Package ‘RkMetrics’

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Title Hybrid Mortality Estimation

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Description Hybrid Mortality Modelling (HMM) provides a framework in which mortality around ``the accident hump'' and at very old ages can be modelled under a single model. The graphics' codes necessary for visualization of the models' output are included here. Specifically, the graphics are based on the assumption that, the mortality rates can be expressed as a function of the area under the curve between the crude mortality rates plots and the tangential transform of the force of mortality.

Depends R (>= 3.4.0)

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

NeedsCompilation no

Repository CRAN

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Contents

`iplot` *A Plotting Function*

Description

Produces a plot of the area-under-the-curve for the mortality data, but lplot() inverted

Usage

```
iplot(n, x, add = F)
```

Arguments

`n`	the length of the vector Defaults to TRUE.
`x`	the vector arguement.
`add`	whether to add lines. Default is FALSE

Examples

```
m1 <- Mortality$D.Male[which(Mortality$Year == 2008)]
m2 <- Mortality$E.Male[which(Mortality$Year == 2008)]
male.1 <- m1/m2
male.2 <- log(male.1[!is.na(male.1)])
iplot(1:length(male.2),male.2)

iplot(1:length(male.2),male.2,add=TRUE)
```

`lplot` *A Plotting Function*

Description

Produces a plot of the area-under-the-curve for the mortality data

Usage

```
lplot(n, x, add = F)
```

Arguments

`n`	the length of the vector Defaults to TRUE.
`x`	the vector arguement.
`add`	whether to add lines. Default is FALSE

Examples

```
m1 <- Mortality$D.Male[which(Mortality$Year == 2008)]
m2 <- Mortality$E.Male[which(Mortality$Year == 2008)]
male.1 <- m1/m2
male.2 <- log(male.1[!is.na(male.1)])
lplot(1:length(male.2),male.2)

lplot(1:length(male.2),male.2,add=TRUE)
```

`mmplot` *A Plotting Function*

Description

Produces a plot of the difference between the area-under-the-curve for the mortality data and the extended mortality boundaries

Usage

```
mmplot(n, x, young, old)
```

Arguments

`n`	the length of the vector Defaults to TRUE.
`x`	the vector arguement.
`young`	the age at which the accident hump begins. Must be entered
`old`	age at which, either mortality experience between males and females converge, or rapid acceleration of mortality. This is typically over 80 years.

Examples

```
#Examples
m1 <- Mortality$D.Male[which(Mortality$Year == 2008)]
m2 <- Mortality$E.Male[which(Mortality$Year == 2008)]
male.1 <- m1/m2
male.2 <- log(male.1[!is.na(male.1)])
lplot(1:length(male.2),male.2)


mmplot(1:length(male.2),male.2,young=17,old=80)
```

`Mortality` *Switzerland Mortality Data*

Description

Exposed to Risk and number of deaths data.

Usage

```
Mortality
```

Format

A data frame with 6 columns corresponding to:

Year Corresponding year of data collected

Age Age of the individual

E.Male Male Exposed-to-Risk Population

E.Female Female Exposed-to-Risk Population

D.Male Number of male death counts, for the given year and age

D.Female Number of female death counts, for the given year and age

Details

Mortality data for both Males and Females in Switzerland, from 1981 to 2014.

These data are freely available at the Human Mortality Database

Source

`http://www.mortality.org/cgi-bin/hmd/country.php?cntr=CHE&level=1`

References

Glei, D. and Andreeva, M. (2016). About mortality data for switzerland.

`pccopula` *A Plotting Function*

Description

Produces a plot of a copula, which can be used to assess the dependency between two sexes bounded by the actual and the expanded mortality estimates

Usage

```
pccopula(theta, pl = 1, z)
```

Arguments

`theta`	gives the order.
`pl`	gives the association.
`z`	the length of the z axis Defaults to 10.

Examples

```
#Examples

pccopula(theta=3,pl=.5,z=10)
```

`pgcopula` *A Plotting Function*

Description

Similar to pccopula(), but suitable when the dependence is stronger at the older ages

Usage

```
pgcopula(theta, pl = 1, z)
```

Arguments

`theta`	gives the order.
`pl`	gives the association, with a correction for the direction of dependence
`z`	the length of the z axis Defaults to 10.

Examples

```
#Examples

pgcopula(theta=1.3,pl=2,z=10)
```

`vplot` *A Plotting Function*

Description

Produces a similar plot as lplot(), only a transposition of ages is made

Usage

```
vplot(n, x, add = F)
```

Arguments

`n`	the length of the vector Defaults to TRUE.
`x`	the vector arguement.
`add`	whether to add lines. Default is FALSE

Examples

```
m1 <- Mortality$D.Male[which(Mortality$Year == 2008)]
m2 <- Mortality$E.Male[which(Mortality$Year == 2008)]
male.1 <- m1/m2
male.2 <- log(male.1[!is.na(male.1)])
vplot(1:length(male.2),male.2)
```

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