Hoofdstuk 12

Bijlage 12.1

Test Statistic for μ When σ Is Unknown

When the population standard deviation is unknown and the population is normal, the test statistic for testing hypotheses about μ is

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

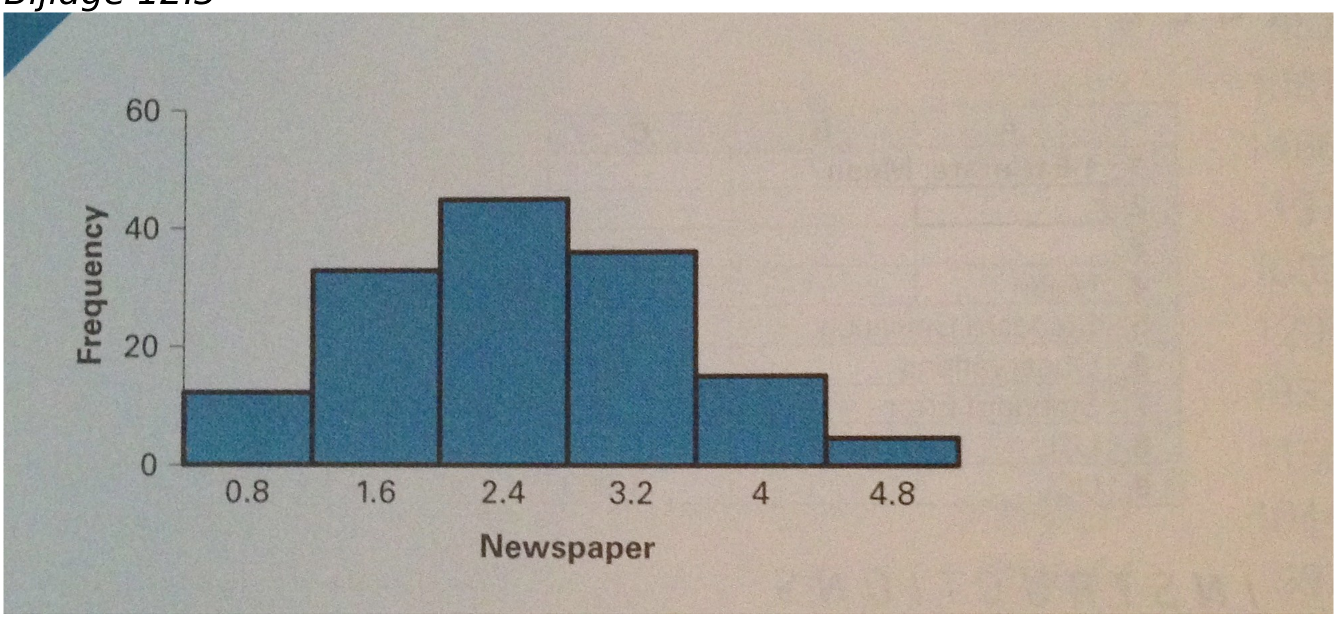
which is Student t distributed with $\nu = n - 1$ degrees of freedom.

Bijlage 12.2

Confidence Interval Estimator of μ When σ Is Unknown

$$\bar{x} \pm t_{\alpha/2}\frac{s}{\sqrt{n}} \qquad \nu = n - 1$$

Bijlage 12.3



Bijlage 12.4

Test Statistic for σ^2

The test statistic used to test hypotheses about σ^2 is

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

which is chi-squared distributed with $\nu = n - 1$ degrees of freedom when the population random variable is normally distributed with variance equal to σ^2.

Bijlage 12.5

Confidence Interval Estimator of σ^2

$$\text{Lower confidence limit (LCL)} = \frac{(n-1)s^2}{\chi^2_{\alpha/2}}$$

$$\text{Upper confidence limit (UCL)} = \frac{(n-1)s^2}{\chi^2_{1-\alpha/2}}$$

Bijlage 12.6

Test Statistic for p

$$z = \frac{\hat{P} - p}{\sqrt{p(1-p)/n}}$$

which is approximately normal for np and $n(1 - p)$ greater than 5.

Bijlage 12.7
Blok 417

Confidence Interval Estimator of p

$$\hat{p} \pm z_{\alpha/2}\sqrt{\hat{p}(1-\hat{p})/n}$$

which is valid provided that $n\hat{p}$ and $n(1 - \hat{p})$ are greater than 5.

Bijlage 12.8

Sample Size to Estimate a Proportion

$$n = \left(\frac{z_{\alpha/2}\sqrt{\hat{p}(1-\hat{p})}}{B} \right)^2$$

Bijlage 12.9
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Confidence Interval Estimator of p Using the Wilson Estimate

$$\tilde{p} \pm z_{\alpha/2}\sqrt{\frac{\tilde{p}(1-\tilde{p})}{n+4}}$$