CS3 - Forecasting Life Expectancy Case Study

You have just been born, and depending on the country in which that took place, there are many different factors that could influence your life expectancy as you live out your remaining years. With so much diversity around the world between countries in terms of their cultures and traditions, they also vary drastically in the health of their citizens. Many countries greatly differ in their expenditures for healthcare, the wealth of their citizens, their citizens' consumption, and their citizens' life expectancies.

As the world has progressed into a digital age, much of these countries' data has now become public information. This has allowed data scientists to create models that test various factors against each other to examine trends in life expectancy. Through examining historical factors that have influenced countries' life expectancies in the past, or using data to forecast predictions about future life expectancies, the availability of this data has enabled data scientists to create results that will have tangible impacts on lives around the world.

The motivation behind this project is to use time-series data from the United States to determine which factors are influential predictors of life expectancy within a country. Through the use of data regarding various economic and healthcare factors, there will be exploration into determining if incorporation of these factors can improve the accuracy of life expectancy forecasting models. In addition to this, forecasting will take place with various factors to examine how future life expectancies may change over time.

You are tasked with examining data to create models that predict life expectancy data based on various economic and healthcare factors. In addition to this, you will incorporate external regressors to predict future trends. Your deliverable will be source code, graphics and tables, and a summary of findings. All necessary materials for the project can be found at:
https://github.com/will-mitchell22/CS3-DS4002.git

[1]C. Lightfoot, "Estimating life expectancy changes since 2020," *News-Medical.net*, Mar. 01, 2022.
https://www.news-medical.net/news/20220301/Estimating-life-expectancy-changes-since-2020.aspx