Package ‘ccostr’

October 12, 2022

Type Package
Title Estimation of Mean Costs in Censored Data
Version 0.1.0
License MIT + file LICENSE
Encoding UTF-8
LazyData true
RoxygenNote 6.1.1
Suggests rmarkdown, parallel, testthat (>= 2.1.0)
VignetteBuilder knitr
Imports ggplot2, dplyr, tibble, knitr, msm, forcats, rlang, data.table, survival, Rdpack
Depends R (>= 3.5.0)
RdMacros Rdpack
NeedsCompilation no
Author Lars Boerty [aut, cre] (<https://orcid.org/0000-0002-3715-8528>), Rasmus Broendum [aut] (<https://orcid.org/0000-0001-5537-6767>), Martin Boegsted [aut] (<https://orcid.org/0000-0001-9192-1814>), Haematology Research Unit - Aalborg [cph]
Maintainer Lars Boerty <lars.borty@gmail.com>
Repository CRAN
Date/Publication 2019-09-09 10:10:02 UTC

R topics documented:

ccmean ................................................................. 2
hcost ................................................................. 3
Calculates estimates of the mean cost with censored data

**Description**

This function calculates the mean cost for right-censored cost data over a period of L time units (days, months, years,...)

**Usage**

```r
ccmean(x, L = max(x$surv), addInterPol = 0)
```

**Arguments**

- `x`: A dataframe with columns: id, cost, delta and surv. If Cost history is available it can be specified by: start and stop,
- `L`: Limit. Mean cost is calculated up till L, if not specified L = max(surv)
- `addInterPol`: This parameter affects the interpolation of cost between two observed times. Defaults to zero.

**Details**

The function returns four estimates. The first two are simple and biased downwards, and included for comparison. The estimates are:
- AS: "Available Sample estimator" - The simple sample mean
- CC: "Complete Case estimator" - The mean of fully observed cases
- BT: "Weighted Complete Case estimator" - Bang and Tsiatis's estimator
- ZT: "Weighted Available estimator" - Zhao and Tian’s estimator

The function needs the following in a dataframe:
- id: The id separating each individual
- cost: The total cost, or if start and stop provided the specific cost
- start: Start of cost
- stop: End of cost, if one time cost then start = stop
- delta: Event variable, 1 = event, 0 = no event
- surv: Survival

**Value**

An object of class "ccobject".
References


Examples

```r
hcost
ccmean(hcost, L = 1461, addInterPol = 1)
```

---

**hcost**  
*Simulated data from the stata hcost package*

**Description**

Simulated data from the stata hcost package

**Usage**

```r
data(hcost)
```

**Format**

A data frame with 9882 rows and 7 variables:

- **id** id seperating individuals
- **start** start of specified cost
- **stop** end of specified cost
- **cost** cost in given period
- **trt** treatment variable
- **delta** event variable, 0 = censored
- **surv** survival period

**Source**

Blog

**References**

Examples

```r
data(hcost)
```

---

### plot.ccobject

**Adding to the generic plot function**

**Description**

Adding to the generic plot function

**Usage**

```r
## S3 method for class 'ccobject'
plot(x, ...)
```

**Arguments**

- `x` The ccobject
- `...` passthrough

**Value**

a plot

---

### print.ccobject

**Adding to the generic print function**

**Description**

Adding to the generic print function

**Usage**

```r
## S3 method for class 'ccobject'
print(x, ...)
```

**Arguments**

- `x` The ccobject
- `...` passthrough

**Value**

a plot
simCostData

Simulates censored cost data

Description
This function can be used to demonstrate the bias and coverage of the estimators in the ccmean function.

Usage
simCostData(n = 100, dist = "unif", censor = "light", cdist = "exp", L = 10)

Arguments
- n: Number of individuals to simulate
- dist: Survival distribution either "unif" = unif(0,10) or "exp" = exp (1/6)
- censor: Censoring "light" ~ 25% or "heavy" ~ 40%, changes a bit depending on cdist
- cdist: Distribution used to censor, "exp" exponential or "unif" uniform
- L: Number of years to summarize over

Details
The function simulates survival times from either an uniform distribution or an exponential distribution, and a cost history. There are two options for censoring, heavy (~40 light (~25

Value
Simulation of censored cost

References

Examples
# The simulated data can be used to show how the estimators perform
simCostData(n = 100, dist = "unif", censor = "light", cdist = "exp", L = 10)
Index

* datasets
  hcost, 3
ccmean, 2
hcost, 3
plot.ccobject, 4
print.ccobject, 4
simCostData, 5