COCOA AND DEVELOPMENT IN CÔTE D'IVOIRE

By

STEVEN KOTECKI

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To Shannon and Scout
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PREFACE

The study of development, inequality, and poverty is an important field: urgent, in the sense that the issues addressed in these studies involve people who face great adversity. The particular issues are outlined by development organizations and academic researchers; “In 1998, [water born diseases were] estimated to have killed 2.2 million people, most of whom were under 5 years of age (WHO, 2000),” “about half of the world’s population still lives on less than $2 a day (Dollar, 2001),” “economic failure [in poor countries] raises the risk of state failure as well (Sachs, 2001, p. 187).” The gravity of these issues attracts the efforts of some of today’s great thinkers and exposes their work to a global audience. The work of Sachs, Easterly, Dicken and Diamond is both praised and contested, yet they are recognized across academic disciplinary lines. And the debate is not closed, as a new national bestseller challenges the current model of development (Moyo, 2009), and geographers have not been absent from contributing to the understanding of these issues (see Peet, 1975; Bell, 2002; O'Brien & Leichencko, 2003; Dicken, 2007).

This paper operates from the idea that geography is the study of landscape, landscape being "a set of interrelated phenomena whose qualities as a whole (form, structure, and function) compose[s] a reality not captured by its constituent parts separately (Turner, 2002, p. 58)." So any given phenomenon or individual is described, in part by its relationship to its surroundings, or environment, or ‘place.’ Geography is a vehicle for understanding the world. It is a framework that “help[s] thinking individuals make sense of and order the world around them (Butzer, 2002, p. 77).”

Some of the issues faced by the world today are questions about development, inequality, and poverty. As the study of landscape, geography can be used to study
development through the economic landscape of production and trade. Many geographers have contributed to the advance of this understanding through the development of the field of economic geography (Bodman, 2010). Although he is an economist, Paul Krugman has also developed models under the umbrella of New Economic Geography that examine the relationships between distance (physical and friction surface), manufacturing, economies of scale, supply and demand, and factors of production (Krugman, 1991; Krugman & Venables, 1995).

This paper considers the topic of cocoa manufacturing in Côte d'Ivoire drawing from the large literature of economic development theory and empirical studies testing these theories. This is a relevant topic because cocoa is a lucrative agricultural commodity traded and used around the world. Unfortunately, like many tropical commodities, the production of that commodity does not seem to contribute significantly to a reduction in international inequality or development in the areas where they are produced. This paper focuses on the cocoa commodity chain structure, the impact developments within the cocoa sector have on the local economy, and the influence of the cocoa sector on other development indicators within Côte d'Ivoire.
Both the rapid rise in the price of cocoa as it is traded in the international commodity exchange markets and the news of takeover bids in chocolate manufacturing brought cocoa to the fore of business news in 2009. The chocolate confectionary industry currently generates approximately one hundred billion dollars per year. Cocoa is produced in tropical regions around the globe, but production is currently concentrated in West and Central Africa which produces 70% of the world's supply. Production in that region is dominated by Côte d'Ivoire, which produces 35% of the world total, twice as much as the next largest producer, its neighbor Ghana. The findings of this study suggest that there is a positive correlation between the amount of value added cocoa processing occurring within Côte d'Ivoire and higher levels of development as measured by certain socio-economic indicators. However, the country is not experiencing significant economic growth relative to global growth. This suggests that industrialization of the cocoa industry, as it is currently implemented in Côte d'Ivoire, will not lift the majority of Ivorians out of poverty.

Keywords: economic development, commodity chain analysis, cocoa, Côte d'Ivoire
CHAPTER 1
INTRODUCTION

Both the rapid rise in the price of cocoa as it is traded in the international commodity exchange markets and the news of takeover bids in chocolate manufacturing brought cocoa to the fore of business news in 2009. The chocolate confectionary industry currently generates approximately one hundred billion dollars per year (IBISWorld, 2009). There is a long history of demand for chocolate goods in Europe and North America and a rapidly growing market in Asia. This appetite is supplied by millions of cocoa producers around the world. Cocoa is produced in tropical regions around the globe, but production is currently concentrated in West and Central Africa which produces 70% of the world’s supply. Production in that region is dominated by Côte d’Ivoire, which produces 35% of the world total, twice as much as the next largest producer, its neighbor Ghana.

Côte d’Ivoire’s economic growth has been disrupted by internal conflict for almost a decade since the death of the president Houphouet-Boigny who nurtured the cocoa industry in Côte d’Ivoire into the leader in the supply of cocoa for the global chocolate industry that it is (Woods, 2003). Today, Côte d’Ivoire is a typical least developed country (LDC). There is widespread poverty, a majority of the population continues to work in agriculture, and it scores near the bottom of the Human Development Index. More specifically, Côte d’Ivoire is 163\textsuperscript{rd} out of 182 countries ranked by the United Nations Development Programme in the 2009 Human Development Report. As such, Côte d’Ivoire was included among the 24 countries designated as having Low Human Development. The negative correlation between commodity production and economic growth in many resource-rich African countries is hard to miss. Regions that dominate
the production and export of commodities do not seem to enjoy a great measure of economic development.

The global cocoa and chocolate industry is geographically segmented with the supply of cocoa predominantly concentrated in tropical developing countries and the demand for chocolate concentrated in developed countries. Similarly, a good deal of the value added processing along the cocoa commodity chain is done in the developed countries. It is generally understood that the majority of the value of chocolate is captured in the later stages of manufacturing in Europe and the United States. It has been suggested that moving manufacturing closer to the source of the commodity, within the developed country, could contribute to the development of the region. Recent literature points to cocoa as an industry with a great deal of potential given the large global demand for chocolate. However, the low labor versus capital requirements in the manufacturing of cocoa paste could impact the amount of economic growth derived from increasing this component of the commodity chain within Côte d'Ivoire (Scott, 2006). Cocoa’s prominent place in Côte d’Ivoire’s economy makes it a likely candidate for a development strategy based on the manufacturing on cocoa products before export. Theoretically, Côte d’Ivoire should be able to capture some of that value, by moving up the chain of production through revenue and employment and linkages. This paper will attempt to systematically evaluate the merit of that idea for the cocoa sector in Côte d’Ivoire by analyzing the cocoa sector using a commodity chain approach and the links between the developments in the cocoa sector and other development indicators.
The first section is a review of the relevant academic literature dealing with theories and empirical evidence of development, modernization, and industrial development strategies in the least developed countries (LDCs). The second section will outline the research questions and methodology used in this study. The third section will explore the historical context of the cocoa sector in Côte d'Ivoire. The last section will discuss the results and their implications for Côte d'Ivoire.
CHAPTER 2
THEORETICAL PERSPECTIVES ON DEVELOPMENT

The term “development” is used to refer to a range of ideas. Classical economic development is concerned with economic growth. Other perspectives view development in terms of social improvements in health and education, measured in terms of life expectancy and level of educational attainment for example. Still another definition of development was proposed by Nobel Prize winning economist Amartya Sen. He conceived of development as empowering people with the freedom and capacity to pursue the things they enjoy, including health and wealth (Sen, 1999). In this paper, development will be understood particularly in terms of the mainstream economic definition of economic growth, with the understanding that economic growth is one means by which some of the other forms of social development might be reached.

Industrialization

Industrialization has long been understood as part of the process of economic growth. The industrial revolutions in the United Kingdom and the United States established the development of manufacturing as the dominant vehicle for economic development. In the 1950s, Nobel Prize winning economist William Arthur Lewis developed a model of economic development that illustrated the power of industrialization for economies that were previously tied to the ‘traditional’ sectors of agriculture. His model indicated that economic growth could be increased by concentrating capital in the manufacturing sector (Lewis, 1955). W. W. Rostow (1960) also formalizes this idea in his model of development, The Stages of Economic Growth. He described the economic development of a region in terms of the evolution of its economy from traditional societies to the modern, mass consumption economy.
In his model, the traditional society does not have a system that can support rapid and continuous technological advance. Production capacity is dominated by food production, and the majority of surplus capital is not reinvested but rather spent on non-productive outlays like war, religion, and luxury. In Rostow’s model, global conditions create economic incentives to expand certain sectors using modern industrial technology. Developments in science and the expansion of trade through the exploration of foreign (non-western) lands in the 1600 and 1700s created the economic incentive and technological capacity for Western nations to develop certain sectors of the economy using modern industrial techniques. This stage of development is the ‘take-off’, or rapid growth of a few sectors using these modern industrial techniques. This industrialization lead to economic growth and the spread of modern industrial technology into other sectors in western nations. Rostow called this process the drive to maturity. The amount of time a nation remains in the “drive to maturity” stage varies but, in this model, is eventually followed by the age of mass consumption. This stage is characterized by a shift in priorities away from the adoption and inclusion of modern technological production towards the development of more social and personal goals: the extension of security through the development of the insurance and investment sectors for example, or the extension of social benefits in terms of education, employment, and health care.

It is important to note that Rostow does not predict that take-off and the drive to maturity always follows the adoption of modern industrial technology in a sector. He stresses that certain preconditions and responses to industrialization are necessary for the application of industrial technology to spread to all sectors and lead to take-off.
Rostow explains that the preconditions and responses to industrialization can differ, but that the result, in some cases, is a take-off that leads to a state of relatively consistent economic growth.

It was in light of these pervasive theories on growth and development that many of Africa’s early leaders after independence relied on strategies of import-substituting industrialization because they saw the need to expand manufacturing in order to grow economically and enjoy the effects of prosperity seen in the West.

**Trade**

In order for manufacturing to provide the economic impetus for development, trade becomes critical. Modern views on the benefits of international trade are based on the theory of comparative advantage developed by David Ricardo in 1817. Ricardo theorized that if two countries were producing a range of goods with varying degrees of efficiency they would each reap greater returns by instead specializing in the production of those goods they had comparative advantages in, in terms of climate, raw materials, human capital and other production factors. Ricardo’s theory of comparative advantage concluded that regional specialization was the key to economic efficiency, and thus to greater potential for growth and prosperity. The caveat was that international trade was necessary in order for the consumers to have access to the products that were no longer produced within the borders of their nation once the consolidation in favor of specialization had occurred.

Based on his model, Ricardo endorsed free trade. His model demonstrated several implications for economics in the presence of free trade. Without barriers to trade, resources would naturally go to the party able to produce goods at the lowest opportunity cost. Barriers to trade could also be considered added costs to production,
as in an area where wheat is subsidized for local producers and tariffs are placed on wheat from foreign producers, for example. Added costs are incurred on both ends. In the local arena, taxes are used to pay for subsidies, increasing the cost for locals. In the foreign arena, the producers are barred from markets and lose profitability. The removal of barriers to trade alleviate both of those costs, increasing producer profitability and consumer access and affordability. Removing barriers to trade thus has the effect of expanding markets. Larger markets allow for greater division of labor and specialization. Greater specialization can positively influence efficiency and technological development. All of these benefits have positive implications for economic development in general, but Ricardo’s model also implies that when barriers to trade are removed, inefficient producers will be put out of business because they are no longer competitive (Stutz & Warf, 2005).

Eli Heckscher, in 1919, expanded on Ricardo’s theory to show how supply and demand for labor in a global market would lead to convergence in real wages (Machlup, 1977). This framework is known as the Heckscher-Ohlin framework. Some of the key limitations of these trade theories were the effects that economies of scale and transportation costs have on determining the location and relative efficiency of production. Krugman and Venables (1995) shed some light on this issue when they created a framework to model the location of industrial production based on transportation costs. In effect, they showed that transportation costs can be considered a barrier to trade that is slowly being removed over time as technological advances improve efficiency. Their model reinforces Ricardo’s concept that unhampered trade increases the potential for prosperity. As Ricardo’s model was expanded and refined,
the idea that there are benefits to unfettered international trade was essentially creating
the platform from which modern perspectives on trade issues are framed. From these
ideas about industrialization and trade, it is possible to conclude that developing
economies should develop their export manufacturing sectors in order to grow
economically (Rodik, 2004; UNCTAD, 2008).

**Resource Based Industrialization**

The theory of export-based development has particular implications for resource
rich African economies. By applying Ricardo and Heckscher-Ohlin to African countries
that are rich in resources and labor, it has been argued that they have a comparative
advantage in producing agricultural commodities for export (UNCTAD, 2008). One
counterargument, the Singer-Prebisch thesis, contends that the terms of trade of
primary product exporting countries deteriorate over time compared to countries that
export manufactured goods (Prebisch, 1959). So part of the debate surrounding this
theory of development relates to these ideas about industrialization and trade in
agricultural commodities. Rather than attempt to replace agricultural production with
other industries, it has been suggested that economies that rely heavily on agricultural
commodity export could move into manufacturing in that same sector by processing the
agricultural commodities before export (Roemer, 1978; Cramer, 1999; Da Silva et al,
2009).

Michael Roemer acknowledged that vertical integration is a goal in LDCs in order
to gain some of the benefits of added value and linkages for economic development. He
analyzed the effectiveness of the primary export processing strategy which is
classified by the processing of primary products to capture more value added
before export. Processing generally requires the input of labor, capital, and other
commodities to produce either an intermediate product or one ready for final consumption. Different industries or sectors have different rent requirements. Different sectors also affect the local economy differently based on the kinds and extent of linkages generated. Examples of primary commodity processing are the processing of iron ore into steel or oil into petroleum. The increased revenue, employment, and linkages would then be the bases of economic development in the country. Because the export of cocoa is such an important part of Côte d’Ivoire’s economy, a primary export processing strategy may be applied there. For example, rather than exporting raw cocoa beans, they can be roasted and ground and sold as cocoa paste, an intermediate commodity.

In the case of LDCs, primary export processing is a relevant strategy (Athukorala & Sen, 1998). Less access to financing opportunities as well as a lack of expertise in alternate sectors in LDCs relative to what is available in developed economies limits the development of sectors completely unrelated to what is currently produced. For example, the development of a computer hardware sector in an economy currently dominated by the production of agricultural goods requires large capital investments into sectors that do not exist by a financial sector with limited lending capabilities. In addition, weak domestic demand for expensive final products limit the sale of those kinds of goods to the export market. LDCs are also characterized by a lack of highly trained labor which limits the establishment of industries that depend on a specialized workforce. In light of these constraints, primary export processing currently holds promise for initial forays into industrialization.
In addition to these economic development theories, there are also alternative theories that focus on the historic and political factors that have shaped trading routes and terms of trade in the LDCs. These theories tend to be critical of mainstream economic development strategies. For example, structuralists may argue that developing nations are not just regions that are located somewhere within early stages of development but that LDCs exhibit a distinct structure from now developed countries; their development would require a narrative that differs from that of past development narratives (see Seers, 1979).

Another alternative to economic growth through stages of development is dependency theory. Dependency theory views economies as connected through a core and periphery relationship rather than being parallel economies at different stages of development. Although dependency theory employs a different narrative than some more purely economically based models, the development method suggested by dependency theory tends to still be a linear narrative. Namely, government intervention is necessary to direct the national economy towards industrialization in order to counter the negative effects of core-periphery relationships (see Prebisch, 1959).

These other perspectives that deal with the structure and focus of development are beyond the scope of this paper, which tests the theoretically predicted benefits of industrialization on development. Nonetheless, they are an important component of the development policy debates as a whole. The entrenched nature of underdevelopment despite a long history of development efforts encourages the application of interdisciplinary approaches to problem solving (Easterly, 2001; Harriss, 2002).
Empirical Work on Industrialization and Development

There is a large body of literature looking at primary commodity production and development in the LDCs. For example, Cramer analyses this idea in the cashew sector in Mozambique (Cramer, 1999). He contends that forward integration, or the addition of processing industries traditionally completed after export, is a widely endorsed development strategy. In his study, he identifies several constraints to the development of industrial manufacturing in the cashew sector, including high international quality and hygiene standards for final products, price volatility due to fluctuating world supply and demand, and a shortage of technology and sector wide standards within Mozambique. He concludes that the merits of resource based industrialization, or forward integration, should not be made at a high level of abstraction, but that individual cases should be analyzed to discover the particular constraints of that case. In Mozambique, he proposes that a consistent, strong, and comprehensive domestic policy agenda would help to alleviate some of the constraints on the local industrial sector by creating a more agreeable business environment.

Tybout (2000) argues that the industrial sector in LDCs may suffer from the negative effect of oligopolies, i.e. a relative lack of competition may contribute to inefficiencies. He demonstrates that large firms tend to benefit from policies that make it easier for them to access subsidies, acquire licensing, receive special tax breaks, and obtain preferential access to credit, for example. As a result, small firms may avoid entering sectors that are controlled by large players. Case studies are needed before reaching definitive conclusions on the effects of monopolies in particular countries, but Tybout proposes that the current evidence does not support the idea that these problems do not necessarily block manufacturing sectors from being economically
effective. He suggests that the dominant issue is more likely the investment risk engendered by a bad business environment in terms of local policies, corruption, and physical security.

Rodrik (2004) speaks about the role of industrial policy within the developing countries that are aiming for industrialization. He contends that good industrial policy provides some of the same public goods that the mainstream development agenda calls for. He does not advocate one particular position on export policy but promotes a dynamic search for appropriate policies. He calls it “a discovery process—one where firms and the government learn about underlying costs and opportunities and engage in strategic coordination. (p. 3)” It is for this reason that good industrial policy be organized out of a balanced strategy of government intervention.

UNCTAD’s 2008 report, Economic Development in Africa, posits that African LDCs have not responded well to the possibilities created by trade liberalization (see also Haque, 2004). The report shows LDCs as being unresponsive to global demand. The problems identified include low investment into production capacity, low productivity, small firm size, and limited access to credit. The conclusion is that LDCs manufacturing exports could be made competitive with large scale investment into production and trading infrastructure. In general, these studies find that industrialization can work as a development strategy but there are a lot of hidden constraints that need to be addressed on a country by country basis.

**Research Questions and Methodology**

The methodological framework of this paper includes analyzing the cocoa commodity chain with an emphasis on its character in Côte d’Ivoire, the particular challenges of resource based industrialization through the cocoa sector in Côte d’Ivoire,
and the potential for development through this process. This thesis addresses three questions:

1) What is the relationship between industrial processing of cocoa and socio-economic development in Côte d'Ivoire?

2) Is “moving up the chain” into industrial processing in the cocoa sector correlated with economic and non economic development in Côte d'Ivoire?

3) Does the case of Côte d'Ivoire support theories of industrialization and export-based theories of development?

Methodology

Some recent proponents of industrialization have looked at the problem from the perspective of commodity chain analysis. A commodity chain is a unit of analysis that considers the movement involved in the production of a commodity as a series of connected actions and processes. In 1977, Hopkins and Wallerstein first defined a commodity chain as a linked set of processes that trace a consumable item back through the inputs that culminated in that item, through “the prior transformations, the raw materials, the transportation mechanisms, the labor inputs into each of the material processes, the food inputs into the labor.” This understanding of commodity movement developed out of world-systems analysis, which deals in part with movement of resources between a core and periphery. Commodity chain analysis was designed as a tool for understanding the spatial distribution of value extracted along the commodity chain as well as the location and movement of processes within that chain over time (Bair, 2009). The publication of Commodity Chains and Global Capitalism (ed. Gereffi & Korzeniewicz) in 1994 was a major development in the study and understanding of
commodity chains. In it, Gereffi outlined a framework for analyzing global commodity chains (GCC). He proposed that GCCs can be analyzed on the following three levels: “(1) an input-output structure (i.e., a set of products and services linked together in a sequence of value-adding economic activities); (2) a territorality (i.e., spatial dispersion or concentration of production and distribution networks, comprised of enterprises of different sizes and types); and (3) a governance structure (i.e., authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain) (p. 7).”

He also suggested that a GCC’s governance structure can be divided into two ideal types, the producer-driven and the buyer-driven. A producer-driven commodity chains is one where the authoritative actor in the chain is at the producer end, as in the case of a large industrial company like a car manufacturer. In such a scenario, the large industry brokers deal with subcontractors (down the chain) and retail outlets (up the chain). In buyer-driven commodity chains the authoritative actor is located at or near the top of the chain, such as with retailers and brand owners (who may not be physically involved in production at all). Here, the brand owners stipulate that products conform to certain specifications. The products are then produced by subcontractors who are often located in developing nations.

Commodity chain analysis is a fitting tool for studying the development strategy of industrial development because forward integration in the industrial sector parallels the concept of moving up the chain. In 2001, in response to an article that charged GCC analysis as being too tied to a pessimistic dependency theory to make good policy recommendations (Cramer, 1999), Peter Gibbons wrote that “GCC analysis addresses
the issue of who controls global trade and industry, and how agents locked into lower-value segments of trade and industry can break out of this situation.” He contends that GCC analysis focuses on the opportunities and constraints within individual chains without preemptively concluding that the constraints will always outweigh the opportunities.

Gereffi’s design for global commodity chain analysis was used in 1999 to study the relationship between supermarkets in the UK and vegetable producers in Africa (Dolan, et al., 1999). Dolan et al. (1999) explains that the same forces that affect merchandise GCCs can also be seen in food GCCs. A reduction in the number (and increase in the size) of retailers, as well as the successful marketing campaigns of global brands (like Nike and Calvin Klein) has consolidated the influence of consumers on GCCs. The same consolidation of retailers (supermarkets) occurred in the UK, resulting in the increased influence of consumers on the food GCC and characterizing that chain as a buyer-driven commodity chain.

Further distinction can be made about the governance structure of the cocoa GCC. Niels Fold proposed that the cocoa GCC has two power brokers: the grinders and the brand owners. These agents get their influence in part from their ability to “exploit economies of scale in production and organization, capacity for brand marketing, and relative short-term profitability (Fold, 2002).” These would correspond to the production of cocoa products by grinding and pressing on one end, and the brand marketing of chocolate products for consumption on the other.

Raphael Kaplinsky has done one of the most recent GCC analyses on cocoa (2004). In it, Kaplinsky looked at the concentration of power in GCCs, particularly in the
buyer-driven chains of coffee and cocoa. His focus in his GCC analysis deals with concentrations within the chain. He contends that deregulation and liberalization at the producing end of the chain has reduced the profitability for producers. In addition, the number of actors or firms at the consuming end of the chain has diminished, creating an imbalanced concentration of power that does not favor the producers and other local firms. He outlined the concentration of actors in final retail, food manufacturing industries, and (to a less robust degree) buyer intermediaries between commodity producers and retailers. In terms of the cocoa sector, Kaplinsky concludes that producing regions hardly benefit from any value added though industrial processes in part because 1) liberalization policies resulted in the failure of local industrial efforts and 2) the concentration of influence on the consumer end of the chain has resulted in large firms that have gained a foothold in the sectors close to production.
Cocoa production began in West Africa in the late 1800s. It was introduced predominantly as an indigenous, capitalist venture, rather than a colonial project (Hart, 1982; Woods, 2003). Cocoa had been produced in Latin America for hundreds of years but demand in Europe remained low from its ‘discovery’ by the Spaniards in the sixteenth century demand through the eighteenth century due to high import taxes. Early in the nineteenth century, the combined effects of reduced taxes and improved processing techniques caused the demand for chocolate to increase dramatically (Wood & Lass, 2001). The stage was set for cocoa to become an agricultural export commodity, and Côte d’Ivoire had the appropriate climate, ecology, and population density to make the most of that opportunity. Figures 3-1 and 3-2 show a rapid rise in production overtime, and the growing dominance of the African region in overall production.

**Characteristics of Cocoa Production in Côte d’Ivoire**

Cocoa in Côte d’Ivoire is predominantly produced on small scale farms in partially or fully cleared forests lands. The cocoa plots tend to be between .5 and 2.5 hectares, small compared with its Latin American counterparts (Wood & Lass, 2001), but the size of these plots does not necessarily reflect the size of cocoa plantation holdings of any one producer. This is because many cocoa producers in Côte d’Ivoire own several small plantations and outsource their production to outside labor. As cocoa production is not undertaken for subsistence, cocoa farmers can be considered entrepreneurs, capitalists, and/or businessmen (Hart, 1982). As such, some of the profits of one plot of cocoa would often be reinvested in another. As holdings grew, the demand for labor
increased. Migrant labor from the savannah/Northern region of Côte d’Ivoire provided that labor. Cocoa production in Côte d’Ivoire was thus characterized by migrant labor mobilization and small scale expansion of production in forested areas thanks to open borders and persuasive land policies initiated by President Félix Houphouët-Boigny which will be explained further in this paper (Woods, 2003).

**Why Grow Cocoa?**

Hart (1982) outlines some important information that helps in understanding the fundamental relationship between the production of cocoa in Côte d’Ivoire and the government of that state. The French colonial powers and the subsequent independent state of Côte d’Ivoire had similar agendas in the area. The colonial powers were interested in taxing exports to generate revenue, as was the state of Côte d’Ivoire. Cocoa and other commodity agricultural production in Côte d’Ivoire was a source of revenue for the French, and they seemed content to tax cocoa through the mechanism of export. The reason France wanted the revenue is not important for this discussion but the reason Côte d’Ivoire needed that revenue is. At its most basic, a state government has a need for revenue in order to govern, to provide social services, and to maintain security, for example. As in every modern state, the government collects revenue by taxing, either through the people or the resources available to the country or some combination of the two. Cocoa became the basis of the Côte d’Ivoire economy after independence. Cocoa is a valuable agricultural commodity and the high level of production in the southern forests of Côte d’Ivoire made it a logical choice for that end. But more importantly, direct taxation was not feasible in Côte d’Ivoire because the majority of the population was engaged in a decentralized agricultural economy that
was not accessible to the tax collector so encouraging the production of an exportable agricultural commodity was tantamount to fostering the growth of tax revenue.

Encouraging Cocoa Production

As the engine of the young Côte d’Ivoire economy, cocoa production has been the object of many government policies and strategies. To understand the government’s early involvement in cocoa, it is important to understand Félix Houphouët-Boigny. He was the country’s first president, and one of the longest enduring leaders in the region, but he cut his political teeth, so to speak, as a cocoa producer. He was one of the founders of the Syndicat Agricole Africain (SAA) in 1944. The SAA was an organization created by and for coffee and cocoa producers. The initial goal of creating such an organization was to gain a measure of access to the French controlled agricultural credit fund. Once the organization was founded, other goals were brought to the front, including the issue of control of labor (Zolberg, 1969).

Cocoa production in Côte d’Ivoire may have been conducted on small plots, but producers often controlled many plots and relied on access to others’ labor in order to produce the crop. Under French colonial rule, available labor was first allocated to French firms and whatever was left was available for Ivorian firms. The SAA challenged the French cocoa producers’ monopoly of labor. Houphouët’s success in this effort led to the cocoa boom by providing easy access to labor to Ivorian producers. In particular, Southern producers were able to negotiate contracts directly with chiefs in the North for the labor of their young men. This then encouraged the mobilization of international migrant labor (Woods, 2003). Houphouët benefited greatly both financially and politically as the SAA closely aligned with the Parti Démocratique de la Côte d’Ivoire (PDCI), the party through which he gained the presidency (Zolberg, 1969).
The government policies of the independent state of Côte d'Ivoire that dealt with cocoa production included labor laws, land rights, and price stabilization, as well as the legal enforcement of these policies. These policies were designed to benefit the state by increasing cocoa production and thus increasing state revenue.

As mentioned before, access to labor is an important factor in the production of cocoa. Producers would often “hire” migrant workers through a system of sharecropping. The migrants would work the cocoa plot and collect approximately a third of the profits. They would also have access to additional land allocated for subsistence agriculture. President Houphouët knew the benefits of using Northern migratory workers for increasing cocoa production. His government encouraged labor mobilization though policies of unrestricted migration and the right to vote for migrant workers. It is also possible that Houphouët consolidated his power with the help of the migrant vote since many of his policies directly benefited them (Crook, 2001).

Land right policies also benefited cocoa producers and migrant workers. Under French rule, ‘unoccupied’ land came under the direct control of the colonial administration. The subsequent independent state also then claimed supreme rights over land (as opposed to Ghana, where local laws were incorporated into the legal code) (Crook, 2001). Houphouët is often quoted as saying that the ‘land belongs to those who make it produce’ (Woods, 2003). This is a very telling mantra, as land right policies were not necessarily based on historical, cultural, or legal definitions, but, rather, land right policies in Côte d’Ivoire were defined with the intent of maximizing the governments’ highest utility for it, i.e. revenue.
The centerpiece of the state’s policy was the stabilization of the cocoa producers’ price. As market prices for cocoa fluctuate widely, the price stabilization provided more incentive for farmers to enter and remain with the cocoa business by reducing the uncertainty inherent in a fluctuating international market. The state provided all of these incentives through four main institutions. The stabilization fund (Caistab) financed the stabilization of cocoa prices for producers and licensed traders, transporters, and exporters. The regional administrations carried out government policy in dealing with producers. They were also responsible for policing local traders. The third and fourth institutions are related. The Ministry of Agriculture’s most notable influence on cocoa production was through the extension service. The extension service provided technical support and education to farmers. These institutions were essentially the centralizing mechanisms for a decentralized region. The government was able to influence and control the production of cocoa and then collect revenue from the marketing of that cocoa (Crook, 1990).

The effectiveness of these policies in meeting the state’s goals is apparent in a quote from Woods (2003):

Until the 1980s, a positive dynamic existed between the state and cocoa producers, and between the country’s different ethnic communities and foreigners. The state drew a significant portion of its revenue from direct and indirect taxes on commodity exports. These resources were used in three ways. First, they allowed President Houphouët-Boigny to consolidate his political position through the dispensation of patronage. Second, the rent allowed Houphouët-Boigny to manage elite, social and regional tensions (Me´dard 1982: 75–6; Woods 1990). Finally, the revenue accounted for much of the state’s investment budget in the 1960s and 1970s (Mahieu1990: 105–9). The state used the rent it siphoned from cocoa through the Caisse de Stabilisation to build the country’s infrastructure and to promote costly agro-industries such as sugar production. Without a doubt, the economic miracle of the 1960s and early
1970s that transformed Ivory Coast into the pre-eminent economic power in West Africa was due primarily to the revenue gained from cocoa exports.

The De-Evolution of the System

The combination of the expansionistic characteristic of cocoa production in the Southern forest belt of Côte d’Ivoire and the government policies that favored expansion and cocoa producers led to ethnic and regional frictions. In the mid 1900s, cocoa production was concentrated in the Southeast of the country. Over the next thirty years, production spread to the center and Southwest of the country. In addition, a large percentage of the producers in the East were Baoulé, the same ethnic group as Houphouët, and a large percentage of the laborers were from the North of Côte d’Ivoire and Mali, Niger, and Burkina Faso. The local Southwestern ethnic group was predominantly Bété however (Woods, 2003). Here too the state sided with the cocoa sector over the ‘locals’ when dealing with land rights issues.

But the ethnic conflict side of the story only gained prominence after the collapse of the price of cocoa on the world market. The price for cocoa dropped precipitately beginning in 1980. This obviously put stress on the Caistab, which was designed to be able to withstand price fluctuations. During boom years, the Caistab would benefit in two ways. Producers were paid below world prices, and licensed exporters agreed to pay the Caistab any extra profit they made from selling the cocoa above the agreed price. Technically, the Caistab was mandated to save 60% of these earnings to put towards slump years. This saving did not occur, however, so the pricing crisis reverberated quickly. When the prices dropped below the government set price, the Caistab had to pay producers more than the cocoa was worth on the world market, and exporters were entitled to reimbursements if they had to sell their cocoa for less than the set price. The
government did not have enough reserves to pay and soon had a debt problem (Crooks, 1990).

**Externally Mandated Changes**

The World Bank provided Côte d’Ivoire a loan in 1989 that was part of an IMF Structural Adjustment Program (SAP). The SAP mandated a wide range of liberalization measures consistent with the economic theory of the time (Moss, 2007). The internal price controls that were meant to stabilize the producers’ price were removed. Producers were then exposed to the international price of cocoa. The international price was low at the time so, the producer price for cocoa was dramatically reduced. The system of licensing was privatized, and the CFA was devalued in 1994. (The CFA is a currency used by many West African countries, most of which are previous French colonies. The CFA was tied to the French franc and is now tied to the euro at fixed exchange rates.) High domestic government spending resulted in high domestic inflation. This lowered the real cost of imports but increased the real price paid by the buyers of Côte d’Ivoire’s exports. The devaluation made the Côte d’Ivoire’s exports more competitive in the international market, but also seriously undermined the local population’s purchasing power of imported good, and thus, standard of living (Easterly, 2001; Birdsall & Hamoudi, 2002). Finally, the Caistab’s influence was challenged from all directions. Its influence was slowly eroded, but because of its importance to the government, the Caistab was not completely dismantled until 1999 (Losch, 2002).

**Internal Upheaval**

As the economic crisis took hold in Côte d’Ivoire, some of the unemployed youth in the urban areas began to return inland. Houphouët encouraged this with a program to “return youth to the land.” This only served to increase ethnic tensions in the Southwest
as young Bété men returned to find land occupied by Baoulé and Northern cocoa farmers (Crooks, 1990; Woods, 2003). These tensions came to a head in the political arena in 1990 during the first multiparty elections, which were also a product of external donor pressure (Woods, 2007). The only serious competition arose out of the Southwest. The Front Populaire Ivoirien (FPI) was lead by the presidential candidate Laurent Gbagbo, a Bété. Houphouët again appealed to his faction by promising citizenship to immigrant workers (Chirot, 2006). Houphouët won the 1990 elections and appointed a Northern economic technocrat, Alassane Ouattara as prime minister. When Houphouët died in 1993, a constitutional amendment stated that the president of the National Assembly, Henri Konan Bédié was to succeed him. Ouattara resigned and presented himself as an opposition candidate for president in the 1995 elections. Bédié fatefuly rescinded the government’s position on foreigners by requiring individuals to provide proof of their parents’ birth in Côte d’Ivoire to claim citizenship. This policy was intended to exclude Ouattara from the elections as his citizenship was in question in terms of his parent’s place of birth. The crackdown on ‘immigrants’ began in 1994 (Crook, 1997 and 2001; Chirot, 2006). Bédié won the 1995 elections only to be overthrown in 1999 in a coup. In the subsequent election in 2000, Gbagbo won the presidency. As a Bété, it could be assumed by Ivorians that Gbagbo would not support land rights for Northerners or Baoulés in the Southwest. Violence soon broke out between the two factions in the Southern city of Abidjan and in the North. Gbagbo then began to remove Northerners from federal positions. As the conflict progressed and the political stability of the country continued to deteriorate, internal violence seemed to
concentrate in the Southwestern region of Côte d’Ivoire along ethnic lines (Chirot, 2006).

The long standing system of cheap access to land and migrant labor has thus passed. It might have been assumed that the violence in the cocoa producing regions and the disruption of the long standing system of production would create a sharp decline in the cocoa production of Côte d’Ivoire. Interestingly though, production in the region increased throughout the 1990s. This could be related to the conflict, as resource revenues have to potential to provide a way to finance hostilities. Losch (2002) notes that the 1995/96 cultivation year produced a record 1.25 million tons. More recent figures indicate that that growth in production has continued into the new millennium. The average of the last three production cycles (2006-2009) was 1.28 million tons, with a peak of 1.38 million tons in 2007/8 (See Table 3-1). The downside for producers is that world cocoa prices declined during most of that period (Guilbert & Varangis, 2003). World prices only began to make major gains again in 2007 (see Figure 3-3).
Figure 3-1. Global cocoa production (Wood & Lass, 2001; ICCO, 2009)
Figure 3-2. Percent of cocoa production by region (Wood & Lass, 2001)
Table 3-1. Production of cocoa beans (ICCO, 2009)

<table>
<thead>
<tr>
<th></th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
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<tr>
<td>Côte d’Ivoire</td>
<td>1229</td>
<td>1382</td>
<td>1222</td>
</tr>
<tr>
<td>World (not including CI)</td>
<td>2205</td>
<td>2349</td>
<td>2293</td>
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</tbody>
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Figure 3-3. Cocoa beans, monthly price (IMF, 2010)
CHAPTER 4
AN ANALYSIS OF COCOA PROCESSING IN CÔTE D'IVOIRE

The story of cocoa in Côte d'Ivoire provides an interesting perspective on the wide range of similar issues and actors that characterize much of the African continent. Although often praised for the peace and development that occurred during his long presidency, Houphouët was the dictatorial leader of Côte d'Ivoire (Moss, 2007). His rule did not degenerate the country into a police state, but he was able to maintain his power in part through the vast wealth generated through the Caistab. The success of the Caistab came about through the land and labor policies implemented by Houphouët that helped to quickly expand the production of cocoa. Those policies could be considered autocratic in that they did not necessarily reflect the will of the population, particularly on a regional scale. When cocoa prices fell in the 70s, so did Houphouët’s economy. The subsequent donor bailouts came with conditions to liberalize the economy and democratize the political system. The weakened political system, exacerbated by the death of Houphouët in 1993, coupled with the volatile ethno-regional friction created through previous cocoa policies, led to outbreaks of violence and political upheaval at the turn of the century.

The liberalization of the government, economy, and particularly the cocoa sector, along with dramatic changes in government policy on immigrant labor, led to a new cocoa producing environment (Abbott, 2007). It is not entirely clear what the consequences of those changes are. Are producers benefiting from the liberalization of the sector in a global economy? Will the country’s economy benefit from the cocoa being produced? More importantly, will the Ivorian people benefit from cocoa revenue?
We know that Côte d’Ivoire does more cocoa processing than other producing countries, such as the second largest producer, Ghana. We also know that economic development appears to have stagnated in Côte d’Ivoire as compared to global trends (see Figure 4-1). So it may appear on the surface that Côte d’Ivoire is not accruing economic benefits from participating in value added processing in the cocoa sector as mainstream economic theory predicts it should. So there is a need for a more in-depth analysis of what is happening, using a commodity chain approach.

**Commodity Chain Structure**

As shown in Figure 4-2, cocoa goes through five major stages along its chain: the cocoa pod, merchantable cocoa, cocoa paste, cocoa butter and powder, and chocolate. The cocoa pod is harvested from the tree and opened. The cocoa seeds are extracted, fermented, and dried. This process occurs almost exclusively before export. The cocoa is not able to be transported or stored for any extended period of time unless these initial processes are carried out. These processes result in the merchantable cocoa bean. The beans can then be roasted, winnowed, and ground into cocoa paste. Cocoa paste is then pressed and milled to separate the cocoa butter and the cocoa powder. These ingredients are then used to make chocolate products. The confectioning of chocolate is solidly centered in the industrialized regions of Europe and the North America. For example, Europe and North America produce respectively 55% and 30.2% of the global supply of cocoa, chocolate, and confectionery products. Africa and the Middle East only command a .2% share of the industry (IBSWorld, 2009).

A look at the export values of these commodities at different levels of production gives an idea of the value added by processing. In Table 4-1, the representative value of these commodities at export is based on the 2008 export data for Côte d’Ivoire. The
value increases as it moves along the chain. The value of cocoa powder seems like an anomaly, but the processing that results in butter and powder almost always occur at the same time; since they both come from the cocoa paste/liquor, their added values ($2.84) is a better representation of the value added through that process. Finally, it could be assumed that finished chocolate would have the highest unit value, but \textit{chocolate} products often contain small amounts of \textit{cocoa} products by volume. Chocolate candy bars and box chocolates contain many added ingredients like nuts and other fillers that reduce the percentage of cocoa derived ingredients in the product. Similarly, chocolate bars are often categorized by their chocolate percentage which refers to the percentage of cocoa in the bar. Milk chocolate bars may have as little as 30-40 chocolate percentage. Dark chocolate bars can range from 50-85 chocolate percentage. So, based on the final value, it can be assumed that the cost of the sugar, milk, and other additives in the finished chocolate are less expensive that the cocoa products and results in the lower value of the chocolate as a whole. If we could disaggregate the two, by finding out exactly how much cocoa product makes up that one pound of chocolate, the unit value of the cocoa products that make up that chocolate would be higher.

In terms of actors, the cocoa farmer is the first owner of the product and the first actor in the commodity chain. Individual farmers and farmer cooperatives sell their beans to certified buyers. At this point, the movement of the cocoa products becomes much more complicated. Certified buyers sell the beans on the market to either processors/manufacturers, traders, or exporters/transporters. The next time the
commodity changes hands depends on the extent of the actors’ integration along the chain. In general the final chocolate products are then sold to retailers and consumers.

Côte d’Ivoire has approximately 1 million cocoa farmers. Some of those farmers are represented by cooperatives and some sell directly to buyers. The Ivorian government lists 38 accredited cooperatives and 188 certified buyers (BCC, 2010). The government also lists 47 accredited exporting companies and 20 accredited small and medium exporters. Of those 67 exporting companies, four have manufacturing plants in Côte d’Ivoire (Archer Daniels Midland (ADM), Barry Callebaut, Cargill, and Cemoi) (Bass, 2006). In the diagram below (Figure 4-3), local processors, exporters, and foreign processors are listed separately. In reality, some firms span all three functions. A good example is ADM. ADM runs a processing plant in Côte d’Ivoire. The company also runs a global transportation network and cocoa processing plants in Asia, Europe, South America, and North America.

As shown in Figure 4-3, there are a relatively small number of actors in the middle of the cocoa chain (Fold, 2001; Vorley, 2004). Although there are many cocoa processors and chocolate confectionary firms, their number is dwarfed by the millions of farmers at the one end and the millions of consumers at the other. It is also clear that although no company owns a majority of the market share in processing or cocoa confectionary, a small number of firms enjoy a great deal of influence in the sector. Part of this influence is derived from the extent of their presence along the chain. For example, ADM is involved in cocoa farming research and development at the beginning of the chain, and sells finished chocolate products to retailers near the end of the chain. Barry Callebaut, Cemoi, Petra Foods, and Nestle are also involved in the chain from
farming support projects to finished chocolate. However, the leading firms take a more dominant role in either the cocoa processing or the chocolate manufacturing/branding (Fold, 2002). ADM is not a major player in the confectionary industry, but they are one of the largest processors and sellers of intermediary cocoa products in the world. In contrast, Mars Inc. is not heavily invested in the early processing stages of cocoa but is ranked as approximately the second largest confectionary of cocoa products in the world (after Cadbury/Kraft).

Some authors have noted a gradual concentration of influence in the processing and confectioning of cocoa and chocolate due to firm mergers and buyouts (Fold, 2001; IBISWorld, 2009; Kaplinsky, 2004; Vorley, 2004). Some notable examples are the merger of Cellabouth and Cocoa Berry in 1996 to form Barry Callebaut, and Cadbury’s incorporation of Trebor Bassett in 1989, and the Adams Group in 2003. Nestle has a long track record of acquisitions in many food sectors. Some recent cocoa related acquisitions include Pierre Marcolini and Ruzskaya Confectionary Factory in 2007. In that same year, Nestle and Barry Callebaut entered into a long term agreement stipulating that Barry Callebaut will supply cocoa products to Nestle and confection some of Nestle’s brand items. Most notable in recent news is Kraft’s hostile takeover of Cadbury, completed in February 2010. Even before the acquisition, Cadbury was considered to have the largest market share in the cocoa, chocolate, and sugar confectionary manufacturing sector and Kraft was 8th. Together, they will command a substantial market share in the sector (See Table 4-2).

**Resource Based Industrialization in Côte d’Ivoire**

When analyzing the potential for resource based industrialization as a development strategy in the cocoa sector in Côte d’Ivoire, it is important to describe the
connections between the theoretical benefits and the current actors. In a scenario where there is no added value in the country, the benefits of the cocoa industry are paid to the farmers as the cocoa sale price, the certified buyers as markup profits, and the government as buyer licenses, exporter certification, and export tariffs. The value is then re-circulated through the system to farmers as extension services and to the general public as government expenditure. Figure 4-4 illustrates the movement of the value derived from cocoa within Côte d’Ivoire until it left the country for the international market in 1988. Of the cocoa that was exported that year, 94% of the value extracted from those exports was derived from unprocessed cocoa beans. The problem with this arrangement is that there are many more opportunities for cocoa manufacturing beyond the cocoa bean and that these activities generally generate more revenue.

By increasing local manufacturing, there are more direct benefits for the general population through employment at manufacturing firms and linkage firms. The government also receives more revenue from business taxes and wage taxes that can then be used to increase government spending. The workforce also benefits from training for more highly skilled jobs. All these outcomes would benefit the general population more than the scenario presented in Figure 4-4.

Figure 4-5 represents the changes in the cocoa manufacturing sector in Côte d’Ivoire in the last twenty years. There are five major cocoa manufacturing plants in Côte d’Ivoire that produce cocoa products at different stages along the chain. It is these plants that account for the growth in manufacturing seen in Figure 4-5. The International Cocoa Organization (ICCO) reports that a great deal of cocoa is processed within Côte d’Ivoire, relative to other producer countries. For example, in the 2008-09 production
year, Côte d'Ivoire was reported to have ground 440 thousand tons of cocoa, rivaling the largest grinder, the Netherlands, at 475 thousand tons, and outdoing the next two largest grinders, the United States and Germany, at 355 and 335 thousand tons respectively. Of cocoa producing countries, Côte d'Ivoire is an anomaly. The next two largest producers, Ghana and Indonesia, only ground 255 thousand tons combined.

Figure 4-5 also illustrates some of the theoretical benefits of industrialization. For example, the presence of one industry can create incentives for linkage firms to locate nearby. This growth produces increased revenue for the state through taxes and other regulations. It also benefits the local population by providing waged labor and other business opportunities. The situation illustrated in Figure 4-5 deviates from the ideal because manufacturing still makes up a minor share of the sector. A continued increase in the percentage of manufactured exports should compound the economic benefits just mentioned. As a result, Côte d'Ivoire would be able to achieve the expected benefits of increasing their share of the processing of raw goods.

In summary, the commodity chain analysis highlights several important issues. The first is that raw beans are provided to the market mostly by small farmers. These farmers enjoy limited economies of scale and limited negotiating power when dealing with the relatively small number of licensed buyers. It is also clear that cocoa processing before export is increasing in Côte d'Ivoire, which is a positive economic development. On the other hand, the processing plants responsible for that growth are owned by TNCs. In addition, a few of these TNCs involved in processing control a great deal of the market, which again limits the negotiating power of suppliers, buyers, and
competitors. This situation implies that some economic growth may be occurring, but that the structure of the sector makes it more likely for TNCs to reap the most benefits.

**Correlation Between Changes in Manufacturing and Development**

A statistical analysis of development data was conducted in order to test the relationship between increases in manufacturing and higher levels of development. Statistical tests cannot prove the existence of a theoretical relationship, but they can provide evidence to support or refute theoretical claims. In order to conduct a statistical analysis for this study there first has to be some determinant of changes in manufacturing in Côte d'Ivoire. Using the trade data available from the United Nations Commodity Trade Statistics Database for the last twenty years it is possible to track some of those changes. Figure 4-6 shows the total value of cocoa exports, the value of the most basic commodity form (beans), and the sum value of more processed forms of the commodity. The big dip can be explained by the coup that occurred in 1999. The disruption of exports accounts for the dip, and the bulge immediately after is most likely due to the clearing out of some stockpiling that occurred while exports were disrupted. However there is an upward trend in the value or revenue generated from cocoa based exports. Figure 4-7 shows the share of value that is generated by more processed forms of cocoa. There is also steady growth there. It should be pointed out that despite the growth, 67% of the export value of in the cocoa sector is still derived from the export of cocoa beans. These beans represent the potential for more processing to take place in Côte d'Ivoire.

Figures 4-8 and 4-9 demonstrate that the growth in export value is not just a function of higher commodity prices but is made up of real growth in the pounds of processed product exported. In addition, the increased production in processing is not
just due to larger supplies of cocoa beans. The pounds of beans being exported are falling while the pounds of processed cocoa are increasing. There is actually a replacement of the bean exports by more processed exports.

Again, development can be defined differently by different people. Two major forms that development can take theoretically are economic and social. Growth in the industrial sector in a country should contribute to growth in general economic indicators like GDP. In turn, this economic growth can have positive implications for social development in the form of improved health and education indicators. Using the value of processed cocoa as a percent of total cocoa exports as an indicator of increased processing within Côte d’Ivoire, its relationship to development indicators can be tested.

The World Bank World Development Indicators database was the source of the data used in this study. Regularly updated data is not available for many development indicators in Côte d’Ivoire. For example, the World Bank database only has two years of data for the adult literacy rate in Côte d’Ivoire for the last twenty years. In light of these limitations, the indicators used in this study were chosen because of their relatively frequent sampling (see Table 4-3 and 4-4). In addition to measuring both economic and social phenomena, the data used was selected based on its use by the Human Development Index in estimating and comparing holistic standards of development across time and region.

The GDP per capita calculated at purchasing power parity represents an indicator of economic growth. Since cocoa exports comprise an average of 33% of the value of exported commodities in Côte d’Ivoire in the last ten years (UNCTSD, 2009), a growth in cocoa exports would be responsible for a similar growth in export revenue and GDP.
would in turn increase. If industrialization leads to economic growth, the data should demonstrate a positive relationship between the two. The GDP data was not normally distributed (see Figure 4-10), so a Spearman’s Rho test was used, as it has less stringent assumptions about the distribution of the data. The result of the test was a positive correlation coefficient, between the growth in manufacturing and GDP per capita PPP between 1988 and 2008, of .783 significant at the 99% confidence level, suggesting some evidence of the theoretically predicted outcome.

Industrialization theory also assumes that industry growth will create growth through linkages to other businesses, compounding the benefits of growth. This study uses changes in the number of domestic companies as a measure of the effectiveness of this benefit. A manufacturing firm needs inputs for its operation and produces new outputs. The theory predicts that the establishment of a new firm will create new demands for inputs and a new supply of its outputs. This then creates incentives for local firms to provide those inputs and for others to make use of the new supply of outputs to set up further processing. These linkages compound each other and create a positive business environment by reducing the costs of shared factors of production. These incentives encourage the creation of new firms and the growth of existing firms. In this case the number of domestic companies is used as an indicator of the effectiveness of cocoa manufacturing in creating linkages and economies of scale.

“Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year (World Bank definition).” A growth in manufacturing should be positively related to increases in the number of domestic businesses. In this study the correlation between increased cocoa manufacturing and
the number of domestic companies has the expected positive relationship, with a positive correlation coefficient of .858 significant at the 99% confidence level. This is more evidence in support of industrialization theory. At this point, the relationship between the amount of cocoa processed within the borders of Côte d’Ivoire appears to have a positive correlation to the economic growth of the region, just as the economic development models would predict. The social development indicators result in some similar conclusions, but with an exception.

Primary school enrolment is used in this study as an indicator of human capital. The percentage of children enrolled in primary school can indicate both the level of government services provided and the economic incentives parents have to send their children to school. The links between human development indicators and manufacturing are not as direct, but industrialization theory predicts that the economic growth of industrialization can create opportunities for education over time. The theory predicts a positive relationship between manufacturing and education. The relationship between cocoa manufacturing and primary school enrollment is characterized by a correlation coefficient of .806 significant at the 99% confidence level. This provides evidence that the theoretically predicted outcomes may be true. One possible explanation for this positive correlation is that people with more money are more likely to send their children to school. Another possible explanation is that the government is using the revenues to increase their provision of public services, such as primary education.

Similarly, the infant mortality rate is used as an indicator of human development in terms of health. Industrialization should create an environment that is conducive to the expansion availability of health services. Manufacturing and infant mortality rate should
show a negative relationship as better health care should decrease the instance of infant mortality. The infant mortality rate has a Pearson correlation of -0.953 significant at the 99% confidence level. So, evidence from this study suggests that increases in cocoa manufacturing are correlated with the reduction of the infant mortality rate. One possible explanation is that government revenue is being used to increase the availability of health services. Those directly benefiting from employment in the manufacturing sector could also be using their income to access health services.

Interestingly, there is no significant correlation between cocoa manufacturing and life expectancy. The most likely explanation for this disparity is the fact that the civil conflict dramatically affected the life expectancy in Côte d’Ivoire at the turn of the century. Another possible explanation is the short time span of the study. One reason we may not see evidence of the theoretically predicted outcomes is that it may take more time to see an impact on life expectancy.

In summary, when considered alongside the commodity chain analysis, the statistical data provides more perspective on the issue. The statistical analysis is limited by the few development indicators available, as well as by the short time span for the analysis. Nonetheless, this analysis suggests that cocoa manufacturing in Côte d’Ivoire is positively correlated to improvements in some development indicators. This lends some support to the industrialization hypothesis. The commodity chain analysis suggested that some economic growth was occurring, but that the structure of the sector favored international actors in terms of benefits. The statistical data suggests that increases in manufacturing is correlated with higher levels of economic growth. The
analysis also finds a positive correlation between the level of manufacturing and other development indicators.
Figure 4-1. GDP per capita PPP (World Bank, 2010)
Figure 4-2. The cocoa commodity chain
Table 4-1. Value of cocoa exports (UNCOMTRADE, 2010)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>$1.02</td>
<td>62.5</td>
</tr>
<tr>
<td>Paste</td>
<td>$1.45</td>
<td>15.4</td>
</tr>
<tr>
<td>Butter</td>
<td>$2.06</td>
<td>10.1</td>
</tr>
<tr>
<td>Powder</td>
<td>$0.78</td>
<td>2.2</td>
</tr>
<tr>
<td>Chocolate</td>
<td>$1.33</td>
<td>5.8</td>
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</table>
Figure 4-3. Actors along the cocoa commodity chain
Table 4-2. Top 10 Global Cocoa, Chocolate and Sugar Confectionery Manufacturing Firms (IBISWorld, 2009)

<table>
<thead>
<tr>
<th>Company</th>
<th>Estimated market share in 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadbury</td>
<td>10.20%</td>
</tr>
<tr>
<td>Mars</td>
<td>9.70%</td>
</tr>
<tr>
<td>Ferrero</td>
<td>8.20%</td>
</tr>
<tr>
<td>Nestle</td>
<td>8.00%</td>
</tr>
<tr>
<td>Hershey</td>
<td>5.10%</td>
</tr>
<tr>
<td>Wrigley</td>
<td>4.80%</td>
</tr>
<tr>
<td>Barry Callebaut</td>
<td>3.70%</td>
</tr>
<tr>
<td>Kraft Foods</td>
<td>3.10%</td>
</tr>
<tr>
<td>Perfetti Van Melle</td>
<td>2.30%</td>
</tr>
<tr>
<td>Lindt</td>
<td>2.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57.10%</strong></td>
</tr>
</tbody>
</table>
Figure 4-4. Value derived from cocoa, 1988
Figure 4-5. Value derived from cocoa, 2008
Figure 4-6. Value of cocoa based exports (UNCOMTRADE, 2010)
Figure 4-7. Value of processed cocoa as a percent of total cocoa exports (UNCOMTRADE, 2010)
Figure 4-8. Volume of cocoa bean exports (UNCOMTRADE, 2010)
Figure 4-9. Volume of processed cocoa exports (UNCOMTRADE, 2010)
<table>
<thead>
<tr>
<th>Year</th>
<th>% total</th>
<th>GDP per capita, PPP (current international $)</th>
<th>Listed domestic companies, total</th>
<th>School enrollment, primary (% gross)</th>
<th>Mortality rate, infant (per 1,000 live births)</th>
<th>Life expectancy at birth, total (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>6.15</td>
<td>1340.71</td>
<td>24</td>
<td>..</td>
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</tr>
<tr>
<td>1989</td>
<td>12.49</td>
<td>1381.79</td>
<td>23</td>
<td>..</td>
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<tr>
<td>1990</td>
<td>12.05</td>
<td>1369.38</td>
<td>23</td>
<td>66.24</td>
<td>104.49</td>
<td>57.38</td>
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<tr>
<td>1991</td>
<td>13.40</td>
<td>1367.96</td>
<td>25</td>
<td>63.77</td>
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<td>1992</td>
<td>12.56</td>
<td>1347.45</td>
<td>27</td>
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<td>..</td>
<td>57.50</td>
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<tr>
<td>1993</td>
<td>11.89</td>
<td>1328.74</td>
<td>24</td>
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<tr>
<td>1994</td>
<td>14.62</td>
<td>1322.37</td>
<td>27</td>
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<tr>
<td>1995</td>
<td>13.58</td>
<td>1399.26</td>
<td>31</td>
<td>63.22</td>
<td>99.73</td>
<td>56.80</td>
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<tr>
<td>1996</td>
<td>12.12</td>
<td>1488.68</td>
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<tr>
<td>1997</td>
<td>15.07</td>
<td>1552.38</td>
<td>35</td>
<td>..</td>
<td>..</td>
<td>56.34</td>
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<td>1998</td>
<td>16.19</td>
<td>1597.41</td>
<td>35</td>
<td>..</td>
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</tr>
<tr>
<td>1999</td>
<td>18.74</td>
<td>1602.15</td>
<td>38</td>
<td>69.10</td>
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<tr>
<td>2000</td>
<td>17.24</td>
<td>1537.25</td>
<td>41</td>
<td>69.28</td>
<td>95.13</td>
<td>55.76</td>
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<tr>
<td>2001</td>
<td>18.78</td>
<td>1537.77</td>
<td>38</td>
<td>72.02</td>
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<tr>
<td>2002</td>
<td>24.12</td>
<td>1509.29</td>
<td>38</td>
<td>73.59</td>
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<td>55.37</td>
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<tr>
<td>2003</td>
<td>24.63</td>
<td>1486.35</td>
<td>38</td>
<td>70.39</td>
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<tr>
<td>2004</td>
<td>27.04</td>
<td>1524.58</td>
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<td>..</td>
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<tr>
<td>2005</td>
<td>27.93</td>
<td>1560.06</td>
<td>39</td>
<td>..</td>
<td>90.79</td>
<td>56.52</td>
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<tr>
<td>2006</td>
<td>28.28</td>
<td>1584.94</td>
<td>40</td>
<td>70.56</td>
<td>89.90</td>
<td>56.90</td>
</tr>
<tr>
<td>2007</td>
<td>30.90</td>
<td>1617.97</td>
<td>38</td>
<td>72.13</td>
<td>89.08</td>
<td>57.28</td>
</tr>
<tr>
<td>2008</td>
<td>32.98</td>
<td>1651.23</td>
<td>38</td>
<td>..</td>
<td>..</td>
<td>57.76</td>
</tr>
</tbody>
</table>
Table 4-4. Summary of correlations
Value of Processed Cocoa Exports as a Percent of Total Value of Cocoa Exports, 1988-2008

<table>
<thead>
<tr>
<th></th>
<th>Correlation</th>
<th>Significance level</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP pc PPP</td>
<td>0.783</td>
<td>99%</td>
<td>21</td>
</tr>
<tr>
<td>Listed Domestic Companies</td>
<td>0.858</td>
<td>99%</td>
<td>21</td>
</tr>
<tr>
<td>Primary School Enrollment</td>
<td>0.806</td>
<td>99%</td>
<td>10</td>
</tr>
<tr>
<td>Infant Mortality Rate</td>
<td>-0.953</td>
<td>99%</td>
<td>6</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>NA</td>
<td>Not Significant</td>
<td>10</td>
</tr>
</tbody>
</table>
Figure 4-10. GDP per capita PPP (World Bank, 2010)
CHAPTER 5
DISCUSSION AND CONCLUSION

From this analysis, it can be concluded that there is a positive correlation between cocoa processing between 1988 and 2008 in Côte d'Ivoire and some economic and social development indicators. It is also clear that cocoa processing is increasing in Côte d'Ivoire. With cocoa production leveling off in the last nine years, the export of processed cocoa goods has been slowly replacing some of the export of raw cocoa beans. This increased volume of yearly processing of cocoa in Côte d'Ivoire is essentially growth in the manufacturing sector in the country. Consequently, the corresponding improvement in development indicators lends some support to the theory that industrialization, resource based industrialization in this case, increases economic growth, which in turn can improve social development indicators. It seems likely that Côte d'Ivoire would benefit from increasing the share of cocoa processed because there are still large quantities of beans that leave the country without any additional value added.

However, some of the results raise questions about the efficiency of resource based industrialization through the processing of cocoa in Côte d'Ivoire. Although there is a positive relationship between cocoa processing and socioeconomic indicators in Côte d'Ivoire the rate of growth in both is obviously not ideal (refer back to Figure 4-1). For example, the World Bank groups countries by income into high, medium, and low income countries, with medium income further subdivided into lower middle income and upper middle income. Côte d'Ivoire, in 2008, had a GNI per capita PPP of $1,580, enough to be considered a lower middle income country. Unfortunately, at the current rate of growth, it would take Côte d'Ivoire approximately 70 to 100 years to make it into
the upper middle income category with a GNI per capita PPP of $3,856. Industrialization theory is not silent on this issue. In Rostow’s model, the take-off of industry only begins the process that he describes as the drive to maturity. According to his definitions, many currently industrialized nations like the United States, Great Britain, Germany, and Japan took sixty years to reach maturity after take-off. Rostow notes many economic developments and changes in society that took place historically during the drive to maturity. For example, capital accumulation though compounding interest created the capital base that sustained economic system. In addition, the composition of the workforce changed. Labor organizations helped to shape the labor market. New generations grew up in an urban, working class environment. New levels of consumption became the norm. Political activism was embraced. The science of management was developed. All of these changes took time and grew organically from the new economic environment so efforts to replicate them artificially may not be effective, let alone expedient.

Along different lines, the dependency theorists emphasize the economic relationships between developed and developing countries. The structure of the industrial process in developing nations is described as relying heavily on foreign capital, the result of which is often foreign ownership of the local manufacturing firms through TNCs. This model is confirmed in the cocoa commodity chain in Côte d’Ivoire. As noted earlier in this paper, all of the cocoa processing plants in Côte d’Ivoire are owned by some of the largest TNCs in the industry. The drawbacks of this arrangement are that profits are less likely to be reinvested locally. A TNC like Archer Daniels Midland will collect the profits from all of their ventures around the world and choose
how and were to reinvest them based on economic incentives and shareholder interests. In addition, TNCs may import their own upper management and technical staff. With these conditions in mind, one of the few reliable benefits of manufacturing within the borders of Côte d'Ivoire is the waged positions that become available. This is a net gain as those jobs would not be available without the local manufacturing plant, but the scale of the benefit is drastically reduced.

Another possible explanation for the slow rate of growth is the political instability within Côte d'Ivoire. Some of the dynamics at play in the political arena were explored earlier. In addition to the continued military standoff that divides the country, new elections have been continuously delayed in the country. A recent example of the continued instability was the dissolution of the interim government on February 12, 2010 by the acting president, Laurent Gbagbo, over alleged voter registration fraud. The conflict disrupted the supply of cocoa at the turn of the century, and the threat of similar problems in the future keeps new investors at bay. The increased risk associate with poor security and economic instability does not create an environment that encourages the growth of industry and investment in the country. Future studies should look at political factors, such as civil conflict, in determining the viability of export-based development.

And finally, there may be better ways to effect development. Cocoa manufacturing tends to be capital intensive. The cost of specialized machinery needed to process cocoa is high, while the number of employees needed to run it is somewhat low. Some research suggests that industries with a lower capital-to-labor ratio enjoy more direct benefits to the local economy. On the other hand, the linkages an industry produces
could even out some of these differences. Looking at the linkages the cocoa industry enjoys could inform this debate.

Some other possibilities for continued research include doing case studies of manufacturing projects and their effects on the local and national economy. For example, how do government policies affect the incentives for establishing manufacturing firms in the country? When a TNC sets up operations in Côte d'Ivoire, what is the composition of their employees in terms of nationality? What kinds of specialized training do employees receive? How do the economic decisions of the industrial workforce differ from those employed in the agricultural sector?

In addition, extending the study to include the industrial sector as a whole would allow comparison of the effects that different sectors have on the economy. This kind of study would also shed some light on the question of how dependent industry is on the availability of locally produced commodities in terms of the costs of inputs. Furthermore, a look at the government revenue that is generated from the cocoa sector could be very useful. An analysis of the government expenditures and their dependence on different sources of income could expand our understanding of the economic incentives at play in the political arena.
This study has analyzed the particular contributions of the cocoa manufacturing industry to development in Côte d'Ivoire. This is an important topic, for Côte d'Ivoire in particular, because the cocoa industry is the keystone of the economy. It is also an important topic as it relates to the academic understanding of development. The cocoa manufacturing industry in Côte d'Ivoire acts as a case study for testing the theories about the economic benefits of forward integration. It also looks at the relationship between industrialization and economic growth in a developing country. These observations then contribute to the broader understanding of development theories and methods.

Forward integration into commodity manufacturing within the borders of a producing country is often deemed a positive development for that country. In the context of Côte d'Ivoire, this relationship proves to be complex. Forward integration is occurring in Côte d'Ivoire in the sense that more manufacturing is occurring within the borders of the country. In contrast, the ownership of that manufacturing industry makes it more accurately characterized as either backward integration by TNCs, or simply the relocation of TNC capacities to Côte d'Ivoire. So although the location of the manufacturing within its borders may benefit Côte d'Ivoire, the foreign ownership of those facilities reduces the benefits of said forward integration in Côte d'Ivoire.

This study does lend support to the idea that growth in a region’s industry contributes to economic development. It also finds a positive link between economic and social development. In that vein, it is important to emphasize that this study does not lay to rest the debate about the linearity/non-linearity of development, but it does
corroborate the positive link between industrialization and economic development noted in the linear understanding of development.

Finally, this study contributes to the development discourse by investigating the case of Côte d'Ivoire which fills the need for case studies that look at the specifics of particular places to inform broader theoretical discussions. This study looks at the interactions of industrialization, human development, conflict, international trade, and foreign investment in Côte d'Ivoire to create a specific picture about the current state of development in that country. This paper does not completely solve any general academic questions dealing with development, but it does apply the general theories and presuppositions found in broader scale work to a particular case. The accumulation of these kinds of smaller scale studies will create a record against which more theoretical work can be compared and tested.
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Steven Kotecki was born in Pullman, Washington in 1982. He moved to Côte d'Ivoire with his parents when he was 7 after spending two years in France. He completed high school in Côte d'Ivoire in 2001 and returned to the United States. He joined the US Army reserves in 2002, graduated from the University of Pittsburgh in Johnstown in 2008 with a bachelor’s degree in geography and environmental studies, and graduated from the University of Florida in 2010 with a master’s in geography.