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**Statistical Methods for Economists – Week 4**

(Questions and Tasks)

The topic: ***Correlation Analysis***

1.) What is the aim of the correlation analysis?

2.) How do we define Pearson’s correlation coefficient?

3) What values can Pearson’s correlation coefficient take?

4) How do we define Spearman’s rank correlation coefficient?

5) What values can Spearman’s rank correlation coefficient take?

6) Explain the difference between the two coefficients.

7) Find Pearson’s correlation coefficient for the data in Table 1.

8) Find Spearman’s rank correlation coefficient for the data in Table 2, where two experts ranked six cities with respect to quality of life.

9) How can we use function CORREL in Excel for Spearman’s rank correlation coefficient?

10) Evaluate statistical significance of correlations coefficients from Problems 7 and 8.

Table 1. Investment and production of selected industrial companies.

|  |  |
| --- | --- |
| Investment (mil. Euro) | Production (mil. Euro) |
| 142 | 6.28 |
| 138 | 5.86 |
| 165 | 6.42 |
| 112 | 5.00 |
| 152 | 6.48 |
| 148 | 6.39 |
| 142 | 6.31 |
| 124 | 6.20 |
| 172 | 6.51 |
| 169 | 6.52 |

Table 2. Quality of life.

|  |  |  |
| --- | --- | --- |
| Rank | Expert 1 | Expert 2 |
| 1 | New York | Paris |
| 2 | Paris | Beijing |
| 3 | Beijing | New York |
| 4 | Tokyo | Tehran |
| 5 | Delhi | Delhi |
| 6 | Tehran | Tokyo |