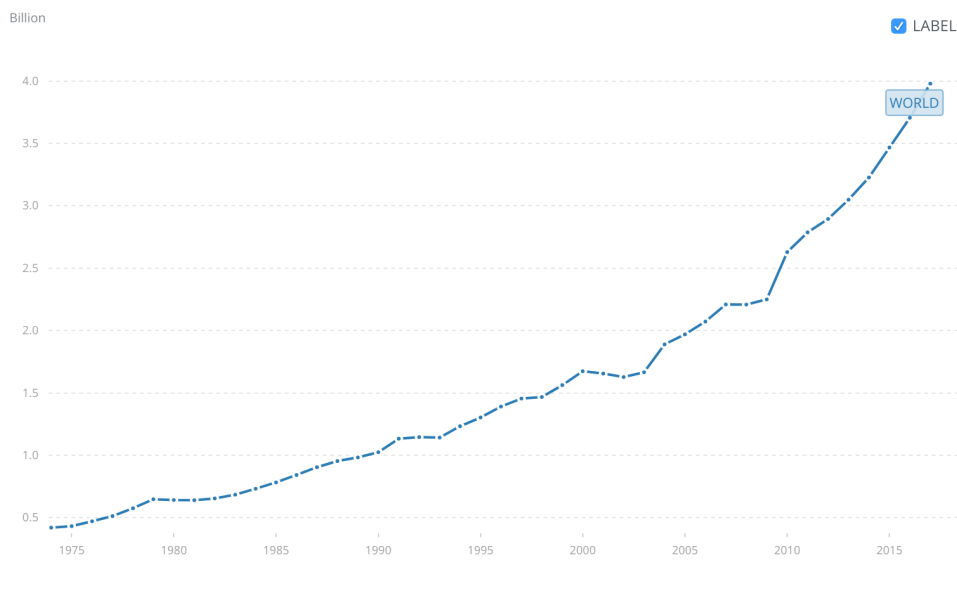


## Mid term project Proposal

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### Introduction:

21st century is the golden age of travel. More people choose commercial airlines to travel around the world. In the plot below, we can see the number of passengers carried in a certain year grew faster after 2010. More planes are being made and more routes are discovered.



<https://data.worldbank.org/indicator/>

IS.AIR.PSGRend=2017&start=1974&view=chart&year\_high\_desc=false

However, in the recent trade war between China and United States, China announced 25 percent tariff on U.S. civil aircraft with an empty weight of 15,000-45,000 kilograms, which is targeting below the Boeing model line. This is more like a warning shot to the U.S. Administration to proceed no further.

### Questions:

In this mid term project, I would like to answer these two questions. What is the impact of trade war on aircraft sales for United States? Are there any potential new markets for aircraft sale other than China?

### Data source:

To answer the first question, I would look into the import and export data from United States Census Bureau. Another source of information is from world bank air transportation data, which reports the number of passengers transported for each country in the past few decades. The third source is from [www.openflights.org](http://www.openflights.org), which reports the airports data. It is also beneficial to look at the average GDP per persons for each country.

Model:

Aircraft sales is a long process and depends on many things.

From the perspective of needs, the fundamental factor is the economics. People will choose to take commercial airlines when they can afford the ticket.

Another variable is whether there are enough airports to accommodate new aircrafts. It could take a few years to build a new airport.

Population in a certain area determines the size of potential market, so it is also good to take the number of people into consideration.

Similar to airports, routes can give us some insights about the popularity of certain destination.

Geography of the country may play an important role in determining the needs of commercial aircrafts. For example, Indonesia is a country consisted of many islands. Transportation from one island to another is extremely inconvenient except for airlines. Mongolia on the contrary is full of grassland. In Mongolia, trucks are probably more convenient than aircrafts.

I would apply multi-level model to find out the relationship between number of aircrafts sold each year with all the variables mentioned above. A group indicator could be whether it is developing or developed country, or whether the country's geography is difficult for cars or other transportation. It may also be interested to use time series to analyze the number of passengers as an indicator for aircrafts sales.