation (SIMD), a primary challenge identified was that there is '*no standard definition of rural across the world*' (2016; pg.1). In 2007, it was estimated that there were approximately 30 different definitions of rurality used across UK Government departments (Scott et al., 2007). The authors of this report on 'The Urban-Rural Divide: Myth or Reality' noted that from a review of definitions of 'rural', five agreed-upon dimensions were identified. These were: (i) negative, i.e., not urban; (ii) low population density; (iii) extensive land use; (iv) primary economic activity and employment; and (v) community cohesion and governance. Nevertheless, definitions have often remained inconsistent, non-comparable and incompatible. In 2004, Bibby and Shepherd argued that a review commissioned by the DTLR had recommended that '*a clearer, more comprehensive approach to rural area definitions were needed, one which involved the extension of the 'land use' approach underlying the urban areas definition, in order to identify, define and derive populations for the small towns, villages, hamlets, and isolated dwellings that made up the settlement pattern of rural areas*' (2004; 2). From this, the authors developed the new definition and classification of rural places, which distinguished rural areas as being places with a population of fewer than 10,000 persons, and according to both sparsity and settlement morphology (Bibby and Shepherd, 2004; Bibby and Brindley, 2013).

Based upon the abovementioned classification of rural places, almost 90% of England's land area is categorised as rural (Scott, 2020), being home to 9.7 million people or 17.1% of the population. The 'white ethnic' group accounts for 96.8% of this rural population (DEFRA, 2023). However, in contrast to this relatively homogenous ethnic demographic, the UK's rural communities are extremely diverse economically, environmentally, and socially. For example, in England rural communities have been described as including, amongst others, small remote middle-class hamlets, working-class coastal villages, commuter townlets, and former mining communities or 'pit villages' (Bagley, 2023). Similarly, in the Scottish context, Thomson (2016) notes that 'rural' ranges widely from island communities to commuter villages, from fishing and coastal villages to highland croft and lowland farming, and from prosperous rural market towns to deprived post-industrial communities. Considering these brief, but detailed characterisations of rural in both England and Scotland, it is understandable that formulating a generalised definition, fitting for all rural contexts, could be challenging. Reflecting upon such diversity, several scholars, including Weinert and Boik (1995), emphasised the need to use definitions and measures which take account of regional geographies and cultures. It

could be argued that this also needs to be considered when thinking about the experiences of deprivation in rural areas.

Extending beyond the normative understanding of rurality, it is also important to consider popular discourses and acknowledge how these can influence our understanding of rural. McAreavey (2023) points towards the ongoing emphasis placed upon socio-cultural constructs of rurality. These constructs, which infiltrate popular discourses, reflect certain aspirations, migration and vacation decisions, and ways of thinking and living associated with what are perceived as rural areas. They often include quaint, scenic landscapes, a romanticised quality of life, and the existence of affluent, cohesive rural communities. In reference to the rural idyll concept which portrays the rural as an ideal place to live and an antidote to urban deprivation (Woodward, 1996; Matthews et al., 2000), McAreavey emphasises that this commodified concept *'elides poverty and hardship that certainly exists in some rural places and spaces'* (2023; pg.13) and denies versions which contradict that presented within these popular discourses (Bell, 2006). Indeed, Cloke (1994, cited in Bell, 2006) noted that *'this hegemonic idyll is so powerful...that it renders terms such as 'rural poverty' or 'rural deprivation' as culturally illegible, since life in the country can never be 'poor' or 'deprived' (p.152).*

However, several scholars including Woodward (1996), Burholt and Naylor (2005) and Short (2006) have explicitly referred to the mismatch between rural discourses and rural realities. Powell et al., (2013) refer to idyllic constructions reflecting children's experiences of rurality. However, they also reiterate that there are alternative constructions of rurality and introduce an 'anti-idyll'. This anti-idyll is characterised by dullness, boredom, and *deprivation*, all of which are associated with insufficient rural activities, resources and transport, marginalisation, conflict between different demographic groups, and social exclusion. Nevertheless, given the pervasiveness of the rural idyll, any portrayals of the existence of deprivation in rural areas are attributed as being the fault of the individual, and as a feature of 'the rural others' who are beyond the norm (Woodward, 1996; Halfacree, 2003).

3 Defining rural deprivation

3.1 Overview

Farmer, Baird and Iversen indicate that in any study concerning rural deprivation, it is important to *'be clear about definitions of rurality and deprivation, and about the purpose of measurement'* (2001; p.488). However, similar to the abovementioned issues associated with the definition of rurality, these authors highlighted ambiguities with the term 'deprivation'. To some, deprivation is solely defined in terms of income poverty or material deprivation, and is measured in absolute terms. Whereas for others, social deprivation is also deemed crucial, and a relative approach to measuring deprivation is favoured. However, one increasingly common characteristic within deprivation definitions is its multidimensionality. Nevertheless, consequential of these ambiguous definitions of this multidimensional concept, and akin to 'rurality', there is *'no universal measure of deprivation, which is subjective and situationally relative'* (Burke and Jones, 2019; 93).

Pateman stated that *'most people have a clear impression of what the cities, towns and countryside look like in the UK, both physically and in terms of the lives of the people who live there'* (2011; 11). However, as highlighted in the previous section, impressions of the countryside can be influenced by discourses which present rural areas idyllically, indicating that they are in some way better off than their urban counterparts in many respects; for example, being absent of unemployment, pollution, or crime. There is therefore an important intersection between discourses of the rural and deprivation, as these social constructions of rurality might serve to obscure the existence of rural deprivation. Indeed, Commins (2004) suggested that one of the principal characteristics of rural poverty and deprivation is that of invisibility, consequently resulting in it being somewhat neglected within both research and policy. As early as 1996, Woodward explored how these rural discourses can contradict arguments concerning the existence of rural deprivation, and therefore serve to conceal it. In addition to being vulnerable to 'invisibility' within the academic and policy arena, rural poverty (and deprivation) has also been prone to cultural invisibility. Again, many explanations for this have been found to stem back to the pervasiveness of the rural idyll which romanticises and paints rural areas as being problem-free. However, despite this evidence within the literature of a tendency for poverty in rural areas in the UK to be hidden or concealed (Little and Austin, 1996; Cloke et al., 1997), either deliberately or obliviously, its existence cannot be denied, and deprivation presents itself across the UK in a more nuanced and varied manner than what the broad narratives allow for.

Referencing earlier works by Shucksmith and colleagues (2012), McAreavey and Brown (2019) indicated that much of the UK-based research on rural inequalities is generally less empirical compared to US research. Shucksmith (2012) observed that whilst many UK scholars discuss inequality and social exclusion, their observations are often based upon assumptions, and not adequately supported with empirical data. In contrast, research in the US, which although more often solely focuses upon income inequality or poverty, does more consistently present evidence-based analyses of persistent rural disadvantage, including a lack of jobs and historical legacies of underdevelopment (Shucksmith and Schafft, 2012).

Notwithstanding debates concerning differences in the empiricism of research, many scholars across the globe have, and continue to, discuss the topics of rural inequality, social exclusion, and deprivation. Accordingly, it has been determined that there are not only marked differences in deprivation (and how it is experienced) between rural and urban areas (Burke and Jones, 2019), but also substantial differences *within* rural areas, as has been reflected through the notion of *'two countrysides'* (Pateman, 2011). These recognitions have led to an increased research focus being placed on exploring deprivation *specific* to rural people and communities, and identifying facets of deprivation that may be particularly prominent in these areas (Martin et al., 2000; Jones, 2015; Bertin et al., 2014). In making general observations as to why rural residents may be more vulnerable to certain types of deprivation, McAreavey and Brown (2019) point towards the fundamental influence of rural demographics, economies, and societies. However, when reflecting upon the multidimensionality of deprivation, Cloke et al., noted that although the *'components of social and economic 'problems' in rural areas have been the subject of study by rural researchers for at least 40 years...it was only in the 1970s and 1980s that the combinations of these components was recognised as being of*

greater importance than the constituent components themselves' (1997; 212). It is therefore important to remain mindful of these insights in any consideration of rural deprivation and acknowledge that many of the individual components discussed below relate to and intersect with one another, and this is a topic which can be fraught with complexity.

The following sub-sections of this literature review consider some of the key dimensions (or 'domains') of deprivation that are typically measured in deprivation research and considers how each relates to the rural context. This section concludes by considering the role that migration dynamics may also play in shaping the deprivation profiles of rural communities.

3.2 Income and employment deprivation

Compared to other domains, both income and employment deprivation are often attributed substantially greater weighting within area-based deprivation indices. This would indicate that both dimensions are typically viewed as being central components of multiple deprivation. However, income does not receive a particularly abundant amount of traction within literature concerning rural deprivation. Returning to the pervasiveness of popular rural discourses (see section 1), it is often assumed that low-income households are not characteristic of rural areas (Shucksmith, 2001). Indeed, Cloke et al., (1997) suggest that rural areas are often deemed as being affluent, with processes such as counter-urbanisation serving to infiltrate prosperity into these areas via the in-migration of higher-income households from surrounding towns and cities. Whilst there is evidence that this does occur (Dean et al., 1984; Goodwin-Hawkins et al, 2022), and there is scope to argue that rural gentrification has led to the displacement of lower income families (Willett, 2023), this does not eliminate the existence of rural poverty, and it should not be overlooked. Indeed, Willett (2023) questions whether these processes may serve to exacerbate deprivation for remaining lower-income residents, and if their material difficulties may be compounded by new or existing dominant social groups exerting the power of their status. Using the Rural-Urban Classification in England, DEFRA (2021) indicated that both the median workplace-based and resident-based earnings in predominantly rural areas were lower than those in predominantly urban areas (excluding London), and in 2020, Shucksmith indicated that 16% of rural households were living in relative poverty, which was only slightly lower than households living in urban England (18%). A recent briefing by ACRE (2023) also explored how the recent and ongoing cost-of-living crisis in the UK was playing out across rural areas. Reinforcing the existence of income deprivation in rural areas and its intersection with other forms of deprivation, the ACRE authors emphasised that low-income households in rural areas were particularly struggling with respect to fuel poverty, a lack of affordable houses, and the various costs of accessing services. As the following sections highlight, these have been considered within the literature to be some of the current most pressing issues in rural areas. Indeed, the issue of social exclusion is now being closely linked with both rural poverty and deprivation to the extent that these terms are often used interchangeably despite being fundamentally different. Pointing towards the works of several scholars, McAreavey and Brown (2019) noted that *'part of the reason for the move away from a discourse of absolute poverty to one of social exclusion within the EU was that it shifted emphasis from individual failings to a focus on other measures of consumption, and on the roles of*

structural impediments and historical legacies in constraining access to work and opportunity. This included acknowledging the role of the inadequate capacity of public institutions, poor infrastructure, and ineffective public policies (Shortall and Brown, 2019). Nevertheless, it is acknowledged that the challenge of a low income continues to remain at the core of social exclusion in rural areas, as it more fully encompasses an individual's standard of living and ability to participate in society (McAreavey and Brown, 2019). Furthermore, and linking into the issue of employment deprivation in rural areas, the authors of the recent ACRE report noted that many of these *'pressures must be seen in the context of underlying economic factors which often place rural residents on the periphery of urban-centric markets, compounding disadvantage'* (2023; 2).

Within the literature, there are also concerns that due to the nature of area-based deprivation measures, income deprivation in rural areas may be being missed as it is being addressed as an urban problem. A RuSource briefing highlighted that although there are fewer lowest quintile income households living in rural areas, they are not absent. Nationally, 15.7% of those living in smaller settlements were in the lowest income quintile. The authors also concluded that low income households found in rural areas are less likely to live in the same areas as other deprived households. The report found that 58% of those in the lowest income quintiles within village and hamlet sized settlements lived in areas that were in the highest two IMD quintile areas (i.e. least deprived). This reemphasises that *households living on low incomes* can live in relatively *less-deprived areas* (Spedding, 2008).

Like income deprivation, employment deprivation is portrayed as being a predominantly urban problem, and there can therefore be a tendency for this to be reflected in deprivation analyses. Yet, in 2021, the unemployment rate in rural areas (2.7%) was not substantially lower than that in urban areas (4.1%) (DEFRA, 2023). However, as Haase and Pratschke note, albeit within an Irish context, *"unlike their manifestation as unemployment black spots in urban areas, long-term adverse labour market conditions in rural areas tend to manifest themselves either in agricultural underemployment or in emigration... In both cases, the (rural) unemployment rate is likely to vastly understate the real extent of labour market disadvantage"* (2005; 7). Indeed, within the literature it has been argued that local rural economies, some of which can be fragile, operate differently from urban economies (Monk et al., 2000; Smith et al., 2018). Building on this, Cloke et al., emphasised that *'there are distinct geographical variations which suggest some localised severity of employment issues in the more remote study areas where commuting jobs were not so readily available'* (1997; 219). As opposed to unemployment per se, employment deprivation in rural areas has been found to be associated, at least in part, with issues including: under-employment and seasonal employment; 'in-work poverty' caused by lower wages and average incomes; more restricted job opportunities; and inadequate access to jobs by public transport (Cloke et al., 1997; Martin et al., 2000). Supporting this more dated evidence, Bagley (2023) indicates that these income and employment issues remain current. Many of these broader employment-related issues may be more widespread in rural areas than narrowly defined unemployment, but due to greater difficulties in quantifying them, they may not be included within deprivation measures (Deas et al., 2003), with a continued preference to rely upon the use of administrative data concerning the uptake of out-of-work benefit support. Linked to this, a further rural-specific challenge

relating to the measurement of employment deprivation was identified by McCartney and Hoggett (2023), who indicated that there is a common culture of independence and self-reliance pervading rural communities, and a stigma surrounding reliance upon government support. These factors have been shown to result in a reduced uptake of welfare support and income-related benefits, with those who are eligible opting to rely upon employment within the informal labour market instead (Cloke et al., 1997; Bailey et al., 2016).

Although declining industries, and now only accounting for 15% of the total registered businesses in rural areas in England (Scott, 2020), agriculture, forestry and fishing remain predominantly rural-based industries. Many of the changes witnessed within these industries in recent decades have contributed towards their decline (Thirtle et al., 2004; Centre for Rural Economy, 2013), and may also be attributed to being related to the employment deprivation experienced by rural residents (Hodge and Monk, 2004). As employment opportunities in agriculture and other land-based activities have shrunk (Ward and Brown, 2009), concerns have been raised that there remains an overly agricultural approach to rural development. Lowe and Ward noted that *“agriculture still has a national policy profile even though it is a sector whose contribution to the national economy has long been in decline. Indeed, the changing rationale for supporting agriculture cannot be that it contributes significantly to national economic competitiveness...but that it occupies three-quarters of the land surface and is the key determinant of the state of the rural environment. Farming thus remains important to diverse rural economies for the environmental services it does or could provide and the landscapes that it maintains, which attract tourists, in-migrants and businesses to rural areas. Nevertheless it continues to be managed as an economic sector rather than as a force for territorial development”* (2007; 309).

Commins (2004) also highlighted that although farm households can be self-provisioning to a certain extent, and there is also a system of public support available to some (but not all) farms which may somewhat alleviate deprivation by reducing the incidence of debt, households which are reliant upon these industries for income and employment may still be vulnerable to deprivation. Moreover, as land and property ownership can serve to be a basis for status within rural communities, the author noted that this may also serve to conceal struggles to maintain incomes and ensure survival, further contributing to the issue of cultural invisibility surrounding rural deprivation. Linked to this, there is also some (albeit limited) evidence within the literature that the issue of climate change could further exacerbate income deprivation for those who remain engaged in farming practices (Thomson, 2016). The author refers to examples such as changes in temperature and rainfall which have been found to impact crop harvests, and also potentially affect animal health through an increase in the incidence of disease. Pointing towards examples in the Scottish Borders, Thomson indicates that there is evidence that *‘wet summers have resulted in lower crop yields and increased costs for grain drying. Heavy rainfall has also affected the quality of homegrown fodder which means farmers have had to purchase additional feed to supplement cattle diets’* (2016; 6).

3.3 Education and health deprivation

Compared to income and employment deprivation in rural areas, for which literature is limited, there is less again concerning education and health deprivation. Notwithstanding this, the literature (supported by government statistics) does indicate that people living in some rural areas typically report lower levels of education (Sadler et al., 2015), which may indicate that this could be a particularly salient aspect of deprivation in these settings. Bagley (2023) also points towards relatively recent statistics published by DEFRA in 2018/19, highlighting that (i) in predominantly urban areas, the proportion of the working age population with National Vocational Qualification Level 4 or an equivalent qualification was 44.7%, compared with only 35.4% in predominantly rural areas, (ii) attainment levels for English and Maths GCSE results were identified as being lower for pupils in rural areas compared to urban areas, and (iii) a fifth of 16-year-olds in rural areas were reported to have attained no GCSEs. Notwithstanding these figures, few explanations for these lower educational attainment levels in rural areas have been advanced within the literature. However, Ovenden-Hope and Passy (2019) have suggested that the more limited availability of local employment opportunities in rural areas may in part lead to reduced motivation to succeed academically. There have also been strong links made with the issue of access which, as highlighted in the following sections, is a central component of rural deprivation. People living in rural areas may have reduced or restricted physical access, for example to higher or further education institutions due to their uneven geographical spread (Gibney, 2013; Elliot, 2018; Playford et al., 2023), but also reduced or restricted digital access, for example to e-learning resources and other digital training opportunities (Townsend et al., 2015; Leckie, Munro, and Pragnell, 2021).

A focus on health deprivation in rural areas is also somewhat neglected within the literature. Akin to income and employment deprivation, health deprivation has more commonly been presented as an urban problem, with rural areas being reported as having better physical health compared to their urban counterparts. For example, several scholars have reported that both males and females in rural areas report higher life expectancies (Kyte and Wells, 2010; Allan et al., 2017; DEFRA, 2022). However, within the literature there is evidence of a more significant emphasis being placed upon the topic of individual *wellbeing*, particularly in relation to social isolation in rural areas (Muller et al., 2021). With accessibility challenges being more heightened and salient in rural areas, this has been suggested to lead to an increased risk of isolation, with some demographic groups, such as elderly persons, being particularly vulnerable (De Koning et al., 2017; Kelly et al., 2019; Bosworth et al., 2020). However, in 1997, Cloke had indicated that *'whilst the link between access, mobility and transport, and disadvantage in rural areas is well-established, there remains a tendency not to extend measures of material inaccessibility to the associated experiences encountered in rural areas, which can be those of isolation [from both services, transport and social support networks]'* (1997; 225). Subsequently, in the years following this argument, there has been greater focus placed upon the relationship between social isolation and accessibility in rural areas within the literature (examples include Heenan, 2011, and McGuire et al., 2022 in a Northern Irish context). A report by Rural England also noted that *'although a complex range of factors contribute to the prevalence of loneliness, future demographic changes including the ageing of the population and family dispersal,*

suggest that loneliness may be a particularly acute issue for rural areas which have higher proportions of older residents, more rapidly ageing populations, and more acute accessibility issues' (2016; 2). Notwithstanding this, a greater proportion of the literature exploring these relationships have focused upon non-UK contexts (e.g., the Australian outback and rural America) where populations are more sparsely populated across vaster and more remote landscapes.

3.4 The issue of access in rural areas

One of the most distinguishing characteristics of rural areas is geographical dispersion, which typically also means lower population densities and greater distances from population centres. Reflecting this, access to services has been identified as being an important central component of rural deprivation, and features frequently within any discussions concerning this concept (Higgs and White, 1997; Jordan et al., 2004; Fecht et al., 2018). Furthermore, as part of these discussions, there has often been great emphasis placed upon acknowledging the strong interplay between rural issues and challenges, which can serve to both exacerbate and compound disadvantage for people living in these areas (Shucksmith, 2004; Powell et al., 2013). Crucially, the issue of access in rural, remote and island communities has been identified as compounding many other deprivation characteristics, including employment, education, and health (McCartney and Hoggett, 2023).

Having lower population densities, the literature indicates that rural areas may also be less likely to meet the population thresholds required for the provision of new, or continuation of existing, services. Several scholars have referred to the increase in closures of existing rural facilities and services over recent years (including shops, schools, post offices, banks and public transport), and the resulting implications of these closures upon rural accessibility (Moseley and Owen, 2008; Cabras et al., 2019). Some scholars have taken these arguments one step further and made the important link between these issues and increases in rural deprivation (McCartney and Hoggett, 2023; Bagley, 2023). References have also been made to the impact of welfare state retrenchment, rationalisation and privatisation processes, and the increased responsibilities now being afforded to local governments upon rural deprivation, indicating that it is these processes which have ultimately led to many of these once rural-based services now being centralised in urban centres (McAreevey and Brown, 2019). Consequently, rural communities now have narrower resource bases and less institutional capacity, and it has been suggested that this reduced service accessibility for rural residents regarding education, employment, and recreation could reduce the economic, and even social, viability of rural areas, hence increasing vulnerability to educational, employment, and social deprivation (Moseley and Owen, 2008; Hamilton, 2016).

Importantly, (im)mobility also represents a significant dimension of rural deprivation. The costs associated with personal transport in rural areas are often viewed as excessive because, when it is available, public transport is considered expensive, unreliable, and inconvenient. With the continued retraction and demise of rural public transport, whereby services are being reduced and even removed, there is an increased reliance upon modes of private transport which has associated financial implications for rural residents (Milbourne and Kitchen, 2014; Bosworth et al., 2020).

Furthermore, with less competition from the likes of supermarkets, fuel prices in rural areas are often higher, which can have additional financial implications on both rural residents and businesses (Williams and Doyle, 2016). Linked to this, and consequential of reduced service availability and accessibility in rural areas, rural residents generally encounter a higher cost of living (including food, fuel, and childcare costs), and this 'rural premium' can serve to further compound income deprivation (Martin et al., 2000; Leckie et al., 2021; McCartney and Hoggett, 2023).

The Minimum Income Standard (MIS), which provides details on the income required to meet the cost of a basket of goods and services for a particular household type, was developed by Bradshaw et al., (2008). In employing the MIS, it became possible to provide invaluable information on the cost of living for different groups in both rural and urban areas, and scholars employing the MIS have found that households are faced with additional costs living in rural areas; much of which is due to personal transport and domestic fuel costs (Milbourne and Doheny, 2012). It has been estimated that people living in rural areas typically need to spend 10-20% more on everyday requirements than those in urban areas (Williams and Doyle, 2016); and McKendrick and colleagues (2011) found that to enjoy the same standard of living as their urban counterparts, single working-age adults needed to earn at least £15,600 per year in rural towns, £17,900 in villages and £18,600 in hamlets and the remote countryside to reach a minimum living standard, compared with £14,400 in urban areas.

An additional dimension which has been related to the issue of access in rural areas and its subsequent connection to deprivation is that of digital connectivity, which has been reported as being substandard in comparison to urban areas. With the closure of services alluded to in the previous paragraphs, there may be a greater reliance upon digital services for certain activities such as shopping, banking, and other tasks such as claiming social welfare support, stewardship grants or agricultural subsidies (Townsend et al., 2013; Wilson and Hopkins, 2019). It has also been noted that businesses in rural areas are somewhat unique in that the physical isolation can make it difficult to reach customers and access required resources for manufacturing or delivering services and products. Access to broadband can reduce some of these barriers by providing opportunities for teleworking and video conferencing (Skerratt and Warren, 2003; Townsend et al., 2013), however, broadband speeds have been identified as being lower, and 4G and voice call coverage as being more limited, in rural areas compared to urban areas. For example, the average broadband download speed was recorded as 51mb/s in rural areas compared to 84mb/s in urban areas (DEFRA, 2021). Subsequently, it could be suggested that this heightens the risk of rural areas being deprived with regards to access to services.

3.5 Indoor living environments and fuel poverty

In addition to the greater cost of fuel and basic goods in rural areas, relatively higher house prices in some parts of rural England (Pateman, 2011; Gallent and Scott, 2019; Gallent et al., 2023) has led to the issue of housing affordability being highlighted in the literature as a challenge which contributes towards rural deprivation. This issue of affordability was aptly highlighted by Action with Communities in Rural England, who found that in 2022, the cheapest rural property to buy (and thereby own) was 8.8 times the earnings of those on lower incomes

(ACRE, 2022). However, several years ago, Cloke and colleagues emphasised that *'very different geographies of housing tenure and social change exist in different rural areas'* (1997; 217). Although rural areas typically report higher levels of home ownership compared to their urban counterparts, Milbourne and Doheny (2012) argue that this may be less a reflection of the material situation of people living in these areas, and more of the limited provision of rental properties in rural housing markets, particularly that of social housing. Albeit in a Scottish context, it has been highlighted that these unmet housing needs must also consider the shortage of single occupancy homes in rural areas (Thomson, 2016). In this context of scarce rentable accommodation and rising property values, it has also been noted that there can be social pressures on rural residents to own their own homes, which can subsequently mask struggles to attain a sense of belonging to local communities, and potentially thereby heighten vulnerability to social exclusion and deprivation (Commins, 2004).

In addition to the issue of affordability, there are further housing-related challenges which have been suggested to contribute towards rural deprivation. Compared to urban areas, the energy efficiency of rural homes is reportedly lower, making them more difficult and more expensive to heat. In 2008, only 24% of homes in rural Scotland had an energy efficiency rating of 'good', compared to 55% of homes in non-rural Scotland (Scottish House Condition Survey: Key Findings for 2008). Houses in rural areas have also been identified as being harder to modernise, because they are typically older and larger compared to those in urban areas (Smith et al., 2010). Furthermore, as many rural homes are not connected to a mains gas supply, it has been highlighted that this results in a greater reliance upon costly liquid gas petroleum, oil, and electric storage heaters, all of which are highly susceptible to market price fluctuations (Stewart and Bolton, 2024). In England, it is estimated that 56% of rural properties are off the gas grid compared to only 9% in urban areas (ACRE, 2023), and this figure rises to an estimated 76% by some sources (Nagle, 2023). Finally, it has been suggested that limited local activities and poor transport provision in rural areas could result in residents spending more time within their homes, leading to increased fuel usage and thereby costs (Williams and Doyle, 2016). Coupled with the higher fuel prices and lower average incomes in rural areas, it has been suggested that each of these issues could heighten vulnerability to fuel poverty which is increasingly being viewed as a rural challenge (Williams and Doyle, 2016; Fecht et al., 2017). According to the 2021 Fuel Poverty Strategy, a household is in fuel poverty if their home has a Fuel Poverty Energy Efficiency Rating of band D or below, and if, after subtracting their modelled energy costs and housing costs, their residual income is below the poverty line (Massey and Waters, 2023). A report by ACRE in 2023, indicated that according to government figures, it is estimated that the cost of lifting a household out of fuel poverty can be as much as £956 in a rural area compared to the national average of £443, with prices being particularly high in rural villages, hamlets, and isolated dwellings. In England, a recent government fuel poverty report stated that *"households living in rural areas have the highest fuel poverty rate of 15.9% in 2022 [compared to the England average of 13.4%]"* (DESNZ, 2023), whereas the End Fuel Poverty Coalition has suggested that this may be an underestimate and the actual figure may be as high as 27% (ACRE, 2022).

3.6 Rural crime

Popular discourses of the rural suggest that crime is not deemed to be problematic in these areas (Yarwood, 2001), and empirical evidence points towards the concentration of crime in urban centres (Pateman, 2011, NRCN, 2018, DEFRA, 2022), particularly in relation to robberies, residential burglaries, vehicle offences, violence and sexual offences. However, this does not necessarily mean that crime does not occur in rural settings, and rural communities have been found to encounter their own distinctive crime-related challenges which may not be adequately captured by area-based deprivation measures. Some more common examples identified within the literature include agricultural theft (tractors, quads, livestock, machinery, fuel), vehicle speeding, wildlife crimes, illegal clearing of trees, illicit entrepreneurship, sheep worrying, dog attacks, and fly tipping (Marshall and Johnson, 2005; Smith and McElwee, 2013; Somerville et al., 2015, NRCN, 2018). The allocation of police time and resources in rural areas has also been criticised across the literature, with accusations of farm crime not being taken seriously, police visibility being limited, and levels of trust and confidence in the police to address these problems being diminished (Yarwood, 2010). Consequently, criminal activity experienced in these areas may often go unreported (Jones, 2012; Morris et al., 2020), and it has been suggested that this could instigate a damaging cycle in that rural crime is then officially underestimated, hence not being prioritised by authorities. This leads to perceptions of poor response, which in turn discourages reporting, and starts the cycle again (NRCN, 2018).

3.7 Migration dynamics

Taking each of the distinctive aspects of rural deprivation discussed within this section, Bagley and Hillyard (2013) noted that the interplay of these economic, social, political and cultural forces can coalesce and intersect to frame and shape diverse rural landscapes. However, these can then be further complicated by both internal and international migratory processes. For example, McAreavey and Brown indicate that some rural areas in the UK have been the '*destination of increasing numbers of migrants, both international and internal, many of whom exist in the margins of society, experiencing poverty and hardship*' (2019; 5). For example, they indicate that many international migrants are disproportionately represented in lower paid jobs which have little security, including those within agricultural, horticultural, and food processing industries, and they also live in lower quality housing (Stenning et al., 2006). Rural areas have also been central to counter-urbanisation processes over the last century, with people moving to rural areas from towns and cities. This can lead to challenges such as older middle-class residents failing to fully integrate themselves into the local community (Bagley, 2023) and demographic changes, all of which has led to the existence of an even more 'differentiated countryside'.

4 The geography of deprivation in rural areas

Rural areas have often been identified as being less deprived than urban areas (DEFRA, 2023), both in England and further afield (Pateman, 2011). According to the Department of Levelling Up, Housing and Communities (DLUHC), previously referred to as the Ministry of Housing, Communities and Local Government (MHCLG

2019), the English IoD indicates that overall rural areas tend to be less deprived than urban ones, and the most deprived areas in England are found in urban centres. According to the 2019 iteration of the English IoD, 12% of all people in urban areas lived within the most deprived decile of all LSOAs compared with just 1% of all people in rural areas. However, with the ongoing consensus concerning the complexities entailed within the definitions and understandings of rural disadvantage (section 3), some scholars have argued that existing area-based deprivation measures may downplay the significance of, or conceal the extent of rural poverty and deprivation, and they are more suited for capturing inequalities within urban areas (Fecht et al., 2017). This conceptual challenge, in addition to the practical difficulties regarding the application of these measures in rural areas (section 5), suggests that they may fail to capture the true nature and levels of rural disadvantage, which may be particularly geographically localised (Williams and Doyle, 2016; Clelland, 2021; Boswell et al., 2022). Williams and Doyle (2016) pointed towards a study by the Commission for Rural Communities in 2006 indicated that in the 25 years previous, an average of 20-25% of rural households across the UK were living in poverty, which is typically defined as being where household income is less than 60% of the national median. In 2006, this percentage remained high at 22%, which is slightly lower than the 27% of households living in poverty in urban households. In Wales, it was revealed that an average of 31%, or almost one-third, of older person households in rural areas were living in poverty in 2007 (Milbourne and Doheny, 2012). Atterton and colleagues highlighted that even earlier than this, in both the 1980s and 1990s, approximately 25% of rural households across England were living in, or on the margins of, poverty (2020).

Notwithstanding these aforementioned concerns regarding the appropriateness of area-based deprivation in identifying rural deprivation when applied nationwide, the picture of rural disadvantage across the UK does appear to be one which is both diverse and complex. In England specifically, higher levels of deprivation have been identified within rural communities along the east coast (e.g., The Wash in Lincolnshire and Norfolk), border areas with both Wales and Scotland, including former mining communities such as those found in Northumberland, and rural communities in the southwest of England (e.g., across Cornwall and Somerset). In contrast, rural areas with lower levels of deprivation were concentrated on the outskirts of major conurbations such as Greater London and the major cities of the Trans-Pennine region (Liverpool, Manchester, Sheffield, Leeds, and Bradford) (Fecht et al., 2017). A report by RuSource (Spedding, 2008) also highlighted an interesting distinctive North-South divide regarding rural deprivation in England. In contrast to what is often reported elsewhere, this report indicated that between 2004 and 2007, rural areas in the north of England had improved (became less deprived) whereas rural areas in the south of England had deteriorated (became more deprived), with *sparsely* populated areas in Herefordshire, Norfolk and the southwest of England faring particularly badly. This emphasises the importance of also accounting for settlement pattern or the ONS rural-urban classification when exploring rural deprivation.

Although focusing specifically on older populations, scholars such as Glasgow (1993), as cited by Milbourne and Doheny (2012), have stressed the important role of place in shaping the nature and experiences of poverty and deprivation in rural areas. These lived experiences are likely to differ between larger, more established

rural villages, and smaller, more remote settlements. For example, these authors suggest that people are more likely to become impoverished by social isolation in remote, sparsely populated areas which do not provide sufficient access to essential goods and services (Milbourne and Doheny, 2012). In terms of poverty, statistics reveal that the highest levels of poverty exist in rural towns, and the lowest levels in the smallest rural settlements (Milbourne and Doheny, 2012), whereas, with regards to multiple deprivation, the 2019 English IoD tells us that:

- 49% of rural towns and fringes are in the three least deprived deciles (8-10); while 11% are in the three most deprived deciles (1-3)
- 19% of rural town and fringe in a sparse setting are in the three least deprived deciles; while 15% are in the three most deprived deciles
- 31% of rural village and dispersed are in the three least deprived deciles; while <5% are in the three most deprived deciles
- <7% of rural village and dispersed in a sparse setting are in the three least deprived deciles; while <15% are in the three most deprived deciles.

(MHCLG, 2019)

These findings were supported by analyses conducted by Burke and Jones in 2019 as part of their development of a rural deprivation index (RDI). Burke and Jones' findings also pointed towards clear disparities in deprivation between different types of rural settings, and the authors noted that *"...for all the different weightings of the RDI tested, LSOAs classified as 'Rural town and fringe' showed a greater increase in deprivation than those in 'Rural village and dispersed'. This is interesting, as the narrative of rural deprivation may conjure up images of farms, isolated housing, and villages rather than small rural towns and their outskirts. Indeed, there is a tendency when discussing rural deprivation to refer to a rural-urban dichotomy, neglecting the fact that there are different types of rural settings, with different characteristics and issues"* (2019; 101). Earlier than this, Spedding (2008) also found that, although more deprived overall, sparsely populated rural towns had witnessed some degree of improvement, whereas all other sparsely populated rural areas (i.e., villages and dispersed) had deteriorated. The data which formed the basis of this RuSource report also highlighted that village and hamlet areas had scored particularly badly within certain domains, namely the Barriers to Housing and Services domain, and sparsely populated hamlets had fared even worse on the Living Environment domain. Importantly then, the literature clearly demonstrates that there are evident differences in how various rural settings experience deprivation. In summary, these findings concerning the geography of deprivation in rural areas reiterate that rural areas are not homogenous, people's experiences of rurality and deprivation vary, and subsequently interventions that prove successful in one setting may not be applicable or appropriate everywhere (Williams and Doyle, 2016).

5 Criticisms of the current IMD from a rural perspective and suggestions for improvement

5.1 Overview

Even prior to introducing the complexity of rurality into the equation, Salmond and Crampton (2012) reiterate the importance of being mindful of the ‘risk of reification’ in the use of area-based deprivation measures such as the IoD. Index scores and rankings are often treated as synonymous with deprivation. However, in reality, they are only proxy or partial measures, and reliance upon a single measure, even if it incorporates multiple dimensions, can conceal or hide complexities. Therefore, when such measures are applied in contexts where they may not be wholly reflective of the concept they intend to measure or capture, such as in rural areas based upon the findings within this review, it is important to remain cautious when interpreting results.

As highlighted in the previous sections, there is much literature addressing the measurement of deprivation, including specifically, the various indices developed to undertake this task. Importantly, these indices, including the IoD, have often been developed with the purpose of measuring deprivation nationwide, incorporating all types of environments. Notably, very few attempts (with exceptions) to distinguish between environments, or to develop context specific metrics, have been identified within the literature. These choices have often been justified, such as that by Martin and colleagues, who highlighted that *‘the deprivation experienced by people in rural areas is at least nominally similar to that experienced by urban populations and includes such factors as unemployment’* (2000; 740). Focusing upon rural contexts, several scholars have attempted to explore deprivation using area-based deprivation measures. For example, Hodge et al., (2000) identified ‘bundles’ of indicators which combined factors which could be used to assess disadvantage in rural areas. These ‘bundles’ included: access to employment; quality of employment; low income; housing accessibility; housing quality; and access to services. The authors noted that user feedback suggested that the ‘bundles’ could equally be applied in both rural and urban settings, omitted key aspects of disadvantage, and were limited by a lack of robust data. Further examples are the Havard index which was developed using 19 components from the French Census (Havard et al., 2008), and the Rey Index which included only 4 indicators (Rey et al., 2009). Again, both these indices were deemed applicable in both rural and urban areas, and were considered limited in value given their high correlation with existing indices (e.g., Townsend and Carstairs). These examples provide some level of insight into why few context-specific indices have been developed, and why most explorations into rural disadvantage to date have depended upon the application of existing widely used and valued measures.

However, following a review of the conceptualisation of rural deprivation in section 3, it is evident that although there is this certain degree of similarity, there remain important differences between rural and urban deprivation. This has raised important questions regarding the appropriateness of relying upon single area-based metrics to measure deprivation nationally, and of the comprehensiveness of the indicators entailed within these indices (Haase and Walsh, 2007). The IMD is now one of the

most widely used area-based deprivation measures in the UK, and analyses have repeatedly shown that rural areas are typically less deprived than urban areas (see section 4). However, there have been several arguments advanced which suggest that the IMD, which provides an aggregate measure of deprivation for the geographical area within which it was calculated, is *'inflexible to adaptation for specific geographies or purposes'* (Burke and Jones, 2019), and therefore may be inappropriate for explorations into rural deprivation. Several scholars have claimed that these deprivation indices, as they have been constituted to date, are more appropriate for representing disadvantage in urban compared to rural areas (Martin et al., 2000; Burke and Jones 2019). In effect, in providing aggregate measures of disadvantage within the geographical areas for which the index is calculated, they can readily overlook isolated areas of rural deprivation (Cloke, 2013; Huby et al., 2009; Burke and Jones, 2019). Although the literature consistently highlights that rural areas are less deprived than urban areas, it is important to acknowledge some authors' suggestions of a potential urban bias within the topic of multiple deprivation, and specifically within the development of area-based deprivation measures such as the IMD. As Farmer and colleagues noted, *'the traditional focus on urban problems by urban based researchers is symptomatic of the wider policymaking context'* (2001; 486). Consequently, it has been argued that by relying on current area-based measures, deprivation in rural settings may be missed.

5.2 The issue of geographical scale

A statistical release report by the Department of Levelling Up, Housing and Communities (previously the Ministry of Housing, Communities and Local Government (MHCLG)) stated that *"It is important to note that these statistics [IMD] are a measure of relative deprivation, not affluence, and to recognise that not every person in a highly deprived area will themselves be deprived. Likewise, there will be some deprived people living in the least deprived areas"* (2019; pg. 4). This is related to the ecological fallacy problem, and is an issue concerning geographical scale which has been identified as being *particularly* salient within rural settings, and has formed one of the main criticisms directed towards the application of area-based deprivation measures in these settings.

Deprivation scores arising from measures such as the IMD are aggregated to specified geographies, commonly LSOAs or local authorities. In rural areas, these are typically spatially larger entities containing more geographically dispersed populations, and therefore have lower population densities than their urban counterpart areas. For example, a statistical bulletin released by the ONS indicated that on average in 2020, LSOAs in England classified as 'countryside living' have a lower population density (63 people per square kilometre) than the country as a whole. For other types of area, population densities ranged from around 1,000 people per square km for 'suburban living' and 'industrious communities', to nearly 11,000 people per square km in 'inner city cosmopolitan' LSOAs (2021; 3). It is therefore possible to deduce that deprivation may also be more geographically dispersed in rural LSOAs, and importantly the IMD approach has been criticised for its failure to give much weight to deprivation which is not geographically concentrated (Clelland and Hill, 2019). Therefore, in more dispersed rural settings, deprivation scores may mask or conceal unique characteristics and substantial variation which may exist across a more expansive geographical area.

Consequently, pockets of deep deprivation may be overlooked as they are too small to be recognised. In the Scottish context, McCartney and Hoggett (2023) have alluded to this challenge. In having spatially heterogeneous populations, they stated that this meant that a somewhat large proportion of income and employment deprived people living in rural, remote and island areas were “missed” in area-based deprivation index analyses, because at area level these deprived minorities are hidden by the less-deprived majority. Although Leckie, Munro and Pragnall (2021) suggested that deprivation in rural areas does tend to be concentrated within rural towns and villages, with support from other studies (McKendrick et al., 2011; Jones 2015), they also acknowledged that this may still only consist of a few isolated houses along a street or on the edge of a village, as opposed to being characteristic of the entire neighbourhood. Furthermore, as the IMD is a measure of deprivation and not affluence, it has also been emphasised that pockets of deprivation may also be less likely to be identified within relatively affluent areas. Bertin et al., note that *‘rural populations are more heterogeneous than their urban counterparts, with some of the poorest people interspersed amongst very wealthy landowners, commuters, and professionals’* (2014; 2).

Bringing these issues together, a recent paper published by Boswell and colleagues (2022), entitled ‘Place-based politics and Nested Deprivation in the UK: Beyond Cities-towns, ‘Two Englands’ and the ‘Left Behind’ introduced the concept of nested deprivation, which they define as deprivation that occurs in just one housing estate or even one row of flats within neighbourhoods that are otherwise affluent. The authors highlighted that aggregate statistics and sweeping narratives concerning deprivation can overlook the ‘nested deprivation’ that often exists within areas across the UK, and specifically emphasised the challenges associated with living in a nested deprivation neighbourhood within a relatively affluent and geographically dispersed context. The authors highlighted that *‘inequality in contexts of nested deprivation is acute and immediate. For individuals living in nested deprivation, economic, social, and political inequality is in-your-face, not through the television set...People living in nested deprivation are not so much the ‘Left Behind’ as the ‘Never acknowledged’* (2022; 170-171).

As a consequence of these challenges linked to the issue of geographical scale in rural areas, many individuals and households in need will live in areas that do not rank highly in national rankings and therefore may not qualify for available funding or other support. It is therefore important to consider what is a meaningful level at which rural deprivation should be measured? Some studies (e.g., Burke and Jones, 2019) have tested the applicability of using LSOAs, the most commonly employed small area geography by the IMD, within deprivation analyses. Perhaps somewhat surprisingly, when compared with smaller, more granular geographies (i.e., output areas (OAs) which contain approximately 129 households), it remained unclear which geographical level was more effective at capturing rural disadvantage. One potential explanation advanced was that pockets of rural deprivation may exist on a considerably smaller scale than even the Output Area level (Jones, 2015). A final scale related issue identified in the literature as potentially causing difficulties in interpreting IMD results and therefore in obtaining a more comprehensive understanding of deprivation in rural settings, arose when contending with small numbers of areas being included within some categories of the rural-urban classification. For example, in their development of the rural deprivation index, Burke

and Jones (2019) argued that due to smaller frequencies, there was a need to combine some of the classes reflecting sparsity with other rural classes, in order to meet eligibility criteria for conducting statistical analyses. Again, this could serve to hinder the aim of obtaining a comprehensive understanding of rural deprivation.

5.3 The applicability of the current IMD domains, weights and indicators in rural areas

The choice of domains, indicators and weightings for the IMD are largely determined by reference to both theory (Commins, 2004; Noble et al., 2006; Smith et al., 2015) and user consensus (Noble et al., 2019). However, importantly, Commins highlights that whilst deprivation measures '*remain to be based on theoretically adequate causal explanations of deprivation...aspects of causality may differ across rural and urban contexts*' (2004; 64), and suggests that the various facets of deprivation may have different implications in different geographical contexts. This would indicate that such measures should be applied and tested in specific geographical settings, and the associated indicators and weightings are carefully considered in order to avoid inadvertent bias in favour of either rural or urban areas. Notwithstanding this, Clelland and Hill (2019) argue that whilst measures such as the IMD do have clear theoretical frameworks, their development still requires a series of decisions, many of which are often pragmatic. Clelland (2021) later added to this, arguing that the choice of specific indicators for area-based deprivation measures is subject to researchers' value judgements and the availability of reliable data sources at the desired geographical level, whilst claiming the domain weightings are essentially arbitrary.

From a rural perspective, the literature indicates that these abovementioned possibilities may prove particularly problematic. Firstly, it has been suggested that some of the domains, for example 'Barriers to housing and services', which as shown in section 3, is highly relevant in rural settings (Williams and Doyle, 2016), receives insufficient weighting. Commins (2004) referred to the Northern Irish context and the implementation of the multiple deprivation measure (NIMDM) devised by Noble and colleagues in 2001. The author noted that measuring geographical access in rural contexts would require a reconsideration of the weighting of the constituent variables or domains. When the NIMDM was used as the basis for rural development resource allocation, it was claimed to disfavour poorer rural areas in funding provision, namely because, *in his opinion*, geographical access and housing had been afforded unduly low weightings. Furthermore, in a consideration and comparison of the Robson and Noble deprivation measures in Northern Ireland, it was found that rural areas generally emerged as less deprived using the Noble index than the previously used Robson index, whereas urban areas emerged as more deprived. The authors questioned if these differences were driven by methodological differences in the measures or if there had been a genuine shift in deprivation from rural to urban areas. Having explored the data, they subsequently concluded that it was likely to have more to do with statistics than reality. Reiterating the importance of area-based deprivation measures containing applicable indicators, they identified that the Noble measure had deliberately excluded some of the earlier indicators used by Robson, including a lack of public sewerage, which may have partly accounted for this shift (Northern Ireland Assembly, 2002).

A second challenge identified concerning the application of area based deprivation measures, including the IoD, in rural areas was related to the appropriateness of the methodologies used to measure deprivation in certain domains. For example, geographical access to services, an English IoD sub-domain integral to rural deprivation, is currently measured using estimated road distances to key services. However, it has been suggested within the literature that this may not be the most appropriate means of measurement in rural areas given that it fails to adequately capture important factors such as car availability and the costs of both transport and service use (Niggebrugge et al., 2005). However, elsewhere in the literature there has also been arguments advanced that the IMD indicators relating to access to services do more readily capture deprivation in rural areas than other indicators, such as income and employment (McCartney et al, 2023). As noted earlier in this review, it has been suggested in some literature that certain indicators used to measure income and employment deprivation within the IMD are inapplicable for measurement in rural areas (Williams and Doyle, 2016). For example, section 3 identified the issue of hidden unemployment as being particularly problematic in rural areas. Seasonal employment, underemployment, and the issue of unemployed people choosing not to claim employment-related benefits due to a prevailing culture of self-reliance were all found to not be adequately addressed within these IMD domains. On the contrary, income and employment deprivation within the IMD is currently primarily measured using administrative data which focuses upon identifying individuals and households being in receipt of certain benefits or having earnings below a specific threshold. The true extent of these types of deprivation in these areas may therefore be concealed, and the low-waged, low-quality, part-time, seasonal, and sometimes informal nature of employment in the countryside may be masked (Clove et al., 1997).

Linked to this issue concerning the appropriateness of employment and income deprivation indicators, much of the literature which focuses upon rural deprivation and poverty refers to several other distinct, unique challenges in rural settings which are not adequately reflected in census or administrative data, and are thereby not included within area-based deprivation measures such as the IoD. On a more general level, it has been argued that existing measures may place too much emphasis upon material deprivation (i.e., having sufficient physical resources such as food, shelter and clothing) to the detriment of furthering our understanding of social deprivation, or the ability for individuals to participate in the normal social life of a community as a consequence of living in a rural setting (Martin et al., 2000; Jones, 2015; Bertin et al., 2014). More specifically, a recent Pragmatix Advisory report in 2021 entitled '*Rural recognition, recovery, resilience and revitalisation*' which focused on the strengthening of economies and addressing deprivation in rural and coastal communities in England, drew attention to complexities centring upon measuring educational deprivation in rural areas (Leckie, Munro, and Pragnell, 2021). Whilst IoD indicators concerning qualification attainment are highlighted as being undoubtedly appropriate, the report refers to a notable absence of measures of digital training or education. Given the potential increased deprivation concerning access to services in rural areas, and the subsequent increased reliance upon digital connectivity (see section 3), the report acknowledged that those without knowledge of how to use these digital services are inevitably disadvantaged.

Some further examples of pertinent rural issues relating to deprivation include fuel poverty (i.e. when households energy costs are higher than household incomes can sustain), opportunity deprivation (i.e., a lack of opportunities for education, employment, recreation etc., and less access to services such as shops, healthcare and childcare), and mobility deprivation (i.e., in accessing employment and services, including digital services), all of which have been identified as requiring further thought and consideration within current area-based deprivation measures (Scott et al., 2007; Williams and Doyle, 2016). In a 2018 report prepared for Power to Change on the re-thinking of the English indices of multiple deprivation, the authors referred to issues which had been explored as part of the review of the English IoD system in order to support the development of the 2015 IoD iteration (Smith et al., 2018). Here, it was highlighted that the IoD review team had considered adding three new types of service to the IoD indicator library, including access to childcare services, access to broadband (allowing for the dematerialisation of some services), and fuel poverty as a measure of access to services relating to the 'asset'-based dimension of accessibility for energy services (Smith et al., 2018). However, despite being particularly relevant in rural areas, according to the CLG report on 'Updating the English Indices of Deprivation: report for consultation technical annex', it was found that the decision was made to not include these potential measures within the forthcoming 2015 iteration of the index. Reasons included the unavailability of robust data concerning access to childcare services without significant extra work; the view that poor broadband speed, per se, was not a generalised measure of deprivation at that time, but rather a condition experienced by a small number of people or areas; and the methodologies used to generate data concerning fuel poverty could not produce robust estimates at lower level geographies (Department for Communities and Local Government, 2014).

Finally, some authors have alluded to issues concerning the combination of indicators included within IMD domains, and how these could prove problematic in measuring rural deprivation. When compared to urban LSOAs, it is suggested that rural LSOAs may be highlighted as more deprived within the indoor living environment subdomain given there is a greater proportion of housing in poor condition and without central heating in these settings (Roberts and Henwood, 2019; Roberts, 2020). However, as these indicators are included alongside those within the outdoor living environment subdomain, including air pollution and road traffic accidents, which are often perceived to be more prevalent issues within urban settings, such rural housing challenges may be downplayed in the overall living environment domain score. A similar problem was identified using the example of the barriers to housing and services domain. The literature suggests that rural areas are more likely to be deprived within the geographical barriers subdomain compared to their urban counterparts (Burke and Jones, 2019). However, with the exception of housing affordability, the issues of homelessness and overcrowding which are incorporated within the wider barriers subdomain may serve to downplay the overall significance of this type of deprivation in rural areas (Leckie, Munro, and Pragnell, 2021).

5.4 Can the IMD overcome these challenges?

Whilst there has been evidence that it is possible to adapt and re-standardise certain deprivation indices to make them more sensitive to characteristics within specific

settings (e.g., Carstairs index within rural areas (Bertin et al., 2014; Fecht et al., 2017)), it may be more difficult in the instance of the IMD given its somewhat more complex methodology. The IMD methodology uses shrinkage estimation processes to deal with statistical unreliability in instances where there are only small numbers of cases within an area to move it towards the local authority average, and factor analysis in order to combine indicators within domains, which as highlighted in the previous subsection, can include some indicators which are particularly salient in urban areas but less common in rural settings. Fecht and colleagues suggest that both methods may serve to potentially distort deprivation scores in rural areas, particularly those which are located close to urban centres (Fecht et al., 2017).

Notwithstanding these methodological challenges, there is evidence that it is possible to conduct basic explorations without the need to standardise indices to reflect rural areas only. Upon doing this, some authors have asserted that there is greater heterogeneity in rural areas than is highlighted by original index analyses, and the findings have mirrored the experiences and knowledge on the ground (Fecht et al., 2017). By removing all areas classified as urban, and then rescaling IMD values for rural areas only, DEFRA (March 2023 Statistical Digest of Rural England – Communities and Households) were able to identify multiple pockets of relative rural deprivation located amongst wider areas deemed to be relatively less deprived, particularly across central England. Similarly, within a Scottish context using the SIMD, McCartney and Hoggett (2023) chose to rank data zones *within* urban-rural classification strata. In doing this, they argued that they could better identify people who were (income) deprived in rural areas. Similar to DEFRA's findings, by adopting this approach, the percentage of income deprived people living in the most deprived 20% of areas within each urban-rural classification strata ranged from 45% in large urban areas to 35% in remote small towns and remote rural areas.

Notwithstanding these efforts, the limitations arising due to deprivation indices not being specifically formulated for rural populations remain, and Fecht et al., (2017) emphasised the need for additional research to identify alternative input variables. The authors argued that this would produce a more rural specific deprivation measure which more acutely reflects the experience and nature of deprivation in rural areas, as at present, the indices fail to '*fully capture the fragmented and often very local nature of rural material deprivation*' (Fecht et al., 2017; p.424). Only a small number of scholars have taken a more sophisticated approach in attempting to measure rural deprivation. Burke and Jones (2019) uniquely developed their own index of rural deprivation and subsequently applied it within Norfolk to explore its validity and applicability. This entailed 'bundling' existing IMD indicators deemed relevant in both rural and urban areas (in Norfolk) into one domain, and those relevant only to the setting of interest (e.g., rural) into a separate domain. Other scholars who have attempted to develop specific sub-components of rural deprivation within their analyses include: Hodge et al., (2000) who identified six domains reflecting areas of policy; Haase and Pratschke (2012) who devised three rural specific dimensions based upon analyses of other deprivation indices and the literature; Thomson et al., (2014) who developed five domains based upon governmental strategic outcomes, and Farmer et al., (2001) who identified five themes based on a literature review. Nevertheless, despite multiple attempts to specifically explore rural deprivation, most of these studies continue to recognise and emphasise the value, strengths, and advantages of the IMD.

Reflective of the identified criticisms, and notwithstanding attempts to overcome challenges, there have been arguments that there is first and foremost a need to further advance our understanding of the concepts of rural deprivation, inequality, and poverty (Fecht et al., 2017; McAreavey and Brown, 2019). Indeed, McAreavey and Brown (2019) advance several suggestions or recommendations for research which could help obtain a more comprehensive understanding of the complexities of these concepts. In turn, findings could then be considered when improving existing or developing new area-based deprivation measures. Suggested research recommendations included:

- Examining relationships between poverty and inequality using multi-level, mixed methods approaches which merge statistical analyses with lived experiences.
- Focusing upon people and places in deep and persistent poverty, and those who are particularly vulnerable.
- Examining relationships between lack of income and the various dimensions of social exclusion to identify if low-income is a determinant or a consequence of this phenomenon.
- Conducting more research to determine why eligible people don't utilise all services and support which they are eligible for.
- Studying the anti-poverty impact of rural proofing in the UK.
- Further examining implications of welfare reform on rural communities.

6 Conclusions

A review of the conceptual and empirical literature surrounding the topic of rural deprivation has highlighted that there are several dimensions of deprivation, including particular indicators, that are particularly salient across rural England. However, despite rural deprivation being on the radar of scholarly attention for several decades, it remains somewhat underexplored. Whereas nationwide deprivation, and to a lesser extent urban deprivation, has received ample academic attention during this time period, and therefore been actively addressed within the research and policy arenas, rural deprivation has remained slightly invisible. This has been partially explained by the substantial variation that exists in the definitions of rural and rurality, and the ongoing dominance of popular discourses such as the rural idyll which serve to mask or conceal the presence of rural poverty, disadvantage and deprivation. Nonetheless, the literature, supported by analyses of the various iterations of the IoD over the past number of decades, emphasises that rural deprivation remains a challenge to be contended with in England. Although there are some parts of rural England where the presence of deprivation is more evident, the literature emphasises that not all rural areas are homogenous and will share similar experiences. This is particularly notable with regards to various settlement types.

There are many similarities in how deprivation is experienced in both urban and rural areas, and the literature points towards the role of employment, income, health, education, access to services, housing and crime in both settings; each of which are currently encapsulated in detail by the existing IoD. Indeed, one of the main aims of the IoD is to strive to incorporate consistent indicators and measures reflective of

deprivation across all parts of the country, including their respective social, economic and physical environments. Notwithstanding these efforts, reflecting upon what the literature informs us concerning the nature of rural spaces, the characteristics and distinctiveness of rural deprivation, and the development and implementation of area-based deprivation measures, it has been suggested that there may be several distinctive dimensions of the concept which are not currently sufficiently reflected in existing area-based deprivation indices such as the IoD. Indeed, over the years, a number of criticisms have been directed towards area-based deprivation measures in relation to their implementation in rural settings. Whilst the overarching domains within the indices may indeed be reflective of the concept, the details of the specific indicators (including the weightings they receive) may result in rural deprivation being misrepresented. Moreover, given the geographically dispersed nature of rural areas, it has been suggested that the implementation of these indices could potentially prove problematic. This is largely because these indices have been argued to be better designed to capture *concentrated* deprivation. Consequently, they may fail to pick up the substantial variation which exists within geographically larger rural areas with their more dispersed populations.

Although there have been some, albeit few, attempts to overcome these various challenges, the continued implementation of existing deprivation measures in their current form, including the IoD, emphasises the irrefutability of their value. Nonetheless, there remains scope for further research to continue to enhance our understanding of the concept of rural deprivation. It may then be possible to further augment the undeniable utility of these indices by tailoring them with additional appropriate data. In doing so, this may help us to better understand different challenges relating to deprivation and disadvantages in different places.

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