Package 'VARsignR'

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Title Sign Restrictions, Bayesian, Vector Autoregression Models

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Imports HI, minqa, mvnfast

Description Provides routines for identifying structural shocks in vector autoregressions (VARs) using sign restrictions.

License GPL (>= 3)

License_is_FOSS yes

License_restricts_use no

SystemRequirements gcc (>= 4.0)

NeedsCompilation no

Repository CRAN

Date/Publication 2015-12-19

Suggests knitr

VignetteBuilder knitr

R topics documented:

`fevdplot` *Plotting variance decompositions with error bands from VAR posterior draws*

Description

Generates plots of variance decompositions with error bands from VAR posterior draws

Usage

```
fevdplot(fevddraws=NULL, type="median", labels=unlist(dimnames(fevddraws)[3]), save=FALSE,
          bands=c(0.16, 0.84), grid=TRUE, bw=FALSE, table=FALSE, periods=NULL)
```

Arguments

`fevddraws`	A $draws \times steps \times nvar$ array of posterior variance decompositions.
`type`	A string, either "median" or "mean" response, specifying the type of response to be plotted. the default is "median".
`labels`	A list of variable labels for impulse response plots, The default are the variable names of the model.
`save`	A logical statement to save the graph in the current working directory. The default is 'FALSE'.
`bands`	A list of length 2 containing the error bands of the decompositions. If bands='NULL', only FEVDs are plotted. The default is c(0.16, 0.84).
`grid`	A logical statement on whether or not to generate grid lines in the plots. The default is 'TRUE'.
`bw`	A logical statement on whether or not to generate black and white or colour graphs. The default is 'FALSE'.
`table`	A logical statement on whether or not a table should be returned instead of a graph. The default is 'FALSE'.
`periods`	A list of length smaller or equal the number of response steps. If table=NULL, all periods are shown in the table. The default is 'NULL'.

Details

This function generates plots of forecast error variance decompositions with error bands from VAR posterior draws produced by a Bayesian VAR model.

Value

The function returns a plot or table of the FEVDs with user-selected percentiles.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

See Also

fp.target, irfplot.

Examples

```
## Not run:
# Replication of Figure 5 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# estimates the model
model0 <- rfbvar(Y=uhligdata, nlags=12, draws=1000, constant=FALSE,
                  steps=60, shock=4)

# get posterior draws
fevd0 <- model0$FEVDS

# plot impulse response functions
fevdplot(fevddraws=fevd0, type="median", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)


## End(Not run)
```

---

fp.target *Fry and Pagan's (2011) median target method*

Description

Estimates Fry and Pagan's (2011) median target impulse responses

Usage

```
fp.target(Y=NULL, irfdraws=NULL, nlags=4, constant=TRUE, type="median",
          labels=colnames(Y), target= TRUE, save=FALSE, legend=TRUE,
          bands=c(0.16, 0.84), grid=TRUE, bw=FALSE, maxit=1000)
```

Arguments

Y	A ts object containing the data series used for estimation; this should be of size $T \times nvar$.
irfdraws	A $draws \times steps \times nvar$ array of posterior impulse responses.
nlags	The number of lags to include of each variable. This should correspond to the number used to generate irfdraws. The default value is 4.
constant	A logical statement on whether to include an intercept in the model. This should correspond to the value used to generate irfdraws. The default is 'TRUE'.

type	A string, either "median" or "mean" response, specifying the type of response to be plotted. This should correspond to the value used to generate irfdraws. The default is "median".
labels	A list of variable labels for impulse response plots, The default are the variable names of the model handed over by colnames(Y).
target	A logical statement on whether to include the target impulse response, specified in type, in the graph. If type correponds to the value used to generate irfdraws, this will be identical to the impulse responses of the model irfdraws is evaluating. The default is 'TRUE'.
save	A logical statement to save the graph in the current working directory. The default is 'FALSE'.
legend	A logical statement on whether or not to generate a legend at the bottom of the graph. The default is 'TRUE'.
bands	A list of length 2 containing the error bands of the impulse responses. If bands='NULL', only IRFs are plotted. The default is c(0.16, 0.84).
grid	A logical statement on whether or not to generate grid lines in the plots. The default is 'TRUE'.
bw	A logical statement on whether or not to generate black and white or colour graphs. The default is 'FALSE'.
maxit	An integer value for the maximum number of iterations of the penalty function minimisation routine. The default value is 1000.

Details

This function estimates the Fry and Pagan's (2011) median target impulse responses and plots the resulting impulse responses with error bands. The function evaluates the output of a sign restricted model specified in irfdraws, by finding the single response and impulse vector that comes closest to the target impulse response specified in type. The error bands correspond to the model that has generated irfdraws.

Value

The function returns a plot of the median target responses with user-selected percentiles.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

References

Fry, R. and Pagan, A. (2011), "Sign restrictions in structural vector autoregressions: A critical review", Journal of Economic Literature, 49, 938-960.

See Also

rfbvar, uhlig.reject, uhlig.penalty, rwz.reject, irfplot, fevdplot.

Examples

```
## Not run:
# Replication of Figure 6 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# sign restrictions
constr <- c(+4,-3,-2,-5)

# estimates the model
model1 <- uhlig.reject(Y=uhligdata, nlags=12, draws=200, subdraws=200, nkeep=1000,
                       KMIN=1, KMAX=6, constrained=constr, constant=FALSE, steps=60)

# get posterior draws
irfs1 <- model1$IRFS

# estimate Fry and Pagan's MT method
fp.target(Y=uhligdata, nlags=12, irfdraws=irfs1, constant=F, type="median",
            labels=vl, target= TRUE, save=FALSE, legend=TRUE,
            bands=c(0.16, 0.84), grid=TRUE, bw=FALSE, maxit=1000)


## End(Not run)
```

`irfplot` *Plotting impulse responses with error bands from VAR posterior draws*

Description

Generates plots of impulse responses with error bands from VAR posterior draws

Usage

```
irfplot(irfdraws=NULL,type="median", labels=unlist(dimnames(irfdraws)[3]),
        save=FALSE, bands=c(0.16, 0.84), grid=TRUE, bw=FALSE)
```

Arguments

`irfdraws`	A $draws \times steps \times nvar$ array of posterior impulse responses.
`type`	A string, either "median" or "mean" response, specifying the type of response to be plotted. the default is "median".
`labels`	A list of variable labels for impulse response plots. The default are the variable names of the model.
`save`	A logical statement to save the graph in the current working directory. The default is 'FALSE'.

bands	A list of length 2 containing the error bands of the impulse responses. If bands='NULL', only IRFs are plotted. The default is c(0.16, 0.84).
grid	A logical statement on whether or not to generate grid lines in the plots. The default is 'TRUE'.
bw	A logical statement on whether or not to generate black and white or colour graphs. The default is 'FALSE'.

Details

This function generates plots of impulse responses with error bands from VAR posterior draws produced by a Bayesian VAR model.

Value

The function returns a plot of the IRFs with user-selected percentiles.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

See Also

fp.target, fevdplot.

Examples

```
## Not run:
# Replication of Figure 5 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# estimates the model
model0 <- rfbvar(Y=uhligdata, nlags=12, draws=1000, constant=FALSE,
                 steps=60, shock=4)

# get posterior draws
irfs0 <- model0$IRFS

# plot impulse response functions
irfplot(irfdraws=irfs0, type="mean", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)


## End(Not run)
```

rfbvar *BVAR with a flat Normal inverted-Wishart prior*

Description

Bayesian vector autoregression (BVAR) model with a flat Normal inverted-Wishart prior.

Usage

```
rfbvar(Y=NULL, nlags=4, draws=1000, constant=TRUE, steps=24, shock=1)
```

Arguments

Y	A ts object containing the data series used for estimation; this should be of size $T \times nvar$.
nlags	The number of lags to include of each variable. The default value is 4.
draws	An integer value for the number of Markov Chain Monte Carlo (MCMC) sampling replications. The default value is 1000.
constant	A logical statement on whether to include an intercept in the model. The default is 'TRUE'.
steps	An integer value for the horizon of the impulse response calculations. The default value is 24.
shock	An integer value specifiying for which shock the impulse responses are calculated. The number corresponds to the variable ordering in Y. The default value is 1.

Details

This function estimates a BVAR model using a flat Normal inverted-Wishart prior. Shocks are identified using a Cholesky decomposition. The ordering in the decomposition corresponds to the ordering of the variables in Y. The size of the shock is one standard deviation. Posterior draws are only returned for the variable specified in shock. In order to get the remaining impulse responses, re-run the model for different values of shock (see example below).

Value

A list of the posterior draws, which contains:

IRFS	A $draws \times steps \times nvar$ array of posterior impulse responses.
FEVDS	A $draws \times steps \times nvar$ array of posterior forecast error variance decompositions.
SHOCKS	A $draws \times T - nlags$ array of posterior draws of the model's shocks.
Bdraws	A $draws \times nvar$ array of posterior draws of the model coefficients $beta$.
Sdraws	A $draws \times nvar$ array of posterior draws of the model's variance-covariance matrix $Sigma$.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

References

Canova, F. (2007), Methods for Applied Macroeconomic Research, Princeton, NJ: Princeton University Press.

See Also

uhlig.reject, uhlig.penalty, rwz.reject, fp.target, irfplot, fevdplot.

Examples

```
## Not run:
# Replication of Figure 5 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# FED funds rate shock
model0 <- rfbvar(Y=uhligdata, nlags=12, draws=1000, constant=FALSE,
                 steps=60, shock=4)

# plot impulse response functions
irfplot(irfdraws=model0$IRFS, type="median", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)

## End(Not run)
```

---

rwz.reject *Rubio-Ramirez et al's (2010) rejection method*

Description

Identifies stuctural shocks using Rubio-Ramirez et al's rejection method and estimates a Bayesian vector autoregression model with a flat Normal inverted-Wishart prior.

Usage

```
rwz.reject(Y=NULL, nlags=4, draws=200, subdraws=200, nkeep=1000,
             KMIN=1, KMAX=4, constrained=NULL, constant=TRUE, steps=24)
```

Arguments

Y	A ts object containing the data series used for estimation; this should be of size $T \times nvar$.
nlags	The number of lags to include of each variable. The default value is 4.
draws	An integer value for the number of Markov Chain Monte Carlo (MCMC) sampling replications. The default value is 200.
subdraws	An integer value for the number of subdraws over the rejection routine.The default value is 200.
nkeep	An integer value for the number of desired MCMC draws that meet the imposed sign restrictions. The default value is 1000.
KMIN	An integer value for the first period of the impulse responses to which the sign restrictions apply. The default value is 1.
KMAX	An integer value for the last period of the impulse responses to which the sign restrictions apply. The default value is 4.
constrained	A list of sign restrictions of length <= $nvar$. The first entry of the list characterises the shock of interest. you MUST specify a sign restriction for the shock of interest.
constant	A logical statement on whether to include an intercept in the model. The default is 'TRUE'.
steps	An integer value for the horizon of the impulse response calculations. The default value is 24.

Details

This function estimates a BVAR model using a flat Normal inverted-Wishart prior. Structural shocks are identified using Rubio-Ramirez et al's (2010) rejection method. The size of the shock is one standard deviation. `rwz.reject` is a partial identification method. Only one shock of interest is identified at a time by the sign restrictions provided. The MCMC routine stops when either enough draws have been found that satisfy the sign restrictions (specified in $nkeep$) or the maximum number of $draws$ has been reached.

Sign restrictions are specified as follows: The first entry of `constrained` is shock of interest corresponding to the column of the variable in Y. You MUST specify a sign restriction for the shock of interest on itself. Restrictions of the shock of interest on other variables are optional. The sign of the entry in the list corresponds to the direction of the sign, e.g. >0 or <0. Variables that are not listed in `constrained` remain unconstrained. In the example below, the shock of interest is the 4th variable (FED funds rate) in Y. The sign indicates that the effect on itself is contrained to be positive. The responses of the 2nd, 3rd, and 5th variable in the model to a positive FED funds rate shock is restricted to be negative. The responses of the 1st and 6th variable are unconstrained.

Value

A list of the posterior draws, which contains:

IRFS	A $draws \times steps \times nvar$ array of posterior impulse responses.
FEVDS	A $draws \times steps \times nvar$ array of posterior forecast error variance decompositions.
SHOCKS	A $draws \times T - nlags$ array of posterior draws of the model's shocks.
Bdraws	A $draws \times nvar$ array of posterior draws of the model coefficients $beta$.
Sdraws	A $draws \times nvar$ array of posterior draws of the model's variance-covariance matrix $Sigma$.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

References

Rubio-Ramirez, J., Waggoner, D. and Zha, T. (2010), "Structural Vector Autoregressions: Theory of Identification and Algorithms for Inference", Review of Economic Studies, 77, 665-696.

See Also

rfbvar, uhlig.reject, uhlig.penalty, fp.target, irfplot, fevdplot.

Examples

```
## Not run:
# Replication of Figure 6 of Uhlig (2005) using Rubio-Ramirez et al's method

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# sign restrictions
# shock of interest enters first.
# you MUST provide a restriction for the shock of interest
# restriction variable 4 is >0
# 2nd, 3rd, and 5th variable are <0.
# 1st and 6th variable are unrestricted

constr <- c(+4,-3,-2,-5)

# estimates the model
model3 <- rwz.reject(Y=uhligdata, nlags=12, draws=200, subdraws=200, nkeep=1000,
                     KMIN=1, KMAX=6, constrained=constr, constant=FALSE, steps=60)

# get posterior draws
irfs3 <- model3$IRFS

# plot impulse response functions
irfplot(irfdraws=irfs3, type="median", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)


## End(Not run)
```

`uhlig.penalty` *Uhlig's (2005) penalty function method*

Description

Identifies stuctural shocks using Uhlig's penalty function method and estimates a Bayesian vector autoregression model with a flat Normal inverted-Wishart prior.

Usage

```
uhlig.penalty(Y=NULL, nlags=4, draws=1000, subdraws=1000, nkeep=1000, KMIN=1, KMAX=4,
            constrained=NULL, constant=TRUE, steps=24, penalty=100, crit=0.001)
```

Arguments

`Y`	A ts object containing the data series used for estimation; this should be of size $T \times nvar$.
`nlags`	The number of lags to include of each variable. The default value is 4.
`draws`	An integer value for the number of Markov Chain Monte Carlo (MCMC) sampling replications. The default value is 1000.
`subdraws`	An integer value for the number of iterations of the penalty function minimisation routine.The default value is 1000.
`nkeep`	An integer value for the number of desired MCMC draws that meet the imposed sign restrictions. The default value is 1000.
`KMIN`	An integer value for the first period of the impulse responses to which the sign restrictions apply. The default value is 1.
`KMAX`	An integer value for the last period of the impulse responses to which the sign restrictions apply. The default value is 4.
`constrained`	A list of sign restrictions of length <= $nvar$. The first entry of the list characterises the shock of interest. you MUST specify a sign restriction for the shock of interest.
`constant`	A logical statement on whether to include an intercept in the model. The default is 'TRUE'.
`steps`	An integer value for the horizon of the impulse response calculations. The default value is 24.
`penalty`	An value (>= 0) for the penalty applied to the responses that do not satisfy the imposed sign restrictions. The default is 100.
`crit`	An value for the critical difference between two penalty function minimisation runs for which a draw gets rejected. The default is 0.001

Details

This function estimates a BVAR model using a flat Normal inverted-Wishart prior. Structural shocks are identified using Uhlig's (2005) penalty function method. The size of the shock is one standard deviation. `uhlig.penalty` is a partial identification method. Only one shock of interest is identified at a time by the sign restrictions provided. The MCMC routine stops when either enough draws have been found that satisfy the sign restrictions (specified in `nkeep`) or the maximum number of `draws` has been reached.

Sign restrictions are specified as follows: The first entry of `constrained` is shock of interest corresponding to the column of the variable in Y. You MUST specify a sign restriction for the shock of interest on itself. Restrictions of the shock of interest on other variables are optional. The sign of the entry in the list corresponds to the direction of the sign, e.g. >0 or <0. Variables that are not listed in `constrained` remain unconstrained. In the example below, the shock of interest is the 4th variable (FED funds rate) in Y. The sign indicates that the effect on itself is contrained to be positive. The responses of the 2nd, 3rd, and 5th variable in the model to a positive FED funds rate shock is restricted to be negative. The responses of the 1st and 6th variable are unconstrained.

Value

A list of the posterior draws, which contains:

`IRFS`	A $draws \times steps \times nvar$ array of posterior impulse responses.
`FEVDS`	A $draws \times steps \times nvar$ array of posterior forecast error variance decompositions.
`SHOCKS`	A $draws \times T - nlags$ array of posterior draws of the model's shocks.
`Bdraws`	A $draws \times nvar$ array of posterior draws of the model coefficients $beta$.
`Sdraws`	A $draws \times nvar$ array of posterior draws of the model's variance-covariance matrix $Sigma$.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

References

Uhlig, H. (2005), "What Are the Effects of Monetary Policy on Output? Results from an Agnostic Identification Procedure", Journal of Monetary Economics, 52, 381-419.

See Also

`rfbvar`, `uhlig.reject`, `rwz.reject`, `fp.target`, `irfplot`, `fevdplot`.

Examples

```
## Not run:
# Replication of Figure 14 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# sign restrictions
# shock of interest enters first.
# you MUST provide a restriction for the shock of interest
# restriction variable 4 is >0
```

```
# 2nd, 3rd, and 5th variable are <0.
# 1st and 6th variable are unrestricted
constr <- c(+4,-3,-2,-5)

# estimates the model
model2 <- uhlig.penalty(Y=uhligdata, nlags=12, draws=2000, subdraws=1000,
                        nkeep=1000, KMIN=1, KMAX=6, constrained=constr,
                        constant=FALSE, steps=60, penalty=100, crit=0.001)

# get posterior draws
irfs3 <- model2$IRFS

# plot impulse response functions
irfplot(irfdraws=irfs2, type="mean", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)


## End(Not run)
```

`uhlig.reject` *Uhlig's (2005) rejection method*

Description

Identifies stuctural shocks using Uhlig's (2005) rejection method and estimates a Bayesian vector autoregression model with a flat Normal inverted-Wishart prior.

Usage

```
uhlig.reject(Y=NULL, nlags=4, draws=200, subdraws=200, nkeep=1000,
             KMIN=1, KMAX=4, constrained=NULL, constant=TRUE, steps=24)
```

Arguments

`Y`	A ts object containing the data series used for estimation; this should be of size $T \times nvar$.
`nlags`	The number of lags to include of each variable. The default value is 4.
`draws`	An integer value for the number of Markov Chain Monte Carlo (MCMC) sampling replications. The default value is 200.
`subdraws`	An integer value for the number of subdraws over the rejection routine.The default value is 200.
`nkeep`	An integer value for the number of desired MCMC draws that meet the imposed sign restrictions. The default value is 1000.
`KMIN`	An integer value for the first period of the impulse responses to which the sign restrictions apply. The default value is 1.
`KMAX`	An integer value for the last period of the impulse responses to which the sign restrictions apply. The default value is 4.
`constrained`	A list of sign restrictions of length <= $nvar$. The first entry of the list characterises the shock of interest. you MUST specify a sign restriction for the shock of interest.

constant	A logical statement on whether to include an intercept in the model. The default is 'TRUE'.
steps	An integer value for the horizon of the impulse response calculations. The default value is 24.

Details

This function estimates a BVAR model using a flat Normal inverted-Wishart prior. Structural shocks are identified using Uhlig's (2005) rejection method. The size of the shock is one standard deviation. `uhlig.reject` is a partial identification method. Only one shock of interest is identified at a time by the sign restrictions provided. The MCMC routine stops when either enough draws have been found that satisfy the sign restrictions (specified in `nkeep`) or the maximum number of `draws` has been reached.

Sign restrictions are specified as follows: The first entry of `constrained` is shock of interest corresponding to the column of the variable in Y. You MUST specify a sign restriction for the shock of interest on itself. Restrictions of the shock of interest on other variables are optional. The sign of the entry in the list corresponds to the direction of the sign, e.g. >0 or <0. Variables that are not listed in `constrained` remain unconstrained. In the example below, the shock of interest is the 4th variable (FED funds rate) in Y. The sign indicates that the effect on itself is contrained to be positive. The responses of the 2nd, 3rd, and 5th variable in the model to a positive FED funds rate shock is restricted to be negative. The responses of the 1st and 6th variable are unconstrained.

Value

A list of the posterior draws, which contains:

IRFS	A $draws \times steps \times nvar$ array of posterior impulse responses.
FEVDS	A $draws \times steps \times nvar$ array of posterior forecast error variance decompositions.
SHOCKS	A $draws \times T - nlags$ array of posterior draws of the model's shocks.
Bdraws	A $draws \times nvar$ array of posterior draws of the model coefficients $beta$.
Sdraws	A $draws \times nvar$ array of posterior draws of the model's variance-covariance matrix $Sigma$.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

References

Uhlig, H. (2005), "What Are the Effects of Monetary Policy on Output? Results from an Agnostic Identification Procedure", Journal of Monetary Economics, 52, 381-419.

See Also

`rfbvar`, `uhlig.penalty`, `rwz.reject`, `fp.target`, `irfplot`, `fevdplot`.

Examples

```
## Not run:
# Replication of Figure 6 of Uhlig (2005)

set.seed(12345)
data(uhligdata)

# variable labels for plots
vl <- c("GDP","GDP Deflator","Comm.Pr.Index","Fed Funds Rate",
        "NB Reserves", "Total Reserves")

# sign restrictions
# shock of interest enters first.
# you MUST provide a restriction for the shock of interest
# restriction variable 4 is >0
# 2nd, 3rd, and 5th variable are <0.
# 1st and 6th variable are unrestricted
constr <- c(+4,-3,-2,-5)

# estimates the model
model1 <- uhlig.reject(Y=uhligdata, nlags=12, draws=200, subdraws=200, nkeep=1000, KMIN=1,
                       KMAX=6, constrained=constr, constant=FALSE, steps=60)

# get posterior draws
irfs1 <- model1$IRFS

# plot impulse response functions
irfplot(irfdraws=irfs1,type="median", labels=vl, save=FALSE, bands=c(0.16, 0.84),
        grid=TRUE, bw=FALSE)


## End(Not run)
```

---

uhligdata *Monthly US Macroeconomic Time Series*

Description

Contains monthly US macro data used by Uhlig (2005) for Real GDP (y), GDP deflator (yd), commodity price index (p), FED funds rate (i), non-borrowed reserves (rnb), and total reserves (rt) from 1965:1 - 2003:12. The data has been downloaded from the RATS website. Original data for the commodity price index was taken from Global Financial Data. The remaining data was taken from FRED. Quarterly time series have been interpolated to monthly frequency using the interpolation methods by Bernanke et al. (1997) and Bernanke and Mihov (1998). For more details see Uhlig (2005).

Format

Multiple time series (`mts`) object, series names: "y", "yd", "p", "i", "rnb", "rt". Variables in the data, except the FED funds rate, are the log of the original data series times 100 in line with the transformations of the data of the original paper.

Note

Users should consult the reference papers and the package vignette for more information.

Author(s)

Christian Danne

Source

Data downloaded from the RATS website:

https://www.estima.com/procs_perl/uhligjme2005.zip.

Accessed: 2015-11-27.

References

Bernanke, B.S., Gertler, M., and Watson, M. (1997), "Systematic Monetary Policy and the Effects of Oil Price Shocks", Brookings Papers on Economic Activity, 1, 91-157.

Bernanke, B.S. and Mihov, I. (1998), "Measuring Monetary Policy", Quarterly Journal of Economics, 113, 869-902.

Uhlig, H. (2005), "What Are the Effects of Monetary Policy on Output? Results from an Agnostic Identification Procedure", Journal of Monetary Economics, 52, 381-419.

Examples

```
## Not run:

# Load and plot data
data(uhligdata)
plot(uhligdata)


## End(Not run)
```

`VARsignR` *Estimating VARs using sign restrictions*

Description

VARsignR is a collection of R routines for estimating and identifying structural shocks using sign restrictions in Bayesian Vector Autoregression (BVAR) models.

Details

Package:	VARsignR
Type:	Package
Version:	0.1.2
Date:	2015-12-19
License:	GPL (>= 3)
LazyLoad:	Yes
Depends:	HI, mvnfast, minqa

How to cite this package

```
@Manual{Danne2015,
 author       = {Christian Danne},
 title        = {{VARsignR}: Estimating VARs using sign restrictions.},
 year         = {2015},
 note         = {R package version 0.1.2.}}
```

License

Author(s)

Christian Danne

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