

8.11 CASE STUDY

As you should by now have realised we have reached the method of analysis most useful to your directors who are interested in the differences between three types of food outlet – takeaways, cafes and restaurants.

Bearing in mind the results of the normality tests you carried out in Case study 7.15, test at the 1% level whether there is any difference between the three types of food outlet: takeaways, cafes, and restaurants in terms of:

- Gross sales
- Market value
- Number of full-time employees
- Number of part-time employees
- Wages as % of sales
- Advertising as % of sales
- Business outlook
- Type of ownership
- Size of establishment

The Kolmogorov tests carried out in Case study 7.15 showed all the relevant variables to be non-normal so Kruskal Wallis tests are needed for the analysis to be valid.

Ranks

	Type of Outlet	N	Mean Rank
Gross sales (£'000)	Takeaway	104	125.83
	Cafeteria	73	133.79
	Restaurant	67	105.02
	Total	244	
Market value of business (£'000)	Takeaway	99	113.80
	Cafeteria	71	148.65
	Restaurant	68	97.36
	Total	238	
Number of full-time employees	Takeaway	106	120.94
	Cafeteria	72	124.52
	Restaurant	69	128.15
	Total	247	
Number of part-time employees	Takeaway	105	123.83
	Cafeteria	71	137.05
	Restaurant	71	111.20
	Total	247	
Wages as % of sales	Takeaway	101	114.52
	Cafeteria	66	106.99
	Restaurant	65	129.23
	Total	232	
Advertising as % of sales	Takeaway	99	113.45
	Cafeteria	66	121.05
	Restaurant	65	112.99
	Total	230	
Business Outlook	Takeaway	108	130.71
	Cafeteria	74	121.00
	Restaurant	72	129.36
	Total	254	
Type of owner	Takeaway	106	127.09
	Cafeteria	72	120.97
	Restaurant	71	125.96
	Total	249	
Size of establishment	Takeaway	105	118.74
	Cafeteria	71	125.80
	Restaurant	69	126.59
	Total	245	

Test Statistics ^{a,b}			
	Chi-Square	df	Asymp. Sig.
Gross sales (£'000)	6.211	2	.045
Market value of business (£'000)	20.470	2	.000
Number of full-time employees	.437	2	.804
Number of part-time employees	4.662	2	.097
Wages as % of sales	3.784	2	.151
Advertising as % of sales	.662	2	.718
Business Outlook	.869	2	.648
Type of owner	.410	2	.815
Size of establishment	.804	2	.669

a. Kruskal Wallis Test
b. Grouping Variable: Type of Outlet

- Gross sales

At 1% significance there is a significant difference between at least two of the food outlets. The gross sales of the restaurants would appear to be less than those of both the takeaways and cafes which appear to be similar. ($p = 0.045$)

- Market value

At 1% significance there is a significant difference between at least two of the food outlets. The cafes have higher market values than the takeaways which have higher values than the restaurants. ($P = 0.000$)

- Number of full-time employees

There is no significant difference between the numbers of full-time employees in the three types of food outlets. ($p = 0.804$)

- Number of part-time employees

There is no significant difference between the numbers of part-time employees in the three types of food outlets. ($p = 0.097$)

- Wages as % of sales

There is no significant difference between the costs of wages as a percentage of sales in the three types of food outlets. ($p = 0.151$)

- Advertising as % of sales

There is no significant difference between the costs of advertising as a percentage of sales in the three types of food outlets. ($p = 0.718$)

- Business outlook

There is no significant difference between the business outlooks of the three types of food outlets. ($p = 0.648$)

- Type of ownership

There is no significant difference between the types of ownership of the three types of food outlets. ($p = 0.815$)

- Size of establishment

There is no significant difference between the sizes of establishment in terms of FT equivalent staff in the three types of food outlets. ($p = 0.669$)