

Question #127

Key: B

A Pareto ($\alpha = 2, \theta = 5$) distribution with 20% inflation becomes Pareto with $\alpha = 2, \theta = 5 \times 1.2 = 6$

$$\text{In 2004, } E(X) = \frac{6}{2-1} = 6$$

$$E(X \wedge 10) = \frac{6}{2-1} \left(1 - \left(\frac{6}{10+6} \right)^{2-1} \right) = 3.75$$

$$\begin{aligned} E(X - 10)_+ &= E(X) - E(X \wedge 10) \\ &= 6 - 3.75 = 2.25 \end{aligned}$$

$$\text{LER} = 1 - \frac{E(X - 10)_+}{E(X)} = 1 - \frac{2.25}{6} = 0.625$$