Package ‘eltr’

January 16, 2021

Title  Utilise Catastrophe Model Event Loss Table Outputs
Version 0.1.0
Description Provides a tool to run Monte Carlo simulation of catastrophe model event loss tables, using a Poisson frequency and Beta severity distribution.
License LGPL (>= 2.1)
Encoding UTF-8
LazyData true
RoxygenNote 7.1.1
Suggests testthat, covr, knitr, rmarkdown
Imports data.table
VignetteBuilder knitr
Depends R (>= 2.10)
BugReports https://github.com/RandhirBilkhu/eltr/issues
NeedsCompilation no
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Repository CRAN
Date/Publication 2021-01-16 10:20:02 UTC

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create_elt: Create parameters for ELT simulation

Description
Create parameters for ELT simulation

Usage
create_elt(dt, ann_rate, mu, sdev_i, sdev_c, expval)

Arguments
- **dt**: an ELT (Event Loss Table)
- **ann_rate**: a vector of annual rates for each event
- **mu**: a vector of mean event loss
- **sdev_i**: a vector of independent standard deviations
- **sdev_c**: a vector of correlated standard deviations
- **expval**: the total values exposed in each event

Value
a data.table object with mean damage ratio, total standard deviation and alpha/beta parameters

Examples
create_elt(eltr::example_elt, ann_rate="rate", mu="mean", sdev_i = "sdevi", sdev_c = "sdevc", expval = "exp")

create_oep_curve: OEP Curve

Description
OEP Curve

Usage
create_oep_curve(
  dt,
  y,
  z,
  rp = c(10000, 5000, 1000, 500, 250, 200, 100, 50, 25, 10, 5, 2)
)
create_ylt

Arguments

dt aggregate annual YLT
y vector of year
z vector of loss amount
rp return period default points= c(10000,5000,1000,500,250,200,100,50, 25,10,5 , 2)

Value

a vector of OEP at return periods as specified by the argument rp

Examples

create_oep_curve(data.table::data.table("Year" = c(1,2,3,4,5) ,
"Loss" =c(1 , 20 , 500 , 100 , 1000)), y= "Year", z="Loss")

create_ylt

Create a YLT from ELT via monte carlo simulation

Description

Create a YLT from ELT via monte carlo simulation

Usage

create_ylt(dt, sims, ann_rate, event_id, expval, mu)

Arguments

dt a data.table with modified ELT
sims number of years to simulate
ann_rate event frequency
event_id unique event identifier
expval total amount exposed
mu mean event loss

Value

a tidy data.table with Loss, Year and ID. Where a year simulated with zero events will show as "none"

Examples

create_ylt(create_elt(eltr::example_elt, ann_rate="rate", mu="mean",
 sdev_i = "sdevi" , sdev_c = "sdevc", expval="exp"),
 sims=10,ann_rate = "rate", event_id = "id",expval = "exp",mu ="mean")
**eltr**  
*eltr: a package with functions to help analyse Catastrophe model data*

**Description**

eltr provides functions to help

**eltr functions**

The eltr functions...

**example_elt**  
*Example ELT Data*

**Description**

This is a mock up of an ELT to help show case the typical structure of the data set and attributes

**Usage**

`example_elt`

**Format**

a data.table with 10 rows and 6 variables:

- **id** unique event identifier
- **rate** the expected annual frequency of occurrence of each event
- **mean** the mean event loss if it occurs
- **sdevi** independent component of standard deviation of event loss if it occurs
- **sdevc** correlated component of standard deviation of event loss if it occurs
- **exp** maximum loss equivalent to total limit exposed
layer_loss  

**Description**

Limited loss to the layer

**Usage**

layer_loss(x, Excess, Limit)

**Arguments**

- **x**: event loss
- **Excess**: treaty retention
- **Limit**: treaty limit

**Value**

limited loss to the layer

**Examples**

layer_loss(5,2,6)
layer_loss(5,10,6)
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