**Tableau Report**

For this assignment, 5 independent variables are used: Infant Mortality Rates, Gross National Income, Child Vaccination Rates, Unemployment Rate and Life Expectancy at birth. The idea was to assess how overall life expectancy varies with changes in income, unemployment rates, vaccinations, and child mortalities. In other words, testing out correlations between variables to establish any possible associative relationships using motion charts. Line chart, Bar and Tree map was also used in different combinations to infer any trends, patterns or insights, amongst various countries and continents.

Scatterplots allow for the identification of any relationship that may exist - inverse, direct or none. Overall, insights from such analysis would help identify countries which are high income, and where life expectancy is good. This would create opportunities for various things - such as businesses, investments, migration etc and help answer which variable needs most attention for what country.

All data was obtained from OECD data bank ([www.oecd.org/statistics/](http://www.oecd.org/statistics/)). I entered my variable names, and got data for the given time period, for all countries mentioned. To clean and prep my data, I chose the time period for which maximum data was available (2000 - 2015). A few missing population statistics were matched to the previous year, assuming that population does not change drastically in one year. A few were left blank due to lack of data (null values).

Insights:

The motion chart for gross national income and infant mortality rate showed an inverse correlation between the two - this can be used to infer an association between income increases (people have more money to spend) to reduced number infant mortalities. Over the fifteen year time period, the common trend observed is an increase in average incomes, and decrease in average mortality rates.

Interestingly, there is no obvious pattern for child vaccination rates and infant mortality rates. But it can be seen that in countries with high vaccination rates (which was the case for most countries), the infant mortality rate is low. In comparison, very few countries which had low vaccination rate showed high mortality rate. This, however, does not mean that low vaccinations cause mortality. It only depicts an associative relationship.

Life expectancy and gross national income showed a direct correlation. Both overall increased together over the 15 year time period.

Interestingly, South Africa was the most obvious outlier in all presented scatterplots. The reason is not obvious from the scatterplots, but such visuals can help understand which country may need to focus on itself, whether economically, socially or financially etc.

The line chart shows the pattern gross national income for the 15 year time period - Overall, it is a good sign that income levels have increased greatly. It represents overall good economic conditions. However, there was some instability with the obvious decline, or negligible increase during the 2006 - 2009 time period, followed by a peak rate in 2014. Interestingly, a glance at this chart shows that all countries faced a decline around the same years, signaling to big economic crisis worldwide. This trend can be linked to world economic events to understand which ones may have led to higher or lower income levels.

The map is a representation of various income levels throughout the continents and countries. Green depicts the higher end of the income level, whereas red represents lower income areas. At first glance, the map gives a quick show of higher income areas vs lower income areas.

The treemap reflects income levels (size) and unemployment rates (color). Overall, it seems that the higher the income (bigger box), the lower the unemployment rate (lighter shade), with the exception of a few countries such as Korea, which is smaller yet darker than others. South Africa once again, stands out as the darkest, which means it has the highest unemployment rate amongst all countries followed by Greece. Generally, unemployment rates are low (lighter color shade) for most countries which is a sign of a good economy.

Finally, the bar map was a visual representation of how gross national incomes have seen slight increases each year starting from 2000. The share of income of each continent has seen an increase, which is a good thing. The exceptions are South America and Africa, but that is because of less countries used from those continents as data. Most obvious trends are for Europe (the biggest share), followed by North America and Asia. It can be inferred that Europe and North America have the highest income countries overall.

Dashboard 1:

Clicking on any country on the tree map shows its position on the scatter plots. This position reflects 4 things - its population (circle size based), its mortality rates, life expectancy and child vaccination rates. It gives a quick overview of any country and its relative position in terms of those variables.

Dashboard 2:

It highlights income levels, based on individual year and continent, for each country. It is a good way to look at the size of income increases each year from 2000-2015.

Tableau Link:

<https://drive.google.com/file/d/1HJXWAXLzcvmKdZ-U7jqjLPO92yNltNrc/view?usp=sharing>













