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Influence of Market Facilities on Market Participation of Maize Smallholder Farmer in farmer organization's market services in Tanzania: Evidence from Kibaigwa International Grain Market

Ismail J. Ismail

Assistant lecturer, University of Dodoma, College of social science and humanity, School of economics and business management, Department of management science

Abstract

This study was designed to determine the market facility factors that influence small holder farmers to participate in the maize marketing of their produce in the Kibaigwa international grain market in Kongwa district of Tanzania. A total of 319 maize small holder farmers for the study were randomly selected from three villages adjacent to the market. The villages are Hembahemba (105 respondents), Njoge (125 households) and Makutupa (89 households). The data gathered through the use of a structured questionnaire were analyzed using the logistic regression model. The probability of participating in maize marketing in Kibaigwa market was significantly determined by buildings, weighing machine, parking area, drying area and warehouse which was regarded as the independents variables.

Keywords: Market participation, Maize marketing, household, logistic regression, kongwa district, Kibaigwa international grain market, Tanzania.

1.0 Introduction

Agricultural markets continue to be seen as the means for ensuring that smallholder farmers are effectively integrated into the mainstream of national economies, especially in developing countries, Obi *et al*., (2011). Markets provide the opportunity for farm production to contribute to poverty reduction through the cash income realized from sales of farm produce (Minot and Hill, 2007).

In Africa, like elsewhere in the world, participation of smallholder farmers to the maize market has long been considered an important part of the agrarian transformation of low income economies and a means of ensuring food security, enhanced nutrition, and enhanced incomes, Eleni, (2009). This is because the majority of her populations live in rural areas where agriculture typically constitutes 50–90% of the total household income contributed mostly by maize production.

Despite the importance of maize market in agrarian transformation, smallholders farmers, especially in less developed countries, have encountered several challenges in participating to markets (Minot and Hill, 2007; URT, 2008; Tilburg and Schalkwyk, 2011). However, this was less of a problem in the era of the marketing boards, when a parastatal organization–the marketing board–tended to provide essential output market services such as collection of the harvest, quality assessment, buying and storage (Jayne *et al*., 2006; Barrett, 2007).

In Tanzania, collapse of marketing boards in 1980s created a vacuum in agricultural marketing especially for non-traditional export crops such as maize, Eleni, (2009). Participation of smallholder farmers to market have been most affected by existing marketing system which typically characterized by high distribution margins, seasonal price variability, Badiane et al., (1997), poor rural transport infrastructure (Teravaninthorn and Raballand, 2009), lack of efficient storage infrastructure and poor market practices (Eskola, 2005; URT, 2008). Transaction costs in Tanzania's agricultural markets are also very high as noted by URT (2008). As result, for 52 years of independence, agriculture for majority of Tanzanians remains for subsistence. To solve the problem of market participation, various strategies have been employed including establishment of farmer organizations which provide many supportive services to smallholder farmers including construction of rural markets. The network of smallholder farmers group being a good example of those organizations have managed to construct Kibaigwa international grain market which is the main focus of this paper.

On the other hand, Tanzania, like other developing countries has limited empirical data on factors influencing market participation of smallholder farmers, specifically in market facilities. Previous scholars concentrated on examining their contribution in income Ismail, (2011); opportunities and challenges of a partnership approach (Akyoo, 2008); empowering smallholder farmers in markets, Onumah, *et al*. (2007); farmers' organizations and agricultural innovation (Kaburire and Ruvuga, 2006; Shapland and Kampe, 2006); access of the poor to agricultural services, Wennink, *et al*. (2007); rural markets (MVIWATA and FERT, 2009); and facilitating transactions and retaining added value locally (Lassalle and Ruvuga, 2006).

To fill that gap, this study investigated the influence of market facilities on maize market participation in Kibaigwa international market. The following was the key concern of this study

• What is the influence of market facilities: Market area/building, weighing machine, parking area, area for drying and warehouse on decision to market participation in Kibaigwa international grain market in Kongwa Tanzania?

2.0 Literature Review

Shilpi and Umali-Deininger (2007) documented that participation of small holder farmers at the market increases significantly with an improvement in market facilities and a decrease in travel time from the village to the market. Along with transportation costs to the nearest market, the characteristics of the nearest market can also influence the transaction costs of taking products to markets. For instance, a highly congested market with few facilities can add substantially to waiting time, product deterioration and losses, and costs to farmers and traders.

According to Admassie (2013), well-functioning market facilities helps in modernizing agricultural production, creating economic opportunities, improving food security, motivating farmers to acquire and use productivity increasing inputs, assuring effective vertical integration and coordination in input supply, credit and output marketing, and encouraging farmers to specialize in productions where they have competitive advantage.

Generally, market facilities are important aspects for the development of the agricultural sector and poverty reduction in rural areas. Availability of markets for agricultural products is important in stimulating agricultural production. Availability of improved markets facilities in the market also ensure better producer prices for farmers. URT (2010) argue that improvement and construction of rural roads and market infrastructure are important for efficient inputs and output marketing. Investment in facilities is also important for attracting private investment in agricultural related activities such as agro-processing, increasing producer prices and farmers' income. For example in the context of India, Acharya (2004) noted that congestion and delays in the markets due to lack of proper market infrastructure resulted in long waiting periods for the farmers and hence limit the successful participation of small holder farmers in markets.
World Bank, similarly explained, that lack of market infrastructure and facilities added substantially to marketing costs of the traders. The World Bank (2007) report noted wide variation in the market facilities and infrastructure across Indian States that have for long challenged market participation of small holder farmer. Facilities provided in Kibaigwa international grain market include market buildings, weighing machine, parking area, area for drying, mechanized crop handling machine and warehouse.

3.0 Theoretical Framework

3.1 Theory of market transition

The theoretical underpinnings of why farm households decide to participate in agricultural markets can be found in the trade theory as postulated by David Ricardo in his classical theory of Comparative Advantage of 1817. According to the theory farmers are essentially driven to enter into trade or markets so that they can enjoy a diverse consumption bundle. They can exploit welfare gains from trading by concentrating in the production of goods they have comparative advantage, and exchange for those they have no comparative advantage.

This trade theory though it explains the primary motive for farmers to participate in markets, it does not comprehensively identify factors affecting market participation. One sound theory explaining the small holder farmer's market participation behaviour is Nee's (1989) theory of market transition: from redistribution to markets economy in state socialism.

The theory tries to show the economic reforms from state redistribution economy to market like economy. It is understood to be the fundamental thinking of market participation of small holder farmers emphasizing on providing necessary market services at market place so as to empower small holder farmers.

According to market transition theory, the shift to markets opens up alternative sources of rewards not controlled by the redistributive state, and this shift thereby reduces dependence on the state (Nee 1989b, 1991b). The idea that market reforms also open up alternative mobility channels for small holder farmers to participate direct in the market basing on the market facilities and incentives has formally modeled by breimyer in his work of economics of agricultural marketing. He expressed the dual role idea of marketing as he called attention to the "two major tasks of market and marketing system- the performance of various physical market operations (market facilities) and functioning of price among consumers" The study concluded that market reforms through creating infrastructures can attract farmer to enter in the market and hence improve they incomes as well as their welfare.

Nee (1989) used three theses to explain the effect of the transition to transitive markets on the distribution of rewards in state socialism which tends to empower farmer to have direct decision in marketing process. These include market power thesis, incentive thesis and market opportunity thesis.

The market power thesis argues that as markets replace redistributive mechanisms in the allocation and distribution of goods, there is a shift in the sources of power from the redistributive sector to the marketplace. This means, improving market infrastructures and facilities can attract farmers.

The market incentive thesis argues that markets provide more incentives than do redistributive economies. First, markets provide powerful incentives to direct producers through both positive and negative sanctions; these include grading, packaging, transportation, weighing and market information.

3.2 Conceptual framework

An examination of theories revealed that a theory of market transition: from redistribution to markets in state socialism presented by Nee (1989) provides insight information for conceptual frame work of the study. From the market power thesis, the theory highlights importance of market facilities for the development of smallholder farmers (peasants), which include availability of market infrastructures such as marketing place (building), warehouses, parking are and weighing machines.

The variables for this research presented in Fig. 1 are in two categories of independent and dependent variables. Independent variables are marketing place (building), warehouses, parking are and weighing machines and the dependent variable is indicated by the decision of smallholder famers to participate in Kibaigwa International Grain Market.

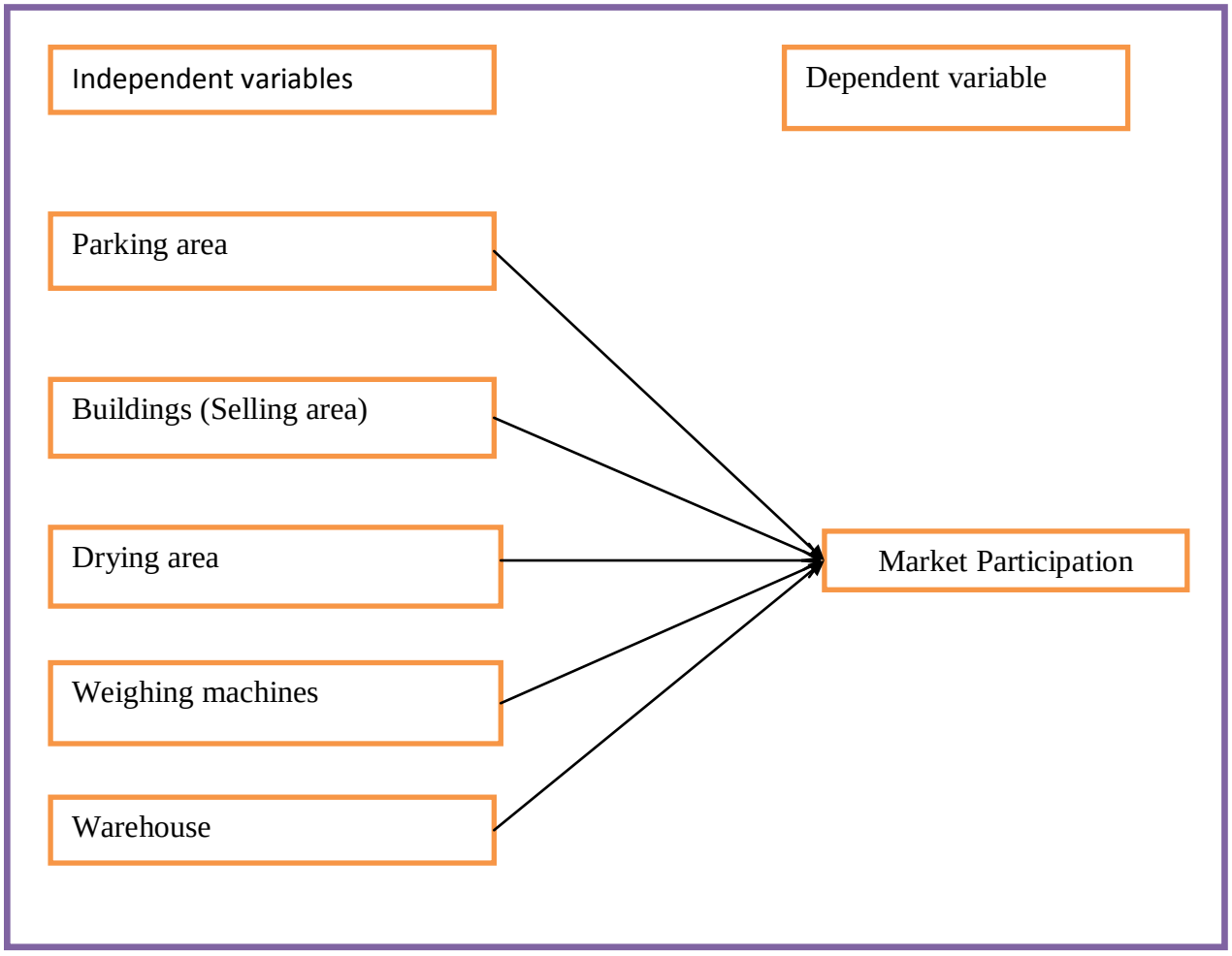


Figure 1: Conceptual Framework: factors influencing market participation: Derived from the theory of market transition

3.3 Analytical Framework

The factors influencing market participation in agricultural market is a qualitative decision that is based on probabilities of either choosing to participate or not. The best qualitative choice model of interest in this type of decision is the logistic regression model. Several econometric and statistics literature explains the processes and theory behind this model. (Wuensch, 2006, Gujarati and Sangeetha, 2007 and Greene, 2008) have used this model effectively has it is a very powerful, convenient and flexible tool used in predicting a categorical (usually dichotomous) variable from a set of predictor variables as in this case of maize market participation, buildings, weighing machine, parking area, drying area, and warehouse being predictors for market participation. It is often chosen if the predictor variables are a mix of continuous and categorical variables and/or if they are not normally distributed. With a categorical dependent variable, discriminant function analysis is usually employed if all of the predictors are continuous and normally distributed and logit analysis is usually employed if all of the predictors are categorical. By using the logistic regression the probability of a result being in one of two response groups (binary response) is modeled as a function of the level of one or more explanatory variables. Thus, the probability whether or not the small holder farmers from Hembahemba, Njoge and Makutupa villages will participate by selling at Kibaigwa international grain market may be modeled as a function of the level of one or more independent variables. For this study, the response variable is 1 when the farmer participated in Kibaigwa market and 0 when the farmer did not participate. The functional form of logistic regression model is denoted in equation (1).

$$\ln\left(\frac{\phi i}{1-\phi i}\right) = \beta_0 + \sum_{j=1}^{K} \beta_j X_{ij} + \varepsilon_i \qquad (1)$$

Where: *j* is the response category (1 or 0), *i* conditional probability, βo is the coefficient of the constant term, βj is the coefficient of the independent variable, Xij is the matrix of observed values: building, weighing machine, parking area, drying area, and warehouse in Kibaigwa market and εi is the matrix of unobserved random effects.

From the basic logistic question (1):

$$\frac{\phi i}{1-\phi i}$$

Is odd and

$$\ln\left(\frac{\phi i}{1-\phi i}\right)$$

Is the logarithm of odds

$$\frac{\phi_i}{1-\phi_i} = \exp\left(\beta o + \sum_{i=1}^{k} \beta i Xi\right)$$

Equation (1) can be manipulated to give the odds ratio using equation (2) above. The probability that smallholder farmers from the Hembahemba, Njoge and Makutupa villages households can participate in Kibaigwa international grain market can be calculated using equation (3) below

$$\phi_i = \frac{Exp\left(\beta_o + \sum_{i+1}^{k} \beta_j X i_j\right)}{1 + Exp\left(\beta o + \sum_{i=1}^{k2} \beta j X ij\right)}$$

Equation (3) is intrinsically linear since the logit is linear in Xi (Gujarati and Sangeetha, 2007); it indicates that probability lies between zero and one and vary non-linearly with Xi. The equation for calculating partial effects of continuous variable is denoted by question (4) below:

$$\frac{\partial \phi_i}{\partial x_i} = \phi i\left(1 - \phi\right)\beta j$$

The partial effects of the discrete variables was calculated by taking the difference of the mean probabilities estimated for the respective discrete variable, Xi = 0 and Xi =

4.0 Research Methods

4.1 Study Area

The research was carried out in three villages of kongwa districts named: Hembahemba, Njoge and Makutupa of Tanzania. These three villages are nearby Kibaigwa international grain market in which the maize market participation of smallholder farmers from these three villages was referred to.

4.2 Design, Sampling and Data Collection Method

The study relied on primary sources from households of three villages in Kongwa district, namely: Hembahemba, Njoge and Makutupa where by the secondary data such as textbooks, and books of readings, journal articles and online materials for this project were also the key sources of the information. Primary data was obtained by the use of a structured questionnaire which elicited responses on their levels of participation in Kibaigwa international grain market. Selecting the smallholder farmer's household as respondent for the study from these three villages was done randomly. Thus, the total sample size of study was 412. Hembahemba (105) Njoge (125) and Makutupa (89)

5.0 Results and Discussions

5.1 The influence of market facilities on participation of smallholder farmers in Kibaigwa international grain market

Kibaigwa International Grain Market (KIGM) has all important market facilities to enable smooth trading of agricultural produce. These include market area (market building), weighing machine, parking area, area for drying, mechanized crop handling machine, and warehouse (picture 2a-f).

Picture 2a: Part of market building

Picture 2b: Weighing bridge

Picture 2c: Mechanized crop handling machine

Picture 2d: Warehouse

To analyse influence on market facilities on participation of smallholder farmers in market, logistic regression model was employed. The model was selected because the dependent variable (market participation) was nominal dichotomous in terms of selling at Kibaigwa market = 1 and selling at farm gate = 0. The model was used because it is powerful and popular one in social sciences predicting a dependent variable on the basis of continuous and or categorical independent variables, determining the percent of variance in the dependent variable explained by the independent variables, gauging the impact of covariate control variables (which are otherwise called independent variables), and ranking the relative importance of independent variables.

Independent variables included in the logistic model are market area, weighing machine, parking area, area for drying, and warehouse (Table 1). The findings indicate that the model with descriptors (PAC: 98.1) performs better than the null model (PAC: 90.9). The results show further that the model performance is statistically significant (χ^2 (5 d.f) 134.907, $p < 0.001$). The inferential test for goodness-of-fit, the Hosmer and Lemeshow (H-L) statistic, indicates that the model fits the data well (χ^2 (7 d.f) = 56.321, $p > 0.001$). The descriptive measures of goodness-of-fit also supports that the model fits the data well (Cox and Snell R^2=0.346 and Nagelkerke R^2=0.757).

Table 1: Binary logistic regression analysis for market facilities

Variables							95.0% C.I.for EXP(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Building	1.871	.380	24.184	1	.000	6.496	3.081	13.693
Weighing machine	2.287	.735	9.683	1	.002	9.842	2.331	41.551
Parking area	1.360	.579	5.522	1	.019	3.897	1.253	12.119
Drying area	.731	.717	1.042	1	.307	2.078	.510	8.465
Warehouse	.380	.600	.402	1	.526	1.463	.451	4.743
Constant	-2.138	.630	11.510	1	.001	.118		

Source: Analysis of the field data (2014)

From table 1, the binary logistic regression equation can be developed as follows:

Logit (P) = -2.138 +1.871 (BU) + 2.287 (WM) + 1.360 (PA) + 0.731 (DA) + 0.380 (WA)

Where: BU = Market building, WM = Weighing machines, PA = Parking area, DA = Drying area and WA = Warehouse.

These results from table 1 show that Wald statistics are non-zero values, which implies that there is interaction between market participation (dependent variable) and independent variables (building area, weighing machine, parking area, drying area, and warehouse). Therefore, such findings indicate that market facilities significantly influence decision of smallholder farmers to participate in MVIWATA market services at 5% level of significance. Table 1 further shows that all factors has positive regression coefficient (+β), which means enabling market participation of smallholder farmers.

5.1.1 Market building

The market building has positive correlation (Beta = 1.871), Wald statistic of 24.184 and highly statistically significant (p = 0.000). Table 1, the results indicated that, the likelihood of market participation for household increase by a factor of 6.496 for every unit change in this variable. Positive correlation implies that availability of market building especially marketing area together with facilities and practices attract many smallholder farmers to sell their produce at market. Respondents interviewed reported that before construction of market it was difficult for them to sell their maize because of unreliable measurement units, lack of storage areas and lack of shedding area. Smallholder farmers met with middle and buyers in small congested area beside existing market. The place had no reliable security service and sanitation was worse, which threatened health of buyers and sellers.

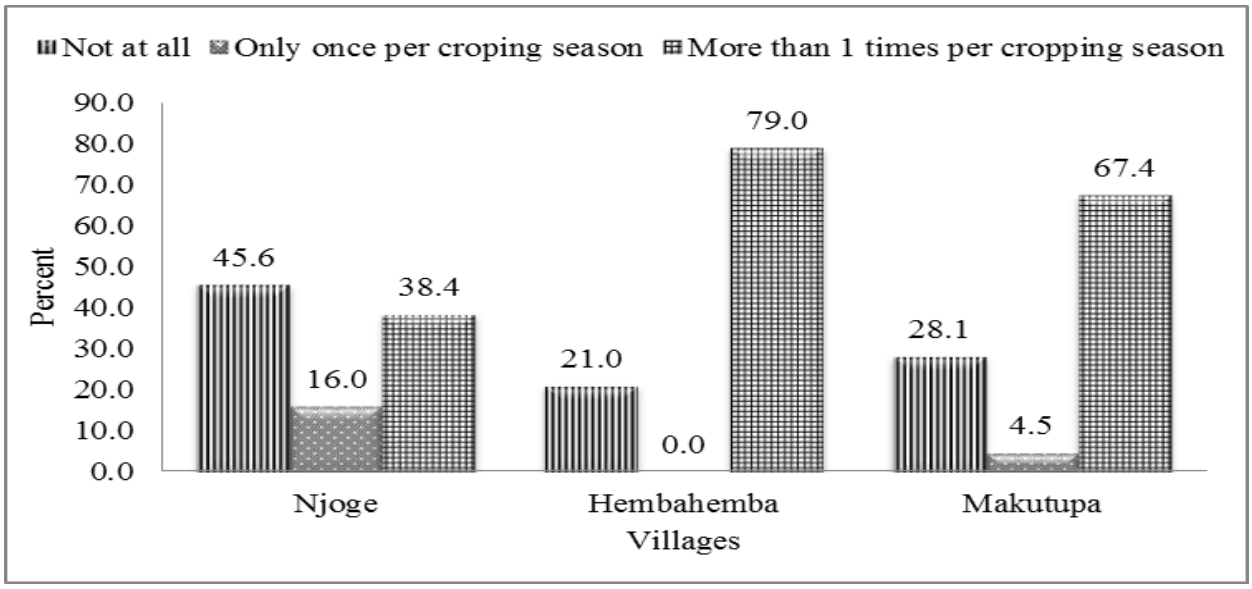
5.1.2 Weighing machine

Availability of weighing machine has a positive relationship to market participation in MVIWATA market, with a regression value of β = 2.287 and an odd ratio of 9.842 (Table 14). The variable was statistically significant with p = 0.002. This suggests that availability of weighing machine especially at Kibaigwa market increase market participation for smallholder farmers. It was reported during the survey that before construction of the market, plastic buckets of 20 L were used as measuring units. According to farmers, buckets were owned by traders and had volume of 22 to 23 Kg as compared to 20 Kg, which was advocated by traders. Plastic buckets were enlarged using heated sand to increase its volume. Focus Group Discussion revealed that the use of plastic buckets affected smallholder farmers to participate in the market because difference of income earned when selling at market and farm gate was very small. Buyers were bought maize at farm gate plastic buckets and sold in towns using weighing machines. Installation of weighing machine in Kibaigwa market reversed maize trading in Kibaigwa and the region at large. Many smallholders started to sell their surplus produced at market where weighing machine was used to determine quantity. Table 15 shows quantity of maize sold at the market for the first 10 years. It can be deduced from the table 15 that quantity of maize sold at market by smallholder farmers were increased annually. Minor variations in some years explained to be attributed by changing of weather condition, which affected crop production all over the region.

5.1.3 Parking area

Availability of parking area is another enabling factor of market participation for smallholder farmers. Table 1 shows that availability of parking area (increasing frequency of using service in Kibaigwa market) significantly (p=0.019) increase market participation of smallholder farmers with regression value β = 1.36 and Wald statistic of 5.522. This indicates that the likelihood of smallholder farmers to make decision on participate in MVIWATA market increases by a factor of 3.897 for every unit change in this variable. The plausible explanation of positive regression value in education might be due to the fact that availability of parking area tends to motivates farmers to use various means of transport they have. As shown in above that more than half (53.6%) of sampled households own bicycle while 22.6% and 0.3% owned and used motorcycle and car, respectively. Although not mentioned during household survey but the use of cart pulled by draught animals such as donkey. There is no parking costs are charges for transport facilities at the market. In this study, sampled respondents were asked to mention frequency of using parking area available in Kibaigwa market and findings presented in Figure 2. As shown in the figure, frequency of using parking area ranges between not using at all to using more than one times per cropping season. Hembahemba village has many respondents using parking area more than one times per cropping season followed by Makutupa village. Plausible explanation for this could be wealth status, most households in Hembahemba village are better off as compared to the other villages. It was observed during the survey that most households in Hembahemba village own large truck of land outside the village. Chi-square testing on whether there is variation across villages showed statistically significant (p=0.000) with χ^2 = 49.247 at df = 4. This implies that quantity harvested varies across villages, in villages where respondents own large trucks of land harvested more, hence frequently transport their produce to the market.

Figure 2: Frequency of using parking area



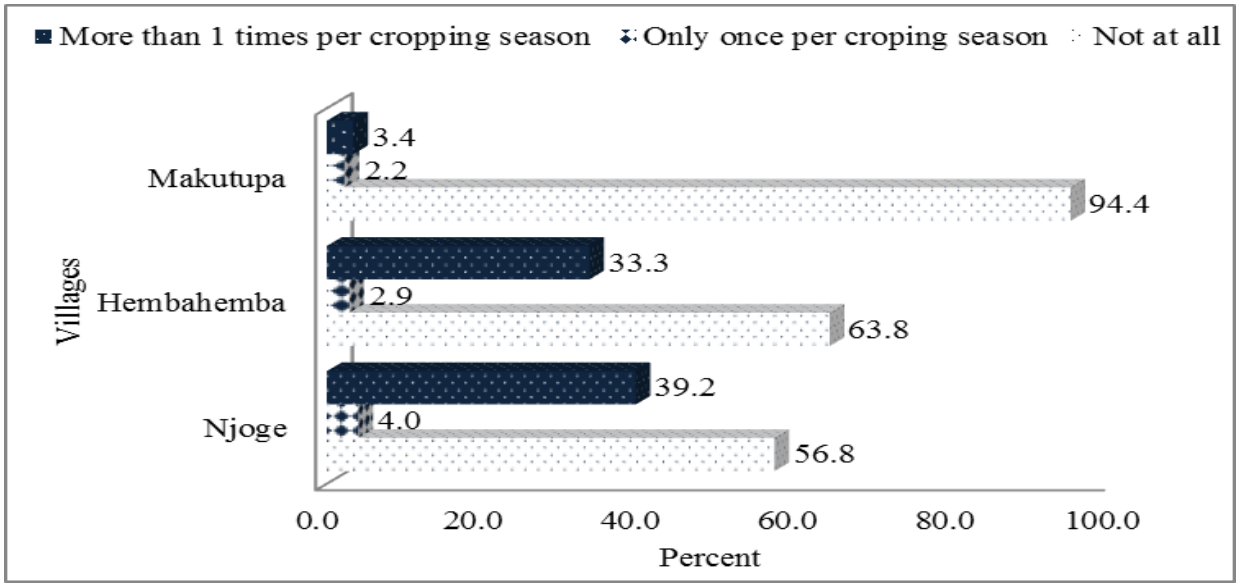
Source: Analysis of field data (2014)

5.1.4 Drying area

Kibaigwa market set aside spaces for drying agricultural produce. These include shaded and non-shaded areas, surfaced and non-surfaced areas. According to management of the market, the use of the drying area is free for everyone. Farmers or buyers whose maize has certain degree of wetness are allowed to use drying area. However, it was observed that drying area were most used by buyers especially those export maize rather than farmers. According to farmers, they don't use drying area to avoid costs of paying casual labourers and accommodations while waiting maize to dry. Figure 3 presents frequency of sampled respondents to use drying area available at the market. As shown in the figure 6 that most

sampled households do not use drying area as reported by 94.4%, 63.8% and 56.8% in Makutupa, Hembahemba and Njoge villages, respectively. The findings imply that smallholder farmers in Kibaigwa sold already dried maize. Responses on frequency of using drying area was statistically significant (p = 0.000) between villages with χ^2 = 49.247 and df = 4. This indicates that respondent responded differently across villages.

Figure 3: Frequency of using parking area



Source: Analysis of field data (2014)

Assessment on influence of drying area on decision of smallholder farmers to participate in market showed that the variable has positive regression value (β = 0.731). However, the likelihood of market participation was found not statistically significant (p = 0.307) by a factor of 2.078 with an increase in the frequency of using drying area. The frequency of using drying area has Wald statistic of 1.042 (Table 1). It was observed at the market that there is no rule that required a farmer to sell maize, which has certain degree of wetness. It is market forces that decide prices maize based of degree of dryness, which assessed visually by either buyers or middlemen.

5.1.5 Warehouse

Warehouse is another variable of market facilities that enabling market participation. However not statistically significant with (p = 0.526). In analysis of binary logistic, the variable had regression coefficient of 0.38, Wald statistic of 0.402 and odd ratio of 1.463 (table 1). The findings imply that availability of the warehouses adjacent the market increases confidence of smallholder of bringing their produce to market. It means, in case maize not sold at the market he/she can store in the warehouse. Kibaigwa market had two permanent warehouses: one has capacity of 5600 bags; and the other has capacity of 5000 bags. Kibaigwa market also has two temporary warehouses with capacity of 8000-9000 bags each. Apart from warehouses owned by Kibaigwa market, there were also warehouses adjacent the market accounted for 20-30, which owned by individuals. Table 2 presents results on the frequency of smallholder farmers using warehouses available at the market. As shown in the table "not at all" was reported by 74.3% of sample households while 11.9% used only one and 13.8% used more than once per cropping season. Responses on frequency of using warehouse was statically not significant (p = 0.246) between villages.

Table 2: Frequency of using warehouse

	Njoge		Hembahemba		Makutupa		Total		Chi square test		
	F	%	F	%	F	%	F	%	value	df	sign
Not at all	101	80.8	74	70.5	62	69.7	237	74.3	5.435	4	0.246
Only once per cropping season	13	10.4	14	13.3	11	12.4	38	11.9			
More than 1 times per cropping season	11	8.8	17	16.2	16	18.0	44	13.8			
Total	125	100	105	100	89	100	319	100			

Source: Analysis of field data (2014)

The study revealed reasons three why very few smallholder farmers infrequently use warehouse at the market. These include i) availability of warehouses in villages, ii) availability of market information and iii) storage costs. It was observed that many smallholder farmers in surveyed villages have local storage facilities called *Vihenge*, which commonly used to store surplus maize to be used or sold in the lean period. Apart from traditional storage, there are also private and community warehouse. In Hembahemba, for instance, there are 100 private warehouses and one owned by village government. Njoge had four private warehouses and one owned by village government while Makutupa had no

warehouse at all. It was further revealed that availability of the market with good price influence farmers to sell their produce instead of storing them. Accessibility of market information that enables them to take product to the market also increased tendency of smallholder selling their produce. In addition, cost of storage also reduces morale of farmers to use warehouses. Storage cost in warehouse per bag from July/August to April/May is TZS 2000.

6.0 Conclusion

The factors influencing maize market participation in Kibaigwa international grain market which have been examined in this paper have confirmed to have a significant impact on the ability of small-scale maize farmers' decisions to participate in market.

It was discovered that, the availability of the improved facilities, like buildings, parking area, weighing machine, warehouse and drying area attract smallholder farmers to participate in the market. The results show that Wald statistics are non-zero values, which implies that there is interaction between market participation (dependent variable) and independent variables (building area, weighing machine, parking area, drying area, and warehouse). Therefore, such findings indicate that market facilities significantly influence decision of smallholder farmers to participate in market services at 5% level of significance. All independent variables have positive regression coefficient (+β), which means enabling market participation of smallholder farmers.

7.0 References

Akyoo, E. P. (2008). Opportunities and Challenges of a partnership approach. The case of the "Income Generating activities Project", Morogoro Region Tanzania. A Research Project submitted to Larenstein University of Applied Sciences in Partial Fulfillment of the Requirements for the Degree of master of Development, Specialization Training, Rural Extension and Transformation

Badiane, O., Goletti, F., Kherallah, M., Berry, P., Govindan, K., Gruhn, P. and Mendoza, M. (1997) "Agricultural input and output marketing reforms in African countries: Final report", IFPRI, Washington DC.

Barret, C. B. (2007). Smallholder market participation: Concepts and evidence from eastern and southern Africa. Food Policy. August 2008, Pages 299–317

Eleni Z. (2009). A Market for all Farmers: Market Institutions and Smallholder Participation. CEGA Working Paper Series No. AfD-0903. Center of Evaluation for Global Action. University of California, Berkeley.

Eskola, E. (2005). Agricultural Marketing and Supply Chain Management in Tanzania: A Case Study. ESRF Study on Globalisation and East Africa Economies. Working Paper Series No. 16

Ismail, J. I. (2010). MVIWATA and small scale farmer's income improvement through agricultural marketing, case study of Nyandira market. A thesis submitted in fulfillment of the requirements for the degree of Masters of Business Administration of Sokoine University of Agriculture, Morogoro, Tanzania

Jayne T.S., Mather, D. and Mghenyi, E. (2006). Smallholder Farming Under Increasingly Difficult Circumstances: Policy and Public Investment Priorities for Africa, Department of Agricultural Economics, Michigan State University *International Development Working Papers* 86.

Kaburire, L. and Ruvuga, S. (2006). Networking for agricultural innovation. The MVIWATA national network of farmers' groups in Tanzania. Bulletin 374 17-05-2006 10:30. Pg 79.

Lassalle, T. J. and Ruvuga, S. R. (2006). "Give Us… Our Markets!" Facilitating Transactions and Retaining Added Value Locally. Case study from a farmers organisation managed half bulk rural markets, Tanzania. Paper presented in INNOVATION AFRICA SYMPOSIUM held in Kampala, Uganda from 21-23 November 2006.

Minot, N. and Hill, R.V. (2007). Developing and Connecting Markets for Poor Farmers. 2020 Focus Brief on the World's Poor and Hungry People. Washington, DC.

MVIWATA (2008). Government applauds MVIWATA. Monthly Bulletin of MVIWATA. Issue Number 03 November 2008.

Nee, V. (1989). A theory of market transition: from redistribution to markets in state socialism. American Sociological Review, 1989, Vol. 54

Obi, A., Herman, D. van Schalkwyk and van Tilburg, A. (2011). Market access, poverty alleviation and socio-economic sustainability in South Africa. Unlocking markets to smallholders. Lessons from South Africa. Mansholt publication series - Volume 10

Onumah, G. E., Davis, J. R., Kleih, U. and Proctor, F. J. (2007). Empowering Smallholder Farmers in Markets: Changing Agricultural Marketing Systems and Innovative Responses by Producer Organizations. *ESFIM Working Paper 2*

Shapland, B. and Kampen, J. (2006). Farmers' organizations and agricultural innovation. Case studies from Benin, Rwanda and Tanzania. Royal Tropical Institute (KIT) – Amsterdam KIT Development, Policy and Practice. Bulletin 374.

Shilpi, F. and Umali-Deininger, D. (2007). 'Where to sell? Market facilities and agricultural marketing'. Policy Research Working Paper 4455. Washington DC: World Bank.

Teravaninthorn, S. and Raballand, G. (2009). Transport prices and costs in Africa: a review of the international corridors", The World Bank, Washington D.C.

Wennink, B, Nederlof, S and Heenskerk, W (eds) (2007). Access of poor to agricultural services, Bulletin 376 Development Policy and Practice

Wuensch, K. L. (2006). Curvilinear regression. In N. J. Salkind (Ed.), Encyclopedia of measurement and statistics Thousand Oaks, CA: Sage. : 211 - 215.