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The Role of Income Diversification on Risk Management and Rural Household Food Security in Ethiopia

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Abstract
This review synthesized the role of income diversification on risk management and rural household food security in Ethiopia. According to this review, from different researchers, farmers are engaged in a variety of off farm & non-farm activities to diversify their income with view to feed and sustain themselves during crop failures even if research and extension activities have not been done adequately on the issues related to off/non-farm activities .Income diversification of households based on share of income from each sources show that, the share of crop income takes the highest share of the total household income followed by livestock income. So those, majority of farm households are mainly engaged in farming with few off-farm and/or non-farm activities. For instance, only 27 percent of Ethiopian farm households were engaged in nonfarm entrepreneurship and derive 50 percent or more of their income from nonfarm enterprises. When farming becomes less profitable and more risky as a result of population growth and crop and market failures, households are pushed into non/off-farm activities, leading to "distress-push" diversification. The relative reduction of the importance of agriculture and the expansion in rural off/nonfarm activities and income diversification are likely features of the process of economic development because it is a means for risk management as a form of self-insurance. As the food security researchers, about 10% of Ethiopia's citizens are chronically food insecure and this figure rises to more than 15% during frequent drought years. Depending on reviewed document, to address food security issue in Ethiopia, the household head and members of the household should engage in different income generating activities for means of living and coping mechanism.

1. INTRODUCTION

In the real world, few people collect all their income from one source, hold all their wealth in a single form of asset, or use their assets in one activity. Thus, we can say diversification is the norm. Diversification is defined as the process by which rural households construct increasingly diverse livelihood portfolios, making use of increasingly diverse combinations of resources and assets in order to meet their basic needs, improve their living standards or welfare, and manage risk (Niehof, A., 2004).Non-farm & off-farm income generating activities provide an important source of primary employment in the rural areas of most developing countries', and it is assumed that as farm size due to population pressure becomes smaller, the percentage of non-farm income becomes larger (Hilson, 2016).

When we came to the particular, Agriculture is still the engine of Ethiopian economy. Despite its contribution to the economy the sector has been and is facing a multitude of challenges (UNDP, 2014). The policy focus is to increase agricultural productivity and farm income so as to attain food self-sufficiency at national, regional and household levels. While substantial resources have been spent on agricultural research and extension to alleviate food shortage in the nation, research and extension activities have not been done adequately on the issues related to off/non-farm activities (Diversified enterprise) (Amare D., 2013) .

Despite this fact, farmers are engaged in a variety of off farm & non-farm activities to diversify their income with view to feed and sustain themselves during crop failures. The main question and concerns of policy makers is to make sure whether or not it is possible to support farmers to engage in off/non-farm activities without sacrificing the farm productivity and food self-sufficiency objectives. Hence, looking into the link between farm and non/off-farm activities is necessary before policy measures are taken to promote non/off-farm activities (Tassew, 2000).

The livelihood of rural households is the result of the interaction between complex strategies and multiple income generating activities (Kilic *et al.,* 2009). As a result, farm households in rural areas participate in multiple economic activities and thus diversify income sources to minimize agriculture related risks and problems (Bassie Y., 2014). In view of this, nonfarm and off farm activities have recently become one of the main income diversification strategies widely practiced by most farmers in developing countries. The importance of nonfarm and off farm activities as source of income, employment, expansion of farm activities and way out of poverty among rural farm households in most developing countries is well recognized (Cornilius, 2010; David, 2010; Haggblade *et al*., 2010; Adewunmi *et al*., 2011; Benedito *et al*., 2011; Aziz and den Berg, 2012; Bernardin, 2012). According to Binswanger *et al*. (2010), the relative reduction of the importance of agriculture and the expansion in rural off/nonfarm activities and income diversification are likely features of the process of economic development.

Diversification involves the maintenance and continuous alteration of a highly-varied range of activities and occupations to minimize household income variability, reduce the adverse impacts of seasonality and provide employment / additional income (Ellis, 2000; Barrett et al., 2001; Lanjouw and Lanjouw, 2001; Davis and Bezemer, 2004; Matsumoto et al., 2006; Haggblade et al., 2010). Despite such benefits, diversification can also have negative sides depending on the motivation behind it (Hart, 1994). For instance, certain types of diversification may provide short-term security but trap households in low-return activities that make poverty persistent (such as poorly-paid piecework that leads to the neglect of farm production) or can degrade the natural-resource base (such as unsustainable charcoal production) (Barrett, Reardon, and Webb, 2001; Ellis and Freeman, 2004).

Some rural households depend exclusively on their own agricultural production for income, what they define the “full-time farmer” strategy. Others combine own production on-farm with wage labour on others’ farm, which they refer to as the “farmer and farm worker” strategy. The third strategy combine farm and non-farm returns. The fourth “mixed” strategy combines all three basic elements discussed so far: on-farm agricultural production, unskilled on-farm or off-farm wage employment, and non-farm returns from trades, commerce and skilled (often salaried) employment (Barrett, Bezuneh et al., 2001). Some scholars also grouped the components of rural livelihood diversification by sector (farm or non-farm), by function (wage employment or self-employment) or by location (on-farm or off-farm) (Loison, 2016; Saha & Bahal, 2012).Activities of the non-farm economy is usually categorized into three major sectors: trade, manufacturing and service. Ellis (2000) categorizes activities not directly related to agricultural production as non-farm, including non-agricultural wage or salaried employment and self-employment, rent income, transfers, and remittances. It excludes agricultural wage or exchange labour and natural resource extraction (mainly charcoal making) as off-farm income. Here we will focus not on their classification but on income diversification and its contribution in transforming the household’s economy by coping risk.

Diversification has been analyzed as a rational response by households to lack of opportunities for specialization, and was initially considered not the most desirable option. However, recent studies indicate that rather than promoting specialization within existing portfolios, upgrading them to augmenting income could be more realistic and relevant for poverty reduction (Ellis F. and Freeman H. 2005). Diversification is therefore associated with both livelihood survival and distress under deteriorating conditions, as well as with livelihood enhancement under improving economic conditions (Niehof, 2004).

Several studies have reported a substantial and increasing share of non/off-farm income in total household income among rural households in most developing countries. Reasons for this observed income diversification include declining farm income and the desire to insure against agricultural production and market risks (Haggblade S., 2007, Ellis, F. and Freeman H. 2004). That is, when farming becomes less profitable and more risky as a result of population growth and crop and market failures, households are pushed into non/off-farm activities, leading to “distress-push” diversification. In other case, however, households are rather pulled into the off-farm sector, especially when returns to off-farm employment are higher or less risky than in agriculture, resulting in “demand-pull” diversification (Babatunde, R., 2010).

In situations of high-risk agriculture and poverty, poorer small-holders without the necessary assets may be pushed to seek alternative incomes by engaging in low-return and sometimes risky nonfarm activities (Barrett, Bezuneh et al., 2001). A contributory factor to the widespread rural poverty and food insecurity in Ethiopia is the very low productivity of the smallholder agriculture (Canali and Slaviero, 2010). Smallholder farmers are the major producers of food through low-input, rain-fed and low-output farming systems (MoARD, 2010). Drought, erratic rainfall, backward production technologies, small size of farmlands and land degradation are the major causes for the low agricultural productivity in Ethiopia. Among these, drought is the most significant trigger that often leads to transitory food insecurity; a slight change in rainfall often leading to dramatic declines in crop yields. For example, Oxfam estimated that drought alone costs Ethiopia US$ 1.1 billion per year (Shitarek, 2012). Moreover, the carrying capacity of the agricultural sector of the country is declining as a result of increasing population growth with limited farm size especially in areas where rural households depend on rain-fed agriculture for subsistence production (Sisay, 2010). On the other hand, employment opportunities in nonfarm or off farm activities are extremely rare in the country (Gebrehiwot and Fekadu, 2012). The relative reduction of the importance of agriculture and the expansion in rural off/nonfarm activities and income diversification are likely features of the process of economic development.

In Ethiopia, even though, the smallholder rural farm households are involved in diverse livelihood activities, the participation of smallholder farming rural households into nonfarm and/ or off farm activities is influenced by complex factors. According to Tucker *et al*. (2010), the rural poor often lack access to insurance services; so many individuals prefer strategies to avoid risk. Based on this statement, one strategy for avoiding or minimizing risk is to engage in a wide range of income generating activities so that if one activity fails the individual may fall back on another. As such the rural poor often pursue a diverse range of income generating activities.

Reliance on agricultural growth and agricultural strategies alone as the primary vehicle for rural poverty reduction may not be a long term option. Factors such as very small land-holdings, drought, floods, crop loss due to pest and/or disease, poor road status and gaps in market access in rural areas, means that agriculture is already unable to support all of the rural population, leaving many reliant on the Productive Safety Net Programme (PSNP) or food aid. It is therefore critical to understand that income diversification enable people to move out of agriculture into new, high earning and more sustainable livelihoods (Mideksa F., 2015).

The rural economy of Ethiopia is traditionally viewed as agrarian economy in which farm households are mainly engaged in farming with few off-farm and/or non-farm activities. For instance, only 27 percent of Ethiopian farm households were engaged in nonfarm entrepreneurship (Nagler and Naudé, 2014). Moreover, majority of the population is dependent on marginal nonfarm income sources such as petty trade (World Bank, 2009). Further, due to the smaller farm size and low return from farming activities, majority of rural households exposed to chronic poverty. For instance, International Food and Agricultural Development (IFAD, 2011) indicated that most of the Ethiopian rural people are poor and access to one hectare or less of land. Hence, if there are no alternative means of livelihoods substituting this situation the newly born generation will face serious challenges than existing.

Therefore, these households need to cope with increasing difficulties in agricultural production by diversifying their income into off farm and nonfarm activities (combination of different off/non-farm enterprises, investments, or assets held by an owner which can be evaluated in terms of their combined risks and returns) (Bassie Y., 2014). The objective of the study is to review the effect of income diversification in risk management and food security status of rural farm household in Ethiopia.

2. LITERATURE REVIEW

2.1. Theoretical Literature Reviews

2.1. 1. Concepts and Definitions of Terminologies

According to Collins Essential English Dictionary (2006), income is defined as the total amount of money earned from work or obtained from other sources over a given period of time. The free on-line dictionary (2008) defines income as the amount of money or its equivalent received during a period of time in exchange for labor or services, from the sale of goods or property, or as profit from financial investments. The same source alternatively describes income as money received by a person or organization because of effort (work) or from return on investments.

Diversification has been defined in various ways. Different literature offers several definitions of diversification. Some view diversification referring to an increase in multiple activities (pluri-activity) irrespective of the sector (Meert et al., 2005). Others focus on sectoral change and take a shift away from traditional/agricultural sector to non-traditional activities in rural or urban areas as diversification (Start, 2001). Diversification means addition of livelihood sources of income other than those of farm related ones. It is the most important way of reducing rural poverty and increasing household income (Hengsdijk *et al.,* 2007).

According to Brugère *et al*. (2008), diversification is defined as the process by which rural households construct a diverse portfolio of income generating occupations in their struggle for survival and in order to improve their standards of living. As per this definition, diversification can occur at a household level in terms of adding more occupations to the portfolio of occupations. However, diversification can also occur at a broader scale so that there are greater numbers of occupations available to households within villages, but households may choose to engage in only a subset of these occupations.

Haggblade *et al*. (2010) define non-farm diversification as seeking business or employment opportunities other than traditional crop production and livestock rearing. Even non-farm diversification is related to agriculture as it includes processing and trading of agricultural produce. Further, nonfarm activities include service provision, shop keeping and manufacturing. According to Haggblade *et al*. (2010), the term rural nonfarm enterprises is used in this paper to refer to all rural business enterprises outside of farming; it includes, for example, shops, business services, food processing and preparation for sale, petty trading, engaged in rural crafts and so on. The term off farm activity in this context refers to all activities away from one's own property, regardless of sectoral or functional classification, which can be either wage employment or self-employment activity (Beyene, 2008).

Thus, off farm is defined as time devoted to off one's own farm work which consists of time allocated to wage employment activities (both in farm and nonfarm sectors) as well as nonfarm self-employment activities. Nonfarm self-employment comprises non-wage activities such as trading, transport services (vehicles or motorcycles), weaving, handicrafts, making pottery and so on. According to Chang and Mishra (2008), off farm income refers to income generated by a household working off the farm.

Perhaps by far the most widely used definition of diversification that comprises both 'multiplicity' of activities and sectoral transformation is the one used by (Ellis, 1999:2) which defines it as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their livelihood. Diversification also refers to an increase in the sources of income and the balance between different sources (Ellis, 2000; Minot, 2006). Accordingly, a household with one source of income would be less diversified than a household with two sources of income, and a household with two income sources, each contributing equal share of the total would be more diversified than a household with one source accounting for 90 percent of its income and the second only for 10 percent (Joshi, 2002 as cited in Minot, 2006:5).

The term income diversification is mostly used in connection with livelihood diversification for ease of analysis and interpretation. However, Ellis (1998) makes a distinction between the two and defines income diversification as the composition of household income at a given point in time while livelihood diversification is considered as an active social process involving engagement in increasingly complex portfolio of activities overtime.

Income diversification is the process by which households widen their income base by adopting new economic activities. For rural agricultural households, this includes: agricultural diversification (producing a wider variety of crops or livestock or their products); diversification from subsistence into commercial activities; and diversification from agriculture into nonfarm activities. In the most successful cases, income diversification creates an upward spiral of increased household incomes and reinvestment in higher value activities. Such a spiral would be growth-promoting and poverty-reducing. In contrast, income diversification may occur as a survival response to severe shocks and stresses. For instance when members of poor farming households are forced to migrate in search of wage labor or sell assets because their crops fail or they face a sudden need for extra income. This situation refers to push factors (Samson *et al*, 2010).

Different scholars give related definition for income diversification, as an increase in the number of sources of income or the balance among the different sources. Thus, a household with two sources of income would be more diversified than a household with just one source, and a household with two income source each contributing half of the total, would be more diversified than a household with two sources, one that accounts for 90 percent of the total (Joshi .*et al*., 2002; Ersado 2003). The other definition of income diversification concerns the switch from subsistence food production to the commercial agriculture. For example, (Delgado C. and Siamwalla 1997) argue that 'farm diversification' as an objective in African smallholder agriculture should refer primarily to the part of farm household output undertaken specifically for cash generation." A less ambiguous term for this type of diversification is agricultural commercialization. It does not necessarily involve an increase in the number or balance of income sources. For example, a farmer may move from producing various grains, tubers, and vegetables for own consumption to specializing in one or a few cash crops.

According to Escobal (2001) income diversification is often used to describe expansion in the importance of non-crop or off-farm income. Non-farm income includes both off-farm wage labor and non-farm self-employment. Diversification into non-farm activities usually implies more diversity in income sources (the first definition), but this is not always the case. For example, if a household increases the share of income from non-farm sources from 30 percent to 75 percent, this represents diversification into non-farm activities but not income diversification in terms of the number and balance of income sources. Generally, income diversification can be defined as the process of switching from low value crop production to higher-value crops, livestock, and non-farm activities. "High value crops" are often defined in terms of the value per unit of weight, but it is probably more useful to define them as crops that generate high economic returns per unit of labor or land. This definition focuses on diversification as a source of income growth and a potential means for poverty reduction (Bassie Y., 2014)

According to Barrett et al. (2001), diversification can be measured by using activities, income and assets. Households use both productive assets, mainly land and human capital, and unproductive assets such as household items and property and engage in various activities to generate income. Thus, assets, activities and income can serve as complementary indicators of diversification (Barrett et al., 2001; Senadza, 2012). The valuation of assets is difficult especially in the African context due to the lack of secondary asset markets and variability of returns to assets because of asset fixity.2 Activities on the other hand, despite being useful in identifying diversification choices, are difficult to value and lack direct theoretical relevance. For instance, Ellis (2004) observes that using activities as a diversification measure can be misleading as the poor may report higher degrees of diversity based on the number of activities than their better-off counterparts and yet the poor diversify in the form of off-farm casual labor, while the better off are engaged in non-farm businesses. Therefore, in most studies income is used as a measure of diversification since it provides a clear interpretation of the welfare outcome (Barrett et al., 2001).

2.1.2. Alternative Income Generating Activities of Farm Households in Rural Areas

Multiple sources of household income are central to the livelihood strategy of rural households. The proportion of households with an income from nonfarm sources increased dramatically over the period. Households with a private non-agricultural income almost doubled while households with nonfarm household enterprise increased by 50 percent in Uganda.

Drawing from the World Bank's Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) for Ethiopia—Nagler and Naudé (2014) estimate that approximately 27 percent of rural households engaged in nonfarm entrepreneurship and derive 50 percent or more of their income from nonfarm enterprises. Although this literature focused on proportion of households engaged in nonfarm activities, it did not address why rural households not engaged in nonfarm activities which makes this study different from the study conducted by Nagler and Naudé (2014).

Further analysis of the LSMS-ISA (dataset on six countries namely Ethiopia, Niger, Nigeria, Malawi, Tanzania and Uganda also broadly confirms earlier observations from the FAO RIGA (Rural Income Generating Activities) project for some of the same countries thus reaffirming the high importance of agricultural income and agricultural wages in rural areas. The share of self-employment contributes less than 9 percent to the total household income in Malawi and as much as 36 percent in Niger, 16 percent in Tanzania and almost 21 percent in Uganda. While the income share, for example in Tanzania, may not be seen as high, the National Bureau of Statistics, Tanzania (2012) notes that diversifying income sources by generating income from activities off the farm may increase the productivity of the farm and help reduce farmers' vulnerability to exogenous weather or price shocks. In Tanzania around 65 percent of farm households had at least one member earning income outside of the farm during 2010/2011. This represents a 10 percent increase from 2008/2009.

While, overall, 42 percent of the rural households surveyed (LSMS-ISA six country) reported operating a nonfarm enterprise, there was significant country to country variation ranging from 17 percent in rural Malawi to almost 62 percent in rural Niger. Furthermore, there was evidence of portfolio entrepreneurship with, on average, 1.36 enterprises found per household, ranging from 1.07 in Malawi to 1.57 in Nigeria (Nagler and Naudé, 2014).

In rural areas, remittances are also a source of rural nonfarm household income. Remittances pave the way for households to obtain new financial products for different purposes (UNCTAD, 2012). Using data from the Center for International Earth Science Information Network (CIESIN), de Brauw *et al.* (2014) found that for a number of countries during the 1990s rural-urban migration had been relatively slow suggesting a weakly functioning labour market, and this in turn impacts on the potential economic benefits of such rural-urban linkage through remittances sent home. In the countries studied (Ethiopia, Niger, Nigeria, Malawi, Tanzania and Uganda), remittance rates also appeared quite low. This may reflect the high transaction costs in the transfer of money and the weak financial intermediation structures in rural areas, but it also may reflect the complex underlying social and economic drivers that inform rural-urban migration decisions and thus the associated remittances. Remittances, continued to surge in Ethiopia since 2010/11. Accordingly, remittances increased by 5.3 % and stood at US$619.6 million in the first quarter of 2013/14 (UNDP, 2014).

To generalize, one of the most established characteristics of rural households in developing countries is that they obtain their incomes from many different sources. Following Davis *et al.* (2010), income sources are allocated into five basic categories: (1) agriculture; (2) informal employment, (3) formal employment; (4) self-employment; (5) remittances. The five categories of income are aggregated into higher level groupings depending on the type of analysis. Therefore, in this review three types of income categories were discussed: on farm, nonfarm and off farm income based on supported literature. Farm income is obtained from agricultural production converted to monetary value including value of crop, income from the sale of animal products, and income earned from the sale of livestock. Sabates-Wheeler *et al.* (2008) aggregates nonfarm income as a range of activities that span from regular salaried work to self-employed activities such as trading. Moreover, income earned from renting land and oxen (rent income) as well as remittances are taken as nonfarm income. Off farm income includes agricultural wage labor.

2.1.3. Reasons for Rural Households to Diversify Income Sources

According to different works, rural households have various motives for diversifying their income sources and generation patterns instead of concentrating on agriculture with its potential gains from specialization. Barrett *et al.* (2001a) concluded from several studies that diversification to non-farm activities could be induced by diminishing or time-varying returns on agricultural labor or on land, market failures, or the need to introduce risk management or coping mechanisms.

Development economics literature has identified two main factors that drive diversification into non/off farm activities among farm households in developing countries. These factors are broadly classified into pull factors and push factors. Pull factors will attract households to the nonfarm sector when the nonfarm activities offer higher returns compared to farming. Reasons why a farm household can be pulled into the nonfarm/off farm sector include higher returns to labour and or capital and the less risky nature of investment in the non/off farm sector (Kilic *et al*., 2009). The desire to increase income in order to become more food-secure, upgrade housing, educate children, accumulate assets or otherwise improve the household's standard of living are also the pull factors. Voluntary diversification is opted with the goal to maximize profits.

Push factors (or necessity) are the involuntary reasons to diversify; they include income risk management, coping mechanisms, diminishing or time-varying returns to productive assets, long-term constraints or smoothing household consumption. Moreover, the push factors that may drive nonfarm/off farm income diversification include: first, the desire to manage agricultural production and market risks in the face of a missing insurance market and second, the need to earn income to finance farm investment in the absence of a functioning credit market (Kilic *et al.,* 2009; Oseni and Winter, 2009).

Ellis (1998) pointed out the following reasons for income diversification: the seasonal use of labor, differentiated labor markets, household-risk strategies and coping behavior, credit-market imperfections, and household savings and investment strategies. Non-farm income can thus help in overcoming credit and insurance problems. It could also provide income-earning opportunities outside the growing season, employ the household's extra labor, help in managing weather and other risks, and ensure smoother consumption throughout the year**.** In the absence of credit and insurance markets, the rural poor have to find other ways of spreading their consumption, and for many of them income diversification is a potential option (Barrett *et al*. 2001a).

2.1.4. Farm livelihood diversification in sub-Saharan Africa

Non-farm income generating activities provide an important source of primary employment in the rural areas of most developing countries', and it is assumed that as farm size due to population pressure becomes smaller, the percentage of non-farm income becomes larger (Hilson, 2016). Non-farm activities have the potential to play a crucial role in reducing vulnerability to poverty by providing households with a form of insurance against the risks of farming and reducing reliance on natural resources (Cinner et al., 2010; Lohmann & Liefner, 2009; Martin & Lorenzen, 2016; Rigg, 2006; Simtowe et al., 2016). Africa as a continent is identified by subsistence farmers, non-farm income sources already account for as much as 40–45% of average household income (Hilson, 2016; Saha & Bahal, 2012). High population growth resulting from high fertility rates, shrinking farm sizes and growing landlessness in sub-Saharan Africa could have potentially negative impact on rural welfare and food security and by default pushing unskilled farm labour into mainly low-return nonfarm sectors (Haggblade et al., 2007; Headey & Jayne, 2014; Muyanga & Jayne, 2014). Secondly, urbanization in SSA is taking place without industrialization (Andersson Djurfeldt, 2015; Losch, & White, 2012), in contrast to green revolution Asia where urbanization and emerging industries gradually allowed rural people to leave agriculture and enter to nonfarm employment (Haggblade et al., 2007), and rewarded investments in education and migration (Jayne, Chamberlin, & Headey, 2014).

In the absence of manufacturing industries and high-return service sectors to provide skilled nonfarm opportunities, prospects for increased employment and rising incomes in urban areas of SSA remain limited. This leaves smallholder farming as the primary option for gainful employment for SSA's growing young labour force (Losch et al., 2012). However, rapid growth in nonfarm sectors fuelled by improvements in education and infrastructure can potentially alter this situation (Haggblade, Hazell, & Reardon, 2010). Thirdly, persistent low agricultural productivity coupled with chronic food insecurity and severe poverty characterizes the smallholder rural economy in SSA (Loison & Loison, 2016; Reardon & Timmer, 2007). A strand of literature attributes livelihood diversification in Africa to the failure of the structural adjustment programmes in the 1980s and the 1990s to improve economic conditions for agricultural production (Ellis & Freeman, 2004; Simtowe et al., 2016).

Firstly, because of persistent low agricultural productivity and declining farm sizes coupled with rising population, SSA's structural and agricultural transformation appears to move very slowly. In addition, the transformation path clearly differs from the one taken by developed economies in Europe, America or Asia, where urbanization and industrialization accompanied the rural transformations. Secondly, it is clear that rural farm and nonfarm livelihood diversification is of increasing importance for economic growth, poverty reduction, food security and creation of employment (Ajani & Chianu 2008; Barrett, Bezuneh et al., 2001; Loison & Loison, 2016). In addition, in the absence of complete credit or insurance markets, individuals are typically unable to smooth consumption in spite of a strong desire to do so. For many institutional, infrastructural, technological, and informational reasons, financial markets are routinely incomplete in rural Africa, so individuals must act outside of financial markets in order to reduce consumption variability driven by real income variability. When crops fail or livestock die, households must reallocate labour to non-farm diversification pursuits, whether formal employment off-farm (e.g. wage labour), informal employment off-farm (e.g. hunting) or nonagricultural activities on-farm (e.g. weaving, brewing). Rural households in sub-Saharan African countries usually have to cope with both poverty and income variability (Abdulai & CroleRees, 2001).

There are two facts to be considered here, the first being diminished farm productivity in sub-Saharan Africa. Second, in sub-Saharan Africa, under adjustment, support for agriculture has virtually disappeared, particular subsidies on crucial inputs such as fertilizers. These drivers have been divided along the spectrum of "necessity versus choice": they make up a typology featuring, on the one extreme, "push factors", and on the other extreme, "pull factors". In sub-Saharan Africa, correspond to the two sets of drivers identified above— "pull factors" ("demand pull") diversification and "push factors" ("distress push") diversification, respectively have been parallelly identified (Hilson, 2016; Makita, 2016).

2.1.5. Diversification in Ethiopia as risk management and enhancing food security

In rural Ethiopia farming is the main source of livelihood for the overwhelming majority of farming households, but it has long been established that households tend to diversify their income sources (Demeke and Regassa, 1996; Degefa, 2005). Accordingly, rural households are usually engaged in multiple activities both within agriculture and non-farm sectors. Some households depend exclusively on crop farming for their livelihoods while others on mixed-farming and also try to exploit opportunities of rural non-farm activities in densely populated areas (Dercon and Krishnan, 1996; Demeke, 1997).

Similar to most developing countries, the importance of non-farm activities in the livelihoods of rural people in Ethiopia varies by region (Carswell, 2002). For instance, results from a survey conducted in five regions (Amhara, Tigray, Oromiya, South region and the sedentary farming areas of Afar) shows that while 44 per cent of households were engaged in temporary agricultural work (an off-farm activity) or non-farm activities in previous years, the average contribution of these activities to total household income was only **10.2 percent** (a survey by Ministry of Labour and Social Affairs', 1997 cited in Sharp et al., 2003). However, in Wollo (a North-Eastern province frequently hit by drought) only 26 percent of households had a second occupation such as petty trading, daily labouring, or handicrafts (Sharp et al., 2003). Such low participation to off- and non-farm activities suggests the existence of substantial entry barriers. Woldenhanna and Oskam (2001) in their study of income diversification Tigray in North Ethiopia using a Tobit and multinomial logit on a sample of 402 farm households documented some of these entry barriers. Their result show that households diversify into non-farm activities according to their wealth category. Poorer households mostly engage in off-farm wage labour whereas wealthier households are able to enter higher return activities such as masonry, carpentry and petty trade.

Another study by Block and Webb (2001) based on a survey of 300 households find that wealthier households tend to have more diversified income sources. Also, using median regression they find that age of household head, higher dependency ratio, and farm assets increase chances of income diversification. Similarly, Demissie and Workneh (2004) in their study of diversification in south Ethiopia, indicate that asset ownership, especially livestock, plays a major role in influencing households' decision to diversify into non-farm activities. Moreover, they show that labour, both in terms of its quantity and quality, determines the choice of diversification as this overcomes entry barriers to non-farm activities. Factors such as land size, cash crop production and agricultural extension services did not encourage households to engage in non-farm diversification activities.

Another very interesting study by Bassie Y., (2014) examines the determinants of household income diversification and its effect on the food security status in rural Ethiopia by using the ERHS panel data. His analysis based on three years cross -sectional data and panel data with a sample of 896 covering ten years. Based on the sample households the overall level of household income diversification in Ethiopia is 39%. Income from mixed farming (income from livestock and crop income) accounts for the largest sources of income for each group which accounts 86% of the total income. Income from crop production contributed about 45 % of the total income while 41 % of income is generated from livestock rearing. According to his result trend of mixed income declines over time from 88% in 1999 to 87% in 2004 and reaches to 86% in 2009.The importance of off-farm income and employment is increasing among the livelihood strategy of households in rural Ethiopia and it accounts 14% of the total income.

In addition the researcher (Bassie Y., (2014)) estimated the effect of household's income diversification levels on food security status of households in rural Ethiopia. To attain this objective, instrumental variable (IV) and two–stage least square (2SLS) methods were employed. By using idiosyncratic and covariant shocks, the levels of income diversification were found to affect food security status of households positively and significantly at 5% level of significance. Therefore, income diversification were found to be important for farm households to serve as additional source of income and complementing the income earned from agriculture and serve as a great contributor to household food security restricting their probability of selling of food grains and cover the extra household expenses.

According to Zerihun B., (2014) examined that non-farm diversification using both activity and income indicators for a panel of rural households in Ethiopia for the period 1994–2009. His analysis indicates that although smallholders are trying to diversify their income sources, the contribution of non-farm income to total household income is very low. This partly reflects the extreme poverty prevalent in the smallholder agricultural system in the country.

2.2. Empirical Literature Review

2.2.1. Income Diversification as risk management

In the real world, few people collect all their income from one source, hold all their wealth in a single form of asset, or use their assets in one activity. Thus, we can say diversification is the norm. Diversification is defined as the process by which rural households construct increasingly diverse livelihood portfolios, making use of increasingly diverse combinations of resources and assets in order to meet their basic needs, improve their living standards or welfare, and manage risk [Niehof, A., 2004].As Barrett *et al*.,(2002) noted, income diversification is widely understood as a form of self-insurance, and it does not seem to be a transient phenomenon or one just associated with survival. It might be associated with success in achieving livelihood security under improving economic conditions as well as with livelihood distress, such as a lack of funds to restore agricultural production in deteriorating conditions.

Income diversification refers to the increase in income sources or the balance share among the different sources. As Ellis, (2000) concludes, under the context of environment uncertainty, most rural households avoid an extended period of dependence on only one or two sources of income. Income diversification is an increasingly important means for rural household living in arid and semiarid areas to managing environment risk. A rural household with multiple income sources will experience less variability in total income than specialized households. Households who have a greater diversity of income sources have a comparative advantage over those with lower diversity. An improving income diversification level causes a variation in both the number of earning activities and the distribution across volumes from each component. Rural households use income diversification for pre-risk management or to cope with weather shocks that have occurred or will occur.

Démurger et al., (2010) pointed out that building income diversification was the most important livelihood strategy for rural households to bring more kinds of incomes sources by expanding economic activities (whether it was related to agriculture only, or agriculture and other forms of off-farm income), so as to improve the living condition or to enhance the ability to survive in the harsh environment. In a study that examines the relationship between income diversification and its effect in Ethiopia, Bassie Y., (2014) found that households living in rural areas with highly variable rainfall were more likely to have a large number of income sources, which was consistent with the idea of income diversity serving as a risk management strategy.

In addition Amare D., (2013) Income Diversification is considered as the most important strategy for raising income and risk minimizing in Eastern hararghe zone. His study concluded in 2009 depicts that activities outside of the agricultural sector play an important role in this study area contributing about 23% of the total household income. According to the study Yishak G., (2017), it is increasingly becoming clear that the agricultural sector alone cannot be relied upon as the main activity for rural households as a means of improving livelihood, achieving food security and reducing poverty in Wolaita Zone**,**. Income diversification is gaining prominent role in rural households' income and food security. Even though, regarding the rural economy in Ethiopia, policy makers give more attention to agricultural sector. Nevertheless, there is growing evidence that the rural sector is much more than just farming.

According to Fassil E., (2016) Increasing rural income and reducing rural poverty strongly relies upon the development of off-farm activities, including the development of a local rural micro and small enterprises (MSEs). Therefore, in an economy where there is rapid population growth associated with declining agricultural land to population ratio, rural poverty reduction strategies should aim at the economic transformation of rural areas via the establishment of micro and small scale enterprises (off farm activities) as they can reduce risk , rural poverty and food insecurity. Thus, to reduce rural poverty and food in security government policies would better aim at increasing access to off-farm activities for all rural households, particularly for households with little human, land and monetary assets (opportunities) and decreasing the constraints those hiders the rural households from participating in off farm activities could be the solution.

Damite (2006) examines the effects of income diversification on rural equity and consumption insurance against idiosyncratic income shock was analyzed using Gini decomposition technique and linear regression model, respectively. The results indicated that, the asset endowment of the household has a significant effect on households' the level of income diversity. Empirical evidences revealed that farm land holding, distant to market, involvement in cash crop production, ox holding, use of agricultural extension and possession of senior secondary education by head lower the likelihood of involvement in livelihood diversification.

2.2.2. Effect of Income Diversification on Food Security

Bassie Y., (2014) estimate the effect of household's income diversification levels on food security status of households in rural Ethiopia by using instrumental variable (IV) and two–stage least square (2SLS) methods, since income diversification level index (HDI) was found endogenous in estimating this model .Fixed effect model is employed to remove the bias due to correlation between time invariant household characteristic or farm characteristic or location with the instrumental variables. By using idiosyncratic and covariant shocks, the levels of income diversification were found to affect food security status of households positively and significantly at 5% level of significance. Therefore, according to the researcher (Bassie Y., 2014) income diversification were found to be important for farm households to serve as additional source of income and complementing the income earned from agriculture and serve as a great contributor to household food security restricting their probability of selling of food grains and cover the extra household expenses.

According to Birara *et al*., (2015) to address food security issue in Ethiopia the household head and members of the household should engage in different diversified income generating activities for means of living and coping mechanism of food security.

Zeraia and Gebreegziabher(2011) studied on the effect of non-farm income on food security by using Hickman two stage methodologies in eastern Tigray region. The result indicates that non-farm employment provides additional income that enables farmers to spend more on their basic needs include food, education, closing and health care. This implies that that non-farm employment has a significant in maintaining household food security.

According to Degefa (2005) households that lead sustainable livelihood often feel food secure throughout the year realigning crop cultivation and/or livestock rising or through running own non-farm ventures or to work with somebody else. As he further explains, a household is food insecure when it is incapable of sufficiently feed its household members from its own production or purchase from the market in return to own cash, which may be earned from the exchange of self-endowment.

3. CONCLUSION AND RECOMMENDATION

This review investigates income diversification as a potential strategy of risk management, food security and welfare improvement for rural households in Ethiopia. Now a day Income Diversification is considered as the most important strategy for raising income and food security status in Ethiopia even if research and extension activities have not been done adequately on the issues related to off/non-farm activities. From different researcher (as written in the empirics) findings it is clear that income diversification has significant impacts on households' food security status and risk minimization in Ethiopia. However, smallholders are trying to diversify their income sources; the contribution of non-farm income to total household income is very low. The reason behind this is that most of the people living in the rural area are vulnerable as they depend only on agriculture related activities for their livelihood and they are subject to different types of risks (natural disaster) like drought, scarcity of irrigation water, non-availability of other income sources, etc. Although, there are the new sources of income emerged to the rural households, these activities are mostly run by the rich farmers. As the food security researchers, about 10% of Ethiopia's citizens are chronically food insecure and this figure rises to more than 15% during frequent drought years.

On the other hand, income diversification is an effective and valuable strategy for local rural households to cope with weather shock since it can reduce the impact of weather disasters, enhance the ability of combating and recovering from drought, make rural households' livelihood system more stable, and provide new ideas for rural disaster management and relief.

The findings of this review can be used to generate or improve policies aimed at reducing weather risk among rural communities. In particular, the evidence that income diversification enhances family economic stability shows that income diversification should be considered as a possible strategy for reversing the livelihood status among rural communities. For instance, rural development should focus on ways to increase land productivity of crop production and the income of the rural household. Since, Crop diversification is an important approach to improve farm income and food security. Moreover, the federal and local/regional government bodies should promote non-farm & off-farm employment through policies and regulation, so as to; for example, improve access to credit for small enterprises.

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