

Identify and Reveal Nation's Historical Events from Data

Project Paper for 625.603 Statistical Methods and Data Analysis

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I. Introduction

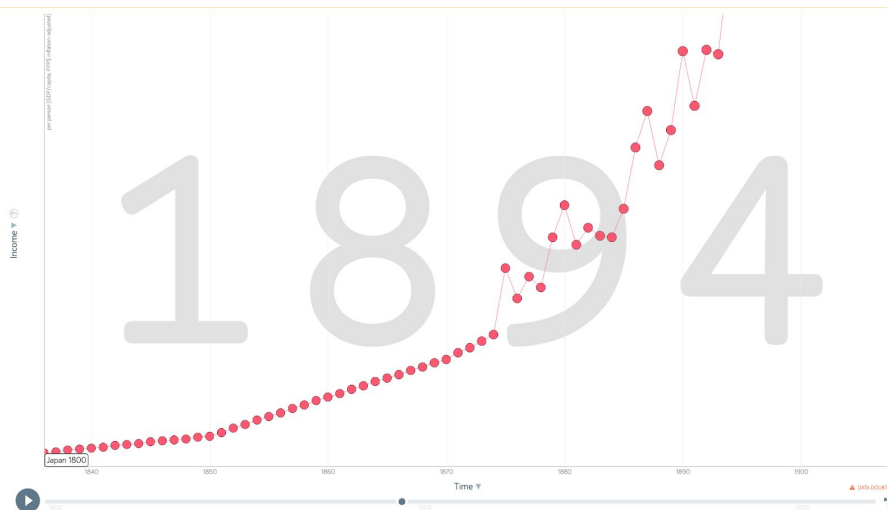
Historical development, or sometimes a downswing of countries usually can be observed from these countries's economic, medical or scientific data such as average income, life expectancy, and so on. In this paper, I will analyze the trends and changes of the data of my home country, Japan which is available to be visualized in Gapminder.org[1] along with the descriptions and explanations of some historical events that occurred from 1800 until nowadays.

II. Data Revealing History

A. National Isolation and Meiji Restoration (Mid 19th Century)

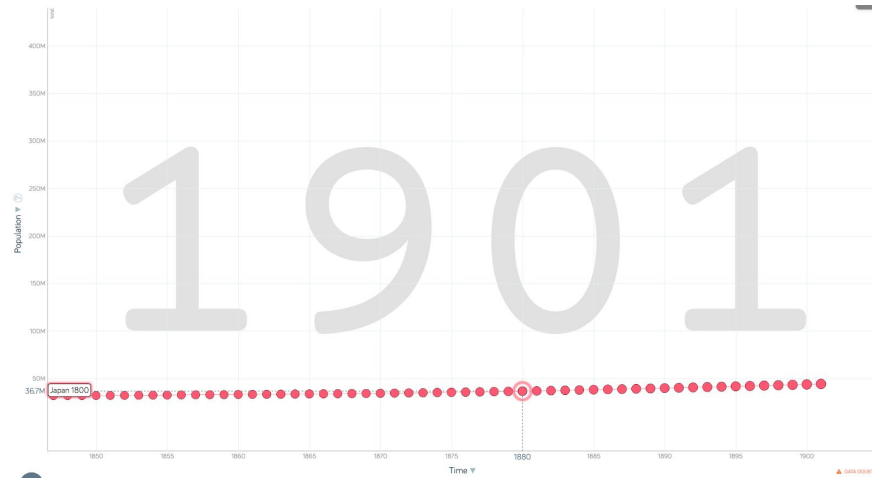
Japan used to have the feudal era that kept the nation isolated from the world, likely developing steadily and constantly without any spike of average income and life expectancy. But this national isolation ended in the mid 19th century by government renovation and foreign military force. In 1854 the United States Navy forced the opening of Japan to the outside world with the convention of Kanagawa, and subsequent similar agreements concluded with other European countries brought economical and political crises[2]. The resignation of the shōgun afterwards led to the establishment of a centralized state nominally unified under the emperor (the Meiji Restoration). Since then, Japan started adopting Western political, judicial, and military institutions, and emerged as the most developed nation in Asia and as an industrialized world power that pursued military conflict to expand its sphere of influence.

From the data, the average income was linearly increasing in logarithm scale along with the year before 1885. Since the Meiji Restoration, the trend of the number started to fluctuate with a larger slope.



Income vs. Time

The fluctuation of the income may seem that the nation's economy is not stable, but in the long term the trend of average income of people was increasing with a higher velocity, compared to the trend of pre-Meiji restoration. Also the population of Japan was steady during that period.

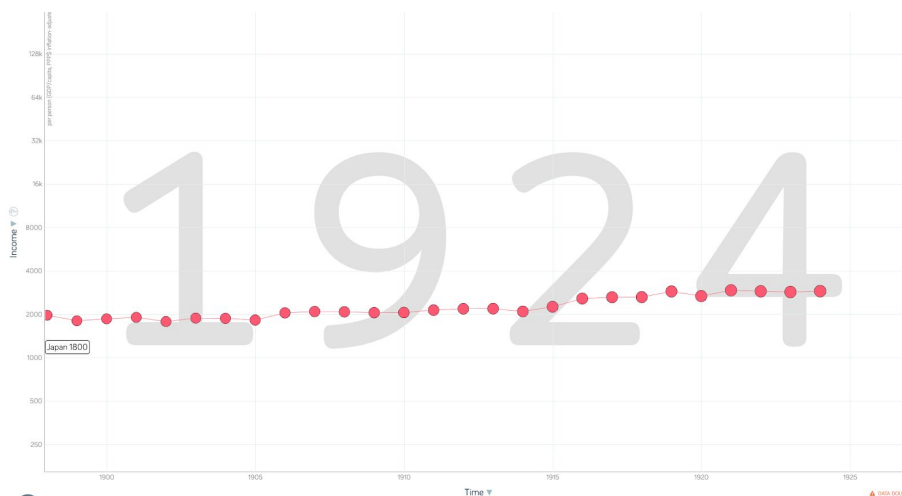


Population vs. Time

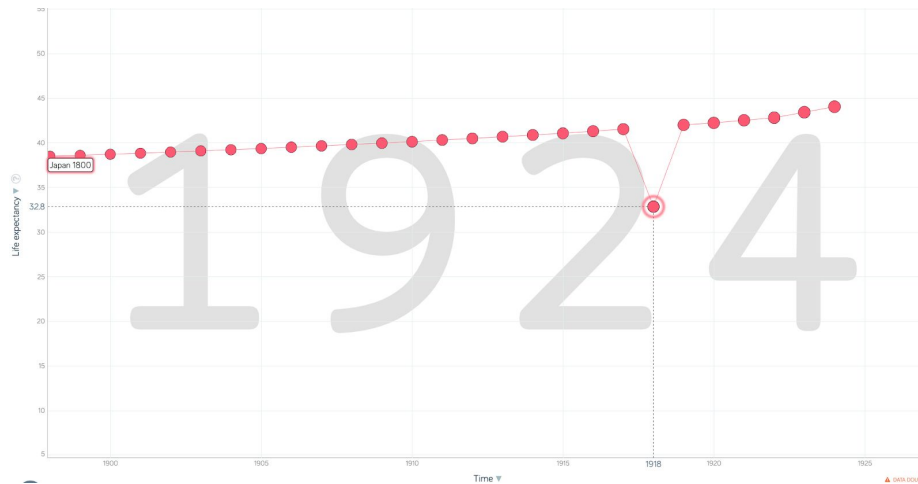
B. World War I (1914-1918) and World War II (1939-1945)

From the economic and humanitarian view, two World Wars definitely was a downswings of the nation's economy and population. This also applies to Japan.

For World War I, with increasing expansionism and militarization, Japan joined the side of the victorious allies and captured German possessions in the Pacific and China[3]. However the average income of citizens was not having a huge increase, whereas the life expectancy in 1918 dropped from 41.5 to 32.8.

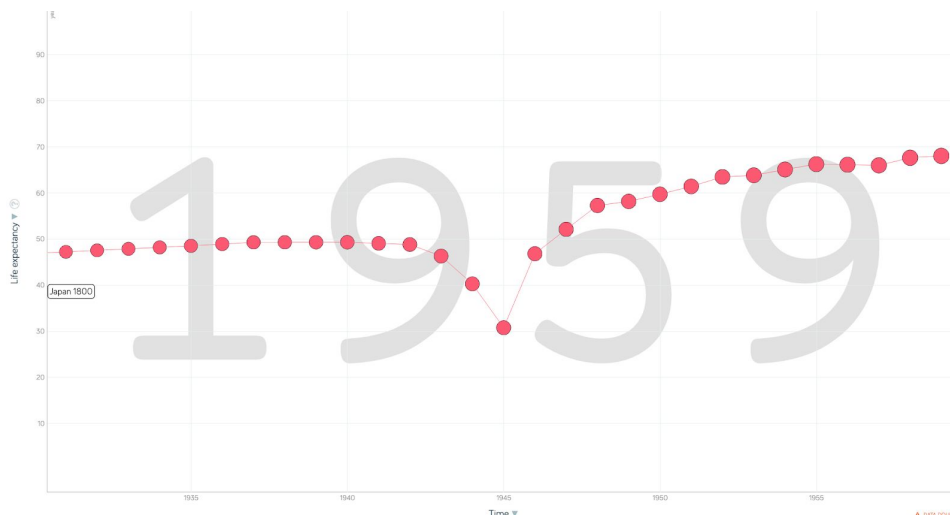


Income vs. Time

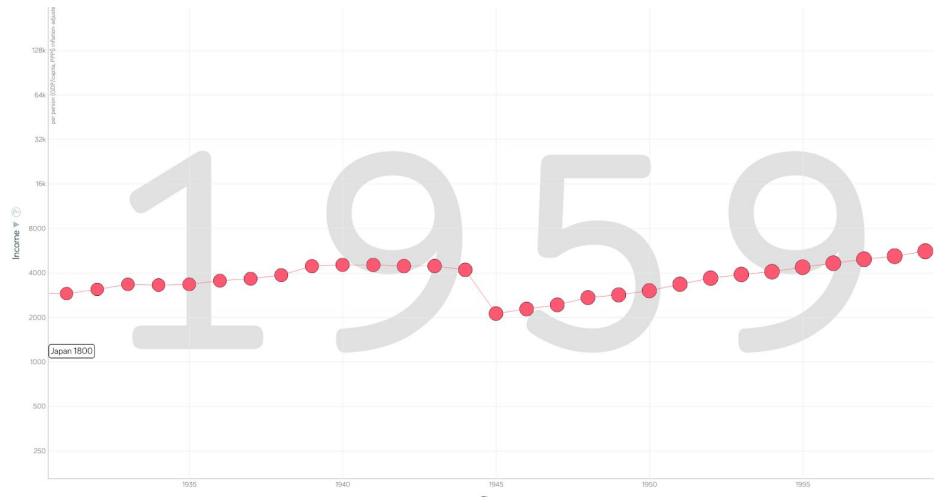


Life expectancy vs. Time

It's similar for World War II, conscription for the Pacific wars and the atomic bombings in Hiroshima and Nagasaki in 1945 led the life expectancy number dropped. Besides the war cost Japan millions of lives, it also had a huge economic impact: people's average income dropped by almost 50%, from 4180 to 2120.



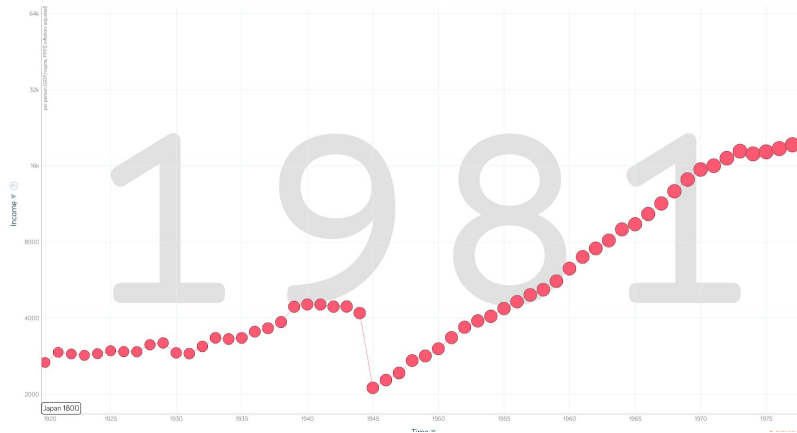
Life expectancy vs. Time



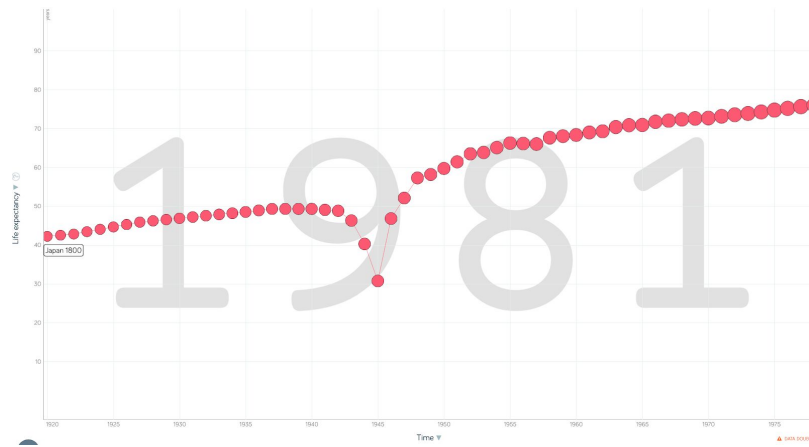
Income vs. Time

C. Post-World War II Era (1946 ~)

After World War II, mainly due to the economic intervention of the Japanese government and the aid and assistance of the U.S. Marshall Plan, Japan has a huge economic growth known as the Japanese Economic Miracle. With this economic boom, people's average income grew rapidly. And possibly because the growth of economic power led the affluent society, the life expectancy had recovered and exceeded the one prior to World War II.



Income vs. Time



Life expectancy vs. Time

III. Summary

From Japan's economic and population data available at Gapminder.org, unique data trends and pattern correlated historical events can be observed with some analysis and assumption of the events' impacts and consequences. However, some of the advanced data of Japan during the Meiji Restoration, WWI & WWII, such as the number of armed forces personnel, literacy rate, and GDP per Capita, are not available in this tool, so in the future, I would like to expand the field and area of the analysis, and see if there's any interesting data pattern or correlation that can be explained by the historical events.

IV. References

[1] Gapminder.org - Income related to Life Expectancy

[https://www.gapminder.org/tools/#\\$chart-type=bubbles](https://www.gapminder.org/tools/#$chart-type=bubbles)

[2] History.com - Tokugawa Period and Meiji Restoration

<https://www.history.com/topics/japan/meiji-restoration>

[3] Nippon.com - The Rise and Fall of Taishō Democracy: Party Politics in Early-Twentieth-Century Japan

<https://www.nippon.com/en/in-depth/a03302/>