Package 'rurality'

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Title Classification and Scoring of U.S. County and ZIP Code Rurality

Version 0.1.1

Description Provides USDA Rural-Urban Continuum Codes (RUCC 2023), Rural-Urban Commuting Area codes (RUCA 2020), and a composite rurality score for all U.S. counties. Functions enable lookup by FIPS code, ZIP code, or county name, and easy merging with existing datasets. Data sources include the USDA Economic Research Service, U.S. Census Bureau American Community Survey, and Census TIGER/Line shapefiles.

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Encoding UTF-8

RoxygenNote 7.3.3

Depends R (>= 4.1.0)

Imports dplyr, rlang, stringr

Suggests ggplot2, knitr, rmarkdown, sf, tigris, testthat (>= 3.0.0)

VignetteBuilder knitr

Config/testthat/edition 3

LazyData true

URL https://github.com/cwimpy/rurality, https://rurality.app

BugReports https://github.com/cwimpy/rurality/issues

NeedsCompilation no

Author Cameron Wimpy [aut, cre] (ORCID: <https://orcid.org/0000-0002-2049-5229>)

Maintainer Cameron Wimpy <cwimpy@astate.edu>

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Contents

`add_rurality` *Merge Rurality Data onto a Data Frame*

Description

Joins rurality data onto an existing data frame by FIPS code.

Usage

```
add_rurality(
  data,
  fips_col = "fips",
  vars = c("rurality_score", "rurality_classification", "rucc_2023")
)
```

Arguments

`data`	A data frame with a FIPS code column.
`fips_col`	The name of the FIPS code column (default: "fips").
`vars`	Which rurality variables to add. Default adds score and classification. Use "all" for all variables.

Value

The input data frame with rurality columns appended.

Examples

```
my_data <- data.frame(fips = c("05031", "06037", "48453"), value = 1:3)
add_rurality(my_data)
add_rurality(my_data, vars = "all")
```

classify_rurality *Classify a Rurality Score*

Description

Converts numeric rurality scores to classification labels.

Usage

```
classify_rurality(score)
```

Arguments

score	A numeric vector of rurality scores (0-100).

Value

A character vector of classifications.

Examples

```
classify_rurality(c(15, 35, 55, 75, 90))
```

county_rurality *County-Level Rurality Data for the United States*

Description

A dataset containing rurality scores, USDA classifications, and demographic data for all U.S. counties. Includes RUCC 2023 codes, population density, distance to metro areas, and a composite rurality score.

Usage

```
county_rurality
```

Format

A tibble with approximately 3,233 rows and 23 columns:

fips 5-digit county FIPS code (character)

state_fips 2-digit state FIPS code (character)

county_fips 3-digit county FIPS code (character)

state_abbr Two-letter state abbreviation

county_name County name

pop_2020 2020 Census population

acs_pop ACS 2022 5-year population estimate

land_area_sqmi Land area in square miles

pop_density Population per square mile

rucc_2023 USDA Rural-Urban Continuum Code (1-9)

rucc_description RUCC code description

omb_designation OMB designation: Metropolitan, Micropolitan, or Nonmetro

lat County centroid latitude

lng County centroid longitude

dist_large_metro Distance to nearest large metro (>1M pop) in miles

dist_medium_metro Distance to nearest medium metro (250K-1M) in miles

dist_small_metro Distance to nearest small metro (50K-250K) in miles

rucc_score RUCC-derived score component (0-100)

density_score Population density score component (0-100)

distance_score Distance to metro score component (0-100)

rurality_score Composite rurality score (0-100)

rurality_classification Classification: Urban, Suburban, Mixed, Rural, Very Rural

median_income ACS 2022 median household income

median_age ACS 2022 median age

Details

The composite rurality score is calculated as a weighted average:

- RUCC score: 55\
- Population density score: 28\
- Distance to metro score: 17\

Classifications:

- 80-100: Very Rural
- 60-79: Rural
- 40-59: Mixed
- 20-39: Suburban
- 0-19: Urban

Source

- USDA Economic Research Service, Rural-Urban Continuum Codes 2023
- U.S. Census Bureau, American Community Survey 2022 5-Year Estimates
- U.S. Census Bureau, TIGER/Line Shapefiles 2020

Examples

```
# View the data
county_rurality

# Filter to rural counties
library(dplyr)
county_rurality |> filter(rurality_classification == "Very Rural")

# Arkansas counties
county_rurality |> filter(state_abbr == "AR")
```

`get_ruca` *Look Up RUCA Code by ZIP Code*

Description

Returns the USDA Rural-Urban Commuting Area code (2020) for one or more ZIP codes or ZCTAs.

Usage

```
get_ruca(zip)
```

Arguments

`zip`	A character vector of 5-digit ZIP codes.

Details

RUCA codes range from 1 (metropolitan core) to 10 (rural). The primary code reflects the majority commuting pattern; the secondary code captures additional commuting flows.

Value

A tibble with columns: zip, primary_ruca, secondary_ruca, state. Returns NA values for ZIPs not in the RUCA dataset.

Examples

```
get_ruca("72401")
get_ruca(c("72401", "90210", "59801"))
```

get_rucc *Get RUCC Code for a County*

Description

Returns the USDA Rural-Urban Continuum Code (2023) for one or more counties.

Usage

```
get_rucc(fips)
```

Arguments

fips	A character vector of 5-digit county FIPS codes.

Value

An integer vector of RUCC codes (1-9), or NA for unmatched FIPS.

Examples

```
get_rucc("05031")
get_rucc(c("05031", "06037"))
```

get_rurality *Look Up Rurality Data by FIPS Code*

Description

Returns the full rurality record for one or more county FIPS codes.

Usage

```
get_rurality(fips)
```

Arguments

fips	A character vector of 5-digit county FIPS codes.

Value

A tibble with rurality data for the matched counties.

Examples

```
get_rurality("05031")
get_rurality(c("05031", "06037", "48453"))
```

ruca_codes *RUCA Code Data for U.S. ZIP Codes*

Description

USDA Rural-Urban Commuting Area codes (2020) for approximately 41,000 ZCTAs.

Usage

```
ruca_codes
```

Format

A tibble with columns:

zip 5-digit ZIP/ZCTA code (character)
state Two-letter state abbreviation
primary_ruca Primary RUCA code (1-10)
secondary_ruca Secondary RUCA code (1-10)

Source

USDA Economic Research Service, Rural-Urban Commuting Area Codes 2020

rurality_score *Get Rurality Score for a County*

Description

Returns the composite rurality score (0-100) for one or more counties.

Usage

```
rurality_score(fips)
```

Arguments

fips	A character vector of 5-digit county FIPS codes.

Value

A numeric vector of rurality scores, or NA for unmatched FIPS.

Examples

```
rurality_score("05031")
rurality_score(c("05031", "06037", "48453"))
```

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