

Africa Current Issues

Cocoa-processing Revolution, or
Unintended Consequences? - A Tale
of a Cocoa Cartel

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Introduction

Cocoa production increased by fifty percent in the first decade of the 21st century, in response to rising global demand for chocolate. Cote d'Ivoire and Ghana, the world's largest cocoa beans producing countries, recently signed an unprecedented pact to impose a minimum cocoa bean price of \$2,600 per metric ton starting in the 2020-2021 crop year. This floor price translates to a 22 percent price increase. While this move appears to tax exports during an era of trade liberalization policies, the African continent also seeks to ensure social protection of its farmers. The two governments that formed the pact view this as an effort to mitigate gradual declines in cocoa price that negatively affect their farmers.

When the governments of Ghana and Cote D'Ivoire recently met with cocoa global value chain representatives in Abidjan, Cote D'Ivoire to finalize the terms of the pact, they settled on a system to provide a \$400 per metric ton "Living Income Differential" in the event the price in international markets falls below \$2,600 per ton.

The big question– **will this new pact succeed?**

Analysts disagree on the outcome. Some believe this move will ensure adequate livelihood for cocoa farmers, while others predict the pact will fail because cocoa processors will seek alternative sources of beans, thus forcing pact members to lower their prices.¹

This article explores the primary forces that interact to determine the outcome of the pact:

Control over supply: current pact members control over 60% of worldwide cocoa bean output, and if joined by new members, would control an even more commanding share;

Reconfiguration of the global cocoa value chain: increased costs for unprocessed beans are likely to lead to increased local processing of beans, which will alter global value chain dynamics.

Emerging trends in the enabling environment: interplays among the terms of the pact; stakeholder interests, and developments in the business climate in the region may improve West Africa's competitive advantage in intermediate cocoa grinding stage of the value chain.

The article examines these forces to determine the viability of initiatives to increase Africa's share of intermediate cocoa processing, in view of this new pact and other forces at play.

Why the cocoa-chocolate value chain and cartel goals may not be compatible

This section examines the conditions under which cartels may either fail or succeed, briefly examines the current configuration of the global cocoa-chocolate value chain and the economics of cocoa production, and concludes by identifying the interests of the relevant stakeholders.

Cartels operate in the space between legitimate cooperation and illegitimate collusion, and most fail. The Organization of the Petroleum Exporting Countries (OPEC) is the sole survivor of the seven large commodity cartels launched between 1954 and 1980². The current initiative by Ghana and Ivory Coast is not a new idea; in 2010, the commodity fund Armajaro took delivery of nearly 7% of the world's supply of cocoa beans. However, this "market cornering" attempt failed when futures prices dropped by 30%, forcing Armajaro to dump its holdings to cover its margins. Brazil secured favorable quota allocations from the International Coffee Organization by threatening to flood the world coffee market, until consumer preferences shifted from Brazilian robusta to milder arabicas during the 1980s, causing the ICO to unravel. In some situations, governments can influence the rules of the game, as with OPEC. However, with oil production flowing from new sources, even OPEC is losing its tight grip over the oil market³.

a. Understanding the global cocoa value chain

The relatively simple cocoa value chain begins with 1) growing trees, harvesting, fermenting and drying the beans; 2) processing of the beans to cocoa liquor, butter and powder; 3) intermediate processing by mixing cocoa liquor and butter with inputs such as sugar and powdered milk; 4) making chocolate-based products by manufacturers, dairies and bakers; then 5) on to consumer markets. Cocoa products also appear in other products, such as cocoa drinks⁴. The processing stage of the value chain is described in the box, below:

Cocoa Production: From bean to Butter (source: European Cocoa Association)

“The processing of raw cocoa beans into cocoa mass implies a number of stages. Before arriving at the factory the raw cocoa beans have been fermented and dried, while during transshipment the first quality control has taken place in the port. On arrival at the processing factory the beans are subjected to another thorough inspection, thereafter to be cleaned, mixed into the desired blend, fragmented and stripped of their husks. What remains is the inner part of the kernel, called ‘nib’. The nibs are heat-treated to eliminate possible bacteria and subsequently roasted and ground into a liquid cocoa mass. The nibs are alkalized before, during or after the roasting process. This determines the colour and taste of the cocoa mass, which, as an intermediate or semi finished product, is supplied to the chocolate industry and is also the basis for the production of cocoa powder and cocoa butter.”⁵

Africa leads cocoa production, as it has over the last 50 years. Small farmers in West Africa now account for about 70 percent of global cocoa bean production, ahead of Asia (7 percent) and Latin America (18 percent). At the country level, Cote d’Ivoire (45.7 %) leads globally traded cocoa bean volumes, followed by Ghana (17.2 %) Cameroon (5.6 %), Nigeria (5.2 %), and Indonesia (4.5 %). (ICCO Quarterly Bulletin of Cocoa Statistics).

A relatively small number of actors dominate production and global trade of cocoa through horizontally and vertically concentrated global value chains, following a number of mergers and acquisitions. However, cocoa-processing activity is more widely distributed, with limited barriers to entry for smaller firms⁶.

Production of cocoa beans
(thousand tonnes)

	2016/17		Estimates 2017/18		Forecasts 2018/19	
Africa	3617	76.4%	3496	75.2%	3701	76.3%
Cameroon	246		250		270	
Côte d'Ivoire	2020		1964		2220	
Ghana	969		905		830	
Nigeria	245		250		250	
Others	137		127		131	
America	758	16.0%	836	18.0%	842	17.4%
Brazil	174		204		200	
Ecuador	290		287		310	
Others	294		345		332	
Asia & Oceania	357	7.5%	319	6.9%	306	6.3%
Indonesia	270		240		220	
Papua New Guinea	38		36		40	
Others	49		43		46	
World total	4731	100.0%	4651	100.0%	4849	100.0%

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Vol. XLV, No.3, Cocoa year 2018/19

The cocoa value chain is largely buyer-driven, as the preferences of chocolate manufacturers determine both demand and the price premiums associated with specific differences in raw materials and processing. The intermediate chocolate ingredient called “couverture” results from blending different varieties of cocoa beans from various origins. The composition of each blend varies according to the manufacturer’s interpretation of market preferences.

b. Cocoa economics

Price mechanisms vary by country. The Cocoa Board determines farm gate cocoa beans prices in Ghana. Market forces and the government drive prices in Cote D'Ivoire, based on the prevailing international price. In Ghana, producers retain 72.2% of the FOB share, licensed buyers 8.4%, the Cocoa Board 9.3%, while the rest goes to logistics and farmers’ welfare activities.

The prices of intermediate products such as cocoa butter, liquor, cake and powder track the underlying spot price of cocoa beans. On a weighted average price basis, intermediate processed outputs earn a relatively stable premium of approximately 200 – 220% over raw cocoa beans. However, there are substantial differences in prices for specific intermediates, with cocoa butter earning the highest premium, and cocoa powder earning less, as demand for cocoa powder is lower than for butter or liquor.

c. Cocoa Value Chain Stakeholder Analysis

The major stakeholders in the global cocoa value chain include cocoa farmers, buying agents for cocoa traders, cocoa traders, cocoa processors, chocolate manufacturers and wholesalers, retailers, consumers, governments and producing countries that might join or compete with the pact members.

- Cocoa farmers

African cocoa farmers are mainly smallholders. Their yields remain low due to obsolete cultivation practices and aging of their topsoil and cocoa plants. The scale of their farms limits their income, as well as their financial reserves. They may find it necessary to borrow funds to survive from one picking season to another.

- Buying agents and cocoa traders

Cocoa buying agents (sometimes called purchasing clerks) play a major role as middlemen in the cocoa value chain in West Africa. In some markets, they are licensed by the government (LBCs). Agents and traders facilitate movement of cocoa beans from the farmers to processors, thus sustaining the production cycle. Most provide assistance to cocoa farmers by providing loans, chemicals and implements to farmers, while some train them to improve the quality of their bean crop. Some agents abuse farmers via petty crime such as scale adjustment, under invoicing, and cheating on payments ⁷.

Following cocoa markets liberalization, farmers sell their crops to agents or traders at buying stations. Prices paid by buyers are normally based on cocoa beans futures traded in international markets ⁸.

- Cocoa processors

Europe leads in cocoa processing, with more than 36 % of the world total despite producing no beans. Africa, which produces three-quarters of the world crop, processes only about 21% of the world total. Some producing countries, seeking to capture more value from crops, encourage increased local processing of beans into intermediate products, referred to as “grinding” by the industry. Less than half of cocoa bean processing currently takes place near the origin of the beans ⁹.

According to chocolate expert Estelle Tracy, “Origin is a really complicated topic, because the flavor of cacao will come from genetics, processing and crafting. Origin has a big impact, of course, but it’s important not to associate origin as the only responsible factor for flavor. ¹⁰” Crafting involves mixing beans from different and often very specific origins to produce the attributes desired by the chocolate maker.

- The chocolate industry

Cocoa liquor and butter from grinding are mixed with inputs such as sugar, vanilla, emulsifying agents and milk. The resulting industrial chocolate or “couverture” is shipped either in liquid or solid form for utilization by the downstream segments in the cocoa value chain, such as confectioners and bakers.

Industry dynamics include both horizontal and vertical integration. From 1980 to the early 2000s, the number of cocoa trading houses in London shrank from 30 to less than ten. In 2006, four companies (Barry Callebaut, Cargill, ADM and Blommer Chocolate), controlled nearly half the world’s cocoa processing capability; today, they control 61 percent. High prices of inputs, especially cocoa beans and energy, increase production costs for processing companies, narrowing their margins. Larger players deployed merger and acquisition strategies to achieve economies of scale. Cocoa processors, which compete primarily on costs, are particularly vulnerable ¹¹.

Many confectionery and branded chocolate companies operate in global markets; family-owned brands such as Mars and Ferrero stand among the top 10 manufacturers of chocolate bars and other candies. The top ten companies in this market account for nearly half of total sales of chocolate bars and candies, capturing more than US\$100 million dollars in annual revenue ¹².

- Retailers

The final phase of the value chain includes packaging, commercial marketing, distribution and retailing. Chocolate products flow to consumers via grocery retail channels, including hypermarkets, super-markets and convenience stores, discounters; and increasingly via online shopping. Furthermore, some chocolate manufacturers operate their own branded retail stores to improve their image and capture a larger consumer base. Retailers categorize chocolate markets by product types, such as dark, milk or white chocolate; by sales categories, such as snack, premium or seasonal sweets; or by geographic

location. Each category taps specific consumer buying preferences and behaviours. Retailers set the price of chocolate products in consumer markets and decide whether or not to offer specific products; however, their control over the supply chain is limited compared to chocolate manufacturers and cocoa processors ¹³.

- Consumers

The inherently dynamic nature of consumer behaviour comes into play with demand for fine chocolate. Although premium chocolate currently accounts for less than ten percent of the global chocolate market, it appeals to younger buyers: “We found that the fine chocolate consumer is generally younger, more socially conscious and more driven by experimentation and trial, even if they already have a favorite chocolatier,” said Bill Guyton, executive director of FCIA. “Fine chocolate consumers believe small-batch chocolate has a superior taste and are willing to seek it out, visiting farmer’s markets, festivals and specialty online channels more frequently than other chocolate consumers.” The shift to online channels to purchase chocolates is another dynamic factor, although fulfillment of a perishable good such as chocolate poses a problem in many areas.

The age of the consumer is a factor: “Millennials are changing purchasing patterns for chocolate, with an above-average preference for fine chocolate and likelihood for purchasing treats at supercenters, specialty/organic stores and alternative channels,” said Anne-Marie Roerink, founder of 210 Analytics LLC. “In line with the generation’s socially conscious reputation, we found that Millennial shoppers also demonstrate a clear preference for certifications and specific production and ingredient claims.”

The niche market for ethical products shows potential for sustained growth, especially in the organic and certified “fair-trade” segments ¹⁴. While price remains an important criterion, the prospect of a good feeling motivates consumers to buy products based on ethical claims, especially fair-trade goods ¹⁵.

- Governments

Governments view cocoa as a cash crop that not only provides jobs and corporate income to the agricultural sector, but tax revenues and much-needed foreign exchange. Historically, in most African countries, national commodity boards purchased cocoa beans at fixed prices from farmers or buying agents. However, liberalization of cocoa bean markets in the 1980s and 1990s ended this practice, except in Ghana.

- Competitors and collaborators

Nigeria and Cameroon are also producers of cocoa beans. Although their share of the production is relatively smaller, they are well positioned to join the pact, especially in view of the removal of trade barriers between African countries by AfCFTA.

The pact and its likely impact on local intermediaries

The details of the pact are not yet firm. However, the message as shared with the public is that cocoa buyers will pay a \$400 per metric ton (MT) living cost differential in the event the international cocoa bean price falls below \$2,600 per MT. It is not clear how this will be implemented, nor if buyers will have flexibility to pay this differential cost in kind.

Available information suggests that the new price scheme will directly affect local cocoa value chain players, especially licensed cocoa buying companies (LBCs) authorized by governments to purchase cocoa.

In Ghana, the major LBCs are PBC, Koapakoko, and Olam, controlling 32 percent, 11 percent, and 10 percent of the cocoa sold in Ghana, respectively. The relationship between the LBCs and their suppliers varies. Most LBCs have informal contracts with farmers, in which farmers are provided with inputs in return for a guaranteed supply of cocoa beans at harvest. Some farmers have organized themselves as a union and cooperative LBC, to buy inputs in bulk and maximize revenue. (Porto et al, 2011).

Cote D'Ivoire has a broad base of licensed traders, although fourteen traders controlled the bulk of trades. Cargill, Archer Daniels Midland (ADM),¹⁶ and Tropival control 16 percent, 12 percent, and 8 percent of the market share, respectively. These traders buy directly from farmers with whom they have various contractual arrangements. (Porto et al, 2011) The cocoa buyers' margin is about 8% of the FOB price and this share may be negatively affected as a result of the pact. However, most cocoa buyers are vertically integrated with processors, and this may reduce their vulnerability to the negative impact of the pact and create new incentives among processors.

Price stabilization measures incorporated in the pact may increase the motivation of existing cocoa processors to increase the proportion of cocoa processed locally. Revenue from this activity will offset the hike in the cost of beans, and help amortize fixed costs. The emergence of favorable industrial policies (for example, "one district one factory" in Ghana) provides financial incentives to expand local processing, as in Malaysia. Some may argue that unlike Malaysia (which does not face export duties when exporting to emerging Asian and Middle East countries), Africa's traditional export destination (the EU) levies a 7.7% and 15% ad valorem duty on cocoa powder and cocoa cake, respectively.

Ghana and Cote D'Ivoire signed interim Economic Partnership Agreements (EPAs) with the EU in late 2016, which will reduce import duties. This move may allow them to emulate Indonesia, which exported 80% of its cocoa beans in 2011, but now only exports 5% due to increased local processing to meet growing demand for chocolate products in affluent Asian countries¹⁷. Evidence suggests this trend is in the works: after adoption of the interim EPA, exports of cocoa beans from Ghana to EU dropped by 23% while exports of intermediate cocoa products increased by 46% between 2016 and 2018. (Comtrade data Online)

How may the pact impact Africa's position in the intermediate cocoa value chain?

Short term impacts

The interplay between the terms of the pact and changes in the enabling environment in favor of manufacturing in Africa will improve the continent's position in the cocoa-grinding segment of the value chain. Intermediate processing, which normally controls about 28 percent of the value chain, will see its revenue share slipping away in favor of farmers as a result of the pact, at least in the short term. This short-term market imbalance will increase the incentives for grinders to offset higher bean prices and find win-win solutions by vertically integrating with farmers through contract farming¹⁸. This rapprochement between farmers and grinders is likely since the strategic term "Living income differential" implicitly places the welfare of cocoa farmers in the hands of cocoa grinders, many of which are subsidiaries of international corporations that adhere to strict corporate social responsibilities values.

For greater flexibility in interpreting the living cost differential, grinders will find it favorable to enter (or strengthen existing contracts by recruiting more farmers) into contract farming agreement with cocoa farmers to ensure reliable supply. In these contracts, grinders will supply farmers with inputs in order to improve their productivity and ensure better control of beans supply at harvest. Grinders are likely to interpret the loosely defined Living Income Differential as so in-kind supports they will provide to farmers as part of the contract farming schemes, and then write off to obtain tax credits as their contribution to corporate social responsibility.

In the medium term, circumstances such as the introduction of cheaper sources of electricity from gas, the recent African Continent Free Trade Agreement (AfCFTA), and ongoing aggressive industrial policies among Africa countries seeking to transform their economies by attracting manufacturing will further enhance Africa's position as cocoa grinding hub.

Low cost and reliable electricity will increase comparative advantage of manufacturing

To avoid high spoilage costs associated with losing large batches of work---in--- progress, reliable power is critical for cocoa grinders. A reliable power infrastructure will substantially reduce costs by mitigating the need to invest in high---cost backup power supplies. Today electricity in Ghana and Cote

D'Ivoire costs between \$0.11 and \$0.13 per kWh compared to \$0.10 per kWh in Indonesia. However, the larger number of power outages and their duration implies a heavier shadow price paid by African manufacturing firms. This is demonstrated by the fact that 52% and 29% of Ghanaian and Ivorian firms own or share a power generator compared to only 16% for Indonesian firms¹⁹. The good news, however, is that Ghana and Cote D'Ivoire are set to start commercializing their newly found natural gas reserves to generate electricity using Combined Cycle Gas Turbine (CCGT). This more efficient technology will allow gas power plants to generate 50 percent more electricity from its fuel than it could with a single-cycle power system. This additional power load should translate into reducing cost of manufacturing by reducing outage frequencies while further reducing tariff rates. As shown by Mensah (2016) for every percentage decrease in outage intensity in Africa, firm revenue increases by 0.7% with the associated productivity gains ranging between 0.6% and 1.5%²⁰.

AfCFTA may address part of the single origin challenges

As mentioned earlier, single origin is an important challenge. For cocoa grinders, being tied to a single origin of cocoa can raise input costs and create challenges in matching client requirements for specific taste profiles that may require beans from other regions. While African countries lack the financial infrastructure to be a natural commodity trading hub, the presence of a substantial quantity of West African cocoa, considered by the industry to be the critical 'base filler' for any recipe, combined with local access to supplies of beans from other key origins could eliminate a key comparative advantage for grinders located near hubs such as Amsterdam (ACET, 2012). For a private sector player, importing beans from alternative origins into West Africa in order to process locally is currently not financially viable, but the recent AfCFTA agreement signed by African countries may reduce the cost of bringing cocoa grown in Central Africa, grown under rainforest conditions, for processing in West Africa. While this will not fully address single origin issues, it may solve it at the regional level.

Favorable industrial policies will boost local grinding in Ghana and other production areas

While encouraging local ownership is one mechanism to support knowledge transfer, it is also an important means for the development for a long-term sustainable sector. Local entrepreneurs are less footloose than major international players; as a result, countries with sectors that enjoy significant local ownership are able to reduce their exposure to international competition for international investment through an 'incentives beauty contest,' and take a longer-term view on promotion of the sector.

Promoting local intermediate processing will require a strong and attractive industrial policy. In Ghana, the cocoa industrial policy relies mainly on discounted access to local Ghanaian beans, which traders typically consider as too small (and therefore more costly) to be attractive to the international market. Companies located in Export Processing Zones (EPZ) enjoy a wide range of tax exemptions, including a 10-year income tax exemption. The combination of discounted access to local Ghanaian beans plus the highly attractive set of incentives for grinders located in EPZ makes Ghana strong proposition for inward investment. The one-district one-factory (1D1F) industrial policy promoted by the new administration boosts this opportunity. The policy seeks to encourage local Ghanaians to invest in agricultural value chain processing capacity, by creating incentives and facilitating access to finance, land, and other capabilities.

Other actors

Convincing Cameroon and Nigeria to join the cartel could prove especially effective if they expanded cartel could manage the relationships. This is now highly likely following recent announcement by both countries to follow the steps of Ghana and Cote D'Ivoire²¹. If the current pact members act to erect entry barriers and take other steps to defend their market share, they may actually not need additional members. But onboarding additional members may provide leverage to constrain options and room for maneuver for big powerful buyers.

Conclusion

From an economic perspective, a successful cartel requires high levels of supply concentration, high barriers to market entry, a lack of product substitutes, and adequate buffer stocks, plus disciplined control over supplies and market prices²². The current cocoa pact meets only the supply concentration test: Ghana and Cote d'Ivoire control more of the cocoa market (70 percent) than OPEC controls of the oil market (44 percent). From a strategic perspective, the cocoa cartel lacks control over the governance of its global value chain. Here, governance refers to the relationships among value chain players, including service providers, buyers, sellers and regulatory institutions that operate within or influence the range of activities required to bring a product or service from inception to its end use (Humphrey and Schmitz, 2008)²³.

Supply or demand forces may govern a value chain, depending on its configuration. A vertically integrated value chain, such as mining, processing and marketing diamonds, is supply-driven. All commodity markets are demand-driven, unless industry players and/or governments reconfigure the industry value chain to concentrate supply, raise entry barriers, defend against substitution, and establish buffer stocks, thus shifting power from buyers to producers.

The stated goal of the cocoa pact is to ensure that growers receive adequate compensation. However, unless the pact members move to acquire power over the governance of the value chain through vertical integration of a large proportion of intermediate processing (and then to defend their interests through disciplined action), the pact is unlikely to meet this goal.

African countries should look downstream rather than upstream for opportunities in the global cocoa value chain. Although this sector is likely to be small, creating niche couverture products for use in the chocolate industry would be a good starting point. This niche has sufficient scope for processors based in Africa to develop and export solidified products to chocolate manufacturers seeking single-origin or explicitly African-origin cocoa. The "Ghana Cocoa" brand already attracts a 10%-15% premium in culinary circles, as premium cocoa.

Success in the single-origin West African chocolate niche will require tailor-made industrial policies, focused on the transfer to the local workforce of the knowledge needed to meet international standards, and to enable domestic players to develop a produce-to-export industry to serve key consumption markets. The Malaysian initiative to develop the niche Halal cocoa market through product certification, and to supply this market through back channels across the Middle East, is worthy of emulation.

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