

# Assessing the comparative and competitive advantage of high quality cassava production in South West Nigeria

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**ABSTRACT:** The Value Chain (VC) of agricultural products impacts on their commercial viability. Despite being the world's largest producer of cassava, Nigeria hardly features in its world trade. Domestic production is mostly used as staple food and does not process into value-added products like High Quality Cassava Flour (HQCF). Competitive and comparative advantage of actors in the production of HQCF in South-western Nigeria is therefore the subject of this study. A four-stage multistage sampling technique was used to investigate the efficiencies of cassava farmers. Mapping surveys for all the areas of production and marketing of HQCF were used. A total of 381 valid actors (311 cassava producers, 18 processors and 26 marketers) were used. The resulting data were analysed using descriptive statistics and a policy analysis matrix. Age, household size, and farming experience of the HQCF actors were 48.3±8.46, 47.6±8.08, 44.1±6.79 years, 6.91±2.15, 5.26±1.03, 7.08±2.47 members, and 21.7±10.81, 8.4±2.11, 10±1.38 years, respectively. The HQCF VC actors were competitive with PCR of 0.12 (producers), 0.03 (processors) and 0.39 (marketers). Similarly, the actors had a comparative advantage with DCR of 0.05 (producers), 0.75 (processors) and 0.15 (marketers). The PAM analysis results indicated that given the most recent technologies, cost of inputs and outputs prices and the predominant policies, cassava farmers, HQCF processors and HQCF marketers all had comparative edges and competitive advantage in the production of cassava, HQCF production and HQCF marketing. Sensitivity analysis for cassava production, HQCF processing and HQCF marketing showed that a 10% increase among the actors in the value chain improved production, productivity and comparative and competitive advantage in the study region.

**Keywords:** Competitive and comparative advantage, HQCF actors, policy analysis matrix, value Chain.

## INTRODUCTION

Globally, cassava production was approximately 333.7 million metric tons in 2023. Nigeria and the Democratic Republic of the Congo account for over half of global cassava production, followed by Thailand, Ghana and Brazil at 62.7 million tons, 45.2 million tons, 30.6 million tons, 26.5 million tons and 18.5 million tons, respectively (FAOSTAT, 2025). Nigeria's cassava production is done primarily by smallholder farmers, who cultivate less than 2 hectares in scattered parcels, with a mean yield of 11 metric tons per hectare. This statistic is considered extremely low compared to what is obtainable under the

best agronomic practices (FAOSTAT, 2025). The dilemma faced by the above is how Nigeria, as the largest global producer of cassava, can raise the average yield per hectare and also be a major partaker of the market share (Adefisayo *et al.*, 2022). Different governmental policies for the development of agriculture have been set in motion and, more recently, targeting the cassava root sector, specifically, the federal government intervention on the Agenda for Cassava and Agricultural Transformation (ATA). The key goal of the development of cassava in the Transformation Agenda was to make Nigeria the largest

cassava processor. The goal of this transformation plan is to establish a younger breed of cassava farmers, concentrating on industrial expansion and agriculture as an enterprise.

The new Federal Program for Agricultural Promotion Policy (APP) focuses on addressing key issues at the heart of restricted food production and quality standards delivery. Export markets would also benefit from a positive and efficient balance of payments as domestic productivity rises and food production standards rise. The goal of the APP policy is to close the gap by working closely with private investors across all farming groups and businesses to build end-to-end solutions in the value chain. Nigeria is experiencing rapid growth in noodle production, shown by the establishment of noodle facilities by virtually all flour mills in the country, according to Elemo (2013). According to (Adefisayo *et al.*, 2022) the value chain of cassava flour indicates that cassava is still a subsistent/semi-commercial crop with little to no substantial market share for manufactured products. The additional uses of cassava in its value-added form, such as the HQCF, are believed to be central to the growth of the marketing sector and hence the expansion of the market and price stability of cassava farmers, in addition to contributing to the job development strategy that has targeted over a million direct and indirect jobs in the sector (Adeshina, 2014). Without the vertical integration of smallholder cassava farmers into the markets through small-scale processing and the implementation of new marketing strategies, this will, of course, not be possible. However, scaling the current operations from small to medium and large scales will entail commercialising the industry. The possibilities are largely focused on consistent government policies supporting the use of secondary products as well as addressing the unique needs of smallholder farmers and their products' ultimate consumers, taking into account the specific quantity and quality criteria that smallholders have difficulties achieving for many reasons, resulting in the adoption of the value chain approach (Ogbe *et al.*, 2011).

High-quality cassava flour (HQCF) is a refined product made from dewatered cassava that has been pulverised and filtered to produce a finer flour that can pass through a 0.25 mm sifter. HQCF is typically greater than ninety per cent starch, although it is not pure starch since it contains grain, traces of protein, and fat (Adefisayo *et al.*, 2022). Quite a few comparative indices appear to place Nigeria as a potential leader of cassava production. Firstly, cassava is grown in all agro-ecological areas of Nigeria, and secondly, cassava is a major staple crop in Nigeria. HQCF has multiple food and commercial uses and provides smallholder farmers and processors with the ability to venture into the supply and processing of raw materials. Potential economic benefits include substitution for imports, job formation, growth in transportation and manufacturing industries, and higher revenues for small-scale cassava farmers (Adefisayo *et al.*, 2022). Despite being the largest global producer, value-added cassava

products from Nigeria are rarely seen in international trade (Adefisayo *et al.*, 2022). Between 2011 and 2018, the global cassava processing industry was a significant market with the magnitude estimated at 324.45 million tons in 2024 and expected to grow to 372.84 million tons by 2034 at a Compound Annual Growth Rate (CAGR) of 1.4%. The market is driven by ever-increasing demand for cassava-based products, particularly in the food and beverage industry and the growing use of cassava in biofuel and industrial applications. In Nigeria, most of the cassava produced is consumed by humans; barely 10 per cent of cassava is currently processed into flour, sweeteners and industrial goods, unlike Brazil, where 85 per cent of cassava goes to manufacturers, and 95 per cent in Thailand (FAOSTAT, 2025). In view of the above, the question is how Nigeria can emerge as the largest global producer of cassava as one of the globe's foremost export markets of value-added cassava, especially HQCF. Given the current state of production, there is a need to increase the potential economic benefits of HQCF. This paper is therefore set to determine the competitive and comparative advantage of actors in the production of HQCF in South-western Nigeria, specifically examining the competitive advantage of HQCF actors in the production of cassava, processing HQCF and marketing of HQCF, also to examine the comparative advantage in the production of cassava, processing and marketing of high-quality cassava flour. In addition to the above, to examine the impact of policy interventions on the value chain of high-quality cassava flour in the study area.

## MATERIALS AND METHODS

The study was conducted in the six south-western states of Nigeria: Oyo, Osun, Ogun, Ondo, Lagos, and Ekiti. Located at a latitude of 6° north and 4° south and longitudes of 40° west and 60° east, the southwest of Nigeria holds many of the largest cassava-producing regions, as well as most cassava processing companies that manufacture HQCF. Both primary and secondary data were used in the analyses. The primary data, produced from cassava producers, HQCF processors (flour millers), and HQCF marketers, were collected using a structured and concise questionnaire, and collated information such as yields, input parameters, market prices for both inputs and outputs, transport costs, and costs associated with storage.

In the study, cassava farmers were chosen using a multistage sampling method. The first stage involved the selection of Oyo and Osun, two principal producers of cassava in South-West Nigeria. The second stage involved a random selection of four out of thirty-three local government areas (LGAs) from Oyo state and 30 LGAs (plus an area office) in Osun state. In the third stage, four villages/communities from each LGA were chosen at random. Finally, 10 cassava farmers were randomly

**Table 1.** Policy analysis matrix table.

Item	Revenues	Cost of tradable inputs	Domestic factors	Profits
Private prices	$A=Y_i^P P_i^P$	$B=\sum_{ij} P_j^P$	$C= \sum_{ik} P_k^P$	$D=A-B-C$
Social prices	$E=Y_i^S P_i^S$	$F=\sum_{ij} P_j^S$	$G= \sum_{ik} P_k^S$	$H=E-F-G$
Effects of policy and other divergences	$I=A-E$	$J=B-F$	$K=C-G$	$L=D-H=I-J-K$

selected from each village for a total of 320 cassava farmers. A mapping survey for all the areas of production, marketing, and processing of HQCF in the area was done, and the total number of available HQCF processors (18) was utilised. The list of marketers was provided by the HQCF processors/millers association in southwest Nigeria. The study focused on the three important relevant actors in the HQCF value chain using a final total of 381 responses (311 cassava producers, 18 processors and 26 marketers).

The socio-demographic, environmental, and institutional attributes of cassava farmers, HQCF processors, and HQCF marketers were defined using descriptive statistics, including frequency tables, means, and percentages. Policy analysis matrix techniques used to assess the competitive and comparative advantage of actors in the production of HQCF included Private profits, Private Benefit-Cost Ratio (PBCR), and Private Cost-benefit Ratio, where Social Profits (H), Domestic Resource Cost (DRC), Social Cost-Benefit Ratio (SCBR), and Social Benefit-Cost Ratio in Table 1 were used to assess the competitive and comparative advantage of actors in the production of HQCF.

## RESULTS AND DISCUSSIONS

### Socio-economic characteristics of the actors

As shown in Table 2, the median age of Cassava farmers was 49 years. About 17.36% of the farmers were younger than the average age of 49 years, while 33.44 percent of the cassava farmers were older. Only 2.57% of cassava farmers were under the age of 30, while the majority (63.99%) were between the ages of 30 and 50. These findings were consistent with those of Odetunmbi *et al.* (2017) and Adefisayo *et al.* (2022), who found that cassava farmers were mainly between the ages of 36 and 56, with a median age of cassava-producing farmers in Delta state of 42 years, showing that a significant proportion of them were of the working-age population. Akerele *et al.* (2019) found the median age of HQCF processors to be 48 years and the median age of marketers to be 44 years. Processors between the ages of 41 and 50 were found to be more interested in the establishment of HQCF processing businesses, possibly due to the high financial investment needed to start the HQCF enterprise. The majority of the HQCF processors were between the ages of 45 and 54, according to Adefisayo *et al.* (2022) and

Adejo *et al.* (2020).

Male farmers, processors and marketers accounted for 78.14, 96.15, and 70.45% of the research pool, respectively. The majority of HQCF processors (96.15%) were also male, while 3.85% were female (Table 3). This is likely due to the fact that male processors are more able to endure the rigorous demands of system operation, maintenance, and personnel management. They could also take more financial risks than their female counterparts (Adefisayo *et al.*, 2022).

Table 4 shows that the average household size for cassava producers was 7, for HQCF processors, 6, and for HQCF marketers, 7. Large household sizes are known to be a source of farm and off-farm income-generating activities (Enimu *et al.*, 2016; Adefisayo *et al.*, 2022). However, it is worth noting that large household sizes do not necessarily lead to improved efficiency, as family labour may consist predominantly of school-aged children who are often more occupied by school. The marketers' household size ranged from 4 to 6 family members, as did the household size of the HQCF processors. The median family size for the actors in the HQCF value chain was as follows: cassava producers; 6.91, HQCF processors; 5.26, HQCF marketers, 7.08.

Surveying the actors' educational level showed that 58.20% of the cassava producers had some form of formal schooling, implying that the implementation of new cassava farming technologies is relatively easy (Table 5). Higher education appears to enable HQCF processing, as 100% of HQCF processors were trained and 59.05% were educated. The necessity for this is demonstrated by the processors' ability to make well-informed decisions. This result demonstrates the value of education to stakeholders who have recognised the many benefits and advantages it provides. This result corroborates Ayoola and Ayoola (2016), Ogboji (2016), and Adefisayo *et al.* (2022) findings that HQCF processors were taught. Education is likely to affect processors' ability to implement advanced processing technology and, as a result, increase productivity and performance. Farmers and HQCF processors with a high literacy level would be able to understand production methods and new technology adoptions. The years of experience have an effect on the managers' skills and productivity in carrying out their processing tasks, as per Ayoola and Ayoola (2016) and Adefisayo *et al.* (2022).

According to Table 6, 23% of farmers had more than 20 years of farming experience, while 19.23% of processors had more than 8 years of processing experience, which

**Table 2.** Age distribution of actors in the HQCF value chain.

Age	Cassava producers (n=311)		HQCF Processors/millers (n=18)		HQCF Marketers (n=26)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
≤30	8	2.5	0	0	1	3.85
31-40	46	14.79	2	11.11	4	15.38
41-50	153	49.2	11	61.12	14	53.85
51-60	66	21.22	1	5.55	3	11.54
>60	38	12.22	4	22.22	4	15.38
Mean	48.29		47.61		44.12	
Standard dev.	8.46		8.08		6.79	

**Table 3.** Gender distribution among the actors in the HQCF value chain.

Gender	Cassava producers (n=311)		HQCF Processors/millers(n=18)		HQCF Marketers (n=26)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	243	78.14	14	77.77	18	69.24
Female	68	21.86	4	22.23	8	30.76

**Table 4.** Household size distribution among the actors in the HQCF value chain.

Household size	Cassava producers (n=311)		HQCF Processors/millers(n=18)		HQCF Marketers (n=26)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
3-Jan	3	0.96	0	0	0	0
6-Apr	139	44.7	15	83.33	13	50
7-above	169	54.34	3	16.67	13	50
Mean	6.91		5.26		7.08	
Standard dev.	2.15		1.03		2.47	

**Table 5.** Educational years among the actors in the HQCF value chain.

Years of education	Cassava producers (n=311)		HQCF Processors/millers (n=18)		HQCF Marketers (n=26)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0	5	0		0	0	0
6	14	4.5		0	0	2
9	112	36.01		0	0	21
12	4	1.29		0	0	0
15a	156	50.16		18	100	3
Mean	9.31			15		
Standard dev.	3.59			0.84		

lends to implications about the managers' skill and productivity in carrying out their processing tasks (Adefisayo *et al.*, 2022). The majority of the marketers (72.73%) have more than ten years of experience.

The average farm size of 2.78 hectares surveyed showed that a huge proportion of the cultivated farm was less than 3 ha. The average volume of HQCF processed was 34.88 tons, and the average volume of HQCF marketed was 2.85 tons (Table 7). Furthermore, more than

90% of cassava production was shown to take place on subsistence farms that usually grow 0.5 ha of cassava (Akerlele *et al.*, 2019; Adefisayo *et al.*, 2022).

### Competitive advantage in HQCF value chain

The competitiveness in production of cassava in the study area, as reported in Table 8, cassava farmers made a

**Table 6.** Years of experience among the actors in the HQCF value chain.

Years of experience	Cassava producers (n=311)		HQCF Processors/millers (n=18)		HQCF Marketers (n=26)		
	Frequency	Percentage	Years of existence	Frequency	Percentage	Frequency	Percentage
≤10	45	14.47	≤5	13	72.22	5	19.23
20-Nov	143	45.98	10-Jun	5	27.78	1	3.84
21-3	60	19.29	15-Nov	0	0	5	19.23
31-40	31	9.29	>15	0	0	15	57.70
>41	32	10.29					
Mean	21.73			8.44		10	
Standard dev.	10.81			2.11		1.38	

**Table 7.** Farm/Firm size among the actors in the HQCF value chain.

Farm size	Cassava producers (n=311)		HQCF Processors/millers (n=18)		HQCF Marketers (n=26)		
	Frequency	Percentage	Firm size/output	Frequency	Percentage	Frequency	Percentage
≤3	107	34.41	≤30kg	0	0	0	0
5-Mar	80	25.72	≤200kg	13	72.22	0	0
8-Jun	72	23.15	≤1ton	3	16.66	10	38.46
10-Aug	30	9.64	≤5ton	2	11.12	4	15.39
>10	22	7.07	>5ton	0	0	12	46.15
Mean	2.78		34.88ton			2.85 ton	
Standard dev.	2.82		0.66			2.58	

**Table 8.** PAM results for competitiveness of cassava production/ha/year

Parameter	Revenue (₦)	Cost (₦)		Private Profits (₦)	Private cost ratio (PCR)
		Tradable input cost	Domestic factor cost		
Social prices	919962.71	29950.81	40650.20	849361.67	0.107

**Table 9.** PAM results for competitiveness of HQCF production/ton/year

Parameter	Revenue (₦)	Cost (₦)		Private Profits (₦)	Private cost ratio (PCR)
		Tradable input cost	Domestic factor cost		
Social prices	3,610,000	716,920.02	2,195,249.98	697,830.	0.029

private profit of ₦849,361.67 per hectare, with a private cost ratio (PCR) of 0.17. The outcome revealed that Cassava farmers made a profit. At market rates, private profits are an indicator of investment competitiveness. This meant that, given current technology, input and output costs, and policies, Cassava production was competitive. Furthermore, cassava farmers made financial progress and can grow cassava without government assistance. The results were consistent with those of Adesiyani *et al.* (2018) and Adefisayo *et al.* (2022), who found that cassava farmers had positive private benefits, indicating that farmers earn returns on their investments.

The competitiveness of HQCF output in the study area,

with private profitability of HQCF at ₦697,830 per ton and a private cost ratio (PCR) of 0.29, less than one, as shown in Table 9. The outcome showed that HQCF processors' private profits were positive. This meant that, given current technology, input and output costs, and current policies, HQCF production was competitive. In addition, the HQCF processors were making money and could export HQCF without government assistance. The results were consistent with those of Ogboji (2016) and Adefisayo *et al.* (2022), who found that processors received a higher return with positive private benefit in their research.

Competitiveness of marketing of HQCF in the study area, as shown in Table 10, indicated that HQCF marketers'

**Table 10.** PAM results for competitiveness of marketing of HQCF /ton/year.

Parameter	Revenue (₦)	Cost (₦)		Private Profits (₦)	Private cost ratio (PCR)
		Tradable input cost	Domestic factor cost		
Social prices	57724.10	563327.60	26146.62	8249.88	0.393

**Table 11.** PAM results for comparative advantage in cassava production/ha/year.

Parameter	Revenue (₦)	Cost (₦)		Social Profits (₦)	Domestic Resource cost
		Tradable input cost	Domestic factor cost		
Social prices	1029982.91	39974.96	44764.30	945,243.65	0.045

**Table 12.** PAM results for comparative advantage of HQCF production /tonne/year.

Parameter	Revenue (₦)	Cost (₦)		Social Profits (₦)	Domestic Resource cost
		Tradable input cost	Domestic factor cost		
Social prices	3,902,625	818,031.02	2,302,259.98	782,334	0.746

**Table 13.** PAM results for comparative advantage of HQCF marketing/tonne,

Parameter	Revenue	Cost (₦)		Social Profits (₦)	Domestic Resource Cost
		Tradable input cost	Domestic factor cost		
Social prices	898823.20	654538.70	37356.82	206,927.68	0.153

private profitability was a positive, ₦8,249.88 per ton and a private cost ratio (PCR) of 0.39, which was lower than one. The findings revealed that the HQCF marketers' private profits were positive, supporting Adefisayo *et al.* (2022). assertion that HQCF marketers are earning returns, implying that potential expansion is assured. Given current technology, input and output costs, and current policies, this meant that HQCF marketing was competitive. In addition, the HQCF marketers made a profit and were able to recoup the costs of domestic factors and sustain production while still being competitive.

### Comparative advantage in HQCF value chain

Producing cassava in the study area had a social profitability of ₦945,243.65, which was positive, implying that farmers producing cassava in the study area had a comparative edge in the cultivation of cassava, which was further validated by domestic resource cost (DRC) 0.045, which is less than one, Table 11. The results were in consonance with those of Adesiyani *et al.* (2018) and Adefisayo *et al.* (2022), whose results admitted that cassava production had a comparative advantage.

The social profitability of HQCF processors (Table 12)

was ₦782,334 and positive, implying that HQCF processors have a competitive advantage in the output of HQCF, which is further supported by the domestic resource cost (DRC) of 0.746, which is less than one. The social positive value was very high, implying that encouraging the development of HQCF would aid economic growth. Adefisayo *et al.* (2022) found similar results.

HQCF marketers had a social profitability of ₦206,927.68, which was positive, further confirmed by domestic resource cost (DRC) 0.153, which was below one, as revealed in Table 13, which implied that the HQCF marketers have a comparative advantage in marketing of HQCF, also in line with the findings of Adefisayo *et al.* (2022) that the positive social profit of HQCF marketers indicated that HQCF marketing stage of the value chain had a comparative advantage.

### Sensitivity analysis

PAM is a fixed model that does not consider amendments in policy specifications or productive capacity (Akter *et al.*, 2003). Sensitivity analysis determines how different values of an independent variable affect a particular dependent variable under a given set of assumptions. Following

**Table 14.** Sensitivity analysis for cassava producers in the HQCF value chain.

Parameters	Base value	increasing cassava output by 10%	decreasing cassava output by 10%	increasing exchange rate by 10%	decreasing exchange rate by 10%
PCR	0.107	0.036	0.056	0.046	0.046
DRC	0.045	0.044	0.047	0.044	0.046
SCBR	12.154	12.150	12.156	12.151	12.154
NPCO	0.0893	0.893	0.893	0.890	0.896
NPCI	0.749	0.749	0.749	0.744	0.740
EPC	0.898	0.900	0.890	0.877	1.000
SRP	-0.093	-0.093	-0.094	-0.095	-0.090

**Table 15.** Sensitivity analysis for HQCF processors in the value chain.

Parameters	Base value	Increasing the HQCF output by 10%	decreasing HQCF output by 10%	Increasing tariff on HQCF by 10%	decreasing tariff on HQCF by 10%
PCR	0.029	0.018	0.032	0.029	0.029
DRC	0.746	0.714	0.794	0.749	0.754
SCBR	1.250	1.232	1.322	1.209	1.350
NPCO	0.925	0.925	0.925	0.907	0.918
NPCI	0.876	0.876	0.876	0.775	0.970
EPC	0.937	1.036	0.927	0.930	1.043
SRP	-0.021	-0.021	-0.031	-0.061	-0.001

Adeoye et al. (2013), Oluyole (2017) and Adefisayo *et al.* (2022), the sensitivity analysis was carried out under the following scenarios:

1. changes in farm level yield (production) by  $\pm 10\%$ ;  $\pm 20\%$ ;  $\pm 40\%$
2. changes in exchange rates by  $\pm 10\%$ ;  $\pm 20\%$ ;  $\pm 40\%$
3. changes in tariff rates by  $\pm 10\%$ ;  $\pm 20\%$ ;  $\pm 40\%$

The scenarios were chosen based on the information on yield price, exchange rate and tariff rates as observed by the National Bureau of Statistics, Nigeria Ports Authority and Agricultural Development Project in the Southwest Zone.

### Sensitivity analysis for cassava production, HQCF production and HQCF marketing

Sensitivity evaluations were performed at a 10% level to appraise the after-effect of changes in demand, rate of exchange, competitiveness, and policy indicators. Table 14 shows the effects of sensitivity analyses. According to the table, a 10% increase in cassava performance improved the study area's productivity and comparative advantage in cassava development. The PCR, DRC, and SCBR ratios all suggested this. While a 10% raise in the exchange rate was ineffective on the PCR, it did boost the rating of cassava production's comparative advantage, as indicated by the DRC and SCBR ratios.

At a 10% change in production, sensitivity analyses were performed to examine the impact of adjustments in tariffs on competitiveness and policy indicators. The comparative advantage of processing cassava into HQCF was sensitive to the performance of the HQCF processors, according to sensitivity analyses from Table 15. By increasing HQCF production by 10%, the productivity and comparative advantage of processing cassava into HQCF will increase (Adefisayo et al., 2022). The PCR value decreased from 0.211 to 0.162, the DRC value decreased from 0.162 to 0.130, and the SCBR ratio decreased from 3.338 to 3.320, indicating this. The PCR value increased from 0.211 to 0.320; the DRC value increased from 0.162 to 0.210; and the SCBR value increased from 3.338 to 3.410, indicating that reducing the HQCF production by 10% reduced the productivity and comparative advantage of processing cassava into HQCF (Adefisayo et al. (2022)). The DRC and SCBR ratios increased from 0.162 to 0.165 and decreased from 3.338 to 3.271, respectively, as a 10% rise in tariff has no major impact on the PCR value, but it increases the competitive advantage of HQCF. The PCR was unaffected by a ten per cent reduction in tariffs (Adefisayo et al., 2022).

Sensitivity tests on production and tariff adjustments on competitiveness and policy indicators were conducted at a 10% level to analyse the effect of transition. Changes in marketing production and tariff on HQCF affect the competitiveness and the comparative advantage of HQCF marketing around the study, according to the sensitivity analyses results from Table 16. The HQCF marketers'

**Table16.** Sensitivity analysis for HQCF marketers.

Parameters	Base value	Increasing HQCF output by 10%	Decreasing HQCF output by 10%	Increasing tariff on HQCF by 10%	Decreasing tariff on HQCF by 10%
PCR	0.393	0.363	0.453	0.393	0.393
DRC	0.153	0.143	0.153	0.143	0.163
SCBR	1.299	1.099	1.299	0.199	1.099
NPCO	0.064	0.064	0.044	0.044	0.114
NPCI	0.861	0.861	0.861	0.841	0.859
EPC	0.069	0.079	0.019	0.066	0.074
SRP	-0.221	-0.221	-0.251	-0.281	-0.211

competitiveness was boosted by a 10% rise in marketing performance. A 10% tariff rise on HQCF had little effect on PCR, but it did boost the competitive advantage of HQCF marketers (Adefisayo et al., 2022). Furthermore, a 10% tariff cut on HQCF was ineffective on the PCR, but increased the competitive edge/advantage of HQCF marketers.

## Conclusion

The PAM analysis results indicated that, given the most recent technologies, cost of inputs and outputs prices and the predominant policies, cassava farmers had a private profit of ₦849361.67/ha, which was positive; also, the private cost ratio (PCR), an indicator for competitiveness, was 0.107, less than one, which implied that cassava production is competitive. The competitive indicators for the HQCF processors and HQCF marketers were positive and less than one with respect to the private profits (₦43833057.99 per ton, ₦8249.88 per ton) and private cost ratio (PCR), (0.029,0.0393,), respectively. Positive social profit is one of the PAM comparative advantage indicators, which revealed that the cassava farmers, HQCF processors and HQCF marketers all had a comparative edge in the production of cassava, HQCF production and HQCF marketing with the social values at (₦ 945,243.65, ₦782,334, ₦206,927.68) respectively.

## COMPETING INTEREST

This author declares they have no competing interests.

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