Exploring China's Population Growth

Name: Anthony Yang

Abstract

With this project, I aim to explore factors that affected China's population growth since 1970. One of the major factors and the main question of interest is how China's population control policies administered and especially the one-child policy instituted in 1979 affected the population growth. The project also compares China's population growth from the 1970s to that of Bangladesh. The data is collected from Gapminder.org, a website dedicated to providing a fact-based view of the world and how it has changed. Our main finding is that China's population control policies had a dramatic effect on slowing China's population growth from the 1970s to present day, mainly thorough reducing the number of children each woman have. Our conclusion is that China's population control policies administered is a major factor in slowing China's population growth since 1970.

Introduction

The primary goal of this project is to explore and find factors that affected China's population growth from the 1970s. Our main question of interest is to analyze if and how China's one-child policy that was institued in 1979 affected China's population growth at the time. I also aim to compare China's population growth with that of Bangladash. There are two main reasons on why I chose to analyze China's population growth. The first being that China has a extremely large population, so it would be interesting to see how this population changed over time. The second is that China is my home country, and being able to analyze something about your home country is quite interesting. China started introducing laws that limits the number of children each family can have in the 1960s, and further expanded the laws to a one-child policy in 1979 that limits the number of children each family can have to one with some exceptions. This project will explore how these policies used by the Chinese government at the time affected China's population growth. The dataset I'm using to answer my question of interest is a dataset from Gapminder.org that contains the total population from many countries over a period of time. This dataset is appropriate for answering my question since my quesiton of interest involves how a country, in this case, China's population evolve over time, which is exactly what this dataset provides.

Data and EDA (Exploratory Data Analysis)

Data Source and Ethics

The data used in this project is collected from Gapminder.org. The population csv file can also be found here: https://github.com/open-numbers/ddf--gapminder--systema_globalis/blob/master/countries-etc-datapoints/ddf--datapoints--population_total--by--geo--time.csv

Ethical Considerations

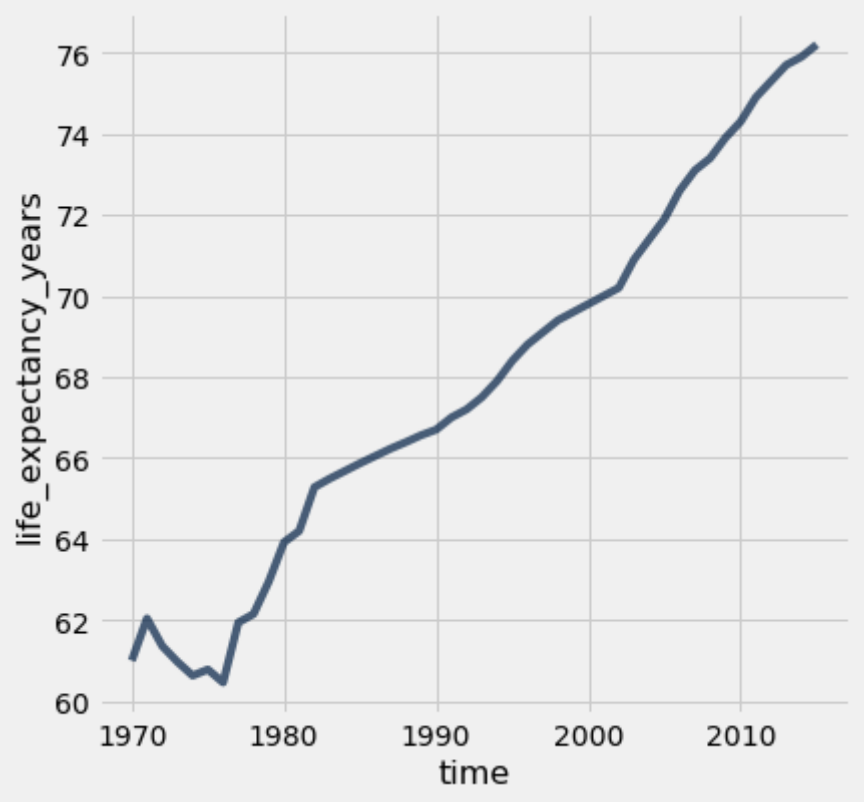
The people from Gapminder.org collected this dataset and published it in the Systema Globalis. Their goal is "to compile all public statistics; Social, Economic and Environmental; into a comparable total dataset." I believe that the analysis of this dataset doesn't cause any harm to those represented in the dataset or to others. All the people from countries all around the world are represented in the data.

Relevant Attributes

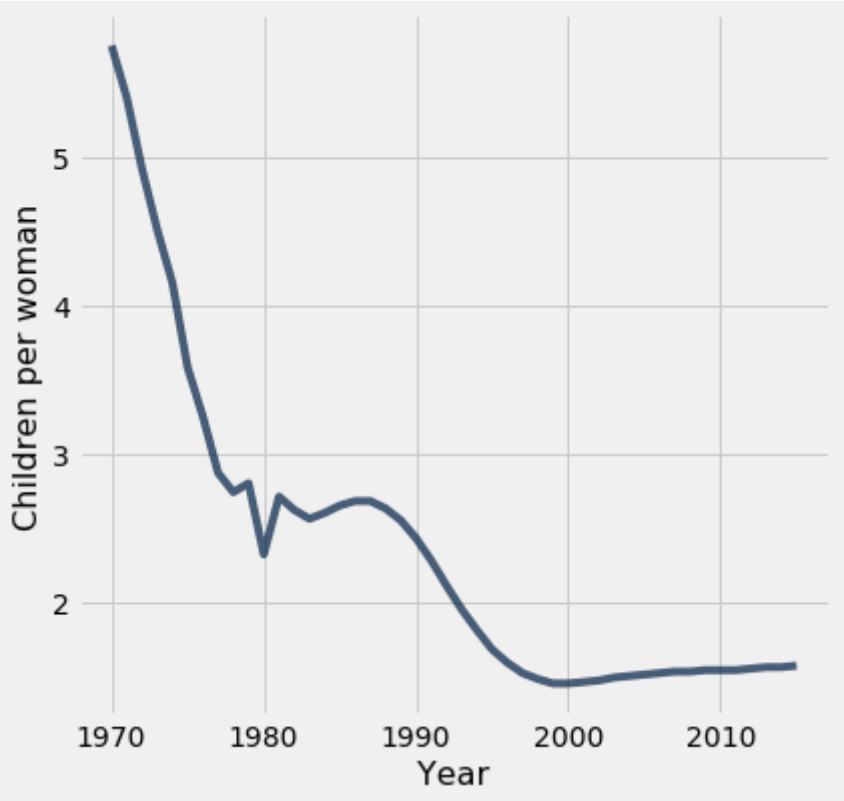
Some preprocessing and transformations were used on the original variables to limit the range of time period to from 1970 to 2015, and to select only the data relevant to China and Bangladesh.

EDA

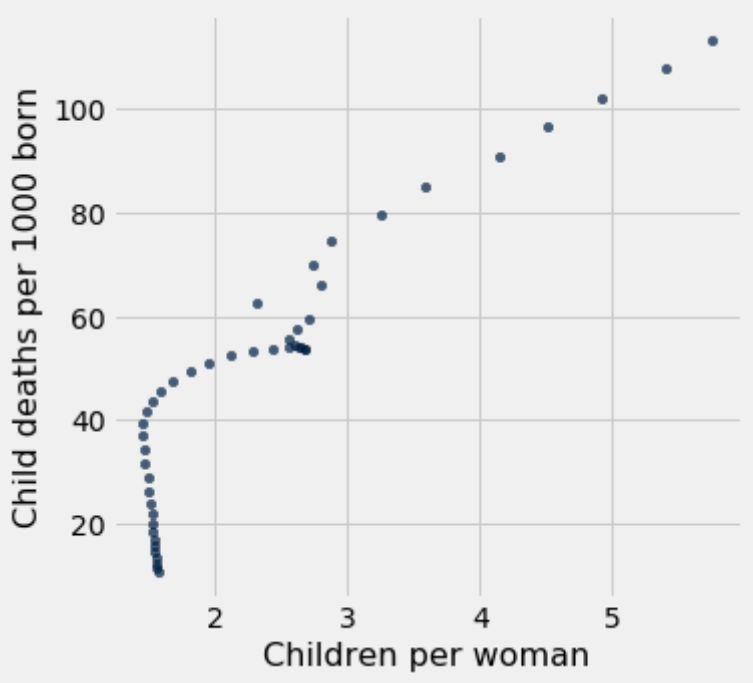
The following graph shows how life expectancy changed for Chinese population from 1970s to now. In general, life expectancy improves overtime.



The next graph illustrates how fertility of Chinese population changed from 1970s to now. There is a sharp decline in fertility between 1970 to 1980.

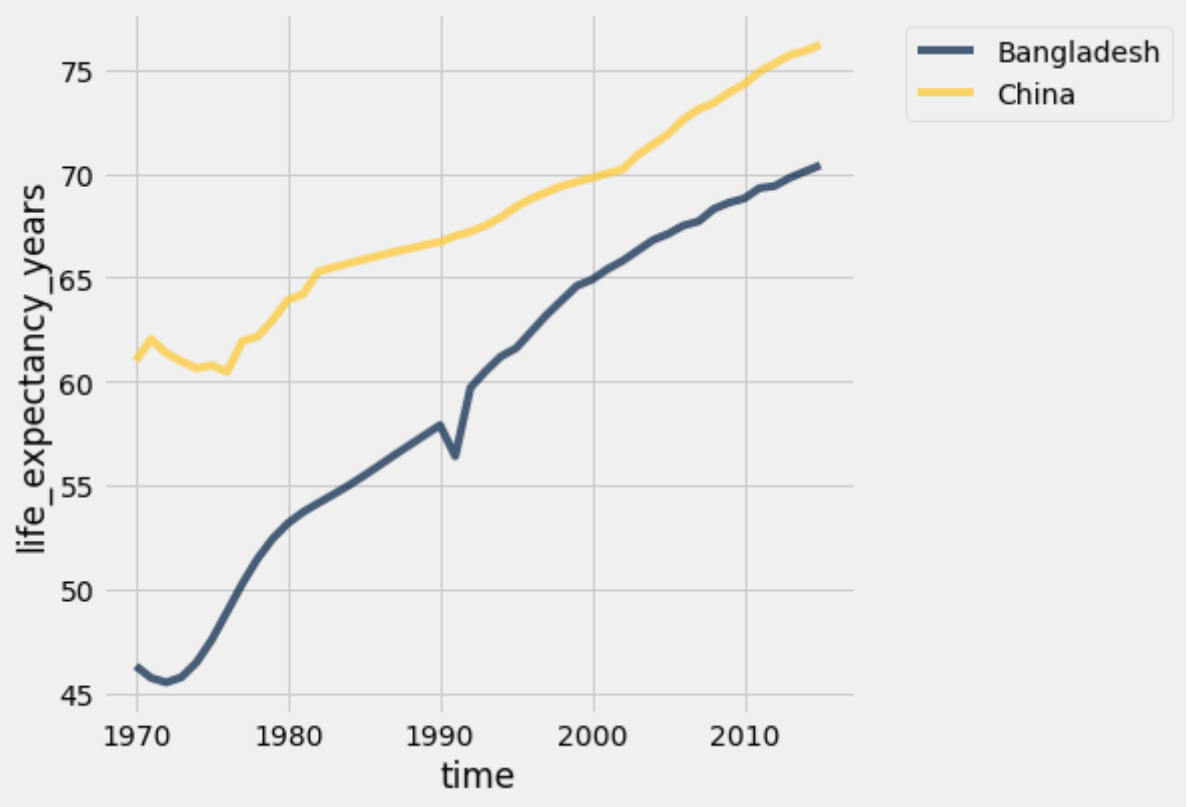


The next graph is a scatter diagram that illustrates the relationship between total fertility rate and child mortality rate per 1000 children for Chinese population. There is a somewhat strong association between fertility rate and child mortality rate.

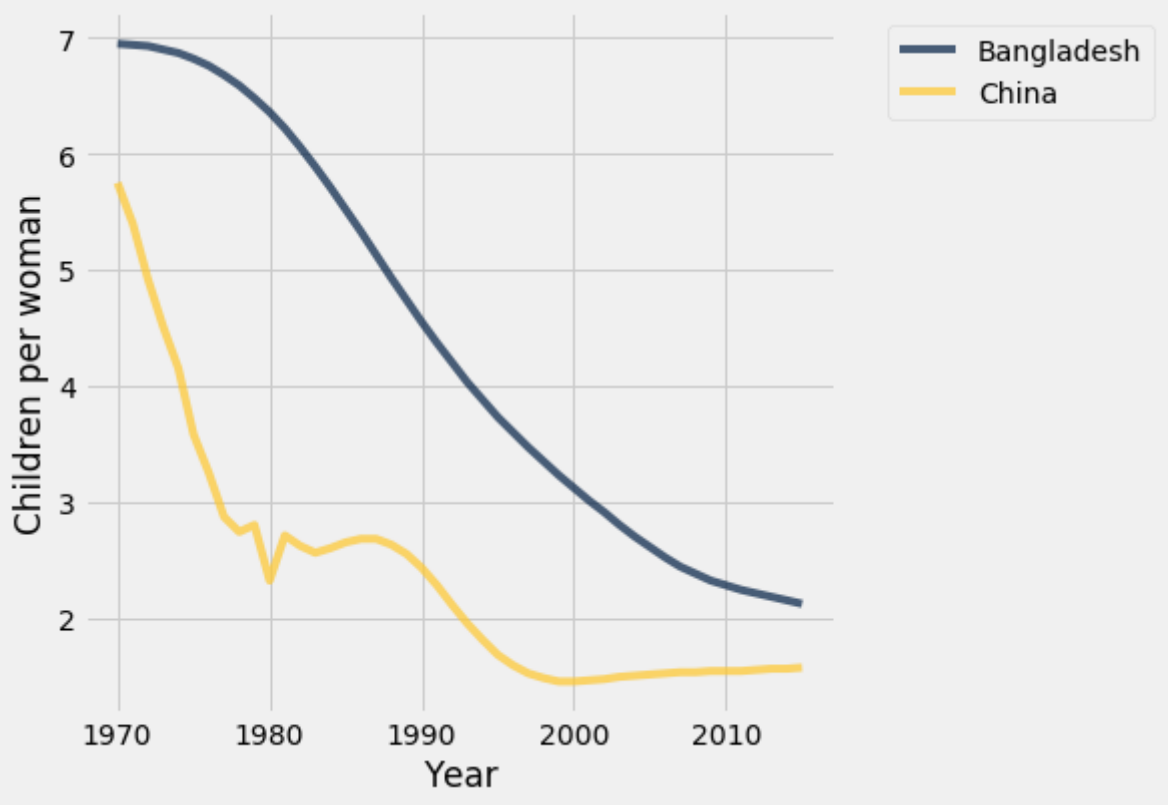


The following graph compares the life expectancy of Chinese population with the life expectancy of Bangladesh population. We can see that the Chinese population generally have

higher life expectancy than that of the Bangladesh population.



The following graph compares the fertility of Chinese population with the fertility of Bangladesh population. We can see that the Bangladesh population generally have a higher fertility rate compared to that of the Chinese population.



Analysis, Results and Interpretation

My results shows that China's birth control movement and population control policies in the 1970s greatly reduced Chinese population's fertility. We can see from the graphs that from 1970 to 1980, the number of children each woman had drastically reduced from around 6 to around 2.5. We also see that population growth is not slowing because people are not living as long, since the Chinese population's life expectancy is growing. This means that the main factor for China's slowing population growth is China's population control policies instituted at the time. Something that might be helpful for solidifying my findings would be to further analyze how China's population behaved in years earlier than 1970. I don't believe there are any ethical issues surrounding my analysis.

Conclusions and Future Work

My findings suggest that China's population control policies introduced in the 1970s were extremely effective in slowing China's population growth rate, mainly through reducing the number of children each woman have. We can see from the data that the Chinese population fertility rate decreased dramatically through the 1970s, which echoes our hypothesis that China's population control policies used at the time is a major factor in slowing China's population growth. Some extension analysis I would recommend for this project and topic is to further analyze how the various metric of China's population behaved before 1970, such as the 1950s or 1960s. This might further support my analysis and conclusion, or it might provide some alternative findings. Other future works I would recommend would be to explore some other countries data in the dataset used in this project from Systema Globalis. In general, I do trust the results of my analysis, mostly because I obtained the dataset from a reliable source. The analysis and conclusions reached in this project only applies to China and not any other countries. Since China has an extremely large population, and the type of population control policies China's government used at the time is unique to China.