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Analyzing Costs and Returns of Roasting Green Maize by Small Traders in Kibaha Town

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Abstract
Roasted fresh green maize just harvested from farms, is one of the growing small business in Tanzania, to many towns. It is evident that, little has been addressed on the pros and cons of roasting green maize to small traders. This study therefore analyzed costs and returns of roasting green maize by small traders in Kibaha town. In particular, it documented the demographic characteristics of the small traders of roasted green maize, estimated the amount of green maize purchased, roasted and sold, and determined the returns from selling roasted green maize in Kibaha town. On the other hand, the study employed purposive and simple random sampling techniques in which 30 respondents interviewed to convene information pertaining the objective of the study. Demographical characteristics of the interviewed indicated that majority of the traders had at least basic knowledge and skills of trading with roasted green maize effectively. Most of those engaged in this trade were youth and there was still low participation of female - youth. Almost 70% of the interviewed traders had at least one-year experience of trading with roasted green maize that could be an aid to managing business undertakings successfully. Findings from the profit margin analysis demonstrated the potentials of the roasted green maize trade in income generation for the livelihood of street maize vendors of Kibaha town. The interviewed traders generated income at a positive profit margin of Tshs. 431,581.00 besides a monthly mean profit margin ratio of 0.30. The positive profit margin earned could be associated to lower start-up capital, low operation costs, and tax-free as the small traders paid no taxes in the trading with roasted green maize. Other reasons were the level of education and experience in the trade. Some of the challenges faced this trade include regular disturbances from health officers and security guards from Kibaha District Council, poor maize variety that tend to shrink when roasted on fire, and low customers during summer. It is encouraged that, small traders should apply modern tools to keep roasted green maize warm. Motivate small famers to consider externalities in the green maize farming and trading by subsidizing them and whenever necessary, set a minimum quota for green maize sales. Additionally, make further inquiry on the other type of maize products like dry maize and maize flour dealing by involving all actors including farmers, intermediaries, whole sellers, retailers, and customers of such products.
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1 Introduction

Kipene and Iwuoha, in their studies presented that maize can be processed and prepared in various forms depending on use and country or region. In Eastern, West, and Southern Africa, maize is prepared into porridge, pastes, grits, and beer. Maize can also be fried or baked, in various parts of Africa, people use popcorn as a popular snack while others use green - fresh maize either boiled or roasted on its cob and serve it as a snack (Kipene, 2015; Iwuoha, 2014; Oladejo et al, 2012).

Additionally, in 2011 Wiens and Kipene 2015 said in East Africa, maize is served or eaten in various forms such as green roasted, green boiled, popcorn or dry maize milled into flour that are used to prepare porridge, beverages – beer, and stiff porridge.(Wiens,2011; Kipene,2015). In 2012 study, Mjasiri spoke about roasting green maize fresh from farm as a lucrative small business idea carried out in various cities and towns in Tanzania. There are different reasons that make this business interesting, cities and towns' residents consider the green maize sold in the streets, alternative meal and / or sometimes a full afternoon meal due to its affordability (Wiens, 2011; Mjasiri 2012; Kipene, 2015; Awa, 2015). Wiens 2011 addressed another interesting issue about this small business in Tanzania, as it did attract poor and small income consumers, executives, and tourists, a tendency that imply the market share for roasted green maize was readily and openly available (Wiens, 2011).

FAO studies on green maize in 2015 argued that roasted green maize seems to generate high profit to small traders. It is a blessing to small farmers who cannot handle risks of post -harvest losses like; weight loss, poor storage facilities, higher storage costs, and fluctuation of market price for dry maize (Xinhua, 2013; FAO, 2015;

Kipene, 2015 and Robert, 2016). In 2015, Kipene argued on the absence of studies concerning documentation of green maize trade in Tanzania. Most studies concentrated on maize crops focusing on the production, processing, and market sides of the dry maize (Katinila et, al and Kaliba et al, 1998 as cited by Kipene, 2015).

Roasted green maize attracts many small traders and small farmers particularly males who sell green maize to avoid risks of post - harvest losses like weight loss, poor storage facilities, higher storage costs, and fluctuation of market price for dry maize. The roasted green maize trade contributes to income generation of unemployed people. Government restrict selling of roasted green maize by assuming that farmers do sell all the maize unprofitably, causing hunger to farmers. Thus, studies on costs and returns of roasting green maize were uncommon in Tanzania to document such information.

1.1 Purpose of the Study

The main objective of the study was to analyze costs and returns from roasted green maize in Kibaha Town. In particular, the study sought to:

i) Document the demographic characteristics of the small traders of roasted green maize,
ii) Estimate the amount of green maize purchased, roasted and sold, and
iii) Determine the returns from selling roasted green maize in Kibaha town.

1.2 Research Questions

The study answered these three questions:

i) Who participate in green maize trade in Kibaha Town?
ii) What are the demographic characteristics of the roasted green maize vendors?
iii) Does the green maize purchased, roasted and sold, pose threat to food security?
iv) Is it cost-effective to engage in trading with roasted green maize?

1.3 Significance of the Study

The findings of this study ought to help the policy and decision makers to come up with strategies that encourage roasted green maize trade in the course to wage war against unemployment. This will serve to promote income generation for many Tanzanians.

1.4 Limitation of the Study

Absence of clear data of roasted green maize, most of the small traders did not keep records of their daily activities. Thus, it was not possible to collect the exact amount of roasted green maize sold over a long period.

1.5 Delimitation of the Study

The study focused on the costs and returns associated to roasted green maize while population involved was small green maize traders because they possessed relevant information for study objectives.

2 Theoretical Framework

Roasting green unripe maize on fire to make it palatable by simply baking or roasting the whole ears and eating the kernels (seeds) right off the cob (Awa, 2015). In East Africa roasted green maize was one of the most popular and available snacks on the street. It is cheap, easy to eat, filling and delicious, for example along the streets from Dar es Salaam to Nairobi (Wiens, 2011).

The profit maximization theory illustrates the costs of production that allow firms to determine level of output that reap the greatest level of profit at the least combination cost. The returns to the business are functions of total sales / revenue deducted from total costs / expenses incurred on operating or running the business and other factors like experience.

3. Analysis and Discussion

3.1 Demographic Characteristics

Table 1 indicates the responses of the interviewed traders on the demographic characteristics like literacy level, age, sex, and experience in the business. The reason for this analysis was to understand how these combinations influenced trading with roasted green maize in Kibaha town.

3.1.1 Literacy Level

The results from the analysis indicate that small traders had relatively high literacy level of the roasted green maize trade, 50 % of the interviewed had primary education, 33.3 % had secondary education, 16.7% had no formal education, and none had higher education. Thus, majority 83.3% of the interviewed had at least basic knowledge and skills of undertaking roasted green maize trade.

3.1.2 Age

On the other hand, 80% of the interviewed had ages ranging from 21 to 40 years, 20% over 40 years, and none

was under 20 years. Thus, majority of the small traders that engaged in roasting green maize were youth.

3.1.3 Sex

About 86.7% of the interviewed were males and 13.3% were females. Though majority of the small traders of roasted green maize were youth, yet participation of female-youth in this business was rare, the reasons for this tendency are yet unclear.

3.1.4 Experience

In addition, 70% of the interviewed had at least one-year experience in the business and 30% were new in the business. This amount of experience could be an aid to managing business effectively, by reducing costs and maximizing earnings.

Table 1: Demographic Characteristics

Variables	Frequency	Percent (%)
Education Level		
No Formal Education	5	16.7
Primary Education.	15	50.0
Secondary Education	10	33.3
Higher Education	0	0
Total	**30**	**100**
Age group		
Under 20 years	0	0.0
Between 21 to 40 years	24	80.0
Over 40 years	6	20.0
Total	**30**	**100**
Sex		
Male	26	86.7
Female	4	13.3
Total	**30**	**100**
Experience level		
Less than 1 year	9	30.0
Between 1to5 years	15	50.0
Between 6to10 years	1	3.3
More than 10 years	5	16.7
Total	**30**	**100**

3.2 Amount of Roasted Green Maize Sold

Tables 2 and 3 indicate that small traders had monthly mean of 3,478.50 and 3,456.00 of green maize purchased and sold as roasted snack, respectively. This amount is relatively negligible compared to the total production and consumption of maize produced in Pwani region. The amount of maize kept to dry was higher than the amount of green maize being consumed. The National Bureau of Statistics (NBS) data of 2002/03 and 2007/08 reported an average of 17,805 tons of dry maize stored by 183,248 households in January 2004 (NBS, 2007; URT, 2012). In that time 2012, Pwani region with the population of 1,098,668, offered approximately 76% of the market demand for maize products from periphery districts like Bagamoyo, Kisarawe, Mafia, Mkuranga, and Rufiji (NBS,2007;URT, 2012).

3.3 Costs, Returns, and Profit Margin Analysis

3.3.1 Costs

Small traders engaging in this micro - business incur similar costs like other firms. Some of the costs noted from the traders include fixed costs like rents of charcoal stove, and operation costs like charcoal/ fuel, labour costs, transport costs, and source of light charges. The other costs were the costs of sales like packaging materials expenses and market fee. Table 2 presents the monthly mean Tsh. 1,002,659.00, minimum Tsh 367,700.00, and maximum Tsh. 4, 509,000.00 of every single cost noted. As known from Table 1, 80% of youth engaged themselves in trading with roasted green maize, because it does not require huge investment, whereby, one labour force, or own labour force is enough to run the business even with only home raised funds.

Table 2: Monthly Costs Incurred

Costs (Tshs)	Minimum	Maximum	Mean
Rent of a Roaster/ Stove	5000.00	60000.00	19,333.33
Price per unit purchase (P)	110	275	176
Units of green maize purchased(Q)	900	10500	3478.5
Total Cost of Purchases (P*Q)	**36,300.00**	**2,887,500.00**	**612,216.00**
Rent of place	.00	90000.00	4,700
Fuel/ Charcoal	30000.00	135,000.00	85,000.00
Light source charges	.00	15000.00	1,150.00
Transport Cost	.00	420,000.00	111,500.00
Other Costs i.e. food	.00	90000.00	17,000.00
Labor Cost	0.00	.00	.0000
Total Variable Costs	**30,000.00**	**750,000.00**	**219,350.00**
Packaging	0.00	21000.00	10800
Labour charges	0.00	15000.00	690
Market fee	0.00	15000.00	1110
Other costs	0.00	10500.00	450
Total Sales Cost	**0.00**	**61,500.00**	**13,150.00**
Price per unit (P)	350	500	415
Quantity unsold(Q)	.00	1500	334
Total Cost of Unsold Q (P*Q)	**.00**	**750,000.00**	**138,610.00**
Grand Total Costs (Tsh.)	**367,700.00**	**4,509,000.00**	**1,002,659.00**

3.3.2 Returns

The key customers of the roasted green maize in Kibaha town were street passer-by, street vendors, workers, and school students. Table 3 indicates the monthly mean revenue of Tshs 1,434,240.00 that is relatively higher as compared to the monthly mean costs of Tsh. 1,002,659.00 set in Table 2. Roasted green maize traders in Kibaha town earned a monthly mean profit margin of Tshs. 431,581.00 that indicates positive returns from trading with roasted green maize.

3.3.3 Profit Margin Analysis

The study employed profit margin analysis to measure profitability of roasted green maize trade. Profit margin measures the net gain (or net loss) of revenue less expenses incurred (Graff, 2006). Profit margin determines the efficiency or inefficiency of a trade (Achike and Anzaku, 2010). In the other words, it is the profitability ratio calculated as net income divided by revenue, or net profit divided by sales. It designates how much out of every shilling or dollar from sales a business actually keeps in earnings. A higher profit margin indicates a more profitable trade that has healthier control over its costs.

The results from profit margin analysis indicate a mean profit margin ratio of 0.30 that imply traders of roasted green maize gained relatively high profit per unit cost of operation. The positive profit margin could be associated with the following three fold reasons:

i) The costs incurred by the small traders were relatively low because some fixed and variable costs such as tax, rents, labour costs, market fees, and sales costs were cheap or negligible. Most of the traders used their own labour or family labours that are implicit costs,

ii) The education level of the small traders of which 83.3% of those involved in this trade had either primary education or secondary education that helped them to practice some basic marketing skills like customer care, customer service, and records keeping. This served to increase the efficiency of business operations and management, and

iii) The other reason could be the level of experience in the trade, whereby, 80% of the interviewed had one-year to five-year experience and 20% had over five-year in the trade.

Hence, these make an added advantage to the small traders' business operations and management.

Table 3: Monthly Returns Generated

Revenue	Minimum	Maximum	Mean
Price per unit (P)	350.00	500.00	415.00
Units sold (Q)	900.00	9690.00	3456.00
Total Revenue (P*Q)	**315,000.00**	**4,845,000.00**	**1,434,240.00**
Profit Margin Analysis			
Total Cost (TC)	367,700.00	4,509,000.00	1,002,659.00
Gross Profit (TR-TC)	**-52,700.00**	**336,000.00**	**431,581.00**
PMR (PM/TR)	**-0.17**	**0.06**	**0.30**

4. Conclusion and Recommendations

4.1 Conclusion

Small traders of roasted green maize in Kibaha town earned a profit margin ratio of 0.30 that may perhaps increase if the business operates cost-effectively. On the other hand, most of the interviewed still complained against the restrictions posed by the health officers' claim over this trade as unhygienic. Some district or regional officials tend to restrict trading of green maize and roasted green maize under the claim of hunger to small farmers who cannot produce surplus for future consumption.

4.2 Recommendations

In order to break such obstructions, it is encouraged that, the small traders should apply modern tools such as gas or clean-electricity roasters and ovens to keep roasted green maize warm. Instead of strictly prohibiting trading with green maize or roasted green maize, the responsible organs should register the small farmers, give incentives and subsides to produce bulk of high quality green and dry maize. In addition, encourage famers to consider externalities in the green maize farming and trading and whenever necessary, set a minimum quota for green maize sales. This study overlooked the costs and returns of green maize on the farmers'side, particularly on the other type of maize products like dry maize and maize flour dealing. In future, further inquiry should research on the costs and returns from the other maize products, with inclusion of actors like farmers, intermediaries, whole sellers, retailers, and customers of such products.

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Kazungu Barnaba[1] being a student of the National Institute of Transport (NIT) underneath Business and Entrepreneurship Studies department, as he is underlay to complete his studies, he conducted this study in Partial Fulfilment of the Requirements for the Award of Bachelor Degree in Accounting and Transport Finance. He gratefully acknowledges his parents and Madam Leticia Mihayo for the social, moral, and financial bonding.
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Ethically, there is no conflict of interest.

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