



Research Article

THE EFFECTS OF LOCAL SUPERMARKETS ON SMALL_SCALE VEGETABLE FARMERS IN LESOTHO

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ABSTRACT

There has been rise of supermarkets in Africa since 1990 and this growth of supermarkets has involved an increase in variety of products offered including agricultural products. The main objective of this study is to determine the effects of local supermarkets on small-scale vegetable farmers in Lesotho. The study involved population of 32 farmers and 4 supermarkets, the sample size was chosen using random sampling technique. The study was carried out in 2 districts, where 4 leading supermarkets were chosen, and their suppliers being local farmers. Data were collected from farmers and supermarkets. A questionnaire was used for collecting data which were analyzed using descriptive analysis and producer surplus model. The findings revealed that farmers who supply supermarkets have potentially large opportunities and they get chances of being exposed to new innovations due to the strategies supermarkets require them to use in order to improve their production. The results from the producer surplus model calculations revealed that farmers who supply supermarkets have higher producer surplus as compared to their counterparts. Therefore, the study recommends that in order to improve production extension services need to be improve and farmers need to act collectively to market their produce.

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INTRODUCTION

There is rapid growth of super markets in developing countries and Lesotho is experiencing the same case. This growth has been fuelled by increased economic growth, increased urbanization liberalization and foreign direct investment (University of Cape Town, 2000). The growth of these supermarkets presented the opportunities to other companies to invest in the sector. In Lesotho, there are many supermarkets with various forms of ownership and they include about 95% Chinese owned, group of companies like Shoprite, pick and pay and less than 1% are owned by Basotho. Supermarkets offer a wide range of products including agricultural commodities. There are also some outlets such as fruits and vegetables that specialize in agricultural commodities. The expansion of supermarkets in developing countries has significant effects on small farmers particularly those growing perishable crops like tomato and mushroom (Kevin, 2001). He further stated that supermarkets typically comprises of meat, fresh vegetables, canned and packaged goods, and pharmacy products to secure human's health and for food security. The growth of supermarkets in the country reduces coordination costs.

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Friedman, (1993) indicated that supermarkets promote standard product quality and appearance at the lowest price. The procurement source of supermarkets is based on supplier schemes which varies from one supermarket to another, but always engage farmers who have technical advice, training and specification (Kirsten, 2009). They often buy from the local farmers than the rest of the world. Some supermarkets have their suppliers whom they prefer, and the selection is influenced by potential for production in terms of quality and quantity, price and reliability as they seek a year-round supply. Supermarkets can increase the number of jobs in the community, increasing overall economic activity in the neighborhood and region. They also generate additional tax revenues at both state and local levels. Bucklin (1967), stated that supermarkets provide both affordable prices and broader selection of goods. In Lesotho, there is history of small-scale farmers but up to present, many small-scale farmers seem not to be growing and developing and they continue to live in abject poverty. T2735-2742 the main objective of this study is to determine the effects of local supermarkets on small-scale vegetables in Butha-Buthe.

Specific objectives

- To determine opportunities presented by supermarkets to small-scale vegetable farmers.

- To identify the strategies applied by small-scale farmers to effectively exploit the potential created by the supermarkets.
- To determine whether small-scale vegetable farmers benefit from the local supermarkets.

MATERIALS AND METHODS

Description of the study area

The study was conducted in Butha-Buthe and Berea districts. They are found in the northern part of Lesotho. Berea has an area of 2,22km² and the population of 109529 (Bureau of statistics, 2008). People in these districts live by engaging in agriculture, because it is believed that their land is suitable for crop production (Bureau of statistics, 2008). Their livelihood is mainly derived from ploughing vegetables.

Research design, Population and Sampling

To see the effects of local supermarket on small-scale vegetable farmers, a cross-sectional survey was used, for the study used primary data which allowed the researcher to compare the variables at a specific point in time. The target population of the study was the supermarkets and the vegetable farmers in these two districts. Among all the available supermarkets and vegetable farmers, 4 leading supermarkets and 16 mushroom and 16 tomato farmers resulting in 32 farmers in total was selected out of 50 farmers to minimize costs due to budget constraints. The sample was selected using a random sampling technique because it reflects the traits of the population as a whole.

Instrumentation

A questionnaire was designed by the researcher. It consisted of closed and open-ended question. The questionnaire captured data on demographics on farmers and for supermarket managers it included the procurement system used and the opportunities they create for farmers. The questionnaire was self-administered for managers of the supermarket and was a face-to-face interview for farmers. To check for validity the interview was pretested on 10 farmers using the pilot testing, that is, by randomly selecting number of farmers from the population size to check if the questions effective, clear and answerable. The instrument was administered to 10 farmers and the reliability coefficients of the selected items will be determined using chronbach's Alpha.

Data collection

Secondary data was collected from supermarket reports, internet, books and journals. Primary data was collected through surveys. Two sets of questionnaire were used to collect information, one for the supermarket manager where they were interviewed about the suppliers and the procurement of the produce. The farmer's questionnaire focused on the opportunities brought by the supermarkets and the strategies they use to supply supermarkets and the benefits farmers get from the growth of supermarkets.

Data analysis

Data was analyzed using descriptive statistics. The statistical package for social scientists (SPSS) computer software was used to generate summary statistics; descriptive analysis was used to analyze the opportunities presented by the growth of supermarkets and the strategies employed by farmers to effectively exploit the potential created by the supermarkets. The mean, standard deviations and percentages were used as statistical indicators. The producer surplus model was used to estimate the economic benefits farmers get from marketing their products to the supermarkets. With the model being adopted from Riungu (2011) on effects of supermarkets on fresh fruit and vegetables small-scale farmers in central Kenya. Producer surplus was calculated as follows;

If a producer sells a quality X₀ at price P₀ then the total producers gross revenue = P₀X₀. Let P=f(x) is the supply curve. It shows the lowest price at which the producers are willing to sell his/her produce. Figure 1 below illustrates the producer surplus, the area above the producer's supply curve which receives the price P₀ and sells the quantity X₀. The size of this area increases as the price for the good increases. It presents the relationship between the quantities of a commodity supplied by a producer and the corresponding prices at which such quantities are supplied (Mukras, 1986). This shows the amount of produce that can be supplied at a given price P.

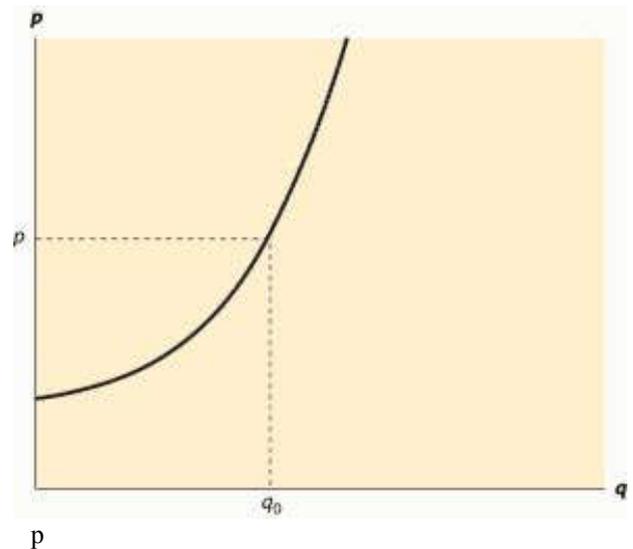


Figure 1. Producer surplus

The area under the supply curve is the producer total revenue when he sells the produce at a lower price than P₀ and it is calculated as

$$\int_0^{x_0} f(x) dx.$$

Consequently, producer's surplus = $P_0 X_0 - \int_0^{x_0} f(x) dx$.

Producer surplus (P₀TS) = Area of the whole triangle – Area under the curve.

$$= P_0 X_0 - \int_0^{x_0} f(x) dx.$$

$$= P_0 X_0 - \int_0^{x_0} p. dx.$$

Table4.1. Demographic Data on respondents

MEASURES	CATEGORIES	FREQUENCY	PERCENTAGES
GENDER	MALE	17	53
	FEMALE	15	47
AGE	20-30	8	25
	31-40	13	41
	41-50	9	28
	51-60	2	6
	PRIMARY	9	28
LEVEL OF EDUCATION	SECONDARY	3	9
	TERTIARY	15	47
	ADULT	5	16

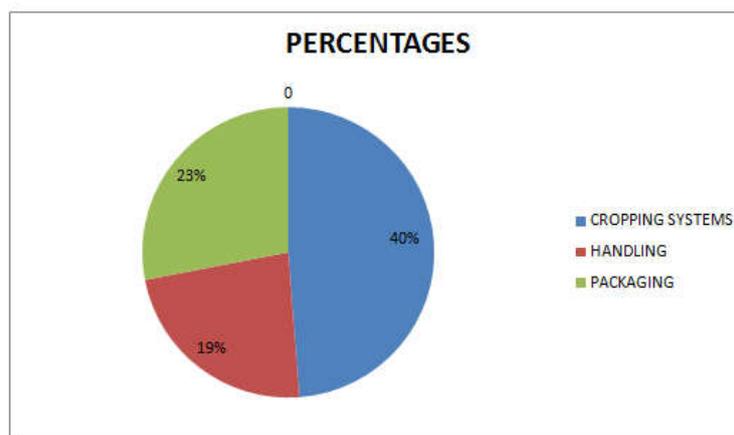


Figure 2. Strategies employed by farmers when supplying supermarkets

Table 2. Producer surplus results

PRODUCTS	P0X0	$\int_1^{x32} P. dx$	Producer surplus (Rands)
Tomato	50950	43610	7340
Mushroom	58400	52225	6175

Source: Own calculation with survey data

RESULTS AND DISCUSSION

INTRODUCTION

This chapter presents a description of demographic characteristics of farmers who supplied their produce to supermarkets. The strategies employed by farmers and the opportunities they get by supplying supermarkets are also described.

Table 3. Means and standard deviations of prices and quantities for the two products

MEASURES	N	Mean	Std. Deviation
Price of products	32	1.51	.543
product quantity	32	2.03	.782
Total	32	3.54	1.32

The objectives are: To determine the strategies employed by farmers when supplying the supermarkets and to determine the opportunities created by supermarkets to farmers. Furthermore, the producer surplus model is presented to identify the economic benefits that farmers get from supplying the supermarkets.

DESCRIPTIVE RESULTS

DEMOGRAPHIC VARIABLES

The descriptive statistics will show demographic socio-economic characteristics of the respondents. The study employed 32 farmers 4 supermarkets, 16 farmers from Butha-Buthe and Berea respectively and 2 supermarkets from each district. The second section shows results of the economic model which was used to estimate the economic benefits brought to farmers by the supermarkets.

Gender of respondents

The majority (53%) of the respondents were males, while the females constituted about 47% of the total respondents. MAFS (2006) stated that majority of participants in agriculture are men because they have ability to use different inputs of which women are not capable of using and women do not have access to the land. The results are consistent with Zhang and Yiang (2006) who stated that women have less access to land and land is still owned collectively, that is women need to form groups so that they can be given land.

Age distribution of the respondents

About 25% of the respondents were aged 20-30, 41% were aged 31-40, and 28% were aged 41-50 while 6% aged 51-60. This shows that the majority of farmers who supplied supermarkets were young people who are renowned adopting new innovations or techniques of farming quickly, therefore, they are exposed to new opportunities for marketing their products because they are willing to try new methods and they have learning capacity than old farmers (Reardon, 2002). Kamau (2009) stated that young people are innovative entrepreneurial farmers who produced in response to the demand of the supermarket. However, Morokuru (2011) argued that old farmers are considered because they are more experienced and know different techniques when it comes to treating customers than young people.

Level of education

The survey showed that, about 28% of the farmers had attained primary education, about 9% had secondary education, about 47% had tertiary education and about 16% had adult education. The results illustrate that 47% of farmers had tertiary education which means that supermarkets-channel using farmers were more informed and had ability to negotiate with the managers and they tend to understand the requirements of the market. Hassine (2008) stated the agricultural sector is fast growing and found strong evidence that the level of education affects agricultural productivity growth by increasing the capacity to adopt foreign technologies. Farmers also stated that through education they also tend to get more information on the potential sources of credit or from the supermarkets managers. Figure 2 above shows the responses of farmers in terms of strategies they applied to exploit the opportunities presented to them by the supermarkets, and those strategies include cropping systems, handling and packaging. It was stated by the supermarkets that they need to change the cropping systems, the way they handle their products and how they package them. About 49% showed that they changed their cropping systems like mixed cropping and intercropping and they use some correct amount of pesticides to produce in accordance with the rules hence producing high quality products. This could be achieved through technological advancement and effective use of resources such as fertilisers. About 23% changed handling techniques because better crop husbandry and management result in high quality products that are taken to the market (Vorley, 2007), while 28% changed the way they package their commodities, because when commodities are packaged the prices of those products vary as compared to unpackaged product, that is to say the price for packaged products is higher so it is advised that farmers practice this strategies for more returns. Jackson (1995) stipulated that packaging is one of the value adding processes and as thus, farmers are encouraged to package their products to get higher returns.

Farmers need to improve their knowledge on how to use some new improved inputs so as to increase productivity. According to Jacob (2009), strategies recommended by Department of Agriculture, Forestry and Fisheries (DAFF) include farmers improving their market knowledge, subsidised inputs, and focus on a producer association so as to keep their production going.

With respect to the strategies farmers employ, Jackson (1995) stated that market oriented farmers will seek to identify their prime customer and then by understanding what is wanted establish a common interest. This provides the foundation on which to build a relationship based on a mutual understanding of customer need with their suppliers and assess their ability to meet those needs. Farmers stated that in order to have the opportunity to supply the supermarket they have to identify the market opportunities and exploit them and change their commercial portfolio strategy which is by diversifying their products and buyers. Since supermarkets operate in a low profit margin environment, this makes it easier for farmers to make more profit. Farmers also incur less transaction costs compared to their counterparts who are not supplying the supermarkets.

OPPORTUNITIES CREATED BY SUPERMARKET TO THE FARMERS

Supermarkets indicated that they sourced fresh commodities from the small-scale farmers and that increased the opportunities for small-scale farmers to supply as much as they can. Due to some health problems people prefer good agricultural products with high nutritive value and they also demand food that are sold under good quality conditions like food sold in sheltered markets like in supermarkets. Supermarkets determine the potential for small-scale agricultural farmers to sell their products to markets, and these markets are the ones that help farmers to escape from poverty (Reardon, 2002). Farmer supplying supermarkets enjoy high degree of security in selling to supermarkets which are known for being consistently responsible and professional in making payments (Mainville, 2003). Unemployment being a major problem, supermarkets have helped many people to have a source of income, and their employment is boosted by providing jobs for poor farmers so that they can raise capital for financing and upgrading their farms. Supermarkets also provide farmers with packaging materials, so those farmers who supply supermarkets do not incur extra costs of purchasing their own packaging materials. Since they do not spend their income on buying packaging materials they will use it to buy advanced inputs in order to increase productivity, or they can use it to upgrade their farms.

Supermarkets also serve as schools by organising some workshops and teach farmers about how they can increase their production and farmers can learn or are trained about new agri-food system requirements, so that they can satisfy the demand of the supermarkets' consumers. Supermarket-channel farmers incur high transportation costs, but they receive a price which is more than three times the farm gate price resulting in a gross profit of about 40%, (David and Thomas, 2006). Farmers stated that they get higher net income, lower transaction costs and greater transaction stability when they supply supermarkets. Battese (1992) stated that net income for supermarket-channel farmers increased by 104% from 1992-2014 as compared to 10% increase for their counterparts.

PRODUCER SURPLUS MODEL RESULTS

This model was used to estimate the economic benefits brought to farmers by the supermarkets. This was calculated in two ways, being qualitative and quantitative.

About 90% of the supermarket channel using farmers indicated that supermarkets offer reliable markets which improved their income and they are able to consolidate their farming system to supermarkets requirements. The quantitative benefit was calculated using the producer surplus in the above table, which signifies the economic returns above all the variable cost of production, is identified as measure of farmer's welfare and farm prices. Main products that were supplied to supermarkets by farmers were tomatoes and mushrooms. The production of these commodities not only increased income but also provided employment and economic benefits to small-scale farmers. The above statement is consistent with Vermeleun and Bienabe (2008) who stated that supermarket-channel using farmers had noteworthy benefits such as higher yields and high income. The higher income is brought about the prices farmers received when selling to the supermarkets which are higher as compared to other markets. Reardon and Neven (2005) indicated that the prices paid by supermarkets were 10-15% higher than prices paid by consumers in the open market. Farmers are assured that the products will be bought, price risk is reduced and the marketing cost will be low.

The above table shows that supermarket-channel farmers benefit from supplying their products to the supermarket. As indicated in table 4.2 producer surpluses for tomato farmers is 7340 and that of mushroom is 6175, this means that farmers who supply tomato to supermarkets get more income than mushroom farmers. The reason for high producer surplus in tomato is brought about higher prices in tomato which is due to the fact that most people fail to produce tomato due to the weather conditions that was prevailing in the past few months and people are demanding more of tomato. There was no fixed price at which the products were sold. The average prices were used for calculations. The standard deviation of prices is relatively small and this means that observed prices were bunched closely to their means and there was no big difference in prices for farmers who sold to supermarket and those who did not. Farmers claimed that the cost of production was higher but they managed to get higher producer surplus in all products and this is because they had stability in prices and quantity demanded. Farmers also emphasised that the production of vegetables does not only increase their income but also provides employment and business opportunities to small-scale farmers.

CONCLUSION AND DISCUSSION

INTRODUCTION

This chapter concludes the research that focused on the effects of local supermarkets on small-scale vegetable farmers in Lesotho and presents the recommendations in relation to the study.

Conclusion

The study was aimed at determining the effects of local supermarkets on small-scale vegetable farmers in Lesotho. The specific objectives were to determine the opportunities presented by supermarkets to small-scale vegetable farmers, to identify strategies applied by small-scale farmers to effectively exploit the potentials created by the supermarkets and to determine the economic benefits farmers get from supplying supermarkets.

First, the results demonstrate that supermarkets purchased products from small-scale farmers in large quantities, so farmers had the chance of increasing the variety of commodities they sold to supermarkets. In respect to strategies used, most of the farmers changed their cropping systems, handling and packaging and as thus there were little post-harvest losses because their products had market. According to the producer surplus results, supermarket channel using farmers have higher producer surplus than the farmers using other channels, as thus higher net benefits (income). The higher incomes have been a power determinant of strong self-motivated amongst farmers.

Recommendation

- Improve extension services delivery to improve vegetable production
- Small-scale farmers need to act collectively to market their products as these will give them economies of scale and bargaining power.

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APPENDICES

FARMER'S QUESTIONNAIRE

Farmer's Name..... Date.....

General Information

1. District Division

2. Gender of respondent (please tick one) i) Male ii) Female

3. Age

4. Highest level of education you have achieved i) None ii) Standard 1-5 iii) Standard 6-8 iv) Secondary v) Tertiary iv) Adult literacy

5. Please indicate your occupation.....

6. Type of land tenure system i) Owned (title) ii) Customary iii) Leasehold

7. How much land in (acres) do you have access to for agricultural purposes?.....

8. How many years have you been farming?

9. How many years have you been engaged in mushroom and Tomato production?

10. Where do you sell your commodities? i) Supermarket ii) Shops iii) Traditional market

11. Farming experience for commodities you supply to supermarket/market.

12. Are you a member of any farmers' organization or cooperative? i) Yes ii) No,

If yes, what is the name of the farmers' organization you belong to?

13. Do you make use of external capital for your production? i) Yes ii) No.

If yes, please name the source of external capital.....

14. Have you ever borrowed a loan to finance in growing the product sold in the supermarket?

i) Yes ii) No

15. If yes, which organization gave the loan?

i) Microfinance institution ii) Co-operative/association iii) Bank iv) Supermarket v) Others

16. When did you commence supplying products to supermarket?

17. How did you first get access to supply this supermarket?

i) Media ii) Internet iii) Friends/Group iv) Self-inquiry v) Others(specify).

18. Which supermarket(s) do you supply produce to? Name of supermarket.....

Product Quantity.....Maximum Price.....Minimum price.....

19. How often do you supply to the supermarket or market?

a. Daily () b. Weekly () c. Monthly ()

20. How do you deliver the products to the supermarkets or market?

i) Self ii) Supermarket picks them iii) Through their cars. If self, what means of transport do you use to deliver your product to the market?

i) Own vehicle ii) Hired vehicle iii) Public transportiv)other (specify)

21. What is the distance in kilometers to supermarkets?

22. Which problems do you encounter when delivering the products to the supermarkets or market? i) Road ii) Storage iii) Handling of products iv) Perishability of the product v) Late delivery

23. Under what terms do you supply food products to the supermarket? i) Cash on delivery ii) Monthly payments?

24. Do you sell your products packed?

i)Yes ii)No

25.What are the changes you need to do in order to take advantage of the opportunities presented to you by the supermarkets?

i)Cropping systems ii)packing iii)handling

26. What are the benefits you get from supplying supermarkets?

i)Lot of income ii)credit from big companies iii)Become recognized by other people

MANAGER QUESTIONNAIRE

1. Name of supermarket

2. Branch.....

3. Location

Food Procurement Systems

4. What types of agricultural food products do you deal in and what are their respective proportions?

i) Fresh% ii) Staples % iii) Processed %

5. How is the food procurement system organized? (In case of supermarkets with many outlets, is the system centralized or decentralized to the local outlets particularly in terms of fresh produce?)

6. Please indicate proportion of food products you source from the following sources

a) Small-scale farmers b) Large-scale and medium scale farmers

i) Fresh Produce% %

ii) Staple Food% %

7. Please provide the list of small-scale farmers who supply fresh agricultural food products for the past year.

8. What problems do you encounter during food procurement from?

	Reliability	Quality	Quantity	Frequency of trade
Small-scale farmers				
Large-scale farmers				
Traders				

9. What assistance does your supermarket extend to your suppliers?

	Small-scale farmers	Large-scale farmers	Traders
Services offered			
I. Credit			
I. Extension services			
I. Inputs			

10. What is the assessment of the opportunities of purchasing commodities from small-scale farmers?

- 4= very high
- 3= High
- 2=Medium
- 1=Low

11. If taking advantage of the opportunities by small scale farmers is not going to be easy, what are the reasons?

12. What would small scale farmers need to do to take advantage of the opportunities created by your business?

- i) Good production practices iii) Contracting
- ii) grading/packaging v) Timing

ACRONYMS

- FAO: Food Agricultural Organisation
- SPSS: Statistical package for social sciences
- MAFS: Ministry of Agriculture and Food Security
- TV: Television
- DAFF: Department of Agriculture, Forestry and Fisheries
- FAOSTAT: Food and Agricultural Organisation Statistics
