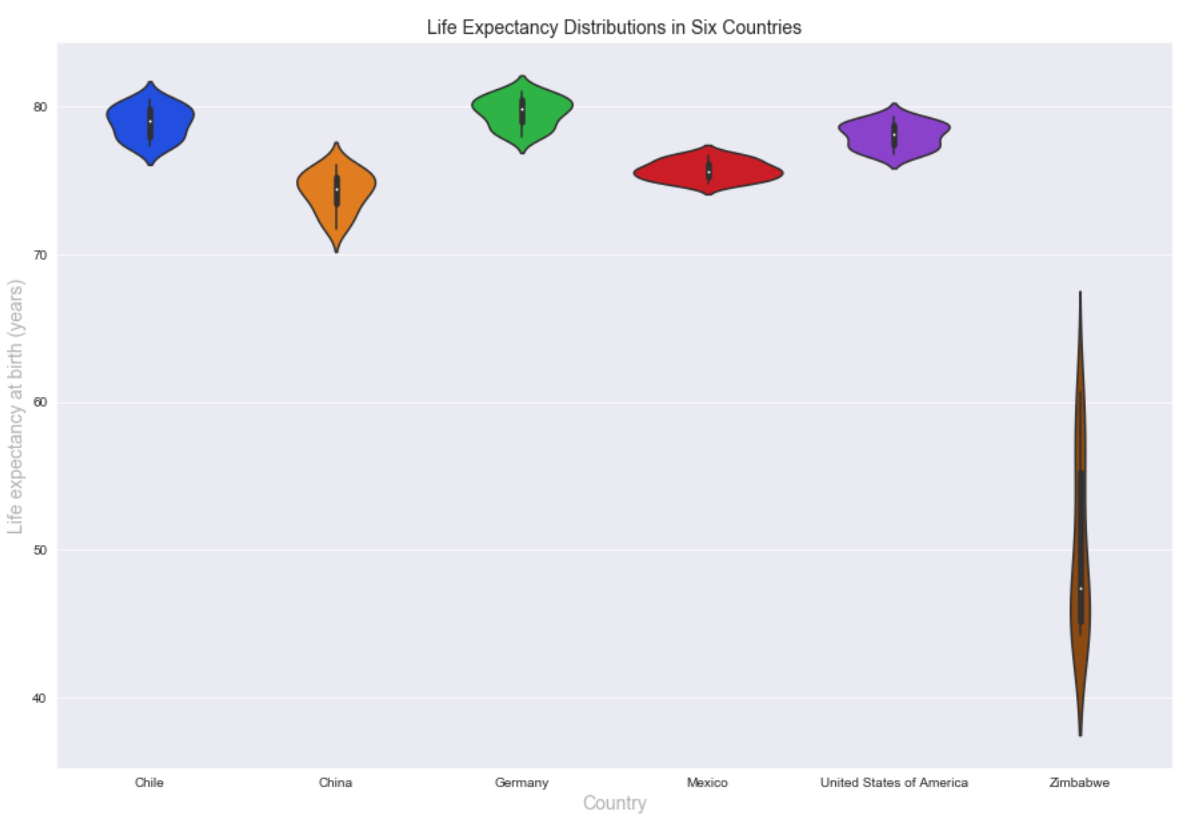
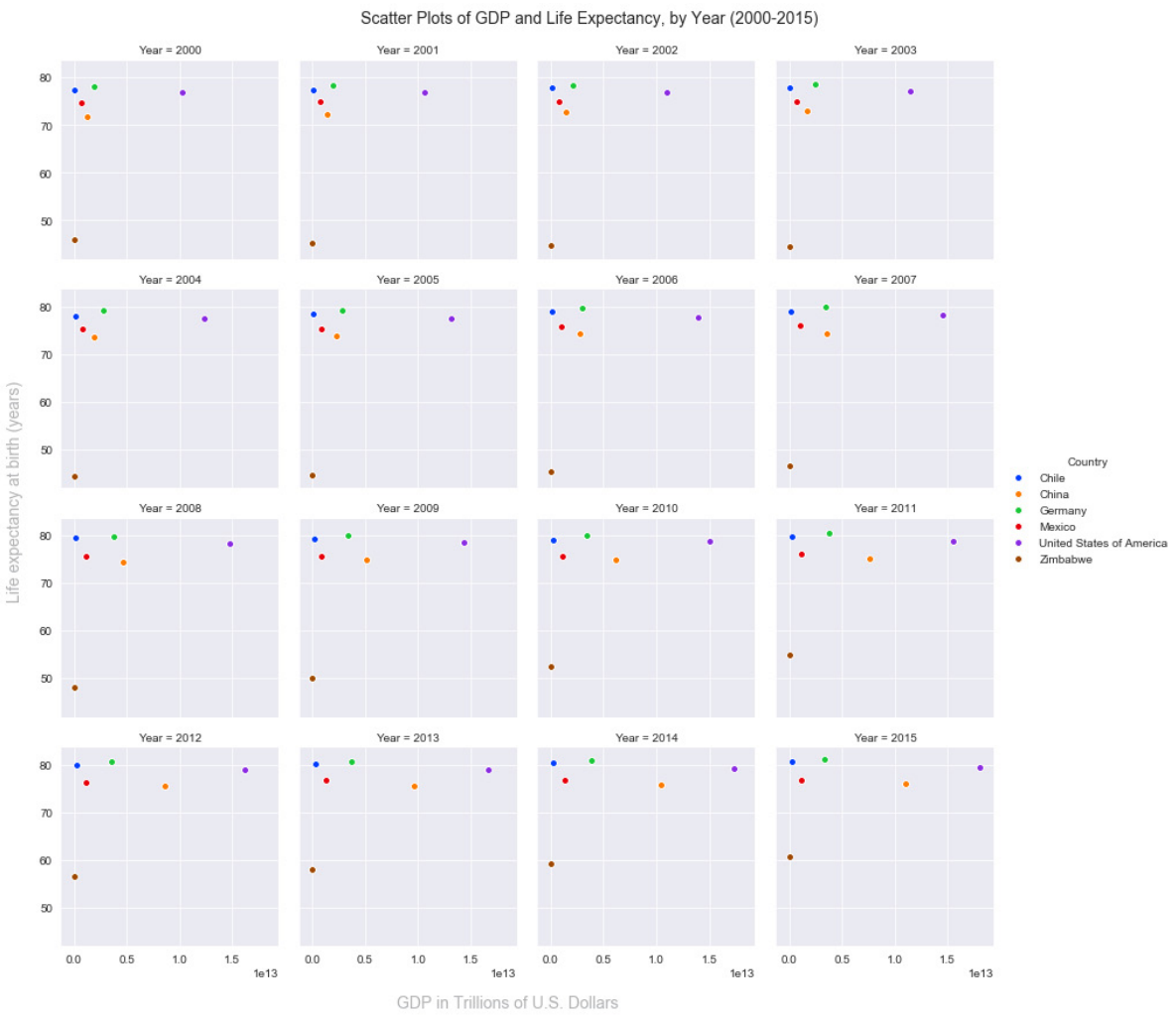
Relationship or not? Looking at GDP and life expectancy of six countries

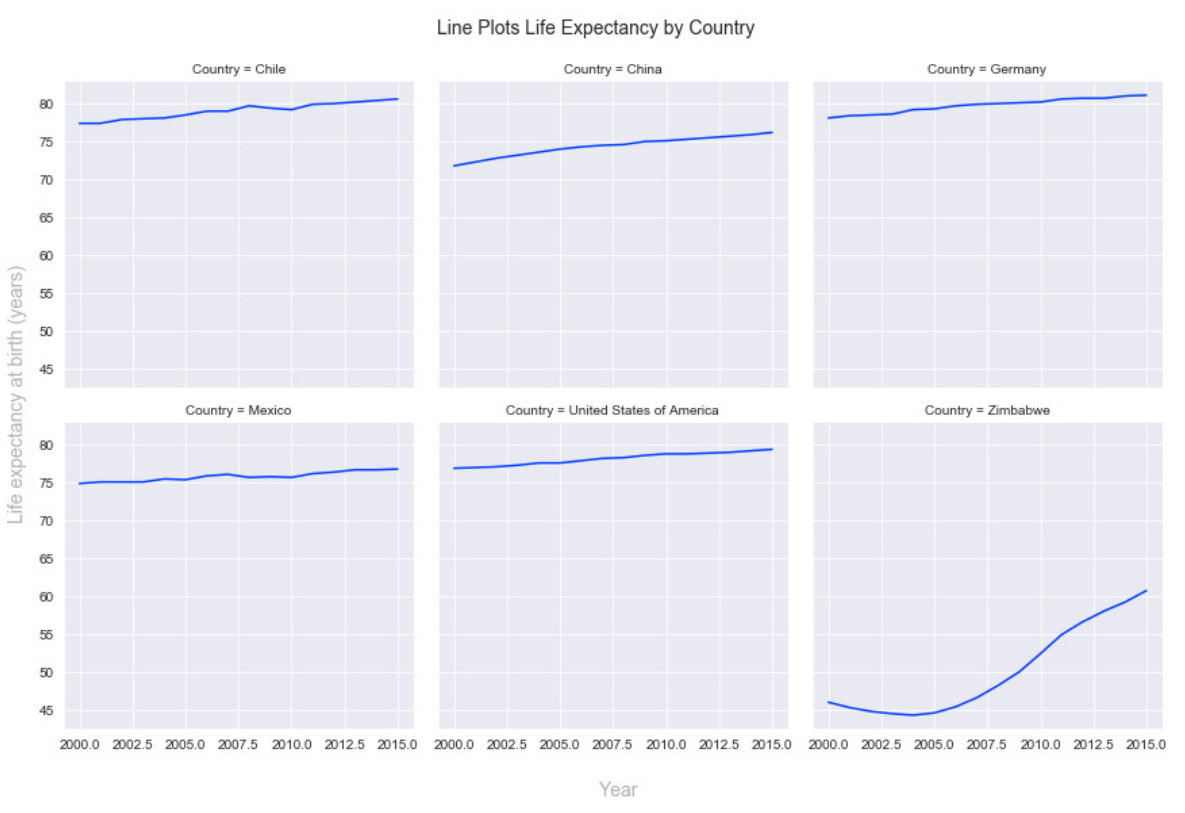
After analyzing data on six countries, I hoped to have a clear sense of the relationship between GDP and life expectancy. The six countries in this project were Chile, China, Germany, Mexico, the United States, and Zimbabwe. This first violin graph shows the challenge with this data set: all things were not created equally after all.



Five of the six countries have fairly tight distributions near the top of the life expectancy axis. This suggests that the average person's health outcomes in the five countries are similar and those averages did not change much over time. Over the years surveyed (2000–2015), life expectancy in Zimbabwe did change significantly.



As seen in the multiple scatter plots above, the US and China experienced large growth in GDP but the life expectancy in the two countries grew at a much slower rate. Zimbabwe's GDP, on the other hand, did not grow as quickly as the average life expectancy did.



The shape of the line plots above further illustrates that the five countries which enjoyed life expectancies beyond 70 years in 2000 did not significantly increase this outcome over the course of fifteen years. Zimbabwe did. That said, the line plot of Zimbabwe's GDP increase shows minimal growth over the same period. The two countries with significant GDP growth (the US and China) did not exhibit a much higher rate of growth in life expectancy when compared to Chile, Germany, and Mexico.

The chart immediately above might have shown a differently shaped growth line (representing GDP) if each country was represented at a scale that was proportional to itself rather than the group. The amount of GDP in the US and China dwarfs the GDP of Zimbabwe, so the growth appears to be next to nothing, when indeed it was not insignificant. The relationship between GDP and life expectancy might have been a little more clear if the underlying information was presented in a slightly different manner.