

Determinants of off-farm work participation of farm Households in Ethiopia: A review

Yadeta Bekele¹

Jimma University, Department of Agricultural Economics and Agribusiness Management

Guta Regasa²

Jimma University, Department of Rural Development and Agricultural Extensions

Panchugopal Biswas³

Jimma University, Department of Agricultural Economics and Agribusiness Management

Abstract

This study assesses the determinants of off-farm work participation decisions of farm households in Ethiopia. The results of the study show that human capital variables such as health and training on non-farm activities have positive relationships with off-farm participation decisions of farm households. The education status of the farmers has also significant relationship with the off-farm participation decisions of the members of the family. The availability of credit and transfer income is the other factors that have a positive relation with the decisions of farmers to participate in off-farm activities. According to this study family size is found to be a significant and positively influenced household off-farm participating of the farm households implying that, households with large family size, having children of productive age, could be participate in the off-farm activities. Cultivated land size is also positively determined the rural household off-farm participation. This implies that households who had larger farm size had better chance to participate on off-farm activities. Since households who had larger farm size had better chance to assess other additional income activities. Total livestock owned is another factor that is related to the probability of participating on off-farm in the country. The positive relationship is explained by the fact that total livestock owned being a proxy for farmer's resource endowment, those farmers with large herd size have better chance to earn more income from livestock production. This in turn enabled them to participate on off-farm participation through production of milk and meat, and manure from livestock which is an important fuel for the sample households and used as a fertilizer. Therefore, the country should encourage farmers to use credit facilities, introduced a proper forage development programs, expanding veterinary service and disease prevention programs in the study area is crucial to increase livestock production and productivity. Finally, policies that aim to increase the off-farm work participation decisions of family members should take into consideration the difference in responses to the various factors that affect the off-farm work decisions of farm households.

Keywords: *Off-farm; participation; rural households; Ethiopia*

INTRODUCTION

Background

Ethiopia is an agrarian society where nearly 85% of the population is directly dependent on farming activities for their livelihood. It accounts for about 50% of the GDP and 90% of the total foreign exchange earnings. Crop production, livestock husbandry and mixed farming are the main types of farming activities in the country. Family labour is the primary farm input for the sector. The agricultural sector of the country is still characterized by low labor productivity, a declining farm size (an average of one hectare per household) and traditional farming systems, natural resources degradation, variable weather conditions, tenure insecurity, weak agricultural research base and extension system, lack of financial services, imperfect agricultural markets and poor infrastructure (Degefe and Nega, 1999).

Non-farm activities have a great potential to provide employment and additional incomes during the slack season to rural households. In addition, given rising population pressure on agricultural land which results in a decline in land holding per individual, off-farm activities can provide alternative employment. Despite their great potential, rural non-agricultural activities account for less than 3% of the rural labor force (CSA, 1999b).

Compared to other African countries, the proportion of the rural labor force engaged in non-farm activities in Ethiopia is too low. According to the International Labor Organization (1993), in Ghana for instance 26.7% of the rural workers were engaged in rural non-farm activities, 15% in Sierra Leone and an average ranging from 10 to 20% in sub-Saharan Africa. According to this report the importance of the rural non-farm activities in Ethiopia is under stated because of the narrow definition by the Central Statistical Authority, and the Ethiopian definition of urban areas as towns of 2000 inhabitants or more compared to the UN definition, which uses 20,000 people as the cut-off point.

Farmers in Ethiopia are engaged in both self-employment and wage employment. Studies show that about 43% of farm households are self-employed. Among the major activities are trades in grain/general trade making and selling firewood, dung cakes, charcoal, weaving/spinning, collecting and/or selling straw, and trade in livestock/livestock products. Other activities are handicrafts, making and selling of farm implements, broker, selling araki, bakery, salt trade, shuriba sira, pottery, etc.

Off-farm employment refers to employment in activities not on his/her farm. It includes employment on another farmer's farm. Non-farm employment refers to employment not related to farming activities. Thus, off farm wage employment describes those households that are working off their land against payment in cash or in kind.

In rural areas of developing countries in general and Ethiopia in particular, labor market participation is the major source of income for many landless and small farm households. In spite of the high potential of the non-farm sector in generating employment, they are not covered by government policies and strategies. Rural development policies aiming at promoting the farm/nonfarm linkages should consider the role of the non-farm sector. Thus identifying the factors that affect the off-farm participation decisions of farm households is necessary if there is a need to make households to diversify the ways in which they gain their livelihood. However, studies on the off-farm participation decision of Ethiopian farm households are limited. Moreover, the available literature does not consider the difference in the response by the male and female members of the family to the different personal, location and farm characteristics. Therefore, the objective of this study is to review the determinants of off-farm work participation decisions of farm households in Ethiopia.

Objective of the review

The general objective of this study is to review the *determinants* of off-farm work participation of farm households in Ethiopia.

Discussions

Concepts of off farm activities

As engine of economic growth and poverty reduction, in developing countries, agriculture should be integrated with sectors that have direct or indirect linkages. According to Babatunde et al. (2010) financial capital appears to be the most limiting factor for farming, so that cash income from off-farm activities helps to expand farm production; increase household income and reduce risk of crop failure. Hence, off-farm is one among the activities whereby agriculture is believed to be integrated with. World Bank (2008) has reported that, in most developing countries, the importance of off-farm activities is increasing and estimated to account for 30 to 50% of rural incomes. According to Rios et al. (2008), the higher the off-farm income is, the larger capital endowments; and having higher capital endowments will in turn help to produce more and more and even to be productive. According to Asenso-Okyere and Samson (2012), Haggblade et al. (2010) and Diao and Nin Pratt (2007), modern agricultural inputs can result with ample production and productivity of marketable commodities that results with trade linkage; the requirement of agricultural inputs and marketing facilities by itself, induces off-farm activities.

As per the view of Haggblade et al. (2010), those who live in arid areas where production is sluggish tend to participate in off-farm activities and diversify their income sources. Similarly, in Burkina Faso, Zahonogo (2011) purport that a decline in farm income and farm production let farmers to participate in off-farm activities; and increment in farm production and income do the

opposite. Furthermore, in areas where agriculture is grown, the rural off-farm economy was also been founded to be grown (Haggblade et al., 2009). While quantifying this direct linkage between agricultural growth and off-farm economy, Haggblade et al. (2009) reported that a one dollar value invested on to agriculture generates 0.3 and 0.5 additional dollar on to rural off-farm income in Africa and Latin America, respectively.

In Africa, off-farm economic activities, as a means of income diversification, are very much indispensable for improving the livelihood of rural poor (Asenso-Okyere and Samson, 2012; Diao and Nin Pratt, 2007). Besides, it can serve as source of input supply for agricultural production and employment opportunity for those who do not have arable land and do not further want to rely on agriculture. Despite its vitality, in Africa, off-farm activities participation is low; and according to Haggblade et al. (2007), 37% of the rural households' income is really extracted from off-farm activities where surprisingly not more than 20% of the labor force is being participated. Likewise, in Nigeria, a study by Adewunmi et al. (2011) revealed that participation in off-farm activities more particularly wage employments of skilled and unskilled had resulted in a reduction of rural poverty by 11.02 and 10.68%, respectively; participants lessen poverty better than non-participants (Alaba and Kayode, 2011).

In Ethiopia, being part of developing regions in general and sub-Saharan Africa in particular, agriculture is the real backbone that enables 85% of Ethiopian people to walk upright and be able to feed the remaining 15% of the fortune coincidence urban residents. In line with this, Ministry of Agriculture and Rural Development (2010) claimed smallholder farmers in producing majority of the country's total production. Furthermore, World Bank (2010) inferred that 90% of the foreign earnings and 70% of the raw materials for industry are being sourced from agriculture. Hence, 85% of the Ethiopian people believe that agriculture is the way out to be food secured and even be luxuriant in the long run. Given this deep rooted belief, starting from recent past, arable land size and agricultural production are dwindling and thereby the society is being forced either switching to off-farm activities or stretch their hand for food aid basically for clothing the food longing mouths at home.

According to Merima and Peerlings (2012) and Abebe 2008), in Ethiopia, farmers tend to participate in off-farm activities to satisfy consumption needs by supplementing the sluggish agricultural income caused by erratic and seasonal rain fall; and due to crop failure and the resultant abundant labor force. Besides, farmers are vulnerable both for natural and manmade disasters and shocks that could be weather related, pests, death of livestock and others. As a means of relief, rural farm households prefer to participate in off-farm activities and diversify their income thereby (Berg and Kumbi, 2006; Dercon and Woldehanna, 2005). Hence, a certain farm household is tempted to participate in off-farm activities due largely to push factors, like drought. They further inferred that, Ethiopian rural poor prefer to participate in off-farm activities that

require less entry costs like fire wood collection and charcoal production, while the most lucrative off-farm activities are left for the haves. Contrary to this, some rural farm households tend to participate in off-farm activities basically to widen their income sources given their ample agricultural production and the resultant accumulated wealth, as a pull factor.

In line with the above inclination, Rijkers et al. (2002) as cited in Woinshet (2010) reported that 25% of Ethiopian rural households own more than one labor intensive off farm activities, although 23% of these rural households did their off-farm activities parallel with their agricultural practices. Hence, only 2% of Ethiopian rural households were those who exclusively rely on off-farm activities.

Besides, according to Merima and Peerlings (2012) for the past eight years, back from 2012, not more than 25% of the rural households had engaged in off-farm activities which are minimal compared with 42% of the sub- Saharan Africa average; and its contribution for employment creation in Ethiopia is 1.14%. From this one can deduce that Ethiopian rural households' off-farm participation is insignificant and its effect onto crop production as well as its overall benefit has not yet been exploited. Hence, identifying determinants of off-farm participation decision and examining the impact of participation on crop yield is found to be imperative for a clear and sound policy indication whereby farm households would participate and diversify their income and cope up food security challenges.

The concept of off-farm activity is a relatively recent development as compared to other concepts of economics. Despite this, some of the empirical studies that were made to identify the factors affect off-farm activity participation which mainly has got from Internet similar to the topic of the study have been summarized into developed countries, developing countries and Ethiopia, respectively as follows.

Gudbrand et al (2008) by using an unbalanced panel data set from 1991 to 2005 from Norwegian grain farms showed that the likelihood of off-farm work and the share of time allocated to it increase with increasing age (up to 39 years), and with low relative yields (compared to others farms in the surrounding area/region).

Benjamin and Guyomard cited in Beyene (2008), in their study of off-farm work decisions of French agricultural households, show that the main effects on off-farm labor market participation decisions of both members (husband and wife) are: -

- Higher general education was reflected in higher off-farm labor market participation of both operators and spouses.
- The younger wives are the more likely to work off-farm.

- The number of children decreases the wife's participation in the off-farm labor market, i.e. increases her reservation wage, and
- Farm operators seem to be more responsive to farm characteristics than wives.

The study conducted to identify determinants of off-farm work participation decisions off farm households in Ethiopia show that human capital variables such as health and training on non-farm activities have a positive effect on the off-farm participation decisions of farm households. The education status of the head has no significant impact on the participation decisions of the members of the family as most of the off-farm activities do not require formal education. The availability of credit and transfer income is the other factors that have a positive impact on the decisions of male members to participate in off-farm activities (Beyene, 2008).

Role of off-farm activities

De Janvry and Sadoulet (2001) studied the role of off-farm activities in rural households in Mexico. The result shows that participation in off farm activities helps reduce poverty and contributes to greater equality in the distribution of income. Results show that education, ethnic origin and regional availability of off-farm employment are found to affect participation in off-farm activities. Education helps the farm households in the study area to participate in the more remunerative off-farm activities. A study by Corpal and Reardon (2001) also shows that the effect of education is found to be different depending on the type of off-farm activities. Similarly, land scarcity and access to roads have an effect on the participation decision in nonfarm employment.

Human capital, as embodied in education and experience, is essential in increasing non-farm earnings and time allocation of rural families and to diversify the rural economy away from agriculture. A husband or wife who had more schooling (as measured by years of schooling) had a significantly higher probability of engaging in non-farm activities. The other variables nonlabour income and distance to the regional capital are found to have a negative influence on the participation decisions of farm households. Unlike other studies the presence of children had no significant effect on the participation decision of women in non-farm work and on the labor supply of husbands and wives. This is similar with findings of Rosenzweig (1980) and Skoufias (1994). Jacoby (1993) also indicated that the number of children 5 years old and younger does not lessen women's hours worked, which includes housework, though not child care per se. But a well-developed infrastructure and population density had positive significant effects on the probability of non-farm work by both males and females.

The Ministry of Labor and Social Affairs (MOLSA) in Ethiopia undertook a survey of the Agricultural Wage Employment and Rural Non-Farm Employment in 1997. Similarly, Woldehanna (2000) tried to determine the impact of traditional and modern education on the supply of labor

for off-farm wage employment in Tigray and reached the same result (negative sign). He argued that higher education increases the productivity of the individual on the farm or in the household more than it increases the productivity in off-farm employment or off-farm employment in the rural areas of Tigray may not require education at all and hence there is no special demand in the labor market for relatively educated farm households.

On the other hand, a study carried out by Gebre Egziaber (2000) in two Woredas of SNNP revealed that education is one of the effective instruments in promoting non-farm activities in rural areas. His research also shows that farmers with more farm resources are less attracted to non-farm activities.

Demeke and Regassa (1996) studied non-farm activities in North Shoa and concluded that education has a stronger impact in the vicinity of urban areas.

Summary and conclusions

Agriculture is the backbone of the Ethiopian economy and the performance of the sector directly or indirectly affects the lives of many people. More than 85% of the labour force is engaged in agriculture. However, because of the natural and socioeconomic problems, Ethiopian farmers are suffering from instability of income. Low productivity of the sector is the major cause of unemployment and underemployment in the rural areas. Hence rural off-farm activities can play an important role in improving the well-being of the rural population. Therefore, because of the importance of the sector to farm households and rural development, the determinants of off-farm work decisions are reviewed. This study attempts to assess the determinants off-farm participation decisions of farm households in Ethiopia.

The results of the study show that human capital variables, education of the household head have an effect on the off-farm work decisions as most of the off-farm activities. The other human capital variable, health condition of the family, is obviously an important factor that affects the time allocation decision of the family. Even though training in non-farm activities have not been given due attention, its importance in the off-farm work decisions of farm households are supported by the analysis. Therefore, giving emphasis to the role of non-farm training by governmental and non-governmental organizations dealing with rural development will enable farmers to diversify their sources of income.

Farmers have financial constraints in being involved in off-farm activities. The development of rural micro-financial institutions serving the rural population will contribute to the promotion of the non-farm sector. The current policy of the government to expand the micro- financial institutions in rural areas will enable the farmers to diversify their sources of income and will contribute significantly to the overall poverty reduction in the country.

The effect of farm characteristics (farm size) also shows that farmers are participating in off-farm activities for push reasons. The small farm size forces them to look for other sources of income. Therefore, poor and landless households may be benefited from the sector. The off-farm participation behavior of farmers is found to differ in different places in the country. It is higher in areas affected by drought and lower in relatively self-sufficient areas.

Finally, policies that aim in increasing the off-farm work participation decisions of family members should take into consideration the difference in response to the various factors that affect the off-farm work decisions of farm households. Further research is required that tries to determine the off-farm work decisions of farm households in wage and self-employment activities separately.

Ethiopia is mainly characterized by low output rain-fed mixed farming with traditional technologies. The presence of an unproductive class, lack of capital, poor infrastructure, absence of access to markets, a shortage of skilled manpower, land degradation, population pressure, religion, culture, deforestation, tenure regimes and policies, poor land management practices and varied but interrelated natural factors could be mentioned as important factors of rural poverty. Further, for centuries, the country had been affected very little by external factors like market, new inventions and techniques. There was no specialization of production as farming has never been considered as a business enterprise. Little has been done to mechanize and commercialize and transform Ethiopian peasant agriculture.

Recommendations

This review assessed factors that affect participation of households on off-farm activities in Ethiopia. According to this study family size is found to be a significant and positively influenced household off-farm participating of the sample households. This implication indicates that, households with large family size, having children of productive age, could be participate in the off-farm activities. Therefore, increasing and strengthening education and health services in the region is a crucial factor to increase off-farm participation in rural areas.

Cultivated land size is significantly and positively influenced the rural household off-farm participation. This implies that households who had larger farm size had better chance to participate on off-farm activities. Since households who had larger farm size had better chance to assess other additional income activities. Therefore, the country should follow community targeting process to increase diversification and to use effectively of their land.

Total livestock owned is another factor that is related to the probability of participating on off-farm in the country. The positive relationship is explained by the fact that total livestock owned being a proxy for farmer's resource endowment, those farmers with large herd size have better chance to earn more income from livestock production. This in turn enabled them to participate

on off-farm participation through production of milk and meat, and manure from livestock which is an important fuel for the sample households and used as a fertilizer. Therefore, the country should encourage farmers to use credit facilities, introduced a proper forage development programs, expanding veterinary service and disease prevention programs in the study area is crucial to increase livestock production and productivity.

On the other hand access to credit has a significant and positive influence on off-farm participation in the country. So the government should create an opportunity to the rural household to use credit service from public agencies and private institutions to increase participation on off-farm activities. In addition, continuous monitoring and evaluation should also be used as an important instrument for effective use of credit at grass root level.

Age of the household head is found to be positively determined the household off-farm participation. As the age of the household head increases the farmer acquires more knowledge and experiences with possible positive impact on participation of off-farm activities. So, experience sharing is an important tool to increase off-farm participation.

References

Abdulai A & Delgado CL (1999). Determinants of non-farm earnings of farm based husbands and wives in Northern Ghana. *American Journal of Agricultural Economics* 81(1):117-130.

Aredo D (1994). Female-headed farm households in two contrasting regions in Ethiopia: access to and management of resources: *Ethiopian Journal of Development Research* 16(1):1-12.

Benjamin C & Guyomard H (1994). Off-farm work decisions of French agricultural households. In: Caillavet F, Guromard H & Litran R (eds). *Agricultural household modeling and family economics*. Amsterdam: Elsevier. 65-85.

Corpall L & Reardon (2001). Rural non-farm incomes in Nicaragua. *World Development* 29(3):427-441.

CSA (1999a). Report on monthly average retail price of goods and services in rural areas, by kilil and zone. *Statistical Bulletin* 222, Addis Ababa, Ethiopia.

CSA (1999b). Statistical report on the 1999 National Labor Force Survey. *Statistical Bulletin* 225, Addis Ababa, Ethiopia.

Degefe B & Nega B (1999). Annual report on the Ethiopian economy. EEA 1:78, Addis Ababa, Ethiopia.

De Janvry A & Sadoulet E (2001). Income strategies among rural households in Mexico: the role of

off-farm activities. *World Development* 29(3):467-480.

Demeke M & Regassa T (1996). Non-farm activities in Ethiopia: the case of North Shoa. In: Kebede B & Tadesse M (eds). *The Ethiopian economy, poverty and poverty alleviation. Proceedings of the Fifth Annual Conference on the Ethiopian Economy, Addis Ababa, Ethiopia, December.*125-162.

Fafchamps M & Quisumbing AR (1997). *Human capital, productivity, and labor allocation in rural Pakistan.* Department of Economics, Stanford University, Stanford, USA.

Gebre Egziaber T (2000). Non-farm activities and production decisions of farmers: the case of Damotgale and Kachabira woredas in southern region of Ethiopia. *Social Science Research Report, Series No. 15, March.* Addis Ababa, Ethiopia.

International Labor Organization (ILO) (1993). *World Employment Program; Ethiopia towards sustained employment promotion: Jobs and Skills Programme for Africa (JASPA).* Addis Ababa: ILO.

Jacoby H (1993). Shadow wages and peasant family labour supply: an econometric application to the Peruvian Sierra. *Review of Economic Studies* 60:903-922.

Lass DA, Findeis JL & Hallberg MC (1991). Factors affecting the supply of off-farm labour: a review of empirical evidence. In: Hallberg MC, Findeis JL & Lass DA (eds). *Multiple job holding among farm families.* Ames: Iowa State University Press. 239-262.

MOLSA (1997). *Agricultural wage employment and rural non-farm employment in Ethiopia: survey results.* Addis Ababa: MOLSA.

Rosenzweig MR (1980). Neoclassical theory and the optimizing peasant: an econometric analysis of market family labour supply in a developing country. *Quarterly Journal of Economics* 94:31-55.

Singh I, Squire L & Strauss J (eds) (1986). *Agricultural household models: extensions, application, and policy.* Baltimore: Johns Hopkins University Press.

Skoufias E (1994). Using shadow wages to estimate labour supply of agricultural households. *American Journal of Agricultural Economics* 76:215-227.

Woldehanna T (2000). *Economic analysis and policy implications of farm and off-farm employment, a case study in Tigray Region of Ethiopia.* Unpublished PhD dissertation, Wageningen University, Wageningen, The Netherlands.