Package: ecod025ps1 (via r-universe)

May 28, 2026

Type Package

Title ECOD025 - Problem Set 1 about VAR, FA-VAR and DFM models. Install this from the R-Universe.

Description Using armadillo4r for a straightforward implementation of an EM algorithm and the Kalman filter for DFM.

Version 0.1

Suggests knitr, rmarkdown

Depends R(>= 3.5.0)

License Apache License (>= 2)

BugReports https://github.com/pachadotdev/ecod025/issues

URL https://pacha.dev/ecod025

RoxygenNote 7.3.3

Encoding UTF-8

NeedsCompilation yes

LinkingTo cpp4r, armadillo4r

Repository https://pachadotdev.r-universe.dev

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RemoteUrl https://github.com/pachadotdev/ecod025

RemoteRef main

RemoteSha c047f952c9a9b021b42fec2d4a360a088bf52a71

RemoteSubdir ecod025ps1

Contents

dfm_model *Dynamic Factor Model (DFM)*

Description

Estimates a Dynamic Factor Model using PCA initialization and EM algorithm with Kalman filter.

Usage

```
dfm_model(x, n_factors, p, max_iter, tol, forecast_h)
```

Arguments

x	Matrix of observed variables (T x N)
n_factors	Number of latent factors (r < N)
p	VAR lag order for factor dynamics (0 for static model)
max_iter	Maximum EM iterations
tol	Convergence tolerance for log-likelihood
forecast_h	Forecast horizon (0 for no forecast)

favar_model *Factor-Augmented VAR (FA-VAR) Model*

Description

Estimates a FA-VAR model using PCA for factor extraction.

Usage

```
favar_model(y, n_lags, n_factors, p_y, p_f, include_const, forecast_h)
```

Arguments

y	Time series vector (T x 1)
n_lags	Number of lags of y to include in X for factor extraction
n_factors	Number of latent factors to extract (r < n_lags + 1)
p_y	VAR lag order for y dynamics
p_f	VAR lag order for factor dynamics
include_const	Include constant term in VARs
forecast_h	Forecast horizon (0 for no forecast)

`var_model` *Main VAR estimation function that returns everything*

Description

Estimates a VAR model using OLS.

Usage

```
var_model(y, p, include_const, forecast_h)
```

Arguments

`y`	Time series vector (T x 1)
`p`	Lag order
`include_const`	Include constant term in VAR
`forecast_h`	Forecast horizon (0 for no forecast)

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