Package 'HiddenSafetynet2025'

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Type Package

Title HiddenSafetynet2025

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Description Replication Package for Hidden Safety Net of Underutilized Supplemental Insurance in US Agriculture.

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URL https://github.com/you/HiddenSafetynet2025

BugReports https://github.com/you/HiddenSafetynet2025/issues

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

VignetteBuilder knitr

Depends R (>= 4.1.0)

Imports data.table, rfcip

Remotes github::dylan-turner25/rfcip, github::UrbanInstitute/urbnmapr, github::dylan-turner25/rfsa

Suggests dplyr, tidyr, knitr, rmarkdown, mockery, withr, testthat (>= 3.0.0)

LazyData true

Cite-us If you find it useful, please consider staring the repository and citing the following studies
- Tsiboe, F. and Turner, D. (2025). ``Incorporating buy-up price loss coverage into the United States farm safety net.'' Applied Economic Perspectives and Policy.
- Tsiboe, F., et al. (2025). ``Risk reduction impacts of crop insurance in the United States.'' Applied Economic Perspectives and Policy.
- Gaku, S. and Tsiboe, F. (2024). Evaluation of alternative farm safety net program combination strategies. Agricultural Finance Review.

R topics documented:

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build_supplemental_offering_and_adoption

Build panel of supplemental insurance availability (offering) and adoption (acres)

Description

Creates a county-year-commodity panel with availability flags for APH/SCO/ECO90/ECO95 and adoption/acreage measures from RMA SOB/TPU. Availability is sourced from the RMA ADM (A00030_InsuranceOffer). ECO availability applies starting in 2021.

Usage

```
build_supplemental_offering_and_adoption(
  cleaned_rma_sobtpu_file_path = "data/cleaned_rma_sobtpu.rds",
  output_directory = "data"
)
```

Arguments

cleaned_rma_sobtpu_file_path

Character. Path to cleaned RMA SOB/TPU RDS. Default: "data/cleaned_rma_sobtpu.rds".

output_directory

Character. Directory to save output RDS; created if missing. Default: "data".

Details

Output columns:

- commodity_year, state_code, county_code, commodity_code, county_fips

- avail_aph, avail_sco, avail_eco90, avail_eco95 (0/1 flags)

- insured_acres, sco, eco90, eco95 (adopted acres)

Availability aggregation uses max() (binary). Acreage aggregation uses sum(). Missing numeric values are replaced with 0.

Value

Invisibly returns the output file path. Also prints a brief summary.

Examples

```
## Not run:
  path <- build_supplemental_offering_and_adoption()
  readRDS(path)[1:5]

## End(Not run)
```

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clean_agents_data   *Clean agent-level data for a given year*

Description

Downloads, merges, and processes agent-level insurance data for the specified `year`. Combines revenue draws, calibrated yields, and RMA reference data, computes premium/subsidy measures, and saves the cleaned dataset as an RDS file.

Usage

```
clean_agents_data(
  year,
  cleaned_rma_sobtpu_file_path = "data/cleaned_rma_sobtpu.rds",
  cleaned_rma_sco_and_eco_adm_file_path = "data/cleaned_rma_sco_and_eco_adm.rds"
  output_directory = "data/cleaned_agents_data"
)
```

Arguments

year   Integer. Commodity year to process (e.g., 2015).

cleaned_rma_sobtpu_file_path
                  Path to cleaned RMA SOB/TPU RDS file. Default: `"data-raw/data/cleaned_rma_sobtpu`

cleaned_rma_sco_and_eco_adm_file_path
                  Path to cleaned RMA SCO & ECO admin RDS file. Default: `"data-raw/data/cleaned_rma_`

output_directory
                  Directory to save output RDS file. Created if missing. Default: `"data/cleaned_agents_data"`

Value

Returns the input `year` on success, with attributes for `save_path` and number of rows. Returns `NULL` on error.

Note

Requires **data.table**, access to GitHub-hosted RDS files, and the helper function `get_compressed_adm()`.

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clean_rma_sco_and_eco_adm
                           Build SCO/ECO/Area ADM table for a given year (adds
                           SCO88/SCO90)

Description

Downloads yearly ADM fragments from GitHub Releases for *Supplemental SCO*, *Supplemental ECO*, and *Area* plans, aggregates key parameters by common grouping keys, linearly interpolates SCO rates to 88% and 90% (using AYP and, for years >= 2021, ECO anchors), and returns the cleaned, stacked table.

Usage

```
clean_rma_sco_and_eco_adm(year)
```

Arguments

year   Integer. commodity year (e.g., 2022).

Value

A data.table containing original SCO/ECO/Area ADM rows plus synthesized **SCO88** (`insurance_plan_code` + 10) and **SCO90** (`insurance_plan_code` + 20) rows with non-invalid `base_rate`.

Note

Requires internet access. Missing plan files for a year are skipped silently.

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clean_rma_sobtpu   *Clean and enrich RMA Summary of Business (SOB) data*

Description

Processes RMA Summary of Business (SOB) data to produce an analysis-ready dataset with aggregated core insurance metrics and **shares** of Supplemental Coverage Option (SCO) and Enhanced Coverage Option (ECO) by coverage level.

Usage

```
clean_rma_sobtpu(study_env = setup_environment(), output_directory = "data")
```

Arguments

study_env   A list-like environment produced by setup_environment() that must in-
                clude `year_beg` and `year_end` (inclusive integers). Defaults to `setup_environment()`.
output_directory
                Character string specifying the directory where the processed `.rds` file should
                be saved. Defaults to `"data"`. The file will be named `"cleaned_rma_sobtpu.rds"`.

Details

The output file will be written to `file.path(output_directory, "cleaned_rma_sobtpu.rds")`. The directory is created if it does not exist.

Value

A character message describing the processed year range and number of output rows; the main side effect is writing an `.rds` file to disk.

`setup_environment`   *Setup Project Environment*

Description

Loads project settings, creates working directories (both under a fast scratch area and in the project), sets useful `options()`, fixes the RNG seed, and stores the analysis year range.

Usage

```
setup_environment(
  year_beg = 2015,
  year_end = 2024,
  seed = 1980632,
  fastscratch_root = NULL
)
```

Arguments

`year_beg`   Integer. Beginning year of the analysis (default: 2015).

`year_end`   Integer. Ending year of the analysis (default: 2024).

`seed`   Integer. Random seed for reproducibility (default: 1980632).

`fastscratch_root`

Optional character. Root directory where intermediate files from simulations and estimations will be written for later aggregation. If `NULL`, it is set automatically based on the operating system:

- Windows: `"C:/fastscratch"`
- Linux/macOS: `"/fastscratch/<username>"`

Details

Creates these directories (if absent):

- Fast scratch tree (for large, intermediate outputs): `<fastscratch_root>/HiddenSafetynet2025/outpu` with subfolders `sims`, `expected`, `draw_farm`, `draw_cost`.
- Project-local (for smaller, version-controlled artifacts): `data/`, `data/output/`, `data/cleaned_agents_d`

Sets:

- `options(scipen = 999)`
- `options(future.globals.maxSize = 8 * 1024^3)` (= 8 GiB)

- `options(dplyr.summarise.inform = FALSE)`
- `set.seed(seed)`

Requires the packages **future.apply**, **rfcip**, **data.table**, and **rfcipCalcPass**.

Value

A list with:

wd Named list of working directories (fastscratch root and subfolders).

year_beg Starting year (integer).

year_end Ending year (integer).

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