

## Farmers' Assessment of Benefits and Constraints of Ghana's Cocoa Sector Reform

Benjamin Tetteh Anang, Kwame Adusei and Ebenezer Mintah

Department of Agricultural and Resource Economics, University for Development Studies,  
P.O. Box TL 1882, Tamale, Ghana

**Abstract:** This study looked at farmers' assessment of the benefits and constraints of Ghana's cocoa sector reform. The study was conducted with 80 randomly selected cocoa farmers from four communities in Bibiani-Anhwiaso-Bekwai District, Western Region, Ghana. Results show that farmers are happy with the introduction of privatization in cocoa marketing. Majority of the farmers (93%) rated the performance of licensed buying companies highly. Results showed that after privatization, the benefits derivable to cocoa farmers included: prompt payments for produce sold; provision of inputs, loans, bonuses and incentives by buying companies; and nearness to produce sales point. In terms of the constraints, pests and diseases were the highest followed by long distances in transporting cocoa from the farm to drying sheds. Theft of cocoa beans during drying was the least constraint. Close to 59% of farmers were dissatisfied with the price they received for their produce. It was recommended that the Cocoa Diseases and Pests Control Exercise Committee (CODAPEC) should be monitored to ensure that cocoa farms are properly sprayed to control pests and diseases in order to sustainably enhance output and product quality.

**Key words:** Cocoa marketing reforms, Kendall's concordance analysis, licensed buying companies, marketing behavior, partial liberalization, perceptions

### INTRODUCTION

Ghana is the world's second largest producer of cocoa after Cote d'Ivoire (Vigneri, 2007), producing nearly a fifth of the world's supply and the only cocoa producing country in the world without a fully liberalized marketing system (Laven, 2007; Ruf, 2007; Vigneri and Santos, 2007). Following pressure from the international community to reform the cocoa sector which had suffered from parastatal inefficiency and over-taxation of farmers, the country in 1992 began a partial liberalization of cocoa marketing by introducing competition in the internal marketing of cocoa. As part of the reform process, private Licensed Buying Companies (LBCs) were allowed to compete with the Produce Buying Company (PBC), a subsidiary of Ghana Cocoa Board (Cocobod) to purchase cocoa from farmers. However, buying companies cannot compete through price differentiation because a floor price is set by Cocobod for the cocoa season (Zeitlin, 2005).

Great strides have been made since the reform program started in the early 1990s. The improvements include an appreciation of cocoa production, partly as a result of the use of new improved varieties and an increase in farmers' share of the free on board (f.o.b.) price of cocoa (Edwin and Masters, 2005). For instance, the officially recorded output of cocoa in Ghana declined

from a peak of approximately 400,000-450,000 metric tons in the 1960s to barely 200,000 metric tons in the early 1980s (Bulř, 2003). As a result of structural reforms in the sector (Teal and Vigneri, 2004; Teal *et al.*, 2006), by the mid-1990s, official output was almost double that of 1982/83 crop, growing steadily in the late 1990s. Current production level is approximately 700,000 metric tons. The share farmers received from the net free on board (f.o.b.) price increased from 56% in 1998/99 to 70% in 2006/07, showing a steady appreciation of farmers' share of revenue from cocoa (Laven, 2007).

The reform of Ghana's cocoa sector is the subject of investigation among several researchers because of its unique marketing arrangements. For instance, some researchers find the reform process to be successful (Zeitlin, 2005; Ruf, 2007) while some consider it an African success story and a model for export crop marketing in Africa (Williams, 2009). Cocoa production in Ghana has rebounded impressively in the 1990s and the 2000s, with partial liberalization of domestic marketing playing a positive role in the recovery (Ruf, 2007).

Our investigation of Ghana's cocoa sector reforms assumes a slightly different position from what other researchers have done on the subject. We find that much of the debate on the reforms process in Ghana has concentrated on the interpretation of data relating to production, price incentives and quality concerns. We find

such analysis highly useful, but contend that an equally useful analysis is the assessment by cocoa farmers themselves about the reform process. Farmers are key players and expected beneficiaries of the cocoa reforms process and their views are considered very important in understanding the outcome of the reform process.

This study examined farmers' assessment of the reforms in Ghana's cocoa sector with regard to the benefits and constraints of the liberalization process. Specifically, the paper investigated farmers' assessment of: the privatization of internal marketing of cocoa; the marketing behavior of farmers after liberalization; the contribution of Licensed Buying Companies (LBCs); and the constraints farmers face in the era of liberalization

**MATERIALS AND METHODS**

The study was conducted at Bibiani-Anhwiaso-Bekwai District in the Western Region, the highest cocoa producing region in Ghana. The District lies in the forest belt and has an average annual rainfall between 1200mm and 1500mm. The rainfall pattern is bimodal.

Eighty (80) cocoa farmers from four (4) communities were interviewed in the district. Twenty farmers were selected from each community using simple random sampling. The communities included Bekwai, Baakokrom, Ashiam and Humjibre. Demographic, socio-economic as well as production data were collected. Qualitative data on farmers' perceptions were also collected. Face-to-face interviews were conducted with each respondent using semi-structured questionnaire. Personal observations were also made.

Constraints were ranked according to the Kendall's Coefficient of Concordance (W) to assess the degree of agreement among them. The W - value ranges from 0 (no agreement) to 1 (complete agreement). If W is 1, the respondents have been unanimous, and each respondent has assigned the same order to the list of concerns. If W is 0, there is no overall trend of agreement among the respondents, and the responses may be regarded as essentially random. Intermediate values of W indicate a greater or lesser degree of unanimity among the various responses.

The Kendall's coefficient of concordance is computed as follows:

$$W = \frac{12 \left[ \sum T^2 - \frac{(\sum T)^2}{n} \right]}{nm^2(n^2 - 1)} \tag{1}$$

where;

- T = Total weight score
- n = Number of constraints being ranked
- m = Number of respondents

The Coefficient of concordance (W) was tested for significance in terms of the F- distribution. The F-ratio is given by:

$$F = (m-1)*(W)/(1-W)$$

with numerator and denominator degrees of freedom being:

$$(n-1)-(2/m) \text{ and } m-1[(n-1)-2/m], \text{ respectively}$$

Test of hypothesis:

- H<sub>0</sub>: There is no agreement between the rankings of the constraints.
- H<sub>a</sub>: There is agreement between the rankings of the constraints.

The decision rule is we reject the null hypothesis (that there is no agreement between the rankings of the constraints) and accept the alternative hypothesis if F-calculated is greater than F- tabulated.

**RESULTS AND DISCUSSION**

**Source of labor:** Inadequate labor is a problem in cocoa production (Dormon *et al.* 2004). The study showed that the source of labor for cocoa farmers in the Bibiani-Anhwiaso-Bekwai district was divided almost equally between family and hired labor (Table 1).

There is extensive use of family labor on smaller cocoa farms in Ghana which might be supplemented by hired labor while on large farms it is common to have a caretaker working full-time throughout the year (Bøås and Huser, 2006). Due to the high cost of hired labor, the farmer may prefer using the entire household, relatives and friends in the farm activities.

**Mass spraying exercise:** Since 2001, the government of Ghana has been providing a free mass spraying of cocoa farms to control pests and diseases which are known to retard cocoa production. While the mass spraying exercise is expected to cover all farmers, 30% of the respondents reported that they do not benefit from the exercise. They attributed this to the inadequate number of "gangs" (group of sprayers) in the district. Farmers also complained that the gangs do a poor job occasionally.

This was also reported by Dormon *et al.* (2004). The farmers argued that since the gangs were paid on the basis of area covered, they tended to spray to cover as much acreage as possible instead of targeting the capsids (insects) on the canopies. Perhaps it was for this reason

Table 1: Farmers' source of labor for cocoa production

Source of labor	Frequency	%
Family labor	39	48.8
Hired labor	34	42.5
Others	7	8.8
Total	80	100.0

Table 2: Farmers' assessment of the introduction of Licensed Buying Companies

Response	Frequency	%
Happy	73	91.2
Unhappy	7	8.8
Total	80	100.0

Table 3: Benefits farmers enjoyed before and after privatization

Before privatization	After privatization
Scholarships for farmers' wards	Prompt payment
Provision of inputs to farmers	Provision of inputs to farmers
Bonuses to farmers	Bonuses to farmers
	Provision of loans to farmers by LBCs
	Provision of incentives to farmers
	Shorter distance to sell produce
	Scholarships for farmers' wards
	Education on how to produce by LBCs

Table 4: Farmers' satisfaction with the pricing of cocoa before and after privatization

Satisfaction with price of cocoa	Period of cocoa marketing		Total
	Before privatization	After privatization	
Happy with price	3 (33.3%)	30 (42.3%)	33 (41.3%)
Unhappy with price	6 (66.7%)	41 (57.7%)	47 (58.7%)
Total	9 (100%)	71 (100%)	80 (100%)

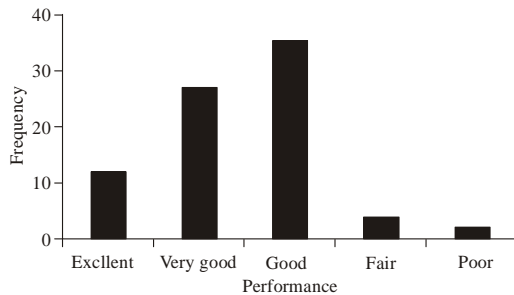


Fig. 1: Farmers Assessment of the Performance of LBCs

that apart from the free mass spraying exercise, farmers also complemented in the spraying exercise. About 61% of respondents applied fertilizer on their farms. The adoption of cocoa fertilization is a positive development in Ghana's cocoa production which is likely to improve output (Aneani *et al.*, 2011).

**Farmers' assessment of the privatization of internal marketing:** Much of the research on the benefits or otherwise of privatization of export marketing has focused almost exclusively on production, quality and prices (f.o.b. and the international price of cocoa). However the perceptions of farmers who are key players and beneficiaries of economic reforms in the export crop sector have been ignored. Needless to say, the perceptions of farmers play an important role in understanding the effects of liberalization.

Farmers were happy with the introduction of competition in the internal marketing of cocoa which has

resulted in the introduction of multiple buyers. Close to 89% of respondents considered the period after the introduction of privatization in cocoa marketing to be more beneficial to them. The response of the farmers is in consonance with the expectations of the liberalization process. The benefits of the liberalized system for farmers include prompt payments and the option of selling to another buyer (Laven, 2007). Close to 93% of farmers were happy about the changes in the internal marketing of cocoa. As shown in Table 2, 91.2% of farmers were happy with the introduction of LBCs and found them helpful. Table 3 shows the benefits farmers received in the two separate periods of internal marketing of cocoa in Ghana. While some benefits were enjoyed prior to privatization, the period after privatization offers farmers more benefits.

**Farmers assessment of the performance of LBCs:**

During the survey farmers were asked to rank the performance of LBCs in the marketing of cocoa from excellent to poor (Fig. 1). Only 2.5% of farmers ranked the performance of LBCs as poor with 5% of farmers ranking their performance as fair. The rest ranked LBC performance between good and excellent (92.5%) indicating that the LBCs are doing well.

Farmers' satisfaction with the pricing of cocoa: Despite the fact that a greater number of farmers were happy with the introduction of competition in the internal marketing of cocoa, more than half of the respondents (almost 59%) expressed dissatisfaction with the price they receive for their produce. Table 4 shows that a greater percentage of farmers are unhappy about the price they receive for their cocoa.

However, when comparing the two periods of cocoa marketing, a greater percentage of farmers are happy with the price they receive after the privatization of internal marketing. The result agrees with the general expectation of economic liberalization. The share farmers in Ghana received from the net free on board (f.o.b.) price of cocoa increased from 56% in 1998/99 to 70% in 2006/07, showing a steady appreciation of farmers' share of revenue from cocoa (Laven, 2007). The price appreciation coupled with recent efforts by the government to increase producer price of cocoa, could account for the reason why farmers indicated that the price of cocoa after privatization is better than the price before the reforms. The government of Ghana has since September 2010, announced a new producer price of cocoa (GH¢3,200 per ton; about \$2,286 per ton) representing 75.1% of the f.o.b. price (Ghana News Agency, 2010). The increase in price was intended to motivate farmers to increase production and help reduce smuggling of cocoa to neighboring countries. Even though there have not been much improvement in price appreciation through privatization (from 33.3 to 42.3% as shown in Table 4), setting a floor price by the government has helped a lot in price

improvement and prevention of monopolistic acts in Ghana's cocoa sector.

**Farmer's choice of LBC:** One anticipated result of the partial liberalization of the internal marketing of cocoa in Ghana is the introduction of multiple buyers, providing farmers with the option of who to sell to. The unique marketing arrangement in Ghana does not include price competition between buyers. The absence of price competition between buyers has meant that selection of LBCs by farmers is based on a variety of non-price factors including the mode of payment and the provision of other services (Vigneri and Santos, 2009). The choice of LBCs is largely driven by the offer of prompt cash by any LBC, with credit supply reported as the second reason for choosing a buyer. "Cash-constrained farmers may choose buyers based on their ability to get full cash payment for their production and, possibly, some loan to finance productive activities" (Vigneri and Santos, 2009). Thus the multiplicity of buyers offers the option to choose among those that can provide cash as well as credit. In their analysis, non-cash constrained farmers do not seem to benefit from selling to different buyers while the provision of additional resources to farmers seems to matter to cash-constrained farmers in their choice of LBCs. They showed that access to full payment and possibly credit advances enhances the production potential of those who are financially constrained.

On farmers' choice of LBCs, 55% of them sold their produce to only one buyer. Eighty-five (85) percent of farmers sold their produce to one or two buyers with the rest selling to 3 or more buyers (Table 5).

Those who sell to a single buyer gave the following reasons:

- assurance of bonuses
- the fact that LBCs perform the same task
- good social relationship with LBCs
- ease of record keeping on the number of bags produced in a season

For those who sell to more than one buyer, their reasons include the following:

- provision of financial assistance by LBCs
- desire to be paid ready cash
- companies give inputs on credit basis
- to avoid a buyer with an adjusted scale

Close to 18% said they do not reserve their produce to a particular buyer whilst 82.5% reserve their produce to a particular buyer or number of buyers.

Table 5: Number of buyers farmers sell to

Number of buyers	Frequency	%
One	44	55.0
Two	24	30.0
Three	9	11.2
Four	2	2.5
Many	1	1.2
Total	80	100.0

Table 6: Ranking of constraints by farmers

Constraints	Overall rank	TWS (T)	Rank score of constraints					
			1	2	3	4	5	6
Adjustment of scale when weighing	3	229	13	17	25	18	7	0
Long distances in transporting beans from farms	2	218	7	25	36	9	1	2
Pest and diseases	1	130	50	19	4	5	2	0
Theft of beans during drying	6	380	1	3	5	17	34	20
High labor cost	4	336	8	10	5	12	13	32
High cost of other inputs	5	375	1	6	5	19	23	26

$W = 0.46, F_{cal} = 23.60, F_{tab} = 2.15$  at 5% significance level

**Analysis of constraints:** Table 6 shows the constraints identified by farmers and the analysis of these constraints using the Kendall's Coefficient of Concordance. In the ranking, a lower value is assigned to the most important factor, hence the constraint with the least Total Weight Score (TWS) is the most important.

Pests and diseases were identified by farmers as the most pressing constraint, followed by long distances in transporting beans from farms to drying sheds at home. Adjustment of weighing scales was the next important constraint followed by high labor and other input costs. Theft of cocoa beans was identified as the least constraint. Since  $F_{cal}$  (23.60) is greater than  $F_{tab}$  (2.15) at the 5% significance level, we accept the alternative hypothesis ( $H_a$ ) that there is a degree of agreement between the constraints ranked by the respondents. The value of the coefficient  $W$  (0.46) implies that 46% of the farmers agreed to the ranking of the constraints.

The incidence of cocoa pests and diseases in Ghana has persisted and contributed to low yields due to inadequate crop management (Dormon *et al.*, 2004). They added that most farmers did not control pests and diseases, attributing this to high cost of pesticides, spraying equipment, and labor. It has been reported that the mass spraying exercise to control pests and diseases in Ghanaian cocoa farms has not reached its full potential because it has not been able to fulfill its mandate of ensuring that cocoa farms are sprayed four times a year between July and November (Abankwah *et al.*, 2010). More than half of the respondents (57%) indicated that some cocoa farms were never sprayed over the first five years of the mass spraying exercise with delay in spraying as another major setback. Together, these setbacks accounted for 77% of the total response of farmers

regarding the inefficiencies in the mass spraying exercise (Abankwah *et al.*, 2010). Hence cocoa farmers in Ghana still face a challenge in controlling cocoa pests and diseases.

Another problem was the long distances in transporting beans from farms to drying sheds. Most farms are located far from the homestead making the transportation of cocoa beans burdensome. Coupled to this is the poor road network in most rural areas. Some buying companies also try to cheat farmers by adjusting the weighing scales. Farmers who identify such tricksters try to avoid them the next time they come to buy cocoa. Forty three percent of farmers rely on hired labor (Table 1). The cost of labor is a limiting factor in cocoa production in Ghana (Dormon *et al.*, 2004). Other inputs such as fertilizer, chemical sprays and sprayers, also represent a huge cost to farmers. In addition, some farmers reported the theft of cocoa beans on the farms and drying sheds resulting in lower returns to farmers.

### CONCLUSION

The partial liberalization of cocoa marketing in Ghana has been beneficial to farmers. Licensed Buying Companies are playing an important role in the internal marketing of cocoa and no monopolistic acts are hampering the purchasing of cocoa in Ghana. Cocoa farmers in Ghana are however dissatisfied with the producer price of cocoa offered by the government, suggesting that privatization has not brought much improvement in price appreciation. Setting a floor price by the government has however helped a lot in price improvement and prevention of monopolistic acts by buying companies. Cocoa farming in Ghana is limited by poor implementation of the mass spraying exercise, thereby limiting benefits accruing to farmers. An increase in the producer price of cocoa will increase benefits to producers and enhance cocoa production in Ghana.

### RECOMMENDATION

- There is the need to monitor the Cocoa Diseases and Pests Control Exercise Committee (CODAPEC) to ensure that cocoa farms are properly sprayed to control pests and diseases in order to enhance output and product quality.
- The spraying gangs who carry out the mass spraying exercise must also be retrained and farmers should supplement the efforts of CODAPEC.
- Frequent inspection of cocoa weighing scales must be carried out by the Ghana Standards Board (GSB) to weed out dishonest purchasing clerks or cocoa buyers.
- There is the need to improve the road network in cocoa growing areas to enhance the transportation of cocoa beans from the farms and also to marketing centers.

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