MAFAP
SPAAA

Monitoring African Food and Agricultural Policies

Suivi des politiques agricoles et alimentaires en Afrique

ANALYSIS OF INCENTIVES AND DISINCENTIVES FOR COCOA IN NIGERIA

FEBRUARY 2013

This technical note is a product of the Monitoring African Food and Agricultural Policies project (MAFAP). It is a technical document intended primarily for internal use as background for the eventual MAFAP Country Report. This technical note may be updated as new data becomes available.

MAFAP is implemented by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Organisation for Economic Co-operation and Development (OECD) and national partners in participating countries. It is financially supported by the Bill and Melinda Gates Foundation, the United States Agency for International Development (USAID), and FAO.

The analysis presented in this document is the result of the partnerships established in the context of the MAFAP project with governments of participating countries and a variety of national institutions.

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SUMMARY OF THE NOTE

Product: Cocoa
Period analyzed: 2006 – 2010
Trade status: Export in all years

- Nigeria is the fourth leading exporter of cocoa in the world. Cocoa is mainly exported as beans, processing activities being limited within the country. Cocoa is the main agricultural export in Nigeria.
- Low and declining yields are observed due to inconsistent production patterns, disease incidence, pest attack and little agricultural mechanization. The main challenges faced by the cocoa sector are the decreasing level of labor force and the ageing of trees resulting in low yields.
- The cocoa market liberalization (1986) resulted in the numerous traders and marketers involved in the value chain. However, few companies export most of the production.

Observed nominal rate of protection at farm gate
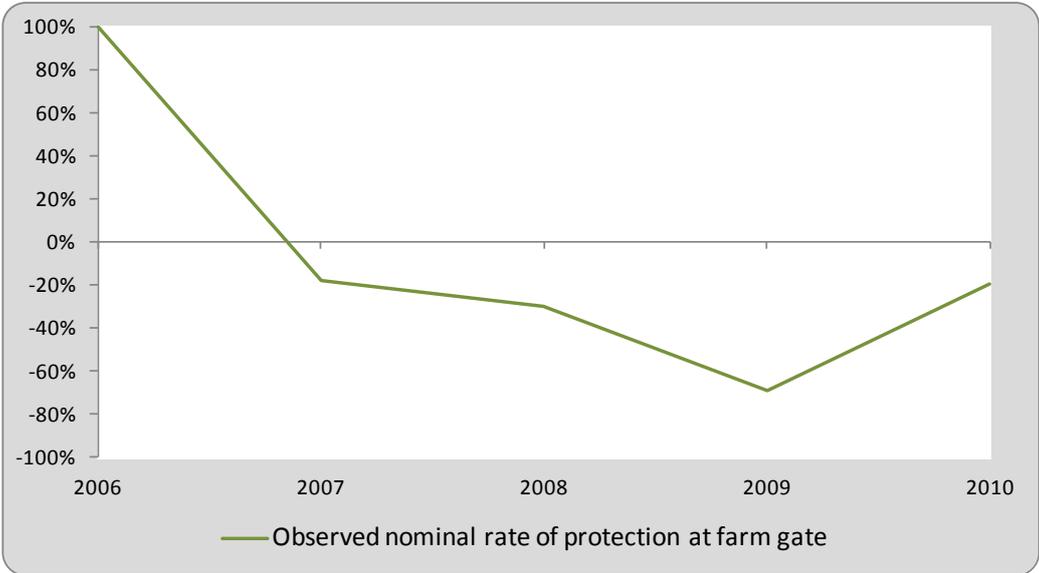
The observed Nominal Rate of Protection (NRP, green line) indicates that producers received price incentives only in 2006 and then they received prices lower than the reference international prices from 2007 to 2010. Therefore, cocoa-supporting policies did not have the expected results namely providing incentives to producers in order to increase production by increasing productivity.

- The poor price transmission between export markets and producers level prevented producers from receiving prices reflecting international price trends. The export market is characterized by a high concentration of export companies benefiting from high market power compared to producers.

- The numerous intermediaries involved in the value chain create inefficiencies and also affect prices received by producers.

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1. PURPOSE OF THE NOTE

This technical note aims to describe the market incentives and disincentives for Cocoa in Nigeria.

For this purpose, yearly averages of price at farm-gate and point of competition will be compared with reference prices calculated on the basis of the price of the commodity in the international market. The price gaps between the reference prices and the prices along the value chain indicate to which extent incentives (positive gaps) or disincentives (negative gaps) are present at farm-gate and wholesale level. In relative terms, the price gaps are expressed as Nominal Rates of Protection. These key indicators are used by MAFAP to highlight the effects of policy and market development gaps on prices.

The note starts with a brief review of the production, consumption, trade and policies affecting the commodity and then provides a detailed description of how the key components of the price analysis have been obtained. The MAFAP indicators are then calculated with these data and interpreted in the light of existing policies and market characteristics. The analysis that has been carried out is commodity and country specific and covers the period 2006 - 2010. The indicators have been calculated using available data from different sources for this period and are described in Part 3, and covers the period 2006-2009.

The outcomes of this analysis can be used by those stakeholders involved in policy-making for the food and agricultural sector. They can also serve as input for evidence-based policy dialogue at country or regional level.

This technical note is not to be interpreted as an analysis of the value chain or detailed description of production, consumption or trade patterns. All information related to these areas is presented merely to provide background on the commodity under review, help understand major trends and facilitate the interpretation of the indicators.

All information is preliminary and still subject to review and validation.

2. COMMODITY CONTEXT

Nigeria is the fourth leading exporter of cocoa in the world, after Cote d'Ivoire, Indonesia and Ghana (Figure 1). Cocoa export is the main agricultural export in Nigeria even if cocoa production accounts for only 0.3% of the agricultural GDP (IFPRI,2010)

Figure 1 : Top ten cocoa producing countries in 2010 (USD, tonne).
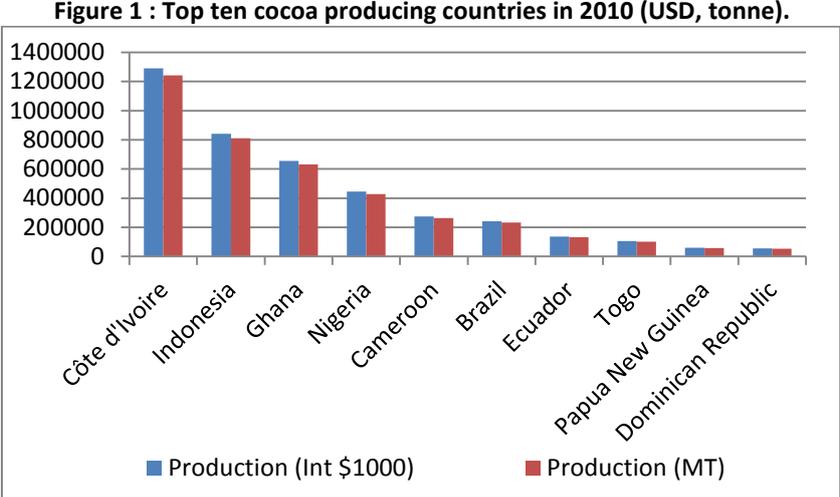
Source: FAOSTAT

PRODUCTION

Following to investments in the oil sector, the 1970s and 1980s saw a constant economic down turn and decline in cocoa production in the country. Subsequent to the launch of the Structural Adjustment Programme (SAP) in 1986 and overall economic liberalization policy, cocoa production is still primarily managed by smallhodlers with a low use of both inputs and product enhancing agricultural technics (Idowu, 2007).

Average cocoa beans production in Nigeria between 2000 and 2010 is 389,272 tonnes per year. There was an overall increase in the production trend between 2000 and 2006, followed by a decline in 2007 and a slightly ascending trend ever since. While the trends in production and area harvested were correlated up to 2006, the negative downturn in production for the year 2007 was associated to an increase in the area harvested during the same period, followed by a relative stable trend in area harvested between 2007 and 2010. As for the yields, while ascending between 2000 and 2006 (average 0.38 tonnes/ha), they saw a decline in the following year, with an average of 0.28 tonnes/ha (Figure 2).

Figure 2 : Cocoa Harvested Area (Hectares), Production (tonnes) and yields (tonnes/ha) 2000-2010.
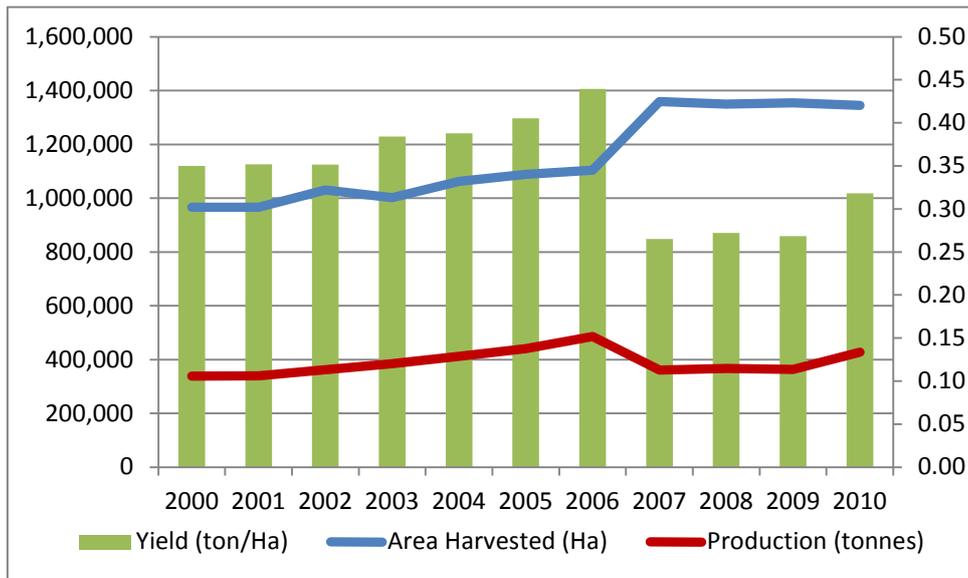
Nwachukwu et al. (2010), identify low yields, inconsistent production patterns, disease incidence, pest attack and little agricultural mechanization as key factors leading to decreasing cocoa production in Nigeria. Additionally, the ageing of cocoa producing trees also plays a role in the decrease of productivity. Particularly, 60 percent of cocoa farms are over 40 years old, thus hampering productivity. Overall, farms in Southern/southern Eastern Nigeria tend to be younger and generally more productive (Nwachukwu et Al. 2010). When compared to other cocoa producing countries, Nigeria presents yields among the lowest, together with Ghana and Cameroon, while Cote d'Ivoire is the best performing country in West Africa in terms of yields, and Indonesia is the best performer in terms of yield at the global level (Figure 3).

Figure 3 : Cocoa yields by country: 1990 – 2010, kg/ha.
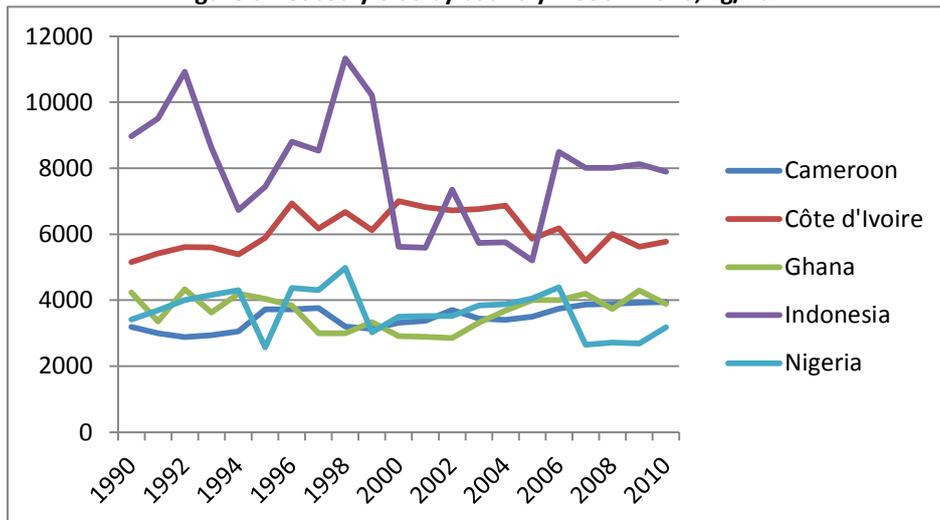
Alomnado cocoa is the main variety grown in Nigeria, which is one of the highest quality cocoa varieties often associated to a premium price in the international market. However, while Nigerian cocoa used to receive a premium in the average of USD 75 per ton when compared to that of Cote

d'Ivoire (the major international producer), such premium disappeared since the 1990s, following the dismantling of the Nigerian Cocoa Board and the relaxation in quality control (Oxfam, 2002).

Although cocoa is mostly grown in fourteen of the Thirty-six Nigerian States, the main producing states (aside from Cross River, in the South East) are located in the South West of the country, with most production areas located in: Edo, Ekiti, Ogun, Ondo, Osun, Oyo (Figure 4).

Figure 4 : Main Cocoa Producing areas, Average 2006/2007-2009/2010 production ('000MT).
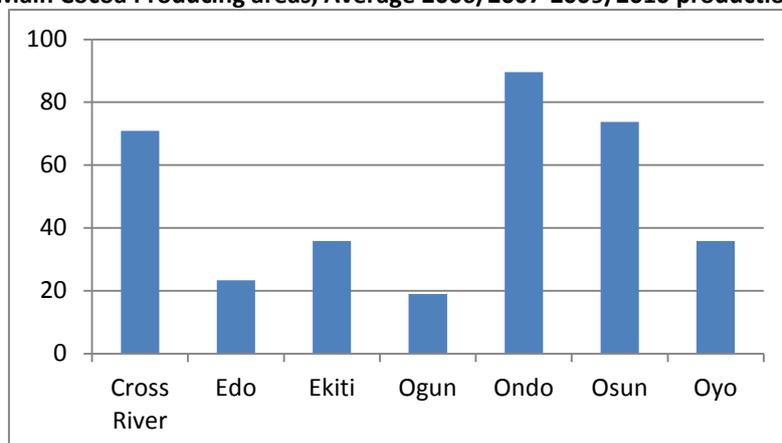
Source: National Bureau of Statistics, 2012

According to FAOSTAT commodity balance, only 3 percent of the cocoa beans produced in Nigeria are used as food within the Nigerian borders, while the remaining are either exported (52 percent) or classified as "other utility", most likely undergoing first processing in country and then exported as different cocoa-derived commodity (Table 1).

Table 1 : Cocoa Commodity Balance for Nigeria, 2000-2007.

	2000	2001	2002	2003	2004	2005	2006	2007
Production (tonne) (I)	338,000	340,000	362,000	385,000	412,000	441,000	485,000	500,000
Import Quantity (tonne) (II)	551	980	5,020	3,764	1,215	785	352	560
Stock Variation (tonne) (III)	-155	258	207	-181	258	0	-129	129
Export Quantity (tonne) (IV)	152,636	182,580	187,178	235,743	263,110	278,592	199,610	190,323
Domestic supply quantity (tonne) (V: I + II + III - IV)	185,760	158,658	180,049	152,841	150,363	163,193	285,613	310,366
Food (tonnes) (VII: V-VI)	8,758	15,928	15,806	13,101	11,963	11,893	18,113	15,266
Other Utility (tonnes (VI)	177,000	142,728	164,243	139,740	138,400	151,300	267,500	295,100

Source: FAOSTAT 2012

CONSUMPTION/UTILIZATION

Cocoa consumption within the country is negligible since only three percent of the product is consumed as food (FAOSTAT, 2012). According to projections, cocoa consumption will increase by 35 percent by the year 2016 (Business Monitor International, 2012). However, although the projected growth of Nigerian GDP per capita and population will increase the demand of cocoa-based products,

a strong performance in cocoa consumption will most likely be hampered by an inadequate cocoa processing industry (Business Monitor International, 2012).

MARKETING AND TRADE

Prior to the oil boom era in Nigeria, cocoa, cotton, groundnut, palm oil products and rubber were the principal export crops. With export re-orientation, only cocoa remained of any importance after 1975. With assistance from the World Bank, the government restored cocoa production in the late 1970s and 1980s through replanting programs and producer price supports (Nwachukwu et al, 2010).

Structural adjustment policies have resulted into market liberalization, resulting into the abolition of commodity Boards, the introduction of free market pricing policies, and the fluctuation in cocoa prices. Historically, Nigerian cocoa was marketed through monopoly-monopsony market boards, as in Ghana, differently from other West African countries, such as Cameroon and Côte d'Ivoire, where it was marketed through caisses de stabilization. Marketing boards are parastatal agencies with the monopoly for internal and external crop marketing. Caisses de stabilization, instead, determine internal prices and have the ownership of the crop along the marketing chain, while the physical handling of the crop, from the farmer to the export points, is carried out by private agents designated by the Caisse.

Nigeria was the first African country to liberalize cocoa trade in 1986. Following the World Bank indication that agricultural marketing boards in the country were ineffective, and the suggestion to liberalize agriculture following to the liberalization of foreign exchange, the Nigerian Government unilaterally abolished marketing boards (Gilbert, 2002).

Overall, export crop liberalization, and cocoa liberalization in particular, has led to a declining use of agricultural inputs, as well as to declining quality of cocoa beans. Specifically, the switch to private trade lead to lesser quality control and declining export coordination, with lesser opportunities for forward selling, sales by tender and sales on CIF basis.

Specifically, exports of cocoa beans represented close to 60 percent of total production between 2006 and 2010 with the exception of 2006 and 2008. Data on export quantities are conflicted between sources (FAOSTAT, UNCOMTRADE and national sources) (Table 2). UNCOMTRADE and the Nigeria Custom Service reported very limited export amounts in 2006.

Table 2 : Cocoa beans trade flows, 2005-2010.

	2005	2006	2007	2008	2009	2010
Production (tonnes)	441,000	485,000	360,570	367,020	363,610	399,200
Import Quantity (tonnes)	0	0	0	55	55	499
Export Quantity FAOSTAT (tonnes)	267,700	189,500	174,900	227,303	247,000	226,634
Export Quantity UNCOMTRADE (tonnes)		4,441	246,797	272,621	240,992	588,438
Export Quantity National (tonnes)		4,441	228,972	523,547	222,175	237,781
Export as a % of Production (National sources)		1%	64%	143%	61%	60%

*Source: FAOSTAT, UNCOMTRADE, Nigeria Custom Service*

Beans are also used for primary processing of other cocoa derivate products, such as shells, butter, paste, powder and chocolate, which are then also exported (Table 3). Cocoa Butter is the second most exported cocoa product in Nigeria, followed by shells.

Table 3 : Exports of different cocoa products in Nigeria (2006-2010, tonne).

|	COCOA BEANS		COCOA SHELLS	
	Exports (USD)	Exports (MT)	Exports (USD)	Exports (MT)
2005	N/A	N/A	N/A	N/A
2006	5,038,000	4,441	N/A	N/A
2007	377,324,620	246,797	1,087,460	N/A
2008	510,312,088	272,621	9,425,741	6,851
2009	1,250,868,139	240,992	21,952,352	44,700
2010	1,048,003,766	588,438	38,739,754	23,331
	COCOA PASTE		COCOA BUTTER	
	Exports (USD)	Exports (MT)	Exports (USD)	Exports (MT)
2005	N/A	N/A	N/A	N/A
2006	7,644,825	3,089	3,617,218	2,854
2007	23,301,098	9,363	67,880,991	17,270
2008	2,488,091	875	76,077,676	15,812
2009	1,146,042	575	152,455,192	37,856
2010	5,427,083	3,144	184,861,031	16,118
	COCOA POWDER		CHOCOLATE	
	Exports (USD)	Exports (MT)	Exports (USD)	Exports (MT)
2005	N/A	N/A	N/A	N/A
2006	45,618	280	1,324,429	849
2007	645,506	517	3,909,919	1,496
2008	1,493,331	1,090	1,455,048	N/A
2009	726,533	126	2,256,235	355
2010	430,888	60	5,548,053	415

Source: UNComtrade, 2012 – information on absolute quantities exported are not comprehensive (2005 is missing) and they do not match FAOSTAT information (reported in Table 2). However, UNComtrade was used to provide an estimate of the share of the different cocoa derived products exported by Nigeria, and to confirm Nigeria as a net exporter.

Nigeria is currently a net exporter of cocoa beans (FAOSTAT, 2012) (Figure 5). Net trade ranges between a minimum of 174,900 exported tonnes in 2009 to a maximum of 267,700 tonnes in 2005, with an average 221,259 tonnes of exported cocoa beans for the period 2005-2009.

Figure 5 : Net Trade, Cocoa Beans 2005-2009.
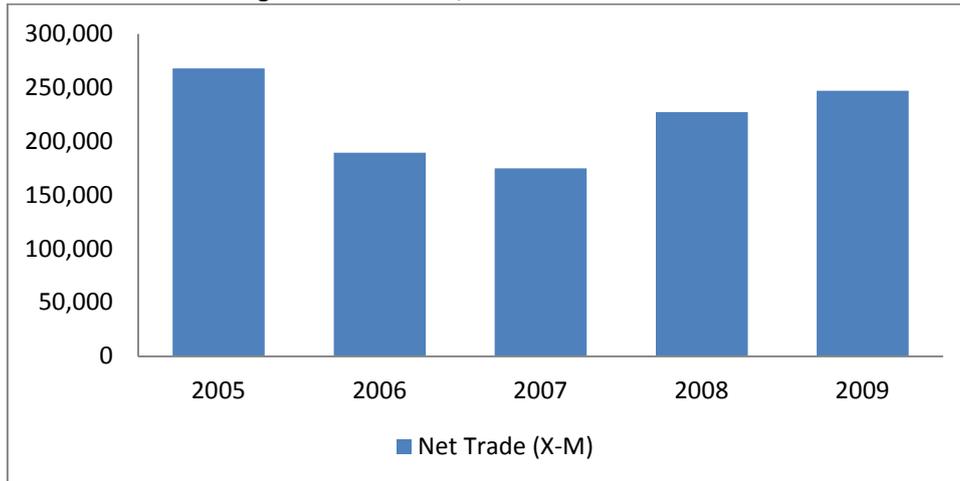
Source: FAOSTAT, 2012

Main trading partners importing cocoa beans from Nigeria are European Union Countries (Figure 6). Among all, The Netherlands hold the biggest share of quantity imported from Nigeria between 2005 and 2010, with an average of 30 percent of total quantity exported during those years. With 13 percent and 12 percent respectively of share Belgium and France follow the Netherlands, while the UK and USA both imported 5 percent of cocoa beans from Nigeria during the same timeframe.

Figure 6: Main cocoa beans trade partners by volume (tonnes), average 2005-2010.
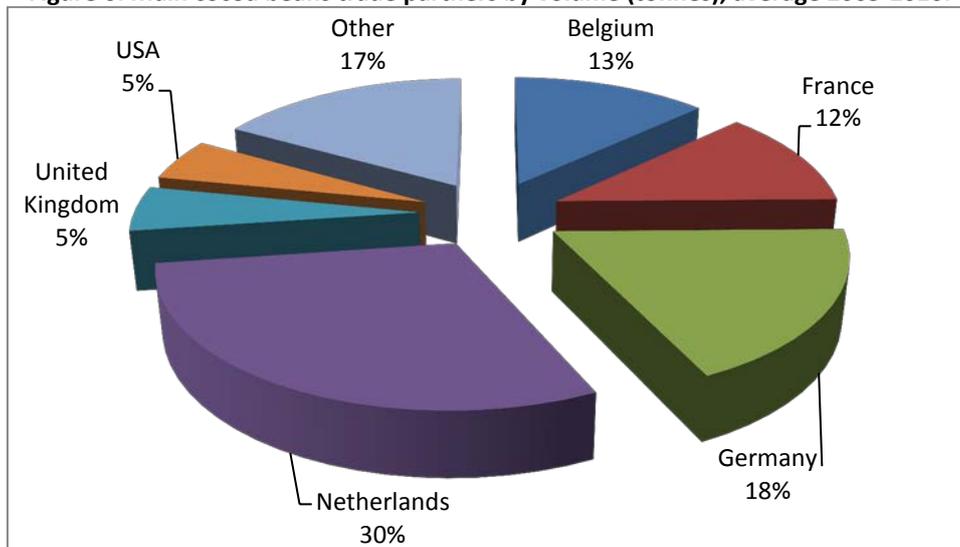
Source : UNComtrade, 2012

Producer prices in Nigeria are determined by market conditions in both the internal and international cocoa markets (Traoré, 2009).

DESCRIPTION OF THE VALUE CHAIN AND PROCESSING

About 30.000 farmers grow cocoa in the country and in general cocoa production in Nigeria is left to smallholders. The shortage in rural labour is a major constraint to production expansion as well as the relatively old workforce (Ogunleye and al., 2007). About 57% of the cocoa farming households in Ondo state are food insecure (Oxfam, 2012).

The size of cultivated area vary across states but an average cocoa farmer in Nigeria has a farm size of 2.5ha (Oguntade). On the whole, the average deliver per farmer is less than 5 bags per season (roughly 300Kg per hectare of cocoa) (Nwachukwu et al.,2010). Cocoa beans harvest is most intensive between December and June. The sector is not mechanized, and beans are normally harvested by hand. Seeds are fermented at ground level for a week, and then dried for three weeks. The product is then bagged and exported (WB, 2007).

While the majority of cocoa is exported as beans, first processing of other cocoa-derived products also takes place in Nigeria. Cocoa processing consists in the conversion of beans into cocoa butter and cocoa powder, two intermediary products and such conversion is operated by grinders (or converters). The quantity of butter obtained from the beans depends on the fat content of the beans, while powder is normally considered as a by-product of processing, as shells and paste. Butter and powder are subsequently recombined in different shares to obtain chocolate, with the addition mainly of milk and sugar. Cocoa powder is also used as a component in other confectionary products (Gilbert, 2006). Although Nigeria has the capacity to process locally some quantities of other cocoa-derived products, such as butter, the local product is often of a low quality, both when exported and/or sold locally.

In the export value chain, normally Local Area Agents (LAAs) or Local Buying Agents (LBAs) purchase cocoa beans at farm gate, and then cocoa merchants operate the grading, involving quality inspection by grading agents (Figure 7). The LBA could either be companies, individuals, or cooperative societies. Graded beans are then sold to exporters and/or local processors.(USDA, 2007).

Figure 7 : Cocoa beans supply chain in Nigeria.
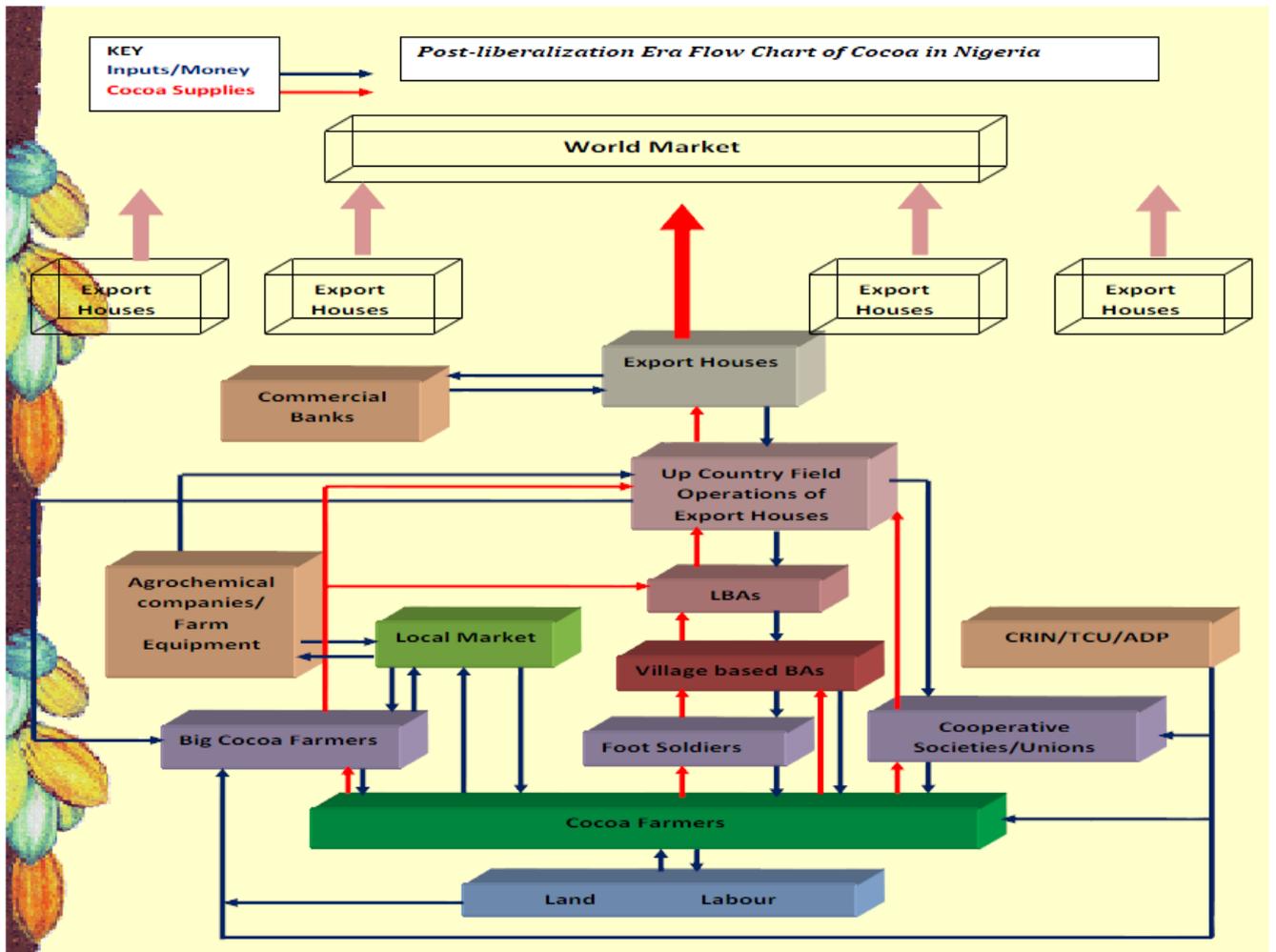
Source: Oguntade

The orderly marketing of the cocoa almost stopped with the abolition of the Nigerian Cocoa Marketing Board (NCMB). A study conducted in Cross River State (3rd producing state) and more especially in the market of IKom and in peripheral rural markets shows that the markets are fully integrated and the speed of price transmission from the central market to the satellite or rural market is very high (Nkang and al., 2007). The city of Ikom in Cross River State is a popular central destination for movement of cocoa beans to other parts of the country for either industrial or domestic use or export.

The abolition of the commodity board also led to an increasing number of people buying and marketing cocoa which results in numerous channels for producers to market their production. The channel is chosen according criteria of time of payment, mode of payment, price of product, distance from farm, transportation costs, and grading of product (Nkang and al., 2007). A study conducted in the state of Osun (2nd producing state) shows that farmers prefer to sell their production to itinerant buyers because transports costs are high due to their poor infrastructure condition. Moreover, uncertainties are attached to grading of product since production can be rejected or the price reduced. As a result, producers prefer to not face this two consequences and sell production to intermediaries (Nkang and al., 2007).

The cocoa exporters can be either multinational converters or local companies managed by the converters. About 123 cocoa exporting firms are registered with Nigeria Export Promotion Council (NEPC) (Ajetombi, 2011) but few of them account for about 60% of cocoa exports, the cocoa export market being dominated by 3 export companies. These companies face challenges namely the unregulated market structure, taxation and levies imposed by Federal, State, Local governments and unions. The lack of infrastructure facilities and the inadequate trade information also hamper cocoa exports.

On the whole, the marketing channel between farmers and exporters include at least two middlemen : small traders and wholesalers. In some occasion, cocoa can be sold directly to exporters by farmer's cooperatives.

The market prices are characterized by high volatility and an increasing divergence between prices received by cocoa producers and cocoa firms (Figure 8). During the post-liberalization period, transport costs, export handling costs and taxes increased and firms may have attempted to pass on the costs to farmers. A price transmission analysis conducted in 3 producing states in Nigeria reveals that cocoa market is potentially anti-competitive and especially the pricing behavior of the exporting cocoa firms (Ajetomobi, 2011).

Figure 8 : Cocoa price at farm gate level and at the exporting firms (agrotrader), 2000-2009 (Naira/ tonnes).

Source: Ajetomobi, 2011

POLICY DECISIONS AND MEASURES

Subsequently to the relatively low agriculture expenditure in the post-structural adjustment period, different government initiatives lead to the revision of the National Agricultural Policy in 2005. The new policy initiatives include the Special Programme for Food Security (SPFS, 2001), the Fadama II

Programme (2003-2009) and the recapitalization of the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB, 2004). The *National Food Security* Programme *(NFSP)* includes trade policies such as import substitution, marketing/price policies, and the promotion of modern agricultural practices. General agricultural policies build on the regional New Partnership for Africa's Development (NEPAD, 2001) and the Comprehensive Africa Agriculture Development Programme (CAADP, 2003). The overall thrust of Nigerian policy decisions and measures is to increase food production, commercialization, and develop the agribusiness sector. The *National Investment Plan* (NAIP, 2011-2014*),* includes cocoa among the commodities selected for special focus (along with cassava, millet, sorghum, wheat, maize, sugar, cow peas, soya beans, tomato cotton, rice, and oil palm).

According to the WTO Trade Policy Review, three main initiatives impact on the overall agricultural sector through current public expenditure: Fertilizer policy (procurement and distribution); the National Special Program for Food Security (NSPFS); and the buyer-of-last-resort grain purchase. They represent respectively 43, 22 and 26 percent of current spending in 2008. Of these three initiatives only the first has an impact on the cocoa sector, although comprehensive information on fertilizer expenditure specific to the cocoa sector is not available (WTO Review 2011).

The specific policy measures and initiatives below have an impact on the cocoa sector, and include a mixture of input and price support.

National Cocoa Development Programmes and the National Cocoa Development Committee (2000)

The National Cocoa Development Committee was inaugurated in 2000 to coordinate the Cocoa Development Programme in 14 producing states. The long term target of the programme was to achieve annual production level of one million metric by 2010 by facilitating the rehabilitation of 15.000 hectares of cocoa plantation annually. Improved/disease resistant varieties, assorted agro-chemicals and other inputs were thus distributed to encourage producers to replant with the aim to offset the effects of ageing cocoa plantations in the country. The specific objective include: improve cocoa farmer's income and diversify the foreign exchange earnings by increasing the cocoa production.

Cross-commodity Input Support: Fertilizer Policy

Aside from cocoa-specific input support policies, there are initiatives that influence cocoa production, although their specific impact cannot be quantified. Both state and federal governments can provide fertilizer to farmers as input support. However, contribution varies consistently between one state to the other, and between one year to the other. The Federal Market Stabilization Programme (FMSP) allows companies to produce and import fertilizer and allocate it to state governments with a 25 percent subsidy. Additionally, state governments can further add to the subsidy. However, this arrangement led to abuse by the government official and contractors who hoard or divert the product (Onyeri, 2013). Hence, in spite of government's annual investment, it was considered that fertilizer received only around 10 percent subsidy.

Moreover, the National Investment Plan (NAIP) sets a target of 30 percent increase of fertilizer use in the period 2010-2015, with an overall demand expected to grow from 2.6 to 3.4 tonnes by 2015. There are three main initiatives within the NAIP actively targeted towards the increase in fertilizer use: (1) the Organic Fertilizer Development Programme (OFDP) promotes the use of organic fertilizer

though a Public Private Partnership (PPP) approach; (2) the Fertilizer Quality Control (FQC) project aims at increasing the quality of fertilizer used and distributed; and (3) the National Foundation Seed Multiplication aims at releasing high quality foundation seeds to certified producers.

Regional Cocoa Initiatives

As for regional policies, during the Abuja meeting of regional cocoa policies, in 2006, main regional cocoa producing countries representatives decided to increase local consumption of cocoa in their respective countries, through national campaign of consumers' sensibilization, and the development of alternative cocoa products. In the case of Nigeria, the Cocoa Research Institute has worked on the development of cocoa products including cocoa cream, liquor, bread, cakes and biscuits, together with the development of relative patent rights and resource mobilization to boost private investment in the sector and in the new products specifically. Up to 2007, the Cocoa Association of Nigeria (CAN), whose strategy draws heavily on increasing local cocoa consumption, was the only West African country member of the International Cocoa Organization (ICCO).

Presidential Transformation Agenda (2011)

The overall goal of the Agenda is to define agriculture as a business, promote private sector investment in agriculture along with the development of private sector driven marketing organizations and the promotion of Incentive-based Risk Sharing for Agricultural Lending (NIRSAL). Cocoa is among the commodities (together with cassava, sorghum, rice, and cotton) for which a country-wide commodity-specific transformation plan is envisaged, particularly in the Southern States. The specific goal of the cocoa transformation agenda is to rapidly increase Nigeria's production of cocoa beans through a combined strategy of increased productivity and planting newer (and producing) trees. Particularly, the strategy envisages to expand existing cocoa plantations by 30 percent, a seeds multiplication program, and the establishment of new plantations through a Cocoa Development Fund. Additionally, the Transformation Agenda Development calls for tailored cocoa fertilizer blends to be used for rapid yield improvement, up to 600 kg per ha

Trade Policy measures

Nigerian trade policy has been partially implementing the Common External Tariff Regime (CET) in ECOWAS countries since 2005. Nigeria is currently applying the 35 percent tariff line on 167 tariff line items (none of these items has non-zero import value) (World Bank, 2010). The country's average MFN (Most Favorite Nation) tariff stands at 12 percent, while the average import tariff for agricultural products is 16.5 percent. Building on its restrictive regional trade policy approach, Nigeria adopted a protectionist stand with its other international counterparts. The country rejected in 2008 an economic partnership agreement (EPA) with the European Union (ECOWAS Commission, 2008) (WB, 2010). Although the adoption of the CET shows the political will to adopt trade and investment reform to harmonize policies within the sub region, there is still resistance in embarking on further reform (USTR, 2009). The Federal Government of Nigeria prohibited the importation of a number of agricultural commodities in 2004, as an incentive to the development of local production, and items such as poultry and eggs are still facing import prohibition (Nigeria Customs, 2011). Nigeria declared no domestic support or export subsidies to the WTO Committee on Agriculture during the 1995-2009 periods (WTO 2011), with agriculture contributing an average of 40 percent to the national GDP (WTO Review, 2011).

Overall, exporting goods into Nigeria remains subject to multiple difficulties, such as frequent policy changes in tariffs, duties and procedures, along with often unclear and inconsistent interpretation of rules by the Nigerian Customs Service (NCS).

As for cocoa-specific trade policies, local processors of cocoa-derived products benefit of Export Processing Factory status policy, to support domestic industries. Such status exempts local processors from payment of all taxes and other levies imposed by federal, state and local governments. Also, the export tariff for cocoa beans, called Export Expansion Grant (EEG) was 5 percent in 2007, the export tariff for other processed cocoa products was 30 percent, although we don't have comprehensive information on the export tariff for all the years under revision (USDA, 2007). According to a study on optimal export tariff levels for cocoa exporting countries in the region, ICCO established 5 percent to be the optimal export tariff for cocoa beans in Nigeria (ICCO 2007).

As for the import tariff on cocoa beans, according national custom tariff, it is set at 5 percent in all available years from 2008 to 2012. WITS database also indicate a 5% tariff in 2007.

Moreover, individual states impose taxes on cocoa leaving their territory. They inspect beans at state borders before bags are sealed in order to check the quantities and taxes depend on quantity shipped   (Traoré,   2009).

3. DATA REQUIREMENTS, DESCRIPTION AND CALCULATION OF INDICATORS

In order to calculate the indicators necessary for estimating market incentives and disincentives (NRP, NRA) and the market development gap, data on prices and access costs are required. These have been collected and are presented and analyzed below.

The analysis will be based on prices of cocoa beans, since they are the most traded cocoa-derived commodities in Nigeria. Particularly, as shown in Figure 9, below, among exports of all cocoa-derived products, the share of exports of other cocoa products combined - shells, paste, butter, powder, chocolate– is considerably lesser when compared to exports of cocoa beans.
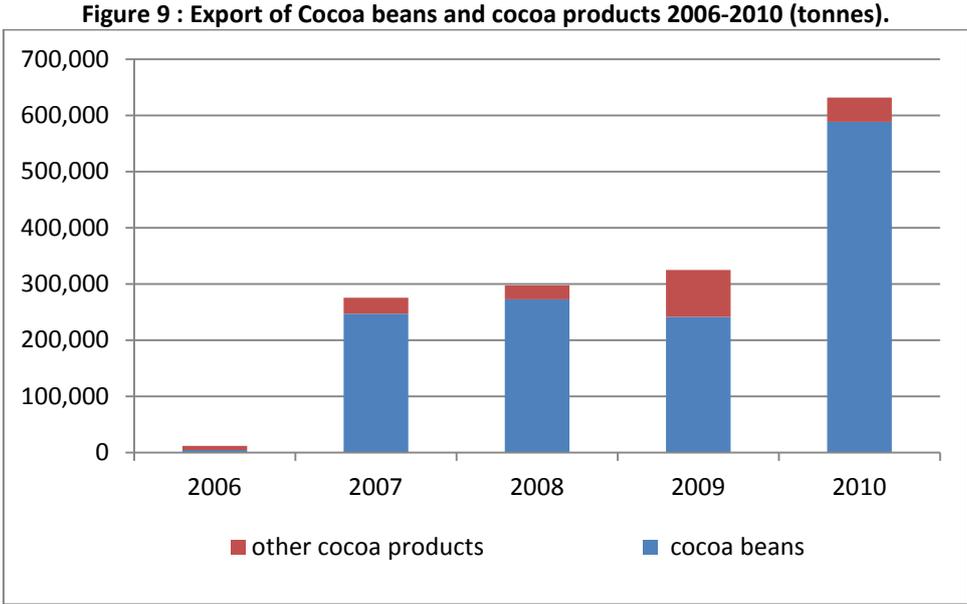
Figure 9 : Export of Cocoa beans and cocoa products 2006-2010 (tonnes).

Source: UNComtrade, 2012 – information on absolute quantities exported are not comprehensive (2005 is missing) and they do not match FAOSTAT information (reported in Table 2). However, UNComtrade was used to provide an estimate of the share of the different cocoa derived products exported by Nigeria, and to confirm Nigeria as a net exporter.

TRADE STATUS OF THE PRODUCTS

Nigeria is a net exporter of cocoa beans for the whole period under review, between the years 2005 and 2010.

BENCHMARK PRICES

Observed

MAFAP analysis normally considers CIF prices as benchmark prices when the commodity is mainly imported, and FOB prices when the commodity is mainly exported. In the case of cocoa in Nigeria, since the country is a net exporter, FOB prices were selected for the analysis.

Quantity and value of all type of exports are registered by the Nigeria Custom Service (NCS). Thus, exports cocoa beans, whole or broken, raw or roasted were reported per country destination and per year from 2006 to 2010.

Figure 10 : Export prices of cocoa beans in Nigeria, from 2006 to 2010 (Naira/tone).

	2006	2007	2008	2009	2010
FOB prices (Naira/ tonnes)	109,009	235,864	292,072	772,451	457,939
FOB prices (US$ /tonnes)	1592	1952	2577	2889	3133

Source: NCS, 2012

Adjusted

No adjustments to the benchmark price have been made.

DOMESTIC PRICES

Price at point of competition

There is no wholesale market for cocoa beans since a large part of the production is marketed through the LBAs, wholesale prices were not included in the analysis. As a result, the incentives and disincentives analysis at wholesale level was not conducted.

Farm Gate Prices

Farm gate prices are only available at national level and they are provided by the National Bureau of Statistics (NBS) for the years 2005-2010. Average prices at federal level were also collected by the Produce Departments of Ondo, Oyo and Ogun states' ministries of Agriculture which are among the largest producer states. Prices at state level (Ondo, Oyo and Ogun States) were selected for the analysis owing to their accuracy and consistency with international trends.

Figure 11: National average farm fate prices for cocoa beans and regional average, Naira/tonne, 2005-2010.
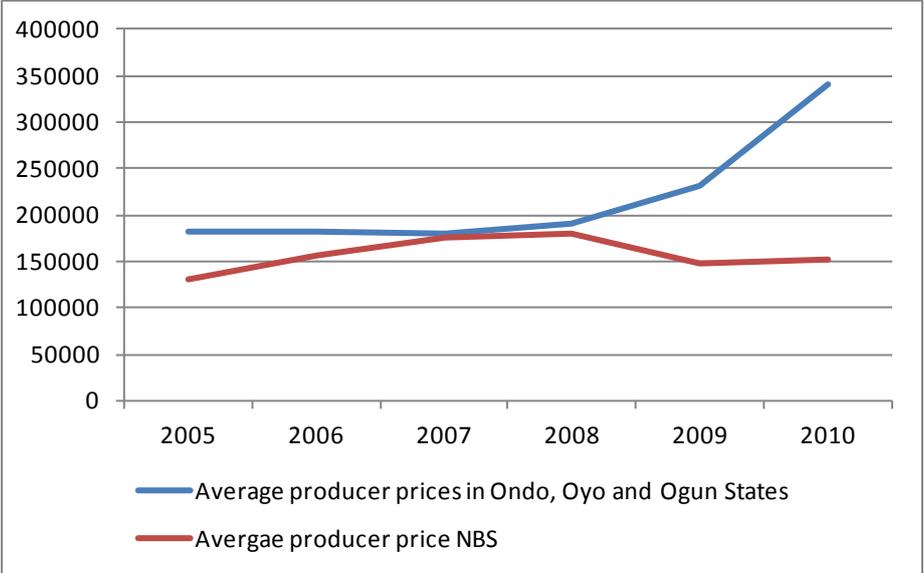
Source: National Bureau of Statistics, 2012 and Ajetomobi, 2011

Table 4 : Average Farm Gate Prices collected in Ondo, Oyo and Ogun States, cocoa beans, Naira/tonne, 2005-2009.

	2005	2006	2007	2008	2009	2010
Farm gate prices (Naira/tonnes)	182500	182083	179166	191250	230833	340416

Source: Ajetomobi, 2011

EXCHANGE RATES

No exchange rate was used in this analysis because the border prices were already collected in local currency. Although there is a possibility that the exchange rate might be overvalued (WTO Trade review and IMF, 2011), more information would be required to adjust the exchange rate accordingly.

ACCESS COSTS

Observed access costs from farm gate to the border

Access costs between farm gate and border were calculated on the basis of a study on agents' margins along the cocoa value chain in Nigeria. Such study is not related to cocoa originated in any specific state, since no specific reference is made (Folayan 2007). This is particularly fitting, considering that the only information on farm gate available is on average terms rather than recorded at state level. The margins indicated in the study were applied in percentage terms to all years for which farm gate prices were available (2005-2010). Specific margins taken into consideration in the calculation of observed access costs are: Local Area Agent Profit and Exporters' Profits, as shown in Table 5, below.

Table 5 : Observed Access Costs from Farm gate to Point of Competition, Naira/tonne.

	2005	2006	2007	2007	2009	2010
Local Area Agent Profit (3% of farm gate)	54750	54625	53750	57375	69250	102125
Exporters' Profit (7% of farm gate)	127750	127458.3	125416	133875	161583	238291
Total (?) Access Costs Farm Gate-Border	182500	182083	179166	191250	230833	340416

Source: own calculations, based on Folayan, 2007

Adjusted

No adjustment was made. Additional information on market inefficiencies would be required to calculate adjusted costs in future analysis.

EXTERNALITIES

No specific externality is recorded.

BUDGET AND OTHER TRANSFERS

Although input support (mainly fertilizer) policies are in place, we are not aware of their specific disaggregation and impact on the cocoa sector.

QUALITY AND QUANTITY ADJUSTMENTS

No specific quality and quality adjustments required, based on available literature.

DATA OVERVIEW

Following the discussions above here is a summary of the main sources and methodological decisions taken for the analysis of price incentives and disincentives for cocoa in Nigeria.

Table 6 : Summary table for data description in MAFAP technical notes.

Concept		Description	
		Observed	*Adjusted*
Benchmark price		▪ Nigeria Custom Services	*N.A.*
Domestic price at point of competition		▪ *N.A*	*N.A.*
Domestic price at farm gate		▪ Average states prices (Ondo, Oyo and Ogun)	*N.A.*
Exchange rate		▪ Annual average of exchange rate as reported by IMF	*N.A.*
Access cost between border point of competition		*N.A.*	*N.A.*
Access costs farm gate points of competition		▪ Includes: *Local Area Agent's and Exporters' margins up to 2009*	*N.A.*
QT adjustment	Bor-Wh	*N.A.*	*N.A.*
	Wh-FG	*N.A.*	*N.A.*
QL adjustment	Bor-Wh	*N.A.*	*N.A.*
	Wh-FG	*N.A.*	*N.A.*

The data used for the analysis is summarized in Table 7 below.

Table 7: Data used for analysis.

DATA	Unit	Year trade status Symbol	2006	2007	2008	2009	2010
Benchmark Price							
Observed	Naira/TON	$P_{b(int\$)}$	109,009	235,864	292,072	772,451	457,939
Adjusted	USD/TON	P_{ba}					
Exchange Rate							
Observed	Naira/USD	ER_o					
Adjusted	Naira/USD	ER_a					
Domestic price at point of competition	Naira/USD	P_{dwh}					
Access costs border - farm gate							
Observed	Naira/USD	AC_{ofg}	18,250	18,208	17,917	19,125	23,083
Adjusted	Naira/USD	AC_{afg}					
Farm gate price	Naira/USD	P_{dfg}	182,500	182,083	179,167	191,250	230,833
Externalities associated with production	Naira/USD	E					
Budget and other product related transfers	Naira/USD	BOT					
Quantity conversion factor (border - point of competition)	Fraction	QT_{wh}					
Quality conversion factor (border - point of competition)	Fraction	QL_{wh}					
Quatity conversion factor (point of competition – farm gate)	Fraction	QT_{fg}					
Quality conversion factor (point of competition – farm gate)	Fraction	QL_{fg}					

CALCULATION OF INDICATORS

The indicators and the calculation methodology used is described in Box 1. A detailed description of the calculations and data requirements is available on the MAFAP website or by clicking here.

Box 1: MAFAP POLICY INDICATORS

MAFAP analysis uses four measures of market price incentives or disincentives. *First*, are the two observed nominal rates of protection one each at the wholesale and farm level. These compare observed prices to reference prices free from domestic policy interventions.

Reference prices are calculated from a benchmark price such as an import or export price expressed in local currency and brought to the wholesale and farm levels with adjustments for quality, shrinkage and loss, and market access costs.

The **Nominal Rates of Protection - observed (NRPo)** is the price gap between the domestic market price and the reference price divided by the reference price at both the farm and wholesale levels:

$$NRPo_{fg} = (P_{fg} - RPo_{fg})/RPo_{fg}; \quad NRPo_{wh} = (P_{wh} - RPo_{wh})/RPo_{wh};$$

The *NRPo_{fg}* captures all trade and domestic policies, as well as other factors which impact on the incentive or disincentive for the farmer. The *NRPo_{wh}* helps identify where incentives and disincentives may be distributed in the commodity market chain.

Second are the **Nominal Rates of Protection - adjusted (NRPa)** in which the reference prices are adjusted to eliminate distortions found in developing country market supply chains. The equations to estimate the adjusted rates of protection, however, follow the same general pattern:

$$NRPa_{fg} = (P_{fg} - RPa_{fg})/RPa_{fg}; \quad NRPa_{wh} = (P_{wh} - RPa_{wh})/RPa_{wh};$$

MAFAP analyzes market development gaps caused by market power, exchange rate misalignments, and excessive domestic market costs which added to the NRP*o* generate the NRP*a* indicators. Comparison of the different rates of protection identifies where market development gaps can be found and reduced.

With the data described above we obtain the price gaps summarized in Table 8, and nominal rates of protection in Table 10, for the period 2006-2010.

Table 8 : MAFAP price gaps for cocoa in Nigeria 2005-2009 (Naira per Mt).

	2006	2007	2008	2009	2010
Trade status for the year	x	x	x	x	x
Observed price gap at farm gate	91,282	(38,780)	(81,697)	(518,534)	(83,480)
Adjusted price gap at farm gate	91,282	(38,780)	(81,697)	(518,534)	(83,480)

Source: Own calculations using data as described above

Table 9 : MAFAP nominal rates of protection (NRP) for Cocoa in Nigeria 2005-2009 (%).

	2006	2007	2008	2009	2010
Trade status for the year	x	x	x	x	x
Observed Nominal rate of protection at farm gate	101%	-18%	-30%	-69%	-20%
Adjusted Nominal rate of protection at farm gate	101%	-18%	-30%	-69%	-20%

Source: Own calculations using data as described above

4. INTERPRETATION OF THE INDICATORS

Figure 12 and Figure 13 show the observed price gaps at production level, as well as observed nominal rates of protection. Based on these indicators, MAFAP methodology observes the price incentives and disincentives for producers, depending on national policies and domestic and international prices. The analysis covers the years 2006-2010 because the border prices for 2005 were not available.

Adjusted price gaps and adjusted nominal rates of protection (NRPs) were not calculated due to a lack of data capturing the market inefficiencies. Moreover, price gap and NRPs at point of competition were not analyzed because the access costs collected were not disaggregated and they corresponded to the segment producer- border.

Figure 12 : Observed price gaps at production levels (Naira), 2006-2010.
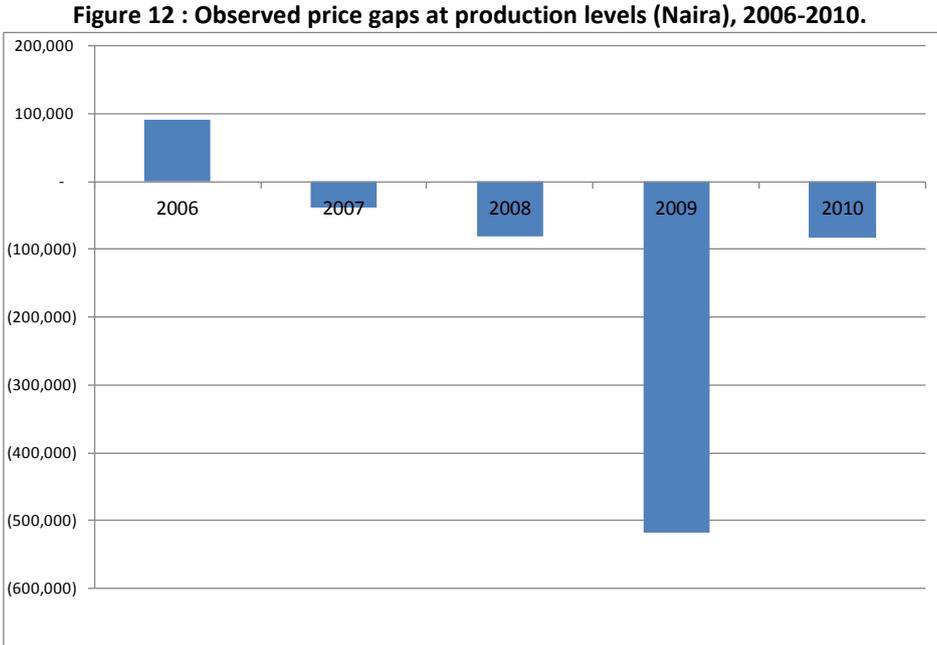
Source: authors' calculations using data as described above

After receiving strong incentives in 2006, cocoa producers in Nigeria received increasing disincentives from 2007 to 2009. In 2010, producer prices moved closer to the international reference prices, disincentives decreasing. NRP indicators are greater than the export tariff on cocoa beans (5 percent), indicating that additional factors and externalities are playing a role in the creation of disincentives for farmers.

Figure 13 : Observed nominal rates of protection at farm levels (%), 2006-2010.
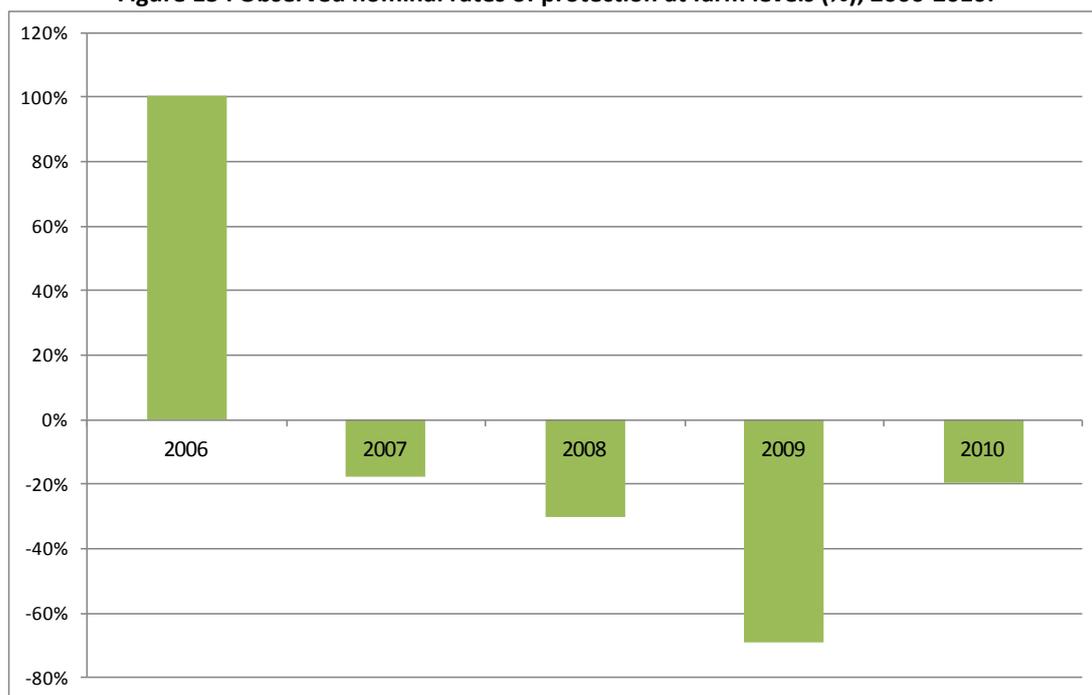
Source: authors' calculations using data as described above

A more in-depth analysis needs to be conducted to understand the shift between strong incentives in 2006 to disincentives in 2007 but some driving factors can already be identified from our analysis. Yields strongly decreased between 2006 and 2007 (Figure 2) because of disease incidence and pest attack and this could have led to lower quality of production and therefore lower producer prices (Figure 11). On the other hand, international prices were particularly low in 2006 compared to the following years (GEM Commodities- WB, 2012) and they strongly increased from 2007. As a result, lower producer prices and increasing international prices contributed to this prices gap. Moreover, there was an important shift in export quantity between 2006 and 2007, reported exports being particularly limited in 2006 which could indicate that a large part of production was stored this year. This could result in disconnection between local and international markets.

Consistent with international prices, border prices gradually increased from 2006 with a peak in 2009. When looking at the export company prices, we also note an increasing trend and a peak in 2009 (Figure 8). However, the comparison between company prices and farm gate prices (Figure 8) shows an increasing gap between the two trends. This gap is also reflected in the MAFAP analysis showing an increasing gap at farm gate level from 2007. This means that the growth of international prices was captured by the export firms but not by producers, average farm gate prices remaining unchanged from 2006 to 2009.

In 2010, s export prices strongly decreased compared to 2009 and producers prices slightly increased. Therefore producer prices were closer to international prices, disincentives decreasing this year.

The weak price transmission between producers and export firms can be explained by the lack of competition between export companies. Indeed, 3 companies market 60% of total cocoa exports. Thus, the concentrated market power could have prevented producers from receiving prices following international price trends. Moreover, a case-study presented above shows that farmers are

not used to market their production through cooperative which also prevents producers from having stronger market power. Moreover, it is more likely that producers also bear the costs of the local taxes (national, federal and local) along the value chain owing to the strong market power of export companies.

The large number of intermediaries between producers and export companies could also have led to disincentives for producers. This is especially true owing to the uncertainty of the producers regarding the grading activities. The lack of quality prevents producers from selling directly their production to local agents to not bear the cost of non-compliance of the production.

Since the analysis could not provide results at wholesale level, the repartition of disincentives cannot be assessed. However, a case study mentioned earlier in the technical note shows an efficient price transmission between peripheral markets in rural areas and major regional markets. This suggests that incentives are mainly captured by export firms.

Despite targeted policies to support cocoa, such as for example the National Cocoa Development Committee and other general supportive policies, producers received disincentives and the low incomes remain a major issue for the cocoa sector in Nigeria owing to the low yields, the shortage of rural labor force and the food insecurity situation experienced by a large amount of producers.

5. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

MAIN MESSAGE

Despite the policies in place to support the cocoa production, producers faced disincentives from 2007 to 2010.

The rising international cocoa prices was reflected in export prices which strongly increased while producers prices barely increased.

Price disincentives received by producers are explained by the poor price transmission between export market and production level. The high concentration of export companies results in strong market power in price fixation at the expense of producers. Moreover, it is more likely that producers bear the costs of taxes and additional inefficiencies instead of processors and export companies.

Since the market has been liberalized, numerous intermediaries are involved in the value chain which negatively affect prices received by producers. Moreover, the uncertainty of producers regarding the grading of production encourage them not to sell directly their production to the local agent increasing the number of intermediaries.

Aside from the policy and market environment, agricultural issues (low yields) might be contributory factors to growing disincentives in the Nigerian cocoa sector affecting the quality of production and thus prices.

PRELIMINARY RECOMMENDATIONS

Despite the availability of certain data, the MAFAP analysis suggests to:

- ❖ Ensure a more balanced market power between producers, processors and export companies;

- ❖ Improve the value chain organization and efficiency;

- ❖ Revise the level of national, federal and local taxes and assess their impact on producers prices.

Increasing the cocoa bean productivity would also ensure a higher quality level of production and increase producer prices. Moreover, improving the value- added of production by increasing the process activities would be profitable for the whole sector.

LIMITATIONS

Lack of information on:
- wholesale prices at state level for the period 2005-2010;
- farm gate prices at state level for the years 2005-2010;
- detailed information on the cocoa value chain in Nigeria, and how pathways vary at state level as well as detailed access costs

- Comprehensive information on taxes along the value chain

FURTHER INVESTIGATION AND RESEARCH

Considering the data gaps on prices at state level (farm gate and wholesale), and partial information on the value chain functioning and access costs, more accurate data could provide a better understanding of incentives and disincentives both at farm gate and wholesale level.

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ANNEX I: Methodology Used

A guide to the methodology used by MAFAP can be downloaded from the MAFAP website or by clicking [here](#).

ANNEX II: Data and calculations used in the analysis

Name of product		COCOA									
International currency		US Dollar			Local currency		NAIRA				

		Unit	Symbol	Year trade status	2005	2006	2007	2008	2009	2010
DATA					ᴺ	ᴺ	ᴺ	ᴺ	ᴺ	ᴺ
Benchmark Price										
1	Observed	USD/TON	$P_{b(int\$)}$							
1b	Adjusted	USD/TON	P_{b_a}							
Exchange Rate										
2	Observed	LOC/USD	ER_o							
2b	Adjusted	LOC/USD	ER_a							
Access costs border - point of competition										
3	Observed	LOC/TON	ACo_{ut}							
3b	Adjusted	LOC/TON	ACa_{ut}							
4 Domestic price at point of competition		LOC/TON	P_{dut}							
Access costs point of competition - farm gate										
5	Observed	LOC/TON	ACo_{fg}		18,250	18,208	17,917	19,125	23,083	34,042
5b	Adjusted	LOC/TON	ACa_{fg}							
6 Farm gate price		LOC/TON	P_{afg}		182,500	182,083	179,167	191,250	230,833	340,417
7 Externalities associated with production		LOC/TON	E							
8 Budget and other product related transfers		LOC/TON	BOT							
Quantity conversion factor (border - point of competition)		Fraction	QT_{ut}							
Quality conversion factor (border - point of competition)		Fraction	QL_{ut}							
Quantity conversion factor (point of competition - farm gate)		Fraction	QT_{fg}							
Quality conversion factor (point of competition - farm gate)		Fraction	QL_{fg}							

CALCULATED PRICES		Unit	Symbol	2005	2006	2007	2008	2009	2010
Benchmark price in local currency									
9	Observed	LOC/TON	$P_{b(loc\$)}$		109,009	235,864	292,072	772,451	457,939
10	Adjusted	LOC/TON	$P_{b(loc\$)a}$		109,009	235,864	292,072	772,451	457,939
Reference Price at point of competition									
11	Observed	LOC/TON	RPo_{ut}		109,009	235,864	292,072	772,451	457,939
12	Adjusted	LOC/TON	RPa_{ut}		109,009	235,864	292,072	772,451	457,939
Reference Price at Farm Gate									
13	Observed	LOC/TON	RPo_{fg}	(18,250.00)	90,800.42	217,947.43	272,947.45	749,367.69	423,897.17
14	Adjusted	LOC/TON	RPa_{fg}	(18,250.00)	90,800.42	217,947.43	272,947.45	749,367.69	423,897.17

INDICATORS		Unit	Symbol	2005	2006	2007	2008	2009	2010
Price gap at point of competition									
15	Observed	LOC/TON	PGo_{ut}	(109,008.756)	(235,864.098)	(292,072.446)	(772,451.022)	(457,938.833)	#REF!
16	Adjusted	LOC/TON	PGa_{ut}	(109,008.756)	(235,864.098)	(292,072.446)	(772,451.022)	(457,938.833)	#REF!
Price gap at farm gate									
17	Observed	LOC/TON		200,750.000	91,282.911	(38,780.764)	(81,697.446)	(518,534.355)	(83,480.500)
18	Adjusted	LOC/TON	PGa_{fg}	200,750.000	91,282.911	(38,780.764)	(81,697.446)	(518,534.355)	(83,480.500)
Nominal rate of protection at point of competition									
19	Observed	%	$NRPo_{ut}$	-100%	-100%	-100%	-100%	-100%	#REF!
20	Adjusted	%	$NRPa_{ut}$	-100%	-100%	-100%	-100%	-100%	#REF!
Nominal rate of protection at farm gate									
21	Observed	%	$NRPo_{fg}$	-1100%	101%	-18%	-30%	-69%	-20%
22	Adjusted	%	$NRPa_{fg}$	-1100%	101%	-18%	-30%	-69%	-20%
Nominal rate of assistance									
23	Observed	%	NRAo	-1100%	101%	-18%	-30%	-69%	-20%
24	Adjusted	%	NRAa	-1100%	101%	-18%	-30%	-69%	-20%