The link between employment and education

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Aims and objectives

This study investigates the link between education and employment in England. It is based on one dataset that ranks the 32,844 Lower-layer Super Output Areas (LSOAs) in England by deprivation, where the LSOA (1500 residents) with a rank of 1 is the most deprived.

This study considers two questions: does deprivation of education correlate with the deprivation of employment and if so, is this correlation as strong in the cities as in the rural areas?

Background

Research in the past has been clear: more education leads to better prospects for employment (UK Government, 2014). This investigation uses the English Deprivation Indices to see if we can confirm this strong link between education and employment.

A downside of this dataset is that the choice of components and the weighting of those components that leads to the ranking is unavoidably subjective.

Sources of data

The deprivation data used in this report was originally obtained from the Gov.uk website (Department for Communities and Local Government, 2015). The original Excel-file was converted into a CSV file and underwent some minor cleaning before it was imported as a data frame into Jupyter Notebook using Python.

Analysis pipeline

I started looking on a national level for a correlation between education and employment by filtering in a data frame on the three most employment-deprived deciles. I then created a bar chart to see if most of those LSOAs also belonged to the three most education deprived deciles, which was the case.

Then I created a scatter plot of the unfiltered data frame, with the employment rank on the y-axis and the education rank on the x-axis. This graph also showed a correlation. I used Pearson's R2 test to confirm this.

On the local level, I repeated the above steps to compare the city of Manchester with the more rural County Durham. Finally, I used Pearson's test to compare the three cities Liverpool, Birmingham, and Westminster with the three rural areas Shropshire, Lancashire, and Cheshire.

Findings

The first charts I made to compare the education deprived deciles in the three most employment deprived deciles showed a clear correlation between education and employment.
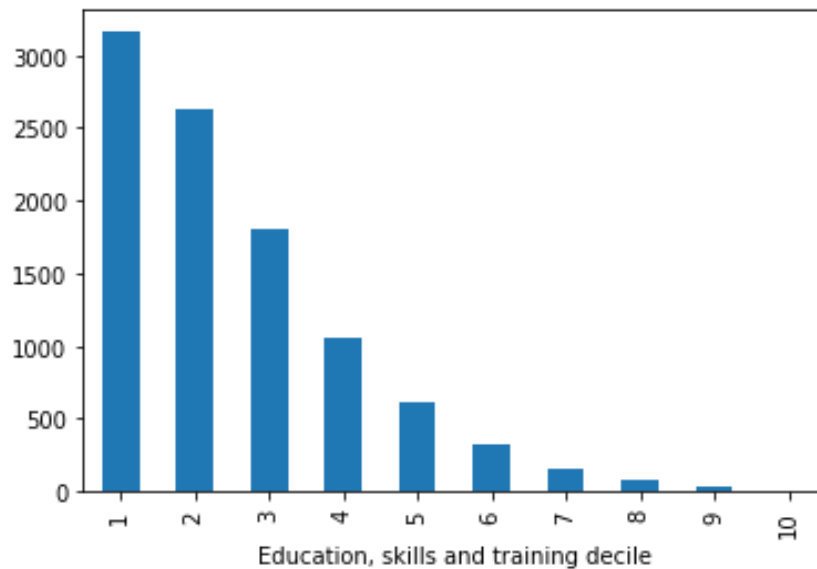

Figure 1: Most LSOAs that belong to the three most employment deprived deciles also belong to the three most education deprived deciles.
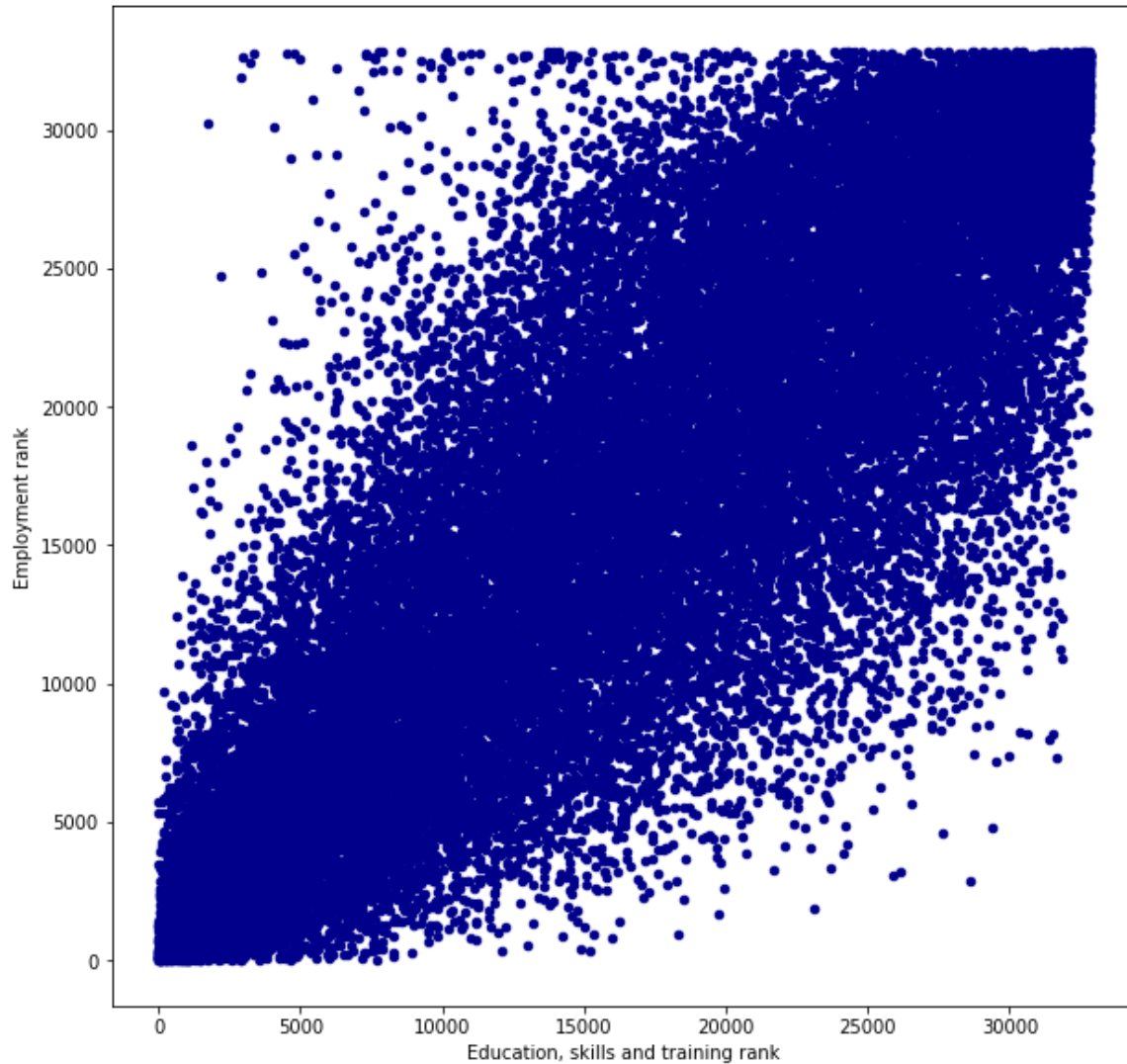
Figure 2: A scatter plot of the employment deprivation ranks against the education deprivation ranks shows a correlation.

Pearson's statistical test confirms the correlation with an r of 0.825, which is considered strong.

To see if this pattern is as strong in cities as in rural areas, I compared the city of Manchester with County Durham, a more rural area.
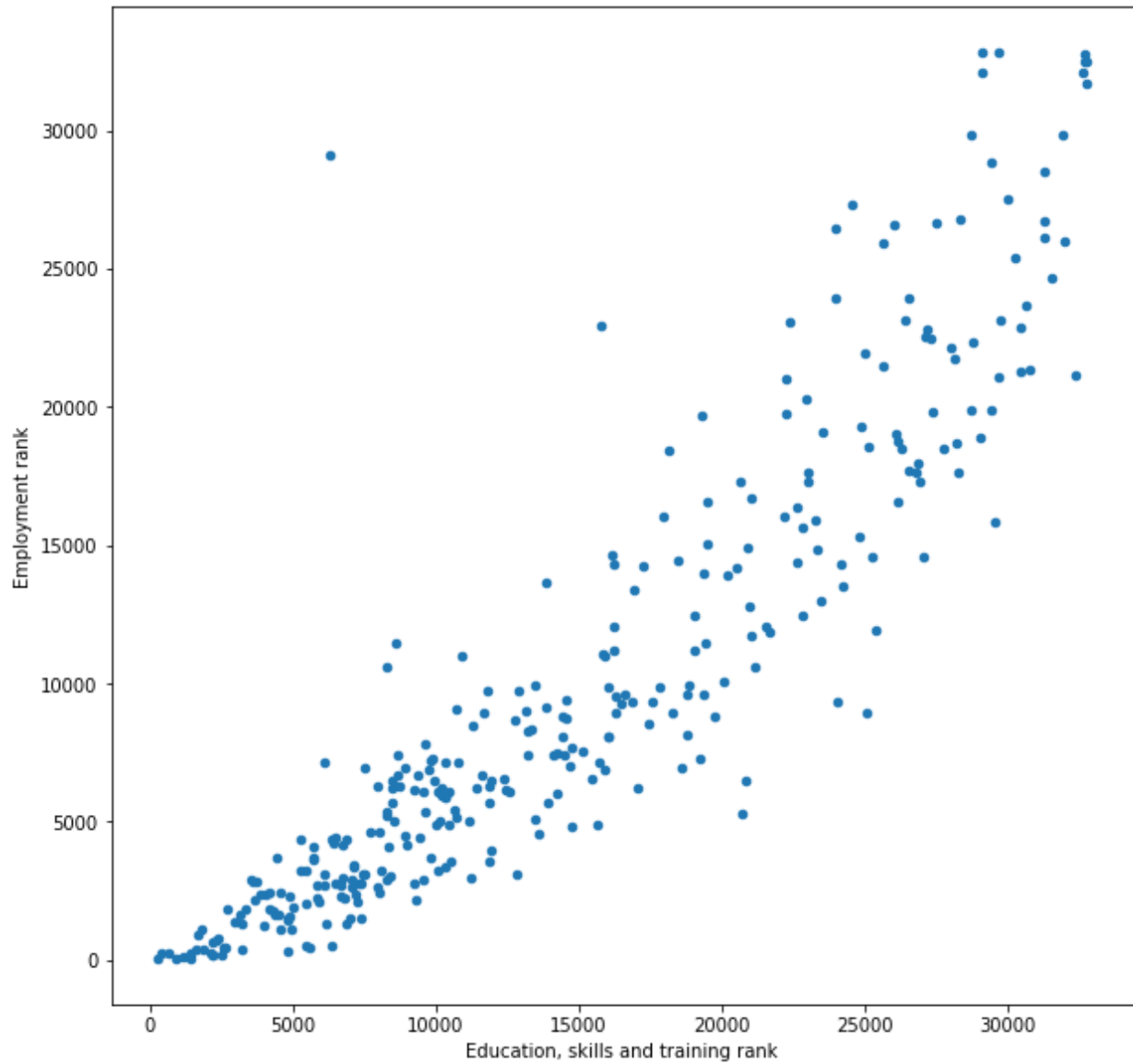
Figure 3: A scatter plot of the employment deprivation ranks against the education deprivation ranks in County Durham.
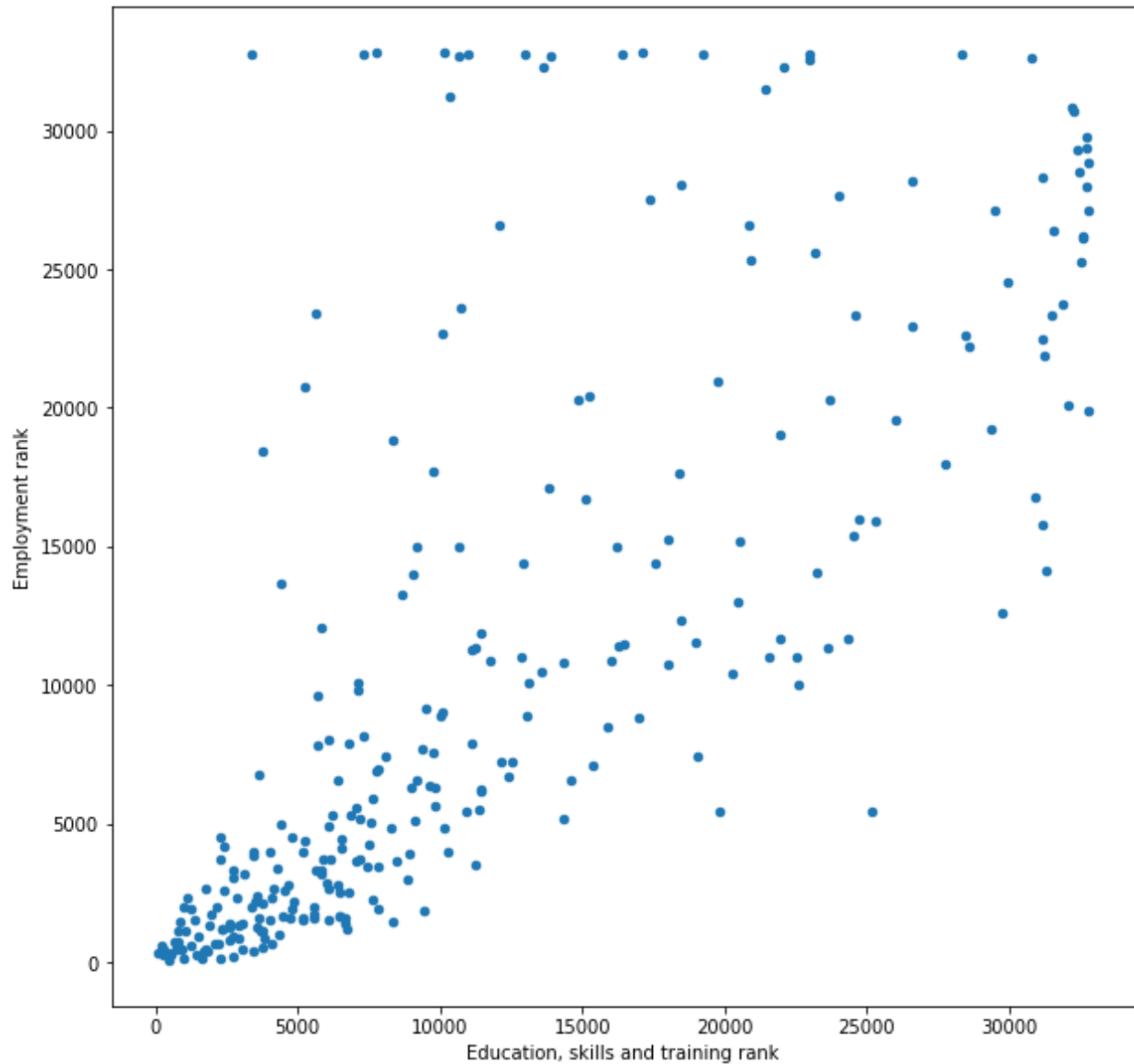
Figure 4: A scatter plot of the employment deprivation ranks against the education deprivation ranks in Manchester.

Both areas show a correlation, but it is stronger in County Durham. Pearson's statistical test confirms this with an r of 0.906 for Durham and an r of 0.743 for Manchester.

When also comparing the correlation in cities Liverpool, Birmingham, and Westminster with the correlation in rural areas Shropshire, Lancashire, and Cheshire, we see that the average correlation of the rural areas was stronger (r = 0.875) than in the cities (r = 0.753).

Conclusions

The conclusion can be drawn that, based on this dataset, there is a strong correlation between education and employment. If this correlation is stronger in rural areas compared to cities cannot be concluded based on this small sample size. Further research is needed for that.

(600 words)

References

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