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Determinants of Internal and International Migration in Ethiopia

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Determinants of Internal and International Migration in Ethiopia

Berhe Mekonnen Beyene[1]

August, 2011

Abstract

I studied the determinants of migration from urban Ethiopia to other countries, to rural areas and to other urban areas. In general, the result differs by migration type. For international migration, wealth and network variables are found to be important. It is mainly those households who have the network and/or the capacity to finance migration who send household members abroad. Human capital variables like age and education matter only for the two internal migrations. While the social capital theory has strong explanatory power for international migration, the human capital theory is important for internal migration. The new economics of labor migration (NELM) is important for all migration types underscoring the importance of the family as a decision unit.

Keywords: urban, rural, international, migration, Ethiopia

JEL Classifications: F22, O15, R23

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1. Introduction

Studying the determinants of migration helps to know how migrants are selected from the whole population which is important to understand the potential effect of migration on the place of origin. Though some variables seem to have consistent effect, the available studies in general show that there is variation depending on the context and type of migration considered. Most empirical studies are about international migration and concentrate in Latin-America. There are very few studies in Africa.

In this paper I studied the determinants of migration from urban Ethiopia to other countries, rural areas and other urban areas. While the main objective is to identify the factors that determine the likelihood of migration to each destination, the paper also attempts to assess the predictive power of the different migration theories. The international migration, which is the main focus of the study, gives additional evidence to the existing literature from a relatively less studied region[2]. Internal migration in developing countries is considered to be a rural - urban phenomenon and hence there are no studies on urban to urban or urban to rural migration and this paper gives new evidence in this regard[3]. In Ethiopia, the volume of urban to urban migration is bigger than rural to urban migration while urban to rural migration is also not trivial (EEA, 2007). The available few studies in Ethiopia deal with rural out-migration and none of them study international migration (Markos and Gebre-Egziabher;

[2] To my knowledge there is no international migration study in Ethiopia

[3] Traditionally, migration studies, both theoretical and empirical, have been biased towards rural-urban migration because of the belief that migration is mainly derived by the duality of two regions. But, migration can also occur between similar sectors like rural to rural for reasons similar to that of rural to urban migration (Lucas, 1997). Existing evidence from Mexico (Mora and Taylor, 2006), Nepal (Bohra and Messay, 2009), and Ethiopia (Markos and Gebre-Egziabher, 2001) show that rural to rural migration is also important. By the same token urban to urban and urban to rural migration can also be important in some countries.

Seid, 2007).

The rest of the paper is organized as follows. A brief review of the theoretical and empirical literature on the determinant of migration is given in section two. Section three presents the theoretical framework and the econometric method used. The Ethiopian context, data and summary statistics are provided in section four. Section five is devoted to analysis and discussion. The last section is summary and conclusion.

2. Review of Literature

Theoretical Review

The Human Capital (Neo-Classical) Theory

For the human capital theory, migration occurs as a result of individuals' attempt to maximize their life time income by relocating to a new place. In doing so, they make a cost benefit analysis and decide to migrate if their expected discounted net-benefit from migration is positive. More specifically, they compare the net-benefit from higher wage at the destination with the associated cost of relocation. As such, migration is considered as an investment to get higher income in the future (Sjaastad, 1962; Lee, 1966). The Harris-Todaro model (Todaro, 1969, Harris and Todaro, 1970) is an example of the human capital model where difference in expected earnings between urban and rural areas is the driving force for migration.

Differences in individual characteristics lead to differences in expected benefit and cost of migration. Hence, migration could be beneficial for some and not for others. It is believed that those who are younger, more educated, singles, and males are more likely to migrate as they are expected to extract the highest benefit from migration and/or their cost of

migration is supposed to be lower (Navratil and Doyle, 1977, Bowles, 1970)[4]. Despite the fact that the human capital theory has been very popular, it is now well accepted that it has serious limitations. It abstracts from other important factors of migration other than wage difference and implicitly assumes that markets, most notably credit and insurance markets are perfect. Furthermore, like any neo-classical model it assumes that the decision to migrate is made at individual level with no role given to the family.

The New Economics of Labor Migration (NELM)

The NELM is developed to overcome the weaknesses of the human capital model mentioned above. It shifts the decision unit from the individual to the family. It is the family who decides whether an individual should migrate or not in such a way that the family objective function is maximized. Not only does the NELM change the unit of analysis from the individual to the household, it also brings about new motives for migration other than maximizing income. Among other things, households want to minimize risk by diversifying their source of income. To this end, they send some member of the household to another place where income is not correlated or negatively correlated with income at the origin. Hence, the migrant member will support the family during bad times (like crop failure) while the family covers her migration cost and also supports her during bad economic conditions at the destination (Stark and Bloom, 1985; Stark and Lucas, 1988; Lauby and Stark, 1988; Taylor, 1999).

Households may also have a demand for capital, for example, to modernize their agriculture or launch an off-farm enterprise and in the absence of well-functioning credit

[4] But the effect of each individual characteristics depends on how it is associated with cost and benefit of migration. For example, the hypothesis that education increases migration propensity is based on the assumption that education is rewarded more at destination. But, if the opposite holds true say due to low degree of skill transferability between the origin and the destination, human capital theory would predict the opposite (Masay et al, 1993).

markets, migrant members can serve as sources of capital[5]. The NELM also puts the issue of migration in a broader context and posits that households care about their relative position (deprivation) in their community. I.e., they send members to another place to improve their relative position in the community (Stark, 1984; Sark and Taylor, 1989; 1991).

Haas (2007) gives an extensive summary of evidences that migration is used as a mechanism to insure households against income volatility and provide access to financial capital. Though the NELM model has many noble contributions for the understanding of migration it is also criticized for totally ignoring the role of individuals in the migration process. While the situation of the household might affect the likelihood of individuals' migration, it is also worth noting that the individual can have an important role in the decision to migrate (Hoddinot, 1994).

The Social Capital (Network) Theory

For the social capital theory migration is caused by social networks between the place of origin and the destination. Migration networks are considered as a social capital[6] where members of the network have the right to get information and other supports that makes migration more beneficial by increasing the gains and lowering the costs. Friends and relatives at destination serve as sources of information about the opportunities, risks and challenges associated with migration. They also help new migrants to settle in easily by offering housing and other supports. Furthermore, the presence of friends or relatives at destination makes the psychic cost of moving to a new place lower. Thus, migration becomes

[5] But, the result also depends on the ability of households to finance migration costs. For example, even if those households who are credit constrained may consider migration as a source of capita and hence will have higher propensity to send a member to another area, the same reason may make them unable to finance the cost of migration. The net effect will depend on the extent of credit constraint and the cost of migration.

[6] For the definition and detailed discussion about social capital refer to Coleman (1988) and Bourdieu (1986)

more attractive for individual with networks at destination. Networks could also be at a higher level like community. Individuals from communities that are strongly connected with the destination have easy access to information and will get support after they migrated(Taylor, 1986; Massey 1990; Massey and Espinosa, 1997)[7].

Networks at different level are important for any type of migration and more so when more uncertainties and difficulties are involved. Thus, the importance of networks is higher for cross-border migration than for migration within one country like rural-urban migration. Even for international migration, social network is more important if migration is illegal and involves higher risk.

Empirical Review

Empirical studies on the determinants of migration can be categorized as internal or international. Some studies deal with internal migration only, mainly from rural to urban migration (Garip, 2006; Hoddinott, 1994). Internal migration could also be interregional with in a country (see for example Thomas G et al, 2009). Others study international migration with special emphasis on migration from less developed to developed countries (Sharma and Zaman, 2009; Gries et al, 2009). It is not also uncommon to find both internal and international migration in the same study (Lindstrom and Lauster, 2001; Mora and Taylor, 2005; Poveda, 2007; Bohra and Massey, 2009).

Consistent with the prediction of the human capital theory, there is some evidence that education increases migration while age has a negative effect. Males and unmarried individuals also have higher probability of migration (Garip, 2006; Mora and Taylor, 2005;

[7] A survey on social capital theories is provided by Lucas (1997) while Radu (2008) given an extensive empirical evidence that migration network has robust positive impact on future migration

Poveda, 2007). But, the result in general is mixed particularly for age (Gries, et al 2009; Bohra and Massey, 2009; Vijverberg, 1993) and there are exceptions for marital status (Mora and Taylor, 2005). The effect of gender seems to be robust though there are some exception for internal migration which found that females migrate more than males (Bohra and Massey, 2009). The effect of education is positive in most studies though it is insignificant in a bunch of them (Sharma and Zaman, 2009; Gries et al, 2009; Poveda, 2007) and a negative effect is found by Lindstrom and Lauster (2001).

There is evidence that household and social network variables are also important in explaining migration. Garip (2006), and Lindstrom and Lauster (2001) found that number of children has negative effect on migration probabilities. Sharma and Zaman (2009) found wealth to have positive effect on international migration while Mckenzie and Rapoport (2007) found that international migration from Mexico to the USA increases with wealth first and decreases after some level. And, migration network both at household and community level is found to have a positive effect both on internal and international migration by a number of studies including Garip (2006), Lindstrom and Lauster (2001), Taylor and Mora(2005), Bohra and Masay (2009) and Pavedo (2007).

Though some variables seem to have consistent effect, there is variation depending on the context of the study and type of migration. In general, networks are found to be important by many studies and more so for international migration. Most of the international studies are concentrated in Latin America and there are little studies in Africa in general and in Ethiopian in particular. The available few studies in Ethiopia deal with internal migration.

Markos and Gebre-Egziabher (2001) studied the determinants of rural out migration using data collected from north Ethiopia. They found that age initially has a positive and then a negative effect on the probability of migration while males have lower probability of

migration compared to their female counterparts. In terms of relationship with the household head, children of the head have lower probability of migration compared with other relatives. Education of household head is also found to have a positive effect. Wealth, as proxied by house quality has a negative effect on migration while coming from a community that is more vulnerable to food crisis increases the odds of migration. Recently, Seid (2007) studied the determinants of rural-urban migration in Ethiopia using a sample of 1000 individuals collected from the Amhara regional state. Estimated income differences between rural and urban areas and education have positive effects while age initially has a positive effect and at old ages it has a negative effect. Land per labour ratio has a negative effect. Unlike the above studies, the current paper studies migration from urban areas to other countries, to rural areas and to other urban areas. More focus will be given to the international migration.

3. Theoretical Framework and Method of Analysis

Theoretical Framework

The decision whether an individual should migrate or not is made by the household [8] which has *n* members each with her own earning. Migration is opted if it increases household welfare which is given by the sum of the utilities of all members including the potential migrant, i.e, the household cares equally about everybody's utility and hence attaches the same weight. Utility is the same for everyone and is a function of consumption of commodity *x* whose price is assumed to be unity. In the case of no migration, the welfare of the household is given by:

[8] The household head or a household council may act as a social planner and decide whether an individual should migrate or not.

$$V_0 = \sum_{i=1}^{n} U(x_i), \;\; U_0^{'} > 0, \; U_0^{''} < 0$$

$$\text{subject to: } \sum_{i=1}^{n} x_i = \sum_{i=1}^{n} y_i = n y_0 \tag{1}$$

where x_i and y_i are respectively consumption and income for individual i while y_0 is average income earned by all household members (including the potential migrant). Since utility is the same for all household members and marginal utility decreases with consumption, the optimal allocation will be to divide total consumption (which is equal to total household income) equally, i.e, every body will consume the same amount $x_0 = y_0$. Thus, the household welfare will be:

$$V_0 = nU(y_0) \tag{2}$$

If individual *j* migrates she earns wage *w* and send remittance *r* back home. The remaining household members continue earning the same income. Migration entails cost *c* which includes inter alia transportation and information costs and is covered by the remaining household members. Like before, the remaining household members share consumption equally and the household welfare will be:

$$V_1 = (n-1)U(x_1) + U(x_m)$$

$$\text{subject to:} \tag{3}$$

$$(n-1)x_1 = \left(\sum_{i \neq j}^{n} y_i \right) + r - c = (n-1)y_1 + r - c$$

$$x_m = w - r$$

where x_1 is consumption by each of the remaining household members, y_1 is their average earning and x_m is consumption by the migrant. Substituting the budget constraints in to equation (3) yields:

$$V_1 = (n-1)U\left(y_1 + \frac{r-c}{n-1}\right) + U(w-r) \qquad (4)$$

And, the difference in household welfare under migration and no migration, ΔV will be:

$$\begin{aligned}\Delta V &= V_1 - V_2 \\ &= (n-1)U\left(y_1 + \frac{r-c}{n-1}\right) + U(w-r) - nU(y_0)\end{aligned}$$

which can be re-written as

$$\Delta V = (n-1)\left[U\left(y_1 + \frac{r-c}{n-1}\right) - U(y_0)\right] + \left[U(w-r) - U(y_0)\right] \qquad (5)$$

The first part of equation (5) represents the gain for the remaining household members from migration which is the difference between their utility under migration and no migration. Their utility under migration depends on their average earning, remittance[9] and cost of migration while their utility when there is no migration is a function of average earning of all household members. The second part of equation (5) represents the benefit for the potential migrant. Her utility when she migrates is a function of her wage abroad and the remittance she sends back home while her utility when she does not migrate is a function of the average earning like the utility of the other household members. Thus, ΔV can be put as:

$$\Delta V = f(y_1, y_0, r, c, w) \qquad (6)$$

Define a dummy variable M which represents migration as follows:

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[9] If the household decides on *r*, it will set it in such a way that the migrant and the remaining household members consume the same amount, i.e,

$y_1 + \frac{r-c}{n-1} = w - r \Rightarrow r = \frac{(n-1)(w-y_1)+c}{n} \Rightarrow x_1 = x_m = \frac{(n-1)y_1 + w - c}{n}$ and equation (5) becomes:

$$\Delta V = n\left[U\left(\frac{(n-1)y_1 + w - c}{n}\right) - U(y_0)\right]$$

$$M = \begin{cases} 1 \text{ if } \Delta V > 0 \\ 0 \text{ otherwise} \end{cases} \qquad (7)$$

The probability of migration will be:

$$P(M = 1) = P(\Delta V > 0) \qquad (8)$$

Anything that affects ΔV will affect the probability of migration. Below, I discuss the effect of the different factors on ΔV.

Home earnings:

What happens to ΔV when the migrant's earning at home, y_j increases? In equation (5) above, y_j inters through y_0, i.e, when y_j increases y_0 will also increase. Thus, the effect on ΔV due to a small change in y_j will be:

$$\frac{\partial \Delta V}{\partial y_j} = \frac{\partial \Delta V}{\partial y_0} . \frac{\partial y_0}{\partial y_j} = \left[-(n-1)U'(y_0) - U'(y_0) \right] \frac{1}{n} = -U'(y_0) < 0 \qquad (9)$$

Equation (9) shows if the home earning of the potential migrant increases, migration becomes less attractive. This is so because utility under no migration increases both for the potential migrant and the remaining household members. Thus, the propensity to send an individual member decreases with her earning at home.

From equation (5) it is clearly seen that when $r = c$, i.e, the migrant sends money which is barely enough to cover the migration cost, migration will be preferred from the remaining household members' point of view if and only if $y_1 > y_0$ which will be the case if $y_j < y_0$. This implies, even with out remittance, sending some one who earns less than the average earning of the household is beneficial as far as her utility does not decrease much after migration. In other words, if the individual consumes more than what she contributes to

household income it is better to let her migrate.

Now, let me turn to the effect of change in the earnings of the remaining household members. Both y_0 and y_1 will be affected but the change will be bigger for y_1. The change in ΔV due to a mall change in $y_i \forall i \neq j$ will be:

$$d\Delta V = \frac{\partial \Delta V}{\partial y_0} + \frac{\partial \Delta V}{\partial y_0}\frac{n-1}{n} = (n-1)\left[U'\left(y_1 + \frac{r-c}{n-1}\right) - U'(y_0)\right] \qquad (10)$$

The sign of $d\Delta V$ depends on whether the consumption for the remaining household members is higher or smaller under migration than under no migration. If consumption is higher under migration, i.e, $x_1 > x_0$, then:

$$y_1 + \frac{r-c}{n-1} > y_0 \Rightarrow d\Delta V < 0 \qquad (11)$$

Thus, if migration increases consumption for the remaining household members, increase in their earnings makes migration less attractive. The opposite will be true if consumption is lower under migration. If the potential migrant's earning increases as well[10], change in ΔV becomes:

$$(n-1)U'\left(y_1 + \frac{r-c}{n-1}\right) - nU'(y_0) \qquad (12)$$

Equation (12) shows that increase in the earning of the potential migrant makes the change in ΔV smaller. When only the earnings of the other members increase it is sufficient to have $x_1 < x_0$ for the change in ΔV to be positive or for migration to be more attractive. But, when the potential migrant's earning also increases, x_1 has to be sufficiently small for the change in ΔV to be positive . This implies that migration is less likely to be pursued when everybody's home earning increases than when only the earnings of the remaining household members

increase[11].

Remittance

Change in ΔV due to a small change in remittance, *r* is given by:

$$\frac{\partial \Delta V}{\partial r} = U'\left(y_1 + \frac{r-1}{n-1}\right) - U'(w-r) \qquad (13)$$

If $x_m > x_1$, i.e, under migration, the migrant consumes more than what the remaining household members consume each, we will have:

$$y_1 + \frac{r-1}{n-1} < w - r \Rightarrow \frac{\partial \Delta V}{\partial r} > 0 \qquad (14)$$

Thus, if $x_m > x_1$, increase in remittance makes migration more attractive.

Cost of migration

The effect of change in cost of migration, *c* is straight forward and is given by:

$$\frac{\partial \Delta V}{\partial c} = -U'\left(y_1 + \frac{r-c}{n-1}\right) < 0 \qquad (15)$$

As cost of migration increases, the benefit from migration decreases because consumption of the remaining household members decreases. It is established in the migration literature that cost of migration is a decreasing function of the degree of social network with the destination. Thus, *c* will be lower and hence ΔV higher for households with stronger networks. Cost of migration also depends on wealth. In developing countries, borrowing money to finance migration is difficult or expensive. Wealthier households are able to cover the cost by

[11] If the household gets a lump sum income say a rent from an extra house it owns, the effect will be similar to that of increase in the earnings of the remaining household members. On the other hand, increase in the earnings of all household members including the potential migrant could be a result of increase in a fixed asset like land or equipment which is used for production as discussed by Mckenzie and Rapoport (2007).

themselves or borrow money at a cheaper cost, i.e, cost of migration decreases with wealth. But, this cost advantage of wealth diminishes or stops after a certain level. Hence, noting that wealth tends to increase earnings at home which deems migration less attractive as discussed above there may be a *U* shaped relationship between wealth and migration.

Wage

The effect of change in the wage the migrant earns at destination is also straightforward and is given by:

$$\frac{\partial \Delta V}{\partial w} = U'(w - r) > 0 \qquad (16)$$

This implies that migration becomes more attractive as wage increases because it increases the utility of the migrant. Increase in wage may also increase the utility of the other household members by increasing remittance which will make migration even more attractive.

Econometric Method

In the theoretical part it is assumed that there is only one type of migration. But, in the empirical part three different migration types are considered namely migration from urban areas to other countries, to rural areas and to other urban areas. Thus, if more than one type of migration improves household welfare the one with the highest welfare gain will be chosen. Another point which is worth mentioning is the fact that the variables that affect the probability of migration are either unobserved or difficult to measure. Remittance, cost of migration and wage of the migrant at destination are not observed in the data while it is difficult to precisely measure home earnings of the potential migrant and the other household members. Thus, I follow a reduced form approach where individual and household level variables that affect the structural variables are included.

Define the welfare of the household when it sends individual *i* to destination *j* as:

$$V_{ij} = X_i^{'}\beta_j + \varepsilon_{ij}, \quad i=1, \ldots, n \text{ and } j=0,1,2,3 \tag{17}$$

where X_i is a vector of co-variates which includes individual, household and location variables, β_j is a vector of coefficients to be estimated for choice(destination) *j*, and ε_{ij} is the error term for individual *i* and choice *j*. Defining the four states by y = 0, 1, 2 and 3 respectively for no migration, international migration, rural migration and urban migration, the probability that individual *i* migrates to destination *j* will be:

$$\begin{aligned} P_{ij} = P(y_i = j) &= P(V_{ij} > V_{ik}), \forall k \neq j \\ &= P\left(X_i^{'}\beta_j + \varepsilon_{ij} > X_i^{'}\beta_k + \varepsilon_{ik}\right), \forall k \neq j \\ &= P\left(\varepsilon_{ik} - \varepsilon_{ij} < X_i^{'}\beta_j - X_i^{'}\beta_k\right), \forall k \neq j \end{aligned} \tag{18}$$

and the multinomial density function for individual *i* can be given as:

$$f(y_i) = \prod_{j=0}^{3} P_{ij}^{y_{ij}} \quad \text{where} \quad y_{ij} = \begin{cases} 1 & \text{if } y_i = j \\ 0 & \text{otherwise} \end{cases} \tag{19}$$

The likelihood and the log-likelihood functions for a sample of *N* individuals will respectively be:

$$L = \prod_{i=1}^{n}\prod_{i=0}^{3} P_{ij}^{\,y_{ij}} \text{ and } \ell = \ln L = \sum_{i=1}^{n}\sum_{i=0}^{3} y_{ij} \ln P_{ij} \tag{20}$$

and, in the multinomial logit model, taking the no-migration case as a reference we have:

$$P_{ij} = \frac{e^{X_i^{'}\beta_j}}{1 + \sum_{j=1}^{3}\left(e^{X_i^{'}\beta_k}\right)} \text{ ; j=1,2,3} \tag{21}$$

The estimation is made using maximum likelihood method.

4. Ethiopian context, Data, and Summary statistics

Ethiopian Context

With a population of about 85 Million people, Ethiopia is the second most populous country in Africa following Nigeria. Despite the remarkable economic growth recorded recently, Ethiopia still remains to be one of the poorest countries in Africa. The proportion of the population living below USD 1.25 is 39% (WB, 2010a). In urban areas, which accounts for less than 20% of the population, unemployment is the most serious problem while landlessness and draught are common problems in rural Ethiopia. In light of these problems migration both within the country and abroad is considered as a viable mechanism to get out of poverty.

With in Ethiopia, all forms of migrations are common. Based on the 1999 labor force survey conducted by the Ethiopian Central Statistics Authority, more than 2.3 million people of the total 36 million people aged 10 years and above migrated with in Ethiopia[12]. Rural to rural migration was the dominant one accounting for 37.3% of the total migration. The next most important type of migration was urban to urban with 24% while rural to urban and urban to urban migrations accounted for 22.8% and 16% respectively. This shows that rural to rural migration is the most important one in Ethiopia despite the usual belief that migration in developing countries occurs mainly from rural to urban areas. Migration within urban areas and from urban to rural areas is also important. About 55% of the migrants were females showing that females are more mobile (EEA, 2007).

Though international migration is by far difficult compared to internal migration due to high cost of migration (transportation and administrative costs like visa processing) and the

[12] A migrant is defined as someone who lived in her current place for less than five years

tough legal requirements, many people also migrate abroad with the hope of finding better employment opportunity. An estimated 0.6 million Ethiopians (0.7% of the total population) live abroad (WB, 2010b). International migration has recently become more important as many people start to migrate to the Middle East, Europe and the US. Migration to other African countries like the South Africa is not also uncommon.

Due to geographic proximity and the nature of the labor market, the Middle East is one of the common destinations for Ethiopian migrants, especially for young females who work as domestic workers. It is common for young people to go to the Middle East by illegal means which involves huge risk both on their way and after they reach their destination. Recently, there are more and more travel agencies who recruit and send workers to the Middle East legally. Between 2001 and 2006 about 45,000 individuals were recruited and sent to the Middle East by private and government agencies. The majority of them are females (EEA, 2007).

The working environment in the Middle East is very hostile and the emigrant workers face different challenges including physical abuses by their employers who are most of the time private families. There are evidences that some of them go back to Ethiopia with serious mental and physical illness. The problem is more serious for those who migrate through illegal means. The salary is also low by international standard (Kebede, 2002; Fransen and Kuschminder, 2008; Anbesse et al, 2009). All the problems faced by the migrants notwithstanding, many young Ethiopians (especially those who come from low income households) still consider migration to the Middle East as a viable means to help themselves and their families.

Data source

The data used for the study comes from the 2000 and 2004 rounds of the Ethiopian Urban Socio-economic Survey (EUSS) conducted by the Department of Economics, Addis Ababa University. The survey covers seven major urban centers which are believed to constitute a representative sample of the urban population. These include the capital city, Addis Ababa, and six other big towns from different parts of the country namely Awassa, Bahir Dar, Dessie, Dire Dawa, Jimma, and Mekelle. The sample includes about 1400 households and it was allotted to the seven urban centres proportional to their population size. Accordingly, more than half of them were drawn from Addis Ababa which has a population of around three million and the rest were distributed among the six towns proportional to their population size. The sub-samples in each town were further disturbuted to sub cities proportionaly and the housholds were finally selected randomly.

The questionnaire includes detailed information on household composition and individual characteristics including education, age, gender, marital status, and relationship with household head among other things. Even if the survey was not collected for migration purposes, it has questions related to migration. More specifically, households were asked if any one left abroad, to rural areas or to other urban areas since the last survey. The 2004 data is used to define the dependent variable which is the likelihood of migrating to any of the three destinations while the explanatory variables are taken from the 2000 survey. The attrition rate between the two survey years was very high. As a result, only 981 households and 3884 adult individuals are included in the analysis down from 1400 and 6020 respectively[13].

[13] The high attrition rate is a limitation of the data and is mainly due to the poor recording of the addresses of the

Description of Explanatory variables

The model presented in section three shows that migration is a function of the earning of the potential migrant (at home and destination), earnings of the other household members, cost of migration and the remittance the migrant sends back home. Since information on these variables is not readily available from the data, a number of individual and household level variables that potentially affect them are included in the regression. Though the model is based on the NELM in the sense that migration is a household decision attempt will also be made to test the various predictions of the different theories and assess their relative explanatory power.

The first group of variables include individual human capital and demographic variables namely age, education, gender and marital status. Age is a continuous variable while dummies for high school graduates, unmarried individuals and females are included. Individual characteristics affect the migrants earning at home and at destination. They also affect the ease which she can migrate. Earnings at destination in turn affect remittance amount. Some individual characteristics may also affect remittance directly.

The human capital theory predicts that education affects migration positively because it increases income at destination and makes information about migration easily available. Education might also increase earning at home. Thus, it is not clear a priori whether it will increase or decrease migration. Even if the available empirical evidence suggests that migration increases with education, there are also studies that found either insignificant or negative effect of education (Zhao, 1999; Lindstrom and Lauster, 2001). Age is expected to affect migration negatively because younger individuals have longer period of life to benefit

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households which made it difficult to trace them. This a common problem in developing countries.

from migration compared to older people. Thus, given that migration cost is more or less fixed it is better from the household's point of view to send younger members. Younger individuals also tend to have less social commitment and hence can easily relocate to a new place. For similar reasons, unmarried individuals are expected to have higher likelihood of migration. Though females are generally less mobile than their male counterparts, in some studies they are found to be more mobile (see for example Bohra and Massey, 2009 in Nepal and Markos and Gebre-Egziabher in Ethiopia). If females earn less at home, it will be better to send them abroad.

Relationship with household head is also included to capture the opportunity cost of migration in light of different family responsibilities. Dummies for spouses of heads, sons/daughters of heads and extended household members are included where household heads are the control group. Heads and spouses have bigger role at home which increases the opportunity cost of their migration. Thus, they are likely to have lower probability of migration compared to sons/daughters and extended household members.

As proxies for household level earnings (and consumption), household level human capital and demographic variables are included. Number of children, male adults, female adults and high school graduates[14] are included. More children is associated with lower household income which makes migration more desirable. But, more children also implies more demand for labour at home which might lower migration probability. Additional number of adult household member represents higher labor supply and hence could be associated with higher probability of migration. Households with more high school graduate members may have higher income at home and there will be less demand for migration.

[14] The numbers of male adults, female adults and high school graduates do not include the head and individual(the potential migrant)

Given that the household head usually has a special role of satisfying the need of the household it is also important to include household head characteristics. Education, age and gender of the head are included. Household income is expected to increase with education and age of the head which makes migration less desirable. Female headedness is often associated with low household income which might make migration more attractive.

Next, wealth which is an important determinant of cost of migration is included. Since it is difficult to measure wealth from the data an index is constructed using the principal component method. Ownership of major consumer durables and housing conditions are included in the computation. A summary of the variables included in the computation of the asset index is given in table 5 in appendix. For a discussion on and application of the principal component method as a measure of wealth refer to Vyas and Kumaranayake (2006), Filmer and Pritchett (2001); and McKenzie (2005). Wealth is expected to have a positive effect on international migration because of the need for liquidity to cover migration cost which can only be met by the better-off households. Wealthier households may also have lower propensity to send members abroad. Thus, there may be an inverted U shaped relation ship between wealth and the probability of migration and to capture this possible non-linear effect, wealth squared is included. For internal migration the liquidity constraint effect will not be strong since cost of migration is low. Hence, if wealth has any effect on internal migration it will most likely be negative.

As posited by the social capital theory, network is also an important determinant of migration. Households with networks at destination get information about migration easily. It will also be easier for the migrant to settle in after she migrates. A host of variables are included to measure the effect of networks. A dummy variable showing whether someone from the household has migrated abroad in the past is included as a proxy for household level

network. Having a member of the household abroad will increase the probability of international migration. Ethnicities of household heads are also included as proxies for social network in a broader sense. Ethnicities are common ways of forming social capital where members of the same ethnic group share information and resources of different kind. Thus, migration is easier for individuals from ethnicities with more past migrants. Dummies for the four major ethnicities namely *Amhara*, *Oromo*, *Tigre*, and *Gurage* are included where the control group will be other ethnic groups. Religion can also be a basis for social capital formation. Though it is not common to include religion as a determinant of migration it may be important in the Ethiopian case especially for international migration where the Middle East which is a predominantly Islam region is a main destination. Muslim households have better network with the Islam world than non-Muslim households. Dummy for Muslim households is included and the rest which basically includes Christians will be the control group.

Finally, a dummy for Addis Ababa is included to capture the effect of location. It is expected that being in Addis Ababa increases international migration while it decreases internal migration. People in Addis Ababa can easily get information about international migration and transportation and other related costs will also be lower. But, Addis Ababa being the capital city, has better employment opportunity and hence less people will migrate from Addis Ababa to rural areas and other urban areas. An interaction term between Addis Ababa and high school education is also included to see if the effect of education varies for people from Addis Ababa and other cities. A complete list of the variables and their description is given table 1.

Table 1: Description of Explanatory Variables

Variables	Description
Individual Characteristics	
high school	dummy for those with high school certificate
age	number of years
male	dummy for males
never married	dummy for those who have never been married
relationship with household head (control group: household heads)	
spouse	dummy for spouses of household heads
son-daughter	dummy for children of household heads
extended	dummy for extended household members
Household Head Characteristics	
high school head	dummy for heads with high school certificate
age head	age of household head in years
male head	dummy for male household heads
Household Level Human capital and demography	
children	number of household members aged below 15
male adults	number of male household members aged 15 and above
female adults	number of female household members aged 15 and above
high school members	number of household members who finished high school
Wealth and network	
wealth	wealth index constructed using PC method
international migrant	dummy for households who had international migrant member between 1997 to 2000
muslim	dummy for Muslim households
ethnicity (control: other ethnics)	
amhara	dummy for *Amhara* household
oromo	dummy for *Oromo* household
tigre	dummy for *Tigre* household
gurage	dummy for *Gurage* household
Regional Dummy (control: other towns)	
addis ababa	dummy for Addis Ababa

Summary Statistics

A summary of the explanatory variables for the different sub-samples and for the whole sample is given in table 2. The total sample includes 3884 individuals aged 15 and above in 2000 and for whom migration information in 2004 was available. Of the total sample of 3884 adults, 70(1.8%), 66(1.7%) and 120(3.1%) have respectively migrated abroad, to rural areas and to other urban areas. The total number of individuals who migrated adds up to

256(6.6%). The proportion of individuals who migrated abroad is small reflecting the fact that international migration is expensive for many households in Ethiopia due to the absence of well functioning credit markets.

Table 2: Summary Statistics

Variables	International Migration	Rural Migration	Urban Migration	Migration	No migration	Whole sample
high school	.333	.215	.376	.323	.285	.288
age	23.23(9.66)	27.63(13.86)	22.87(7.72)	24.24(10.36)	33(16.02)	32.45(15.8)
female	.576	.541	.533	.547	.544	.545
never married	.894	.661	.895	.833	.556	.574
head	.061	.081	.048	.060	.263	.251
spouse	.015	.032	.019	.021	.140	.132
son-daughter	.758	.435	.629	.614	.472	.481
extended	.266	.451	.305	.305	.125	.135
high school head	.257	.182	.300	.258	.201	.205
age head	48.56 (16.31)	50.59 (15.86)	49.09 (13.43)	49.33 (14.86)	49.34 (15.09)	49.34 (15.08)
female head	.343	.385	.392	.376	.370	.370
children	1.34(1.28)	1.5(1.58)	1.49(1.33)	1.45(1.385)	1.69(1.47)	1.68(1.47)
male adults	2.57(1.62)	3.11(3.12)	2.42(1.33)	2.637 (2.02)	2.34(1.52)	2.36(1.56)
female adults	2.74(1.18)	2.35(1.58)	2.59(1.28)	2.57(1.34)	2.73(1.37)	2.72(1.36)
high school members	1.66(1.68)	.818(1.05)	1.4(1.49)	1.32(1.474)	1.29(1.51)	1.29(1.51)
wealth	1.95(1.19)	1.33(.96)	1.63(.98)	1.64(1.06)	1.5(1.05)	1.51(1.05)
wealth squared	5.18(6.22)	2.69(3.59)	3.6(4.48)	3.80(4.89)	3.34(4.98)	3.37(4.98)
international migrant	.157	.015	.033	.063	.053	.053
muslim	.171	.154	.075	.122	.116	.117
amara	.514	.348	.475	.453	.484	.482
oromo	.143	.167	.158	.156	.196	.193
tigre	.043	.091	.167	.113	.081	.083
gurage	.214	.288	.108	.184	.147	.150
other ethnics	.029	.076	.083	.066	.064	.065
addis ababa	.886	.576	.458	.605	.704	.7
No of observations	70(1.8%)	66(1.7%)	120(3.1%)	256(6.6%)	3628(93.4)	3884

Note: Standard Deviations for continuous variables are given in parenthesis

As can be seen from table 2, there is big difference for some of the explanatory variables across the different sub-samples. Larger proportion of urban (37.6%) and

international (33.3%) migrants have at least completed high school compared to non-migrants (28.5%), while rural migrants have the lowest proportion of high school graduates (21.5%). This shows that urban and international migrations are more common among the educated. All migrant groups are on average younger than non-migrants; the average age for the whole sample is 32.45 while it is 24.24 for all migrants. The proportion of females is slightly higher for international migrants compared to the other groups. The share of females for the whole sample is 54.5% indicating that females migrate more than males in general. The proportion of individuals who are unmarried is higher for the three migrant groups compared with the non-migrant group. It is particularly high for urban migration (89.5%) and international migration (89.4%) showing that unmarried individuals migrate more. Heads and spouses migrate less proportionally regardless of the destination while sons and daughters migrate more to urban areas and abroad and less to rural areas. Extended household members[15] are over represented in all migration types (especially in rural migration).

The pattern observed for education of household heads is more or less similar with the pattern observed for individuals' education. There is no big difference in terms of age and gender of household heads. The average number of children (aged 14 and below) is respectively 1.34, 1.5, 1.49, and 1.69 for international migrants, rural migrants, urban migrants, and non-migrants. The number of male adults for each of the three migrant groups is larger than for the non-migrant individuals while the average female adult members is slightly lower for rural and urban migrants than for the non-migrating group. The average household size is more or less similar for all sub-samples and is 6.76 for the whole sample. The average number of household members with high school education is the highest for

[15] Extended household members include individuals outside the nuclear family who are related to the household head or his spouse. They constitute 14% of the total sample

international migrants followed by urban migrants while it is the least for rural migrants though it is low in general and the mean for the whole sample is 1.29.

The wealth index shows that the international migrant group is the wealthiest followed by urban migrants while rural migrants are the least wealthy. When it comes to past migration, huge difference is observed. The proportion of individuals coming from households that have past migrants abroad is the highest for international migrants (15.7%) followed by the non-migrant group (5.3%) while the proportion for rural and urban migrants is respectively 1.5% and 3.3%. Proportionally more rural and international migrants and less urban migrants come from Muslim households relative to non-migrants. In terms of ethnicity of head, *Amharas* who nearly account for 50% of the whole sample have fairly similar proportion among urban and international migrants but their proportion among rural migrants is much lower compared to the non-migrants. *Oromos'* share is lower in all the three migration types compared to their share in the non-migrant sub-sample which implies that they migrate less overall. *Tigre's* proportion is higher for urban migration and lower for rural migration compared to the non-migrant group while *Gurage*'s share is higher for rural and international migration and lower for urban migration. Proportionally more international migrants come from Addis Ababa followed by the non-migrant group while it is the least for rural migrants.

5. Estimation and Discussion

Determinants of Migration

To identify the determinants of migration to the three destinations, a multinomial logit model is estimated taking the no-migration case as a reference. This allows to see if the determinants of migration differ by destination. As an alternative, a dichotomous logit model estimation

that groups all migration types together is done. The estimated slope coefficients of the multinomial regression are reported in table 3. The standard errors which are clustered at household level are given in bracket. Marginal effects of the independent variables on migration to each destination are presented in table 4.

Table 3: Determinants of Migration

Variables	International migration	Rural migration	Urban migration	Overall Migration
high school	.401(.994)	.851(.490)*	.659(.385)*	.662(.292)**
age	-.026(.019)	-.026(.013)**	-.036(.015)**	-.028(.010)***
female	.532(.279)*	.621(.297)**	.191(.245)	.43(.171)**
never married	.365(.514)	-.747(.410)*	.547(.472)	-.069(.285)
spouse	-1.123(1.107)	-.777(.868)	-.413(.863)	-.747(.535)
son-daughter	1.204(.710)*	1.111(.645)*	.807(.642)	1.182(.398)***
extended	.847(.687)	2.425(.542)***	1.928(.605)***	2.015(.373)***
high school head	.249(.370)	-.047(.428)	.323(.298)	.234(.217)
age head	-.009(.010)	.007(.012)	.0105(.010)	.006(.006)
female head	-.053(.299)	.189(.312)	.278(.247)	.168(.172)
children	-.181(.111)	-.286(.129)**	-.040(.085)	-.145(.068)**
male adults	-.065(.125)	.254(.141)*	.038(.104)	.102(.106)
female adults	-.265(.110)**	.117(.120)	-21(.102)**	-.201(.070)***
high school members	.010(.139)	-.245(.155)	.138(.104)	-.017(.090)
wealth	.947(.349)**	.454(.477)	.236(.450)	.403(.248)
wealth squared	-.125(.064)*	-.090(.097)	.062(.099)	-.066(.049)
international migrant	.747(.369)**	-.936(1.048)	-.054(.558)	.235(.312)
muslim	1.02(.362)***	.138(.495)	-.465(.407)	.116(.267)
amara	.168(.518)	-.481(.431)	.343(.458)	-.029(.261)
oromo	-.337(.590)	-.495(.522)	.435(.510)	-.159(.309)
tigre	.015(.778)	-.143(.573)	1.060(.468)**	.424(.328)
gurage	.278(.537)	.430(.587)	.516(.543)	.469(.325)
addis ababa	1.652(.531)***	-.684(.384)*	-.914(.294)***	-.295(.205)
highschool*addis	-.680(.936)	-1.846(.788)**	-.847(.464)*	-.933(.323)***
constant	-5.817(1.213)***	-4.039(1.148)***	-4.329(.882)***	-3.352(.628)***

Note: The Pseudo R-square for the multinomial logit regression is 0.1521(15.21%) and for the logit regression (overall migration) it is 0.122(12.2%). *, **, and *** represent significance level at 10%, 5% and 1% respectively.

Table 4: Marginal effects

Variables	International migration	Rural migration	Urban migration	Overall Migration
high school	.0031	.0074*	.0099*	.0272**
age	-.0002	-.0002**	-.0005**	-.0010***
female	.0039*	.0044**	.0024	.0151**
never married	.0027	-.0059*	.0070	-.0025
spouse	-.0058	-.0043	-.0046	-.0209
son-daughter	.0095*	.0084*	.0107	.0448***
extended	.0073	.0481***	.0530***	.1519***
high school head	.0020	.0004	-.0046	.0089
age head	-.0001	.0000	.0001	.0002
female head	-.0004	.0014	.0038	.0061
children	-.0013	-.0020**	-.0005	-.0051**
male adults	-.0005	.0018*	.0005	.0036
female adults	.0020**	-.0008	-.0027**	-.0071***
high school members	-.0001	-.0018	.0018	-.0006
wealth	.0070**	.0032	.0030	.0143
wealth squared	-.0009*	-.0006	-.0008	-.0024
international migrant	.0080**	-.0046	-.0007	.0092
muslim	.0117***	.0010	-.0053	.0043
amara	.0012	-.0035	.0045	.0010
oromo	-.0023	-.0031	.0066	-.0054
tigre	.0000	-.0011	.0139**	.0151
gurage	.0022	.0035	.0080	.0195
addis ababa	.0099***	-.0057*	-.0149***	-.0111
highschool*addis	-.0042	-.0090**	-.0089*	-.0266***
Predicted probability	.0075	.0073	.0133	.0369

Note: : For continues variables, marginal effects are changes in the probability of migration as a result of a small change in the variable computed at mean value. For dummy variables it is due to change from 0 to 1. While calculating the marginal effect of a variable, the other variables are set at their mean values. *, **, and *** represent significance level at 10%, 5% and 1% respectively from the regression result in table 3.

International migration

From the individual characteristics, only two variables namely being female and spouse of the head (both at 10% significance level) have significant effect. Compared to males, females have .39% higher probability of migration which is about 50% of the predicted probability of migration. The result is contrary to the findings of many studies. Many female migrants go to

the Middle East to work mainly as house maids. Thus, the result reflects the better employment opportunities females have abroad coupled with their low employment opportunity at home. Taking in to account the harsh work condition they face, it could be argued that most of the females go to Middle East essentially out of their strong desire to help their families. Females are also believed to send more remittance than males which will increase their probability of migration consistent with the prediction of the model[16].

In terms of relationship with the head, sons/daughters have 1% higher probability of migrating (which is more than 100% of the predicted probability) compared to heads. From the household's point of view, it is better to send a son/daughter than the head as the latter has more responsibility at home. Spouses do not have significantly different chance of migrating internationally compared to heads which is to be expected as they also have big responsibility at home. It is also worth noting that extended household members do not have significantly different probability of migrating internationally compared to heads which might reflect the preference by the household to send sons/daughters over extended household members in view of the limited finance available to the household.

From the household demographic variables only number of female adults has significant effect. One additional female adult leads to 0.20% (27% of the predicted probability) lower probability of migration. This implies that while being female increases one's chance of migrating abroad, coming from a household with more female members has the opposite effect. Given that females are more likely to migrate, coming from a household with more females decreases the probability of migration in view of the limited finance households have. Households with more female members are also likely to have lower

[16] Lauby and Stark (1988) argue that daughters are more responsible and hence remit more than sons in the context of Philippines

capacity of financing migration. Both explanations are consistent with the NELM.

The coefficient of wealth is positive and significant showing that migration increases with wealth. Wealth squared has a negative effect; i.e., there is an inverted U shaped relationship between wealth and migration as expected. Wealth relaxes the credit constraint of households to finance migration which increases the probability of migration. But, wealth also increase household earnings which makes migration less desirable. The psychological cost of sending a family member abroad might also increases with wealth. The result indicates that initially the positive effect dominates but after a certain level the negative effect starts to dominate. The result is consistent with the finding by Mckenzie and Rapoport (2007) in Mexico.

Past migration increases the probability of migration as expected and is found by other studies (Garip, 2006; Lindstrom and Lauster, 2001; Mora and Taylor 2005). Individuals coming from households that sent migrants abroad in the past have .8% (107% of the predicted probability) higher probability of migration. It is well established in the social capital theory of migration that networks make migration costs cheaper and hence induce further migration. Coming from a Muslim household has a significant and positive effect on international migration. The magnitude is also big; individuals coming from Muslim households have 1.17% (156% of the predicted probability) higher probability of migration. Given that the Middle East which is a predominantly Islam region is an important destination for Ethiopian migrants, it is an advantage to have a Muslim background. Muslim households have better information about migration alternatives. It is also easier to adjust once you migrate because of the similarity in religion (i.e., the psychic cost will be low). Religion is hardly included as an explanatory variable in migration studies, but, Sharma and Zamen (2009) found that coming from a Muslim household positively affects the odds of

international migration in Bangladesh consistent with the above finding[17].

Individuals coming from Addis Ababa have 1% higher likelihood of migrating internationally compared to individuals coming from other towns. Being in Addis Ababa makes it easier to get information about international migration. Associated costs of migration like visa processing and transportation are also lower; individuals from other areas have to come to Addis Ababa to process their visa which may require multiple trips which is expensive.

The fact that most of the human capital variables do not have significant effect suggests that expected earning differential which is the driving forces of migration under the human capital theory is not important. It is mainly those households who have the network and/or the capacity to finance migration costs who send migrants abroad. While migration in general is a family phenomenon consistent with the NELM, the fact that the network variables are found to be very important also underscores the importance of the social capita theory of migration in explaining international migration in Ethiopia[18].

Rural Migration

Having a high school education has a positive effect (though it is significant only at 10%) on the probability of rural migration. The interaction between high school education and Addis Ababa is also significant. The coefficient is negative and bigger in magnitude than the separate coefficient of high school education. This implies that having a high school

[17] An interaction term between religion and gender was included in the regression but it was not significant implying that the effect of religion does not vary by gender and vice versa.

[18] The result from the household level regression confirms the importance of past migration, religion and wealth in determining the probability of international migration. Though the two wealth variables are not significant separately they are significant jointly and show that there is an inverted U shape relationship between wealth and migration. Tables 6 and 7 in the appendix report the regression result and the marginal effects respectively.

education decreases the probability of rural migration for individuals coming from Addis Ababa while it increases for others[19]. In Addis Ababa high school education is better rewarded than in rural areas and hence people are reluctant to migrate to rural areas. But, in other cities where there are fewer job opportunities, people with high school education may take jobs in rural areas.

Age, consistent with the prediction of human capital theory and findings of many studies, has a negative and significant effect on rural migration. But, the marginal effect is small; one additional year decreases the probability of rural migration by 0.02% (which is only 2.7% of the predicted probability of .73%). Females have more likelihood of migration to rural areas than their male counterparts by .44% which is big relative the predicted probability. Similar result was observed for international migration. Though this is contrary to the findings of many studies, it is consistent with what Bohra and Massey (2009) found in Nepal. In their study of rural out-migration in Ethiopia, Markos and Gebre-Egziabher (2001) also found that females migrate more. This may be because females are more responsible to satisfy the need of their family.

Unmarried individuals have lower probability of migration compared to the control group which includes individuals who were married or are currently married. The marginal effect is .59% (81% of the predicted probability). This may be because unmarried individuals do not feel much pressure to go to rural areas which is not attractive for many urbanites. Mora and Taylor (2005) found that married individuals have higher propensity of migrating

[19] Interpretation of marginal effects of interaction terms is problematic in non-linear models. To get the effect of high school education for individuals from Addis Ababa, we can compare the predicted probabilities by setting the variable *addis ababa* at one and changing the variables *high school* and *highschool*addis* from zero to one keeping the other variables at their mean values. The predicted probability falls from .7% to .26% implying that high school education is associated with a big fall in the probability of rural migration for individuals from Addis Ababa.

internationally in Mexico. The result for marital status is contrary to usual findings like that of gender.

Sons/daughters and extended household members are respectively .84% (115% of the predicted probability) and 4.81% (more than 600% of the predicted probability) more likely to migrate to rural areas relative to household heads. This is consistent with the finding by Sharma and Zamen (2009) in Bangladesh. It is to be expected that children and extended household members have higher probability of migration compared to heads (and spouses) who have higher responsibility at home which implies higher opportunity cost of migration to the household. The reason why the effect is bigger for extended household members than for children could be because rural migration is less attractive from individuals point of view and extended members have more pressure than children to migrate to satisfy the need of the household[20]. Broadly speaking, the result is consistent with the NELM theory in the sense that family situation is important in migration decisions.

An additional children affects rural migration negatively with a marginal effect of .2% (27% of the predicted probability). The presence of more children may require more labour at home and hence lowers the propensity of migration. On the other hand, one additional male adult member increases rural migration by 18% (25% the predicted probability). Households with more male adult members satisfy the labour demand at home and tend to have extra labour to send to rural areas. Coming from Addis Ababa, as expected is associated with lower probability of rural migration by .57% (78% of the predicted probability). Better employment opportunities are available in Addis Ababa and hence rural migration will be less attractive to

[20] Given that urban to rural migration is normally considered to be unattractive, one might wonder if those individuals who migrate to rural areas are return migrants who are joining their families (parents, spouses etc) in the rural areas. But, the information on the reasons of migration shows that hardly any of them are going to rural areas to join their families. A dummy variable for those individuals who came to their current residence from rural areas in the last ten years were also included and there was no significant effect.

people from Addis Ababa compared to people from other cities.

The result for rural migration shows that individual characteristics are important unlike for international migration. This implies that the human capital theory is important in explaining rural migration. The fact that relationship with household head and household composition also have significant effects suggest the importance of family situation which is consistent with the NELM.

Urban migration

The result for urban migration is more or less similar with that of rural migration though fewer variables are significant now. High school education has a positive effect for people out side Addis Ababa while it has a negative effect for individuals from Addis Ababa.[21] Age has negative and significant effect on the likelihood of migration though the magnitude of the effect is small. One additional year is associated with 0.05% fall in probability of migration which is about 4% of the predicted migration probability of 1.33%. Compared to heads, extended household members have 5.3% higher probability of migration. Gender and marital status do not have significant effect. Coming from Addis Ababa as was the case for rural migration has negative and highly significant effect on the likelihood of migration. Individuals coming from Addis Ababa have 1.49% lower probability of migration compared to those coming from other areas. The explanation is the same as for rural migration.

An additional female adult member decreases the probability of migration by 0.27%

[21] Though the marginal effects given in table 5 show that the separate positive effect of high school education (.99%) is in absolute terms bigger than the marginal effect of the interaction term (.89%), this should not be interpreted as if the effect of high school education is positive for individuals coming from Addis Ababa. The same procedure used for rural migration shows that for individuals from Addis Ababa, high school education leads to a fall in predicted probability from 1% to .84%.

(20% of the predicted probability). Individuals from *Tigre* households have 1.39% higher probability of migration compared to the control group which includes ethnicities other than *Tigre*, *Amhara*, *Oromo*, and *Gurage*. This could be due to the huge network *Tigre*s have all over the country. Tigray, which is inhabited mainly by *Tigres* is one of the poorest regions and hence many *Tigres* migrated to different party of the country. Even though the situation may be better now, the huge population of *Tigres* in many parts of the country induces further migration by *Tigres* as posited by the social capital theory.

Overall Migration

The result of the logit regression for overall migration shows the weighted average effect of the variables on all the three migration types and it seems to be driven more by the internal migrations where most of the individual variables are significant. High school education increases the probability of overall migration for individuals from outside Addis Ababa while it decreases for those who come from Addis Ababa as was found for the two internal migrations. A one year increase in age leads to a 0.1% fall in the probability of migration. Females have 1.51% more probability of migration. Sons/daughters and extended members have 4.41% and 15.15% higher probability of migration compared to heads. From the household level variables, number of children and female adults are significant. An additional child and female adult lower the probability of migration by .51% and .71% respectively. The predicted probability of overall migration is 3.69%.

6. Summary and Conclusion

In this paper I studied the determinants of migration from urban Ethiopian to other countries, to rural areas and to other urban areas using multinomial logit regression. Individual and household level variables are included as explanatory variables and the result shows that the

determinants of migration differ by migration type. There is big difference between the international and internal migrations while the result for the two internal migrations are more or less the same. For example, education and age are important only for the two internal migrations. On the other hand, wealth affects only international migration..

For international migration, only two of the individual variables are significant. Females have higher probability of migration compared to males contrary to the usual result in the literature. Sons and daughters also have more likelihood of migrating abroad compared to heads and other household member. From the household level human capital and demographic variables only number of adult females has a significant effect. Unlike being female, coming from a household with more female members decreases the probability of migration. Wealth increases migration probability initially but after a certain level its effects becomes negative implying that migrants come from households who are in the middle of the wealth distribution. Social networks are also important as revealed by the significant and strong effects of past migration and religion. Coming from Addis Ababa is associated with higher probability of migrating abroad.

In general, international migration is explained by the social capital theory and the NELM. Expected earnings differential, which is the driving force of migration under the human capital theory, is not important and international migration is rather driven by family situation and networks. The fact that it is mainly those who have the network and/or the capacity to finance migration that send migrants abroad also means the poor will not benefit from migration. Making information about international migration and credit facilities more available will make those with no network and financial capacity benefit more from migration.

The result for the two internal migrations is more or less similar though some

differences are observed. Education, age, gender and relationship with head are important for both rural and urban migrations. For individuals out side Addis Ababa, high school education increases migration probability. In Addis Ababa, individuals with high school education are less likely to migrate. Age decreases the probability of migration. Extended household members are more likely to migrate relative to household heads. For rural migration, sons/daughters also have more likelihood of migration similar to international migration. People coming from Addis Ababa have lower chance of migrating both to rural and urban areas. Gender and marital status are important only for rural migration. Females have higher likelihood of migrating to rural areas while unmarried individuals have lower probability of migration. Number of children and male adult members are also important only for rural migration. The first one has a negative effect while the second has a positive effect. Two variables are significant only for urban migration namely coming from *Tigre* household and number of female adult members. The first increases migration while the second has a negative effect. In general, the result for the two internal migrations is explained by the human capital and the NELM theories.

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Appendix

Table 5. Summary of variables used in the computation of the asset index

variable	Mean
Radio	.31
Tape recorder	.68
Television	.34
Fridge	.13
House	.45
Bricks	.11
Rooms	2.89(2.14)

Note: Rooms is the number of rooms in the house the household lives in (irrespective of whether the household owns the house or not). Bricks is a dummy variable indicating if the construction material for the wall of the house is bricks. The other variables are dummies showing ownership of the asset.

Table 6: Determinants of Migration: Household Level

Variables	International migration	Urban migration	Rural migration	Overall Migration
high school head	.095(.408)	-.163(.505)	.568(.322)*	.324(.225)
age head	-.018(.011)	-.013(.012)	-.003(.010)	-.007(.006)
female head	.149(.356)	.317(.388)	.240(.290)	.237(.197)
muslim head	1.196(.472)**	-.268(.581)	-.748(.466)	.008(.279)
amara head	.106(.587)	-.061(.600)	.516(.541)	.127(.331)
oromo head	-.583(.697)	-.636(.745)	.609(.590)	-.151(.374)
tigre head	-.792(1.154)	-.076(.757)	1.147(.598)*	.474(.400)
gurage head	.104(.643)	.071(.729)	.497(.640)	.261(.387)
children	-.152(.121)	-.183(.134)	-.001(.090)	-.083(.064)
male adults	.276(.120)**	.384(.136)***	.422(.102)***	.359(.070)***
female adults	.175(.131)	.221(.145)	.243(.105)**	.214(.073)***
high school members	-.179(.141)	-.189(.174)	.005(.116)	-.066(.079)
international migrant	1.099(.475)**	-.413(1.054)	.124(.649)	.491(.356)
wealth	.569(.439)	.188(.587)	.028(.402)	.290(.262)
wealth squared	-.048(.083)	-.061(.142)	-.042(.088)	-.046(.055)
addis ababa	1.931(.635)***	-.977(.388)**	-.357(.287)***	-.498(.198)**
constant	-5.176(.931)***	-2.785(.823)***	-.581(.746)***	-2.471(.456)***

Note: The Pseudo R-square for the multinomial logit regression is 0.0997(9.97%) and for the logit regression (overall migration) it is 0.0575(5.75%). *, **, and *** represent significance level at 10%, 5% and 1% respectively.

Table 7: Marginal Effect on Household Level Migration

Variables	International migration	Urban migration	Rural migration	Overall Migration
high school head	.0017	-.0064	.0333	.0454*
age head	-.0005	-.0004	-.0001	-.0010
female head	.0033	.0096	.0133	.0337
muslim head	.0537***	-.0082	-.0361	.0011
amara head	.0020	-.0031	.0304	.0178
oromo head	-.0138	-.0176	.0450	-.0205
tigre head	-.0175	-.0052	.1040*	.0750
gurage head	.0017	.0010	.0338	.0391
children	-.0039	-.0057	.0006	-.0117
male adults	.0063**	.0111***	.0234***	.0503***
female adults	.0040	.0064	.0134**	.0300***
high school members	-.0046	-.0058	.0010	-.0093
international migrant	.0483***	-.0124	.0049	.0790
wealth	.0149	.0054	.0003	.0407
wealth squared	-.0011	-.0018	-.0022	-.0064
addis ababa	.0468***	-.0330**	-.0983***	-.0735**
Pred. probability	.0327	.0274	.0622	.1686

Note: For continues variables, marginal effects are changes in the probability of migration as a result of a small change in the variable computed at mean value. For dummy variables it is due to change from 0 to 1. While calculating the marginal effect of a variable, the other variables are set at their mean values. *, **, and *** represent significance level at 10%, 5% and 1% respectively from the regression result in table 6.