Klausur Statistik II Ersttermin
Sommersemester 06
Kurzlösung

[A1]

X und Y sind unabhängig.

[A2]

$E(X) = 5$
$E(Y) = 20$
$Var(X) = 25$
$Var(Y) = 1.600$

[A3]

$E(Z) = 100$
$Var(Z) = 90.000$

[A4]

E[U(X)] = 1,1989
E[U(Y)] = 0,9230
E[U(Z)] = 0,6909

$\Rightarrow$ Investor wählt X.

[A5]

$E(X) = \frac{p}{b}$

$E(X^2) = \frac{p^2+p}{b^2}$

$Var(X) = \frac{p}{b^2}$

[C1]

$\hat{\lambda}_1 = \frac{1}{\frac{1}{n}\sum_{i=1}^{n} x_i} = 0{,}1053$

$\hat{\lambda}_2 = \frac{1}{\sqrt{\left(\frac{1}{n}\sum_{i=1}^{n} x_i^2 - \bar{x}^2\right)}} = 0{,}0995$

[C2]

$\hat{\lambda}_1$: $\quad \hat{P}(1 \leq X \leq 5) = 0,3093$

alternativ: $\hat{\lambda}_2$: $\quad \hat{P}(1 \leq X \leq 5) = 0,2972$

[C3]

$$ln\,\mathscr{L}(\lambda) = n \cdot ln(\lambda) - \lambda \cdot \sum_{i=1}^{n} x_i$$

$$\Rightarrow \hat{\lambda}_{ML} = \frac{1}{\frac{1}{n}\sum_{i=1}^{n} x_i} = 0,1053$$