Package 'spatialSPsurv'

August 4, 2020

Type Package

Title Bayesian Spatial Split Population Survival Model

Version 0.1.3

Description Contains functions to fit Bayesian spatial survival model for split population.

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Encoding UTF-8

LazyData true

RoxygenNote 7.1.0

LinkingTo Rcpp,
RcppArmadillo

Imports MCMCpack,
FastGP,
stats,
Rcpp,
RcppArmadillo,
coda

R topics documented:

`exchangeSPsurv` *frailtySPsurv*

Description

Markov Chain Monte Carlo (MCMC) to run Bayesian non-spatial frailty split population survival model

Usage

```
exchangeSPsurv(
  duration,
  immune,
  Y0,
  LY,
  S,
  data,
  N,
  burn,
  thin,
  w = c(1, 1, 1),
  m = 10,
  form = c("Weibull", "exponential", "loglog"),
  prop.var
)
```

Arguments

duration	...
immune	...
Y0	the elapsed time since inception until the beginning of time period (t-1)
LY	last observation year
S	spatial information (e.g. district ID) for each observation that matches the spatial matrix row/column information
data	...
N	number of MCMC iterations
burn	burn-in to be discarded
thin	thinning to prevent from autocorrelation
w	size of the slice in the slice sampling for (betas, gammas, rho). Write it as a vector. E.g. c(1,1,1)
m	limit on steps in the slice sampling. A vector of values for beta, gamma, rho.
form	type of parametric model (Exponential or Weibull)
prop.var	...

Value

chain of the variables of interest

`pooledSPsurv` *SPsurv*

Description

Markov Chain Monte Carlo (MCMC) to run Bayesian split population survival model with no frailties

Usage

```
pooledSPsurv(
  duration,
  immune,
  Y0,
  LY,
  data,
  N,
  burn,
  thin,
  w = c(1, 1, 1),
  m = 10,
  form = c("Weibull", "exponential", "loglog")
)
```

Arguments

duration	...
immune	...
Y0	the elapsed time since inception until the beginning of time period (t-1)
LY	last observation year
data	...
N	number of MCMC iterations
burn	burn-in to be discarded
thin	thinning to prevent from autocorrelation
w	size of the slice in the slice sampling for (betas, gammas, rho). Write it as a vector. E.g. c(1,1,1)
m	limit on steps in the slice sampling. A vector of values for beta, gamma, rho.
form	type of parametric model (Exponential or Weibull)

Value

chain of the variables of interest

---

spatialSPsurv *spatialSPsurv*

Description

Markov Chain Monte Carlo (MCMC) to run Bayesian spatial split population survival model

Usage

```
spatialSPsurv(
  duration,
  immune,
  Y0,
  LY,
  S,
  A,
  data,
  N,
  burn,
  thin,
  w = c(1, 1, 1),
  m = 10,
  form = c("Weibull", "exponential", "loglog"),
  prop.var
)
```

Arguments

duration	...
immune	...
Y0	the elapsed time since inception until the beginning of time period (t-1)
LY	last observation year
S	spatial information (e.g. district ID) for each observation that matches the spatial matrix row/column information
A	Spatial Matrix (load separate spatial weights matrix file)
data	...
N	number of MCMC iterations
burn	burn-in to be discarded
thin	thinning to prevent from autocorrelation
w	size of the slice in the slice sampling for (betas, gammas, rho). Write it as a vector. E.g. c(1,1,1)
m	limit on steps in the slice sampling. A vector of values for beta, gamma, rho.
form	type of parametric model (Exponential or Weibull)
prop.var	proposal variance for Metropolis-Hastings

Value

chain of the variables of interest

SPstats *SP.stats*

Description

A function to calculate the deviance information criterion (DIC) and Log-likelihood for fitted model oupts of pooled, exchangeable, and spatial Split Population survival models for which a log-likelihood can be obtained, according to the formula *DIC = -2 * (L - P)*, where *L* is the log likelihood of the data given the posterior means of the parameter and *P* is the estimate of the effective number of parameters in the model.

Usage

```
SPstats(object)
```

Arguments

`object`	An object of the output of pooled, exchangeable, or spatial Split Population survival model .

Value

List.

Index