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Trade Liberalization and Agricultural Growth in Haiti

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Liberalization has been, for the past three decades, one of the most prominent strategies used in the developing world to promote growth and foster development. Haiti, as many other least developed countries, has implemented the liberalization policies over the past two decades. The poor socioeconomic conditions of the Haitians, today, have pushed to question the effectiveness of the neoliberal plan. Agriculture being a pivotal sector of the Haitian economy, the study goal is the evaluation of liberalization on the agricultural production. The findings are that trade liberalization is detrimental to agriculture in Haiti. The food crops production, a major component of the agricultural production, in terms of providing income to the rural poor and ensuring food security, suffered the most from trade liberalization. Also, cash crops production has not increased with liberalization.

DEDICATION

To:

My mother, Berenice Jean, a woman of courage and integrity

My dear country, Haiti that I cherish with all my heart

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CHAPTER 1

INTRODUCTION

The vigorous discussion over the wide-spread implementation of trade liberalization policies over the last three decades in developing and least developed countries show how important and controversial this economic development strategy has been in the realm of international development and public policies. Some scholars now acknowledge that open borders strategy might not have been as efficient as they have anticipated and started to seriously inquire about the role of liberalization policies in achieving economic growth in the developing world.

Haiti, the poorest country of America, has been, like many other developing and least developed countries submitted to the package of policies promoting liberalization. Under the monitoring of international financial institutions such as the World Bank and the IMF, a neoliberal plan package encompassing trade agreements, privatization, and fiscal policies has been developed and administered from the mid-1980s throughout the 2000s (McGuigan, 2006). The liberal economic theory indicates that the promotion of economic development and growth is best facilitated through free market, ensuring individual property rights and minimal government interventions (Gore, 2000). However, quite in contrast to such prescriptions, little improvement has been registered in the Haitians socio-economic conditions thus far. Further, some sectors that were flourishing in the 1950s such as the agricultural sector for instance, have shrunk over the past three decades.

Major socio-economic indicators in the Haitian economy convey the challenging living conditions. Three-fourth of the population lives below the poverty line, and of the ten (10) million inhabitants, only 25% has access to sanitation. Half of the Haitian population lives in

absolute poverty and without clean water. The rural population is the most hit by poverty with an astounding 82% of the rural population living below the line of poverty (Fréguin et al, 2006) (McGuigan, 2006). The workforce is essentially used in the agricultural sector at a rate of seventy percent (70%). Over the past 20 years, the Haitian GDP has been declining at the yearly rate of 2%, as well as the economy when this latter is not stationary. In 2004, the agricultural sector represented 27% of the economy, the industrial sector 16% and the services' sector 57%. The growing services' sector is the result of a shrinking agricultural sector through migration of the rural population to the urban informal economy (McGuigan, 2006).

Previous studies have linked the decline of the Haitian agriculture to the opening of the customs barriers, facilitating imports by lowering the tariffs and depriving the opportunity for the budding Haitian agriculture to grow and lay the groundwork for overall economic development (McGuigan, 2006). The Haitian economy has been heavily liberalized in the 1980s and the 1990s. Haiti is now a net importer with a decreasing export sector and a high trade deficit. The extreme and radical economic liberalization that is in place in Haiti is the result of two rounds of structural adjustment programmes, one in 1986 and the other in 1994, quickly implemented, with no transition management. The 50% Tariff on imported products such as rice, beans and maize in place the 1970s dropped respectively to 3%, 0% and 15% after the liberalization of trade. The actual average tariff on import in Haiti is 2.9%. These reforms have encouraged a massive and rapid increase of the food import causing the collapse of the prices of domestic agricultural commodities (Fréguin et al, 2006) (McGuigan, 2006).

Earlier studies on the effects of trade liberalization on the agricultural sector in Haiti are based on the comparison of a set of time–series data that convey the changes in the agriculture indicators over time, from the non-liberalization period to the full liberalization period. While

descriptive, these studies emphasize the importance of an empirical analysis in order to statistically explain the magnitude of this linkage between neoliberal policies, especially trade liberalization, and the Haitian agriculture's slump. Three-fourth of the population in Haiti works in the agricultural sector. Therefore, understanding the development process in this country requires a careful analysis of the different characteristics of the agricultural sector that employs most Haitians and the examination of the effects that any given policies may have had on this particular economic sector. The thrust of this study is to show, through an empirical analysis based on a time-series dataset, how the Haitian agricultural growth has changed within the last fifty years, how the liberalization process implemented throughout the 1980's and the 1990's has impacted the Haitian agricultural growth, and measure the extent such impacts have contributed to the decline of the Haitian agriculture.

1.1- Research Hypotheses

This current research will try to test the following hypotheses in order to evaluate the weight of the liberalization policies in the deteriorating state of the Haitian agriculture.

- Trade liberalization has an adverse impact on the agricultural production in Haiti
- Trade liberalization has a greater impact on the agricultural production than the changes in factors that inherently affect the agricultural production such as area under production, level of technology, inputs, and investment in agriculture.
- There are some industries within the agricultural sector that benefit from trade liberalization.

1.2- Literature Review

The neoliberal approach to economic development has been analyzed in many earlier studies investigating a wide range of issues from the historical roots of its rise to its impacts on

economic policies across the world. The propensity towards open economies started in the early 1980's and arose from the failure of a set of different streams of economic thoughts over what development should be and how to achieve it. After the great depression in the early 1930's and the Second World War, academicians and policy-makers in developed and developing countries have gotten interested in formulating development strategies that would enable developing countries to catch up with developed countries and a number of conceptual models have been suggested including the neoMarxist structuralism, Import Substitution Strategy, the dependency theory, and the national developmentalism, until the emergence of neoliberalism in the 1980s as an alternative (Charles, 2000).

1.2.1- An era of import substitution strategy

The Import-substitution strategy that favors inward-oriented economic policies had a great deal of influence on the political and economic realm in many developing countries from the mid-20th century until the late 1970s. The emphasis in the 1970's was on the protection and promotion of the manufacturing sector at the sacrifice of the agricultural sector (Gingrich et al, 2009). Such a strategy was designed to prevent poverty rates from rising and forestall the slowing-down of the industrialization of developing countries in case of a sharp decline in agricultural prices (Halit, 2003). After more than three decades of Import-substitution policies, poverty rate increased in developing countries that have implemented these policies whereas the Asian countries that chose to open their economy registered significant growth (Gingrich et al, 2009).

Failure of Import-substitution policies paved the way to the neoliberal policies of today. The 1980s and the 1990s has been the glowing period of implementation of trade liberalization in many developing countries and least developed countries. Liberalization has been presented as

a booster for economic growth or economic development (Halit, 2003). It was the era of privatization, stabilization and minimal government intervention in many developing countries with the market taking the lead in promoting economic development. The so-called Washington consensus embedding the neoliberal package of policies with a particular reference to the World Bank economic growth package, however, has failed short to achieve economic growth in these countries (Rodrik, 2006). The years of the 2000s have seen some changes in some policies within the Washington consensus, but the overall strategy has maintained its adherence to its core idea of expanding the role of markets.

1.2.2- Understanding Development and Growth

At this point, it is worth introducing the concept of "development" in order to better understand the goal set by the neoliberal policies and in what extent this goal is achievable. Earlier literature and some contemporary economists often assimilate development to growth. In many cases, economic growth and economic development are regarded as the same and are used interchangeably. Brinkman (1995) contends that although development and growth are strongly related; these two concepts cannot be more different.

The attempt to differentiate development from growth can be traced back into earlier literature of development economics, but still, the delimitation was not obvious. Keynesians, the neoclassical economists, as static analysts, provide explanation of changes within a structure and comparison between two structures, but fail to explain the transformation process of a structure into the next one. As static analysts, Keynesian and neoclassical economists overlooked the dynamics of structural changes that is strongly related to development, and kept equating development to growth (Brinkman, 1995). The experiences of dealing with the third world, after the World War II has, however, fostered a change of the narrative. Robert Solow (1957)

supports that economists have overlooked the dynamics of structural changes because of the "exogenous force of technological change". Critics, however, support that an exogenous factor cannot explain a system dynamics and try to make technological changes endogenous to growth by considering them as gross investments instead. This conclusion will drive more inconsistencies because investment does not necessarily mean innovation because the new money can be invested on the same technology or production technique (Brinkman, 1995).

By the end of the 1980's, economists were still ambiguous in delimitating development and growth although some important steps toward this goal have been made. Some support that the engine of growth is technology assimilated to investment. Other economists assume that technological changes are the results of the improvements in the production process, and such improvements are related to growth. At this point many economists were still equating growth to development and defined development as "observed patterns in levels and rates of growth per capita", or the aspect of economic growth that is unexplainable (Brinkman, 1995).

Kuznets (1965) took a step further by introducing the concept of "structural changes" and by considering growth as a function of development instead. Even though Kuznets (1965), like the neoclassical economists, still equated growth to development, his modern economic growth theory putting forward structural changes, technology and social invention, was the closest to the contemporary economic development theory. His basic argument was that economic growth relies heavily on change in technique and the long term capacity of supplying diverse economic goods, using proper technological, institutional and ideological changes. While Kuznets (1965) empirically and quantitatively tested the neoclassical theories of growth, he also provided a theoretical path toward economic development thoughts. Many economists also went beyond the limits of the static neoclassical analysis in order to capture the link with the society, but also

to understand the discontinuities within a system that comprises different structures. Some introduced the notion of stage methodology to explain the sequential aspect of a structure "metamorphosis" as well as the notion of discontinuity in the process of structural change (Brinkman, 1995).

The notion of technological changes put forward by economists is of crucial importance in distinguishing development from growth or economic development from economic growth. Development relies on structural transformation driven by technological advances; therefore development is driven by technological changes. However, the substantive nature of development is culture, a social system that comprises a number of non-economic factors such as education, health facilities, class stratification, distribution of power, institutions and attitudes. The main argument is that technology makes the static and ceremonial social institutions become permeable to scientific knowledge, consequently dynamic and more inclined to change. With more interactions between the physical world and the environment that comprises culture, more knowledge will be created, so more cultural evolution. Indeed, culture evolves when there is storage of knowledge, which means the presence of the permeability of the society to scientific knowledge made possible through the discovery of new technologies. The more technologies are discovered, the more knowledge would be stored, the more cultural evolution, and the more structural change would follow. And since culture is the substantive nature of development and structural changes, a society would develop more as a consequence of the interaction between culture and structural changes.

In short, growth as a function of development is not equal to development. Development leads to more growth, but growth alone does not lead to development. Development is driven by

cultural evolution, transformation beyond growth. Thus, economic development involves both economic growth and cultural evolution or transformation.

1.2.3- Liberalization: a policy for development

Liberalization, as a stream of thoughts, has been put forth, by many, as a means of promoting economic growth. Dornbusch (1992), an advocate of liberalization, has identified three major channels through which trade liberalization can become a key factor in economic growth. Dornbusch (1992) supports that trade liberalization brings improvements in the allocation of resources that are used to acquire low-priced imported goods rather than domestically produce these goods at a higher cost. Open borders also rises the variety of goods, the accessibility to less expensive and higher quality of goods, the exchange of technology, and the possibility to export labor through labor-intensive sectors such as the assembly lines that use imported intermediate goods. A third channel is the economies of scale resulting from the expansion of the markets induced by the liberalization of trade.

Dornbusch (1992) used the extensive trade liberalization in Turkey and Mexico, and the selective Korean liberalization to confirm his arguments. By of the end of the 1980s, after ten years of trade liberalization, Turkey's imports increased by 10.4 percent per year, exports grown by 19.2 percent per year, and manufacturing increased by 5 percent of GDP; an improvement from the 2 percent yearly decrease of imports and 1 percent yearly decrease of exports before liberalization. The Mexican imports have also increased, with an average import penetration increase of 3.2 percent over five (5) years, but with no compensating exports increase. This situation has laid the foundation of the actual trade agreement that exists between Mexico and the United States. In Korea, liberalization of the capital and intermediate goods helped the country to develop a very competitive manufacturing sector.

Raimondi et al (2011) took the opposite side and assert that liberalization is more likely to broaden the gap between developing, fast growing and rich countries by favoring the richest and marginalizing the poorest. The study tries to assess the impacts of tariffs' elimination on trade across different categories of countries and presents the subsequent inequality in terms of market share when it comes to reducing trade barriers. Using the food industry, the findings of this empirical study convey that full-blown liberalization would increase the worldwide trade by 33% and 25% with half liberalization. However, high income and emerging countries get the most of the increases in trade to the detriment of developing and least developed countries.

The results from another study show that trade restrictions might be a welfare-enhancing policy depending on the country and its status on comparative advantages in some specific economic sectors. Halit (2003) found a significant correlation between trade restrictions measures, trade volumes measures and economic growth. Restrictions measures lower the trade shares, and smaller trade shares lower economic growth. Nevertheless, comparing trade volumes and trade barriers' effects on growth together, the results go in favor of the positive effects of trade barriers on growth through the enhancement of the resources allocation rather than the negative effects of trade restrictions on growth through a decrease in trade shares. Moreover, the author supports that higher tariffs, taxes on international trade and bilateral payments arrangements favor a faster economic growth especially in developing countries, but the relationship between trade restrictions and growth is complex enough to pay attention to specificities regarding countries and economic sectors. The results also go against the assumption that developing countries grow faster when trading with developed countries rather than developing countries.

These previous studies have questioned the effects of liberalization on the economy as a whole. In most countries, especially in developing countries, agriculture is considered to be an important sector if not the backbone of the economy. As a matter of fact, the agricultural gross domestic product represents more than 25% of the national GDP in Haiti, with a great part of the population being poor, confined in the rural area and living on agriculture (McGuigan, 2006). Therefore, understanding the impact of liberalization on agriculture, the central topic in this study, is as worthwhile as assessing the impacts of the neoliberal policies on the whole economy. Because the ultimate goal of liberalization is economic growth/development, it also becomes essential to establish the relationship between economic growth, development and agricultural growth.

1.2.4- Agriculture and development

The literature on the role of agriculture in development is as extensive as we can trace back the prolific debate between advocates and opponents on whether or not agriculture can foster development. The failure of many African countries, especially the sub-Saharan countries, to use agriculture to pull rural people out of poverty has raised doubt on the effectiveness of agriculture to induce growth and development. On the other hand, the successful use of agriculture in many Asian countries to improve their economy and fight poverty also feeds the debate.

The realm of economic policy has viewed agriculture through a changing lens throughout times. Before the 1950s, Agriculture was beheld as a low-productivity sector supplying labor and food to the modern industry that is positioned to be more productive and conducive to promoting overall economic growth. The Green Revolution in Asia has changed the narrative in the 1960s and the 1970s by showing that agriculture can be modernized, can grow and promote

development. By the 1980s and the 1990s, the role of agriculture in rural development is acknowledged and the years 2000s is the confirmation period of the important role of agriculture in development especially in countries where agriculture comprises a great percentage of small farm holders. Given that in many African countries the agricultural sector is mostly represented by small holder farmers, the same pattern as in the Haitian agriculture, Diao et al (2010), make the hypothesis that agriculture can be used as a way of promoting development in developing and least developed countries.

Advocates of agriculture for development support that agriculture has large GDP share and major forward and backward growth-linkages capacity therefore may be used to promote shared growth in many poor countries such as the sub-Saharan countries. As defined by Nissanke et al (2006), shared growth is the ex-post extensive redistribution of profits from growth using retroactive fiscal subsidies or transfers in projects that benefits the people at the margins. The expected result of a shared growth is an economic growth paired with the process of asset/income equalization which will produce a fairer growth path. The growth-linkages ability of agriculture refers to the numerous connections that exist between the agricultural sector and the other sectors in the economy. Diao et al (2010) assert that for decades the agricultural sector has been neglected on both policy and investment sides, but with proper investment in technology and infrastructures, agriculture may help many poor countries to elevate themselves to the rank of developing countries' productivity. Moreover, the sub-Saharan countries' small scale industry registers growth that is lower than that of the agriculture. Even in the case of the now developed countries, studies show that agriculture has outperformed the industrial sector all through the 20th Century with regards to the annual rates of agricultural production and

productivity (Moon, 2010). Thus the agricultural sector with its better growth potential can be used to foster development in the developing world.

The skepticism over the use of agriculture for development in Africa and other developing and least developed countries has fueled the debate over the effectiveness of agriculture in promoting growth and development. The weaknesses of the rural development institutions, the degradation of the environment and the lack of convincing performance of agriculture in Africa have contributed to such skepticism over the production of sufficient growth in agriculture to the need of the development process. The agricultural sector still representing a significant percentage in the economy is a sufficient proof of failure because the move toward development is translated by the reduction of the agricultural share in the GDP. Moreover, decreasing prices of food due to an increasing globalized world makes it more challenging to achieve the results of the Green revolution in Asia even with the presence of the strong growth-linkages capacity of the agricultural sector. Open borders policies have increased the competition in domestic markets by introducing cheaper imported agricultural products, inciting a decrease in domestic investment in agriculture, consequently a decrease of agricultural growth (Diao et al, 2010).

Besides the divergent views on using agriculture to foster development, there exists a conventional agreement on the fact that agriculture, as the primary source of income for the poorest, holds an important place in poverty reduction. It has been shown that the whole economy is affected when the agricultural sector underperforms, and that increasing agricultural productivity is crucial to drop the poverty rate at a faster pace in any country (Moon, 2010). The central issue is to identify the more efficient way to convert agriculture into an effective tool of development. High-value commodities for export and income diversification away from

agriculture are the two main strategies put forward by some economists. Yet, arguments against those approaches support that domestic market is the key to agricultural growth, and that the income diversification already in effect in Africa has not improved the income of the poor. Further arguments assume that the exports's contribution to economic growth has been very modest in the Sub Saharan countries, and that income diversification away from agriculture should be done, based on an increasing agricultural growth or on the growth of urban activities with high productivities, conditions that are not met easily and all the time.

Diao et al (2010) use six (6) Sub-Saharan countries to empirically provide evidence on the degree in which Agriculture and industry may foster development and to show the capacity of the agricultural sector to create pro-poor growth. In these six (6) countries, agriculture represents a great portion of the GDP and more than a half of the population are in rural area and lives on agriculture. Their argument is that the composition of the economic growth is crucial when it comes to reducing poverty and promoting development. The comparison between agricultural growth and industrial growth shows that poverty-growth elasticity is consistently larger when agricultural growth has a bigger share in the overall economic growth. As illustrated in the case of Ethiopia, 1% increase of GDP per capita, induced by agricultural growth, leads to 1.7% of poverty reduction compared to the 0.7% of poverty reduction observed with non-agricultural growth.

Many reasons are provided in supporting that economic growth driven by agricultural growth is more likely to reduce poverty and promote development. In Rwanda, between 2000 and 2001, 50% of the average household income comes from agriculture and 75% of the poor household income is generated from agricultural activities. In Sub-Saharan countries, agriculture is the primary economic activities for a great percentage of the population, especially the poor.

Living in remote areas, the poorest of the population have less access to new opportunities compared to their urban counterparts because of the economic, social, and cultural barriers to moving to the urban areas where usually the new opportunities are offered. Growing the economy through agricultural growth is an effective way to target the rural poor whose income depends essentially on agriculture and whose non-agricultural sources of income are scarce. Also, rising agricultural productivity will decrease the prices of food in the domestic market, helping poor urban households and poor landless household to lower the percentage of their income spent on food. In fact, Ethiopian poor urban households, between 1999 and 2000, spent more than 50% of their income on food (Diao et al, 2010).

On the other hand, the Zambia economy is an illustration of the limitations of non-agricultural growth in fighting poverty and nurturing development. The copper mining industry, as a growing sector, has heavily contributed to the economic growth of this country, but the poverty rate was still gravitating around or over 65%. As a thriving non-agricultural sector with little linkages with the rest of the economy, in particular the rural economy, the mining industry has had little effects on poverty reduction. Data simulations confirmed it by showing that an economic growth carried by the non-agricultural sector, dominated by the mining sector, decreased the poverty rate in Zambia to 64% whereas the poverty would hit a bottom of 59% with an agriculture-led growth. The empirical analyses of Diao et al (2010) showed that agriculture is better at creating jobs, ensuring income to the rural poor, and benefiting the poor population in general: urban and rural.

Diao et al (2010) advocate for the food crops production system over the export crops production system in terms of strategy using agriculture to nurture development. The assumption is that export crops systems are too restrictive to encourage poverty reduction. Agricultural

exports opportunities are more likely to benefit a small group of farmers due to the social and economic barriers that stop remote poor rural households to enter the urban and international markets. Moreover, the lack of stability on the international market makes it difficult to predict a steady agricultural export growth. A broad-based food production system will benefit the poor across the board, which means rural and urban poor, by guaranteeing a cheaper food supply for the domestic market and an income for the rural poor.

1.2.5- Liberalization policies and the agricultural sector

The previous analyses show how important the agricultural sector can be in the development process or at least in reducing poverty in many developing countries which should be the most important early-stage goal of the development process. Given that liberalization policies aim at development, especially development of the low income and/or third world countries, analyzing the effects of liberalization on agriculture is worthwhile.

As a major component of the economy in developing countries, the agricultural sector is very responsive to a wide range of economic policies. Guillaumont (1994) supports that a great number of policies that might seem unrelated to the agricultural sector in the first place may deeply affect the well-being of the sector. At the end of the 1970s and the beginning of the 1980s, and later in the 1990s, many developing countries, especially the sub-Saharan African countries, started to implement the Structural Adjustment Policies (SAP) with the support of several international financial institutions. The Structural Adjustment Policies are a set of policies that were implemented in many developing countries in order to reduce external debts and/or to increase growth through structural changes in the production by making tradable goods more profitable. It is, however, important to differentiate Structural Adjustment from Macroeconomic Stabilization, policies that oftentimes complement each other. As another type

of adjustment policy, Macroeconomic Stabilization consists of reducing external deficits by lowering domestic demand, consequently, growth. Structural adjustment results in better-functioning markets, and controlling inflations' spikes or severe shortages in the market, while stabilization policies reinstate macroeconomic stability (Guillaumont, 1994).

In implementing the Structural Adjustment Program (SAP), raising price and enhancing factor productivity are the two principal methods used to increase the profitability of tradable goods, and both methods have significant effects on the agricultural sector. Most agricultural crops are tradeable goods such as exported and food crops. Hence, increasing the price and the productivity of tradables fosters the increase in agricultural production. One major element that translates higher prices into higher production and ultimately more profitability is the price elasticity of the agricultural production. The other critical factor in increasing profitability of tradable goods is the improvement of productivity, especially in developing countries where agricultural factors of production are limited. However, in many cases, the agricultural production does not necessarily improve with both adjustment policies. In the case of a price increase, markets' malfunctioning and trade-off between crops are two constraints that may prevent the increase of the global agricultural supply by respectively lowering the price elasticity or preventing from taking advantage of the high price elasticity of some crops. Productivity improvements are complementary to relative price increase of agricultural goods because, higher prices mean more profitability that in turn encourages technological innovations in agriculture, which leads to improved productivity. Therefore, the goals of structural adjustment policies may not be reachable under some specific market's environments (Guillaumont, 1994).

Oftentimes, structural adjustment programs open up the use of a range of tools such as monetary and fiscal policy, public sector management, public investment choice, exchange rate,

and price and trade policy. These instruments, combined with structural adjustment policies, aim at achieving macroeconomic stability, eliminating price distortions and improving of productivity. Exchange rate change through devaluation and trade liberalization are two commonly used instruments in adjustment programmes. Devaluation is the process of depreciating the domestic currency in order to increase the price at the border, expressed in domestic currency, of imported agricultural goods. Trade liberalization policies are designed to rectify price distortions and foster an environment that encourages the improvement of productivity (Guillaumont, 1994).

Currency depreciation does not automatically benefit the agricultural sector by increasing commodities price. Real producer prices are determined by real international price of agricultural products, the real exchange rate, and transportation and marketing costs. Moreover, an increase in the border price through devaluation does not necessarily lead to an increase in the real producer price, because of domestic inflation due to the currency depreciation, taxation and the presence of monopole in the trading system. Guillaumont (1994) concludes that structural adjustment policies are in theory beneficial to the agricultural sector in developing countries, based on the objective of improving prices and productivity of agricultural goods, but, in reality, do not always favor agricultural growth.

The ongoing debate over the impact of trade liberalization as a tool of adjustment policies and its impact on agriculture demonstrates how mixed the results can be. These conclusions provide some explanation about the tendency that economists differently evaluate/interpret policy implications and results in either their success or their failure to achieving development.

CHAPITRE 2

THEORY

Many economists have, in the past, attempted to understand and develop models and theories to address trade between countries. Those theories known as the theories of international trade encompass the mercantilism, the absolute advantage theory, the comparative advantage theory, the Heckscher-Ohlin theory, the product life cycle theory, all describing the patterns of trade between countries.

2.1 – Theories of international trade

The theories of international trade have changed throughout times. From the 1500s to the late 1700s the mercantilism theory has prevailed until the absolute advantage theory of Adam Smith. At the beginning of the 1800s David Ricardo proposed the comparative advantage theory that has become the mainstream international trade policy. By the 1900s, Heckscher and Ohlin introduced the factor proportion theory whose validity was tested by Leontieff in the 1950s. The product life cycle theory was presented by Raymond Vernon in the years 1960s.

The classical theories of international trade contrast, complete and expand one another in different ways. In mercantislistic nations, wealth accumulation, especially gold accumulation, through export encouragement and import discouragement was the key to the nation's progress. The absolute advantage theory of Adam Smith went against the Mercantilism and advocated for exchange between countries where both would gain by producing the goods in which they have absolute advantage. However, some countries may not have the absolute advantage in the production of all products. This latter limitation of the absolute advantage theory was addressed by the comparative advantage theory of David Ricardo that states that countries should export products in which they have relative cost advantage or import otherwise. The factor proportions

theory uses the same concept but go more in depth supporting that countries should export goods that production requires resources that are abundant and import goods that production uses scarce resources. The product life cycle theory addresses developed and innovative markets that will attract direct foreign investment as the product goes through its life cycle. The trade patterns of contemporary economy are no longer explained by this theory because innovation is now generated from many markets.

The comparative advantage and the Heckscher-Ohlin theories can be used to an extent in explaining the effects of trade liberalization on agricultural growth in Haiti. In terms of the trade of agricultural products, Haiti possesses some comparative advantages in some commodities regarding product quality along with the factor proportions regarding labor. As a least developed country, labor is very abundant and labor-intensive crops such as fruits are produced, exported by the country and present some comparative advantage in terms of quality especially for mangoes and coffee.

2.2 – The Washington Consensus: the rise of trade liberalization policies

Trade liberalization includes a set of policies that promotes the substitution of quantitative trade restrictions with tariffs, which would then be reduced according to negotiated rules. This set of rules is embedded in a broader policy prescriptions initiative, known as the Washington Consensus, started in the 1980s under the leadership of the International Monetary Fund (IMF), the World Bank and the United States Treasury. The Washington consensus, as summarized by Krogstad (2007), presents the ten (10) following requirements:

- *Fiscal discipline*: The operational budget deficit should not exceed 2%.
- *Public expenditures priorities*: More spending should be in human development areas such as education and health care to the detriment of political fields.

- *Tax reform*: Fiscal administration should reach out to a greater number of tax payers while lowering taxes and promoting tax equity.
- *Financial liberalization*: The interest rates should be market-specific.
- *Exchange rate:* The interest rates should be unique and competitive.
- *Trade liberalization:* Minimum tariffs should replace quantitative trade restrictions.
- *Foreign direct investment:* There should be no barriers to foreign direct investments.
- *Privatization*: Public enterprises should go private.
- *Deregulation:* There should be no disruptive regulations to foreign firms' entry on the national market.
- *Property rights*: Legal protection of property rights should be in place in the formal and the informal market.

It is worth noting that the main design of the Washington Consensus relies on the neoclassical theory of economics in which the free-market plays the predominant role in prescribing economic policies. According to this stream of thoughts, economic growth is achieved by liberalizing trade to benefit from the comparative advantages, deregulating the capital and financial market to allow free flow of capital, and optimizing the allocation of resources by converting state enterprises into private enterprises. In short, the Washington Consensus can be summarized into three concepts: market liberalization, fiscal austerity, and privatization.

Studies show that too much focus on the macroeconomic stability of countries where the Washington Consensus requirements were rigorously implemented primarily designed to control inflation has negatively impacted two equally important macroeconomic parameters: unemployment rate and economic growth. The Asian financial crisis and the Latin American

cases are, indeed, the illustration of a set of policies that has not taken into account the countries' unique structural patterns, and the drawbacks of the policies themselves. In the first half of the 1990s, the execution of the Washington Consensus policies ended up putting most Asian firms in a disadvantageous competition for capital due to their elevated debt-to-equity ratio, which was not a concern before those policies. The capital market being fully liberalized, firms with low debt-to-equity ratio were more likely to find capital and stay in business. As a result, a great number of firms, backbone of the Asian steady growth, went bankrupted, followed by a rise of unemployment and poverty. Although, in Latin America, the austerity measures have yielded positive results in terms of containing inflation in the middle the debt crisis, unemployment and poverty rose following the labor market deregulation and state enterprises privatization (Krogstad, 2007).

The Asian and Latin American failure as well as the "Asian tigers"(Hong Kong, Singapore, South Korea and Taiwan) countries' prosperity have raised questions about the free market strategy toward economic growth and gave rise to the so called Post-Washington Consensus. Fast liberalization and privatization have been found to be harmful to countries with high unemployment rate, and proponents of the Post-Washington consensus support that development should be about human development than only economic growth. The stream of thoughts surrounding the Post-Washington Consensus acknowledges that some level of state involvement mostly through regulations is crucial, taking the "Asian tigers" countries as an example. Policies should be devised on each country's specificities and in order to do so, each country should be an active part of the process (Krogstad, 2007).

2.3 – The infant industry protection argument

The move toward the post-Washington consensus that take into account the countries' specificities in order to grow and protect the domestic economy, is not very different from the efforts of the earlier-industrialized countries that had protected specific industries and the domestic economy. These countries have in fact used the policy prescriptions of the Infant industry strategy, already in practice back in the 14th century, in Britain. The theory of the Infant Industry was introduced in the 19th century by Friedrich List, considered as the father of the modern infant industry theory (Chang, 2003). The fundamentals of this theory rely on the following four (4) basic arguments (Krueger et al, 1982):

1- New industries incur high starting costs compared to foreign enterprises, within the same industry. Therefore, the new industries are less competitive at the beginning and will need time in order to develop their competitiveness.

2- If price-taker in the world market right at the beginning, a lucrative industry may be unprofitable, in consequence, not attractive to individual investors.

3- New industries, when developed in the future may be beneficial and generate profits to recover from early losses.

4- In the catch-up moment, industries need protection until their production costs fall at a level where they can compete in the world market.

Proponents of the Infant Industry theory present several reasons supporting the previous arguments. The high costs of production of infant industries are explained by the "learning by doing" process and the presence of "linkages" between industries. Kenneth Arrow (1962) asserts that new industries register low production level in the early days because of the need for workers to acquire the new knowledge. Besides the workers, the management team also needs

some adjustment period in order to take control of the management process. On the long run, it is expected that the production of output will increase, which will drive the unit's cost down. Another argument in favor of the infant industry strategy is that key links with other industries in the economy boost investments into those interrelated sectors, inciting government to invest in new infrastructures, which has a major role on lowering production cost. For new industries, the linkages either may not exist or are not established yet at the beginning or there is a need for the new industry to grow in order to create them. Further reasons put forth also support the presence of possible externalities in absence of protection and the fact that earlier lost will be recovered in the future. Protecting infant industries prevents from high prices charged in the future by the investors who want to recover from earlier losses as production's costs drop.

The infant industry theory has also raised some controversy among researchers. Some economists recommend that least developed countries apply a general protective system due to the weaknesses in most of their manufacturing industries; other researchers support otherwise, and warn against losses of social welfare and inadequate resources allocation.

Opponents to the infant industry theory affirm that high early cost of production is not enough to justify the loss of welfare. Duties on imported products of the same line prevent national consumers from benefiting the low international price, therefore cause a loss of social welfare. The new industry, if lucrative enough to be competitive on the international market may, at first, turn to the capital market to finance the early purchases of equipment and materials and recover those early investments when costs decline in the future. Baldwin (1969) also argues the existence of knowledge externalities that states that first investments on knowledge may not be recovered if knowledge becomes free to the public causing an increase in national competition, therefore a price increase. The argument is that knowledge externalities are rare

because firms have shown their abilities to keep their production knowledge away from other firms. Yet, tariffs on imported goods of the same line will not help the first entrepreneur to recover the money spent on knowledge acquirements, in case of knowledge's disclosure, because national competition will still drive a drop in the prices.

The case made for resources allocation conveys the disparity between "social and private rates of return on investments" when it comes to technological spillover and static externalities. The latter comprise market imperfections, especially the lack of information, that can make an industry seems riskier than it is to new investors. Advocates of the infant industry theory propose, in this case, a protective duty on the products line to attract those new investors. Nonetheless, opponents argue that for tariffs to be effective in this case, knowledge acquirements must be specific to the production and controllable. The lack of information on an industry is not directly linked to the production process, and a research to get information can be easily leaked to the public. Therefore, new investors will not invest to have information, because they will not be able to recover their investments; and an industry that is socially and privately beneficial fails to exist. One technological spillover that diverges privately and socially is the on-the-job training cost. If it is a production-specific knowledge, the firm will disburse, but if knowledge is broader, the firm will not incur the costs. The efficient way, in terms of resources allocation, is for the workers to bear the costs, knowing that this knowledge can be used in other firms. If workers do not bear the cost, any tariffs making the industry more attractive to investors will not make these latter investing in training for workers due to the competition that can take trained workers away (Baldwin, 1969).

Whether or not one is for or against the use of protectionist strategies, most of the Now Developed Countries, if not all, have in the past used protectionism to protect and promote their

economy that was weak then. However, Chang (2003) sustains that the "official history of Capitalism" puts forward free trade and free market as the foundation of the development process of those countries. As reported, from the 18th century until the middle of the 19th century, Britain, through free trade and free market, imposes its superiority by getting rid of most of its protectionist policies such as the mercantilist and the agricultural protectionism. The second half of the 19th century, the extraordinary British prosperity period, is characterized, in Britain, by laisser-faire industrial domestic policies, financial and trade liberalization, and macroeconomic stability. This period is called the "golden age of liberalism", especially from 1870 to 1914. However, two wars in the first half of the 20th century incite Britain and the USA to go back to protectionism policies, giving up free trade and free market strategies. After the World war II, the GATT agreement was a way for the Now Developed Countries to switch back to the free trade policies, but interventionism stream ruled development policies until the late 1970's, when liberalization made its comeback. The 1980's period is often compared to 19th century's golden age of liberalism.

One important strategy that Britain, the first best example of protectionism policies, used to protect its economy was the Infant industry strategy, a protectionist strategy which theory dates from the 19th century. Nonetheless, the use of this strategy can be traced back in the 14th and 15th centuries in Britain, where raw materials' export were taxed in order to insure the supply to the national woolen industry. The infant industry protection were exploited more consistently by Britain, in the 18th and the first half of the 19th century, especially through tools such as export subsidies, import tariffs rebates on inputs for exporting and export quality control. Many have argued that the British technological power that enables them to open their border is the result of

high and abiding tariffs barriers and that the free trade move goal is to hinder the industrialization of other countries (Chang, 2003).

The USA, another longtime user of protectionism had Ulysse S. Grant, the US president from 1868 to 1876, summarizing the US policies for the 19th and 20th centuries in this following statement: "For centuries England has relied on protection, has carried it to extremes and has obtained satisfactory results from it. … within 200 years, when America has gotten out of protection all that it can offer, it too will adopt free trade". Indeed, from 1816 to the middle of the 20th century, the USA had one of the highest tariffs in the world, or an average of 38%. With, in addition, a high degree of "natural protection" causing high transportation costs, the USA industry was the most protected in the world until the 1950's (Chang, 2003).

Besides Britain and USA, Chang (2003) shows that almost all now developed countries have implemented some forms of protectionist or infant industry protection policies in their catch-up period. For example, German and Sweden applied tariffs as well as non-tariffs barriers to protect the iron, the steel and the engineering industries. The non-tariffs decisions to promote some industries refer to "state-owned" model factories, state financing of risky ventures, support for research and development, and promotion of public-private cooperation.

Oftentimes, the argument against the tariffs is that they are too high in contemporary developing countries. The counterargument put forth by proponents of tariffs in developing countries is the existence of a bigger gap difference between developed and developing countries now than before.

The two economic parameters used to measure the gap difference are the ratio of per capita income in purchasing power term and the productivity gap between the poorest and the richest countries. During the 19th century, the ratio in per capita income in PPP terms between

the richest countries and the poorest ones was between two-four to one; the contemporary ratio is around fifty-sixty to one. The productivity gap is now ten-fifteen to one between developing countries and developed countries, and five to one in case of advanced developing countries. In the 19th century, England per capita income in PP terms was 133% of that of USA and 167% of that of Denmark. With this productivity difference, USA was applying a 38% average tariffs and Denmark, a 15 to 20%. In short, this comparison shows that the highest tariffs in the developing world are far lower than the degree of protection that the Now Developed Countries had when they were in their development process (Chang, 2003).

CHAPTER 3

METHOD

The database of the Food and Agriculture Organization (FAO) of the United Nations is extensively used in this study focusing on the consequences of liberalization on agricultural growth in Haiti. The research uses a set of time series data covering a period of fifty years, from 1961 to 2010.

3.1- Data

The data encompass agricultural production (in tonnes and 1000 Int. dollar), agricultural area (in 1000ha), the area equipped for irrigation (in 1000 ha) and the number of agricultural tractors in use, the gross investment in agriculture (in millions of US dollar), the fertilizer consumption (in tonnes), the value of the pesticides' import (in US dollars), and the rural and urban population (in 1000 persons).

Agricultural production is provided in terms of the quantity of production in tonnes and revenue in international dollar, with a constant value 2004-2006 of 1000 Int. $. For this particular research, the total agricultural production is further divided into three sub-productions including food crops production, cash crops production and livestock and related production. Each sub-category is measured in terms of quantity and revenue as well. The food crops production category comprises the crops that are likely to be used as food consumed on local, regional and national levels. The crops sold on international markets are deemed cash crops. The livestock and related production encompasses live animals, the meat market, fishery and the egg production.

From 1961 through 2010, the landscape of the agricultural sector has changed in Haiti. The following graphs are designed to convey a broad perspective of a changing agricultural

sector over the past fifty years, especially on the production side, as well as the trends in terms of population and investment in agriculture.

Figures 1 represent the changes into the gross agricultural production quantity over fifty years, that is, from 1961 to 2010. Before the middle of the 1980's, the agricultural production quantity was increasing. From the mid 1980's to the beginning of the years 2000's, the agricultural production entered a free fall where production quantity was decreasing at a rather fast pace. The graph also shows the trends in the three components that constitute the gross agricultural production quantity such as food crops, cash crops and livestock production quantities. The food crops production quantity follows the same pattern as the gross agricultural production quantity. The opposite is observed for cash crops and livestock production quantity although a very small increase rate over the past fifty years. The production quantities are expressed in tonnes.

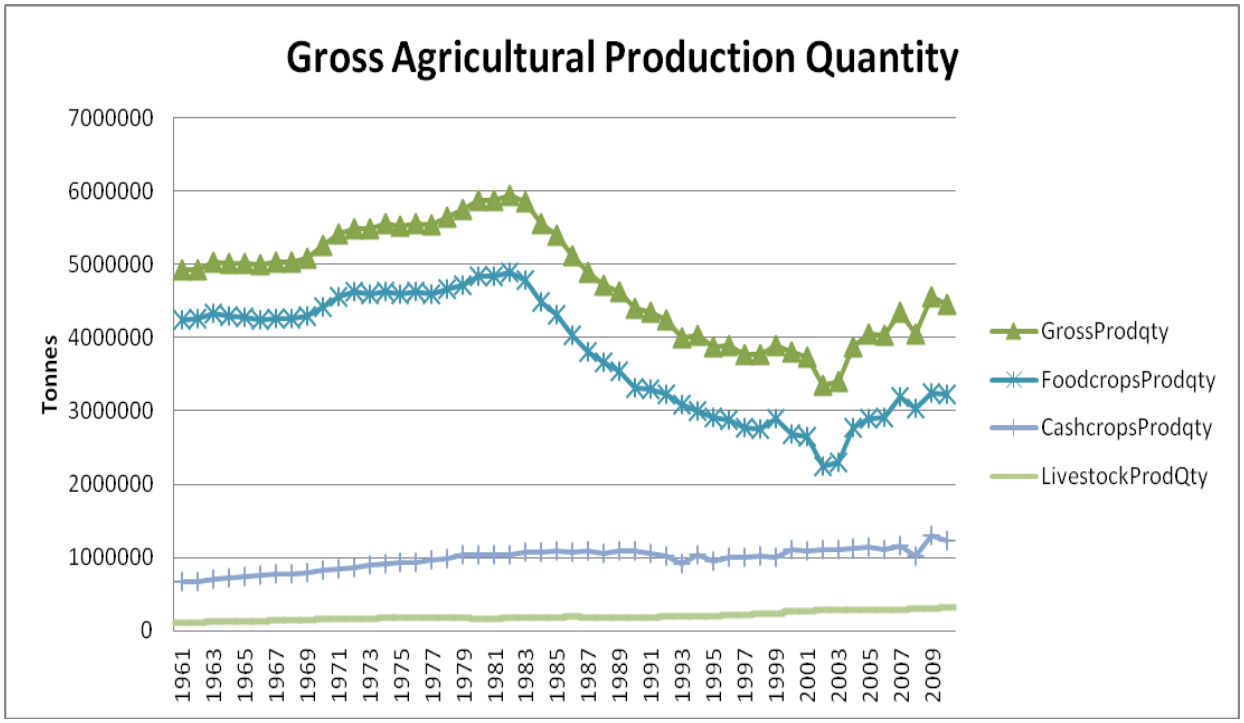

Figure 1. Gross agricultural production quantity in tonnes (Source: FAO)

Figure 2 shows the changes into the gross agricultural revenue from 1961 to 2010. Before the middle of the 1980's, the agricultural production quantity was increasing. The gross agricultural revenue has dropped at around the same period as the agricultural production quantity. from the mid-1980's up until the mid-1990's, although a shorter and less sharp drop. The graphs also present the trends in the three components that form the gross agricultural revenue. The livestock revenue is the only subcategory to register growth. The food crops and the cash crops revenues have followed the same trends as the gross agricultural revenue. The agricultural revenues are measured in 1000 International dollars.

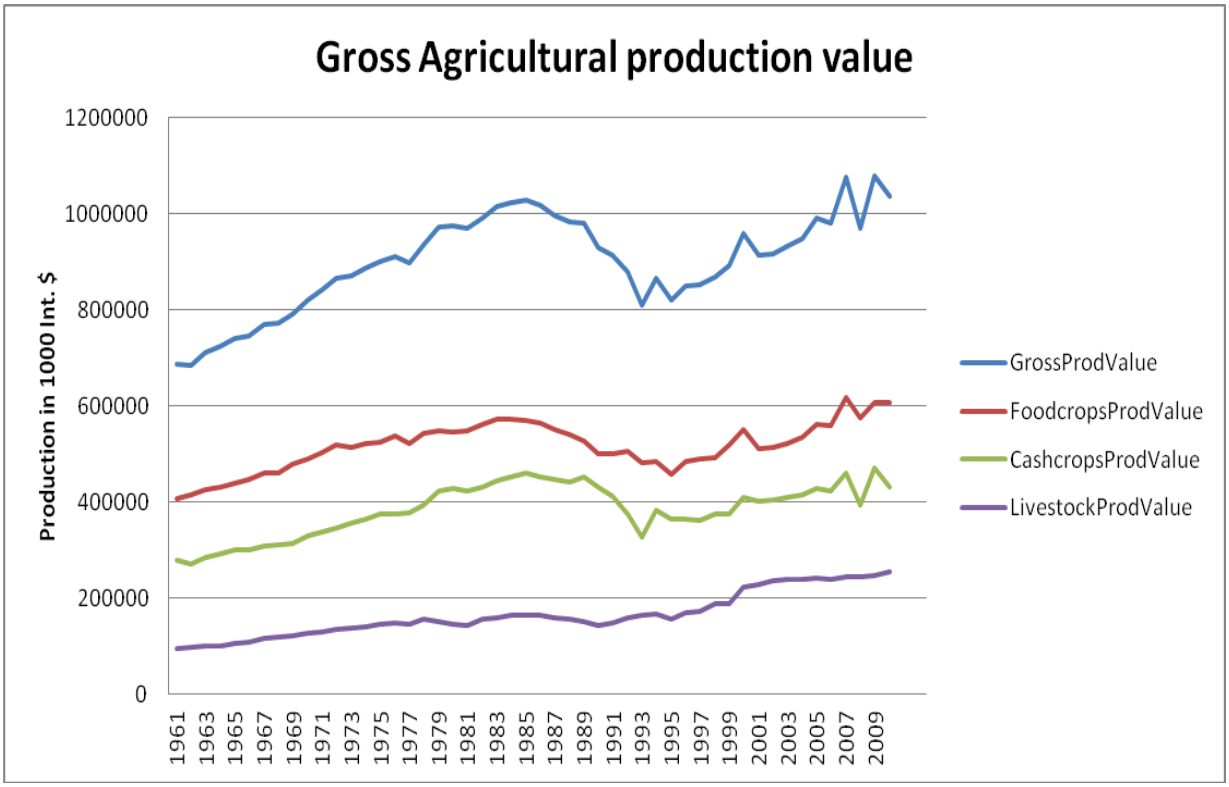

Figure 2. Gross agricultural revenue (1000 Int. $) (Source: FAO)

The following figure (Figure 3) shows the population growth for the period of the study. As seen in the graph rural population is now in a declining phase after a steady increase over the

past forty years, from 1961 to 2001. Even on the declining side, more people were leaving in rural area up until 2008 where besides being shrunk; rural population is less than urban population.

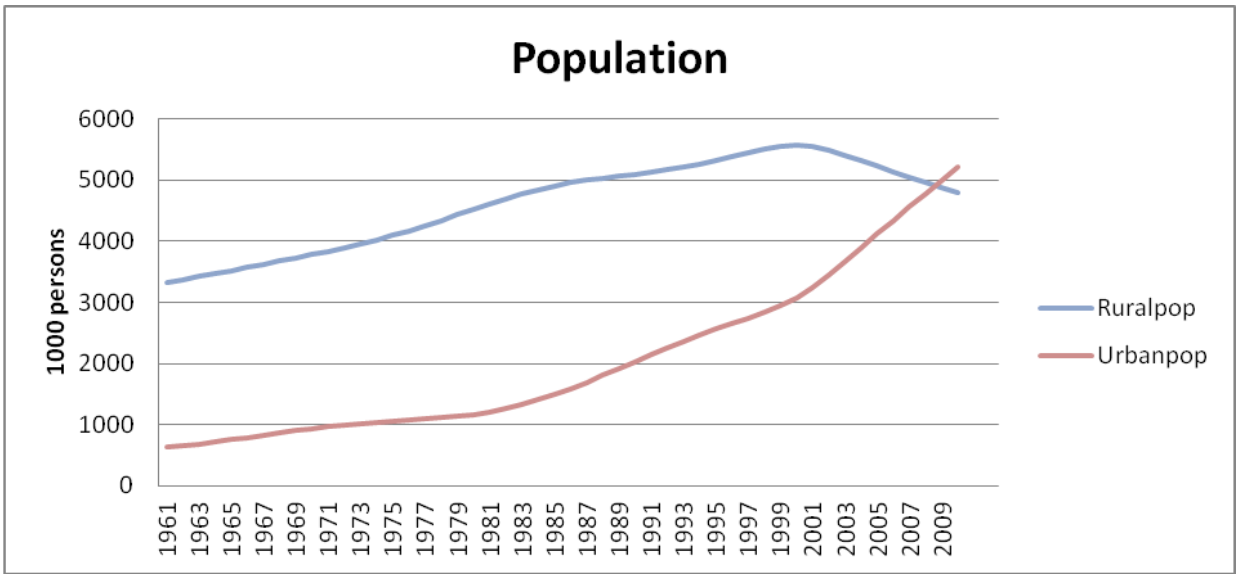

Figure 3. Population (Source: FAO)

In figures 4 and 5, the availability of two factors of production, land and capital, can be evaluated for the past fifty years, from 1961 to 2010. The number of hectares of land available for agriculture has roughly remained steady overtime. Irrigated land,on the other hand, has increased, but slighltyover the past fifty years. Figure 5 shows that agricultural investments have steadily increased up until the middle of the 1980s, dropped for the following six years, and started growing again in the mid-1990s.

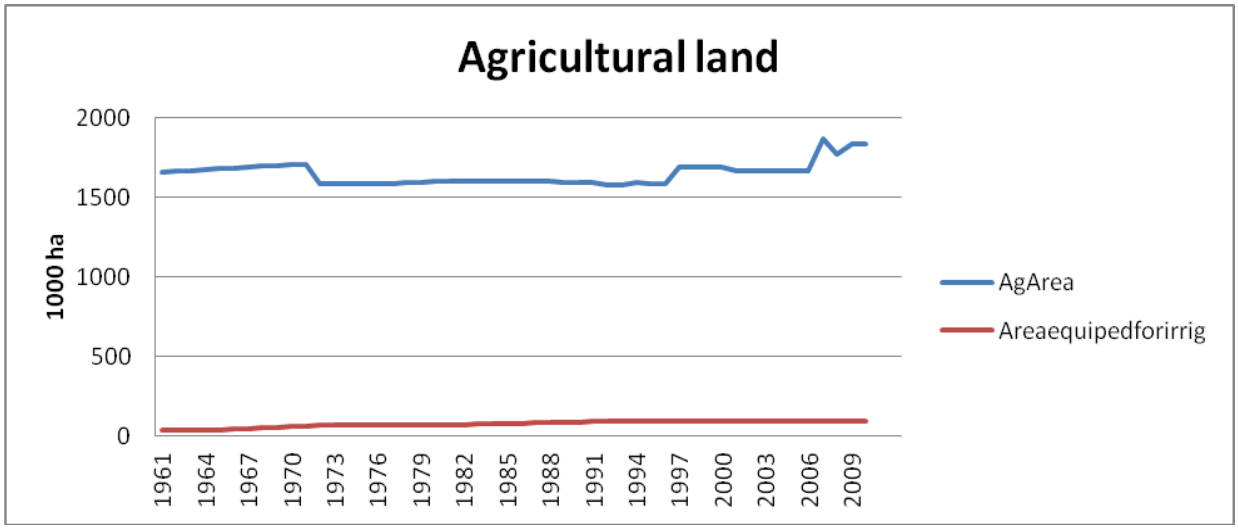

Figure 4. Agricultural land (1000 ha) (Source: FAO)

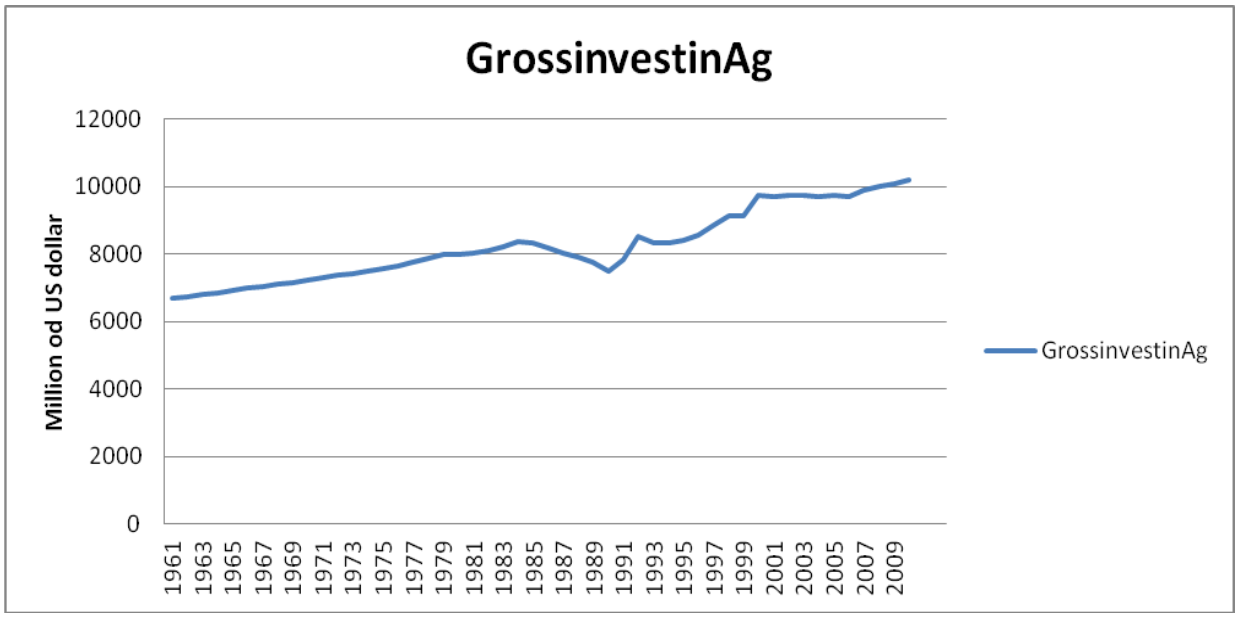

Figure 5. Gross investment in Agriculture (USD Million) (Source: FAO)

3.2 – Conceptual and empirical models

This research develops eight (8) regression equations designed to essentially assess the impact of trade liberalization on agricultural production in Haiti. The empirical models also

allow evaluating how the domestic management of agriculture has influenced Haitian agricultural production over time. The dependent variable in this research is agricultural production, the independent variables include agricultural area, area equipped for irrigation, gross investment in agriculture, agricultural tractors in use, fertilizer consumption, pesticides import value, urban population, rural population, level of technology, and a dummy variable indicating whether or not trade was liberalized.

This research estimates eight (8) regressions models in total representing different categories of the dependent variable measured both in terms of quantity produced and revenue. That is, the first two regression equations assess the effects of trade liberalization on the quantity and value of total agricultural production. The remaining six regression models are with respect to the three sub-categories that form the agricultural production including the food crops, the cash crops and the livestock production, in terms of both quantity and value of the respective production.

Each regression equation comprises a set of ten (10) independent variables. Eight (8) independent variables are quantitative and use secondary data. One independent variable, the level of technology variable, ranges from 1 to 50, with 1 referring to the lowest level of technology, assigned to the year 1961, and 50 denoting the highest level of technology, attributed to the year 2010. The last independent variable is a qualitative, the trade liberalization variable, which conveys the level of trade freedom. A repressed trade environment denoted (1), represents the absence of trade liberalization whereas a free trade environment denoted (0), means full trade liberalization.

Therefore, the general model specification is:

Agricultural production = f (Agricultural area, area equipped for irrigation, gross investment in agriculture, Agricultural tractors in use, fertilizer consumption, pesticides import value, level of technology, urban population, rural population, and trade liberalization)

For the need of the regression equations, two dummy variables are created for the qualitative variable trade liberalization, one dummy for each level of trade freedom. The two dummies are represented as follow:

TRep = 1 means absence of trade liberalization or close

TFree = 0 means full liberalization

The following representation also allows identifying the quantitative independent variables in the regression equations.

$Y_{GAgProd-Val}$: Gross Agricultural production value (1000 Int. $)

$Y_{GAgProd-Qty}$: Gross Agricultural Production quantity (tonnes)

$Y_{GFoodCropsProd-Val}$: Gross food crops production value (1000 Int. $)

$Y_{GFoodCropsProd-Qty}$: Gross food crops production quantity (tonnes)

$Y_{GCashCropsProd-Val}$: Gross cash crops production value (1000 Int. $)

$Y_{GCashCropsProd-Qty}$: Gross cash crops production quantity (tonnes)

$Y_{GLivestockProd-Val}$: Gross Livestock production value (1000 Int. $)

$Y_{GLivestockProd-Qty}$: Gross Livestock production quantity (tonnes)

AgArea: Agricultural Area (1000ha)

AreaEqIrrig: Area equipped for irrigation (1000 ha)

GInvestAg: Gross Investment in agriculture (USD million)

AgTractuse: Agricultural tractor in use (unit)

FertCons: Fertilizer consumption (tonnes)

PestImpVal: Pesticides Import Value (USD)

Urbpop: Urban population (1000 persons)

Rurpop: Rural population (1000 persons)

Levtech: Level of technology

It is worth noting that one dummy variable should be dropped when writing the equations. In this case the TFree, which represents full liberalization, is dropped. The regression equations may be written as follow:

A) $Y_{GAgProd-\ Val}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

B) $Y_{GAgProd-Qty}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

C) $Y_{GFoodCropsProd-Val}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

D) $Y_{GFoodCropsProd-Qty}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

E) $Y_{GCashCropsProd-Val}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

F) $Y_{GCashCropsProd-Qty}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

G) $Y_{GLivestockProd-Val}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

H) $Y_{GLivestockProd-Qty}=\beta_0+\beta_1 AgArea+\beta_2 AreaEqIrrig+\beta_3 GInvestAg+\beta_4 AgTractuse+\beta_5 FertCons+\beta_6 PestImpVal+\beta_7 Urbpop+\beta_8 Rurpop+\beta_9 Levtech+\beta_{10} TRep$

The previous empirical models, as presented, allow the assessment of the hypotheses stated earlier in this paper. The first hypothesis supports that Trade liberalization has a negative impact on the agricultural production in Haiti. Equation A (Gross Agricultural production Value) and B (Gross Agricultural production quantity) provide the relationship between trade liberalization variables and the total agricultural production presented in quantity and in value. The second hypothesis is that trade liberalization has a higher impact on the agricultural production than the factors that inherently affect the agricultural production such as area under production, level of technology, inputs, and investment in agriculture. Equations A and B also provide valuable information on the impact of these latter variables on the agricultural production.

For more in-depth analyses, the agricultural production is divided into three main components: food crops, cash export crops, meat/other livestock related products. This classification will help to assess the last hypothesis that states that some agricultural industries might benefit from trade liberalization. Equations C (Gross food crops production value), D (Gross food crops production quantity), E (Gross cash crops production value), F (Gross cash crops production quantity), G (Gross Livestock production value), H (Gross Livestock production quantity), treat the case of these categories of production, using value of production and quantity of production.

The fourth hypothesis supports the existence of possible structural changes during the time span 1961 through 2010. The time period is divided into 2 sub-periods: Dictatorship (1961-1986) and Post-dictatorship (1987 – 2010). The Chow test is used to confirm or counter the fourth hypothesis.

CHAPTER 4

RESULTS

The model's parameters are estimated by the Ordinary Least Square (OLS) method. OLS is a method of regression analysis that minimizes the sum of squared errors in estimating the parameters from the sample, so these latter can be the closest possible to that of the population. Table 1 provides the summary of the statistics of the variables; tables 2 and 3 present the estimations results for the eight models.

Models A and B deal with the influence of the independent variables on the gross agricultural production, respectively in terms of revenue and the quantity produced. Based on the parameters estimated, investments in agriculture hold a positive effect on the agricultural revenue whereas no significant effect is observed on the production's quantity. The opposite effect is observed in the case of technological advancements that seem to play a pivotal role in increasing the quantity produced, but fail to change the revenue. However, for both, agricultural revenue and agricultural production's quantity, agricultural machinery is an important asset, especially on the revenue side where the positive effect is more substantial.

Besides trade liberalization that has an impact on both production quantity and revenue, three other remaining independent variables affect only the quantity of the agricultural production. Indeed, population growth, both rural and urban, is more likely to reduce the production quantity, with more negative effects from a rural population growth whereas the use of improved technology increases the quantity of commodities produced. In the case of trade liberalization, a close economy, compared to a liberalized one, produces positive results on both, the quantity and the revenue of the agricultural production, with a higher positive impact on the quantity produced.

Table 1

Summary Statistics of Variables in Model Estimation

	Mean	**StdDev**	**Minimum**	**Maximum**
$\mathbf{Y_{GAgProd-Val}}$	899699.84	101277.09	685452	1077928
$\mathbf{Y_{GAgProd-Qty}}$	4760357.58	743411.73	3354033	5938164
$\mathbf{Y_{GFoodCropsProd-Val}}$	516096.38	49424.06	407947	617143
$\mathbf{Y_{GFoodCropsProd-Qty}}$	3779509.18	804050.76	2249013	4893518
$\mathbf{Y_{GCashCropsProd-Val}}$	383603.46	54756.03	270823	470347
$\mathbf{Y_{GCashCropsProd-Qty}}$	980848.40	147412.37	674017	1303319
$\mathbf{Y_{GLivestockProd-Val}}$	164554.52	46020.29	93965	254834
$\mathbf{Y_{GLivestockProd-Qty}}$	197278.98	53951.66	115175	311941
AGAREA	1648.86	70.68	1575	1870
AREAEQIRRIG	75.64	18.49	35	92
GINVESTAG	8235.97	1040.62	6680.58	10197.56
AGTRACTUSE	149.94	33.89	80	220
FERTCONS	10716.12	10721.63	100	28858
PESTIMPVAL	1414040	1056048.54	70000	5450000
RURPOP	4625.44	710.52	3321	5568
URBPOP	2046.90	1312.62	624	5205
LEVTECH	25.50	14.57	1	50
TRADELIB	3.260	1.54	0	1

TRADELIB	Description
	1= Trade repressed
	0 = Trade Free

The significant impacts, on the agricultural revenue and quantity, of parameters such as investment in agriculture, inputs and the use of machinery convey the importance of the structure of the domestic agricultural sector. In their evaluation of the liberalization process in El Salvador and Costa Rica, Gingrich et al (2010) explain the importance of the structural environment in the success of agricultural liberalization.

Gingrich et al (2010) define liberalization implications as variations in the exchange rate and the prices of agricultural trade, and the distribution of resources to economic sectors based on prices. Indeed, one important feature of Costa Rica's liberalization policies was the reduction of the price of agricultural commodities. Despite the loss registered by the producers due to lower prices of agricultural goods, the country's agricultural sector was able to keep up with the new reforms mostly due to its strong domestic economy, result of effective governmental supports. Overtime, Costa Rica was able to recover and benefit from liberalization through the increase of the agricultural trade.

In contrast, El Salvador failed to grow the agricultural sector and to keep a positive balance of trade. Gingrich et al (2010) explain the negative results in the case of El Salvador through domestic structural failures and unfavorable microeconomic conditions that have prevented farmers from grabbing the new market opportunities. Unlike Costa Rica, El Salvador was unstable and less advanced in its development process to support the agricultural sector in the first moments of the neoliberal reforms. In short, liberalization, as an economic policy holds its own negative impacts on a domestic agricultural sector in first place, but the agricultural sector may benefit from liberalization in the long run, if the sector is strong enough or strengthened during the adverse moments of the first years. Gingrich et al (2010) conclusions

show that the specific domestic conditions of the agricultural sector of each country are very important in devising any neoliberal plan.

Models C (Gross food crops production value), D (Gross food crops production quantity), E (Gross cash crops production value), F (Gross cash crops production quantity), G (Gross Livestock production value), H (Gross Livestock production quantity) encompass the parameter estimates for the three sub-categories of the agricultural production, both in terms of the value and quantity of the production.

The food crops category's results are presented in models C (Gross food crops production value) and D (Gross food crops production quantity) where the estimates highlight the relationship between the independent variables and the dependent variable, which is, in this case, the food crops production. The agricultural area, the investments in agriculture and the agricultural machinery are three major components giving values to the food crops production. That is, their increase also increases the revenue from the food crops production. Food crops quantity, on the other hand, increases in presence of an intensified use of agricultural machinery and technological advancements. Population growth is the only independent variable that has a significant negative impact on the food production. Indeed, the results show that the food crops production decreases, both in value and quantity, when the population grows, especially when the rural population increases.

The estimations also present the relationships between the food production sector and trade liberalization. The results support that liberalization is more likely to be harmful to the food crops sector. Indeed, compared to an open border situation, the absence of trade liberalization favors the growth in the value and the quantity of the food crops production. In short, the effect of trade liberalization on the food crops production follows the same pattern as that of the gross

Table 2.

The impacts of Trade Liberalization on gross agricultural revenue and quantity and food crops revenue and quantity in Haiti: Estimated parameters of models

Variables	**MODEL A** (Gross Agricultural production Value)		**MODEL B** (Gross Agricultural production quantity)		**MODEL C** (Gross food crops production value)		**MODEL D** (Gross food crops production quantity)	
	Estimated coefficients	**t-stat**	**Estimated coefficients**	**t-stat**	**Estimated coefficient**	**t-stat**	**Estimated coefficient**	**t-stat**
CONSTANT	84131.8	0.28	-	5.59	79127.7	0.51	-	5.52
AgArea	114.01	1.39	148.22	0.23	111.10	**2.63	179.26	0.29
AreaEqIrrig	339.26	0.33	-10953.3	-1.38	954.32	1.80	-11636.6	-1.49
GInvestAg	58.70	**2.72	98.55	0.59	52.17	**4.70	54.13	0.33
AgTractUse	2566.92	**11.4	5647.55	**3.23	1000.28	**8.63	3434.70	**2
FertCons	1.24	0.96	4.89	0.49	-0.13	-0.19	2.26	0.23
PestImpval	-0.423	-0.54	0.096	1.59	-	-0.61	0.08	1.31
RurPop	-80.82	-1.38	-2643.79	**-5.84	-98.63	**-3.28	-2579.26	**-5.81
UrbPop	-9.01	-0.16	-1942.77	**-4.50	-39.98	-1.40	-1923.91	**-4.54
LevTech	3408.12	0.42	251893	**4	5143.18	1.23	246725	**3.99
TRep	60807.8	**2.55	503970	**2.73	26322.7	**2.15	483382	**2.67
F-Statistics	123.261		110.247		110.665		134.851	
R^2	0.969		0.965		0.965		0.971	

agricultural production. Liberalization is harmful for the overall agricultural production as well as the food crops production.

The results of trade liberalization on one of the Pakistani's major food crops production, the wheat production, enforce the result of the current research on the fact that liberalization is detrimental the domestic production of food crops. Sharif et al (2008) used the information on the domestic production of wheat during the period 2003-2004 to assess the impact of a 7% of price increase that has occurred as a result of liberalizing the economy. As a wheat importer, about 20% of the domestic demand, Pakistan has seen the domestic price of wheat increase with

liberalization, price increase that has been translated into a surpluses' gain for the producers and surpluses' loss for consumers. The loss of the consumers being higher than the gain of the producers, the result of trade liberalization on the wheat production was a net loss for the country even with a higher level of domestic production in the first years. The same higher domestic price determined by the international market, ultimately led, in the following years, to a lower domestic demand of wheat, hence a lower wheat supply or domestic wheat production.

The models E (Gross cash crops production value) and F (Gross cash crops production quantity), in table 3, present the estimates of the regression that treat the cash crops category. The number of agricultural tractor in use is a major factor that seems to increase the value and the quantity of cash crops produced. The quantity of cash crops produced remains the same in presence or in absence of trade liberalization. In the case of the value of the production, a close border environment increases significantly the value of the cash crops production whereas a liberalization system holds no effects. A comparison of the food crops and the cash crops sectors shows that closing the borders help increasing the food production value and quantity as well as the cash crops production value but does not have any effect on the cash crops production quantity.

The results of this research comply with the findings of Devarajan et al (1989) in a study on market competition, scale economies and trade liberalization in developing countries; where it was shown that trade liberalization was detrimental to the cash crops sector in the presence of scale economies and imperfect market competition. The authors pointed out the existence of strong evidence on the fact that imperfect market competition, and unexploited economies of scale are features of developing and least developed countries. Devarajan et al (1989) use the

case of Cameroun, a developing country, to illustrate the fact that cash crops production suffers from opening the border.

Devarajan et al (1989) found that trade liberalization favors manufacture to the expense of the cash crops sector. The authors support that the manufacturing sector is procompetitive with imported goods, has increasing returns to scale, especially in the food-processing sector, and enjoys a monopoly environment, where price can be charged higher than the marginal cost of production; advantages that are inexistent for the cash crops sector. When the manufacturing sector registers constant returns to scale, the cash crops production contracts but the contraction is substantial when the manufacturing returns to scale is increasing. In addition, trade liberalization reduces the power of domestic monopoly; however, when monopoly is coupled with unexploited economies of scale, social welfare shrinks with trade liberalization. The results of the current research that convey that trade liberalization has not helped the cash crops sector in Haiti, find support in Devarajan' s assessment of trade liberalization in Cameroon using a model with returns to scale and imperfect competition.

The livestock production value and quantity are very sensitive to the changes in agricultural investments. The Models G and H, in table 3, indicate that the growth in investments increases the livestock production revenue and quantity. Another major booster for the quantity of livestock produced is the number of hectares of land under irrigation. The more irrigation extends, the higher the livestock production quantity is. Urban population growth is another variable that grows the value of the livestock production. Indeed, the production value rises significantly when urban residents' number grows. Free trade does not have any influence on the livestock production; neither does a repressed trade environment.

Table 3.

The impacts of Trade Liberalization on cash crops revenue and quantity; livestock revenue and quantity in Haiti: Estimated parameters of models

	MODEL E (Gross cash crops production value)		**MODEL F (Gross cash crops production quantity)**		**MODEL G (Gross Livestock productionvalue)**		**MODEL H (Gross Livestock productionquantity)**	
Variables	**Estimated coefficients**	**t-stat**	**Estimated coefficients**	**t-stat**	**Estimated coefficients**	**t-stat**	**Estimated coefficients**	**t-stat**
CONSTANT	5004.08	0.025	422852	0.76	-198467	-2.10	-86737.9	-0.83
AgArea	2.91	0.05	-31.04	-0.20	-42.60	-1.65	-36.77	-1.29
AreaEqIrrig	-615.06	-0.90	683.30	0.36	608.58	1.88	998.13	**2.79
GInvestAg	6.53	0.45	44.42	1.10	43.33	**6.37	45.99	**6.13
AgTractUse	1566.64	**10.41	2212.85	**5.27	275.04	**3.87	125.79	1.60
FertCons	1.37	1.58	2.63	1.09	0.48	1.18	0.33	0.74
PestImpval	-	-0.34	0.02	1.28	-	**-2.10	-	-1.69
RurPop	17.81	0.46	-64.53	-0.59	3.62	0.20	-27.26	-1.34
UrbPop	30.97	0.83	-18.85	-0.18	34.86	1.99	18.92	0.98
LevTech	-1735.06	-0.32	5168.60	0.34	-3879.33	-1.52	-1381.24	-0.49
TRep	34485.1	**2.17	20588	0.46	3906.19	0.52	-5830.17	-0.70
F-Statistics	79.471		73.710		260.762		294.389	
R^2	0.953		0.949		0.985		0.986	

The general trends in the results show that a closed border economy is more beneficial to the agricultural sector in general compared to trade liberalization. The livestock sector is the only sector that is not influenced by neither a close economy nor trade liberalization. The eight (8) regression models have, each, a R^2 greater to 0.94, which means that the changes in the independent variables explain the changes in the dependent variables more than 94% of the time. In addition, in each equation, the independent variables, as a group, has a great influence on the changes in the dependent variables because the lowest estimated F-value, 73, is superior to the critical F-value.

CHAPTER 5

DISCUSSION

The first hypothesis of the research states that trade liberalization has an adverse impact on the agricultural production in Haiti. The results confirm this hypothesis. The gross agricultural production in either revenue or quantity increases with the existence of tariffs protecting the domestic production against imports. Indeed, when trade is repressed, the agricultural sector does better (t-statistics = 2.5 and 2.7) in generating revenue (Int. $ 60.8 millions) and quantity produced (503,970 tons) compared to a free trade environment. When the production is broken down into the three sub-categories, the first hypothesis is also confirmed. In absence of trade liberalization, the food production quantity and revenue increase considerably, respectively Int. $ 26.32 and 483,382 tons; with t-statistics that are respectively 2.1 and 2.7. On the other hand, the remaining two subcategories do not present any statistical difference in presence or absence of free trade except for the revenue from the cash crops production sector which grows by Int. $ 34.5 million when trade is repressed, with a 2.16 t-statistics value.

The results suggest that the second hypothesis of the study is true. The hypothesis, in this case, is that trade liberalization has a higher negative impact on the agricultural production than the changes in factors that inherently affect the agricultural production such as area under production, level of technology, inputs, and investment in agriculture. The results convey that the use of one tractor increases the gross agricultural revenue by USD$ 2.6 million for a t-statistics of 11.4, whereas 5658 tons are added to the production, with a t-statistics of 2. The investment in agriculture is relevant only in the case of the revenue for which the t-statistics is equal to 2.7. An investment of one million of US dollars increases the gross agricultural revenue by I$ 58,000. The technological improvements are other positive assets for agriculture, generating 251,893

tons more commodities than in absence of advanced technology. The population, both urban and rural, is the only factor that registers a negative effect on the gross agricultural revenue and quantity produced. The comparison of the effects of these previous factors and those of trade liberalization supports that liberalization has higher negative impact on agriculture than the factors that inherently affect the agricultural sector. Indeed, the results support that in situation of repressed trade, the agricultural sector grows in revenue and quantity produced, compared to a free trade environment. The opposite situation, that is a liberalized trade system, has a negative effect on agriculture. In addition, the comparison to the effects of the population growth, the only inherent factor influencing the agricultural production that has a negative impact on the sector shows bigger negative impacts of trade liberalization on agricultural sector compared to those of the population growth.

There is no agricultural industry that benefits from trade liberalization. The third hypothesis that states that some industries within the agricultural sector benefit from trade liberalization is not supported. The analysis of the results show that the three sub-sectors of the agricultural sector are either indifferent or suffer from the negative impacts of a free trade environment. Indeed, the food crops sector is prosperous when trade is repressed, an environment that favors more revenue (I$26.3 million) and a higher production (483,382 tons) than a liberalized environment. For the remaining two categories, cash crops and livestock, there is no statistical significance between repressed trade and trade liberalization.

The previous statistical results and analyses conclude that liberalization has negative impacts on the overall agricultural sector and more importantly on the food crops production, but does not have any effect on the production of cash crops and livestock. Indeed, the food crops production, as the major component of the agricultural sector, is sold to the national market.

Therefore, by opening the national market through trade liberalization, the food crops sector enters in a direct competition with cheaper imported products, situation that will subsequently discourage domestic producers for whom it becomes more difficult to cover the production costs. While losing in the food crops sector, the cash crops sector, directed toward exports, which is deemed to benefit from liberalization does not compensate for the lost because this sector stays indifferent to both repressed trade and free trade.

For the other factors that affect the agricultural production, the results diverge. In terms of the factors of production, machinery, investment in agriculture and technology are three important factors that encourage agricultural growth. The population growth, however, reduces agricultural growth with the exception of the urban population growth that increases the livestock revenue. The principal market for the domestic livestock production being in the urban areas, an increase of the urban population favors an increase of the demand for livestock. The livestock production is the only sector affected by the number of hectares under irrigation. The larger the irrigation area is, the higher the livestock production quantity. Crops and livestock are competing production with regards to the use of land. In addition, breeding is practiced in an extensive manner in Haiti. Also, irrigation allows the increase in land productivity. Therefore, more irrigation implies higher land productivity for the same level of production, less land use for crops production, and more available land for breeding.

CHAPTER 6

SUMMARY, CONCLUSION, RECOMMENDATION

Liberalization has been, for the past three decades, one of the most prominent strategies used in many developing and least developed countries to promote growth and foster development. Haiti, as many other least developed countries, has implemented the liberalization policies over the past two decades. The poor socioeconomic conditions of the Haitians, today, have pushed to question the success of the neoliberal plan in this country. The agricultural sector is playing a pivotal role in the Haitian economy and is the principal occupation for more than a half of the population, especially the poor. Therefore, the study goal is the evaluation of the effects of the liberalization policies, especially trade liberalization, on the production of agricultural goods.

The review of literature has extensively covered the concepts of growth, development and the theories of international trade. Considered the same at the beginning of the twentieth century, growth and development have ultimately grown apart. Growth is a function of development, but growth does not equal development. Development is a cultural and transformational evolution that goes beyond growth. Development leads to more growth but the opposite is not true. Economic development involves both economic growth and cultural evolution or transformation. The role of agriculture in development is also discussed in the study with the presentation of the pros and cons arguments. Although divergent views on using agriculture to foster development, agriculture is deemed a good at fighting poverty. The history of the theories of international trade are presented and discussed as well as the earlier trade strategies of the now developed countries in their take off period. The long-lasting use, in the past, of the infant industry strategy by Great Britain, the United States and many European

countries in their take off moments is contrasted with the Washington consensus rules for the current developing countries to achieve development. The infant industry theory aims at protecting the domestic economy, especially new industries through tariffs and non-tariffs barriers, whereas the Washington consensus promotes market liberalization which means the elimination of the tariffs and the non-tariffs barriers, fiscal austerity and privatization.

The research put forth four hypotheses to assess the impacts of trade liberalization on the Haitian agriculture. These hypotheses are confirmed or rejected through eight (8) regression models developed for the purpose of the study. Time series data from 1961 to 2010 on the agricultural production in Haiti were used for the empirical analyses. The total agricultural production is divided in to three sub-categories: food crops production, cash crops production and livestock production. Each category has two (2) regression models, in addition to the two (2) models for the total agricultural production, that are used to estimate the effects of trade liberalization on the category.

Trade liberalization is detrimental to agriculture in Haiti. The first hypothesis of the research has been confirmed, that is, trade liberalization has an adverse impact on the agricultural production in Haiti. The food crops production that represents the major category within the agricultural production in terms of providing income to the rural poor and ensuring food security for both rural and urban poor is the sector that suffers the most from liberalization. The expectation was that cash crops would benefit from opening the border. However, opening the border has not increased the cash crops production that did not respond to the trade liberalization process as well as the livestock production. The proponents of liberalization may advocate the benefits of free trade on agricultural sector that represent more opportunities for famers in terms of income increase or diversification through trade. However, the results provide another story.

While the food production loses with liberalization, the cash crops production, on the other hand, does not benefit from free trade.

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