# Python for Data Science Week 6 Mini Project
# Fact Check David Attenborough: A Life on Our Planet

By Javier A. Jaime Serrano

# Dataset

The World Development Indicators Dataset was used [2].

# Motivation

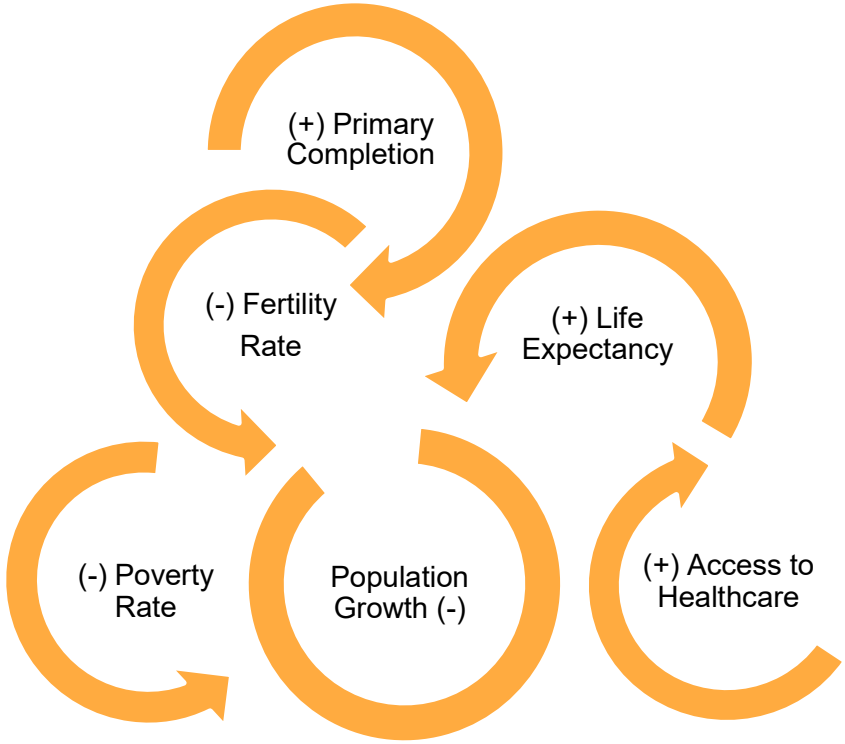
The Documentary “David Attenborough: A Life on Our Planet” [1], in the last half an hour proposes that to restore stability in our planet we need to re-wild the world by slowing or stopping population growth.

The world fertility rate is decreasing and will level off, but we are living longer, so even that we are having less children, the world population is still growing.

For the world population to peak sooner at a lower level we need to work hard to: (1) raise people out of poverty, (2) give all access to healthcare and (3) enable girls (in particular) to stay in school.

The motivation of this project is to fact check the above relationships, see figure 1.

**Figure 1**


(+) Primary Completion
(-) Fertility Rate
(+) Life Expectancy
(-) Poverty Rate
Population Growth (-)
(+) Access to Healthcare

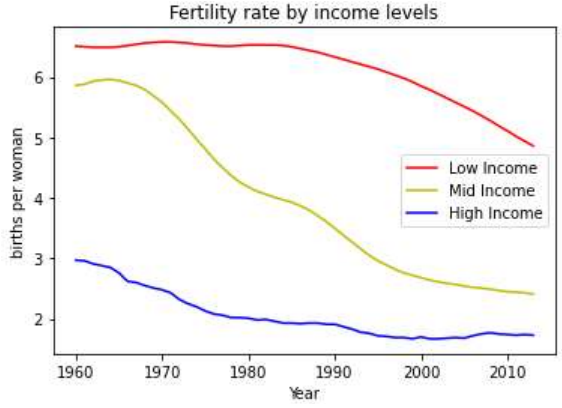
# Research Questions

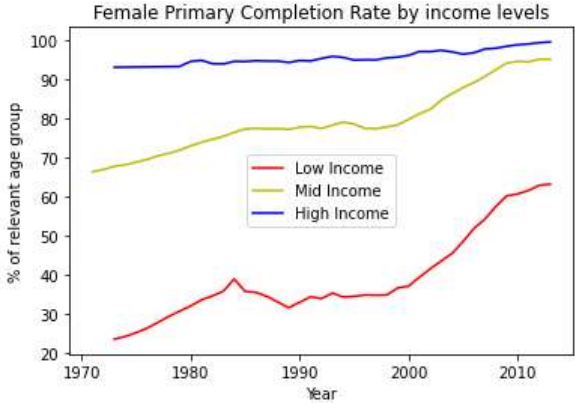
For the world population to peak, and raise more people out of poverty:

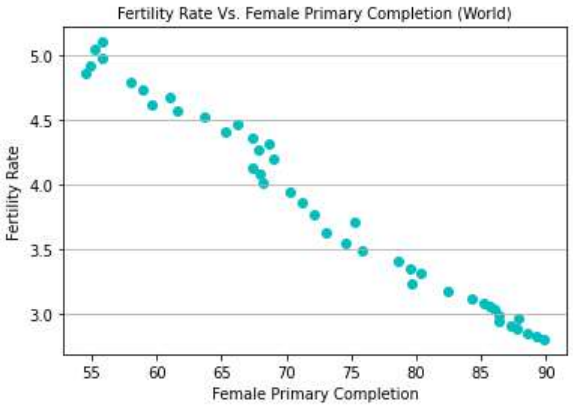
- Will the fertility rate decrease and stabilize if more girls stay in school and complete primary education?
- Will life expectancy increase and stabilize if fertility rate decrease and stabilize?
- Will the population growth rate increase and stabilize if fertility rate and life expectancy stabilize?

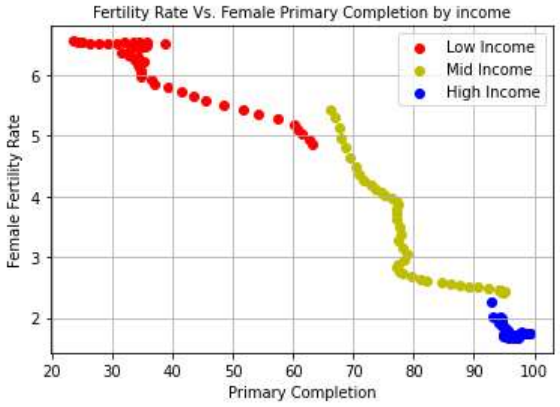
Out of the scope of this mini project, what is the relationship between the access to healthcare and life expectancy? What is the relationship between poverty and fertility rates?

# Findings 1: Fertility Rate Vs. Primary Completion



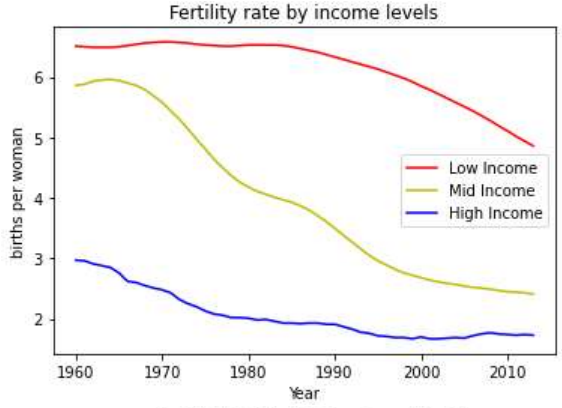



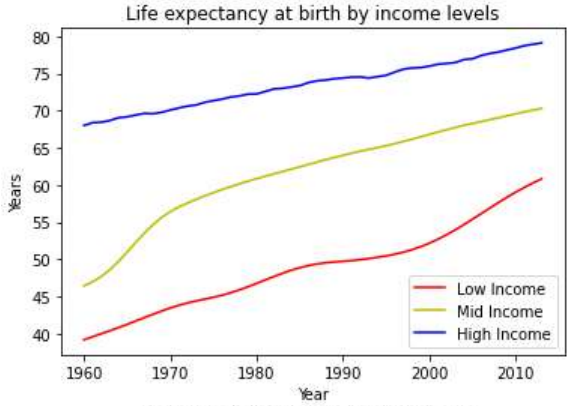

Female primary completion is highly negative correlated to fertility rate (-.99). Correlation is higher in the low income countries, and drops (-.87) in the middle and high income countries.

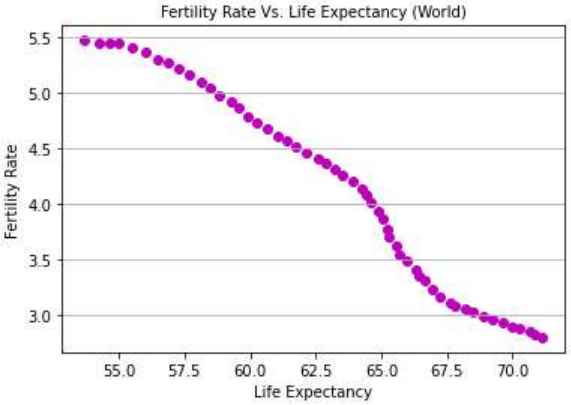
Fertility rate is stabilizing only in middle and high income countries and it has further to drop in low income countries.

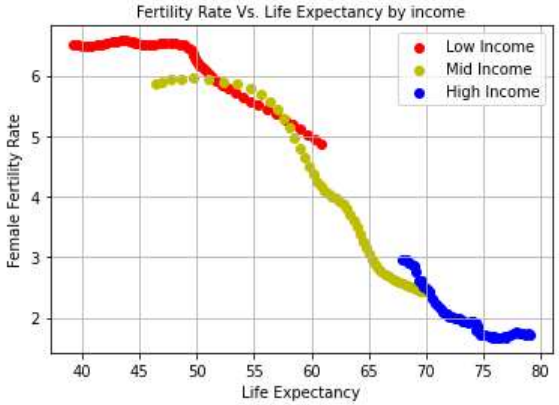
The result is as expected, and a causal relationship can be implied.

# Findings 2: Fertility Rate Vs. Life Expectancy



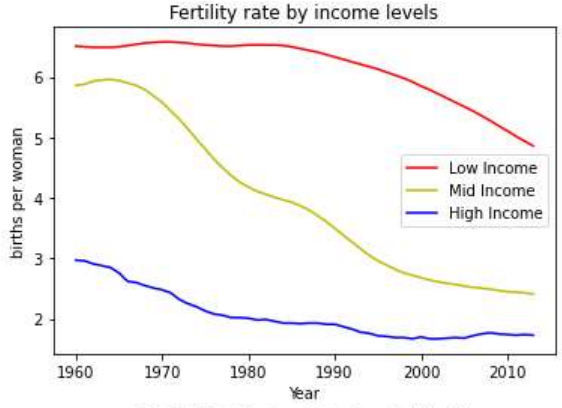



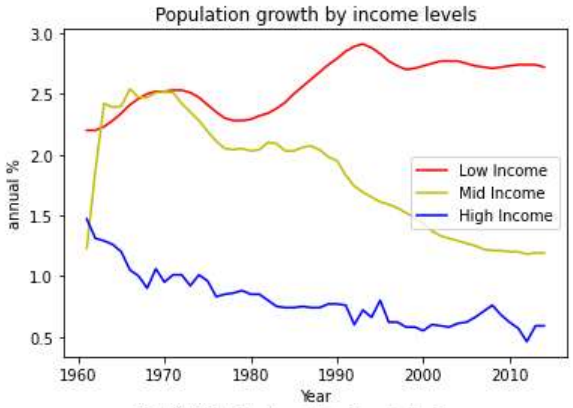

Life expectancy is highly negative correlated to fertility rate (-.98). The correlation is not linear and is little higher in the middle income countries.

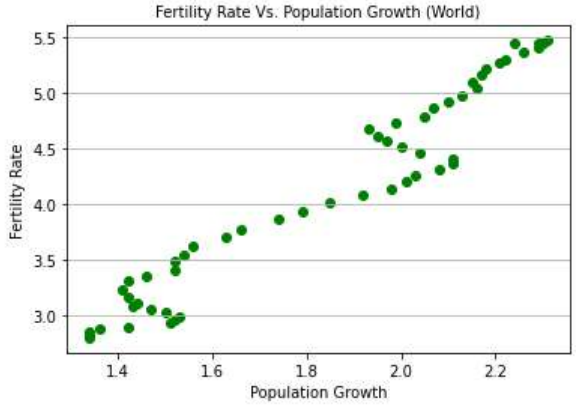
Life expectancy continues to grow and it not showing signs of stabilizing.

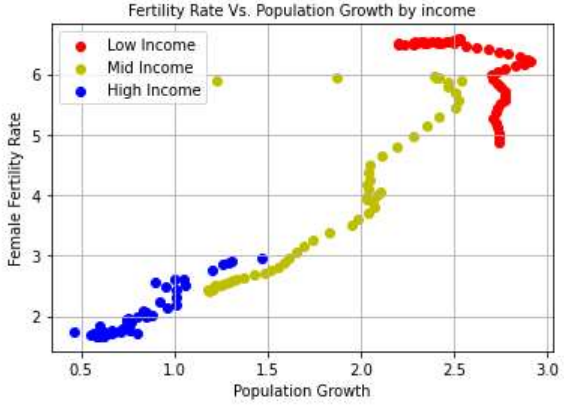
This result is not as expected. There are other variables affecting life expectancy (like access to healthcare and the poverty rate).

# Findings 3: Fertility Rate Vs. Population Growth



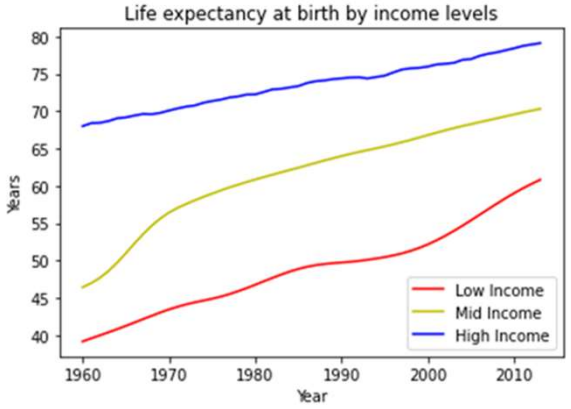



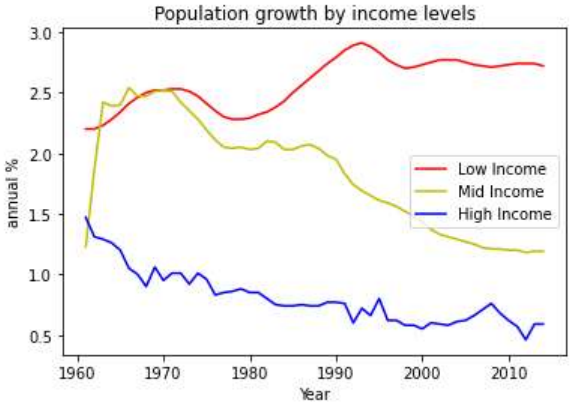

Fertility rate is highly correlated to population growth (.97). The correlation is not linear and is negative correlated (-.61) in the low income countries.

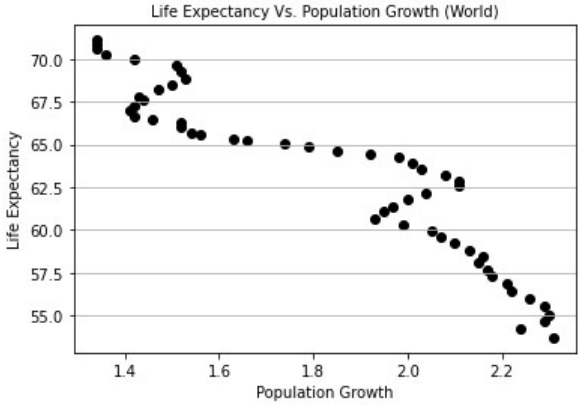
Population growth is stabilizing at different rate levels in countries by their income.

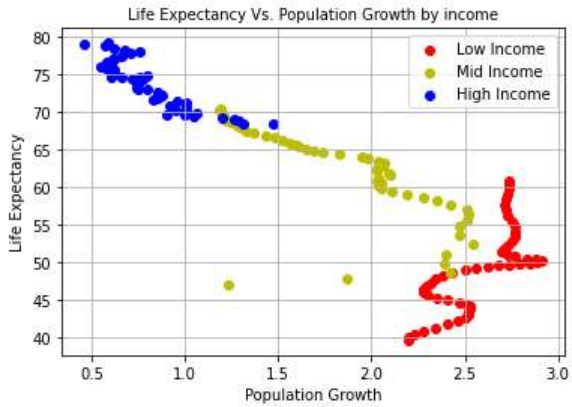
This result is a expected for the world, but is not as expected in the breakdown by income levels.

# Findings 4: Life Expectancy Vs. Population Growth




Life expectancy is highly negative correlated to population growth (-.93). The correlation is not linear and is positive correlated (.73) in the low income countries.

This result is obvious, but is not as expected in the breakdown by income levels.

The population growth is more complex, and other variables, specifically economic, should be considered.

# References

[1] Netflix Documentary, “David Attenborough: A Life on Our Planet”, 2020

[2] Word Development Indicators: https://www.kaggle.com/worldbank/world-development-indicators

[3] Jupiter Notebook Week 6 Mini-Project: https://github.com/javier-jaime/Python-for-Data-Science/blob/main/Week-6-Mini-Project.ipynb

# Acknowledgements

Thank you for your Feedback!