

Package ‘ihsMW’

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Title Access 'Malawi Integrated Household Survey' Data

Version 0.1.5

Description Provides programmatic access to the 'Malawi Integrated Household Survey' ('IHS') via the 'World Bank Microdata Library' API <<https://microdata.worldbank.org/api-documentation/>>. Users can search variables, download data for 'IHS' rounds 2 through 5, and work with complex survey designs, with no manual file management required.

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Depends R (>= 4.1.0)

URL <https://github.com/vituk123/ihsMW>

BugReports <https://github.com/vituk123/ihsMW/issues>

Imports htr2 (>= 1.0.0), arrow (>= 12.0.0), dplyr (>= 1.1.0), readr (>= 2.1.0), rlang (>= 1.1.0), cli (>= 3.6.0), rappdirs (>= 0.3.3), vctrs (>= 0.6.0), stringdist (>= 0.9.10)

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IHS	<i>Download Malawi IHS microdata</i>
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Description

The main interface to the `ih_sMW` package. Downloads one or more IHS variables across one or more survey rounds, applies cross-round harmonisation, and returns the data in the requested format.

Usage

```
IHS(
  indicator,
  round = "IHS5",
  module = NULL,
  return = c("data.frame", "list", "survey"),
  format = c("parquet", "rds", "csv"),
  cache = TRUE,
  extra = FALSE
)
```

Arguments

<code>indicator</code>	Character vector of harmonised variable names. Use ih_s_search to discover variable names.
<code>round</code>	Character vector of IHS rounds to include. One or more of "IHS2", "IHS3", "IHS4", "IHS5", or "all". Note: IHS1 is not currently available via the API. Default: "IHS5".
<code>module</code>	Optional character string to restrict to a specific module. If NULL (default), the correct module is determined automatically from the crosswalk.
<code>return</code>	Output format: "data.frame" (default), "list", or "survey".

format	File format for download and caching: "parquet" (default), "rds", or "csv".
cache	Logical. If TRUE (default), use and populate the disk cache.
extra	Logical. If FALSE (default), return only the requested indicator columns plus household ID columns. If TRUE, include all variables in the downloaded module (stratum, cluster, weights, etc.).

Value

If return = "data.frame": a single data.frame with an ihs_round column.

If return = "list": a named list of data.frames, one per round.

If return = "survey": a tbl_svy or svydesign object.

See Also

[ihs_search](#) to find variable names.

[IHS_survey](#) for weighted survey analysis.

[ihs_crosswalk_check](#) to assess cross-round comparability.

Examples

```
## Not run:
# One-time setup
ihs_auth()

# Download a single variable from the latest round
df <- IHS("rexp_cat01", round = "IHS5")

# Multiple variables, multiple rounds
df <- IHS(c("rexp_cat01", "hh_a02"), round = c("IHS4", "IHS5"))

# All supported rounds
df <- IHS("rexp_cat01", round = "all")

# Return as a named list of data.frames
lst <- IHS("rexp_cat01", round = c("IHS3", "IHS4", "IHS5"), return = "list")

# Include weights and design variables
df <- IHS("rexp_cat01", round = "IHS5", extra = TRUE)

# Use rds format instead of parquet
df <- IHS("rexp_cat01", round = "IHS5", format = "rds")

## End(Not run)
```

`ihs_auth`*Set up World Bank Microdata API Key*

Description

The World Bank Microdata Library uses API keys for authenticated endpoints. The key is stored in the environment variable `WORLDBANK_MICRODATA_KEY`.

If key is `NULL`, this function prints an interactive guide to obtaining an API key. If a key is provided, the function validates it against the NADA API, saves it to the session, and appends it to your `~/.Renviron` file for future sessions.

Usage

```
ihs_auth(key = NULL)
```

Arguments

`key` A single string containing your World Bank Microdata API key. Defaults to `NULL`.

Value

Invisibly returns the API key (if provided) or `NULL`.

Examples

```
## Not run:  
# Print interactive setup guide  
ihs_auth()  
  
# Set your API key  
ihs_auth("paste_your_key_here")  
  
## End(Not run)
```

`ihs_cache_clear`*Clear Cached IHS Data*

Description

Removes downloaded datasets from the internal package cache. This is useful for freeing up disk space. You can clear the cache for specific rounds or entirely.

Usage

```
ihs_cache_clear(round = NULL)
```

Arguments

round A specific round to clear (e.g. "IHS5"). If NULL, asks for confirmation to clear all IHS data depending on the interactivity of the session. Defaults to NULL.

Value

Invisibly returns NULL.

Examples

```
## Not run:  
# Clear all  
ihs_cache_clear()  
  
# Clear only IHS3 data  
ihs_cache_clear(round = "IHS3")  
  
## End(Not run)
```

ihs_cache_info

Display Information About Cached IHS Data

Description

Scans the internal ihsMW cache directory and reports on any previously downloaded datasets.

Usage

```
ihs_cache_info()
```

Value

A tibble summarizing the cached files.

Examples

```
## Not run:  
ihs_cache_info()  
  
## End(Not run)
```

ihs_crosswalk_check *Check Crosswalk Health*

Description

Evaluates the ihsMW crosswalk variable map. Prints a formatted report indicating how many variables are present across rounds, and flags any variables needing manual review.

Usage

```
ihs_crosswalk_check(verbose = TRUE)
```

Arguments

verbose Logical. If TRUE (default), prints the report to the console using message().

Value

A tibble containing the master crosswalk, returned invisibly.

Examples

```
## Not run:  
cw <- ihs_crosswalk_check()  
  
## End(Not run)
```

ihs_key_set *Set up World Bank Microdata API Key (Alias)*

Description

A wrapper for ihs_auth() meant for use in scripted or non-interactive environments.

Usage

```
ihs_key_set(key)
```

Arguments

key A single string containing your World Bank Microdata API key.

Value

Invisibly returns the API key.

Examples

```
## Not run:
ihs_key_set("paste_your_key_here")

## End(Not run)
```

ihs_label	<i>Fetch specific variable label locally or remotely</i>
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Description

Quickly deciphers what an individual variable physically measures. Looks through the offline dataset initially via harmonised mappings and seamlessly falls through NADA otherwise.

Usage

```
ihs_label(variable, round = "IHS5")
```

Arguments

variable	A single character variable map or harmonised standard to inspect precisely.
round	The physical survey round to tie it structurally to if verifying non-harmonised entries. Default "IHS5".

Value

The extracted label mapping directly against what the variable corresponds natively to.

Examples

```
ihs_label("rexp_cat01")
```

ihs_modules	<i>Inspect available modules for a study</i>
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Description

Profiles the file hierarchy explicitly for each data survey pulling nested variables counts efficiently per dataset.

Usage

```
ihs_modules(round = "IHS5")
```

Arguments

round A specific round to fetch dataset structures safely scoped against. (e.g. "IHS5").

Value

Invisibly returns a tibble mapping underlying module variables mapping locally.

Examples

```
## Not run:
ihs_modules("IHS5")

## End(Not run)
```

ihs_search	<i>Search across all IHS rounds for variables manually mapped</i>
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Description

Searches the manual harmonisation crosswalk bundled within ihsMW for specific variables.

Usage

```
ihs_search(keyword, round = NULL, fields = c("name", "label", "module"))
```

Arguments

keyword A single search string to find (case-insensitive).

round Limits search to a specific round. Valid inputs are "IHS2", "IHS3", "IHS4", "IHS5". Defaults to NULL (all rounds).

fields A character vector of fields to include in the search. Valid fields are "name", "label", and "module".

Value

A tibble with cross-round harmonised search results.

Examples

```
ihs_search("consumption")
ihs_search("expenditure", round = "IHS5")
ihs_search("age", fields = c("name", "label"))
```

Description

Creates a complex survey design object using the `survey` and `srvyr` packages. Automatically incorporates the appropriate sampling weights, strata, and clusters for the requested round to enable statistically sound national estimations natively.

Usage

```
IHS_survey(indicator, round = "IHS5", ...)
```

Arguments

<code>indicator</code>	Character vector of harmonised variable names.
<code>round</code>	A single round string (e.g. "IHS5") or "all".
<code>...</code>	Additional arguments passed to <code>IHS</code> , such as <code>module</code> or <code>format</code> .

Value

A `tbl_svy` object if the `srvyr` package is installed, otherwise a `svydesign` object from the `survey` package. If multiple rounds are requested, returns a named list of survey objects.

Note

Survey weights differ across IHS rounds and reflect the complex sample design of each survey. Estimates produced using this function are representative at the national, urban/rural, regional, and district level for each round independently. Do not pool weights across rounds without consulting the relevant Basic Information Document for each round. Cite the sampling methodology: NSO Malawi (year), IHS[N] Basic Information Document. National Statistical Office, Zomba, Malawi.

Examples

```
## Not run:
svy <- IHS_survey("rexp_cat01", round = "IHS5")
survey::svymean(~rexp_cat01, design = svy)
svy |> srvyr::summarise(mean_cons = srvyr::survey_mean(rexp_cat01))

## End(Not run)
```

ihs_variables	<i>Inspect all variables for a study</i>
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Description

Provides real-time variable availability inspection straight from the NADA API.

Usage

```
ihs_variables(round = "IHS5", module = NULL)
```

Arguments

round	A specific round to fetch variables for (e.g. "IHS5").
module	An optional module string to specifically look down variables isolated to that path natively (case-insensitive).

Value

Invisibly returns a tibble profiling the variables dynamically mapped alongside known names.

Examples

```
## Not run:  
ihs_variables(round = "IHS4")  
ihs_variables(round = "IHS5", module = "hh_mod_g")  
  
## End(Not run)
```

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