

Package ‘fitDTVARMx’

July 5, 2024

Title Fit The Discrete-Time Vector Autoregressive Model

Version 0.0.0.9000

Description Fit the discrete-time vector autoregressive model using the 'OpenMx' package.

URL <https://github.com/jeksterslab/fitDTVARMx>,
<https://jeksterslab.github.io/fitDTVARMx/>

BugReports <https://github.com/jeksterslab/fitDTVARMx/issues>

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Encoding UTF-8

Roxygen list(markdown = TRUE)

VignetteBuilder knitr

Depends R (>= 3.0.0), OpenMx

Imports stats

Suggests knitr, rmarkdown, testthat, simStateSpace

RoxygenNote 7.3.2

NeedsCompilation no

Author Ivan Jacob Agaloos Pesigan [aut, cre, cph]
(<https://orcid.org/0000-0003-4818-8420>)

Maintainer Ivan Jacob Agaloos Pesigan <r.jeksterslab@gmail.com>

Contents

coef.fittedvaridmx	2
FitDTVARIDMx	2
print.fittedvaridmx	4
summary.fittedvaridmx	5
vcov.fittedvaridmx	5

Index	7
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coef.fitdtvaridmx	<i>Parameter Estimates</i>
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Description

Parameter Estimates

Usage

```
## S3 method for class 'fitdtvaridmx'
coef(object, psi = FALSE, theta = FALSE, ...)
```

Arguments

object	Object of class fitdtvaridmx.
psi	Logical. If psi = TRUE, include estimates of the psi matrix. If psi = FALSE, exclude estimates of the psi matrix.
theta	Logical. If theta = TRUE, include estimates of the theta matrix if available. If theta = FALSE, exclude estimates of the theta matrix.
...	additional arguments.

Value

Returns a list of vectors of parameter estimates.

Author(s)

Ivan Jacob Agaloos Pesigan

FitDTVARIDMx	<i>Fit First Order Discrete-Time Vector Autoregressive Model by ID</i>
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Description

Fit First Order Discrete-Time Vector Autoregressive Model by ID

Usage

```
FitDTVARIDMx(
  data,
  observed,
  id,
  beta_start = NULL,
  beta_lbound = NULL,
  beta_ubound = NULL,
```

```

psi_diag = TRUE,
psi_start = NULL,
psi_lbound = NULL,
psi_ubound = NULL,
theta_fixed = TRUE,
theta_start = NULL,
theta_lbound = NULL,
theta_ubound = NULL,
mu0_fixed = TRUE,
mu0_start = NULL,
mu0_lbound = NULL,
mu0_ubound = NULL,
sigma0_fixed = TRUE,
sigma0_diag = TRUE,
sigma0_start = NULL,
sigma0_lbound = NULL,
sigma0_ubound = NULL,
try = 1000,
ncores = NULL
)

```

Arguments

data	Data frame. A data frame object of data for potentially multiple subjects that contain a column of subject ID numbers (i.e., an ID variable), and at least one column of observed values.
observed	Character vector. A vector of character strings of the names of the observed variables in the data.
id	Character string. A character string of the name of the ID variable in the data.
beta_start	Numeric matrix. Optional starting values for beta.
beta_lbound	Numeric matrix. Optional lower bound for beta.
beta_ubound	Numeric matrix. Optional upper bound for beta.
psi_diag	Logical. If psi_diag = TRUE, psi is a diagonal matrix.
psi_start	Numeric matrix. Optional starting values for psi.
psi_lbound	Numeric matrix. Optional lower bound for psi.
psi_ubound	Optional upper bound for psi.
theta_fixed	Logical. If theta_fixed = TRUE, the measurement error matrix theta is fixed to zero. If theta_fixed = FALSE, estimate the diagonal measurement error matrix theta.
theta_start	Optional starting values for theta. Ignored if theta_fixed = TRUE.
theta_lbound	Optional lower bound for theta. Ignored if theta_fixed = TRUE.
theta_ubound	Optional upper bound for theta. Ignored if theta_fixed = TRUE.
mu0_fixed	Logical. If mu0_fixed = TRUE, initial mean vector mu0 is fixed. If mu0_fixed = FALSE, initial mean vector mu0 is estimated.

<code>mu0_start</code>	Optional starting values for <code>mu0</code> . If <code>mu0_fixed = TRUE</code> , <code>mu0_start</code> will be used as fixed values. If <code>mu0_fixed = FALSE</code> , <code>mu0_start</code> will be used as starting values.
<code>mu0_lbound</code>	Optional lower bound for <code>mu0</code> . Ignored if <code>mu0_fixed = TRUE</code> .
<code>mu0_ubound</code>	Optional upper bound for <code>mu0</code> . Ignored if <code>mu0_fixed = TRUE</code> .
<code>sigma0_fixed</code>	Logical. If <code>sigma0_fixed = TRUE</code> , initial mean vector <code>sigma0</code> is fixed. If <code>sigma0_fixed = FALSE</code> , initial mean vector <code>sigma0</code> is estimated.
<code>sigma0_diag</code>	Logical. If <code>sigma0_diag = TRUE</code> , <code>sigma0</code> is a diagonal matrix.
<code>sigma0_start</code>	Optional starting values for <code>sigma0</code> . If <code>sigma0_fixed = TRUE</code> , <code>sigma0_start</code> will be used as fixed values. If <code>sigma0_fixed = FALSE</code> , <code>sigma0_start</code> will be used as starting values.
<code>sigma0_lbound</code>	Optional lower bound for <code>sigma0</code> . Ignored if <code>sigma0_fixed = TRUE</code> .
<code>sigma0_ubound</code>	Optional upper bound for <code>sigma0</code> . Ignored if <code>sigma0_fixed = TRUE</code> .
<code>try</code>	Positive integer. Number of extra tries for <code>OpenMx::mxTryHard()</code> .
<code>ncores</code>	Positive integer. Number of cores to use.

Author(s)

Ivan Jacob Agaloos Pesigan

<code>print.fitdtvaridmx</code>	<i>Print Method for Object of Class fitdtvaridmx</i>
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Description

Print Method for Object of Class `fitdtvaridmx`

Usage

```
## S3 method for class 'fitdtvaridmx'
print(x, means = TRUE, ...)
```

Arguments

<code>x</code>	an object of class <code>fitdtvaridmx</code> .
<code>means</code>	Logical. If <code>means = TRUE</code> , return means. Otherwise, the function returns raw estimates.
<code>...</code>	further arguments.

Author(s)

Ivan Jacob Agaloos Pesigan

summary.fitdtvaridmx *Summary Method for Object of Class fitdtvaridmx*

Description

Summary Method for Object of Class fitdtvaridmx

Usage

```
## S3 method for class 'fitdtvaridmx'  
summary(object, means = TRUE, ...)
```

Arguments

object	an object of class fitdtvaridmx.
means	Logical. If means = TRUE, return means. Otherwise, the function returns raw estimates.
...	further arguments.

Author(s)

Ivan Jacob Agaloos Pesigan

vcov.fitdtvaridmx *Sampling Covariance Matrix of the Parameter Estimates*

Description

Sampling Covariance Matrix of the Parameter Estimates

Usage

```
## S3 method for class 'fitdtvaridmx'  
vcov(object, psi = FALSE, theta = FALSE, ...)
```

Arguments

object	Object of class fitdtvaridmx.
psi	Logical. If psi = TRUE, include estimates of the psi matrix. If psi = FALSE, exclude estimates of the psi matrix.
theta	Logical. If theta = TRUE, include estimates of the theta matrix if available. If theta = FALSE, exclude estimates of the theta matrix.
...	additional arguments.

Value

Returns a list of sampling variance-covariance matrices.

Author(s)

Ivan Jacob Agaloos Pesigan

Index

- * **Meta-Analysis of VAR Functions**

- FitDTVARIDMx, [2](#)

- * **fit**

- FitDTVARIDMx, [2](#)

- * **metaVAR**

- FitDTVARIDMx, [2](#)

- * **methods**

- coef.fitdtvaridmx, [2](#)

- print.fitdtvaridmx, [4](#)

- summary.fitdtvaridmx, [5](#)

- vcov.fitdtvaridmx, [5](#)

coef.fitdtvaridmx, [2](#)

FitDTVARIDMx, [2](#)

OpenMx::mxTryHard(), [4](#)

print.fitdtvaridmx, [4](#)

summary.fitdtvaridmx, [5](#)

vcov.fitdtvaridmx, [5](#)