Package ‘IMD’

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Type Package

Title Index of Multiple Deprivation Data for the UK

Version 1.0.2


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URL https://github.com/matthewgthomas/IMD

BugReports https://github.com/matthewgthomas/IMD/issues

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

Imports devtools, rlang, dplyr, tidyr, readr, tibble, janitor, Hmisc, httr, readxl, readODS

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

Depends R (>= 4.1.0)

NeedsCompilation no
aggregate_scores

**Description**

Aggregate deprivation scores into higher-level geographies, calculating:
- proportion of highly deprived areas
- extent (proportion of the local population that live in the most deprived areas)
- population-weighted average score

**Usage**

```r
aggregate_scores(
  data,
  score_col,
  rank_col,
  decile_col,
  higher_level_geography,
)```
Arguments

data | Data frame containing a variable to be aggregated, lower level geography population estimates, and a higher level geographical grouping variable
score_col | Variable containing deprivation scores
rank_col | Variable containing deprivation ranks
decile_col | Variable containing deprivation deciles
higher_level_geography | Name of the variable in the data frame containing the higher level geography names/codes
population | Name of the variable in the data frame containing the population estimates of the lower level geography

Value

A tibble containing population-weighted average scores, proportions of highly deprived areas, and the extent for the higher-level geography.

Description

extent calculates 'extent' scores when aggregating up small areas.

Usage

`calculate_extent(data, var, higher_level_geography, population)`
Details

"Extent" is the proportion of the local population that live in areas classified as among the most deprived in the higher geography. The calculation of extent is taken from the IMD technical report Appendix N:

"The population living in the most deprived 11 to 30 per cent of Lower-layer Super Output Areas receive a sliding weight, ranging from 0.95 for those in the most deprived eleventh percentile, to 0.05 for those in the most deprived thirtieth percentile. In practice this means that the weight starts from 0.95 in the most deprived eleventh percentile, and then decreases by (0.95-0.05)/19 for each of the subsequent nineteen percentiles until it reaches 0.05 for the most deprived thirtieth percentile, and zero for areas outside the most deprived 30 per cent"

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**calculate_pop_weighted_score**

*Population-weighted scores*

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**Description**

Calculate population-weighted scores within small areas.

**Usage**

```
calculate_pop_weighted_score(data, var, higher_level_geography, population)
```

**Arguments**

- **data**: Data frame containing a variable to be aggregated, lower level geography population estimates, and a higher level geographical grouping variable
- **var**: Name of the variable in the data frame containing the variable to be aggregated (e.g. rank) for the lower level geography
- **higher_level_geography**: Name of the variable in the data frame containing the higher level geography names/codes
- **population**: Name of the variable in the data frame containing the population estimates of the lower level geography
**calculate_proportion**

**Proportion**

**Description**

Calculate proportion of small areas in the higher-level geography that are within the 10

**Usage**

```r
calculate_proportion(data, var, higher_level_geography, max_quantile = 1)
```

**Arguments**

- `data`: Data frame containing a variable to be aggregated, lower level geography population estimates, and a higher level geographical grouping variable
- `var`: Name of the variable in the data frame containing the variable to be aggregated (e.g., decile) for the lower level geography
- `higher_level_geography`: Name of the variable in the data frame containing the higher level geography names/codes
- `max_quantile`: Get proportion of small areas categorised as less than or equal to ‘max_quantile’ (default = 1)

**imd_england_lad**

*Index of Multiple Deprivation for Local Authorities in England*

**Description**

A data set containing aggregated scores and proportions for Local Authorities in England. Note that extents are not available.

**Usage**

```r
imd_england_lad
```

**Format**

A data frame of class "tbl" with 317 rows and 18 variables:

- `lad_code`: LAD code
- `Score`: Population-weighted average score
- `Proportion`: Proportion of small areas in the nation’s most deprived
- `Extent`: Extent for overall IMD
- `Income_Score`: Population-weighted average score for Income domain
**Income_Proportion**  Proportion of most deprived areas for Income

**Employment_Score**  Population-weighted average score for Employment domain

**Employment_Proportion**  Proportion of most deprived areas for Employment

**Education_Score**  Population-weighted average score for Education domain

**Education_Proportion**  Proportion of most deprived areas for Education

**Health_Score**  Population-weighted average score for Health domain

**Health_Proportion**  Proportion of most deprived areas for Health

**Crime_Score**  Population-weighted average score for Crime domain

**Crime_Proportion**  Proportion of most deprived areas for Crime

**Housing_and_Access_Score**  Population-weighted average score for Housing/Access domain

**Housing_and_Access_Proportion**  Proportion of most deprived areas for Housing/Access domain

**Environment_Score**  Population-weighted average score for Environment domain

**Environment_Proportion**  Proportion of most deprived areas for Environment ...

**Source**

https://www.gov.uk/

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**imd_england_lsoa**  
*Index of Multiple Deprivation for LSOAs in England*

**Description**

A data set containing IMD ranks and deciles for Lower Layer Super Output Areas (LSOAs) in England.

**Usage**

imd_england_lsoa

**Format**

A data frame of class "tbl" with 32,844 rows and 17 variables:

- `lsoa_code`  LSOA code
- `IMD_decile`  IMD decile
- `Income_decile`  Income domain decile
- `Employment_decile`  Employment domain decile
- `Education_decile`  Education domain decile
- `Health_decile`  Health and Disability domain decile
- `Crime_decile`  Crime domain decile
- `Housing_and_Access_decile`  Housing and access to services domain decile
Environment_decile  Environment domain decile
IMD_rank  IMD rank
Income_rank  Income domain rank
Employment_rank  Employment domain rank
Education_rank  Education domain rank
Health_rank  Health domain rank
Crime_rank  Crime domain rank
Housing_and_Access_rank  Housing and access to services domain rank
Environment_rank  Environment domain rank ...

Source

https://www.gov.uk/

imd_england_msoa  Index of Multiple Deprivation for MSOAs in England

Description

A data set containing population-weighted average scores, proportions and extents for Middle Layer Super Output Areas (LSOAs) in England.

Usage

imd_england_msoa

Format

A data frame of class "tbl" with 6,791 rows and 25 variables:

msoa_code  MSOA code
Score  Population-weighted average IMD score
Proportion  Proportion of small areas in the nation’s most deprived
Extent  Extent for overall IMD
Income_Score  Population-weighted average score for Income domain
Income_Proportion  Proportion of most deprived areas for Income
Income_Extent  Extent for Income
Employment_Score  Population-weighted average score for Employment domain
Employment_Proportion  Proportion of most deprived areas for Employment
Employment_Extent  Extent for Employment
Education_Score  Population-weighted average score for Education domain
Education_Proportion  Proportion of most deprived areas for Education
**Education_Extent**  Extent for Education

**Health_Score**  Population-weighted average score for Health domain

**Health_Proportion**  Proportion of most deprived areas for Health

**Health_Extent**  Extent for Health

**Crime_Score**  Population-weighted average score for Crime domain

**Crime_Proportion**  Proportion of most deprived areas for Crime

**Crime_Extent**  Extent for Crime

**Housing_and_Access_Score**  Population-weighted average score for Housing/Access domain

**Housing_and_Access_Proportion**  Proportion of most deprived areas for Housing/Access domain

**Housing_and_Access_Extent**  Extent for Housing/Access

**Environment_Score**  Population-weighted average score for Environment domain

**Environment_Proportion**  Proportion of most deprived areas for Environment

**Environment_Extent**  Extent for Environment ...

**Source**

https://www.gov.uk/

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**imd_england_ward**  Index of Multiple Deprivation for Wards in England

**Description**

A data set containing population-weighted average scores, proportions and extents for wards in England.

**Usage**

imid_england_ward

**Format**

A data frame of class "tbl" with 7,180 rows and 25 variables:

- **ward_code**  Ward code
- **Score**  Population-weighted average IMD score
- **Proportion**  Proportion of small areas in the nation’s most deprived
- **Extent**  Extent for overall IMD
- **Income_Score**  Population-weighted average score for Income domain
- **Income_Proportion**  Proportion of most deprived areas for Income
- **Income_Extent**  Extent for Income
- **Employment_Score**  Population-weighted average score for Employment domain
**Employment_Proportion**  Proportion of most deprived areas for Employment

**Employment_Extent**  Extent for Employment

**Education_Score**  Population-weighted average score for Education domain

**Education_Proportion**  Proportion of most deprived areas for Education

**Education_Extent**  Extent for Education

**Health_Score**  Population-weighted average score for Health domain

**Health_Proportion**  Proportion of most deprived areas for Health

**Health_Extent**  Extent for Health

**Crime_Score**  Population-weighted average score for Crime domain

**Crime_Proportion**  Proportion of most deprived areas for Crime

**Crime_Extent**  Extent for Crime

**Housing_and_Access_Score**  Population-weighted average score for Housing/Access domain

**Housing_and_Access_Proportion**  Proportion of most deprived areas for Housing/Access domain

**Housing_and_Access_Extent**  Extent for Housing/Access

**Environment_Score**  Population-weighted average score for Environment domain

**Environment_Proportion**  Proportion of most deprived areas for Environment

**Environment_Extent**  Extent for Environment ...

**Source**

https://www.gov.uk/

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**imd_northern_ireland_lad**  
*Index of Multiple Deprivation for Local Government Districts in Northern Ireland*

**Description**

A data set containing proportions and extents for Local Government Districts (Local Authorities) in Northern Ireland.

**Usage**

imd_northern_ireland_lad
Format

A data frame of class "tbl" with 11 rows and 25 variables:

lad_code  LAD code
Proportion Proportion of small areas in the nation’s most deprived
Extent Extent for overall IMD
Income_Proportion Proportion of most deprived areas for Income
Income_Extent Extent for Income
Employment_Proportion Proportion of most deprived areas for Employment
Employment_Extent Extent for Employment
Education_Proportion Proportion of most deprived areas for Education
Education_Extent Extent for Education
Health_Proportion Proportion of most deprived areas for Health
Health_Extent Extent for Health
Crime_Proportion Proportion of most deprived areas for Crime
Crime_Extent Extent for Crime
Access_Proportion Proportion of most deprived areas for Access domain
Access_Extent Extent for Access
Environment_Proportion Proportion of most deprived areas for Environment
Environment_Extent Extent for Environment ...

Source

https://www.nisra.gov.uk/

 IMD_Northern_Ireland_SOA

Index of Multiple Deprivation for Super Output Areas in Northern Ireland

Description

A data set containing IMD ranks and deciles for SOAs in Northern Ireland.

Usage

imd_northern_ireland_soa
**Format**

A data frame of class "tbl" with 890 rows and 17 variables:

- **soa_code** Super Output Area code
- **IMD_decile** IMD decile
- **Income_decile** Income domain decile
- **Employment_decile** Employment domain decile
- **Health_decile** Health and Disability domain decile
- **Education_decile** Education domain decile
- **Access_decile** Access to services domain decile
- **Environment_decile** Environment domain decile
- **Crime_decile** Crime domain decile
- **IMD_rank** IMD rank
- **Income_rank** Income domain rank
- **Employment_rank** Employment domain rank
- **Health_rank** Health domain rank
- **Education_rank** Education domain rank
- **Access_rank** Access to services domain rank
- **Environment_rank** Environment domain rank
- **Crime_rank** Crime domain rank ... 

**Source**

https://www.nisra.gov.uk/

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**imd_scotland_dz**  
*Index of Multiple Deprivation for Data Zones in Scotland*

**Description**

A data set containing IMD ranks and deciles for Data Zones in Scotland

**Usage**

imd_scotland_dz
Format

A data frame of class "tbl" with 6,976 rows and 17 variables:

- **dz_code**: Data Zone code
- **IMD_decile**: IMD decile
- **Income_decile**: Income domain decile
- **Employment_decile**: Employment domain decile
- **Education_decile**: Education domain decile
- **Health_decile**: Health and Disability domain decile
- **Crime_decile**: Crime domain decile
- **Housing_decile**: Housing domain decile
- **Access_decile**: Access to services domain decile
- **IMD_rank**: IMD rank
- **Income_rank**: Income domain rank
- **Employment_rank**: Employment domain rank
- **Education_rank**: Education domain rank
- **Health_rank**: Health domain rank
- **Crime_rank**: Crime domain rank
- **Housing_rank**: Housing domain rank
- **Access_rank**: Access to services domain rank

Source

[https://www.gov.scot/](https://www.gov.scot/)

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**imd_scotland_iz**

*Index of Multiple Deprivation for IZs in Scotland*

Description

A data set containing proportions and extents for Intermediate Zones (IZs) in Scotland. Note that IMD scores for Scotland are not available.

Usage

`imd_scotland_iz`
Format

A data frame of class "tbl" with 1,279 rows and 17 variables:

iz_code Intermediate Zone code
Proportion Proportion of small areas in the nation’s most deprived
Extent Extent for overall IMD
Income_Proportion Proportion of most deprived areas for Income
Income_Extent Extent for Income
Employment_Proportion Proportion of most deprived areas for Employment
Employment_Extent Extent for Employment
Education_Proportion Proportion of most deprived areas for Education
Education_Extent Extent for Education
Health_Proportion Proportion of most deprived areas for Health
Health_Extent Extent for Health
Crime_Proportion Proportion of most deprived areas for Crime
Crime_Extent Extent for Crime
Housing_Proportion Proportion of most deprived areas for Housing domain
Housing_Extent Extent for Housing
Access_Proportion Proportion of most deprived areas for Access domain
Access_Extent Extent for Access ...

Source

https://www.gov.scot/

imd_scotland_lad  Index of Multiple Deprivation for Council Areas in Scotland

Description

A data set containing proportions and extents for Council Areas (Local Authorities) in Scotland. Note that IMD scores for Scotland are not available.

Usage

imd_scotland_lad
Format

A data frame of class "tbl" with 32 rows and 17 variables:

lad_code  Local Authority code
Proportion  Proportion of small areas in the nation’s most deprived
Extent  Extent for overall IMD
Income_Proportion  Proportion of most deprived areas for Income
Income_Extent  Extent for Income
Employment_Proportion  Proportion of most deprived areas for Employment
Employment_Extent  Extent for Employment
Education_Proportion  Proportion of most deprived areas for Education
Education_Extent  Extent for Education
Health_Proportion  Proportion of most deprived areas for Health
Health_Extent  Extent for Health
Crime_Proportion  Proportion of most deprived areas for Crime
Crime_Extent  Extent for Crime
Housing_Proportion  Proportion of most deprived areas for Housing domain
Housing_Extent  Extent for Housing
Access_Proportion  Proportion of most deprived areas for Access domain
Access_Extent  Extent for Access ...

Source

https://www.gov.scot/

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| imd_wales_lad | Index of Multiple Deprivation for Local Authorities in Wales |

Description

A data set containing proportions and extents for Local Authorities in Wales. Note that IMD scores for Wales are not available.

Usage

imd_wales_lad
**Format**

A data frame of class "tbl" with 22 rows and 19 variables:

- **lad_code** LAD code
- **Proportion** Proportion of small areas in the nation’s most deprived
- **Extent** Extent for overall IMD
- **Income_Proportion** Proportion of most deprived areas for Income
- **Income_Extent** Extent for Income
- **Employment_Proportion** Proportion of most deprived areas for Employment
- **Employment_Extent** Extent for Employment
- **Education_Proportion** Proportion of most deprived areas for Education
- **Education_Extent** Extent for Education
- **Health_Proportion** Proportion of most deprived areas for Health
- **Health_Extent** Extent for Health
- **Crime_Proportion** Proportion of most deprived areas for Crime
- **Crime_Extent** Extent for Crime
- **Housing_Proportion** Proportion of most deprived areas for Housing domain
- **Housing_Extent** Extent for Housing
- **Access_Proportion** Proportion of most deprived areas for Access domain
- **Access_Extent** Extent for Access
- **Environment_Proportion** Proportion of most deprived areas for Environment
- **Environment_Extent** Extent for Environment ...

**Source**

[https://gov.wales/](https://gov.wales/)

**Description**

A data set containing IMD ranks and deciles for Lower Layer Super Output Areas (LSOAs) in Wales.

**Usage**

`imd_wales_lsoa`
A data frame of class "tbl" with 1,909 rows and 19 variables:

- **lsoa_code**: LSOA code
- **IMD_decile**: IMD decile
- **Income_decile**: Income domain decile
- **Employment_decile**: Employment domain decile
- **Education_decile**: Education domain decile
- **Health_decile**: Health and Disability domain decile
- **Crime_decile**: Crime domain decile
- **Housing_decile**: Housing domain decile
- **Access_decile**: Access to services domain decile
- **Environment_decile**: Environment domain decile
- **IMD_rank**: IMD rank
- **Income_rank**: Income domain rank
- **Employment_rank**: Employment domain rank
- **Education_rank**: Education domain rank
- **Health_rank**: Health domain rank
- **Crime_rank**: Crime domain rank
- **Housing_rank**: Housing domain rank
- **Access_rank**: Access to services domain rank
- **Environment_rank**: Environment domain rank

**Source**

https://gov.wales/

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** IMD_WALES_MSOA **

**Index of Multiple Deprivation for MSOAs in Wales**

**Description**

A data set containing proportions and extents for Middle Layer Super Output Areas (LSOAs) in Wales. Note that IMD scores for Wales are not available.

**Usage**

imd_wales_msoa
Format

A data frame of class "tbl" with 410 rows and 19 variables:

- msoa_code  MSOA code
- Proportion  Proportion of small areas in the nation’s most deprived
- Extent  Extent for overall IMD
- Income_Proportion  Proportion of most deprived areas for Income
- Income_Extent  Extent for Income
- Employment_Proportion  Proportion of most deprived areas for Employment
- Employment_Extent  Extent for Employment
- Education_Proportion  Proportion of most deprived areas for Education
- Education_Extent  Extent for Education
- Health_Proportion  Proportion of most deprived areas for Health
- Health_Extent  Extent for Health
- Crime_Proportion  Proportion of most deprived areas for Crime
- Crime_Extent  Extent for Crime
- Housing_Proportion  Proportion of most deprived areas for Housing domain
- Housing_Extent  Extent for Housing
- Access_Proportion  Proportion of most deprived areas for Access domain
- Access_Extent  Extent for Access
- Environment_Proportion  Proportion of most deprived areas for Environment
- Environment_Extent  Extent for Environment...

Source

https://gov.wales/

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**imd_wales_ward**  
*Index of Multiple Deprivation for Wards in Wales*

Description

A data set containing population-weighted average scores, proportions and extents for wards in Wales. Note that IMD scores for Wales are not available.

Usage

imd_wales_ward
Format

A data frame of class "tbl" with 843 rows and 19 variables:

ward_code Ward code
Proportion Proportion of small areas in the nation’s most deprived
Extent Extent for overall IMD
Income_Proportion Proportion of most deprived areas for Income
Income_Extent Extent for Income
Employment_Proportion Proportion of most deprived areas for Employment
Employment_Extent Extent for Employment
Education_Proportion Proportion of most deprived areas for Education
Education_Extent Extent for Education
Health_Proportion Proportion of most deprived areas for Health
Health_Extent Extent for Health
Crime_Proportion Proportion of most deprived areas for Crime
Crime_Extent Extent for Crime
Housing_Proportion Proportion of most deprived areas for Housing domain
Housing_Extent Extent for Housing
Access_Proportion Proportion of most deprived areas for Access domain
Access_Extent Extent for Access
Environment_Proportion Proportion of most deprived areas for Environment
Environment_Extent Extent for Environment ...

Source

https://gov.wales/

load_composite_imd

Description

Load composite 2020 UK Index of Multiple Deprivation

Usage

load_composite_imd(nation = "E")

Arguments

nation The initial letter of the UK nation whose composite IMD you want to load. Should be one of: (E)ngland, (W)ales, (S)cotland (N)orthern Ireland. See the GitHub link about for more details about why there are separate composite IMDS for each nation.
Examples

```r
## Not run:
imd_uk <- load_composite_imd("E")

## End(Not run)
```
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