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Demographic impact on childbearing

Regression model fitting and comparison using demographic data

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Abstract

This thesis presents a study on the effects that demographic non-economic factors such as crime, marriage and population density have on the number of children born each year in Sweden based on data from 2005 to 2014. It also serves as a guide on how to fit and compare regression models of three different types, multiple linear, Poisson and negative binomial, to find the one with best fit. The negative binomial model proved to have the best fit, and after removing insignificant parameters the proportion of refugees, crime, gender distribution and newlyweds all had positive effects on the birthrate. Given a 1% increase from the median while all other variables were fixed, the respective effects of these variables were estimated to be 0.004%, 0.0766%, 0.67% and 0.275%. There was also a significant positive interaction between crime and population density. High education was fitted with a spline function which resulted in a positive but diminishing effect on the number of children born.

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