

Test of Normality and Chi-Square Tests

- 1) A company buys raw materials of 500 batches from three different suppliers. A random sample of 6 materials from each supplier is chosen and examined according to the number of defectives. Could you infer that the number of defectives have a normal distribution? (Newbold, P: (1995) İşletme ve İktisat için İstatistik çeviri kitabı, s.687 soru.3)

Supplier A	Supplier B	Supplier C
28	22	33
37	27	29
34	29	39
29	20	33
31	18	37
33	30	38

- 2) A sparkling water producers is trying to decide on which color from red, yellow and blue to use on the bottles. In order to see if the color has any impact on the sales 16 shops were chosen randomly. 6 of the randomly chosen shops start to sell red colored bottles, 5 of them yellow and 5 of them blue colored bottles. After a few days the number of the sales were recorded as in the following table. Would you conclude that the number of sales are normally distributed? (Newbold, P: (1995) İşletme ve İktisat için İstatistik çeviri kitabı, s.686 soru.1)

Kırmızı	Sarı	Mavi
43	52	61
52	37	29
59	38	38
76	64	53
61	74	79
81		

- 3) A big company in the cosmetics sector interviews 200 randomly chosen women who use their products in order to analyse the impact of education on the level of customer satisfaction to the company's products at a 1% significance level. The following results were obtained:
- Among 200 women, 90 of them have a primary school degree, 70 of them have a secondary school degree, and 40 of them have a university or higher degree.
 - 65 of the women are very satisfied with the product, 100 of them are satisfied and the rest are not satisfied.
 - Among those who are very satisfied with the product 40 of them have a primary school degree and 16 of them have a secondary school degree; among those who are satisfied with the product, 30 of them have a primary school degree and 47 of them have a secondary school degree.
- 4) In order to determine the opinions on privatisation of public firms, 100 people were randomly chosen from each of the government employee, employee, employer and economists. It is seen that among the 225 people who agree with privatisation, 55 of them are government employee, 10 are employee and 85 of them are employers; among the 75 people who object the idea, 15 of them are government employee, 50 of them are employee and 5 are employers. Test if the opinions are common at a 1% significance level?