Analysis of Socio-Economic Impact due to COVID-19 on US using Geographically Weighted Regression

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After the 2nd world war, The COVID-19 pandemic is the biggest and most critical global health calamity faced by the world. With an exponential rate of spread, COVID-19 outbreak is severely impacting the global economy as well as society as a whole. Analysis of socio-economic impact will help us to understand how each factor is getting affected differently by COVID-19 pandemic. However, as COVID-19 impacts vary from one location to another, it's difficult to analyse this impact using traditional machine learning and data analytics methods, as there is a large spatial variation in the data. The aim of this research is to apply the geographically weighted regression (GWR) models for analysis. GWR differs from traditional approaches of data analysis by considering the spatial variation of COVID-19 cases over a geographical area and by plotting the regression coefficients to and underlying patterns in data that are otherwise hidden when implementing a global regression model. GWR coefficient allows finding local estimates at each point which better explains the spatial variations and fits the data.