



# Final Project

**COGS 108**

**Group 014**

**Professor Ellis**



**Can the wealth of a country  
determine whether their  
agricultural exports will be used as  
food or feed ?**

# Feed vs. Food



Agricultural Products for animal consumption

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Agricultural Products for human consumption

# GDP vs. GDP per Capita

GDP as a Measure of Wealth

## GDP

Total monetary value of all goods and services produced within a country in a year.

## GDP per Capita

Measures economic output, but also takes in account population of a country.

# Background

-Developing countries tend to grow and export products and cash crops, which results in these countries growing less and importing more food crops from more developed countries.

-Developing countries predicted to become more and more reliant on imports from foreign countries.



# Our Datasets

- World bank: GDP and GDP per capita.
- Kaggle: Food and Agriculture Organization, worldwide food and feed production.

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# Data Cleaning/EDA

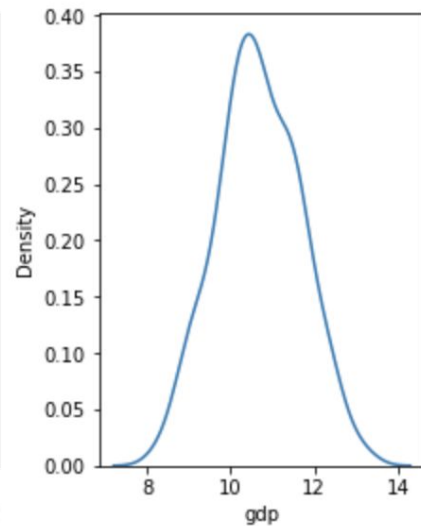
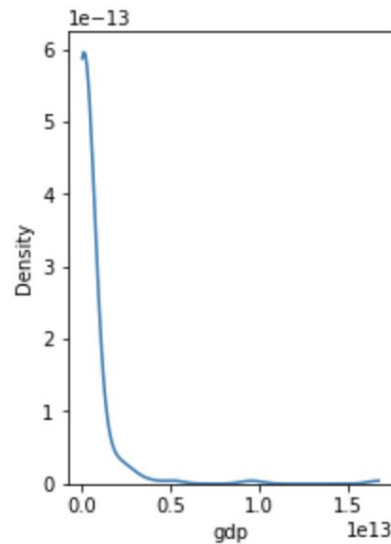
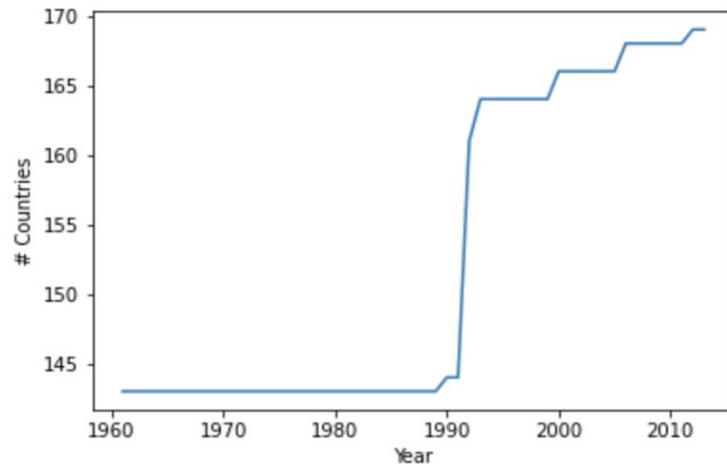
-Changes in # of countries over time

- Historical context
- Accounting for missing countries in data

-Distribution of GDP skewed right but log normal

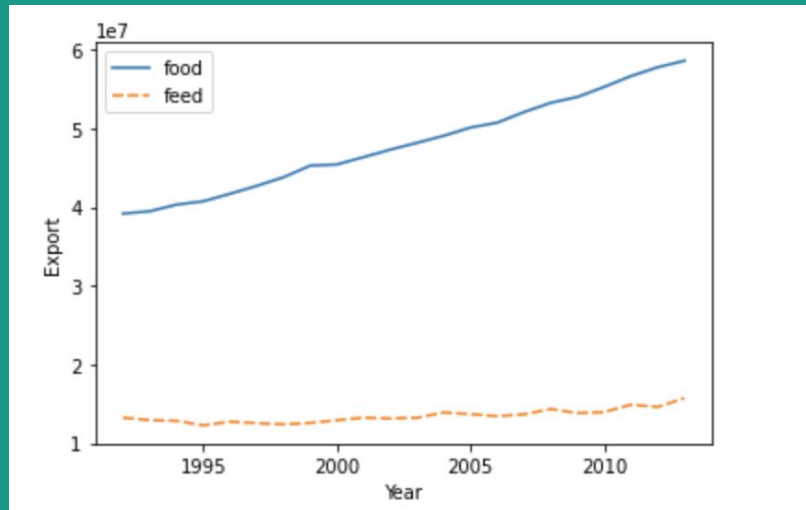
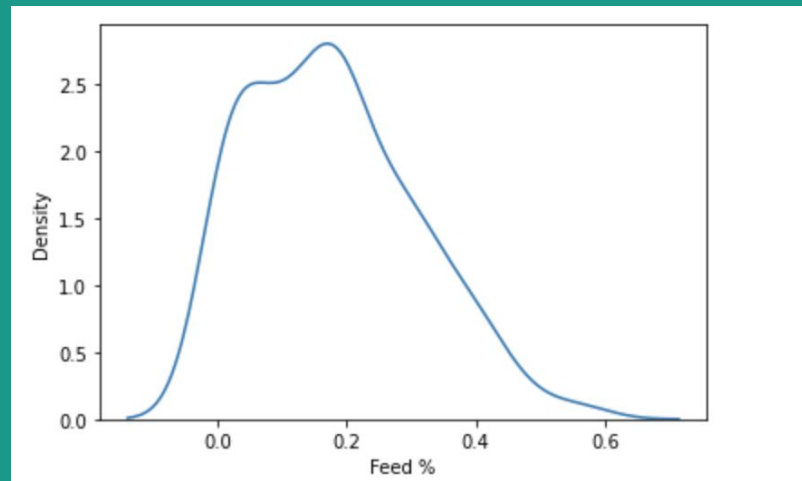
-Merging datasets together

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# Data Cleaning/EDA

- Feed percentage (of total agricultural exports) distribution
- Change in mean food and feed production over time





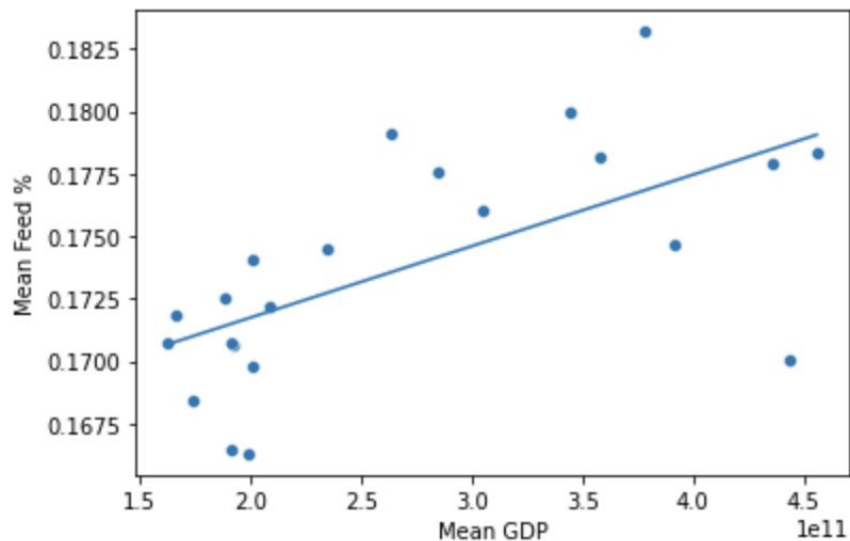
# Results

## GDP

$r$ : 0.626845

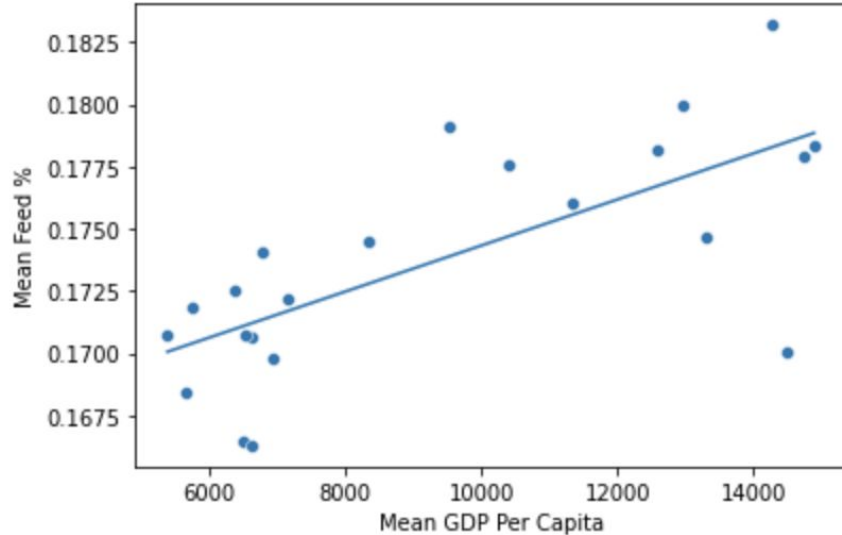
$r^2$ : ~.39

**P-value: 0.001797**



# Results

## GDP per capita



**r: 0.707402**

**$r^2$ : ~.50**

**P-value: 0.000231**



## Discussion

- An overall positive correlation, with GDP per capita correlation highest for per capita GDP
- $r^2$  values are relatively low
- There is certainly more variables affecting agricultural exports.
- Model better predicted countries with extreme GDP's (high or low)



## **Ethics/Privacy Concerns**

- Due to nature of the data, privacy is unlikely to be a concern
- Potential biases in data collection?
- The problem with labeling countries rich or poor...
- Non-judgemental stance
- Impact of our data
  - Understanding possible effects of famine across countries

## Image Sources

<https://futurescentre.medium.com/which-animal-feeds-are-fit-for-the-future-881c293cb9b>

<https://medium.com/agroop/3-fresh-produce-trends-for-2019-b9bdece4104e>

<https://news.un.org/en/story/2018/07/1013872>

[http://www.fao.org/3/ac349e/ac349e03.htm#P5\\_1498](http://www.fao.org/3/ac349e/ac349e03.htm#P5_1498)

[Kaggle.com](https://www.kaggle.com)

[worldbank.org](https://data.worldbank.org)