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Liberalized Agriculture Policy Effects on Socioeconomic Conditions of Smallholder Farmers in the Global South: A Food Sovereignty Perspective



Benjamin Stewart MSc Agroecology (2019-2021)





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<u>Résumé</u>:

In the years since the second World War, governments globally have adopted trade and production policies which opened global trade via the relaxation of tariffs through international agreements, both bilateral and multilateral. Concurrently, the Green Revolution accelerated industrialized farming to meet the needs of this newly developed global market. While for many years these systems have been beneficial both socioeconomically and in terms of food security, most of the benefits of this system have gone to high-income nations, while low-income nations lag. Further, benefits once gained from the system have begun to abate; despite the ability for manycountries to produce enough calories for their populations, malnutrition and undernutrition rates are on the rise in the global South. This study provides empirical data to illustrate the global tradeparadigm from the perspective of 3 lowincome nations (Cuba, Côte d'Ivoire and Kenya) and 2 middle income countries (Brazil and India). I hypothesize that the implementation of liberalized policies, aimed to increase profits in a globalized food chain are detrimental to the socioeconomic condition of smallholder farmers in these low and middle-income countries. Their socioeconomiccondition is analyzed in terms of food sovereignty; the traditional definition of food security is insufficient as production is no longer the major issue. Results indicate that policies aimed to liberalize agriculture in low and middle-income countries hamper the development and the socioeconomic standing of smallholder farmers by violating their food sovereignty. Additionally, results suggest that liberalized trade policies specifically seem to have the largest effect. Moving forward, policy recommendations should include the re-orientation of trade policy in the global South, integration of foodsovereignty principles into development strategies, and use of agroecological principles to design farming and food distribution methods to achieve the stated development goals.

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Table of Contents

1. INTRODUCTION	6
1.2. GLOBALIZED AGRICULTURE	7
1.2.1. Why trade matters for smallholder farmers	
1.2.2. The complexity of 'Food Security'	
2. METHODS	
2.2. Data processing	
3. RESULTS	
3.1. Part 1: Visualizing Liberalized Agriculture	
3.1.1. Importance of the agriculture sector in low-income nations	
3.1.2. Visualizing imports: a food sovereignty perspective	
3.1.3. Visualizing exports; a food sovereignty perspective	
3.1.4. The power of processing	
3.2. PART 2: EFFECTS OF LIBERALIZED AGRICULTURE ON THE FOOD SOVEREIGNTY AGENDA	
3.2.1. Food Sovereignty Indicators	
3.2.2. Follow the Money	
4. DISCUSSION	
4.1. DIFFERENCES IN POLICY OBJECTIVES	
4.2. THE EFFECTS OF POLICY OBJECTIVES ON THE SOCIOECONOMICS OF SMALL-HOLDER FARMERS	
4.3. The curious case of Cuba	
4.4. LOOKING FORWARD	
5. CONCLUSION	50
6. REFERENCES	54
7. APPENDIX	





Figures

Figure	Description		
1	Agriculture Value added	23	Total import/exports: Brazil
2	Employment in Agriculture	24	Economic complexity
3	Top imports: Côte d'Ivoire	25	Processing of cocoa (CI)
4	Top imports: Kenya	26	Processing of sugar (Cuba)
5	Top imports: Cuba	27	Finished chocolate trade flow
6	Top imports: India	28	Raw cocoa bean trade flows
7	Top imports: Brazil	29	Processing of soybean: Brazil
8	Maize re-export: Brazil	30	Top five trade partners: Brazil
9	Trade balance	31	Civil liberties
10	Top exports: Brazil	32	Political rights
11	Top exports: India	33	Political access
12	Top exports: USA	34	Corruption
13	Top exports: Côte d'Ivoire	35	Difference in shipping costs
14	Top exports: Kenya	36	National security/safety
15	Top exports: Cuba	37	Large land acquisitions
16	Food security index	38	Farm size by country
17	Export volatility	39	Foreign direct investments
18	Total import/exports: Côte d'Ivoire	40	Amount of investment
19	Total import/exports: Kenya	41	Loans to central government
20	Total import/exports: Cuba	42	Credit to private sector
21	Total import/exports: India	43	Effect of system on smallholders
22	Total import/exports: USA	44	The development trap





1. Introduction

The Post World War Two era ushered in the age of liberalization and globalized free trade. The hope of this new order would be to open markets around the world to producers, to create economic ties to prevent war, and to foster a sense of global community. In the agriculture sector, liberalization policies began to become implemented simultaneously with accelerated industrialization and privatization. Van der Ploeg (2010) argues that privatization and industrialization are both requirements for success in a liberalized global market. Eventually, these trends of agriculture industrialization and privatization manifested as the Green Revolution. To extend its reach, this set of policy guidelines was aimed to industrialize agriculture in the global South to alleviate food insecurity, while also opening Southern markets to agriculture technologies and inputs from the North (Shiva, 2016). In order to achieve the goals of the Green Revolution, Southern nations would have to first be willing and able to accept foreign agriculture investments and technologies from the global North (Evenson and Gollin, 2003). The new, liberalized global economy offered the perfect opportunity for countries in the North to gain access to countries in the South for investment and industrialization. With the advent of the WTO, IMF, and World Bank around the same time, these organizations began to offer loans to Southern nations, act as mediators in trade disputes, and set global trade regulations. In effect, these organizations have changed the agriculture and trade policies of countries in the global South to become more free-market oriented (Abbott, 2003; Bockman, 2015a; Finger J, 2002).

Since the current free market system necessitates relying on private multinational corporations for development and prosperity, a problem arises; while the global North already had multinational corporations at the time of liberalization, the less developed global South had far fewer. In a global system which relies on private industry, what happens to a country with little-to-no private industry? This has led to the current situation, in which Southern nations are trying to grow within a system in which they are always playing catch-up since they have always had less power compared to the industrialized Northern countries in negotiations of global trade rules (Bockman,2015a; Dutt, 2002). While liberalized trade in itself can have major benefits, many argue that Southern nations either liberalized before they were ready to compete globally (Abbott, 2003), or the South enacted liberalization policies similar to those of the North rather than creating a liberalized trading system which worked for them (Bockman, 2015a).

Much of this argument stems from the Singer-Prebisch hypothesis, which states that over time, raw material prices would decrease to the point that colonies would no longer be needed eventually being replaced with trade relationships. But, this phenomenon translates to deteriorating terms of trade for former colonies which had single commodity economies imposed on them during colonization. Singer therefore argues that former colonies would





need to diversify into other industries, away from single commodity economies (Singer, 1975a). However, since Southern nations have always been playing catch-up, they have become reliant on the North for capital investments and have been unable to branch into new industries. A consequence is that such investments are normally set up to finance a system in which raw materials will continue to be processed in the North, and largely controlled by northern governments and agribusinesses. This relationship has left Southern nations stuck in the "single commodity economies" about which Singer warned.

1.2. Globalized Agriculture

1.2.1. Why trade matters for smallholder farmers

This work is meant to lend evidence to the claim that liberalized policies have created socioeconomic conditions which initiate a negative feedback loop affecting food sovereignty and the socioeconomic condition of smallholder farmers in the global South. There are several suggested causes for this feedback loop. First, trade policies have forced southern nations into a cycle of dependency on the north, for both food and income. Second, processing power almost exclusively resides in middle and high-income countries.

The subject of international trade and policies by which it is governed is at the core of the agriculture liberalization movement. The dominant argument in the modern era has been that free and open trade provides the best opportunity for developing nations to acquire the farm inputs/machinery, opportunities for capital investments in agriculture, and modern research and technologies that they need for agricultural development (Dollar and Kraay, 2004; Harrison, 1996). While all nations did experience a period of economic growth in the neo-liberal era, this growth has been uneven, with wealthier nations receiving the lion's share of the benefits. Much of the argument for the reasons stems from declining terms of trade for former colonies (Prebisch, 1959). Further, *Thirlwall's law* stipulates that growth rate is dependent on demand for a nation's exports (Dutt, 2002). However, these exports have been devalued through declining terms of trade (Singer, 1975b). Thirlwall's law is not just theory; studies have applied the law to the economies of many developing countries, and in most cases have shown to be a good approximation of growth rate (Britto and McCombie, 2009; Elish, 2018; Samimi and Hosseinzadeh, 2011; Setterfield, 2012). The Singer-Prebisch hypothesis coupled with Thirlwall's law could explain why studies have shown that globalizationfavorably impacts growth up to a certain threshold, at which point the benefits decline (Zahonogo,2018).





1.2.2. The complexity of 'Food Security'

The declining terms of trade of a nation's primary exports as described in the Singer-Prebisch hypothesis creates a disadvantage for Southern nations in the global market. This disadvantage in the agriculture sector specifically has unique impacts on the global South as the majority of employment in these countries is in agriculture (World Bank, 2017). For the same reason, relinquishing control of agriculture to foreign market forces also means that the peasant farming populations can lose sovereignty over their agriculture production, choices, trade, and often land. This has sparked a global movement known as food sovereignty: rooted in the idea that indigenous, peasant farmers should have sovereignty over their nation's agricultural production (Edelman, 2014). Food sovereignty as an academic principle aims to replace the classical definition of "food security," recognizing that the socioeconomic progress and food availability of farmers in underdeveloped nations is more complicated than the number of calories available to a population (Ajl, 2018a). Food sovereignty is therefore central to this conversation; while many countries are now able to produce the calories their population requires, they are still experiencing increased malnutrition and under-nutrition. This could mean that the traditional metric used to determine food security (production) is no longer the largest obstacle to fight global hunger. Instead, food sovereignty movements argue that the problem is directly linked to the socioeconomic condition and political power of smallholder farmers. Therein, this paper uses 'food sovereignty' as a replacement for the term 'food security.'

Implicit in the discussion of food sovereignty is agroecology, to the point that they each require the other to thrive. Agroecology is a reimagining of agriculture away from the industrialized farming methods that have degraded the environment and smallholder farming culture. Agroecology as a physical science aims to develop farming methods and food systems which empower smallholder farmers, whose farms are recognized as more sustainable than reductionist monocultures on industrialized farms (Gliessman, 2016). Agroecology as a social science explores the social and economic effects of broader agriculture systems, recognizing that agriculture should be addressed holistically with methods from many fields of study (Gliessman, 2016). In this, one might say agroecology is *necessary* for food sovereignty.

The social sciences of agroecology and the principles of food sovereignty both identify aprimary challenge as that of "liberalized agriculture". While this is indeed a loaded term, in this paper I define liberalization policies broadly as an amalgamation of three prevailing aspects which are incorporated into policy: industrialization, liberalized trade policy, and privatization, each of which are primary targets for criticism in the food sovereignty movements. Similarly, Van der Ploeg (2010) recognizes these three practices as the primary cause for the 2008 food price crisis. While I see these factors as aspects of a single, broader system herein referred to as "liberalized agriculture", Van





der Ploeg examines these factors as independent:

- Industrialization: Industrial farming is typically characterized by large farm sizes, little biodiversity, monocultures of a limited number of crops, mechanization, high fossil fuel inputs, high inputs of artificial fertilizers, high capital inputs, reduced soil fertility/health (Valenzuela, 2016). In industrialized monocultures, "...instead of being built on ecological capital, farming has become dependent upon industrial and financial capital. This has led variable costs becoming relatively high and a rigid part of total production costs and has sharply reduced the surplus (or profit margin) per unit of end product. Thus, another indispensable ingredient of industrialization emerged: ongoing scale increase of farming became an intrinsic need" (Van der Ploeg, 2010, p.100). In this we can see the negative effects on smallholder farmers in the global South; the current system has resulted in a situation in which high inputs costs, coupled with global competition have *reduced profit margins to the point that farmers must scale up to remain profitable*. While this might be achievable for farmers in the industrialized North with access to capital investment, farmers in the South are normally not able to scale the same way.
- Trade liberalization: While trade liberalization began many years prior, the modern global agriculture market is determined by the rules of the World Trade Organization's1995 Agreement on Agriculture. While only 15% of global agriculture production crosses borders, the rules created around export crops had implications for the production of the remaining 85% of national production, which linked the prices of the latter to those of the former (Van der Ploeg, 2010). In some cases, the linkage between local and global market prices has had major impacts on production as more farmers gravitate to the production of crops with a high market value, as opposed to crops thatare more beneficial to their environment, their people, their health, and their culture. An example of one such case is that of farmers in Côte d'Ivoire, which will often chooseto specialize in cocoa production as cocoa offers the highest market price on the globalmarket and the price of food crops for local consumption is far lower (Ricau 2021). Here, trade liberalization has incentivized farmers in the South to produce for the desires of foreigners over the needs of their smallholder farmers.
- **Privatization:** Referred to by Van der Ploeg (2010) as "food empires," this aspect of the modern food system speaks to the presence of large, multinational agribusiness corporations within the system. These companies act as middlemen between farmers and consumers, continually reducing the market share that reaches farmers while simultaneously increasing prices for consumers (De Shutter, 2015). Van der Ploeg recognizes this process as intrinsic to the system as these multinationals are funded primarily through





credit, which means that the repayment of loans requires a decrease in cost of production and increased sale price over time (Van der Ploeg, 2010).

For years, development economists and agriculture systems researchers have wondered aloud about the negative impacts we have begun to see within our current food system, one such impact being referred to in the literature as "uneven development." These researchers argue that the majority of the socio-economic progress gained through liberalization has been to the benefit of countries of the Global North (Dutt, 2002, 1989; Kacowicz, 2007; Sommers et al., 2017). However, many do so without empirical evidence. Therefore, this study attempts to provide such empirical evidence to visualize the effects of a liberalized food system and liberalized agriculture policies in order shed light on questions such as: What are the effects of liberalized agriculture policies on the socioeconomic conditions of smallholders and how do these effects relate to their food sovereignty? And, if global development has been unequal as suggested (Dutt, 2002, 1989; Kacowicz, 2007; Sommers et al., 2017), what in our current system causes this inequity? I expect that the data will provide visualizations of the effects of liberalization policies that would represent the characteristics of the current globalize food system. In this project I hypothesize that nations which have implemented liberalization policies in agriculture before having the opportunity to develop the sector have relinquished the food sovereignty of their people to appease the demand of a global market dominated by Northern multinational corporations. I intend to explore whether or not the data illustrates how agriculture liberalization policies have manifested in the real world. By analyzing these real-world effects with data on the food sovereignty situations of peasant farmers, I intend provide empirical evidence to illustrate possible correlations between liberalized agriculture policy and negative impacts on food sovereignty, which is normally a theoretical idea.





2. Methods

This study includes empirical data gathered from present trade information sources, with an analysis of current trade through the lens of food sovereignty. As this study may be the first of its kind, I have tried to select countries which as a group would represent a wide range of development stages and localities. Use of a wide variety of development stages and locations attempts to pre-empt the question that possible correlations are not merely a result of development or location. Therefore, data was collected for six countries: three classified as low income, Côte d'Ivoire, Cuba, Kenya; two classified as middle income, Brazil and India; and one classified as high income, United States. These countries also each represent a major climactic/economic region: West Africa, Caribbean, East Africa, South America, South Asia, and North America. Differences in climatic conditions could influence exports and imports by limiting or permitting the growth of certain crops. The specific reason for the selection of each country include the following.

- Côte d'Ivoire's smallholder-based mass production of the world's most volatile cash crop, cocoa bean, makes it of particular interest in studying effects of trade on smallholders.
- Brazil is a BRICS country, who's agriculture system is often lauded as the closest model to the US system in the global south. Therein, Brazil can act as a "bridge" for analysis between the data from the US and the other global South countries in the study.
- India is also a BRICS country but is of further interest due to the recent (2019-2020) mass protests of smallholder farmers in India. The fact that these farmers were protesting policies aimed to liberalize and privatize local food chains ties directly into food sovereignty principles.
- Cuba was chosen due to its special situation. Trade embargoes and protectionist policies have limited liberalization policies from being enacted in Cuba.
- Kenya was chosen arbitrarily as a "low-income" country in east Africa.
- Data from the United States is only used for the purposes of comparison. In this way, we will be able to evaluate the effects of agricultural liberalization policies across the regional and development scales.

Part One is an analysis of the effects of liberalization policies on the socioeconomic condition of smallholder farmers in the global South. "Socioeconomic condition" will be judged based on perceived correlations hypothesized to be present between liberalized policies and violations in food sovereignty principles (below). Effects on socioeconomic conditions of smallholder farmers is *what* is happening, and policies which violate food sovereignty principles are the *how*. Therefore, I expect the data in part one will offer a visualization of the effects of liberalization policies, which will then be analyzed for their implications on food sovereignty. Agriculture





liberalization policies are investigated through the lens of trade liberalization, industrialization, and privatization (food empires), such as described in Van der Ploeg (2010).

- **Exports and Imports:** In what ways have exports/imports in the country changed as trade liberalization policies were enacted? Do these trends have impacts on food sovereignty?
- **Processed vs. unprocessed products:** Since food processing is the point in the supply chain where the most value is added, what are the trends in where goods are processed and what is the impact on food sovereignty?

Data for each of these indicators were gathered from the FAOstat.com database. For each country, data were gathered at 10-year time intervals to compare against policy changes during the same period when applicable. 1960 was chosen as the starting date because most nations of the global South had gained independence by this time. Data begins at 1961 as this was the earliest available date for most records. 10-year intervals were chosen as agriculture policies are typically long-term and their effects take time to cause an impact. While trade and production data for all countries went back as far as 1961, data for level of privatization, foreign investment, and trading partners aren't available until more recent dates, therefore time points were chosen to match export and import timescale as closely as possible.

Part Two explores the effects of the trends observed in part one through the lens of food sovereignty. As food sovereignty is still a broadly defined term, I have selected indicators which are congruent with the "six pillars of food sovereignty," which stand as the political objectives of the movement as defined by hundreds of food sovereignty organizations from around the world at the International Nyeleni Forum in 2007 (Loveday-Brown, 2013):

- Food for people- Do the people have access to enough food? Does the food get to where it needs to be? It "rejects the proposition that food is just another commodity or component for international agribusiness" (Loveday-Brown, 2013 p.6).
- 2. Values Food Providers- Food sovereignty supports and protects small-holder, peasant farmers and indigenous people recognizing that they know how best to provide for their people.
- 3. Localizes food systems- Connecting farmers and consumers to cut foreign agribusinesses out of local food supply chains.
- 4. Local control- Aims to give control over productive elements of agriculture (land, water, seeds, livestock) to local food producers. The food sovereignty movement recognizes that local farmers and indigenous populations are the best custodians of theenvironment.





- 5. Knowledge and skill building- Building upon culturally relevant farming methods with modern research to spur sustainable production.
- 6. **Working with nature-** Focuses on low external input agriculture and using agriculture to maximize ecosystem services.

Data for food sovereignty indicators were collected from the USAID country database. Thisdatabase was chosen as it was the most comprehensive list found for data on certain aspects of food sovereignty. The indicators chosen for analysis are those which would influence the implementation on any of the listed "pillars of food sovereignty." This type of data has only been collected in recent years, therefore the food sovereignty data describe the current situation, rather than the change in food sovereignty over-time.

2.2. Data processing

- *Graphs were all generated in Excel*
- Figures 1 and 2: No data processing, graphed metadata from USAID database
- Figures 3-7: As production of all crops has increased over time due to technological advancements and because of the differences in crop weights, *percentage* of total imports was used to as a better approximation of trade policy priorities.
 - Metadata collection from FAOstat, for each country of study and all products available
 - Using Excel, metadata was organized using a pivot table
 - First, grand total of all exports (tons) in each year for each country was calculated
 - o Second, a table was created in excel for each country; years in x-axis, crops listed in y-axis
 - Third, the equation (cell)/(grand total) was applied to each cell in the table, then converted into percentages.
- Figure 8: Same process as import data (above) with maize imports and exports (Brazil) isolated
- Figure 9: Visualizes the difference in the monetary trade value between a country's imports and exports.
 - Metadata collected from FAOstat. Data was selected by country, total \$USD value of all crops, for each year
 - Table organized with year in x-axis, country in y-axis. Two tables were constructed, one for import values and the other for export values
 - Values adjusted for inflation assuming August 2021 inflation rate as 0. Inflation rates were determined using the US Inflation Calculator.





- The equation ([cell]*[inflation rate of the year compared to 2021])+[cell] was applied to each value to adjust for inflation.
- o Import values were then subtracted from export values for each year
- Figures 10-15: Same process as for figures 3-7 using exports
- Figure 16: No data processing, using data collected from USAID database
- Figure 17: Tracks the price per ton of the major export crop of each country. This method was chosen as better indicator than market price as it allows for the possibility that despite the globally set price, policy differences between countries might mean that the price to each country varies.
 - Tonnage of top exports of each country for each year was gathered from metadata of figures 10-15
 - From FAOstat database, metadata was collected for each country, year, and the top exports (as determined by results in figures 10-15)
 - Tonnage exported each year, by each country was then divided by the value received for each crop, in each year, in each country.
- Figures 18-23: Metadata from figures 3-7 & 10-15 used. Added total of all exports and imports.
- Figure 24: No data processing, data collected from USAID database
- Figures 25&26: Metadata from figures 3-7 & 10-15 used, with selected raw and processed goods from the countries of interest.
- Figures 27&28: Demonstrates the complexity of cocoa trade
 - Metadata collected from UNCommtrade database. Data selected were for commodities *raw bean* and *chocolate* traded between the countries "all."
 - Pivot table manipulation allowed the tracking of exporters, importers, producers, and trade flows.
 - "Non-producing exporters" were selected from the list of top ten raw bean exporters, yet these countries do not have the climactic conditions needed to grow the bean
- Figure 29: Using the data manipulated from figures 10-15, selected soy products from brazil.
- Figure 30: Metadata collected from FAOstat section "detailed trade matrix". Data was selected for Brazil, all crops. Also selected trade partners 'all'
 - Total tonnage exported in Brazil for each year was calculated
 - Table was created with years on the x-axis, and each country in the database on the y-axis. Values were tonnage exported to each country
 - The formula [grand total]/[cell] was applied to each value for a percentage of total trade value
 - o The list was then sorted with highest percentages listed first
 - The top 5 trade partners were graphed





- Figures 31-37- Metadata were collected from USAID website
 - Factors related to food sovereignty principles were selected from a larger list, truncated into the table found in Appendix 1
 - \circ The data from this table was then selected to make each of these figures
 - o No data manipulation
- Figure 38- Not created for this paper. Figure taken from online source with data from Louder et.al. (2016)
- Figure 39&40- Metadata collection from FAOstat page on "Foreign Direct Investment". No data manipulation.
- Figures 41&42- Metadata for each country was selected from World Bank database. No data manipulation





3. Results

3.1. Part 1: Visualizing Liberalized Agriculture

The following figures provide visualizations of the current paradigm. The section focuses on trade and processing in each of the selected countries including import/export data, price data, and data related to processing power. I argue that these data provide evidence of agriculture liberalization policies which, as I will discuss later, have negatively impacted the socioeconomic condition of smallholder farmers, and therein, food sovereignty.

It is important to note that these results are analyzed as correlations. As public policy, food sovereignty, and socioeconomic conditions of farmers are the result of the amalgamation of countless policies, both agriculture policy and others, a direct line cannot be drawn between the visualized effects and food sovereignty. Instead, results of this study rely on indirect correlations supported by literature instead of direct cause and effect relations.

3.1.1. Importance of the agriculture sector in low-income nations

While economic growth is indeed a separate matter from the socioeconomic/food availability situation of peasant farmers, the fact that the economies of many nations in the South rely so heavily on agriculture both for GDP and employment (Figures 1 & 2) means that economic growth and the peasant condition in the global South are more intertwined than in high-income nations of the global North. Figure 2 illustrates the importance of the agriculture sectors in low-income countries as employment in the sector is much higher compared to higher-income nations. Similar conclusions can be drawn from Figure 1, in which the lower income countries tend to spend more on adding value to the sector than higher-income nations. A wide body of literature lends evidence to this claim, taking the argument a step further, that economic development (growth) in the global South is in fact dependent on small-holder agriculture (Ajl, 2018a; Alston and Pardey, 2014; Carlson, 2018; van der Ploeg et al., 2019). Therefore, liberalized trade policies meant to foster economic growth are inexorably linked to the success of small-holder farmers.







3.1.2. Visualizing imports: a food sovereignty perspective

In addition to its economic importance to small-holder farmers, trade also plays a role in food availability in many Southern nations. In this study, the countries which produced sufficient calories for their populations included Brazil and India (Pompeu et al., 2021; Tripathi and Mishra, 2016). While Côte d'Ivoire and Kenya produce most of the calories they need, they continue to rely on high imports of rice and wheat (Figures 3 & 4). While Cuba currently only produces 70% of the calories it requires, the variety of products imported is more diverse (Figure 5).







While the *low-income* nations of Côte d'Ivoire, Kenya, and Cuba must purchase food imports to make these available to their people, imports in the *middle-income* countries differ (Figures 6 & 7) in that it seems they are less linked to food availability (these countries produce enough to meet national calorie demands). These countries could therefore use imports for profit instead by increasing the value of raw imports through processing or via re-export: Figure 7 shows malt and barley in Brazil for beer production and palm oil in India is shown in Figure 6. Figure 8 illustrates the phenomenon of re-export, in which we can see that even though Brazil is a major producer of maize and is self-sufficient, the country still imports maize. This might suggest that Brazil re-sells the imported maize at a higher price. It is also possible that these imports fill production gaps (e.g. soybean for animal feed in India) meaning that these types of imports are still linked to food availability.

The fact that middle-income nations can profit off most of their imports while low-income nations use imports for food availability is a possible reason for how the former can keep positive trade balances and profit on agriculture while low-income nations cannot (Figure 9). For comparison, in a developed country such as the United States, the latter condition (imports to fill production gaps) is nearly eliminated other than for consumer preference,





meaning they can attain the export to import ratio seen in figure 9.







These import data exhibit trends which suggest key differences between low, middle, and high-income nations:

- The need to import to meet calorie demands- Required in low-income (Figures 3-5), not required in middle and high-income nations (Figures 6&7)
- **Re-export for profit-** Done in middle-and high-income countries due to the greater availability of financial capital
- Importation of raw product to process into higher priced commodities

In socioeconomic terms, Figure 9 provides evidence of the effects of these differences. From the food sovereignty perspective, these data illustrate a phenomenon which has possible implications on two of the principles of the food sovereignty movement: **local control of production** and **localizing food systems**. By relying on foreign farmers for staple crops, local farmers could be **encouraged to produce high-priced cash crops** as they can no longer compete with cheaply produced and subsidized foreign products (van der Ploeg, 2010). Additionally, the fact that higher-income nations are better able to fill production gaps and meet their consumer demand means that the only products demanded from the South are raw products which require processing (usually done in the North) (de Vylder, 2021). The combination of cheap imports (too much competition) and consumer demand could incentivize smallholder farmers to grow according to global market demand, rather than local or personal needs, which undermines local control of production.

Cheap imports of staple crops also degrade local markets. The importation of cheaper staple food imports will drive consumers to these cheaper products (especially in low-income countries). The result is a direct competition with local producers (Aniekwe, 2010), violating the food sovereignty principle of **local food systems** as local producers of these imports crops are unable to compete, thus undercutting the *local* market of each crop. Therefore, farmers in low-income countries are pushed on two sides: they are unable to grow staple crops which compete with low-cost imports, while at the same time, the demand for variety (on the global market) is drastically reduced. Both factors further reduce farmers' food sovereignty as external pressures lead them to **lose autonomy over their production.**





3.1.3. Visualizing exports; a food sovereignty perspective

On the other end of the balance sheet is exports, which for the low-income countries present their own challenges. In analyzing the export data of the countries of study, *two trends* emerge (Figures 10-15): first, the middle and high-income countries (USA, Brazil, and India) seemed to, over time, specialize in the export of a single *food* crop, while the low-income countries specialize in the export of a single *cash* crop. Second, the two countries with the most industrialized export agriculture (USA and Brazil) seem to specialize in the export of 2 crops, while the remaining nations are limited to the export of a single crop. Note that it is Brazil's *export* production that is industrialized rather than its national food supply production, which is dominated by small-holders. It is also of note that the nations with lower scores of the traditional food security are those which specialize in a single export (Figure 16).

These trends lend evidence to suggest that farmers in low-income nations have become dependent on these cash crop exports. The fact that the peasant farmers in low-income nations rely (economically) on the mass production of a single commodity suggests that these nations have never been able to break the single-commodity markets of which Singer warned (Singer, 1975). The data provides evidence for this as the top exported crop in each of the developing countries was among **the top four most exported crops during the end of the colonial era**, sugar, cocoa bean, and tea in Cuba, Côted'Ivoire, and Kenya, respectively (Figures 13-15). For smallholder farmers, this could further add to their loss of food sovereignty as once again, due to global market pressures, they are pressured to produce a niche product for far away consumers.



Figure 13





Figure 14

22

Tobacco, unmanufactured

Figure 15









Historically, the argument has been that low-income nations specializing in the export of higher priced cash crops find this more beneficial as a strategy that provides farmers with greater income (Maxwell and Fernando, 1989). In this vein, much of the foreign development funding (below) for agriculture is for the purpose of increasing production in the hopes that this will, in turn, increase farmer income. However, while the prices of these crops are higher in the long term, they are much more volatile (Figure 17). For the farmer, this means that planning between cropping seasons is very difficult. Also, smallholder farmers are less able to absorb costs when prices are low, meaning they are often the first to suffer when prices drop (Tröster, 2018). A good example of this is the price crash of cocoa in 2017 in which the price of cocoa suddenly dropped by 1/3, resulting in a 30-40% income loss to farmers. At the same time, multinational cocoa corporations were able to hedge their investments and implement \$4.7 billion in reduced purchasing costs (Fountain and Hütz-Adams, 2018).

While many speculate as to the reasons for this volatility, researchers have suggested that part of the reason for the abnormal price volatility of cash crops is due to the financialization of the commodities market and the role of speculators within the system (Dudzinski, 2010; Fountain and Hütz-Adams, 2018; Tröster et al., 2019) **Price volatility is thus another reason for the proposals of the food sovereignty movement:** localizing productive control and local supply chains would allow smallholders the opportunity to exit a volatile, single commodity global system in which they cannot compete. The negative effects of price volatility on smallholders have been well documented (Malan, 2013; Matthews, 2010; Onour and Sergi, 2011







If viewed in aggregate, the changes in overall imports and exports by country shed further light on the situation (Figures 18-23). All countries except Cuba (a special case due to trade embargoes and national policy) there is a significant increase in both imports and exports starting in the year 1990. This is unsurprising given that the 1990 Doha agreement brought food into the commodities market and coincided with liberalization policies around the world in order to reduce tariffs and promote open trade, including in each country of study: The liberalization of the cocoa sector in Côte d'Ivoire in 1999 (Losch, 2002), *Real* Plan of Brazil in 1993 (Rezende, 1993), Indian Economic Policy of 1991 & entrance into WTO in 1995 (Mahadevan, 2004), Structural adjustment policies from the WTO in Kenya in the 1990's (Read and Parton, 2009), and an opening of public investments and joint enterprises in Cuba after the fall of the Soviet Union (Dominguez, 2005).













While the overall increase in global agriculture trade doesn't negatively impact food sovereignty directly, the data visualized in Figures 18-23 suggests that national agriculture policies overall have become more liberalized, at least in terms of trade. As these policies take effect, nations are driven deeper into the trade imbalances in the global market discussed earlier, such imbalances *do* have a direct effect on food sovereignty in terms of local markets and peasant control. First, is an inability to compete with cheap exports. Second, is the economic necessity of growing primary cash crops for global markets. Third, is the predisposition of these cash crops to have a more volatile price. These factors are what violate food sovereignty principles, yet are only possible due to the liberalized policy reforms of the 90's (effects of which are visualized in Figures 18-23) which exacerbated these three factors.

3.1.4. The power of processing



Figure 24

While both middle and low-income countries rely on agriculture for a large portion of GDP, the primary difference between the middle and low-income countries is the amount of secondary processing that occurs in-country. Figure 24 demonstrates this in a macro sense, tracking overall economic complexity, showing that the more complex economies are also those with positive trade balances (Figure 9), and lower instances of food insecurity (Figure 13).

While this graphic is indeed, in relation to the economy as a whole, the trends represented coincide with agriculture specific policy objectives in each country.

For example, Indian agriculture policy is typically enacted in conjunction with industrial development policy via *5-year plans*. India has included stipulations to increase processing and industrialization in all sectors, including agriculture, in most 5-year plans since independence, but more vigorously in the last30 years (Jangid et al., n.d.; Önalan et al.,2018). Brazil took a free market approach, offering tax incentives and financing to spur private industry for food processing for both foreign and domestic companies (Önalan et al., 2018;Pompeu et al., 2021). In the countries with a negative economic complexity score, processing industrialization was rarely a policy priority (Fernandez et al., 2018; Kamau et al., 2018) with the exception of a state-owned cocoa processing enterprise in Côte d'Ivoire. In recent years, this enterprise has produced a fraction of what it once did due to mismanagement,





privatization, and foreign competition, visualized in Figure 25. A parallel case is sugar processing in Cuba, an industry that never took hold as demand from wealthy, import nations was always higher for *raw* sugar (Figure 26) as these importing nations already had the processing capacity to create the end product: refined sugar.



Figure 25



Figure 27: Global chocolate flows. Data collected from UNComtrade database





A glaring example of this North-South 'processing divide' is in the cocoa sector. Due to the complexity/capital requirements of chocolate processing, most of the value of cocoa production lies in processing. Of the \$100bil/year chocolate industry, the total share distributed among all growers for raw cocoa bean is between 3.5-6.4% (Beg et al., 2017). Figures27 and 28 track the trade flows of raw beans and chocolate respectively. It should be noted that raw beans are often re-exported by dealers in high income countries, making Belgium a top five exporter despite not being able to produce the bean. Also of note is the fact that chocolate trade is almost exclusively between wealthier, northern nations. The nations producing rawbeans are those in which demand for the product is lowest.



Figure 28: Global raw cocoa bean flows. Data collected from UNComtrade database

While the disparity between middle and low-income nations becomes clearer in terms of processing power, the data suggest that middle income nations still struggle to break through this processing divide as well, also possibly because of global market pressures. One such case is that of soybean cake in Brazil. Even though processed soybean cake fetches a higher price on the global market, Brazil has elected to focus almost exclusively on export of raw soybean. This is particularly interesting as Brazil seemed to once have this processing capacity but elected to downsize the industry in favor of exporting a lower price raw product (Figure 29). A possible reason for the switch can be implied in examining Brazil's trading partners (Figure 30): The fall of soybean cake exports in Brazil begins in the 1990s, which coincides temporally with an increase in trade between Brazil and China. Therefore,





the possibility exists that the two are correlated, that Brazil reduced processing in favor of a lower-profit export in order to satisfy the needs of their largest trading partner.



Figure 29

Figure 30

The ways in which processing disparities impact food sovereignty seem to be more indirect. As these data show, most of the processing occurs in wealthier nations which are home to the majority of transnational buyers, who typically dominate globalized food supply chains (Hendrickson et al., 2009). As the majority of crop value is added during the processing phase, the loss of this processing step means that rural communities only capture a fraction of the international price of a commodity and lose off-farm rural jobs as well. Therefore, the loss of processing in low-income countries has been seen as a violation of food sovereignty (Patel, 2009). While the Nyeleni Forum of 2007 did not speak to processing specifically, an argument could be made that outsourcing the most valuable part of the food chain, is **in violation of the principle**, **strengthening local food systems** as their communities and productive elements the food system as food providers become subjugated to production demands of foreign processors.





3.2. Part 2: Effects of Liberalized Agriculture on the food sovereignty agenda

3.2.1. Food Sovereignty Indicators

Due to the far-reaching nature of the food sovereignty agenda, factors as seemingly unrelated as the socioeconomic conditions and political standing of smallholderfarmers can have major implications on food sovereignty. As such, specific policies which affect food sovereignty can be hard to pinpoint. As stated, the International Nyeleni Forum in 2007 (Loveday-Brown, 2013) agreed on political objectives for the food sovereignty movement internationally which include: protecting the values of smallholder and indigenous farmers and their methods, food access, localization of the food system, local control over production elements, knowledge exchange/skill building, and working with nature. Therein, this section explores the possible contradictions which may exist between aspects of the liberalized food systems and the food sovereignty agenda. My hypothesis supposes that these contradictions may have direct or indirect effects on a nation's ability to implement food sovereignty goals into policy. The six political goals of the food sovereignty agenda maintain a common theme, that agriculture should be placed into the hands of smallholder producers utilizing traditional (often agroecological) methods. As such, Figure 31 gives a summation of the political standing of the average citizen in each country, listing possible factorswhich could affect a smallholder's political standing to influence policy.



While the list above is far from exhaustive, certain aspects of a citizens' political standingcan have major implications on whether they have a say in their agriculture policies. Figures 32- 34 shed light on some of these

Figure 31





differences. Aside from individual political rights, other factors external tothe individual farmer also exist which can hamper their food sovereignty as well (figures 39-41).



Figure 32





Figure 34











Figure 36





Land distribution is a major factor in the political/socioeconomic standing of farmers, and therein food sovereignty as well. Hence, a major political goal of the food sovereignty movementis to *ensure land ownership for smallholder producers*, recognizing that their political power has adirect link to resource control, i.e., control of the land which provides said resources. The original group which coined the term 'food sovereignty,' La Via Campesina, placed land ownership at the forefront of the issue. At the 1996 World Food Conference in Rome, La Via Campesina defined food sovereignty as, "The right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity... genuine agrarian reform which gives landless farming people, especially woman, ownership and control over the land..." (in Ajl, 2018).

Figure 37 provides data for the amount of land obtained through large scale land acquisitions. This figure is important as those with the capital income to acquire large plots of land in a single purchase are typically farmers with financial means, multinational corporations, governments, or wealthy organizations working through arrangements with local citizens in negotiations that are often far from transparent (Sassen, 2013). These most often result in industrialized monocultures, primarily for export, from which the benefits may be grossly skewed toward investors and away from those who formerly cultivated the land



Figure 37

The data indicate that large scale land acquisitions of well-endowed, industrialized producers and investors focus primarily on food crop or other raw materials production over industrial processing and conservation programs. The primary reason that these large-scale land acquisitions impact food sovereignty is that they **reduce the amount**





of land available to the population of smallholder farmers, who thus become disenfranchised from a source of traditional livelihood. Also, the lack of land acquired for industrialization in figure 37 re-iterates the evidence provided on the effect of processing power on food sovereignty. This is illustrated in Figure 38, which suggests a correlation between the amount of large land acquisitions and the number of large farms; Figure 37 indicates that Brazil has the highest amount of large land acquisitions, followed by Côte d'Ivoire then India (data for Kenya and Cuba unavailable for Figure 43). Respectively, Figure 38 shows Brazil with the largest farm sizes, followed by Côte d'Ivoire and India.



The data therefore suggest that large land acquisition may play a role in average farm size. A possible reason is that well-endowed, large-scale farmers are those with the financial resources needed to make such purchases. In **nations with more liberalized agriculture and land distribution policies, these large-scale farms can acquire more land, thus violating the food sovereignty of small-holder food providers.** For example, agriculture and land policy in Brazil has been liberalized to a greater extent than in India (Önalan et al., 2018) and is often considered the archetype of the supposed effectiveness of liberalized trade policy in developing countries (Hopewell, 2014). Simultaneously, the data show greater instances of both large-scale land acquisitions (Figure 37) and a higher average farm size (Figure 38) in Brazil than in either India or Côte d'Ivoire.





3.2.2. Follow the Money

Earlier, the argument was made that the benefits of liberalized agriculture trade policies cease beyond a certain threshold, which is supported in (Zahonogo, 2018). This, combined with trade imbalances (Figure 9) and the need for food imports (Figures 3-5), means that low-income nations are in a perpetual state of reliance on wealthy nations (Litonjua, 2012). Due to their low income, high import costs for food and agriculture inputs (Figure 35), and reduced capacity to add export value through processing, low-income countries often rely on the foreign direct investments (FDI) and charity in order to develop their agriculture sectors. This has potential implications for food sovereignty; foreign investment is normally earmarked for certain areas, therefore the recipient nation is less able to choose where investment goes. Figure 39 tracks the FDI flows for each country of study for the year 2018. This figure makes clear that agrarian reform, food security and safety, and alternative agriculture development, are the sectors which receive the least foreign funding, **each of which is a vital aspect of the food sovereignty agenda**.



Figure 39

Also of note is that the most funding goes to high-tech agricultural development, i.e. increasing production. Also, while most of the nations have a somewhat similar investment pattern, investment in Côte d'Ivoire seems to have different priorities. Water resource investment in India and Kenya is unsurprising given that much of Indian agriculture is dependent on monsoons (Bharti, 2018) and drought has plagued Kenya since the 70s (Omiti et al.,





2021).



Figure 40

Underpinning the question of where the investment flows is the question of how much (Figure 32). India is by-far the greatest recipient of FDI. This is possibly due to Indian agriculture policy, which has placed a high priority on attracting foreign investment in order to spuradvancements in farm technologies and inputs (Jangid et al., n.d.; Mariappan and Zhou, 2019). Also of note is the fact that in all cases except Kenya, disbursements are far lower than commitments. Cuba's low FDI stems from Cuban policy, which is very selective over the foreign investment in the country and places heavy restrictions on foreign enterprises as well as from the re-imposed US embargo (Fernandez et al., 2018).

Much debate revolves around the role of development funds as they are made available by international lenders. Groupslike the International Monetary Fund, World Bank, and the Asia Development Bank provide loans to lowincome nations to help them develop their economies. While there have been instances of success, e.g. Ireland and Singapore, many of countries which borrow from these groups end up defaulting on loans, primarily due to borrowing larger sums than they can reasonably pay back and a lack of institutions required to properly invest these funds (Ghani and Lockhart, 2009). Figure 41 shows how these loans have changed over time, showing a slight increase in loans in each country studied.

The possible effect of foreign direct investment on food sovereignty is two-fold: **First**, figure 39 indicates that most of the investment from foreign investors is directed toward raw agricultural output (either for profit or in order to address the traditional definition of food security, availability) instead of in programs which would





address the concerns of the food sovereignty movement. The choice of investment in agriculture by outside interests potentially violates food producers control over their food system. **Second**, these data could also suggest a general loss of national sovereignty via the reliance on foreign investors for growth and the fact that the global South is indebted to investors in the North. Some argue that food sovereignty is impossible without national sovereignty, and that local producers cannot hope to gain control of their local food systems if their country as a whole is not in control of its food system on the global scale (Ajl, 2019; Amin, 2017).



Figure 41: worldbank.org

Domestic credits to private businesses are not in themselves a bad thing. However, because low-income countries have less investment capital, national private companies are often smaller and less common than large multinational agribusinesses. Therein, it stands to reason that domestic credit to private corporations in low-income nations typically benefits large, North-based corporations. Also, the majority of farmers in low-income countries are smallholders (typically~70%) who do not incorporate their farms and therefore obtain little benefit from private sector credits (Figure 42).







Figure 42: worldbank.org





4. Discussion

4.1. Differences in policy objectives

The graphics shown in this study visualize the ways in which liberalized agriculture policies can negatively impact the food sovereignty of smallholder farmers in low-income nations. In addition, the data provide evidence of the *effects* of these policies. Therefore, in order to make the connection between the policies themselves and food sovereignty, we must first understand how agriculture policy differs in each country according to their food and development needs.

A primary difference in the countries is their reliance on agriculture for both GDP and employment. Figures 1 & 2 indicate that in Kenya, India, and Côte d'Ivoire agriculture production provides between 40-55% of the population with employment. The literature sheds further light: these are the same nationswhich have opted to retain agricultural production as a primary sector for economic growth. In India, while employment in agriculture accounts for 52% of employment directly, 70% of livelihoods are indirectly dependent on agriculture, and agriculture exports account for 17% of GDP, up from 9.1% in 2009 (Önalan et al., 2018). In Kenya, where industrial sectors are less developed, agriculture plays an even larger role, accounting for 50% of GDP (25% directly, 25% indirectly),60% of employment, and accounting for 65% of national exports (Birch, 2018). Lastly, Côte d'Ivoire has been dependent on the export of coffee-and cocoa since its independence. However, in recent years, it has become more reliant on the production of rubber as cocoa prices have become too unstable (Figure 17) and coffee production is less able to compete with large South American producers (Meless Siméon et al., 2019; Appendix 1A). Cuba is a special case since such a low percentage of GDP comes from exports, primarily due to trade embargoes and public agriculture policy, which prevents both exportation and capital investments into industrialized export monocultures. With the exception of the state-owned sugar plantations producing raw sugar for export, the majority of agriculture productionin Cuba remains in country, and is therefore not a primary source of export revenue (Fernandez etal., 2013).

On the other hand, the two countries which have employed the most liberalized trade and production policies (the United States and Brazil) rely much less on the agriculture sector for GDP (Figure 1). While Brazil still relies on agriculture for 39% of exports (Schleifer, 2017), this only accounts for6% of total GDP; comparatively, the service industry accounts for 73% and industry accounts for21% of GDP in Brazil (Dias and Teles, 2018). In examining the policy effects in this study, the evidence suggests that of the countries studied, Brazil exhibits the most signs





of liberalized policies more in-line with the US than the other nations.

- Figures 1&2 represent a decreasing importance on Agriculture for GDP
- Figure 10 represents a pattern of exports more similar to that of the United States: primary exportation of two, price- steady, staple food crops
- Figures 18-23 show the difference between total imports and exports. While the difference in other countries of study is at most 13mil tons (in India; exports greater than imports; imports greater than exports in Kenya and Cuba), Brazil has a difference of nearly 150mil tons, which is similar to the difference in the United States
- Figure 38 shows land distribution patterns more similar to the United States than Brazil's Southern counterparts
- Figure 39 shows investment patterns which favor industrial production
- Figures 41 and 42 Show Brazil offers more credit to the private sector and takes on more loans than its Southern counterparts, both of these factors are highest in the United States (not shown).

This evidence suggests that *Brazil has a greater percentage of industrialized/liberalized agriculture policies than the other nations in this study* which is supported in the literature (Alves and Guivant, 2020; Pompeu et al., 2021; Schleifer, 2017). In this way, Brazil has opted to develop its economy in a similar manner to wealthy nations. Policies are designed to industrialize production to allow for more of the work force to move from the fields to factories and offices (Schleifer, 2017). Since the beginning of liberalization in Brazil, government funding has prioritized large corporations, opting for an industrial/vertically integrated supply chain (Alves and Guivant, 2020).

India has also adopted a more industrial focus to their economy, relying less on agriculture as a percentage of GDP (Bharti, 2018). In fact, Figure 24 shows that the Indian economy is more complex than the Brazilian economy. Yet much of the evidence suggests that India still relies heavily on agriculture: Value added in Figure 1, employment in Figure 2, and the fact that 17% of GDP comes from agriculture and 70% of rural communities rely on this industry (Önalan et al., 2018). Therein, the evidence suggests that India has opted for a 'middle-of the road' approach to agriculture liberalization. We can see this in the data as India often falls between Brazil and the low-income nations in many respects while the low-income nations tend to have similar trends;

- Figure 1 shows value added between low-income countries and Brazil; Figure 9 shows a trade balance value between low-income countries and brazil
- Figure 11 indicates that India has a primary export of 1 staple food crop with a stable price (Brazil and the





US has two, low income nations have none)

- Figure 39 indicates that India's FDI follows a pattern more similar to low-income nations than it does to Brazil
- Figures 41 and 42 show that India lies between Brazil and Low-Income countries in terms of private sector credits and loans.

While India has liberalized its economy as a whole and agriculture in some ways; northern technological inputs such as fertilizers and seeds are widespread in India (Eliazer Nelson et al., 2019) and global agriculture trade has been drastically increased (Figure 31). On the other hand, India opted against the implementation of large-scale monocultures and instead passed polices favoring smallholder farmers as evidenced by land distributions in Figure 38.

The differences in the development strategies between the middle and low-income countries (agriculture or industry focused) reflects the fact that the lower-income nations (Côte d'Ivoire, Cuba, and Kenya) are more reliant on agriculture export income and smallholder farmers for economic growth.

Thus far, I have argued that the reasons for this dependency are tied to the *loss of productive power* in low-income nations, and food sovereignty violations seemingly correlated to *liberalized trade* policy. As wealthier nations retain much of the industry required for processing, they are able to capture a majority of the value of the raw product, which means they are able to export higher priced products, while the low- income nations rely on the export of primarily raw products (Carr et al., 2002; Meijl and Tongeren, 2001). Figures 24-30 indicate that while the upper middle-income countries are also at risk of losing processing power (such as soybean cake in Brazil), they are typically able to replace the processing loss with expansion of other industries such as services or biofuel products for processed ones. Figure 42 indicates that the low-income countries provide the least amount of credit to the private sector, suggesting less liberalized policies in terms of *privatization* in these countries. This is most likely due to the fact that there are simply fewer private processing and industrial farming corporations in low-income countries due to a lack of monetary capital. This, coupled with the negative trade balance (Figure 9) means that low-income nations have less available income to re-invest intosmallholder agriculture, food sovereignty goals, or sustainability programs and instead become reliant onhigh-income countries and multinational agribusiness to make such investments (Chinyoka and Ulriksen, 2020).

This lack of capital has stunted the implementation of industrialized farming in low-income countries. Therefore, smallholder farming (as a percentage of total farmers) is the predominant form of production for low and middle-





income countries. A predominance of smallholders coupled with weaker institutions means that agriculture in lowincome nations is often decentralized in nature. The decentralized nature of these nations, both in agriculture and more generally, also means that tax collection is often difficult or impossible (Gardner, 2010). Therefore, the lack of capital investment in agriculture, coupled with the decentralized nature of a system with weaker institutions suggests that **policy goals in the low-income nations tend to differ from goals of middle-income countries as they focus on small-holder agriculture for the purpose of export revenue while higher income nations focus more on industrialized agriculture and industrialization. The evidence suggests this is because low-income nations do not have the capital required diversify their economy into other sectors, develop processing, or industrialize in the way that Brazil and India were able to.**

4.2. The effects of policy objectives on the socioeconomics of small-holder farmers

Thus far, I have illustrated the ways in which liberalized agriculture policies effect the food sovereignty of smallholder farmers in the countries of study. Each goal of the food sovereignty movement: food for people, valuing food providers, localizing food systems, local control, knowledge and skill building, working with nature, aims to improve *the socioeconomic condition* of the small holder. Therefore, I have used the principle of food sovereignty as a target for examining small-holder's overall socioeconomic condition. Below is an outline of trends in the data which may be correlated to reduced food sovereignty and socioeconomic conditions:

Food for people

- Despite the fact that food production is at an all-time high, the so too are indicators such as food security. Concurrently, a reduction of adherence to food sovereignty principles, some argue, is the reason that countries like Brazil and India, which can produce more than 100% of their required calories still struggle with rising numbers of malnourished and undernourished individuals (Pompeu et al., 2021). Food security definitions only focus on production of food while ignoring socioeconomic conditions which impact the food system (Ajl, 2018a; Edelman, 2014). While global food insecurity has decreased in the time since the green revolution, recent years have begun to show the opposite trend. Globally, food insecurity has been increasing since 2014 (FAO, IFAD, UNICEF, WFP and WHO, 2019).
- Figures 18-23 provide an overview of total imports/exports over time. These figures indicate a steep rise in both imports and exports beginning in the year 1990. This is significant as the 1995 agreement on agriculture in the WTO Uruguay round drastically liberalized agriculture trade (Schleifer, 2017). Before this, agriculture production was primarily demand driven, with countries focusing on national needs rather





that global demands (Hueston and McLeod, 2012). A few years later in 2005, the financialization of commodities markets began. This has had major implications, as the prices of commodities no longer reflect the real situation and the movement of prices becomes separated from the market influences (Dudzinski, 2010). *This marks the beginning of a period when food became more widely seen as a source of profit rather than a means by which to feed people, and the long-term effects are just coming to fruition.* Figures 18-23 show increased trade in 1990s which has had no effect on food security (Figure 16), suggesting that this increased output is a result of pursuing goals other than food security.

Valuing Food Providers

- Figures 31-33 provide indicators of each country's access to the political system. Of note here is that the low-income countries of Côte d'Ivoire, Kenya, and Cuba score the lowest when it comes to civil liberties and political rights. However, Côte d'Ivoire and Kenya out-performboth middle-income countries for "civil participation" and "deliberation," and out-perform India in "electoral democracy", and "freedom of association." From a food sovereignty perspective this is of interest because of recent smallholder protests in India denouncing reforms meant to liberalize local supply chains (Mehta, 2021); and in Brazil, which has recently disbanded the MDA (ministry of agrarian development), the primary institution responsible for ensuring that smallholders interests are addressed (Alves and Guivant, 2020).
- Figures 34-36 provide evidence of secondary factors which might affect smallholders' ability to participate in policy making. While the full effects of corruption are not well understood, some argue that corruption prevents proper tax collection and governmentspending on development programs (d'Agostino et al., 2016; Hope, 2000). Figure 34 elucidates the point to demonstrate that the low-income countries generally have higher instances of corruption. For smallholder farmers, this could mean that programs aimed to assist smallholders often don't receive the funding that is promised (Laven et al., 2016). Corruption also opens a spacefor large agribusinesses (either foreign or domestic) to take advantage of the reduced economic power of smallholders, who are unable to afford the required bribes as the larger producers (Lantz,2021).

Local control of means of productive capital

• Figures 37 and 38 provide evidence for the effects of the current system on land distribution. Figure 37 demonstrates the differences in large-scale land acquisitions in each country. Brazil is far above the other nations in these types of acquisitions, followed by Kenya, Côte d'Ivoire, and India. Figure 38 demonstrates the effects of these acquisitions on the average farm sizes in each country, Showing a correlation between figures 37&38. This could be a cause of public policy; while Brazil has embraced the use of large-scale farming in their export sector, Indian policy has elected to retain its smallholderfarming culture (Önalan et al., 2018). While public policy in Côte d'Ivoire does not prevent large-scale land acquisitions, the primary





industry of cocoa has embraced a system of smallholder farmers, connected by a complicated network of middlemen (Beg et al., 2017) and is naturally predisposed to smallholder agriculture due to the decentralized nature of its production (Ricau 2021).

Donor nations/corporations are more likely to allocate funding toward projects that would benefit them, rather than smallholder farmers and foodsovereignty. Figure 31 illustrates this point; Of all the investment avenues studied, the three fields related to food sovereignty, agrarian reform, food security, and alternative agriculture development receive the least amount of funding. Also of note is the vast influx of investment in agriculture development generally. In Brazil, agriculture development accounts for 49% of foreigndirect investment. This is surprising as Brazil is already able to produce 120% of the calories needed by the population nutritionally, and exports 208% of the domestically available calories (Pompeu et al., 2021). This implies that the primary purpose to increase agriculture development in the country is for export profits. Exports in Brazil are primarily produced by large-scale, industrial producers (Pompeu et al., 2021).

Localizing food systems

- Figures 11-16 show a difference between the major exports of higher and low-income nations. The top exports of the United States, Brazil, and India are soybean, maize, and rice, (staple food crops) respectively. Top exports in Côte d'Ivoire, Kenya, and Cuba are cocoa bean, tea, and sugar cane, (raw, cash crops) respectively. This is important as food crops have less volatility on the global market (figure 17). The price volatility has direct implications on smallholder farmers, who are less able to absorb price drops in bad years than large farmers with greater output.. Further, when raw cash crops are exported to higher income nationswhere they are often processed into a higher value commodity and then exported for a profit (Elsby, 2020).
- In Figure 9, *the overall trade balance is negative for the low-income countries*, and positive for the middle and high-income nations. This is of particular interest as low-income nations are those which have implemented development strategies which rely heavily on agriculture profits (Alves and Guivant, 2020; Birch, 2018; Siméon et al., 2019; Önalan et al., 2018), while the countries that profit on agriculture are those that have implemented policies drawing their countries *away* from agriculture. The lack of national development negatively affects the socioeconomic condition of smallholder farmers directly through decreased profits and indirectly as their government becomes more reliant on benevolent donations and foreign capital investments for improvements in agriculture.

Figures 43 and 44 provide a summation of major findings of this study. Figure 43 provides a 'road map' of the major factors which appear to correlate to decreased socioeconomic conditions of smallholder farmers.





Figures 13-15 show that the low-income countries in this study tend to export a single, raw, cash crop as their primary. The primary cause for this difference is two-fold: The fact that processing occurs in the North, coupled with the fact that the North has the means to produce 100% of its caloric needs (de Vylder, 2021) means that the demand for southern farmers only exists for raw, cash crops (Hueston and McLeod, 2012). Second, farmers are unable to compete with cheap staple food crops imported from the north, furthering their reliance on the raw, cash crop (van der Ploeg, 2010).

This matters first, because of volatility (Figure 17) and second, their production becomes less varied and therefore, less economically resilient as their livelihood is tied to a single crop instead of many. Both volatility (Malan, 2013; Matthews, 2010; Onour and Sergi, 2011) and production variety have been linked to the socioeconomics of smallholder farmers (Heylen et al., 2020; Johns et al., 2013).

Figures 25-29 illustrates the loss of processing power in the global South. The loss of processing in the South furthers small-holder reliance of *raw* products to export, which have a much lower value than their processed counterparts (Carr et al., 2002; Meijl and Tongeren, 2001). The removal of processing from a rural community also removes jobs and income as well, furthering the economic implications on smallholders, their families, and communities (Patel, 2009). Secondarily, we can see from figure 37 and 38 that land distribution seems to correlated to large-scale land acquisitions. Therein, the land available to smallholders is reduced (Figure 38).



Figure 43









The characteristics outlined in figure 44 illustrates the ways in which low-income nations become trapped in a cycle which in turn, perpetuates the cycle found in figure 43.

Using 'Low national income' as a starting point, the fact that these nations are classified as "low-income" means that they don't have the capital required to make certain investments in agriculture such as, equipment/inputs for needed for industrialization, developing processing capabilities, reducing costs of production via subsidy programs, or making infrastructure investment for agriculture (Cramon-Taubadel et al., 2011). Therefore, they must turn to foreign investment as a means of agriculture development (Figure 40) and thus liberalize agriculture policy to attract such investment.

However, figure 39 illustrates how these foreign investments tend to reflect interests of agribusiness over programs to protect the interests of smallholder farmers. As these nations liberalize policy, it becomes easier for large corporations (foreign and domestic) and industrial farmers to purchase more land, therein decreasing average farm





sizes to the detriment of smallholder farmers (Figures 37&38). Large, industrial farms in the global south tend to focus on the production one of the nation's primary export crop, in direct competition of the smallholders in these countries. Liberalized trade policies also allow for Northern processors to import more cheaply raw, cash crops. It is possible that each of these factors furthers the preponderance of farmers choosing (or having no option but) to grow raw, cash crops. The increased production of cash crops further increases the risks associated with volatility as well as deepens the trade imbalance (Figure 9), both of which feed back into the original problem of low income.

Also, the perpetual state of poverty drives farmers to produce greater percentages of the cash crop to survive and is therefore often a target for poverty alleviation programs, even though studies show focusing on the growth of cash crops does not enhance socioeconomic condition (Brown and Kennedy, 2005; Machio, 2015). Therein, low income itself directly drives up production of the cash crop, creating a smaller cycle which feeds into the larger one.

4.3. The curious case of Cuba

Thus far, I have intentionally left Cuba out of much of the analysis. This is primarily because the combination of trade embargoes from without and protectionist trade policies from within means that Cuba is, in a sense, in a class of its own. This is not to say that Cuba does not trade or that it does not have industrial agriculture. Small-scale farmers produce 65% of the nation's food on 35% of the land (Rosset and Val, 2018). Figures 19 and 20 show that Cuba imports and exports a similar amount to Kenya, although a bit less. Also, sugar cane (primary export) plantations are produced industrially, on state-owned monocultures. However, Cuba has since it's revolution, enacted strict policies which directly counter to liberalization principles Fernandez et al., 2018,

- Forbidding private corporations in most industries- this immediately reduces the effects of Van der Ploeg's privatization.
- *Forbidding foreign enterprise from owning land* Could correlate to decreased instances of land grabs. Reduces this effect in the cycles of figures 43 and 44.
- Severely restricting foreign investment- Could have further implications on land grabs due to reduced capital investments for large-scale acquisitions. Also, ensures that Cuba retains it's national sovereignty by being able to better control investment. The idea of gaining national sovereignty by reducing financial dependance is explored in (Amin, 2017)
- *Restricting land size for private landowners-* Direct protection of smallholder farmers.
- Reduce dependance on food imports- Cuba worries about the effects of foreign influence in their





agriculture and the implications of this influence on the wellbeing of their population.

This makes it clear that the Cuban government has made active attempts to *not* liberalize it's agriculture in the way that the other countries of the study have. Perhaps not coincidentally, Cuba is also the country in this study which has implemented the most sweeping policies in *support* of food sovereignty. In fact, Cuba is the only country which has directly implemented food sovereignty principles into national policy. The fall of the Soviet Union and the subsequent embargoes meant that Cuba was left without agricultural input for industrial production. Therefore, Cuba turned to agroecology as a means of low-input production (Thiemann and Spoor, 2019). As discussed, agroecology and food sovereignty go hand in hand, therefore the government later began implementing food sovereignty into policy as well. Fernandez et al., 2018 outlines some of these policies and their effects, I have organized them into the food sovereignty perspective:

- Food for people-
 - Since the revolution Cuba has had a ration program (*Libreta*) for its citizens . Although the program has had many problems over the years, it remains a primary source of staple foods for many poor Cubans
 - <u>Popular rice program</u> aimed to increase rice production for import substitution (Giraldo and McCune, 2019)
- Values Food Providers-
 - Implementation of agroecology into law
 - A bottom-up knowledge exchange takes place through the ANAP (national association of small farmers) and organizations like it (Botella-Rodríguez and González-Esteban, 2021)
- Localizes food systems
 - o Decrees in 2009 and 2012 passed reforms to reduce dependance on food imports
 - The government began subsidizing farmers markets, encouraging direct sale, and introduced selling directly to restaurants and hotels.
 - <u>Popular rice program</u> aimed to increase rice production for import substitution
- Local control-
 - In 1963, 75% of the land was state-owned, today 69% is non-state, mostly cooperatively owned land.
 - <u>Usufurt</u> program provided over 200,000 landless citizens with 13ha of land via indefinite contract leasing, mobilizing 1.7mil acres of previously unused arable land (González and Alfonso, 2018)





- Knowledge and skill building-
 - The 1960 and 1970 had many new research institutes created for agriculture. They came to the conclusion that conventional agriculture would not work for their island and thus began fully investing in agroecology research/ techniques
 - o State-owned manufacturing began focusing on the production of agroecological farming tools
 - o State-chemical companies began producing biological controls for AE farmer

4.4. Looking Forward

To be sure, the way forward is a challenging road for smallholder farmers in low andmiddle-income countries. The current food system paradigm is ubiquitous, and deeply intertwinedinto policy objectives of these nations. While programs to uplift smallholder farmers exist, these programs rarely make much of an impact, primarily due to factors such as a lack of funding, political instability, and a lack of institutions in low-income nations (Ghani and Lockhart, 2009; Pedercini et al., 2018). The results of this study suggest that the largest barriers for thedevelopment of socioeconomic conditions of smallholder farmers in low and middle-incomenations are those which stem from liberalized agriculture trade. I propose that these barriers could be overcome via a threepronged approach: reorganization of trade policy, greater implementation of policies aimed at increasing food sovereignty, and implementing agroecological farming practices and systems into national policy planning in order to achieve food sovereighnty. The effects of tradepolicy have been shown to have a direct link to the socioeconomic and food security conditions offarmers (Altman et al., 2009). Therein, the concept of de-linking has been proposed, in which traderelationships in low-income countries would de-link from high-income countries in favor of trade with other low-income countries with which a nation would have a greater comparative advantage (Ajl, 2019; Amin, 2017; Mansour, 1980). The idea is not just theoretical, the Bandung Declaration of 1955 and the New International Economic Order of 1974 (group within WTO) are examples of such initiatives aimed at reorienting southern trade (Dahi and Demir, 2017). Other movements such as the non-aligned movement have aimed to organize international trade between Southernnations as it was well understood since the time of its founding that Southern production could not compete with the North. Inpractice, this manifested as the Havana charter of 1948 which created the International TradeOrganization (ITO) with the purpose of aligning trade between low-income nations to obtain more favorable trade with high-income nations (Bockman, 2015b).

While the trade policies are a major factor for the general socioeconomic condition of smallholders, policies aimed to assist smallholders directly would have direct impact on their livelihood. This is where the principles of food sovereignty come into play, as the objectives of the movement are aimed to empower these farmers directly (Ajl,





2018b; Altieri, 2009; Edelman, 2014; Loveday-brown, 2013). In terms of production methods and food systems organization, thepolitical goals of the food sovereignty movement are also in alignment with principles of agroecology (FAO, 2018; van der Ploeg et al., 2019; Wezel et al., 2009). Both Agroecology and Food sovereignty objectives include shortening supply chains to direct more profit to farmers, localproduction, and environmentally friendly production methods; in agroecology, smallholder agriculture is pursued as it is more conducive to ecological farming than large-scale monocultureswhich require high-cost inputs. As such, agriculture policy should focus on perpetuating agroecological methods and supporting the smallholder farmers which utilize its practices. Further, the six principles of food sovereignty principles should dictate policy as the two are interconnected. Not only would such policy objectives help the environment and smallholder's economic conditions, but farmers in low and middle-income nations are already predisposed to this type of agriculture; as much as the system has tried to displace them, smallholder farmers stillpredominate agriculture in the global south (Dixon, 2020; Holt Giménez and Shattuck, 2011; vander Ploeg, 2012).

5. Conclusion

In this paper, I have attempted to answer the following research questions: First, what are the effects of liberalized agriculture policies on the socioeconomic condition of smallholders and how do these effects relate to their food sovereignty? Second, if global development has been unequal, what characteristics in our current system causes this inequity?

With regard to the first question, it has been stated that in this paper, food sovereignty principles have been used as research targets to measure socioeconomic condition; reduced socioeconomic conditions of smallholder farmers is *what* is happening, and policies which violate food sovereignty principles are *how*. Thus, the links to food sovereignty principles have been explored above to describe the *how*. Figure 43 represents a summation of *what* is happening to smallholder farmers in the global South. The primary effects of liberalized agriculture policies are that smallholders are incentivized to grow cash crops to remain competitive, low-income nations are dependent on the North for agriculture investment, processing has left (or never began in) lower-income nations, and land is being acquired by industrial producers both foreign and domestic. By examining each of these effects from the food sovereignty perspective, the implications of these policies on the socioeconomic condition of smallholders then becomes clear: Farmers are more prone to volatility with cash crops, rural communities lose income via the loss of production, agriculture (nationally) becomes less profitable with the increased need for staple crop imports, smallholders cannot compete with large producers both foreign and domestic, and increased instances of land-





grabs.

While the socioeconomic condition of the individual farmer is affected as described in figure 43, we cannot ignore the larger context in which they exist, leading to the second research question: *If global development has been unequal, what characteristics in our current system causes this inequity*? The effects of policy explored in the first research question constitute our current global food system. Figure 44 represents how these effects of liberalization polices have perpetuated the cycle of uneven development. Here, we can see how these same effects not only effect socioeconomic conditions on the scale of the individual farmer, but also feedback to create a cycle of dependance on the national scale. Therefore, **I argue that liberalization policies have negatively impacted the socioeconomic condition of smallholder famers in the both the individual and national scales.**

I hypothesized that nations which have implemented liberalization policies in agriculture before having the opportunity to develop the sector have relinquished the food sovereignty of their people to appease the demand of a global market dominated by Northern multinational corporations. The data in this study lends evidence to partially support my hypothesis. The data has led me to conclude that: while liberalization policies do negatively impact food sovereignty and socioeconomics of smallholders, not all types of liberalization policies have an equal effect; the data suggests that trade liberalization plays a much larger role than that of increasing liberalization privatization or industrialization in negatively impacting food sovereignty. Of the nations in this study, Brazil and India are those which liberalized their agriculture very early on after independence (Jangid et al., n.d.; Önalan et al., 2018) meaning that they were able to attract the capital investment needed earlier in their development. This allowed Brazil and India to be more competitive on the global market, especially after the Doha round in 1995 and the commodification of agriculture in 2005. The reason being, industrialization (which requires capital investments) is key to success in a global market (van der Ploeg, 2010). On the other hand, Côte d'Ivoire and Kenya have been slower to develop institutions post-independence and therefore lack a broad agriculture policy necessary to organize liberal policy objectives. As such, agriculture policies in Kenya and Côte d'Ivoire are typically composed of a series of programs, rather than an all-encompassing policy integrated into the national agenda (Ricau 2021). This is a possible reason that the primary investment of FDI in Côte d'Ivoire is for policy improvement, which is also the second highest investment category in Kenya (Figure 39). The fact that both Brazil (Önalan et al., 2018) and India (Jangid et al., n.d.) invested heavily in food production directly following independence also allowed them to become a primary exporter of staple food crops, preventing them from being as affected by the volatility issue. No examples of major agriculture policies were found for either Kenya or Côte d'Ivoire during the course of this research.





In the absence of a solid **agriculture development policy** and without **investment capital**, Kenya and Côte d'Ivoire were not able to make the investments needed in agriculture to compete globally in anything other than crops that require their specific climate. Therefore, if we apply the three factors of agriculture liberalization as proposed in Van der Ploeg 2010: Trade liberalization, privatization (food empires), and industrialization, we see that even if Kenya and Côte d'Ivoire enacted more liberal policies for privatization and industrialization than Brazil and India, **they still wouldn't have had the investment needed to grow private industry or make the capital investments needed for industrialization**. Therefore, the effects of these liberalization policies (from privatization and industrialization) on food sovereignty should be less pronounced in Kenya and Côte d'Ivoire.

However, when we look at the socioeconomic condition of smallholder farmers specifically in each of these countries, we can see that these policies have negatively impacted food sovereignty for small holder farmers in all the countries of study. While smallholders in Brazil and India might have more off-farm opportunities and therefore a better socioeconomic condition than farmers in Cote d'Ivoire, Kenya, or Cuba, this study found no evidence to suggest that smallholders in Brazil and India are in any better or worse position (socioeconomically or in terms of food sovereignty) than smallholders in Côte d'Ivoire, Kenya, or Cuba.

If Liberalization policies were correlated to negative food sovereignty impacts, we would expect to see less food sovereignty in Brazil and India (greater impacts of privatization and industrial liberalization policies) than in Kenya and Côte D'Ivoire. But, this leaves out Van der Ploeg's third factor, trade. While the impacts of liberalizing privatization and industrialization in low-income countries might be limited by capital, trade is not. In fact, each of the countries is a member of the WTO and is in-fact obligated to have similar levels of liberalization within trade policy. While the WTO allows for some exceptions for developing countries in terms of tax duty exemptions, import substitutions, or domestic content subsidies, these exceptions don't apply to countries with a per-capita income greater than \$1000 (Creskoff and Walkenhorst, 2009). Côte d'Ivoire's income per capita is \$2,115 and Kenya's is \$1,492 (The World Bank, 2021), meaning that neither are exempt. Therefore, we can assume that each of these countries have a *similar level of liberalization policies* in terms of trade. This, coupled with the fact that *food sovereignty is similar* in each of the countries studied, suggests that **liberalized trade policies have** a far greater impact on the food sovereignty and socioeconomic condition of smallholder farmers in the global South than liberalized privatization and industrialization do. However, it should also be noted that as low-income countries liberalize their trade, this creates the opportunities for foreign, private companies to create industrialized farms, import processed goods, and purchase cash crops at low prices. Therein, it could be said that even though low-income nations can't invest in agriculture themselves (thus we would expect them to have less effects of privatization and industrialization policies), the fact that they have liberalized trade to the extent that they have has allowed foreign investors to negatively impact food sovereignty through privatization and





industrialization, albeit it a lesser extent than countries which could do this investment themselves as well (Brazil and India).

The questions this work set out to answer are difficult to analyze with numbers, which is perhaps why few have tried until now. In this paper, I have attempted to apply quantitative methods to a social sciences topic. This was difficult primarily because many of these terms (such as *food sovereignty* and *liberalized policy*) are either loosely defined or an amalgamation of countless other factors. For example, the term *food sovereignty* is still being defined. While political objectives have been put into place, political objective are not research targets. Therein, there is a lack of data which could be related directly to food sovereignty. Additionally, the fact that food sovereignty is such a broad topic, it covers much more than agriculture and trade policy; a true accounting of a nation's food sovereignty would have to include a study of the entire economy, government, and society as all are aspects of food sovereignty. Future research should therefore focus on how we might quantify food sovereignty, which could include mass surveys of smallholders in these countries. Future research should also focus on the effects of trade policies which, as discussed, seem to have more of an impact than liberalized privatization or industrialization policies and trade policies can in fact negatively feed back to the other types.





6. References

- Ajl, M., 2019. Auto-centered development and indigenous technics: Slaheddine el-Amami and Tunisian delinking. The Journal of Peasant Studies 46, 1240–1263.
- Ajl, M., 2018. Delinking, food sovereignty, and populist agronomy: notes on an intellectual history of the peasant path in the global South. Review of African Political Economy 45, 64–84. https://doi.org/10.1080/03056244.2018.1443437
- Alves, A.F., Guivant, J.S., 2020. Challenges for a sustainable agriculture in Brazil. Perspectives on rural development 2020, 121–142.
- Amin, S., 2017. The Sovereign Popular Project; The Alternative to Liberal Globalization. Journal of Labor and Society 20, 7–22.
- Aniekwe, C.C., 2010. Agricultural trade liberalization and small-holder development : West African rice farmers in perspective, in: Second Africa Rice Congress, Bamako, Mali. pp. 1–7.
- Bharti, N., 2018. Evolution of agriculture finance in India: a historical perspective. Agricultural Finance Review 78, 376–392. https://doi.org/10.1108/AFR-05-2017-0035
- Botella-Rodríguez, E., González-Esteban, Á.L., 2021. Past and present land reform in Cuba (1959-2020): From peasant collectivisation to re-peasantisation and beyond. Rural History 1–16. https://doi.org/10.1017/S0956793321000108
- Brown, S., Kennedy, G., 2005. A case study of cash cropping in Nepal: Poverty alleviation or inequity? Agriculture and Human Values 22, 105–116.
- Carr, M., Chen, M.A., others, 2002. Globalization and the informal economy: How global trade and investment impact on the working poor. International Labour Office Geneva.
- Cramon-Taubadel, S. von, Anriquez, G., Haen, H. de, Nivyevskyi, O., others, 2011. Investment in developing countries' food and agriculture: assessing agricultural capital stocks and their impact on productivity. Looking ahead in world food and agriculture: perspectives to 2050 279–316.
- Creskoff, S., Walkenhorst, P., 2009. Implications of WTO disciplines for special economic zones in developing countries. World Bank Policy Research Working Paper.
- de Vylder, S., 2021. Why poor countries remain poor: The Latin American dependency school, in: Poverty in Contemporary Economic Thought. Routledge, pp. 125–144.





https://doi.org/10.4324/9780429331312-8

- Dominguez, J.I., 2005. Cuba's economic transition: Successes, deficiencies, and challenges, in: Transforming Socialist Economies. Springer, pp. 10–34.
- Dudzinski, J., 2010. Financial investors in international raw materials and food markets and price movements of those commodities. Economics & Sociology 3, 25.
- Eliazer Nelson, A.R.L., Ravichandran, K., Antony, U., 2019. The impact of the Green Revolution on indigenous crops of India. Journal of Ethnic Foods 6, 1–10. https://doi.org/10.1186/s42779-019-0011-9
- Fernandez, M., Williams, J., Figueroa, G., Graddy-Lovelace, G., MacHado, M., Vazquez, L., Perez, N., Casimiro, L., Romero, G., Funes-Aguilar, F., 2018. New opportunities, new challenges: Harnessing Cuba's advances in agroecology and sustainable agriculture in the context of changing relations with the United States. Elementa 6. https://doi.org/10.1525/elementa.337

Fountain, A., Hütz-Adams, F., 2018. Cocoa barometer. Public Eye.

- Giraldo, O.F., McCune, N., 2019. Can the state take agroecology to scale? Public policy experiences in agroecological territorialization from Latin America. Agroecology and Sustainable Food Systems 43, 785–809. https://doi.org/10.1080/21683565.2019.1585402
- González, A.N., Alfonso, G.F., 2018. Recent transformations in Cuban agricultural policy and impacts on markets and production. Elementa 6. https://doi.org/10.1525/elementa.323
- Hendrickson, M., Burt, R., Chataway, J., Cotter, J., Darcy-Vrillon, B., Debailleul, G., Grundy, A., Hinga, K., Johnson, B., Kahiluoto, H., others, 2009. Changes in agriculture and food production in NAE since 1945. Agriculture at a crossroads: IAASTED International Assessment of Agricultural Knowledge, Science and Technology for Development, North America and Europe (NAE) report/Edited by Beverly D. McIntyre et al.
- Heylen, C., Meunier, F., Peeters, A., Ek, S., Neang, M., Hean, S., Peanh, S., 2020. Multidimensional Benefits of Sustainable Agriculture Practices of Cambodian Smallholder Farmers. Sustainable Agriculture Research 9, 10–25.
- Hopewell, K., 2014. The transformation of state-business relations in an emerging economy: The case of Brazilian agribusiness. Critical Perspectives on International Business 10. https://doi.org/10.1108/cpoib-03-2014-0019
- Hueston, W., McLeod, A., 2012. Overview of the Global Food System: Changes over Time/Space and Lessons for Future Food Safety, in: Overview of the Global Food System: Changes over Time/Space and Lessons for Future Food Safety. pp. 189–197.
- Jangid, A., Gautam, M.K., Nayak, M.K., Regar, S., Shukla, A., n.d. AGRICULTURAL POLICY IN INDIA. NEW INITIATIVE IN AGRICULTURE AND RURAL DEVELOPMENT 43.





- Johns, T., Powell, B., Maundu, P., Eyzaguirre, P.B., 2013. Agricultural biodiversity as a link between traditional food systems and contemporary development, social integrity and ecological health. Journal of the Science of Food and Agriculture 93, 3433–3442.
- Litonjua, M.D., 2012. Third world/global south: From modernization, to dependency/liberation, to postdevelopment. Journal of Third World Studies 29, 25–56.
- Losch, B., 2002. Global restructuring and liberalization: Côte d'Ivoire and the end of the international cocoa market? Journal of agrarian change 2, 206–227.
- Loveday-brown, A., 2013. the Six Pillars of Food Sovereignty. Nyeleni Newsletter 6.
- Machio, P.N., 2015. Determinants Of Rural Poverty In Kenya: The Case Of Cash Crop Growing.
- Mahadevan, R., 2004. Productivity growth in Indian agriculture: The role of globalization and economic reform. Asia-Pacific Development Journal 10, 57–72. https://doi.org/10.18356/5728288b-en
- Malan, B.B., 2013. Volatility and stabilization of the price of coffee and cocoa in Côte d'Ivoire. Agricultural Economics 59, 333–340.
- Matthews, A., 2010. Perspectives on addressing market instability and income risk for farmers, in: A Joint AES and SFER Conference on–The Common Agricultural Policy Post 2013.
- Maxwell, S., Fernando, A., 1989. Cash crops in developing countries: the issues, the facts, the policies. World development 17, 1677–1708.
- Meijl, J.C.M., Tongeren, F.W., 2001. Multilateral trade liberalisation and developing countries: A North-South perspective on agriculture and processing sectors. Agricultural Economics Research Institute (LEI).
- Önalan, M.S., Magda, R., others, 2018. AGRICULTURAL POLICIES IN RURAL DEVELOPMENT TWO RISING POWER-AGRICULTURAL POLICIES IN BRAZIL AND INDIA. PROCEEDINGS BOOK 235.
- Onour, I., Sergi, B.S., 2011. Modeling and Forecasting Volatility in the Global Food Commodity Prices (Modelování a Prognózování Volatility Globálních cen Potravinářských Komodit). Agricultural Economics-Czech 57, 132–139.
- Patel, R., 2009. Food sovereignty. The journal of peasant studies 36, 663–706.
- Pompeu, J., Nolasco, C.L., West, P., Smith, P., Gerage, J., Ometto, J., 2021. Is domestic agricultural production sufficient to meet national food nutrient needs in Brazil? PLoS ONE 16, 1–17. https://doi.org/10.1371/journal.pone.0251778
- Read, D., Parton, K., 2009. Economic deregulation and trade liberalization in Kenya, Tanzania and Uganda: Growth and poverty. Journal of Economic Issues 43, 567–586. https://doi.org/10.2753/JEI0021-3624430301
- Rezende, G.C., 1993. Heterodox Stabilisation Plans and Agriculture in Brazil, 1986-91. Economic Reform,





Trade and Agricultural Development 189–211. https://doi.org/10.1007/978-1-349-23103-4 8

- Rosset, P.M., Val, V., 2018. The 'Campesino a Campesino' Agroecology Movement in Cuba: Food sovereignty and food as a commons, in: Routledge Handbook of Food as a Commons. Routledge, pp. 251–265.
- Sassen, S., 2013. Land Grabs Today: Feeding the Disassembling of National Territory. Globalizations 10, 25–46. https://doi.org/10.1080/14747731.2013.760927
- Schleifer, P., 2017. Private regulation and global economic change: The drivers of sustainable agriculture in Brazil. Governance 30, 687–703. https://doi.org/10.1111/gove.12267
- Singer, H.W., 1975. The distribution of gains between investing and borrowing countries, in: The Strategy of International Development. Springer, pp. 43–57.
- The World Bank, 2021. Adjusted net national income (Current \$USD) [WWW Document]. data.worldbank.org. URL https://data.worldbank.org/indicator/NY.ADJ.NNTY.PC.CD (accessed 9.18.21).
- Thiemann, L., Spoor, M., 2019. Beyond the "special period": land reform, supermarkets and the prospects for peasant-driven food sovereignty in post-socialist Cuba (2008–2017). Canadian Journal of Development Studies 40, 546–563. https://doi.org/10.1080/02255189.2019.1632174
- Tröster, B., 2018. Commodity price stabilization: The need for a policy mix that breaks the vicious cycle of commodity dependence and price volatility.
- Tröster, B., Staritz, C., Grumiller, J., Maile, F., 2019. Commodity dependence, global commodity chains, price volatility and financialisation : Price-setting and stabilisation in the cocoa sectors in Côte d ' Ivoire and Ghana, Austrian Foundation of Development research. Working Paper.
- van der Ploeg, J.D., 2010. The food crisis, industrialized farming and the imperial regime. Journal of Agrarian Change. https://doi.org/10.1111/j.1471-0366.2009.00251.x





7. Appendix

(I)- Food sovereignty Indicators

Do Peasant farmers have the right/ability to be in control of their own food system?						
Evidence of the problem's effects	Brazil	India	Côte D'Ivoire	Cuba	Kenya	United States
Is the Per worker value addition different than the national						
Agriculture, value added (percentage of GDP)	4.602101	16.015078	20.54857	3.800684	34.098593	
Agriculture, value added per worker (constant 2010 SUS)	13477.64732	1972.066603	2665.725764	3096.578301	1106.61453	
GDP per capita (current \$US)	9925.386238	2099.599048	2314.050681	8541,210673	1707.986805	
Financial institution account, income, poprest 40 percent (percentage of age 15+)	56.625241	2000.000010	20211000001	00111210070	1,0,1500005	
Powerty headcount ratio at \$1.00 a day (2011 DDD) (percentage of appulation)	9.9					
Foreigness of the Drohlam's causes	0.0					
Evidence of the Problem's causes						
Farmers should have the <i>ability</i> to be in complete control over their own tood prodoction	40	40			20	
Freedom in the World: Civil Liberties, Aggregate score (U-60, higher is better)	48	40	32	14	29	53
Freedom in the World: Overall Freedom Status (1=free, 2=partly free, 3=not free)	1	1	2	3	2	1
Freedom in the World: Political Rights, Aggregate score (0-40, higher is better)	31	35	19	1	19	33
Rule of Law Index: Factor 1, Constraints on Government Powers (0-1, higher is stronger rule of law)		0.611282	0.437448		0.489871	0.713318
Rule of Law Index: Factor 2, Absence of Corruption (0-1, higher is stronger rule of law)		0.426108	0.395149		0.290215	0.737272
Rule of Law Index: Factor 3, Open Government (0-1, higher is stronger rule of law)		0.611648	0.374667		0.487762	0.77583
Rule of Law Index: Factor 4, Fundamental Rights (0-1, higher is stronger rule of law)		0.525093	0.460903		0.456791	0.720549
Rule of Law Index: Factor 7, Civil Justice (0-1, higher is stronger rule of law)		0.445908	0.518753		0.45964	0.624024
Varieties of Democracy, Access to justice for women (0 to 4, higher is better)	2.333	2.416	2.437	1.072	2.434	3.382
Varieties of Democracy, civil society participation index (0-1, higher is better)	0.744	0.603	0.787	0.118	0.78	0.979
Varieties of Democracy, deliberative component index (0-1, higher is better)	0.643	0.508	0.888	0.264	0.714	0.607
Varieties of Democracy, electoral democracy index (0-1, higher is better)	0.772	0.476	0.542	0.176	0.445	0.815
Varieties of Democracy, freedom of association (thick) index (0-1, higher is better)	0.908	0.661	0.789	0.031	0.734	0.946
Varieties of Democracy, freedom of expression and alternative sources of information index (0-1 higher is better)	0.803	0.599	0.692	0.052	0.812	0.907
Variaties of Democracy, Media Self-Cencorship (0 is average higher is better)	0.005	0.553	0.052	-2 693	1.026	1.61
Landing ability, hanks control many farmers, India	0.58	0.502	0.557	-2.055	1.020	1.01
Denetes of composited barlis (not 100 000 adulta)	10 5093	14 57093	E OF COF		E 001078	
Branches of commercial banks (per 100,000 adults)	19.5082	14.57982	5.05035		5.001978	05
Doing Business: Getting credit, score (U-100, higher is better)	45	80	30		/5	95
Doing Business: Getting credit, strength of legal rights index (0-12, higher is better)	2	9	6		1	11
Net lending (+) / net borrowing (-) (percentage of GDP)	-8.078909		-3.339273		-8.577066	
Employment						
Employment in agriculture (percentage of total employment) (modeled ILO estimate)	9.46	42.599998	41.009998	17.99	55.080002	
Employment in industry (percentage of total employment) (modeled ILO estimate)	20.48	25.120001	12.73	17.030001	6.19	
Employment in services (percentage of total employment) (modeled ILO estimate)	70.07	32.279999	46.259998	64.980003	38.73	
Employment to population ratio, 15+, total (percentage) (modeled ILO estimate)	55.84	46.740002	52.009998	52.950001	72.540001	56.310001
Food Security (classic Definition)						
Child Mortality Estimates: Under-five mortality rate (U5MR) (median bound)		34.274759	82.406242	5.346158	44.616156	
Children severely underweight (percentage)						
Global Food Security Index: Overall score (0-100, higher is better)	71.7	55.1	48.5		48.7	77.5
Global Hunger Index (GHI): Overall score (0-100, lower is better)						
Corruption- in the context of effect on peasent farmers						
Corruption Perceptions Index: Overall Score (0-100, higher is less corrupt)	37	41	35	47	27	67
Doing Business: Enforcing contracts, quality of the judicial administration index, score (0-100, higher is better)	72 69444	58 33333	47 22222		50	81 11111
Variaties of Democracy, executive corruntion index (0.1, higher is more corrunt)	0.666	0 218	0.471	0.43	0 769	0.085
Varieties of Democracy, executive comption index (0-1, higher is more compt)	0.000	0.210	0.471	0.45	0.705	2.041
Varieties of Democracy, Judicial corruption becision (rolinical conduction index) (o is average, higher is becter)	0.577	0.755	-0.004	0.785	0.11	2.041
Varieties of Democracy, political corruption index (0-1, nigher is more corrupt)	0.575	0.42	0.487	0.456	0.043	0.089
Varieties of Democracy, public sector corruption index (0-1, nigher is more corrupt)	0.357	0.385	0.537	0.811	0.605	0.087
Preventing the processing from taking place in the South		67 40 600				
Doing Business: Ease of doing business score (0-100, higher is better)	55.22357	67.49639	52.98796		65.40809	83.99668
Manufactures exports (percentage of merchandise exports)	35.63905	71.020538	10.160066		28.425649	
Market capitalization of listed domestic companies (percentage of GDP)	46.281788	75.978908				
Seed sovereighnty						
Patent applications, nonresidents	20178	34173		145	42	
Patent applications, residents	5480	19454		29	244	
Other barriers to development of the Ag sector						
Doing Business: Trading across borders, cost to export, documentary compliance (US\$)	226.4	77.7	136.1		190.5	60
Doing Business: Trading across borders, cost to import, documentary compliance (US\$)	106.9	100	266.7		115	100
Doing Business: Trading across borders, score (0-100, higher is better)	58.78702	77.4638	52.44345		67.63183	92.01404
Doing Business: Trading across borders, time to export, documentary compliance (hours)	18	14.5	84		19	1.5
Doing Business: Trading across borders, time to import, documentary compliance (hours)	120	29.7	89.1		60	7.5
Economic Complexity Index (ECI), standardized score (based on SITC classification, higher is better)	0 1479	2017	-0.961	-0.9537	-0 3380	7.5
Fragile States Index: Public Services (1-10, Iower is more stable)	6.1475	6.0	8 520929	A 1	8 206495	1 212120
Fragile States Index: Security Apparatus (1-10, lower is more stable)	67	7.0	0.520020	4.1	0.230403	1.215125
Tracing States mach, Security Apparatus (1-10, IOWer is IIIO/E Stable)	0./	1.4		3.2	0.4	. 3.0







(II) Production data- Percentage of total production









Norges miljø- og biovitenskapelige universitet Noregs miljø- og biovitskapelege universitet Norwegian University of Life Sciences Postboks 5003 NO-1432 Ås Norway