Package 'Romeb'

November 17, 2025

Type Package

Title Robust Median-Based Bayesian Growth Curve Modeling

Version 0.1.2

Description Implements robust median-based Bayesian growth curve models that handle Missing Completely at Random (MCAR), Missing At Random (MAR), and Missing Not At Random (MNAR) missing-data mechanisms, and allow auxiliary variables. Models are fitted via 'rjags' (interface to 'JAGS') and summarized with 'coda'.

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URL https://github.com/DandanTang0/Romeb

BugReports https://github.com/DandanTang0/Romeb/issues

Encoding UTF-8

Depends R (>= 4.2)

Imports rjags, coda, stats

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr

Config/testthat/edition 3

SystemRequirements JAGS

LazyData true

LazyDataCompression xz

Language en-US

RoxygenNote 7.3.3

NeedsCompilation no

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Repository CRAN

Date/Publication 2025-11-17 09:10:02 UTC

Contents

`model` *Bayesian Growth Curve Model for Complete Data, MCAR (Missing Completely at Random, and MAR (Missing at Random*

Description

A character string containing the JAGS model specification for complete data (no missing values), MCAR, and MAR.

Usage

```
model
```

Format

A character string.

`model_MNAR` *Bayesian Growth Curve Model for MNAR (Missing Not At Random)*

Description

JAGS model definition for data with MNAR mechanism.

Usage

```
model_MNAR
```

Format

A character string.

model_MNAR_k *Bayesian Growth-Curve Model for MNAR with Auxiliary Variable (k)*

Description

JAGS model definition for MNAR mechanism with auxiliary variable k.

Usage

```
model_MNAR_k
```

Format

A character string.

NYS *Youth Attitudes toward Deviance (NYS, 1976–1980)*

Description

A real data set from the 1976–1980 National Youth Survey of U.S. youth.

Usage

```
NYS
```

Format

A data frame with 1,725 rows and 7 variables:

age Participant age (years)

gender Gender (0 = female, 1 = male)

Atd1 Attitude toward social deviance, wave 1

Atd2 Attitude toward social deviance, wave 2

Atd3 Attitude toward social deviance, wave 3

Atd4 Attitude toward social deviance, wave 4

Atd5 Attitude toward social deviance, wave 5

Source

National Youth Survey, waves 1976–1980 (downloadable at https://www.icpsr.umich.edu/icpsrweb/ICPSR/series/88)

Romeb *Romeb: Robust Median-Based Bayesian Growth Curve Modeling*

Description

Implements robust median-based Bayesian growth-curve models that handle MCAR/MAR/MNAR missing-data mechanisms and complete data. Models are fitted via **rjags**/JAGS and summarized with **coda**.

Fits a median-based Bayesian growth curve model under MCAR, MAR, MNAR or complete-data assumptions. If `K > 0` the first `K` columns in `data` are treated as auxiliary variables.

Usage

```
Romeb(
  Missing_Type,
  data,
  time,
  seed,
  K = 0,
  chain = 1,
  Niter = 6000,
  burnIn = 3000
)
```

Arguments

`Missing_Type`	Character; one of `MNAR`, `MAR`, `MCAR`, no `missing`.
`data`	Matrix or data frame containing outcome columns (and optionally auxiliary variables).
`time`	Numeric vector of measurement times (e.g., c(0,1,2,3)).
`seed`	Integer seed for reproducibility.
`K`	Integer; number of auxiliary variables (default 0).
`chain`	Integer; number of MCMC chains (default 1).
`Niter`	Integer; iterations per chain (default 6000).
`burnIn`	Integer; burn-in iterations (default 3000).

Value

An object of class `RomebResult` containing

quantiles posterior means, SDs and quantiles

geweke Geweke z-scores

credible_intervals 95% equal-tail credible intervals

hpd_intervals 95% highest posterior density intervals

samps_full full `coda::mcmc.list` (including burn-in)

Author(s)

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Authors:

- Xin Tong

See Also

Useful links:

- https://github.com/DandanTang0/Romeb
- Report bugs at https://github.com/DandanTang0/Romeb/issues

Examples

```
set.seed(123)
Y <- matrix(rnorm(300), 100, 3)
fit <- Romeb("no missing", data = Y, time = c(0,1,2), seed = 123, K = 0,
             Niter = 6000, burnIn = 3000)
print(fit)
```

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