# WHAT IS THE INFLUENCE OF AGRICULTURAL CAPITAL FLOWS ON FOOD AVAILABILITY IN WEST AFRICA?

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# *Introduction*

- Globally 821 million people suffered from hunger in 2018 (UN).
- Global population to feed by 2050: 9 Billion People.
- Causes of food insecurity:
  - Fast population growth
  - Climate change
  - Water scarcity
  - Higher costs of farming
  - Political Instability

# *Context*

- Policy makers & global leaders are committed to end hunger by 2030
  - o Sustainable Development Goals
  - o Zero Hunger Challenge
- o Policy makers have direct influence on areas such as bilateral and multilateral aid, as well as import and export regulations
  - o More investment into agricultural sector
  - o Partnership among stakeholders & Farmers

# *Question & Hypothesis*

**Question**: How does the source of net flows of agricultural capital flows influence the availability of food in West African countries?

**Hypothesis**:  A positive net flow of agricultural capital flows increases the availability of food in West African countries.
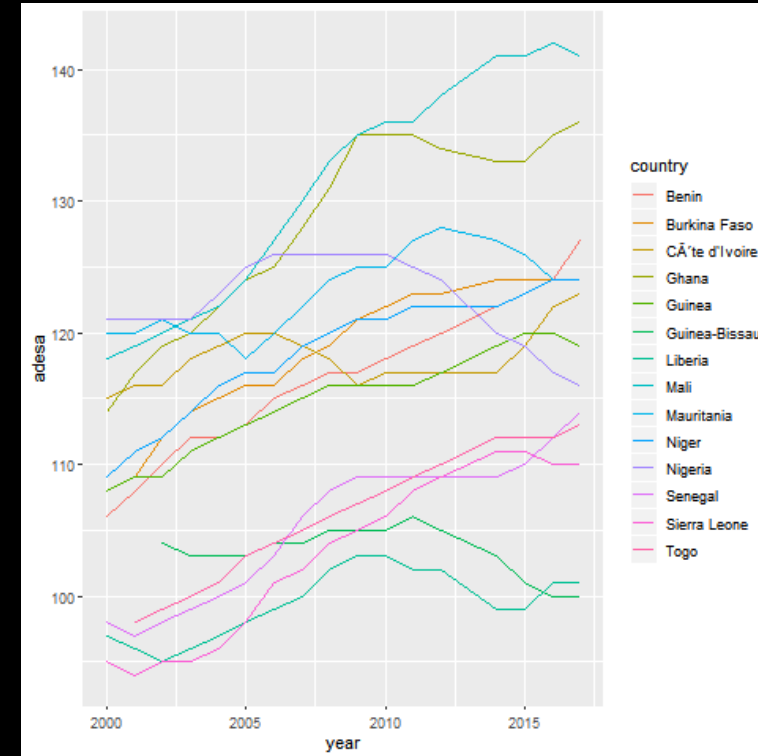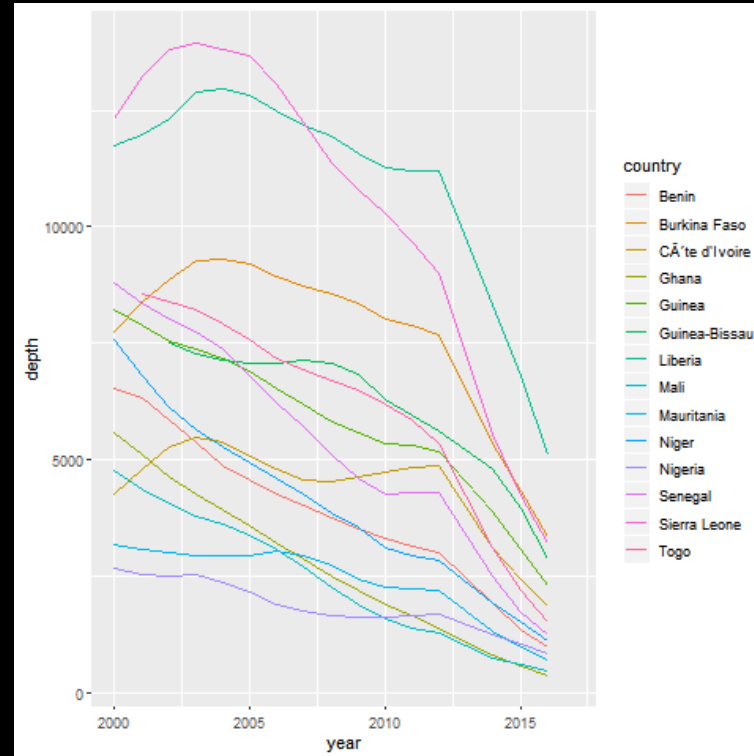
# Data Description

## Outcome Variables

- **adesa**
  - Average Daily Energy Supply Adequacy
  - Is there, on average, enough food in the country for each person?

- **depth**
  - Depth of Food Deficit
  - The number of kilocalories per day an individual is from caloric sufficiency
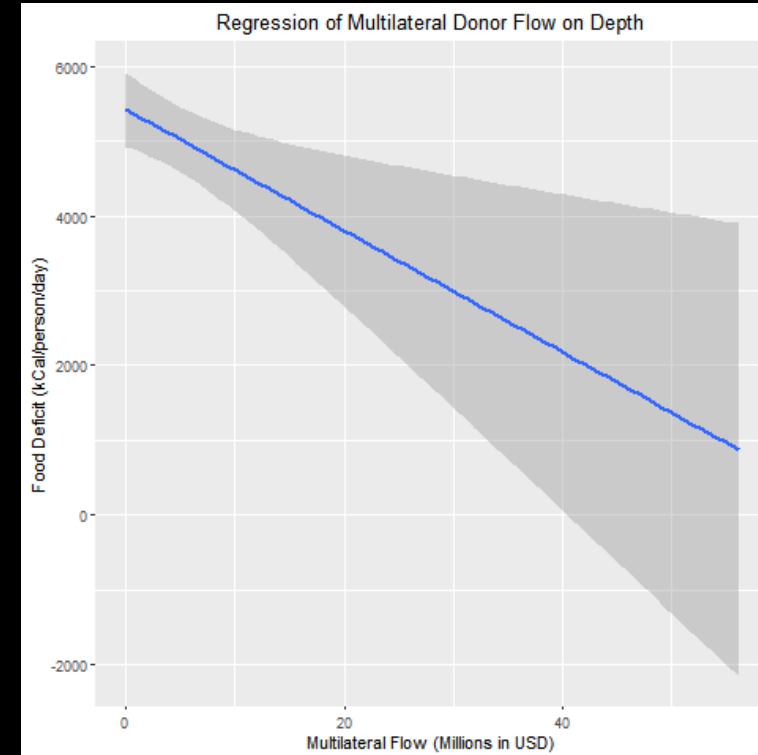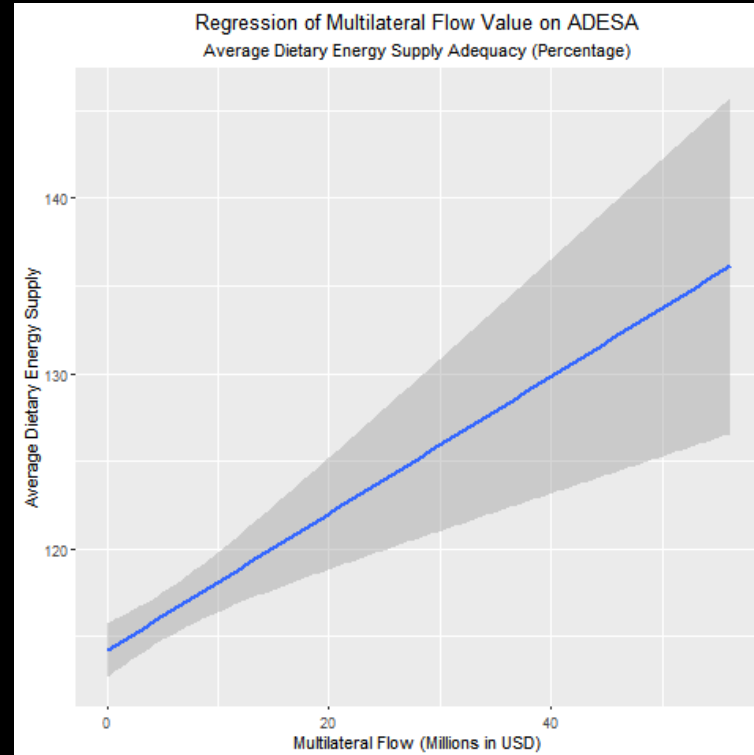
## Explanatory Variables

- **bilateral:** Net bilateral agriculture development aid

- **multilateral:** Net multilateral agriculture development aid

- **fdi_net**: Net agricultural FDI

- **exp_value**: Value of agricultural exports

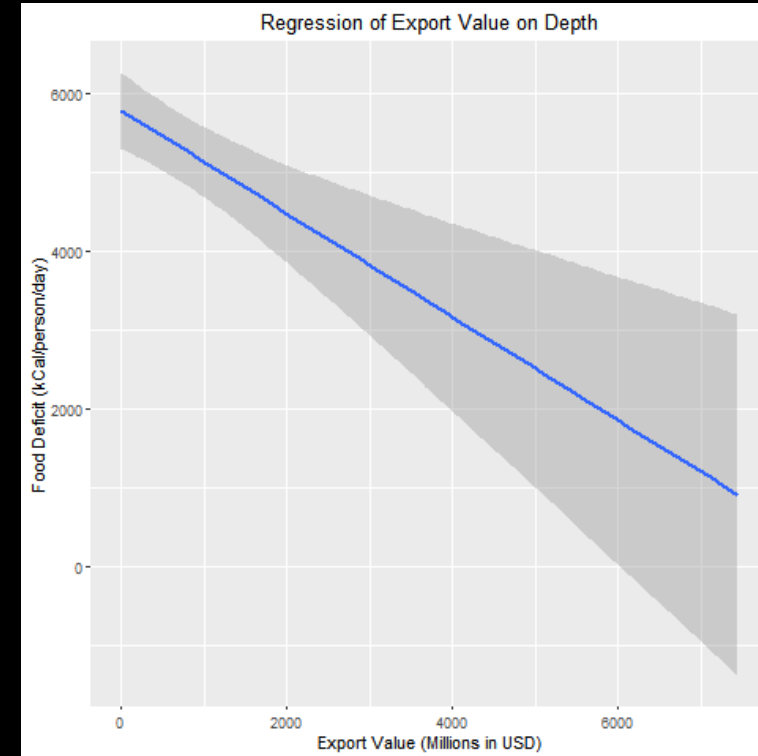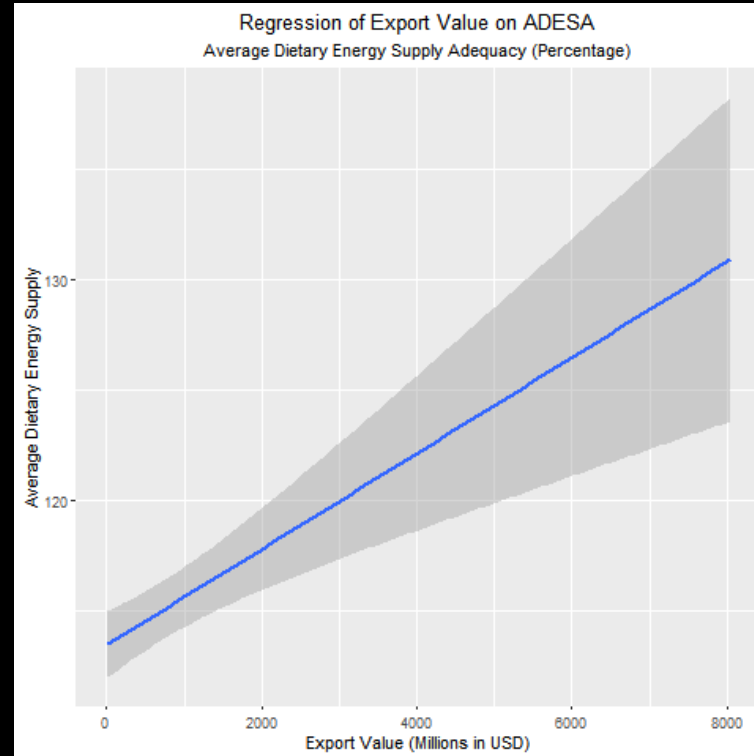- **imp_value**: Value of agricultural exports

*TIME SERIES TRENDS*

# *First Analysis: Linear Regression*

- summaidfdiie <- lm(cbind(depth,adesa) ~ bilateral + multilateral + fdi_net + exp_value + imp_value, data = agriculture)

- Revealed multilateral donor flow and agricultural exports as the two main influences on our outcome variables

- As the multilateral aid flow increases by approximately 79 million USD, the depth of the food deficit decreases by 1,000 calories

- An increase in exports reduces available food for populations experiencing hunger across the West African countries
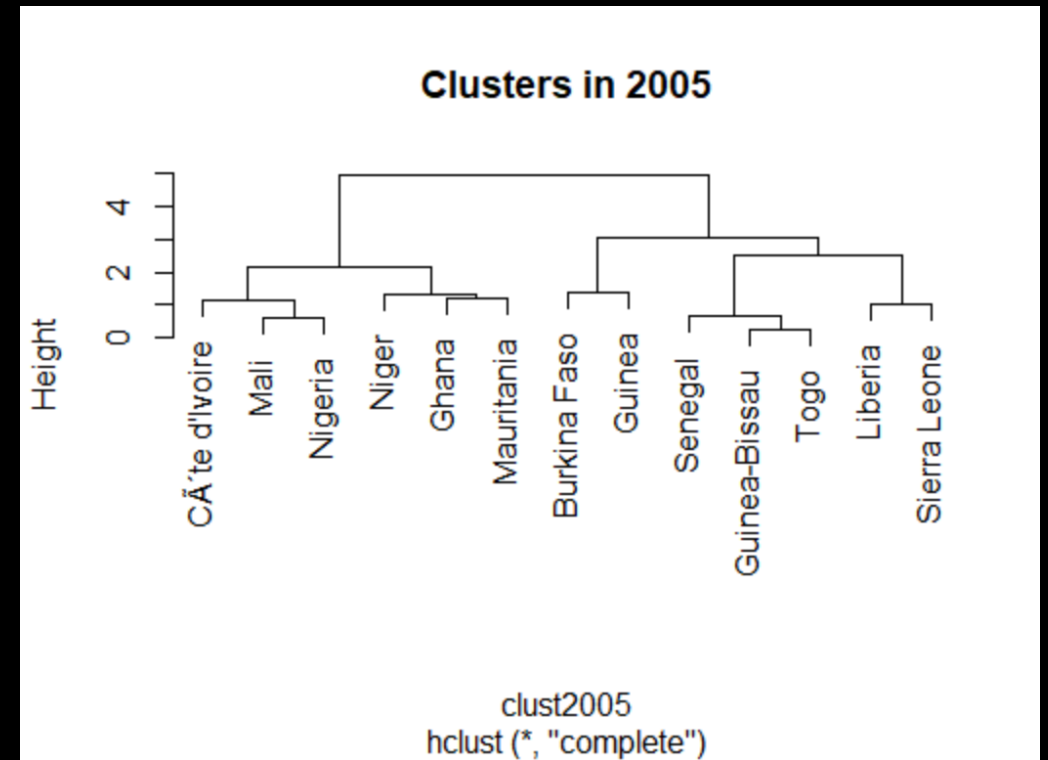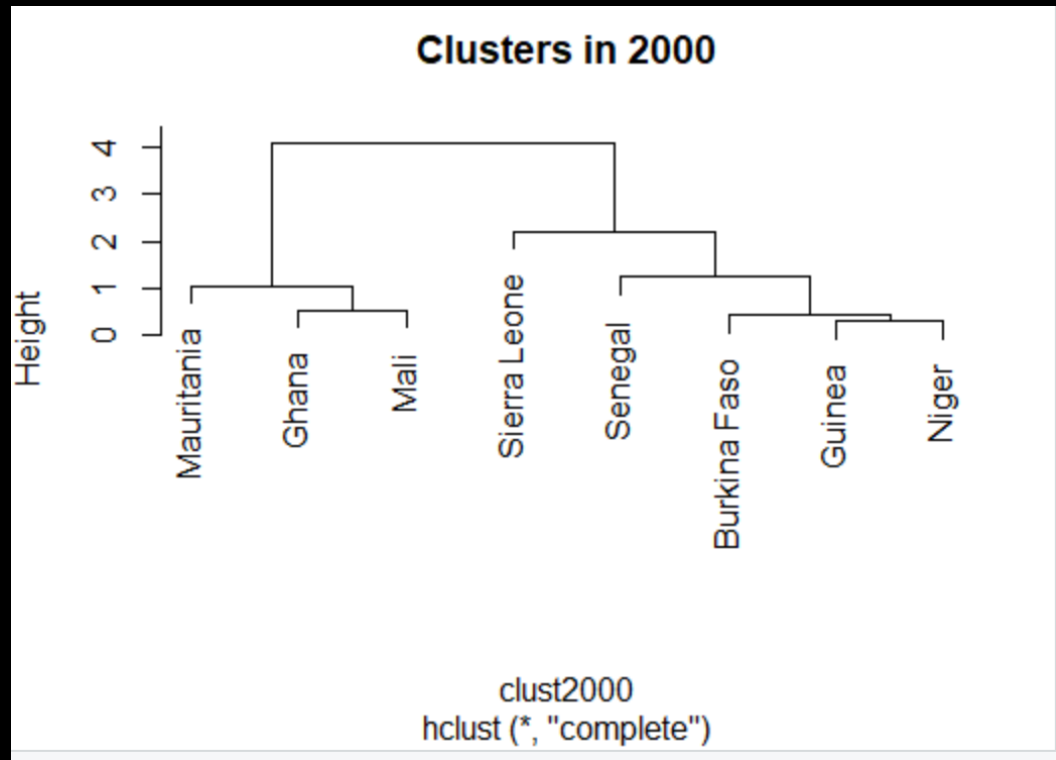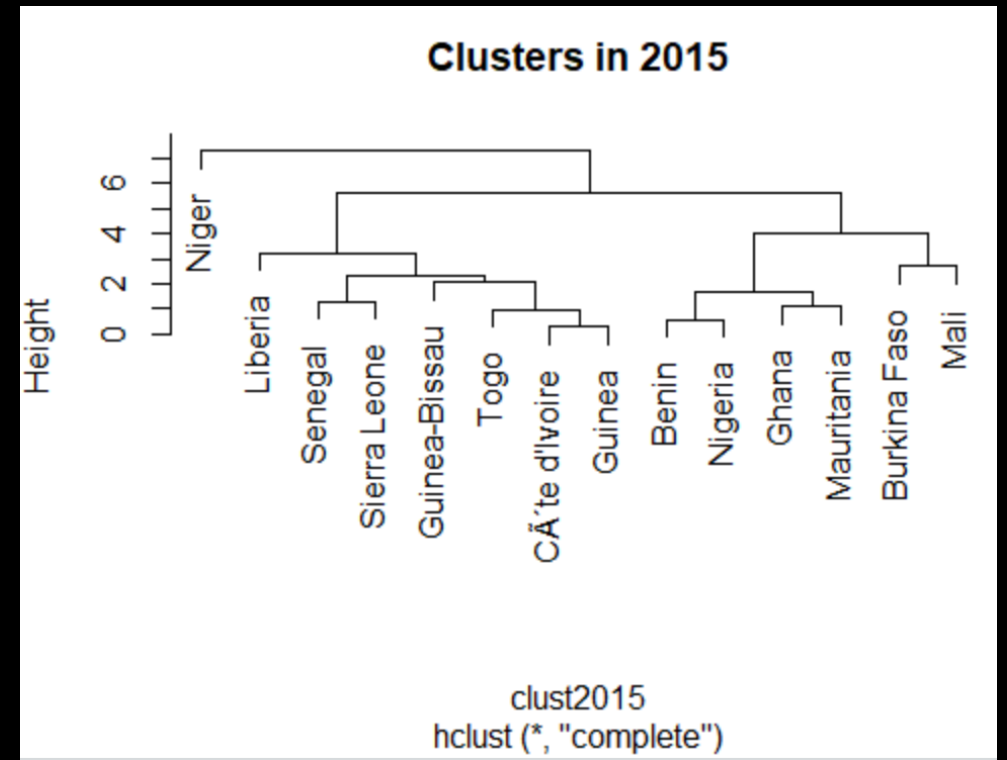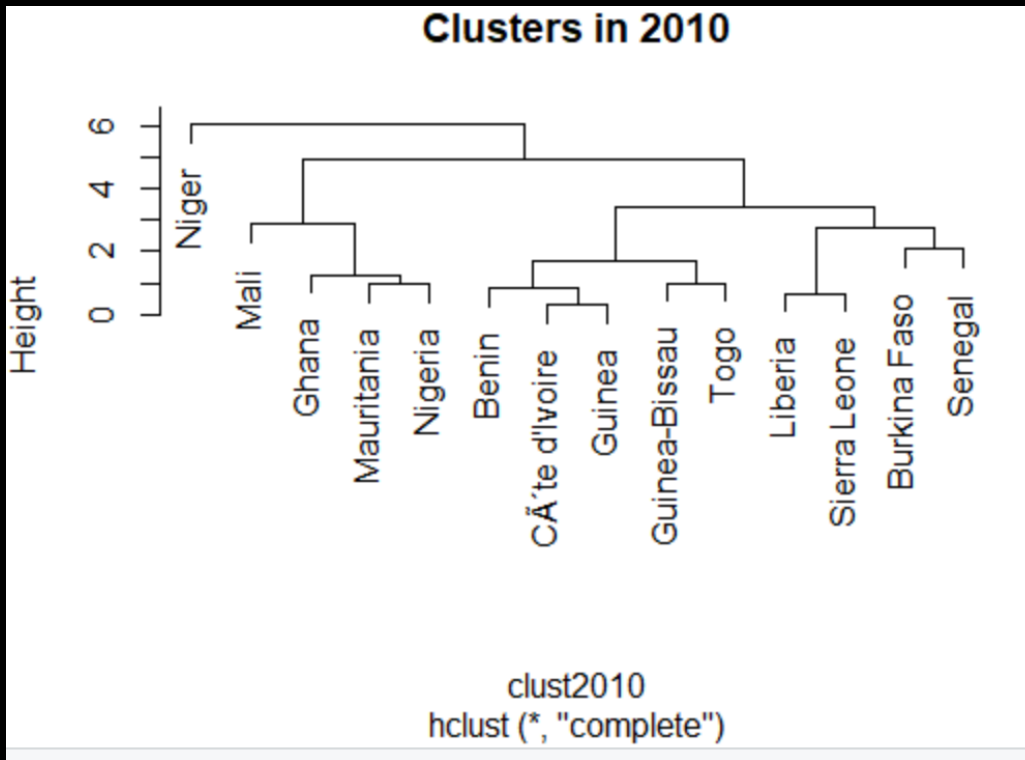
*MULTILATERAL AID*

*EXPORT VALUE*

# *Cluster Analysis*

- Completed a hierarchical agglomerative cluster method
  - Small-n size made k-means clustering a challenge
- Four clusters: 2000, 2005, 2010, 2015
- Countries became less similar as the millennium progressed
  - Maximum height: 4.1 to 7.3
- 2010-2015 Dendrograms
  - Bakers Gamma correlation: 0.68
  - Height increase: 1.24

# DENDROGRAMS 1

*DENDROGRAMS 2*

## Conclusion and Recommendations

- The agricultural capital flow should directly target the most vulnerable population

- Policymakers should promote multilateral aid over bilateral aid in food security

- Global leaders can examine cluster models to tailor regional or multinational solutions

- Further research should consider the targeting nutritional content and whether gains are experienced equally across the population.