

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
COLLEGE OF DEVELOPMENT STUDIES**



**EFFECTS OF CONDOMINIUM HOUSES ON FERTILITY
INTENTION:**

THE CASE OF SELECTED SITES IN ADDIS ABABA

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By
SELAM KEBEDE

July 2014
ADDIS ABABA

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THE CASE OF SELECTED SITES IN ADDIS ABABA**

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A Thesis Submitted to
College of Development Studies

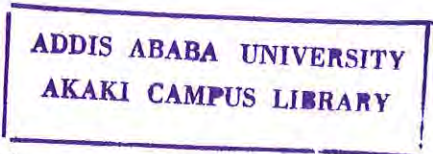
Presented in Partial Fulfillment of the Requirements for the Degree
of Master of Science (Population Studies)

Addis Ababa University

Addis Ababa, Ethiopia

July 2014

**Addis Ababa University
School of Graduate Studies**




This is to certify that the thesis prepared by Selam Kebede, entitled: *Effects of Condominium Houses on Fertility Intention: The Case of Selected Sites in Addis Ababa* and submitted in partial fulfillment of the requirements for the Degree of Master of Science (Population Studies) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by Examining Committee:

External Examiner Isaac Paul (Ph.D.)



Signature  Date 04/07/2014

Internal Examiner Chalachew Getahun (Ph.D.)

Signature  Date 23/07/14

Advisor Terefe Degefa (Ph.D.)

Signature  Date 07/07/2014

 
Chair of Department or Graduate Program Coordinator

Abstract

Effects of Condominium Houses on Fertility Intention: The Case of Selected Sites in Addis Ababa.

Selam Kebede

Addis Ababa University, 2014

The government of Ethiopia is implementing various strategies to combat challenges of rapid population growth and fast urbanization which include Integrated Housing Development Project. Condominium housing, as one of the innovation under the project, has tremendous role in minimizing housing problem hence considered as an opportunity for the youth to either own or rent full-fledged houses and form families. As a result, this study has been designed to assess the effects of the innovation through cross-sectional method since its effects are rarely studied. The characteristics of the residents analyzed included housing, demographic and socioeconomic. Household questionnaire was applied to gather data from 500 randomly drawn households residing in three purposely selected sites. Focus Group Discussions and Key Informant Interviews were also conducted to collect relevant information. Statistical test of association at p value less than 0.05 significance level was used followed by hierarchical logistic regression analysis. Main findings of the study are primarily, density per room, prior residence and years of stay in condominium; secondarily, the socio-demographic dynamics such as age, marital status and income satisfaction were found to be significant factors in determining fertility intention of the residents. Moreover, majority of the residents were categorized under younger cohorts who seek for houses to start family and have children. Generally, resident's intention is highly influenced by perceived availability of resources to have children. Thus, it is recommended that intervention is needed to create livable environment both for children and adults in addition to availing family planning education and services.

Key words: Fertility Intention, Condominium Houses

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Abbreviations

AACA – Addis Ababa City Administration

AACG-HCP – Addis Ababa City Government Housing Construction Project

AOR – Adjusted Odds Ratio

ASFR – Age Specific Fertility Rate

AU – African Union

CEB – Children Ever Born

COR – Crude Odds Ratio

CPR – Contraceptive Prevalence Rate

CSA- Central Statistical Agency

EDHS – Ethiopia Demographic and Health Survey

ESPS – Ethiopian Society of Population Studies

EU – European Union

FDRE – Federal Democratic Republic of Ethiopia

FGD – Focused Group Discussion

GDP – Gross Domestic Product

IHDP – Integrated Housing Development Program

IUD – Intrauterine Device

KII – Key Informants Interview

MAA – Municipality of Addis Ababa

MWUD- Ministry of Works and Urban Development

PASDEP – Program for Accelerated and Sustainable Development to Eradicate Poverty

SE – Standard Error

SPSS –Statistical Package for Social Science

NRC – Natural Resource Centre

SNNP – Southern Nations Nationalities and People

TFR – Total Fertility Rate

TWFR – Total Wanted Fertility Rate

UN – United Nations

UNECA –United Nations Economic Commission for Africa

UNFPA- United Nations Fund for Population Activities

VIF – Variance Inflation Factor

Chapter One: Introduction

1.1. Background

World population is experiencing rapid growth which resulted in pressure on the available natural and human made resources. The case could be more serious in developing countries where resources are scarce and management of population dynamics is complicated. The global population has increased by two billion over the last 25 years, surpassing the 7 billion mark in late 2011. It is likely to increase by at least another two billion by 2050. This change brought in different rates of fertility, morbidity and mortality, population growth, urbanization, and internal and international migration (UNFPA, 2012).

More than half of the world's population already lives in urban areas due to perceived economic development in the developing countries. Nearly all of the world's population growth, in the coming decades, is projected to occur in the cities and towns of developing countries. Population growth is, therefore, becoming largely an urban phenomenon concentrated in the developing world (Satterthwaite, 2009).

The process of urbanization is a combined effect of demographic, socioeconomic and policy aspects. It basically results from natural increase due to the differences of increased fertility and decreased mortality, rural to urban migration, cross-border immigration (to developed and semi-developed countries) and reclassification of land from rural to urban categories (Cohen, 2006). Urbanization, if well planned, has the potential to improve people's access to education, health, housing, and other services and to expand their opportunities for economic productivity. However, urban population

growth becomes a challenge for urban planning and good governance, particularly when that growth is rapid and countries are not prepared for it (UNFPA, 2012).

Ethiopia, the second most populous country in sub-Saharan Africa, is no exception to experience such kinds of challenges as it is experiencing both rapid population growth and fast urbanization. The population has increased steadily over the last three decades, from 42.6 million in 1984 to 53.5 million in 1994 and 73.8 million in 2007. There were slight declines in population growth rates over these periods, from 3.1% per annum in 1984 to 2.9% in 1994 and 2.6% in 2007 (CSA, 2010). With 17% (about 13 million people) of the population living in urban areas, Ethiopia is among the fast urbanizing countries in the world. The capital city, Addis Ababa, has a population of about 2.7 million, close to a quarter of the urban population in the Country (CSA, 2010). Urbanization has currently attained unprecedented levels of growth with the development and expansion of Addis Ababa and other cities (Mathewos, *et.al*, 2011).

Due to the increase in population and high rate of urbanization housing has become one of the major challenges of Addis Ababa. It is an acute problem especially for low-income households that account for over 80% of the city's population. It is also shown that more than 70% of the population of Addis Ababa lives in slums with inhuman and unhygienic conditions (UN HABITAT, 2011). This challenge compelled the Government of Ethiopia to formulate policies related to housing issues and poverty reduction. Integrated Housing Development Project, for instance, was launched in 2006 to provide quality houses, strengthen the construction industry and create job opportunities. In this project the Government has planned to build 175,000 residential units from Studio to three- bedroom

units from 2006 to 2010 (David, 2012). According to the official data, until the end of 2013, it has built and transferred 108,482 houses to individual dwellers (AACG-HCP, 2013).

As was stated earlier, fertility is among the factors influencing population growth and urban expansion. Particularly, in the developing countries such as Ethiopia it is an important factor determining development. Fertility could be seen in two dimensions as actual and intended or preferred.

Recently, considerable attention has been given in demographic literature to subjective preferences, intentions, ideals, and expectations concerning fertility (Begashaw, 2007; Tariku, 2013; Testa, 2012; Yohannes, 2008). Studies employed different terminologies to describe the number of children that people actually intend to have. The common ones are desired family size, ideal number of children, fertility intention, desire for additional children and fertility preference (Tariku, 2013; Engelhardt, 2004). Although they may happen to be quite similar, they are normally not identical. Desired family size refers to the number of children an individual would like to have in his/her whole life irrespective of the number he/she already has. Fertility intentions are expectation statements with regard to an individual plan for having children while fertility preferences refer to the desired number of children over the course of life. Ideal family size describes the existence of a societal norm regarding family size, while expected size describes a personal norm (Engelhardt, 2004). Whereas in Demographic and Health Survey (CSA, 2012); responses to questions about desire for additional children refers to fertility intention or fertility preference.

The two core concepts, housing and fertility intention, are hypothesized to be related to one another particularly in a fast growing urbanization environment like Addis Ababa. The relationship between fertility and housing is two-sided; fertility influences housing via housing demand and housing also influences the number of people and households via leaving the parental home, separation, and having children (UN, 2009). This research, therefore, tried to assess the relationship between fertility intention and condominium housing situation in Addis Ababa.

1.2. Statement of the Problem

Fertility in Ethiopia (TFR) is measured to be 4.8 at national level. But it shows significant difference between urban and rural areas, that is 2.6 and 5.5, respectively. The case is also different in Addis Ababa; it is below replacement level with 1.6 TFR (CSA, 2012). This fertility decline in urban areas has been attributed, not to socioeconomic development, but to factors such as civil war, famine and economic decline in the country during earlier times, increasing unemployment and housing problems as well as high social and economic costs of single motherhood combined with increased contraceptive use and abortion (Lindstrom and Betemariam, 1999; Yohannis, 2001; Lindstorm and Zewdu, 2003; Sibanda *et al.*, 2003; Eshetu and Mace, 2008).

To explain actual fertility level, intentions are of great importance. Fertility intention plays essential role in explaining contemporary fertility trends: it is among the strongest predictors of subsequent fertility and operate as key proximate variable in predicting fertility behavior (Ajzen 1991; Schoen *et al.* 1999). It is also affected by demographic

and socio-economic factors such as age, marital status, education, income, housing and residence identity (Tariku, 2013).

There is controversial view of the link between housing quality and fertility decision. It is assumed to have either positive or negative effect. Viewed differently, the idea that housing quality and family size are positively related seems counter-intuitive. Poor housing quality is generally linked to poverty, and research evidence shows that poor people tend to have many children. Thus, the direction of the relationship between housing quality and fertility is somewhat ambiguous (Baba, 2008). Housing supply may also play an important role vis-à-vis the decision to leave the parental home and in the formation of married and unmarried unions. The best opportunities for leaving the parental home and family formation are arguably found in a situation where housing quality is high and access is easy, or in a situation where quality and prices are diverse and there is an adequate supply of affordable rental as well as owner-occupied accommodation (UN, 2009). To understand the relationship more clearly, it needs further empirical test.

Recently, the Government of Ethiopia has introduced condominium houses to minimize shortage of houses in the capital city. However, people living in the City have various attitudes towards the long and short term fertility implications of condominium as it is a new experience.

Many researches relate fertility (actual and intended) with socio-economic and demographic factors (Tariku, 2013; Begashaw, 2007; Aynekulu *et al.*, 2013; Yohannes, 2001). But there is little research conducted on the link between housing conditions with

that of fertility (Mulder, 2006, 2013; Mulder and Billari, 2010; Vigoliet.al., 2011). In Ethiopia there is no related research in this particular area and this research, therefore, tried to explore the effects of condominium housing on fertility intentions of residents in selected sites of Addis Ababa. Along with this the effects of residents' demographic and socio-economic dynamics on their fertility intentions were assessed.

1.3. Objectives of the Study

This study has the following general and specific objectives as stated below.

1.3.1. General Objective

The main objective of the research is to examine the effects of condominium housing, demographic and socio economic factors on fertility intention of condominium residents in Addis Ababa.

1.3.2. Specific Objectives

1. To identify effects of access to condominium houses on fertility intention;
2. To examine the implication of size of house, density per room, duration of residence on fertility changes;
3. To explore the influence of ownership status and prior residence on fertility intention after controlling for demographic (age, marital status, family size and actual number of children) and socioeconomic(religion, ethnicity, education, employment status of mothers and income satisfaction) variables;
4. To assess the overall effect of housing with socio-demographic dynamics.

1.4. Research Questions

- How does access to condominium affect fertility changes?
- How do housing quality variables such as size, density per room and year of stay in the residence area, explain fertility intentions?
- To what extent ownership status, payment status, and prior experience of housing affect fertility decision after controlling for demographic and socioeconomic variables.
- What factors are more dominant in influencing fertility intention in the study area?

1.5. Significance of the Study

Since condominium housing is a recently introduced phenomenon in Ethiopia, very few researches have been conducted regarding its effect on social, demographic and environmental issues. This research can, therefore, be one input for policy makers to see the effects of condominium housing on fertility, both intention and actual. Moreover, it will give insight for concerned bodies to take proactive measures like expanding reproductive health service centers around the condominium housing sites. In addition, it will be a stepping stone for other researchers to work on issues related to the demographic behavior of condominium households.

1.6. Limitations of the Study

Since the topic of this research and the issues of condominium housing are new to Ethiopia, obtaining secondary data from concerned offices and methodological exercises to practice were potential to limit the study.

Furthermore, condominium houses in some of the study sites were not properly labeled or lack definite house number which made sampling process tiresome and time consuming. Also, for this is few or no previous research works with related empirical evidences on the effects of condominium houses particularly on fertility intensions to crosscheck and corroboration of the previous with the present study findings have not gone long way. In any case, the researcher attempted to pull pieces of evidences together and reduced the effects of these limitations.

Chapter Two: Literature Review and Conceptual Framework

2.1. Theoretical Consideration

This section consists of an overview of previous research findings and theoretical justifications developed regarding fertility intention or preference and housing situations.

2.1.1. Factors Influencing Fertility in Developing Countries

Various theories on fertility decline such as the demographic transition theory (Kirk, 1996), and neo-classical micro-economic theory (Becker and Lewis, 1973; Willis, 1974) have suggested that low level of economic development causes high fertility in sub-Saharan Africa. Which in turn results in, high infant and child mortality, low contraceptive use, low status of women and limited achievements in the sphere of educational and employment opportunities. According to these scholars, poverty is an escalating factor of high fertility norm and the onset of fertility decline could only be possible if and only if sound and radical socio-economic development calling for low fertility is taking place. In view of these classical economists, economic development is the only and best way of regulating fertility.

High fertility in traditional African societies is associated with economic benefits that children provide to their parents (Caldwell and Caldwell, 1987). Children are not only sources of joy but also of economic benefit from the very beginning. African children contribute labor to farming activities during their adolescent and youth years besides being major sources finance later on. Comparing to the Western World, modern and industrial societies prefer small family as they need to invest more time and resource on

fewer children unlike poor traditional parents from developing countries, who wish to have more children as they do not incur much cost to bring them up (Caldwell, 1982).

Another possible theory on fertility decline in developing countries came up with a new theory of fertility transition or theory of fertility decline (Cleland and Wilson, 1987). This theory states that fertility decline in developing countries should not necessarily require economic advancement through industrialization but only increased access to family planning information and services. Diffusion of new ideas that penetrate into traditional norms and values could bring about change in fertility behavior without necessarily calling for the preconditions stated in other theories: a decline in infant and child mortality (Palloni and Rafalimanana, 1999) as well as a radical change in socio-economic development (Kirk, 1996).

Others also argue that fertility decline is not only a function of economic development but also an outcome of undesirable circumstances that lead to frustration and desperation due to economic hardship and catastrophes as well as socio-cultural traditions (Low, 2000). In their view, had poverty always perpetuated high fertility, the decline in fertility rate would have never been observed in some of the non-industrialized countries.

In traditional societies where high values are attached to the male heir, child rearing and bringing up children is not the sole responsibility of biological parents but a shared responsibility of close family members, relatives and neighbors. In such kinds of communities, fertility remains to be high (Low *et.al*, 1992). Among these societies, fertility may not decline in response to economic hardship since the costs are shared and individual mothers would not feel the pain of resource constraints. Qualitative studies

aimed at explaining fertility differentials in traditional societies, in general, state that fertility transition is not only a matter of women's access to resources (wealth, information, employment opportunities and the like) but also cultural elements and nature of interfamilial support to bring up a newly born child. In societies where kin support prevails, the pressure and influence of having additional child is also profound (Turke, 1989). The signal of fertility decline among traditional societies where such support was temporarily absent as a result of drought and famine has already been observed in drought prone areas of Northern Ethiopia (Markos, 1997).

As indicated above, there is no single factor responsible for explaining fertility transition as argued by demographers and development experts. Depending on the prevailing situation of a given country, the rationale behind fertility decline could be attributed to changes in socio-economic conditions as well as cultural transformation. Fundamental issues and approaches used in each of the theories mentioned above could thus be taken into account while assessing the determinants of fertility.

2.1.2 Theory of Planned Behavior

The theory of planned behavior is a model of social psychology which focuses on the individual's intention to perform certain behavior. The model is an extension of the Theory of Reasoned Action by Fishbein and Ajzen in 1975 which considers also a factor called perceived behavioral control (Silvagni, 2012).

According to this theory, the intention to perform certain behavior or to attain a certain goal is the immediate antecedent of the behavior itself and it is determined by three

factors: attitudes toward the behavior, subjective norms and perceived behavioral control. Attitude is defined as an individual's positive or negative evaluation about the consequences of the performance of the particular behavior. A subjective norm is how the individual perceives that those who are important to him/her would react to his/her performance of the behavior. Perceived behavioral control is the perception of the individual of the ease or difficulty of performing the behavior (Silvagni, 2012).

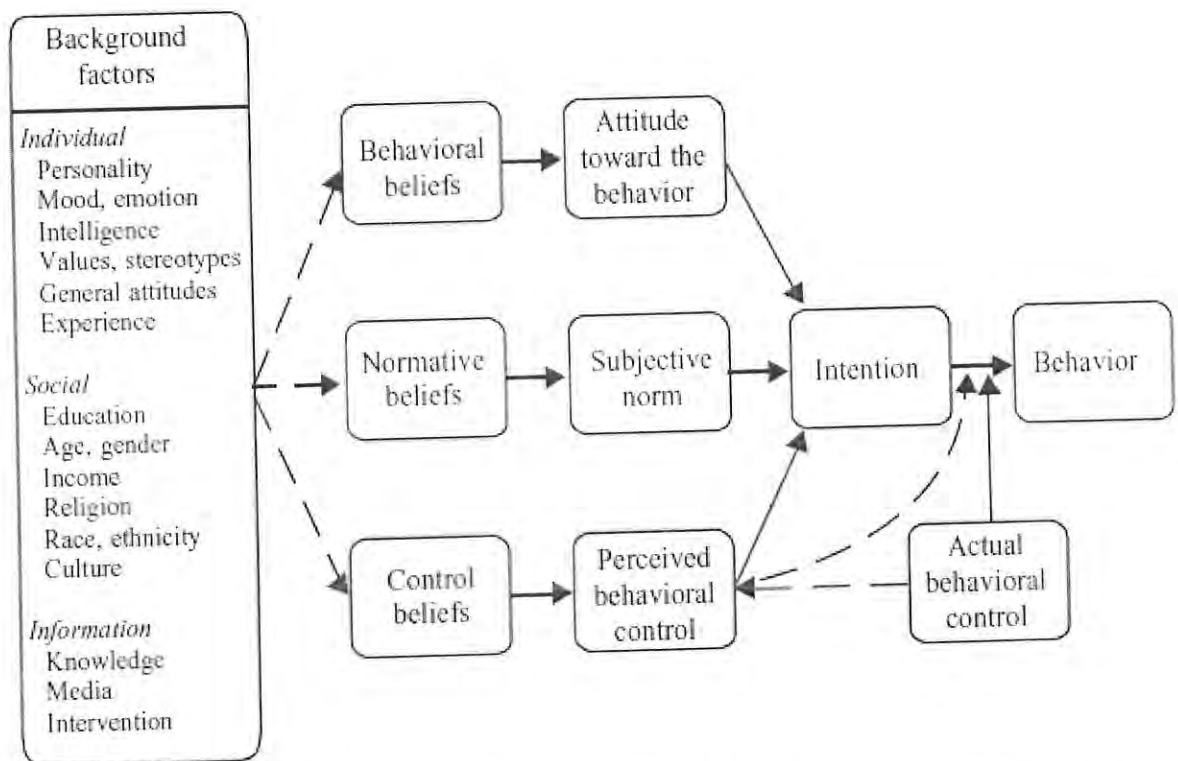


Figure 2.1: Graphical Representation of Theory of Planned Behavior (Ajzen and Fishbein 2005 in Silvagni, 2012)

This model is the theoretical background of a new and so far rather limited empirical literature on the topic of fertility intentions. According to Silvagni, some of the scholars who applied this theory in their fertility related studies include Cooke (2004) who used

data from the German Socio Economic Panel to analyze predictors of tasks division within the family and how tasks division affects the intention to have the second child. Craig and Siminski (2010) also employ data from the Household, Income and Labor Dynamics in Australia Survey to test for the effect of tasks division and time allocation of fathers on the probability to move to higher parity. Philipov et al (2006) studied the impact of anomie and social capital on fertility intentions in two Eastern European countries, Bulgaria and Hungary (Silvagni, 2012).

This theory suggests that intentions are the most proximate determinant of the corresponding behavior, actual fertility. In turn the major precursors of intention like attitudes, subjective norms and perceived behavioral control are influenced by some background factors like demographic and socio-economic characteristics of the respondents (Testa, 2011; Silvagni, 2012).

2.1.3 Fertility Preference and Intentions

Research in fertility preferences, particularly in developing countries, has received considerable attention in recent years because of its relationship with and important bearing on the complex family building processes. The subject of parental attitudes and aspirations in relation to household fertility decision-making have gained importance in recent fertility researches since these seem to be related to the future course of fertility in a society (Tariku, 2013).

Fertility intentions are expectation statements with regard to an individual plan for having children. Some authors refer to this concept as fertility expectations. Ideal family size describes the existence of a societal norm regarding family size, while expected size

describes a personal norm. In a simple theoretical perspective on the formation of family size preferences, individual preferences are determined early in life and remain constant throughout the reproductive period (Ryder, 1980). In this static view, the factors that shape preferences are primarily those related to a person's individual familial background such as the religious belief and the number of siblings. In a broader dynamic view, preferences may vary over the life cycle and the decision to have a child has to be considered a sequential and conditional process (Miller and Pasta, 1995; Van de Kaa, 2001). Factors that potentially lead to an adjustment of fertility preferences are individual education and employment, as well as family formation and dissolution histories.

In this perspective, fertility intentions must be examined at different parities, because conditions and individual plans may change after each new birth. According to literatures, the same factors that predict fertility behavior also predict fertility preferences (Rindfuss *et al.* 1988; Heiland and Prskawetz 2003). In this view, the desired family size will reflect the individual's actual and perceived constraints on fertility decisions. Not only preferences but also intentions have long been viewed as important in behavioral theories, because they synthesize the influence of individual's background and attitudes, and mediate between these characteristics and behavior (Ajzen and Fishbein, 1980; Ajzen, 1985). In this perspective, changing fertility intentions are seen as a precursor to changing fertility behavior (Schoen *et al.* 1999).

Empirical evidences attest to the fact that intentions and family size preferences have frequently been the object of study in the literature, but these variables have generally

been used in connection to attempts to understand the gap between prospective fertility plans and realized fertility (DaVanzo *et al.*, 2003; Symeonidou, 2000; Van Peer, 2002).

The economic value theories of fertility described above often assume that couples can routinely implement their preferences or intentions without difficulty, whereas in reality couples in post-transitional societies often fail to fully realize their fertility intentions, thus creating a gap between desired family size and realized fertility (Bongaarts, 2001). This shortfall does not, however, alter the reality that desired family size is highly correlated with observed fertility at the individual level (NRC, 2001), and this correlation is likely to be derived from a causal relationship between plans and outcomes (Van de Kaa 2001; Kohler 2001). The above outlined framework indicates the fact that the relationship between desired and observed fertility further implies that social, economic and political institutions do not only affect fertility behavior directly but also partly via their impact on desired family size.

2.2 Empirical Consideration

The reproductive behavior of women in a given society is affected not only by their physiological structure and biological makeup but also by a number of socio-economic and demographic factors. Differences in age at entry into marriage, access to family planning services and their ability to utilize these services effectively and efficiently, respondents' age which has effect on their fertility experiences and desire to have more or less children, economic status of the household (i.e., possession of wealth to invest on offspring), and cultural and traditional norms in which the woman lives are found to be the crucial ones.

2.2.1 Trends in Desired Fertility of Ethiopia

As the desire for additional children is an indicator of large family, the intention to limit births is often considered as a precondition for fertility decline (Bongaarts, 1997). The extent to which a given society desires to limit fertility has significant implications for family planning programs. It is often taken as another indicator of the demand for family planning services. Identifying women who intend to limit the number of their children enables policy makers and program implementers to avoid unintended pregnancies and thus limit fertility.

According to the results obtained from the 2000 and 2005 EDHS data (CSA, 2001; CSA, 2006), the proportion of women who want no additional children increased from 32.7% to 42.9 %, and the difference is statistically significant. Though there is an increase in proportion of women who want no additional children among rural and urban residents and in all age cohorts, commendable difference in the intention to limit additional birth is only observed among women having no and primary level education and those living in Amhara, Oromia and SNNP regions. A statistically significant increase among women belonging to all age groups and living in rural as well as urban areas indicates that there is a potential for fertility decline if appropriate measures are taken to support those who want to limit their fertility through provision of family planning services and improving child survival status. Exceptional in the current study is the very little intention to limit fertility, despite having large family sizes, among women residing in the Somali Region.

2.2.2 Ideal Number of Children

In general, a large proportion of Ethiopians, regardless of their number of living children, consider four or more children to be ideal. The mean ideal number of children is 4.3 for all women and 4.9 for currently married women. Among all women, the mean ideal number of children increases with their number of living children, from 3.3 for women with no children to 6.2 for women with six or more children. Ethiopian men, on average, prefer to have larger families than women considered ideal. Among all men, ideal family size is 4.8 children, and among married men, 5.9 children (CSA, 2012).

Urban women are relatively closer to achieving their wanted fertility than rural women. The difference between wanted and actual fertility is 0.8 children in urban areas and 2.1 children in rural areas. Among regions the gap between wanted fertility and actual fertility is highest in Somali (2.9) and lowest in Addis Ababa (0.2). The total wanted fertility rate (TWFR) varies inversely with education and wealth, as does the TFR, declining as education and wealth increase. Also, the gap between wanted and actual fertility narrows as women's education and wealth increase (CSA, 2012).

2.2.3 Factors of Fertility Intention in Ethiopia

According to the results of logistic regression models aimed at predicting determinants of fertility intention, major socio-economic and demographic factors like age, number of surviving children, place of residence, educational attainment, household wealth status and women's decision-making autonomy are found to be limiting factors for fertility intention (CSA, 2006). According to this study, women in their late reproductive age have two and half times higher intention to limit their fertility compared to those in their

early child bearing ages. Women belonging to better off households also desire to limit their fertility compared to those living in the lowest stratum.

An inverse relationship between the number of surviving children and intention to limit fertility is also exhibited among currently married women evidencing that at least two surviving children are required in the Ethiopian context to initiate planning for limiting fertility. In spite of a continuous and consistent decline in fertility, women living in urban areas still intend to limit their fertility. If this prediction holds true, there is a possibility of further decline in urban fertility as compared to the rural. Increased cost of living in urban areas that has direct impact on family wellbeing, which is not yet observed in rural areas, might be a contributory factor for the on-going intention to limit family size (ESPS, 2008).

2.3 Housing Situation in Urban Ethiopia

2.3.1 Historical Background

Urbanization is increasing at higher rate in developing countries to which Ethiopia belong. This rapid urbanization will be one of the greatest challenges to ensuring human welfare and a viable global environment. According to current estimates, cities occupy 4% or less of the world's terrestrial surface and yet are home to almost half of the global population, consume close to three-quarters of the world's natural resources, and generate three-quarters of its pollution and wastes. Moreover, the UN estimates that virtually all net global population and economic growth over the next 30 years will occur in cities, leading to a doubling of current populations. This growth will require unprecedented investment in new infrastructure (Redman and Jones, 2005).

Rapid population increase and urbanization outstripping the economic growth for most cities of the developing economies of the world will result in, among other things, pronounced shortage of housing, food insecurity and poor health (Gebeyehu, *et.al.*, 2001, Sherbinin and Martine, 2007). And urbanization is becoming a great challenge – be it environmental, economic or social – as they lack well-built and wide resource base that adequately fulfills basic requirements associated to their ever increasing residents.

The process of urbanization in Ethiopia is rapid in the last few decades and inevitably accompanied with numerous problems emanated from its unplanned growth. With the share of urban residents in the total population at 16%, Ethiopia remains one of the least urbanized countries in the world (the sub-Saharan Africa on average is 30% urbanized) (Dorosh and Schmidt, 2010) though urbanizing rapidly with annual growth rate of 3.49% (UN-HABITAT, 2010). Together with this relatively small but fast urbanization there are a number of economic, environmental and social challenges that the residents are forced to live with. The housing condition in the majority of the urban areas is below qualitative standard and lack adequate space with very minimal provision of water supply, electricity, and drainage system. The lives and health of people residing in housing of such poor quality and with such inadequate provision of water, sanitation, and drainage are under threat (Gebeyehu, *et al.*, 2001). Among all other complicated challenges related to rapid urban expansion in Ethiopia, housing, both in quantity and quality takes the lion's share.

The historical background of housing in Ethiopia shows that the supply - demand gap has not been fulfilled for the last three regimes including the current administration. During the first half of the twentieth century housing supply was led by the landowning elite with less than one per cent of the population owning more than 70% of the arable land. Low-

income households had little option but to rent housing which was done outside of any formal control or planning system. Government exhibited little national commitment to land and housing development for the low-income sector and there was no coherent approach or action toward land and housing provision (UN-HABITAT, 2010).

After the revolution, in July 1975, urban lands and extra houses were nationalized in an effort to force a fair distribution of wealth across the Country. Two new typologies, government-owned rental units in the housing sector (Agency for the Administration of Rental Houses and Kebele Housing) were established. During this time, approximately 60% of the housing in Addis Ababa was rental accommodation and Kebeles were accounted for 93% of this rental accommodation. Still the housing supply was largely dominated by high rate of rental housing (UN-HABITAT, 2010).

Recently, housing construction in Addis is led by four major actors (AACG-HCP, 2013):

- Real estate companies (or private sector) produce good quality and formal, but expensive, housing.
- Condominiums which are developed by the government with some subsidies and long term loans. This represents the majority of middle-income housing and should be further developed for low income people.
- Cooperatives and small groups of citizen-run companies which buy and settle lands and build their own housing.
- Informal and unplanned housing has been the response to rapid urbanization, the limited housing supply, and the low income of many people. This is still a fast-growing form of housing.

The dilemma of the population forecasters illustrates the complex way in which population and housing are interrelated. On the one hand, population change leads to a changing demand for housing. Population growth and particularly the growth in the number of households, leads to a growth in housing demand. Population decline might, in the long run, lead to a decrease in housing demand. But at the same time, the supply of housing influences the opportunities for population increase through immigration and the opportunities for people to form new households. Adequate housing supply might attract immigrants or influence their choice of residential location. Housing supply may also play a decisive part in leaving the parental home and the formation of married and unmarried unions. It is even possible that the supply of housing plays a part in the timing of fertility or the number of children people have (Mulder, 2006).

2.3.2 Policies and Strategies of Housing in Ethiopia

In urban Ethiopia, particularly in Addis Ababa, more than 70% of the population lives in slums and the houses are made predominantly from mud and straw. Only 30% of the urban house stock was regarded to be in fair condition; and the housing shortage is being estimated to be around one million (MWUD, 2008). In the last three government systems in Ethiopia, there were policies and approaches to tackle the problem, which actually reflect the political ideology of the regimes.

The current government approach in solving the low-income housing challenge is the Integrated Housing Development Program (IHDP), initiated by the MWUD in 2005. The Program was a continuation of the 'Addis Ababa Grand Housing Program' which

supported the endeavors of the Ethiopian Government in the implementation of the 'Plan for Accelerated and Sustained Development to End Poverty' (UN Habitat, 2011).

The IHDP aims to:

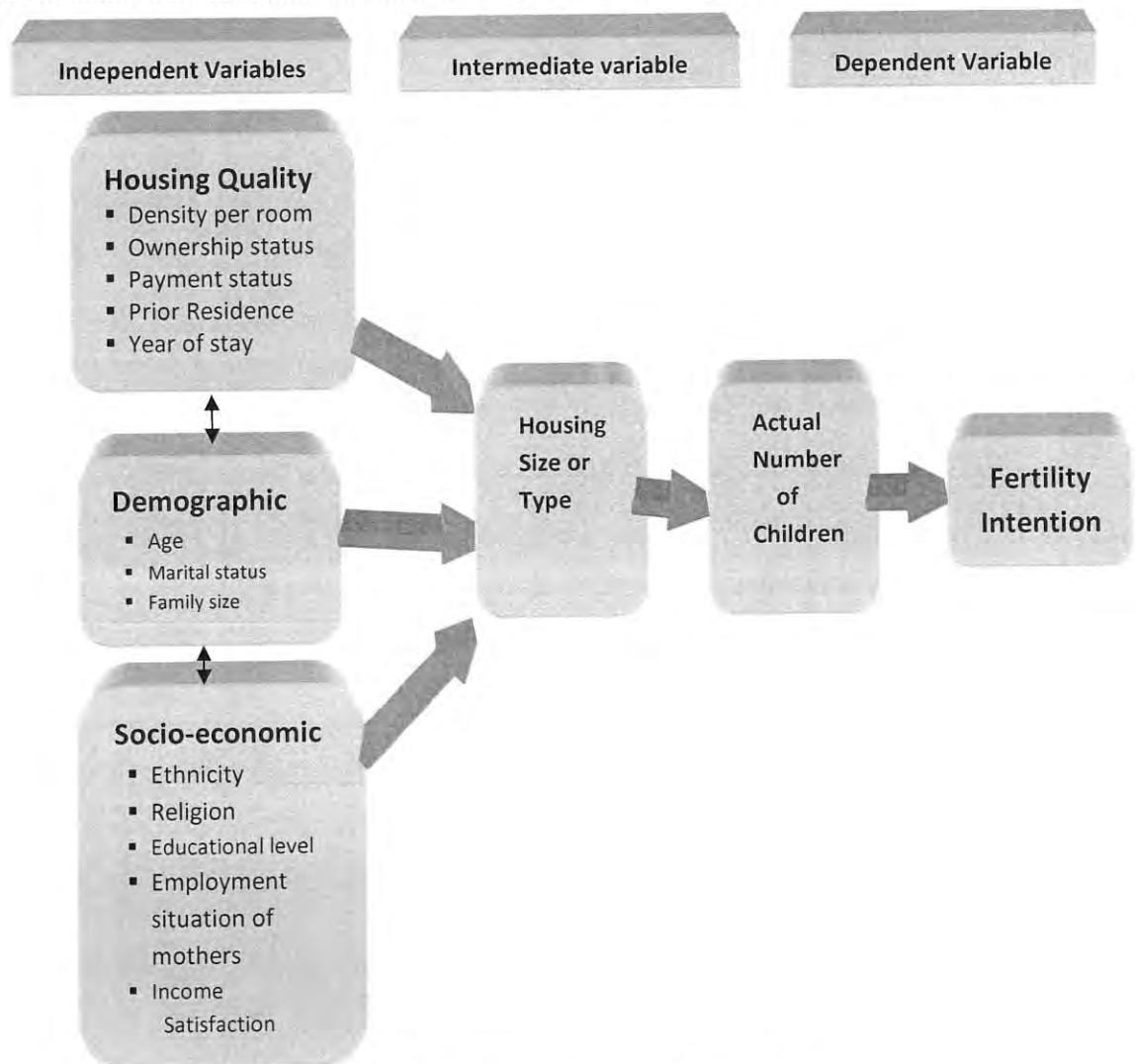
- a) Increase housing supply for the low-income population
- b) Recognize existing urban slum areas and mitigate their expansion in the future
- c) Increase job opportunities for micro and small enterprises and unskilled laborers, which will in turn provide income for their families to afford their own housing
- d) Improve wealth creation and wealth distribution for the nation

The IHDP envisages that the utilization of housing as an instrument to promote urban development, create jobs, revitalize the local urban economy through micro and small enterprise development, encourages saving and empower urban residents through property ownership and develop the capacity of the domestic construction industry (MWUD, 2008).

Although the relationship is not automatically positive at all times and places housing and fertility intentions are related (Courgeau and Lelièvre 1992). Literatures posit that lack of affordable housing can be an important reason to postpone the departure from the parental home, the forming of a partnership and ultimately becoming a parent (Mulder, 2006a; Kulu and Vikat, 2007). Other scholars also indicated that housing could be a fundamental prerequisite for family formation and child bearing and couples may delay childbearing or limit their family size in countries where access to high-quality housing is difficult (Krishnan and Krotki, 1993).

2.4 Conceptual Framework

The conceptual framework in figure 2.1., which the thesis relied on, illustrates that the independent variables categorized as housing, demographic and socio-economic assumed to have influence on the type or size of the house people want to have and in turn limits the actual number of children they can have. Though it is not the concern of the thesis, there is inter-link among independent variables. Lastly, the overall effect of both dependent and intermediate variables is observed on fertility intention.



Source: Developed by the researcher on the basis of the literature review, 2014

Figure 2.2. Conceptual Framework

Chapter Three: Methodology

3.1 Background of the Study Area

3.1.1. Physical Features

Geographically, Addis Ababa is located at 9° 2' N, 38° 42' E. It is located in the Central part of Ethiopia and belongs to the Western highlands. All sides of the city is bordered by Oromiya regional state, it covers a total area of 530 square kilometer (53,000 ha). Its altitude ranges from 2000m - 2800m.a.s.l (CSA, 2012).

The City is the seat of the Federal Democratic Republic of Ethiopia's (FDRE) government, African Union (AU) and United Nations Economic Commission for Africa (UNECA). It is divided in to 99 kebeles grouped in ten sub cities. Lideta, Kirkos, Arada and Addis-Ketema represent the central areas, whereas Akaki-Kality, Nefassilk- Lafto, Kolfe- Keraniyo, Gulele, Yeka and Bole correspond partly to the expansion areas at their peripheries. Addis- Ketema is the smallest sub city in Addis Ababa with an area of 742 hectare (ha), followed by Lideta with an area of 917 ha. Bole and Akaki- Kaliti are the largest sub cities with an area of 12,060 ha and 11,807 ha, respectively (CSA, 2012).

The period of heavy rain (kiremt) is from June to September and accounts for 80% of the annual rainfall, while the small rain (Belg) occurs between March and May. The dry period (Bega) is between October and January. The temperature is mild Afro alpine temperature and warm temperate climate with annual average temperature between 10⁰c to 20⁰c and average annual rainfall is 1200 mm (MAA, 2002).

3.1.2. Demographic and Socio-economic Situation

The total population of Addis Ababa equals 2,739,551 that is 3.7% of the population of Ethiopia and from which 1,434,164 are females and 1,305,387 are males. Thus, females comprise 52% and males 48% of the total population which makes the sex ratio of the city to be equal to 91%. With 2.1 % annual rate, Addis Ababa has the lowest population growth in Ethiopia. Kolfe- Keraniyo is the most populated sub city with 428,895 inhabitants, followed by Yeka with a total population size of 346,664 inhabitants. On the other side, Akaki- Kality is a less populated sub city with a total number of 181,270 people, followed by Lideta with 201,713 inhabitants (CSA, 2011 a).

The average population density is 121 persons per hectare (ha). The general spatial trend shows a decrease in density values from central towards the peripheral areas. Addis-Ketema has the highest population density with 344 people per hectare, followed by Lideta, Arada and Kirkos with 220, 213 and 151 people per hectare, respectively. Gulele sub city shows an average density of 89 persons per hectare, whereas Yeka, Nefassilk-Lafto, Kolfe- Keraniyo, Bole and Akaki- Kaliti have respectively 40, 46, 70, 26 and 15 people per ha (CSA, 2011 a).

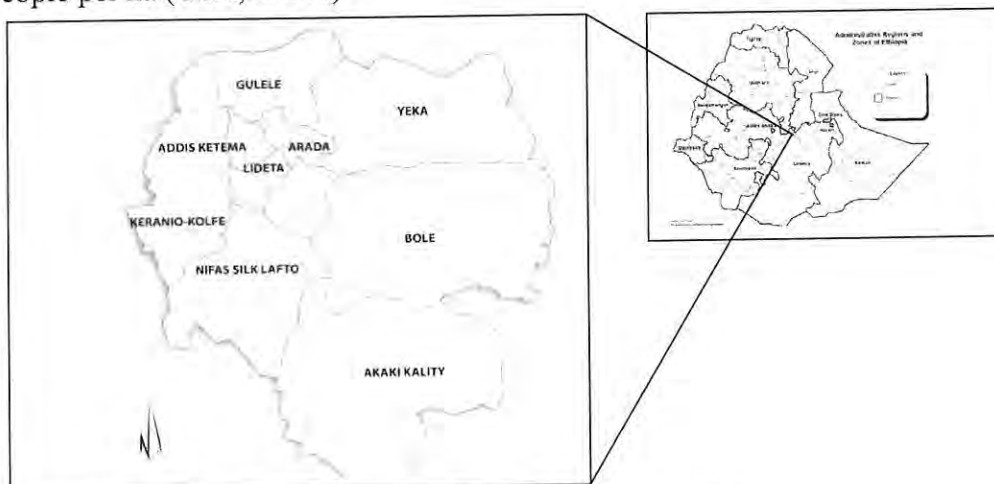


Figure 3.1. Map of Addis Ababa City and its Sub-Cities

Average household size of Addis Ababa city equals 3.9 person per household which is the lowest from other regions in Ethiopia and total dependency ration, calculated by dividing population that is not of working age (<15 and >64) by total number of working age persons (15-64 years), stands at 41.2 which is again the lowest value compared to other regional ratios (CSA, 2012).

The city is home to 23.8% of all urban dwellers in Ethiopia due to its position as capital city of the Country. The major ethnic groups represented are the Amhara (47.0 %), Oromo (19.5%), Gurage (16.3 %), and Tigre (6.2 %), while others constitute 7.4% of the population (CSA, 2011a).

About 75 % of the populations are Orthodox Christians, 16.2 % Muslim, 7.7 % Protestants, 0.5 % Catholics and the remaining 0.6 % are followers of other religions (CSA, 2011a). As a capital city, the literacy rate of Addis Ababa is the highest (85.7%) compared to other regions in Ethiopia(CSA, 2011). Net enrolment ratio in primary and secondary schools are 73% and 36% respectively with relatively similar representation for both boys and girls (Taddesse, 2004).

According to the census conducted in 2007, the capital city had 662,728 households were counted living in 628,984 housing units, which results in an average of 4.1 persons to a household (CSA, 2007). The city's real GDP (5%) in 2008/09 as well as the City's real GDP per capita have been growing in real terms during the last three years. These rates are said to continue growing (EU, 2010).About 98.64% of the housing units of Addis

Ababa had access to safe drinking water, while 14.9% had flush toilets, 70.7% pit toilets and 14.3% had no toilet facilities (CSA, 2007).

3.2 Sampling Techniques

This study applied multi-stage sampling technique to come up with scientifically acceptable level of sample size for the study. In the first stage, out of the total 108,482 condominium houses constructed and transferred to Addis Ababa residents until 2013 by the city administration (AACG-HCP, 2013), the researcher purposively targeted on 60,058 condominium houses which were transferred to residents before or till 2009. For a site to be eligible for the study a minimum of five year service is required to efficiently address residents with three or more years of stay.

The second stage was selecting three condominium sites: Bole Gerji, Michileland and Jemo-1 which are located in Bole, Kolfe-Keranyo and Nifassilk-Lafto sub-cities and with 4,274, 6,649 and 7,821 condominium houses, respectively (AACG-HCP, 2013) with a total of 18,744 houses. These sites were purposively selected based on the number of households and the location of the sites.

Out of the 18,744 condominium houses, 500 houses were carefully chosen using the standard sample size formula (Cochran, 2002). The number of sample households per each site was determined using probability proportional to size technique. The proportion of samples for Gerji, Michileland and Jemo-1 has, therefore, been 114, 177 and 209 houses, respectively. The number of sample blocks is determined to be one third of the total blocks in all sites which was selected randomly. This is because it is difficult to address more than this amount given finance and time. Then sample houses for assessing

the effect of condominium housing on fertility behavior was selected based on simple random sampling with some modification of focusing on residents that live three and more years in condominium houses.

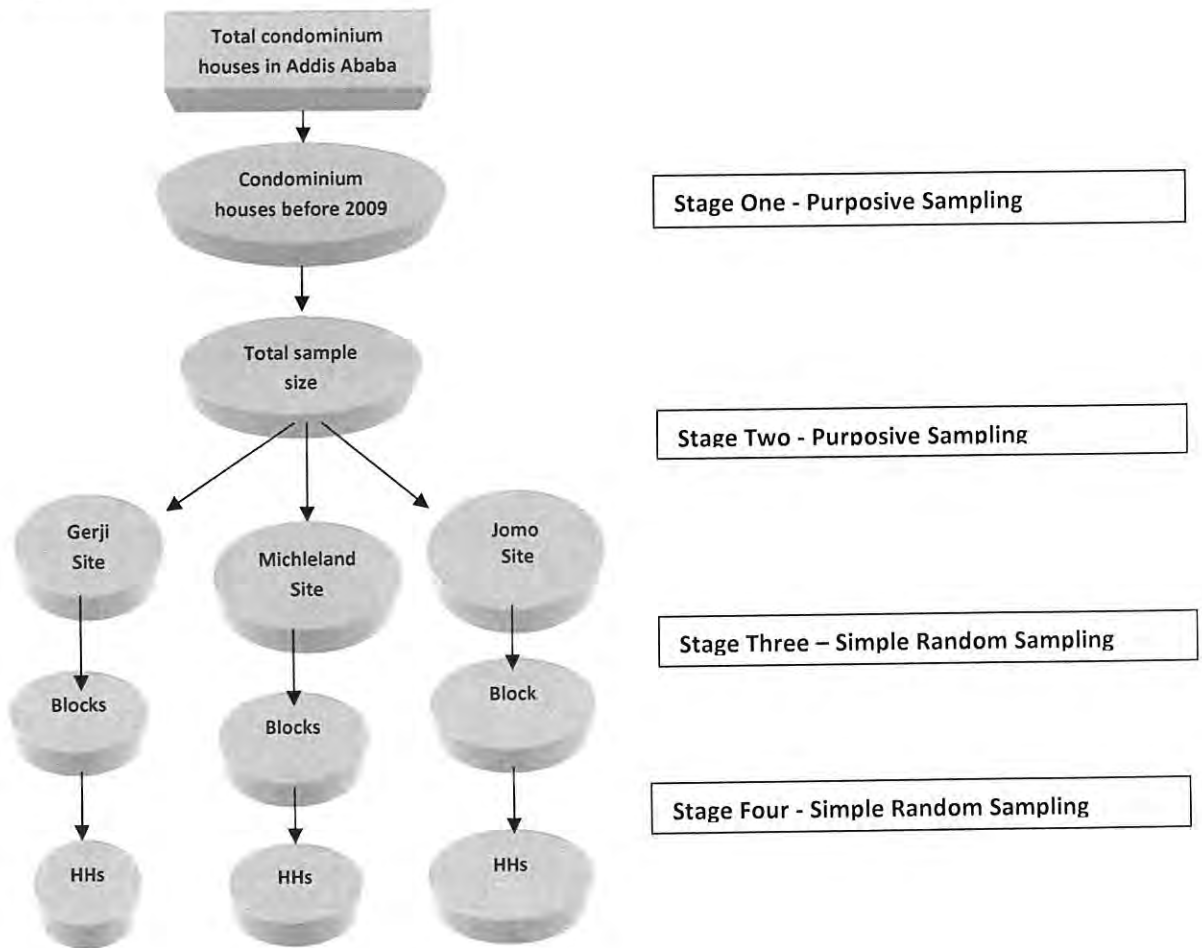


Figure 3. 2. Schematic Presentation of Sampling Design Conducted by the researcher, 2014

3.3 Sample Size Determination

As mentioned earlier sample size has been determined based on the standard formula (Cochran, 2002). According to the data obtained from Addis Ababa Housing Construction Project Office, 108,482 houses were transferred to residents up to the end of 2013 in nine rounds. The researcher, then, added up the total number of condominium

houses that were transferred in the first four rounds till 2009 to be 60,058 as a sampling frame.

P is considered to be 0.5 as there are no previous studies which show the prevalence of the variable of interest. The standard error of a proportion that will take care of the possible variability for any given value of n is obtained when P is between 0.3 and 0.7 (Cochran, 2002). Thus, the average value is taken for this particular study.

A 95 % level of confidence with a critical value of Z= 1.96 in a normal probability table and 0.05 acceptable error including the design effect assumed to be 1.3.

$$n = \frac{k * z_{\alpha/2}^2 * p * (1-p)}{\epsilon^2}$$

Where: n = the desired sample size;

k = design effect

$z_{\alpha/2}$ = a standardized normal test with the consideration of α level of significant.

Usually, it is equivalent to 1.96 with the standard error of 5% (corresponding to 95% confidence interval)

P = (0.5) is an estimate of the proportion of women who prefer to have additional children.,

ϵ^2 = acceptable error 5% (0.05).

$$n = \frac{1.3 * 1.96^2 * 0.5 * (1 - 0.5)}{0.05^2}$$

$$= 499.4$$

The total sample size is determined to be 500 households after rounding to the next whole number.

3.4 Variables Specification

Variables of this study were grouped into three major categories based on their characteristic integration into the research work. These were:

➤ Independent Variables

The Independent variables were composed of three sub-groups: housing related, demographic and socioeconomic variables. Ownership status, density per room, payment status, residence of respondents before condominium house and number of years in condominium were considered under the housing category; the demographic variables encompassed, age, marital status, and family size; and the third category of socioeconomic variables included educational level, ethnicity, religion, occupational status and income satisfaction level.

➤ Dependent Variable

Fertility intention, which is expectation statements with regard to an individual plan for having children, is the dependent variable under study.

➤ Intermediate Variables

These are variables that intervene between dependent and independent variables; and determine the extent that explanatory variables influence the dependent variable, either positively or negatively. In this particular study, size or type of house and actual number of children were considered as intermediate variables. The reason behind is that the

demographic and socioeconomic factors like age, family size, employment, income and education affect the type of house people prefer to have. While the housing quality characters such as size, payment status, ownership status in addition with the socio-demographic characters as age, income and education in turn affect the actual number of children that people can have.

3.5 Data Collection Process

The researcher collected both quantitative and qualitative data through household survey and Focus Group Discussion (FGD) and Key Informants Interview (KII), respectively to obtain adequate data sets and for carrying out data triangulation. The quantitative data collection process was conducted by trained enumerators who have at least diploma level education with adequate experience on data collection. Two supervisors were assigned to facilitate and follow-up the data collection process. Household survey was conducted using structured questionnaire in the selected households. The inclusion criteria for the study are women in the reproductive age group (15-49) and who have been residing in condominium houses for three or more years.

The FGDs and KIIs were conducted with respondents and concerned bodies, respectively to collect information on qualitative aspects of fertility intention. FGDs containing 8-10 selected participants with characteristics of interest like being owners or renters, young or old. Each were conducted in all the three sites based on pre-designed guidelines. The interview with key informants were conducted with people who have relevant information and experience on the issue from woredas, health institutions, health bureau and officials from cooperatives/associations in condominium sites.

3.6 Method of Data Analysis

The data collected from the survey were organized, filtered and analyzed using Statistical Package for Social Scientists (SPSS) version 20. Basic descriptive statistical tools like frequency, percentage, central tendency measures, cross tabulation, etc., were applied to descriptively analyze the data. Relevant tabulations and charts were used to describe the characteristics of the data and variables.

Moreover, both bi-variate and multivariate analyses were conducted to examine the effect of various independent variables on the dependent one; and logistic regression [ESPS, 2008] was applied to analyze how the above significant independent variables influence fertility intention.

Logistic regression is useful to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables. It is a special case of generalized linear models in which the mean of the response variable is related to explanatory variables through a regression equation. The model is similar to a linear regression model but is suited to models where the dependent variable is dichotomous. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model.

The logistic regression is non-linear with respect to explanatory variables and parameters. But the non-linearity is completely captured by the logit of p (link function), enabling the regression structure (the part with β 's) to be considered in much the same way as ordinary linear regression. The elements of such a model are a distribution for the

response variable and a function that links the distribution to the explanatory variables called a link function.

For a binary response variable (y) where the mean response is a proportion or probability (p), the natural link is the logit or log odds function. The logit link g (p) is defined:

$$\log\left(\frac{p}{1-p}\right)$$

The dependent variables can take probability of success 'p' and '1-p' probability of failure.

The ratio of probability of success to probability of failure $\left(\frac{p}{1-p}\right)$ is odd ratio of success. Therefore, the logistic model can be written as

$$\left(\frac{p}{1-p}\right) = \exp(\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k) + \varepsilon$$

Which means that $\exp \beta_j$ where (j=1, 2...k) is factor by which the odds of occurrence of success change by a unit increase is the jth independent variables.

Note: graphically the model looks like S-shaped curve.

- z_j ranges from $-\infty$ to $+\infty$.
- P_i ranges from 0 to 1.
- P_i is non-linear related to z_j (i.e. x_i)

If we take the natural logarithm of odds ratio we obtain estimated model given by

$$\ln\left(\frac{p_i}{1-p_i}\right) = z_i = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_{ki} + \varepsilon$$

Odds ratio(OR): is the measure of how much the greater or less the odds are to subjects possessing the risk factor to experience a particular out come.

Odds ratio interpretation

e^{β_j} is the factor by which the odds change when the j^{th} independent variable increases by one unit.

Note: if β_j is positive then the odds increase and if β_j is negative, the odds decrease (Gujarati, 2004).

Assumption of Logistic Regression

Logistic regression is popular in part because it overcomes many of the restrictive assumption of ordinary least square (OLS) regression. Its assumptions are as follows (Hosmer and Lemshow, 2000):

- Logistic regression does not assume linear relationship between dependent variable and independent variables.
- The dependent variable needs not be normally distributed (but does assume its distribution is within the range of exponentials family of distribution such as normal, poisons, binomial and gamma.)
- The dependent variable needs not be constant variance for each level of independent variables, which means there is no homogeneity of variance assumption.
- Normally distributed errors terms are not assumed.
- Logistic regression does not require that independent variables be unbounded.

The variables analyzed were as it is shown in conceptual framework part, density per room, ownership status, payment status, prior residence, year of stay and size of the house under housing category; age, marital status, family size and actual number of

children in demography and religion, ethnicity, education, employment and income in socio-economic category.

The qualitative information or data obtained through FGDs and KIIs were triangulated with quantitative data and critically analyzed to further enrich the statistical findings as complimentary source of evidence. The summarized responses, obtained from the interviews and FGDs were mainly utilized to explain the reasons behind fertility intention and change.

3.7 Ethical Consideration

This research addressed all relevant ethical considerations like the issues of privacy, transparency etc. First, all concerned sub-city administrations with official letter from Addis Ababa University, College of Development Studies were contacted and relevant briefings have been transparently done. After having permission from the sub-cities, coordinating committees in the three condominium sites were contacted formally with transparent explanation and discussion concerning the objective of the survey and privacy matters.

Since the nature of this research deals with personal and sensitive issues of reproduction, participants were encouraged to speak freely about the topics but simultaneously reminded that they are not obliged to answer questions. Privacy was guaranteed in the sense that the participants remain anonymously. In FGDs, participants were requested to keep the shared experiences confidential. Informed consents were orally obtained from each participant, either before the in-depth interviews or the FGDs. In so doing, the researcher convinced to use an audio recording device.

Chapter Four: Results and Discussion

As indicated earlier, data and information were generated from 500 randomly selected respondents in the reproductive age who have been living in three selected sites of condominium houses in Addis Ababa at least for the last three years. The response rate to survey questionnaire was (99.4%).

4.1 Description of Respondents

4.1.1. Demographic and Socioeconomic Characteristics

As shown in table 4.1, mean age of the respondents is 31.7 years. And 32.0% of them fall under the age group of 25-29 and 28.2% between 30-34 years of age but only 4.2% are from 45-49. This demonstrates the dominance of younger cohorts around the study area. Married and cohabited target respondents represent 86.7% of the total respondents against the second 13.3% group which is composed of never married, divorced and widowed respondents. Although a good proportion (63.2%) of the respondents possesses a family size of four and above persons, the mean family size stands at 3.9 persons.

Table 4.1: Percentage Distribution of Demographic Characteristics of Respondents in Selected Condominium Sites of Addis Ababa, 2014

Variables	Number(n=497)	Percentage
Age		
20-24	42	8.5
25-29	159	32.0
30-34	140	28.2
35-39	91	18.3
40-44	44	8.9
45-49	21	4.2
Mean \pm SD		(31.70 \pm 5.88)
Marital status		
Currently Married	431	86.7
Dissolved Marriage	29	5.8
Never Married	37	7.4
Family size		
\leq 3 persons	183	36.8
4 persons	165	33.2
\geq 5 persons	149	30.0
Mean \pm SD		(3.99 \pm 1.38)

Source: Author's Field Survey, 2014

In terms of the residents' religious orientation, 64.2% of the respondents belong to Orthodox Christian followed by Muslims (18.1%) and Protestants (16.7%), consecutively. With regard to ethnic composition Amhara takes the major (43.5%) followed by Guraghe (20.1%), and Oromo (18.3%). Other major socio economic factors like literacy, about 50.5% of the respondents are in the category of primary and secondary level of education followed by considerable number (47.3%) of respondents with higher education which is composed of vocational and tertiary level education. Respondents with no formal education account only for 2.2% of the total respondents. Likewise, employment status shows that 47.9% employed or self-employed. House hold income level of respondents is explained by 44.1% falling under 3001 birr per month while 15.7% earning 5000 and above per month with large size of the respondents being satisfied at least partially by their household income.(Table 4.2)

Table 4.2: Percentage Distribution of Socio-economic Characteristics of Respondents in Selected Condominium Sites of Addis Ababa, 2014

Variables	Number(n=497)	Percentage
Religion		
Orthodox	319	64.2
Protestant	83	16.7
Muslim	90	18.1
Others	5	1.0
Ethnicity		
Oromo	91	18.3
Amhara	216	43.5
Tigrie	65	13.1
Guraghe	100	20.1
Others	25	5.0
Literacy status		
No formal Education	11	2.2
Lower Education (primary and secondary)	251	50.5
Higher Education	235	47.3
Occupation		
Employed	238	47.9
Unemployed	259	52.1
Level of Income		
<=2000	102	21.1
2001-3000	111	23.0
3001-4000	97	20.1
4001-5000	97	20.1
>=5001	76	15.7
Level of satisfaction from Income		
Yes	194	39.0
Partially	187	37.6
No	116	23.3

Source: Author's Field Survey, 2014

4.1.2 Reproductive History of Respondents

The median age at first marriage of respondents is 23 years while 70.4 % are in the age group of 20-30 followed by age group of less than 20 which constitutes about 18.5%. Median is used over mean because of the observation of extreme values that may inflate the average years of age at marriage. About 51.7% of the respondents have stayed 5-20 years in marriage with mean marriage length of 8.6 years. The mean parity stands at two births with 20.1% of respondents with parity of greater than or equal to three children. Moreover, actual number of children for 77.1% of the respondents is less than or equal to two (Table 4.3)

Table 4.3: Percentage Distribution of Reproductive Characteristics of Respondents in Selected Condominium Sites of Addis Ababa, 2014

Variables	Number	Percentage (%)
Age at first marriage(n=460)		
<20	92	18.5
20-30	350	70.4
>30	18	3.6
Median \pm SD		(23.00 \pm 4.43)
Life in Marriage(n=460)		
<5	164	33.0
5-20	257	51.7
>20	39	7.8
Mean \pm SD		(8.64 \pm 6.90)
Parity (n=418)		
1 live birth	167	33.6
2 live births	151	30.4
3 and above live births	100	20.1
Mean \pm SD		(2.00 \pm 1.17)
Actual number of children(n=415)		
1 child	165	39.8
2 children	155	37.3
3 & above	95	22.9
Mean \pm SD		(1.83 \pm 0.77)
Number of Dead child/ren (n=417)		
No dead child	402	96.4
1child dead	14	3.4
2 and above children dead	1	0.2
Last Child Index(n=418)		
Yes	412	98.6
No	6	1.4

Source: Author's Field Survey, 2014

4.1.3 Actual Fertility Situation

In this section the actual fertility situation of the respondents is described. As depicted in table 4.4., teenage mothers (15-19) do not exist among respondent population. This may construe the fact that there is adequate information and education regarding reproductive health and possible practices of abortion. On the other hand, late pregnancy (above age 40) contributed for 1.6% of the total births. In addition, TFR is found to be high, i.e., 3.7, which is higher than the regional level (1.6) and urban Ethiopia (2.6). This could be due to the concentration of young population around the study area which obviously are considered to be active in family formation. Moreover, the average number of children that a women is expected to have during her reproductive age/ mean parity seem to be high among respondents i.e., 5.0.

Table 4.4: Mean CEB by Age group of Condominium Respondents in Addis Ababa, 2014

(1) Age Group	(2) Number of Respondents	(3) Number of Live Births in the Preceding 12 Months	(4) CEB	(5) ASFR (3)/(2)	(6) Mean Parity (4)/(2)
15-19	-	-	-	-	-
20-24	42	15	28	0.3571	0.6667
25-29	159	24	127	0.1509	0.7987
30-34	140	22	126	0.1571	0.9000
35-39	91	2	80	0.0220	0.8791
40-44	44	-	37	0.0000	0.8409
45-49	21	1	20	0.0476	0.9524
				0.7348	
Total	497	64	418	TFR=ASFR*5=3.6741	5.0378

Source: Author's Field Survey, 2014

As it is demonstrated in figure 4.1., the ASFR pattern of the study area is almost similar with the conventional trend which is lower at early age cohorts and become higher with age increase, reaches its maximum and fall down at old age groups. However the pattern is slightly different because there is no ASFR among teenage residents (15-19) and older ages (40-44) later it becomes high after 45 years of age.

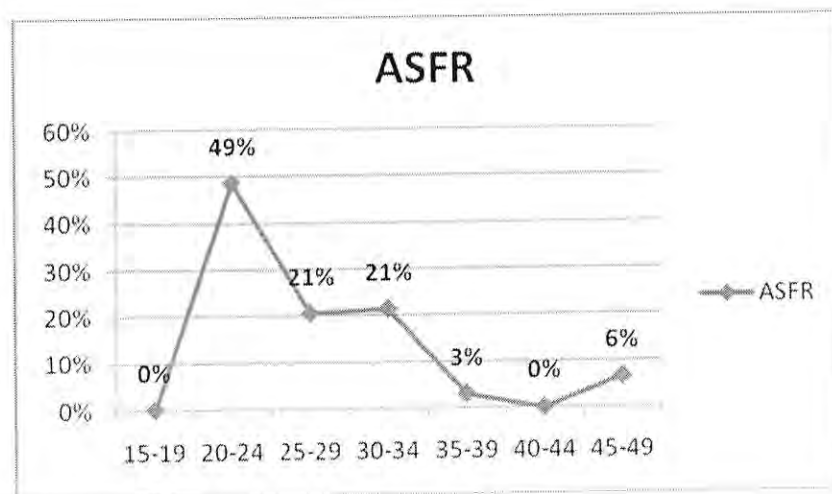


Figure 4.1: Age Specific Fertility Rate

4.1.4 Current Contraceptive Practices

Contraceptive use and fertility intention are related in such a way that respondents in reproductive age with less/no intention to have child or who have intention for additional child in the long run tend to use contraceptives. Table 4.5 shows that the large size (63.8%) of the respondents use and/or planned to use contraceptive methods in their life time. The survey shows that larger groups of the respondents make decision on contraceptive use mutually with their spouse (63%) and by their own motivation (28%). The method of contraception vary based on the preference and expected efficiency of that particular method *per se*. Survey results reveal that 76.5% of the respondents witnessed

the availability of health institutions with various family planning services in their neighborhood.

Table 4.5: Percentage Distribution of Respondents by Use of Contraceptives in Selected Condominium Sites of Addis Ababa, 2014

Variables	Number	Percentage (%)
Contraceptive Use (n=497)		
Yes	317	63.8
No	178	35.8
Undecided	2	0.4
Contraceptive Use Decision (n=317)		
Self-Motivated	89	28
Spouse Decision	16	5
Mutual Decision	199	63
Health Professional Motivation	13	4
Health Institution with FP (n=493)		
Yes	377	76.5
No	76	15.4
Don't Know	40	8.1

Source: Author's Field Survey, 2014

Further, results of the survey disclosed that 41% of the respondents on contraception use injectables followed by pills (23%) and IUD (15%). Female sterilization is the least practiced contraceptive method. Respondents in age group 25-29 and 30-34 are more or less users of all kinds of contraceptive methods (Figure 4.2).

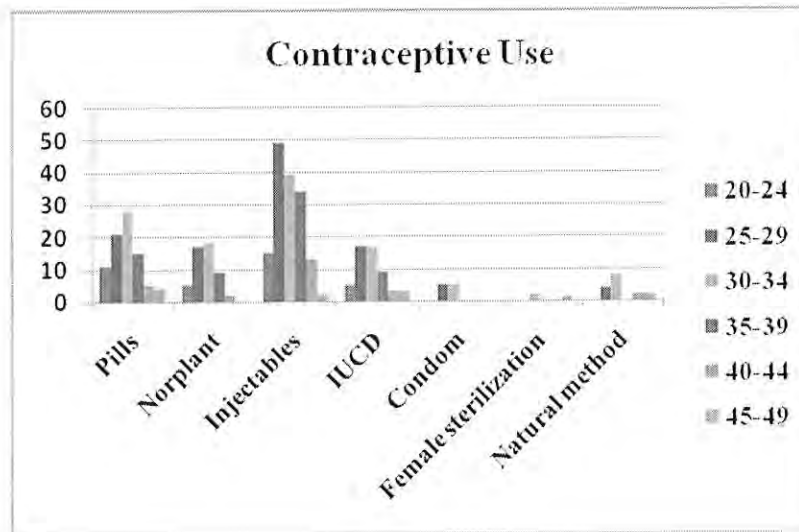


Figure 4.2: Contraceptive use by age group

4.1.5 Condominium Housing Related Characteristics

Most respondents live in one (41%) and two (37%) bed room condo houses while few (11%) live in three bed room and studio houses each. As regards, 50.9% of the respondents are owners of the houses as compared to the tenants (46.9%), the remaining being house guardians. Only 3.4 % of condominium residents are living above the UN recommendation of overcrowding, i.e., 2.5 and above persons per room (UN, 1967). About 55% of the owners have not completed paying the bank installment yet. The mean duration of residing in condominium is about 3.6 years, with about 57.3% residing for three years. About half (51.6) of the respondents were residing in private rented houses before moving to condominium houses followed by those who resided in parent houses (36.6%).

For majority (76.5%) of the respondents, there is no playing space for children except open spaces which are however not safe. Large size of the respondents (88.9%) is comfortable about access to health facilities and security situations (88.5%) (Table 4.6).

Table 4.6: Percentage Distribution of Condominium Housing Characteristics of Respondents in Addis Ababa, 2014

Variables	Number	Percentage (%)
Type of House(n=497)		
Studio	56	11.3
One bedroom	203	40.8
Two bedrooms	185	37.2
Three bedrooms	53	10.7
Ownership Type(n=497)		
Own	253	50.9
Rent	233	46.9
Other (Guardians)	11	2.2
Density Per Room (n=497)		
<2.5	480	96.6
>=2.5	17	3.4
Instalment Payment Status(n=264)		
Completed	118	44.7
Not completed	146	55.3
Years in Condominium (n=497)		
3 Years	285	57.3
4 Years	131	26.4
>5 Years	81	16.3
Mean±SD		(3.59 ±0.75)
Residence before Condominium(n=497)		
Private Rent	292	58.8
Government Rent	71	14.3
Parent House	134	27.0
Availability of playing place for Kids(n=497)		
Yes	117	23.5
No	380	76.5
Time to reach Health Institution in the area(n=497)		
<30 minutes	442	88.9
30 - 60 minutes	50	10.1
>60 minutes	5	1.0
Security around Residence(n=497)		
Secured	440	88.5
unsecured	57	11.5

Source: Author's Field Survey, 2014

Other facilities like electricity, drinking water supply and dry waste management services are fairly well around condominium houses. Fluctuations in electric power and water supplies are undeniable even though the installation is available. For instance, residents get water every night in some sites, in every other day and to the worst once in a week in another. With regard to dry waste, it is collected by workers of the municipality but accumulated at bare lands around another corner of condominium blocks which children sometimes play around and even polluted the residential area.

4.2 Fertility Intentions

4.2.1 Fertility Intention Characteristics of Respondents

According to the survey results (Table 4.7), 64% of the respondents have intention to have additional children, at least one, in the coming few years. This fertility intention is determined by various housing related factors presented at the end of this section. As far as the period before additional child is concerned, majority (68.1%) of the respondents intend to have their next or additional child within two years or less followed by those (27.4%) who have intention to bring additional child to this world within three to five years period.

Separate analysis has been conducted to see living in condominium houses as a factor for fertility intention change in the study area. About 60.2% of the respondents stated that condominium housing has resulted in no change in their intention for additional child. On the other hand, living in condominium houses has shown effect on the fertility intention of the rest 39.9 % of the respondents. About 20.7 % of them revealed an increase in and others (19.1%) admitted a decline in their intention due to living in condominium houses.

Also, 86.4% of those respondents with an increased intention tend to have additional one to two child or children and 13.6% of them intend to have additional three or more children. On the other hand, condominium residence has made 78.9% and 21.1% of the respondents to decrease their fertility intention by one to two and three or more children, respectively.

Table 4.7: Percentage Distribution of Fertility Intention of Respondents in Selected Condominium Sites of Addis Ababa, 2014

Variables	Number	Percentage (%)
Intention(n=484)		
Yes	310	64.0
No	174	36.0
Period before Additional Child(n=310)		
2 and less	211	68.1
3-5	85	27.4
>5	14	4.5
Intention Change due to Condominium(n=497)		
Increase	103	20.7
Decrease	95	19.1
No Change	299	60.2
Intention Increase due to Condominium(n=103)		
1-2	89	86.4
3 and above	14	13.6
Intention Decrease due to Condominium(n=95)		
1-2	75	78.9
3 and above	20	21.1

Source: Author's Field Survey, 2014

Peoples' behavior is modified by various dynamics originated from background characteristics, societal values and personal beliefs. In addition, changes in ones decision are attributed to the alteration of either of these factors and hence, respondents of the study area are not far from this argument.

It is vivid in table 4.8., the average number of children desired by respondent decreased from life time, to before residing in condominium houses and after. Mean desires are high among women of older age groups (45 to 49) whereas smaller among lower age groups (20 to 24).

It is also revealed in this comparison that respondents initially desire higher number of children due to the psychological, social and cultural make up that people previously acquire

Table 4.8: Mean Comparison between intention before and after condominium

Age Group	Mean desired (Life Time)	Mean desire (before condominium)	Mean desire (after condominium)
20-24	4.24	3.83	3.45
25-29	4.24	3.93	3.49
30-34	4.01	3.37	3.53
35-39	4.16	3.63	3.80
40-44	4.10	3.56	3.43
45-49	5.37	4.47	4.58
Mean total	4.19	3.69	3.59

Source: Author's Field Survey, 2014

4.2.2 Main Reasons for Fertility Intentions

Living in condominium houses has affected the intension of some of the respondents in such a way that they have decided to increase the number of children that they have anticipated before moving to condominium. The others have decided to limit child

bearing while others have not reached at any kind of change in intension. These fertility intention characteristics of the respondents are determined by numerous reasons and respondents were surveyed for their reasons for fertility intention change/no change.

As mentioned earlier, 64% of the respondents intend to have additional children for the rest of their reproductive life. Their fertility intention can be explained by one or more of the following demographic, socioeconomic or housing related factors. Income to raise children takes the largest share of the intension (51%) among those respondents who desire additional child followed by availability of time for mothers to raise their children (31%) in the same category. The remaining (9%) mentioned conducive situation in the residence area and enough housing space *per se*, for change in fertility intention (Figure 4.3).

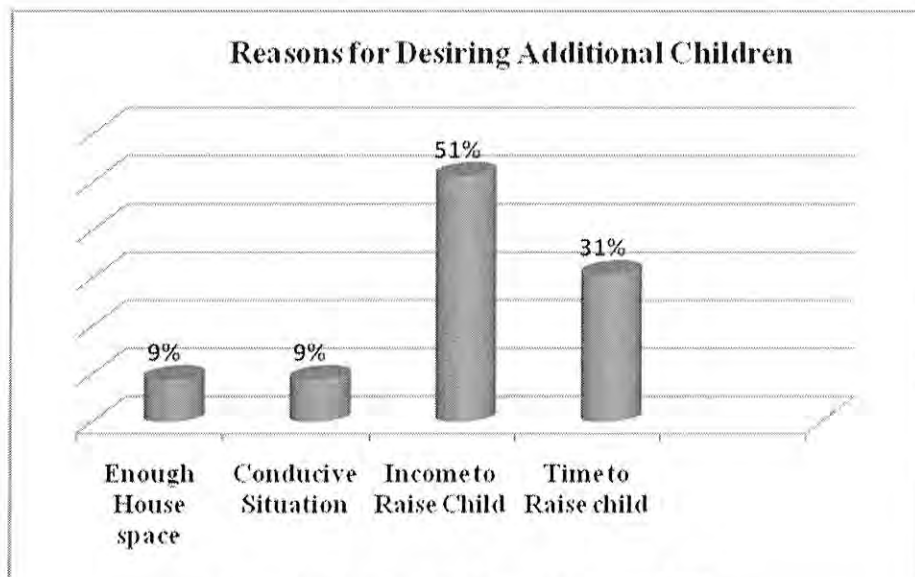


Figure 4.3: Factors to have additional child

On the other hand, out of 36% of the rest of the total respondents who do not want to have any more children, 46% said income is the major limiting factor not to have

additional child whilst 30% mentioned having enough children as good reason not to have additional birth. (Figure 4.4).

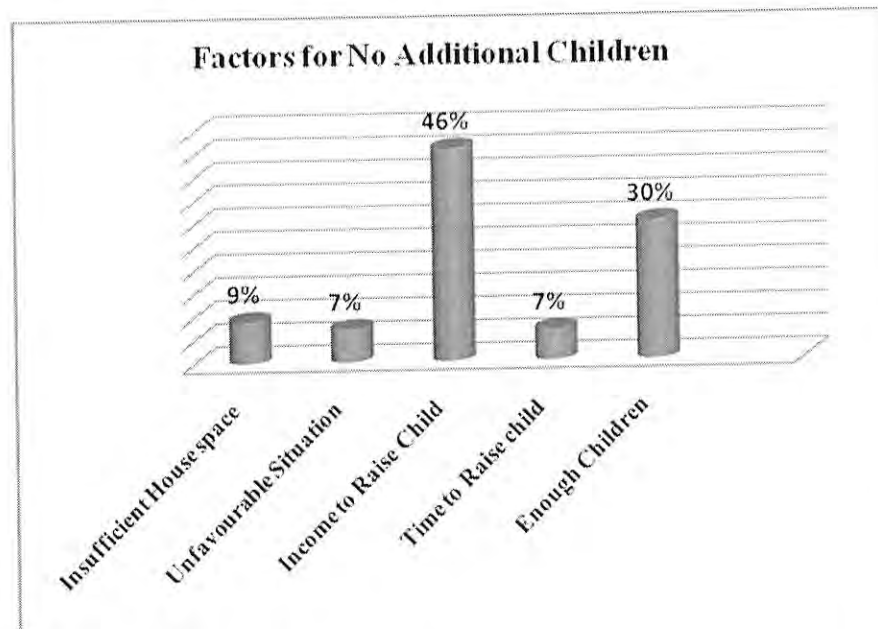


Figure 4.4: Factors not to have additional child

Possible changes in fertility intention propelled by living in condominium housing were examined and results show 40% and 60% of the respondents replied changes (increase or decrease) and no change in their intension, respectively. For the former group, house ownership and favorable situations in the resident area are considered to be major motivating factors accounting for 25% and 20 % of the respondents, respectively. Other factors that influence changes in fertility intension include, for instance, responses from respondents with desire to have their first or additional child irrespective of their housing condition, income or other factors. Having sufficient house space is also mentioned as a major positive factor for fertility intention by 14% of the respondents next to availability of time to raise children (Figure 4.5).

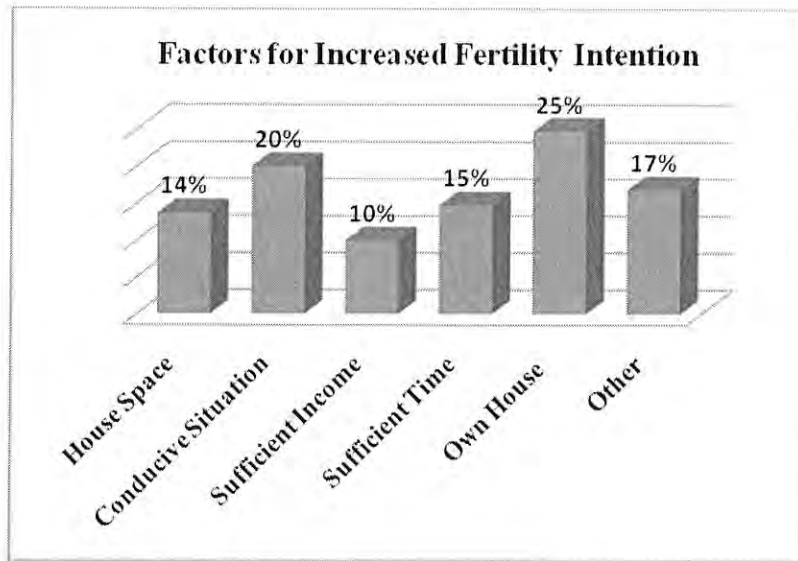


Figure 4.5: Reasons for increased fertility intention due to condominium

For 35% and 27% of the respondents residing in condominium houses, unfavorable situation around the residence area and income related factors were underlined as good reasons for decreased fertility intentions, respectively. Moreover, ownership of condominium houses and the size of the houses stand out to be the third and fourth reasons for such a decrease in fertility intentions respectively (Figure 4.6).

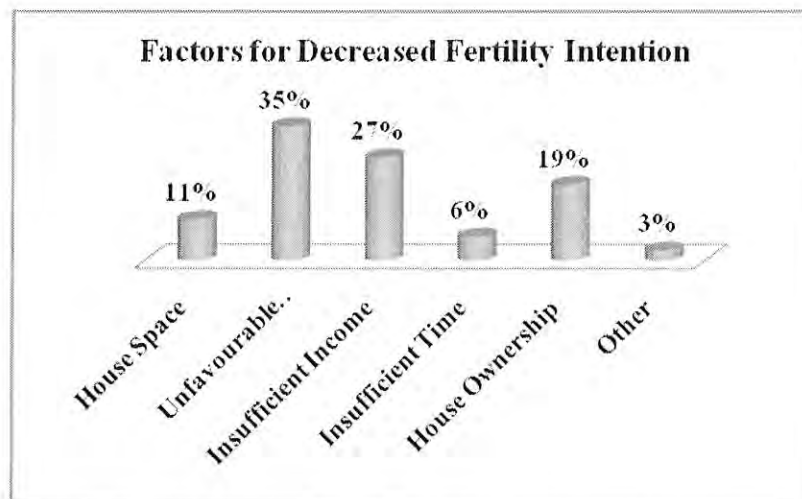


Figure 4.6: Reasons for decreased fertility intention due to condominium

Obviously, most of the total respondents (60.2%) fall under no change in fertility intension category sharing major reasons to their counterparts with decreased intention. The environs of residential area, income factor and house ownership play determinant roles (Figure 4.7).

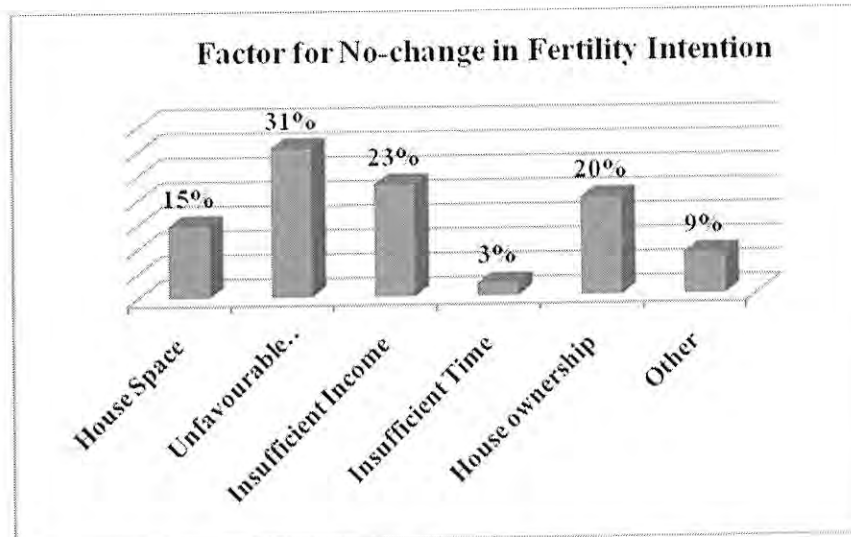


Figure 4.7: Reasons for no-change in fertility intention

4.3 Relationship between Housing Characteristics and Fertility Intention

Split analysis has been conducted to study fertility intentions of respondents based on the characteristics of housing and other socio-demographic dynamics such as age, marital status, actual number of children, education, employment status and income satisfaction.

4.3.1 Number of Rooms, Age and Fertility Intention

This section addresses the relations between number of rooms, age of respondents and fertility intentions. It is found out that younger respondents living in houses with three to five rooms have high intension than their older counterparts. For instance, respondents constituting 86.5%, 76.8% and 92.9% aged less than 28 living in three, four and five rooms, respectively, intend to have children, which is larger than the proportion of older

respondents living in the same number of rooms who intend to have children. On the contrary, respondents living in one or two rooms have low intention to have children in all age groups (Table 4.9). It may however be argued that the older the respondents the closer they are to the end of their reproductive period and hence the low the intension for child bearing.

Table 4.9: Fertility Intentions across Age groups of Respondents; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

Type of Condominium Houses	Fertility Intention					
	<= 28		29 – 34		>= 35	
	Yes	No	Yes	No	Yes	No
One Room	4(80)	1(20)	2(50)	2(50)	5(50)	5(50)
Two Rooms	9(64.3)	5(35.7)	7(63.6)	4(36.4)	2(20)	8(80)
Three Rooms	64(86.5)	10(13.5)	54(72)	21(28)	17(35.4)	31(64.6)
Four Rooms	43(76.8)	13(23.2)	43(74.1)	15(25.9)	25(36.8)	43(63.2)
Five Rooms	13(92.9)	1(7.1)	13(72.2)	5(27.8)	9(47.4)	10(52.6)

Figures in parenthesis are percentages

Source: Author's Field Survey, 2014

4.3.2 Number of Rooms, Marital Status and Fertility Intention

Respondents are categorized into 'In relation' and 'Not in relation' categories according to their marital status. 'In relation' category includes both currently married and cohabited couples whereas 'Not in relation' encompasses never married, widowed and separated respondents. The number of cohabited respondents is high next to those married couples for the main reason that people make union to support each other triggered by the exigencies of life. The respondents are checked for their fertility intentions against the number of rooms of condominium houses in which they are residing - from 'Studio' to 'three bed rooms' type.

It is found that 40.7% and 37.6% of the respondents live in 'three rooms' and 'four rooms' houses, respectively. These types of houses have adequate space and relatively affordable and hence preferred particularly by tenants as compared to other types of houses. Most respondents residing in houses with three to five rooms have high intention to bear additional children. Both groups respondents ('In relation' or 'Not in relation') show similar pattern compared to respondents living in houses with one or two rooms. This shows that number of rooms can affect the behavior of the respondents in such a way that if it is large it will give them space to rear children. On the contrary, respondents living in houses with one or two rooms do not intend to bear children until they get the opportunity to live in houses with more rooms (Table 4.10).

According to focus group discussions in Jemo 1 site;

The size of house is a big issue and we do not have an intention to bear children if our house space is limited. Most children in condominium houses play inside the houses and that is why the house needs to be big enough. We are using the rooms for our daily chores and a place for our children to play (FGD code # three, May, 2014).

Whilst another focus group participants of the Micheliland site made a statement that;

The size of house really forces us to limit the size of our children especially when bath and kitchen rooms are small in size since it poses danger to children even inside the house (FGD code # one, May 2014).

Table 4.10: Fertility Intentions across Marital Status of Respondents; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

Type of Condominium Houses	Fertility Intention*			
	In Relation		Not in Relation	
	Yes	No	Yes	No
One Room	8(61.5)	5(38.5)	3(50.0)	3(50.0)
Two Rooms	14(53.8)	12(46.2)	4(44.4)	5(55.6)
Three Rooms	122(70.5)	51(29.5)	13(54.2)	11(45.8)
Four Rooms	99(63.5)	57(36.5)	12(46.2)	14(53.8)
Five Rooms	34(68.0)	16(32.0)	1(100.0)	0(0.0)

Figures in parenthesis are percentages

Source: Author's Field Survey, 2014

4.3.3 Number of Rooms, Actual Size of Children and Fertility Intention

It is revealed that size of children respondents actually have is negatively proportional to their future intention of having another child or children. Irrespective of the number of rooms respondents reside in, they have more intention of additional child or children when they have one child or two children. It is also shown that intention to have children slightly decreases as the number of rooms increases from three (88.2%) to four (84.5%) among respondents with one child and three and above children (30%), (22.7%) (Table 4.11). The reason is that when the numbers of rooms increase, it resulted in an increase in the rent or down payment of the houses.

The above discussion is also supported by respondents from FGD. As they said;

After having one child relatives and friends push us to add another by saying your child needs to have brother or sister. Then we want to add at least one without taking into consideration other factors (FGD code # two, May 2014).

As it is mentioned by one of the informant,

I have two children and I do not want to have another because I want to raise them by providing quality education and want to fulfill what they need. Even after they complete high school in Addis Ababa, I will send them to foreign country for their higher education (KII code # two, May 2014).

Table 4.11: Fertility Intentions across Actual Number of Children; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

Type of Condominium Houses	Fertility Intention					
	1 Child		2 Children		≥3 Children	
	Yes	No	Yes	No	Yes	No
One Room	2(50.9)	2(50.0)	2(40.0)	3(60.0)	0(0.0)	2(100.0)
Two Rooms	7(87.5)	1(12.5)	3(30.0)	7(70.0)	0(0.0)	7(100.0)
Three Rooms	67(88.2)	9(11.8)	29(49.2)	30(50.8)	9(30.0)	21(70.0)
Four Rooms	49(84.5)	9(15.5)	27(50.9)	26(49.1)	10(22.7)	34(77.3)
Five Rooms	13(86.7)	2(13.3)	13(61.9)	8(38.1)	5(45.5)	6(54.5)

Figures in parenthesis are percentages

Source: Author's Field Survey, 2014

4.3.4 Number of Rooms, Education and Fertility Intention

The results of the survey show that level of education and fertility intention has direct relationship. The higher the level of respondents' education, the higher the intention for additional birth will be. But among respondents with higher education it is important to note that fertility intention decreases with number of rooms (Table 4.12). It is due to the fact that first respondents with no formal education are in the main old respondents who achieved the intended number of children and second among higher educated respondents larger number of rooms refer to high cost either in the form of down payment or rent.

According to the information obtained from the Chair of Condominium Residents Committee;

Most of the residents/respondents in condominium houses are young and in their reproductive age . Moreover majority of them attended formal education at least at primary or secondary level. Therefore, their educational background may not have major effect on their child bearing tendency (KII code # Four, May 2014).

Table 4.12: Fertility Intentions across Educational Status of Respondents; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

Type of Condominium Houses	Fertility Intention					
	No Formal Education		Secondary and Less		Higher Education	
	Yes	No	Yes	No	Yes	No
One Room	1(33.3)	2(66.7)	5(50.0)	5(50.0)	5(83.3)	1(16.7)
Two Rooms	0(0.0)	1(100.0)	10(41.7)	14(58.3)	8(80.0)	2(20.0)
Three Rooms	0(0.0)	3(100.0)	55(63.2)	32(36.8)	80(74.8)	27(25.2)
Four Rooms	0(0.0)	4(100.0)	62(63.3)	36(36.7)	49(61.3)	31(38.8)
Five Rooms	0(0.0)	0(0.0)	18(69.2)	8(30.8)	17(68.0)	8(32.0)

Figures in parenthesis are percentages

Source: Author's Field Survey, 2014

4.3.5 Number of Rooms, Employment and Fertility Intention

As presented in table 4.13, employment status of respondents in all types of condominium has shown no noticeable fertility intention differences. In the three and four room type of houses, where most of the residents dwell, 66.1% and 66.3% of the employed respondents, respectively, want to have additional children compared to 71% and 57% of the unemployed respondents who reside in three and four room houses. In all other types of houses also the fertility intentions of respondents are almost similar among the two categories of respondents.

FGD participants affirm this situation in saying that:

It is not employment that matters to have children, because respondents might be unemployed temporarily until their children are independent and go to school. Sometimes they think that unemployed respondents have relatively high intention than employed respondents however, their intention is restricted by other factors like cost of raising children (FGD code # One, May 2014).

Table 4.13: Fertility Intentions across Occupational status of Respondents; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

Type of Condominium Houses	Fertility Intention*			
	Employed		Unemployed	
	Yes	No	Yes	No
One Room	6(50.0)	6(50.0)	5(71.4)	2(28.6)
Two Rooms	9(60.0)	6(40.0)	9(45.0)	11(55.0)
Three Rooms	72(66.1)	37(33.9)	63(71.6)	25(28.4)
Four Rooms	53(66.3)	27(33.8)	58(56.9)	44(43.1)
Five Rooms	14(70.0)	6(30.0)	21(67.7)	10(32.3)

Figures in parenthesis are percentages.

Source: Author's Field Survey, 2014

4.3.6 Number of Rooms, Other Condominium Characteristics and Fertility Intention

Table 4.14 indicates that owners are more likely to be older in age than tenants. The percentage of owners increase with increase in age that is 40.5%, 50.6% and 63.2% at age ≤ 28 , 29-34 and ≥ 35 , respectively. While, tenants are more concentrated at age ≤ 28

(59.5%) and decreases as age increases. Moreover, owner's intention is lower at all ages except age between 29-34 than renters (76.2%, 67.1%).

Table 4.14: Fertility Intentions across Ownership Status of Respondents; split analysis by Age of Respondents in Selected Sites of Addis Ababa, 2014

Age	Fertility Intention*				Total	
	Owner		Renter		Owner	Renter
	Yes	No	Yes	No		
<=28	48(72.7)	18(27.3)	85(87.6)	12(12.4)	66(40.5)	97(59.5)
29-34	64(76.2)	20(23.8)	55(67.1)	27(32.9)	84(50.6)	82(49.4)
>=35	29(29.6)	69(70.4)	29(50.9)	28(49.1)	98(63.2)	57(36.8)

Figures in parenthesis are percentages.

Source: Author's Field Survey, 2014

As table 4.15 shows tenants have more fertility intention than owners in all houses with different number of rooms except in five rooms as compared to owners. This is due to the fact that owners unlike tenants do not purposely prefer to live in condominium houses when they get pregnant or want to form family.

FGD participants stated that;

Since owners have a tendency to furnish and equip their houses with excess household materials, their house become congested which made raising children difficult (FGD code# five, May 2014).

Another reason is age of owners. Residents who own houses are older than tenants that could possibly affect their intention to have children in the future (table 4.14).

It is also demonstrated (table 4.15) that respondents that resided four years and less have more intention to have children than those who resided five and more years. This could

be linked to the perception of residents when they get access to condominium houses as owner or tenant.

In one of the FGDs conducted, the participants agreed that;

When we get the opportunity to start living in condominium, we feel blessed and most of us get pregnant. But after some years, we begin to face challenges in raising children as our children lack places to play which create fear of danger on families (FGD code# three, May 2014).



Figure 4.8. Children playing around condominium houses

With regard to density per room, respondents living in houses with less density have considerable intention to have more children as compared to their counterparts in all kinds of number of rooms. 58.6%, 68.5%, 61.0% and 68.6% of the respondents have intention among density of less than 2.5 person per room and 36.4% and 16.7% only from one and two rooms are among 2.5 and more persons per room. As per UN recommendation, 2.5 persons per room is considered as congested (UN, 1967). The

results of this study show that only 2.6% of the respondents reside in congested houses and hence one can conclude that house overcrowding is very low in condominiums.

Finally, residence before moving to condominium shows variation among parent, government and private rental houses. Respondents who were residing in private rental houses have more intention to have additional children than those who reside in government or parent houses. It is 80.3%, 76% and 81.8% among respondents who were living in private rental home.

According to a key informant interview with a representative of a block in one of the sites,

I have been living in a rented house and when I get pregnant I moved to condominium houses. Because I believe there is relatively better freedom in using housing facilities like electricity and water supply and you are also free to host guests (KII code # three, May 2014).

Table 4.15: Fertility Intentions across Condominium Housing related Factors; split analysis by Number of Rooms in Selected Sites of Addis Ababa, 2014

		Fertility Intentions									
		One Room		Two Rooms		Three Rooms		Four Rooms		Five Rooms	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Ownership	Non-Owner	8(88.9)	1(11.1)	10(58.8)	7(41.2)	78(74.3)	27(25.7)	61(70.1)	26(29.9)	12(66.7)	6(33.3)
	Owner	3(30.0)	7(70.0)	8(44.4)	10(55.6)	57(62.0)	35(38.0)	50(52.6)	45(47.4)	23(69.7)	10(30.3)
Years lived in Condo.	<=4 Years	10(83.3)	2(16.7)	14(66.7)	7(33.3)	128(75.3)	42(24.7)	85(67.5)	41(32.5)	31(77.5)	9(22.5)
	>=5 Years	1(14.3)	6(85.7)	4(28.6)	10(71.4)	7(25.9)	20(74.1)	26(46.4)	30(53.6)	4(36.4)	7(63.6)
Density per Room	<2.5 person	7(87.5)	1(12.5)	17(58.6)	12(41.4)	135(68.5)	62(31.5)	111(61.0)	71(39.0)	35(68.6)	16(31.4)
	>= 2.5	4(36.4)	7(63.6)	1(16.7)	5(83.3)	-	-	-	-	-	-
Prior Residence	Parent house	3(50.0)	3(50.0)	4(33.3)	8(66.7)	17(37.0)	29(63.0)	16(28.6)	40(71.4)	7(50.0)	7(50.0)
	Government house	0(0.0)	0(0.0)	1(25.0)	3(75.0)	24(70.6)	10(29.4)	16(72.7)	6(27.3)	1(25.0)	3(75.0)
	Private rental house	8(61.5)	5(38.5)	13(68.4)	6(31.6)	94(80.3)	23(19.7)	79(76.0)	25(24.0)	27(81.8)	6(18.2)

Figures in parenthesis are percentages.

Source: Author's Field Survey, 2014

4.4 Analysis of Determining Factors

The respondents were asked whether they do have an intention to have a child or another child in the future and most of them answered the question as yes or no but 13 of them responded that they do not know or are not willing to answer the question. Thus, the result in here is based upon 484 respondents.

4.4.1. Bivariate Analysis

The study has examined various characteristics of respondents which are assumed to have effect on fertility intention. These include, housing, demographic and socio-economic variables. In the bi-variate analysis an attempt is made to incorporate cases like ownership status, type of house, density per room, payment status, residence before condominium and years of stay in condominium. In addition, age of the respondent, marital status, actual number of children and family size were also dealt with. Furthermore, the relationship between fertility intention and socio-economic factors such as religion, ethnicity, education, income satisfaction and occupational status of the residents were addressed.

According to the results obtained from the analysis, ownership status, density per room, house before condominium, year of residence, age, marital status, actual number of children, family size, education and income satisfaction were found to be related significantly to fertility intention with p value less than 0.05 level. However, payment status, size of house, religion, ethnicity and employment status do not show any significant relation with fertility intention (Refer to Annex I).

Size of the house does not show significant association because it is highly dependent on the income status of the households. For owners, the down payment increases with increase in the size while for tenants, the rent is high as the size gets bigger. Rent of condominium houses vary from one site to another ranging from 1200 to 1800, 2000 to 3500, 3000 to 5500 and 4000 to 6500 for studio, one, two and three bed rooms.

Particularly, the result of the bi-variate analysis illustrated that condominium related factors have significant association with fertility intention. The intention to have additional children among respondents who own houses is less than those who rent (COR= .522, P=.001). Households which are characterized by less density per room have higher intention than more density (COR=4.5, P=0.05). In addition, respondents who previously resided in governmental or private rental houses are more likely intend to have children than those who were residing in their parent's house (COR=3.53, P<0.001 and COR=6.294, P<0.001, respectively). The proportion of women who stay for four and less years desire more children than that of women stay five and more years (COR= 4.612, P<0.001).

Age, as one of demographic factors, influence the intention of having child or children. The higher the age group the lower their intention for additional child will be. That is women of age group 29-34 and above 35 are less likely intend to have children (COR= .571, P<0.05 and COR= .135, P<0.001). Women whose marriage currently dissolved are less likely want to have children than that of never married (COR=.067, P<0.001); having three or more living children leads to less intention than having two or less (COR= 2.917,

$P < 0.00$) at two children and ($COR = 17.5$, $P < 0.001$) at one child; larger family size also has inverse relationship with fertility intention.

With respect to socioeconomic factors, income satisfaction and education show significant association in such a way that respondents who are not satisfied with their income less likely intend to have children than those of respondents who are partially satisfied or satisfied ($COR = 2.576$, $P < 0.001$ and $COR = 3.074$, $P < 0.001$). Moreover, the intention to have children is high among highly educated women than women with no formal education ($COR = .043$, $P < 0.01$).

Multicollinearity and Goodness of Fit Tests

Before dealing with the selected variables, the existence of multicollinearity among independent variables and goodness of fit of the model were checked through Variance Inflation Factor (VIF) and it is found out that there was no interdependence among variables of interest ($VIF < 0.4$ and Tolerance is > 0.1). Hosmer and Lemshow goodness of fit test was also used to assess whether the data fits the regression models well. It assesses the fit of the model by comparing the observed and expected frequencies. When the Hosmer- Lemshow test is insignificant it means that the observed counts and those predicted by the model are close, and the model describes the data well. Thus, the insignificance ($P = 0.383$) of the result shows that the data is good to fit the model.

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4.4.2. Multivariate Analysis

In the previous section the gross effect of housing, demographic and socioeconomic variables was discussed based on bi-variate analysis, but here their magnitude or net effect is examined using multivariate analysis. Logistic regression technique is used to assess the relative effect of those variables that had significant association on the outcome variable (fertility intention coded as 1=Want to have and 0= No more child). First, the effect of selected housing related factors on fertility intention was assessed; second, demographic factors were added with the housing ones; lastly, socio-economic factors were included to examine the net effect of the overall factors.

Housing Factors

Controlling for other factors (Table, 4.15), all the selected housing determinants show significant association, with fertility intention except ownership status which was significant in bi-variate analysis with $p=0.001$ (COR= .522, SE .193).

Resident's density per room significantly influences women's fertility intention. Women living in less than 2.5 persons per room are 3.7 times more likely to have intention than that of women living in 2.5 or more persons per room but this become 10.8 times in model two and 12.4 times in the final model. (AOR=3.69, 10.84 and 12.42).

Respondents who were living in their parents' house before moving to condominium houses intend to have fewer children as compared to respondents coming from government and private rental houses. In other words, the latter are 3 and 5.7 times more likely intend to have children, respectively, than the former (AOR=3.135, AOR=5.736). The net effect of type of house before condominium became insignificant in the second

and final models for government houses. For respondents coming from private rental houses, the value increases to 6.5 times in the second model and declines to 5.8 times higher in the final model as compared to those from parents' house (AOR=6.46 and 5.78).

Respondents who stay less than four years in condominium are 4 times more likely to have desire for children than respondents who stay more than 5 years. It showed significance in all the three models while declines to become 2.2 in the second and 2.1 times higher in the last model (AOR=4.04, 2.21 and 2.13).

In its gross effect, house ownership also shows significant association with fertility intention negatively. The respondents residing in a rent situation are more likely to have intention of bearing children in the future. But, its net effect, is insignificant (COR=.522, SE .193).

Demographic Factors

In the second model, demographic variables were included in addition to housing variables as it is demonstrated in table 4.15. Age of respondents, marital status, actual number of children and family size were significant in the bi-variate analysis. However, the result of multivariate analysis showed that family size is not a stronger explanatory variable.

The higher the age of respondents, the lesser will be their intention to have a child or another child. As it is shown in table 4.15, respondents of age greater than 35 are by 74 percent in the second model or 70 percent in the last model less than respondents found in 28 and less years of age (AOR= .26 and .30). Marital status, as another demographic

factor, showed significant link with fertility intention (AOR=26.4 and 22.8). Currently married women are 26.4 and 22.8 times more likely intend to have children than never married (AOR= 26.40 and 22.82).

Trends in familial situation have influence on deciding whether to have a child or another child. These trends could be number of children that a woman has in her reproductive life time (CEB), number of child or children dead or the family size including relatives living with her. The study excludes number of dead children as an explanatory variable because it is small in number. But number of living children/actual number of children and family size are considered and found to be significantly associated with fertility intention.

The more the number of children respondents is having, the fewer children they are expecting to have in the future. According to the result of the study, respondents with one child are 14 and 18 times more likely to have another child as compared to women with 3 and more children, in model two and the final model. (AOR=14.5 and AOR=17.6). Even though, family size shows association during treating the gross effect, its net effect on fertility intention is insignificant as shown in multivariate analysis.

Socio- economic Factors

Among the selected socio economic factors, income satisfaction only showed significant association with desire for more children. However, occupational status and educational level were significant in the bi- variate analysis.

Hence, income satisfaction has only been significant factor in the multivariate final model. Compared to respondents who were unsatisfied with their income, the satisfied ones are 2.5 times more likely desire to have a child or another child (AOR= 2.46).

Table: 4.16 Summary of the Hierarchical Logistic Regression Analysis of Relative Effect of Housing, Demographic and Socio-Economic Factors on Fertility Intention of Selected Condominiums in Addis Ababa, 2014

Characteristics	Crude OR	Adjusted OR (SE)		
	(SE)	Model 1	Model 2	Final Model
Model One- (Housing Related Factors)				
Ownership status				
Non-Owner	1.00	1.00	1.00	1.00
Owner	.522 (.193) ***	.771 (.220)	1.304 (.284)	1.299(.290)
Density per room				
>=2.5	1.00	1.00	1.00	1.00
<2.5	1.474(.541) *	3.698(.608) *	10.84(1.030) *	12.420(1.089) *
House before condo.				
Parental home	1.00	1.00	1.00	1.00
Government rent	3.534(.319) ***	3.135(.337)***	1.382(.457)	1.393(.468)
Private rent	6.294 (.230) ***	5.736(.244)***	6.469(.324)***	5.785(.329)***
Years in condo.				
>=5	1.00	1.00	1.00	1.00
< 4	4.612(.226)***	4.043(.246)***	2.213(.312)*	2.134(.322)*
Model Two- (Demographic Factors)				
Age				
≤28	1.00		1.00	1.00
29-34	.571 (.266)*		.775(.355)	.903(.365)
≥35	.135 (.262)***		.260(.382)***	.307(.388)**
Marital Status				
Never Married	1.00		1.00	1.00
Dissolved	.067(.623)*		1.965(1.095)	1.609(1.119)
Currently Married	.631(.397)		26.409(.852)***	22.821(.880)***
Actual Number of Children				
≥3 child	1.00		1.00	1.00
2 child	2.917 (.288)***		1.889(.368)	1.965(.381)
1 child	17.500 (.327)***		14.490(.480)***	17.659(.508)***
Family Size				
≥5	1.00		1.00	1.00
4	1.788 (.232)*		.725(.340)	.722(.344)
≤3	4.901 (.253)***		1.414(.420)	1.326(.433)
Model Three-(Socio-Economic Factors)				
Educational Status				
Higher	1.00			1.00
Lower	.685(.195)			1.492(.299)
No Education	.043(1.059)**			.000(11698.9)
Income Satisfaction				
Unsatisfied	1.00			1.00
Partially Satisfied	2.576(.246)***			1.959(.375)
Satisfied	3.074(.249)***			2.459(.377)*

Source: Author's Field Survey, 2014

4.5 Discussion

The study tried to assess how housing characteristics affect the intentions of fertility on selected condominium residents in Addis Ababa. The result revealed that 64% of respondents had the intention to have a child or other children. However, 34 % of them want no more children.

Previous studies indicate that the proportion of respondents who want no more children in sub-Saharan African countries that have experienced sustained fertility decline is within the range of 30 to 50 % (Gebremariam, 2008). In Ethiopia, the proportion of respondents who wanted to cease childbearing increased from 32 % to 42 % and then declined to 37 % in between the 2000, 2005 and 2011 EDHS surveys (CSA and ICF International, 2012). However, the result of this study is a bit less than the result of the last survey. The reasons behind this could be that the study considers residents of condominium who are largely categorized under younger cohorts. Moreover, the opportunity of getting the house paves the way to form families in general and have children in particular. The other explanation could be respondents who are not currently married are also included which may overestimate fertility intention.

According to the findings of the study, the primary reasons given to desire more children includes the capacity to raise children in terms of income and time. Respondents also mentioned that insufficient income in turn resulted in having less or no desire for more children. The numbers of children respondents have also put a constraint to have additional child. After reaching to their ideal number of children, people may not want another child.

Though children are rarely seen as economic security in modern societies, their psychological and social values are undeniable. Residents of the study area are nowadays emphasizing more on quality of children than quantity. To match between the satisfaction they get and their economic status to cover their cost, parents want to have children but not more than two.

The results obtained from FGD also go in accordance with this finding. Respondents stated that the biggest issue is their financial capacity as all limit the number of their children parallel to their respective financial status. They also admit that respondents who have ample time at home as compared to those employed mothers are encouraged to bear more and more children as they can afford to have tie and are safe from the risk of giving their kids to house maid.

Regarding condominium related factors, respondents after starting to live in this residence mention major factors that facilitate the intention to have children. Owning the house and favorable condition of living as compared to other places were the major ones. Not owning the house, probability of danger, especially for children and other reasons like health and having sufficient number of children are mentioned among the factors that contributed for no more children responses.

Results from the FGDs conducted with different groups of residents, shown that ability to raise children specifically income is the dominant determining factor for having additional children. But, everybody have an intention to have one child even though income is insufficient. Freedom of living around and utilization of available resource as

much as financial capacity restricts are some of the reasons mentioned by participants of FGD to want more children in the future.

Representative of one of the blocks during interview stated that:

Infertility is like a shame so that women after they get married or cohabited they want to become pregnant. (KII code # three, May 2014)

As mentioned by FGD participants:

An intention to have children is not directed by what our house looks like but love of children. If you are married everybody waits you to be pregnant and have child. Even if you want to settle something personally relatives and colleagues push you to have (FGD code # four, May 2014).

It is also found out that the mean desired number of children decreases from life time desire to desire before residing in condominium and again declines after moving to condominium, too. It is attributed to the challenges faced by residents in raising children. Participants of one of the FGDs revealed that they leave home and get back with full freedom and are not likely to confront the possible unpleasant face of leasers' day in day out. But later on after having one child they realized that the place is not comfortable for adding more children because of unavailability of enough readymade space for children to play, children require tight protection from danger of living in upstairs, respondents especially working out feel insecure of leaving their children at home and children are restricted to go and play freely due to the instability and unsafe nature of stair cases.

Parents are always at risk of experiencing casualties on the part of their kids as the buildings pose an imminent danger.

The empirical evidence also suggests that, after controlling for demographic and socioeconomic factors, density per room, years of stay in condominium and former residence play significant role in determining the fertility behavior. A study by Vignoli found that feelings of security about housing conditions play a significant role in determining respondent's fertility intentions, i.e., the greater the feeling of security a woman has, the higher the probability is that she will be planning to have her first child (Vignoli, *et.al*, 2011).

Young couples purposely look for these places when the woman gets pregnant. This is so because it is obvious that these houses provide the highest possible freedom and access to basic supply of services such as electricity, water and the likes. These houses are also good as residents can host their respective visitors and guests compared to private rented houses as explained by FGD participants.

Ownership status does not show significant link with fertility preference. Respondents living in rent houses disclosed during FGD that they assume like they are owners and participate in each social activity held in and outside the house. The result is similar with other results which revealed that owners do not differ significantly from tenants because the cost of obtaining a property, especially with mortgage, may lead to liquidity constraints, a situation like renting seems to compete with the desire to have a child (Mulder, and Billari. 2010, Vignoli, *et.al*, 2011).

This study pointed out that age of respondents is important in fertility decision. Respondents in their late reproductive age tend to limit their fertility compared to those in their early child bearing ages. Studies also support this argument. However, some studies show the contrary. Begashaw found out that age and fertility intention have inverse relationship. According to his study, larger age group respondents prefer to have more children than smaller age groups (Begashaw, 2007). But this is not the case in other studies. Young respondents have intention to have more children than old age respondents or age seems to be strongly negatively related to the probability of planning to have a first child (Yohannes, 2008, Aynekulu, *et.al*, 2013, ESPS, 2008).

Marital status is an important component in determining respondents' fertility intention. Similarly, cohabiting respondents are less likely to have positive fertility intention than married ones. In some studies, in countries like Ethiopia where children have psychological, cultural and economic values, respondents prefer to have children than preferring no more children despite of their marital status (Vignol, *et.al*, 2011, Rinesi, 2011, Mussino, 2011). Even unmarried participants of FGD agreed that it is natural that a woman is intending to have children irrespective of her situation. But on the basis of this study it is strongly argued that fertility intention among married ones is higher than unmarried respondents because of universal nature of marriage in the country.

On the other hand, the desire for another child is strongly related to the number of living children a woman has. As the number of living children increases, the proportion of respondents who desire to have an additional child declines, whereas the proportion of respondents who want no more child increases. Studies confirm this idea stating that

inverse relationship between the number of surviving children and intention to limit fertility is exhibited among currently married respondents evidencing that at least two surviving children are required in the Ethiopian context to initiate planning for limiting fertility (Gebremariam, 2008; ESPS, 2008; Laurent and Testa, 2005).

Unlike number of living children, family size did not show significant relation with the fertility intention in this study. The reason could be related to the nature of the respondents most of whom are youngest and are not able to incorporate other relatives than their immediate families. Trends are now showing that such culture of accommodating other people than children or immediate families is becoming rare in Addis Ababa or urban areas in general. The FGD participants also agree on this concept as they state that the setting of condominium houses is different from other kinds of houses and hence inappropriate to host others permanently. People around are mostly leading independent life and are far from social networks. Another argument is that increased cost of living has direct impact on family wellbeing and might be a contributory factor for the on-going intention to limit family size.

Though educational status of respondents seems insignificant in this study, results of other studies show that respondents with primary or more education have an increased likelihood of wanting no more children in Ethiopia. On the contrary others found positive association of high level of education with fertility intention. Of course, some studies revealed that there is no significant relationship between them (Gebremariam, 2008, Testa, 2012, Begashaw, 2007).

As it is indicated in a study conducted by Tariku in Oromia region, respondents from households in the richest wealth quintile are two and half times more likely desire to limit childbearing than respondents of the poorest wealth category. Wealth may indicate a greater exposure of people to new ideas and commodities, and may thus influence fertility intentions of people (Tariku, 2008). But the case in this study is the reverse, i.e., respondents who are satisfied with their income strongly advocate the need to have more children.

Lastly, it is important to deal with contraceptive practices of respondents under study. About 63.8 % of respondents in the study area use and/or planned to use contraceptive methods. It is compatible with CPR of Addis Ababa, which is 63% (CSA and ICF International, 2012). The study also found out that 91% of respondents have the autonomy to decide on contraception either independently or together with their spouses. However, respondents also noted that the availability and quality of family planning services is not as up to the expected level. For all sites, service providing institutions especially government institutions are either unavailable or not well equipped because they are newly opened. Results from FGDs and KIIs also confirm this idea. Participants of the FGDs stated that they are not utilizing the service in or around the condominium cites. The reason is that poor quality of the service and in other sites the service is not available. Health extension workers also stated that they are working home to home for awareness creation especially on the availability and applicability of contraceptive methods and told that most residents know about family planning but sometimes what lags behind is the practice. It is mainly due to social saying about contraception methods.

Chapter Five: Conclusion and Recommendation

5.1 Conclusion

This study was conducted with the objective of assessing the effect of an innovative intervention, condominium housing, on fertility intention of residents in Addis Ababa. The level of intention to have a child or another child in the study area is not highly different from the national orientations. The study revealed that 64% of the residents want to have children which is 63% at national level. Majority of the respondents (68%) need to have a child or additional child within two years and around 27.4% want within three to five years. The study also revealed that living in condominium by itself has no considerable change on 60 % of the respondents under study. The main reasons for this include unfavorable situation in residence area specially for raising children; insufficient income and ownership status. Moreover, about 64% of respondents in the study area are using or plan to use contraception to plan their family size.

Most of the residents in condominium are youngsters while older people purposely avoid living there. Because of lack of high link in social life, inappropriateness of the residence to exercise cultural practices, not even suitable to live in apartment style houses and restriction on size of the house as compared to the non condominium houses which they are familiar with.

According to this study, fertility intentions are affected by housing, demographic and socioeconomic factors. Fertility intentions are high among residents who stayed less than four years in condominium and coming from government and private rental houses after

controlling other variables. Ownership status of residents showed significant association in its gross effect analysis whereas it became insignificant in assessing the net effect. The main reasons could be tenants purposely prefer to live in condominium seeking freedom in having children. Whereas, most of owners are obliged to start living when they get the access to houses without prior plan.

On the other hand, fertility intention is high among younger age (<35 years) and married respondents with one parity. The reasons behind this finding include, most of the residents of condominium are youth, they are active psychologically or economically to form family and bearing children. Since marriage is universal in countries like Ethiopia, the need to have child is greatly linked to relationship. As far as parity is concerned, particularly respondents with one living child have extremely objective intention to have another due to social influences from parents and friends.

Income satisfaction is the only socioeconomic determinant of fertility intention in the study area. Most of the residents agree that income is a decisive factor to have child or children because they emphasize on quality of child than quantity. To achieve their goal, they want to have financial capacity to handle their expenses. However, educational status has no part in affecting fertility intentions of the residents, the rationale behind could be respondents especially younger ones, whether highly educated or not, are prefer to live there due to their pervasive need to start family.

In relation to contraception practices, the result showed that most of the respondents are using the service in one way or another and the health extension workers are also trying

their best in giving direction. Moreover, respondents are in agreement with their spouses regarding the use and kind of contraception they are using or plan to use.

Generally, this study concluded that fertility intention of condominium residents is explained by behavioral beliefs like having positive attitude towards children; normative beliefs as relatives, friends or the society put pressure on couples and most importantly, control beliefs in terms of perceived availability of resources to have a child.

5.2 Recommendations

In accordance with the findings of this study, the following recommendations are forwarded:

- The study revealed that respondents prefer to reside in condominium houses when they want to marry or start family given the opportunity to access the houses. As a result, marriage and family formation are facilitated by condominium houses. Marriage is said to be a proximate determinant of fertility intention. So intervention is needed by the government because in the near future fertility might be inflated in condominium houses.
- Fertility intention is currently stable in the study area but some evidences of the study vivid that there will be positive changes in the future. It is also found out that pre-arranged playing grounds for children are rarely taken into consideration. Therefore, improvement is needed in the case to shape the physical, psychological and social wellbeing of children.

- Health centers in most of the study sites are either absent or recently opened and inadequate in service provision, although the available ones are accessible. Thus, focus needs to be given in increasing the quality of family planning and health services and strengthening their capacity.
- Health extension workers have to give more emphasis to new residents, tenants and people coming particularly from government houses and private tenants.
- Education related to family planning has to be catered to respondents who possess condominium house as a means to limit the number of children they intend to have.
- Lastly, further research in a different setting is needed, since this area of focus is rarely studied, like its effect on marriage or family formation, taking into consideration residents with less than three years of residence in condominium houses to understand its effect on actual fertility in the long run.

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Appendix I.

Housing Related Factors

Variables	Intention for Additional Children				
	Have	No more	Standard Error	P-value	Crude OR 95%CI
	n (%)	n (%)			
Ownership status					
Non-Owner	169(71.6)	67(28.4)			1.00
Owner	141(56.9)	107(43.1)	.193	.001***	.522 [.358, .763]
Size of house					
< One bed room	164(65.3)	87 (34.7)			1.00
≥ Two bed room	146(62.7)	87 (37.3)	.190	.540	.890[.614, 1.291]
Density per Room					
≥ 2.5	5(29.4)	12(70.6)			1.00
< 2.5	305(65.3)	162(34.7)	.541	.005*	4.519[1.565, 13.049]
Payment status					
Not Completed	75(52.8)	67(47.2)			1.00
Completed	66(62.3)	40(37.7)	.262	.138	1.474[.883, 2.461]
House before condominium					
Parental home	47(35.1)	87(64.9)			1.00
Government rent	42(65.6)	22 (34.4)	.319	.000***	3.534 [1.890, 6.609]
Private rent	221(77.3)	65 (22.7)	.230	.000***	6.294 [4.014, 9.869]
Years in Condominium					
≥ 5	42(36.5)	73(63.5)			1.00
≤ 4	268(72.6)	101(27.4)	.226	.000***	4.612[2.961, 7.184]

Demographic Factors

Variables	Intention for Additional Children				
	Yes	No	Standard Error	P-value	Crude OR 95%CI
	N(%)	N(%)			
Age					
≤ 28	133(81.6)	30(18.4)			1.00
29-34	119(71.7)	47(28.3)	.266	.035*	.571 [.339, .961]
≥ 35	58(37.4)	97(62.6)	.262	.000***	.135 [.081, .225]
Marital Status					
Never Married	28(75.7)	9(24.3)			1.00
Dissolved Marriage	5(17.2)	24(82.8)	.623	.000***	.067[.020, .227]
Currently Married	277(66.3)	141(33.7)	.397	.247	.631[.290, 1.375]
Actual Number of Children					
≥ 3	24(25.5)	70(74.5)			1.00
2	74(50.0)	74(50.0)	.288	.000***	2.917 [1.658, 5.130]
1	138(25.5)	23(74.5)	.327	.000***	17.500[9.226, 33.193]
Family Size					
≥ 5	167(46.5)	377(53.5)			1.00
4	198(60.9)	163(39.1)	.232	.012*	1.788 [1.134, 2.819]
≤ 3	2145(81.0)	334(19.0)	.253	.000***	4.901 [2.983, 8.054]

Socio-economic Factors

Variables	Intention for Additional Children				
	Have	No more	Standard Error	P-value	Crude OR 95%CI
	N(%)	N(%)			
Educational Status					
Higher	159(69.7)	69(30.3)			1.00
Lower	150(61.2)	95(38.8)	.195	.052	.685[.468, .1.004]
No Formal Education	1(9.1)	10(90.9)	1.059	.003**	.043[.005, .346]
Employment Status					
Employed	154 (65.3)	82 (34.7)			1.00
unemployed	156(62.9)	92(37.1)	.190	.590	.903[.623, 1.309]
Income Satisfaction					
Unsatisfied	51(45.1)	62(54.9)			1.00
Partially Satisfied	125(67.9)	59(32.1)	.246	.000***	2.576[1.589, 4.174]
Satisfied	134(71.7)	53(28.3)	.249	.000***	3.074 [1.886, 5.009]
Religion					
Orthodox	196(62.8)	116(37.2)			1.00
Muslim	57(64.8)	31(35.2)	.252	.737	1.088 [.664, 1.783]
Other Christians	57(67.9)	27(32.1)	.261	.394	1.249 [.749, 2.085]
Ethnicity					
Amhara	129(61.7)	80(38.3)			1.00
Oromo	55(64.0)	31(36.0)	.266	.719	1.100[.653, 1.853]
Guraghe	61(61.0)	39(39.0)	.250	.903	.970 [.595, 1.582]
Others	65(73.3)	24(27.0)	.278	.062	1.680 [.974, 2.896]

Appendix II

Multicollinearity Test

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-.653	.168		-3.891	.000		
Age	-.093	.027	-.150	-3.455	.001	.773	1.294
Marital status	.232	.054	.173	4.318	.000	.908	1.102
Family Size	.008	.028	.014	.297	.767	.701	1.426
Actual number of Children	.218	.032	.344	6.816	.000	.573	1.745
Ownership Status	.038	.039	.039	.971	.332	.925	1.081
Density per room	.227	.109	.081	2.074	.039	.954	1.048
House before condominium	.149	.022	.266	6.694	.000	.924	1.082
Years of stay in condominium	.145	.045	.129	3.205	.001	.897	1.115
Educational Status	.042	.037	.046	1.129	.260	.880	1.136
Income satisfaction level	.062	.025	.098	2.481	.014	.939	1.065

a. Dependent Variable: INTENSION to have child/not

Appendix III

Hosmer and Lemshow Test

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.535	8	.383

Appendix III

Questionnaire

Addis Ababa University

College of Development Studies

Center for Population Studies

Title: Effect of Condominium Houses on Fertility Intentions or Preference

Dear Respondent,

Hello!, my name is _____ I am a member of a research team (project) conducting a study on the effect of condominium housing on fertility intention of residents. We are interviewing women residents to explore their fertility intention and its determinants. The purpose of my visit today is to ask you some questions related to the topic of the research. Your name will not be written in this form and the information you give will be kept confidential. If you don't want to answer all of or some of the questions, you do have the right to do so. However your willingness to answer all of the questions would be appreciated.

Would you participate in responding the questions in this questionnaire?	
1. Yes	2. No
<i>If the answer is 'Yes'</i>	
Signature -----	Date -----
<i>If the answer is 'No' Say thank you and Skip the interviewee.</i>	

Name of data collector: _____

Signature: _____

Date of interview: _____

Investigator's address:

Selam Kebede Delesa
Addis Ababa University
Center for Population Studies
Cell phone: +251911306484
E-mail: eseteselam@gmail.com

Section I: Background Information

Id No. _____

Serial Number	Questions	Coding Categories	Skip to
101	Age	<input type="text"/>	
102	Marital Status	1. Married 2. Living together 3. Divorced/Separated 4. Widowed 5. Never Married & never lived together	
103	Religion	1. Orthodox 2. Catholic 3. Protestant 4. Muslim 5. Traditional 6. Other(specify) _____	
104	Ethnicity	1. Oromo 2. Ahmara 3. Tigre 4. Gurage 5. Othres(specify) _____	
105	Educational status	1. No formal Education 2. Primary 3. Secondary 4. Technical/ Vocational 5. Higher	
106	Occupation	1. Employee 2. Self employed 3. Daily laborer 4. House wife 5. No job 6. Other (specify) _____	
107	Total household expenditure	<input type="text"/>	
108	Total Household saving	<input type="text"/>	
109	Are you satisfied with your household monthly income?	1. Yes satisfied 2. Partially satisfied 3. Don't want to tell 4. Not satisfied	
110	Total household size in number	<input type="text"/>	
111	Relation to head of the household	1. Head 2. Spouse	

Section II: Fertility

Serial Number	Questions	Coding Categories	Skip to
201	At what age did you first get married? (If married refer to Q.102)	<input type="text"/>	
202	How long you have been married?	<input type="text"/>	
203	Have you ever given live birth to a child?	1. Yes 2. No	401
204	How old were you when you first got pregnant?	<input type="text"/>	
205	How many children have you born alive?	M _____ F _____ All _____	
206	How many children have died?	M _____ F _____ All _____	
207	How many children are alive?	M _____ F _____ All _____	
208	Do the last child you gave birth alive?	1. Yes 2. No	

Section III: Birth History

301 Birth order	302 Sex 1. Male 2. Female	303 Age	304 Is she /he still alive 1. Yes 2. No	305 How old was (were) when she / he died?	306 Gap between consecutive children	307 Is ___ born before/after living in condominium 1. Before 2. After
1.						
2.						
3.						
4.						
5.						
6.						
7+						

Section IV. Condominium Housing and Fertility Intension

4.1. Condominium Housing Issue

Serial Number	Questions	Coding Categories	Skip to																														
401	How long have you been living in condominium?	<input type="text"/>																															
402	How did you own/acquire the condominium house?	1. Buy 2. Lottery of condominium 3. Compensation for demolished house 4. Rent 5. Others (specify)	404																														
403	Have you completed the installment payment?	1. Yes 2. No																															
404	Type of the condominium house	1. Studio 2. One bed room 3. Two bed room 4. Three bed room																															
405	Does your household have:	<table border="1"> <thead> <tr> <th>Items</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Refrigerator</td> <td>1</td> <td>2</td> </tr> <tr> <td>Laundry Machine</td> <td>1</td> <td>2</td> </tr> <tr> <td>Electric Oven</td> <td>1</td> <td>2</td> </tr> <tr> <td>Iron</td> <td>1</td> <td>2</td> </tr> <tr> <td>Sofa</td> <td>1</td> <td>2</td> </tr> <tr> <td>Television</td> <td>1</td> <td>2</td> </tr> <tr> <td>Water filter</td> <td>1</td> <td>2</td> </tr> <tr> <td>Car</td> <td>1</td> <td>2</td> </tr> <tr> <td>Computer</td> <td>1</td> <td>2</td> </tr> </tbody> </table>	Items	Yes	No	Refrigerator	1	2	Laundry Machine	1	2	Electric Oven	1	2	Iron	1	2	Sofa	1	2	Television	1	2	Water filter	1	2	Car	1	2	Computer	1	2	
Items	Yes	No																															
Refrigerator	1	2																															
Laundry Machine	1	2																															
Electric Oven	1	2																															
Iron	1	2																															
Sofa	1	2																															
Television	1	2																															
Water filter	1	2																															
Car	1	2																															
Computer	1	2																															
406	Is there enough playing space for children?	1. Yes 2. No																															
407	How long does it take to reach a near by health facility?	1. <30 minutes 2. 30 min - 1 hour 3. >1 hour																															
408	How do you rate the peace and security situation around your residence?	1. Safe 2. Fair 3. Doubting 4. Risky																															
409	In which social institutions do you belong to/participate?	1. Equb 2. Idir 3. Mahiber 4. None 5. Other(specify)																															

4.2. Condominium - Fertility Intension Link

Serial Number	Questions	Coding Categories	Skip to
410	Are you pregnant now?	1. Yes 2. No	414
411	After the child/ren you are expecting now, would you like to have another child, or would you prefer not to have any more? (if pregnant now)	1. Yes 2. No	417
412	After the birth of a child you are expecting now, how long would you like to wait before the birth of another child?	1. Less than one year 2. 1-2 years 3. 3-5 year 4. More than five year	
413	What factors encouraged you to have another child/ren?	1. Sufficient house space 2. Better facilities around my residence 3. Sufficient income to raise children 4. Sufficient time to care child/ren 5. Other(specify) _____	418/19
414	Would you like to have a/another child?	1. Yes 2. No	417
415	How long would you like to wait from now before the birth of another child?	1. Less than one year 2. 1-2 years 3. 3-5 year 4. More than five year	
416	What is your reason to have another child?	1. Sufficient house space 2. Conducive facilities around my residence 3. Sufficient income to raise children 4. Sufficient time to care child/ren 5. Other (specify) _____	418/19
417	What is your reason not to have another child?	1. Insufficient house space 2. Lack of facilities around my residence 3. Insufficient income to raise children 4. Insufficient time to care child/ren 5. Already have enough children 6. Other (specify) _____	
418	If you could go back to the time you did not have any child and could choose exactly the number of children to have in your whole life, how many would that be? (If ever given birth)	<input type="text"/>	

Serial Number	Questions	Coding Categories		Skip to	
428	Which contraception method would you like to use?	Options	Yes	No	
		1. pills	1	2	
		2. implant /Norplant/	1	2	
		3. injectable	1	2	
		4. IUD	1	2	
		5. condom	1	2	
		6. male sterilization	1	2	
		7. female sterilization	1	2	
		8. natural methods (abstinence, withdrawal)	1	2	
9. other -----	1	2			
429	Who influence you to use contraceptive at present time?	1. My decision 2. Mainly partner decision 3. Joint decision 4. Health care provider (counselor) 5. Health Extension workers 5. Other			
430	Is there any family planning service near your residence?	1. Yes 2. No			

Section IV: Husband Information

Serial Number	Questions	Coding Categories	Skip to
501	Age of your husband	<input type="text"/>	
502	Has your husband attended any formal schooling?	1. Yes 2. No	504
503	The highest grade completed by your husband	1. Primary 2. Secondary 3. Technical/ Vocational 4. Higher	
504	Husband's employment status	1. employee 2. self employed 3. daily laborer 4. no job 5. other (specify)	506
505	Husband's monthly income	<input type="text"/>	
506	Have you ever discussed about the number of children you intended to have with your partner?	1. Yes 2. No	508

Serial Number	Questions	Coding Categories	Skip to
507	How many is his intention?	<input type="text"/>	
508	What is your spouse's/ partner attitude towards the desire of child?	1. Negative 2. Moderate 3. Positive 4. Other(specify)	
509	Who decided on the number of children?	1.Husband 2. Wife 3. Both 4. Other (specify)	

Appendix IV

Questions for Focused Group Discussion (FGD)

1. Have you observed any difference between living in condominium and outside condominium?
2. Are basic housing facilities like transportation, playing ground, market, school, recreation center, waste management available in your area?
3. What social links do residents have in this site?
4. Do you observe many pregnant women in your resident area? and do you think this situation is related to condominium houses?
5. Are many children observed in/around condominium houses? what do you think the reason would be?
6. What factors do you think affect residents to have/ not to have children?
7. Do you think owning / living in condominium houses facilitate the intention to have more children? Why?
8. Do you think women living in condominium houses intend to have more children than women living in non-condominium residents?
9. According to your perception, does the size/type of house affect the number of children that women/families want to have?
10. Do you think that women with high level of education and have jobs prefer to have more children? Why/why not?

Appendix v

Questions for KII

1. Do you see many pregnant women and child around condominium houses?
2. What do you think the reason behind the observed many children and pregnant women around condominiums?
3. How could you explain the residents, both owners and tenants, of condominium houses?
4. Is there any mechanism of providing family planning service in and around condominium houses?
5. Do you have a data of family planning users? What does it look like?
6. What type of residents are using family planning?
7. Are they willing to participate in the health education and practice accordingly?
8. How are you assisted them in planning their families?

DECLARATION

I declare that this thesis is my original work and has not been presented for a degree
in this or any other university and that all sources of materials used for this thesis
have been duly acknowledged.

Name Selam Kebede

Signature 

Date 11/07/2014



This thesis has been submitted for examination with my approval as university
supervisor.

Name Dr. Terefe Degefa

Signature _____

Date _____