Exploring World Bank Data

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Problem Statement

Can you predict a country's GDP growth based on its taxes?

Where Did The Data Come From?

- Came from the World Bank's online databank
- Took data from 82 countries from around the world
- Gathered 50+ different features
- 7 of the features measure taxes
  - Taxes on income, profits and capital gains (% of revenue)
  - Taxes on exports (% of tax revenue)
  - Taxes on goods and services (% of revenue)
  - Tax revenue (% of GDP) etc.

What is GDP?

- Gross domestic product (GDP) is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.
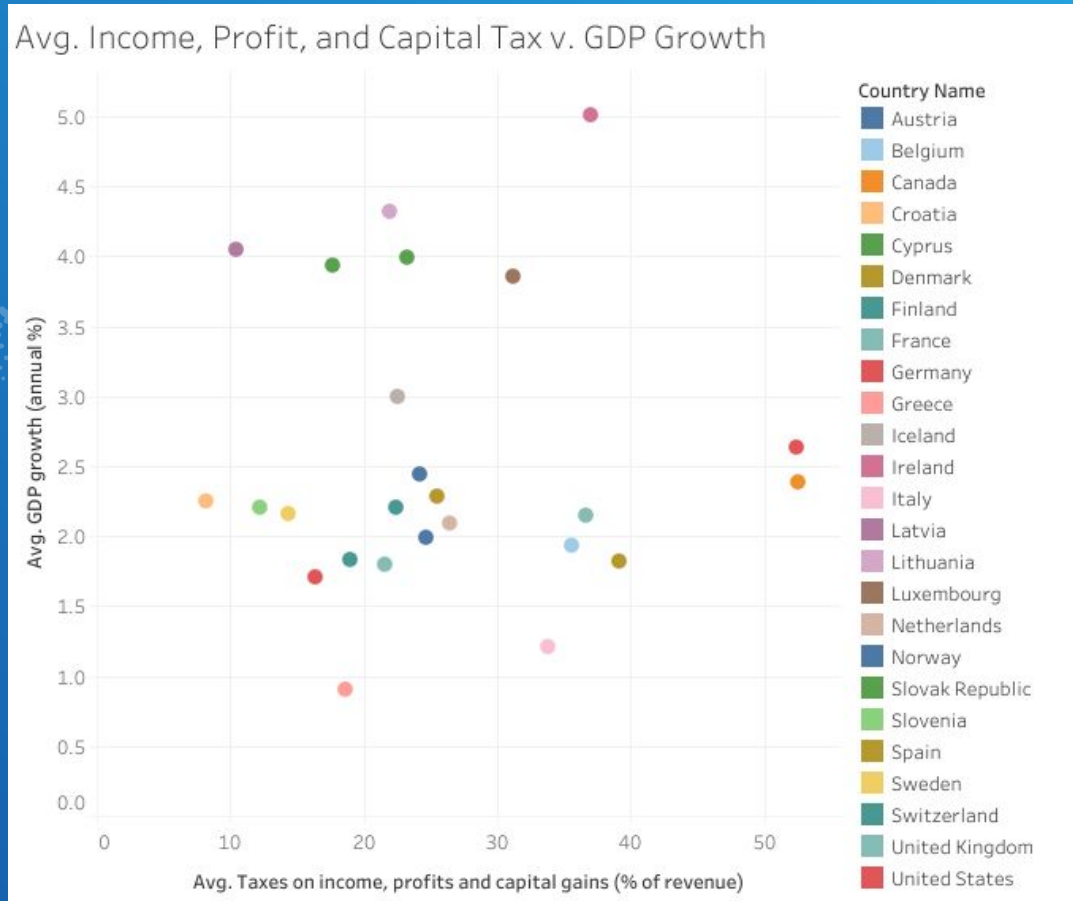
- Used as an indicator of economic growth

https://www.investopedia.com/terms/g/gdp.asp

Modeling

❖ Made a model using the 7 measures of taxes to predict annual percent change in GDP

❖ Narrowed down to 10 countries in Europe

❖ Model had train R^2 score of .054 and test R^2 score of -0.073

❖ The 7 features of taxes averaged correlation coefficient -0.016 compared with the change of GDP

❖ Taxes account for very little of GDP growth according to my model and data

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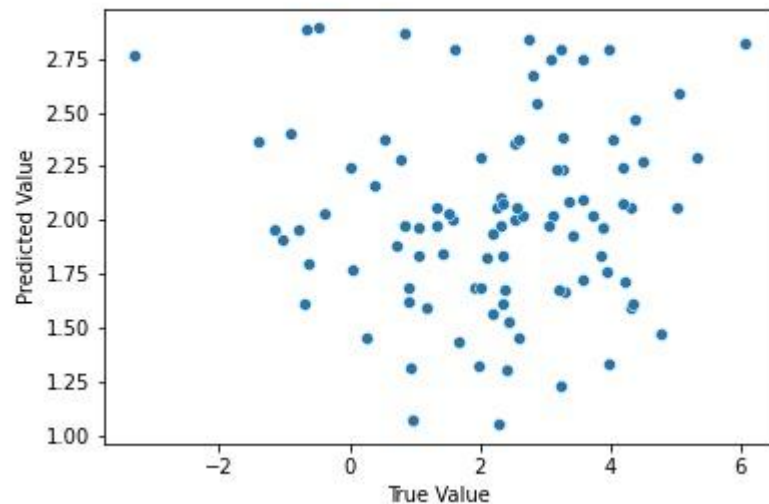
Example plot of one of the tax features plotted against GDP growth.

- The data is all over the place with no correlation at all

- The other tax features have similar spreads

- Too much noise to uses taxes a reliable indicator

Avg. Income, Profit, and Capital Tax v. GDP Growth

Country Name
- Austria
- Belgium
- Canada
- Croatia
- Cyprus
- Denmark
- Finland
- France
- Germany
- Greece
- Iceland
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Netherlands
- Norway
- Slovak Republic
- Slovenia
- Spain
- Sweden
- Switzerland
- United Kingdom
- United States

Where To Go From Here?

❖ Took the subset of 10 countries from Europe and started exploring how the other 50+ features from the World Bank Interacted with each other.

❖ Some of the type of features include
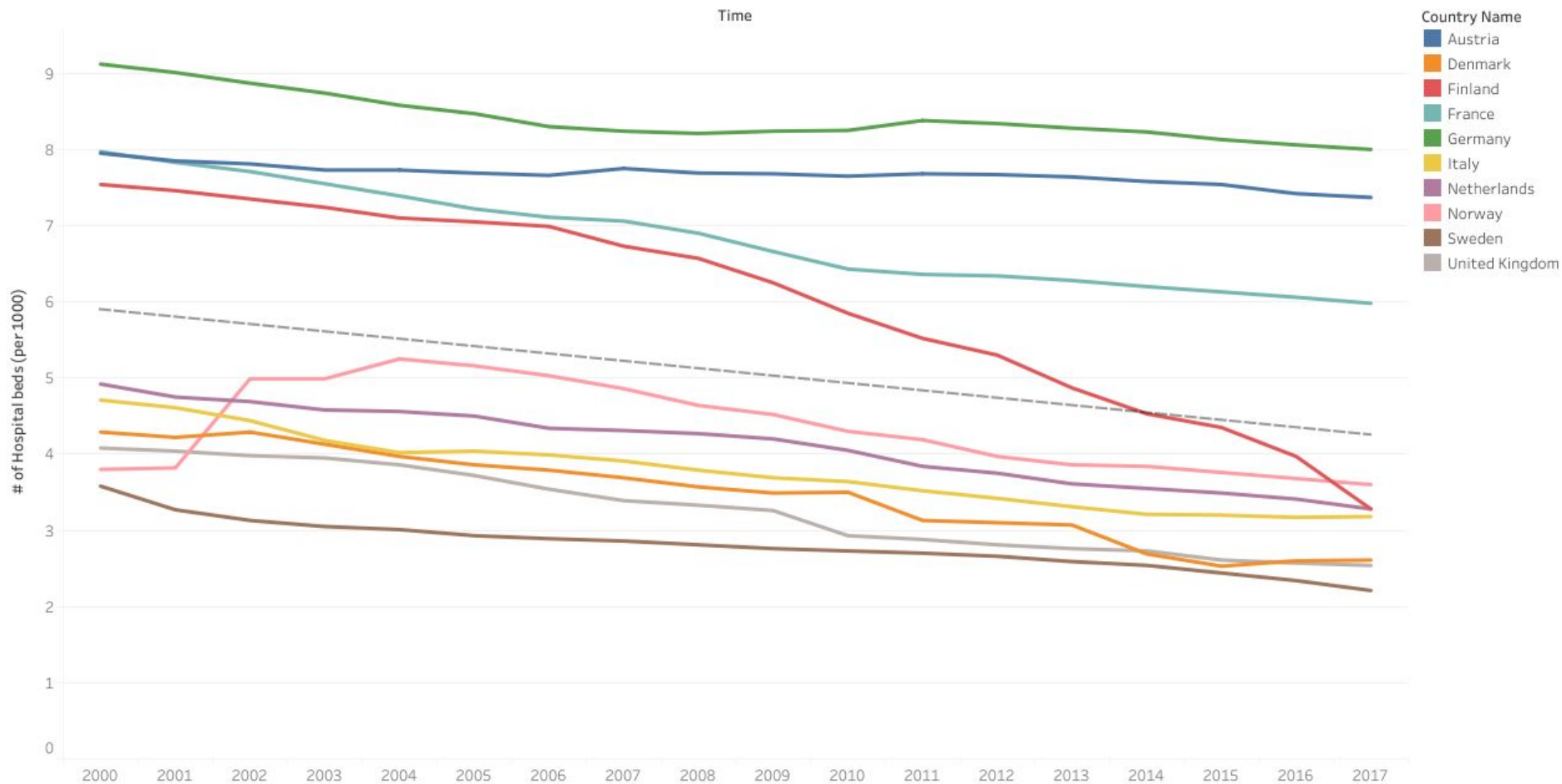 ➢ Military
  ➢ Healthcare
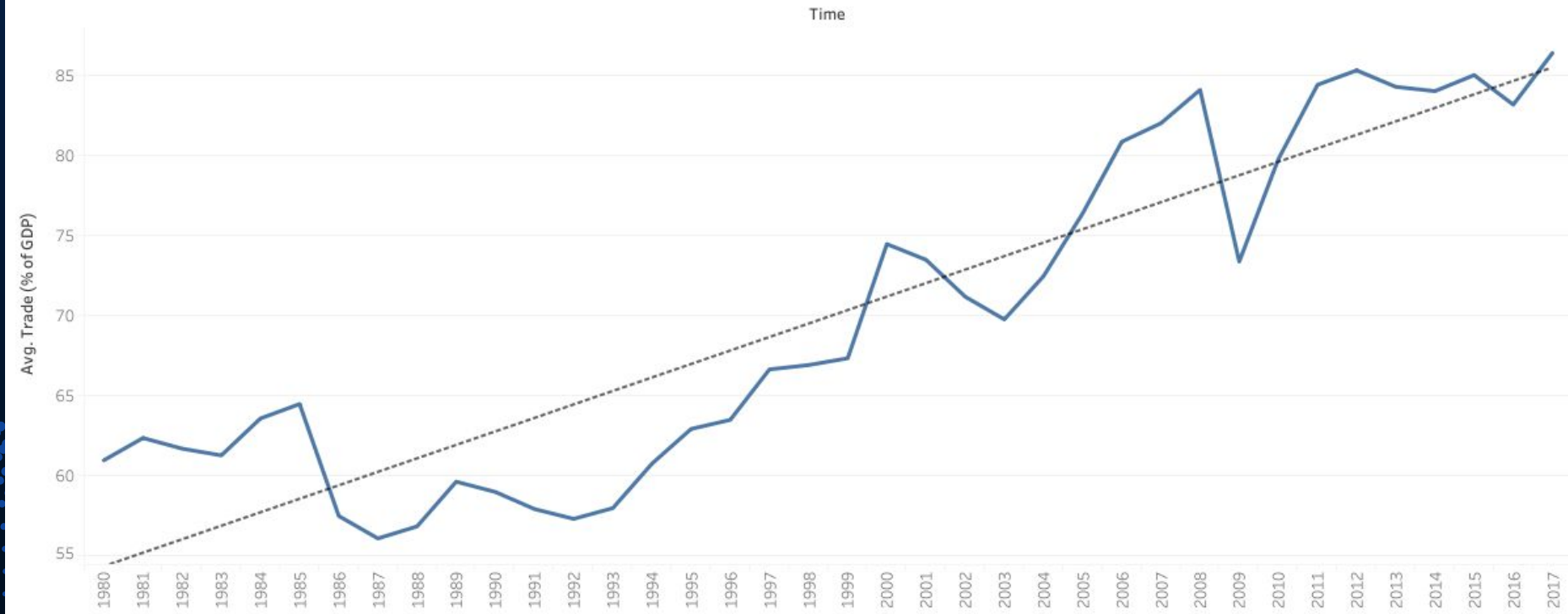 ➢ Trade

Military Personnel/Time
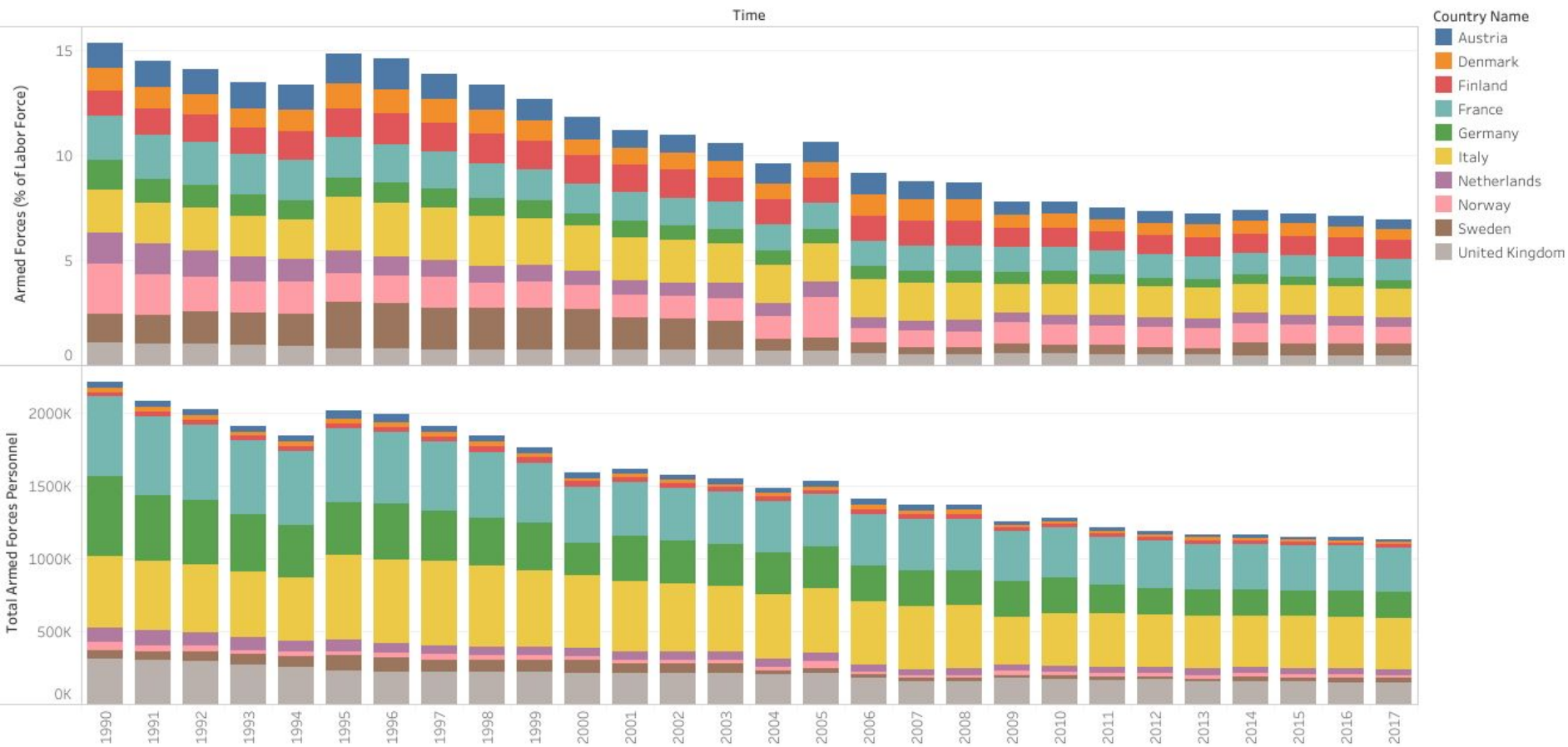
The size of the military and the percent of resource a country uses for the military has shrunk over time.
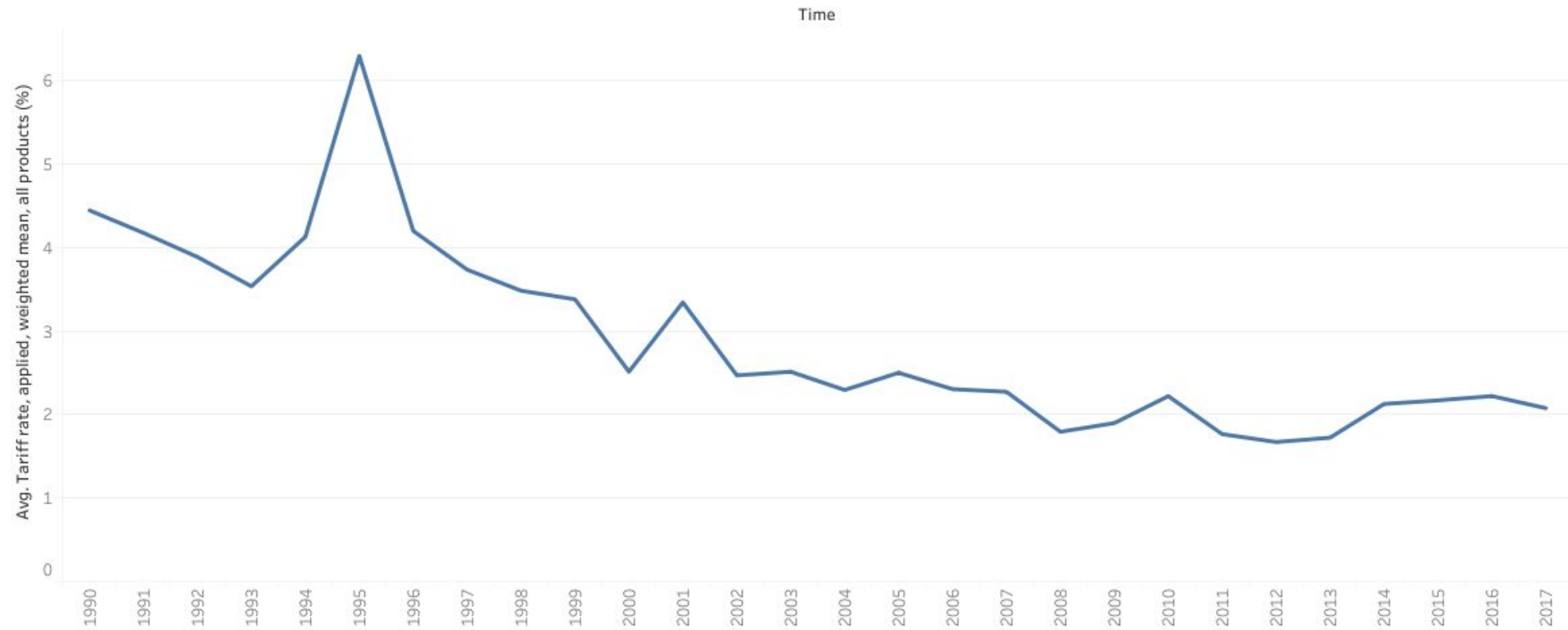
of Hospital Beds

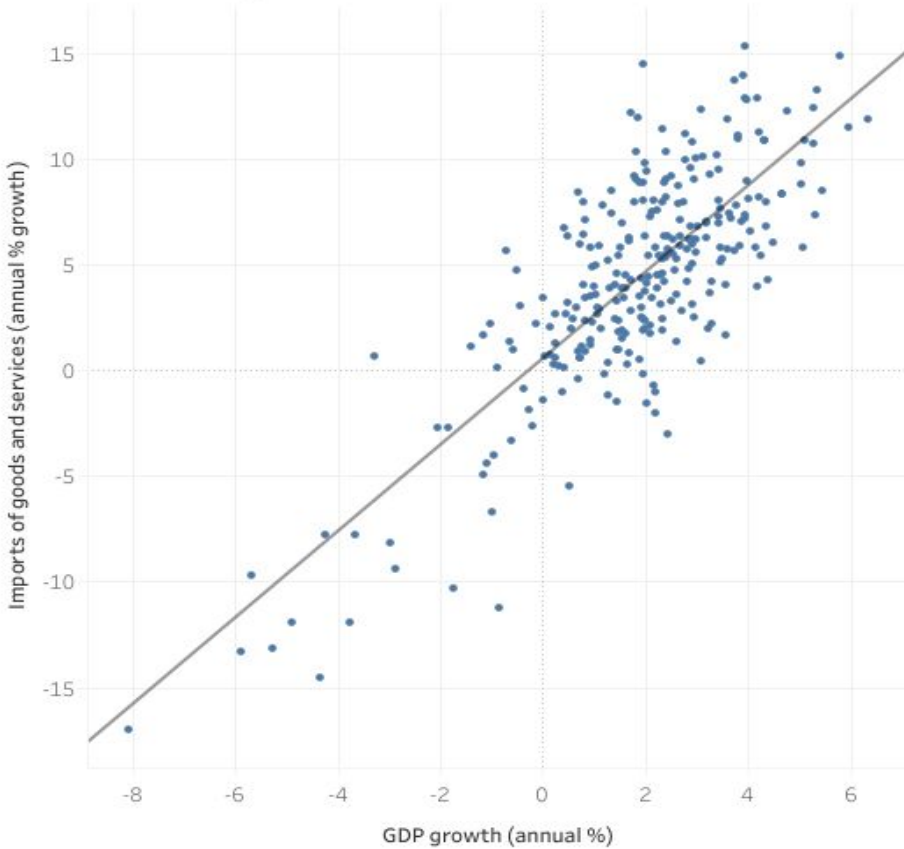The number of hospital beds per 1000 people have decreased over time.

Over the last 40 years trade has gone up
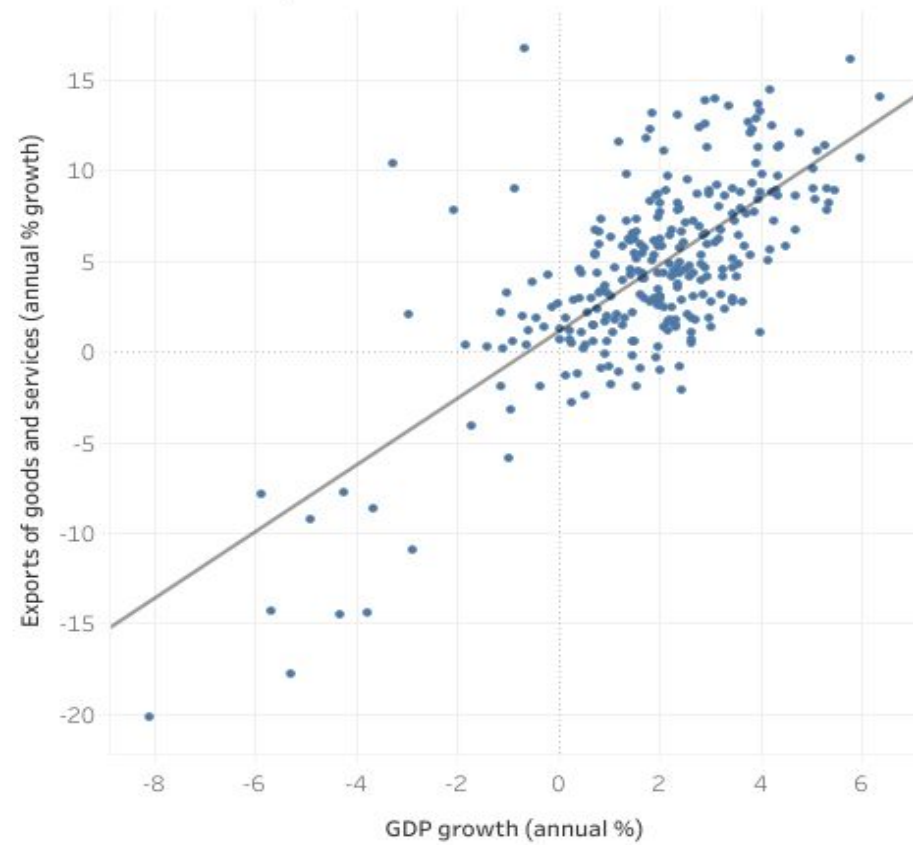
Tariff Rate/Time

An increase in trade could be linked to a decrease in tariffs

Import Growth\GDP Growth

Export Growth\GDP Growth

Growth in trade shows a huge impact on GDP growth

Lets Try A Modeling Again!

❖ Created a new model using annual growth of imports and exports to find the annual growth of GDP

❖ Using a Linear Regression model with default parameters

❖ Model had train R^2 score of .6 and train R^2 score of .56 with just 2 features

The increasing global economy is what has driven economic growth over the past decades.

Predictions using Import and Export Growth
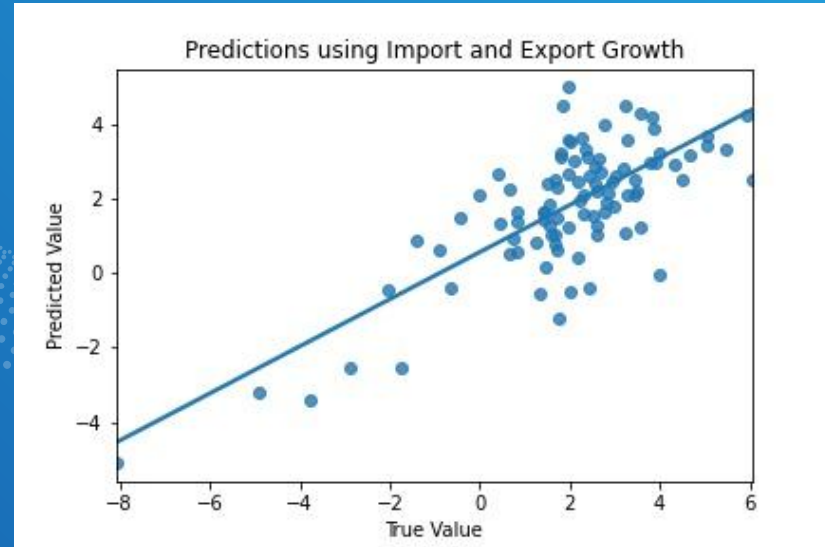
Policy implications

This information could help influence nations to make better policy decisions on trade.

Such as the United Kingdom in 2016.

To The Interactive Graphs!

https://public.tableau.com/profile/nicholas.r.steele#!/vizhome/WorldBankData_16209578927590/TradeDashboard

Thank You ALL!

Special thanks to my instructors as General Assembly instructors Chuck, Varun, Grant, and classmates that have helped guided my learning.