FORMÜLLER: ISL223 İstatistik-I

$$G=\sqrt[n]{\prod_{i=1}^{n}X_i}\mapsto G=\sqrt[\sum_{i=1}^{k}f_i]{X_1^{f_1}X_2^{f_2}\cdots X_k^{f_k}}\mapsto LG(G)=\frac{1}{n}\sum_{i=1}^{n}LGX_i$$

$$P_{t+n}=P_t(1+r)^n\mapsto H=\sum_{i=1}^{k}f_i\Big/\sum_{i=1}^{k}\left(\frac{f_i}{X_i}\right)\mapsto K=\sqrt{\sum_{i=1}^{k}f_iX_i^2\Big/\sum_{i=1}^{k}f_i}$$

$$Mod=L+\left[\frac{d_1}{d_1+d_2}\right]c\mapsto Medyan=L+\left[\frac{n/2-F}{f}\right]c$$

$$Q_{(h/r)}=\sum_{i=1}^{k}\left(f_i\frac{h}{r}\right)+\frac{1}{2}\mapsto Q_{(h/r)}=L+\left(\frac{\sum_{i=1}^{k}\left(f_i\frac{h}{r}\right)-F}{f}\right)c$$

$$OMS=\left[\frac{\sum_{i=1}^{k}f_i\left|X_i-\bar{X}\right|}{\sum_{i=1}^{k}f_i}\right]\mapsto OMS_R=\left[\frac{\sum_{i=1}^{k}f_i\left|X_i-Med\right|}{\sum_{i=1}^{k}f_i}\right]$$

$$s=\sqrt{\frac{\sum_{i=1}^{k}f_i(X_i-\bar{X})^2}{\sum_{i=1}^{k}f_i-1}}\mapsto s=\sqrt{\frac{1}{n-1}\left(\sum_{i=1}^{n}X_i^2-n\bar{X}^2\right)}$$

$$\sigma=\sqrt{K^2-\mu^2}\mapsto DK=\frac{s}{\bar{X}}100\mapsto\alpha_1=\frac{\bar{X}-Mod}{s}$$

$$\alpha_2=\frac{3(\bar{X}-Medyan)}{s}\mapsto\alpha_3=\frac{\mu_3}{\sigma^3}\mapsto\alpha_4=\frac{\mu_4}{\sigma^4}\mapsto N-\alpha_4=\alpha_4-3$$

$$E=\frac{Q_{3/4}+Q_{1/4}-2Q_{1/2}}{Q_{3/4}-Q_{1/4}}\mapsto\alpha_3=\frac{n}{(n-1)(n-2)}\sum_{i=1}^{n}\left(\frac{X_i-\bar{X}}{s}\right)^3$$

$$\alpha_4=\frac{n(n+1)}{(n-1)(n-2)(n-3)}\sum_{i=1}^{n}\left(\frac{X_i-\bar{X}}{s}\right)^4-\frac{3(n-1)^2}{(n-2)(n-3)}$$

$$P(N;n)=\frac{N!}{(N-n)!}\mapsto P(N;N_1,N_2,...N_k)=\frac{N!}{N_1!.N_2!...N_k!}$$

$$C(N;n)=\frac{N!}{n!(N-n)!}\mapsto C(N;n)=\frac{(N+n-1)!}{n!(N-1)!}$$

$$P(A\cup B)=P(A)+P(B)\mapsto P(A\cup B)=P(A)+P(B)-P(A\cap B)$$

$$P(A\cap B)=P(A)*P(B)\mapsto P(A\cap B)=P(A)*P(B/A)$$

$$P(x)=\binom{n}{x}p^xq^{n-x}\mapsto P=\left(\frac{n!}{n_1!n_2!\cdots n_k!}\right)\left(P_1^{n_1}P_2^{n_2}\cdots P_k^{n_k}\right)$$

$$P(x)=\frac{\binom{A}{x}\binom{N-A}{n-x}}{\binom{N}{n}}\mapsto P(x)=\frac{e^{-\lambda}\lambda^x}{x!}\mapsto z_i=\frac{X_i-\mu}{\sigma}$$

FORMÜLLER: ISL224 İstatistik-II

$$P(x)=\binom{n}{x}p^x q^{n-x}$$

$$P(x)=\frac{\binom{A}{x}\binom{N-A}{n-x}}{\binom{N}{n}} \mapsto P(x)=\frac{e^{-\lambda}\lambda^x}{x!}$$

$$P=\left(\frac{n!}{n_1!n_2!\cdots n_k!}\right)\left(P_1^{n_1}P_2^{n_2}\cdots P_k^{n_k}\right)$$

$$P\left(\hat{\theta}-k.s_{\hat{\theta}}<\theta<\hat{\theta}+k.s_{\hat{\theta}}\right)=1-\alpha$$

$$s_{\bar{x}}=\frac{s}{\sqrt{n}}\sqrt{\frac{N-n}{N-1}} \qquad s_{\bar{x}}=\frac{s}{\sqrt{n}}$$

$$s_p=\sqrt{\frac{pq}{n}}\sqrt{\frac{N-n}{N-1}} \qquad s_p=\sqrt{\frac{pq}{n}}$$

$$z=\frac{X_i-\overline{X}}{s};\ z=\frac{\overline{X}-\mu}{s_{\bar{x}}};\ z_h=\frac{\overline{X}-\mu_0}{s_{\bar{x}}}$$

$$\chi^2_{n-1}=\frac{s^2(n-1)}{\sigma^2} \qquad \chi^2_{n-1}=\frac{s^2(n-1)}{\sigma_0^2}$$

$$P\left(\frac{s^2(n-1)}{\chi_{n-1,\alpha/2}}\le\sigma^2\le\frac{s^2(n-1)}{\chi_{n-1,1-\alpha/2}}\right)=1-\alpha$$

$$z_h=\left(\frac{\bar{X}-\mu_0}{s_{\bar{X}}}\right)=\left(\frac{p-\pi_0}{s_p}\right)$$

$$n=\left(\frac{z^2*\sigma^2}{h^2}\right)=\left(\frac{z^2*\left[\pi*(1-\pi)\right]}{h^2}\right)\to h=\bar{X}-\mu=p-\pi$$

$$\chi^2_h=\sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(G_{ij}-B_{ij})^2}{B_{ij}} \qquad \phi=\sqrt{\frac{\chi^2_h}{n}} \qquad c=\sqrt{\frac{\chi^2_h}{(\chi^2_h+n)}}$$

$$Cramer-\upsilon=\sqrt{\frac{\chi^2_h}{n*\left[\text{Min.}(r-1);(c-1)\right]}}$$

$$S_{Y,X}=\frac{\sum_{i=1}^{n}\left(X_i-\bar{X}\right)\left(Y_i-\bar{Y}\right)}{n-1}=\frac{\sum_{i=1}^{n}x_iy_i}{n-1}\to r^s_{X,Y}=1-\frac{6\sum_{i=1}^{n}d_i^2}{n\left(n^2-1\right)}$$

$$r_{Y,X}=\frac{\sum_{i=1}^{n}x_iy_i}{(n-1)s_Xs_Y}=\frac{\sum_{i=1}^{n}x_iy_i}{\sqrt{\sum_{i=1}^{n}x_i^2}\sqrt{\sum_{i=1}^{n}y_i^2}}=\mp\sqrt{b_{yx}b_{xy}}\to s_r=\sqrt{\frac{1-r^2}{n-k}}$$

$$R^2=\frac{AKT}{GKT}=\frac{\sum_{i=1}^{n}\left(\hat{Y}-\bar{Y}\right)^2}{\sum_{i=1}^{n}\left(Y-\bar{Y}\right)^2}\to\bar{R}^2=1-\left(1-R^2\right)\left(\frac{n-1}{n-k}\right)$$

$$\sum_{i=1}^{n}Y_i=nb_0+b_1\sum_{i=1}^{n}X_i\to\sum_{i=1}^{n}X_iY_i=b_0\sum_{i=1}^{n}X_i+b_1\sum_{i=1}^{n}X_i^2$$

$$b_{yx}=b_1=\frac{\sum_{i=1}^{n}\left(X_i-\bar{X}\right)\left(Y_i-\bar{Y}\right)}{\sum_{i=1}^{n}\left(X_i-\bar{X}\right)^2}=\frac{\sum_{i=1}^{n}x_iy_i}{\sum_{i=1}^{n}x_i^2}\to b_0=\bar{Y}-b_1\bar{X}$$

$$s_{b_0}=\hat{\sigma}\sqrt{\frac{1}{n}+\frac{\bar{X}^2}{\sum_{i=1}^{n}\left(X_i-\bar{X}\right)^2}}\to s_{b_1}=\frac{\hat{\sigma}}{\sqrt{\sum_{i=1}^{n}\left(X_i-\bar{X}\right)^2}}\to\hat{\sigma}=\sqrt{\frac{\sum_{i=1}^{n}e_i^2}{n-k}}$$

$$P\left(b_j-t_{n-k;\alpha/2}s_{b_j}\le\beta_j\le b_j+t_{n-k;\alpha/2}s_{b_j}\right)=1-\alpha$$