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Research Article

Effects of Declining Prices on Competitiveness and Comparative Advantage of Tea Production in Nigeria

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Abstract

The study examined the effect of price changes on competitiveness and comparative advantage of tea production in Nigeria. One hundred and two (102) farmers were randomly selected from 3 tea producing communities in the study areas. Primary data were collected from the sampled respondents with the use of structured questionnaires. The data collected were analyzed using Policy Analysis Matrix (PAM). The results from the analysis showed decreasing domestic price of output when input prices are fixed resulted to tea production becoming uncompetitive. At each successive decrease (20%, 40% and 60%) in domestic price, tea production will become less competitive (#52,483, #32,556, and #12,676). Furthermore, in this scenario, world price was kept constant hence, no effect on comparative advantage variables (SP, DRC and SCB). The protection coefficients (NPC, EPC and PC) are a smaller amount to one suggesting that national price of tea will be fewer when compares to the international value. This is indicating that producers will not be protection and this will not be beneficial to the realization of maximum profit.

Decreasing change in world price led to a corresponding decrease in comparative advantage. Continuous decrease in world price will lead to decrease in social profit such that at 60% decreases, a negative value will be attained and would result into corresponding decrease in comparative advantage. At 60% decrease, tea production will no longer be socially profitable hence, making it not comparative advantageous. Protection coefficients showed that at 40% and 60% decrease in world price, producers will benefit from policy protection. There is an indication that at these levels, policy will encourage production and increase income into tea production.

Keywords: Comparative advantage, Competitiveness, Price, Production, Tea

INTRODUCTION

Sustainable allocation of resources to ensure social welfare, high living standard, high employment rate as well as determining what a sector can contribute or contribute to economic growth has been taken to be competitiveness (Ilchenko S et al., 2021). Sapatana et al, posited that competitiveness is the ability of a country to provide its inhabitants with rising and high standard of living and employment rate on a sustainable basis (Marschak J, 1953). Competitiveness is also taken to be a country ability to gain profit and maintain market share (Monke EA et al., 1989).

Tea (*Camellia sinesis*) is a significant agricultural plant that has contributed to sustainable development goals of poverty reduction, food security, income generation,

employment creation, rural development, and environmental development in countries where it is produced and a major cash crop in the world tea has become the world's first most popular beverage after water and it is the cheapest beverage in the world consumed by over 3 million people across religion and culture (Nelson GC et al., 1991).

Pricing is a process to determine what producer receive in exchange for the product. Pricing depends on various factors like production cost, raw material cost, profit margin. It refers to the value that is put in a product, it represents the sum of values that consumers are willing to exchange for the benefit of having or using the product (Nurmatovna SD et al., 2020). Also, price of a product depends upon: Cost of production, segments targeted, ability of consumers to pay, and market forces of demand and supply and it involves determination of the price of the product (Ogbe AO et al., 2011). Price plays an important role in the marketing of the goods and services (Raj SJ, 2020). It is considered as an effective weapon during stiff competition as firms compete with each other on the basis of price (Saptana et al., 2022). Price theory as an approach to economic analysis that derives a small set of "prices" sufficient to characterize low-dimensional equilibrium and optimization problems in high-dimensional aggregate economic systems (Samuelson et al., 1949).

The Policy Analysis Matrix (PAM) shows the private and social cost and prices of business unit (Weyl EG, 2019). The PAM context uses in depth statistics from a production financial plan in addition to other processes and affiliated cost related to the production (Boansi D et al., 2013). It is used to measure efficient usage of inputs, comparative advantage and competitiveness of production method in face of existing knowledge, costs of input and output and policy (Verter N, 2016). To assess which condition will result into tea production becoming uncompetitive in Nigeria, sensitivity analysis of price changes was estimated using PAM indicators (Erokhin V et al., 2020).

MATERIALS AND METHODS

The study was carried out in Taraba State, known for predominantly tea production in Nigeria. Primary data were obtained through the use of structured questionnaires administered through Open Data Kit (ODK) from one hundred and two tea farmers in the study areas (Bahta YT et al., 2023). Structured questionnaire was used to obtain information which include farm gate prices for inputs and outputs, cost (conveyance and storage). Statistics obtained from the study were analyzed using Policy Analysis Matrix (PAM). Sensitivity analysis was conducted on competiveness (PP and PCR), comparative advantage (SP, DRC and SCB) and effect of policy (NPC, EPC and PC) at the production and Domestic price, World price these variables were varied at -20%, -40% and -60%.

Sensitivity analysis became necessary because of changes in short and long run prices of inputs and output, climate change and changing production techniques used in farming. In taken decisions about agricultural income; allocation of scarce resources and growth of aggregate income in the economy. The key variable (Price) were focus on because of their importance in addressing national concern about roles of agriculture in the economy, concern about increasing domestic production through changes producers practice of output, input mix and investment in infrastructure. Also, the need to contribute to government income and maintain fiscal balance in the public sector. Furthermore, the need for offsetting market failure, attaining policy interventions benchmark resources for efficient use and thus increase total value of economic activates. The percentage figures in which the sensitivity analysis is built was based on historical growth rate for prices based on data from (MBPC annual report, 2018, 2019, 2020 and 2021). The analysis was performed for specific variables as appropriate to the formulation of competitiveness, comparative advantage and policy effects respectively.

RESULTS AND DISCUSSION

Effect of changes in the domestic price of tea on competitiveness and comparative advantage in tea production

Outcome of fluctuations in the domestic price of tea on competitiveness and comparative advantage in tea cultivation is as shown in Table 1. The result showed that decreasing domestic price of output when input prices are fixed will result into tea production becoming uncompetitive. At each successive decrease in domestic price, tea production will become less competitive. Stagnated inputs prices will result into inflation making cost of production to keep rising and this will reduce income from tea production. Therefore, policy should target reducing cost of production to enhance maximum income. Furthermore, in this scenario, world price was kept constant hence, no effect on comparative advantage variables. The protection coefficients are fewer than one suggesting that home price of tea will be less than the international price. This is an indication there will not be protection and this will not be beneficial to the realization of maximum profit. Policy attention ought to be targeted at tea output subsidy to protect the producers from price shocks. Government policy should introduce a technology of low cost input mix that will help farmers maximize profit in the face of price shocks (Table 1).

Table 1. Domestic price changes, competitiveness and comparative advantage in tea production.

	Changing effect	**In domestic price**	**In tea production**	
Indicator	**Base value**	**-20%**	**-40%**	**-60%**
Competitiveness				
PP	(₦) 98,778.81	52,483.70	32,556.10	12,676
PCR	0.21	0.26	0.36	0.59
Comparative advantage				
SP	(₦) 148,065.2	(₦) 148,065.2	(₦) 148,065.2	(₦) 148,065.2
DRC	0.11	0.13	0.13	0.13
SCB	0.33	0.41	0.41	0.41
Protection coefficient				
NPC	0.57	0.35	0.25	0.15
EPC	0.7	0.52	0.37	0.23
PC	0.6	0.44	0.28	0.11

Effect of changes in the world price of tea on competitiveness and comparative advantage in tea production

Presented in Table 2 is the result of the effect of decrease in international price on tea production. In this case, domestic price was kept constant; therefore, a decrease in world price will have no effect on competitiveness in tea production. With decreasing change in world price there will be a corresponding decrease in comparative advantage. Continuous decrease at (20%, 40%) in world price will lead to decrease in social profit such that at 60% decreases, a negative value will be attained. It is noteworthy that at 60% decrease, tea production will not be socially profitable hence, making it not comparative advantageous. Similar results were obtained for DRC and SCB values at 20% and 40% decrease. Also, at 60% decrease, tea production will not be comparative advantageous. This finding conforms to Ogbe et al, (2011) on competitiveness of Nigeria rice value chain. Government should put in place sustainable policy strategy that will encourage local tea production. Protection coefficients showed that at 40% and 60% decrease in world price, producers will benefit from policy protection. There is an indication that at these levels, policy will encourage production and increase income from tea production. Government policy should focus on price regulation and provide funds to compensate for loses during these period. Government should introduce insurance policy for any effect of prices shock and provide tax waiver to cushion the effects of loses (Table 2).

Table 2. World price changes, competitiveness and comparative advantage in tea production.

	Changing effect	**In world price**	**In tea production**	
Indicator	**Base value**	**-20%**	**-40%**	**-60%**
Competitiveness				
PP	(₦) 98,778.81	(₦) 98,778.81	(₦) 98,778.81	(₦) 98,778.81
PCR	0.21	0.21	0.21	0.21
Comparative advantage				
SP	(₦) 148,065.2	78,279.03	38,188.80	-1,901
DRC	0.11	0.19	0.1	1.11
SCB	0.33	0.51	0.68	1.02
Protection coefficient				
NPC	0.57	0.62	0.83	1.24
EPC	0.7	0.94	1.61	5.5
PC	0.6	0.93	1.91	1.96

CONCLUSION

The study concluded that policy intervention is essential to maintaining competitiveness and comparative advantage in tea production. The study found that, private profit from tea production will reduce with decrease in prices thereby reducing

competitiveness. Likewise, social profitability reduces with continual decrease in prices resulting into comparative disadvantage. The study therefore recommends a review of development strategies, taxation of tea output, and price stabilization to sustain competitiveness and comparative advantage. Also, tea farm income should be stabilized to encourage farmers to continue to produce and expand tea production areas. Introduction of low cost input technology to the farmers should be encouraged maximize proceeds from tea production.

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