Normal Distribution

Density: $$f(x)=\frac{1}{\sqrt{2\pi}\sigma}\exp\left[-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2\right],\qquad \int_{-\infty}^{\infty} f(x)\,dx=1$$

$$\mathrm{E}[x]=\mu,\quad \mathrm{V}[x]=\sigma^2,\quad \mathrm{CV}[x]=\frac{\sigma}{\mu}$$

Lognormal Distribution

Density: $$f(x)=\frac{1}{\sqrt{2\pi}\sigma x}\exp\left[-\frac{1}{2}\left(\frac{\log x-\mu}{\sigma}\right)^2\right],\qquad \int_{0}^{\infty} f(x)\,dx=1$$

$$\mathrm{E}[\log x]=\mu,\quad \mathrm{V}[\log x]=\sigma^2,\quad \mathrm{CV}[\log x]=\frac{\sigma}{\mu}$$

$$\mathrm{E}[x]=\exp\left(\mu+\frac{\sigma^2}{2}\right),\quad \mathrm{V}[x]=\exp\left(2\mu+\sigma^2\right)\left[\exp\left(\sigma^2\right)-1\right],$$

$$\mathrm{CV}[x]=\sqrt{\exp\left(\sigma^2\right)-1}$$

Gamma Distribution

Density: $$f(x)=\frac{x^{a-1}}{\Gamma(a)s^a}\exp\left(-\frac{x}{s}\right),\qquad \int_{0}^{\infty} f(x)\,dx=1$$

Parameters: $a=\text{shape},\ s=\text{scale}$

$$\mathrm{E}[x]=as,\quad \mathrm{V}[x]=as^2,\quad \mathrm{CV}[x]=\sqrt{\frac{1}{a}}$$