Competitiveness and Comparative Advantage of Cocoa Marketing in Nigeria

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In Nigeria, there is a dearth of information on the competitiveness and the effects of policies on cocoa marketing. This study therefore examined competitiveness and the effects of policies on cocoa marketing in Southern Nigeria. Multi-stage random sampling technique was used to select 102 cocoa marketers from the study area and the data collected from the selected marketers were analysed using Policy Analysis Matrix (PAM). Results indicated that cocoa marketing was privately profitable with Private Cost Ratio ranging between 0.18 – 0.40 among the cocoa marketing actors investigated. Furthermore, the result showed that Nigeria had comparative advantage in the marketing of cocoa with Social Cost Benefit of 0.17 – 0.34 among the cocoa marketing actors. The policy indicator, Nominal Protection Coefficient on output (0.90 - 0.98) showed that cocoa marketers did not derive incentives from government. The study therefore recommended that efforts should be made by cocoa stakeholders to strengthen subsidizing inputs to cocoa marketers.

Keywords: Cocoa, competitiveness, policy incentives, marketers, Southern Nigeria.

INTRODUCTION

The importance of cocoa to most developing countries cannot be over-emphasized as cocoa is produced by most developing countries across Asia, Africa and Latin America all of which are Tropical or Semi-tropical areas (Akinbola, 2000). The cocoa market is characterized by a heavy concentration of production in West Africa (Abbot, 2002). It is estimated that 90% of world cocoa production comes from smallholdings and that there are currently 2.5 million cocoa smallholders whose average farm yield is 350kg per hectare (Asare, 2005).

Cocoa contributes about 15% to the total Nigerian export in 1970 (Adebile and Amusan, 2011) and also contributes $900 million to Nigeria’s economy in 2012 (The Sun, 2013). Export of cocoa products from Nigeria was $822.8 million in 2010. This represents about 35% of the $2.32 billion earnings from non-oil exports in 2010 for Nigeria (Mejabi, 2012). The main importers of cocoa from Nigeria are Holland, United States of America, Brazil and Britain (CPA, 1999). The importance of cocoa in the economy stimulated the Nigerian government in cocoa cultivation. Since the introduction of cocoa into Nigeria in 1874, production and marketing activities in the cocoa industry have been unabated and this has been an important foreign exchange earner for the country. Cocoa industry has been a means of providing employment for the populace. In fact, the crop has substantial impact on about ten million people who live and work in the cocoa belt (Sanusi and Oluyole, 2005). Apart from this, through value addition, cocoa has been transformed into various by-products for the use of the populace. These include food (such as cocoa bread), drinks (such as beverage) and soap (especially black soap).

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Before 1986, there was an existence of Cocoa Marketing Board. The board was characterized with monopoly for internal and external crop marketing and hence, the function was to arrange for the purchase, grading, export and marketing of cocoa (Njoku, 2000). Once the cocoa beans is bought from the farmers, it becomes the property of the marketing board and will be handled by the board in all the stages of the marketing chain; therefore, the marketing and exporting of agricultural produce (cocoa inclusive) in Nigeria was mainly monopolized by the Commodity Board. Prices are determined by the board and are fixed for the entire crop year (Oluyole and Usman, 2006). Fixing of price allows the producers to be less vulnerable to fluctuations in world market prices. However, the price stabilization policy of the Cocoa Marketing Board denies the farmers the full benefits of the world price of cocoa. It was as a result of the inefficiencies of the Commodity Board system that the marketing Board was abolished in 1986 and the after effects of the abolition was the liberalization by the federal government of the export pricing policy that enabled the marketing of cocoa beans to be handled by private cocoa merchants. The result of the new marketing system gave rise to free marketing operation that many industries, firms and corporate bodies were freed to engage in domestic trading and exportation of cocoa beans. The prices are determined by the law of demand and supply in the international market. With this development, both internal and external cocoa marketing structures were fully privatized and there is competition in domestic marketing by allowing private Licensed Buying Agents (LBAs) to purchase cocoa from the farmers. The LBAs in turn bag and sell the cocoa beans to the produce merchants who sell the beans to the industries or export it outside the country (Oluyole and Usman, 2006). However, the sustainable marketing of cocoa depends on domestic and international competitiveness and effects of policy intervention. Competitiveness is the set of factors, policies and institutions that determine the level of productivity of a country (Lopez-Claros et al., 2006; Adeoye and Oni, 2014). However, there is a need to determine the competitiveness of Nigerian cocoa marketing as there is no information on the competitiveness of cocoa marketing in Nigeria. This study therefore aims to analyze the competitiveness, comparative advantage and effect of government policies on cocoa marketing in Nigeria. The outcome of the study is expected to assist relevant stakeholders in coming up with appropriate policies that will lead to the development of the cocoa subsector to the level where it shall be able to contribute to economic development and poverty reduction.

METHODOLOGY

The study was carried out in the Southern part of Nigeria. Substantial proportion of cocoa marketing activities takes place in the Southern Nigeria (NCDC, 2006). Southern Nigeria is bounded in the North by Kogi, Kwara and Benue States, in the East by Republic of Cameroon, in the South by Atlantic Ocean and in the West by Republic of Benin (Sanusi, 2006). According to 2006 population census, the total population of the Southern Nigeria was 64,978,376. Agriculture forms the predominant occupation of the populace alongside other vocations like trading, crafts, fishing, agro-processing among others. Major cash crops grown in the area include cocoa, kolanut, cashew, oil palm, orange, mango etc. The area is particularly known for cocoa production as more than 90% of the cocoa produced in Nigeria comes from the area (NCDC, 2006). With respect to the climate, it is tropical with two distinct seasons of rainy and dry season in the state. The rainy season occurs between April and October, while the dry season begins in November and last till April. The region is blessed with a moderate year temperature of around 25°C while the annual rainfall varies between 2000mm in the southern part and 1,150mm in the northern part. The soil type is forest soil dominated with clay loam (Areghere, 2009).

The study employed multistage random sampling technique to select cocoa marketers. The first stage involved a random selection of three cocoa marketing States from the cocoa marketing States in Southern Nigeria. These include Ondo, Oyo and Cross-River States. Ondo and Cross-River States are high cocoa producing States while Oyo is a medium cocoa producing States. The second stage involved a random selection of two Local Government Areas (LGAs) among the cocoa marketing LGAs from each randomly selected States making a total of 6 LGAs. The randomly selected LGAs included Idanre and Ondo-East from Ondo State; Ido and Ona-Ara from Oyo State as well as Ikom and Etung from Cross-River State. The third stage involved a random selection of two communities from each of the randomly selected Local Government Areas thus making a total of 12 communities randomly selected for the study. A total of 102 cocoa marketers were randomly selected from the randomly selected 12 communities, thus making the sample size for the study. The random selection was carried out from the list of marketers made available to the investigator. The variables collected from the respondent marketers included among other things, the socio-economic characteristics of the marketers, costs incurred in the course of cocoa marketing and the revenue generated. According to Oluyole and Usman (2006), cocoa marketers can be categorized into three; these are local buying agents, licensed buying agents and exporters. Local buying agents are the buyers that penetrate into the farm gate and buy cocoa directly from the farmers and they sell to licensed buying agents, exporters or local processors. Licensed buying agents buy cocoa from the local buying agents and sell to exporters or local processors while exporters buy cocoa from the local buying agents or licensed buying agents and export it.
The study was analysed with the use of Policy Analysis Matrix (PAM). PAM is a product of two accounting identities, profitability, defined as the difference between revenue and cost while the other measure the effect of the divergencies (distorting policies and market failures) as the difference between observed parameters and parameters that would exist if the divergence were removed (Monke and Pearson, 1989). The components of PAM that were used for this study were Private Profitability (PP), Private Cost Ratio (PCR), Social Profitability (SP), Domestic Resource Cost (DRC), Social Cost Benefit ratio (SCB), Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Profitability Coefficient (PC).

Private Profitability and Private Cost Ratio were used to measure competitiveness; Social Profitability, Domestic Resource Cost and Social Cost Benefit ratio were used to measure comparative advantage while Nominal Protection Coefficient, Effective Protection Coefficient and Profitability Coefficient were used to measure the effect of policies on cocoa marketing.

**Private Profitability (PP)** – This demonstrates the competitiveness of the marketing system given current technologies, prices of input and output and policy.

\[ \prod = P_o Q_o - P_i Q_i \]

\( \prod \) = Private Profit;

\( P_o Q_o \) = Value of output produced at private prices;

\( P_i Q_i \) = Value of inputs used at private prices.

Private Profit < 0 shows that the product is not competitive given current technologies, prices of inputs and outputs; Private profit = 0, operators are earning normal profit while private profit > 0 implies that the product is competitive given current technologies, prices of inputs and outputs, and policy.

**Private Cost Ratio (PCR)** - This shows the private efficiency of the marketing channels and is an indication of how much one can afford to pay domestic factors (including a normal return to capital) and still remain competitive.

\[ PCR = \frac{\sum a_{ij} P_i^p}{\sum a_{ij} P_j^p} \]

\( \sum a_{ij} P_i^p \) = Cost of domestic factors at private prices;

\( \sum a_{ij} P_j^p \) = Cost of tradable inputs at private prices.

PCR < 1 indicates that the product is highly competitive; the PCR > 1 implies entrepreneurs are making losses while PCR = 1 indicates the break-even point.

**Social Profitability (SP)** – The social profit reflects social opportunity costs and it measures efficiency and comparative advantage.

\[ SP = \sum Y_i^s P_i^s - (\sum a_{ij} P_j^s + \sum a_{ij} P_k^s) \]

\( SP \) = Social profit;

\( \sum a_{ij} P_j^s \) = Cost of tradable inputs at social price;

\( \sum Y_i^s P_i^s \) = Revenue at social price;

\( \sum a_{ij} P_k^s \) = Cost of domestic factors at social price.

A positive social profit indicates that the system uses scarce resources efficiently and contributes to national income (Nelson and Panggabean, 1991; Keyser, 2006), hence, the commodity has a comparative advantage. A negative social profit indicates social inefficiencies and suggests that marketing at social costs exceeds the costs of import, thus indicating that the sector cannot sustain its current output without government intervention at the margin.

**Domestic Resource Cost (DRC)** – The DRC indicates how much domestic resources are needed to generate an additional value of export revenue. It is a measure of relative efficiency of domestic marketing by comparing the opportunity of domestic marketing to the value generated by the product (Tsakok, 1990).

\[ DRC = \frac{\sum a_{ij} P_k^s}{\sum Y_i^s P_i^s - \sum a_{ij} P_j^s} \]

\( \sum a_{ij} P_k^s \) = Cost of domestic factors at social prices;

\( \sum Y_i^s P_i^s \) = Revenue at social prices;

\( \sum a_{ij} P_j^s \) = Cost of tradable inputs at social prices.

DRC of less than unity indicates efficiency of marketing the goods domestically; DRC of more than unity indicates inefficiency in domestic marketing while a DRC of unity indicates a balance, in which case the country neither gain nor lose foreign exchange through domestic marketing.

**Social Cost Benefit (SCB)** - The SCB indicates how much greater the value of output created in relative to the associated cost of marketing estimated in social prices.

\[ SCB = \frac{\sum a_{ij} P_j^s + \sum a_{ij} P_k^s}{\sum Y_i^s P_i^s} \]

\( \sum Y_i^s P_i^s \) = Revenue at social price;

\( \sum a_{ij} P_k^s \) = Cost of domestic factors at social price.

A ratio less than one indicates that an activity is profitable and a ratio that is greater than one shows that the activity is not profitable (Monke and Pearson, 1989).

**Nominal Protection Coefficient (NPC)** - The NPC is a measure of the extent to which domestic price policy protects the domestic marketers from the direct input of foreign market (Tsakok, 1990). It is the ratio of domestic price to a comparable world (social) price.
Table 1. Competitiveness of cocoa marketing among cocoa marketing actors

<table>
<thead>
<tr>
<th>Cocoa Marketing Actors</th>
<th>Private Profitability</th>
<th>Private Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Buying Agents</td>
<td>24,279.81</td>
<td>0.40</td>
</tr>
<tr>
<td>Licensed Buying Agents</td>
<td>36,104.98</td>
<td>0.27</td>
</tr>
<tr>
<td>Exporters</td>
<td>43,018.01</td>
<td>0.18</td>
</tr>
</tbody>
</table>


\[ NPC_o = \frac{P_o^p}{P_o^s} \]

\( P_o^p \) = Private (domestic) price on output;
\( P_o^s \) = Social (world/border) price on output.

Nominal Protection Coefficient on output (NPCo) measures the effect of policy intervention on output prices. NPCo less than one indicates that domestic farm gate price is less than the international price for output and that policies were decreasing the market price. Hence, there is negative protection on output and this confirms the presence of taxes or any other policy that is detrimental to the realization of the maximum output while NPC greater than one indicates the presence of subsidies. It shows that the private price of the goods has been kept higher than the border price. This means that government policies provide incentives to the local marketers of the goods thus enabling the marketer to realize the maximum output.

Effective Protection Coefficient (EPC) - EPC is the ratio of the difference between the revenue in private price and cost of tradable inputs in private price to the difference between the revenue in social price and the cost of tradable inputs in social price. Hence:

\[ EPC = \frac{Y_i^p P_j^p - \sum a_{ij} P_j^p}{Y_i^s P_j^s - \sum a_{ij} P_j^s} \]

\( Y_i^p P_j^p \) = Revenue in private price;
\( \Sigma a_{ij} P_j^p \) = Cost of tradable inputs in private price;
\( Y_i^s P_j^s \) = Revenue in social price;
\( \Sigma a_{ij} P_j^s \) = Cost of tradable inputs in social price;

An EPC greater than one suggests that government policies provide positive incentives to marketers and hence the marketing of such goods are encouraged through introduction of subsidies and reduction or an outright withdrawal of tax while EPC that is less than one implies marketers are not protected through policy intervention, hence marketers face high taxation.

Profitability Coefficient (PC) - The PC shows the impact of all transfers on the profitability. It is an extension of the EPC to include factor transfers. It measures the incentive effects of all policies and thus serves as a proxy for the net policy transfer.

\[ PC = \frac{Y_i^p P_j^p - (\sum a_{ij} P_j^p + \sum a_{ij} P_k^p)}{Y_i^s P_j^s - (\sum a_{ij} P_j^s + \sum a_{ij} P_k^s)} \]

\( Y_i^p P_j^p \) = Revenue in private price;
\( \Sigma a_{ij} P_j^p \) = Cost of tradable inputs in social price;
\( Y_i^s P_j^s \) = Revenue in social price;
\( \Sigma a_{ij} P_j^s \) = Cost of domestic factors in private prices;
\( \Sigma a_{ij} P_k^p \) = Cost of tradable inputs in private price;
\( \Sigma a_{ij} P_k^s \) = Cost of domestic factors in social price.

PC > 1 = Policy transfer income into the production system;
PC < 1 = Policy transfer income away from the production system.

RESULTS AND DISCUSSION

Competitiveness of cocoa marketing

Table 1 showed the result of competitiveness of cocoa marketing among cocoa marketing actors. The result of private profitability of cocoa marketing showed that local buying agents had positive private profit of ₦24,279.81 per tonne, licensed buying agents had positive private profit of ₦36,104.98 per tonne while exporters had positive private profit of ₦43,018.01 per tonne. The result showed that all the private profits for the actors are positive. This implies that cocoa marketing among the three marketing actors is competitive given current technologies, prices of inputs and outputs and the prevailing policies. Also, the cocoa marketers are earning financial gains and can market cocoa without any assistance from the government. It could however be observed from the table that cocoa marketing by the exporters was the most highly competitive being the one that is having the highest private profit. This might be due to the fact that the exporters may get the cocoa sold at a higher price when selling externally than when it is sold locally. Hence, selling at a higher price would increase the revenue and ultimately increases the private profit. Apart from this, exporters buy and sell in large quantity thus enjoying the benefits of economies to scale. However, out of the three cocoa marketing actors, local buying agents had the lowest private profit, hence the least competitive. The result of Private Cost Ratio (PCR) indicated that cocoa marketing by Local buying agents had a PCR of 0.40; the PCR for licensed buying agents was 0.27 while that of exporters was 0.18. The result showed that cocoa marketing among the three actors...
had PCR less than one. This shows that cocoa marketing among the three actors is competitive given current technologies and the prevailing policies. Hence, the marketers are earning profit and can be able to pay for the domestic factors and the marketing activities would still be competitive. The marketers were able to achieve this because their private factor costs were less than the value added in private price. However out of the three marketing actors, cocoa marketing by exporters was the most competitive. The result is in line with the findings of Nwachukwu et al., (2011) which found out that cocoa marketing in Nigeria is highly competitive. Also, the result is in consonance with Oluyole and Usman (2006) which discovered that cocoa marketing in Ogun State of Nigeria is competitive.

Comparative advantage of cocoa marketing

The result of comparative advantage of cocoa marketing among cocoa marketing actors is shown in Table 2. The result showed that local buying agents had social profit of ₦32,025.81 per tonne, licensed buying agents had social profit of ₦43,663.83 per tonne while exporters had social profit of ₦51,159.04 per tonne. The result showed that all the three marketing actors had positive social profit. This shows that cocoa marketing in the study area is socially profitable. Hence, the cocoa marketers in the study area are utilizing scarce resources (such as labour and capital) efficiently in the marketing of cocoa. This also means that cocoa marketing by the three cocoa marketing actors can survive without government interventions. The result of the analysis also shows that exporters had the highest social profit, followed by licensed buying agents and local buying agent had the least social profit. The result of the analysis of Domestic Resource Cost showed that Local buying agents had DRC of 0.31; licensed buying agents had DRC of 0.19 while exporters had DRC of 0.14. From the result, it was discovered that the DRC for all the cocoa marketing actors were less than one. This indicates that there is efficiency in the marketing of cocoa domestically. It shows that the value of domestic resources utilized in cocoa marketing is lower than the value added and therefore there’s an efficient use of domestic resources in cocoa marketing. Cocoa marketing is therefore said to be economically profitable and is having a comparative advantage. The result of the analysis of SCB showed that local buying agents had SCB of 0.34; licensed buying agents had SCB of 0.23 while exporters had SCB of 0.17. The result shows that the SCB of cocoa marketing for all the marketing actors were less than one indicating that the sum of both the tradable inputs and domestic factors costs are less than the gross revenue under the prevailing marketing conditions. Cocoa marketing among the three marketing actors is therefore profitable. However, the lower the SCB, the higher the degree of efficiency of the system. Hence, cocoa marketing by exporters is more efficient than those of the other marketing actors. The result is in line with the findings of Nwachukwu et al., (2011) which found out that cocoa marketing in Nigeria has comparative advantage.

The result of the analysis of Nominal Protection Coefficient on Table 3 showed that the NPC for local buying agents was 0.90; the NPC for licensed buying agents was 0.94 while the NPC for exporters was 0.98. It could be observed from the result that all the buying agents had NPC of less than one. This indicates that the domestic price of cocoa beans is less than the border price. Therefore, there’s negative protection on the domestic price of cocoa beans and there’s disincentive on output prices as it relates to marketers. This confirms the presence of taxes or any other policies that are detrimental to the realization of maximum revenue from cocoa marketing. The table further showed that the EPC for local buying agents was 0.88; the EPC for licensed buying agents was 0.91 while that of exporters was 0.96. The result showed that the EPC for the three marketing actors was less than one. This shows that the value added at the market price was lower than the value added at the international price. Hence, the marketers are not protected through policy intervention. The result

<table>
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<th>Cocoa Marketing Actors</th>
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<th>Domestic Resource Cost</th>
<th>Social Cost Benefit</th>
</tr>
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<tbody>
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<td>Local Buying Agents</td>
<td>32,025.81</td>
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</tr>
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<td>Licensed Buying Agents</td>
<td>43,663.83</td>
<td>0.19</td>
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<th>Profitability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Buying Agents</td>
<td>0.90</td>
<td>0.88</td>
<td>0.76</td>
</tr>
<tr>
<td>Licensed Buying Agents</td>
<td>0.94</td>
<td>0.91</td>
<td>0.83</td>
</tr>
<tr>
<td>Exporters</td>
<td>0.98</td>
<td>0.96</td>
<td>0.92</td>
</tr>
</tbody>
</table>

of the analysis of Profitability Coefficient showed that the PC for local buying agents was 0.76; the PC for licensed buying agents was 0.83 while the PC for exporters was 0.92. The PC among the three marketing actors was less than one. This indicates that the private profit was less than the profits evaluated at the world reference price. Hence, there’s lack of incentive in the marketing system.

CONCLUSION AND RECOMMENDATIONS

Cocoa marketing was privately profitable. This was indicated by the findings from the analysis of Private Profitability and Private Cost Ratio. There was comparative advantage in marketing cocoa in Nigeria as revealed by the result of the analysis of Social Profitability, Domestic Resource Cost and Social Cost Benefit. However, the existing government policies on agriculture did not protect cocoa marketing as indicated by the result of the analysis of Nominal Protection Coefficient, Effective Protection Coefficient and Profitability Coefficient. Hence, resources were diverted away from the system and the system was taxed. Therefore, the study gives the following recommendations.

• Efforts should be made on the part of key stakeholders in the agricultural and cocoa subsector to strengthen subsidizing agricultural inputs to cocoa marketers. This is quite imperative because findings from NPC, EPC and PC have shown that cocoa marketers were not deriving incentives (such as subsidized inputs) from government policies.

• There is the need to establish more cocoa processing firms to be adding value to the cocoa beans produced. This is necessary because local value addition would increase the local demand for cocoa beans which would ultimately increase the domestic price of cocoa, more so that processed forms of cocoa are more profitable than the raw form.

• Private profitability which is the difference between the output and the inputs used showed that there’s competitiveness in cocoa marketing. Hence, some input use efficiency technologies should be introduced into cocoa marketing. This will reduce the cost of cocoa marketing and thus further improves the competitiveness of cocoa marketing.

REFERENCES


Asare R. (2005). Cocoa Agroforests in West Africa: A Look at Activities on Preferred Trees in the farming system in Danish Centre for forest landscape and planning (KVL): 77


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