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**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**MIGRATION AND HOUSEHOLD INCOME
DIVERSIFICATION; THE CASE OF HETOSA DISTRICT,
IN OROMIA REGION**

**BY:
ASNAKECH ALEMU**

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School of Graduate Studies

This is to certify that the thesis prepared by Asnakech Alemu Jiru, entitled: Migration and Household Income Diversification In Case of Hetosa District, in Oromia Region and submitted in partial fulfillment of the requirements for the Degree of Masters of Science in Economics (Economic Policy Analysis) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by the Board of Examiners:

Advisor _____ Signature _____ Date _____

Examiner _____ Signature _____ Date _____

Examiner _____ Signature _____ Date _____

Chair of Department or Graduate Program Coordinator

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Abstract

This paper uses limited-dependent variable methods and new data from Hetosa district to test the effect of intercontinental on activity choice and incomes in rural households. Econometric evidence supports our theoretical expectation that the impact of emigration varies both by migrant destination and production activity. We find no evidence of either positive or negative effects of continental migration on any activity because of all migrants are intercontinental migrants. However, intercontinental migration, which tends to be long term and generates significantly larger remittances, stimulates livestock production and cash crop while being negatively associated with non-farm activities income and positive associated with crop production but not significant .policy recommendation is very important to continuous the effect of migrant on income diversification i.e on livestock and cash crop production promotion of production working on infrastructure and search of ground water for irrigation is most policy recommended to district.

Acronyms and Abbreviations

Act: Economic activity

C: Consumption

E: East

HHH: Household head

Hcap: Human capital endowment

HHDP: Household demographic characteristic

IMR: Inverse mill ratio

IndHc: Individual characteristic in household

N: North

NELM: New Economics of Labour Migration

Pcap: Physical capital endowment

US: United nation

USD: United state dollar

2SLS: Two stage least squa

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CHAPTER ONE

1. INTRODUCTION

1.1. Background

Migration refers to a change of the usual place of dwelling (Arsole et al, 2003 in Adamnesh, 2008). It could be either voluntary or forced (Kokpari, 2000). Voluntary migrants are those who change places within or beyond their country of origin at their own discretion rather than for other uncontrollable factors while forced migration refers to the coerced movement of people away from their home or place of dwelling. People leave their place of origin permanently or temporarily to take advantage of opportunities in host countries. These opportunities could be economic, social, political, environmental or a combination of all. The tempting wage gaps between developed and developing countries, inviting immigration programs in the developed world, lack of democracy and good governance in the home countries, poverty and environmental degradation in the home countries are some of the factors for international migration (Portes,1996).

Although it is difficult to calculate the number of migrants worldwide with precision, recent estimations suggest that nearly 200 million people live outside their country of birth. There is little suggestion that this trend will abate in the future: indeed, projections of demographic and economic imbalances between the north and south suggest a persistent pressure for migration (World Bank, 2006). According to the United Nations estimates (UN, 2006), between 1960 and 2005 the number of international migrants in the world more than doubled, passing from an estimated 75 million in 1960 to almost 191 million in 2005, an increase of 116 million over 45 years.

The diversification of incomes into non-crop production has been identified as a critical livelihood strategy for rural households, particularly in Africa (Barrett, Reardon, & Webb, 2001). Recent research suggests that household members who migrate can facilitate investments in new activities by providing rural households with liquidity, in the form of remittances, as well as income security, in the form of a promise to remit in the event of an adverse income shock. That is, migration enables rural households to overcome imperfect credit and insurance markets. If this hypothesis is correct, then other things being equal, the presence of migrants in rural households should be positively correlated with the diversification of production into non-crop activities. This has been put forward particularly by the New Economics of Labor Migration (NELM) and several corresponding or extended approaches. As part of other income generating activities of a household, internal and international migration flows may well go into multiple directions and multiple sectors, including rural areas and activities. Not only in the migrant-receiving areas but also in the migrant-sending areas, migration and potential remittances can have far-reaching impacts on incomes and on the production of agricultural households. In this regard, there are strong arguments in the debate on both sides of the 'migration-coin'. On the one hand, the prominent argument of the 'brain drain', namely the loss of human capital and its consequences, as well as the opportunity costs of lost labor have been continuously set out as the major effects of migration which are assumed to counteract any positive backflows, such as remittances or newly acquired know-how. On the other hand, arguments have been made on the importance of migration for welfare of the remaining households particularly in environments with a limited job market and income and production constraints. Strongly connected to the issue of the consequences of migration is that of its causes. Studies have revealed typical push- or pull-factors, but in recent years have also increasingly focused on underlying characteristics of the individuals, households and communities of the migrant population, which are assumed to play a significant role with regard to the migration decision and inherently its potential benefits. Several studies have further pointed at a strong selectivity of migration, especially regarding physical and human capital characteristics, such as asset endowment and education.

1.2 Statement of the problem

Agriculture is the primary activity of the Hetosa households. Cropping is characterized by one short, single cropping season per year. The consequence of engaging in rain fed agriculture in a drought-prone environment is that households face substantial risk. Formal crop insurance is not available to mitigate this risk. The lack of such insurance is thought to be due to the high spatial covariance of rainfall shocks and to moral hazard problems associated with crop insurance in general (Reardon *et al.*, 1992). Uncertainty combined with missing markets for risk creates incentives to diversify income activities; however, investment options are constrained by an incomplete credit market. Limited collateral and collateral substitutes severely limit rural households' access to formal credit, in East Africa and elsewhere (Binswanger and Rosenzweig, 1986; Binswanger *et al.*, 1989; Reardon *et al.*, 1992; Fafchamps *et al.*, 1998). The lack of collateral is compounded by a missing land market. In Ethiopia commercial land market transactions were found to be extremely rare (Ouedgraogo *et al.*, 1996). The lack of commercial land market transactions implies that land cannot function as collateral for credit. Missing or imperfect markets for credit and insurance imply that risk cannot be mitigated through formal institutions. Diversification of productive activities enables a household to reduce the risk it faces through generating income from sources not correlated with cropping income. Households in the rural area were diversifying by engaging in migration, cash crop, livestock production and non-farm activities. When credit and insurance markets are imperfect, migration, as diversification option, can influence household choices among income activities and technologies. According to the NELM theory, migration is likely to have multiple and counteracting impacts on the productive activities of the household due to the constraining effect of imperfect market mechanisms. Migrants can be considered as financial intermediaries providing the remaining household members with a source of liquidity, through remittances. At the same time, migration

implies a loss of household labor to distant labor markets as a substitute for formal insurance. (Taylor) The diversification of incomes into non-crop production has been identified as a critical livelihood strategy for rural households, particularly in Africa (Barrett, Reardon, & Webb, 2001). With these above problems and strategy of household migrant decision and income diversification participation in current time is questionable in Hettosa district. The large number of household members' migrants to continental and enter continental migration with response of remittances to their home district. What this study needed to undertake is to indicate the role of remittances on income diversification which comes from migrant in district by using econometrics model dependent limit variables. The analysis is based on a household survey conducted in Hettosa district from February 2014 to March 2014. By viewing migration as a household strategy and decision to diversify Income sources it follows the NELM approach. Nevertheless, the analysis also includes the role of individual economic opportunities, which have been emphasized by the early studies of internal migration. These are partly traced back in individual migrant information, which has been collected in the survey. The investigation of the impact of migration and remittances on the migrant-sending households will concentrate primarily on their effects on the households' income and resource allocation. The study starts with an outline of the theoretical and empirical background explaining migration as a household strategy to cope with high risks and insecure incomes in risky environments of developing countries. This is followed by an assessment of migration flows out of Hettosa district, in terms of directions, time dimensions and motivations.

1.3 Objective of the study

The general objective of this study is lies in the effect that remittance income streams have on the receiving household's decision to engage in non crop production activity by testing separately the effects of continental and inter-continental form of migration on activity choice of household.

More specifically, the objectives are:

- ❖ To explore the effect of migration on rural income diversification
- ❖ To assess the determinant of migration decision choice of migrants
- ❖ Draw some policy implications

1.4 Scope of the study

The study will focus only discuss the effect of migration on income source diversification of Hettosa district from migrants remit as income source of non agriculture activity from the current flooding of migrants in to continental and intercontinental migration using the dependent limit variable analysis of econometrics by making different assumption on the behaviors and problems of migration in district.

1.5 Significance of the study

In undertaking of this study the researcher analyzes the effect of migrant remittances on income diversification in Ethiopia in case of house hold in hettosa district. Thus the outcome of this study may help;

- The policy makers to design specific policies for Hettosa that control the long run effect of migrant remittances on rural household because the current household decision to ward migration particularly intercontinental migration is not permanent for long run
- Open the door for farther study on this research topic.
- It gives understanding for the effect of migrant remittances on income diversification and for high school female students whose were the victim of the house hold decision for intercontinental migration strategy in district.
- In addition to this, since there have been almost no research conducted so far in this area, this study can be used at least to fill the literature gap in district

1.6 Organization of the thesis

The rest part of the thesis is organized as follows. The review of relevant literature on the subject has been discussed in chapter two. Chapter three deals with data sources, methodology and econometric model specification issues, estimation of the models and empirical analysis of the results is presented in chapter four. The last chapter has been devoted to the summary and policy implications. Supplementary information has also been annexed at the end of the paper.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Conceptual Framework On income diversification

The traditional approach for economic growth and poverty alleviation focused mainly on increasing the productivity of agriculture and on government provision of social services to rural communities through land reform and integrated rural development programs. This approach has ignored not only the contribution made by livelihood diversification to rural communities but also the great degree of heterogeneity of the position across rural households (Ellis, 1998).

Many studies confirm that rural household in Africa and Asia do not normally specialize in specific kind of activity like livestock or crop production, to total exclusion of other income generating activities and majority of rural producers have historically diversified their productive activities to include a range of other productive activities (Hussein and Nelson, 1998; Barrett and Readon, 2000). Recent literature on rural livelihood and livelihood diversification is characterized by many terms and definitions. Concept of livelihoods is defined as the opportunity set afforded to an individual or household by their asset endowments and their chosen allocation of those assets across various activities to generate a stream of benefits, most commonly measured as income (Barrett and Readorn, 2000). This definition implies that the opportunity set of a household is formulated from access to assets and activities. It also shows the importance of the link between assets, resource allocation and activities in generating benefits. Livelihood diversification can then be defined as the process by which households construct a diverse portfolio of activities and assets in order to survive and to improve their standard of living (Ellis, 1998). Livelihood diversification includes both on and off farm activities that are undertaken to generate additional income to that from annual crop production.

Economic studies distinguish between several different categories of income sources in diverse income portfolios. Economic theory predicts that activities with high entry barriers offer high returns while those with low entry constraints generate low returns. Such heterogeneity in returns surely account for some of variation in observed income diversification pattern (Barrett etal, 2000). The reasons for holding different income portfolios and livelihood diversification pattern

are associated with labour market segmentation, barrier to entry, location and potential income growth (Reardon, 1997). Barrett et al (2000) attribute these differences to existence of rural market failures (particularly in land and finance), differential market access, quality difference in factors of production, and differences in property rights and endowments of assets.

Barrett et al (2000) identify four distinct rural livelihood strategies offering different returns. Similarly, Dercon and Krishnan (1996) categorize several different rural household activities in to five different income portfolios based on level of entry barriers. This is the approach taken in this study. In this study, rural is any locality that exists primarily to serve agricultural hinterland. Data for this study is collected from farmers association, the lowest administrative unit of settled rural area. A rural household is then a household that lives in the countryside and involves both in farm and non-farm activities.

The term off farm business income refers to net income derived from non-farm and self employment while wage income is net income earned from both farm and non-farm wage employment. Farm income include income from crop production after deducting expenses on purchased inputs, imputed value of home in-kind consumption from own production and income from land rent and share cropping. Livestock income represents the sum of net income from livestock transaction, income from animal rent, sale of animal products and imputed value of home consumption from livestock products. Transfer (gift) includes pensions, remittance, food aid, other government and nongovernmental gift.

2.2. The Determinants of Households' Diversification Behaviors: theoretical linkages

Various explanations for diversification behaviors can be found in the economic literature to explain both incentives and disincentives for rural households to combine traditional crops with new crops (Norman, 1974), agricultural crops with animal husbandry or forestry activities (Kurosaki, 1995, 1997), and/or agricultural activities with off-farm activities such as migration and tourist development (Barrett *et al.*, 2001a, b; Murphy, 1999). On one hand, in a changing economic and institutional environment, agricultural households have incentives to find alternative income sources in order to secure their livelihood. But on the other hand, several factors such as risk aversion and barriers to entry can also hold them back from engaging into new activities.

A rich literature on income diversification in rural areas has identified a wide range of explanatory factors for activity restructuring out of subsistence farming at the household level (Abdulai & CroleRees, 2001; Smith *et al.*, 2001; Ellis, 1998). The motives are usually divided into two categories: “pull factors” and “push factors” (Barrett *et al.*, 2001b). Pull factors include benefits from complementarities between activities (Norman, 1974), new income opportunities created by market development (Davis & Pearce, 2001), improvement of infrastructure (Jalan & Ravallion, 1998), and diversification for asset accumulation (Hart, 1994). Push factors include *ex ante* risk management (Hoogeveen, 2001; Alderman & Paxson, 1992), *ex post* risk coping (Carter, 1997), high transaction costs (Omamo, 1998), liquidity constraint and credit market failure (Reardon *et al.*, 1994), and the seasonality of agricultural activity (Sahn, 1989). Household livelihood strategies are jointly determined by these two sets of factors. Market development encourages households to reallocate their productive resources to higher-return activities (Xia & Simmons, 2004), while poor resource endowment; agricultural seasonality, frequent climatic hazards, and poor access to credit may all push rural households to undertake a wider range of activities in order to secure their livelihood. Risks play a key role in the activity diversification process. Since they strongly influence rural production, income and welfare, risks are major “push” factors that encourage households to turn to a more diversified portfolio of activities (Carter, 1997; Reardon *et al.*, 1992). Both on-farm and off-farm diversification can thus be seen as efficient mechanisms for households to reduce income risks (Ellis, 1998, 2000; Hoogeveen, 2001). However, in a rapidly changing and volatile environment, uncertainty may also make agricultural households more reluctant to engage in new activities. This is particularly the case for poor households, who typically have a higher absolute risk aversion (Rosenzweig & Binswanger, 1993). In a poor area, agricultural households may prefer to stick to traditional crops for which risks are known, even though expected returns associated with alternative activities are higher and a more diversified portfolio of activities would certainly reduce the expected hazard of total income. In sum, risk aversion combined with poverty traps, an ageing population and a massive migration of young people may strongly reduce incentives for poor agricultural households to allocate a higher portion of their land to non-food Development where local institutions are in place to channel savings from migrant-sending households to local producers. This is where “migrants do not have to play the simultaneous roles of workers, savers, investors, and producers” (Taylor, 1999).

2.3 Migration and Development Theory

2.3.1 Role of migration and remittances in development

There are several theories that aim to explain why people migrate. The oldest and perhaps best-known is the macro theory of neoclassical economics. This focuses on “pull” and “push” factors, where migration is caused by differences in the supply of and demands for labor in sending and receiving regions (Harris, 1970). The micro theory of neoclassical economics also known as the rational choice theory states that individuals are rational actors and decide to migrate after a cost-benefit analysis guarantees a positive net return from migration (Todaro, 1987). Demographic and sociological literature has focused on the social network theory (Massey, 1994, Massey, 1993). Network theory hypothesizes that migrant networks in origin and destination regions increase the likelihood of migration by lowering the risks/costs of newcomers, providing a support network for them and facilitating their integration in the labor market of the destination areas.

The new economics of labor migration (NELM) (Stark, 1991) defines migration as a tool that households use to overcome market failures. By sending a family member away from home to work, a household makes an investment that will be recovered if the migrant’s remit some income later.

Others have argued that there exists an implicit or explicit contractual arrangement between the family and the migrant (Stark and Lucas, 1988). Migration is not the result of a decision made by an isolated individual; it is part of a family strategy (Hoddinott, 1994, Stark, 1991).

Regardless of the theories relevant in any context, migration may have significant effects on household economic activities. Migration is associated with loss of human resources for the migrant-sending households. Households face a labor constraint when their members migrate. This reduction in labor may lead to decreased crop production and yields, or cropping income. It is also argued that if migrants take capital (human or financial) with them, migrant-sending households suffer additional losses in decreased capital stock. This in turn may adversely affect the productivity of other complementary inputs including labor (Taylor, 1999). These capital and labor losses may negatively affect welfare of migrant-sending households and economic growth of migrant-sending regions.

Migrant-sending households are often recipients of remittances from migrants, which can be considered as a payment for the labor services they export (Stark and Lucas, 1988, Stevens, 1999, Taylor, 1999). As Taylor et al (2003) indicate, migrants are usually attached to their rural homes and as a result of their “homeward” focus; they have economic incentives to promote and enhance the welfare of those left behind. This is possible, either through remittances or savings that they bring back when they return. In the literature, there exist different theoretical explanations of remittance behavior. These include: (i) altruism, which suggests that remittances rise when the economic needs of families back home increase (Becker, 1974); (ii) self-interest, where the migrants’

motivation is based on expectation to inherit land or other wealth. migrants make investments in their homes that are taken care of by non-migrating family members; the concept of exchange, in which migrants are viewed as effectively paying back family and relatives for investments in the education or travel of the migrant (Cox, 1987) and; the notion of co-insurance, where both migrant and family provide monetary and in-kind transfers to ensure each other against temporary shocks (Lucas, 1985). Taylor et. al. (1999) refers to this motivation to remit as the NELM motive where “migrants and their households are bound together by mutually beneficial, informal contracts, including an agreement to provide income insurance to one another”. Remittances are generally viewed as a source of income, insurance, and capital accumulation and thus constitute the biggest direct effect of migration on migrant-sending households. Taylor (1999) indicates that remittances can reduce or even reverse the negative effects of labor and capital losses associated with migration. Remittances can contribute directly to incomes of migrant-sending households, as long as remittances are greater than the value of production lost due to migration. In addition, remittances can indirectly contribute to incomes and production of migrant-sending households. This is because remittances facilitate households to overcome capital and risk constraints on production activities. In the absence of credit markets, households can utilize remittances to purchase production inputs that could improve on-farm and off-farm production activities. Hence remittances are a source of scarce capital for households and provide insurance against risks emanating from new production activities and technologies. The magnitude and importance of the indirect effects of remittances hinges on how tight the constraints that households face are. In situations where these constraints are binding,

2.3.2 The New Economics of Labor Migration (NELM) Theory

The new economics of migration theory as mentioned earlier asserts that migration decisions are made by households not by individual actors. Households attempt to maximize income and minimize risks resulting from market failures in unstable economies to improve their income relative to the rest of the community (Stark, 1991). The migration decisions result from the volatility or failures of local markets, as portrayed by lack of access to credit and livelihood risk insurance. These imperfect or incomplete markets typically characterize rural areas in developing countries. Therefore, in NELM, households are hypothesized to use migration as a means to overcome missing markets or market failures locally, which compel households to self-finance investments in production and self-insure against income risk. Households send migrants out as part of a strategy to diversify income sources, obtain capital for investment and provide insurance against production and income risks for non-migrating household members. Taylor (1999) argues that remittances set in motion a development dynamic by relaxing production and investment constraints that households face. Remittances may be used to boost production through financing of inputs, new production technologies and activities. They also act as insurance by providing households with income that may be uncorrelated, negatively correlated or not highly correlated with farm income.

The NELM theory leads to specific hypotheses about effects of remittances on migrant-sending households. If credit and risk constraints are binding, and migration helps households to ease these constraints, then migration and remittances should have a positive effect on local production and incomes of migrant-sending households. The more liquidity-constrained a household is the greater is the marginal income effect of remittances. This theory analyzes migration as a household decision rather than an individual decision. Continuing interactions between migrants and rural households imply that a household model would be more suitable than an individual level model of migration decisions.

Taylor (1999) explains that NELM entails a new view about how interactions between migration and development are conceptualized and modeled. Earlier research tended to separate the determinants of migration on migrant sending households. However, in NELM, the origin of migration (represented by households' desire to overcome credit and risk constraints) implies certain outcomes of migration for development. For instance, migration is expected to have a positive effect on local production, as remittances enable households to overcome production constraints. An implication of NELM is that there are potential correlations between migration and other income sources, and therefore migration cannot be modeled separately from other aspects of the farm household.

Further, Taylor (1999) points out that “often, the factors encouraging people to migrate also limit the productive potential of migrant remittances. Poor public services and infrastructure seriously limit the potential for remittances to contribute to local production”. It is also argued that migration is likely to have a larger impact on migrant owner household.

2.4 Migration and Diversification

The impacts of migration and remittances on diversification depend on the motivations for diversification, the constraints on diversification, and migration's effect on both. Migration, if it results in remittances for the household, can be viewed as a livelihood diversification strategy, as remittances are a source of income that is likely to be uncorrelated with household income from agriculture. That is, it could reduce the “push” to diversify for risk reasons. On the other hand, if new activities are perceived as risky, and if a lack of liquidity constrains investment, the presence of migrants in rural households could stimulate diversification into non-staple activities. As a substitute for formal insurance, i.e., by remitting in the event of an adverse income shock,

migrants may facilitate the adoption of new technologies as well as entry into new activities with higher expected returns but also higher risk than traditional ones. As a substitute for formal or informal credit, migrant remittances may enable households to overcome liquidity constraints on investing in new technologies and activities. These are basic predictions of NELM theory. Migration also may compete with other household activities for scarce family resources, including time. By reducing the supply of household labor, migration could negatively affect both the “push” and “pull” to invest in labor-intensive activities.

In general, NELM predicts that the effects of migration on activity choice and production in an incomplete market environment may be important. This stands in contrast to separable agricultural household models (e.g., Singh, Squire and Strauss, 1986), in which migration, by assumption, simply increases household use of hired labor and remittance transfers affect only consumption, leaving production and investment decisions unchanged. A significant effect of migration on production would be evidence against the separable household-farm model and in favor of a NELM approach.

Tests of the NELM theory have appeared in the literature. Rozelle, Taylor and de Brauw (1999) find evidence that migration and remittances affect crop production in China, and Taylor, Rozelle and de Brauw (2003) extend the test of the NELM theory for China by including non-farm and self-employment. Their findings that remittances partially compensate for a negative lost-labor effect and stimulate crop and possibly self-employment production provide evidence in favor of the NELM theory. Taylor (1992), using longitudinal data, finds evidence suggesting that migrant remittances affect income in households of rural Mexico differently in the short and long run, and remittances affect incomes indirectly through asset accumulation. In Africa, Lucas (1987) investigates the consequences of emigration to South Africa’s mines for agricultural activities in Botswana, Lesotho, Malawi, Mozambique and the South African homelands. He finds that emigration reduces crop production in the subsistence sector in the short run, but remittances enhance both crop productivity and cattle accumulation in the longer run in all but one of the five countries studied. These studies include a single variable for migration and do not consider that the impacts of migration and remittances may be different for different migrant destinations.

Following Adams on Pakistan (1998), De la Briere, Sadoulet, de Janvry and

Lambert (2002) on the Dominican Republic, and Mora and Taylor (2005) on Mexico, they propose that a distinction needs to be made between migration types in the Burkina Faso context, between continental and inter-continental migration. These two forms of migration may affect household risk, liquidity and labor constraints differently. Inter-continental migration to distant labor markets usually entails a relatively long-term loss of labor and costs and risks associated with border crossing, often attempted without documents. However, average remittances are considerably larger from inter-continental than continental migrants.

2.5 Short summary of theoretical Literature Review

The new economics of migration theory as mentioned earlier asserts that migration decisions are made by households and not by individual actors. Households attempt to maximize income and minimize risks resulting from market failures in unstable economies to improve their income relative to the rest of the community. The migration decisions result from the volatility or failures of local markets, as portrayed by lack of access to credit and livelihood risk insurance. These imperfect or incomplete markets typically characterize rural areas in developing countries. Therefore, in NELM, households are hypothesized to use migration as a means to overcome missing markets or market failures locally, which compel households to self-finance investments in production and self-insure against income risk. Households send migrants out as part of a strategy to diversify income sources, obtain capital for investment and provide insurance against production and income risks for non-migrating household member remittances set in motion a development dynamic by relaxing production and investment constraints that households face. Remittances may be used to boost production through financing of inputs, new production technologies and activities. They also act as insurance by providing households with income that may be uncorrelated, negatively correlated or not highly correlated with farm income.

2.6 Empirical Study

In a context of missing or incomplete markets, migration activities that absorb household labour while contributing liquidity through remittances may influence both activity choice and activity incomes. The NELM theory points to the important role that migration can play in enabling households to overcome credit constraints and facilitate investment in relatively high return activities. Inter-continental migration was found to play an important role in household income diversification into livestock production and non-farm activities, positively affecting the first but negatively affecting the second. The positive effect of inter-continental migration on livestock suggests that inter-continental migration enables households to overcome entry barriers resulting from missing and imperfect credit markets. The negative effect on staples and non-farm activities is consistent with a missing or imperfect labor market and household labour constraints that create a trade-off between long-term, inter-continental migration and relatively labor intensive activities. Households with inter-continental migrants abandon or choose not to engage in activities that compete for household time while producing returns inferior to those from inter-continental migration. Wouterse (2008) examine the impact of migration on the income diversification decision based on a household survey of four villages of Burkina Faso. She finds that the number of migrants in a rural household has a negative impact on the probability of participating in nonfarm activities. The authors conclude that the negative impact from the decrease in the supply of household labor due to migration outweighs the positive impact that the eventual remittances, sent by those migrants, would have on liquidity constraints. Migration, however, does not always result in remittances being received by the rural household because not all migrants leave home for reasons related to remittances (Gibson and McKenzie, 2007), or even if they do, not all migrants send remittances (Benedicteet *al.*, 2002). Andersen (2002) finds that for no more than 18% of the migrants were remittances the primary reason behind rural-urban migration in Bolivia. Following Niimi and Çağlar Özden (2008), we assume that if remittances are observed as part of the rural household's income, it is because the household sent at least one family member as migrant. This is important because, as Taylor (1999) observes, remittances represent the largest direct positive impact of migration on income and production of rural families, in particular, and on migrant sending areas,

The literature on migration and remittances focuses mostly on remitters' characteristics. In their review of broad theoretical and case studies in livelihood diversification, Hussein and Nelson (undated) pointed out that poor people have to diversify sources of livelihood in order to survive in risk prone and uncertain world and hence build up a wide portfolio of activities to provide flexibility among sources of income. They argued that different income portfolio held by households can be explained not by their behaviors toward risk but by the ability of household's access to the means required to pursue such activities such as skills, location, livestock ownership, access to capital and credit. From their review of previous studies Hussein and Nelson (undated) indicated different seasonal coping strategies in India. These include diversifying income source, migrating, stocking up on various supplies, mortgaging or selling assets, sharecropping, borrowing and lending, drawing up on the various forms of social and family relationship, and participating in relief work. The study also summarized the constraints of livelihood diversification as: a low population, no urban center in proximity, market access, restriction on trade and movement, government policy that extract surplus, availability of infrastructure, labor availability, terms of trade, limited availability of education and skill training, shortage of time, norms and religions, lack of credit. Escobar (forthcoming) shows that the pattern of income diversification between farm and non-farm activities is clearly linked to the assets or endowments of rural household. The study also noted that under the situation of imperfect or missing market, personal and institutional constraints can play an important role in determining participation in non-farm activities. The study further noted the critical role of household's wealth, private and public asset endowments, and regional characteristics in enhancing or hindering the profitability of HH asset base.

Review of studies on non farm income diversification and livelihood strategies in rural Africa by Webb et al (2001), Reardon (1997) identified that skills and educational attainment, greater physical access to market, public services, ex ante endowment of financial capital and other assets (livestock, cash cropping migration), family size and structure as key determinants of household participation in off farm business and nonfarm earnings.

Using panel household data from three agro ecological zones in Burkina Faso, Reardon et al. (1992) showed that land constraints did not drive income diversification, but shortfalls in cropping income and changes in terms of trade are found to drive farmers towards diversification strategies; Cash cropping did not appear to be a substitute for non-farm diversification activities. The study further suggested that the role and root of income diversification differ widely by agro ecological zone. They suggest that households have to diversify their incomes geographically as well as sector-wise to compensate for cropping outcome variation and risk. This finding supports that diversification can spring from poverty, stagnation, and instability as well as dynamic agricultural base.

Valdivia et.al (1996) tested the effect of the existence of effective ex post loss management mechanisms on the incidence of diversification among a sample of semi-subsistence households in the Bolivian Altiplano. Motivated by the argument that the incentive for ex ante risk reducing strategies, such as diversification, should be lowered when a household has effective mechanisms for dealing with losses ex post, they find that the hypothesized inverse relationship between liquid asset (number of sheep) and level of diversification was not supported by the regression results. This evidence suggests that the availability of assets in the form of sheep is not associated with a decrease in the incidence of income diversification among households. They argue that extreme high level of risk in the economic and natural environment and the low absolute levels of household income may motivate households to seek diversification.

Ellis (1998) summarized the literature on rural livelihood diversification and household strategies in developing countries. Income sources are primarily grouped into farm, off farm and non-farm income. He identified two reasons behind livelihood diversification: desperation (poverty, lack of assets, vulnerability, disaster) and; choice and opportunities involving proactive household strategies for improving living standards. With respect to the features of income diversification for risk reasons in developing countries, he states that most of the income earning

opportunities open to poor households, for example own farm and agricultural wage labour exhibit high correlation between risks attached to alternative income streams. Diversification into non-farm income, by contrast, can result into low risk correlations between livelihood components.

Ellis argued that some of the main determinants of diversification are seasonality, differentiated labour markets, risk strategies, coping behavior, credit market imperfections, and inter temporal saving and investment strategies. The study suggests some appropriate mix policies include education (human capital investment), provision and improvement of infrastructure, provision of credit, provision of target safety net, and creation of conducive environment for development of grass roots initiatives such as promotion of small-scale enterprises.

Stark, Taylor and Yitazhaki (1986) analyzed the role of net remittances in village income inequalities and village welfares in Mexico. They found that remittance from international and internal sources has both positive and negative effects on income inequality depending on village migration history, on the degree of diffusion of migration opportunities, on the returns to human capital, and on the distribution of relevant skill and education. The empirical findings demonstrate that in a village with remittances from many internal and few experienced international migrants, the latter have unequal impact on village income while remittances from former have a favorable effect on the village income distribution.

Remittances from international migrants have an equalizing impact on income in a village with long-experienced migrants and unequal effect of internal migrant is related with large returns to schooling and education. The study further indicates that the impact of change in remittances on welfares depends on the weight attached to distributional versus mean income consideration. The result shows that both internal and international remittances have positive welfare impact in two villages.

Reardon, Delgado and Matlon (1992) found, using household survey data from Burkina Faso, that non-farm income has a negative impact on rural income distribution. The comparison of Gini coefficient for own cropping with overall income (sum of crop income and non-crop income) revealed that the inclusion of non-farm income did not reduce the Gini coefficient in very poorer agro climatic zone and even increased in less poor zone. By contrast, the result for favorable agro climatic zone indicated that non-farm incomes reduce the size of distribution of

income. They concluded that the equity impacts of non-farm income differ widely by agro ecological zones.

2.7 Empirical Literature on Ethiopia

Adugna (2002) investigated the determinants of household diversification in rural Ethiopia. The results of the study show that for a representative household most demographic factors, except number of male adults and working adults, lower the number of family members engaged in farming. Similarly, for domestic work, except number of female adults and family size, most demographic factors lower number of household members participating in this activity.

The results of the study also indicate that number of family members who can read and write, and agricultural risk factors promote households to engage in skilled professional activities and to send more kids to school. Empirical evidences also show that agricultural activities compete for family labour in trading, schooling and skilled professional activities and unobserved regional factors are the major determinants of schooling, trading, and skilled professional activities.

Carswell (2001) presents evidence from southern Ethiopia that non-farm and off farm activities are carried out by significant proportion of adults and makes an important contribution to livelihoods, showing high involvement of women, high cash income contribution to poorer household and high importance of laboring for others next to trading in highland of Wolayta where livelihood diversification have long history.

Tassew (2000) carried out a survey of random sample of rural household to analyze on farm and off farm employment, the impact of income diversification on farm production and rural income distribution in Tigray region of Ethiopia. The study showed that a substantial proportion of farm household (81%) diversifies their income into off farm activities, which increases farm output directly by increasing their managerial skill and indirectly through purchase of farm inputs. Applying the survey data for relevant variables to simultaneous tobit model and simulating the estimated results showed that 10% increase in off farm income lead to a 1.4% increase of net farm household income and to a 1.2% increase in farm output. And it also leads to a 10.2% and 1.3% increase in purchase of farm labor and variable capital farm inputs respectively. The study identified participation decision in off farm self-employment is significantly influenced by the level of farm output, wage rate, area of land cultivated, livestock wealth and the value of owned off farm equipment.

The multinomial logit regression result showed that the most important factors that determine the choices of farmer between off farm wage and self employment are farm income, ownership of transport animals, area of land cultivated, family size and location. While farm households who have higher farm income and greater number of transport animals prefer working in off farm self employment, households who have a large family size and more livestock wealth prefer off farm wage employment.

Delil (2001) analyzed factors that influence the probability of involvement in off farm employment at household level and the impact of off farm employment on rural poverty alleviation in Oromia region. Based on the survey conducted in 1996 and using logit model, the study found out the sex (male), age of household head, family size, religion (orthodox), own account working, enset land, credit received, proximity to market and road positively affect the decision of involvement in off farm employment while getting married, education, cultivated land, coffee and chat production, fertilizer use and total cattle ownership, affect it negatively. The study indicated 58 percent of sample population involved in off farm employment and the rural income generated from off farm sector account for 18.7 percent of the total. Further, it revealed that farm households who diversified their productive activities to off farm economy are found to be better off as compared to those who confined their operation to farm sector, implying the significant impact of off farm employment and income on poverty alleviation and full time off farm operators are the members of the worst poverty ridden groups.

Dercon and Krishinan (1996) analyzed the determinants of occupation diversification of households using survey data from rural Ethiopia and Tanzania. They argued that different income portfolio held by households can not be explained by their behaviors towards risk rather better explained by differences in ability of household to adopt more profitable diversification strategies which depend on access to the means required to pursue such activities such as skill, location, livestock ownership, access to capital and credit. The regression result of multinomial logit for five categories of occupations showed that, after controlling for the effects of location, entering into high return activities is determined by investment in particular skills or access to capital. The study also found that the availability of higher male labour and larger farm size allow households to take up high return activity such as cattle rearing. The study identified demographic and economic factors as the major determinants of occupation diversification.

Mulat and Teferi (1996) investigated the role, scope, and link between farm and non-farm activities in North Shoa of Ethiopia. Based on primary sample survey data from three districts from North Shoa the study found that farmers are engaged in various off farm economic activities in order to maintain their subsistence income levels. The study pointed out that even if the non-farm activities viewed as the survival strategies rather than as remunerative sources of livelihood, it accounted for 59.5 percent of total annual cash income of the farm household. After pinpointing the nature and characteristics of both crop production, resource use, livestock sector and nonfarm activities in detail in the study area, the study identified that the major determinants of involvement in nonfarm activities and non farm income include low demand for food & services of these activities, primitive technology, shortage of raw materials, lack of skills and training and lack of access to credit, and low and declining levels of rural income. Furthermore, they forwarded recommendation to overcome the problems constraining non-farm employment in the area, emphasizing on macroeconomic policies that favors the growth of rural income, on promotional effort to remove demand constraints on livestock production such as dairy and wool production, and on conservation and forestry program.

Mulat and Teferi (1996) attribute the probability of participation in the nonfarm activities to four broad groups: personal attributes, farm income, food balance and land endowment. The ratio of non-farm income to income (cash) is defined as explanatory (dependent) variable. The regression results show that livestock revenue, yield, land-holding size, food balance (food sale less purchase) and age showed significant role while the effect of sex, crop revenue, family size, education, have become insignificant on generating off farm income.

Kindness (1994) examined proportions of cash income from different sources, constraints to income generation and its geographic, time and household variation in Wolaita, South Ethiopia. Analyzing the survey data from three different agro-climatic sites and wealth based household groups, the study showed that small land holdings, high population density, and small number of livestock forced a large number of farmers to diversify their income sources and non farm income sources (petty trading, trading activities, and craft activities) contribute a large proportion of annual cash income for households in all wealth categories and particularly during bad cropping year. The study also noted that the income from the livestock and crop sales is either none or low for poor household while the income diversification strategies in two sites for the poor are petty trading and craft activities, which generate large proportion of their income.

Having relatively large farmland and livestock number, rich households receive large portion of their income from crop sales and livestock products. With respect to the variation of income level from different sources between sites, the study indicated the key role of infrastructure particularly proximity to road (the site near to Soddo- Shashamane road does not only gets the highest mean annual income for all activities but also grows more diverse cash crops relative to other two distant sites) in generating high income and diversifying activities. Shortage of credit was considered as the major constraint to involvement in non-farm activities.

In Ethiopia, Skoufias and Quisumbing (2002) found that better livestock disease outcomes increase food consumption. Positive rainfall has negative and statistically significant effect in regressions for total consumption and food consumption per capita and better crop outcomes have a significant positive effect on total consumption and nonfood consumption. The regression result suggests that covariate shocks were significant determinants of consumption changes. The estimates obtained using total (food plus non food) consumption also suggests that on average total consumption is not insured from idiosyncratic income change in four countries including Ethiopia. The estimates obtained by separating food and nonfood consumption indicate that in most instance food consumption appear to be better insured (having lower covariance with income) from idiosyncratic changes in income as compared to nonfood consumption. Explanation for this difference is that food consumption is most likely covered by informal insurance arrangements than nonfood. The study also provides strong evidence supporting the role of partial insurance and community risk sharing in food consumption. The change in the growth rate of average community income seems to have a positive and significant role in the growth rate of food consumption of individual households in all countries except Ethiopia. By contrast, no evidence of risk sharing is found with respect to nonfood, suggesting availability of limited options for nonfood insurance. The analysis of the capacity of household to insure variability consumption shows that the number of male adults increases variability of food consumption with respect to idiosyncratic and aggregate shocks while the number of females decreases it. Dercon and Krishnan (2000)•_ test risk sharing within rural households in Ethiopia. Using adult nutrition to investigate the ability of individual to smooth consumption within the households over season, the study shows that households do not engage in complete risk sharing between husbands and wives where women in poor households bear the brunt of adverse shocks in southern Ethiopia. In southern Ethiopia, an average loss of labour due to illness for a female in

a poor household results in a loss of 1.6 to 2.6 percent of body weight due to the lack of risk sharing.

Tassew (2000) found that, by decomposing total rural household income in Ethiopia into various sources, livestock and off farm wage incomes reduce rural inequality. However, further decomposition of wage income into various categories arrived at mixed results. The further decomposition results reveal that while non-farm wage, self employment income and non labour incomes have non equalizing effects, incomes from food for work reduces income inequality. The study noted that the marginal effect on income in equality is higher for non labour income than for non-farm wage and self-employment income. He attributes the reasons for disequalizing effect of non-farm income to existence of an entry barrier (capital and skill requirement) for the poor and availability of transaction cost of searching jobs and rationing in the labour markets. In contrast to Adam (1994) findings in rural Pakistan, unskilled nonfarm wage work increases income inequality, due to very high transaction costs in searching for jobs.

CHAPTER THREE

3. METHODOLOGY AND MODEL SPECIFICATION

3.1 Description of the Study Area

Hetosa is one of the 26 districts of Arsi Zone. The historical name of the districts is derived from the names of Oromo clan called Hetosa living in the area. The district has 25 administrative units of which 23 are peasant Associations while the remaining two are urban administrative units.

Iteya town is the capital town of the district. It is located 150 km from Regional Capital city Finfinne and 25 km from Zonal capital, Asella town to south direction found on Asella-Adama main road. Hetosa district is one of the administrative units of Arsi Zone. Astronomically, it is located between 7036'40''N – 7057'27''N Latitude and 39021'12''E- 39038'45''E Longitude. Relatively the district shares a boundary line with East Shewa zone, Dodota district in the north, north east and south west, Lode Hetosa district in the east and south east, Digelu-Tijo district in the south, Tiyo district in the south and south west and Zeway Dugda district in the west having a total area of 714 Km² which accounts for 3.39% of the total area in Arsi Zone. In this district there is not recent information of migration data to give description of area on migration.

3.2 Data types and Sources

This study is conducted on household farmers' effect of migration on income diversification. The study focused on household for different choice or adaption of income activities after migration for migrant sending household and the factors determining their decision to choose migration as household strategies of income activity which is non agriculture source of income for rural household. To undertake this study primary data is used.

3.3 Methods of Data Collection

The primary data is collected from the household of Hetosa woreda using a survey questionnaire. The survey questionnaire is prepared in English and translated to local language (Afan oromo) so as to get accurate information from the household since this language is used by the majority of

the residents in this woreda. Moreover, a pilot study is undertaken for pre-testing the questionnaire and the questionnaire is revised in light of the results of the pilot study.

3.4 Sample size and sampling methods

Hettosa district has 23 rural PA and 2 urban kebele. It has three agro-ecological zones namely; dega, woine dega and kola. In this study, a sample of 240 household is taken from Hettosa district peasant association. In order to select these respondents a two-stage sampling approach will employ. First, six PA were selected out of 23 rural PA in the woreda purposively based on agro-ecological zones which is proper for including the characteristics of three ecology in the woreda on preference of activity participate and to include more difference the researcher select two PA in one agro-ecological to analyze the source of income activity household because of migration choice as household strategies. Accordingly, these six PA are wal-argai and guri-debula (from kola),gonde-finchama and oda-jila(from woine-dega),and harbae adamonyae and jaw-cillalo(from dega) (see table1.1).

Second, using random sampling method households were selected from each of the six PA randomly because the researcher wants 120 household respondents totally from district thought random select on selected PA.

Table; 1 sampled PA for study number of households and sample size

No	Name of PA	Agro-climate zone	Sample size
1	Wal-argai	Kola	40
2	Gonde-finchama	Woina dega	40
3	Harbae-adamonyae	Dega	40
4	Guri-debula	Kola	40
5	Oda-jila	woinadega	40
6	Jaw-cillalo	Dega	40
Total			240

Finally, the data enumerators were carefully selected and trained for two days on the content of questionnaire and interviewing procedures. Three data enumerators were hired for this study with one assistant for enumerator assigned from gonde-finchama PA. All of them are agricultural extension officers employed in their respective PA were they assigned to collect the data.

3.5 Methods of Data Analysis

For the analysis of data collected from the sample respondents both descriptive statistics and econometrics analysis methods were used. Descriptive statistical tools such as percentages and graph were employed to strengthen the finding of econometrics methods.

3.6 Determinants of Migration

3.6.1 Estimation Issues and Variables

The following econometric analysis aims at revealing determining factors of the migration decision. The evidence shown may then also lead to conclusions on whether migration can be seen as a strategy of households, which aim at self-insuring and diversifying their income sources, as well as of individuals in which both parties prefer to maximize a joint utility function. The analysis for this particular regional setting in East Ethiopia can build on a substantial body of empirical studies on continental and intercontinental migration based on cross-sectional data, such as Lucas (1988) for Botswana, Hoddinott (1994) and Agesa (2001) for Kenya, or Konseiga (2006) for Burkina Faso, to name just a few with regard to the Sub-Saharan African region. Following these studies, migration is modeled as a discrete choice of household members in which the decision to migrate out of district or from rural parts of the district to the city depends on a set of variables which have an influence on the potential gains from this strategy. The specificity of the analysis, focus, on continental and intercontinental which reflects a typical densely populated rural area in which migration may be one of the most promising options within the portfolio of potential diversification strategies to secure livelihoods in the long run. It serves with the first and latest detailed empirical analysis of migration (and remittances) on the household and individual level for this area. In the estimation procedure the study uses a probit model in which the probability of migration Y_i is a function of a range of individual and

household characteristics, economic activities and the existence of networks at the place of destination. The dependent variable Y_i takes the value 1 if household member is a migrant owner ($Y_i = 1$ if $y_i > 0$), and 0 if household non-migrant owner household ($Y_i = 0$ if $y_i \leq 0$). Under the assumption of a standardized normal distribution of the residuals the probability of an observed positive result is

$$\pi_i = \Phi(\beta X) + \epsilon_i \dots\dots\dots (1)$$

With ϵ_i being the random error term and the vector X reflecting the independent variables thought to determine the participation in the migration process. These are considered to be socio-demographic household- and individual characteristics, which are especially related to labor endowment (HHDC, IndDC), human capital endowment (Hcap), and physical capital endowment (Pcap) and economic activities (Act) of households. These commonly tested factors migrants, which have moved after the year 2000 (in order to keep socio-economic circumstances in which the migration decision took place relatively constant). Out of the same reason, only migrants within the age of 16 and 64 were selected and single-person households, as well as urban clusters were removed, as it is assumed that the explanatory factors for migration decisions differ from that of rural areas.

The specification of the respective model yields the equation:

$$\Phi^{-1}(Y_i/X) = \beta_i(HDC_i, IndDC_i, PCap_i, Act_i, Net_i) \dots\dots\dots (2)$$

The individual socio-demographic characteristics tested are age, gender and marital status. It is assumed, that the age of a household member and potential migrant plays a significant role with regard to intra-household and individual decision-making as well as the income potential of individuals. The expectation of other variables in analysis it is assumed that the likelihood of migration decreases with rising age. A dummy for gender was included so as to follow up a widespread assumption that men are much more likely to migrate than women, the same of which is thought about singles vs. married members of households, with the former outweighing the latter in the migrant population. On the ground of results from the descriptive analysis, though, it is assumed that this relationship is reversed in the case of Hetosa district. As part of socio-demographic household characteristics, the analysis includes the number of dependant household members, which are thought to negatively relate to the likelihood of migration (more dependant members lead to a possibly higher responsibility and reservation wage of potential migrants, which may have a deterrent impact on migration). Further it is looked at the equivalent

size of households, with an expected positive relationship to the migration- decision, as opportunity costs for the whole household may thereby be reduced. The indicators for human capital endowment are a dummy variable for a high education level (completed secondary school and higher), the years of education of the household head, as well as the number of household members between the age of 18 and 25 with higher education (secondary school and higher). For all variables a strong positive relationship to the likelihood of migration is expected. So as to verify the influence of the wealth position of households on the migration-decision it is looked at the land size possessed by the households, precisely the total land size, their asset endowments (tangibles, productive assets and livestock). Several studies have tested for the impact of these factors and have come to rather diverse results. Hoddinott (1994), for instance, has shown that the likelihood of migration rises in wealthier households, measured by their endowment with land and assets, as they are in a better position to bear the costs of migration. Other studies, though, have found that the likelihood of migration rises as asset endowment and land size drop. This is referred to a larger disposedness of poorer households to use migration rather as a coping strategy in the absence of local options to gain enough money to adequately secure their livelihoods (e.g. Mendola 2005, Barham and Boucher 1998). The a priori assumption in this paper is that in Hetosa district a decreasing or increasing total land size will not lead to an decreasing or increasing likelihood of migration as individuals as well as households because in this time all household whose live in district have equal chance to migrate whose age difference from the household head lies in the range of 12-29 years.

3.7 Economic Model Specification of Migration and Diversification

3.7.1 Theoretical Framework

Lucas (1997) indicates that the absence of crop insurance and shortage of liquidity are among the most important constraints that push rural families in developing countries to diversify away from agriculture and explore migration remittances as a source of income not just for the migrants, but also for the family that stays behind in the village. It is in the presence of these constraints that the New Economics of Labor Migration (NELM) (Stark and Bloom, 1985) explains that migration remittances can facilitate diversification and provide resources for rural households to invest into nonfarm activities. The role migration remittances play through the provision of liquidity that helps rural households undertake productive investments, particularly in the nonfarm sector, has been highlighted in the literature (Stark and Levhari, 1982; Stark, 1991; Taylor *et al.*, 2003). Empirically, there is some indirect evidence for this role. Banerjee and Munshi (2004) use data from an Indian urban survey to show that migration networks are an important determinant of patterns of investment as they provide easier access to resources. Woodruff and Zenteno (2007) also use migration networks as a proxy for access to liquidity, and show that they increase significantly investment and capital output ratios in urban microenterprises in Mexico. Richter (2008), in turn, shows that the probability of rural households to obtain credit is significantly explained by the level of remittances. While all these studies connect migration and remittances with access to liquid resources by rural households, they do not directly relate remittances to the household's decision to undertake productive investments in the nonfarm sector. Some authors have tackled this indirectly. Dustmann and Kirchkamp (2002) suggest that credit constraints are an important motive behind the duration of the migration period and the choice of activity after return, and the characteristics of the migrant before migration explain significantly the choice of activity, notably nonfarm work. More relevant evidence regarding the effect of migration remittances on activity choice is presented by Ilahi (1999), with data from Pakistan, and Mesnard (2004) and Mesnard and Ravallion (2006) for Tunisia. These studies show that the savings migrants have accumulated abroad are a significant factor in the choice of nonfarm activities when they return home. Their focus, however, is on the likelihood of returning migrants to engage in nonfarm activities using their foreign accumulated savings, not on the likelihood of rural households to use remittances for purposes of income

diversification. The main interest of their study lies in the effect that remittance income streams have on the receiving household's preference decision to engage in nonfarm activity. The potential of income diversification, in general, and migration remittances, in particular, to overcome credit and risk constraints, is part of rural household livelihood strategy and the decisions are taken at the household level (Stark and Bloom, 1985). In this respect, Massey and Parrado (1998) estimate the likelihood of Mexican households to form a business, partially using migration remittances. Although the results suggest a positive role for remittances, they do not discern the individual effect of remittances, since both remittances and migrant savings are added together; neither are they informative regarding the role of migration remittances for rural farmers, given that the data include both urban and rural households. Taylor *et al.* (2003) analyze remittances within an income diversification framework from the household perspective. They estimate household income equations for different sources and include remittances as explanatory variable. They find that the estimated coefficient for this variable is not statistically significant in the nonfarm income equation. In this study, the researcher wants to study the factor affecting migration and the household migrant remit preference to engage in income diversification activity (i.e. nonfarm work involvement) rather than on the income generated by the activity. A simple farm household modeling framework is used as the basis for researcher's empirical model. Consider a farm household with preferences represented by a utility function of the form given in question. (1):

$$U = Eu(C, X_1; Z_u) \dots \dots \dots (1)$$

- Where C is a vector of consumption goods, X_1 is leisure, and Z_u is a vector of household characteristics influencing utility. Households maximize (expected) utility subject to a cash income constraint of the following form:

$$C = \dots + R_c M_c + R (j) M (i) \dots \dots \dots (2)$$

- Where y_i denotes net income from activity i for
- $i = c$ (crop production),
- cc (cash crop production),
- lv (livestock production), and
- nf (non-farm production); and
- R_c and R_I are remittances from continental and inter-continental migrants, which are functions of household time allocated to these two migration activities (M_c and M_I) respectively.

Net income from crop production is given by a net income production function:

$$y_c = p_c g_c(L_c; A) + \eta \dots \dots \dots (3)$$

- L_c is household labor input in crop cropping
- A a vector of assets including land available to the household for cropping activities
- P_c is the output price of crop, and
- $\eta \sim (0, \delta s^2)$ represents the stochastic or uncertainty component of staple production due to weather and other shocks.

Following Abdulai and Crole Rees (2001), households' income derived from the non-cropping activities, including cash-cropping, livestock and non-farm activities, is conditional upon their ability to overcome entry constraints,

$K, ns, (nc = cc, lv, nf)$; that is:

$$y_{nc} = [p_{nc} g_{nc}(l_{nc}; A) + v_{nc}(l_{nc}; A) \mu] k_{nc} \dots \dots \dots (4)$$

Where

- p_{nc} is the output price of non-crop products;
- L_{nc} is household labor input into non-crop activities;
- K_{nc} represents entry constraints, such as investment capital required to initiate production of good nc ; nc
- η is a stochastic term reflecting impacts of weather and other shocks on non-crop production ($\mu_{nc} \sim N(0, \delta^2_{ns})$); and

- $v_{nc(vL)}$ represents the effect of the intensity of labor investments on production risk (Just & Pope, 1979) (For simplicity, we assume that $K_i = 0$ for crop production).
- The entry constraint may be modeled as a function of household assets including the stock of continental and inter-continental migrants, M_c and M_i . The liquidity available to the household for investment is a function of household wealth, where the maximum wealth, W^{max} , available to the household is a function of its assets, which include having earlier continental or inter-continental migrants as well as non-migration assets, Z_k :

$$W^{max} = gw(M_c, M_i, Z_k) \dots \dots \dots (5)$$

- If perfect labor markets exist, the wage is exogenous, hired workers can substitute for labor lost to migration, and labor availability will not be a constraint on household production activities. However, if perfect labor markets do not exist, labor availability for production and migration is constrained by the household labor supply; i.e.,

$$\sum_i L_i = T - M_c - M_i - X_i \dots \dots \dots (6)$$

- In this case, the opportunity cost of labor in production is represented by a household specific “shadow wage” that increases with household labor allocated to migration, other things being equal (Jacoby, 1993; Skoufias, 1994; Strauss, 1986). This potentially creates a trade-off between household production and migration.

3.6.2 Empirical Analysis of Migration and Diversification

Migration may influence activity choice as well as activity incomes, through its impact on labor supply, credit and liquidity constraints. Analogous to Taylor and Yunez- Naude (2000), our empirical analysis of the impact of migration on household income takes into account the influence that migration may have on activity choice. Ignoring the endogeneity of activity choice can lead to biased estimates of coefficients in the activity income regressions.

An approach similar to that proposed by Abdulai and CroleRees (2001) can be used to model the household decision-making process. Households engage in a particular activity if their expected utility from doing so exceeds that from not investing in the activity, subject to capital constraints. As mentioned previously, capital constraints linked to missing markets may constrain

engagement in cash-cropping, livestock and non-farm activities. In the absence of a capital market, only households that are able to overcome the entry constraint, if binding (i.e., those that can afford K_{nc}), will allocate labor to non staple activities. If participation is optimal and feasible (i.e., the capital constraint on participation is not binding), households will allocate a marginal unit of labor to non-crop activities if:

$$E\left|U_c \frac{dC}{dL_{nc}} \mid \frac{W^{max}}{K_{nc}} \geq E\left|U_c \frac{dC}{dL_{nc}} \mid \dots\dots\dots (7)\right.$$

Capital constraints may limit both participation in an activity and investment in the activity given participation.) Given participation, the income of household n from crop and non-cropping activities can be represented in reduced form as:

$$Y_c^n = \beta_0_c + \beta_1_c M_c^n + \beta_2_c M^n I + \beta_3_c X^N + \epsilon_c^n$$

$$Y_{nc}^n = \beta_0_{nc} + \beta_1_{nc} M_c^n + \beta_2_{nc} M^n I + \beta_3_{nc} X^N + \epsilon_{nc}^n \dots\dots\dots(8)$$

For $ns = cc, lv, \text{ and } nf$. In equation system (8), β_{1i} denotes the effect of a marginal increase in continental migration on net income when the household participates in activity i ; β_{2i} denotes the effect of inter-continental migration; X^n denotes a vector of other variables (i.e., household assets) influencing activity incomes; and β_{3i} is a vector of marginal impacts of these variables. Parameters in equation (8) reflect potentially complex influences of explanatory variables on production, liquidity constraints, and risk. The objective of this study is not to isolate these effects, but rather to test for the influence of migration on activity incomes. This migration effect on non-migration incomes would be nil in perfect-markets or “separable” agricultural household model, i.e. $\beta_{1i} = \beta_{2i} = 0$. A finding that continental or intercontinental migration significantly affects activity choices and/or incomes in migrant-sending households would support the NELM. However, if migration influences liquidity constraints, labor availability or income risk, the effect of migration may be either positive or negative, depending upon which effects dominate. The sign of an activity-specific migration effect thus is indeterminate *a priori*.

The observation of activity incomes is conditional upon participation. To correct for censorship and investigate the determinants of participation equations in (8) were estimated jointly controlling for activity choice, utilizing Lee’s (1978) generalization of Amemiya’s (1974) two-stage estimator. This procedure consists of first estimating a probit regression for participation in

each non-crop activity with the complete set of explanatory variables in equation (8). The probit indicator function thus estimated is of the following form

$$I_{nc}^n = \beta_{0nc} - \beta_{0c} + (\beta_{1nc} - \beta_{1c}) M_c^n + (\beta_{2nc} - \beta_{2c}) M_I^n + (\beta_{3nc} - \beta_{3c}) X^n \dots\dots\dots(9)$$

The estimated coefficients from the probit regressions for each activity choice are then used to calculate the inverse Mills ratios:

$$IMR_{nc}^n = (-\phi(I_{nc}^n) / \theta(I_{nc}^n)) \dots\dots\dots(10)$$

❖ Where $\phi(\cdot)$ denotes the normal density function and $\theta(\cdot)$, the cumulative normal distribution function. In the second stage, the inverse Mills ratios are included as explanatory variables in their respective activity-income regressions; i.e

$$Y_{nc}^n = \beta_{0nc} + \beta_{1nc} M_c^n + \beta_{2nc} M_I^n + \beta_{3nc} X^n - \sigma_{nc} IMR_{nc}^n + u_{nc}^n \dots\dots\dots(11)$$

One advantage of this two-step approach is that one obtains estimates of the effect of each explanatory variable on the probability of participating in each income activity, as well as the effect on activity incomes given participation.

The vector of explanatory variables X^n includes household size and number of dependants; physical capital variables (land, the number of cattle, and the value of farm equipment at the start of the survey year, the quantities of which are predetermined); and household characteristics (human capital variables, including age of the household head, number of adults with primary and secondary education, and the number of past absentees, i.e., household members who migrated in the past but returned). Prices are assumed to be region specific and are captured by location dummy variables. Variables for continental and inter-continental migration also need to be specified.

Migration represents an endogenous activity choice. However, most migrants in the surveyed households left in the past, typically several years prior to the survey. It is therefore possible to consider the number of past migrants as a predetermined “migration capital stock” variable (Taylor & Yunez-Naude, 2000). The migration capital stocks, or number of household members at each migrant destination, prior to the survey year were used to measure continental and inter-continental migration in the econometric model.

CHAPTER FOUR

4. DATA ANALYSIS AND INTERPRETATION

4.1. Descriptive Statistics Analysis

The following analysis is based on a survey of 240 households with 2500 household members from 25 clusters in Hetosa District, Oromia region in Ethiopia, conducted between March and April 2014. From these clusters 22 were situated in rural areas and 3 were situated in some urban agglomerations. The survey collected information on household characteristics, asset endowment, and agricultural production and non-farm activities amongst others a special annex questionnaire on migration was included. In these data we have defined five distinct rural livelihood diversification strategies based on household participation in various activities, in addition to annual crop production. The major categories of diversification activities include growing permanent crops, livestock rearing and undertaking off farm activities. Off-farm activities are further categorized into lucrative off-farm and easy off-farm activities. This division is based on the requirement of capital assets with a threshold of three hundred Birr (USD 15.56 Dollar) for lucrative off farm activity and/or special skills. Those activities that require huge initial investment and /or special skill are grouped as Lucrative off farm activity, while those activities that need none or low initial investment and/or simple labour are categorized as easy off farm activity. The five distinct rural livelihood diversification strategies are: Pure-farm, mixed farm, Farm-easy off farm, Farm-lucrative off farm and Agri-off farm strategy. As can be seen in Table 2, within the sample of 240 households there were 165 households (68.75%) with at least one migrant. Migrant households had a mean number of 1.68 migrants. Remittances from at least one migrant were received by 160 of the migrant households (96%).

The variables included as regressors in the livelihood diversification strategy should reflect the heterogeneity of incentives and constraints facing households across strategies and the differences in household and village characteristics. Age, sex, and educational attainment of household head, household labour supply, and household composition are included to see whether household characteristics affect the household choice of livelihood diversification

strategy. Education attainment is measured as three dummy variables categorizing educational level of head into illiterate, primary education (grade 1 to 6), junior secondary education (grade 7 to 8), and senior secondary education (grade 9 and above). The dummy variable is specified in such a way that the latter three dummy variables will take value one for a household head who has attained any secondary education level. Three dummy variables are used taking illiterate group as reference education level. Age of head is measured in years representing experiences in rural way of life. Older heads have higher accumulated experience in rural way of life and hence help their households to involve in diversified livelihoods. Male headed households are expected to diversify their livelihood more than female headed households because of cultural differentiation of activities for men and women. In addition, most of women's time is occupied by home activities and do not participate in activities outside the village such as long distance trade and wage employment.

The number of household members in the three different groups (7- 14 years old children, number of adult male 15- 64 years old, and number of adult female 15-64 years old) and sex dummy for the head are included to proxy for age and gender division of activities. The labour supply variable is measured in adult equivalent and expected to have positive effect on livelihood diversification strategy.

Land holding and livestock ownership are included to proxy for household endowments. Land holding of household is disaggregated into farmland and grazing land (both measured in hectare) to examine their role in livelihood diversification since land is one of the primary assets in rural area. Farm size is hypothesized to decrease the likelihood of being in diversified livelihood relative to pure farm, while grazing land increases it. Livestock holding (measured in Tropical Livestock Unit) is included to proxy household wealth and is expected to have positive effect on livelihood diversification through different channels: reducing risk aversion of household, relieving liquidity constraints and generating income through sale of its product and services. We also consider number of ox holding as separate variable because of its critical role as input for farming activities. The number of ox holding has negative effect on livelihood diversification because holding of a pair of oxen is expected result in high crop production timeliness and thoroughness of cultivation and allows inflow of land, labour and grain from households who lack draft power to its holders. The location characteristics are expected to influence the selection of livelihood diversification. The number of big markets per week in a village is

expected to have positive effect on diversification. In addition, dummy variables for regional fixed effect are included to capture the differences in agro ecological conditions that influence opportunity sets across all households in a village.

Table 2: Incidence of Migration and Remittance

Households (HH)	N	%	Mea n
HH with at least one migrant(migrant owner HH)	165	68.75	
HH without migrants	75	31.25	
Total	240	100.0	
Mean number of migrants in migrant households			1.68
HH receiving remittance	160	96	

Source: Author's calculations

In the following, this paper will give an overview on the major characteristics of migration from Hetosa Districts in terms of its geographical and temporal patterns, as well as the major motivations underlying this migration.

4.1.2 Geographical and Temporal Patterns of Migration

As outlined above, many studies on internal migration in Africa have emphasized the significance of increasing rural-urban migration and urbanization. Urbanization is an issue of growing concern in Ethiopia. Rural-urban migration is continuing to occur at high levels as people seek new opportunities in the city to escape rural poverty. Ethiopia's urban centres, such as Addis Ababa, have high unemployment rates. This has led to shift in rural poverty to urban poverty. An additional area of increasing concern in Ethiopia has been the rural-urban migration of children who move to the cities to find opportunities (Erulkar et al, 2006). Rural to urban migration among youth between 10 and 19 years of age occurred primarily for educational opportunities (44.9 percent of boys and 51.4 percent of girls), followed by work opportunities (28.6 percent of boys and 32.4 percent of girls) and escaping an early marriage (22.7 percent of girls) (Erulkar et al., 2006, p. 368). Children often migrate with a relative or family friend or are

sent to live with family or friends in the city who are expected to educate the children while they help in the house. After migration, however, 13 percent of girls and 21 percent of males do not attend school and 19 percent of females who migrated for work were not employed (Erulkar et al., 2006, p. 368). The opportunities for work are limited to informal work such as domestic work, coffee shop assistant, or bar girl (Van Blerk, 2007, p. 248). The latter-most option is often an entry into the sex industry, where girls commonly end up. Erulkar et al. (2006) found that female migrants working in domestic labour jobs received lower wages than their native's cohorts per week (16 Birr/week versus 50 Birr/week). The opportunities for rural migrants in urban areas are limited, and life in cities frequently does not meet expectations.

The World Bank cites an emigration rate of 0.6 percent of the population in 2005, which amounts to a stock of 445,926 persons (2008). Table 2 illustrates the destination of Ethiopian migrants. Studies have demonstrated that Ethiopian migrants generally spend 1-3 years in neighboring countries (such as Kenya, Djibouti, or Somalia) before immigrating to the west. Ethiopian refugees residing in refugee camps in neighboring countries may also receive resettlement in other countries further abroad, as in the case of 130 Ethiopian refugees who were resettled in the UK in 2006 (Collyer and de Guerre, 2007) depending on above information migrant destination of Hetosa distinct temporary place are Saud Arabia, Juba, Oman, Yemen, Dubai, Kuwait and Beirut the main place of migrants.

Table 3: Destinations of Migrants from Hetosa District

Destination place	Number of migrants in destination	percent
Beirut	5	2.84
Dubai	43	26.14
Juba	3	1.7
Kuwait	29	17.61
Sued Arabia	78	47.73
Yemen	7	3.98
Total	165	100

Source: Author's calculations

4.1.3 Reasons for Migration

The structure of income generating activities in Hetosa District is not highly diverse based on survey of Hetosa district have shown that 67 percent of the households fully specialize in agriculture, whereas 33 percent diversify into non-agricultural activities, which, however, mostly consist of low-return activities. The highest income share of households in Hetosa district is derived from agriculture, for instance, with rising age of the household head the share of agricultural income increases sharply while income shares from non-agricultural sources sharply drop. They relate this to inheritance patterns and land shortages, which give advantage to households with older household heads in terms of land for agricultural cultivation and which lead to a necessity for younger ones to secure their livelihoods via non-agricultural activities. The fact that the highest share of unemployed household members consists of young individuals between the age of 18-30 years there seem to be several indications that today the traditional agricultural income base cannot secure livelihoods of the whole regional population in a sustainable way. This creates a high pressure on households to switch to local non-agricultural activities, but at the same time the local job market does not seem to be able to fully absorb the local labour force, especially with regard to the younger generation. In this situation, sending household members away for migration may often be the only feasible option for households to gain enough income. Taking a closer look on the motivations of migrants, this is mirrored by the fact that the major first reasons are largely economic in kind. Employment or search for job dominates as the most important reason to migrate.

Table 4: Reasons for Migration

Cause of migration	N	%
Unemployment	6	3.41
Work(Job search)	159	96.59
Total	165	100.0

Source: Author's calculations

4.1.4 Individual Characteristics

Altogether there are 159 migrants reported by the households in the sample, who are characterized by the following features (Table 5). On average, migrants left the district in 2005 and they are predominantly young women with an average age of 21 (median: 20) at the time of interview. It can be seen that the proportion of single migrants clearly outweighs that of marriage migrants with 80% compared to 20%. This is similar to many empirical studies, which have found the largest proportion of migrants to be singles. Concerning the education level, the largest share of migrants has completed primary school and a negligible number of migrants have never received formal education. In contrast, the remaining household members have the largest proportions at the lower end of education levels, meaning high shares of people without having any formal schooling or completed primary school and almost negligible figures of tertiary college or university education. It may be assumed, that major reasons for this may be higher high school failure rates due to shortages of human and material resources at most schools in the area. Moreover, the labour market is unable to absorb all the higher educated people, as noted above.

Table 5: Characteristics of Migrants

Characteristics	N	%	Mean
Age of migrant between(15-29)	72	43	21.28
Female	165	100	
Single	141	85	
Education level			
No formal schooling	3	1.8	
Primary	91	55.68	
Secondary	68	41.48	
Tertiary college	3	1.8	

Source: Author's calculations.

4.1.5. Household Characteristics and Entry Barriers

Across the study sites, the average size of the households (without migrants) does not differ in non-migrant and migrant households. Before the migration of household members, though, these households must have been somewhat larger in size than their counterparts. Notably, there are substantial differences in the number of female-headed households which is more than fifth as high in migrant households with 85% compared to 15% in non-migrant households. This indicates, again, that there are quite a number of male spouses having migrated (as shown above). In terms of wealth, including income status and assets, migrant households turn out to be somewhat better off than non-migrant households. Their average size of land, as well as their average asset endowments and their average total income are slightly higher than those of non-migrant households

Table 6: Household Characteristics of Migrant and Non-migrant Households

Characteristics	Migrant households	Non-migrant households
Number of household members	7	7
Percent of female headed households	85	15
Mean landsize (in hekt)	2	1
Mean total income per yearly (in birr)*	1834	1320
Mean of total assets value (in birr)	8050	7578
Total	165	75

* Including remittances-income in migrant households. Exchange rate at survey time (Dec. 2013): 1 \$ = 18 birr,

source: Central Bank of Ethiopia.

Source: Author's calculations

In many studies it has been argued that diversification in general and mobility in particular is highly correlated to the wealth and income status of households. This means that there are assumed to be entry barriers in terms of the costs of migration and obstacles in terms of the returns, such as remittances. In short, it is argued that poorer households are more likely to be excluded from participation in and positive returns and opportunities of migration than wealthier households (Barrett, Reardon and Webb, 2001; Bigsten, 1996; Bryceson, 2000).

4.2 Estimation Results and Discussion

In this section, we present and discuss the estimation results. The determinants of Hotosa district households' migration choice are identified using probit model. The effect of migration on income diversification also were estimated jointly controlling for activity choice, utilizing Lee's (1978) generalization of Amemiya's (1974) two-stage estimator. This procedure consists of first estimating a probit regression for participation in each non-staple activity with the complete set of explanatory variables in estimation then predict IMR from probit result after predict IMR we regress all explanatory variable including IMR on income of activity given activity participate are analyzed.

4.2.1 Determinants of Migration Choice

In line with the foregoing descriptive analysis it is assumed that the likelihood of migration decreases with rising age. A dummy for gender was excluded because in survey data all migrants are female and most of them are singles. As part of socio-demographic household characteristics, the analysis includes the number of dependant household members, which are thought to negatively relate to the likelihood of migration (more dependant members lead to a possibly higher responsibility and reservation wage of potential migrants, which may have a deterrent impact on migration). Further it is looked at the equivalent size of households, with an expected positive relationship to the migration- decision, as opportunity costs for the whole household may thereby be reduced.

The indicators for human capital endowment are a dummy variable for a secondary education level (completed secondary school and primary), the years of education of the household head, as well as the number of household members between the age of 18 and 25 with secondary education (secondary school and primary). For all variables a strong positive relationship to the likelihood of migration is expected.

So as to verify the influence of the wealth position of households on the migration-decision it is looked at the land size possessed by the households, precisely the total land size and their asset endowments (tangibles, productive assets and livestock). Several studies have tested for the impact of these factors and have come to rather diverse results. Hoddinott (1994), for instance, has shown that the likelihood of migration rises in wealthier households, measured by their endowment with land and assets, as they are in a better position to bear the costs of migration. Other studies, though, have found that the likelihood of migration rises as asset endowment and

land size drop. This is referred to a larger disposedness of poorer households to use migration rather as a coping strategy in the absence of local options to gain enough money to adequately secure their livelihoods (e.g. Mendola 2005, Barham and Boucher 1998). The a priori assumption in this paper is that in hetosa district a decreasing total land size an increasing likelihood of migration as individuals as well as households are then de-pendent on other income sources aside from land cultivation (such as migration). The same is assumed with regard to the asset related variables. As to the economic activities of households the analysis tests a dummy variable for land holdings (as an indication for agricultural activities), a dummy variable for wheat cultivation, a variable reflecting the degree of on farm diversification (number of different crops) This is believed, as the more households depend on agricultural activities usually the less total income they have, whereas particularly wheat farmers derive comparably more income from their production. Eventually, the existence of migrant networks at the place of destination is examined, measured by the total share of migrants within a cluster before the year 2013, who are considered to be the 'predecessors' of those migrants considered in the sample of this analysis. A positive relationship to the likelihood of migration is assumed.

4.2.1.1 Results and Discussion

Before turning to detailed results of the individual parameter estimates it can be said that overall the model performs very well regarding the applied measures of quality. The null-hypothesis, tested by the chi-squared statistics, that altogether the regressors are zero, can be strongly rejected. The estimation predicts very well, whose individuals migrate and whose do not. Table 7 shows the results in accordance with a priori considerations it is shown that with rising age migration becomes more unlikely (significant negative relationship). As the descriptive analysis had already shown, particularly the younger generation is affected by high unemployment rates, so that incentives to search for income sources outside the local job market are presumably high. Other of the socio-demographic household characteristics tested, the number of dependant household members and the equivalent size of the household, reveal the expected relationship with the likelihood of migration, which is negative. This is explicable, as usually a rising number of dependant members in the household imply a rising responsibility at home for adult members of the household in working age and therefore less freedom for them to leave the family for longer periods of time. On the other hand, in overall larger households migration is less costly

compared to smaller households, as there are more household-members, who can compensate the loss of labour.

Table 7: Determinants of Migration (Reduced Probit Model migrant owner is dependent variable)

Variables	Coefficient	Std.err
Age migrant	-0.102**	(0.0507)
secondary education level (dummy) 1 if migrants are secondary school	0.369	(0.496)
Total size of households(including migrants)	0.240**	(0.114)
Land size owned (hec)	-0.112	(0.119)
Number of dependants	-0.649***	(0.230)
Number of household members aged 18-25 with secondary education	0.157	(0.178)
Education of household head dummy 1 if secondary school 0 otherwise	-0.870	(0.567)
Migrant networks dummy 1 if information from relative/friend	0.684**	(0.557)
Total assets of HH	2.64e-05	(2.61e-05)
Number of different crops (on farm)	0.341*	(0.184)
Const.	2.256	(1.873)
Prob >Chi2	0.0000	
Pseudo R2	0.3717	
Observations	174	

* Significant at 10% level; ** significant at 5% level; *** significant at 1% level.

Source: Author's calculations.

Of very high importance for the model is the variable for a secondary education level. The relationship is positive and not significant, the same of which is true for the number of HH members between ages 15-25 with secondary education. Even though education can be seen as a factor exerting a high influence on the income potential of migrants, or, in the case of the household head's education level, as an indicator for the human capital endowment of the whole household. These results strongly support the ideas of Sjaastad (see above) and other theories on the relevance of education for migration and the related problem of selectivity. Indeed, this result could serve as an indication for certain entry barriers to migration related to the endowment with education. Total as we see on descriptive analysis more migrants destination place are inter-continental countries whose wants Ethiopian migrants for home works (domestic) and pay similar payments for all migrants which indicates that education level is not significantly affect migration decision. Education secondary dummy of HHH is negative with migration decision. This, in turn, may indicate that such households have an economically better position on location and face less necessity to send members away to gain income.

Interestingly, regarding the wealth-related variables and those reflecting economic activities of the households, land size as well as asset endowment are not significant in the model. This mirrors the foregoing assumption, that income sources for individuals of the younger generation, which is most likely to be attracted to migration, are dependent on the amount of land they can inherit from their parents. Individuals without the option to inherit enough land for making a living throughout the year, have less opportunities to gain sufficient income independent from their parent's household, meaning aside from land cultivation. Therefore they are much more attracted to migration than their counterparts with inheritance options. In line with a priori expectations, the more households diversify in on-farm diversification such as cultivation of many diverse crops or (wheat)producer positive and significant on the effect of migration decision this means the HH produce wheat in hetosa have good income from production which makes shorter times of migration process i.e it makes simple the migration cost. Finally, the effect of migrant networks is positive as expected and significant there are many migrants in destination place they share information for home area to migrates which means in district there is migrants net work directly but they are migrate in illegal broker. we confirms the hypothesis that potential migrants tend to be encouraged to migrate, if they can follow others from their

home area whereby their options to have better access to information and contacts at the place of destination rise and enhance their chances on the job market contrary this is even this is true in district migrants migrate illegal they not have any power to enforce market price of loubor in destination.

4.2.2 The effect of Inter-continental Migration on Income Diversification

4.2.2.1 Findings

The results of the probit estimation for three (cash crop, livestock and nonfarm) activity choices are given in Table 8. The table reports the estimated percentage point change in the probability of participating in a particular activity that is associated with a one-unit change in the corresponding explanatory variable. [Table 8 here]

Table 8: Probit Estimation Results for Activity Choice

Variables	Non-farm activities	Livestock purchase	Cash cropping
	0.0333(0.0862)		
Size of household		-0.0855(0.110)	-0.0195(0.0865)
Number of adult primary school education level	0.182**(0.0886)	0.108(0.0996)	0.0141(0.0856)
Number of secondary school education level	0.0577(0.105)	-0.0305(0.122)	-0.00306(0.105)
Number of dependent in HH	-0.0576(0.0940)	-0.0500(0.106)	0.0375(0.0924)
Expenditure on land rent	8.22e-05*** (2.48e-05)	6.53e-05*** (2.10e-05)	1.95e-06(3.37e06)
Number of oxen owned	-0.202*(0.104)	0.269**(0.120)	0.173*(0.0947)
Land size owned by HHH	-0.0305(0.0522)	0.0627**(0.0544)	-0.0383(0.0485)
Number of intercontinental migrants in HH	0.0870(0.134)	0.0579(0.150)	0.568*** (0.134)
Age of HHH	-0.0167**(0.00750)	0.00328(0.00865)	0.00856(0.00760)
Farm equipments owned by HH in brr	-3.59e-05*(1.95e-05)	-8.64e-06(1.78e-05)	-1.48e-05(1.79e-05)
Education dummy3 secondary if it =1 otherwise 0	0.203(0.212)	0.0654(0.235)	-0.279(0.199)
locationdummy1 1if its daga 0 otherwise	-0.0205(0.202)	-0.226(0.227)	0.709*** (0.195)
Number of past migrant absentees but returned home know	0.277*(0.151)	-0.226(0.227)	-0.527*** (0.158)
Constant	0.667(0.447)	-1.851*** (0.549)	-1.372*** (0.456)
Observations	232	232	232
Pseudo R2	0.1590	0.1836	0.1796
Prob >Chi2	0.000	0.000	0.000

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

At survey time continental migrants variable is omitted from the model specification when we interoperate the analysis. For continental migrant in district the respondents are not voluntary to give the available information because of the most of migrants are illegal migrate to Sudan with higher risk of life and they fairly to give information. Generally we use only inter-continental migration which is dominated by east pensulla countries are most destination.

The probability of participating in livestock production increases with intercontinental migration and significantly other things being equal. Inasmuch as remittances from inter-continental migration are considerably larger, this finding is consistent with the hypothesis that inter-continental migration enables households to overcome liquidity and/or risk constraints on livestock investments. Similar to livestock production, inter-continental migration has a significant positive effect on participation in cash crop activities, which tend to be need liquidity and /or constraints on cash crop activity. A positive and significant coefficient on the location dummy, which is set equal to one for the easy access location (villages of Harbe addamoye and Jawicillalo) suggests that market access stimulates cash crop activities (a large market is held regularly in Jawicillalo). The number of adults with secondary education has a negative and insignificant which is not influence on the probability that a household engages in cash crop activities. Abdulai and CroleRees cover a similar relationship between education and diversification into cash crop activities for rural Mali (2001).

The probability of participating in nonfarm activity increase and significant with past absentee of migrant which show that more migrants in returned in to home is encouraged HH to small nonfarm activity like resale crop in market. Intercontinental migration is not significant in probability to participate in nonfarm activity nonfarm activity is lobar intensive rather than liquidity i.e HH has get the starting capital from microfinance simple as the form of credit.

The results of the estimation of activity incomes given participation, which corresponds to the second stage of the model, appear in Table 9. The table reports the estimated absolute effects of one-unit changes in the corresponding explanatory variables on income from each activity.
[Table 9 here]

Table 9: 2SLS Estimates of Net Income Regressions

Variables	Cropping production	Non-farm activities	Livestock purchase	Cash cropping
Size of household	-4,790***(1,511)	1,486(2,280)	144.4(1,052)	-829.5(602.9)
Number of adult primary school education level	3,126**(1,485)	749.7(2,245)	-937.9(1,017)	275.1(591.1)
Number of secondary school education level	2,672(1,800)	7,294***(2,706)	3,331***(1,244)	15.5(722.9)
Number of dependent in HH	4,237***(1,616)	-5,962**(2,427)	103.9(1,113)	918.8(649.6)
Expenditure on land rent	0.280*** (0.0480)	0.113(0.0721)	0.0592*(0.0327)	-0.00968(0.0191)
Number of oxen owned	8,965***(1,686)	6,799***(2,543)	1,666(1,156)	1,407**(673.0)
Land size owned by HHH	2,180**(869.2)	-1,332(1,307)	- 357.8(594.8)	436.0(348.8)
Number of intercontinental migrants in HH	547.9(2,293)	-4,255(3,445)	12,489***(1,587)	2,021**(913.4)
Age of HHH	91.02(131.0)	-136.2(196.7)	-255.6*** (89.47)	-21.99(52.14)
Farm equipments owned by HH in birr	0.693**(0.289)	-0.227(0.434)	0.212(0.197)	-0.126(0.115)
Education dummy3 secondary if it =1 otherwise 0	-8,333** (3,581)	-9,055*(5,383)	2,734(2,455)	-1,141(1,427)
locationdummy1 1if its daga 0 otherwise	4,262(3,448)	5,818(5,189)	-2,279(2,359)	3,726***(1,376)
Number of past migrant absentees but returned home know	4,891*(2,695)	7,166*(4,048)	1,435(1,846)	-2,191**(1,075)
Constant	3,031(7,866)	5,789***(11,827)	17,917***(5,394)	2,331(3,131)
Observations	232	232	232	232
R-squared	0.64	0.67	0.78	0.1796
IMR of non farm	~	-30.72 (25.44)	~	~
IMR of livestock	~	~	-32..51 (29.10)	~
IMR of cash crop	~	~	~	-1.56 (2.99)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Overall, the findings in Table 9 reinforce those of Table 8 with respect to the effects of migration on crop and non-crop incomes. Other things being equal, an additional inter-continental migrant increase but it is weak effect on net income from crop production a finding consistent with the existence of an imperfect labor market that prevents households from hiring substitutes for family labor lost to long-distance migration. Insignificance of intercontinental migration on crop production income is also consistent with a risk model: Households with inter-continental migration may reduce the effort they invest in staple cropping as an income-insurance strategy, knowing that they can rely on remittances should shortfalls occur. There is strong evidence of labor substitution through equipment use (the positive coefficients on the farm equipment variable in Table 9). livestock production is significantly higher for households with inter-continental migrants. These findings are consistent with liquidity or risk constraints on livestock investments that are binding in households without inter-continental migrants but loosened by remittances sent home from abroad. Inter-continental migration has negative associations with income from non-farm activities; this result is not unexpected given the labor intensity of most non-farm activities. A loss of household labor to long-term migration, without access to hired labor markets, appears to reduce investment in non-farm activities, leading to a reduction in net income but in this case its effect is weak. Household size is negatively and land size positively with strong significance related to income from staple production, in which household labor is not more important input, rather HH use technology farm equipments used in district inverse to the argument that imperfect labor markets prevent households from substituting hired for family labor. Household physical capital has a mixed effect on income from all activities. Abdulai and CroleReese (2001), using data from rural Mali, also found that household wealth (measured by landholdings and value of equipment) positively influences income from cash cropping (cotton), non-farm activities and livestock. Cash crop production is similar to, livestock production it significantly higher for households with inter-continental migrants. These findings are consistent with liquidity or risk constraints on cash crop investments that are binding in households without inter-continental migrants but loosened by remittances sent home from abroad and higher effect of location dummy on cash cropping incomes.

Human capital is important in explaining income generation in all activities except staple and cash cropping. The coefficient on the secondary education variable is positive and significant for livestock and non-farm activities. These results illustrate the importance of schooling in shaping rural household incomes, similar to Taylor and Yúñez-Naude's (2000) findings from rural Mexico.

CHAPTER FIVE

5. Conclusion and Recommendation

5.1 Conclusion

The foregoing analysis attempted to analyze the determinants and effect of migration on rural household income diversification in East Ethiopia. First, an attempt has been made to identify factors that influence the household livelihood choice to migrate and probability of household activity participation for migrant owner and income diversification for six PA in Hetosa district livelihood strategies using the 2SLS probity model.

This study aimed at shedding light on central characteristics, determining factors and consequences of migration in a rural setting in East Ethiopia. Following the New Economics of Labour Migration to a large extent, the migration decision was seen as a joint strategy of households and individuals to maximize utility.

The results of the analysis on the determinants of migration stand in contrast to previous studies. They nevertheless correspond to a priori expectations regarding the context of Hetosa district. The estimates of the probit model analysis presented in the paper provide evidence that the likelihood of migration does not depend on the wealth position of households. Instead, demographic household factors, as well as education-related variables and the existence of migrant networks are of central importance. This conforms, at least in part, to the established idea that migration is a selective strategy, meaning that access to migration is initially denied to certain households and/or individuals. This selectivity, however, can obviously not be traced back to the wealth endowment of households, but rather to human- and social capital factors. Based on these findings, migration may well be understood as a joint household and individual strategy, which is determined particularly by factors which are assumed to negatively correlate with the future income potential of migrant household members (such as number of dependent in house hold).

Taken together, the analysis in this study provides evidence, that migration in Hetosa district is part of diversification strategies used by households to deal with risks such as shrinking land sizes, insufficient agricultural income or job insecurity in the local non-farm sector. In addition,

migration and remittances seem to be easier accessible than other non-farm activities for households across all levels of wealth, including those of the poorest level.

In a context of missing or incomplete markets, migration activities that absorb household labor while contributing liquidity through remittances may influence both activity choice and activity incomes. The NELM theory points to the important role that migration may play in enabling households to overcome credit and risk constraints and facilitating investments in relatively high return activities. Our analysis controls for activity choice while testing for the effects of migration on activity incomes. It does for types of migration: relatively long-term but high-return inter-continental migration.

Taking the stock of inter-continental migrants at the beginning of the survey year as given and using a two-stage selection model, inter-continental migration is found to play an important role in household income diversification into livestock production and cash cropping activities, positively affecting the two activity. The positive effect of inter-continental migration on livestock production and cash cropping suggests that inter-continental migration enables households to overcome entry barriers resulting from missing and imperfect credit markets. The negative effect on non-farm and insignificant on stable activities is consistent with a missing or imperfect labor market and household labor constraints that create a trade-off between long-term, inter-continental migration and engagement in relatively labor intensive activities at home. Households with intercontinental migrants abandon or choose not to engage in activities that compete for household time while producing returns inferior to those from inter-continental migration.

Effects of livelihood strategies vary across agro climate and village resource endowment. Farm-easy nonfarm strategy worsens inequality in poor, remote and semiarid climatic village where as it improves the inequality for densely populated, better infrastructure access and moderate climatic area. Farm-lucrative off farm livelihood affects these areas in opposite direction. Pursuing mixed farm livelihood improves inequality in all climatic condition. This suggests that the equity effects of livelihood strategy depend on the location, village resource endowment, level of development and on other factors. The overall equity effect of diversification varies across agro climatic areas. The size of inequality is the highest for poor, semi arid (kola) climatic and remote area relative to other areas. The results also indicate that diversification improves

rural income distribution in moderate climatic, densely populated and better infrastructure access village. The equity effect of diversification depends on the livelihood strategy pursued, village resource endowments, agro climatic condition, and agricultural potential of the village.

In combination, these findings offer tentative support for new economics of labor migration theory in Hetosa district and highlight the importance of inter-continental migration in enabling households to overcome entry barriers to high-return but low labor intensity activities. However, negative influences of migration on non-farm and positive but not significant on crop production activities suggest that migration may lead households to diversify less when production activities are labor-intensive.

5.2 Policy Discussion

Integrated Rural Development Policy

Limited agricultural income, seasonality in farming activities, the existence of large family size and demand push factors are important factors for taking up off farm activities. evidences also suggest that households use part of their off farm incomes and remittance for investment in farm and off farm activities, in addition to maintaining consumption, implying that off farm and remittance incomes relieve the credit constraints of rural households. Given that rural households engage in multiple income generating activities, the priority sectors of the government may not yield expected results due to the potential fungibility of resources for other purposes.

It is therefore advisable to have integrated rural development programme in the wider sense of integration, which include the entire ranges of rural production activities creating government institution that create conducive environment and design effective policy that reduces constraints to and expand opportunities for robust livelihood diversification strategies, is essential. In addition, promoting rural micro and small-scale enterprises and including industrial and non-farm business extension services in the current agricultural extension program is necessary to encourage non-farm rural business.

The empirical evidences suggest that migration stock on income diversification is not associated with income. In order to take advantage of diversified livelihood strategies and income diversities offering upward income mobility and better household consumption insurance against income risk, entry barriers to more attractive livelihood strategies must be removed for

smallholder households. These constraints can be explained by private resource endowment, access to public resources and other factors.

Creating rural employment opportunities

The regression result indicates that land scarcity is one of the main factors that derive households to migrate to diversify into activity choice participate for income source strategy. The rapid increase of population in rural areas with growth rate of about three percent per annum has caused not only the shortage of farm land but also expansion into cultivation of marginal land and steeper slopes. It is therefore difficult to increase farm output through increasing land cultivation. Total household labour supply is also significantly responsive to household's choice of diversified livelihood and level of income diversity, suggesting that households with abundant labour forces tend to diversify their livelihoods. The main implication is that measures need to be taken to create employment opportunities rural area in order to absorb increasing rural labour forces due to high population pressure. In addition, emphasis should be given for identification of available diversification opportunities and constraints at community level. Government and NGO need to involve in launching an integrated promotional network, providing technical support, organizing peoples in off farm activities, designing integrated employment creating programme and developing small scale development strategy. This is because the type of livelihood diversification to be promoted varies across communities depending up on village resource endowment, population density, agro climate, agricultural potential, and rural community's tradition, caste and customs.

Increasing household access to credit and information

The analysis indicates that the major source of finance for livestock investment and livestock comes from migrant remittance sending and for nonfarm activities, though limited, are loans from relatives and friends and moneylenders. The respondents also point out that lack of creditors and high interest rate are the major problems in nonfarm credit. The supply of credit to rural households is not more satisfy nonfarm activities and for migrant recipient it is difficult to know modern banking system to withdraw their money they far-out by people and pay higher commission to receive money this needs crucial development of rural financial institutions and awareness of systems of financial

institution i.e microfinance must do within foreign exchanges. The implication of this result is that measures should be taken to strength and expands rural financial institutions that ensure availability of credit to rural households to encourage investment in livestock and non-farm activities. In addition, measures need to be taken to encourage and strengthen informal financial institutions, group lending to raise credit, saving and establish insurance schemes. As to low repayment problem, there are many different models that are success in micro credit provision from which to select and adapt the appropriate one. Recent innovations in this regard include group lending scheme and crop tied contract funding loan provision. The joint (group) lending schemes will certainly offer insights into how rural financial systems can orient their lending's to small scale activities of the groups. This means emphasis should be given to facilitate the spread of long sustaining rural financial system on basis of saving mobilization and loan recovery according to conventional banking criteria.

Rural Infrastructure

Another key ingredient for market development is the availability of infrastructure. Economic development in general and rural development in particular is dependent on the development of infrastructure and supportive services. Investments in infrastructure is required to give rural household capacity to increase output by reducing marketing costs, integrating markets, speeding the flow of information, increasing mobility of people, resource and output, and reducing transaction costs. Resource for construction of new roads; expansion and maintenance of existing roads; improvement of rural travel and transport service may be sizeable. Sharing of initial investment cost with nearest rural communities and covering of complete maintenance cost by nearest rural communities may reduce the reliance on state finance.

Gender Issues

Us we conclude form data all migrants to intercontinental migration are female whose drop their education maximum from secondary school. These migrants are used as household income diversification strategy who's not more advantages form there income which means they serve household generally not them self this make women venerable to vicious circle unemployment and to illegal migration which harm their life. To reduce problem face women migrants gender

issues of district recommended to deal with women in school and making different training on live skill of women is important.

Promotion of Cash crop production

The results also reveal that migration affect cash crop (like potato , kaysir) production income. Given the credit constraints, this implies that migration remit helps household to invest in cash crop production. On the other hand, involvement in cash crop production reduces the likelihood of being in off farm strategy and its income diversity, reflecting that either cash income from sales of commercial crops may be a substitute for income from low return activities or it has significantly higher share of total income relative to other income sources. This suggests that measures should be taken to promote cash crop production which stabilizes the higher food price in the country.

From finding household diversify their income source because of intercontinental migration in to cash crop and livestock production which is affected by seasonality of weather condition and effected by covariant risk in district. To decrease this risk the administration of district mast does on searching of ground water for irrigation and experience sharing with other place in general and individual household with model household in particular is important.

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Annex

Table A1: Variable Description

Variables	Description
Sizeofhh	Size of HH excluding migrants
Sexmigrat	Sex of migrants
singledummy2	Single dummy if migrant status is single (1) otherwise (0)
nofbet152~01	Number of HH member aged between 15-25
Tthsize	Total size of HH including migrants
Nofprschool	Number of adult attending primary school at past time
Totalasset	Total asset of HHH before survey year
Ageofmigrant	Age of migrants
Nodependent	Number of dependent in HH
Ageofhhh	Age of HHH
EDUCHHH	Education dummy of HHH (1) if hhh is finish secondary school
nofinterc~	Number of inter-continental migrants
Landsize	Land size owned by HHH
Cattle	Number of total cattle
farmEQUIPM~T	Farm equipments
pastabsent~s	Past absenteeism migrants but returned to home
locationdu~	Location dummy(1)if woinadaga (0) otherwise
educmigdum~3	Education dummy of migrants when secondary school attending before migration
activitybm~3	Activities of migrants before migration
maledummy2	Male dummy of HHH sex (1) if HHH is male

Table A2: Descriptive Values of Variables Used in Probit Analysis

Variables	Non-migrants		Migrants	
	Mean/%	Std. dev.	Mean/%	Std. dev.
Age				
Female	9.5%		90.5%	
Single	8%		92%	
Equivalent size of households (incl. migrants)				
Number of dependants	1	1	1	1
Number of household members aged 18-25 with high education	0	1	2	1.65
High education level of migrants (dummy)	3.5	0.59	3.5	0.59
Education of household head	3	0.64	3	0.64
Total assets	9245	11423	10841	9233
Land size (hec)	1.68	0.46	1.64	0.48
Number of different crops (on farm)	3	1.36	3	1.36
Migrant networks	0	1	1.45	0.58
activities before migration 2006 (dummy)				

Categories of livelihood diversification

Data was collected on sizes, sources of rural household income and livelihood diversification activities. For the purpose of the analysis we categorized households in to 5 distinct livelihood diversification strategies based on their participation on various activities. Since these activities are too many and households involve simultaneously in different activities, it becomes necessary to categorizes activities into main groups as:

- i. Annual crop production is identified as base livelihood
- ii. Growing permanent crops and generate income from it
- iii. Livestock holding and generate income from it
- iv. Off farm activities categorized into two based on requirements of capital asset and special skills. These are:
 - v. Lucrative off farm activities requires special skill \pm mean capital assets \geq 100 Birr.
 - vi. Easy off farm activities requires simple labour \pm mean capital assets $<$ 100 Birr.

Livelihood strategy	Components
Pure-farm (Pf)	i + ii
Mixed farm (Mf)	i + ii + iii
Farm-easy off farm (Fe)	i + ii+ vi
Farm-lucrative off farm (Fl)	i+ ii + v (+ iii)
Agri- off farm (Ao)	i + ii + vi +v (+ iii)

TableA3: Details of Diversification activities

Livelihood diversification strategy	Diversification activities
Pure farm	Annual crop production, permanent/tree/ crop production
Mixed farm	Pure farm plus livestock rearing
Farm-easy off farm	Pure farm plus farm worker, unskilled worker, domestic worker, food for work, collecting and selling fire wood, dung, collecting and selling straw and grass, shiruba sira, salt trade, shoe shining, mat making, guard, simple food preparing and selling, local beer brewing
Farm-lucrative off farm	Pure farm plus professional worker, labourer, soldier, driver/mechanic, weaving, milling, handcraft, trade in grain (General trade), Trade in Livestock, traditional healer, transport service, Livestock rearing, spinning, tannery, basketry, pottery, barber, farm implement maker, hydromel, bakery hamot sale
Agri-off farm	Combine any two or more activities from above four categories

A3 Questionnaire to House Hold Head on Migrant Remittances of

Income Diversification

The main objective of this questionnaire is to gather relevant data from house hold that will be useful to assess the migrant remittances on income diversification activity how households makes decision on using of migrant remit in hettosa district.

Thank you in advance for your cooperation

Please try to go through all questions carefully and put the answers as accurately as possible

1. Cluster information: Name
Region _____
Woreda _____
Peasant Association _____
Village _____
3. Name of household head _____
4. Household Number without including migrants or absents before two month?

5. Main respondent for survey (if different from head) _____
6. Interviewer _____
9. Ethnic group of the household head. a. Amha b. Oromo c. Tigre
d. Gurage
OTHER
Specify _____
10. Religion of household head
a. Orthodox Christian
b. Catholic
c. Muslim
d. Protestant
e. Other Christian
f. Traditional

SECTION 3: HOUSEHOLD ASSETS

Does anyone in this household currently own any of the following items? If yes, we would like to know when you obtained it and how much it is worth.

	1 Number owned	2 How much did you pay in TOTAL for these purchases (or for the materials used to make it)? (BIRR	3 Origin of the product LOCAL.....1 DOMESTIC..2 IMPORTED..3 HOME MADE.4
HOE(Doma)			
Plough(maresha)			
Hammer(fas or martelo)/saw(megaz)			
Saddle(korcha)			
Axe (Metrabia)			
Beds wooden/metal (alga)			
Table fanos/gas medija			
Chairs/bench			
Radio/tape recorder			
Bicycle			
Jewelry/Gold/wrist watches			
Guns(tebmenja)			
Cellphone			
TV SET			
DVD			

1. During the last five years, did you spend anything on building a new house or improving your house and other buildings? YES No

If yes, obtain details.

Main construction material	How much did it cost in total? BIRR
1 Mud/dung (chika/ebet)	6 Other
2 Wood	10 Bamboo
3 Galvanised iron (korkoro)	11 Satera
4 Stone/Brick/Concrete/Cement	12 Shembeko
5 Thatch (sar)	13 Officho

SECTION 4: NON-FARM BUSINESS HISTORY

Please answer the following questions, related to non-farm business activities DURING THE LAST FIVE YEARS.

DURING THE LAST FIVE YEARS, HAVE YOU OR OTHER HOUSEHOLD MEMBERS EVER BEEN INVOLVED IN THE FOLLOWING ACTIVITIES FOR YOUR OWN OR YOUR HOUSEHOLD'S ACCOUNT

SECTION 5: MIGRATION HISTORY AND REMITTANCES

In this next series of questions, we would like to ask some questions about the migration history of the household. Migration is understood as leaving the area of residence for another area to work, to seek work, to marry, to join another family, to seek education, to join the army, etc. This may be temporary or permanent. Use one line for each migration episode. For example, if the head twice left the area, each episode is a separate line. **-For the HOUSEHOLD HEAD**, ask: **did he/she EVER leave the area of residence for considerable length of time to work, to seek work, to seek education, to join the army or for another reason?** This means we want the entire migration history of the head of the household, which may include moving to the present area of residence; it excludes any moving as a child simply to follow parents. **-For the SPOUSE OF HEAD**, ask: **did he/she EVER leave the area of residence for a considerable length of time to work, to seek work, to seek education, to marry or for another reason?** **-For any of the MEMBERS OF THE HOUSEHOLD, BOTH ON THE HOUSEHOLD ROSTER CARD AND THOSE THAT HAVE SINCE LEFT OR DIED**, ask: **did he/she leave the area IN THE LAST FIVE YEARS to work, to seek work, to marry, to seek education, to join the army or for another reason?**

MIGRATION EPISODE	1 When did ..[NAME]. leave? YEAR	2 Where did they go to?	3 How old was ..[NAME]. when s/he left? YEARS	4 What was ..[NAME]'s level of education when s/he left?	5 What was ..[NAME]. 's main activity before s/he left?	6 Did [NAME]'s leaving affect the work activities of the family or force you to hire labour in?

ID code	7. Why did ..[NAME]. leave? IF LEFT TO LOOK FOR WORK/FOUND WORK	8. If[..]. moved away for work, did [..] have any information about employment or opportunities for employment before leaving? YES...1 NO...2 SOURCE OF INFORMATION (a)	9. For how long was ..[NAME].. there before a job was found? (IN MONTHS); IF STILL UNEMPLOYED/NEVER FOUND WORK..	10. What type of job did [NAME] get? IF [..]. IS STILL AWAY, GIVE THE PRESENT JOB. Type of work (b) Occupation (c)	11. What was/is the monthly income for [..], while [..] was worked at this job? If [..] is still away, give present. (BIRR)

PART II: AGRICULTURE AND LIVESTOCK

SECTION 1: CROP OUTPUT AND SALES,

1. **Have you harvested any crops, including permanent crops in this year?** YES.....1
 No.....2

Crops (a)	2 How much did you harvest?		3 Have you given any part of the harvest to others as Kiray or rent?	
	QUANTITY	UNIT (b)	Quantity	Unity (b)

SECTION 2: LABOUR INPUT AND OTHER INPUT EXPENDITURES

LABOUR INPUT FOR PERMANENT OR SEMI-PERMANENT CROPS:

We would like to know the labour input in the cultivation, planting and harvesting of permanent and semi-permanent crops in this year. FOR ALL CROPS (INCLUDING ANNUAL AND PERMANENT OR SEMI-PERMANENT CROPS).

has the household incurred any expenses related to inputs for crop agriculture, including for the hiring of labour?

Please give details

Type of expenditure	3 Method of payment (c)	4 Total payment in cash (BIRR)	5 If payment in kind, give total payment in kind.		
			Crop (a)	amount	unit (b)
Fertiliser					
Pesticides (incl. fungicides and herbicides)					
Seeds and young plants (chigegn)					
Labour for crop production					
Transport related to crop production and crop sale					
Rent for land					
Rent for oxen					
Other _____ (specify)					

SECTION 3: LIVESTOCK OWNERSHIP

Can you tell us about your herd of livestock at present?

Type of Livestock	1 Number owned and present at your farm	2 If you would sell one of the ..[.]. today, how much would you receive from the sale? BIR	3 Number not owned but cared for	4 Number owned but away	5 During the last four months, how many were born?
bulls/oxen					
young bulls					
Cows					
Heifer					
Calves					
Sheep					
Goats					
Horses					
Camels					
donkeys/mules					

SECTION 4: NON-FOOD EXPENDITURE**Has the household purchased any of the following non-food items?**

Items	Total expenditure since our last visit BIRR
Clothes/shoes/fabric for MEN	
Clothes/shoes/fabric for WOMEN	
Clothes/shoes/fabric for BOYS	
Clothes/shoes/fabric for GIRLS	
Kitchen equipment (cooking pots, etc.)	
Linens (sheets, towels,blankets)	
Furniture	
Lamp/torch	
Transport	
Building materials	
Ceremonial expenses	
Contributions to IDDIR	
Donations to the church	
Taxes and levies	
Compensation and penalty	
Voluntary contributions	
Modern medical treatment and medicines	
Traditional medicine and healers	
School fees	
Other educational expenses (exercise books, pens, pencils, uniforms, maintenance, club fees, etc)	
Cigarettes, tobacco, suret, gaya	
Alcoholic beverages	
Chat	
How much you pay in one week for food	

Did you accept remittance form household migrants? Yes No

if yes how much your household is accept in this year?

What you do init