

Package ‘Romeb’

May 7, 2026

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'.

License GPL-3

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

Author Dandan Tang [aut, cre] (ORCID: <<https://orcid.org/0009-0007-3453-9660>>),
Xin Tong [aut]

Maintainer Dandan Tang <tangdd20@gmail.com>

Repository CRAN

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

Contents

model	2
model_MNAR	2
model_MNAR_k	3
NYS	3
Romeb	4

Index	6
--------------	----------

model	<i>Bayesian Growth Curve Model for Complete Data, MCAR (Missing Completely at Random, and MAR (Missing at Random)</i>
-------	---

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	<i>Bayesian Growth Curve Model for MNAR (Missing Not At Random)</i>
------------	---

Description

JAGS model definition for data with MNAR mechanism.

Usage

model_MNAR

Format

A character string.

model_MNAR_k	<i>Bayesian Growth-Curve Model for MNAR with Auxiliary Variable (k)</i>
--------------	---

Description

JAGS model definition for MNAR mechanism with auxiliary variable k.

Usage

model_MNAR_k

Format

A character string.

NYS	<i>Youth Attitudes toward Deviance (NYS, 1976–1980)</i>
-----	---

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>)

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)

Maintainer: Dandan Tang <tangdd20@gmail.com> ([ORCID](#))

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)
```

Index

* datasets

model, [2](#)

model_MNAR, [2](#)

model_MNAR_k, [3](#)

NYS, [3](#)

model, [2](#)

model_MNAR, [2](#)

model_MNAR_k, [3](#)

NYS, [3](#)

Romeb, [4](#)

Romeb-package (Romeb), [4](#)