Gender Differences in Market Participation among Small Holder Sweetpotato Farmers in South East Nigeria

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Abstract

The study analyzed gender differences in market participation among small holder sweet potato farmers in South East Nigeria. A stratified random sampling was used to select 360 respondents (180 males and 180 females) for the study in 2016. Market participation index (MPI) and logit model wereused to estimate the level of participation and decision to participate in the sweet potato market by gender respectively.The results showed that the females farmers tend to participate more in the market more than their male counterparts. The coefficients for age and distance from farm to market were negative, education and market orientation were positive and significantly related with decision to participate in the market for both male and female farmers.The coefficient for household size was positive and transportation cost negative and significant at 5 and 1 percent level respectively for the male farmers, while area of sweet potato cultivated and marketing experience were positive and significant for the female farmers at 10 and 5 percent respectively. The coefficient for gender had a negative sign indicating that female farmers are more likely to participate in the sweet potato market compared to the male farmers. The results call for policies aimed at investment in rural education, access to land (especially to female farmers) and provision of enabling environment through continuous rural training and provision of incentives like credit and inputs to encourage and attract young male and female farmers to remain in sweet potato production.

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INTRODUCTION

Sweet potato (*Ipomea batata*) is classified as female crop in Nigeria (Olagunju*et al.,* 2013; David & Madu, 2014) and has contributed significantly towards food self-sufficiency over the last years in South East Nigeria. Farmer's active participation to the sweet potato market is key instrument for poverty reduction, smallholder inclusion and increased food and nutrition security (Barrett, 2008). However, market dynamics, low level of participation, failures and shortcomings often diminish the desired impacts.The level of (sweet potato) farmer's market participation in the entire commercialization process had been a difficult task probably due to inappropriate policies, crop neglects, inadequate access to technology and unfortunate links to markets following the studies of Sharmaet al. (2012).The perishability, low value per unit and bulky nature of sweet potatoes discourage small scale farmers from accessing high price in markets and limits their level of participation especially the female farmers (Okoye, 2016).

Various agricultural sectors such as sweet potato are differently affected by policies such as trade liberalization and therefore the consequences for gender are not the same (Zoraida, 2004). Sweet potato marketing system in Nigeria involves multiple stages in which actors participate in the market as multiple (gender) roles (Anyaegbunam and Nto, 2011). In South East Nigeria, the study of David and Madu (2014) have shown that sweet potato production is mainly dominated by female farmers, the men predominate in sweet potato marketing and women engage in road side sales and processing. Since women and men in under-developed countries have different roles in agriculture and have historically been placed differently in relation to access and use of productive resources, the effects of participation may have diverse impacts and effects on both.Gender differences have implication for responsibilities particularly in sweetpotato with respect to marketing activities performed.

Berhanu and Moti (2012) noted that market participation refers to the extent by which a household/farmer participates in the market as seller. Market participation leads to market-oriented production where the household specializes in the production of those goods for which it holds comparative advantage (Timmer, 2005). This could leadto a more rapid productivity, growth due to large-scale production and increased technological change with welfare gains derived from trade. In order to participate actively in markets, households require adequate access to production technologies and infrastructure. Market participation is positively associated with the generation of a marketable surplus; thus, production technologies and productive assets affect a household's market participation by influencing its productivity. An understanding of gender differences and variables that affect market participationamong smallholder farmers, in Nigeria is necessary for development effective sweet potato marketing system as well as build capacity for income generation for the resource-poor farmers following Otieno et al., (2009).

METHODOLOGY

A stratified random sampling was used to select 360 respondents (180 males and 180 female) for the study. Three (Anambra, Ebonyi and Enugu States) out of the 5 states in the South-East Geo-Political zone of Nigeria were randomly selected for the study. For the second stage two agricultural zones per state were randomly selected. In the third stage, two Local Government Areas (LGAs) were randomly selected from each zone and three communities were selected randomly from each Local Government Area giving a sample of 36 communities. In the last stage, 10 (5 males and 5 females) sweet potato producers were stratified. A cross sectional data were collected with the use of structured questionnaire. Market participation Index (MPI) and logit model were used to estimate the level of

participation and decision to participate in the sweet potato market by gender. MPI is estimated as the ratio of the value of sweet potato sales to total value of sweet potato produced, following von Braun *et al* (1994); thus:

$$MPI_i = \frac{\sum P_i\, S_i}{\sum P\, Q_i} \qquad (1)$$

where, S_i= quantity of sweet potato sold by the i*th* farmer, P = average Price of sweet potato at community level, Q_i= total quantity of sweet potato produced by i*th* farmer MPI takes a value between 0 and 1, inclusive. Farmers that mainly participated in the market usually have MPI value closer to 1.

Logit regression model for the determinants of decision to participate in the market as seller is specified as follows:

$$Ln = \frac{MPI}{1-MPI} = bo + \sum_{i=1}^{n} bi\, Xi \qquad (2)$$

where MPI is the value of the dependent variable ranging between 0 and 1
b_0=intercept for market participation equation, X_i=variables for estimation.

The Logit model is explicitly modeled thus;

Ln MPI/1-MPI= b_0+ $b_1 X_1$ + $b_2 X_2$+ $b_3 X_3$ + $b_4 X$,+ $b_5 X_5$ + $b_6 X_6$ + $b_7 X_7$ + $b_8 X_8$ + $b_7 X_7$+ $b_8 X_8$ + $b_9 X_9$, + $b_{10} X_{10}$ + $b_{11} X_{11}$+ b_{12}+X_{12}+ $\beta_{13} X_{13}$ + β_{14}+X_{14}+ β_{15}+X_{15} +u_i

(3)

where,
MPI = (ranges from 0-1)
X_1= age (years)
X_2= educational background (years)
X_3= number of extension contacts
X_4= capital (Naira)
X_5=number of household size
X_6= distance from farm to the nearest market (km)
X_7= area of sweetpotato cultivated (hectare)
X_8= native of community (yes=1, no= 0)
X_9= farming experience (years)

X_{10}= marketing experience (years)
X_{11}= yield (kg/ha)
X_{12}= transportation cost (Naira/ bag)
$X1_3$ = road condition (good =1, bad = 0)
X_{14}= level of market orientation (0-1)
X_{15} = gender (male =1, female = 0)
u_i= error term

The relative effect of each explanatory variable (X_j) on the probability of being a non-market participant was measured by differentiating with respect to X_j, using the quotient rule (Wuensch, 2006 and Gujarati and Sangeetha, 2007).

The significant differences in market participation between male and female sweet potato farmers each was analyzed by the use of Z test.

$$Z = \frac{X_1 - X_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \qquad (4)$$

where:
x_1 = mean level of market participation for the male farmers
x_2 = mean level of market participation for female farmers
σ_1^2 = standard error of market participation for male farmers
σ_2^2 = standard error of market participation for female farmers
number of male farmers
number of female farmers

RESULTS AND DISCUSSION
The result in Table 1 shows the socio-economic characteristics of sweet potato producers in South-East Geo-Political Zone of Nigeria. The findings show the mean age of the male farmers (47.63) were more than their female (43.03) counterparts with a household size of about 6 persons each. This indicates that the farmers were still young, active, agile and within the productive age and with large household sizes. The empirical result supports of Olagunju, et al., (2013) who noted that sweet potato production and

marketing were dominated by younger farmers. Younger farmers tend to participate in the market more than their aged counterparts (Adesina et al., 2015). The large household size explains the large number of persons eating from the same pot. Production tends to increase, likewise market participation if there are more members in the household.

The results also show that both the male and female farmers attained primary education with a mean score of 6.82 and 7.74 years respectively. This implies that the respondents had some basic education. Basic education enhances the overall quality of the farmer by providing him/her with basic numeric and literacy skills (Okoye, 2015), thus increasing their decision of participation. The distances from the farm to market were 8.02km and 7.63km with transportation cost (50kg of sweet potato) of N139.96 and N133.42 for male and female famers respectively. This explained longer distance to travel especially during wet and on-seasons. The cost of transporting 50kg of sweet potato to the nearest market seems to be relatively high probably due to the bulky nature of sweet potato and these affect the selling price.

The male farmers had more years of farming experience (17.44 yrs) than their female counterparts (14.3 yrs), and marketing experience of 11.33yrs and 10.02yrs for male and female sweet potato producers respectively. This implies that the male respondents had more years of farming experience than their female counterparts but had almost the same years of experience for marketing activities. This indicates that both categories can be described as experienced in sweetpotato production and marketing and can be regarded as experienced in market competition (Olagunju, et al., 2013). The high level of marketing experience will equip the farmers to participate in the market following the findings of Vakiset al. (2003). The size of farm varies across gender in the study area. The total area of land cultivated with sweet potato were 0.37 and 0.46 hectares for male and female farmers respectively. This implies that all the respondents had small land holdings. They grow sweet potato on a small scale, and the likely implication of this is small output.

Results show that 51.67 percent of the male and 52.78 percent of the female respondents had no access to means of transportation. Access to means of transportation will encourage the farmers towards participating in the market since sweet potato is bulky. Majority

Table 1

Average Characteristics of the Sweet potato Farmers in South Eastern, Nigeria

Variable	Male	Female	Pooled
No of observation	**180**	**180**	**360**
Age	47.63(9.63)	43.03(0.89)	45.41(11.05)
Household size	5.9(2.20)	5.81(2.32)	5.86(2.26)
Educational level (years)	6.82(5.52)	7.74(4.84)	7.28(5.19)
Transportation cost (Naira/bag)	139.96(67.39)	133.42(95.03)	137.36(82.32)
Distance from the farm to market(km)	8.02(9.41)	7.63(6.99)	7.85(8.27)
Farming experience (yrs)	17.44(8.06)	14.43(8.11)	15.97(8.17)
Marketing experience (yrs)	11.33(7.28)	10.02(7.19)	10.69(7.19)
Total area of land cultivated with sweet potato	0.37(0.12)	0.46(0.12)	0.41(0.12)
Dummy (%)			
Member of cooperative society	86.11	77.65	79.45
No access to means of transportation	51.67	52.78	52.22

of the male (86.11%) and female (77.65%) respondents belong to cooperative societies. Being members of the cooperatives will generally help the farmers in accessing agricultural information especially in marketing.

The results in Table 2 show the level of participation among sweet potato farmers in South Eastern, Nigeria. The results show a mean score market participation of 0.73 and 0.95 for male and female respondents respectively. This implies that both male and female respondents participate in the market but the females tend to participate more than their male counterparts. This is in agreement with David and Madu (2014) who noted that sweet potato was traditionally grown and marketed by women while little number of men are cultivating sweet potato on their own plots mainly for home consumption. Fafchamps and Hill, (2005) and Bannor and Melkamu (2015) noted that farmers who produce large quantities are more likely to travel to the market in search of relatively higher exchange prices.

The results in Table 3 showthe logit regression estimates of the determinants of decision to participate in the market for sweet potato farmers in South Eastern, Nigeria. The results showthe likelihood ratio statistics as indicated by chi^2 statistics were highly significant ($p<0.01$), suggesting the model has a strong explanatory power. The Pseudo R^2 of 0.527, 0.688 and 0.256 for the male, female and all the sweet potato market participants respectively, indicated the specification fits the data. It also indicates that the variables included in the model explain 52.7, 68.8 and 25.6 percent of the variation in the decision of market participation for male, female and all the farmers respectively. The results showed that most of the variables tested for the probability to participate in the sweet potato sales market had the expected signs.

The coefficients for age were negative for male and female farmers and significant at 5 percent and 10 percent level respectively. The negative sign for age indicates that the probability of participation of farmers as a marketer decreases with increasing age. This could arise from the fact that older farmers have limited access to market information; whereas younger heads could sell a relatively

Table 2

Level MarketParticipation among Sweetpotato Farmers in South Eastern, Nigeria

Variable Description	Mean	S.D.	Minimum	Maximum
Male				
Price of 50kg of sweet potato (Naira)	2698.15	206.22	1500.00	3000.00
Quantity Produced (kg)	1794.08	3094.68	400.00	5000.00
Quantity sold (kg)	1306.68	721.38	250.00	2000.00
MPI	**0.73**	**0.62**	**0.00**	**1.00**
Female				
Price of 50kg sweetpotato (Naira)	2718.75	344.49	0.00	3000.00
Quantity produced (kg)	1516.37	1167.59	0.00	5000.00
Quantity sold (kg)	1440.56	689.86	0.00	2000.00
MPI	**0.95**	**1.15**	**0.00**	**1.00**
Pooled				
Price of 50 kg sweet potato (Naira)	2704.96	258.87	14.00	3100.00
Quantity produced (kg)	1633.35	1127.14	0.00	5000.00
Quantity sold (kg)	1371.55	1714.51	0.00	2000.00
MPI	**0.84**	**0.75**	**0.00**	**1.00**

MPI= Market Participation Index

Table 3

Logit Regression Estimates of the Determinants of Decision to Participate in the Market among Sweet potato Farmers in South Eastern Nigeria

Variables	Parameters	Male	Female	Pooled
Constant	b_0	5.6067(0.84)	26.8664(1.62)	-4.6117(-2.20*)
Age (years)	X_1	-0.0366(-3.18**)	-0.4272(-1.66*)	0.0654(-3.38**)
Educational level(years)	X_2	0.0814(2.23*)	0.5084(4.96***)	0.1032(4.09***)
Extension contact	X_3	-0.2599(-1.33)	0.1617(1.54)	0.0594(1.15)
Capital (Naira)	X_4	-0.00004(-1.57)	-0.0002(-0.66)	0.0000(1.12)
Household size	X_5	0.9729(3.12**)	0.0625(0.09)	0.1019(3.90***)
Distance from farm to market (km)	X_6	-0.0331(-3.46**)	-0.4135(-3.86**)	-0.0099(-3.24**)
Area of sweetpotato cultivated (ha)	X_7	1.4522(0.28)	15.8390(1.70*)	2.8417(2.04*)
Native of community	X_8	3.0287(1.31)	-2.6918(-1.05)	0.4188(0.41)
Farming experience (years)	X_9	-0.2646(-1.05)	0.0518(0.38)	-0.6083(-0.97)
Marketing experience (years)	X_{10}	0.0612(0.30)	0.0836(3.79**)	0.0566(0.81)
Yield (kg/hac)	X_{11}	0.0007(1.72*)	0.0016(1.49)	0.0003(2.71**)
Transportation cost (Naira)	X_{12}	-0.01557(-5.14***)	-0.0374(-0.96)	-0.0026(-3.43**)
Road condition	X_{13}	-0.9336(-0.73)	-2.4904(-0.96)	0.5542(1.14)
Market orientation (MOI)	X_{14}	26.0654(2.17*)	0.0475(2.83**)	1.8348(3.34**)
Gender	X_{15}			-1.7931(-3.25**)
Chi^2		0.0065	0.0000	0.0000
Log likelihood		-13.6767	-11.5927	-67.0705
Pseudo R^2		0.5273	0.6875	0.2561
Number of participants in the market		149	162	360

*$p<0.1$, ** $p<0.05$ and ***$p<0.01$. Figures in parenthesis are t-values

large portion of their product through better access to price information following the study of Mahelet (2007). He noted a tendency of younger farmer to have relatively a higher educational level in terms of highest completed grade than older heads. Barret et al., (2007) stated that younger people participated more in the market because they are more receptive to new ideas and are less risk averse than the older people. The finding concurs with that of Chalwe (2011), who found that younger people tends to participate more in the market than older people in marketing of beans in Zambia.

Educational level was positive and significantly related with decision to participate in the marketfor male farmers at 10 percent level and at 1 percent level each for female

and all the farmers.This implies that increase ineducational levelincreases the probability of participating in sweet potato market. The farmers with more level of education showa higher tendency to participate in sweet potato markets than their counterparts (Bedemo et al, 2013). This can be explained by the fact that as an individual access more education he/she is empowered with the marketing skill and knowledge that will spurhim/her to participate in the market.This is in line with Astewel (2010) who illustrate that if paddy producer gets educated, the amount of paddysupplied to the market increases. This suggests that higher level of education provides a greater opportunity for the farmers to participate in the sweet potato market. Specifically, households

with more level of educated family members choose to work outside the farm.

The coefficient for household size was directlyrelated to the probability of participating in the market and significant at 5 percent and 1 percent level for the male and all farmers respectively. This relationshipis in agreement with a priori expectations. The larger the number of household size, the probability of increased participation in farming because of free family labor in both farming and marketing activities. This is in line with Onoja et al., (2012) who noted thatprices had a stronger influence on initial market entry decisions of some agricultural marketers.

The coefficient of distance from farm to the market had a negative relationship with the probability of participating in the market formale, female and all farmers and significant at 5 percent level each. This suggests that farmers who arecloser to market outlets are more likely to participate in the market than their counterparts located far away.This finding is in tandem with empirical findings of Bahta and Bauer (2007).

The area of land cultivated is an important factor in determining decision to participate in the sweet potato market. The result revealed a direct and significant relationship for area of sweet potato cultivated for female and all farmers at 10 percent level each. This means that with relatively large land size, female farmers are likely to have higher levels of participation. The larger the farm size, the larger the area allocated to sweet potato production, thereby increasing the quantity of produce available for sale following Adeoti et al., (2014). This relationship is contrary to Randela et al., (2008) who noted an inverse relationship between land size and market participation.

Years of marketing experience was positive and significant for female farmers at 5 percent level, indicating thatwith more years inthe market, farmerstend to participate in the marketthan their counterparts. This is in accordance with Makhura (2001) who noted that being older in the market also assists

farmers to overcomefixed transaction costs-because experience about the market have been accumulated overtime. Sweet potato yield had a direct relationship with decision to participate in the marketfor male and all respondentsand significant at 10 percent and 5 percent level respectively. This implies that the farmers tend to enter more in the market if there is increase in the harvest. This has been explained by the fact that those male-farmers with moreharvest were in the better position to sell surpluses to market. These findings agree with those of Komarek (2010) who in a study on the commercialization of bananas, found that its yield positively influenced the quantities of bananas traded; furthermore, yields realized help to explain market participation decision. Similarly, Tesfaw (2013) also found amount of pepper produced to be a major factor in determining the extent of market participation in Ethiopia. Rios et al., (2008) in a study on linkages between market participation and productivity reported that households with higher productivity tend to participate in the markets. Similar results have been reported in South Africa and Nigeria by Makhura et al., (2001) where households with larger harvests were likely to have more surpluses for sale.

Transportation cost was negatively related with the decision of male and all farmers to participate in the sweet potato market and significant at 1 percent and 5 percent level respectively. This implies that with low transportation cost, farmers will be more likely to participate in the market following the study of Osebeyo and Aye (2014) on transaction costs and marketing decisionof smallholder tomato farmers in Makurdi, Nigeria. Market orientation was positive and significantly related to decision toparticipate in the market for the male farmers at 10 percent and female and all farmers at 5 percent level each. This indicates that farmers who are market oriented tend to participate in the market than their counterparts whoare not. This is in line with Berhanu and Moti (2010) who noted that an increasein market orientation index

increases the proportion of output in the market.

Gender had a negative sign and significantly related to the decision to participate in the market at 5 percent level. The results imply that female farmers are more likely to participate in the sweet potato market compared to male farmers. The findings are similar with Mathenge et al., (2010). A plausible explanation for the effect of gender is that sweet potato production in the area of study was traditionally regarded as woman's crop; more women were involved in sweet potato production activities than men. As such, female respondents relied more on sweet potato as source of income.

To augment the interpretation of the estimated results presented in Table 3, the marginal effects of each variable on the predicted probability of farmers' market participation decision, evaluated the means of the explanatory variables, are presented in Table 4. The marginal effects report of the Logit regression provides the probability that farmers will participate in the marketing of sweet potato. The results provide the probability estimation for the likelihood of market participation among sweet potato farmers given the statistically significant variables: age, educational level, household size, distance from farm to market, marketing experience, yield, transportation cost and market

orientation.

The results of the marginal effect of the Logit regression indicates that there is a probability of 0.97 percent, 0.33 percent and 0.91 percent that the male, female and all the farmers respectively participate in the output market if their age decreases, at mean value, by one year. The marginal effect shows that there is probability of 0.01 percent, 0.23 percent and 1.43 percent that the male, female and all the farmers respectively participate in the market if their educational level is increased by 1 year. Similarly, there is a probability of a 0.12 percent and 1.42 percent that the male and all the farmers will participate in the market if they have one additional active member in the household. The probability that the male, female and all the farmers will participate in an output market as a result of 1km decrease, at mean value, in the distance from farm to market are given as 0.07, 0.008 and 0.14 percent respectively.

If the area of sweet potato cultivated for female farmers and all the farmers increases by 1 hectare, at mean value, then the likelihood of participation in the market increases by 1.2 percent and 39.49 percent respectively. The results also show that if the marketing experience for the female farmers increases by 1 year, the probability of participating in an output market will increase by 0.80 percent. On the other hand, there is a probability of

Table 4

Marginal Effects for Continuous Determinants

Variable	Marginal Effects		
	Male	**Female**	**Pooled**
Age (x_1)	-0.0097	-0.0033	-0.0091
Educational level(x_2)	0.0001	0.0023	0.0143
Household size(x_5)	0.0012		0.0142
Distance from farm to market(x_6)	-0.0007	-0.00008	-0.0014
Area of sweetpotato cultivated(x_7)		0.0121	0.3949
Marketing experience (x_{10})		0.008	
Yield (x_{11})	0.00148		0.00004
Transportation cost(x_{12})	-0.00032	-0.0053	-0.0004
Market orientation(x_{14})	0.0054	0.0665	
Gender			-0.2684

0.15 percent and 0.004 percent for the male and all the farmers respectively to participate in output market if the sweetpotato yield increases by 1kg.

The result also indicate that any N1 (one naira) decrease in transportation cost will increase the male, female and all thefarmers' decision to participate inoutput market for by 0.03 percent,0.53 percent and 0.04 percent respectively. The probability that the male and female farmers will participate in output market as a result of being market orientedis given by 0.54 percent and 0.67 percent respectively. Finally, the marginal effect results of the Logit regressions how that if the sweet potato female farmers increases by one per-

son, then there are 26.7 percent likelihoods that all will participate in output market.

The test of significant differences between market participation among male and female sweetpotato farmers is shown in Table 5. The result shows the mean value of market participation for male and female farmers as 0.73(SD = 0.62) and 0.95(SD = 1.15) respectively with a z-test value of 0.91 > 0.05. These indicate that there are no significant differences between market participation among male and female sweet potato farmers in the study area although the level of market participation among the females was more compared to their male counterparts.

Table 5

Test of Significant Differences between Market Participation among Male and Female Sweet potato Farmers in South Eastern, Nigeria

Variables	Mean	S.D.	Z-test
Market participation			
Male	0.73	0.62	0.91
Female	0.95	1.15	

CONCLUSION

Using data from the field survey, the study found important determinant variables of decision to market participation with respect to gender. The study showed that the female farmers are likely to participate in sweet potato market more than their male counterparts although not significant. Strengthening the role of women in agriculture especially in market participation is one step to reach the goal and reduce the status of poor rural farmers. Policies on investment in rural education, access to land and provision of enabling environment through continuous training and incentives will not only encourage and attract young male and female farmers but will also help to improve their livelihoods.

REFERENCES

Adeoti, A.I., Oluwatayo, I.B & Soliu, R.O (2014). Determinants of market participation among maize producers in Oyo State, Nigeria. *BritishJournal of Economics, Management and Trade, 4*(7), 1115-1127.

Adesina, A.A. & Zinnah, M.M (1993). Technology characteristics, farmer perceptions and adoption decisions: A tobit model application in Sierra Leone. *Agricultural Economics Journal*, *9*, 297-311.

Anyaegbunam, H. N. & Nto, P. O. (2011). Assessment of the performance of sweetpotato marketing system in South East Agro ecological zone, Nigeria. *American Journal of Experimental Agriculture, 1*(4), 477–485.

Astewel, T. (2010). Analysis of Rice Profitability and Market chain: The Case of Fogera Woreda, South Gondar Zone, Amhara National Regional State, Ethiopia. An Msc. Thesis Presented to School of Graduate

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Studies of Haramaya University, Ethiopia.

Bahta, S.T. & Bauer, S. (2007). Analysis of the determinants of market participation within the South African small-scale livestock Sector. *Journal of International Economics*, *47*,169-189.

Bannor, R.K & Melkamu, M. (2015). Determinants of commercialisation among kinnow farmers in Rajasthan State of India. *Asian Journal of Research in Marketing*, *4*(4), 57-69.

Barrett, B.C. (2007). Smallholder Market Participation: Concepts & Evidence from Eastern and Southern Africa, prepared for FAO Workshop on Staple Food Trade and Market Policy Options for Promoting Development in Eastern and Southern Africa, Rome.

Bedemo, A., Getnet, K. & Kassa, B. (2013). Determinants of labour market participation choice of farm household in rural ethopia: Multinomial logit analysis. *Journal of Economics and Sustainable Development,* *4*(1),133-141.

Berhanu G & Moti J. (2012); Market Orientation and Market Participation of Smallholders inEthiopia: Implications for Commercial Transformation. Selected Paper prepared for presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguacu, Brazil, 18-24 August, 2012.

Chalwe, S. (2011). Factors Influencing Bean Producers Choice of Marketing Channels in Zambia. An Msc. Thesis Presented to the School of Graduate Studies of Zambia University, Zambia.

David, S. & Madu, T. (2014) A Gender Situation Analysis of Sweetpotato Production in Nigeria, Reaching Agents of Change Project, International Potato Center (CIP) and Helen Keller International (HKI). Unpublished report, Nigeria.

Fafchamps, M., & Hill, R (2005). Selling at the farmgate or traveling to Market. *American Journal of Agricultural Economics, 87,*717–734.

Komarek A (2010). The Determinants of banana market commercialization in Western Uganda, African *Journal of Agricultural Resources, 5*(9), 775-784.

Kurosaki, T. (2003). Specialisation and diversification in agricultural transformation: The case of West Punjab, 1903-92. *American Journal of Agricultural Economics*, *85* (2), 372-386.

Makhura M.T (2001). Overcoming Transaction Costs Barriers to Market Participation of Smallholder Farmers in the Northern Province of South Africa. PhD dissertation, University of Pretoria, Pretoria.

Mathenge, M., Place, F., Olwande, J., & Mithöfer, D., (2010). Participation in Agricultural Markets among the Poor and Marginalized: Analysis of Factors Influencing Participation and Impacts on Income and Poverty in Kenya. Tegemeo Institute. Egerton University, Kenya.

Okoye, A.C, Madu, T.U,Saad.A.S.,Nwaigwe, G.O & Onuegbu Johnson, F. (2015). Empirical Analysis of Determinants of Supply for Sweetpotato In Ebonyi State, Nigeria. Study Presented in NRCRI Annual Report, Nigeria.

Okoye, B.C., Abass, A., Bachwenkizi, B., Asumugha, G., Alenkhe, B., Ranaivoson, R., Randrianarivelo, R., Rabemanantsoa, N., & Ralimanana, I (2016). Effect of transaction costs on market participation among smallholder cassava farmers in central madagascar. *Cogent Economics and Finance*, *4*, 1143597.

Olagunju, F.I, Fakayode, S.B , Babatunde, R.O & Ogunwole-Olapade, F. (2013). Gender Analysis of Sweet Potato Production in Osun State, Nigeria. *Asian Journal of Agricultural Extension, Economics & Sociology, 2(1), 1-13.*

Onoja, O., Usoroh, B. B., Adieme, D. T. & Deedam N. J. (2012). Determinants of market participation in Nigerian small-Scale fishery Sector*:* Evidence from Niger delta Region. *Journal of Sustainable Development*, *9*(1), 69–84.

Osebeyo, S.O & Aye, G.C (2014). Transaction costs and marketing decision: A case study

International Journal of Agricultural Management and Development, 11(3), 345-355, September 2021.

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of smallholder tomato farmers in Makurdi, Nigeria, *Urban, Planning and Transport Research Journal*, 2(1), 333-340.

Otieno, D. J., Omiti, J., Nyanamba, T., & McCullough, E. (2009). Market participation by vegetable farmers in Kenya: A comparison of rural and peri-urban areas. *African Journalof Agricultural Research*, *4*, 451–460.

Randela, R., Alemu, Z.G., & Groenewald, J.A. (2008). Factors enhancing market participation by small-Scale cotton farmers. *Agrekon Journal, 47*(4), 451-469.

Rios, A. R, Masters, W.A, & Shively, G.E (2008). Linkages between Market Participation and Productivity: Results from a Multi-Country Farm Household sample. Paper prepared for presentation at the American Agricultural Economics Association (AAEA), Annual Meeting, Orlando, F.L, July 27 -29, 2008.

Sharma, V. P., Jain, D., & Sourovi, D. (2012): Managing Agricultural Commercialization for Inclusive Growth in South Asia, Agricultural Policy Series, Briefing Paper No. 6/2012, GDN, New Delhi, India. Urea.

Tesfaw A (2013). Determinants of agricultural commodity market supply: A case study in the upper watershed of the Blue Nile, North western Ethiopia. *Journal of Agribusiness and Rural Development*, *4*(30), 243-256.

Timmer, P. (2005). Agriculture and Pro-poor Growth: An Asian Perspective. Working Paper No. 63 (July 2005). Centre for Global Development, US.

Zoraida G. (2004). Agriculture, Trade Negotiations and Gender**:** A contribution of the FAO Gender and Population Division to the UN inter agency publication on Gender and Trade: Challenges and Opportunities in collaboration with the FAO Trade and Commodities Division, Italy