

1. INTRODUCTION

The coffee industry contributes significantly to the African economy but the current rising production costs and climate change in the coffee industry make it challenging for African coffee producers to keep up with the industry, leading to farm abandonment and poor standards of living for coffee farmers in African countries.

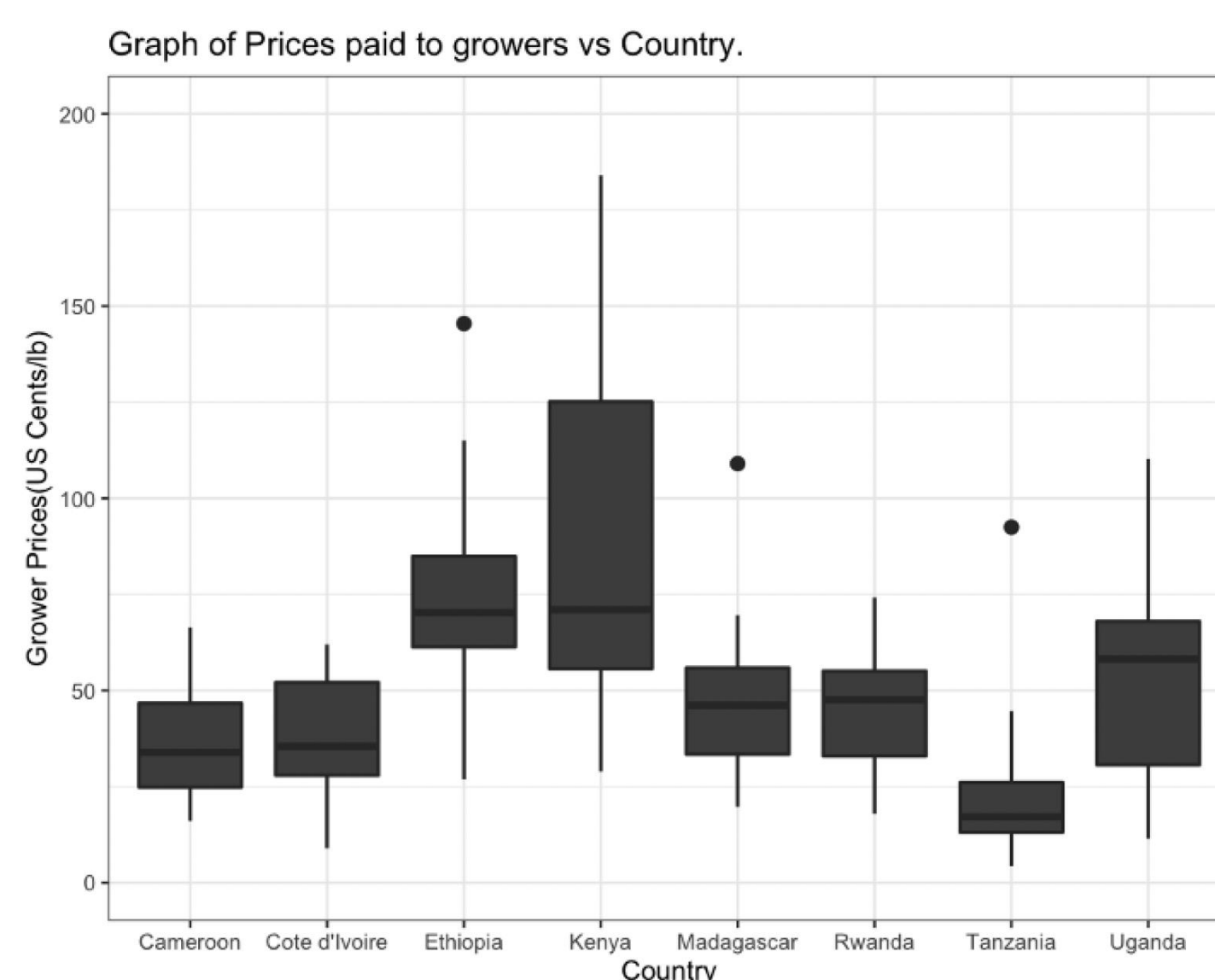
The study analyzed the determinants of coffee prices in African countries and provided policy recommendations to deal with current challenges in the coffee Industry.

2. DATA

The coffee production, consumption, export, and prices paid to growers were obtained from the International Coffee Organization (ICO) for each individual country. The Annual mean temperature data is collected from the climate change knowledge portal (CCKP) for individual countries in degrees Celsius. The Annual GDP Growth for the United States and the European union were collected from the World Bank.

The dataset included 8 African countries for the period of 1990 to 2019. The countries are Ethiopia, Côte D'Ivoire, Cameroon, Kenya, Uganda, Madagascar, Tanzania, and Rwanda, and combined represent over 80 percent of the total continent's coffee production.

Figure 1: Graph of Grower Prices in Individual Countries.



3. ECONOMETRIC MODEL

GrowersPrices = F (Macroeconomic factors, Consumption variables, Production variables, other)
 where macroeconomic factors include GDP Growth for the United States and the European Union. Consumption variables include country-level and global consumption, production variables include country production. Other variables are mean temperature and export.

After correcting for endogeneity problems the final estimated model is:

$$\text{Log (GrowerPrices}_{it}) = b_0 + b_1 \text{Year} + b_2 \text{CountryConsumption} + b_3 \text{GlobalConsumption} + b_4 (\text{CountryProduction}/\text{GlobalProduction}) + b_5 \text{AnnualGDPUS} + b_6 \text{log (MeanTemperature)} + b_7 \text{Country} + u_{it}$$

4. RESULTS

Variable Name	Estimates	SE	t value	Pr(> t)
Year	0.08335	0.02031	4.103	0.000067***
CountryConsumption	-0.00019	0.00016	-1.204	0.230610
GlobalConsumption	-0.00006	0.00002	-2.852	0.00496 **
ProductionShare	10.01000	7.05200	1.419	0.158020
GDPgrowthUS	0.05434	0.02552	2.130	0.03484*
log (MeanTemperature)	-13.84000	4.54200	-3.047	0.00274**

(Significant codes: 0 **** 0.001 *** 0.01 ** 0.05),
 Country fixed effects are not included in the table.
 F (14,148) = 726.72, p-value: < 2.2e-16
 R² = 0.9857
 Adj. R² = 0.9843

The research found evidence that there is a positive relationship between United States' Gross Domestic Product (GDP) Growth and the prices paid to African coffee growers at farmgate. This is mainly because the US is among the biggest coffee consumers in the world, meaning that GDP growth in the US can substantially increase prices paid to African Coffee growers at farmgate. In addition, the results show a negative relationship between temperature rise and coffee farmgate prices, indicating that the current levels of climate change will have a significant negative impact on African coffee producers in terms of prices and production costs in general.

5. POLICY RECOMMENDATION

focusing more on regional trade agreements (RTAs) inside the continent. This would allow African coffee farmers to secure the continental coffee market, especially in non-coffee producing African countries. In addition, this would allow African coffee producers to share technology, invest in regional research enhancement, gain a competitive advantage, and also have a significant collective impact on the global coffee market.

Policy makers should facilitate and inspire quality enhancement and differentiation in the coffee industry. This would allow African coffee farmers to meet the current need for specialty coffee in United states and European Union coffee.

6. LIMITATIONS

- Due to the nature of the research question, there are potential reverse causality issues between price, production, and consumption.
- Individual countries collected the data themselves, resulting in measurement and conversion errors.

7. REFERENCE

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