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ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
INSTITUTE OF DEVELOPMENT RESEARCH

**WOMEN MIGRATION STATUS, HEALTH AND THE USE OF FAMILY
PLANNING SERVICES: A CASE STUDY IN THREE WOREDAS OF
TIGRAY**



A THESIS

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE DEGREE OF
MASTER OF SCIENCE IN DEMOGRAPHY**

BY
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KINFE ABRAHA GEBRE-EGZIABHER

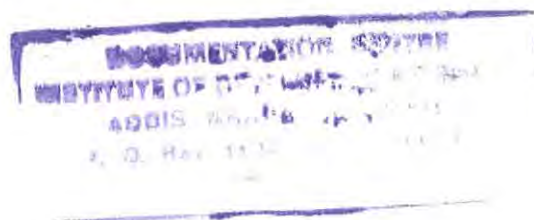
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Abbreviations

Arbm = Area of residence (Rural/Urban) before migration.

ARnow = Area of current residence.

CBD = Community based distribution

CSA = Central Statistical Authority of Ethiopia.

CuUse = Current use of family planning services.

DTRC = Demographic Training and Research Centre.

EduL = Highest level of education attained.

ESRVS = Experimental Sample Vital Registration System.

FP = Family Planning

HCo. = Health condition of the respondent.

HealComp = The reported health condition of the respondent as compared with other females of their ages.

HHS = Household Size.

IUD = Intra Uterine Devices

LbFst = Labor force status.

Lit.St. = Literacy Status.

MarSt = Marital Status.

MCEB = Mean Number of Children Ever born.

MigSt. = Migration Status.

NoChEb = Number of Children Ever Born.

NPPE = National Population Of Ethiopia.

OR = Odds Ratio

PAs = Peasant Associations.

PSTC = Population Studies and Training Centre.

S.E. = Standard Error.

TFR = Total Fertility Rate

UN = United Nations.

VIF = Variance Inflation Factor



TITLE	PAGE
<i>ABSTRACT</i>	1
I. INTRODUCTION	3
1.1 Background:	3
1.2 Problems and Justifications of the study:	6
1.3 Objectives of the study	10
1.4 Hypotheses	12
II. DATA AND METHODOLOGY	13
2.1 Background	13
2.2 The Data	13
2.3 Method of Analysis	15
2.3.1 Descriptive Method	15
2.3.2 Logistic regression	16
2.4 Theoretical Framework	19
2.5 Operational Definitions	20
2.6 Limitations of the study	21
III. LITERATURE REVIEW	23
IV. RESULTS	36
4.1 Descriptive Analysis	36
4.1.1 Introduction	36
4.1.2 Mobility History of the Females	36

4.1.3. The Socioeconomic Conditions of both the Migrants and Non-Migrants.	37
4.1.4. Demographic Characteristics	52
4.1.5. Knowledge and Use of Family Planning Services	55
4.1.6. Health Conditions by Migration Status	59
4.2 Logistic Regression Analysis	63
4.2.1 Health Status	63
4.2.2 Family Planning	72
V. DISCUSSION, CONCLUSION & RECOMMENDATIONS	78
5.1 Discussion	78
5.2 Conclusion	83
5.3 Recommendations	85
ANNEX:	88

LIST OF TABLES	PAGE
TABLE 1: The grade levels of the respondents by migration status as well as rural-urban status.	38
TABLE 2: The labor force status of the respondents.	39
TABLE 3: Source of income of the females	40
TABLE 4: The age distribution of the respondents is given below by migration status.	53
TABLE 5: The marital status of females	53
TABLE 6: Knowledge of contraceptives by migration status	55
TABLE 7: The type of contraceptives used	57
TABLE 8: Main reasons why the females do not use contraceptives.	58
TABLE 9: Ratings of their health conditions by migration status	59
TABLE 10: The health conditions of the respondents as compared with the females of their ages by migration status.	61
TABLE 11: Types of diseases by migration status.	62
TABLE 12: Logistic regression model for the health condition of the respondents.	64
TABLE 13: Logistic regression model for the health condition of the respondents.	66
TABLE 14: Logistic regression model for the health condition of the non-migrants.	68
TABLE 15: Logistic regression model for the health condition of the migrants.	70
TABLE 16: Logistic regression model for the use of family planning services of the respondents.	72
TABLE 17: Logistic regression model for the use of family planning services of the migrants.	74
TABLE 18: Logistic regression model for the use of family planning services of the non- migrants.	76

ABSTRACT

In this study 269 women are included. 163 females were migrants and 106 were non-migrants. This is a study made on a secondary data. The data source for the study is the migration and health survey of Tigray region. The data were collected in the months of July and August of 1998. The main objective of this study is to investigate how women migration influences their health conditions and use of contraception. In addition, it has an objective of identifying the important demographic and socioeconomic factors influencing health and the use of family planning services of both the migrants and non-migrants..

Descriptive method and logistic regression are used in the analysis part of the study. The health conditions and use of contraceptives of the migrants and non-migrants are compared. In addition, the different demographic and socioeconomic factors that influence the health conditions and use of family planning services are identified. The result is that the migrants are healthier than the non-migrants. The migrants are also better users of family planning services than the non-migrants. 15.67% of the females in the reproductive age use contraception. By migration status, 19.2% of the migrants and 10.8% of the non-migrants use family planning services. There is a wide gap between the knowledge and use of FP services especially among the non-migrants.

Most of the migrants explained that life after migration is better than life before migration. The improvements are mainly observed in employment status, hygiene, and availability of pure drinking water. For most of the migrants, life after migration is either the same or better than what they expected. The result of the logistic regression showed that migration is the key variable influencing the health condition of the females. Different socioeconomic and demographic factors influence the health condition as well as the use of

family planning services. Such factors and the net influence of each factor is well studied. The use of contraception of the females is strongly influenced by their educational levels. But, the influence of education in FP use is higher for migrants than for non-migrants. The influence of these factors and other variables are also studied by migration status. Based on the study results, conclusions and recommendations are made.

Accordingly, it is concluded that migration is a very important demographic factor which influences not only the size of the population, but also the health status and use of FP services. In addition, the demographic and socioeconomic factors which influence the health conditions as well as use of FP services differ by migration status.

It is also recommended that all development projects and policies have to take migration in to account especially the social sector such as the health aspects and the use of FP services. In addition both the migrants and non-migrants have to be well informed the factors influencing their health conditions as well as use of FP services.

I. INTRODUCTION

1.1 Background

Demography is the study of human population in relation to the changes brought about by the interplay of births, deaths and migration. Population studies using the quantitative methods is relatively a young discipline and is the core element of development studies. The three elements of population change (fertility, mortality and migration) are becoming new areas of research. The issue of population distribution and migration is a concern of developed as well as developing countries. Recently, migration research is becoming one of the concerns of demographers, social scientists, economists as well as medical researchers.

In developing countries, however, little research on migration has been conducted. Literature shows that the area of fertility and mortality have been studied more than migration. In Africa, migration has remained an important factor of population distribution mainly after the period of independence (in the 1960's). *In the last few years, we have witnessed a mushrooming of concern with the phenomenon of internal migration and its perceived impact on rural and urban development (Findley, 1982).*

Migrant populations in Ethiopian cities and towns have dramatically increased within a decade. These increases have contributed significantly to these escalating population sizes in the urban towns and cities. According to the Central Statistical Authority of Ethiopia, CSA (1995), the population sizes of the urban areas of Tigray have increased by more than 55% in 1994 than in 1984. Female population of the urban centres in 1994 was also more than 52% of the total population.

Migration into the towns in Tigray region has been particularly prevalent. Thus, the population sizes of some towns in Tigray region have almost doubled between 1984 and 1994: Mekelle from 62,662 to 96,938, Adwa from 14,335 to 24,519 and Axum from 17,000 to 27,148 (CSA, 1995). The majority of most migrant populations in Tigray are females. For example, according to the 1994 census, about 50% of the females in the urban centres of Tigray are migrants. In Makalle in particular 58.6% of the females are migrants. In a decade, female migration has increased in Mekelle from 5.2% to 58.6%.

Nowadays, most countries of the world are recognizing the fact that changing the patterns of population settlement and migration highly influences their social, economic, cultural and other aspects of development. Most migrations also result due to economic attraction, availability of jobs, educational opportunities, superior health care, better housing facilities and so on at the place of destination.

Hence, knowledge of the causes and consequences of internal migration is of paramount importance for development planning in the places of origin as well as destination. Especially, female migration is highly inter-connected with the socio-demographic as well as economic conditions of the sending places, receiving areas and their households as well as the migrants themselves. Generally, women's status/position in the society can be improved if she gets the chance to engage in the labor force. Participation of women in the labor force enhances their position in the household, because it brings income. The participation of women in the labor force is dependent upon many socioeconomic factors such as the economic development of the region or the country, the level of education of the women, the attitude of the society towards

women and so on. Especially increased level of education enables women to have the necessary information and a widened use of the information they have beyond the household and for better opportunities.

When one talks about migration in relation to women's status, she/he can see it from different perspectives. In the society at which the economy is at early stage of development such as that of Ethiopia, women's education is very low, many of the sectors are traditional so that women don't have wider chances, and it is culturally accepted for men to decide. In such societies because of the power they have in the household and the above facts as well as other reasons it is men who decide on migration. That is females mostly migrate because of the decisions made by the males. Such a migration of females is called *passive migration* or *associational migration* because they usually move with the family or their migration is determined by the decision of the household head. Usually the household head is a person that has the highest power in the family and controls the resources. In the Ethiopian case, most of the time household heads are males. A typical example of passive migration is marriage migration.

Generally, when one studies the relationship between migration and the status of women, two things can be discussed.

i) If the male migrated and the women stayed behind: women may have more responsibility in agricultural and other activities and the quality of life of the household may deteriorate. On the other hand, she becomes the head of the household and has the power to decide about the allocation of resources, education of children, and production. In this case, the quality of life may be improved.

ii) If the women migrated there may be different socioeconomic factors affected due to her movement depending up on the type of her movement, such as

- in marriage migration: her social and economic status may be improved,
- in economic migration: the informal sector increases such as home makers, service workers, etc.,
- migrants may lack access to financial sources such as loan.

One of the consequences of any type of migration is its effect on the use of health services, the health conditions of the migrants and on the knowledge as well as use of family planning services. This study deals with the second type of migration the women themselves migrate and compares the health conditions as well as the knowledge and use of family planning services with the non-migrants at the place of destination.

1.2 Problems and Justifications of the Study:

Studies on the health status and use of health services of migrant populations compared to the origin population or the destination population are inconclusive. Whether migrants are healthier or are better users of health services or not has a major impact on the health services and related resources available for the over-all population. *However, studies show that migrant populations are more likely than the non-migrant populations to be exposed to certain health risks such as sexually transmitted diseases, rape, poor nutrition, communicable diseases and prostitution (Baldwin, 1987).*

Family planning is an important component of the safe motherhood initiative that has received increased attention worldwide because of the ever expanding population, high maternal mortality rate, as well as the economic and health care demands that un-controlled fertility imposes on the family and on the society in general and on the mothers in particular (Yemane & Zakus, 1995). In Ethiopia, the population growth rate and maternal mortality rate are very high. Uncontrolled fertility has its own effect on the economic growth of the country and the health conditions of the people. Such problems affect the females more than the males. In Tigray, the extent to which such factors influence the women is not studied. But, the influence is expected to be a function of migration. The knowledge and use of family planning services of the migrants as compared to the non-migrants needs a detailed study so that possible and necessary interventions can be made. Because migration is expected to be one of the demographic factors influencing the health conditions as well as use of FP services and such an influence may also affect the development plans of the region.

In most of African countries including Ethiopia, vital registration systems which are the most important sources of reliable and timely information on population movements are not available. But, formulating population distribution policies demands facts on the inter-relationships between migration and other societal issues such as health and the use of family planning services. In Ethiopia, two censuses were conducted: one in 1984 which covered about 85% of the country and only the urban centres of Tigray, and the second in 1994. But, migration data available from censuses are very limited and can not provide the necessary information for policy formulations and other studies. According to Findley (1982), population analysts must turn to surveys for the requisite detail on migration behavior.

In Africa in general and in Ethiopia in particular fertility, infant mortality and maternal morbidity are high and in such a situation, the need for family planning is urgent. According to the national population policy of Ethiopia (NPPE, 1993), the total fertility rate has increased from 5.8 children per woman in 1970 to 7.7 children in 1993 and one of the rationales of the national population policy as indicated on its page 24 is “*the high prevalence of maternal, infant and child morbidity and mortality - are problems that are partially attributed to the low status of women and high fertility*”. Accordingly, the NPPE has an objective of increasing the prevalence of contraceptive use from 4.0% in 1993 to 44.0% in 2015 and to reduce TFR (total fertility rate) from 7.7 children per woman in 1993 to 4.0 in 2015. Through this, it has an objective of reducing maternal, infant and child mortality. As one of the regions of the country, Tigray has also to implement the NPPE objectives. But, to evaluate the progress and design appropriate strategies there has to be detailed information on the factors influencing the health conditions as well as use of family planning services of the region. One factor which may influence the health conditions as well as the use of family planning services is migration. Conversely, the health status of the females and the availability of health services may influence migration.

In Tigray, there is no detailed study about the possible associations between migration and health as well as the use of family planning services. In the region, due to political changes, environmental factors such as draught and famine, migration seems to have different patterns at different times. These different patterns and volumes of migration especially female migration are expected to influence the health conditions as well as use of family planning services. The extent to which female migration has influenced the health conditions and use of contraceptives

as well as the socioeconomic factors associated with both the migrants and non-migrants has to be well studied and documented.

Until 1994, Tigray had no complete census and no sound information about migration was available. Even after the census, no enough data on the inter-relationships between population distributions, health conditions and the use of contraceptives were available. Such absence of information can restrict researchers from making further studies in the region. So, surveys on migration, health and the use of family planning services are needed. It is therefore believed that the findings of this study will shed some light, in the absence of any similar study about the topic, in Ethiopia as a whole and in Tigray in particular.

Recognizing the study of female migration status, health and the use of family planning services as important elements for migration policy issues and socioeconomic as well as demographic development plans, it would be the major task of this study to lay the foundation on these issues for the first time. This study would discover the associations between the health conditions as well as use of family planning services and migration status of women in the three woredas of Tigray. More importantly, it will help in determining the socioeconomic as well as demographic factors which influence the health conditions and use of contraceptives of the migrants and non-migrants.

Hence, the association between migration and health, as well as, migration and the use of contraceptives which concerns more than 50% of the population of the urban females of Tigray, involves a fundamental change in the socioeconomic and cultural development in the places of origin and destination as well as the life of the migrants. Obviously, diseases such as malaria,

measles, tuberculosis etc. are not evenly distributed throughout the region. In addition, the knowledge and use of contraceptives is not evenly distributed among different groups of the females. Such a distribution of diseases and knowledge as well as use of contraceptives leads to the need for the study of the links and associations between the mentioned variables.

1.3 Objectives of the Study

The objectives of this study fall into four main parts. These are

- i) To investigate the health status by migration status in the selected woredas of Tigray, i.e., woredas Semien, Debub and Ganta-Afeshum.

- ii) To investigate the relation between the use of family planning services and migration status in the areas of the study. The knowledge and use of the family planning services of the migrants and non-migrants will also be described, analyzed and then compared.

- iii) To investigate and then identify the association between the socioeconomic factors and the health conditions of the migrants and non-migrants. In addition, the degree of the association of the relevant explanatory variables will be analyzed by their migration status.

- iv) To investigate and then identify the association between the socio-economic factors and the use of contraceptives of the migrants and non-migrants. In addition, the degree of the association of the relevant explanatory variables will be analyzed by migration status.

Thus, a review of the existing concepts and theories as well as the literature of migration, health and the use of contraceptives mainly of the developing countries becomes important for the possible implications to the region based on some documented facts on the possible associations between these variables.

As mentioned earlier, female migration in Tigray especially its association with health as well as use of contraceptives is not yet studied. So, it is not yet identified whether it is the economic, social or demographic factors which are influenced by the migration of the individual female affects more the health condition as well as the use of contraceptives in the areas of the study. Based on the findings of the study, the degree of the relationship between the socioeconomic and demographic variables with the migration status is identified and the influence of such variables on women's health as well as use of contraceptives are studied.

Such a study can be used for policy implications, and will also contribute its own to the existing knowledge of such associations of these variables in the areas of the study in particular and in the region in general.

1.4 Hypotheses

In light of the new set of data from the migration and health survey of Tigray region, the present study provides an opportunity to review the existing concepts and theories of the demographic and socioeconomic factors influencing health as well as the knowledge and use of family planning services by migration status. In addition, it enables to test their validity in the

context of the region's socioeconomic, cultural and environmental situations. More specifically, the study hypothesises the following:

i) There is no difference between the health conditions of the migrant and non-migrant females in the areas of the study.

ii) There is no difference between the use of family planning services of the migrants and non-migrants in the areas of the study.

II. DATA AND METHODOLOGY

2.1 Background

Tigray is one of the regions of Ethiopia located in the northern part with a population of around 3.53 million (according to the CSA (1995) projection). According to the present political and administrative boundaries, the region is divided into five zones and 36 woredas. The female population of the region is around 51% of the total population and high mobility of people is observed in the region. Of all the population 17.6% are migrants and 52.6% of the migrant population are females CSA (1995). According to the same census, 48.75% of the population is dependent i.e., either below age 15 or above 65 years old. 95.5% of the population is follower of the orthodox religion.

Makalle is the capital city of the region and is considered as a fifth zone. It is sub-divided into two woredas (Semien and Debub). High mobility of people is observed into Makalle both from the central part of Ethiopia as well as from within the region and around 58% of its female population is migrant. Eastern zone is located in the eastern part of Tigray and its zonal capital is Adigrat. Because of different reasons, high mobility of people is observed in the zone. The three woredas of the study are selected from the two zones mentioned; woredas Semien and Debub from Makalle and woreda Ganta-Afeshum from the Eastern zone.

2.2 The Data

In this study, secondary data from the migration and health survey of Tigray region is used. The migration and health survey that was held in the months of July and August of 1998 is a unique and detailed study. It is conducted by DTRC of AAU in collaboration with PSTC of Brown

University. In the survey, two woredas from Mekelle and a woreda from the eastern zone of Tigray were selected. From the two woredas of Mekelle kebele 03 from Semien woreda and kebele 18 from Debub wereda were selected purposely based on their migration status. From the Eastern zone of Tigray Ganta-Afeshum woreda which is near to Adigrat town (the capital of the zone) was selected purposively for the reason that there is a high mobility of people there. Out of this woreda, Sasun and Buket peasant associations (PAs) were selected purposely using the same criteria.

After selecting woredas, kebeles and PAs purposely depending on the mobility tradition of the people (as observed from the 1994 census and based on the recommendation of the officials), a complete list of the households (sampling frame) was taken from the kebeles and PAs and a systematic random samples of 120 households were selected from each kebele of the urban areas to interview 150 individuals from each kebele. The main reason why 120 households were selected is that in a household a minimum of one and a maximum of three individuals were to be interviewed. Totally a quota of 300 individuals from urban and 200 individuals from rural was set. Out of the 500 individuals, the quota for females was 250. Non-migrants, temporary and permanent migrants were again of the same number. In the selection process priority was given to the temporary migrants, and then permanent migrants and lastly non-migrants. The main reason for this again was in such surveys it was observed that there is a difficulty in getting temporary migrants. A quota of 150 females per kebele in urban settings which was composed of temporary migrants, permanent migrants and non-migrants of equal numbers (50 each) was set. The quota was fulfilled after interviewing a total of 180 households in Mekelle. The same sampling technique was also used in the rural areas and 137 household

heads were interviewed. In this survey, a total of 269 females of ages 10 and above were interviewed.

The questionnaire for the survey was prepared by Brown University and DTRC. The questionnaire was translated into Amharic in Addis-Ababa and then into Tigrigna during the training of the interviewers. In the survey, three types of questionnaires were used; the community level questionnaire to be answered by key informants of the rural PAs, the household level questionnaire to be answered by the household heads, and interview with individual women. All the female interviewers who interviewed the females were Diploma graduates from Makalle Business College trained for this purpose for two weeks. The survey was also supervised by a BA graduate and who was trained for this purpose through different workshops and the researcher of this research was coordinating the process. The relevant information obtained from all types of questionnaire are used in the study.

2.3 Method of Analysis

2.3.1. Descriptive Method

In the descriptive analysis, the mobility history of the females, their socioeconomic conditions such as the household size, educational level, reasons for migration, their living conditions, the decision for migration, the knowledge about the destination places and its source, etc. is studied. In addition, the life of the migrants before and after migration is analyzed. In the descriptive analysis, the demographic characteristics such as the age distribution, and fertility are analyzed. Finally, the health conditions as well as the knowledge and use of the family planning services are well discussed.

2.3.2. Logistic Regression

To analyze the data, possible associations between migration status and health conditions as well as the use of FP services are measured. Since the nature of the outcome variables is categorical, cross tabulations, bi-variate and multi variate analysis are made.

In most cases the assumption that a probability model is linear in the independent variable is unrealistic. Further if we correctly specify the model as linear, the statistical properties derived under the linearity assumption will not, in general, hold. The obvious solution to this problem is to specify a nonlinear probability model in place of the probability model (Aldrich & Nelson, 1984; John A Forrest, 1984). So, for this study, ordinary logistic regression is employed for the analysis; and the application program SPSS is used. So, cross-tabulations are used as a first step towards exploring the relationships between independent and dependent variables with the help of χ^2 (Chi-square) statistics. The significance of such associations and the degree of the contribution of the explanatory variables is also analyzed using the multi-variate analysis and logistic regression which is given as:

$$\text{Logit}(P_j) = \ln(P_j/1-P_j) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

where the dependent variable Y_j and a quantitative independent variable X_{ij} $i=1, 2, 3, \dots, k$ and $j=1, 2, 3, \dots, n$. Let $P_j = P(X_{ij})$ denote the “success probability” when X_{ij} takes the value x_{ij} we can assume that the transformed variable $\ln\{P_j/(1-P_j)\}$, has a linear form of this logit probability. Where β_i refers to the effect of X_{ij} on the log odds that $Y_j=1$, controlling for other X 's.

The study mainly focuses on the questions asked to women about family planning and reproductive health services, as well as health conditions. In addition, it uses other related questions to the migration status, FP services and health from any part of the questionnaire.

So, in this study the outcome variables are:

1) the migration status which is coded as non-migrant or migrant.

2) the health conditions are coded as healthy or unhealthy; based on the reported health of the females studied. Their own health conditions are rated as very good, fair and poor. Those who have reported their own health as very good or fair are taken as healthy and those who reported as poor are considered as not healthy.

3) The knowledge of family planning services measures the percentage of the females who know at least one method of contraception.

4) The current use of family planning services are also coded as user or non-user which identifies whether the female or her spouse was using at least one method of contraception during the time of the survey. In fact, the type of contraceptive which are widely known and used are also studied by migration status.

So, the dependent and independent variables are

A. Dependent Variables:

1. Women's Health conditions (HCo) which is coded as

0= not healthy (poor) and 1 = Healthy (fair or very good).

2. Women's use of FP services (CuUse) which is coded as

0 = not user 1 = user

B. Independent Variables:

I. Demographic Variables

- 1) Age, which is given in years.
- 2) Marital status (MarSt), which is coded as
0=never-married and 1=ever-married.
- 3) Migration status (MigSt), which is coded as
0=non-migrant and 1=migrant.
- 4) Number of children ever born (NoChEb),
- 5) Rural Urban (place of birth) (ARbm), coded as
0=residing in urban areas before age 10; and
1=residing in rural areas before age 10.
- 6) Rural Urban (current place of residence) (ARnow), which is coded as
0=currently residing in urban areas; and
1=currently residing in rural areas.

II. Socioeconomic Variables

- 1) Highest level of education completed (EduL)
- 2) Household size (HHS),
- 3) Labor force status (LbFst), which is coded as
0=if the female is un-employed or student; and
1=if the female is employed or home-maker.
- 4) Literacy status (LitSt), which is coded as
0=if the person is illiterate; and
1=if the person is literate.

Based on these, the use of FP services and health conditions of the women in the study is studied in association with their migration status.

2.4 Theoretical Framework

Fig. 1: Theoretical framework for the study.

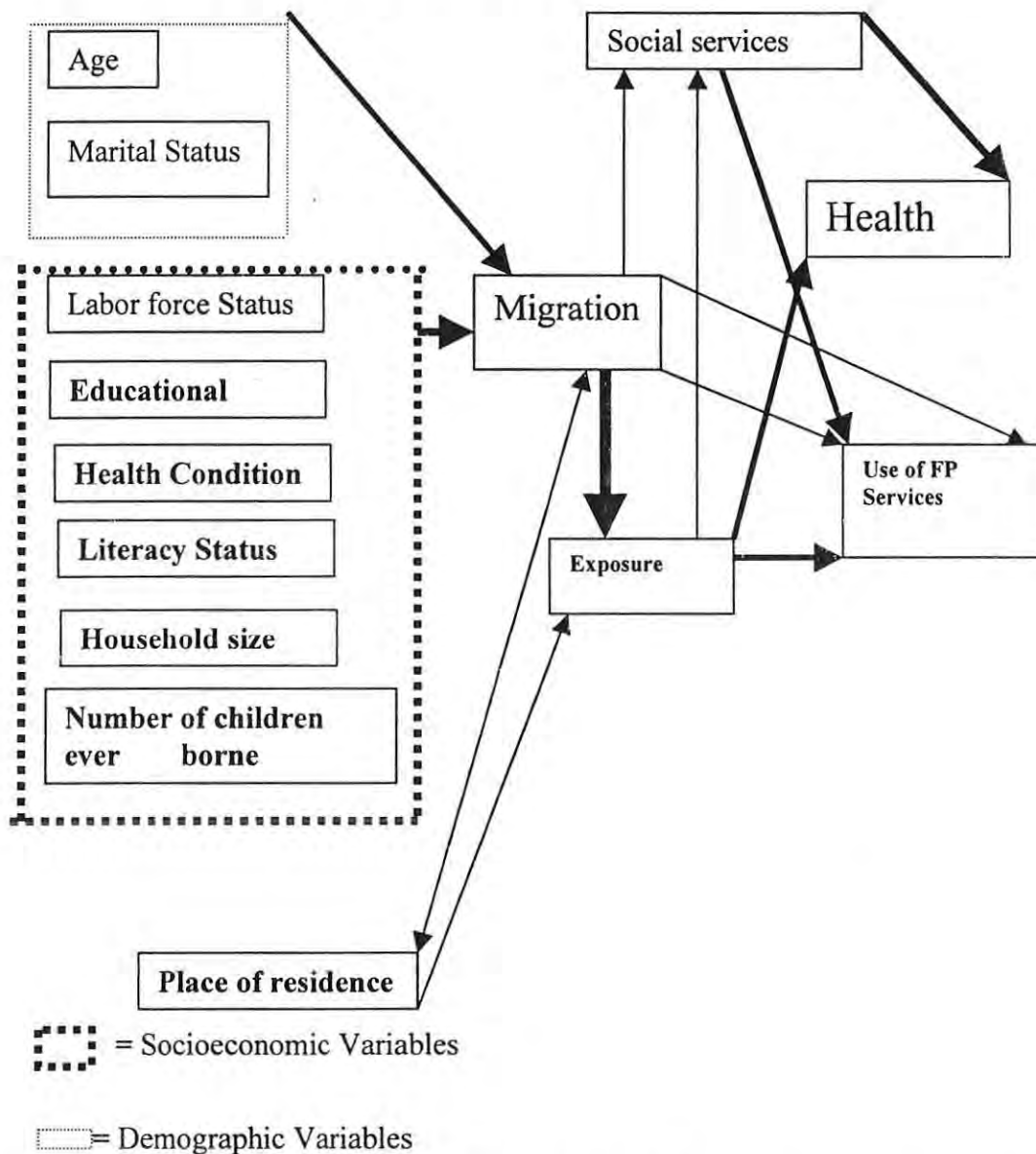


Fig.1, shows the interrelationship between the different socioeconomic and demographic variables with migration. It also tries to show how migration influences health and the use of FP services.

2.5 Operational Definitions

In this study, the following operational definitions are used.

1. **Health condition:** the reported health condition of the respondent. The respondent is asked to rate her own health condition as very good, fair and poor. Those who rated their health as very good or fair are taken as healthy and those who reported their health as poor are not healthy. Most of the time health researches use the “reported” health condition.
2. **Migration:** a change in place of residence, or population “movement” as a component of population change. Such a movement in this case considers crossing a woreda boundary.
3. **Migrant:** a person born out side of the woreda of interview but was living in the study woreda during the interview time. Such persons can also be termed as in-migrants. In other words, a migrant is a woman who migrated into one of the woredas of the study from any other woreda.
4. **Non-migrant:** a person born in the current woreda of interview and was permanently living in that woreda during the time of the study.
5. **Knowledge of family planning:** a correct response to one or more of the 12 questions on family planning knowledge.
6. **Current user of family planning services:** Any woman aged 15 up to 49 who says that she was using at least one method of modern contraceptive currently (at the time of interview).
7. **Modern method of contraception:** any one of the following pregnancy prevention methods: pills, IUD, condom, diaphragm, injectable, norplant, tubecotomy, vasectomy, foam, lactation, rhythm, and withdrawal.
8. **No knowledge of family planning:** no correct answer to any of the family planning questions.

9. **Labor force status:** the persons who supply labor for the production of economic goods and services. In this study, those who are employed (in private or governmental organizations) and homemakers are grouped together because they were actively contributing to the economy of the country and themselves during the study time. But, the un-employed and students are also grouped together for the fact that they were not actively participating in the economic status.

10. **Rural:** an area in which the majority of the population are engaged in agriculture.

11. **Educational level:** the completed grades of education.

2.6 Limitations of the Study

The study has some limitations which have to be made clear and these are:

1. The data used for this study are secondary data. Even though the fact that the researcher of this thesis was coordinating the survey minimizes the influence; this study may also share at least some of the problems of secondary data.
2. The zone, woreda and kebeles/PAs of study are selected purposely. So, it may be difficult to generalize the outcomes of the study to all the woredas of the region.
3. In the analysis, because of the nature of the dependent variables, logistic regression is used. But, logistic regression is sensitive to the relative numbers of the two categories of the dependent variables. In this study, the number of healthy and not healthy as well as users and nonn-users have large differences.
4. The time period the migrant lived in the woreda of study varies. Some lived there for months or few years and others for more than ten years. But there is no theoretical basis to put a cut-off point of time.

5. In this study, both the temporary and permanent migrants are grouped together and considered as migrants. That is the word migrants includes both permanent and temporary migrants. But, the behaviors of the temporary and permanent migrants may differ.

III. LITERATURE REVIEW

Fertility, mortality and migration are the three factors that cause changes in the sizes of a given population. Of the three factors, migration is the most difficult to define and measure. The difficulty arises from the fact that unlike birth and death situations which occur only once in the life of the individual and are therefore clear-cut; migration is a physical transaction which is a special form of spatial (geographic) mobility of human population involving five elements. These are movement, a change of residence, a change in the physical and social environment, distance and time (Kebede, 1994).

The problem lies in defining the five elements mainly time and distance. Because of these complications, different studies use different definitions of migration. According to (IUSSP; 1982: 92-93), migration is the movement of people in space, often involving a change in the usual place of residence; and internal migration is such a movement within national boundaries. In this study, a migrant is a person who crossed a woreda boundary and is residing either temporarily or permanently in the woreda of interview. A non-migrant is a person born in that woreda and her permanent place of residence during the interview time was again in that woreda.

People migrate due to different reasons; but generally, they migrate either due to push factors from the place of origin or due to pull factors from the place of destination. There has not been any integrated theory that fully explains migration though there was an attempt. Nowadays demographers are trying to integrate the partial theories of migration. Migration theories can be classified into two.

i) **Aggregate theories** - these theories mainly attempt to explain the migration patterns, volumes and flows pertaining to the place of origin as well as place of destination.

ii) **Dis-aggregate theories** - mainly attempt to explain individual or household decisions to migrate. Accordingly, there are individual related and household related variables.

Each of the two theories can also be classified as economic theories or non-economic theories of migration. Some of the theories that are used to explain the causes of migration are discussed below.

1) **The labor surplus theory**:- Discusses the causes for rural to urban migration. According to this theory, labor moves from rural to urban sectors due to surplus labor and such a migration tends to equalize the wages in the rural and urban areas.

2) **The human capital model**:- Views migration as an investment decision after making the cost benefit analysis. According to this model, it is only when the net benefit is greater than the cost that people migrate, and it also assumes full employment at the place of destination.

3) **The Todaro and Harris-Todaro models**:- are very similar and assume full employment at the place of destination. According to this, migration proceeds in response to rural-urban differences in expected rather than actual earnings. These models try to visualize the differences between the expected and the actual earnings.

4) **The household model**:- is a model which explains that households migrate not only to maximize income but also to minimize risks. Thus families, households and other culturally

defined units of production and consumption are the appropriate units of analysis and wage differential is not a necessary condition for household migration to occur.

5) The life cycle model:- explains that younger people have tended to be more migratory. Thus age, education, marital status, home ownership, etc. are very important factors. This model uses the individual level, household and community level variables.

In developing countries where no migration studies are conducted, it is difficult to determine which theory best works. But, it is clear that most of the time migration arises in response to the migrant's basic desire to improve his/her way of living, and accordingly, a migrant may improve her life style, personal development and physical health. Even a partial fulfillment of these expectations can improve the health condition of the migrant. On the other-hand, the migration process may be stressful and hazardous which may expose the migrant to new health risks. In addition, migrants tend to cluster in small geographic areas which also affects health risks.

Some studies indicate that migration and health are associated in different ways. According to Baldwin (1987), migration whether temporary or permanent has health implications. When people migrate, the receiving places may fear the disease that comes from the sending place, and that possibly the migrant harbors. The individual may also seek a place or a town in part because it offers better health conditions. Similarly, an individual may fear a certain place or country because it poses health risks through different reasons such as poor sanitation, poor medical care, geographical factors and so on.

According to Bilborrow (1998), the linkages between migration and socioeconomic factors such as health are evident. Goldstein (1976) also explains that most if not all, of the great social problems confronting both the developed and developing countries today have a migration component. According to Evans (1987), migration and health are interconnected in many surprising ways. Starting from the 19th century, the health of immigrants was one of the most pressing health problems in the United States. Investigation of migration and health often forces us to a knowledge that types of migration interact with each other as well as other determinants of health and migration such as age/sex structure, sexual activity, fertility, mortality and family structure. Accordingly, investigations of migration advance our knowledge of public health, the effect of migration on health services, the effect of the migration process on the health of the migrants and the relationship between health and migration policy. In addition, the health status of the migrants can tell us the nature of the migration process.

Until recently, female migration had been largely ignored. This neglect had often been the consequence of an assumption that women were only "associate" migrants moving in order to accompany a migrant father or husband. Once this assumption was examined with actual data it became evident that women did move as individuals and that female migration was distinct from the male phenomenon (U.N., 1988. p100). This shows that in each country or region there is a need to investigate the female migration independently of the male migration; because the patterns, causes and consequences may be different. It is important to recognize that migration has a major impact on the social and economic status of women whether the men or the women move, or whether the families move (U.N., 1988). In order to discuss the socio-economic, cultural and political impact of migration, the socioeconomic as well as demographic conditions

of the migrants and non-migrants have to be studied. The socioeconomic and demographic factors are also highly interrelated with the factors of female migration.

How migration affects the health and use of family planning services of migrant and non-migrant women is viewed in different literature in the conceptual issues such as selectivity, exposure, adaptation and disruption as follows.

A. SELECTION: Although there are several studies conducted with respect to differential migration comparing characteristics of migrants and non-migrants at the place of origin and place of destination, the results are varied and somewhat conflicting. Studies of migration on different countries have reported that migrants are more educated, younger, more occupational skilled and of higher economic status than non-migrants at the place of origin and at the place of destination.

On the other hand, researchers dealing with migration in other countries have indicated that migrants are more educated and of higher socioeconomic status than non-migrants at the place of origin but are less educated and of lower economic status than non-migrants at the place of destination (Caldwell, 1969). Further, similar studies in this area argued that migrants are more oriented towards traditional values than non-migrants at the place of destination (Goldscheider, 1971).

For example, Caldwell found that a nine fold increase in the urban population of Ghana in the period from 1921 to 1960 was the result of rural-urban migration and a large proportion of them were young adults, educationally and economically superior to the non-migrants at the

place of origin; however, they are less educated and less well-economically than non-migrants at the place of destination (Caldwell, 1969). These conditions may have associations with the health conditions of the female migrants as well as the use of family planning services.

B. ADAPTATION: The process of adaptation with respect to fertility, disease transmission, hygiene, use of family planning, use of health services, toilet facility, breast feeding, diet, etc. are the important ones associated with migration and women's health as well as use of contraception.

C. EXPOSURE: Migrants in the new areas especially urban settings may be exposed to new behaviors and habits such as alcoholism, smoking, drug addiction, prostitution, etc. Such exposures may have a serious negative effect on their health and the use of contraception. According to Luis Tam (1994), even in the absence of migrant selection and adaptation, migration can also promote the health of migrants due to climate change, topography and the availability of certain health related benefits of the place of destination which he call environmental exposure.

D. DISRUPTION: Migrants in the new environment may break the traditional values, norms and life style of the area where they come from and with which they have been brought up. So, by breaking the bad habits and life styles, some may improve their health condition and their way of using family planning services. On the other hand by breaking the positive norms, values and attitudes, others may be in a problem. For example, in some cultures, to be a virgin is an accepted norm for a female to marry. But, some of the migrants break this and may even work

as commercial sex workers that can expose them to various sexually transmitted diseases including HIV/AIDS.

There are different reasons for females to migrate. Some of these are marriage, economic conditions, employment, and so on.

1) Marriage migration is common and in such type of migration, the social and economic activities of women are expected to be improved and accordingly, their health conditions will be improved. In addition, the females may want to limit or space births and this again will interrelate with the use of family planning services. But, marriage is also associated with health problems that again are associated with pregnancy and delivery care especially in places where health facilities are poor. *Thus, in order to safeguard their health, if not their lives, women's access to family planning services is essential (UN, 1991).*

(2) In *economic* migration, the informal sector increases (such as household maids, service workers, etc.) and in such cases the females may be exposed to different diseases and may also need family planning services.

(3) If the female migrant is *employed and has good educational standards*, the status of the migrant will be enhanced because she will be financially autonomous. Therefore, the migrants' health condition and knowledge as well as uses of contraception will be better.

(4) Migration may allow women *to break traditional laws* that may have roles in improving the health condition of the female migrants.

(5) Migration may also increase the age at marriage so that complication of very young age marriage will be reduced. High fertility is associated with health problems.

(6) Migration may also *improve the access to the basic health care facilities*, information about traditional and modern family planning methods.

Most of the effects of migration mentioned above may be true for males also. Although migration has positive and negative effects on the health of all groups and both sexes, its impact on women, children, and elders may be easily observable. These groups are more sensitive, susceptible and responsive to socioeconomic changes than the other groups of the society. According to Almaz (1991, p12) women are more vulnerable to health risks than men. Use of family planning services is one of the most important factors affecting the socio-economic conditions of females. The knowledge as well as use of family planning services is expected to be influenced by migration status.

Family planning contributes to achieving social goals such as advancement of women, improvements in the overall health status, stabilization of population growth, preservation of the environment, sustainable economic and social development and overall quality of life. The use of safe and appropriate fertility regulation methods has immediate benefits for the health, well being, and autonomy of women (UN, 1996). So, all couples have the basic right to decide freely and responsibly the number of children they want, the spacing of their births and to have the information, education and the means to do so. According to UN (1989), in the world as a whole, contraceptive prevalence in 1988 was about 50% and that of the developing countries was estimated to be 45% and in the developed countries it was around 70%. But, the report explains that the knowledge of contraception was quite limited in some of the least economically developed countries of Asia and in much of sub-Saharan Africa. In most developing countries, modern clinics are the most widely known supply methods particularly for oral contraceptives such as Pill, IUD (Intra Uterine Devices), and Female sterilization. Withdrawal, which was widely practiced in Europe before the invention of modern

contraception, is apparently unknown to a majority of women in most developing countries, especially where modern methods are also little known (UN, 1987).

In 1996, studies estimated that 53% of couples were currently using contraceptives (UN, 1996) and it also has indicated that there were enormous disparities in the levels of contraceptive use between regions. In many countries, family planning programs are contributing to a decrease in the number of children they want to have. But in developing countries, fertility rates are still high. Even in those countries where fertility rates are declining, as a result of the high fertility of the past, more and more couples are entering their reproductive years, and the need for family planning service in such countries will continue to increase rapidly.

In Ethiopia, the total fertility rate is around 7 children per woman and there is a plan to reduce it to 4 by the year 2015. But, even after the achievement of that goal because of the current high fertility more couples will enter the reproductive age. So, especially during the first quarter of the 21st century more effort has to be exerted on expanding the family planning services. This can be practical only if each region tried to implement it. For this and other reasons, the existing knowledge and use of family planning services has to be studied.

In the pre-colonial history of much of Africa, famine has been held to be the cause of many wholesale migration of communities. During such hungry seasons it is the women who take most responsibility for seeking available food resources, but during a severe shortage, both men and women are involved in off-setting deficits. Migration is primarily a 'male' response (Vaughan, 1987). According to Shears and Lusty (1987), the period 1975 - 1985 has been some of the largest population movements in Africa which includes internal as well as international

migration and attention has been given to the diseases affecting these migrants; but only few studies have been made to give objective and quantitative data.

In migrations, health problems arise as a result of four changes which are

- 1) Breakdown in the existing health infrastructures leading to reduced disease control and treatment facilities.
- 2) Movement of population into new ecological zones with new disease risks.
- 3) High rates of malnutrition leading to increased disease susceptibility.
- 4) Crowding poor housing leading to increased disease transmission rates.

So, in migration researches, the relationship between migration into new ecological zones, the breakdown in the health infrastructure, and the increased disease transmission, susceptibility as well as the assessment of the critical health problems that influence the migrants have to be the important areas of consideration. Based on such studies, strategy for future interventions in health related variables have to be recommended. *When asked about famine, women tell about family, marriage, divorce and children (Vaughan, 1987)*. This shows that draught and famine which are the main causes for African females to migrate are very interrelated with the family structures, marriage, divorce, and health conditions of children; and females are more responsible and victims of such cases.

According to Shears and Lusty (1987), mass migration in Africa's recent history has arisen from two major causes-political insecurity and draught. While in some areas these migrations have resulted from only one of these factors, in Ethiopia war and draught have combined. In 1974, there was a draught in the northern part of Ethiopia because of poor rainfall resulting in poor

harvests, famine and high mortality. According to the study mentioned above, the problems of draught, famine and war resulted in migration of the Tigryian people from the war and draught affected areas. In such migrations, malaria, chest infections, diarrheal disease, which are normally easily managed may become major causes of morbidity and mortality in migrants with no access to health care. In such situations, it is possible that breakdown in disease prevention programs particularly vector control for malaria and others can ruin decades of previous effective work.

Shears and Lusty (1987) explained that in Sub-Saharan Africa, migration due to draught, famine and war may be inevitable, and in such cases the subsequent disease related morbidity and mortality are minimized by selective health interventions which have to be based on researches. According to Culture (1984), since the Ethiopian and Sudan food crises, much work has been done to set up early warning systems for food security; but little work has so far been done on early monitoring of the health risk factors in cases of migration. According to Vaughan (1987), the spread of diseases in such migrations depend in part on the degree to which the migrant is well informed and directed.

On the other hand, according to the UN report of 1996, yearly more than half a million women die due to causes related to pregnancy and proper planning of births; and avoiding unwanted pregnancies reduces maternal mortality and most of these are from the developing countries mainly from Africa. In this, family planning services can play a significant role. *But the percentage of women who know a place to obtain family planning information or services is often appreciably lower than the percentage who know of contraception. Lack of knowledge of services may reflect either their un-availability or ineffective publicity (UN, 1989).*

The data from CSA (1992), report on the ESVRS (Experimental Sample Vital Registration System) in the 12 regions of rural Ethiopia shows that migration is age selective; especially female migration. The data shows that more than one third of the female migrants are in the ages 15 – 24. But, the ESVRS conducted by CSA didn't include Tigray; and such selectivity of migration may have associations with their health conditions and contraceptive use. *In the southern region, the high volume of female migration at the vulnerable adolescent ages are combined with their high incidence of illness, and overall low use of health services and family planning in rural areas (Teller and Melaku, 1997 p12).*

According to the studies made in Addis-Ababa, Knowledge about the availability of family planning methods was observed to be quite high and the method most known by the women was the oral contraceptive pill. Health workers, friends, schools and radio were identified as major sources of information about family planning information (Yemane and Zakus, 1995). According to the study by Yemane and Zakus, 61.9% of the females studied in Addis-Ababa have ever heard about family planning and the known contraceptives are pill (75.3%) of the users, Rhythm method (18.7%), condom (17.5%), IUD (16.6%), injectable (8.7%), abstention (6.3%), and diaphragm (4.2%). The sources of FP services are Health workers (70.5%), Radio (19.9%), Television (3.0%) and others (6.6%). Accordingly, their main sources of FP services were Health centre (61.4%), Family Guidance Association of Ethiopia (17.7%), Health Station 12.0%), Pharmacy/drug vender (3.8%) and Hospitals (1.3%).

Generally, female migration that has a long history in Tigray, and which has been rapidly increasing from time to time (CSA, 1995), has an effect in the socioeconomic conditions of the

society by its effect in different factors such as the health and knowledge as well as use of family planning services of the migrants. So, the association between female migration and their health conditions has to be studied and compared with the non-migrants in the places of origin and destination. In this study, the association between female migration status and health is studied and compared with the health conditions of the non-migrants at the place of destination. In addition, the association between female migration status and the knowledge as well as use of FP services is studied.

Little, if any, effort has been made in such studies in Ethiopia and no study of this type is made in Tigray before. Aimed at filling this research gap, this study examines the health conditions and knowledge as well as use of FP services of both migrant and non-migrant females in three woredas of Tigray.

IV. RESULTS

4.1 Descriptive Analysis

4.1.1 Introduction

This study, as mentioned earlier, includes 269 women of ages 10 years and above. Of these, 106 (39.4%) are non-migrants and the remaining 163 (60.6%) are migrants; 165 (61.3%) are from urban areas and the remaining 104 (38.7%) are from rural areas. The following pretests the mobility history, socioeconomic conditions and demographic characteristics of both the migrants and non-migrants. The variables which are expected to influence the health conditions as well as use of family planning services are also described by migration status. In addition, the migrants are classified by their places of origin (rural/urban) and then the health conditions, use of family planning services as well as their intention for migrating again are described.

4.1.2 Mobility History of the Females

The mobility history of a person may indicate the desire of the person to improve her way of living. After age ten, 63.6% of the females (171 women) have moved at least once out of their birth places for not less than a month. Eight of the 171 women are returnees and were at their birth places during the interview time. So, they are considered as non-migrants. The movement mostly (80%) was within Tigray and about 10% was to foreign (mainly Eritrea) and about 8% was to Addis Ababa. Those females who had moved for at least a month to Eritrea, Addis-Ababa and other places have returned to Tigray and that is why they are interviewed in the areas

of the study. In fact, depending upon the definition of migration used, the females mentioned are either migrants or non-migrants. Out of the movers (75%) had destinations in the urban centers.

4.1.3. The Socioeconomic Conditions of both the Migrants and Non-Migrants.

i) Household size

The household size is one of the factors for the quality of life of the individuals in the household in particular and for the community in general. The household size may determine the living condition including the amount as well as quality of food (calorie) intake. Two households with the same income but different household size are expected to have different ways of living. But, the household size only doesn't determine the living condition of the household. The quality of the individuals such as the educational level, labor force status, occupation and the way the family is planned also affects the living condition.

The way the resources of the household are managed is another important point which mainly is determined by the quality of the individuals in the household especially the household head. The living condition may also determine the health condition of the individuals in the household and the health services of the community. The average household size of the study population was 6.45. By migration status, the mean household size of the migrants was 6.64 and that of the non-migrants was 6.15. On average, the household size of the migrants is greater than that of the non-migrants.

ii) Education

The literacy status and the level of education of a person is expected to influence the way that the person behaves and manages resources. The behavior and the living condition of the person in-turn determines how the person decides and then acts. All these things are very inter-related with the migration status, health conditions as well as the knowledge and use of family planning services. 56.9% of the migrants and 74% of the non-migrants are literate. Overall, 63.5% of the respondents are literate. So, the percentage of literacy is higher in the non-migrants than the migrants. The highest grade level completed by the females is analyzed by migration status and is given as follows.

Table 1: The grade levels of the respondents by migration status as well as rural-urban status.

Grade level	migrants	Non-migrants	Both
0	16(17.8%)	9(12.2%)	25(15.2%)
1-6	37(41.15)	20(27%)	57 (34.8%)
7-8	10(11.1%)	27(36.5%)	37(22.6%)
9-12	20(22.2%)	14(18.9%)	34(20.7%)
>12	7(7.8%)	4(5.4%)	11(6.7%)
Total	90(100%)	74(100%)	164 (100%)

More than one-third of the literate were in grades 1-6 and the migrants were mostly concentrated in this group (41.15% of the literate migrants). Most of the non-migrants (36.5%) were concentrated in grade levels 7-8. The average grade level of education completed by the

migrants and non-migrants are 6 and 6.7 grades respectively. Generally, it seems that the non-migrants have better education than the migrants.

iii) The labor force status and means of income

The labor force status of a person determines the nature of the activities in which the person is engaged and the level of her income. The labor force status of the females interviewed is studied by their migration status. 40.9% of the females interviewed are home-makers and 25.3% are students. The details are given below.

Table 2: The labor force status of the respondents.

Labor force status	Migrants	Non-migrants	Total
Home makers	64(41.6%)	41(39.8%)	105(40.9%)
Students	27(17.5%)	38(36.8%)	65(25.3%)
Working for self	14(7.8%)	10(9.7%)	24(9.3%)
Working for others	16(10.4%)	2(1.9%)	18(7%)
Government employee	9(5.8%)	6(5.8%)	15(5.8%)
Unemployed	11(7.1%)	4(3.9%)	15(5.8%)
Others	13(8.4%)	2(1.9%)	15(5.8%)
Total	154(100%)	103(100%)	257(100%)

So, two-fifth of the respondents are home-makers and one-fourth of them are students. Most of the students are non-migrants. Accordingly, their source of income was agriculture (38.8%), salary from government (25.9%), etc. The details are given in Table 3.

Table 3: Source of income of the females

Source of income	Migrants	Non-migrants	Both
Agriculture	51(31.5%)	51(49%)	102(38.3%)
Salary from government	47(29%)	22(21.2%)	69(25.9%)
Non-agricultural works	33(20.4%)	16(15.4%)	49(18.4%)
Wages from non governmental	20(12.4%)	2(1.9%)	22(8.3%)
Social welfare	6(3.7%)	4(3.8%)	10(3.8%)
Remittance	1(0.6%)	5(4.8%)	6(2.3%)
Total	162(100%)	104(100%)	266(100%)

For 38.3% of the population, the source of income is agriculture; and the remaining 62.7% is non-agriculture. Nearly half (49%) of the non-migrants and about one-third (31.5%) of the migrant depend on agriculture.

iv) Reasons for migration (for migrants only)

In migration studies, the most important area of study is answering the question “*Why?*”. Knowing the causes of migration can tell a lot about the migration process and its consequences. The reasons why females migrate may differ from the reasons of male migrations. The migrants were asked to explain their main reasons for moving from place to place. Their main reasons for the movements are

- Marriage - 29.3%.
- Job assignment - 22.8%
- Moving with families - 21.6%
- Better education - 9.4%
- Better cultural life 3.5%

- Joining families or friends - 2.3%
- War evacuation - 2.3%
- Better economic opportunity - 1.7%.

So, the three main reasons for females (for more than 70% of them) to migrate are marriage, job assignment and moving with families. The other 30% migrated because of different socioeconomic as well as cultural reasons.

Most of the time, the reason for migration depends on the prevailing conditions of the area of origin especially in the last few months before they migrated. The migrants were asked to describe the conditions of their birth places in the 3-4 months before they moved, and 23% reported that there was famine/drought, 9% explained that there was war and instability and 9% said that there was epidemic (disease). According to the response, famine/drought is the most important event that the migrants reported.

v) Living conditions of the migrants.

The living conditions of a person may include many things such as with whom the person lives as well as the housing condition such as the type of the roof of the house, the floor type, etc. In this study, the housing condition of the respondents are more or less similar. In fact, there is a difference between the housing conditions of the rural and urban areas. Such differences are the main factors for rural-urban differences and are treated in the influences of rural-urban places of residences. But, generally, the living and housing conditions of the migrants at the place of destination as well as with whom they lived after migrating may have relations with their health conditions as well as use of family planning services.

The result shows that at the place of destination, 47.4% of the females were living with their own families, 25.1% lived with their new spouses, 11.1% with relatives, 2.3% with country men and only 7% were living alone. So, not less than 86% of the migrants were living with somebody (either with families and relatives or spouses etc.) at the place of destination. This may be due to the fact that female migration in Tigray is more of associational migration.

vi) Employment status of the migrants.

The employment status of a person is one of the socioeconomic indicators that determines the level of income as well as the power of the individual in the household and in the community. The employment status also is associated with different factors such as the educational level, age, health conditions and so on. At the place of origin nearly 75% of them were either unemployed, or students. Before the females moved, 46.2% were unemployed, 28.7% were students, 4.1% were commercial workers, and 2.3% were farmers.

Migration is one of the variables expected to affect the socioeconomic status of the migrants. Accordingly, after they moved, only 19.3% were unemployed, 19.3% were students, 16.4% became home makers, 5.3% were farmers, 1.2% commercial workers, 1.2% clerical workers, and only 0.7% professionals. Before and after migration, unemployed females and students have the highest percentage; but the employment status after migration is diversified. Due to migration, the unemployment rate decreased from 46.2% (before migration) to 19.3% (after migration). On the other hand, homemakers have increased from 0% to 16.4%. The percentage

of females employed in the formal sector seems to be very small. This may indicate that the females are employed mainly in the informal sector.

vii) Decision for migration

The success of a migrant mostly depends up on how well informed the individual was before migrating. The information about the place of destination may be about the climate, the infrastructure, the employment opportunities, etc. Based on the information about such opportunities a person may decide to migrate. Some may also migrate because of the decision of others. The decision to migrate may have a relationship with the socioeconomic and other demographic variables. In fact, as indicated earlier, the ability to decide depends upon how well the person is informed and the power of the person to decide about herself. This can also be influenced by the culture, religion, political system and other factors of the society. In regions like Tigray where more than 95% of the population is orthodox, the power of the females to decide about them-selves is very low. On the other-hand, the new political system is encouraging females to practice the power to decide both in the household and the community.

30% of the female migrants explained that it was the husband who decided the move and 27% said that it was them-selves. 19% said it was the decision of the entire family, 1.8% said it was the decision of child/children, and 1.8% of other relatives. More than 70% moved because of the decision of others. It can be observed that it is the husband that has higher power to decide than the female herself about herself. This may be because of the fact that the husbands have better access to information and/or better income than the females.

Similarly, 41.7% of the women moved with their spouses and 23.3% alone, 11.7% with parents, 8.6% with other relatives, 6.7% with children, and 5.5% with brothers and sisters. More than 75% of the females migrated with somebody (spouse, parents, relatives, brothers & sisters, children etc.). At this point it is clear that the female migration in the study areas is more of passive migration.

viii) Place of residence and direction of the move

The socioeconomic conditions of the place of origin is expected to affect the way the migrants behave at the destination places. In Tigray there is a great difference in the social services such as clinics and health centres between the rural and urban areas. In addition to the personal efforts that the person can exert, the place in which the person is living can also influence the living conditions of the individual. All these factors also affect the health conditions as well as the knowledge and use of family planning services. From birth till age ten, 110 women (67.9%) were living in the rural areas and 52 (32.1%) were living in the urban areas. So, more than two-thirds of the migrants have rural places of origin.

Only 3 women migrated from urban to rural. The remaining 49 women whose place of origin is urban migrated to urban areas. Of the 110 women born in the rural areas, 60(54.5%) migrated to urban areas and the remaining 50(45.5%) migrated to rural areas. The above information can be summarized in the following way.

Rural to rural migrants50 women.
Urban to urban49 women
Rural to urban60 women.
Urban to rural <u>3</u> women

The direction and volume of the moves may indicate the desire that the females have to improve their way of living. More than two-third of the females had rural places of origin and more than two-third had urban places of destination. This may be a clear indication of the fact that the living conditions are better in the urban areas than the rural areas. Another possible reason is that females may get more information about the urban areas than the rural areas.

ix) Knowledge about destination places

Information about the place of destination may help the migrants to set goals and determines their level of expectations. The type of information they get and the reliability of the information is also a very important factor. Some of the migrants may get correct information and then have a pre-planned life after migration. But if the migrant is misinformed about the place of destination, she may get frustrated and may be exposed to many diseases and psychological problems.

The migrants were asked to explain whether or not they had information about the place of destination before they moved. Even though the female migration in the area of study is more of associational migration, most of the migrants had information about the place of destination. 42.9% had no information and the remaining 57.1% had information about the places of destination. It seems that most of the migrants had information about the places to which they moved. 32% of their sources of information were their relatives, 26.7% have visited the places of destination before the last move, 21.3% from parents, 12% from siblings, 6.7% from friends and only 1.3% said that radio and news papers were their sources of information. More than 70% of those who were informed about the place of destination got the information from relatives and friends. According to the 1994 census of the region, in Tigray radio is owned only

by 13.9% of the individuals and in the rural areas (about 9%). But, only 1.3% of the respondents explained that radio and newspapers were their sources of information about the destination places. From this it can be said that these media of communication are not helping the migrants to have general awareness about the place of destination.

As to the type of information, they explained that 38.8% was about job/employment opportunity, 19.4% about education facilities, 17.9% about the cost of living, 14.9% about housing conditions, 4.5% about the health conditions and the other 4.5% about the climate.

Nearly half (49.3%) of those who had information about the place of destination explained that the information was correct, and the other 49.3% said that it was partly correct. Only 1.4% reported that they were told the wrong information. In fact, before they moved, 70.6% of the migrants explained that they had relatives at the place of destination and 19.6% had friends. So, it seems that females migrate to where their relatives and friends are as they are their main sources of information about the place of their destination.

One of the advantages of the presence of relatives or friends at the place of destination is that they can help them with different things after they arrived at the new areas. The aid that the migrants may receive after they migrated can help them to adopt the new area easily. The aid can be of different forms depending up on the needs of the migrant and the living condition of their relatives or friends there. 57.4% of the movers reported that they received help from somebody. The help they received was mainly (83%) accommodation and meals, 8.5% spiritual support, 3.2% accommodation only, and 3.2% meals only. Because of the cultural values and extended family systems the females migrated to places where there is somebody they know

(relatives or friends) and more than 57% of the migrants have received helps. As explained above, the helps mostly try to satisfy the basic needs of the migrants and the satisfaction of such needs influences their health conditions.

x) Life before and after migration

Better way of living may be one of the reasons for the females to migrate. In addition, depending up on the information they got, migrants usually have expectations and their satisfaction may depend up on the level of their expectation. The migrants were asked to compare their lives at the place of destination versus their place of origin and the expectations they had before moving. The result showed that for 15.3% the new place was much better than the previous place, for 18.4% the new place is better and for 35% it was about the same. But, 20.8% reported that their life here was not so good and 1.2% said that it was worse. For more than 68% of the migrants, their life at the place of destination was the same or better than the place of origin.

As for their expectations, 43.6% said that it is better than their expectations (16.6% reported that it was much better than what they expected and 27% said that it was somewhat better). For 32.5% it was the same as what they expected, for 15.3% it was less than their expectations (14.7% said as compared to their expectations their life here is not so good while for 0.6% it was worse). But, 8.6% couldn't compare their expectations with their new life at the place of destination. So, as compared with their expectations, for 76.1% of the migrants, the place of the destination is the same or better.

xi) Relatives and social organizations

As mentioned earlier, relatives are the most reliable sources of information about the place of destination. At the time of interview, 139 women (85.3%) reported that they had relatives at the place of destination. About 10% of them who had no relatives or communication with, had relatives at the place of destination during the interview. But still, about 82% of the migrants are not satisfied with the number of relatives they have and explain their dissatisfaction with having only very few relatives (44.6%) or only some relatives (37.4%). Only 18% of the migrants reported that they have many relatives. So, the migrants want to have more relatives than they already have and this will again lead to more females to migrate to these areas.

Migrants usually have attachments with their homeland through different ways. One way is through forming social organizations, 9.2% of the migrants have social organizations of their homeland. Another is that either the migrants go and visit their birthplaces or relatives from the birth places go and visit them. During the 12 months before the interview, 58.9% of the respondents reported that some body from the homeland came and visited them and 42.3% of the migrants visited their homelands at an average of three times in two years or 1.5 times in a year.

xii) Resources and source of money

When people migrate, usually they have a certain resource with them. In fact, this depends upon the type of migration and the living condition of the migrants. It was explained that marriage migration is the most common type of female migration. In Tigray, at the time of marriage families usually give the spouse some amount of money and/or animals such as oxen, cows and other commodities. 41.1% of the migrants had some resources with them - 48.5% was in money,

40.1% in livestock, 9.1% in household commodities, and 1.5% in precious items. About one-third of the migrants who brought resources with them have invested them in agriculture, 22.4% for daily living expenses, 11.9% for searching jobs, 11.9% for buying durable commodities, 10.4% for constructing a house and 4.5% for health care. The amount invested for health care is only 4.5% and this may mean that either the migrants had no health problems, or health care services are free of cost, otherwise the females did not invest much in their health cares.

In the first 3-4 months after their arrival, the migrants explained that their source of money was full-time work (26.4%), family savings (22.1%), temporary work (17.8%), help from relatives (10.4%), personal savings (6.7%), social welfare (1.8%), begging (1.2%) and others (13.5%). The migrants spent their income for the daily expenses (50%), health care services (14.3%), education (14.3%) and searching jobs (14.3%). About 12.9% of the migrants have received financial help or goods. On the other hand, since migration, 18.4% of the migrants explained that they had saved or invested money and 5.5% have sent money to their relatives.

In the first 3 - 4 months after they arrived at the place of destination, 21.5% reported that they were faced with problems most of which (34.3%) was health problem. The other problems were homesickness (28.6%), economic problems (14.3%), inadequate housing (5.7%), and problems of adopting to the new situations (5.7%). Generally, around four-fifth of the migrants adopted the new area without any problem. This may be due to the fact that not less than 80% had relatives or friends at the place of destinations.

Based on their overall assessment, the migrants were asked to give their own views about those females who intend to move to such places in order to live in a similar condition. This can show

how the migrants are satisfied or dissatisfied with their new places. The response they gave are summarized as follows.

- 38% of the respondents said that such people have to be encouraged to move;
- 30.7% explained that they would persuade them not to move and
- 31.3% had no suggestion at all.

So, more females agree that their migration has to be encouraged. This will influence their relatives and friends who remained at the place of origin to migrate. In addition, since these females are appreciating their past actions of moving to where they are, this may also encourage them to migrate again to other areas. Those who persuade others not to migrate may also return to their original places. In either case, their responses indicate that there may be high mobility of females either to or from the areas of the study and similar places.

xiii) Intention to move

Nearly one-third (30.1%) of the 269 respondents have the intention to migrate to other places. 34.4% of the migrants and 23.6% of the non-migrants expect to move out of the place where they are. So, the intention to migrate is higher among the migrants than the non-migrants. Of those who have the intention of moving, 48.2% want to move temporarily and 49.4% want to migrate permanently. 96.3% of the non-migrants who intend to migrate want to move temporarily and 3.7% want to move permanently. But, among the migrants who intend to move, 25.9% want to move temporarily and 70.1% intend to move permanently. Most of the migrants who intend to move want to migrate permanently and most of the non-migrants who intend to move want to move temporarily. Out of all who have the intention of moving, 48.3%

want to migrate to urban areas, 29.2% want to go back home, 11.2% to rural areas and 10.1% want to go overseas. So, there is higher intention of moving to urban areas than the rural areas.

23.6% of the females who intend to move want to migrate within three years time. 59.6% of the females who have the intention of moving want to go alone and 28.1% with families, 7.9% with relatives and 3.4% with friends. The intention to migrate is higher in those who have rural origin than those who have urban origin. 35.5% of the females who migrated from rural and 30.8% of the females who migrated from urban have the intention of migrating again.

Some of the main reasons why the females intend to migrate are

- the work (income) they have is not enough 13.6%.
- they want to go to live with relatives. 11.4%.
- for better education. 8%.
- seeking better occupation 8%.

xiv) Reasons for not migrating (for non-migrants only)

The non-migrants were asked to explain their reasons for not migrating. The main reasons are summarized and given below.

- 78% didn't want to be separated from their families or family ties or were satisfied with their place of birth because all the properties which they needed were there.
- 9% were in schools,
- 7% had to keep the land of their families,
- 3% because of limited education,
- 3% didn't know if better income or job opportunities are available in other places.

For the females who have no intention of moving (about 70%), the main reasons why they don't intend to migrate are

- of family ties 26.1%.
- all properties are there 15.3%.
- they have their families at the place where they are 1.9%.
- they have too few families out of their places 11.9%.
- Health problems 9.1%.

Generally, the reasons why the non-migrants didn't move and why around 70% of the females are not intending to migrate are more or less similar.

4.1.4. Demographic Characteristics

i) Age distribution

Several studies indicate that migrants are more educated, and younger than the population of the sending place. But, the results vary from place to place. According to Caldwell (1969), migrants are older and less educated as well as less well economically than the non-migrants at the place of destination. 50% of the migrants and 72% of the non-migrants are in the age group 15-34. In general, the non-migrants are younger than the migrants with an average age of 29.6 and 33.6 respectively; the average age of the respondents being 32 years. 75% of the migrants and 85% of the non-migrants are in the reproductive age groups i.e., 15-49 years. The age structure is given below.

Table 4: The age distribution of the respondents is given below by migration status.

Age groups	Migrants	Non-migrants	Total
10 - 14	5 (0.03%)	0 (0%)	5 (1.9%)
15 - 19	41(25.2%)	45(42.5%)	86 (40%)
20 - 24	12(7.4%)	11(10.4%)	23 (8.6%)
25 - 29	16(9.8%)	12(11.3%)	29 (10.8%)
30 - 34	12(7.4%)	10(9.4%)	22 (8.2%)
35 - 39	20(12.3%)	3(2.8%)	23 (8.3%)
40 - 44	12(7.4%)	7 (6.6%)	19 7.1%)
45 - 49	14(8.6%)	4(3.8%)	18 (6.7%)
50 - 54	11(6.7%)	4 (3.8%)	15 (5.6%)
55 - 59	3(1.8%)	0(0%)	3 (1.1%)
60 - 64	7(4.3%)	3 (2.8%)	10 (3.7%)
65 ⁺	10(6.1%)	7 (6.6%)	17 (6.3%)
Total	163(100%)	106 (100%)	269 (100%)

ii) Marital status

61.6% of all the females studied are ever married and the remaining 38.4% have never been married at the time of interview. **67.3%** of the migrants and **52.8%** of the non-migrants are ever-married. The details are given in the table below.

Table 5: The marital status of females.

<i>Marital status</i>	<i>migrants</i>	<i>non-migrants</i>	<i>Total</i>
Never-married	80(51.9%)	38(36.9%)	118 (45.9%)
Currently Married	6(3.9%)	6(5.8%)	12 (4.6%)
Divorced	9(5.8%)	11(10.7%)	20 (7.7%)
Widowed	11(7.1%)	4(3.9%)	18 (7.0%)
Separated	48(31.2%)	44(42.7%)	92 (35.8%)
Total	154(100%)	103(100%)	257 (100%)

iii) Fertility

Out of the total females interviewed, 58.3% have ever given birth to a child. When analyzed by their migration status, 63.75% of the migrants and 50% of the non-migrants have ever given birth to a child. The mean children ever born (MCEB) is 5.2 and by migration status, the MCEB of the migrants is 5.5 ranging from 1 to 12 children and that of the non-migrants is 4.7 ranging from 1 to 10. The mean children ever-born is higher for the migrants than the non-migrants. This may be because of the fact that the migrants want to have many children or they may want to limit the number of children but may not have access to the family planning services.

iv) Health services

Pre-natal cares play great roles in reducing the number of mothers dying due to events relate with child bearing. 45.9% of those mothers who have ever given birth to a child received medical care before giving birth. The migrant females who have ever given birth to a child use better medical care services (49%) than the non-migrants (39.6%). Generally, 19.5% of all the births were in hospitals which again is classified as 21.1% of the child births of the migrants and 16.98% of the non-migrants. Similarly, 23.4% of the births are attended by either a health assistant, nurse or a doctor which again is 25.2% of the migrant births and 19.6% of the non-migrant births. Generally, it seems that the migrants use the available health services better than the non-migrants.

On average, the migrants breast feed their children for about 10.7 months and the non-migrants for 12.6 months. The non-migrants breast-feed their children for longer period of time than the migrants. 10.4% of the children born alive have died. When considered by their migration

status, 9.8% of the children whose mothers are non-migrants and 10.7% of the children whose mothers are migrants have died.

4.1.5. Knowledge and Use of Family Planning Services –by Migration Status

i) Knowledge of Contraceptives

The knowledge of family planning services is the first step to use it. With out having information about the available services including their advantages and disadvantages, no one is expected to use them properly. So, in policy implementations the necessary information has to be given to the users. Then they have to be educated on how they can use the information they have. Based on this, a question was asked to the respondents to which of the following modern contraceptives they know and were expected to tell all what they know. Accordingly, the knowledge of family planning services is given below.

Table 6: Knowledge of contraceptives by migration status

Know	Migrants	Non migrants	Both
IUD	34.4%	40.6%	36.8%
Pill	76.7%	87.7%	81%
Injectable	75.5%	85.8%	79.6%
Norplant	31.3%	41.5%	35.3%
Condom	59.5%	75.5%	65.8%
Diaphragm	25.1%	25.5%	25.3%
Tubecotomy	28.2%	43.4%	34.2%
Vasectomy	14.7%	23.6%	18.2%
Foam	12.9%	21.7%	16.4%
Lactation	58.3%	67%	61.7%
Withdrawal	18.4%	33%	24.2%
Rhythm	41.1%	58.8%	48%
Average	39.7%	50.31%	44%
Other modern methods	2.6%	2.8%	
Traditional method	1.2%	1.9%	

From table 6 one can observe that at least 81% of the respondents know at least one modern method of contraception. When considered by migration status, not less than 87.7% of the non-migrants and 76.7% of the migrants know at least one modern method of contraceptives. In all the types of contraceptives given, the non-migrants have better knowledge than the migrants. On average, 44% of the respondents know all of the 12 different methods listed above and this knowledge can further be analyzed by migration status: 50.31% of the non-migrants and 39.7% of the migrants know all methods indicated.

Usually, a gap between knowledge and practice is observed. In addition, in 1988, it was studied that on average, 50% of the couples in the world which are in the reproductive age were using family planning services. By the year 2015, Ethiopia has an objective of increasing the percentage of users to 44%.

ii) Use of Contraceptives

Even though not less than 81% of the females interviewed had a knowledge of at least one method of contraception, only 15.67% of the females were using at least one method of the contraception. When studied by their migration status, the migrants are better users of FP services (19.2%) as compared with the non-migrants (10.87%). There is a great gap between the knowledge and the use of contraceptives. But, the gap is higher among the migrants than the non-migrants.

The types of contraception they use are also given in table 7.

Table 7: The type of contraceptives used

Currently using	Migrants	Non-migrants
Injectable	37.5%	30%
Pill	29.2%	40%
IUD	8.3%	10%
Norplant	4.2%	0%
Condom	4.1%	10%
Rhythm	12.5%	0%
Lactation	4.2%	20%

11.9 percent of the rural residents and 22.8% of the urban residents use family planning services. In the rural areas, 9.7 percent of the non-migrants and 13.9% of the migrants use contraception. But in the urban areas, 27.9 percent of the migrants and 15.2 percent of the non-migrants use FP services. The gap between the users and non-users by migration status is wider in the urban areas. Among the migrants, 27.3% of the women who migrated from urban areas and 15.2% of the women who migrated from rural areas use contraception. Women who migrated from urban settings use more contraception than those who migrated from rural ones. This may be due to the fact that females who reside in the urban areas have better access to information and services than those who reside in the rural areas. In addition, 12.1 percent of the rural to rural migrants, 21.1 percent of the rural to urban and 26.8 percent of the urban to urban migrants reported that they are users of family planning services.

62.5% of the migrant and 50% of the non-migrant users obtain the contraceptives from clinics/health centers and the remaining from family planning associations, pharmacy, mobile team and CBD agents.

The main reasons why most of the respondents are not currently using contraception are given below.

Table 8: Main reasons why the females do not use contraceptives.

Main Reason	Migrants	Non-migrants	both
I am breast feeding	10.3%	8.1%	9.4%
I want to be pregnant	7.2%	14.8%	10.5%
Health Concern	8.2%	1.2%	5.8%
I don't know any method	3.1%	5%	4.1%
Spouse separation	4.1%	8.1%	5.8%
Spouse disapproval	2.1%	2.72%	2.3%
I am pregnant now	1.03%	1.4%	1.12%
Other	15.5%	21.6%	18.1%

As indicated in table 8 above, the main reason why the migrants are not using contraceptives is that they are breast feeding (10.3%). But, the non-migrants are not using contraceptives because they want to be pregnant (14.8%). Generally, the non-migrants have better knowledge of contraceptives than the migrants. But, the migrants are better users of contraceptives. This may be due to the aspirations which the migrants might have before migration. Because of the aspirations they may have and other reasons the migrants are expected to use the resources they have. Even though the knowledge is less among the migrants, the possibility is that the migrants are trying to use what they have and trying to apply what they know.

About 46% of the migrants who are currently using contraception were not users of family planning services before they migrated. The main reasons why they started to use after they migrated are i) they were not married before (45.5%), ii) they want to space births after they migrated (36.4%), and iii) they were too young before they migrated (9.1%).

4.1.6. Health Conditions by Migration Status

As indicated in the literature review, many studies show that migration and health are inter-related in different ways. One obvious reason is that migration is very inter-related with changes in the life styles of the migrant which in-turn is associated with the health condition of the migrant. Before the females migrated, 24.8% reported that they were sick at the places of origin during the last 12 months of their movement. The other 71.5% were not, and 3.6% don't know. At that place, those who were sick obtained health care services (70.3%), and 18.9% had traditional or spiritual medicines.

48.8% of the migrants and 45.7% of the non-migrants interviewed had children of ages under 5, and almost all had received vaccination for Polio. 90% of the non-migrants and 80% of the migrants for DPT as well as for BCG. 30% of the non-migrant mothers and 33.33% of the migrant mothers have reported that their children under age 5 have been sick in the last 12 months.

The respondents were asked to rate their own health as very good, fair and poor. 29.6% of the respondents said that their health condition was very-good and 53.2% said that it was fair and 17.2% said it was poor. When considered by migration status, the rates of their own health conditions are as follows.

Table 9: Ratings of their health conditions by migration status

<i>Migration status</i>	<i>very good</i>	<i>fair</i>	<i>poor</i>
migrants	27.3%	58.4%	14.3%
non-migrants	33%	45.3%	21.7%

From the responses given in Table 9, 14.3% of the migrant women and 21.7% of the non-migrant women have complained about poor health conditions. In this, it seems that the migrant women are healthier than the non-migrant women. This may be due to the overall changes in the life styles of the migrants. In addition, the use of the health services and other infrastructures is better among the migrants than the non-migrants. Comparing with their place of origin and the aspirations they had the migrants are expected to use the existing infrastructures better than the non-migrants.

In the rural areas, 32 percent of the non-migrants and 21 percent of the migrants reported that they are not healthy. But in the urban areas 12.5 percent of the non-migrants and 11.0 percent of the migrants have poor health conditions. So, the gap between the health conditions of the migrants and non-migrants is wider in the rural areas than the urban areas. This may be because of the fact that the main reason for rural to rural migration is marriage and when females marry, a clear improvement in the socioeconomic condition is observed. When the places of origin are considered, the migrants from rural areas seem to have relatively poorer health than the migrants whose place of origin is urban. 18.5 percent of those who migrated from rural areas and 5.8% of the women who migrated from urban areas complain of the fact that they are not healthy. A statistically significant difference in the health conditions between the migrants whose place of origin is rural and urban is observed at 5% level of significance. 6.1% of the urban to urban migrants and 15.3% of the rural to urban migrants reported that they are not healthy. In addition, 22.4 percent of the rural to rural migrants are not healthy. The possible reasons for difference in health conditions between rural and urban areas may be i) almost all of the migrants with place of origin urban areas have migrated to urban settings and there are more health services in the urban centers than the rural areas, and ii) the culture of using health services and hygiene as well

as other factors which improve the health condition of the females are better in the urban areas than the rural areas. Other possible reason for the fact that migrants with urban origin have better health conditions than migrants with rural origin may be due to adaptation and disruption effects. These factors are easier for those migrated from urban than rural areas.

They were also asked to rate their health conditions as better, about the same, and worse as compared with other women of their ages. Accordingly, their responses are given below.

Table 10: The health conditions of the respondents as compared with the females of their ages by migration status.

<i>Migration Status</i>	<i>Better</i>	<i>About the same</i>	<i>Worse</i>	<i>DK</i>
migrants	24.8%	47.2%	23%	5%
Non-Migrants	30.2%	42.5%	25.5%	1.9%
Both	27%	45.3%	23.0%	3.7%

As compared with other females of their age, 72% of the non-migrants and 72.7% of the migrants reported that they have the same or better health conditions. No significant difference is observed in this case. But, 30.2% of the non-migrants and 24.8% of the migrants reported that they have better health conditions than the females of their ages.

The migrant respondents were also asked to compare their health conditions before and after migration. Accordingly, 26.5% said that it was better at the time of interview than before they migrated, and 18.16 said it was worse. For 53.5% of the migrants, it was the same as before and 1.9% couldn't compare. So, for 80% of the migrants, the health condition after migration was the same or better; but for 18.19% it was worse. From this, it seems that after migration, most of

the females are improving their health conditions. In addition, the report of the migrants shows that there is a statistically significant improvement in the cleanliness and drinking water at a 5% level of significance.

The types of diseases which attack the migrants and non-migrants may some times differ. Accordingly, the percentages of the females suffering from each of the following diseases are given below.

Table 11: Types of diseases by migration status.

	Migrants	Non- migrants	Both
Malaria	19.1%	4.7%	13.4%
Measles	55.6%	53.8%	54.9%
Typhoid	9.8%	5.7%	8.2%
Tuberculosis	8.02%	7.5%	7.8%
Hepatitis	2.5%	6.6%	4.1%
Relapsing Fever	28.3%	24.7%	26.1%
Pneumonia	3.1%	1.9%	2.6%
Asthma	3.1%	4.7%	3.7%
Bilharzia	5.6%	2.8%	4.5%
Anemia	19.8%	15.1%	17.9%
Other	30.2%	32.1%	31.0%

The disease that most prevails (54.9%) is measles and infects more the migrants (55.6%) than the non-migrants (53.8%). 19.1% of the migrants and 4.1% of the non-migrants had malaria.

4.2 Logistic Regression Analysis

As discussed in the methodology part, for a binary response dependent variable Y_j and a quantitative independent variable X_{ij} $i=1, 2, 3, \dots, k$ and $j=1, 2, 3, \dots, n$. Let $P_j = P(X_{ij})$ denote the “success probability” when x_{ij} takes the value x_{ij} we can assume that the transformed variable $\ln\{P_j/(1-P_j)\}$, has a linear form of this logit probability, that is,

$$\text{Logit}(P_j) = \ln(P_j/1-P_j) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where β_i refers to the effect of X_{ij} on the log odds that $Y_j=1$, controlling for other X 's.

Since the outcome variables are categorical, logistic model is used and accordingly, the following results are obtained for the health status as well as use of family planning services.

4.2.1 Health Status

Based on literature, the variables migration status(MigSt), household size(HHS), marital status(MarSt), age, literacy status (LitSt), educational level(EduL), number of children ever-borne(NChEb), labor force status(LbFst), areas of residence before migration(ARbm) and area of current residence (ARnow) are expected to influence the health conditions as well as the knowledge and use of family planning services. So, all these are taken as independent variables.

i) Health status of all respondents

Based on the model (Table 12), educational level, marital status, migration status and labor-force status have positive relationships with the health condition of the females. As educational level increases from grade to grade, the health status shows an improvement of 10.75%. The ever-married females have 11.2% better health conditions than those who have never been

married. The migrants have 3.6 times better health conditions than the non-migrants and the employed or home makers have 35.5% better health condition than those who are un-employed and students.

The model is statistically significant at 5% level of significance. Over all, the model classifies 89.38% of the cases correctly.

Table 12: Logistic regression model for the health condition of the respondents.

Variable	β (1)* Regression Coefficient	S.E. (2)*	β -Coeff (3)*, $\beta_i=(1)/(2)$	St. β (4)* $ \beta_i / \sum \beta_i $	P-value (5)* measure of Significance	Exp(β) (6)* Odds Ratio	VIF (7)*
EduL	0.1021	0.0742	1.376	0.1594	0.1688	1.1075	1.170
HHsize	-0.1930	0.1087	-1.776	0.2057	0.0759	0.8245	1.393
MarSt	0.1060	0.2855	0.3713	0.0430	0.7105	1.1118	1.170
MigSt	1.2872	0.6432	2.000	0.2317	0.0454	3.6226	1.170
Age	-0.0439	0.0362	-1.2127	0.1405	0.2258	0.9571	1.597
LbFst	0.3038	0.9358	0.3246	0.0376	0.7455	1.3549	1.049
Constant	3.0373	1.9315	1.5725	0.1821	0.1158		

(Durbin-Watson = 2.13)

(*=Refer the Annex of the corresponding number)

VIF measures the extent of multicollinearity in the regression model. Sever multicollinearity is prone if VIF is greater or equal to 5. Hence, in all the models, there is no indication of the problem of multi-collinearity.

The above table can be re-written as

$$\text{Ln(HCO)}=3.0373+0.1021\text{EduL}-0.1930\text{HHS}+0.1060\text{MarSt}+1.2872\text{MigSt}-0.0439\text{Age}+0.3038\text{LbFst}.$$

According to the model of all the variables given on table 12, it is only the migration status that has a significant contribution to the improvement of health at 5% level of significance. Migrants

are healthier than the non-migrants. The model also shows that the household size and age negatively influence the health condition of the females with $\beta=-0.193$ and $\beta=-0.0439$ respectively. As the household size increases by a person, the health condition declines by 18% and as age increases by a year starting from age 10, the health condition decreases by 4.3%. The ever-married women also has better health conditions than the never-married females (OR=1.1118). The model has classified 89% of the over-all variables correctly.

The net influence of migration is 23.17% of the gross influence of the explanatory variables given. Though not statistically significant, educational level, household size, marital status, age and labor force status also influence the health condition of the females. In addition, the net influence of household size is 20.57%. Educational level of the respondents also influences the health condition by 15.94%. The net influences of marital status, age and labor force status are 4.3%, 14.05, and 3.76% respectively. Health condition of females is influenced by migration. Household size influences the health condition more than education. This is to say that in order the health condition of the females to be improved, it is better to have a household of smaller size than educating the women.

But, when the variable educational level is replaced by the literacy status (Table 13), the influence of migration status on health condition changes. That is the odds ratio decreased by 1.1 units. This may mean that it is when the educated females migrate that the health condition gets improved. The odds ratio for the household size also increases from 0.8245 (Table 12) to 0.9201 (Table 13). So, the negative influence of large household size on health is among the educated females.

The sample size considered in the model given below was 269 but 15 cases were rejected because of missing values.

Table 13: Logistic regression model for the health condition of the respondents.

Variable	β (1) Regression Coefficient	S.E. (2) Standard Error	β -Coeff. (3) $\beta_i=(1)/(2)$	St. β (4) $ \beta_i /\sum \beta_i $	P-value (5) measure of Significance	Exp(β) (6) Odds Ratio	VIF (7)
LtSt	-0.6501	0.4427	-1.4695	0.1326	0.1420	0.5220	1.132
HHsize	-0.0832	0.0666	-0.0166	0.0015	0.2116	0.9201	1.415
MigSt	0.8988	0.3773	2.3822	0.2150	0.0172	2.4567	1.337
Age	-0.0291	0.0125	-0.9288	0.2100	0.0195	0.9713	1.281
LbFst	-0.4343	0.4676	-0.9288	0.0838	0.3530	0.6477	1.183
Constant	3.9042	0.7688	3.9609	0.3573	0.0000		

(Durbin – Watson = 2.18)

In this model, there is no indication of multicollinearity.

According to the result of the logistic regression equation, migration status significantly influences the health condition of the women at ($P < 0.05$) with ($OR > 2.45$). That is, the migrant females are 2.45 times healthier than the non-migrant females. In this equation, the illiterates are healthier than the literate ($OR = 0.5220$). As household size increases, the health condition deteriorates ($OR = 0.9201$). In addition, age significantly influences the health condition of the females at ($P < 0.05$) with ($OR = 0.9713$). So, migration status and age are significant factors for the health condition of the females. The regression equation can also be re-written as

$$\ln(\text{HeC}) = 3.9042 - .6501\text{LtSt} - .0832\text{HHS} + 0.8988\text{MigSt} - .0291\text{Age} - .4343\text{LfSt}$$

In the above equation 15.5% of the variability (R^2) in the criterion variable is explained by the explanatory variables labor force status, household size, migration status, age and literacy status. But, the net influence of migration status is 21.5% of the R^2 and that of age is 21%. In such a case, migration status and age have almost the same influence on the health condition of the females. The net influence of labor force status is 8.38% of the gross influence of the explanatory variables. In this model, the net influence of labor force status is higher than the net influence of household size which is 0.15% of the gross influence. Literacy status also influences the health condition better than the influence of labor force status.

From the above analysis, it is clear that migrants and non-migrants have different health conditions. In fact, the model explains that migrants have better health conditions than non-migrants. Based on this result, the study population was split according to their migration status and the model was again applied (in the following tables).

ii) Health status of the non-migrants

Considering the non-migrants (on table 14), the educational level and marital status are positively related with the health conditions. In the non-migrants, as the level of education increases from grade to grade, the health condition of the females gets improved by 28.8%. Household size significantly influences the health condition of the women at ($P < 0.05$) with ($OR = 0.682$). Age influences the health condition of the non-migrants with ($OR = 0.96$); i.e., as age of a non-migrant female increases by a year, her health condition is expected to deteriorate by about 4%.

For non-migrants, the logistic regression equation is given below. The model is statistically significant at 5% level of significance and the model classifies 89.47% of the cases correctly.

Table 14: Logistic regression model for the health condition of the non-migrants.

Variable	β (1)* Regression Coefficient	S.E. (2)* Standard Error	β -Coeff.(3) $\beta_i=(1)/(2)^*$	St. β (4)* $ \beta_i /\sum \beta_i $	P-value(5)* measure of Significance	Exp(β)(6)* Odds Ratio	VIF (7)
EduL	0.2531	0.1281	1.9758	0.1983	0.0482	1.2881	1.341
HHSsize	-0.3828	0.1790	2.1385	0.2146	0.0325	0.6820	1.288
MarSt	3.2240	1.8608	1.7326	0.1739	0.0832	25.127	1.327
Age	-0.0411	0.0589	0.6978	0.0700	0.4851	0.9597	1.453
LbFst	-2.1166	1.5349	1.3780	0.1383	0.1679	0.1204	1.119
Constant	3.6370	1.7145	2.1213	0.2129	0.0339		

(Durbin – Watson = 2.27) .

(*For more information refer to the Annex of that number)

The regression equation for the non-migrants is given by:

$$\text{Ln(Hco)} = 3.6370 + .2531\text{EduL} - .0411\text{Age} - 2.1166\text{LFst} - .3828\text{HHS} + 3.224\text{MarSt}$$

22.3% of the variability (R^2) in the criterion variable is explained by the explanatory variables educational level, age, labor force status, house hold size, marital status and the constant. The net influence of household size is 21.46 percent and that of the constant is 21.29 percent. The net influence of educational level is 19.83% of the gross influence of the explanatory variables

and that of marital status is 17.39%. The influences of age and labor force status are 7% and 13.83% respectively. The influence of household size is higher than that of the educational level. The influence of education on the health condition is higher than that of marriage.

As can be observed from the above result of the model, the age, labor force status and household sizes are negatively related with the health conditions of the non-migrant females. But, of all the variables considered the household size and the educational levels are statistically significant at 5% level of significance with (OR=0.682) and (OR=1.288) respectively. As educational level increases, the health condition shows an improvement of 28.8% and as households increase by 1, the health condition deteriorates by 42%. This may mean that non-migrant females with relatively small household sizes are healthier than educated non-migrant females with large family size.

iii) Health status of migrants

For migrant women (Table 15), the sample size considered in the model was 163 females. But, 10 cases were rejected because of missing data. The dependent variable is the health condition of the migrant. The model is statistically significant at 5% level of significance. Over all, the model classifies 81.89% of the cases correctly.

Table 15: Logistic regression model for the health condition of the migrants.

Variable	β (1) Regression Coefficient	S.E. (2) Standard Error	β -Coeff. (3) $\beta_i=(1)/(2)$	St. β (4) $ \beta_i /\sum \beta_i $	P-value (5) measure of Significance	Exp(β) (6) Odds Ratio	VIF (7)
ARbm	-0.9316	0.7435	-1.2530	0.1382	0.2103	0.3939	1.504
HHsize	-0.0414	0.1089	-0.3802	0.0419	0.7036	0.9594	1.788
ARnow	-0.1018	0.5808	-0.1753	0.1934	0.8609	0.9033	1.311
LitSt	0.0333	0.6271	0.0536	0.0059	0.9577	1.0338	1.351
Age	-0.0352	0.0165	2.1333	0.2353	0.0332	0.9655	1.926
ChUn5	0.6024	0.5566	1.0823	0.1194	0.2791	1.8265	1.381
LbFst	-0.5819	0.7057	-0.8246	0.0909	0.4096	0.3939	1.119
Constant	4.3130	1.3635	3.1631	0.3489	0.0016		

(Durbin Watson = 2.17)

The employed females and the homemaker migrants have about 61% reduced health conditions than the unemployed and student migrants. This may be because the migrants are employed in the informal sectors and such places may expose them to health risks. Age and household size also affect the health conditions of the females negatively. As age increases, the health condition is more likely to be poorer by 3.5% and as the household size increases, the health condition seems to be worse by 4.1%.

The females who migrated from rural areas have poorer health (by 60%) than those who migrated from the urban areas. This may be because of two things; i) about 45% of the females who migrated from rural areas are still in the rural areas, and in Tigray there is a clear difference between rural and urban in the health centers and other factors which influence health. ii) The

females who migrated from urban to urban may adopt things and use the opportunities and facilities available than those migrated from rural to urban. In addition, women who are residing in the urban places have better health than those residing in the rural places by 10%. The literate migrants are healthier than the illiterates with (OR=1.034) and women with children under age 5 are healthier than women with no children under 5 with (OR = 1.83).

The logistic regression equation for the migrants can also be written as follows:

$$\ln(\text{HCo}) = 4.313 - .9316\text{ARbm} - .5819\text{LbFSt} - .0352\text{Age} + .0333\text{LitSt} - .1018\text{ARam} + .6024\text{ChUn5} - .0414\text{HHS}$$

16.2% of the variability (R^2) in the criterion variable is explained by the indicated explanatory variables. But, out of that, the net influence of age is 23.53% and the area of residence after migration is 19.34%. The net influence of the area of residence before migration for the health condition of the migrants is 13.82% and the net influence of the current place of residence is 19.34%. The influence of current place of residence on the health condition of females is higher than the influence of the place of residence before migration. The net influence of the household size is 4.19 percent and that of labor force status is 9.09%. The negative influence of large household size is higher (21.46%) for the non-migrants than for migrants (4.19%). The proportional influence of age on health is greater for the migrants (23.5%) than for non-migrants (7%).

Generally, the health conditions of the migrants is better than that of the non-migrants. But, the degree varies according to the variables considered.

4.2.2 Family Planning

The same variables are used for the contraception use of the respondents. The factors influencing the use of family planning services for all the respondents of ages 15-49 are studied. Further more, these issues are analyzed by migration status.

i) Use of family planning services of all respondents

Based on the analysis (Table 16), all variables except age influence the use of contraception positively; and only educational level significantly affects the use of family planning at 1% level of significance. As grade level increases, the use of contraception increases by 22.24%. The model is statistically significant at 5% level of significance. It also classifies 71.01% of the over-all explanatory variables correctly.

**Table 16: Logistic regression model for the use of family planning services of the respondents.

Variable	β (1) Regression Coefficient	S.E. (2) Standard Error	β -Coeff.(3) $\beta_i=(1)/(2)$	St. β (4) $ \beta_i /\sum \beta_i $	P-value (5) measure of Significance	Exp(β) (6) Odds Ratio	VIF (7)
MigSt.	1.8950	0.9107	2.0808	0.2128	0.0375	6.6526	1.128
HelCom	1.0286	0.9622	1.0690	0.1093	0.2851	2.7971	1.075
EDuL	0.2072	0.0979	2.1164	0.2164	0.0344	1.2302	1.221
HHsize	0.1660	0.2628	0.6317	0.0646	0.5276	1.1806	1.230
ARnow	-0.0525	1.3887	-0.0378	0.0039	0.9698	0.9488	1.280
LabfoSt	1.0693	1.1108	0.9626	0.0984	0.3357	2.9135	1.631
Age	0.0631	0.0594	1.0623	0.1086	0.2883	6.6525	1.891
Constant	-3.7180	2.0443	-1.819	0.1860	0.0690		

(Durban – Watson = 1.944)

(**Refer Annex 8)

Though some of them are not statistically significant, each of the variable included in table 16 influences the current use of FP services. The employed and homemakers use contraceptives 2.91 times more than the unemployed and students. The females who reported that their health condition is better than the health conditions of the females of their ages use contraception 2.8 times more than those who have poorer health conditions. The migrant females are better users of family planning services than the non-migrant females with ($p < 0.05$) and ($OR > 6.65$).

Education influences the use of FP services more than the household size, labor force status and age. Migration status again influences the use of contraception more than the household size and marital status. The logistic regression equation of table 16 is given as follows.

$$\text{Ln}(\text{CurUse}) = -3.7180 + 1.8950\text{MigSt} + 1.0286\text{HealComp} + 0.2072\text{EduL} + 0.1660\text{HHsize} + 1.0693\text{LabFst} - 0.0525\text{ARnow} + 0.0631\text{Age}.$$

The net influence of migration status is 21.28 percent of the gross influence of the explanatory variables. The net influence of educational level is 21.4 percent and that of age is 10.86 percent. The current use of FP services is also studied by migration status.

ii) Use of family planning services of the migrants

When the use of contraception of the migrants is considered (Table 17), the model is statistically significant at 5% level of significance.

Table 17: Logistic regression model for the use of family planning services of the migrants.

Variable	β (1) Regression Coefficient	S.E. (2)	β -Coeff. (3) $\beta_i=(1)/(2)$	St. β (4) $ \beta_i /\sum \beta_i $	P-value (5) measure of Significance	Exp(β) (6) Odds Ratio	VIF (7)
EduL	0.2232	0.1029	2.1691	0.2678	0.0300	1.2501	1.827
HHsize	0.1047	0.1846	0.5672	0.0700	0.5705	1.1104	1.618
MarSt	1.3285	1.3399	0.9915	0.1224	0.3214	3.7756	1.226
ChUn5	2.1445	1.4302	1.4994	0.1851	0.1338	8.5374	1.206
ARnow	-0.2707	1.0937	-0.2475	0.0306	0.8045	0.7628	1.456
ARbm	-0.5187	0.8977	-0.5778	0.0713	0.5634	0.5953	1.388
Age	0.0439	0.0702	0.0625	0.0077	0.5318	1.0449	1.767
LbFst	-1.2680	1.8035	-0.7031	0.0868	0.4820	0.2814	1.199
Constant	-4.1989	3.2727	-1.2830	0.1584	0.1995		

(Durban – Watson = 1.985)

For the migrant females, the labor force status, and the area of residence are negatively related with the use of family planning services. That is, the employed and homemaker migrant females use less contraceptives (by 72%) than the unemployed and students. The females migrated from rural areas use less family planning services (by 41%) than those migrated from urban areas. Similarly, females living in the rural areas use less family planning services (by 25%) than females living in the urban settings. But educational level, household size, marital status, females with children under 5, and age are positively related with the use of contraceptive. The educational level significantly influences the use of family planning services at 5% level of significance with (OR>1.25) i.e., as grade level increases, the use increases by 25%.

The equation can also be re-written as follows.

$$\ln(\text{CurUse}) = -4.1989 + 0.1047\text{HHS} + 0.0439\text{Age} + 0.2232\text{EduL} + 2.1445\text{ChUn5} - 0.2707\text{ARnow} - 0.5187\text{ARbm} - 1.268\text{LbFSt} + 1.3285\text{MarSt}$$

41.3% of the variability (R^2) in the criterion variable is explained by the explanatory variables household size, age, educational level of the migrant, the areas of residence before and after migration, whether or not the female has children under 5, the labor force status of the migrant, and her marital status.

Of all the explanatory variables, the net influence of education is the highest (26.78%). Next to education, the variable “children under the age of year 5” influence the use by 18.51%. Marital status also influences the use of family planning services by 12.24%. Of all the factors mentioned, age is the least factor influencing the use of family planning services. The place from which the females migrated influences the use of contraception more than the area to which they migrated.

iii) Use of family planning services of the non-migrants

For the non-migrants (table 18), age is a significant variable that influences the use of family planning services at ($P < 0.01$) with ($OR > 1.19$).

Table 18: Logistic regression model for the use of family planning services of the non-migrants.

Variable	β (1)	S.E. (2)	β -Coeff. (3)	St. β (4)	P-value (5)	Exp(β) (6)	VIF (7)
	Regression Coefficient	Standard Error	$\beta_i=(1)/(2)$	$ \beta_i / \sum \beta_i $	measure of Significance	Odds Ratio	
EduL	0.1049	0.1252	0.8379	0.1049	0.4020	1.1106	1.295
HHsize	-0.0457	0.2644	-0.1728	0.0216	0.8629	0.9554	1.094
ChUn5	1.9361	1.2046	1.6073	0.2012	0.1080	6.9315	1.075
Age	0.1672	0.0607	2.7545	0.3448	0.0059	1.1819	1.026
ARnow	-0.1957	1.4989	-0.1306	0.0163	0.8961	0.8223	1.362
Constant	-7.9888	3.2129	-2.4865	0.3112	0.0129		

(Durban – Watson = 2.214)

As given in the logistic regression of table 18, all the variables except house hold size and area of current residence are positively related with the use of family planning services. The regression equation can also be given as

$$\text{Ln}(\text{CurUse}) = -7.9888 + 0.1672\text{Age} + 1.9361\text{ChUn5} - 0.0457\text{HHS} - 0.1957\text{ARnow}$$

39.0% of the variability (R^2) in the criterion variable is explained by the explanatory variables house hold size, age, educational level, children under 5, and current place of residence as well as the constants. The net influence of age in this case is 34.48% of the 39.0%. Females with children under age year 5 use FP more than the educated females.

The influence of education for FP use is higher among the migrants (26.78%) than non-migrants (10.49%). But the influence of age is higher in the non-migrants than the migrants. Generally,

the influence of educational level (30.32%) is higher for the use of contraception than for the improvement of health (15.94%). But, the influence of household size on health (20.05%) is higher than its influence on the use of family planning services (14.48%).

Generally, from the logistic regression model used and from the descriptive analysis made, it is clear that there is a statistically significant difference in the health conditions as well as use of FP services of the migrants and non-migrants. In addition, the migrants are healthier and better users of FP services than the non-migrants.

V. DISCUSSION, CONCLUSION & RECOMMENDATIONS

5.1 Discussion

In the analysis given above, the health conditions and knowledge as well as use of family planning services are analyzed by migration status. In addition, the socioeconomic factors influencing the health conditions and use of FP services of the migrants as well as non-migrants are considered. According to the literature review, although there are several studies conducted with respect to the selectivity of migrants, the results are varied. Some studies show that migrants are educated, younger and economically wealthier as compared with the place of origin. But as compared with the place of destination, the non-migrants are younger, better educated, and more economically well off than the migrants. For example, according to Caldwell (1969), the migrants of Ghana were young adults, educationally and economically superior to the non-migrants at the place of origin; however, they are less educated and less economically well off than non-migrants at the place of destination. Results of the descriptive analysis of this study indicate that the non-migrants are younger with average age of 29.6 years than the migrants whose mean age is 33.6 years. The non-migrants are more educated than the migrants with mean completed grade levels of 6 and 6.7 grades respectively. So, this study agrees with the findings of Caldwell.

The descriptive analysis also shows that 41.6% of the migrants and 39.8% of the non-migrants are home-makers; and 17.5% of the migrants and 36.8% of the non-migrants are students. The source of income of 60% of the migrants and 70% of the non-migrants is either agriculture or salary from government.

Many studies show that migration status is highly inter-related with the level of fertility. According to the descriptive analysis, 61.6% of the respondents are ever-married and by migration status, 67.3% of the migrants and 52.8% of the non-migrants are ever-married. Similarly, 63.75% of the migrants and 50% of the non-migrants have ever-given birth to a child. The MCEB of the migrants who have ever-given birth to a child is 5.5 ranging from 1 to 12 and that of the non-migrants is 4.7 ranging from 1 to 10. So, the MCEB is higher for the migrants than the non-migrants.

The educational status, age, labor-force status, source of income, marital status, and level of fertility are expected to have relations with the knowledge and use of family planning services as well as the health conditions of the females. According to the study by Yemane and Zakus (1995), in Addis-Ababa it was found that 61.9% of the female respondents have ever heard about family planning and the use rate was 29.5%. Results of this study indicate that most females in the woredas studied know at least one method of contraception. 81% of the respondents know at least one method of contraception with 15.67% use rate. In both of the studies, there is a gap between the knowledge and the use of the family planning services. But the gap is higher in this study than that of Addis-Ababa. The non-migrants have better knowledge (87.7%) than the migrants (76.7%). But, the migrants are better users of contraceptives (19.2%) than the non-migrants (10.87%). The gap between the knowledge and use of contraception is narrower in the migrants than the non-migrants. About 46% of the migrants who are currently users of contraception were not using before they migrated. The main reasons why they started to use after migration is marriage (45.5%), spacing births (36.4%), too young before (9.1%).

82.8% of the respondents ranked their health as healthy and 17.2% ranked it as not healthy (poor health). When considered by migration status, 85.7% of the migrants and 75.3% of the non-migrants are healthy and 14.3% of the non-migrants and 21.7% of the non-migrants are not healthy. Females in the urban areas are also healthier than females in the rural areas. In the rural areas, 21% of the migrants and 32% of the non-migrants have poor health conditions. But in the urban areas, 11 percent of the migrants and 12.5 percent of the non-migrants have poor health conditions. So, the influence of migration on health is higher in the rural areas than urban settings.

Migration was decided upon (for about 73% of them) by others (spouse, parents, relatives, etc.). So, the female migration in the three woredas is more of passive or associational migration. According to Vaughan (1987), the spread of diseases in migrations depends on the degree to which the migrant is well informed about the place of destination. 57.1% of the migrants had information about the place of destination. The socioeconomic backgrounds of the migrants can also be discussed in the following way. Before migration, 46.2% were unemployed and after migration, only 19.3% were unemployed. Generally, before they moved 75 percent of the migrants had relatives at the place of destination and after they arrived, 86 percent of the migrants lived with somebody. At the time of interview, 85.3 percent of the migrants reported that they had relatives there and 57.4 percent have received help.

As a result of their migration, 68 percent of the migrants said that their life is the same or better than before migration (33.7% of the migrants said that the life after migration is much better or better and 35% said that it is about the same). In addition, for 76.1 percent, their life after

migration is better or the same as what they expected. 58.9% of the migrants reported that within the 12 months before the interview time somebody from their home land had visited them.

Based on the above descriptive information, a logistic regression was run and is found that migration status is a significant factor for determining the health conditions of females and the migrants are healthier than the non-migrants. In addition, age is a significant factor for health condition of all females (with OR= 0.6477). Based on this, the model was applied to both the migrants and non-migrants separately. For the non-migrants, educational level, and the marital status are positively related with the health conditions of the females. As educational level increases, health gets improved by 19.78 percent. Age, labor force status and household size are negatively related with the health conditions of the non-migrants. As age increases, the health condition decreases by 4 percent. Of all the variables, the household size significantly affects (negatively with OR=0.68) the health condition of the non-migrants and the marital status positively affects the health status.

For the migrants, educational level and labor force status positively influences the health condition of the females. Age, household size and marital status negatively affect the health conditions. The only significant factor is age (with OR = 0.965).

The likelihood of using contraceptive methods was observed to be higher among migrants (OR>6.65) than the non-migrants, among relatively better educated (OR>1.23) than the less educated and among the employed and homemakers (OR>2.91) than the unemployed and students. Migration status and educational level demonstrated statistically significant ($P<0.05$)

association with the dependent variable. Even though not statistically significant, the likelihood of using contraceptive methods is higher among families with larger family size ($OR > 1.18$) than families with smaller family size, and among the urban residents than the rural residents. In addition, age positively influences the use of FP services. According to the model, migrants use 6.65 times higher than the non-migrants. This study agrees with earlier studies in other places such as Addis-Ababa.

In Addis-Ababa, Yemane and Zakus (1995) found that the likelihood of using contraceptive methods was observed to be significantly higher at 95% confidence interval among those who have permanent job ($OR > 1.87$), among relatively better educated ($OR > 3.82$) and among people with larger family size ($OR = 1.92$).

As consistent with the study mentioned above, the study made in the three woredas of Tigray also indicates that pills are the most widely used methods of contraception. About 38% of the contraception users use pills, and about 35% use injectable methods of contraception.

For non-migrants, all the above variables except household size and area of current residence are positively related with the use of family planning services. Age is the only statistically significant variable influencing the use of family planning services of non-migrants at 5% level of significance and ($OR > 1.18$). For migrant females, educational level, age, marital status, household size and the presence of children under age 5 positively affect the use of family planning services. But, area of current residence, area of place of residence before migration and labor force status negatively influence the use of FP services. Educational level significantly influences the use of FP services at 5% level of significance with ($OR > 1.25$).

The major reasons for not using contraceptives were: want to have a child (13%), breast feeding (11.6%), spouse separation (7.2%), for health reasons (7.2%), don't know any method (5.1%).

In general, the migrants are healthier and better users of FP services than the non-migrants. One of the socioeconomic variables which negatively influences the health condition of the non-migrants is the household size. Non-migrants with relatively higher household size have significantly lower health conditions ($P < 0.05$).

Education is a key variable that significantly influences the use of family planning services of women at 1% level of significance. In addition, the migrants are better users of family planning services than the non-migrants. The gap between knowledge and practice of contraceptives is also higher among non-migrants than migrants.

5.2 Conclusion

Different socioeconomic and demographic factors may influence the health condition of a person. The health conditions of females are affected by their living conditions and the environment in which they are living. The environment may include the climate, hygiene, availability of health institutions, and so on. The living condition also includes the availability of food, the labor force status, and the quality of life. Migration may allow women to break traditional laws, expose them to new ecological zones and may change their health conditions. It is concluded from the findings of this study that migrants have better health conditions and are

better users of family planning services than the non-migrants. The migrants have better health conditions not because of selectivity, but because exposure.

Migration also allows females to have information about contraception use. Knowledge and use of family planning services are mostly inter-related. Many studies show that there is a gap between knowledge and use of family planning services. But, the gap may depend upon different factors. The migrants have better knowledge than the non-migrants. But, the migrants are better users of family planning services than the non-migrants. The gap between the knowledge and use of family planning services is higher among the non-migrants than the migrants. This depends upon how the females are trying to use the knowledge they have and the extent to which they use the available facilities. It seems that the migrants are better users of available resources than the non-migrants. Accordingly, the influence of a common resource may influence the health conditions and use of family planning services of the migrants and non-migrants differently.

In this study, the influences of some socioeconomic variables on the health condition and use of family planning services differ by migration status. Household size negatively influences the health conditions of non-migrants more than migrants. The average household sizes of the migrants and non-migrants are 6.15 and 6.64 respectively. In both the non-migrants and the migrants, as household size increases, the health condition of the females deteriorates. But, an increase of one person in a household influences more the non-migrants than the migrants. Age is one of the demographic variables which negatively influence the health condition of all females. But, the degree of its influence depends on migration status.

Age influences the health condition of migrant females than non-migrant females. This may be because of the fact that most of the migrant females are employed mainly in the informal sectors and in such sectors, manual work is common. Such manual labors are also functions of age. Generally in such manual works, as age increases, the work exposes the females to different health problems. It was explained that the migrants are better users of the resources available. Such resources include their capacity of doing things and the level of education they attained. In this study, it is concluded that as the level of education of a female increases, her family planning use also increases. On average, the completed grade levels of the migrants and non-migrants are grades 6 and 6.7 respectively. But, educational level influences the use of family planning services more for the migrants than the non-migrants. This is to say that the influence of an increase of one grade influences the use of FP service of the migrant more than that of non-migrant. That is why the gap between the knowledge and use of the migrants became narrower among the migrant than the non-migrants.

Because of these and other factors, it is concluded that the migrants are healthier and better users of FP services than the non-migrants.

5.3 Recommendations

Females in the three woredas in particular and in the region in general are more than 50% of the population. Any issue that concerns the females concerns the population of the region. Female migrants are about 52% of the total migrants of Tigray. In the urban settings, more than 50% the females are migrants. According to the results of this study, more than two-third of the migrants have rural areas of origin and more than two-third has urban places of destination. This will

obviously result in high rate of urbanization. It is also studied that females migrate to where their relatives and friends are. So, the urbanization rate will be higher in the towns where many migrants are concentrated. In addition, the migrants are better users of resources than the non-migrants. This will influence the availability and use of different infrastructures especially health institutions.

The health condition of females also determines the quality of life of the household in general and their children in particular. In this study, it is concluded that migration influences the health condition and use of family planning services of females. In addition, different demographic and socioeconomic factors influence the health conditions and use of FP services differently. So, factors which affect the health conditions as well as the contraceptive use for either the migrants or non-migrants will affect the population as a whole. Based on this, the following points are recommended.

- 1) Planning offices, the health bureau have to know the areas where migrants are more concentrated and accordingly they have to use the information for their five year, ten year or any plan especially on issues related to health and FP services.
- 2) There is a high gap between the knowledge and use of family planning services. This may be due to lack of access to such services. So, governmental and non-governmental organizations have to invest more in the different mechanisms of distributing the contraceptives. In addition, in order for the knowledge to be practiced, organizations and individuals have to work more and more so that people can be convinced and then act.
- 3) The population policy of Ethiopia has an objective of reducing rural to urban migration. This can be done if more is invested on the infrastructures of the rural areas especially the health

services. This can also promote urban to rural migration which is almost non-existent in the region.

- 4) The males and females have to be well-informed about what factors influence the health conditions both negatively and positively. If resources for such activities are limited, priorities have to be set and then acted upon accordingly. For example, to make them aware that household size negatively affects the health condition, it is better to take the non-migrants than the migrants. In order to promote education as a factor influencing the use of FP services, it is better to take areas where the migrants are concentrated. In fact, all have to be done in an ethical way.
- 5) More studies have to be made on the different factors influencing the health conditions and use of FP services of both migrants and non-migrants. For this, different sources of data have to be used. Surveys have to be encouraged and Vital Registration Systems (VRS) have to be introduced. To centralize and facilitate such activities the region has to have a data bank.

ANNEX:

Annex 1: About β :

β is the regression coefficient of the logistic regression. For a variable i , β_i refers to the influence of X_{ij} on the dependent variable controlling for the other X 's. β can be positive or negative. If β is positive, the independent variable X_{ij} influences the dependent variable positively and if negative, it influences it negatively.

Annex 2: About S.E. (2)

S.E. which abbreviates standard error is the standard error between the β s.

Annex 3: β - coefficient (3)

In this case the β -coefficient which is some times called the standardized β is a unit free measure. It is obtained by dividing the β by the corresponding S.E.. Accordingly, the sign of β will be the sign of β -coefficient.

Annex 4: About St. β (4)

This is a value obtained by dividing the absolute value of the β_i s by the summation of the absolute value of all the β_i s. i.e, $St. \beta = |\beta_i| / \sum |\beta_i|$. This value is unit free and the summation of all St. β s is 1. So, it can help to find the net influence of each variable of the gross influence of the explanatory variables (R^2).

Annex 5: The P-values

The P-values measure the level of significance. If the P-value is less than 0.05, it is considered to be significant.

Annex 6: about $\text{Exp}(\beta)$

$\text{Exp}(\beta)$ is also called the odds ratio (OR) and measures the likelihood that a certain variable influences the dependent variable. $\text{OR} = e^{\beta} = \text{Exp}(\beta)$. In other words,

$\text{Ln}[\text{Exp}(\beta)] = \beta$. For example, in migration status $\text{OR}=2.55$ means that the migrants are 2.55 more likely to be healthy than the non-migrants (provided that the dependent variable is health condition). So, this is the likelihood that one possibility occurs over the other.

Annex 7: VIF (Variance Inflation Factor) measures the extent of multi-collinearity in the regression model. Severe multicollinearity is prone if VIF is greater or equal to 5. Hence, in all the models, there is no indication of the problem of multi-collinearity.

Annex 8: Total number of cases: 217 (Unweighted)

Dependent Variable. CURUSE Current use of contraception

, * Constant is included in the model.

-2 Log Likelihood	44.762
Goodness of Fit	52.850

	Chi-Square	df	Significance
Model Chi-Square	19.840	7	.0059
Improvement	19.840	7	.0059

Classification Table for CURUSE

		Predicted		Percent Correct
		no	yes	
		n	y	
Observed		+-----+-----+		
no	n	48	3	94.12%
		+-----+-----+		
yes	y	9	4	30.77%
		+-----+-----+		
		Overall		81.25%

----- Variables in the Equation -----

Variable	B	S.E.	Wald	df	Sig	R	Exp (B)
MIGSTAT	1.8950	.9107	4.3296	1	.0375	.1899	6.6526
AGE	.0631	.0594	1.1275	1	.2883	.0000	1.0652
EDUCLEVE	.2072	.0979	4.4740	1	.0344	.1957	1.2302
HLTCOMP	1.0286	.9622	1.1428	1	.2851	.0000	2.7971
HHSIZE	.1660	.2628	.3990	1	.5276	.0000	1.1806
RUPLRNOW	-.0525	1.3887	.0014	1	.9698	.0000	.9488
LABORFOR	1.0693	1.1108	.9267	1	.3357	.0000	2.9135
Constant	-8.1770		2.5863	9.9959	1	.0016	

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DECLARATION

The thesis is my original work and has not been presented for a degree in any other University.

In addition, all sources of materials used for the thesis have been duly acknowledged.

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JUNE. 1999.

This thesis has been submitted for examination with my approval as an advisor.

Dr. AKLILU KIDANU

JUNE, 1999..