

Structure, Conduct and Performance of Rice Marketing in Ndop, North West Region Cameroon

Ngwogeh Valery^{1*}, Ojuku Tiafack¹, Enchaw Gabriel, Ndi Roland¹, Robinson Tieminie¹, Tufoin Kilian¹

¹Department of Geography, University of Yaoundé 1, Cameroon

DOI: [10.36348/sjhss.2022.v07i10.002](https://doi.org/10.36348/sjhss.2022.v07i10.002)

| Received: 15.09.2022 | Accepted: 19.10.2022 | Published: 26.10.2022

*Corresponding author: Ngwogeh Valery

Department of Geography, University of Yaoundé 1, Cameroon

Abstract

The notion of ensuring food for all through rice production in Cameroon dates back to 1954 with the creation of SEMRY (Société d'Expansion et de Modernisation de la Riziculture de Yaoundé). Consequently, rice production in Cameroon was left at the mercy of untrained farmers with limited or no access to input and technology. This study examines the effect of market structure and conduct on the performance of Ndop rice marketing. The research interviewed a total of 50 respondents (19 farmers-traders, 12 millers, 9 wholesalers and 10 retailers) who were selected randomly. The data was analyzed with the use of statistical package for the social sciences (SPSS) version 16.0 and Excel while the Weighted Least Squares regression technique was employed for the estimation of coefficients and test of hypothesis. Performance of the Ndop marketing was captured in a broad dimension which included aspects of product quality and product efficiency, market structure was captured by product homogeneity, entry and exit and market growth rate, while market conduct was captured by the marketing strategy, price strategy and product strategy. Result of the findings revealed that market structure and conduct positively and significantly influences the performance of the Ndop rice marketing. Effort should be directed towards improving the quality and quantity of local rice for it to compete with imported counterpart. This can be achieved by subsidizing cost of milling and monitoring the processing and packaging of locally produced rice at every stage in the marketing chain. The improvement of farm to market roads, the varieties of seeds as well as subsidizing the production process will go a long way to improve market performance.

Keywords: structure, conduct, performance, rice, and marketing.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

Agriculture remains the backbone of development for most developing countries and typically, is the largest source of employment; often two-thirds of the population and more are dependent on it for livelihood enhancement (Warren and Stokes 1998) cited by Kizito, (2008). Rice being the second largest consumed cereal (after wheat) shapes the lives of millions of people; more than half the world's population depends on rice for about 80 percent of its food calorie requirements (Marion and Mueller, 1979). Rice has been a good partner to mankind. The adaptations in terms of ecological, economic and

technological changes around rice facilitated this "partnership between man and rice" (Braun, 2006). The demand for rice in Sub-Saharan Africa in general and Cameroon in particular is growing faster than that for any other grain (Dawe, 2002). It grows at an annual rate of about 5% and national production is estimated at 100,000 tons of paddy, grown on about 44,000 hectares (Warda, 2006 and Molua, 2010). In 2011, imports stood at 429,864 tons, which is over 90% of national consumption even though the huge potential for domestic production is largely unexploited (MINADER 2005). World Rice Research Conference, 2004 revealed that the most important challenge to rice production is

the decline in price. David and Slayton, 2004 found that world rice prices were 77% lower than the average from 1950-1981. The main factors behind this decline in prices were the Green Revolution, which led to an increase in yield, thereby lowering the unit of production cost (Hyunsoo *et al.*, 2009). The world rice market continues to be regarded as distorted, thin and volatile. These characteristics influence domestic pricing and production policies in Ndop (Francis, 2020). In the traditional structure, conduct and performance (SCP) pattern, the market organizations affect market performance through various channels. Exporting countries' concentration, market structure includes product differentiation, barriers to exit, fixed cost and growth rate (Delorme, 2002). Analyzing market conduct involves the price, collusion and advertising. Market performance is also concerned with a normative evaluation of the results for market conduct (Caves, 2003). Improving marketing facilities for agricultural crops in general and rice sector in particular enable farmers to plan their production more in line with market demand, to schedule their harvests at the most profitable times, to decide which markets to send their produce to and negotiate on the best possible price with traders (Dawit, 2005 cited by Astewel, 2010). Proper rice marketing system is essential to increase production and market efficiency. Generally, in the Cameroon rice market, Ndop rice is less competitive when faced with competition from imported rice especially that imported from India and Vietnam whose higher quality attracts consumers to the extent that rice dealers prefer dealing with imported rice despite its higher cost. This is because the consumer market prices are high enough to give them profits higher by up to 1250 francs per 50-kilogram bag when compared to Ndop rice deals.

2. METHODOLOGY

The two main sources of data acquisition used

in this study includes; primary and secondary sources. Primary data was obtained through interviews, observations and questionnaires whereas, secondary data were gotten from published document like peer review journals, text books, articles and unpublished dissertation and thesis. The research took cognizance of

the descriptive nature of the study and applied it for the completion of the project. The sample population was 40 farmer-traders, 24 millers, 30 wholesalers and 20 retailers of Bamunka in Ndop. In determining the sample size, 19 farmer-traders, 12 millers, 9 wholesalers and 10 retailers were selected at random which command administered questionnaires and interviewed. The final sample size was 50 in Ndop. The method of data analysis was represented by means of charts and tables. The questionnaires were divided into sections according to the objective of the study which was to test the market structure and performance of Ndop rice. In terms of market performance, the quality of products, quantity and efficiency was examined in different firms and were used to investigate the problems faced by different firms in the marketing of Ndop rice. Frequencies for each question per view of the 50 rice marketing chain actors were calculated. The model was estimated using the least squares regression analysis. The frequencies of the data were later input in excel and presented in the form of tables and bar charts.

2.1 Scope of the Study

The study was carried out in Ndop, Ngoketunjia division in the North West region of Cameroon (figure 1). Ndop Sub-Division is one of the three Sub-division in Ngoketunjia Division. It was created by Decree N0 92/187 of 01/09/1992 as one of the youngest Sub-divisions within the Ngoketunjia Division. It lies between longitude 10° 15' and 10° 50' East of the Greenwich meridian and latitude 05° 15' and 6° 11' North of the Equator (figure 1 spatial layout of

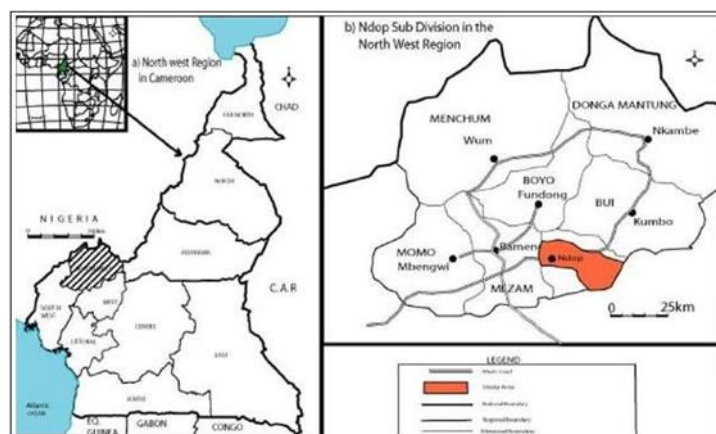


Figure 1: location of the study area

Source: National Institute of Cartography, fieldwork, 2022

the study area). It is located between the Bamenda mountains and the Oku Massif (part of the Cameroon volcanic line (Francis, 2020), and bordered to the west by the eastern escarpment (Sabga), to the south by Balikumbat Sub-division, to the east by Baba SubDivision and to the north by Bui division. This geographic space provides natural endowments which

about 26°C with average maximum daily temperature of 27.22°C and minimum average of between 11°C and 14°C which fluctuates rapidly than the maximum (Antu, *et al.*, 2016). Inter annual average rainfall varies between 1524mm and 1770mm and the rainy season topography lends itself into the predominance of extensive wetlands which have favored intensive rice cultivation. The north

lasts for 78 months. The gentle sloping nature of the

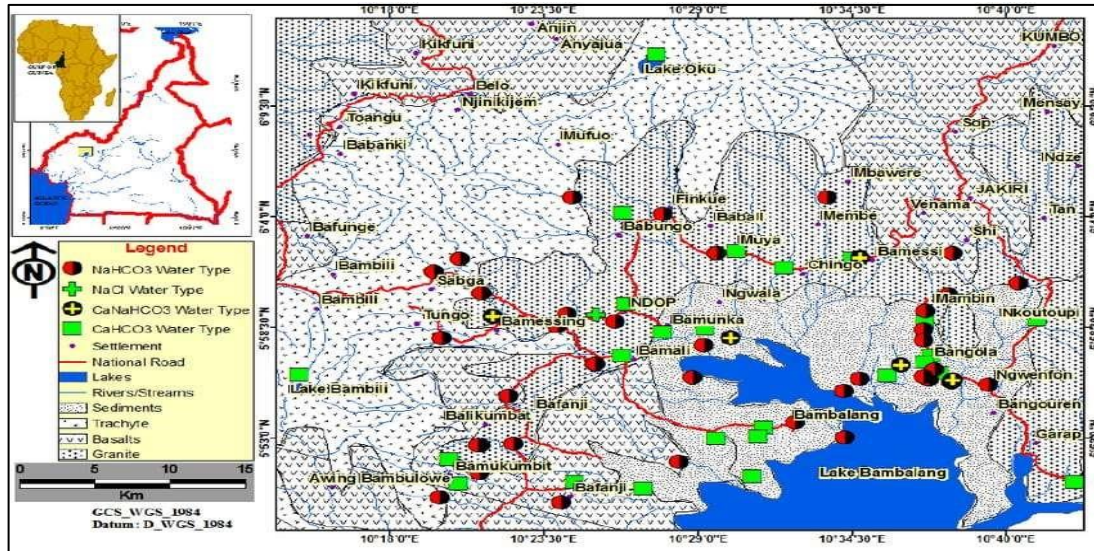


Figure 2: spatial lay out of study area
Source: National Institute of Cartography, fieldwork, 2022

favor agricultural activities which is the back-born of its economy. The Sub-Division has a surface area of about 434.5KM². According to the 2010 population and household census, its population stood at 30,467 inhabitants.

This Sub-division is made up of rice agro-ecological zones which are; Bambalang, Bamali and Bamessing. This area has an average temperature of

Rice production in Ndotp is managed by the Upper Nun Valley Development Authority (UNVDA) which is a development corporation created in 1970 as a mission by Presidential Decree No 70/DF/529 of October 29, 1970 which was later transformed into a development authority by another Presidential Decree No 78/157 of May 11, 1978. Its present statutory area of intervention touches five Divisions of the North West and West Regions of Cameroon, namely: Mezam, Ngoketunjia and Bui in the North West, and Noun and Bamoutos in the West Regions. The Presidential Decree No. 78/157 of May 11, 1978 gives UNVDA the mandate to handle the development of the agricultural sector in the Upper Nun Valley and redefines its functions within the framework of direct intervention in rice production, processing and marketing. UNVDA equally gives technical and material support to the farmers.

and south combination of hills and mountain chain (photo 1) are separated by the Ndotp flood plain which is studded by numerous marshes or swamp into which a host of tributaries unite to form the main irrigation river into the rice field called the noun river downstream (Lambi, 1999).

spelt out in Article 4 of Decree No. 78/157 of May 11, 1978 is as follows: Acquisition, creation, administration, exploitation and development of all agricultural undertakings plus the transformation and packaging of their produce notably from crops like rice, soya beans and any raw produce in general including animal breeding produce. The creation management and development of hydro-agricultural and road projects on public land that would enhance agricultural expansion in the Upper Nun Valley i.e. to construct and maintain dams, dykes, polders and drainage systems, roads and other works needed for the achievement of the Corporation's objectives under this section Assist farmers and their groupings involved in cultivation whose production are susceptible to be collected conditioned and transformed within the Corporation's infrastructural network in the Upper Nun Valley.

The aim and objectives of the Corporation as

3. RESULTS AND DISCUSSION

The market structure of Ndop rice positively and significantly influences the performance of Ndop rice marketing. This result is in line with the studies of Duc, 2003 in Vietnam who asserted that the market structure of Ndop rice is characterized by homogenous products and therefore there is a high level of competition in the market. However, in the case of large scale millers/ polishers, important barriers to entry concern access to capital, an unstable output market and proper milling technology. In accordance with the results of Bime *et al.*, 2013 findings, the main actors in the rice marketing chain are farmer-traders, millers, wholesalers and retailers. Ndop rice market has all these stakeholders in the production and supply chain. The performance of Ndop rice marketing is influenced by market conduct. This finding is in conformity with the study of Cramer *et al.*, 1999, who concluded that conduct which refers to a number of specific actions taken by a firm, which include price taking, product differentiation, tacit collusion and exploitation of market power and that the performance of the firm can be measured from a number of indicators such as productive efficiency, allocative efficiency and profitability. Lipczynski *et al.*, 2013 provide some list of elements of business conduct that are influenced by the structure of the market that include: business objectives, pricing policies, product design, branding, advertising and marketing, research and development as well as collusion and merger. These elements influence the market conduct of rice in the Ndop municipality.

3.1 Physical Characteristics of the Study Site Conducive for Rice Farming

The soils of the study site are mostly lateritic, andosol or alluvial. These soils are hydromorphic, owing to the presence of clays which tend to hold water especially during floods. Upper Nun Valley is characterized by two major relief features; a mountainous sector with steep hills and flat plain. The flat relief opens to Lake Bamendjing (a dam lake) in the south. This area of study experiences a tropical monsoon climate of the Cameroon type. The area experiences two major seasons wet season for nine months and the short dry season of three months. During the wet season humid prevailing monsoon winds blow from west and lose their moisture upon hitting the regions lowlands. Average rainfall per year is about 854mm with average humidity of about 84% and U.V index of 6 which supports the growth of rice. Hawkins and Brunt (1965) described the climax vegetation of Ndop as lowland rain forest. Based on life form, they identified 46 tree species, 4 shrubs, 5 creepers and 4 grass species. The main derivatives observed in Bambilang and Bali at 1.260m above sea level were *Syzygium guineensis* tree savanna. Just as in Cameroon,

there is freedom of religious worship Ngoketunjia Ndop Division. Generally, the people practice Christianity. The main Christian denominations in the area include: Presbyterians, Roman Catholics, Baptists and Full Gospel. There are also Muslims, and traditionalists in the municipality.

3.2. Upper Nun Valley Development Authority (UNVDA) and Implication in Rice Farming

Since its creation, UNVDA has been placed under the supervisory authority of the Ministry of Agriculture and Rural Development. The Ministry of Agriculture and Rural Development is responsible for the general policy and supervision of the activities of the corporation through its board of directors. The board of directors approves the activities to be carried out by the corporation and execution is effected by management which is headed by the general manager as its chief executive. The total population of UNVDA's area of intervention stands at about 450,000 inhabitants and close to 90% of these are farmers. UNVDA presently works with about 13,000 rice farmers, within the framework of triennial plan for 2020-2022 and the target is to raise the size of this farmer population to at least 70,000.

3.3 Activities Aimed at Increasing Rice Production and Productivity

Seed Multiplication: tones of quality rice seeds are produced and distributed to farmers contact on yearly basis. UNVDA also carries out training of farmers on appropriate seed selection techniques and a good number are now producing good quality seeds for their own use and for distribution to other farmers. Agricultural extension: UNVDA assists farmers of the area in the use of improved farming techniques through the provision of extension services especially in the domain of rice cultivation. Our frontline extension workers live with the farmers and offer technical advice and equipment hiring to the farmers on daily basis. UNVDA equally assists in organizing rice farmers into Common Initiative Groups (CIGS), Unions and Federations. The result of this is the existence of 257 CIGs and economic interest groups of rice farmers in the Upper Nun Valley area. Participatory capacity building training programs in group dynamics and appropriate rice cultivation techniques are frequently being organized to meet the needs of farmers; from continuous diagnosis of farmers' problems through follow up, experience sharing and exchange visits. Inputs supply: UNVDA supports rice farmers with basic farm inputs like fertilizers and herbicides by prefinancing the acquisition and distribution of these inputs which most farmers pay back after paddy sales. Over the years, UNVDA has used its equipment pool to develop and maintain about 2532 hectares of paddy

fields, which are now being used by farmers for irrigated paddy production.

3.4 Activities Aimed at Facilitating the Processing and Marketing of Farmer’s Produce

Purchase of paddy: UNVDA provides the necessary facilities to ease the buying of paddy from farmers at the various collection centers and its eventual storage and transportation to the main store for processing. **Processing of paddy into finished rice products:** To maintain high quality standards in the rice sub-sector, UNVDA assists farmers by using its state-of-the-art hulling facility with a capacity of 3.5 tones to process paddy into finished rice products and by-products; and then facilitates its marketing within the country. The finished products are packaged in varying weight units of 50kg, 25kg, 10kg, 5kg, and 2kg. **Distribution and sale of finished products:** Supply centers or sales outlets are being created in the major cities within the country to facilitate the distribution and sale of the finished products which mainly include: white natural rice, parboiled rice, unpolished rice, broken rice and rice bran (<http://www.northwestcameroon.com/home-60-inner-141.htm>).

4. Market Structure of Ndop Rice

The distribution of the stakeholders with respect to their opinions regarding the homogeneity of

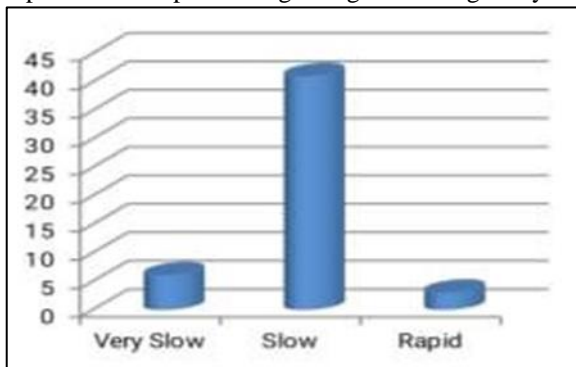


Fig 3: Market growth rate
Source: fieldwork, 2022

The distribution of the stakeholders with respect to their opinions regarding the growth of the market of Ndop rice shows that out of the 50 respondents sampled, a majority of 82% of them said the growth rate of the market is slow. This was as a result of increased demand for imported rice. This was closely followed by 12% for those who believed the growth rate of the market is very slow. A minority who constituted 6% of the total respondents said the growth rate is rapid due to the fact that they produce in large scale and export to external market.

4.2 Market growth rate

products shows that out of the 50 respondents sampled, a majority of 94% of them attested their products were homogenous while only 6% of them denied the homogeneity of their products. On this basis, we can therefore conclude that the products in the production and distribution chain of Ndop rice are homogenous as similarly stated by Deodha *et al.*, 1997. Respondents views regarding free entry and exit of Ndop rice in the market revealed that a majority respondent of 96% where of the opinion that there is free entry and exit of Ndop rice in the market while only 4% of them where against. In line with the above result, it was concluded that there is free entry and exit in the production and distribution chain of Ndop rice.

4.1 Product Differentiation

Field findings revealed that a majority of 82% respondents confirmed there is no product differentiation while only 18% of them where for the fact that there is product differentiation. Based on that result therefore, it is obvious that the products in the production and distribution chain of Ndop rice are not differentiated because the majority of the products are homogenous.

4.3 Market Conduct of Ndop Rice

Market expansion: Stakeholders in conformity with Kim *et al.*, 1997) findings asserted the use of different strategies such as; advertisement, price competition and market strategies to attract new customers. Ndop rice is produce naturally without the application of chemicals and so have no health risk on consumers. Prices are reduced in order to keep clients. Increasing quantity to attract buyers is equally market strategies that determine the market conduct of Ndop rice. With regard to price strategy used in maintaining customers, farmers indicated they use reduce cost of production and sales promotion strategies when the level of competition is high.

Product strategy: Ndop rice is a competitive agricultural produce which competes with imported rice from the developed world. In maintaining costumers, producers used market segmentation, change of brand, comparative positioning and differentiation strategies. Field informant (34%) confirmed to have opened new sale points in order to maximized profit. Another product strategy observed and confirmed by 30% respondents was the change of brand which makes the product attractive and desirable. Furthermore, 26% of the sampled population attested to the use of strategic sale points to increase benefit. They position their produce at road junction and at strategic position in the

market where it is easily noticed. A minority of 10% respondents diversified production in order to balance production cost in case of losses from one produce.

4.4 Market Performance

The nature of the market for Ndop rice is fluctuating based on the forces of demand and supply.

Result from field survey shows that out of the 50 respondents sampled, a majority of 56% asserted that the demand for Ndop rice exceeds supply in the market. In line with this result, the price of the products is therefore high which an indication that suppliers make

4.5 Rice Production Process

Ndop rice is produced in small-scale by peasants and in large scale with the used of machine. The production chain flows from producers, transformation and commercialization (Hanekom, 2008). Field survey revealed that transformed rice is the most demanded as compared to paddy, asserted respectively, 62% and 38% producers. Machines from the UNVDA are used in the production and transformation process while small-scale producers depend of manual labor. Generally, 60% of interviewees confirmed that the tools used in the production process are archaic and not performance. While 40% mostly

Table 1: Respondent’s opinion on lucrativeness of rice returns

Opinion on rice returns			
Sampled clusters	Profitable	Not lucrative	Uncertain
1	30	8	5
2	13	5	2
3	14	4	2
4	6	3	1
5	1	3	0
Total	64	23	10
%	65%	24%	10%

Source: Field work 2022

profit is. However, this assertion constitutes another challenge because as prices are high, demand reduces and farmers don’t sell much quantity. During seasons of good harvest, 28% respondent said supply exceeds demand in the market. In this period, much of the produce is consumed because it can be afforded by the majority due to drop in price. Nonetheless, 16% were of the opinion that the market always faces a situation of equilibrium, a situation in which competing influences are balanced, resulting in no net change. To understand costumers behavioral pattern, findings shows that 75% consumers are satisfied after the consumption of Ndop rice, giving reasons such as its natural quality and good taste. The 25% who expressed dissatisfaction with regard to the produce were those used to foreign rice and didn’t understand the specificities of Ndop rice regarding the way it is cooked and catered for.

Table 1 show that 65% of rice producers have had positive returns from their activity since it is their main source of income. Money raised from the sale of rice is used to sponsor their offspring and provide household needs which are assets for social welfare. Farmer’s food security need is equally assured thanks to rice farming. On the contrary, 24% of the farmers sampled were of the opinion that rice production is not profitable because of high cost of farm inputs, high pressure on farmers resulting from family dependence, and losses incurred due to climate change influences

personnel of the Upper-Noun Valley Development Authority attested to the used of modern tools in the production of rice.

4.6 Contributions of Ndop Rice to Socio-Economic Development

Ndop rice according to cultivars provides employment opportunity, revenue and food security to majority of unskilled laborers in and out of the study area. It is a source of improving social welfare and also is a source of raw material to stakeholders who transformed and processed to other by-products such as *fufu*. The surpluses raised from the sale of rice according to producers are saved in “*Njangi*” groups and part is used for miscellaneous expenditures. Table 1 illustrates farmer’s perception on rice returns on livelihood enhancement.

(prolong droughts, destruction of crops by wind and periodic floods). Capital inadequacy limits the increase in farm sizes, forcing farmers to cultivate limited field which minimizes the profitability margin of the sector in improving their standard of living. However, 10% of the sample population was uncertain about returns from rice farming and outcomes on their livelihood. Their uncertainty was justified with reasons such as that; they cultivated for family consumption and only a small proportion is sold. They sell only on the weekly market day and spend immediately without reserve.

4.7 Problems Faced

The challenges of agricultural activities limit its contribution to the socio-economic development of

stakeholders and adjacent communities. Rice farming in Ndop is not exempted from these difficulties which stemmed from natural to anthropogenic (figure 4).

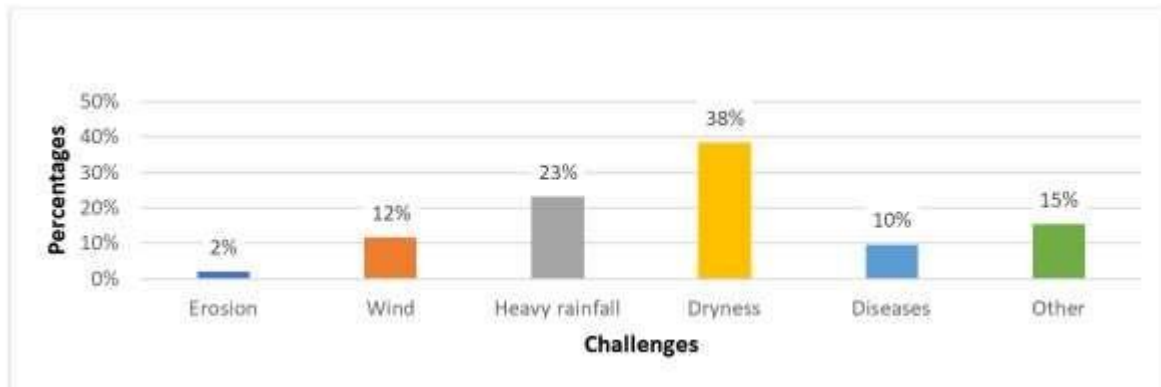


Figure 4: Respondent’s perception of challenges

Source: Field work, 2022

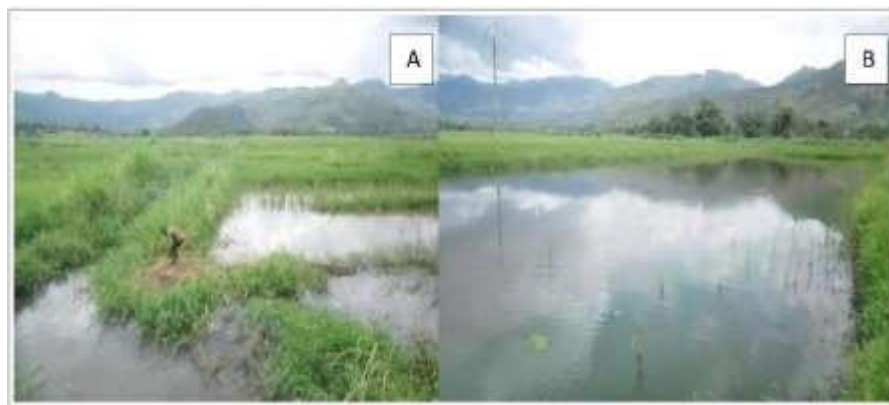


Photo 1: spatial view of Ndop rice field submerged under flood water

Source: photo by Antu, fieldwork 2022

Considering that most of the physical obstacles procreate from climate change adverse conditions, its effects are widely envisaged in the area. Figure 4 show that 38% of rice cultivars attested that prolong dryness was the major challenge faced while the least of the climate change challenges was erosion. Farmers revealed that climate is continuously changing and it is getting worse over time. There is a concern that rainfall amount has not necessarily changed in terms of annual amount but there is an observed gradual shift in rainy season amount to dry season and it has become more unreliable in terms of its onset, intensity and termination while temperatures have increased. Bad years are

Flooding consequently lead to the proliferation of weeds in the rice field which adversely affect yields. Coupled with the poor drainage (photo b) irrigation techniques, during occasional periods of heavy rain storms, river Noun and its main tributaries often overflow their banks there by uprooting the rice plants or tolerating weeds which compete with disease and

becoming frequent than before resulting in rice food shortages in the area. While this could also be due to other factors, trends of rainfall, temperature and dry spells and floods provide evidence that rain fed agriculture in the study area is vulnerable to the impact of climate variability (Antu *et al.*, 2016). Diseases such as *striga* parasite is at the root of yield lost. Amongst other human challenges affecting the rice sector in Ndop, respondents cited the lack of organization of sales channels, degraded rural roads, inadequate infrastructure, limited production ponds, illiteracy, lack of maintenance and inadequate capital.

dominate the swamps. Eventually, the rice farm is reduced, consequently affecting production. Occasional droughts which often lead to the drying of the rice swamps as well as the rain fed streams that irrigate the swamps dehydrate the plants, thereby reducing production (Parry M L, *et al.*, 1999).

Table 2: Summary of descriptive statistics

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
Performance	50	0.5134737	0.2601511	0	1
Structure	50	0.3246322	0.1767862	0	1
Conduct	50	0.5324741	0.3346438	0	1
Male	50	0.44	0.5014265	0	1
Age	50	2.82	0.9409071	1	4
Education	50	2.12	0.824126	1	4
Experience	50	2.54	1.181663	1	4

Source: Fieldwork, 2022

Table 2, gives a summary of the descriptive statistics of the variables used in the study indicating that all the variables have 50 observations which is statistically valid with some of the variable having minimum and maximum values of 0 and 1 respectively. The mean value of performance is 0.5134737 with a standard deviation of 0.2601511 meanwhile its minimum and maximum values are 0 and 1 respectively. This is an indication that the performance of the marketing of Ndop rice was relatively moderate during this period under study. The mean value of market structure is 0.3246322 with a standard deviation of 0.1767862 meanwhile its minimum and maximum values are 0 and 1 respectively. Furthermore, the mean value of market conduct stands at 0.5324741 with a standard deviation of 0.3346438, thus, an indication that the market conduct of Ndop rice was relatively stable as there is minimal deviation from the mean. The mean value of gender is 0.44 with maximum and minimum values of 1 and 0 respectively, implying that there were more males than females in the sampled population. Again, the mean value of age is 2.82 with minimum and maximum values of 1 and 0 respectively which shows that employees were mostly of age group 36-45years as the mean value is closer to 3. The results also revealed that the mean value of educational level is 2.12 with minimum and maximum values of 1 and 4 respectively indicating that most of the employees had ordinary level certificates. Finally, experience had a mean value of 2.54 with minimum and maximum values of 1 and 4 respectively with a standard deviation of 1.181663, which implies that majority of the sampled population, had experience due to their longevity in the field.

5. SUMMARY OF FINDINGS

The main objective of this study was to examine the effect of Ndop rice market structure and conduct on its Performance. To achieve this objective, a sample of 50 respondents comprising farmer-traders, millers, wholesalers and retailers was sampled. Structured questionnaires were used to interview the respondents on the structure, conduct and performance of the marketing of Ndop rice. The data was analyzed with the use of SPSS version 16.0 and Excel while the

Weighted Least Squares regression technique was employed for the estimation of coefficients and test of hypothesis. Findings revealed that the market structure of Ndop rice positively and significantly influences the performance of Ndop rice marketing. The results furthermore, revealed that the market conduct of Ndop rice also significantly influences the performance of Ndop rice marketing.

6. RECOMMENDATIONS

To the government through UNVDA; effort should be directed towards improving upon the quality and quantity of our local rice to compete with the imported counterpart. This can be achieved by subsidizing cost of milling and monitoring the processing and packaging of locally produced rice at every stage in the market chain. The study revealed problems associated with rice production, processing and marketing. Hence, effort should be directed towards the improvement of farm to market roads, the varieties of seeds as well as subsidize the production process as this will go a long way to improve market performance. To minimize cost, wholesalers are recommended to buy in bulk. To farmers and millers; production and processing respectively should be programmed in line with market demand that is being market oriented, to maximize profit.

CONCLUSION

Examining the effect of Ndop rice market structure and conduct on its performance, the performance of the Ndop marketing was captured in a broad dimension which included aspects of product quantity, product quality and product efficiency. Market structure was captured by product homogeneity, entry and exit and market growth rate while market conduct was captured by the marketing strategy, price strategy and product strategy. Furthermore, gender, age, level of education and longevity in service were brought in as a control variable. The results revealed that market structure and conduct positively and significantly influences the performance of Ndop rice marketing.

REFERENCES

- Abay, & Akalu. (2007). Vegetable market chain analysis in Amhara National Regional State: the case of Fogera woreda, South Gondar zone. 14p
- Antu, V. N., Nkwemoh, C. A., & Tchawa, P. (2016). The vulnerability of swamp rice production to the observed effect of rainfall and temperature variability in Ndop Sub-division, Cameroon. *Canadian Journal of Tropical Geography*, 3(2), 114.
- Astewel, T. (2010). Analysis of rice profitability and marketing chain: The case of Fogera Woreda, south Gonda zone, Amhara national regional state, Ethiopia.
- Bime, M. J., Mai, B. J. K., & Manu, I. (2013). Structure, conduct and performance of the rice market in North-West region of Cameroon: a descriptive Analysis.
- Braun, (2006). Profitability analysis of rice processing marketing chain in Kano State Nigeria. Calpe, Conception. *International trade in rice, recent developments and prospects*.
- Cramer, G. L., Hansen, J. M., & Wailes, E. J. (1999). Impact of rice tariffication on and the World Rice Market. *AJAE*, 81, 1149-1156. □
- David, D. T. S. (2004). Changing structure' conduct and performance of world rice market. A paper presented at FAO rice conference, Rome.
- Dawe, D. (2002). The Changing structure of the world rice market, 1950~2000. *Food Policy*, 27, 355-370.
- Dawe, D. (2002). The changing structure of the world rice market, 1950~2000. *Food Policy*, 27, 355-70.
- Dawit, A. (2005). The status and challenges of agricultural marketing in Ethiopia. PP.1 paper presented at a panel discussion organized by the Ethiopian Association of Agricultural professional (EAAP), Ethiopian agricultural research organization (EARO). of graduate studies of Haramaya University.
- Delorme, C. D., Klein, & Peter, G. (2006). Structure, conduct and performance: A simultaneous equations approach. *Applied Economics*, 35(10), 13-20.
- Deodha, S. Y., & Sheldon, I. M. (1997). Market power in the world market for Soymeal Exports. *Journal of Agricultural and Resource Economics*, 22, 78-86.
- Duc Hai, L. T. (2003). The Organization of the Liberalized Rice Market in Vietnam. PhD thesis presented to the University of Gronin.
- FAO. (1996). Agricultural service Bulletin 160. Rome, Italy. FAO. *Production year book, Vol.50*.
- FAO. (1996). Technical background document for the world food summit, Rome, Italy. Macmillan Press Ltd, 38pp.
- Francis, M. T. (2020). Marketing and profitability of rice value chain in Ndop Sub-Division.
- Hanekom, J. W., Willemse, B. J., & Strydom, D. B. (2008). Structure, conduct and performance in the South African potato processing industry. *World Development*, 20, 1173-1181.
- Hyunsoo, K. P., Lynn, K., & Brian, H. (2009). Structure and conduct of the world rice market. Pp1-28. *Indian Journal of agricultural marketing*, 45(3).
- Kim, D., & Marion, B. W. (1997). Domestic market structure and performance in global markets: Theory and empirical evidence from U.S. food manufacturing industries. *Review of industrial organization*, pp35-54.
- Kizito, A. (2008). Famine early warning network. Market guidance No.2. Structure – conduct-performance and food security. Pp1-18.
- Lambi, C. M. (1999). The Bamendjin Dam of the Upper-Noun Valley of Cameroon, “No human paradise” in reader in environmental education project, *university of Strathclyde, Glasgow, Scotland*.
- Lipczynski, J. D., Goddard, J., & Wilson, J. O. S. (2017). *Industrial organization: competition, strategy and policy* (Fifth ed.). ISBN 978-1-29212175-8.
- Marion, B. W., & Mueller, W. F. (1979). The price and profit performance of leading food chains. *AJAE*, 61, 420-433.
- MINADER. (2005). Stratégie de développement du secteur rural - volet MINADER, Yaoundé.
- Parry, M., Rosenzweig, C., Iglesias, A., Fischer, G., & Livermore, M. (1999). Climate change and world food security: a new assessment. *Global environmental change*, 9, S51-S67.
- Samuelson, P. A. (1994). Modes of thought in Ammarand Haykin, Stephen. *The world rice market: structure, conduct, and performance*. London.
- Warda, M. (2006). Agriculture in Sub-Sahara Africa MINADER, Agriculture in Sub-Sahara Africa.
- Warren, C., & Strokes, M. (1998). The role of agriculture in the development of least developed countries