Package ‘decompr’

August 29, 2016

Version 4.5.0
Title Global-Value-Chain Decomposition
Description Two global-value-chain decompositions are implemented. Firstly, the Wang-Wei-Zhu (Wang, Wei, and Zhu, 2013) algorithm splits bilateral gross exports into 16 value-added components. Secondly, the Leontief decomposition (default) derives the value added origin of exports by country and industry, which is also based on Wang, Wei, and Zhu (Wang, Z., S.-J. Wei, and K. Zhu. 2013. "Quantifying International Production Sharing at the Bilateral and Sector Levels.").
Maintainer Bastiaan Quast <bquast@gmail.com>
Depends R (>= 2.10)
License GPL-3
BugReports https://github.com/bquast/decompr/issues
Suggests gvc, testthat, knitr
VignetteBuilder knitr
RoxygenNote 5.0.1
NeedsCompilation no
Author Bastiaan Quast [aut, cre],
Fei Wang [aut],
Victor Kummritz [aut],
Oliver Reiter [ctb]
Repository CRAN
Date/Publication 2016-08-17 11:47:36

R topics documented:
countries ................................................. 2
decomp .................................................. 2
decompr ............................................... 4
final .................................................... 4
countries  

Leather Example

Description

the names of the countries data

decomp  

Interface function for decompositions

Description

This function runs the decomposition. NOTE: the default method is now "leontief", please specify method="wwz" explicitly for Wang-Wei-Zhu. See http://qua.st/decompr/decompr-v2/ for more information.

Usage

decomp(x, y, k, i, o, v, method = c("leontief", "wwz"), verbose = FALSE, ...)

Arguments

x  
intermediate demand table, it has dimensions GN x GN (G = no. of country, N = no. of industries), excluding the first row and the first column which contains the country names, and the second row and second column which contain the industry names for each country. In addition, an extra row at the end should contain final demand.

y  
final demand table it has dimensions GN x MN, excluding the first row and the first column which contains the country names, the second column which contains the industry names for each country, and second row which contains the five decomposed final demands (M). 

k  
vector or country or region names

i  
vector of sector or industry names
vector of final outputs

vector of value added, optional. If this vector is not specified, value added will be calculated as gross output - intermediate consumption

user specified the decomposition method

logical, should timings of the calculation be displayed? Default is FALSE

arguments to pass on the respective decomposition method

Details

Version 2 introduces several important changes, the default method is now leontief, which means that wwz has to be specified explicitly. Furthermore, the input object have a different structure, see the information below for details.

Value

The output when using the WWZ algorithm is a matrix with dimensions GNG*19. Whereby 19 is the 16 objects the WWZ algorithm decomposes exports into, plus three checksums. GNG represents source country, using industry and using country.

Author(s)

Bastiaan Quast

References


Examples

# load leather example data
data(leather)

# explore the data set
ls()

# explore each of the objects
inter
final
countries
industries
out

# use the direct approach

# run the Leontief decomposition
decomp(inter,
final,


countries,
industries,
out,
method = "leontief")

# run the WWZ decomposition
decomp(inter,
    final,
countries,
industries,
out,
method = "wwz")

decompr

Export Decomposition using the Wang-Wei-Zhu and Leontief decom-
positions algorithms.

Description

Two global-value-chain decompositions are implemented. Firstly, the Wang-Wei-Zhu (Wang, Wei,
and Zhu, 2013) algorithm splits bilateral gross exports into 16 value-added components. Secondly,
the Leontief decomposition (default) derives the value added origin of exports by country and in-
dustry, which is also based on Wang, Wei, and Zhu (Wang, Z., S.-J. Wei, and K. Zhu. 2013.
"Quantifying International Production Sharing at the Bilateral and Sector Levels.").

Author(s)

Bastiaan Quast <bquast@gmail.com> Fei Wang Victor Kummritz

References

Wang, Zhi, Shang-Jin Wei, and Kunfu Zhu. Quantifying international production sharing at the

See Also

http://qua.st/decompr

final

Leather Example

Description

the final demand data
**Industries**

**Leather Example**

**Description**
the names of the industries data

**inter**

**Leather Example**

**Description**
the intermediate demand data

**leontief**

**Leontief Decomposition**

**Description**
Leontief Decomposition

**Usage**

```
leontief(x, post = c("exports", "output", "final_demand", "none"),
         long = TRUE)
```

**Arguments**

- **x**: an object of class decompr
- **post**: post-multiply the Leontief inverse with something, the default is exports
- **long**: transform the output data into a long (tidy) data set or not, default it TRUE.

**Value**
a data frame containing the square matrix and labelled column and rows

**Author(s)**

Bastiaan Quast

**References**

load_tables

Load the Input-Output and Final demand tables

Examples

## load example data
data(leather)

## create intermediate object (class decompr)
decompr_object <- load_tables_vectors(inter,
                                      final,
                                      countries,
                                      industries,
                                      out)

## run the Leontief decomposition on the decompr object
leontief(decompr_object)

Description

This function loads the demand tables and defines all variables for the decomposition

Usage

load_tables(x, y)

Arguments

x the intermediate demand table, it has dimensions GN x GN (G = no. of country, 
    N = no. of industries), excluding the first row and the first column which con-
    tains the country names, and the second row and second column which contain 
    the industry names for each country. In addition, an extra row at the end should 
    contain final demand.

y the final demand table it has dimensions GN x MN, excluding the first row and 
    the first column which contains the country names, the second column which 
    contains the industry names for each country, and second row which contains 
    the five decomposed final demands (M).

Details

Adapted from code by Fei Wang.

Value

a decompr class object

Author(s)

Bastiaan Quast
load_tables_vectors  Load the Input-Output and Final demand tables

Description

This function loads the demand tables and defines all variables for the decomposition.

Usage

load_tables_vectors(x, y, k, i, o, v = NULL, null_inventory = FALSE)

Arguments

- **x**: intermediate demand table, it has dimensions GN x GN (G = no. of country, N = no. of industries), excluding the first row and the first column which contains the country names, and the second row and second column which contain the industry names for each country. In addition, an extra row at the end should contain final demand.

- **y**: final demand table it has dimensions GN x MN, excluding the first row and the first column which contains the country names, the second column which contains the industry names for each country, and second row which contains the five decomposed final demands (M). @param k is a vector of country of region names

- **k**: vector or country or region names

- **i**: vector of sector or industry names

- **o**: vector of final outputs

- **v**: vector of value added

- **null_inventory**: when the inventory (last FDC) should be set to zero

Details

Adapted from code by Fei Wang.

Value

a decompr class object

Author(s)

Bastiaan Quast
Examples

```r
# load example data
data(leather)

# create intermediate object (class decompr)
decompr_object <- load_tables_vectors(inter, final, countries, industries, out)

# examine output object
str(decompr_object)
```

Description

final output

wwz

Runs the Wang-Wei-Zhu decomposition

Description

This function runs the Wang-Wei-Zhu decomposition.

Usage

```r
wwz(x, verbose = FALSE)
```

Arguments

- `x`: an object of the class decompr
- `verbose`: logical, should timings of the calculation be displayed? Default is FALSE

Details

Adapted from code by Fei Wang.

Value

the decomposed table
Author(s)
Bastiaan Quast

References

Examples
# load example data
data(leather)

# create intermediate object (class decompr)
decompr_object <- load_tables_vectors(inter,
final,
countries,
industries,
out)

# run the WWZ decomposition on the decompr object
wwz(decompr_object)
Index

countries, 2

decomp, 2
decompr, 4
decompr-package (decompr), 4

final, 4

industries, 5
inter, 5

leontief, 5
load_tables, 6
load_tables_vectors, 7

out, 8

wwz, 8