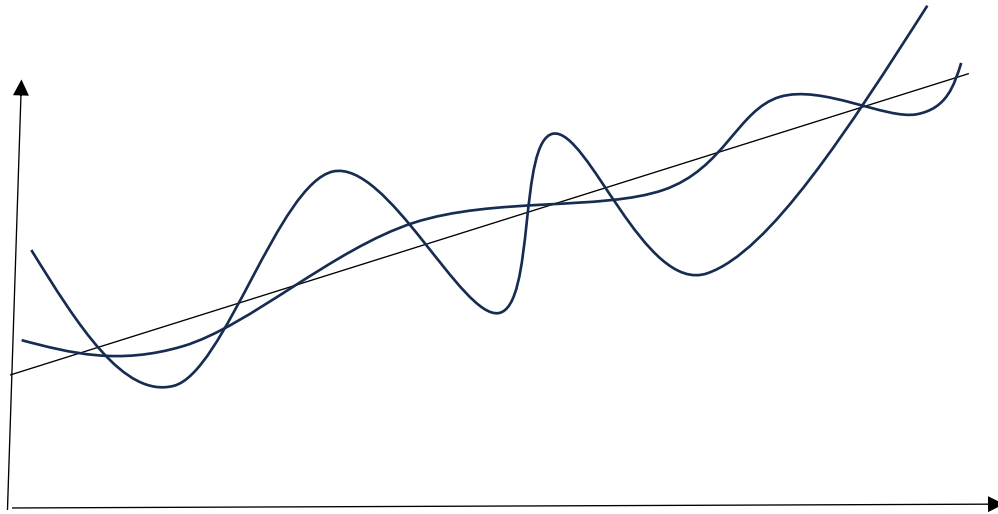
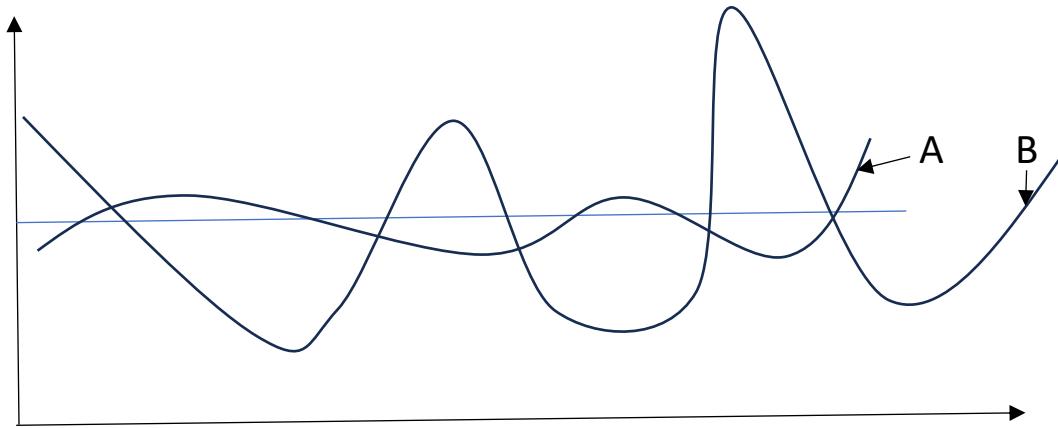


Chapter 4: measures of dispersion

1) What is dispersion



2) What are those measures

A: IQV: Index of Qualitative Variables, it applies only to nominal variables

$$IQV = \frac{K(100^2 - \sum Pct^2)}{100^2(K-1)}$$

K: total number of groups in the variable, Pct: percentage of each group in the variable

Race	Fayetteville AR 2010	Fayetteville AR 2020	Springdale AR 2020
White	80%	74%	44%
Black	6%	6%	2%
Asian	3%	3%	2%
Hispanics	6%	9%	38%
Others	5%	8%	14%
IQV	43.7%	54.2%	80.2%

$$IQV = \frac{5 \times (10000 - (80^2 + 6^2 + 3^2 + 6^2 + 5^2))}{100^2(5 - 1)} = 43.7\%$$

$$IQV = \frac{5 \times (10000 - (74^2 + 6^2 + 3^2 + 9^2 + 8^2))}{100^2(5 - 1)} = 54.2$$

$$IQV = \frac{5 \times (10000 - (44^2 + 2^2 + 2^2 + 38^2 + 14^2))}{100^2(5 - 1)} = 80.2\%$$

$$0 \leq IQV \leq 100\%$$

B: Variance (S^2)

C: standard deviation (St.d.) S