

# UK Biobank

## Index of Multiple Deprivation Scores

Version 2.0

[www.ukbiobank.ac.uk](http://www.ukbiobank.ac.uk)

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This document version has been updated to remove reference to data downloads since the move to the UK Biobank Research Analysis Platform (UKB-RAP) for data access, and, to correct the Data Download section that previously suggested multiple IMD editions per country were used in calculating IMD scores, when in fact only one edition was used based on the average baseline assessment date per country.

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# INDEX OF MULTIPLE DEPRIVATION SCORES

## 1. DEPRIVATION MEASURES

Since 2016, deprivation data on UK Biobank participants have been available on the full cohort, based upon individuals' postcode output areas at baseline assessment, merged with "Townsend deprivation index" scores ([Data-Field 22189](#)). This field can be used to assess the level of material deprivation of UK Biobank participants at the beginning of the study. Index of Multiple Deprivation (IMD) scores are based on more factors than Townsend, and hence describe deprivation in a much more detailed way. Data-Fields for the overall IMD scores and each of the subdomains that were used to derive them have been made available for England, Scotland and Wales in [Category 76](#).

## 2. LICENSING

All IMDs were published using the Open Government License (OGL) version 3.0, with the following conditions:

*You are free to:*

- *copy, publish, distribute and transmit the Information;*
- *adapt the Information;*
- *exploit the Information commercially and non-commercially for example, by combining it with other Information, or by including it in your own product or application.*

*You must (where you do any of the above):*

- *acknowledge the source of the Information in your product or application by including or linking to any attribution statement specified by the Information Provider(s) and, where possible, provide a link to this licence.*

Links to the UK Government websites for England, Scotland and Wales can be found in the notes section of [Category 76](#) on the Data Showcase.

## 3. DOWNLOADING, CLEANING AND MATCHING THE DATA

### DATA DOWNLOAD

IMD scores are calculated per country in the UK. The data are available as Excel spreadsheets:

- English IMD: <https://www.gov.uk/government/collections/english-indices-of-deprivation>
- Scottish SIMD: <http://www.gov.scot/Topics/Statistics/SIMD>
- Welsh WIMD: <http://gov.wales/statistics-and-research/welsh-index-multiple-deprivation/>

As IMD scores are calculated in different ways between England, Scotland and Wales, the UK Biobank team did not attempt to merge them but rather published them separately. The IMD edition year for each country was selected as the same year (or closest year after) the mean baseline assessment date per country, resulting in use of the following editions:

- 2010 edition of English IMD (8 scores)
- 2009 edition of Scottish IMD (8 scores)
- 2008 edition of Welsh IMD (9 scores)

## CLEANING THE DATA

The Excel spreadsheets were imported, converted to standard delimited format and harmonised for each country. Indeed, it is not possible to match the IMD scores between countries, as they are not calculated based on the same input (variables and domains) and output (scales vary across countries and domains: 0 to 1, 0 to 100, or even distributions standardized around 0).<sup>1</sup>

Data for the following subdomains were collated for each country (click on each one to navigate to the corresponding data field on Showcase):

Country	England	Scotland	Wales
<b>Overall IMD</b>	<a href="#">IMD</a>	<a href="#">SIMD</a>	<a href="#">WIMD</a>
<b>Subdomains</b>	<a href="#">Barriers to housing and services</a> <a href="#">Crime and disorder</a> <a href="#">Education, skills and training</a> <a href="#">Employment</a> <a href="#">Health deprivation and disability</a> <a href="#">Income</a> <a href="#">Living environment</a>	<a href="#">Crime (only from 2006)</a> <a href="#">Current income</a> <a href="#">Education, skills and training</a> <a href="#">Employment</a> <a href="#">Geographic access</a> <a href="#">Health</a> <a href="#">Housing</a>	<a href="#">Access to services</a> <a href="#">Community safety (only from 2008)</a> <a href="#">Education</a> <a href="#">Employment</a> <a href="#">Health</a> <a href="#">Housing</a> <a href="#">Income</a> <a href="#">Physical environment</a>

## MATCHING THE DATA

For each UK Biobank participant, the scores were matched using:

1. The corresponding Lower layer Super Output Area (LSOA) of the postcode given at baseline, and,
2. The IMD release of the country of residence at baseline.

LSOAs were matched to IMD scores for 97.5% of participants at baseline, with the remainder not found in the government's data for:

- 2.5% living in England
- 0.1% living in Wales

<sup>1</sup><https://webarchive.nationalarchives.gov.uk/ukgwa/20141119170512/http://neighbourhood.statistics.gov.uk/dissemination/Info.do?page=analysisandguidance/analysisarticles/indices-of-deprivation.htm> advises to keep the country-specific IMD scores separate.