International Journal of Economics, Business and Management Studies

Vol. 3, No. 1, 1-11, 2016
e-ISSN: 2226-4809/p-ISSN: 2304-6945

Effects of Non Tariff Barriers on Maize Trade in Mbozi and Momba Districts of Tanzania

Maziku, Petro[1]
[1]Department of Business Administration, College of Business Education, Dodoma, Tanzania

ABSTRACT

This paper examined the effects of NTBs on maize price received by smallholder famers and traders in Mbozi and Momba districts of Mbeya region in Tanzania. Cross sectional data were collected from 240 smallholder farmers and 50 traders from selected villages and markets using structure questionnaires and Focused Group Discussion. A two stage - stratified sampling procedures were used in the selection of farmers. Findings from study show that, NTBs has an inversely relationship with maize prices having coefficient valued at -0.062. This implies that, for a unit increase in NTBs costs there would be a 6.2% decline in farmer's prices in the rural areas and rise in consumer' prices by the same percent in the urban centers. Moreover, maize prices seem to decrease with an increase in distance from the rural markets to urban markets and that contributions of NTBs on producer prices were higher between rural and districts markets. The paper concluded that, NTBs play a significant contribution on the increase in transaction costs which leads to lowering farm gate prices in the rural and increased consumer prices in the urban areas. It is therefore recommended that, protective food policy such as NTBs strategies should be minimized in order to maintain reasonably high prices in rural areas and low prices in urban areas.

Keywords: NTBs effects, Farmers and traders prices, Surplus areas, Tanzania.

DOI: 10.20448/802.3.1.1.11

Citation | Maziku, Petro (2016). Effects of Non Tariff Barriers on Maize Trade in Mbozi and Momba Districts of Tanzania. International Journal of Economics, Business and Management Studies, 3(1): 1-11.

Funding : This study received no specific financial support.

Competing Interests: The author declares that there are no conflict of interests regarding the publication of this paper.

History : **Received:** 18 May 2016/ **Revised:** 2 June 2016/ **Accepted:** 6 June 2016/ **Published:** 10 June 2016

Publisher: Online Science Publishing

1. INTRODUCTION

Following an increase in prices for basic agricultural commodities in recent years, most of governments in the world have been intervening the functioning of markets in terms of policy instruments (FAO 2009; IFPRI 2013; Sitko *et al.* 2014). Policy intervention on the marketing of agricultural food staples in some cases has been creating a price differences between two markets. Price differences for integrated markets according to the law of one price will be equal to the transaction cost of moving the product from one market to another. However, Ferrantino (2006) and Dean *et al*. (2008) had argued that, there are many forces which contribute to price differences between two spatial markets. These forces may include those originated from unobservable costs caused by the application of Non Tariff Barriers (NTBs) strategies on staple food crops. According to

Mkenda and Van Campenhout (2011) the presence of NTBs costs along the supply channels for an essential crop like maize, have welfare effects to market actors (producers and traders) in the sense that they could increase transaction costs and high costs are translated into high prices for the consumers and low farm-gate prices for producers. Basing on these arguments it is therefore expected that, prices could be lower in the market channels which involve more transaction costs and higher for that of low transaction costs. This situation on the other hand could decrease the incentives of farmers to produce and sell more outputs to the market because of low farm gate prices (Haug and Hella 2013; Minot, 2014). Moreover, Minot (2013) argued that the trend of producer prices in the Developing countries like Tanzania in which market infrastructures are not well developed, prices are said to be lower in the rural markets and high in the urban markets. Such situations can be linked with high transaction costs originated from Ad hoc interventions by governments on the marketing of major staple food crops which could lead to increased transaction costs. To integrate smallholder farmers in the marketing system Barrett (2008) and Minot (2010) suggested that, market transaction costs as attributed by NTBs should be treated in a special way in the process of formulating policies which intends to promote farmers' market participation and income improvements. This is because a maize marketing system in Tanzania is characterized by a very large number of small traders operating from both the main production centre and major urban areas (Match Maker Associates, 2010; Mkenda and Van Campenhout, 2011). The small traders are said to discriminate smallholder farmers in the rural areas by offering lower prices for their maize produce as compensation for costs incurred in moving maize to urban markets. Like to other countries in Sub-Saharan Africa (SSA), maize in Tanzania is one of the major staple food crop, consumed by the majority of its population (90%) and most important source of carbohydrates for the population (Minot, 2010; KI, 2011). Maize as a source of carbohydrates, it contributes for about 33% of the total calories required per person in a day higher as compared to 15% for cassava (Minot 2010, World Bank, 2012). Despite all these importance, yet its marketing and trade are continuously intervened by the government through imposing arbitrary trade restrictions which include tariffs and NTBs as strategies of ensuring food security and price stability in the country (Karugia *et al.,* 2009; Haug and Hella 2013). The decision which is contrary to what Coulson (2010) and KI (2011) observed in Tanzania, that the implementation of taxation policy and numerous NTBs such as road blocks and weighing bridges hampers crops from being transported within and outside the country. This situation on the other hand could force some smallholder farmers in the rural areas to conclude their market transaction with traders at home and failed to access districts and regions markets where they could get a better price for their produce.

Evidence from empirical studies in SSA further indicate that, the major problem faced by smallholder farmers particularly in the rural areas is the existence of high transaction costs incurred when marketing their maize outputs which acts as barriers to access markets. This in turn could make market incentives to be not transmitted to farmers and therefore cannot profit from the potential benefits of trade (Ravallion, 1986; Bignebat and Piot-Lepetit, 2013). Lack of profit benefits caused by NTBs costs among producers especially in the rural areas could lead to some of them to reduce resources allocated for farm production and thus the supply of that crop to the market. On the other hand, the World Bank (2012) and FAO (2013) reported that, market regulations such as export permits, export ban and weighing bridges they are still preventing traders from engaging in maize related businesses in Tanzania because they impose more uncertainties both at the

local and international level. Following these arguments, Porteous (2012) argued that, the effects of NTBs on maize prices still need more attention as they are not explicitly analyzed and known to policy makers despite Tanzania being imposing them arbitrary. Therefore, the need of examining the effects NTBs on maize price as part of market transaction costs is still important. This will enable both government and policy makers to make informed decisions and come with strategies which will motivate farmers to produce more maize due to increased farm-gate prices and trade benefits. However, some studies have been conducted to examine the effects of NTBs on price level in Tanzania, yet majority of them employed time series data based only on wholesale and retail prices at the traders' level and failing to integrate smallholder farmers as key marketing actors. Moreover, in these studies more attention was given on traders' prices and a little attention on farm-gate prices which are directly received by smallholder farmers. These studies include that of Minot (2010); Ihle and von Cramon-Taubadel (2010); World Bank (2012); Porteous (2012) and IFPRI (2013) a few to mention. Findings from these studies showed mixed results on the cause of change in traders' prices. For example, Porteous (2012) found that export ban increases retail prices for maize in the implementing country while Minot (2010) claimed to have almost equal change in retail and wholesale prices with the world prices in Songea-Tanzania. Thus, the effects of NTBs on prices at households' level as an important specific variable is less studied. This knowledge gap calls for an academic enquires of understanding on the phenomenon and thus contributes to the body of knowledge about the effects transaction costs on marketing systems.

Therefore, this study was aimed at analyzing the effects of NTBs on maize price level as received by smallholder farmers between rural and urban markets in Mbozi and Momba of Mbeya region.

2. THEORETICAL FRAMEWORK

According to Dean *et al. (*2008) and Minot (2014) estimation of NTBs effects on price differences between two markets (rural and urban) under imperfect condition where arbitrage is affected by transaction costs, the use of comparison between the price of a product before and after the imposition of the NTB is necessary. This is because the price difference under such a situation can be explained by the size of transactions costs of transferring the product from market 'A' to market 'B'. Moreover, economic theories predict that, prices for homogeneous product between two markets connected through trade they will be related from each other (Mkenda and Van Campenhout, 2011). Thus, changes in price at one market could bring changes to another market. And if the spatial distance between the two markets is significant, a rational trader or farmer will start exploiting the spatial price differences by moving a product from the lower priced market to the higher priced market. In this study the determination of price formation was based on the price difference between rural markets at village level and urban markets at the district level. The analysis was guided by the price formation theory as suggested by Meyer *et al.* (2006) and Moctar *et al*. (2015) in their analysis of price formation in grain markets in Africa. The theory is guided with assumptions of forces of demand and supply such a way that, changes in prices at urban market are due to supply shocks at the rural market which fail to meet the demand at the urban market. Thus, increase in supply at the rural market (assuming demand remain constant) will lower the equilibrium price at that market. But the increase in demand for a commodity in the urban (assuming supply remain unchanged) will increase the equilibrium price at that market. This will trigger more traders to inter into the market and buy more quantity from the rural market where prices are low and transport to the

urban markets and sell at higher prices. Under such a situation and given that the effective flow of the product occurs between the two markets (rural and urban), prices are expected to increase with transaction costs (TC) in the urban markets and decrease in the rural markets (key *et al.* 2000; Moctar *et al.,* 2015). To model the effects of NTBs on prices in the two districts it was assumed that prices follow this trend and the relationship was expressed in the following equations:

$$P^U = P^R + TC \quad \text{(Price at urban market)} \quad \ldots\ldots (1)$$

and

$$P^R = P^U - TC \quad \text{(Price at the rural market)} \ldots\ldots (2)$$

Whereby: P^U = present price received by traders at the urban markets and P^R = price received by farmers at the rural market at village centers. TC = transaction costs incurred in moving the product from rural to destination markets in the urban as attributed by NTBs.

2.1. Empirical Model Specification

To carry out the estimation of NTBs effects, the study followed the Moctar *et al.* (2015) approach in which authors used distance and transport costs as proximity to measure the effects of remoteness on price change. In this study the price differences between rural and urban markets were determined by the size of NTBs costs and geographical distance between the two markets. This is because it was assumed that, effects of NTBs could be affected with the spatial distances. However, in order to capture the effects of external transaction on local maize prices, the international maize price was included in the model. This is because maize markets in the study area to some extent are related with the external markets given that Momba district is located at the border of Zambia and Malawi. Under such conditions changes in price level between the two markets will be determined by NTBs costs, distance between markets, international prices and harvest season variation (key *et al.* 2000; Minot, 2013). Thus, the estimation of NTBs effects on maize price level at the local markets was expressed as:

$$\ln P_t = \beta_0 + \beta_1 \ln IP_i + \gamma \ln D_i + \rho \ln R_i + \eta \ln S_{it} + \varepsilon_i \quad \ldots\ldots (3)$$

Where, $\mathbf{P_t}$ and IP represent prevailing maize price and international prices at period t**.** and ***S*** is the seasonal dummy variable measuring the effects of season variation (Harvest season =1, lean season= 0). $\boldsymbol{D_i}$ is the continuous variables that measures the distance between rural market and urban markets, ***Ri*** presents NTBs costs. **β, γ, η and ρ** are coefficients parameters to be estimated. However, the coefficient ***ρ*** in equation (3) will measure the effects of NTBs imposed on average price level between the two markets.

3. METHODOLOGY

3.1. Study Area and Sampling Procedures

The study was conducted in the Southern Highlands Zone of Tanzania covering two major surplus maize producing districts of Mbozi and Momba in Mbeya region.

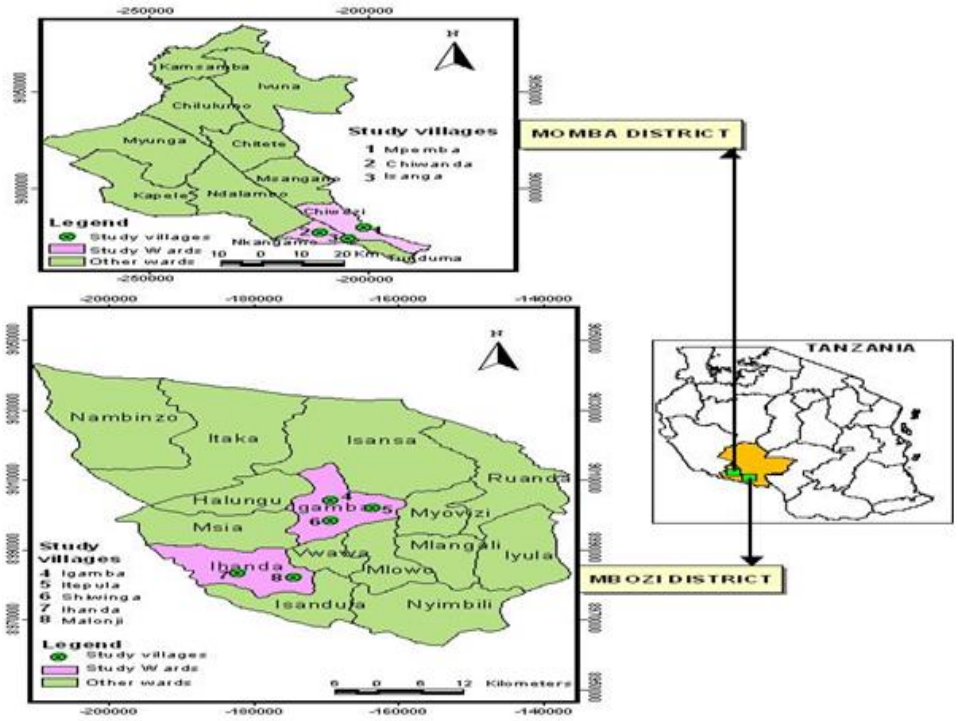

Figure-1. Map showing study wards in Mbozi and Momba districts
Source: Mbozi and Momba districts Map section

The two districts were selected based on their agricultural potential of being surplus-producing areas for maize in Mbeya region. Also they depend more on external markets (Malawi, DRC and Zambia) for their surplus maize (Minot, 2010) and are also situated far from major domestic markets such as Dar es Salaam and Arusha. However, a cross sectional design was employed in carrying out the survey whereby the population of smallholder maize producers in selected villages from the two districts was involved. On the other hand, a two-stage stratified sampling was used in the selection of sample size. In the first stage, four wards namely Igamba, Ihanda, Nkangamo and Chiwenzi were purposely selected from the two districts basing on proximity to district markets (Mlowo and Tunduma) or border, volume of maize production and existence of NTBs. Then, two villages from each ward were randomly selected making a total of 8 villages (Igamba, Itepula, Shiwinga, Ihanda, Malonji, Mpemba, Chiwanda and Isanga). In the second stage, a sample of 240 small householder farmers was randomly selected from the eight villages constituting 30 farmers from each village. Also 50 traders were randomly selected from the two major markets in Mbozi and Momba districts namely Mlowo and Tunduma maize markets respectively. This was aimed at capturing NTBs information for traders as they are highly influenced market actors.

3.2. Measuring of NTBs Costs

According to Karfakis and Rapsomanikis (2008) transaction costs have a large unobservable component and hence their measure can only be indirectly revealed from the behavior of potential agents (farmer or trader) in a given market. In this regard, the standardized comparable unit method was used in the quantification of the costs for various types of NTBs. The standardized measurements of costs for NTBs are presented in Table 1. Therefore, costs (in monetary value) paid by farmers and traders in clearing different

obstacles of NTBs were quantified as NTBs equivalent at each barrier and used in measuring their effects on price received by farmers and traders in the two districts.

Table-1. Measurement of the cost due to NTBs

Variable	Quantification measurements
Administrative requirements(license, trade permits)	Amount paid in Tshs to obtain licenses, custom clearance, council permits.
Roadblocks	Monetary cost in Tshs per ton to overcome the roadblock; time lost per trip due to roadblocks, frequency.
Duties/Levy	Amount paid in Tshs per ton per trip
Bribe (corruption)	Amount paid in Tshs/ton as a bribe per trip, frequency
Police check point	Monetary cost in Tshs/ton or amount paid in Tshs/ton as a bribe per trip, frequency
Weighbridge	Frequency, time lost at weighbridge; monetary cost in Tshs/ton to overcome the barrier per trip.
Custom procedures	Time lost due to queues at custom, monetary cost paid in Tshs/ton per trip to overcome any barrier at custom
Extra time spent	Amount paid as accommodation and meal costs

Source: Adopted from Karugia *et al.* (2009)

3.3. Data Collection and Analysis

Structured and semi- structured questionnaires were administered in gathering primary data on production and NTBs from the maize producers and traders in Mbozi and Momba districts. In addition, personal observation was used for gathering information which is not easy to quantify such as bribe and other administrative procedures. Focus Group Discussion was also conducted at the village and district level with key informants. The key informers included village officers, transporters, district officers, custom officials and extension officers to supplement information collected from questionnaire. Data on average costs for various NTBs, quantity of maize produced, transport costs, prices for inputs and outputs for famers were identified and quantified. Primary data were also complemented by secondary data on maize production, prices and NTB costs from previous studies (KI, 2011; FAO, 2009; Hella and Haug, 2013) even though time series data on farm gate price from the two districts were not available. The domestic sources of secondary data included publications from the country National Bureau of Statistics (NBS), Ministry of Industry Trade and Investment and district annual reports. Collected data were analyzed both descriptively and empirically using simple descriptive measure such as means, variance and findings were presented in graphs and tables. On the other hand, empirical estimate on the effects of NTBs on price received by traders and farmers were done through OLS regression guided with price formation model. In checking for multicollinearity problem, a simple regression matrix diagnostics was done. The results indicates that, average Variance Inflation Factor (VIF) was 2.4 which is less than 10, implying that variables in the model had no serious multicollinearity (Gujarati, 2004). In addition, Durbin Watson test (DW) was employed to test for serial autocorrelation which could occur due to omission of explanatory variables and misspecification of the mathematical model. The average value of DW was 0.61 which also indicate no autocorrelation problem among independents variables in the model.

4. RESULTS AND DISCUSSION

4.1. Descriptive Results

To assess the contribution of NTBs on price differences between rural and urban markets, the price gross margins were estimated as the absolute price differences between markets in the two districts. Study findings show that, the price differences (gross margins) were significantly higher for villages that are located far away from the urban markets as compared to those closer to the district markets (Table 2). For example, Isanga and Shiwinga villages in Momba and Mbozi districts seems to experience the highest price margins difference while the lowest price margins were observed between Mpemba and Tunduma markets in Momba district. This can be explained by the facts that, transaction costs as attributed by NTBs are said to increase as the distance to urban markets increases and also the nature of road networks. These arguments also were revealed by a large percent of NTBs share on the farm gate prices for Isanga and shiwinga markets which contributes for about 27. 2%.

Table-2. Price Margins with NTBs costs between Rural and Urban Markets in Mbozi and Momba districts (TShs/Kg)

From	To urban market	Distance (Km)	Price margin	NTBs cost	Farm gate price(FG)	% NTBs on FG-Price
Isanga	Tunduma	30	170	68	250	27.2
Shiwinga	Mlowo	20	170	68	250	27.2
Malonji	Vwawa	16	160	64	260	24.61
Itepual	Mlowo	15	150	60	270	22.22
Igamba	Mlowo	10	100	40	320	12.5
Ihanda	Vwawa	5	60	24	360	6.67
Mpemba	Tunduma	4	50	20	370	5.41
Tunduma	Dar es Salaam	921	130	16	420	4.15
Mbeya	Arusha	1233	140	56	460	12.17
Tunduma	Arusha	1303	180	72	420	17.14

Source: Author's calculation from field survey data in the study area for 2014

Implicitly, this percent of NTBs costs on farm gate price is what traders will deduct from the market prices before they offer to farmers in the rural markets. These findings are consistence to those by Gabagambi (2013) and Minot (2014) who found that, the burden of NTBs in most cases are felt by smallholder farmers in the rural areas though lowered farm-gate prices.

More interesting, it was also found that the contribution of NTBs costs were very low (only 4%) between Tunduma and Dar es Salaam consumer markets (Table 2). This can be explained by the fact that, Tunduma and Dar es Salaam markets are well integrated and connected with a good road networks which allow changes in price and information to be transmitted quickly between the two markets. Generally, it was observed that, the proportion of NTBs contributions on farm-gate prices were higher between rural and district markets (27.2%) and low between districts and wholesale markets in the large cities like Dar es Salaam and Arusha (4% & 17.%). These arguments concur with those of FAO (2013) and Minot (2014) in Tanzania that, price margins between Dar es Salaam and Arusha were lower in the period of export ban in year 2011 because the two markets are connected with a well road networks and more integrated. These results carry a policy implication that, improvement in rural road networks and reduction of NTBs obstacles could increase the participation of farmers in the marketing activities and thus their welfares.

4.2. Empirical Results

Table 3 presents empirical results from equation (3) which shows the general effects of NTBs on the price level as received by farmers in Mbozi and Momba districts. The regression results indicated that, NTBs have a negative coefficient with a value of -0.062 and significant at p≤ 000. This suggests that, one unit higher in NTBs costs could lower the price received by smallholder farmers by 6.2% in the rural markets and increase the consumer prices in the urban areas by the same percentage. These findings agree with those of Moctar *et al.* (2015) and Karugira *et al.* (2009) in Tanzania who found that, high transaction costs as attributed by NTBs increased maize prices in the urban markets and decreases in rural markets. Moreover, the lower prices for smallholder farmers in the rural areas denotes the higher transaction costs as attributed by NTBs faced by traders in moving maize produce to urban markets. This is because traders in most cases has to ensure that the extra costs incurred in moving maize from the village markets to district markets are passed through into farmers in terms of lower prices they offer. For example, during the study it was found that for a trader or farmer to move maize from Itepula village to Mlowo market in Mbozi district has to overcome three road blocks and at each road block she/he is required to pay TShs 10, 000 per metric ton/ trip. This implies that the prices received by farmers from traders for their maize produce were less than they would have to receive in the absence of policy intervention and with better market efficiencies. These findings supports that of Gabagambi (2013) in his recent study in Tanzania on trade barriers to smallholder farmer that, the incidences of trade barriers like NTBs falls on farmers and not to final consumers as assumed to be by the policy. Thus an increase in the application of NTBs strategies will imply more reduction in farmers' income through the lowered farm-gate prices and hence the poverty differences between rural and urban areas will continue to expand. On average, Tanzanian farmers pay ten NTBs fees per year in the full maize supply- chain process, more than the Kenyan (eight bribes) and Ugandan (four bribes) farmers (World Bank, 2009; FAO, 2013). Out of these NTBs costs, seven bribes are paid at roadblocks and three at weighing bridges. Thus, the incomplete liberalization and continued poor regulation of food markets in Tanzania critically constrains agricultural development and reduces the profit margins received by famers and traders.

Table-3. Regression results on the Effects of NTBs on Price received by Smallholder Farmers in Mbozi and Momba districts

Variables	Coefficients	Std. Error	t- Value	P-Value
Constant	4.914	.257	19.096	.000
NTBs Equivalent (Tshs)	-.062	.013	-4.724	.000
International maize price (Tshs)	.255	.037	6.943	.000
Distance from village to urban market(km)	-.130	.009	-14.914	.000
Season variation (Harvest period =1, Lean period = 0)	-.099	.012	-8.136	.000
R - Square	88%			
F ratio	512			

Dependent Variable: Farm-gate price received by farmers in TShs/kg

Similarly, producer maize prices were found to decrease with the distance increase from the point of production to the nearest urban market center (Table 3). These findings imply that, maize prices were lower by 13% for farmers located far in the rural areas and higher for farmers who were close to the urban markets by the same percent. This is because as farmers being located far from the urban markets the more the

transaction costs as attributed by NTBs are incurred by traders in order to bring the maize to district markets. This makes traders to increase the price margins to be deducted from the prevailing prices at the urban market before offering to smallholder farmers as compensation for the transaction costs. These findings were supported by those of World Bank (2009) and Moctar *et al.* (2015) who found that, maize farmers in Tanzania who were located far from the urban markets received lower farm gate prices because as price takers, they effectively compensate the buyer for search costs that he/she incurred. This situation was also reported by traders at Mlowo and Tunduma maize markets when responding to the question for why they offer such low price to farmer compared to what they get at the urban markets. About 91% of traders reported the existence of high transaction costs incurred in clearing road blocks, weighing bridges and corruption from police traffics as reasons for the low maize prices they offer to famers in Mbozi and Momba districts.

In addition, producer prices were found to increase with the international price changes (valued at fob) in the two districts in which a unit increase in the internal price could lead to a 26% increase in maize prices in the rural markets. Conversely, the effects of the changes on international price could not being realized for majority smallholder farmers in the rural areas of Mbozi district because of weak market integration between production areas and the central markets in the urban areas. These findings are in line with those of Kilima *et al.* (2008) and FAO (2013) who found that maize markets in Tanzania especially at the producers' levels are weakly integrated with international trade. This implies that, it takes many months for price signals in one market to be incorporated into prices in other markets. The same arguments were found in Van Campenhout (2007) and World Bank (2009) studies that, maize markets in Tanzania continues to suffer serious weak price transmission signals to farmers leading to a slowly reaction to increased prices in other regional within and outside of the country. The weakly price transmission could be explained by the existence of increased NTBs costs along the supply chain of maize.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the effects of NTBs on price received by smallholder maize farmers and traders in Mbozi and Momba in year 2014. Generally, coefficients of NTBs indicated that maize prices in the rural markets were inversely related with the NTB costs and distance to markets. The negative coefficient of NTBs will imply that, farm-gate prices received by farmers in the rural markets were lower by 6.2% as compared to those who are located closer to urban markets. These arguments were also supported by the negative relationship between distance to market and producer prices in the two districts indicating that maize prices decreases by 13% with a unit increase in distance a farmer has to nearest markets. Also the contrition of NTBs on producer's price were higher between rural and district markets and lower between district and main consumer markets in big cities like Dar es salaam and Arusha. In this regard, the study recommended that government should formulate policies and strategies which will enhance market access in rural areas by improving market infrastructures and roads in order to reduce NTB costs and thus increasing in households' income from maize outputs. In addition, reduction of NTBs such as road blocks and weighing bridges along the way to markets could motivate more production and supply of maize in Mbozi and Momba districts. Also strategies like warehousing receipt system and NFRA maize purchases may help farmers to obtain high prices

and avoid low prices from middlemen. This also will insure market price predictability to both producers and traders and thus encourage maize production and supply in the country.

REFERENCES

Barrett, C. (2008). Smallholder market participation: Concepts and evidence from eastern and southern Africa, Food Policy, 33(4): 299-317.

Bignebat, C.and Piot-Lepetit,I. (2013). Transaction costs and market access in eastern and southern Africa: the case of maize, INRA UMR 1110 MOISA; Montpellier cedex 1, France.

Coulson, A. (2010). Kilimo Kwanza: A new start for agriculture in Tanzania? [www.btsociety.org/app/images/events/kilimo_kwanza_paper.pdf] site visited on 12/10/2015.

Dean, J., Ferberg, R., Signoret, J., Ferantino, M. and Ludema, R. (2008). Estimating the Price effects of Non Tariffs Barriers. Working Paper No. 06. International Trade Commission, USA. pp: 40.

Ferrantino, M. (2006). "Quantifying the Trade and Economic Effects of Non-Tariff Measures," OECD Trade Policy Working Paper No. 28. pp: 37.

FAO (2009). Crop Prospect and Food situation; Global Cereal Supply and Demand brief. FAO, Rome, Italy. pp: 140.

FAO (2013). Review of Food and Agricultural Policies in the United Republic of Tanzania. Food and Agriculture Organization, Rome, Italy. pp: 137.

Gujarati D.N (2004): Basic Econometrics, Fourth Edition. The McGraw−Hill Companies, New York, USA. pp: 1002.

Gabagambi, D. (2013). Barriers to Trade for Smallholder farmers in Tanzania: A Review and Analysis of Agricultural Related Market Policies in Tanzania. Eastern and Southern African small scale Farmers Forum, Dar es Salaam, Tanzania. pp: 40.

Haug, R. and Hella, P. J. (2013). The art of balancing food Security: Securing availability and affordability of Food in Tanzania. International Society for Plant Pathology Journal, 5: 1 – 11.

IFPRI (2013). Economy wide Impact of Maize Export Bans on Agricultural Growth and Household Welfare in Tanzania: IFPRI Discussion Paper 01287. Washington. DC. USA. pp: 112.

Ihle, R. and von Cramon-Taubadel, S. (2010). Semi parametric Evidence on the Nature of Price Transmission in Tanzanian Maize Markets: Paper presented at the Agricultural & Applied Economics Association 2010 AAEA, CAES, & WAEA Joint Annual Meeting, 25- 27 July, Denver, Colorado. pp: 1 – 36.

Karfakis, P. and Rapsomanikis, G. (2008). Margins across Time and Space: Threshold Co Integration and Spatial Pricing Applications to Commodity Markets in Tanzania: Working Paper No. 00153. Food and Agricultural Organization, Rome, Italy. pp: 27.

Kilima, F. T., Kenkel, P. and Mbiha, E. (2008). Impacts of market reform on spatial volatility of maize prices in Tanzania. Journal of Agricultural Economics, 59(2): 257 – 270.

Karugia, J., Wanjiku, J., Njuma, J., Freeman, A., Gbegbelegbe, S., Macharia, E. and Massawe, S. (2009). Impact of Non Tariffs Barriers on Maize and Beef Trade in East Africa. Working Paper No. 29. International Food Policy Research Institute, Washington DC. USA. pp: 16.

Key N, Sadoule, E and de Janvry, A. (2000). Transactions Costs and Agricultural Household Supply Response. American Journal of Agricultural Economics, 82:245-59.

Kilimanjaro International (2011). The Impact of Domestic and Cross Border Trade Restriction in Tanzania: Rural Livelihood Development Company, Dodoma, Tanzania. pp: 76.

Meyer, F., Westhoff, P., Binfield, J. and Kirsten, J. K. (2006). Model closure and price formations under switching market regimes. Agrekon, 45(4): 370 – 380.

Match Maker Associates (2010). Value chain analysis for rice and maize in selected districts in Tanzania: Introduction, context analysis and recommended way forward. Agricultural Council of Tanzania, Dar es Salaam, Tanzania. 89 pp.

Minot, N. (2010). Transmission of World Food Price Change to African Markets and Its Effects on households Welfare; International Food Policy Research Institute (IFPRI), Washington. DC. USA. pp: 27.

Mkenda, B. K. and Van Campenhout, B. (2011). Estimating Transaction Costs in Tanzanian Supply Chains. Working Paper No. 898. International Growth Centre Tanzania, Dar es Salaam, Tanzania. pp: 48.

Minot, N. (2013). Food price volatility in sub-Saharan Africa: Has it really increased? Food Policy, 45: 45 – 56.

Minot, N. (2014). How volatile are African Food Prices? IFPRI Research Brief paper No. 19. Washington DC, USA. pp: 37.

Moctar, N., d'Hôtel Elodie, M. and Tristan, L. (2015). Maize Price Volatility: Does Market Remoteness Matter? World Bank Group. Policy Research Working Paper No. 7202. Washington DC. USA. 33pp.

National Bureau of Statistics (NBS) (2008). National Sample Census of Agriculture Report, National Bureau of Statistics, Dar Es Salaam, Tanzania. pp: 29.

Porteous, O. (2012). Empirical Effects of Short-Term Export Bans: The Case of African Maize. Draft working paper, September 2012. University of California-Berkeley, USA. pp: 27.

Ravallion, M, (1986).Testing marketing integration. American Journal of Agricultural Economics 68 (2): 292-307.

Sitko N. J, Kuteya A. N. and Chisanga, B. (2014). Analysis of the Effects of Maize Trade Restrictions in the COMESA Region on Food Prices and Market Development; Paper presented at COMESA and ACTESA conference: Indaba Agricultural Policy Research Institute (IAPRI), Lusaka, Zambia. pp: 1 – 24.

Van Campenhout, B. (2007). Modeling trends in food market integration: Method and an application to Tanzanian maize markets. Journal of Food Policy, 32:112–127.

World Bank (2009). World Development Report: Agriculture for Development. The World Bank. Washington DC. USA. pp: 24.

World Bank (2012). Africa Can Help to Feed Africa: Removing Barriers to Regional Trade in Food Staples; Africa Food Report No. 66500-AFR. Poverty Reduction and Economic Management Africa Region. pp: 87.