

Wdh. Mittelwert

$$\bar{x} = \frac{x_1 + \dots + x_n}{n}$$

gruppierte Mittelwert

$$\bar{x}_{gr} = \sum_{i=1}^n r_i \cdot x_i^*$$

$$r_i = \frac{h_i}{n} \quad \text{relative H.}$$

x_i^* : Klassenmitte

Bsp. Alter 2022

$$\bar{x}_{gr} = 0.19 \cdot 10 + 0.62 \cdot 43.5 + 0.20 \cdot 83.5 = 45.57$$

$$\tilde{x}_{gr} = 43.5 \quad (= \frac{20 + 67}{2})$$

Bsp.

Butterpreis

Autopreis

$$\bar{x}_B = 2 \text{ [€]}$$

$$\bar{x}_A = 20.000 \text{ [€]}$$

$$s = \underline{\underline{0.2 \text{ [€]}}}$$

$$s = \underline{\underline{2.000 \text{ [€]}}}$$

(relativer) Streuungsmaß

Variationskoeffizient (Annahme $\bar{x} > 0$)

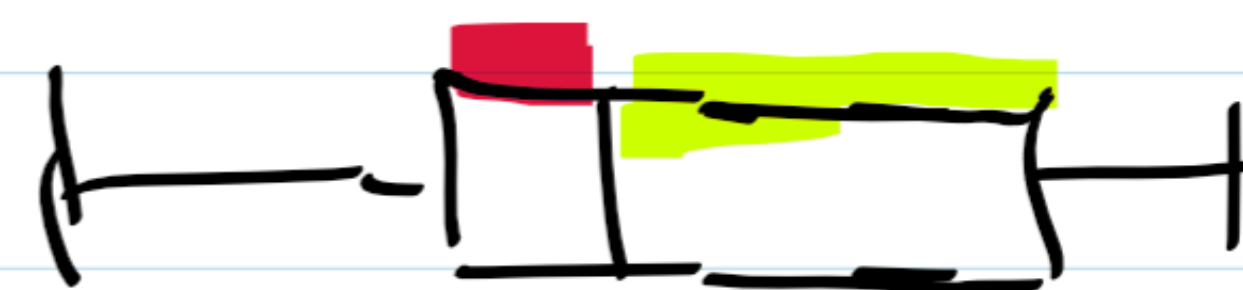
$$V_x = \frac{s_x}{\bar{x}} \quad \text{Bsp. } \frac{0.2}{2} = 0.1$$

$$V_x = \frac{2.000}{20.000} = 0.1$$

1.4 Schiefe

Quartilskoeffizient der Schiefe (QKS)

$$QKS = \frac{x_{0.75} - \tilde{x} - (\tilde{x} - x_{0.25})}{\underbrace{x_{0.75} - x_{0.25}}_{= IQR}}$$



Es gilt: $-1 \leq QKS \leq 1$

Bsp. Noten

$$x_1 = 4 \quad x_2 = x_3 = x_4 = 1 \quad x_5 = 3$$

$$QKS = 1$$

$$x_{0.25} = 1 = \tilde{x}$$