# Package 'gtaptools'

April 17, 2023

**Type** Package

**Title** A set of tools to improve the productivity of CGE modelers.

**Version** 0.1.0

**Description** The gtaptools is a package under development that aims to offer a set of functions designed for supporting simulation exercises with CGE (Computable General Equilibrium) models in R language. The primary goal of this package is to facilitate and improve file management, increase the analytical potential of the database, and provide graphical visualizations of simulation results.

**Encoding** UTF-8

**LazyData** true

**Depends** R (>= 3.1)

**Imports** dplyr

**Remotes** github::USDA-ERS/MTED-HARr

**RoxygenNote** 7.2.3

**License** GPL (>= 3)

## R topics documented:

---

agg_har            *Aggregates headers of data in .har structure.*

---

### Description

It aggregates variables from a .har file on disk or an object with the structure exported by the read_har function. It is possible to adopt customized weights and functions to calculate aggregations. The specification of GTAP models (...) through the *model* parameter is supported so that the respective weight variables are automatically detected according to the model being analyzed.

## Usage

```
agg_har(
  input_data,
  model = NULL,
  correspondences,
  vars_weighted_mean,
  output_har_file = NULL
)
```

## Arguments

input_data          It can indicate a path to a .har file or an existing object in the R environment that
                    has the output structure of the read_har function.

model               Indicates the CGE model being worked on (Supports only GTAP, ....). For sup-
                    ported models, this information is sufficient to define the variables that must be
                    aggregated through weighted mean.

correspondences
                    A list indicating the original sets and new aggregated sets that will be exported.
                    It can indicate a path to a .csv file or an existing object in the R environment that
                    has the correspondences between the *input_data* sets and the new aggregated
                    sets. The first line will be considered as header and identifier, and must necessar-
                    ily contain the same name as the set that must be aggregated from *input_data*.

vars_weighted_mean
                    Vector of characters relating the variables that must be grouped with a weighted
                    average of their respective weight variables, in the format c( "var" = "weight").
                    Please note the example section. The sets of the variable and its weight will
                    be made compatible through the aggregation by sum of the weight variable, if
                    necessary.

output_har_file
                    Output .har file name.

---

har_shape                          *Merge and generate new headers.*

---

## Description

Allows the combination of different databases in data.frame or array format. Generate new vari-
ables flexibly from custom functions. Calculations can be performed between headers/variables of
different dimensions/sets.

## Usage

```
har_shape(
  input_data,
  new_calculated_vars = NULL,
  del_headers = NULL,
  output_har_file = NULL
)
```

## Arguments

input_data        It must consist of one or more input databases, which must be separated from each other by sublists (see example). In the case of multiple databases, all will be combined for the final output.

new_calculated_vars

New variables resulting from custom calculations between the headers contained in input_data. Each variable's parameters must be informed (it can be *x, y, z ...*), the function *fun* that represents the calculation to be done, the *new_header_name*, and the *sets* for the output structure. The different headers must have at least one similar set so that it is possible to establish correspondence between them. Please note the example section.

del_headers       Vector of characters with the names of headers that must be excluded from the output.

output_har_file

Output .har file name.

---

squeeze_sim                 *Squeeze the simulation files into a .zip file.*

---

## Description

Scans the .cmf file and selects just essential files for the simulation and compresses them in a .zip file. It also creates a .bat file that makes it easy to run the simulation later. The files that are included are those specified in the .cmf file and that have the extension .tab, .cmf, .sti, .bat, .har, .prm, .shk, .cls, and in the case output = T, .sl4, .upd, .slc. (This function does not support dynamic simulations operationalized in the RunDynam software.)

## Usage

```
squeeze_sim(cmf_file, zip_file, add_files = NULL, output = F, bat = T)
```

## Arguments

cmf_file          Path to .cmf file which manages the simulation.

zip_file          Name of the .zip file that will be created.

add_files         Vector with the names or extensions of the files that will also be included in the .zip file in addition to the files mentioned in the description.

output            Includes simulation output files (default = F).

bat               Create a batch file to compile (if necessary) and run the simulation (default = T). For this functionality it is necessary to have Gempack installed.

---

summarise_header          *Aggregates headers of data in .har structure.*

---

### Description

Summarizes a single database to a compatible format for writing to .har files.

### Usage

```
summarise_header(
  input_data,
  sets,
  values,
  fun = function(x) sum(x, na.rm = T),
  new_header_name,
  export_sets = T,
  output_har_file = NULL
)
```

### Arguments

| | |
|---|---|
| input_data | An array that has the output structure of the read_har function or a data.frame. |
| sets | Dimensions/columns names that contain the categorical variables for summarizing the output sets. It must be a maximum of 3 characters each. |
| values | Name of the variable that contains the numerical values. |
| fun | Function used for aggregation in case of non-unique values in sets (default = sum). |
| new_header_name | |
| | Name of the new header created. |
| export_sets | If TRUE, the vectors with the set elements are incorporated with the output. If an output .har file is indicated, it will be created and exported to that .har file. If FALSE, they will not be exported. |
| output_har_file | |
| | Output .har file name. |

# Index