



# Management and Commercialization of Agricultural Productivity in Developing Countries

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## Abstract

This paper studies the management and commercialization of agricultural productivity in developing countries. It studies the determinants of small holder farms and management of all agricultural inputs taking the data from Ethiopia in particular with special reference to teff production. The study used a cross sectional data collected from 345 randomly selected sample households in four kebeles through random sampling. Tobit model was used to analyze determinants of level of market participation of teff producers and ordered logit model was used to identify the factors affecting household teff commercialization. The results of the model indicated that fertilizers, pesticides, family sizes, agricultural infrastructure, credit amounts, education level, cooperation and farm size played the positive role for commercialization of agricultural productivity in the study area. The study suggested the strengthening rural infrastructure, cheap credit facilities, enhance education, cooperative farming for the proper management and commercialization of agriculture in developing countries.

**Keywords:** Small farms, Credit access, Developing countries, Commercialization, Agricultural Productivity, Management etc.

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## 1.1 Overview of the Study

Agricultural activities play the crucial role for the development of most developing countries in the world and Africa and Asian in particular. It contributes about 20% of total GDP in most African and Asian economies. Most of the farmers have small and marginal land holdings and their income is very low. Therefore, commercialization of small farms in developing countries are very important for their enhancing income and this way proper management of small holders agriculture is one the best tools for agricultural development in developing countries. The opportunities for the

market oriented production of teff in Ethiopia are now opening up through the creation of modernized market segments such as processing industries and supermarkets, especially in big cities apart from the global demand for this crop.

Understanding level of farmers' participation in teff commercialization can benefit in exploiting these growing market opportunities. This requires examining the factors influencing the smallholders' teff commercialization. This study focused on management of agricultural productivity through proper suggestions. Thus, this research was initiated to address such



crucial knowledge gaps as such study has not been conducted in the study area.

### 1.2 Statement of the Problem

Commercialization is also affected by many factor markets; laws and institutions; and cultural and social factors affecting consumption preferences, production, and market opportunities and constraints. These factors influence commercialization by affecting the conditions of commodity supply and demand, output and input price, and transaction costs and risks faced by farmers, traders, and others in the agricultural production and marketing system. Burden of population on agriculture is very high and therefore management and commercialization of agriculture is the need of hour to improve the living standard of rural population in developing countries.

### 1.3 Objectives of the Study

The main objective of the study was management and commercialization of agricultural productivity overall in developing countries. It was also to measure the level of commercialization of *teff* in the study area and examine the determinants of commercialization of *teff* producers. Moreover, this study examined determinants of *teff* producer households market participation in developing countries.

### 1.4 Limitation of the Study

The research was conducted in Ethiopia based on the judgment and purposive sample. Moreover, in this study, the level of *teff* commercialization was measured from the output side only despite the possibility to measure it from the input side as well. Because of distance and budget constraint, the study was limited to use cross-sectional data of 2021-2022 production year which could be better explained with panel data.

### 1.5. Significance of the Study

A study of smallholder *teff* commercialization is vital because it could provide information on factors affecting commercialization of this highly demanded crop. Knowing those factors is important that help to undertake effective measurement to boost *teff* commercialization

by smallholder farmers. Hence, the finding of this study generated valuable information for policy makers. It tends to proper management of agriculture in developing countries for higher income level in rural areas.

## 2. Literature Review

Management is the proper application of all the inputs for better results while enhancing agricultural productivity is the need of time for improving the living conditions of rural population. Agriculture is the prime occupation of about 80 percent population in developing countries particularly in Asia and Africa. Many empirical studies was conducted all over the world concerning to agricultural production and productivity and commercialization and management of agriculture have been priorities in most of the countries of world.

(Mebrahatom(2014) used OLS model to identify determinants of commercialization of *teff* and its factor productivity outcome in *TahtayQoraro* district of *Tigray* region, Ethiopia. The result indicated, ownership of equine, cash expenses for farming, land allocated to *teff* and total factor productivity, market price of *teff* and ownership of oxen were those explaining the variation in volume of *teff* sold positively while distance from homestead to the nearest market place and distance from homestead to all-weather road affects the volume of *teff* sold negatively.

Yallew, (2016) employed Double-hurdle model to measure smallholders' commercialization of maize production in *Guangua* district of Northwestern Ethiopia. The results of the double hurdle model analysis showed that sex of the household head, household size and land holding size affects the volume of maize sold positively; while distance to the market affects negatively.

Amanet al.(2014) conducted study on determinants of smallholders' commercialization of horticultural crops in *Gemechis* district of West *Hararghe* zone, Ethiopia. The result of Probit estimation shows that, education level of the household head, irrigation, farm size under horticultural crops



and livestock possession has a positive impact whereas household family size and distance to the nearest market has negatively affect level of commercialization of horticultural crops.

(Tadele, et al., 2017) Employed Tobit model to assess the level of commercialization and its determinants on wheat producers in four major wheat producing *Tigray*, Southern Nations, Nationalities and Peoples, *Amhara*, and *Oromia* regions of Ethiopia. The results of Tobit model indicated that educational level; livestock size (TLU), amount of wheat produced and access to credit affects wheat commercialization positively.

The result of Tobit regression model revealed that, being male household head, land size, TLU owned, use of irrigation and frequency of extension contact are found to significantly and positively influencing smallholder commercialization; while age, distance from market, income from non-crop sources and participation in off/non-farm activities are disclosed as significant cross-cutting determinants of smallholders' intensity of commercialization to the market and family size affect commercialization of wheat producers negatively.

(Gebreslassie et al. 2015) conducted study on crop commercialization and smallholder farmers' livelihood in *Tigray* region, Ethiopia. The estimated results showed that ownership of oxen, amount of crop produced, training on crop marketing, outstanding debt and off-farm income have a positive and significant effect on intensity of crop commercialization however family size, lack of price information, distance to local market, expensive farm inputs, and shortage of family labor had a negative effect on the intensity of crop commercialization.

Lerman (2004) suggests that government should play an active role in the provision of basic services such as extension and education if the commercialization effort is to be a success research on determinants of market participation and intensity of marketed surplus of teff producer in Bacho and Dawo districts of Oromia regional state was conducted by Efa et al. (2016). To achieve their objectives, they

applied double hurdle model. Their results suggested that family size affected both teff sale decision and intensity of teff sold negatively. An increase in the household size by one person decreases participation and intensity of teff sale by 3% and 6% respectively. Their argument on this was that, large family size increases the quantity of teff needed for home consumption thereby reduce the marketed surplus. On the other hand, farm size affected both household's market participation and intensity of teff sold positively. Use of credit affected participation decision of farmers in a teff output market positively while income from off-farm activity has a positive relationship with a quantity of marketed surplus.

A conclusion from the above review is that, commercialization of the crop (teff) by smallholder farmers is influenced by different demographic, socioeconomic and institutional factors differently in different areas. This indicates that, in order to identify the influence of different factors in different areas; location and crop specific research should be conducted. In the Hidebu Abote district such research has not been conducted and identifying factors affecting teff commercialization in the study area is important since it is one of the major crops grown in the area both for own consumption and generating income.

### 3. Research Methodology

#### 3.1 Data Collection

This study was based on primary as well as secondary data. The primary data was collected through direct observations, interviews and questionnaire while secondary data was taken from different sources like books, journals, newspapers and websites of public and private bodies. The survey of national and international agencies was also the source of data. Moreover, this study was based on purposive and judgement sampling methods.

#### 3.2 Sample Size

Sample size was determined according to Yamane (1967 cited in: Israel, 2009) at confidence level of 95% and precision level of



± 5%. The level of precision is the range in which the true value of population is estimated and sample size calculation formula was

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots 1$$

Where n= estimated sample size, e = expected error value, Level of precision= 5%, N=Number

of farm households of selected *kebeles*. But, the total farm households in the district is 15,086 using the formula and the information from the *HidabuAbote* District Agricultural office household survey data of 2021, the sample size for this study is calculated as follows.

$$n = \frac{2523}{1 + 2,523(0.05^2)}$$

$$n = \frac{2,523}{1 + 2,523(0.0025)}$$

$$n = \frac{2,523}{1 + 6,3075}$$

$$n = \frac{2,523}{7.3075}$$

$$n = 345$$

### 3.3 Model Specifications

Mathematically, the HCI formula adopted from von Braun et al.,(1994) is expressed as:

$$HCI_i = \frac{\text{Grossvalueofteffsold}}{\text{Grossvalueofteffproduced}} \times 100 \dots\dots\dots 2$$

Where HCI= market participation index of i<sup>th</sup> household in teff sales expressed as a percentage.

HCI has a value between zero and one hundred, inclusive. A value closer to zero would indicate less commercialized (households' relatively consuming total amount of their product) and a value closer to one hundred imply highly commercialized of household.

The general formulation forTobit specification is given (Greene, 2003 ) as:

$$Y_i = \beta_i X_i + U_i \dots\dots\dots 3$$

$Y_i = \max(0, Y^*)$

$Y_i^*$  - is a censored variable of HCI,

$\beta_i$  - is a parameter to be estimated,

$X_i$  - is a vector of explanatory variables and  $U_i$  - is the error term.

Then,  $Y_i = 0$  if  $Y^* < 0$  and  $Y_i = Y_i^*$  if  $Y_i^* > 0$

Johnston and Dinardo, 1997) the marginal effects of these conditional expectations, respectively are given as:

$$\frac{\partial E(Y^* / X)}{\partial X} = \beta \dots\dots\dots 4$$

$$\frac{\partial E(\frac{Y}{X})}{\partial X} = \beta \phi \left[ \frac{X\beta}{\sigma} \right] \dots\dots\dots 5$$

$$\frac{\partial \text{Pr}(y > \frac{0}{x})}{\partial x} = \phi \left[ \frac{x\beta}{\sigma} \right] \frac{\beta}{\sigma} \dots\dots\dots 6$$

Ordered logistic model used to analyze determinants of household's level of teffcommercialization. As noted, ordinal logistic regression refers to the case where the dependent variable has an order. The most common ordinal logistic model is the proportional odds model. If we pretend that the dependent variable is really continuous, but is recorded ordinal (as might, for instance happen, if income were asked about in terms of ranges, rather than precise numbers), but that it has been divided into J categories then if the 'real' dependent variable is  $Y^*$ , the model is:

$$Y_i^* = X_i \beta + \epsilon_i \dots\dots\dots 7$$



Where:

Y\*-is households level of commercialization,

Xi-explanatory variables which used in determination of dependent variable,

β-Coefficient and

εI-error term.

$$c\kappa(x) = \frac{\ln P(Y \leq j | y)}{P(Y > j | x)} = \frac{\ln \phi_0(x) + \phi_1(x) + \dots + \phi_j(x)}{\phi_{j+1}(x) + \phi_{j+2}(x) + \dots + \phi_j(x)}$$

= $\tau_j - x' \beta$  Where  $\tau_j$  are the cut points between the categories, and  $\phi_i(x)$  is the probability of being in class i given covariates x.

Table-3.1. Summary of hypothesized variables

Variable	Variable definition	Value	Expected sign	
			participat ion	commerc ialization
AGEHH	Age of household head	Years	+	-
GENHH	Gender of HHH	1=Male 0=Female	-	-
EDUHH	Level of education of HH	Years of schooling	+	+
MARSTAT	Marital status of HHH	1=Single 2=Married 3=Divorced 4=Widowed	-	-
FAMSIZE	Total household member	Number	+/-	-
AREAM	Land allocated for teff	Hectare	+	+
MRKTDIS	Minutes of walk to nearest market	Minutes of walk	-	-
IMPSEED	Use of improved seed	Kg	+	+
CREDITAMT	Amount of credit used	ETB	+	+
FRQEXT	Development agents contact	Number of contact days	+	+
NONFARIN	Involvement in non-farm income	Number of contact days	-	-
COOPMEM	Household membership in cooperative	1=member 0=nonmember	+	+
LIVOWN	Livestock owned	TLU	+	+
LABSIZE	Labor size of HH	Adult equivalent	+/-	+
ROWPLNT	Practice of raw planting	1=practice 0=otherwise	+	+
AMTFERT	Fertilizer use	Kg	+	+

#### 4. Results and Discussion

##### 4.1 Descriptive Results

The results given in table 4.1 below indicates, the mean age of respondents were 40 years and the maximum age record in the sample households were 66 year and minimum age recorded was 28years.

Table 4.1: Sample household’s demographic characteristics

Variable	Mean	Std. Dev.	Min	Max
Household size	9.74	2.61	4	15



<b>Age of respondent</b>	39.82	5.73	28	66
<b>Year of schooling</b>	5	2.59	0	10

Source: Own survey, 2022

As revealed in the above table 4.1, the average household size from sample households was 9.74 people per household. The minimum and maximum household members of sample household were 4 and 15, respectively. Mean year of schooling in the study area was 5 years. As stated in table 4.1 above, the maximum and

minimum household members attained formal education from total sample households were 10 years and 0 years, respectively.

As indicated in table 4.2, out of total sample respondents, 293 (84.9%) were male-headed and 52(15.1%) were female-headed households (table 4.2).

Table 4.2: Sample households gender distribution

	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	<b>Male</b>	293	84.9
	<b>Female</b>	52	15.1
	<b>TOTAL</b>	345	100

Source: Own survey, 2022

Table 4.3 socio-economic characteristics of respondents.

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Labor supply	6.506957	1.369925	4.1	9.8
Distance	62.41159	32.46391	5	130
Land size	5.581159	3.461469	1.5	28
Livestock	14.84875	2.606567	10	19.94
Teff land	2.932754	1.6109	1	10
Teff produced	68.2029	49.21051	8	240
Amount of fertilizer	46.30435	26.29844	0	160
Amount of credit	9862.899	8897.244	0	32000

Source: Own survey, 2022

Average land owned by household was 5.58ha (table-4.3). As indicated in the above table, the maximum land owned by household is 28ha and the minimum one is 1.5ha.

commercialization level; in consumption oriented 4.6ha, medium commercialization 4.3ha and for market oriented respondents 6.89ha.

As indicated in (table-4.4), there is significant mean difference among respondents between

Table 4.4: Socio-economic characteristics of respondents by commercialization level.

<b>Variable</b>	<b>Commercialization</b>	<b>Mean</b>	<b>Std. Err.</b>	<b>[95% Conf. Interval]</b>	<b>t-value</b>	
<b>Cultivated land</b>	Less comm	1.25	0.06	1.13	1.37	2.77
	Medium comm	2.13	0.05	2.04	2.22	
	Highly comm	4.04	0.06	3.91	4.18	
<b>Total land</b>	Less comm	4.60	0.20	4.20	5.00	81.45
	Medium comm	4.32	0.09	4.14	4.50	
	Highly comm	6.89	0.19	6.50	7.28	
<b>Distance from</b>	Less comm	99.06	2.74	93.69	104.44	4.57
	Medium comm	74.92	0.74	73.45	76.38	



<b>market</b>	Highly comm	42.27	1.50	39.32	45.22	
<b>Livestock owned</b>	Less comm	14.52	0.40	13.73	15.31	2.6
	Medium comm	14.75	0.16	14.43	15.07	
	Highly comm	15.01	0.11	14.79	15.23	
<b>Teff produced</b>	Less comm	18.37	0.81	16.76	19.98	5.31
	Medium comm	39.39	0.86	37.69	41.10	
	Highly comm	105.5	2.09	101.39	109.62	

Source: Own survey, 2022

Average land allocated for teff production by household was 2.9ha. As indicated in table-4.4, there is significant mean difference of land allocated for teff production among respondents between commercialization level; in consumption oriented 1.2ha, medium commercialization 2.1ha and for market oriented respondents 4.04ha (table-4.4). The maximum land allocated for teff production by household was 10ha, while the minimum land allocated for teff production by household was 1ha (table-4.3).

Average teff produced by household was 68.20kuntal. As indicated in table-4.4 above, there is significant mean difference in quantity of teff produced among respondents of between commercialization level; in consumption oriented 18.37kuntal, medium commercialization 39.39kuntal and for market oriented respondents 105.5kuntal (table-4.4). The maximum teff produced was 240kuntal, while the minimum teff produced was 8kuntal (table-4.3).

Table 4.5: Agricultural Technology use and cooperative membership of respondents by commercialization level

Variable	Category	Less comm	Medium comm	Highly comm	Total	chi2
<b>Seed</b>	not access	39	39	0	78	164.36
	Access	4	99	164	267	
<b>Fertilizer</b>	not access	37	5	0	42	251
	Access	6	133	164	303	
<b>Raw plant</b>	Not practiced	43	138	1	182	341
	Practiced	0	0	163	163	
<b>Coop</b>	not member	43	57	0	100	182
	Member	0	81	164	245	

Source: Own survey, 2022.

Result indicated in table 4.5 indicates existence of significant mean difference in respondent's number among the category of raw planting. Which implies, from consumption oriented respondents 43 respondents did not practiced raw planting; from medium commercialization 138 respondents didnot practicing raw planting and from market oriented respondents 1 respondent have not practiced raw planting and

163 respondents practiced raw planting (table-4.5).

Result indicated in table 4.5 indicates existence of significant difference in household's number among the three level of commercialization in respondent's cooperative membership. This implies, from consumption oriented respondents, all respondents (43) were not member of cooperatives. From medium commercialization 57 respondents were not



member of cooperatives and 81 respondents were member of cooperatives. From market oriented respondents all respondents (164) were member of cooperatives (table-4.5).

#### 4.2 Econometric Results

Ordinal logistic model was used to analyze determinants of household's level of teffcommercialization. As noted, ordinal logistic regression refers to the case where the

dependent variable has an order. The most common ordinal logistic model is the proportional odds model. If we pretend that the dependent variable is really continuous, but is recorded ordinal (as might, for instance, happen if income were asked about in terms of ranges, rather than precise numbers), but that it has been divided into J categories then if the 'real' dependent variable is Y\*, the model used.

Table 4.6 Ordered Logistic Regression output for determinants of level of commercialization of teff producers

Variable	Coef.	Std. Err.	zP> z	[95% Conf. Interval]		
Marital status	-.787194	1.064633	-0.74	0.460	-2.873837	1.299449
Gender	.037162	.8440172	0.04	0.965	-1.617081	1.691405
Family size	-.0369308	.1609654	-0.23	0.819	-.3524172	.2785557
Labor size	.3692105	.2983119	1.24	0.216	-.21547	.953891
Market distance *	-.1250867	.035871	-3.49	0.000	-.1953926	-.0547808
Land foe teff **	1.752743	.7726854	2.27	0.023	.2383077	3.267179
Livestock unit	.0655909	.1340997	0.49	0.625	-.1972397	.3284215
Access seed	-.7783717	1.035946	-0.75	0.452	-2.8087881	1.252044
Amount fertilizer *	.0767827	.0188424	4.08	0.000	.0398524	.113713
Row plant	65.24636	1527.572	0.04	0.966	-2928.739	3059.232
Extension contact	-.4865304	.9497684	-0.510	0.608	-2.3480421	1.374982
Credit amount **	.0005382	.0002311	2.33	0.020	.0000854	.0009911
Cooperative membership **	2.353601	1.101881	2.14	0.033	.1939548	4.513247
Off farm income	.9447126	.8117272	1.16	0.244	-.6462435	2.535669
Education level ***	.2396282	.1337592	1.79	0.073	-.0225349	.5017914
Age of respondent	-.1185365	.0792962	-1.490	0.135	-.2739541	1.0368812

Ordered logistic regression Number of obs = 345

LR chi2 (16) = 614.52

Log likelihood = -30.692132 Prob> chi2 = 0.0000

\*\*\*, \*\* and \* Estimates are Significant at 1%, 5% and 10% level respectively.

Source: Model output (2022).

#### 5.

##### Concluding Remarks

This study has concluded that Family size measured as adult equivalent was found to have negative and significant influence on teffmarket participation at 1% significance level. The marginal effect shows that as the member of household increased by one adult equivalent

decreases the level of teff market participation by 0.33. Distance from nearest market measured in minutes of travelling was found to have negative and significant influence on teffmarket participation.Amount of fertilizer used which is measured in Kg was positively and significantly affects level of household's teff





commercialization at 1% significance level. Amount of credit used which is measured in (ETB) Birr was positively and significantly affects level of household's teff commercialization at 5% significance level. Household's membership in cooperative was positively and significantly affects the level of commercialization at 5% significance level. In other ways result implies that those households allocating more additional hectare of land from self-owned, by rented-in or shared-in land raises the level of commercialization. Household size measured as adult equivalent was found to have significant and negative influence on teff market participation. Therefore, households of the study area should use family planning and /or should diversify source of their income. Distance from nearest market measured in minute of travelling was found to have significant and negative influence on teff market participation. Thus, Governmental or non-governmental organization interventions in improving rural infrastructure in the form of establishing all market linkage roads and strengthening the already started construction of roads in the District would assist farmers to use other means of transportation to sell their produces and to participate exceedingly in the market. Household's access to improved seed was positively and significantly affects the degree of teff market participation. Therefore, Availability of improved seed of teff should be made possible for farmers to increase their production and thus increase their participation in the market. Amount of fertilizer positively and significantly affects level of household's teff commercialization.

#### References

Arias, P., Hallam, D., Krivonos, E. and Morrison, J. (2013). Smallholder integration in changing food markets. Food and Agriculture Organization of the United Nations, Rome.

ATA (Agricultural Transformation Agency). (2017). Agricultural Transformation Agenda. Annual Report of 2016-17. Addis Ababa, Ethiopia, Azeb et al. (2017)

Berhanu Gebremedhin and Moti Jaleta. (2010). Commercialization of smallholders: Does

market orientation translate into market participation? Improving productivity and market success of Ethiopian farmer's project (IPMS) - (ILRI). Working Paper No. 22. Addis Abeba, Ethiopia.

Cazuffi, C. and McKay, A. (2012). Rice Market Participation and Channels of Sale in Rural Vietnam. Paper presented at the Triennial Conference, held by International Association of Agricultural Economists (IAAE), Brazil, August 18-24, 2012.

CSA (Central Statistical Agency). (2016). Agricultural Sample Survey 2015/2016 (2008 E.C): Report on area and production of major crops, Volume-I. Addis Ababa, Ethiopia.

Edward Martey, Ramatu M. Al-Hassan and John K. M. Kuwornu. (2012). Commercialization of smallholder agriculture in Ghana: A Tobit regression analysis *Africa Journal of Agricultural Research*. 7(14): 2131-2141.

Efa Gobena, Degye Goshu, Tinsae Demisie and Tadesse Kenea. (2021). Determinants of market participation and intensity of marketed surplus of *teff* producers in Bacho and Dawo districts of Oromia, Ethiopia. *Journal of Agricultural Economics and Development*, 5(2): 20-32.

FAO (Food and Agricultural Organization of the United Nations). (2015). Ethiopia Country Highlights on Irrigation Market Brief.

Gebreslassie Atsbaha and Bekele Tessema. (2012). A Review of Ethiopian Agriculture: Roles, policy and small-scale farming systems. Country analysis: Ethiopia and D.R. Congo, 37.

Gindi, A.A., Adeshina, B.A. and Yahaya, K. (2021). Marketing of onion in Aliero local government area, Kebbi state Nigeria. *International Journal of Agricultural Science and Veterinary Medicine*, 2(4): 12-19.

Girma Alemu. (2015). Market Performance and Determinants of Marketed Surplus of *Teff* in Bacho Woreda of South West Shewa Zone, Oromia National Regional State. MSc Thesis, Haramaya University, Haramaya, Ethiopia. [institutional-repository.haramaya.edu.et](http://institutional-repository.haramaya.edu.et)

Goitom Abera. (2009). Commercialization of Smallholder Farming: Determinants and Welfare Outcomes a Cross-sectional Study in



Enderta District, Tigray, Ethiopia. An MSc Thesis Presented to the University of Agder, Kristiansand, Norway.

<https://www.researchgate.net>

Greene, W. H. (2003). *Econometric Analysis* (5th ed.). Pearson Education International, USA, Upper Saddle River, New Jersey.

Hazell, P., Poulton, C., Wiggins, S. and Dorward, A. (2007). *Future of Small Farms for Poverty Reduction and Growth. 2020 Discussion Paper No. 42*. IFPRI. Washington, D.C.

Maertens, M., Minten, B., Swinnen, J., (2012). Modern Food supply chains and development: evidence from horticulture export sectors in Sub-Saharan Africa. *Development Policy Review*.30: 473– 497.

MaheletGetachew. (2007). Factors affecting commercialization of smallholder farmers in Ethiopia: the case of North Omo Zone, SNNP region. *Paper Presented at the 5th International Conference on the Ethiopian Economy*, 7-10 June 2007. Addis Ababa, Ethiopia. <https://www.linkedin.com>. Masuku et al. (2001)

MoARD (Ministry of Agriculture and Rural Development). (2020). Ethiopia's Agricultural and Sector Policy and Investment Framework (PIF): 2010-2020, Addis Ababa, Ethiopia.

MoFED (Ministry of Finance and Economic Development), (2006). A plan for Accelerated and Sustained Development to End Poverty (PASDEP). Addis Ababa.

MoFED (Ministry of Finance and Economic Development). (2010). Growth and Transformational Plan (GTP 2010-2015). Addis Ababa. Ethiopia.

Muller, C. (2014). A Test of reparability of consumption and production decisions of farm households in Ethiopia. *Journal of Poverty Alleviation and International Development*, 5(1): 1-18.

Muriithi, B. W., and Matz, J. A. (2015). Welfare effects of vegetable commercialization: Evidence from smallholder producers in Kenya. *Food Policy*, 50, 80-91.

Pauw, S. (2017). Agricultural Commercialization in Ethiopia: A Review of Warehouse Receipts in the Maize, Wheat, Sorghum and Tef Value

Chains. USAID/Ethiopia Agriculture Knowledge, Learning, Documentation and Policy Project, Addis Ababa.

ShewayeAbera. (2014). Determinants of Haricot Bean Commercialization: The Case of East Badawacho District, South Nations Nationalities and Peoples Regional State, Ethiopia. An MSc Thesis Presented to the Haramaya University, Haramaya, Ethiopia. <https://researchgate.net>

Tadele et al. (2016) TadeleMamo, WudinehGetahun, Agajie Tesfaye, Ali Chebil, Tesfaye Solomon, Aden AwHassan, TolessaDebele and Solomon Assefa. (2017). Analysis of wheat commercialization in Ethiopia: The case of SARD-SC wheat project innovation platform sites. *African Journal of Agricultural Research*, 12(10): 841-849.

TekalignDiyana. (2014). Determinants and Welfare Outcomes of Commercialization of Smallholders' Farming: The case of Anchar Woreda, West Hararghe, Ethiopia. MSc Thesis Haramaya University, Haramaya, Ethiopia.

Timmer, C.P. (1997). Farmers and markets: The political economy of new paradigms. *American Journal of Agricultural Economics*, 79(2): 621 –627.

MebrahatomMedhane. (2014). Determinants of commercialization of tef and its factor productivity outcome: The case of TahtayQoraroworeda, Northwest Zone of Tigray, Ethiopia. (Unpublished MSc thesis), Haramaya University, Haramaya, Ethiopia.

Vavilov, (1951). Von Braun, J. (1995). Agricultural commercialization: Impacts on income, nutrition and implications for policy. *Food Policy*, 20(3): 187-202.

Von Braun, J. and Kennedy, (1994). Agricultural commercialization, economic development, and nutrition. The Johns Hopkins University Press, Baltimore and London. pp. 11-33.

World Bank (2004), World Bank. (2008). World Development Report 2008: Agriculture for Development. Washington D.C.

YallemMazengia. (2016). Smallholders commercialization of maize production in Guangua district, Northwestern Ethiopia. [www.worldscientificnews.com](http://www.worldscientificnews.com)