

MEDIDAS DE CONCENTRACIÓN

Recorrido relativo: $\frac{x_{\max} - x_{\min}}{\bar{x}}$

Varianza de logaritmos: $\left[\frac{\sum_{i=1}^n (\ln(x_i) - \ln(G_x))^2 \cdot n_i}{N} \right],$

sendo $G_x = \sqrt[n]{x_1^{n_1} \cdot x_2^{n_2} \cdots x_n^{n_n}}$ a media xeométrica da variable

Índice de Gini: $I_G = \frac{\sum_{i=1}^{n-1} (p_i - q_i)}{\sum_{i=1}^{n-1} p_i}$

Índice de Theil: $\ln(N) - \sum_{i=1}^N y_i \cdot \ln \frac{1}{y_i}$

ou tamén: $\ln(N) - \sum_{i=1}^N n_i \cdot y_i \cdot \ln \frac{1}{y_i}$, ou $T_1 = \frac{\sum_{i=1}^N \frac{x_i}{\bar{x}} \cdot \ln \frac{x_i}{\bar{x}}}{N}$ ou $T_1 = \frac{\sum_{i=1}^n n_i \cdot \left(\frac{x_i}{\bar{x}} \cdot \ln \frac{x_i}{\bar{x}} \right)}{N}$

Descomposición do índice de Theil: $T = T_e + \sum_{h=1}^k y_h \cdot T_h$

Índice de Atkinson: $I = 1 - \left[\sum_{i=1}^n p_i \cdot \left(\frac{x_i}{\bar{x}} \right)^{1-\varepsilon} \right]^{\frac{1}{1-\varepsilon}}$ se $\varepsilon > 0$ e $\varepsilon \neq 1$ $I = \prod_{i=1}^n \left(\frac{x_i}{\bar{x}} \right)^{p_i}$ se $\varepsilon = 1$

Análise de variables cualitativas

CONTRASTES DE INDEPENDENCIA

$$\begin{aligned} \text{Chi cadrado} \\ \chi^2 &= \sum_{i=1}^r \sum_{j=1}^c \frac{(n_{ij} - \hat{E}_{ij})^2}{\hat{E}_{ij}} & G^2 &= -2 \cdot \sum_{i=1}^r \sum_{j=1}^c n_{ij} \cdot \ln \left(\frac{\hat{E}_{ij}}{n_{ij}} \right) \end{aligned}$$

MEDIDAS DE ASOCIACION

Contraste de continxencia: $C = \sqrt{\frac{\chi^2}{\chi^2 + N}}$; Contraste de continxencia correxido: $C_{cor} = \frac{C}{\sqrt{\frac{r-1}{r}}}$

Coeficiente Phi: $\varphi = \sqrt{\frac{\chi^2}{N}}$; V de Cramer: $V = \sqrt{\frac{\chi^2}{N \cdot m}}$

Lambda (X explica Y): $\lambda_{Y/X} = \frac{\left(\sum_{i=1}^l \max_j n_{ij} \right) - \max_j n_{.j}}{N - \max_j n_{.j}}$; Lambda (Y explica X): $\lambda_{X/Y} = \frac{\left(\sum_{i=1}^c \max_i n_{ij} \right) - \max_i n_{i.}}{N - \max_i n_{i.}}$

Lambda simétrica: $\lambda_{XY} = \frac{\left(\sum_{i=1}^l \max_j n_{ij} \right) + \left(\sum_{i=1}^c \max_i n_{ij} \right) - \max_j n_{.j} - \max_i n_{i.}}{2N - \max_j n_{.j} - \max_i n_{i.}}$

Gamma de Goodman-Kruscal: $\gamma = \frac{P-Q}{P+Q}$

D de Somers (X explica Y): $d_{Y/X} = \frac{P-Q}{P+Q+Y_0}$; D de Somers (X explica Y): $d_{X/Y} = \frac{P-Q}{P+Q+X_0}$

D de Somers (simétrica): $d_{Y/X} = \frac{P-Q}{P+Q+\frac{1}{2} \cdot (X_0+Y_0)}$

RESIDUOS TIPIFICADOS

$$r_{ij} = \frac{n_{ij} - \hat{E}_{ij}}{\sqrt{\hat{E}_{ij}} \cdot \sqrt{\left(1 - \frac{n_{i.}}{n_{..}}\right) \cdot \left(1 - \frac{n_{.j}}{n_{..}}\right)}}$$