

Competitiveness of tea production and challenges of tea value chain in taraba state, Nigeria

Oluyole, K.A., Yahaya, A.T. and Agbebaku, E.E.O.

Economics and Extension Division, Cocoa Research Institute of Nigeria.
PMB 5244, Ibadan, Nigeria.

*Corresponding author's E-mail: kayodeoluyole@yahoo.com

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ABSTRACT

There is a need to ascertain the competitiveness of tea production in order to determine the level of its productivity. However, there is a dearth of information on the competitiveness of tea production. Therefore, this study investigated the competitiveness of tea production and the challenges in tea value chain on Mambilla plateau in Taraba State. Simple random sampling technique was used to select 136 respondents from 3 communities on the plateau. Structured questionnaire was used to elicit information from the respondents and the data retrieved from the information collected were analysed using descriptive statistics as well as Policy Analysis Matrix (PAM). The result of the analysis showed that 63.24% of the respondents were 40 years and below while 75.74% of the respondents had primary school education and above. The Private Profitability (PP) of tea production was positive and the Private Cost Ratio (PCR) was less than 1 showing that tea production in the study area was competitive. Lack of finance and fertilizer/pesticides, lack of market demand, lack of access to market and lack of modern equipment were identified as the problems affecting tea value chain in the study area. The study hereby recommended that government needs to assist the farmers financially in order to expand their farms.

Key words: Competitiveness, tea, production, challenges, value chain.

Tea was introduced into Nigeria by de Bouley from West Cameroon in 1952. Tea plants are native to East and South Asia, and probably originated around the meeting points of the lands of north Burma and southwest China as a medicinal drink (Heiss and Heiss, 2011). The first commercial clones were imported into the country (specifically, Mambilla plateau) in 1975 when Bohea limited, a United Kingdom based autonomous operating company designed and established Nigeria's first commercial tea project comprising 450 hectares integrated estate on the Mambilla Plateau (Hainsworth, 1981). Nigeria actually began tea production on a commercial scale in 1982 on the Mambilla Plateau of Taraba State (Oluyole, 2014). The output from the farm was being used to feed Nigerian Beverages Production Company (NBPC), the company producing and processing tea on Mambilla Plateau. However, a total land area planted to tea in Nigeria is 1,200 hectares in spite of the fact that the Mambilla Plateau has over 50,000 hectares of land suitable for tea cultivation (Obatolu, 2001). Tea is very important healthwise as

it is a source of anti-oxidant nutrients such as carotenoids and ascorbic acids; it makes body to be resistant to bacterial infection; it reduces the incidence of diabetics; it inhibits the growth of cancer cells; it increases body's immunity against viral infection; it is a cardioprotective agent; it protects the brain; it is an anti-inflammatory and antifibrotic; it increases alertness and also speeds up heartbeat and breathing rate thus reduces the incidence of hypotension (Aroyeun *et al*, 2013). Tea plays an important role in human health by activating the central nervous system, which may aid the body's ability to burn calories and unwanted fats through thermogenic process. The phenol groups in tea are extremely active, easily able to capture and neutralize free radicals and other pro-oxidants. It has been found that (tea is over 200 times more powerful than vitamin E in neutralizing pro-oxidants and free radicals that attack lipid (oil and fats), it is also 20 times more potent than vitamin E in reducing the formation of dangerous and potentially mutagenic peroxide that form in rancid fats and lard (Oluyole *et*

al, 2015). Tea and coffee are mainly taken as a beverage which refreshes the brain and aids in eliminating pains and stress in the head, and is useful for producing soberness in people intoxicated with wine (Yohanna and Chila, 2014). However, the sustainable production of tea 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 (Mejabi, 2012). Hence, competitive advantage occurs when a country or an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors (Oluyole *et al.*, 2016). The analysis of competitiveness provides information for the sustenance of production, marketing and processing of tea. Therefore, this study is very important because the result of the analysis of competitiveness will provide an indication of the effects of policies on each of the nodes of tea value chain. This will include the provision of incentives (support) at each stage of tea value chain. Government policy will also provide an avenue for monitoring and evaluation especially at the production stage of the chain. Also, policy will fashion out strategies for the regulation, pricing and exportation of tea and its value added products.

In order to comprehensively carry out this study, the following research questions will be addressed:

- (i) What are the socio-economic characteristics of the respondents?
- (ii) What is the status of competitiveness of tea production in the study area?
- (iii) What are the problems facing the production, marketing and processing of tea in the study area?

MATERIALS AND METHODS

The study was carried out in Taraba State. Taraba State is located at the north-eastern part of Nigeria and is known majorly as tea state because it is the only state where tea is produced in substantial quantity in the country. Multi-stage sampling technique was used to select the respondents for the study. The first stage was the purposive selecting of Sadauna local government area from the state. Second stage was the purposive selection of three

communities from Sadauna local government area. The communities selected were Mayo-Kusuku, Kakara and Kasalash. All these communities are located on Mambilla plateau in Sadauna local government area. The third stage was the proportional selection of 136 respondents from the selected communities. Mambilla plateau is the highest plateau in Nigeria and it has an average elevation of about 1,524 metres (5,000 ft) above sea level. The plateau covers an area of over 9,389 square kilometres (Hainsworth, 1981). Some of its villages are situated on hills that must be at least 1,828 metres high above sea level. Information was collected from the respondents (tea value chain actors) with the aid of structured questionnaire. The data retrieved from the information collected were analysed with the use of descriptive statistics (such as frequency and percentages) as well as Policy Analysis Matrix (PAM). The component of PAM that was used in the analysis were Private Profitability (PP) and Private Cost Ratio (PCR). Private Profitability demonstrates the competitiveness of the agricultural system given current technologies, prices of input and output and policy

$$\Pi = \sum Y_i^p P_i^p - (\sum a_{ij} P_j^p + \sum a_{ik} P_k^p)$$

Where:

Π = Private Profit;

$Y_i^p P_i^p$ = Value of output produced at private prices;

$\sum a_{ij} P_j^p$ = Cost of tradable inputs used at private prices;

$\sum a_{ik} P_k^p$ = Cost of domestic factors used at private prices.

If Private Profit < 0, which is negative private profit, this shows that the product is not competitive given current technologies, prices of inputs and outputs, and policy. When private profit > 0, that is positive private profit. The positive private profit implies that the product is competitive given current technologies, prices of inputs and outputs, and policy and the producers are earning positive returns and this should lead to expansion of the system. Private Cost Ratio shows the private efficiency of the farmers or the marketers and is an indication of how much one can afford to pay domestic factors (including a

normal returns to capital) and still remain competitive.

$$PCR = \frac{\sum a_{ij} P_k^p}{Y_i^p P_i^p - \sum a_{ij} P_j^p}$$

Where:

$\Sigma a_{ij} P_k^p$ = Cost of domestic factors at private prices;

$Y_i^p P_i^p$ = Revenue at private prices;

$\Sigma a_{ij} P_j^p$ = Cost of tradable inputs at private prices.

PCR < 1 indicates that the product is highly competitive given current technologies, inputs and output prices and policy and that entrepreneurs are earning excess profits. It shows that the entrepreneur can pay for all the domestic factors including bank loan and its interest with the operation still remaining competitive. The PCR > 1 implies entrepreneurs are making losses, that is after paying for the domestic factors, the operation is no more competitive PCR = 1 indicates the breakeven point.

RESULTS AND DISCUSSION

Table 1 shows the demographic/socio-economic characteristics of tea farmers. The table shows that most (63.24%) of the farmers were forty years and below and the mean age of the farmers was 40.12 years. This shows that the substantial proportion of the farmers are still in their active age and hence would still have enough strength to do their farm work thus improving their efficiency of production. Regarding the educational status of the farmers, the result of the analysis shows that 75.74% of the farmers had formal education. This is a green light towards farmer's efficiency as the farmers would be able to read and interpret the result of research findings and be able to apply the innovations effectively on their farms. Majority (83.09%) of the farmers were married. This is an indication that there would be an ease supply of family labour for farming activities. This is so important in that it will reduce the overall cost of operating their farms. Almost half (50.74%) of the respondents had their farms older than 20 years while the mean age of the respondents' farms was about 23 years. This is an indication that most of the farms were old and would need to be rehabilitated. The results of the analysis showed that

majority of the farmers were small scale holders as 70.59% of the farmers had a maximum of 5 hectares of farm while just 9.56% of the farmers had above 10 hectares. In this sense, farmers need to be encouraged to expand their farms in order to increase the income accruable to the them so as to comply with the principles of economics of scale. The result is in line with the findings of Oluyole, *et al* (2015) who found out that most farmers on Mambilla plateau were small scale farmers. Regarding the farm ownership, most farmers (61.03%) of the farmers established their farms themselves while 32.35% inherited their farms. However, no tea farm was rented. This showed that the tea farmers in the study area are interested in establishing their farms themselves. This might be due to the fact that they are relatively young and hence would have the required strength to establish their farms themselves.

Table 1. Socio-economic distribution of tea farmers

Variables	Frequency	Percentage
Age		
≤ 30	47	34.56
31-40	39	28.68
51-60	22	16.17
> 60	21	15.44
Total	136	100.00
Mean		40.26
SD		16.16
Gender		
Male	126	92.65
Female	10	7.35
Total	136	100.00
Educational status		
No formal education	33	24.26
Primary education	34	25.00
Secondary education	44	32.35
Tertiary education	25	18.38
Total	136	100.00
Marital status		
Single	22	16.18
Married	113	83.09
Widowed/widower	1	0.74
Total	136	100.00
Age of farm (years)		
≤ 10	25	18.38
11-20	42	30.88
21-30	32	23.53

> 30	37	27.21
Total	136	100.00
Mean		23.58
SD		11.39
Farm size (Ha)		
≤ 5.0	96	70.59
5.1-10.0	27	19.85
10.1-20.0	12	8.82
20.1-30.0	1	0.74
Total	136	100.00
Mean		4.86
SD		4.43
Nature of farm		
Ownership		
Inherited	44	32.35
Self-established	83	61.03
Purchased	9	6.62
Rented	0	0.00
Total	136	100.00

Table 2 shows the competitiveness of tea production among the three farm ownership types in Taraba State, that is, inherited, self-established and purchased farm ownerships. The result of the analysis showed that tea production in inherited farm ownership gave a positive private profit of N1,165,597.85 per hectare; Self established farm ownership showed a positive private profit of N627,314.93 per hectare while tea production in purchased farm ownership showed a positive private profit of N829,831.57 per hectare. It could be however be discovered that private profit in the three farm ownership types are positive. This shows that tea production in the three farm ownership types is competitive given current technologies, prices of input and output and policy. Hence, the tea producers in the three farm ownership types are having financial gains and they can produce tea conveniently without any assistance from government. Table 2 further showed that inherited farm ownership types is the most competitive out of the three farm ownership types since it is having the highest private profit. Hence, it produced the highest financial gains at private price compared to the other ownership types. This may be due to the fact that the farm is an already made venture, hence no cost was incurred in establishing it thus reduces the overall costs on the farm. It could also be observed that tea production in self-established farms is the least competitive being

having the lowest private profit. This might be due to the fact that the cost of establishing the farm is an additional cost which would have added to the overall cost of running the farm and thus reduces the profit level. Table 2 also showed the result of the analysis of Private Cost Ratio of tea production in the three farm ownership types. The table showed that tea production in inherited farm ownership is having PCR of 0.02, Self established farm ownership had PCR of 0.03 while tea production in purchased farms had PCR of 0.03. It could be observed that tea production in the three management systems had PCR of less than 1. This showed that tea production in the three farm ownership types is highly competitive; given current technologies, inputs and output prices and policy. The PCR of less than 1 also indicates that the tea producers are earning profit at the market price and can be able to pay for the domestic factors and his operation would still remain competitive. The farmers were able to achieve this because their private factors costs were less than the value added in private price and the value added is the difference between the value of output and the cost of tradable inputs. However, out of the three farm ownership types, inherited farms had the least PCR showing that tea production in inherited farm ownership types was the most competitive out of the three, since the lower the PCR, the higher the competitiveness. This result further confirmed what was obtained in private profitability. The result is in line with Oluyole *et al* (2016) who found out that cocoa production in Taraba State was profitable.

Table 2. Competitiveness of tea production in Taraba State

Farm ownership types	Private Profitability (PP)	Private Cost Ratio (PCR)
Inherited	1,165,597.85	0.02
Self-established	627,314.93	0.03
Purchased	829,831.57	0.03

Table 3 shows the status of green tea consumption in the study area. The table shows that majority (94.12%) of the respondents consume tea indicating that green tea is popularly consumed in the study area. This might be due to the fact that the respondents were aware of the distinct benefits of green tea consumption. The result is in consonance with Sowunmi *et al* (2009) who discovered that tea

was popularly consumed among tea consumers in its study area. However, though they are consuming it but they are not consuming it maximally as most (63.24%) of the respondents consume only between one and two satchets per week while just 18.38% of the respondents consume more than five satchets per week.

Table 3. Status of green tea consumption in Taraba State

Attributes	Frequency	Percentage
Do you consume green tea beverage?		
Yes	128	94.12
No	8	5.88
Total	136	100.00
If no, why are you not consuming it?		
No response	94	69.12
I don't like it	3	2.21
I don't have money to buy it	18	13.24
I don't know where to buy it	10	7.35
It is too expensive for me	11	8.09
Total	136	100.00
If yes, how many satchets do you consume per week		
1-2	86	63.24
3-5	25	18.38
> 5	25	18.38
Total	136	100.00

Table 4 saliently identified the problems associated with tea production in the study area. The analysis of the problems showed that lack of finance and lack of fertilizer/pesticides are more pronounced in the study area. This is because 86.03% and 83.82% of the respondents were having the problems of lack of finance and lack of fertilizer/pesticides respectively. Lack of finance might be responsible for their being majorly small holding farmers as they don't have enough money to expand their farms. Apart from the problems of finance and chemicals, other problems associated with tea production identified were poor soil fertility and poor yield

which might be due to the lack of fertilizer to boost the fertility of the soil; pest infestation which might be due to the lack of pesticides to control the pests and labour shortage which may be as a result of lack of finance to employ the services of labour.

Table 4. Problems associated with tea production

Problems	Frequency	Percentage
Poor soil fertility	48	35.29
Poor yield	27	19.85
Pest infestation	21	15.44
Labour shortage	56	41.18
Lack of finance	117	86.03
Lack of fertilizer/pesticide	114	83.82

Source: Field survey, 2016.

Table 5 identified the problems associated with tea marketing. The result of the analysis revealed that majority (75.00%) of the respondents identified low market demand as a major marketing problem of tea. This might be due to the fact that apart from the local processors, there is only one corporate processing firm in the area and the firm may not be able to meet the market demand of the farmers. Apart from low market demand, lack of access to market is another major tea marketing problem identified in the area. This is because the point of production which is mambilla plateau is very far from the point of concentration of tea packagers in Nigeria which is Lagos in the Southern part of the country. This made it difficult for the farmers to have easy access to market. Other problems associated with tea marketing are low price and high cost of transportation. It is quite disheartening that the farmers are complaining that the only corporate tea processing company located in the area are buying the tea leaves at a very low price and that since they don't have an alternative major market, they have to sell at the price offered them by the company. The low price automatically reduces the income accruable to the farmers. In other to solve the problem of low market demand for tea leaves on mambilla plateau, some local tea processors have sprang up processing tea at pilot scale. However, these processors faced a lot of problems as revealed in table 6. Majority (75.00%) of the local processors complained of lack of modern equipment such as grinding machine for their processing.

Table 5. Problems associated with tea marketing

Problems	Frequency	Percentage
Low market demand	102	75.00
Low price	22	16.18
Lack of access to market	75	55.15
High cost of transportation	25	18.38

Source: Field survey, 2016.

This automatically reduces their efficiency. Apart from this, 55.15% complained of an unhealthy competition with the big processing company located there while few of the local processors (16.18%) complained of low quality of the of the tea processed by them as a result of lack of modern equipment and other necessary things.

Table 6. Problems associated with tea processing

Problems	Frequency	Percentage
Lack of modern equipment	102	75.00
Low quality	22	16.18
Competition with other big companies	75	55.15

Source: Field survey, 2016.

CONCLUSION

Majority of the farmers were small scale holders and this had been limiting the size of their income. Tea production in the study area is competitive given current technologies, prices of input and output and policy. Hence, the tea producers are having financial gains and they can produce tea conveniently without any assistance from government. However, inherited farm ownership is the most competitive out of the three farm ownership types considered since it is having the highest private profit. Hence, it produced the highest financial gains at private price compared to the other ownership types. Green tea is predominantly consumed in the study area. Lack of finance and fertilizer/pesticides were the major problems affecting tea production in the study area. Other problems affecting tea value chain in the study area were lack of market demand, lack of access to market and lack of modern equipment for tea processing. It is recommended that government needs to assists the farmers financially in order to expand their farms. Government and non-governmental organizations should come to the aid of the local processors by providing them with necessary processing machines for tea processing. This will

improve the efficiency of the local processors and the quality of the processed tea

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