

Teacher Notes for Spearman's Rank test exercise based on Tower Hamlets: education and employment

- a) Carry out Spearman's Rank test.
 b) Answers are highlighted in yellow.

Ward name	/000 adults with a degree	Rank R1	Unemployment per 1000 of economically active population age 16- 64	Rank R2	d (R1-R2)	d ²
Bethnal Green	375	8	139	12	-4	16
Blackwall	569	16	82	3.5	12.5	156.25
Bow East	454	11	102	7	4	16
Bow West	467	12	104	8	4	16
Bromley North	329	6	168	18	-12	144
Bromley South	299	2	166	17	-15	225
Canary Wharf	601	17	82	3.5	13.5	182.25
Island Gardens	545	15	84	5	10	100
Lansbury	251	1	188	19	-18	324
Limehouse	614	18	66	2	16	256
Mile End	499	14	156	14	0	0
Poplar	322	5	157	15	-10	100
Shadwell	312	3	160	16	-13	169
Spitalfields & Banglatown	449	10	138	11	-1	1
St Katharines	659	19	49	1	18	324
St Peters	431	9	122	10	-1	1
Stepney Green	313	4	151	13	-10	100
Weavers	469	13	110	9	4	16
Whitechapel	333	7	101	6	1	1
TOTAL						2147.5

$$R = 1 - \frac{6 \sum d^2}{n(n^2 - n)}$$

$$R = 1 - \frac{6(2147.5)}{19(361 - 19)}$$

$$R = 1 - \frac{12885}{19(342)}$$

$$R = 1 - \frac{12885}{6498}$$

$$R = 1 - 1.98$$

$$R = -0.98$$

- c) Explain what this result, together with the worked example above, tell us about education and employment in Tower Hamlets in 2011

This is a very strong negative correlation. Wards with the highest proportions of graduates in Tower Hamlets correlate almost perfectly with the wards with the lowest rates of unemployment. This does not mean that there is a causal effect, merely that the two indicators are very closely correlated.

Higher levels of educational achievement as indicated by % who are graduates are more typical of the wards near the river Thames such as St Katherine's and wards in the centre of the Isle of Dogs such as Canary Wharf which have seen regeneration as part of the LDDC project from the 1980s onwards. Employment in the Canary Wharf area and areas supplying workers to the city of London would be more likely to require graduate qualifications in the financial services sector especially. There would be limited opportunities for unqualified people in these industries except for cleaning staff and perhaps retail staff as part of the Canary wharf complex. It might be expected that this picture would have changed dramatically since the 1980s when the Isle of Dogs would have been associated more with the declining remnants of the dock and associated manufacturing industries (eg engineering, chemicals, sawmills, brewing, milling, food processing,) for which higher level qualifications were not required. However all rates of unemployment would have been much higher then as the area was in decline.

In terms of anomalies Poplar is interesting. Poplar has one of the highest rates of unemployment in the borough, coming in at rank 15/19. In terms of rates of adults with no qualifications Poplar does very well. In fact it is ranked number 1 so nowhere has a smaller proportion of residents without a qualification than Poplar. But it has one of the lowest proportions of its residents as graduates coming in at rank 5/19. What does this tell us about what type of jobs are available to the people of Poplar?

Suggestions for follow up activities:

Look at data for 1981 for wards in the isle of Dogs such as Canary Wharf (previously called Millwall ward).

Look at data on other indicators for two contrasting wards for 2011.

