Lecture Notes

Non Life Insurance

First Draft

Prof. Dr. Ricardo Gatto

Switzerland-Spain-Ecuador

Índice

1. Individual Risk and Distributions

A non negative random variable is called a **loss** and it its distribution a **loss distribution**. $X \sim Exponential(\alpha)$ means that X has density $f_X(x) = \alpha e^{-\alpha x}$ and distribution function (d.f) $F_X(x) = 1 - e^{-\alpha x}\ \forall x > 0$ and $\alpha > 0$.

Let $Y = e^x$,

$$\begin{aligned} F_Y(Y) &= F_X(logY) \\ &= 1 - e^{\alpha log(y)} \\ &= 1 - y^{-\alpha} \end{aligned}$$

Is called the **Pareto Distribution**. If Y follows a Pareto distribution, denoted $Y \sim Pareto(\alpha)$

```
> x <- rnorm(100)
> y <- rnorm(100)
> plot(x,y)
```