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Poverty Breeds Necessity

During my time as a bachelor's student of Political Science I heard the phrases “Poverty Breeds Necessity” as well as the more popular “Necessity is the mother of all invention”. While these assertions seem similar, they could be said to be the root of two different political ideologies. The Phrase “Poverty Breeds Necessity” has a downtrodden tone but could be interpreted positively either way. “Necessity is the mother of all invention” is the much more upbeat of the two. Without getting into the political aspect of things I wanted to look at the pure statistics of “Poverty breeds necessity”. As a reference point I used census data to examine poverty levels. To look at necessity I took the darker view and utilized crime statistics from the US Department of Justice’s Crime in the United States yearly report.

With these two sources I extracted variables representing the ratio of residents under the poverty line and counts of crimes both categorized by city and year. The biggest problem here is sample size. Having to match the data from the two sources the number of cities and years contained in both was less than I had hoped for. I believe that this is the biggest failure of the analysis. Had I been able to crawl the entirety of the Department of Justice’s website to pull all the data for all cities in the US in a reasonable manner the issue would have been greatly alleviated. This was made undoable due to the nonstandard presentation and structuring of the Department of Justice’s website.

Once the data for both were extracted the following was fairly easy. Cleaning and examining the data revealed that the work had already been done. With such crucial statistics even the government was careful to not provide erroneous or false data. The biggest trip up was again the limited number of observations. When preforming a probability mass function this was fully displayed. Each value measured was unique. The probability of a value occurring was equal to all other values. Even though this invalidated the intent of a PMF it still showed the lower poverty rates having a higher concentration around lower rates of motor vehicle theft. The opposite was also true, even more glaringly so. The observations with poverty values greater than the mean value had a much less concentrated wider spread of rate of motor vehicle theft. Lower poverty rate observations were centered around .001 motor vehicle theft with a spread of nearly 0 to 0.0019. Higher poverty rate observations spread from 0.002 all the way to over 0.005 with an outlier all the way at 0.006 or nearly 6 times the rate of motor vehicle theft.

Without further delving into the minutia of the analysis, the result was fairly one sided. The hypothesis tests and correlation tests allowed the null hypothesis to be rejected. The correlations showed fairly strong correlation and low P-Values. The analysis was concluded with the regression that was performed. The multiple regression predicting poverty rate via crimes per capita showed an R2 value of nearly .8 and an adjusted R2 value over .75. This suggests that a large part of poverty rate can be ‘explained’ by the occurrence of crime. With this we can say that poverty and crime are correlated, however we cannot insist that one causes the other.