Package: survHEhmc (via r-universe)

October 24, 2024

Title Survival Analysis in Health Economic Evaluation using Hamiltonian Monte Carlo

Version 0.0.1

URL https://github.com/giabaio/survHEhmc/, https://gianluca.statistica.it/software/survhe/

BugReports https://github.com/giabaio/survHEhmc/issues

Description A module to complement the backbone structure of the package 'survHE' and expand its functionality to run survival models under a Bayesian approach (based on Hamiltonian Monte Carlo). <doi:10.18637/jss.v095.i14>.

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Biarch true

Depends R (>= 3.6.0), survHE, dplyr

Imports methods, Rcpp (>= 0.12.0), rstan (>= 2.18.1), flexsurv, tibble, rstantools (>= 2.3.0)

LinkingTo BH (>= 1.66.0), Rcpp (>= 0.12.0), RcppEigen (>= 0.3.3.3.0), RcppParallel (>= 5.0.1), rstan (>= 2.18.1), StanHeaders (>= 2.18.0)

SystemRequirements GNU make

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

RemoteUrl https://github.com/giabaio/survHEhmc

RemoteRef HEAD

RemoteSha 886e80c52dcc67fe99662747724b5e4b42650852

Contents

`poly.weibull` *Fit Poly-Weibull model for survival analysis of mixture hazards*

Description

Runs the survival analysis using a Poly-Weibull model

Usage

```
poly.weibull(formula = NULL, data, ...)
```

Arguments

`formula`	a list of formulae (one for each components of the mixture. Can specify one single formula (in which case, the model is a simple Weibull regression). For example, a valid call is using `formula=list(Surv(time,event)~1,Surv(time,event)~arm)`
`data`	A data frame containing the data to be used for the analysis. This must contain data for the 'event' variable. In case there is no censoring, then `event` is a column of 1s.
`...`	Additional options (for INLA or HMC). **HMC** specific options `chains` = number of chains to run in the HMC (default = 2) `iter` = total number of iterations (default = 2000) `warmup` = number of warmup iterations (default = iter/2) `thin` = number of thinning (default = 1) `control` = a list specifying Stan-related options, eg `control=list(adapt_delta=0.85)` (default = NULL) `seed` = the random seed (to make things replicable) `pars` = a vector of parameters (string, default = NA) `include` = a logical indicator (if FALSE, then the pars are not saved; default = TRUE) `priors` = a list (of lists) specifying the values for the parameters of the prior distributions in the models `save.stan` = a logical indicator (default = FALSE). If TRUE, then saves the data list for Stan and the model file(s)

Details

On object in the class `survHE` containing the following elements

Value

`models`	A list containing the fitted models. These contain the output from the original inference engine (`flexsurv`, `INLA` or `rstan`). Can be processed using the methods specific to the original packages, or via `survHE`-specific methods (such as `plot`, `print`) or other specialised functions (eg to extrapolate the survival curves, etc).
`model.fitting`	A list containing the output of the model-fit statistics (AIC, BIC, DIC). The AIC and BIC are estimated for all methods, while the DIC is only estimated when using Bayesian inference.
`method`	A string indicating the method used to fit the model, ie `'mle'`, `'inla'` or `'hmc'`.

misc — A list containing the time needed to run the model(s) (in seconds), the formula used, the results of the Kaplan-Meier analysis (which is automatically performed using npsurv) and the original data frame.

Note

Something will go here

Author(s)

Gianluca Baio

References

G Baio (2019). survHE: Survival analysis for health economic evaluation and cost-effectiveness modelling. Journal of Statistical Software (2020). vol 95, 14, 1-47. doi:10.18637/jss.v095.i14

See Also

fit.models, make.surv

Examples

```
## Not run:


#See Baio (2019) for extended example
```

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runHMC *for a given formula and dataset*

Description

for a given formula and dataset

Usage

```
runHMC(x, exArgs)
```

Arguments

x — a (vector of) string(s) containing the name(s) of the model(s) to be fitted

exArgs — a list of extra arguments passed from the main 'fit.models' function

Note

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Author(s)

Gianluca Baio

References

Baio (2020). survHE

See Also

fit.models

Index