AGRICULTURAL MARKET PARTICIPATION BY SMALLHOLDER FARMERS IN AFRICA, A REVIEW PAPER

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ABSTRACT

This paper is a review article on the factors that influence smallholder farmers' participation in agricultural markets in Africa. Agricultural markets play a key role in the lives of poor people in developing countries especially in Africa. However many smallholder farmers may not benefit from these markets as their participation to agricultural markets is constrained. The review is aimed at shedding some light on the factors that influence agricultural market participation. From the study internal factors such as education, output and input price, farm size, transaction costs, gender, family labor, access to credit are some of factors that constraints smallholders to participate in agricultural markets. Policy makers and development economists should therefore seek appropriate means to address these constraints in order to improve market participation.

Keywords: Smallholder, agricultural market, participation

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Introduction

Almost all smallholder farmers in developing countries are both producers and consumers of agricultural products. A vast majority of these farmers in developing countries depend on traditional and subsistence farming, which are characterized by among others, low productivity and low marketed surplus (Azam *et al*., 2012). These farmers are most likely to be among the poorest and the most vulnerable compared to those that are well linked to markets. Further they remain mostly outside the mainstream exchange economy and unable to take advantage of the opportunities offered by an exchange economy (Azam *et al*., 2012).

Linking these farmers to agricultural markets will enable them enhance their food security and increase their livelihood. In fact, recent international and national development dialogues on poverty, food insecurity and sustainable development including the Rio+20 summit have emphasized the need to integrate smallholder farmers, marginalized and vulnerable communities dependent on agriculture, with local, national and regional markets as a welfare enhancing strategy (Wickramasinghe *et al*., 2014). Agricultural marketing is the principal determinant of agricultural growth and contributes to overall development (Gani & Adeoti, 2011). Therefore improving market access and commercialization of smallholders will help induce greater investment, productivity, and income among smallholder farmers in developing country (Olwande & Mathenge, 2012).

While there is general agreement that improving market access and commercialization of smallholders will help induce greater investment, productivity, and income, majority of smallholder farmers are still locked out of agricultural markets (Barrett, 2008; Mathenge *et al*., 2010). For instance, in staple food market, smallholders do not participate fully and their overall market share is very low (Jayne *et al*., 2005). This has slowed down agriculture driven economic growth and exacerbated poverty levels since farmers cannot benefit from the welfare gains and income growth associated with market participation (Zamasiya *et al*., 2014). Determining the challenges these farmers face in participating in the market will help the development economists and policy makers to implement strategies that will link smallholders to agricultural market.

2.1 The Role of Agricultural Markets

Agricultural markets provide opportunities for smallholder farmers to improve their incomes and livelihoods through increased production (Jari and Fraser, 2009; Minot and Hill, 2007). Agricultural market access and participation contributes to four pillars of food security which include; i) food availability ii) food access iii) food stability and iv) food utilization. Output market access enhances food availability by facilitating trade between surplus areas and deficit areas. In addition, they determine the price of food and incomes received from sale of their farm output and labor (Dorward and Poole, 2002). These, coupled with physical infrastructures (such as storage facilities, processing facilities and road network) influence access to adequate quantities and quality of food (Kenya Food Security Steering Group [KFSSG], 2008). Markets contribute to the third pillar of food security by promoting the stability of food supply and prices through enhancing food distribution from surplus to deficit areas. This creates effective demand that promotes production and determines food utilization (fourth pillar) by influencing the quality of food consumed (KFSSG, ibid).

Agricultural markets play a key role in the lives of poor people in developing countries (Minot and Hill, 2007). Access to agricultural market is a key prerequisite for enhancing agriculture-based economic growth and increasing rural incomes as they improve the competitiveness of farming enterprises (Jagwe *et al*, 2010; IFAD 2003). For instance, those farmers who live close to better roads and have more frequent and direct contacts with the market have incentive to produce more systematically for the market, while those with poor market access have little incentive to produce crops other than those required for domestic consumption (Onoja *et al.*,2012).

According to Chilundika (2011), availability of agricultural markets allows diversification of farm enterprise, which in turn increases productivity and reduces risks. A well-functioning market leads to an efficient allocation of scarce resources as well as maximization of the general welfare of society. They also help in increasing on-farm productivity since farmers who have strong links to these markets are able to sell more and earn higher prices (IFAD, 2011). This in turn encourages farmers to invest more in their farms as well as increase the amount and quality of farm outputs.

There exist also a link between access and participation in agricultural markets and poverty exits by poor rural farmers. Market participation acts as an effective route for rural smallholders to move out of object poverty and increase their income (IFAD, 2003; IFAD, 2006; Alila, 2006; IFAD, 2010). For instance, a study by Mathenge *et al.* (2010) showed a strong relationship between market participation and exiting poverty. In their analysis, there was increased access to output markets by poverty exiting households and a decline in market access by households that descended into poverty. Similar results were found by Asogwa *et al*. (2012) when analyzing determinants of poverty severity among rural farmers in Nigeria. They found output market access as one of significant determinant of poverty severity among farmers. From their result, market access had a negative relationship with the intensity of household poverty. The households that had access to output markets had lower probabilities of being poor than those that did not have such access.

The study done by Barrett (2008) on smallholder participation in markets has shown the relationship between market participation and economic growth as well as poverty reduction. According to Barrett, market participation leads to market-oriented production where the household specializes in the production of those goods for which it holds comparative advantage. This leads to a more rapid productivity growth due to larger-scale production and increased technological change combined with welfare gains derived from trade (Rios *et al*., 2009). To participate actively in markets, households are required to have adequate access to production technologies and infrastructure ((Mathenge *et al*., 2010). Market participation is directly associated with the generation of a market surplus, thus production technologies and productive assets affect a household's market participation by influencing its productivity (Rios *et al*., 2009).

Despite agricultural market participation playing a great role in improved rural livelihoods and thus poverty exits, a question still remains on how well can the smallholders be linked to national and international agricultural markets.

2.2 Smallholder Farmers participation in Agricultural Markets

Given the potential benefits of agricultural markets, it's unfortunate that many smallholder farmers in developing countries do not often access and participate in world agricultural markets

(Shepherd and Prowse, 2009). In addition, their access to domestic markets is also minimal. Agricultural markets in developing countries are characterized by pervasive imperfections such as lack of information on prices, high transaction costs, and credit constraints (Markelova and Meinzen-Dick, 2009). Smallholder farmers will either stop participating in marketing or resort to other means of marketing such as spot markets when faced with high transaction costs (Makhura, 2001; Jari and Fraser, 2009). According to Shepherd and Prowse (2009) the chronically poor farmers engage in markets as casual laborers, smallholder producers and purchasers of food.

Smallholder farmers are faced with many challenges that hinder them from accessing and participating in both local and national market. For example, in Kenya like any other developing countries, smallholders' access to agricultural markets is minimal due to variety of constraints. Majority of these farmers are located in remote areas far away from service providers and major consumers of farm products. The distance to market, poor infrastructure, poor access to assets and information, is manifested in high exchange costs, which are usually too high to enable them access agricultural markets (Alene *et al*, 2008).

Jagwe *et al*. (2010) indicates that, participation by smallholder farmers in domestic markets in most developing countries still remains low. For instance, in Zambia, it was found that, although smallholders had access to agricultural extension and credit services, they faced problems in marketing their output under the liberalized system (Kherallah *et al*., 2002). The smallholders were more vulnerable to private agents because of their cash liquidity constraints which forced them to sell at the harvest rather than store output for a while and sell when prices are high (Gabre-Madhin, 2010). A study by Jacobs (2009) indicates that, the degree to which smallholders access and share the benefits of better agro-food markets access depend on a combination of factors which include; the policy space, market infrastructure and how agro-food markets work in practice. In addition, problems of asymmetric information, high transaction costs, inadequate access to timely and accurate information about prices, have been shown to push smallholder farmers to sell their small marketed surplus at farm gate (Demissie, 2011; Bekele *et al*., 2007).

Although there exist vast literature on factors that constraints smallholder participation in agricultural markets, majority of them have dealt on location level constraints that tend to

influence participation at household level but only few studies have dealt with location level constraints that influence participation at a macro level. These factors have been described in depth below.

The factors that influence smallholder farmers to participate in agricultural markets are both external and internal factors. External factors are those beyond farmers' control. These factors have been discussed in depth by Pender *et al*. (2006). They include; i) agro-climatic conditions and risks ii) population growth and demographic change iii) changes in labor opportunity costs iv) development of local commodity markets v) laws and institutions vi) cultural and social factors affecting consumption preferences vii) introduction of new technologies. The above factors are said to affect agricultural market by altering the conditions of commodity supply and demand (Omiti *et al*, 2009; Pender & Alemu, 2007).

Internal factors on the other hand can be controlled by farmers and are explained below. Some authors have reported a positive relationship between market participation and education. Education plays an important role as it enables farmers to understand market dynamics and therefore improve decisions about the amount of output sold (Omiti *et al.*, 2009). For exaample, the study by Omiti *et al.* (2009) showed that, the intensity of vegetable market participation by peri-urban farmers was significantly increased by household head's education level. Households with higher level of education were selling more vegetables compared to those who were not educated. The similar result was reported by Gani and Adeoti (2011) while analyzing factors influencing the level of market participation in Nigeria. Participation in market is also influenced by literacy levels of the farmer. While determining the market participation among poor rural household in Kenya using double hurdle model, Olwande and Mathenge (2012) found that poor households had low market participation due to low literacy levels. Randela *et al*. (2008) using a logistic regression model to identify factors that significantly influence the degree of market participation among smallholder farmers indicated that, ability to understand English played a significant role in influencing agricultural market participation.

Participation in agricultural market is also reported to be influenced by infrastructure. According to IFAD (2003) improved infrastructure leads to increased market integration as well as more commercially oriented production systems. However there has been conflicting findings on the

relationship between infrastructure and agricultural market participation. Some economists have reported infrastructure as an influential factor in market participation in that good infrastructure leads to increased market participation and vice versa (Goetz 1992; Key, Sadoulet and de Janvry 2000; Heltberg and Tarp 2001; Renkow, Hallstrom and Karanja 2004; Von Oppen et al., 1997; Shilpi & Umali-Deininger, 2008; Boughton et al.2007; Arethun & Bhatta, 2012). Infrastructural obstacles such as poor state of roads as well as inadequate road networks usually hinder marketing efficiency (Randela *et al*. 2008). According to them remote locations of farms coupled with poor road infrastructure results in high transport costs and in cases where buyers provide transport, this further reduces the price that buyers pay farmers resulting to low market participation. Integration of rural markets is hindered by inadequate and dilapidated state of the rural road network which impedes physical movement of goods (Randela *et al*., 2008). However, some authors have reported insignificant influence of infrastructure and agricultural market participation (Lapar, Holloway and Ehui, 2003; Holloway and Lapar 2007; Rios *et al*., 2009).

Agricultural market participation is to a large extent influenced by high transaction cost. Transaction costs are all costs of entering into contracts, exchange or agreement: searching for trading partners, screening potential candidates, obtaining and verifying information, bargaining, transferring the product, and monitoring, controlling and enforcing the transaction (Randela *et al*., 2008). Transaction cost is in two types and both have deterring effect on market participation. They are; tangible transaction cost (such as, transport, communication, and legal costs) and intangible transaction cost (costs incurred due to uncertainty and moral hazard) (Mathenge *et al*., 2010). High transaction costs deter market participation since they impose added cost burdens to the efficient conduct of market entry activities (Randela *et al*., 2008). For instance in their study on factors affecting market participation by small-scale farmers, Randela *et al*. found among other factors transaction cost such as access to market information, distance to market and trust to affect market participation. According to Mathenge *et al*. (2010), the prevalence of higher market transaction costs impedes household involvement in cash crop production by discouraging participation in food markets and prompting them to give priority to subsistence food production.

Belonging to a group is assumed to be a key pathway to knowledge sharing and it enables farmers to acquire information concerning market on time. Working in a group creates synergy among the farmers and enables them to access market information as well as sharing experiences (Sebatta *et al*., 2014). The study by Jagwe (2011) on participation of smallholder farmers in banana market reported that farmers who belonged to a farmers' group had cohesion in terms of gaining and sharing knowledge as well as capacity to produce more for a marketable surplus. While studying smallholder agricultural commercialization and collective action in Kenya, Abera (2009) Fischer and Qaim (2012) also found a positive and significant influence of membership in a group on the level of commercialization. From their study, membership to a farmers' group improved access to banana technology, training and output markets and consequently increased expected profits (Sebatta *et al*., 2014).

Access to financial services such as credit is another factor that is shown to determine market participation. Stimulating access to credit leads to greater access to inputs, improved technology adoption, higher production, and better market linkages (Lerman, 2004; Mamoun Amrouk *et al*., 2013). However higher interest rate have been a barrier to many smallholder farmers to access credit. Majority of smallholder farmers have been cited to borrow credit from informal financial markets rather than formal markets because of higher interest rate and lack of collaterals. According to Randela *et al*. (2008) unavailability of credit inflates transaction costs in both input and output markets and this impedes market participation.

Farm size has been reported by several authors to have a positive influence on agricultural market participation (Barret, 2008; Enete and Igbokwe 2009; Pravakar *et al*., 2010; Sebatta *et al*., 2014). Farm size induces farmers to participate in market because larger farm size enables farmers to produce market surplus if well managed. Farm size may also have indirect positive impacts on market participation choice by enabling farmers to generate production surpluses, overcome credit constraints, where land can be used as collateral for credit, and allow them to adopt improved technologies that increase productivity (Olwande, 2010; Martey *et al*., 2012).

Gender of household head plays an important role in agricultural market access and participation. The study by Sebatta *et al*. (2014) indicated that sex of a household had a positive and significant influence on decision to participate and how much potatoes to sell in the market. Their study showed that females were less likely to participate in the whole process of selling potato. This is

because female farmers rarely had similar access to assets, land and capital as men and this leads to different levels of participation in cash crop markets (Vigneri & Vargas, 2011; Doss, 2001). Further, majority of female farmers are assumed to grow crops for subsistence purposes in order to enhance food security for their families unlike male farmers who are more concerned in cash generating enterprises. Vigneri and Vargas (2011) and Doss (2001) showed that women rarely had similar access to assets and markets as men, which lead to different levels of participation in cash crop markets.

Family labor is reported to be an influential but cheaper asset that leads to higher production volumes and positively influences farmers' market participation (Lerman, 2004). Past researchers have used family size as a proxy to family labor. Family size can positively or negatively influence participation in agricultural market. One possible explanation is that as family size increases the productivity of land rises due to availability of cheap labor and exceeds subsistence requirements and this leads to an increase in marketed surplus (Martey *et al.*, 2012).
A study by Okezie *et al.* (2012) outlined the farm-level determinants of agricultural markets as family labor, fertilizer and planting materials. For instance in Uganda, large family size is reported to be a good source of labor for livestock management such as watering, milking as well as transporting milk to output markets (Ruhangawebare, 2010; Jaleta *et al.*, 2009). On the other hand, larger family size is labor-inefficient and produces less output but may increase demand for more food and this reduces the marketable surplus (Alene *et al*., 2008 and Omiti *et al.*, 2009).

For smallholder farmers' production and consumption decisions are not separable and market participation takes place when a household's shadow price is lower than the market price with an allowance for transaction costs (Mailu & Wachira, 2009). Both input and output prices are reported to affect commercialization by altering the conditions of commodity supply and demand in agricultural production and marketing system (Pender & Alemu, 2007). A study by Enete and Igbokwe (2009) while studying the level of farmers' market participation in cassava markets found that price had a significant influence on the level of farmers' market participation. Price acted as an incentive to farmers as the supply of cassava to the market increased as price increased. Similar results were reported by Onoja *et al* (2012) while studying influence of price on the amount of fish sold in Nigeria. According to their results, the households who had higher expectations of making higher profits from price signals were more likely to participate in fish

marketing in the area. Omiti *et al*. (2009); Olwande and Mathenge (2012) found that a unit increase in price led to an increase in percentage of output sold in markets. Komarek (2010) also reported that sub-county prices in Uganda had stronger influence on initial market entry decisions.

Conclusion

The review has looked at the role of agricultural markets and factors that hinder smallholder farmers' participation in agricultural markets. From the study, both internal and external factors have been suggested to influence smallholder farmers' participation in agricultural markets. To improve market participation and thus improve household income and their livelihoods, these factors need to be addressed. Market access is precondition for market participation which is enabled by improving productivity. However access to markets is necessary but not sufficient for smallholder farmers to participate in market. There is need therefore for policy makers and development economist to ensure smallholders have access to productive technologies and adequate private and public goods in order to work towards producing a marketable surplus.

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