

# The Evolution of Asian Economy

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## Project goal

The main goal of this project is to evaluate the progress and evolution of the Asian Economy over the last few decades by taking a look at some of the major countries in Asia. We believe that some major factors and key indicators show a strong sign of development over the past few decades and we aim to visualize such trends.

## Data Set

For detailed analysis of the economic trends, use of multiple indicators would give us a better understanding about the state of the economy. We are using the following dataset(s) to get information about different indicators:

1. <https://data.worldbank.org/> This data source is being used to get the trends over longer period of time(approximately from 1960 - 2015)
2. <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=CN>
3. <http://statisticstimes.com/economy/sectorwise-gdp-contribution-of-india.php>

The key attributes we are using are as follows:

1. GDP Growth (from Economy and Growth Dataset): GDP is a standard measure of the state of an economy, accepted worldwide. This dataset is from 1970 to 2016.
2. Research And Development Expenditure(from Science And technology dataset). This measures the percentage of GDP spent on Research And Development. This dataset is from 1996 to 2015.
3. Service sector and agriculture sector. We use the share of service sector and agriculture sector towards economy.
4. Foreign Direct Investment(from Financial dataset). This measures the foreign direct investment in US \$. This dataset is from 1970 to 2016.
5. Healthcare: Percentage of GDP spent on healthcare.

## Analytical Questions and Proxy Tasks

1. Analytical Question: Do major countries in Asia have similar pattern in economy growth?  
Proxy Task: Compare GDP growth of major countries in Asia.  
Proxy Values: GDP Growth -> economy growth.
- 2) Analytical Question: Have India progressed in the service sector by shifting its focus from the agricultural sector?  
Proxy Task : Compare sector wise share of GDP of both agriculture and service sector in India.  
Proxy Values: GDP Share of Agricultural Sector -> Agricultural Progress and GDP Share of Service Sector -> Service Sector Progress.

3) Analytical Question: Are major countries in Asia focusing more on Research and Development?

Proxy Task: Analyze the trend of R&D expenditure of the major countries

Proxy Values: Percentage of GDP -> focus on R&D

4) Analytical Question: Has Scientific and Technical Development helped in attracting Foreign Investment in China?

Proxy Task: Compare the trend of Foreign Direct Investment with the trend of Research And Development Expenditure over time in China and see if there are similar patterns.

Proxy Values: Research and Development Expenditure -> Scientific and Technical Development; and Foreign Direct Investment -> Attracting Foreign Investment.

5) Analytical Question: Have major Asian countries focused more on healthcare?

Proxy Task: Visualize the percentage of total GDP spent on healthcare by the major Asian countries.

Proxy Values: Percentage of GDP spent -> focus on healthcare.

## Story Design

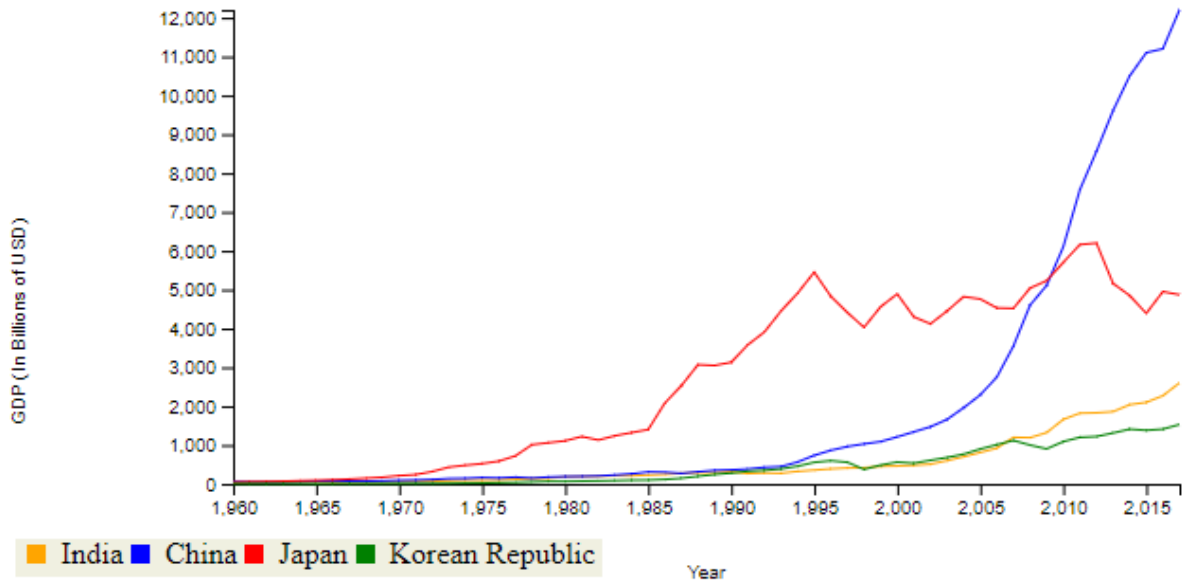
### Data Analysis And Story Board:

In this project, we are taking a look at the Asian economy. We will be focusing on some of the major countries in that region. We have some hypothesis on what changes there are over the past few decades and what might be the causes, and we will use data to validate our hypothesis. Overall, this will help us to gain a better understanding of the evolution the economy of that region.

First, we start off by taking a look at some of the major countries and see how their economy have been doing over the past few decades.

1. Do major countries in Asia have similar pattern in economy growth?

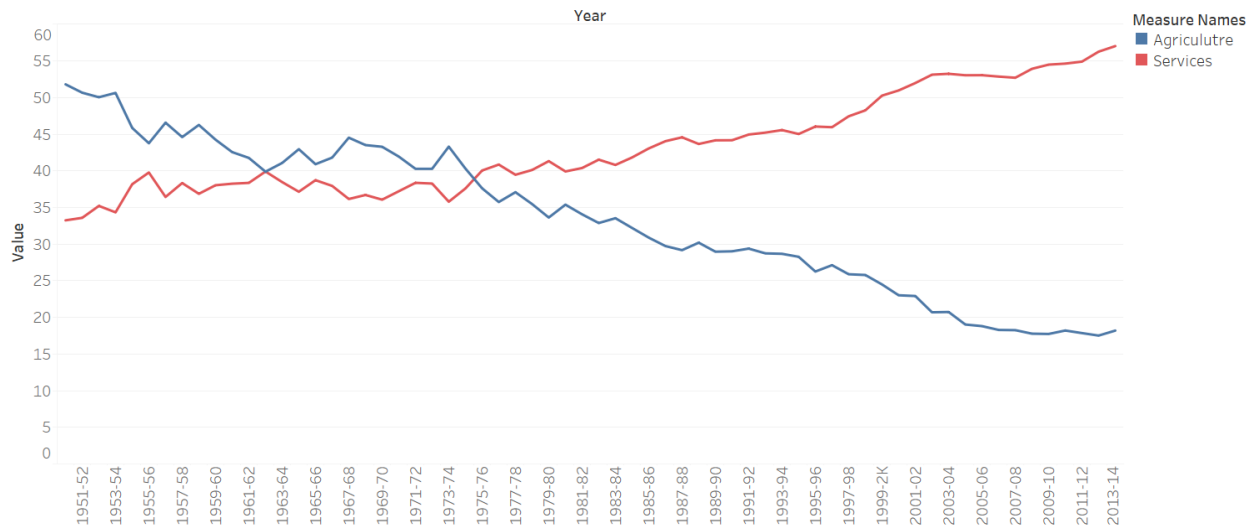
To answer this question, we use the most important indicator of the economy i.e. Gross Domestic Product(GDP). We analyze the trend of GDP growth rate of 4 major Asian countries: China, India, South Korea, and Japan from the year 1960 to 2015. After visualizing the GDP (in trillion of dollars) for these countries, we see that the GDP has increased for all the 3 countries over the past few years. For China, Korea, and India, we see a continuous increasing pattern, though China's GDP growth is extremely fast than India and Korea, but Japan's GDP is seen to been between 4T to 6T over the past 20 years. So, we can conclude that although the long term pattern is increasing for the 4 countries, short term pattern is not consistent for the 4 nations.



Agriculture used to be a big contributor for India's economy. However, we believe that with the rise of other industries, there might be some changes of focus. Here to demonstrate is the shift in focus of India from Agricultural Sector towards Service Sector.

2) Has India progressed in the service sector by shifting its focus from the agricultural sector?

Sheet 2



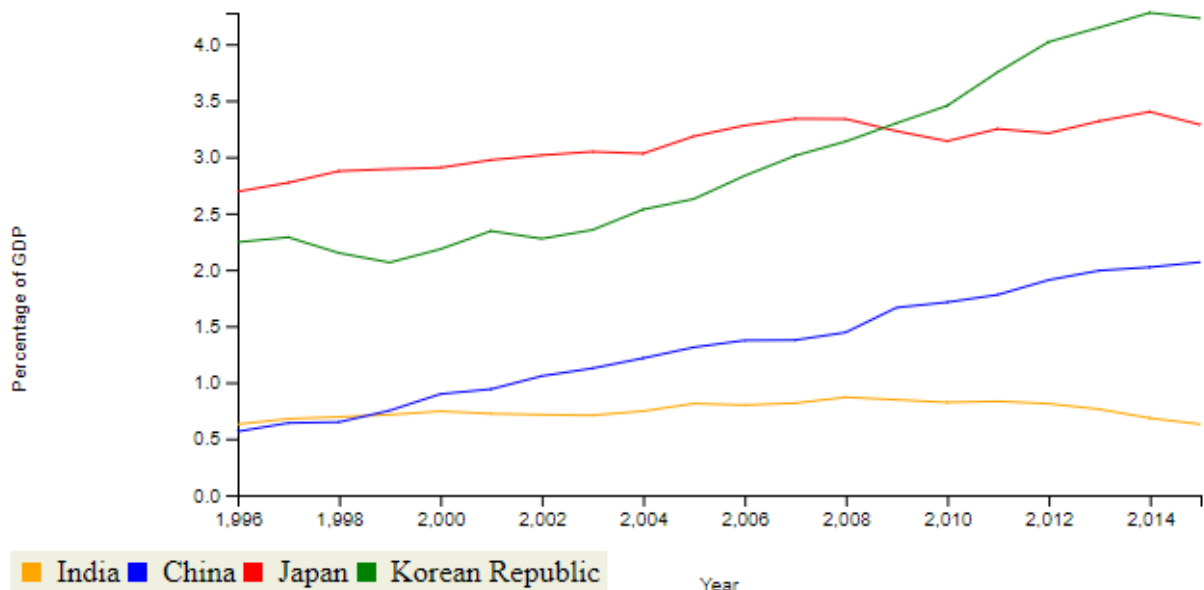
The trends of Agriculture and Services for Year. Color shows details about Agriculture and Services.

To answer the above question we use the share(percentage) of both agriculture and service sector in overall GDP of India. As we can clearly see, there is a sharp decline in share of agriculture towards total GDP of India. Agriculture which was initially 53% towards the GDP fall down to 17% of the total GDP. On the other hand, service sector can be seen growing from 33% to 57%. So, we can conclude that India has progressed in service sector over the last few decades.

We believe that in the past, scientific breakthroughs had big roles in the growth of the Western economy. Therefore, we are taking a look at how much these major countries in Asia are focusing on Research and Development, and see if similar patterns emerge.

3) Are major countries in Asia focusing more on Research and Development?

China and Korea are, India and Japan not so much. In order to measure how much each country focuses on research and development, we used the Research and Development Expenditure (% of GDP) attribute. This attribute shows how much each country spends on research and development each year. We believe that how much they spent is directly proportional to how much they value it, therefore the change in the amount of money spent can tell us how focused they are on this area. As shown in the graph, the Chinese government and the Korean government are steadily increasing how much they spent on research and development every year, resulting in nearly 1.5% difference from 1996 to 2015, which is a higher rate of increase compared to the other two countries.

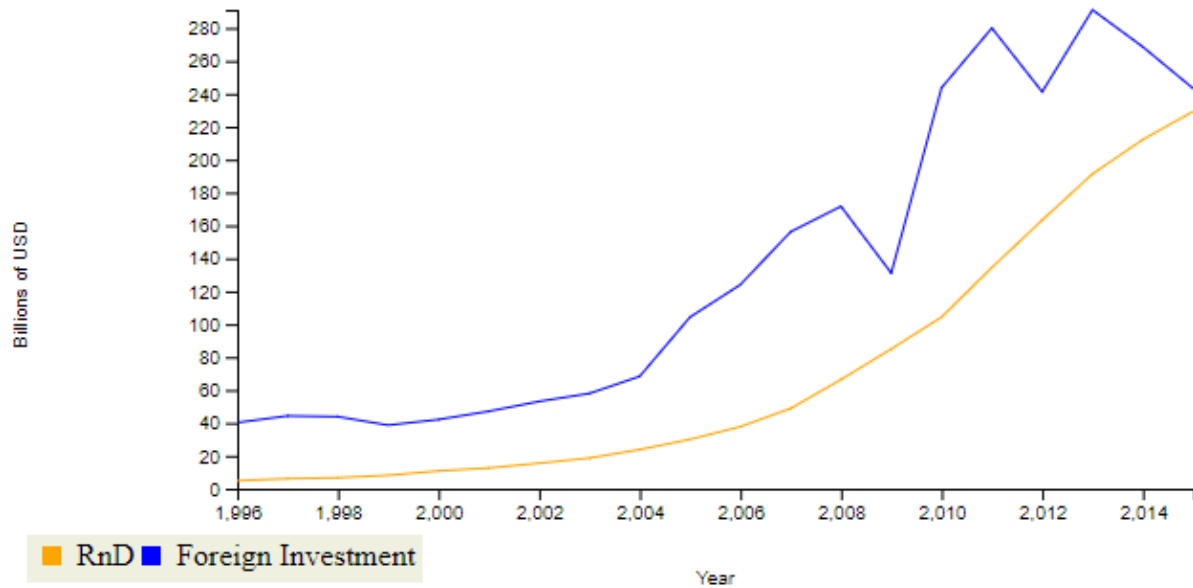


We now analyze the effect of such change in Research and Development.

4) Has Scientific and Technical Development helped in attracting Foreign Investment in China?

We believe so. The amount spent on research and development is steadily increasing over time. On the other hand, although the trend for foreign investment isn't as consistent, overall it is still increasing. This led to our belief that those two aspects are

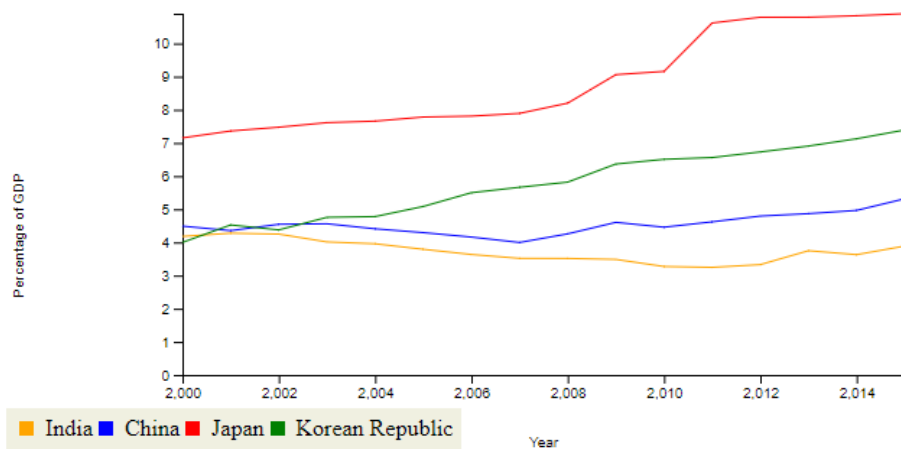
very likely related.



Health is wealth. The growth in economy won't mean much if the well-being of the general population can't be guaranteed. So let's take a look at how committed these countries are at providing health care to its people.

5) Have major Asian countries focused more on healthcare?

To answer this question, we visualize the percentage of total GDP spent on the healthcare. We see that Japan is the top expending country among the 4 major countries in the healthcare. Even though the lines did not change much for the other 3 countries, since it is the percentage of GDP, a rising GDP means that they are spending more on healthcare.



Conclusion:

In conclusion, we are seeing some nice trends in the major countries in Asia. The economy is growing, their governments seem to have good plans to help the growth of economy and know where to focus more on. And because of that, people's lives are also improving, seeing how much more money was being spent on healthcare. We wish to see the trends continue into the future.