Package 'GVARX'

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Type Package

Title Perform Global Vector Autoregression Estimation and Inference

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Description

Light procedures for learning Global Vector Autoregression model (GVAR) of Pesaran, Schuermann and Weiner (2004) <DOI:10.1198/073500104000000019> and Dees, di Mauro, Pesaran and Smith (2007) <DOI:10.1002/jae.932>.

License GPL (>= 2)

LazyData TRUE

LazyLoad yes

Depends R (>= 3.5.0),vars,xts

Imports lmtest, lubridate, sandwich, strucchange, tsDyn, urca

NeedsCompilation no

Repository CRAN

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Contents

`averageCORgvar` *Comparing average residual correlations.*

Description

Average pairwise cross-section residual correlations.

Usage

```
averageCORgvar(out)
```

Arguments

`out`	Estimation results object generated by GVARest

Details

This function compares the dependency of residuals in VAR and GVAR.

Value

`varRSDcor`	A list object of average residual correlations of country-specific VAR
`gvarRSDcor`	A list object of average residual correlations of country-specific VAR augmented by foreign variables(GVAR)

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)

cor2_avg=averageCORgvar(out=mainOUTPUT)
as.matrix((cor2_avg$varRSDcor)[[1]])
as.matrix((cor2_avg$varRSDcor)[[2]])

as.matrix(cor2_avg$gvarRSDcor[[1]])
as.matrix(cor2_avg$gvarRSDcor[[2]])
```

`averageCORgvecm` *Comparing average residual correlations of GVECM and VECM.*

Description

Average pairwise cross-section residual correlations of GVECM and VECM.

Usage

```
averageCORgvecm(out)
```

Arguments

`out`	Estimation results object generated by GVECMest

Details

This function compares the dependency of residuals in VAR and GVAR.

Value

`vecmRSDcor`	A list object of average residual correlations of country-specific VECM
`gvecmRSDcor`	A list object of average residual correlations of country-specific VECM augmented by foreign variables(GVECM)

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVECMest(data=PriceVol,p,lag.max,type,ic,weight.matrix)

cor2_avg=averageCORgvecm(out=mainOUTPUT)
as.matrix((cor2_avg$vecmRSDcor)[[1]])
as.matrix((cor2_avg$vecmRSDcor)[[2]])

as.matrix(cor2_avg$gvecmRSDcor[[1]])
as.matrix(cor2_avg$gvecmRSDcor[[2]])
```

---

getCOEF *Return country-specific standard LS coefficient estimates.*

Description

Extract country-specific standard LS coefficient estimates.

Usage

```
getCOEF(out,sheet)
```

Arguments

out	A list object of estimation results generated by GVARest()
sheet	The number of country in out file

Details

Extract country-specific standard LS coefficient estimates.

Value

coef	Country-specific coefficient estimates

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)
COEF=getCOEF(out=mainOUTPUT,sheet=1)
```

`getCOEFexo` *All-country LS coefficient estimates.*

Description

Extract all-country LS coefficient estimates.

Usage

```
getCOEFexo(out)
```

Arguments

`out`	A list object of estimation results generated by GVARest().

Details

Extract all-country LS coefficient estimates.

Value

`coef`	Country-specific coefficient estimates.

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)
#COEF=getCOEFexo(out=mainOUTPUT)
```

`getNWCOEF` *Extract country-specific LS coefficient estimates with Newy-West robust covariance.*

Description

Extract country-specific LS coefficient estimates with Newy-West robust covariance.

Usage

```
getNWCOEF(out,sheet)
```

Arguments

`out`	A list object of estimation results generated by GVARest.
`sheet`	The number of country in out that is to be saved.

Value

`coef`	Country-specific coefficient estimates.

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Newey WK and West KD (1994) Automatic Lag Selection in Covariance Matrix Estimation. Review of Economic Studies,61,631-653.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)
COEF=getNWCOEF(out=mainOUTPUT,sheet=1)
```

`getNWCOEFexo` *Extract all-country coefficient estimates with Newy-West robust covariance.*

Description

Extract all-country coefficient estimates with Newy-West robust covariance.

Usage

```
getNWCOEFexo(out)
```

Arguments

`out`	A list object of estimation results generated by GVARest.

Value

`coef`	Country-specific coefficient estimates.

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Newey WK and West KD (1994) Automatic Lag Selection in Covariance Matrix Estimation. Review of Economic Studies, 61, 631-653.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)
COEF=getNWCOEFexo(out=mainOUTPUT)
```

`getWhiteCOEF` *Extract country-specific LS coefficient estimates with White robust covariance.*

Description

Extract country-specific LS coefficient estimates with White robust covariance.

Usage

```
getWhiteCOEF(out,sheet)
```

Arguments

`out`	A list object of estimation results generated by GVARest.
`sheet`	The number of country in out that is to be saved.

Value

`coef`	Country-specific coefficient estimates.

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
```

```
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)

COEF=getWhiteCOEF(out=mainOUTPUT,sheet=1)
```

`getWhiteCOEFexo` *Extract all-country coefficient estimates with White robust covariance.*

Description

Extract all-country coefficient estimates with Newy-West robust covariance, and save them in a .csv file.

Usage

```
getWhiteCOEFexo(out)
```

Arguments

`out`	A list object of estimation results generated by GVARest.

Value

`coef`	Country-specific coefficient estimates.

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")
p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)
COEF=getWhiteCOEFexo(out=mainOUTPUT)
```

GVARest *Estimate country-specific VAR in a GVAR setting*

Description

Estimate country-specific VAR in a GVAR setting

Usage

```
GVARest(data,p,lag.max, type="const", ic,weight.matrix=NULL)
```

Arguments

data	Dataframe for bivariate VAR is allowed so far, which is also a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time. Restriction of bivariate VAR will be relaxed soon.
p	The number of lag for Xt matrix, foreign variables are set by FLag=p+1. Current version restricts p <= 2 with a view to avoiding too many paramaters in low-frequency data of many variables and many countries. It will be relaxed soon.
lag.max	The maximal number of lag for estimating country-specific VAR
type	Model specificaiton for VAR. As in package vars, we have four selection: "none","const","trend", "both".
ic	Information criteria for optimal lag.As in package vars, we have four selection: "AIC", "HQ", "SC", and "FPE".
weight.matrix	Bilateral trade weight matrix for computing foreign variables. If the computation of foreign variables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign variables are weighted on a year-to-year basis, then weight.matrix must be a "list, with the same length as the weighting frequency.

Value

gvar	Country-specific GVAR output list
White	Coefficient estimates with White robust covariance
NWHAC	Coefficient estimates withNewy-West robust covariance
p	Number of lags for endogeneous variables in VAR
K	Number of lags for Ft variables in VAR
type	Model specificaiton. As in package vars, we have four selection: "none","const","trend", and "both".
datamat	input data=data
lagmatrix	GVAR's Country-secific optimal lag number.
lagmatrix1	VAR's Country-secific optimal lag number.

exoLag	Ft lags
Ft	Foreign variables
NAMES	Names of countries
gvarRSD	Country-specific GVAR residuals
varRSD	VAR residuals
weight	weight.matrix

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")

p=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVARest(data=PriceVol,p,lag.max,type,ic,weight.matrix)

mainOUTPUT$lagmatrix    # Country-specific GVAR lags
mainOUTPUT$gvar
mainOUTPUT$gvar[[1]]
coef(mainOUTPUT$gvar[[17]])
mainOUTPUT$White[[17]]
mainOUTPUT$NWHAC[[17]][1]
```

GVAR_Ft *Function to generate foreign variables*

Description

Function to generate foreign variables

Usage

```
GVAR_Ft(data, weight.matrix=NULL)
```

Arguments

data	Dataframe is a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time.
weight.matrix	Bilateral trade weight matrix for computing foreign variables. If the computation of foreign variables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign variables are weighted on a year-to-year basis, then weight.matrix must be a "list", with the same length as the weighting frequency. If NULL, then it computes the foreign vriables by average.

Value

Ft	Weighted foerign variables as described in GVAR

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
#=== Loading Data ===#
data("PriceVol")
data("tradeweight1")
data("tradeweightx")

#Generate country-specific foreign variables
Ft=GVAR_Ft(data=PriceVol,weight.matrix=tradeweight1)
k=17
head(Ft[[k]])
tail(Ft[[k]])
```

GVAR_GF *Compute the structural coefficients matrices G0, G1, G2, and F1, F2*

Description

Compute the structural coefficients matrices G0, G1, G2, and F1, F2

Usage

```
GVAR_GF(data,p, type="const",ic="AIC",weight.matrix)
```

Arguments

data	Dataframe is a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time.
p	The number of lag for Xt matrix. The number of lag for foreign variables in country-specific VAR FLag is set to be p+1. Current version restricts p <= 2 for simplicity, which aims at avoiding too many paramaters in low-frequency data of many variables and many countries. It will be relaxed soon.
type	Model specificaiton for VAR. As in package vars, we have four selection: "none","const","trend", "both".
ic	Information criteria for optimal lag.As in package vars, we have four selection: "AIC", "HQ", "SC", "FPE".
weight.matrix	Bilateral trade weight matrix for computing foreign variables. If the computation of foreign variables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign variables are weighted on a year-to-year basis, then weight.matrix must be a "list", with the same length as the weighting frequency.

Details

This function generates several structural coefficient matrices of Eq.(2.6) in Filippo and Pesaran(2013, P.17), which are required to compute IRF and multistep forecasts. Besides, it also re-calculates the transformed residuals. In this version, we do not include the impulse responses function(IRF), because the IRF can be computed by these matrices and residuals easily. We will not update it until the next version.

Value

G0	Matrix G0 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
G1	Matrix G1 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
G2	Matrix G2 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
F1	Matrix F1 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
F2	Matrix F2 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
lagmatrix	Country-secific optimal lag number, which must be the same.
RESID	original residuals=u in Filippo and Pesaran (2013, P.17)
newRESID	New residuals=epsilon in Filippo and Pesaran (2013, P.17)
fitted	In-sample fitted values, or conditional mean
data	data used

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweightx")
data("tradeweight1")
p=2
type="const"
ic="SC"

Result=GVAR_GF(data=PriceVol,p,type,ic, weight.matrix=tradeweight1)
Result$G0
Result$G1
Result$G2
Result$F1
Result$F2
Result$lagmatrix
Result$RESID
Result$newRESID
Result$fitted
Result$data
#May use forecast::accuracy(Result$fitted[,1], Result$data[,1]) for performance.
```

GVECM.jo *Estimate country-specific Johansen test results in a Global VECM setting*

Description

Estimate country-specific Johansen test results in a Global VECM setting

Usage

```
GVECM.jo(data,p=2,ecdet = "const", type = "eigen",spec = "longrun",
season = NULL,weight.matrix)
```

Arguments

data	Dataframe is a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time.
p	The number of lag for Xt matrix. Current version restricts p <= 2 for simplicity, which aims at avoiding too many paramaters in low-frequency data of many variables and many countries. It will be relaxed soon.

ecdet	Character, 'none' for no intercept in cointegration, 'const' for constant term in cointegration and 'trend' for trend variable in cointegration.
type	Model specificaiton for VECM. As in package VECMs, we have four selection: "none","const","trend", "both".
spec	Determines the specification of the VECM, see details in pakcage urca.
season	If seasonal dummies should be included, the data frequency must be set accordingly,i.e '4' for quarterly data.
weight.matrix	Bilateral trade weight matrix for computing foreign VECMiables. If the computation of foreign VECMiables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign VECMiables are weighted on a year-to-year basis, then weight.matrix must be a "list, with the same length as the weighting frequency.

Value

JO.test	List object of country-specific Johansen test results
VECMoutputs	List object of country-specific VECM results
RESID	List object of country-specific VECM residuals, obtained by using vars::vec2var

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVECM Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")

p=2
FLag=2
type="const"
ic="SC"
weight.matrix=tradeweight1
mainOUT.JO=GVECM.jo(data=PriceVol,p=2,weight.matrix=weight.matrix)
mainOUT.JO$JO.test
```

GVECMest *Estimate country-specific Engle-Granger VECM in a Global VECM setting*

Description

Estimate country-specific Engle-Granger VECM in a Global VECM setting

Usage

```
GVECMest(data,p=2,lag.max=NULL, type="const", ic,weight.matrix=NULL)
```

Arguments

data	Dataframe is a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time.
p	The number of lag for Xt matrix. Foreign variables are set by FLag=p+1. Current version restricts p <= 2 for simplicity, which aims at avoiding too many paramaters in low-frequency data of many variables and many countries. It will be relaxed soon.
lag.max	The maximal number of lag for estimating country-specific VECM
type	Model specificaiton for VECM. As in package VECMs, we have four selection: "none","const","trend", "both".
ic	Information criteria for optimal lag.As in package VECMs, we have four selection: "AIC", "HQ", "SC", and "FPE".
weight.matrix	Bilateral trade weight matrix for computing foreign VECMiables. If the computation of foreign VECMiables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign VECMiables are weighted on a year-to-year basis, then weight.matrix must be a "list, with the same length as the weighting frequency.

Value

gvecm	Country-specific GVECM output list
White	Coefficient estimates with White robust coVECMiance
NWHAC	Coefficient estimates withNewy-West robust coVECMiance
p	Number of lags for endogeneous VECMiables in VECM
K	Number of lags for Ft VECMiables in VECM
type	Model specificaiton. As in package VECMs, we have four selection: "none","const","trend", and "both".
datamat	input data=data
lagmatrix	GVECM's Country-secific optimal lag number.

lagmatrix1	VECM's Country-secific optimal lag number.
exoLag	Ft lags
Ft	Foreign VECMiables
NAMES	Names of countries
gvecmRSD	Country-specific Global VECM residuals
vecmRSD	VECM residuals

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVECM Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweight1")
data("tradeweightx")

p=2
FLag=2
lag.max=15
type="const"
ic="SC"
weight.matrix=tradeweightx
mainOUTPUT = GVECMest(data=PriceVol,p,lag.max,type,ic,weight.matrix)

mainOUTPUT$lagmatrix    # Country-specific GVECM lags
mainOUTPUT$gvecm
mainOUTPUT$gvecm[[1]]
coef(mainOUTPUT$gvecm[[17]])
mainOUTPUT$White[[17]]
mainOUTPUT$NWHAC[[17]][1]
```

GVECM_GF *Compute the structural coefficients matrices G0, G1, G2, and F1, F2*

Description

Compute the structural coefficients matrices G0, G1, G2, and F1, F2

Usage

```
GVECM_GF(data,p,type="const",ic="AIC",weight.matrix)
```

Arguments

data	Dataframe is a strictly balanced panel data format,the first column is cross-section ID,and the second column is Time. For the sake of identification, both columns must be named by, respectively, id and Time.
p	The number of lag for Xt matrix. The number of lag for foreign variables in country-specific VAR FLag is set to be p+1.Current version restricts p <= 2 for simplicity, which aims at avoiding too many paramaters in low-frequency data of many variables and many countries. It will be relaxed soon.
type	Model specificaiton for VAR. As in package vars, we have four selection: "none","const","trend", "both".
ic	Information criteria for optimal lag.As in package vars, we have four selection: "AIC", "HQ", "SC", "FPE".
weight.matrix	Bilateral trade weight matrix for computing foreign variables. If the computation of foreign variables are weighted by one weighting matrix, weight.matrix must be a "data.frame". If the computation of foreign variables are weighted on a year-to-year basis, then weight.matrix must be a "list", with the same length as the weighting frequency.

Details

This function generates several structural coefficient matrices of Eq.(2.6) in Filippo and Pesaran(2013, P.17), which are required to compute IRF and multistep forecasts. Besides, it also re-calculates the transformed residuals. In this version, we do not include the impulse responses function(IRF), because the IRF can be computed by these matrices and residuals easily. We will not update it until the next version.

Value

G0	Matrix G0 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
G1	Matrix G1 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
G2	Matrix G2 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
F1	Matrix F1 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
F2	Matrix F2 of Eq.(2.6) in Filippo and Pesaran(2013, P.17)
lagmatrix	Country-secific optimal lag number.
newRESID	New residuals=epsilon in Filippo and Pesaran (2013, P.17)
fitted	In-sample fitted values, or conditional mean
data	data used

Author(s)

Ho Tsung-wu <tsungwu@ntnu.edu.tw>, College of Management, National Taiwan Normal University.

References

Mauro Filippo di and Pesaran H. M. (2013) The GVAR Handbook– Structure and Applications of a Macro Model of the Global Economy for Policy. Oxford University Press.

Examples

```
data("PriceVol")
data("tradeweightx")
data("tradeweight1")
p=2
type="const"
ic="SC"

Result.vecm=GVECM_GF(data=PriceVol,p,type,ic, weight.matrix=tradeweight1)
Result.vecm$G0
Result.vecm$G1
Result.vecm$F1
Result.vecm$G2
Result.vecm$F2
Result.vecm$lagmatrix
Result.vecm$newRESID
Result.vecm$fitted
Result.vecm$data
```

PriceVol *Dataset price-volumn of 17 mareket indices*

Description

A nine-year balanced panel price-volumn data of 17 mareket indices, 2006/8/30-2014/11/19

Usage

```
data("PriceVol")
```

Format

A data frame with 0 observations on the following 2 variables.

`ID` Names of country, cross-section ID

`Time` Time index

`Ret` Daily returns computed by close-to-close

`Vol` Daily transaction volumn, by log

Source

Yahoo finance

Examples

```
data(PriceVol)
```

`tradeweight1` *A single year cross-section bilateral trade weight matrix, 2014.*

Description

A single year cross-section bilateral trade weight matrix, 2014

Usage

```
data("tradeweight1")
```

Format

A matrix of 17 by 17 bilateral trade weight matrix,2014

`Australia` Bilateral trade weight matrix of Australia, 2014

`Austria` Bilateral trade weight matrix of Austria, 2014

`Belgium` Bilateral trade weight matrix of Belgium, 2014

`Brazil` Bilateral trade weight matrix of Brazil, 2014

`France` Bilateral trade weight matrix of France, 2014

`UK` Bilateral trade weight matrix of UK, 2014

`US` Bilateral trade weight matrix of US, 2014

`Canada` Bilateral trade weight matrix of Canada, 2014

`HongKong` Bilateral trade weight matrix of Hong Kong, 2014

`Indonesia` Bilateral trade weight matrix of Indonesia, 2014

`Malaysia` Bilateral trade weight matrix of Malaysia, 2014

`Korea` Bilateral trade weight matrix of Korea, 2014

`Mexico` Bilateral trade weight matrix of Mexico, 2014

`Japan` Bilateral trade weight matrix of Japan, 2014

`Swiss` Bilateral trade weight matrix of Swiss, 2014

`China` Bilateral trade weight matrix of China, 2014

`Taiwan` Bilateral trade weight matrix of Taiwan, 2014

Details

This matrix is a 17 by 17 trade weight matrix, the column names are 17 countries. Given column j, the row-wise elements are bilateral trade weights of country j. Please make sure that the order of countries exactly matches the dataset's ID column.

Examples

```
data(tradeweight1)
is.data.frame(tradeweight1)
```

`tradeweightx` *A nine-year bilateral trade weight matrix, 2006-2014*

Description

A nine-year bilateral trade weight matrix, 2006-2014

Usage

```
data("tradeweightx")
```

Format

A list with 17 by 17 matrix on the following variable.

`Australia` Bilateral trade weight matrix of Australia, 2014

`Austria` Bilateral trade weight matrix of Austria, 2014

`Belgium` Bilateral trade weight matrix of Belgium, 2014

`Brazil` Bilateral trade weight matrix of Brazil, 2014

`France` Bilateral trade weight matrix of France, 2014

`UK` Bilateral trade weight matrix of UK, 2014

`US` Bilateral trade weight matrix of US, 2014

`Canada` Bilateral trade weight matrix of Canada, 2014

`HongKong` Bilateral trade weight matrix of Hong Kong, 2014

`Indonesia` Bilateral trade weight matrix of Indonesia, 2014

`Malaysia` Bilateral trade weight matrix of Malaysia, 2014

`Korea` Bilateral trade weight matrix of Korea, 2014

`Mexico` Bilateral trade weight matrix of Mexico, 2014

`Japan` Bilateral trade weight matrix of Japan, 2014

`Swiss` Bilateral trade weight matrix of Swiss, 2014

`China` Bilateral trade weight matrix of China, 2014

`Taiwan` Bilateral trade weight matrix of Taiwan, 2014

Details

This example data is annual trade weight matrix, it is a list with length 9 (2006-2014).Each list is a year specific 17 by 17 trade weight matrix, the column names are 17 countries. Given column j, the row-wise elements are bilateral trade weights of country j. Make sure that the length of list must exactly match with the number of years. Because once you use this as tradewieght input matrix, R function will automatically compute foreign variables weighted year-by-year. Please make sure that the order of countries exactly matches the dataset's ID column.

Examples

```
data(tradeweightx)
is.data.frame(tradeweightx)
```

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