

A STUDY OF THE RELATIONSHIP BETWEEN TRADE LIBERALIZATION AND
HUMAN DEVELOPMENT IN SUB-SAHARAN AFRICA'S LEAST DEVELOPED
COUNTRIES

by

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ABSTRACT

The purpose of this study is to examine the relationship between trade liberalization, measured using the Heritage Foundation's Trade Freedom indicator, and human development, measured using the United Nations Development Program's Human Development Index, in sub-Saharan Africa's Least Developed Countries between 1990 and 2011 as data allows. In addition to exploring the relationship between these two variables, alternative factors that influence human development are examined in bivariate correlations with human development as well as used as control variables in a multiple regression analysis. Namely, this study includes government effectiveness, the percentage of the labor force employed in the agricultural sector, the percent of Gross Domestic Product made up of the sale of agricultural products, geography, and armed conflict as control variables.

By conducting a cross-national bivariate correlation analysis as well as a cross-national multiple regression analysis for the years between 1990 and 2011, this study highlights how, when included in a model with control variables, trade liberalization goes from being a statistically significant predictor of human development index scores to losing its significance altogether. The results from this study indicate that trade liberalization, government effectiveness, and geography, more specifically being landlocked or not, do not have statistically significant effects on human development for LDCs in the region. However, this study finds that for every unit increase in the percentage of the labor force working in agriculture as well as the percentage of GDP made up by agricultural products, a lower human development score can be expected. Armed conflict also has a statistically significant, negative effect on human development.

I dedicate this thesis to my students. In a few short years, it will be your turn to make the world
a better place. Learn everything you can and do your best.

We are counting on you.

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LIST OF ACRONYMS AND ABBREVIATIONS

GATT- General Agreement on Tariffs and Trade

GDP- Gross Domestic Product

GNI- Gross National Income

HDI- Human Development Index

IMF- International Monetary Fund

LDC(s)- Least Developed Country(-ies)

PPP- Purchasing Power Parity

US- United States

UN- United Nations

UNDP- United Nations Development Program

UN-OHRLLS- United Nations Office of the High Representative for the Least Developed Countries, Landlocked Countries, and the Small Island Developing States

WTO- World Trade Organization

CHAPTER 1: INTRODUCTION

Advocates of international trade liberalization contend that for countries integrated into the world economy, free trade fuels economic growth, social equality, and higher global living standards (Dollar and Kraay, 2007; Wolf, 2007). However, recent studies have suggested that instead of yielding positive results, trade liberalization in the developing world is to blame for the rise in income inequality, poverty, and foreign debt and has a disproportionately large negative effect on the world's poorest countries (World Trade Organization, 2011c). A typical Least Developed Country in Sub-Saharan Africa lacks the necessary factors for successful economic and human development including limited access to diversified employment opportunities, less than \$750 US dollars per capita per year, human resource weaknesses including a lack of adequate nutrition, healthcare, and low levels of adult literacy (UN-OHRLLS, 2011).

Without basic needs being met and professional development opportunities afforded to a population, a country tends to stagnate. Yet, the research on the effectiveness of trade liberalization in relation to improving a country's economy and its citizens' living standards has so far been inconclusive. While some researchers and professionals maintain that trade liberalization is helpful for developing countries in its ability to help bring more resources and money to a country's population, others adhere to the belief that trade liberalization contributes to higher levels of inequality and continued underdevelopment.

A Brief History of Trade Liberalization

The argument that free trade fuels economic growth which in turn promotes higher global living standards for countries integrated into the world economy can be traced back to the

Bretton Woods agreement signed in 1944. The historical context of Bretton Woods was the victors of World War II wanted to repair the devastation caused by the war, promote development, and to prevent another conflict of its kind (Ray, 2006). To accomplish these three goals, the Bretton Woods agreement asserted that the road to economic growth lay in progress towards open markets, liberalized trade, and stability and predictability in the international economic system (World Trade Organization, 2011a). The framers of this agreement believed that combining these factors would also encourage democracy in countries that were rebuilding and pursuing economic growth.

To augment the ideals held in the Bretton Woods agreement, as well as make them more widely applicable to the developing world in the late 20th century, the International Monetary Fund, World Bank, and US Treasury met to form tangible economic liberalization policies. The resulting policies shaped what is now known as the “Washington Consensus” which emphasizes fiscal austerity, privatization, and market liberalization (Ray, 2006). These became the guiding principles of the IMF and World Bank, with which all developing countries have interacted. In order to receive development assistance and funding from either organization, a country must accept the obligation of enforcing Structural Adjustment Policies, namely privatizing state enterprises, freeing controlled prices, reducing budget deficits, and reducing barriers to trade (Easterly, 1999). Due to the preeminence of these international organizations and their guiding principles, the developing world has been made well aware of the expectations placed on them in order to develop.

David Dollar and Aart Kraay (2007) cite India and China as two prime examples of economic growth and human development as a result of adhering to the principles of the Washington Consensus. These authors claim that as a result of opening their markets and

liberalizing their trade, these two countries have seen their currency soar as well as the number of poor citizens shrink. Dollar and Kraay discuss what they call “facts” about global economic integration: Since 1975, global inequality stabilized and reversed; there is a strong correlation that links increased participation in international trade and investment to faster growth; and trade liberalization has not resulted in higher inequality within economies. The problem in global inequality is not as a result of free trade but rather the protectionist movement in rich countries that aim to limit integration with poor ones. If the intended purposes of economic and trade liberalization are to succeed, rich country protectionist policies must be halted while developing countries must acquire the kinds of institutions, an accountable government for starters and policies that will allow them to prosper including but not limited to reducing and eventually eliminating tariff and non-tariff barriers to trade.

Anne O. Krueger (2006) argues that countries which trade most openly and actively are the most prosperous and that trade is an engine of global growth. Trade brings competition and enables producers to have access to inputs at the lowest possible prices. This sort of environment is widely believed to be conducive of human development. Krueger believes that the key to rapid growth is trade liberalization and further claims that in order for trade liberalization to work at its optimum level, all tariff and non-tariff barriers must be entirely eliminated.

Since the decolonization of Africa in the 1960s, more than \$1 trillion US Dollars of aid has been transferred to the region (Moyo, 2009) in hopes that an aid-fueled “jump start” would encourage the region to become more economically developed as well be spent on establishing the necessary policies and programs that would enable the continent to become better integrated

into the world economy. This type of push, many hoped, would lead to more open markets and eventually stable economies that could sustain economic growth and human development.

Between 1983 and 2003, even though the region remains one of the most highly protectionist in the world, sub-Saharan Africa as a whole has reduced its average applied tariffs of goods and services traded internationally by 20 percent (Tupy, 2005). Additionally, since the mid-1980's much of sub-Saharan Africa has adopted structural adjustment policies aimed specifically at liberalizing their markets and have adjusted their exchange rate policies to improve their trade performance (Trueblood et al., 1999). According to the UN Food and Agriculture Organization, many sub-Saharan African countries have implemented core policy changes to enhance inter- and intra- regional trade including the removal of barriers to private sector involvement, the deregulation of consumer and producer prices, the reduction of taxes and subsidies, the privatization of state marketing or processing enterprises, and the abolition of official monopolies (UN FAO, 2003). After having made these changes to pursue trade liberalization, which is believed to encourage the type of economic competition that leads to rising incomes and higher standards of living, why then are so many countries in sub-Saharan Africa still considered to be Least Developed Countries? The reality of this situation begs two questions: first, is trade liberalization correlated positively with human development and second, if not, what is preventing these countries from benefiting from the economic competition that scholars working for the United Nations predict should bring about increasing levels of human development?

Despite the touted benefits of trade liberalization and the claims that sub-Saharan African countries have opened their borders to freer trade, SSA countries can be separated into three categories regarding the implementation of liberalization strategies and core policy changes:

some governments adhere to their implemented market reforms, many have experimented with reform and returned to some controls, while others openly resist market liberalization and fail to make significant change to existing trade policies (UN FAO, 2003). While available statistics support these three categories, the same statistics do not fully explain the motivation of a government to create or refuse certain policies. Since the literature to date is contentious regarding the relationship between trade liberalization and human development, this research will begin by examining the claims of the pro-trade liberalization literature. If trade liberalization is found to be negatively correlated with human development, it is not reasonable to automatically assume that trade liberalization is the sole culprit of underdevelopment. Hence, this research explores several factors that may influence or condition the relationship between trade liberalization and human development including government effectiveness, agricultural factors, geography, and the amount of conflict each country has been involved in since 1995.

If this study determines that trade liberalization is indeed effective at promoting human development, the hope is to identify factors that hinder the positive relationship between trade liberalization and human development so that more attention is paid and additional resources are devoted to tackling the issues preventing a country from benefiting from international economic integration. As more literature emerges supporting what works and highlighting what doesn't, perhaps more domestic and international policies will be established that tackle the root causes of underdevelopment. The aim of this literature is to provide a deeper understanding of the mechanisms that may influence human development in Least Developed Countries in sub-Saharan Africa in hopes that more capital will be devoted to searching for what does work and in turn, provide citizens with the opportunity to live long, healthy, productive lives and maybe even eliminate the need for a "least developed country" distinction.

Contribution to Existing Literature

With such a broad spectrum of findings related to the relationship between trade liberalization and human development, this study endeavors to explore two realms of that relationship. First, it attempts to explore whether or not trade liberalization spurs human development in Least Developed Countries in sub-Saharan Africa. Second, this study explores the possible effect of government effectiveness and other potential predictors on the relationship between trade liberalization and human development.

The research question of this study is whether or not trade liberalization is effective at promoting human development in Least Developed Countries in sub-Saharan Africa. This study investigates the influence of trade liberalization on human development for the years of 1995-2010, as data allows, while taking into account the influence of domestic factors as intervening in the connection between trade liberalization and human development. More precisely, this study will examine government effectiveness, the percentage of the working aged population employed in agriculture, the percent of the GDP made up by agricultural products, whether or not a country is landlocked, and the amount of armed conflict in each country over time as intervening variables. Each of these indicators will be discussed in more detail in the methodology section of this study, Chapter 3.

Important Terms and Concepts

Trade Liberalization

Trade liberalization refers to policies that allow the unrestricted flow of goods and services to and from any given country (World Trade Organization, 2011b). For a country to be considered “liberalized”, that country must be actively engaged in becoming more “open” to

trade. In order to become economically open, a country's government must institute and uphold policies enabling their economic sector to become less restrictive in the flow of goods and services. A country with effective trade liberalization policies will be more open to trade than those without. Essentially, the measure of the effectiveness of trade liberalization is in fact the effect that those policies have on tariff and non-tariff barriers. That having been said, to avoid any confusion, trade liberalization and trade openness can and will be used interchangeably in this study.

In his work, *From Free Trade to Managed Trade*, Chakravarthi Raghavan (2004) notes the specific conditions of trade liberalization including reducing tariffs and residual quantitative restrictions as well as taking measures to reduce non-tariff barriers associated with a country's imports and exports. Tariff barriers, or taxes on imports, are used to protect domestic producers' incomes from foreign competition (Sumner, Smith, Rosson). Non-tariff barriers include, but are not limited to, import quotas, voluntary export restraints, export subsidies, technical barriers, countervailing techniques, and restrictive state- trading interventions (Beghin, 2006). While some studies use only one of these various indicators and call it an accurate measure of trade liberalization, this study uses the Heritage Foundation's Economic Freedom Index "Trade Freedom" indicator which is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs: the trade-weighted average tariff rate and non-tariff barriers. The trade freedom score is indicative of trade liberalization because the action of reducing tariff and non-tariff barriers are direct results of government policies enabling such action.

Human Development

While many ways of measuring well-being have been used in economic studies such as using Gross Domestic Product (GDP) Per Capita or the basic needs approach measuring available commodities including water and caloric consumption, this study employs the United Nations Human Development Index (HDI) and considers it to be the most accurate indicator of well-being as it is accepted as the standard measurement of Human Development by all of the Bretton Woods Institutions (Ray, 2006). The HDI is a composite measure of three dimensions of human development: long and healthy life (measured by life expectancy), being educated (measured by adult literacy and school enrollment at all levels), and having a decent standard of living (measured by Gross National Income (GNI) per capita purchasing power parity (PPP)) (UNDP, 2006).

Least Developed Country

For a country to be considered a Least Developed Country (LDC), it must meet the following three criteria as specified by the United Nations: low-income, human resource weakness, and economic vulnerability. The low-income criterion is based on a three-year average estimate of the gross national income (GNI) per capita under \$750 US. The human resource weakness criterion is based on indicators of nutrition, health, education, and adult literacy. The economic vulnerability criterion is based on indicators of instability of agricultural production and exports of goods and services, non-traditional activities, the handicap of economic smallness, merchandise export concentration and the percentage of people displaced by natural disasters (UN-ORHLLS, 2011). Also, a country qualifying as a LDC must have a population of no more than 75 million people. To qualify for graduation from LDC status, a

country must meet the thresholds of two of the three criteria for six consecutive years (UN-ORHLLS, 2011).

Summary

As stated earlier, the inconclusiveness of the literature on the relationship between trade liberalization and human development makes this topic a contentious one. While some studies indicate that trade liberalization can benefit a country's human development, others suggest that trade liberalization has not lived up to positive expectations regarding its ability to assist in the human development of the developing world. Dollar, Kraay, and Kreuger argue that developing countries that are the most open to trade are the most prosperous. These authors argue that liberalizing trade can contribute to making currencies soar and the number of poor citizens shrink.

Despite the high hopes many national leaders and scholars have had regarding the potential gains resulting from trade liberalization, emerging research suggests that trade liberalization is not only ineffective at promoting human development but rather, the economic competition brought about by trade liberalization is blamed for exploiting the existing economic weakness of developing countries and further exacerbating a country's underdevelopment. Furthermore, several researchers have argued that trade liberalization contributes to increasing income inequality across the region which contributes to poverty as well as stagnates development (Wade, 2007).

Several researchers who have highlighted the positive effects of trade liberalization on development in the third world have noted in their work that such positive effects are experienced only in countries where accountable political institutions exist. Bearing in mind the

many contradictory studies that exist on this topic, one can expect that trade liberalization is correlated with human development in some way however, the direction of the relationship seems unclear. A country's participation in trade liberalization can in fact lead to higher levels of income, life expectancy, and education. Conversely, it is possible that trade liberalization can detract from income, life expectancy, and education levels.

Considering the numerous studies and their wide range of results regarding the relationship between trade liberalization and human development measured by life expectancy, economic growth, and education levels, this study endeavors to explore two realms of that relationship. First, it explores whether or not trade liberalization is correlated positively with human development in Least Developed Countries in sub-Saharan Africa. Second, this study explores the possible conditioning effect of government effectiveness on the relationship between trade liberalization and human development. It is expected that when the level of government effectiveness is low, the ability of a government to institute and uphold trade liberalization policies as well as sufficiently invest in human development will be low.

This study is conducted using a multi-national, multi-year, statistical model using data available for Least Developed Countries in sub-Saharan Africa from 1990-2011. Chapter 3 will outline and discuss the data, variables, and methods of this study. The statistical analysis along with its explanation will be in Chapter 4. Chapter 5 provides explanations of the implications of this study as well as discusses areas for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

Literature on the relationship between trade liberalization and human development has so far been inconclusive. Scholars and professionals in favor of free trade maintain that the benefits of trade liberalization as promoted by international monetary organizations such as the World Trade Organization, International Monetary Fund, and the World Bank greatly outweigh the cost of remaining disconnected from the global economy. Martin Wolf (2007) asserts that for all countries, including those not so well placed in international economic competition, the gains from international trade exceed those that would occur if a country were not linked to the international economy. In his article “Why Globalization Works”, Wolf cites Professors Peter Lindert, Davis Williamson, and Jeffrey Williamson of the Universities of California and Harvard as stating that there are no examples of countries that have risen in the ranks of global living standards while being less open to trade and capital in the late 21st century than in the 1960s. In their study titled “Trade Liberalization and the Sub-Saharan African Countries”, Trueblood and Shapouri (1999) claim that trade liberalization has provided for rising incomes, a greater variety of consumer goods at lower prices, and greater production efficiency in Sub-Saharan Africa.

Marian Tupy (2005) conducted a study on how openness to trade effects economic growth and found that those countries that are most open to trade in Sub-Saharan Africa are the ones that experience the most rapid growth and positive development. Tupy stands firmly by the conclusion that increased trade liberalization is necessary for economic and social advancement in the region. Understanding the sub-Saharan Africa is one of the most protectionist regions in the world (Tupy, 2005), Anne O. Krueger (2006), and analysts with the World Bank, Kym Anderson et al. (2005), predict that increased trade liberalization would boost real incomes, employment and output, the value of agricultural exports, and returns to unskilled labor in sub-

Saharan Africa thereby alleviating poverty. To achieve all of this, advocates of trade liberalization in the developing world call for across the board tariff reductions and lowered protectionism in the entire region.

David Dollar and Aart Kraay (2007), economists at the Development Groups of the World Bank, contend that trade liberalization has fueled economic growth and poverty reduction for countries integrated into the world economy. The authors discuss what they refer to as facts about global economic integration and trade liberalization: Since 1975, global inequality stabilized and reversed; there is a strong correlation that links increased participation in international trade and investment to faster growth; and globalization has not resulted in higher inequality within economies.

Michael Moore and Maurizio Zanardi's econometric regression model measuring the relationship between trade tax revenues and social protection, health, education, economic affairs, and general public services spending by developing countries' governments around the world between 1990 and 2005 suggest that there is no significant evidence to support the claim that economic/trade liberalization has a negative impact on the allocation of resources supporting human development.

Unlike Dollar, Kraay, Moore, and Zanardi, Robert Wade (2007) believes that defenders of trade liberalization wrongly claim that it has reduced poverty and inequality. He believes that the numbers of people living in absolute poverty have increased since 1980 and that globalization and trade liberalization has been associated with rising levels of inequality among people and regions of the world. Wade argues that supporters of trade liberalization and trade related globalization often misuse statistics to support their argument. Additionally, Wade

argues that countries which have benefited the most from globalization first engaged in extensive economic regulation and state protection of their home industries before reducing trade barriers to foreign trade. In short, Wade's stance is that the reduction of global trade barriers is making the rich richer and the poor poorer.

Walden Bello (2010), a columnist for *Foreign Policy in Focus*, plainly states that the Third World is underdeveloped as a direct result of International Monetary Fund and World Bank structural adjustment policies that have forced trade liberalization and free-trade agreements on vulnerable developing governments. Bello believes that because of trade liberalization policies prescribed major international financial institutions, the gains in economic growth and poverty reduction posted by developing countries in the 1960s and 1970s had disappeared by the 1980s and 1990s. Furthermore, Bello suggests that trade liberalization is directly responsible for destroying industry and turning those countries that once enjoyed agricultural surpluses into agriculturally deficit countries.

In his work "Inequality is No Myth," Joseph Pitts (2007) cites a study published by World Bank economist, Branko Milanovic, who stated that global inequality actually increased since the late 20th century with Sub-Saharan Africa faring the worst. David Weston (2008) claims that despite the potential positive effects of trade liberalization, sub-Saharan Africa as a whole has not experienced sustained and sufficient improvements in the quality of life since opening their markets. Weston mentions that while the region as a whole has not reaped the alleged benefits of trade liberalization, some countries in the region have fared better than others citing the difference between Mauritius, a non-Least Developed country and Malawi, a Least Developed country. In his words, alongside trade liberalization, Mauritius has seen increasing annual GDP growth, a diversification of exports in the manufacturing sector, and significant

poverty reduction whereas Malawi, the LDC, has taken the same approach to trade liberalization and has experienced almost none of what Mauritius has.

Elizabeth Ray (2006) conducted an empirical study on the direct and indirect effects of trade liberalization on human development in Least Developed Countries and non-Least Developed Countries. After conducting four panel regressions of all countries in the world for which data was available while controlling for foreign direct investment, conflict, population, and colonization, the results suggest that trade liberalization appears to have a negative total, direct and indirect effect on human development in Least Developed Countries.

While quite a bit of the literature addresses trade liberalization's effectiveness with regards to economic growth, much of the literature also discusses the effects government effectiveness has on human development as well as on the relationship between trade liberalization and human development.

Government Effectiveness

Aside from literature on solely the relationship between trade liberalization and human development, there is major focus in literature of the influence that government effectiveness has on the ability of a government to pass and uphold pro-growth policies as well as on human development in the third world. David Dollar and Art Kraay (2007) claim that a major step in a country that wishes to benefit from trade liberalization is to first acquire an effective government with strong institutions. "Government effectiveness" is an umbrella term in which World Bank data measurements include the quality of policy formulation and implementation and the credibility of the government's commitment to such policies as well as the quality of civil service and the degree to which it is independent from political pressures (World Bank, 2012).

Good governance, then, is anti-corruption whereby authorities are accountable and institutions are effective, efficient, participatory, transparent, responsive, and equitable (IFAD, 2012).

E. B. J. Iheriohanma and O. Oguoma of the Federal University of Technology in Nigeria both claim that there is a noticeable increase in the deterioration of infrastructures and social services in much of sub-Saharan Africa as a direct result of poor governance (2010). They claim that there is a “get-rich-quick” mentality among African political leaders that promotes stealing public money and prevents investment for monetary regeneration which accounts for the pervasive underdevelopment in the region.

Poor governance and corruption lowers growth and has serious implications for a country’s public finances (Leite and Weidmann, 2002). Mauro (2002) conducted a cross-section analysis of poor governance/corruption and education expenditures for countries in the developing world and found that one unit increase of corruption on a scale of one to ten lowers the ratio of public spending on education by 0.2 percentage point of GDP. Gupta, Davoodi, and Tiongsen (2002) researched the relationship between government effectiveness and corruption on health, more specifically, child and infant mortality rates. Using theoretical statistical models and service delivery surveys, the authors found that for one unit increase in corruption (one unit decrease for government effectiveness) on a scale of one to ten, child mortality rates rise by 1.1 to 2.7 deaths per 1,000 births.

Tanzi and Davoodi (2002) conducted an econometric study and found countries with higher levels of corruption tend to have lower levels of monetary growth. This assumption is supported with a statistically significant correlation coefficient of -0.32. In Dabla-Norris and Wade’s (2002) study about corruption and income, the authors found that those who are already

wealthy tend to engage in rent-seeking behaviors to maintain their wealth rather than invest in productive and entrepreneurial activities thereby reinforcing widening gaps in income distribution.

Much like Dabla-Norris and Wade's study, Gupta, Davoodi, and Alonso-Terme (2002) suggest that poor governance and corruption significantly contributes to income inequality and poverty. The authors support their claim with an econometric model whose results suggest that the worsening of the corruption index in a country by one standard deviation increases the GINI coefficient by 11 points. Furthermore, Gupta et al.'s study found that one standard deviation increase in the growth of corruption reduces income growth of the poor by 4.7 percentage points per year (Gupta et al., 2002).

The common thread in the literature about the relationship between government effectiveness and human development is explained when taking a holistic view of the studies mentioned in this section. In the short run, it would appear that thread is simply stated in that poor governance and corruption does not contribute to human development in any country. In fact, many studies demonstrate that a lack of government effectiveness and high levels of corruption are significant, statistically speaking, and linked to lower levels of education spending, higher infant mortality rates, and rising income inequality. Much worse than that, corruption, whether by one official or endemically spread throughout an entire government, reinforces a culture of poor policy decisions and economic mismanagement which do nothing more than support the cycle of underdevelopment in the Third World.

In addition to the abundant amount of literature focusing on governance, corruption, and human development, there is an emerging body of research discussing poor government

effectiveness' potential influence on trade liberalization, both the instituting of trade liberalization policies as well as blocking potential gains from those policies that happen to become law. Social Scientists Portugal-Perez, Wilson (2009), and Lisinge (2004) were cited in the 2010 United Nations Economic Commission for Africa Regional Integration Report as having claimed that corruption and weak governance along with underdeveloped institutions and constraints on business competition are responsible for driving up the cost of international trade. If the cost of international trade increases, both exporters and importers suffer. Foreign investors are hardly attracted by unstable and rising costs. Domestic producers become unable to produce and internationally trade their goods and services at a competitive rate. Consequently, many sub-Saharan African countries have not been able to benefit from the international push for trade liberalization as has been expected by major international monetary institutions.

CHAPTER 3: METHODOLOGY

The aim of this study is to determine the effect of trade liberalization on human development while considering the potential effect government effectiveness has on that relationship. Based on the literature, I expect trade liberalization to be linked to human development, a composite measure of income, life expectancy, and education rates, in the least developed countries in sub-Saharan Africa. However, referencing the literature on this topic, the association between trade liberalization and human development could either be positive or negative. I hypothesize that low government effectiveness, because of the copious amount of bad policies that have thus far stifled growth, will negatively influence the relationship between trade liberalization and human development. If trade liberalization policies are not instituted let alone policed or upheld for their intended purposes of making international trade more feasible thereby bringing development inducing economic competition, the theoretical benefits of trade liberalization outlined by major international financial institutions cannot be realized.

Alternative Factors Affecting Human Development

While the main purpose of this study is to explore the effect trade liberalization has on human development, the complexity of the current state of underdevelopment for most Least Developed Countries in sub-Saharan Africa could hardly be defined using just these two variables. While poor governance clearly limits a developing country's ability to actually economically grow, it is also limited in describing the scope of underdevelopment in the region. Several researchers have suggested alternative factors that have proven to be sticking points in the region's struggle to develop.

One factor to be explored is the vulnerability of countries whose main exports are basic commodities, more specifically, agricultural products. International food price shocks have often been the cause of much social distress in the developing world and since sub-Saharan African economies are mostly agrarian and present a physical reality much different from that of developed countries (Bromley, 1995), this region is most susceptible to experiencing the highly negative effects of these shocks. These shocks are known to manifest themselves in increased poverty and inequality (Nkang et al., 2009). The United Nations Commission on Trade and Development (UNCTAD) has recently published several reports outlining as well as contesting the potential benefits of trade liberalization. In 1999, outstanding external debt of Least Developed Countries accounted for more than 89% of their aggregate gross domestic product and has been increasing steadily. This is most likely because third world countries, whose main concentration of exports is basic commodities, are the most vulnerable to economic shocks. Research has shown that those who suffer most from economic shocks as a result of unstable prices of commodities are the rural poor because agriculture employs over 50% of the people in the developing world but in most cases, accounts for less than 33% of Gross Domestic Product (UNCTAD, 2001a; Wiggins et al., 2009). Using the limited income earned from agriculture, these rural poor often spend 50 to 70 percent of their income on food and have little capacity to adapt as prices rise.

In addition to being negatively affected by a drop in agricultural commodity prices resulting in lower returns on exports, liberalized trade has resulted in increased imports of foodstuffs (Nyantgito, 1999) thereby making the main producers of agricultural commodities export what they have domestically produced at low prices yet they must purchase agricultural products at home for higher prices from their more well-to-do, agricultural subsidy enforcing

trading partners. This exchange tends to exacerbate poverty in the third world and theoretically forces economic and human development to stagnate. Using a computable general equilibrium model, Nkang et al. (2009) discovered that in Nigeria, as import costs for food increases, so too does the poverty rate among all household groups, even when the domestic output of food rises. Regarding the statistical analysis of this study and given the information UNCTAD and Nkang et al. have provided, one can expect that as the percentage of a country's working aged population employed in the agricultural sector increases, human development may decrease because of the low monetary returns in a volatile market. Also, one might expect that the more agricultural products contribute to a country's Gross Domestic Product, human development may decrease as a result of price instability and low monetary returns.

Aside from international food price shocks, scholars Jeffrey Frankel and David Romer (1999) suggest that geographical factors can influence a country's development. In their study researching trade and growth, the authors explored four variables which they believe to be associated with rising and falling levels of trade and development, two of which deal with intra-country trade and two dealing with international trade. Those four variables include: the proximity of one country to another, a country's size, border sharing, and whether or not a country is landlocked (Frankel and Romer, 1999). Since this study is focused on international trade, the results of their study that are of consequence regarding this study are the proximity and landlocked/not landlocked variables. Frankel and Romer have found that both the distance between trading partners and whether or not a country is landlocked has a significantly negative impact on international trade. For a landlocked country, trade shares fall by almost one-third (Frankel and Romer, 1999). The authors mention that because so few countries actually share a border with their many international trading partners, the coefficients on the proximity and

common border variables are not estimated precisely. That having been noted, the significant finding of their study was that of being landlocked typically negatively impacts trade and consequently, development.

In a separate yet similar study, researchers found that despite technological improvements in transportation, landlocked developing countries continue to face structural challenges to accessing international markets (Faye et al., 2004). These landlocked countries often lag behind their neighbors who have access to maritime trading options in overall development and external trade (Faye et al., 2004). Landlocked countries are in many ways “at the mercy” of those countries surrounding them and often suffer because of the poor infrastructure in those neighboring countries. I hypothesize that in sub-Saharan Africa, a country being landlocked negatively affects human development in that country.

Armed conflict is yet another factor known to severely stifle development, especially in the Third World. Nine of the ten countries at the bottom of the Human Development Index have experienced armed conflict at some point since 1990 (Elvatun, 2006). Additionally, people in Africa are twice as likely to die in a violent conflict as those living in wealthy European countries. In *Arms, Conflict, and Development*, Knut Elvatun notes that in the first decade of the 21st century, 28 countries were involved in armed conflicts and all but two of those were in the bottom half of the United Nations Development Program Human Development Index. Moreover, Africa and Asia alone are home to more than 84 percent of the world’s armed conflicts. The bottom line is this: armed conflict and development are incompatible (Elvatun, 2006). It seems to reason that as the amount of armed conflict rises in a country, human development indicators are negatively affected.

Data and Methods

This study employs the use of cross-national, statistical models that explore the relationship between trade liberalization and human development for the years between 1990 and 2010, as data allows, for the Least Developed Countries in sub-Saharan Africa. To maximize the limited number of data points collected for this region, the models were run in SPSS using pairwise deletion. There are 48 sub-Saharan African countries (excluding South Sudan), 33 of which have spots on the United Nations Development Program's "Least Developed Countries" list. The purpose of this study is to determine whether or not trade liberalization has a positive influence on human development in those LDCs bearing in mind the potential effects government effectiveness, agricultural income and employment, geography, and conflict have as interacting in that relationship.

To measure trade liberalization, Sachs and Warner (1995) use five economic characteristics to place countries into two categories: open and closed to trade. If a country satisfies any one of the following characteristics, it is deemed "closed". Those five characteristics include: (i) Nontariff barriers covering 40 percent or more of trade, (ii) Average tariff rates of 40 percent or more, (iii) A black market exchange rate that is depreciated by 20 percent or more relative to the official exchange rate, on average, during the 1970s or 1980s, (iv) A socialist economic system, or (v) A state monopoly on major exports. Additionally, Sachs and Warner (1995) examine a time series of tariff and non-tariff barriers to support their criteria for their measure of trade liberalization (which they refer to as "openness").

Frankel and Romer (1999) mention that one way to measure trade liberalization is by using a regression of income-per-person on the ratio of exports or imports to Gross Domestic Product. However, Frankel and Romer (1999) along with Helpman (1988), Bradford and

Chakwin (1993), and Rodrik (1995) caution that this type of regression may be endogenous. To counter the potentially unreliable results from an endogenous regression, Frankel and Romer (1995) use geography as an alternative measure of trade openness. They believe that simply knowing how far one country is away from other countries provides information about the amount that it trades and cites New Zealand and Belgium as examples to illustrate their point. New Zealand is far away from other countries thereby reducing the amount the country trades whereas Belgium is close to many of the world's population centers which means they are able to trade higher volumes of goods more often than New Zealand. The only problem with using geography and distance as a proxy for trade is that it does not accurately take into account the alternative effects geography can have on growth in varying parts of the world. Rodriguez (2006) notes that this particular way of using geography as a prediction of trade share does not take into account the fact that geography could have an effect on growth because of climate's relationship to disease, the international transmission of technology and institutions vary from place to place, and patterns of specialization can be different for every country regardless of what countries a place does or does not border.

In his analysis of several authors' measures of trade liberalization and openness, Rodriguez (2006) identifies average import duties, average weighted tariffs, state monopolies on exports, export tax revenues, and black market premiums as the different ways those authors' identified levels of openness. The problem with each of these is that as standalone variables, they are too narrow in scope and limiting in terms of results. Rodriguez (2006) rounds out his discussion of existing literature on trade liberalization and growth by mentioning an article titled "Trade, Poverty, and Growth" by Dollar and Kraay (2002). These authors suggest there are two groups of countries in the world: globalizers, those who are open to trade and non-globalizers,

those who are not open to trade. In order to separate countries into these two groups, the Dollar and Kraay (2002) use two criteria, one being based on trade/GDP ratios and the other based on tariff rates. In their results section, the authors produce conclusions about openness and growth based only on trade share/GDP ratios but not on tariff rates. In response to this, Rodriguez (2006) posits the question “what would the regressions with tariffs rates have looked like?”.

All of these studies have been instrumental in adding to the trade liberalization and growth discourse by employing narrow tariff or non-tariff variables as measures of openness. However, while the majority of this research sheds a unique light on the relationship between trade liberalization and growth/development around the world, no studies currently exist that use a combined measure of tariff and non-tariff barriers to measure trade liberalization/openness. Since trade liberalization is defined by the United Nations as policies that allow the unrestricted flow of goods and services to and from any given country and that the result of these policies is the reduction of tariff and non-tariff barriers, it makes sense to use a composite measure of the absence of tariff and non-tariff barriers that reflect a government’s economic policies towards liberalized trade. That having been said, this study uses the Heritage Foundation’s Economic Freedom Index “Trade Freedom” indicator as its measurement of trade liberalization.

The Heritage Foundation’s Economic Freedom Index “Trade Freedom” indicator is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs: the trade-weighted average tariff rate and non-tariff barriers. Since different imports usually face different tariffs, the heritage foundation has assigned weighted average tariffs which are based on the share of imports for each good. Weighted average tariffs are quantitative and non-tariff barriers are qualitative and include measures of quantity and price restrictions, regulatory restrictions, direct

government intervention, and sanitary regulation, to name a few. For a more thorough explanation of how each country's Trade Freedom scores have been calculated, please see Appendix C.

The measurement of human development that is used in this study is the United Nations Development Program's Human Development Index (HDI). HDI is a composite measure of both social and economic factors including life expectancy at birth, expected years of schooling as well as mean years of schooling, and gross national income per capita. While it is plausible that only one of these factors could be used as a measure of human development, HDI serves as the most consistent option for measuring Human Development in a region that is often plagued with a paucity of data. Enough information is available from the region in the HDI to develop an adequate number of observations to be used in this study.

Government effectiveness is measured using data collected and archived in the World Bank Worldwide Governance Indicators database. As a result of the difficulty in standardizing a measurement of "effectiveness", the World Bank and its various data sources have compiled data to capture the perceptions how effective a government is. More specifically, the variable called "Government Effectiveness" measures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (World Bank, 2012). Since a country's level of trade liberalization as well as level of human development depends on the ability of a government to pass and uphold such policies leading to trade openness and development, this measurement will be useful in demonstrating

whether or not a country has historically been perceived to be able to actually pass pro-trade and development legislation.

The two agriculture variables used in this study are the percentage of the population employed in the primary commodity sector for years with available data from 1990 to 2010 as well as the amount that agriculture contributed to GDP represented as a percentage of GDP. Both variables' data come from the World Bank databank. The geography variable is coded as "0" for a country that is landlocked and "1" for a country that has a maritime border. Using data from the Centre for the Study of Civil War (CSCW)/Peace Research Institute Oslo (PRIO), conflict is represented as the number of armed conflicts each country has been involved in each year since 1990.

CHAPTER 4: RESULTS

Correlation and multiple regression analyses were conducted to examine the relationship between trade liberalization, with other potential predictors, and human development in sub-Saharan Africa's Least Developed Countries. The results of this study are partially consistent with the hypothesis. While the bivariate correlations of each independent variable with the dependent variable produced statistically significant results across the board, the results changed when all of the independent variables were run together in a multiple regression model.

Table 1 summarizes the analysis results of the bivariate correlations between each independent control variable and the dependent variable, human development index score.

Table 1: Bivariate Correlations

| Variable | Number of Observations | Pearson Correlation | Significance (2-tailed) |
|--------------------------|------------------------|---------------------|-------------------------|
| Trade Freedom Index | 185 | .130* | .078 |
| Government Effectiveness | 180 | .177** | .018 |
| Agriculture: Labor Force | 170 | -.289*** | .000 |
| Agriculture: % of GDP | 176 | -.561*** | .000 |
| Geography: Landlocked? | 229 | .346*** | .000 |
| Conflict | 229 | -.289 | .000 |

Notes: * Significant at the 10 percent level
 ** Significant at the 5 percent level
 *** Significant at the 1 percent level

As can be seen in the bivariate correlation table, each variable is significantly correlated with human development for the sample countries between the .01 and .1 levels. Trade freedom is significantly and positively correlated with human development at the 10-percent level indicating, albeit in a minor way and without controlling for other variables, that higher trade

freedom scores tend to predict higher human development scores. Additionally, government effectiveness and having a maritime border are significantly and positively associated with human development at the .05 and .01 level, respectively.

Both agriculture variables and conflict are negatively correlated with human development indicating that as the percentage of the labor force employed in the agricultural sector as well as the percentage of GDP made up of the sale of agriculture products goes up, human development goes down. Conflict is also significantly and negatively correlated with human development which suggests that the more armed conflicts in which a country is involved, the lower that country's human development score will be.

While the results from the bivariate correlation analysis are helpful in beginning to understand the mechanisms behind human development in sub-Saharan Africa, it is important to take a closer look at the data. To take that closer look, I ran a multiple regression model using all available data from the trade freedom, government effectiveness, agriculture labor force, agriculture as a percent of GDP, geography, and conflict variables while keeping the human development indicator score as the dependent variable. The results of this model are included in table 2.

Table 2: Multiple Regression Analysis- Effects on Development

| | Unstandardized Coefficients | | Standardized Coefficient | Significance |
|--------------------------|-----------------------------|------------|--------------------------|--------------|
| | B | Std. Error | Beta | |
| Trade Freedom Index | .000 | .000 | .082 | .178 |
| Government Effectiveness | -.001 | .010 | -.004 | .948 |
| Agricultural Labor Force | -.002*** | .000 | -.279*** | .000 |
| Agriculture: Percent GDP | -.003*** | .000 | -.537*** | .000 |
| Geography: Landlocked? | .017 | .011 | .107 | .123 |
| Conflict | -.017** | .008 | -.129** | .039 |

Notes: R-Square: .466

Significance: $p < .001$

* Significant at the 10 percent level

** Significant at the 5 percent level

*** Significant at the 1 percent level

The multiple regression model with all six predictors produced $R^2=.466$ and a significance of .000, meaning that this particular model accounts for 46.6% of the variance in development with a very high level of confidence. As can be seen in table 2, after controlling for various factors, trade freedom (liberalization), government effectiveness, and geography lost their statistical significance in predicting human development index scores. Based on the literature, trade liberalization was expected to be significant either positively or negatively related to human development but it turns out, based on this model, that trade liberalization has no effect on human development.

Contrary to the expectations highlighted in existing literature about government effectiveness and human development, this study suggests that when run alongside other

variables contributing to rising and falling human development scores, the perception of government effectiveness does not contribute to that rising or falling in any way. Government effectiveness, in fact, has the lowest level of significance in the model with a two-tailed significance score of .948. Keep in mind, however, that the data collected for the “Government Effectiveness” variable is about the perceptions of effectiveness instead of the actual effectiveness of a government. The results might be different if a standardized measure of actual effectiveness existed and this study used such a dataset. The existence of strong policies and institutions do not appear to be the silver bullet for human development but it is important to understand that quality policies and institutions most likely impact development over time. It is difficult to imagine that a country could prosper without some type of effective leadership or institutions somewhere along the way.

In a bivariate correlation, geography corroborates the existing literatures’ suggestion at the .01 significance level that countries with a maritime border are statistically advantaged when it comes to development, assumingly through trade, and that being landlocked puts a country at a distinct disadvantage because it would have to rely on the infrastructures and trade practices of their neighbors. When included in the multiple regression model, geography lost its significance in predicting human development as the significance level increased to .123. It is important to remember that while geography might be a significant determining factor in other parts of the developing world when it comes to development, these particular countries in this specific region seem to be faced with more significant factors contributing to the area’s underdevelopment.

As expected, the data in table 2 suggests that the more armed conflicts in which a country is involved, the lower one can expect a country’s human development score to be. Based on the multiple regression data of this study, Elvatun (2006) was exactly right: armed conflict and

development are incompatible. With a high level of confidence, one can assume that for every additional armed conflict a country becomes involved in, a country can expect a -.129 point drop in its HDI score.

Also of note in table 2, both agricultural variables had significant, negative regression weights. This suggests that countries with higher levels of the population employed in agriculture are expected to have lower levels of human development. More specifically, using the standardized Beta coefficient from table 2, one unit increase in the percent of the population employed in agriculture leads to a decrease of .279 point for a country's HDI. Additionally, the higher the percentage that agricultural products contribute to a country's Gross Domestic Product, the lower their human development score. Table 2 shows that for one unit increase in the percentage of GDP made up by agriculture, we can expect that country's HDI score to decrease by .537. That does not seem like much on the surface but considering HDI is measured quantitatively from 0 to 1, these two variables have the potential to greatly influence a country's Human Development score.

Given these results regarding the agricultural variables' significant and negative correlation to human development, it seems as though Bromley (1995), Nyantgito (1999), UNCTAD (2001), Nkang (2009), and Wiggins' (2009) findings about global food price shocks negatively affect those countries that are mainly dependent on primary commodities like agricultural products are on target. These scholars have all mentioned in their own words that global food price shocks tend to manifest themselves in inequality and poverty and since the majority of people who live in LDCs are employed in agriculture, they are the ones who are hit the hardest when global food prices and commodity demand suddenly shift.

Existing literature suggests that countries with less diversification in terms of their labor force are typically the ones stuck in an endemic cycle of underdevelopment. Without a way to buffer oneself from the volatility of the international market, those countries which rely on unstable agricultural products in an unstable agricultural market are the ones who usually endure the greatest hardships when the international market takes a downturn. A country whose main source of income is agricultural products with limited diversification to rely on as a buffer is susceptible to suddenly having to adapt to decreasing returns on already low priced products. When the supply and demand of primary commodities, such as agricultural products, dictates significantly lower prices on particular products, those countries that rely mainly on those products will have less money to contribute to growth and development programs aimed at improving human development much less continue employing the number of agricultural workers it had when it was earning more money. In short, the data demonstrates that those who are more dependent on agriculture for income, whether it is a single person or an entire country, they are the ones experiencing the lower levels of human development.

Limitations

While this study has been instrumental in demonstrating some of the factors that affect Human Development in sub-Saharan Africa's Least Developed Countries, several limitations should be considered. The primary limitation associated with this study is that of data availability. In a region as underdeveloped as sub-Saharan Africa, the most underdeveloped in the world, accurate data is often unavailable. While the organizations that collected and compiled the data used in this study related to the economic and social development of the region are credible, their datasets must often rely on estimates of certain data points instead of factual

numbers from specific occurrences. The nature of the region, geographically and legally, is such that gathering data can prove to be extremely difficult and at times impossible.

Recent advances in technology since the turn of the twenty-first century have enabled researchers to pursue and collect data more readily than in previous decades. That having been said, depending on the data one is seeking, the available historical data for the region covers relatively short periods of time. HDI is consistently available for only the years 2000 and between 2005 and 2010 for most countries in the region. Also, the Heritage Foundation's Trade Freedom scores are available for inconsistent periods of time between each country. The Heritage Foundation was able to collect data in these countries as circumstances in those countries would allow. The Central Intelligence Agency World Factbook and the World Bank Databank did have data available for almost every year between 1990 and 2011 for the agriculture variables but those pieces of data are mainly estimates.

Another major limitation of this study is simply the fact that only a few variables were included in the analysis of a complex research question. While including any number of variables in a study like this helps to shed light on the relationship between trade liberalization and human development, it would be naïve to think that five control variables could adequately explain the multifaceted nature of trade and development.

CHAPTER 5: CONCLUSION

Advocates of international trade liberalization contend that for countries integrated into the world economy, free trade fuels economic growth, social equality, and higher global living standards. However, several recent studies have suggested quite the opposite. Instead of yielding positive results, several researchers claim that trade liberalization is to blame for the rise in income inequality, poverty, and foreign debt. Whichever reality is the case, one thing is clear: a typical Least Developed Country in Sub-Saharan Africa lacks the necessary factors for successful economic and human development including limited access to diversified employment opportunities and human resource weaknesses including a lack of adequate nutrition, healthcare, and low levels of adult literacy (UN-OHRLLS, 2011).

Without more conclusive evidence in existing literature about the relationship between trade liberalization and human development, I was only able to hypothesize that trade liberalization would have a significant effect on human development but I was unsure of which direction such effect would take. A bivariate correlation analysis using trade freedom as the independent variable and the Human Development Index as the dependent variable returned significant and positively correlated results. However, after conducting a multiple regression analysis using these same variables while adding various control variables, trade liberalization lost its statistical significance. This means that as a standalone variable, trade freedom would appear to positively and significantly influence human development but when run in a statistical model with control variables, trade liberalization fails to be either a positive or a negative significant factor in human development. In short, the statistical evidence present in this study suggests that trade liberalization is ineffective at promoting human development in sub-Saharan Africa's Least Developed Countries.

One might expect a government's effectiveness to be significantly and positively correlated with human development. It was predicted that higher levels of government effectiveness would lead to higher human development index scores but empirical evidence suggests otherwise. Much like trade freedom, the government effectiveness variable correlation was positive and significant in predicting HDI scores in the bivariate analysis but when other control variables were introduced in a multiple regression analysis, government effectiveness lost its significance in its ability to predict HDI scores. These results illustrate that there must be so much more to human development than simply trade liberalization or the perception of an effective government.

Volumes of available studies state that geography, more specifically whether or not a country is landlocked, has a statistically significant effect on levels of trade freedom and human development for countries in the developing world. Those studies, like that of Faye et al. (2004), claim that landlocked countries in the developing world often lag behind their coastal neighbors because of structural challenges to accessing international markets. However, the statistical analyses of this study show that as a standalone variable, geography has a statistically significant relationship with human development but when added to a multiple regression equation, geography loses its significance by just barely exceeding the ten-percent confidence level with a significance value of .123.

While the answer to the main research question of this study turned out to be no, trade liberalization does not have a positive effect on human development in sub-Saharan Africa's LDCs, evidence does exist of factors that are significantly associated with human development. If these factors were changed appropriately, countries in this region would be more likely to develop. Namely, higher levels of dependency on primary commodities, i.e. agricultural

products, as both the main sector of employment and the main share of a country's GDP, lead to significantly lower levels of human development. If a country diversified its economy to offer more goods, textiles, and services instead of being so heavily dependent on the primary sector, the more likely it is that that country would develop. The evidence in this study corroborates evidence from other researchers who claim that reliance on mainly the primary commodity sector makes the global poor the most susceptible and vulnerable to international price shocks. If a person or a country does not have a sufficient buffer of economic diversification from international price shocks of primary commodities, that person or country will be disproportionately affected by the ebb and flow of a risky and often highly volatile international market.

Finally, armed conflict has a statistically significant, negative affect as both a bivariate correlation variable and in the multiple regression analysis. After controlling for other various factors, the statistical regression returned with the result that for every additional armed conflict a country is involved in, that country's HDI score can be expected to decrease by .129 of a point. At first, .129 might seem minimal but considering the Human Development Index scores are based on a scale of 0 to 1, a .129 change is rather momentous.

Overall, these results indicate that trade liberalization does not influence human development in sub-Saharan Africa's Least Developed Countries. Put into the context of existing literature, however, the relationship between trade liberalization and human development is most likely conditional. The statistical evidence of this study suggests that being involved in fewer armed conflicts along with diversifying a country's economy across the agriculture, manufacturing, and services sectors will have much greater positive effects on human development than would simply becoming more open to international trade. This result

most closely resembles an example from David Weston's 2008 study titled "Continental Drift: Globalization, Liberalization and Sustainable Human Development in Sub-Saharan Africa".

Weston claims that while the region as a whole has not reaped the alleged benefits of trade liberalization, some countries in sub-Saharan Africa have fared better than others. He uses the contrast between Mauritius, a non-LDC, and Malawi, a LDC to highlight his point. Alongside trade liberalization, Mauritius has diversified its exports in the manufacturing sector, experienced significant poverty reduction, and has seen an increasing annual GDP growth. On the other hand, Malawi, a country mainly dependent on agriculture for jobs and income has liberalized trade since 1990 but has not experienced the type of growth Mauritius has.

This research shows that human development could reach higher levels if governments in sub-Saharan Africa focus on restructuring their domestic economies and labor force distribution across sectors in a way that would make the country truly competitive in the international market. Additionally, governments should discourage armed conflict as the data suggests both minor and major armed conflicts significantly reduce a country's human development indicators.

Future research

As is, this study makes a statistical contribution to the body of literature that focuses on the relationship between trade liberalization and human development in the developing world but at best, it offers a limited view of the complexity of that relationship. Using different and/or additional variables could conceivably strengthen or simply alter the results of statistical analyses on this topic. Studies in the future should be conducted with the following considerations in mind.

Exploring different, more specific measurements of trade liberalization could help focus attention on exactly what it is about trade liberalization that can help a country develop. Over time, when more data becomes available for the region, instead of using a composite measure of openness to trade, zeroing in on specific tariff or non-tariff barriers can help a country fine tune its policies to maximize the effectiveness of their choices to be either open or closed to international trade.

The same goes for measurements of human development in the region. While the HDI is a widely accepted measurement of human development, it only captures three dimensions of a person's life; life expectancy, education, and income. Measurements of income inequality like the GINI Index and various quality of life indices could be used to test the specific effects that trade liberalization has on only one or two aspects of life so that a government can begin to understand the nuanced nature of trade liberalization and its implications for their populace.

One topic that is very popular in current literature across disciplines is the effect of democracy on development in the developing world. Including regime type in a statistical model instead of a measurement of government effectiveness in a study like this might shed light on what type of foundation a government would have the most advantages in encouraging development. It would be interesting to see how regime type, whether it be democratic or authoritarian or perhaps some other form of government, influences the ability of a country to benefit from the potential positive effects of trade liberalization. On the flip side, it would be interesting to see which regime type has had the least amount of success with trade liberalization and human development.

In addition to exploring the effects of geography on development, it would be helpful to also explore the type of resources available in each country to see what kind of influence natural or other resources have on human development. Different geographical locations have specific climates which allow particular resources to be available. These climates and subsequent available resources realistically should have an effect on income and potentially, the ability of a country to diversify their economy.

Finally, one major determinant of why countries in sub-Saharan Africa have particular government types, institutions, and resources is the region's colonial past. While, at one point in history, the entire region was colonized by European powers, there are variations in each individual country's experiences with colonialism. It would be particularly pertinent in explaining a sub-Saharan African country's present state of affairs by examining the effects colonialism had on its government, economy, and people.

While this study suggests that trade liberalization by itself is not a sufficient condition for human development in sub-Saharan Africa's Least Developed Countries, it also suggests that trade liberalization is not as terrible for a country as many researchers have suggested. The potential benefits of trade liberalization could be realized if certain factors existed within a country including but not limited to economic diversification in terms of employment opportunities for the labor force and income from sources other than just agriculture as well as a reduction in the number of armed conflicts in the region. There is no silver bullet for human development in the region but if various changes can be made to each country's domestic policies and institutions based on that country's specific needs and available resources, increased levels of human development, along with graduating from LDC status, are very possible.

APPENDIX A: LIST OF COUNTRIES

| |
|----------------------------------|
| Angola |
| Benin |
| Burkina Faso |
| Burundi |
| Central African Republic |
| Chad |
| Comoros |
| Democratic Republic of the Congo |
| Djibouti |
| Equatorial Guinea |
| Eritrea |
| Ethiopia |
| The Gambia |
| Guinea |
| Guinea-Bissau |
| Lesotho |
| Liberia |
| Madagascar |
| Malawi |
| Mali |
| Mauritania |
| Mozambique |
| Niger |
| Rwanda |
| São Tome and Príncipe |
| Senegal |
| Sierra Leone |
| Somalia |
| Sudan |
| Tanzania |
| Togo |
| Uganda |
| Zambia |

APPENDIX B: DATA SOURCES AND EXPLANATIONS

Trade Freedom

Source: Heritage Foundation Economic Freedom Index

Trade Freedom is a measure of how “closed” or “open” a country’s economy is based on specific data collected about that country’s tariff and non-tariff barriers. The equation for trade freedom as measured by the Heritage Foundation is as follows:

Figure 1: Trade Freedom Equation

$$\text{Trade Freedom}_i = (((\text{Tariff}_{\max} - \text{Tariff}_i) / (\text{Tariff}_{\max} - \text{Tariff}_{\min})) * 100) - \text{NTB}_i$$

where Trade Freedom_{*i*} represents the trade freedom in country *i*; Tariff_{max} and Tariff_{min} represent the upper and lower bounds for tariff rates (%); and Tariff_{*i*} represents the weighted average tariff rate (%) in country *i* (Heritage Foundation, 2010). The minimum tariff used in the equation is zero percent and the upper bound has been set at fifty percent. Based on how extensively non-tariff barriers (NTBs) are used in a given country to limit international trade, a penalty is subtracted from the weighted average tariff rate ranging from zero, being the least amount of NTBs being used in a country to a penalty of twenty, meaning extensive NTBs are used to impede international trade. In order to determine the extent of NTBs in a country’s trade policies, the Heritage Foundation has considered the following in their assigning of penalty scores for each country: quantity restrictions such as import quotas and export limitations; price restrictions including tariff rate quotas and border tax adjustments; regulatory restrictions including licensing delays, trademark regulations, and sanitary/phytosanitary regulations; investment restrictions which pertains to exchange controls; customs restrictions such as advanced deposit requirements and customs valuation/classification/clearance procedures; and finally, direct government intervention including subsidies, industrial policy, regional development measures, competition policies, government monopolies and exclusive franchises (Heritage Foundation, 2010).

Human Development

Source: United Nations Development Program Human Development Index

The UNDP’s Human Development Index is a composite measure including data for health, income, and education. Health is measured by life expectancy at birth, income is measure by Gross National Income per capita, and education includes both the mean years of schooling for people aged 25 and the expected years of schooling for school aged children.

Government Effectiveness

Source: World Bank Databank

Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy

formulation and implementation, and the credibility of the government's commitment to such policies.

Percent of Labor Force Employed in Agriculture

Source: Central Intelligence Agency World Factbook

This variable represents the percentage of the labor force employed in the agricultural sector. Agriculture includes farming, fishing, and forestry.

Agriculture as % of Gross Domestic Product (Value Added)

Source: World Bank Databank

Agriculture as a percent of GDP includes forestry, hunting, fishing, the cultivation of crops, and livestock production. Value added is the net output of the sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

Geography

Source: United Nations Commission for Africa

This variable represents the geographical location of a country in relation to coastlines. This variable has a dichotomous coding, 0 being landlocked and 1 meaning having a maritime border.

Armed Conflict

Source: Uppsala Conflict Data Program (UCDP) Peace Research Institute Oslo (PRIO) Centre for the Study of Civil War (CSCW)

For their armed conflict dataset, UCDP-PRIO-CSCW defines armed conflict as “a contested incompatibility that concerns government and/or territory where the use of armed forces between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths”. For each conflict noted in the PRIO-CSCW database, the primary country involved received an increase of one unit per conflict.

APPENDIX C: DESCRIPTIVE STATISTICS

Table 3: Descriptive Statistics for Independent Variables

| Variable | Observations | Mean | Standard Deviation | Minimum | Maximum |
|--------------------------|--------------|-------|--------------------|---------|---------|
| Trade Freedom Index | 422 | 57.86 | 13.63 | .00 | 82.80 |
| Government Effectiveness | 352 | -.95 | .49 | -2.50 | .10 |
| Agricultural Labor Force | 562 | 79.12 | 10.99 | 43 | 94 |
| Agriculture: Percent GDP | 609 | 34.57 | 15.64 | 2 | 94 |
| Conflict | 693 | .34 | .55 | 0 | 3 |

Table 4: Descriptive Statistics for Dependent Variable

| Variable | Observations | Mean | Standard Deviation | Minimum | Maximum |
|-------------------------|--------------|------|--------------------|---------|---------|
| Human Development Index | 229 | .35 | .07 | .18 | .54 |

Table 5: Descriptive Statistics for Geography Variable

| Location | Frequency | Percent |
|---------------------|-----------|---------|
| Landlocked (0) | 11 | 33.33 |
| Maritime Border (1) | 22 | 66.66 |

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