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WOMEN'S PARTICIPATION IN HOUSEHOLD DECISION MAKING AND ITS ASSOCIATED FACTORS IN ETHIOPIA: EVIDENCE FROM THE 2016 ETHIOPIA's DEMOGRAPHIC AND HEALTH SURVEY

BY
SELAMAWIT TESFAYE ASSEFA

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Declaration

I, the undersigned, declare that this thesis is my own original work and has not been presented in any other University. All sources of materials used for this thesis have been duly acknowledged.

Declared by

Name: Selamawit Tesfaye Assefa

Signature: _____

Date: October, 2021

Endorsement

This thesis has been submitted to Addis Ababa University, Collage of Development Studies, and Center for Population Studies for examination with my approval as a university supervisor.

Supervisor: Eshetu Gurmu, PhD

Signature: _____

Date October, 2021

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES (SGS)

This is to certify that this master thesis prepared by Selamawit Tesfaye Assefa entitled: Women's Participation in Household Decision Making and its Associated Factors in Ethiopia: Evidence from 2016 Ethiopia's Demographic and Health Survey, *and* submitted in fulfillment of the requirements Master of Science Degree (Population studies) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Advisor _____ Signature _____ Date _____

Advisor _____ Signature _____ Date _____

_____

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LIST OF ACRONYMS

CSA	Central Statistical Agency
DF	Degree of Freedom
DV	Dependent Variable
EDHS	Ethiopian Demographic Health Survey
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
LL	Log Likelihood
OLS	Ordinary Least Square
OR	Odd Ratio
SDG	Sustainable Development Goal
SNNP	Southern Nation Nationality and People
UN	United Nation
UNFPA	United Nation Population Fund
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VIF	Variance Inflation Factor
WB	World Bank
WHO	World Health Organization

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ABSTRACT

Background: *In Ethiopia like rest of the world, women have played indispensable role in improvement of household's well-being. However, women decision making concerning their health care, major household purchase and movement outside of their home also determined by pre-disposing factors among married women not compressively understood, less investigated, and implemented in Ethiopia. Hence, principal aim of this study is to examine the levels and patterns of women's participation in household decisions and its micro-level socio-cultural and demographic factors in Ethiopia.*

Methods: *The study used data from 2016 Ethiopian Demographic Health Survey (EDHS). It comprised of sample women of reproductive age group from 15-49 years, living in rural and urban areas covering nine states and two city administrations, and have completed women's participation decision making data during the survey year. Descriptive statistics and maximum likelihood estimation of logistic regression analysis applied to investigate participation of women decision-making process and factors influencing women's decisions making. The Stata statistical software used to analyze the data. Logistic regression models have been specified for each of decision making, diagnostic has been made for each of the models to test assumptions related to logistic regression models.*

Results: *Descriptive statistics analysis showed that about 70% of sample women participate in all decision type, 82% on their own health care, 78% on major household purchase and 82% on visiting their relatives. The odds of making decision by primary, secondary and higher education among women who participate in their health care, making household purchase, visiting their relatives and all these decisions higher than compared to women having with no education. Compared to women who were in poorest household, those who were rich had higher odds of participation in all decision area. Women's age gap greater than equal to twenty years and between even and twenty years were significantly influenced women's participation on decision-making of household purchase and visiting their family or relatives respectively. Access to media negatively and significantly influence women's participation all of decision making and women who lived in rural area positively and significantly influenced women decision making on health care only. Working status of women significantly influenced all of women decision-making areas except women's mobility. Regions/sub-nationals has also positive and negative contribution in affecting women's decision making.*

Conclusion: *Considering the above results, women's participation in household decision making increases by working on women's centered education program, wealth improvement program such as employment importunities and women's empowerment intervention in some of the rural part of the region.*

Keywords: *Household decision making participation, Women, Ethiopia*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In developed and developing countries, women contributed for the growing part of workforce. Despite this, discrimination against women in the household and workforce continues to be a problem worldwide (Davidson and Bruke, 2011). In development agenda in alleviating world poverty, there is a consensus for empowering women and promoting gender equality in all parts of world (UN, 2030). Women empowerment and equality is one of goals to achieve Sustainable Development Goals (SDGs). United Nation SDG program consists of 17 SDGs goals and 169 targets, of which goal number five is about "Achieve gender equity and empower all women and girls" and is aimed at improving the status of women. In developed and developing countries, at policy level, women's rights and issues related women empowerment and gender equity are serious concern of government, non-governmental organization, and civil society organization, academicians and policy makers (UN, 2030)

According to World Development Report (World Bank, 2012), the large body of evidence has established that gender inequality has costs for individuals and societies and these costs in turn can have multiply across generations. Evidences showed when women cannot participate in the labor force, are prevented by law or practice from entering certain occupations, or excluded from management positions, have a two percent negative impact on Gross Demotic Product (GDP) of a country (World Bank, 2012). On the other hand, women empowerment and gender equality not only benefits individual males and females but also every sector, societies and the country at large. Like men women are the crucial resource of family, societies and nations. Studies, for instance, the United Nations Food and Agriculture Organization (FAO) estimates that if women had the same access to productive resources as men, they could increase yields on their farms by 20 to 30 percent, which in turn could raise total agricultural output in developing countries by 2.5 to 4 percent and reduce the number of hungry people in the world by 12 to 17 percent, up to 150 million people (Hafez, 2010).

There have been made to reduce gender gaps and improve the status of women and girls over the past three decades by many governmental and international organizations. Despite this effort,

significant gender gaps remain in many institutions particular in developing countries; the gap is more often greater among the poor community than the rich. Historical evidence also showed that gender inequalities have disadvantaged females, but this doesn't mean that there is no cases for men and boys. There are many cases that in many domains, gender norms and policies affect boys and men (USAID, 2012).

In most developing countries like Ethiopia, in all measurement, women usually have less power than men (Eguavoen et al. 2007). Many of the African household organization are patriarchal, hierarchical and polygynous so that young age at marriage for women, patrilocal residence after marriage, the large age difference between spouses, unequal work burden between the sexes, high bride price, and low educational level of women tends to perpetuate the low status of women and make them voiceless and powerless, including sexuality and reproduction (Makinwa-Adebusoye 2001; Boserup 1985) are common. Accordingly, needs and preference of women are mistreated, and their participation with their knowledge and experience are not used to help guide decisions in their households as well as in the public (Kuponiyi and Alade 2007; Arkutu 1995). There is no unique issue in Ethiopia, where women generally do not have equal rights with their husbands to participate in decision making on access resources, their own health such as on the desired number of children, use of family planning (Olokodana and Yeshi, 1998), major household purchase and even their mobility to visit family, relative and friends

Among other, one of common universal agreed indicators for assessment of women empowerment is women's participation in decisions being made in their own households and is widely accepted. In Ethiopia, women`s household decision-making refers to women's involvement alone or jointly with their husbands in making large household purchases, daily household purchases, determining own health care, and visiting family or relatives (CSA and ICF, 2016). Human beings have the right to participate in decisions that affect their life space. The equal participation of women with men at all levels of decision-making process is then considered as vital for effective action in all aspects of sustainable development (Rai, 2005). A woman's involvement in household decisions is one aspect of her well-being and a means of improving children's educational, health and nutrition outcomes (Jones et al, 2019). Hence, development program and intervention with regard to women to enable them to make decisions to perform significant roles in household decision making is a fundamental instrument. However,

in most societies, low educational level, tradition, laws, religion and existing male-controlled societal structures which continues to have unequal power between sexes make women to take a low position in decision making. There are low levels of decision-making between both sexes even among educated women and women working for cash. This gender disparity tends to be larger in countries with low income countries. Unbalanced existing power relations between sexes are a fundamental way in which societies are organized and gender inequalities between women and men remain common problem in developing countries (UN, 2010). Subsequently, their interests and choices are neglected and mainstreamed in institution with less policy and laws attention, and their skills and experiences are not used for decisions related to household, community and development issues.

1.2 Statement of the Problem

The concern of women's empowerment and gender equality is at top of agendas for developed and developing countries, as gender inequality is prevalent in all cultures. In developing countries, gender inequality is highly extensive compared to developed nations (Ahmed et al., 2001). Most importantly, in Ethiopia, gender-based discrimination and inequalities are very much exercised despite the fact that the government and development partners are working aggressively towards alleviating such problems by including in their sector plans and strategies and resulting the United Nations Sustainable Development Programs of women empowerment and inequality to achieve the targets required. However, still there existed low empowerment of women and gender equality and equity (UNFPA, 2008) and hence this becomes challenges in development. Even though the country is on the path of development in various respects, the likelihood of its sustainability is in question, given such a large gender disparity and proper inclusion of women's role in national plan.

For human capital formation and economic development, women's decision making and resource allocations are critical at household level (UNICEF, 2007). Many decisions made at household level influence the welfare of the members of the household as well as their communities (UNICEF, 2007). Decision such as on household health care, household item purchase, mobility of household members, where to live, mechanisms to generate income, to invest and consume, and many children to have the common challenges faced by households.

The decisions on such outcome are often linked to economic performance of household and in turn have an impact on aggregate for the country (UNICEF, 2007).

In developing countries, lack of control over health-care need has resulted much significance. Decisions on women's health care are vital to health and well-being of both women and children. In many households, comparative studies examined in South Asia and sub-Saharan Africa, women have little influence in health-related decisions (UNICEF, 2007). In African countries such as Burkina Faso, Mali and Nigeria, for example, almost 75 per cent of women through demographic and health survey reported that husbands alone make decisions about women's health care; in two countries surveyed the same in South Asia, Bangladesh and Nepal, this percentages were 50 per cent. This exclusion resulted a major negative significance in the health and well-being of all household members (UNICEF, 2007).

According to United Nation Children's Fund comparative study, decision concerning major assets purchase primarily determined by male partner than female partner in household. The decision made by male partner only on spending such as land, cars and livestock are crucial for households because of the fact spending decision made on these assets by household should be priority need of household long-term investment. Nonetheless, there may be short-term costs related immediate household needs such as medicine, school supplies and food which consume large share of the household budget (UNICEF, 2007; UNFPA, 2008). Empirically, we can demonstrate from literature based on data on demographic and health survey by asking the household how much they allocated on major spending. Many countries result from similar survey showed the power of deciding on large purchase is by men than women, for instance, in Nigeria about 78% of women reported their husbands have special control over large purchases of the household. In Egypt, about 60% and Nepal and Bangladesh more than 66% of women reported that exclusion of such decisions making. In the contrary, less than 16% of women of surveyed both in Philippines and Indonesia reported over control of the major household asset purchase by their husband or partners i.e., women were not have a say on this decisions (UNICEF, 2007).

Not only major household purchase asset but also the inadequate management of daily household spending is also part of the decision making process of the household. The latter has a direct impact on household's food security, well beings of children and other family members,

education and health of the household members (UN, 2010). It is well noted that the household member's involvement in household's decision-making process to participate in financial resources would have positive significant impact on the needs and personal preferences of the family members. Resulted showed that like purchase on major assets control by men, women reported that in case of daily spending decision of the household, men have a long upper arm. The same source confirmed that in Sub-Sharan countries, seven of countries out of 15 surveyed, showed that 40% of women reported that their husband or partner has high-level control over household daily spending. Women reported figure on control of men over daily spending become lower (30%) in Middle East and North Africa and South Asia countries but higher in East Asia and Pacific and Latin America and Caribbean, men have a greater degree of control over the decision on daily spending (UNICEF, 2007).

In developing countries like Ethiopia, it is also common that in a household woman has been restricted from mobility and freedom, limited to decide on their own health, purchase household's wants based on her taste and preference. Household decisions regarding women's visits to her relatives, family and friends directly affect not only their ability to deliver for their own needs but also needs of her family members. Survey data suggest a high degree of male control over women's mobility in many countries. Approximately 60% of the women reported that it is husband alone who decides when his wives plan to visit her family or relatives in Mali and Burkina Faso, equivalent number of women in Bangladeshi men partners or husband's control women's out door movement. Men's permission to outdoor movement, outside of home is the requirement for about 18% of women surveyed in Nicaragua and 16% of women in Armenian (King& Mason, 2001).

The exclusion of women from decisions concerning women's health care, major and daily purchase, and movement outside of their home also determined by multiple factors including women's demographic and socio-economic status. These factors that influenced women's decision making, say in the household, vary among households, and cultures, traditions, laws and religions though the dynamics of the decision-making process of the household can be captured from a direct source of Demographic Health Surveys.

Likewise, Ethiopia DHS composed of questions related to women participation on many household decision areas but those have completed data are women's own health care, purchase

of major household assets and mobility outside their home such as visiting their family or relatives. It is also common combing this decision making and say women participation in all of the decisions mentioned. To the best of my knowledge and ability of search, with recent EDHS data there are not compressive and specific studies related to women's decision in household available in the Ethiopia context so this study assessed the level of women's health care, large household purchase and visit to family or relative's decision-making of women and identify factors affecting these decisions based on their availability in EDHS data. Empowerment which participation of women's decision in a household is part of it includes woman's sense of self-worth, her decision-making power, her access to opportunities and resources, her power and control over her own life inside and outside the home, and her ability to effect change. Yet gender issues are not focused on women alone, but on the relationship between men and women in society.

Studying women's decisions like this study, for instance on health care have multiple benefits to the family and community at large in developing countries like Ethiopia, the choice of women to use a different health care is challenged by social and environmental factors that mitigate their ability to decide independently and freely. This study therefore determined the level of women's decision-making power on health care use, major household purchase and associated factors among married women in Ethiopia. Identifying the level of women's decision-making power in healthcare use at the household level and identifying associated factors has paramount importance for designing a targeted program in Ethiopia. Besides, it could also be used as input for policymakers and programmer managers of Ethiopia in the field of healthcare uses and women decision-making. Therefore, the result of this study determined the level of women's decision-making power in healthcare use and associated factors among married women in Ethiopia.

In addition to this, the added value of this study is that the EDHS survey report did not showed the cause and effect, i.e., this thesis showed net effect of the covariates on women's participation in household decision making and select the important covariates i.e., those covariates that are significantly affecting women's decision making for targeted policy intervention towards women empowerment and gender equity.

Given the significance of participation of women in household's decision making and motivated by the above issues this objective of the present study is to investigate the women's participation on their own health care, major household purchase and visiting their family or relatives and the multiple factors associated with these decision area types in Ethiopia.

1.3 Objectives of the Study

1.3.1 General Objective

The goal of this study is to assess the level of women's participation in household decision making and investigate their associated factors

1.3.2 Specific Objectives

- ✓ To determine the level women's participation in household decision-making in Ethiopia;
- ✓ To identify the determinants of socioeconomic and demographic characteristics related to women's participation on household decision-making in Ethiopia;

1.4 Research Questions

- ✓ What percentage women participate in a household's decision-making in Ethiopia?
- ✓ What are the determinants socioeconomic and demographic characteristics related to women's decision-making in household in Ethiopia?

1.5 Significance of the Study

The main findings of this study enable different stakeholders to understand the household decision-making which needs more attention to improve the decision making of the women in relation to her own health care needs, on major household purchase and social capital of women such as visiting of their relatives. It also provide insight for future academic researches and for formulating effective policies and program about women's health care needs, economic and social rights. The socio-demographic factors effect women participation in decision making on health care including purchasing goods and visiting family and relatives are very poorly studied in Ethiopia. It provides information on the links between women's household position and their autonomy in decision making**.**

1.6 Operational Definition of Women's Participation on Decision Making in Household Used for this Study

The study used decision making power which is one of the indicators that defined empowerment. So, this study demarcates the operational definition of women's decision-making power used for this study and women's empowerment. When defining

Women's empowerment is one of the similarities in the literature is the concept of women's decision-making power as an indicator of empowerment (Snijders 2009). In the dimension of women's empowerment, gender equality and gender equity are terminologies that are interrelated.

Equality implies the condition or quantity of being equal, and equity is the equality of rights. The concept of empowerment in gender and development often means working with women at community level, building organizational skills. Wiklander (2010) states that household-level statistics are important to investigate to be able to reflect the situation of all individuals within the household. Sharma and Shekhar (2015) also identify positive relationship between women's empowerment & socioeconomic and demographic characteristics. This study observed that the women's empowerment encompasses voice, mobility, decision-making power in household, and freedom of choice but only focused on of the components of empowerment such as women's participation in household decision-making for health care, major household purchase asset and visiting family or relatives.

Women participation in household decision making process with regard to women's own health care, major household purchase asset and visiting family or relatives if she decides alone or jointly with her husband or partner (CSA and ICF, 2016)

1.7 Scope and Limitation of the study

The depth of this study to inform on women's participation in household decision making highly based on the Ethiopia Demographic and Health Survey data collected in 2016. The study, for instance related to examine the decision making of women on health care, major household purchase, visiting their family or relatives and all of these decisions and the explanatory variables influencing these decision types. Data on some variables used to show decision making

variation that are in theoretical and empirical literature reviewed but not included in the EDHS were missing in the analysis. These missing variables are those related to culture that affect women's decision making. However, these variables would not affect the overall significance of the model.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Consideration

Under the theoretically consideration, nature of gender relations between women and men is not easy to grasp in compressive way (Cagatay et al, 1995). But these relations can be set up in multiple ways by including health, economic and social outcomes. Like all social relations, the difficulty of the gender relation represented both by ideology and material (Agarwal, 1997). Gender relation is not only a matter of division of resources and labor but also matter of philosophical and representation between men and women that is attributable to, among others such differences in capabilities, needs, character and behaviors of both parties i.e., women and men (Agarwal, 1997). It is constituted by and help constitute these practices and ideologies dealing with other social ladder, for instance class, caste and race in a given institution (Benería & Roldan, 1987). Gender relation is not uniform and static and mainly it is a social construct rather than biologically determined. The process of this social construction is not adequately understood because of the fact that maintaining forms of gender inequality and the means to maintain it changes by time (Agarwal, 1997). There are several theories to study about women's participation in household decision making process and to examine its associated factors in Ethiopia. This study focused on few of them such as bargaining theory, the feminist theory and the male conspiracy theory which might be important for this study. However, there are also theories such as biological theories of sexual inequality, the sociology of gender, power and the structure of inequality: patriarchy and capitalism and sex and gender formations theories.

2.1.1 Bargaining Theory

Bargaining theory assume that each person bargain on her/his own behalf within the household. Married couples are almost constantly negotiating over a variety of matters, such as who will do which domestic chores, who will take the kids to the local park on a wet Sunday afternoon, and whether or not the wife should take a part-time job, now that the kids are grown up. One important reason that we interested in this study about the bargaining theory is that many of the important and interesting human economic, social and political interactions are bargaining

situations. For, instance, in the case of social interaction, a married couple is involved in many bargaining situations throughout relationship. The bargaining theory when applied to this study context can be interpreted as the relative power of husband and wife/partner in a situation to exert influence over each other. If the husband and wife are on equal footing in a debate, then it can be considered as both will have equal bargaining power (Muthoo, 1999).

The bargaining approach recognizes preferences can differ between spouses and that household decisions are regarded as negotiation process where husband and wife have certain power, specifically has assumption that personal power of the husband and wife in the household decision-making comes from its reservation well-being. The reservation wellbeing of a husband and wife, also known as its threat point, is understood as being the maximum well-being he/she can attain from the situation in which no agreement is reached with his/her partner (Lundberg and Pollak, 1996). The reservation with the lower negotiation capacity is the weaker the husband/wife power of decisions. Logically, all things remaining equal, the weaker the alternative well-being of the husband or wife, the more he/she has to gain from agreement and thus the more he/she will be willing to make concessions to achieve an agreement.

According to Manser & Brown (1980) and McElroy and Horney (1981) assume that this alternative corresponds to divorce. Hence, it is also clear that any variables that affect the maximum level of well-being that a husband/wife can reach outside the marriage more likely affect bargaining power of that husband or wife. The variables that affect the level of well-being of the husband and wife are extra environmental parameters. In terms of resources, if husband or wife is employed, their respective wage rate with their employment, his/her non-labor income, unemployment rate faced by the cluster he/she belongs to, are all referred to extra environmental parameters (McElroy and Horney (1981).

Another factor, for instance, which could influence the bargaining power of the husband and wife are the state of the marriage market (Becker, 1981). It is also confirmed that state marriage market which has been measured by the sex ratio indicator affect the bargaining power of the husband and wife (Fortin and Lacroix, 1998). In addition to this, Haddad and Kanbur (1991) emphasized another parameter, importance of economic possibilities of spouses outside of the household to the support of family members such as children, which directly depend upon public policies.

What determine the bargaining power of husband and wife are not only limited to and influenced by such extra parameter but also their characteristics such as demographic and socioeconomic parameters in the household. Bargaining power on what (for instance on household welfare, health etc.) and time period also varies the parameters. However, comprehensively, what determine bargaining power of the individuals, husband and wife in this context or within the family in relation to subsistence needs (such as food and health care) can be better explained by Sen in his entitlement approach. Sen (1981), in his entitlement approach to famine, highlights two factors as significant in deter mining husband and wife (or a family's). These are ability of the husband and wife to command subsistence goods (including food and daily purchase) and services such as endowments, what husband and wife each owns such as their assets, powers of labor, etc. and the exchange entitlement mapping, the exchange possibilities that exist through production and trade, which determine the consumption set available to a person with given endowments. In developing countries where the rural parts of the country size and population are much greater than the urban counter parts like Ethiopia, about 80% of the people live in rural part, land and ability to labor are common endowments; and exchange entitlements would be determined by possibilities of using these endowments, for instance seeking employment, in the case of labor, and by the structure of factor and commodity prices (Sen, 1981).

2.1.2 Feminist Theory

This study may highly be justified with this theory. The main argument of the feminist is that throughout the history of mankind, male-controlled ideology has been exercised, shaped, and put the ideology in a society that men in principal and women in secondary position in the society. For this ranking, society's norms, laws, religion and cultural practices are contributing factors that help the ranking to continue and maintain fables pro-male superiority (Arthur and Clark, 2009; Rani et al, 2004 and Dobash and Dobash, 1979). Feminist theory was designed by Chodorow (1989). Chodorow recognized gender divisions influence social lives of individuals. According to this theory and in the context of this study, male (*here after* called husband) oppress female (*here after* called wife). It focused and can be explained oppression of women through examining the structures in society that continue them. It hypothesizes that husband and wife have equal potential to realize their own dreams in a household or family. In practice, wife oppression has observed and not against the theory, particular in most developing countries. This

has been confirmed, for instance, by a case study against patriarchal societies on wife violence (Dobash & Dobash, 1979), empirical justification of attitude of wife beating in Sub-Saharan Africa, and using cross-national study on the determinists of domestic violence (Rani et al, 2004) that wives oppression by their husbands exemplified by wife beating. A very recent studies in Ethiopia by Eshetu and Senait, 2017 and Eshetu & Mokonen, 2017 are the best examples that states that there exists wife beating which is common and widespread form of intimate partner violence, health and human right issues.

Nzomo (1995) advanced the original idea of the feminist theory that the realization of individual potential results from externally imposed constraints and the influence of values that exist in the society. In another context, feminism can be interpreted as a belief in the equal valuing of all persons and an expectation of social, economic, and political equality for all persons (Rave and Larsen, 1995).

The existence of multiplicity school of thoughts recognized by Tongo (1993), each of the schools with own view of the causes and thus the solutions for the subordination and domination of women. This does not mean that there are divergent views within each form of feminism. Card (1991) stated that the phenomenon of feminists reevaluating traditional thinking should not lead one to the conclusion that there is a unity of voice among them. She stated and are marked in various ways in the choice of our attitudes and habits. Some school of thoughts from the points of ethical concepts and traits equality, justice, caring, honesty that resulted in feminist struggles of women and men equality while others focused on this is against and biases implicitly from the theoretically influential philosophers (Card, 1991).

In general, since household is a decision-making organizational entity, feminist theory explains the absence of women in key decision-making entity in four ways. These are institutional or structural perspective, personal perspective, professional perspective and cultural perspective.

The first perspective which is the institutional perspective suggests some of factors that constrain from reaching top decision-making positions include their limited power, limited numbers and constrained access to resources. The other factors such as their limited access to training and knowledge acquisition opportunities can also be included. According to this view, it stated that if men and women are presented with equal opportunities then they have equal chances at management. It has been observed structural factors in the organization limited from achieving

their desired decision-making positions. According to Bond, 1996 these structural factors may be discriminatory, absence of polices that ensure women participation and limited opportunity for management training. Deliberate reversal of these discriminatory practices in the organization; on the other hand, prove to be beneficial in propelling women to decision making positions.

Psychological attributes of women which include their attitudes at work and behavior skills as playing a key role in their absence in decision making positions in organizations can be considered personal perspective views. According to Singh and Shahabudin (2000), these personal attributes when turned around could also work in favour of women. The theory proposes these factors to include low self-esteem, inadequate motivation to take up the challenge of moving up the corporate ladder, limited assertiveness and inability to handle crisis (Bond 1996).

According to Smulders, 1998, the cultural perspective explores the social construction of gender and the assignment of specific roles and expectations to men and women. Gender roles ascribed by society are carried to work place and are adhered to by members of the organization. This leads to stereotyping and stigmatization of women in institution. At last, the ability of the employee coping with the specific hours worked, the level of productive rate expected, the physical environment, as well as the expectancy of the work desired by management is called Professional factors. These four perspectives guided the study in finding out the factors that influence women's participation in decision making in household. (Bond 1996; Singh and Shahabudin, 2000). It seems mainstreaming of gender in every institution may be the result of this theory.

2.1.3 Male Conspiracy Theory

The development of the feminist theory through the different school of thoughts has provided the male conspiracy theory and the latter is based on idea that men are discriminating towards women which would partially explain the low representation of women in a household or community. With regard to this conspiracy theory, one could believe that women do not get access to certain resources that would be beneficial in various platforms and therefore are left out (Clark, 1991). This directly has led to the view that politics and public life is seen as the men's

world and home is the women's area. The fact that house and family responsibility hinder women from participating in decision making and public life is also part of the male conspiracy theory (Clark 1991).

Bargaining theory, feminist theory and male conspiracy theory are considered for this study but this does not mean that there are other theories for the same purpose. The study limited to these theories but one can also focus on and contextualize from resource and power of men and women point view i.e., resource-power interrelationship theory which describes power within a household is a function of resource ownership within which family members have access and involvement in decision making independence (Goode, 1971) and exchange theory which is focused on the behavioral changes that are determined by rewards and/or penalties (Homans, 1967).

The next section will devote to reviewing the empirical finding of literature that state relationship between women's participation on decision making and socio-economic and demographic factors which have their own contribution and strong association with the decision making of women in a household.

2.2 Empirical Literature Review

Gender equality and empowerment is also central to realizing Sustainable Development agenda, which risks failure without the full participation of all members of society. According to SDGs, gender equality and empowerment are at heart of the United Nations itself, and an assignment for every country (UN, 2010). Gender equality will not only empower women to overcome poverty, but will also assist their children, families, communities and countries as well. When one observed, gender equality is not only morally right, it is pivotal to human capital formation and social and economic development.

Household assessments such as Demographic and Health Surveys (DHS) provide good indication of which household members are more likely to participate in household decisions, but they cannot explain why certain individuals in each household are able to dominate decision-making processes. To understand the descriptive dynamics that influence household decision-making processes, it is useful to consider the factors that determine the structure of the family

unit, as well as each family member's role within household (CSA and ICF, 2000; CSA and ICF, 2005; CSA and ICF, 2011; CSA and ICF, 2014; CSA and ICF, 2016; CSA and ICF, 2019). Factors underlying women's influence in their decision-making processes, based on EDHS 2016, for study include women's age, age at first marriage, age gap with spouses, number of living children, level of education, working status, access to media, religion, rural/urban , wealth index and region. So, our literature is limited on relationship between these variables and the women's participation in decision making.

In both industrialized and developing countries, women continue to lag behind men in terms of participate in decision making process their own health care, major household purchase, visiting family or relatives and but not limited to these and that would be affected by many variables (UNICEF, 2007). Evidence from around world (UNICEF, 2007) indicated that husbands tend to be older than wives at first marriage, with the age gaps most extreme in the case of child marriage (defined as customary or statutory union where one or both of the partners is under the age of 18). The findings of a study undertaken in 40 developing countries indicated that, on average, men tend to spend more time in education than women (UNICEF, 2007).

2.2.1 Factors Affecting Women's Participation in Household Decision Making

2.2.1.1 Women's Age

Based in Demographic and Health Survey data, a compressive study on women's on the analysis of decision making as one dimension of women's empowerment, among others in 23 developing countries of which 13 in Sub-Saharan countries (Ethiopia is not there), 3 in North Africa/West Asia/Europe, 4 in Asia, and 3 in Latin America and the Caribbean showed the characteristics of women correlates in participating in decisions making indicated that women's age consistently have a positive relationship in decision making of women alone (Kishor, S., and Subaiya, L., 2008). Studies in Nepal by Acharya et al, 2010 showed that women's autonomy in decision making of their health care, major household purchase, purchase of daily household needs, visiting family or relatives are positively associated with women's age. Age of the women is strong determinants of women's authority in rural past of Pakistan that older women and women

in nuclear households were more likely in household decisions (Sathar & Kazi, 1997). Women who were older are more likely in negotiating skills and have confidence in decision making (Kritz & MakinwaAdebusoye, 1999). Recent empirical evidence from Nigeria showed that younger women were less likely to participate in joint decision making by 76% on their own health care than older women (Osamor, P., & Grady, C., 2018).

2.2.1.2 Women's Age at First Marriage

In many countries there are no association between women's age at first marriage and participation of women's decision making in general (Kishor & Subaiya, 2008). Based in the same source, with logistic regression analysis, women's age at first marriage is largely contrary to the theoretical expectation that higher women's ages at first marriage did not affecting or had negative effect on women's participation on decision making. It showed that a higher age at first marriage either does not have a net significant effect on decision making alone or, with the exception of a few countries, has a negative or nonlinear net effect. The odds of making the decision alone decrease or do not increase consistently with age at first marriage in 5-10 countries, depending on the decision. In several of these countries, the odds do not differ between women married before age 18 and those married at ages 25 or older, but are higher for women married at age 18-24. The odds of making the decision alone are higher for women married at older ages only in Bolivia, Burkina Faso, Nepal, Nigeria, and Zambia for decisions about their own health care and in only Nigeria for decisions about large household purchases and purchases for daily needs. With the exception of decisions about visits to family or friends, age at first marriage appears to have no significant net effect on joint decision making in the majority of countries (16-20). For decisions about visits to family or friends, the effect of age at first marriage tends to be positive in eight countries (Armenia, Bolivia, Burkina Faso, Indonesia, Mali, Nicaragua, Nigeria, and Uganda) and negative or nonlinear in four (Benin, Cameroon, Kenya, and Malawi). According the UNFPA (2008), women's age at first marriage showed significant effect on women's participation of women decision making on major household purchase and their women health care.

2.2.1.3 Women's Age-gap with Spouse

The distribution of household bargaining power is also influenced by a woman's age at marriage and the age difference between a woman and her husband. Evidence from around the world shows that the age gap between husbands and wives can vary enormously among households. The average age at first marriage in Western Europe is estimated to be 27 for women and 30 for men. In developing countries, age differences are far greater. In South Asia, for example, husbands are approximately five years older than their wives; the gap rises to six years in sub-Saharan Africa (excluding southern Africa) (UNFPA, 2005). In cases of child marriage (defined as customary or statutory union where one or both of the partners is under the age of 18 years old), when the age gap between spouses is most extreme, the burden of domestic work and childcare severely constrains the life choices available to married girls and child mothers (Union, 2006). This, in turn, affects the power that women have over household decisions.

2.2.1.4 Number of Living Children

A study on Nigerian women showed that women who were empowered in the economic, social, & political dimensions had improved reproductive health outcomes; empowered women had fewer children and used different methods of reproductive health (Kritz et al., 2000). UNFPA, 2008 study stated that there is no a statistical and significant relationship between number of living children and women participation of decision making on health care, purchase of major household, visiting family or relatives. However, Acharya et al, 2010 indicated that there exist a statistically significant association of number of living children with decision making i.e., women with more living children are more likely to take part in decision making.

There are also mixed results between women's participation in household decision making and number of ever born children. Results from the logistic regression analysis showed that a large number of significant bivariate relationship between number of children and women's participation in decision making are explained away in the multivariate analysis. Decision making made jointly did not vary significantly with number of children, depending on the decision, Moreover, decision making made alone in the case of decision about large household purchase and visits family or relatives did not vary by number of children. Regarding, women

participation in decision making of women on their health care and daily need household purchase, decision making alone, in many countries, did not vary significantly with number of children ever born (Kishor and Subaiya, 2008).

In Tajikistan study on women autonomy and health care utilization on reproductive health indicated that among the variables reflecting household characteristics, the number of children significantly decreases a woman's chance of receiving health care services i.e., at least one antenatal care and skilled birth attendants (Kamiya, 2011).

2.2.1.5 Women's Religion

In most studies, religion is an important predictors in women's decision making of their health care like which in turn reproductive and sexual behaviors are influenced by normative attitude (like religion). In general, with regard to women's religion, followers of orthodox religion women are better empowered than women from other religious groups. Women with Orthodox religion seem to involve in household decision making as compared to women's of other religion groups and Muslim women showed a better participation in women decision making on their own health care as compared to other religious groups (UNFPA, 2008). In another study by Osamor, P., & Grady, C., 2018 showed in his finding that women of Catholic and other Christian were more than 2.5 times more likely on women's participation of decision making on health care than women of Muslim and found that religion were associated with women's participation of decision making by the women alone and jointly with their husband or partners (Osamor, P., & Grady, C., 2018).

The influence of religion women's autonomy in India and Pakistan played a modest role that the hypothesis that Muslim women experience greater constraints on their autonomy than women of Hindu was not borne out. Women of Hindu more likely have an autonomy experience than women of Muslim in their participation of decision making with regard mobility. However, women of Hindu and Muslim in Uttar Pradesh were equally constrained with regard to decision making and mobility, and Muslim women are significantly freer from threat and experience greater access to and control over resources than Hindu women (Jejeebhoy, S. J., & Sathar, Z. A., 2001). In Speizer et al, 2005, Women of protestant were more likely than other women to have male-centered decision making attitudes in family planning use. In Guatemala, a study by

Carter, 2004 Catholic women were less likely than evangelical women counterparts in husband's dominance in the household mater that might give privilege to participate in decision making regarding their women's health care-reproductive health. Old studies showed that religion does not not affect significantly antenatal health care utilization (Bloom et al, 2001).

Women's autonomy and religion has been examined by Fuseini, K., & Kalule-Sabiti, I., 2015 in Ghana using data from the 2008 Ghana Demographic Survey and resulted showed that women of Muslim are equally autonomous as Christian women provided that region and socioeconomic factors were remains constant. So, there are mixed results on the relationship between women participation on decision making and religion of women.

2.2.1.6 Women's Level of Education and Work Status

Many findings in developing countries indicate that, on average, men tend to spend more time in education than women. In Nigeria, according to Osamor and Grady, 2018, education affected women's decision-making. Women who had attended secondary school were twice as likely to make their own decisions compared with those with no education, while those with higher and primary education were 1.57 and 1.70 times more likely, respectively, to make decisions alone. Singh et al., 2014 asserted women with higher education status level were more likely to be well informed about their own health care, have more self-confidence and be more assertive than those with less or no education and concluded that without education and at least a certain amount of wealth, it is difficult for women to make choices. The finding of most studies towards relationship between women's participation in household decision making either based on the cross-sectional survey data or demographic and health survey data were in agreement that concluded education an important variable in explaining variation in women's participation decision making; education for women positively affected the conjugal communication and facilitates egalitarian decision-making (see for instance Chapagain, 2006). In India, Roy and Niranjan (2004) showed that higher percentages of women who have at least completed middle level of education were more likely participated in decision making on women's visit to their family or relatives (have freedom of movement), purchase of household assets (access to money) than women who were literate.

A study on gender equality and women's empowerment in Ethiopia based in the EDHS, 2015 data showed that women's empowerment increases as the education level of women increases i.e., women who secured secondary and higher education level were more likely participated in deciding on their husband's or partner's income, major household purchase and their own health care than women with no education or primary level of education (UNFPA, 2008). Based on a cross-sectional survey from Gamo migrants in Addis Ababa, Tefera(2014) attempted on gender power relations in women's reproductive decision making and he highlighted that women's education is one of the tool to empower women and it is one of the gate for enabling women to actively participate in the reproductive decision making process in Ethiopia. Women education increased is positively and significantly associated with their participation in decision making of their own health care but when their schooling increases further these results showed insignificant on women's participation on major household purchase item and mobility of women to visit their family or relatives.

Empirical literature review on women's education level and their participation in decision making indicated that education is a vital source of women's empowerment and the expectancy is that women with more education helped them to have a gender-egalitarian view of the world. However, in general education level of women may have a significant positive (majority of studies confirmed), negative or insignificant effect on women's participation in major decision making of the household. A comparative analysis of demographic and health survey data in 23 countries of which 56% of them were African countries showed mixed results on effect of women's education on their participation in household decision (UNFPA, 2008). Based on this, results from about 16 countries showed that women's education is positively related with women decision making alone about their own health care and purchase of daily needs compared to for about 13 countries with regard to women's participation in making decision about large household purchase and visits to family or relatives (UNFPA, 2008). For instance, a study on women's education in African countries like Burkina Faso, Cameroon, Kenya, Mozambique, and Zambia in sub-Saharan Africa, and Nepal in Asia, and Bolivia and Nicaragua in Latin America is positively associated with making at least three of the four decisions alone (UNFPA, 2008). In some of the countries women participation in decision making alone about large household purchases and visits to family or friends varies either negatively or nonlinearly with education

level. Women's participation in decisions about their own health care and purchases for daily needs have a positive association with women's education in some of the countries Women's decision making made jointly is also positively related with education level of women for all decisions in Benin, Indonesia, Malawi, Morocco, and Nigeria (UNFPA, 2008).

Women's educated contributed to have jobs more likely than women with lower level of education. For health-related decision like for instance results from 26 countries indicated that women's fertility lower for educated & working compared women with no educated and non-working status (Martin, 1996). Women not working for cash were less likely participate in decision making on their own health care, purchase of major household item, purchase daily household needs and visiting their family or relatives compared to women who were employed or paid in kid (Acharya et al, 2010).

2.2.1.7 Women's Access to Media

Women access to media is expected to have a positive effect on women's participation of decision making on their own health care, purchase of household item and visit to family or relatives due to the fact that media offered women access to rest of the world outside the home and leads to have new insights. However, in general access to media is low and there is high illiteracy. So, exposure to media makes women to have information on healthy behavior (EDHS, 2016). However, in practice i.e., empirical evidence from DHS data based on the logistic regression analysis showed differently that there is a significant negative relationship between women who have regular access to media & women participation on decision making made alone and with their husband or partners. This means women's who have exposure to media regularly affect women's participation in decision making on their own health care, major household purchase and visiting their family or relatives (see UNFPA, 2008: 29). Osamor and Grady (2018) confirmed watching television has a significant and negative effect on women's decision making but exposure to listening a radio and printed media were positive explanatory variable of women decision making that have been made with husband or partners. Migrant women in Addis Ababa who have exposure to media were three times more likely to participate in decision making of women on their own health care use alone than consulting their husbands or partners (Tefera, 2014; Chapagain, 2006).

2.2.1.8 Wealth Index

The family member who controls the greatest share of household income and assets often has the strongest say in deciding whether those resources will be used to meet household needs (WHO, 2005). Women in both developed and developing countries continue to lag behind men in terms of income-earning opportunities and ownership and management of assets. Women's access to fundamental freedoms and increased access to and control over resources improve not only their welfare but also contribute to reduction in fertility i.e., health services.

Wealth of the household, place of residence and region have also significant effect on women's health care decisions. Decision on utilization of health services such as contraceptive use have positive relationship with financial status i.e., wealth. The latter is also likely increase in reduction of child mortality rates (Elfstrom et al., 2012). Osamor and Grady (2018) indicated that women were more likely made decision jointly with their husband/partner about health care Women in the richest wealth quintiles at more likely to be part of making decision together than those women in the poorest wealth quintiles

2.2.1.9 Place of Residence

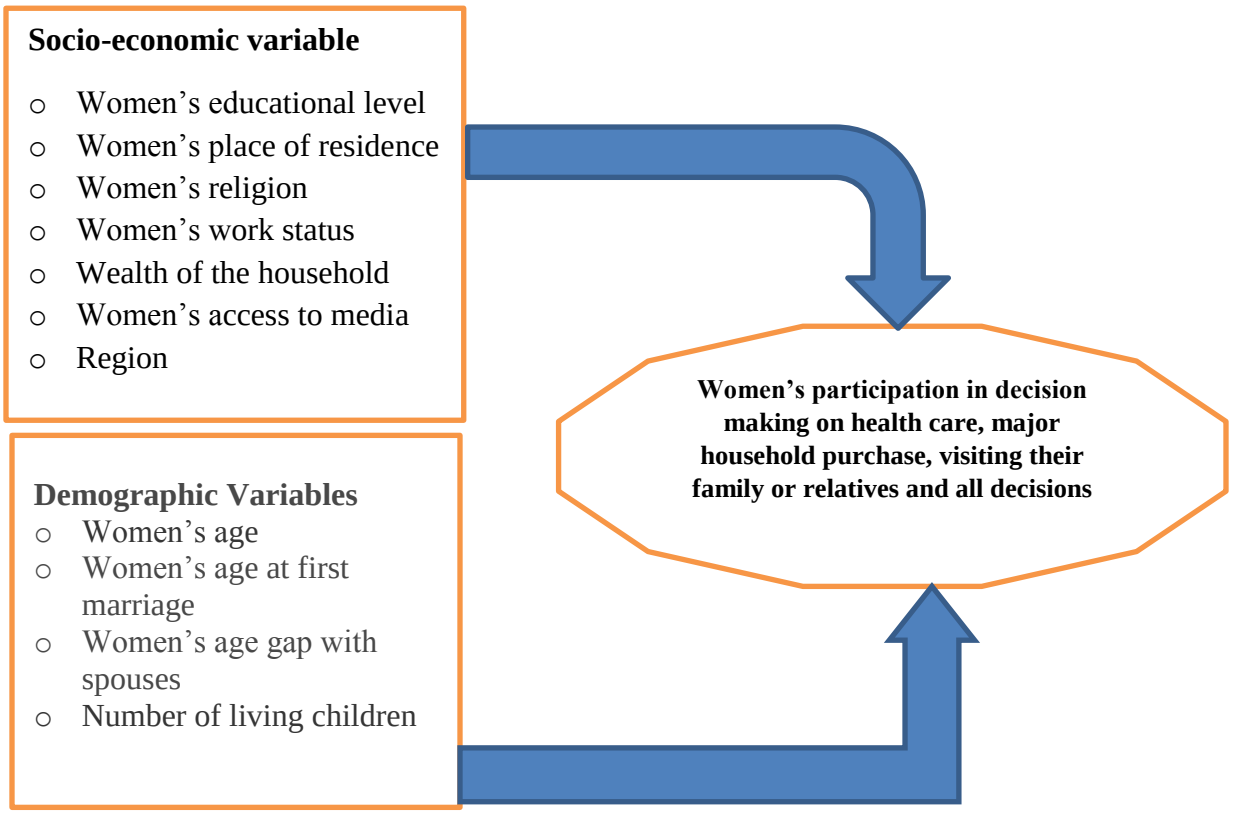
According to Acharya et al (2010) rurality and region of women living during the survey matters for women's participation in decision making on women's health care, purchase of major and daily item, and visiting their family or relatives the fact that rural women and women living Terai regions have less participation in decision making in all of this specific decision-making. Mixed variation was observed in case of women's region living during the survey year across all decision making. For instance, women are western were more likely to make decision in their own health care; but they were less likely to purchase daily households need.

This thesis examined the level women's decision making on three specific decision and the major determinants of these decision making made by Ethiopian women in a household. We included 11 explanatory variables mentioned above based on literature review and data availability in the EDHS, 2016. Examining these factors across a wide range of countries offered insights into distribution of bargaining power in individual households (Lawn et al, 2005).

2.3 Analytical Framework of the study

From the empirical literature review, and based on EDHS data that the basis of the analysis of the study to address the research questions are based on the analytical framework in Figure 3.1 It has been developed on women's participation in decision-making and factors that influence decision making. It depicted participation of women on decision making affected by demographic and socioeconomic factors. Based on EDHS, 2016 data for Ethiopia the outcomes such as women participated in household decision making such as women her own health care, major household purchase, and family visit or relatives provided that she decides these decisions by herself or jointly with her husband or partner.

Figure 3.1: Analytical Framework of the Study



Source: Own modification on the variables used from Tefera (2014), and Lee, 1997.

CHAPTER THREE

METHODS AND MATERIALS

3.1 Source of Data and Study area

The data used for this study obtained from the nationally and regionally representative Ethiopian Demographic and Health Survey (EDHS) carried out in 2016. The surveys covered nine regional states and two city administration.

It was designed using scientifically selected probability samples of households and data collection administered through standardized questionnaires. The data included detailed information from sample households and their members on health, demographic and socio-economic characteristics from which the required information for answering the study objectives. The unit of analysis is women aged 15-49 groups, who have husband or partners and completed women's decision making during data collection period. The survey was locally implemented by Ethiopian Central Statistical Agency but funded by various international bodies (EDHS, 2016). The relevant data for this study, including individual characteristics, husband/partner's characteristics and measures of women's autonomy, were captured in the 2016 EDHS women's individual dataset.

For this study we used sample of currently married women age 15-49 that deals with participation in major household decisions. According to the Ethiopian context from EDHS, 2016 women are considered to participate in household decisions if they make decisions alone or jointly with their husband in all three of the following areas: (1) the woman's own health care, (2) major household purchases, and (3) visits to the woman's family or relatives and (4) all decision. Analysis of this study is limited to only currently married women aged 15-49. Data downloaded from official web: https://www.dhsprogram.com/ requested formally. Data analysis performed using STATA version 14.

3.2 Methods

To meet the objectives of the thesis i.e., women's participation in household decision making in the country, bivariate and multivariate analyses carried out on women's participation in decision making on own health care, participation in decision making on purchase of large household items and visiting to the woman's family or relatives. Bivariate techniques used to show whether there is a significant difference between women's participation on decision making with respect to selected socio-economic and demographic variables using Pearson's chi-square test and include those explanatory variables that manifested significant association with women participation in decision making in the multivariate logistic regression model.

The multivariate technique applied in this study is determining the relative importance of identified explanatory variables in influencing women participation in decision making. For the multivariate analysis, the response variable, an outcome variable is women decision making on (1) the woman's own health care, (2) major household purchases, and (3) visits to the woman's family or relatives (4) all decision in each of the case categorized and to create a dichotomous variable on the basis of whether a woman is decided alone or jointly with her husband coded as 1 and 0 decision made by husband only and others coded as "0". The main explanatory variables include are women's age, age at first marriage, age gap between spouses, number of living children, religion, education, working status, access to media, wealth index and place of residence (rural/urban)

3.2.1 Method of Data Analysis

Data analysis for answering research questions conducted using STATA version 14. Descriptive statistics, regression coefficients and diagnostic of logistic regression for the model assumption analyzed using this software. The relationship between women's participation in decision making and the independent variables are explored using cross-tabulation and Pearson chi-squared test. The effect of the explanatory variables that are associated with the women's decision making were used in bivariate and multivariate logistic regression in order to generate odds ratio (OR) examined at 5% level of significance ($P<0.05$).

For the purpose of bivariate and multivariate logistic regression, both dependent and explanatory variables recoded in to groups than using as it is in EDHS, 2016 data obtained. So, the dependent and independent variables used in the regression model indicated in Table 3.1.

Table 3.1: Working definition of dependent and independent variables

Dependent variable	Value classification	
Dependent variables (DVs)	Model 1: Decision maker on her own health (DV1)	Treated as dummy variable 0=husband or others; 1=Wife or jointly with their husband
	Model 2: Decision maker on large household purchases (DV2)	Treated as dummy variable 0=husband or others; 1=Wife or jointly with their husband
	Model 3: Decision maker on woman's family or relatives (DV3)	Treated as dummy variable 0=husband or others; 1=Wife or jointly with their husband
	Model 4; Decision maker on the three outcomes, all (DV4)	Treated as dummy variable 0=husband or others; 1=Wife or jointly with their husband
Independent variables		
Demographic	Women's age	Categorized in to three 15-24; 25-34;35-49
	Age at first marriage	Categorized in to three <=15 years;16-18; >=18
	Age gap between spouses	Categorized in to three <=5 years;6-10 years; >=10 years
	Number of living children	Categorized in to four Zero (no children);1-2;3-4,5 and above
Socioeconomic	Level of education	Classified in to four categories No education, primary education, secondary education, higher education
	Religion	Classified in to four categories Orthodox, Protestant, Muslim, traditional/others

	Work status	Categorized in to two Working, not working
	Wealth index	Categorized in to five Poorest, poorer, middle, richer, richest
	Access to media	Categorized in three No access Infrequent assess Frequent access to any type media (printed, radio, television)
Location	Place of residence	Classified in to two Urban=1 and rural=0
	Region	Categorized into 11 groups Afar, Tigray, Amhara, Oromiya, Somali, Benshangul Gumez, SNNP, Gambella, Harari, Addis Ababa, Dire Dawa

3.3 Empirical Model

3.3.1 Logistic Regression Model

This thesis analyzed determinants that influence the participation of decision making by Ethiopian women using logistic regression model. Based on Maddala (1983), cumulative logistic probability of women participation in decision making with regard to health care statistically formulated as an example:

$P_i = F(Z_i) = F(\alpha + \sum_{i=1}^{n} \beta_i X_i) = \frac{1}{1+e^{-z_i}}$ where P_i the probability of a women participating decision making on health care. The X_i is explanatory variables that determine women's decision making on health care, the e is the base of the natural logarithms, which is approximately equal to 2.718; and $\alpha and \beta$ which are regression coefficients to be estimated. Central to use of logistic

regression is logit transformation of P given by Z i.e., to get linearity, it is possible to take natural logarithms of odds ratio equation stated above, which results in logit model as given by:

$$Z_i = \ln(\frac{P_i}{1-P_i}) = \alpha + \sum_{i=1}^{n} \beta_i X_i + \varepsilon_i$$

Where Z is the indicator of women's participation of decision making on health care or not, P is the probability of the event's occurrence, X is a vector of explanatory variables and ε_i is the error term.

3.3.2 Model Specification

Based on empirical literature review & data availability in EDHS, we estimated the following logistic regression models for Ethiopian women's participation in decision making on their own health care, major household purchase, visiting their family or relatives, and all decision with a number of characteristics of women.

Model 1: Women's own health care

$$HCd_i = \beta_0 + \beta_1 wage + \beta_2 wmarriage + \beta_3 wagegap + \beta_4 wchildren + \beta_5 weduc$$
$$+\beta_6 wworkstatus + \beta_7 wreligion + \beta_8 wwealthin + \beta_9 wmedia + \beta_{10} Wurbanity + \beta_{11} wregion + \varepsilon_i$$

Model 2: Major household purchase

$$MPd_i = \gamma_0 + \gamma_1 wage + \gamma_2 wmarriage + \gamma_3 wagegap + \gamma_4 wchildren + \gamma_5 weduc$$
$$+\gamma_6 wworkstatus + \gamma_7 wreligion + \gamma_8 wwealthin + \gamma_9 wmedia + \gamma_{10} Wurbanity + \gamma_{11} wregion + \varepsilon_i$$

Model 3: Women's visit to their family or relatives

$$VFd_i = \phi_0 + \phi_1 wage + \phi_2 wmarriage + \phi_3 wagegap + \phi_4 wchildren + \phi_5 weduc$$
$$+\phi_6 wworkstatus + \phi_7 wreligion + \phi_8 wwealthin + \phi_9 wmedia + \phi_{10} Wurbanity + \phi_{11} wregion + \varepsilon_i$$

Model 4: All decisions

$$ALLd_i = \lambda_0 + \lambda_1 wage + \lambda_2 wmarriage + \lambda_3 wagegap + \lambda_4 wchildren + \lambda_5 weduc$$
$$+\lambda_6 wworkstatus + \lambda_7 wreligion + \lambda_8 wwealthin + \lambda_9 wmedia + \lambda_{10} Wurbanity + \lambda_{11} wregion + \varepsilon_i$$

Where, for all these logistic regression models HCd, MPd, VFd and ALLd represented dummy category dependent variables & $\beta, \gamma, \phi, \lambda, and \gamma$ denoted constant terms & regression coefficients and ε_i are the error terms with the respective models.

The estimation method is Maximum Likelihood Estimation techniques – numerical, iterative techniques that search for a set of parameters with the highest level of the likelihood function. The likelihood function tells us how likely it is that we would observe the data in hand for each set of parameters, and in fact what we maximize is the log of this likelihood function. Logit output using STATA software includes information on iterations and those iterations are the steps in that search process.

3.3.3 Model Diagnostic

The logistic model for women's decision making on health care (here after called Model 1), major household purchase (Model 2), visiting family or relatives (Model 3) and on all thethree decision (Model 4) have a goodness-of-fit (prob>chi2= 0.92, 0.87, 0.88 and 0.67) respectively. The high p-value indicates that all the four models fits well. This means that there is no significant discrepancy between observed and predicted frequencies. However, this is a chi-square test compared observed and predicted outcomes in cells defined by covariate patterns-all possible combinations of independent variables. For this reason, the study also tested goodness-of-feet, according to Hosmer and Lemeshow suggested as an alternative measure that solves the problem of too many covariate patterns. Rather than compare observed and predicted frequencies in each covariate pattern, we divided the data into ten cells by sorting it according to the predicted probabilities and breaking it into deciles (i.e. 10% of observations with lowest predicted probabilities form the first group, then next 10% the next group, etc.). This measure of goodness of fit usually preferred over the Pearson chi-square that I applied earlier and found that the models are again appears to fit well but we have also applied the diagnostic test related to the logistic regressions. Accordingly, Table 3.2 showed that for all models it appears to fit well.

Table 3.2 Logistic model for goodness-of-fit test				
	Model 1	Model 2	Model 3	Model 4
Number of observations	6124	6122	6112	6136
Number of groups	10	10	10	10
Hosmer-Lemeshow chi2(8)	5.69	11.79	9.17	11.02
Prob > chi2	0.68	0.16	0.32	0.20

Source: Own computation from EDHS, 2016

Another way to assess model fit is to concentrate on its predictive powers though this done mostly when one plan to use the model for prediction. This study tried to look at it to predict who would support women's decision making that contain all independent variables. To get a sensitivity and specificity test that are more balanced determined by a cutoff point using STATA command (lsens) and got a cutoff of point 0.81 for model 1, 0.76 for model 2, 0.78 for model 3, and 0.68 for model 4 as shown in Annex (Figure A-1, Figure A-2, Figure A-3 and Figure A-4).

In order to evaluate predictive power of the models, in this study may not the main focus but used to compute the sensitivity and specificity values of the test, with a cutoff point of 0.81 for decision making of women on the health care model, 0.76 on major household purchase model, 0.78 on visiting family or relatives model and 0.68 on all three decisions made by women. Based on the cut-off points, model 1 classified about 60%, model 2 classified 62%, model 3 classified 72% and model 4 classified 61% of the cases. According to Table A-3-6 in annex section four cells in tables indicate how classification by each of the models compares to true status of each case i.e. true cases of participation of women's decision making on her own health care, major household purchase, visiting family or relatives or on all of the three decision. Sensitivity indicates the percentage of cases with Y=1 that we identified correctly, and specificity indicates the percentages of cases with Y=0 that we classified correctly. It can be seen that our sensitivity is 59% but our specificity is lower (64%). This is in the case of model 1. For model two, model three and model four, the sensitivity are 66%, 77% and 61 % and specificity are 62%, 45% and 61% respectively.

Logistic regression model when applied using cross-sectional data associated with problem of multicollinearity, linearity, additivity, outliers & influential data points, distribution of error term and over-dispersion of exploratory variables. These issues of logistic regression are likely affecting robustness of results and the following action are taken to its effect in to consideration. Therefore, before conducting logistic regression, we checked assumption of multicollinearity, linearity, additivity and outliers & influential data points which is expected to happen in survey data like DHS data.

3.1.1.1 Multicollinearity

The term multicollinearity due to Ragnar Frisch and it meant the existence of a "perfect," or exact, linear relationship among some or all independent variables of a regression model (Gujarati, 2004). There is no exact linear relationship (i.e., multicollinearity) in the independent variables can be tested in logistic regression in a way first we run a regular Ordinary Least Square (OLS) regression with same variables & then obtain the Variance Inflation Factors (VIF). VIF statistics do not depend on dependent variables bur rather on correlations among independent ones. Accordingly, the VIF for all the four models below the value 5 and it indicated that there is no multicollinearity in the independent variables in all the models considered. As indicated in Table A-5 the mean variance inflation factor is 2.16 for each of the models.

3.1.1.2 Linearity

In all logistic regression models, we checked linearity and additivity which both in logits is expected that is relationship are nonlinear, but they should be linear in terms of the log odds. For linearity, both bivariate and multivariate graphical examination were made to identify linearity as a problem and we found that there is no problem of linearity in the data.

3.1.1.3 Outliers and influential data points

Outliers and influential data points have been explored in four of the models and a number of methods to identify outliers & influential data points employed. We used standardized Pearson residual accounts for in-built heteroscedasticity of residuals in the logit models. We checked it by plotting residuals against the predicted values and examine observations with residuals high in absolute value. Leverage statistics like dbeta (Pregibon (1981) Delta-Beta influence statistic), hat (Pregibon (1981) leverage), dx2 (Hosmer and Lemeshow (2000) Delta chi-squared influential

statistics) also used to assess specific impact of an observation on logistic regression coefficients. Based on this investigation, a total of 17 observation believed to be outliers for various reasons were omitted for model 1. Accordingly, for model two 19, for model three 29, and model four 5 observation were also depleted.

3.1.1.4 Error term distribution

We test heteroscedasticity assumption in the four logistic regression model but it is unlike the test in OLS regression model. In the first case there is in-built heteroscedasticity in logit models – the variance of the error term is the greatest at the predicted probabilities around 0.5 and the smallest as we approach 0 or 1. It is important to be concerned with the logit assumption about the error term distribution i.e., the variance of the error term are correct so that we can obtain the robust standard error estimates and compare them with regular standard error estimates. For all models, as indicated in Table A-6-A-9, we found that the robust and regular standard errors estimate of coefficients are almost similar and we took the robust standard error estimates.

3.1.1.5 Over-dispersion

Over-dispersion is one of the challenges that has to be checked, so may happened and for that it is good to take measures. It is much common than under-dispersion. In all of our logistic regression models, there is no discrepancies (i.e., standard errors are not over-optimistic) between expected variance of our dependent variables compared to the observed variances for each of the four models. We tested the extent of over-dispersion by examining the ratio of deviance and degree of freedom (D/DF) where D is the deviance (-2LL and DF=N-K), where N is total number of observation and K is the number of explanatory variables. This can be done by eliminated outliers, non-linearities, model specification errors i.e., omitted variables as wed did for this study. We can see the extent of over-dispersion by examining the ratio of D/DF (where D is the deviance (-2LL) and DF=N-k) – given we eliminated other reasons for deviance to be large (e.g., outliers, nonlinearities, other model specification errors like omitted variables). According to the output showed in Annex in Table A-6, we computed that D (DF=6079) is equal to 5484.77 and the ratio is 90% and is close to 1 and the extent of over-dispersion is not a problem. This is for model 1 and for the rest of the three models, one can see further Table A-7-8. The extent of over dispersion for model two and three are 100% and 83% respectively. For model four it is 118% which is till close to 100%. For all of the four models, the extent of over-dispersion is not

a problem. The study still aware of if there exists an over-dispersion. Therefore, our models do not omit an important variable that explain the dependent variables.

3.4 Ethical Consideration

The EDHS 2016 clean data can be retrieved from https://www.dhsprogram.com/ in STATA version by filling consent form to use it for the partial fulfillment of my thesis.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

The determinants of women participation in household decisions making were analyzed by using multivariate logistic regression model. In Ethiopia context, according to EDHS 2016, currently married women age 15-49 considered to participate in household decisions if they make decisions alone or jointly with their husband in all three of the following areas. These are participation of women own health care, major household purchase and visit to family or relatives (CSA and ICF, 2016). Descriptive and inferential statistics are used to analyze the data. Univariate, bivariate and multivariate techniques were used based on dependent variables (Figure 4.1) and explanatory variables listed in (Table 4.1 annexed) obtained in EDHS 2016. Univariate technique used to compute the percentage of currently married women aged 15-49 participating in specific decisions-dependent variable and explanatory variables. Bivariate analyses were undertaken to show whether there is a significant difference between participation of women's decisions on their own health care, major household purchase, visit to their family or relatives and otherwise and with respect to selected socio-economic and demographic variables related to same women using Person's chi-square test by assuming null hypothesis stated that there is no association between dependent variables and each independent variables against not the null.

Binary logistic regression models are employed for the multivariate analysis. The logistic model considers the relationship between a binary dependent variable and a set of independent variables. The explanatory variables included in the models are age of the women, women's age at first marriage, age gap between spouses, number of living children, level of education of women, working status of women, women's access to media, religion status of women, wealth status of women's household, place of residence (women live in rural or urban), and regions. Logistic regression model is helpful to determine relative importance of identified explanatory variables in influencing married women participation in household decisions.

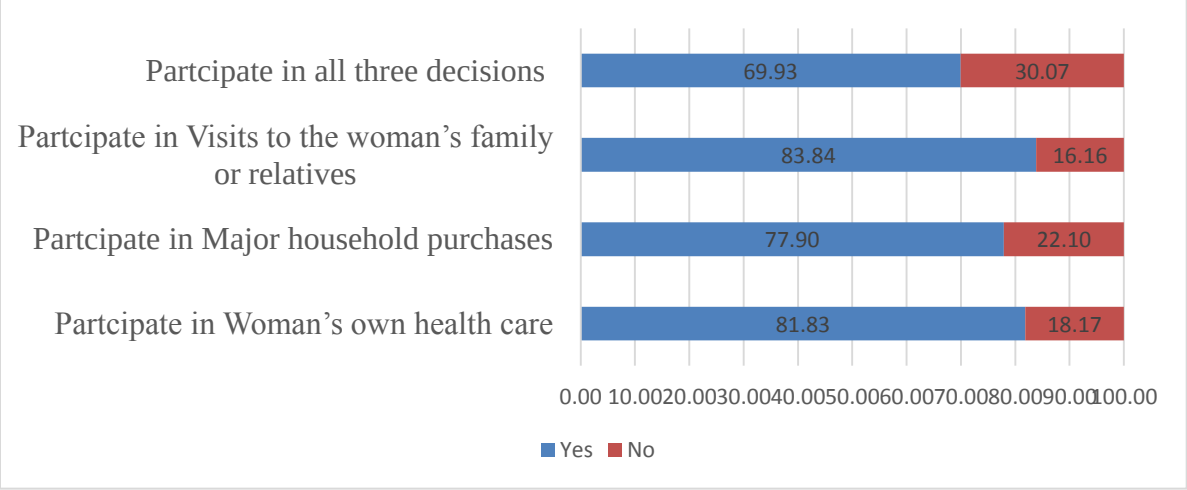
As it has been indicated in Table 3.2, the total number of observations used for descriptive statistics and determinants of women participation in household decisions on women's own health care is 6124, major household purchase is 6122, visit to the woman's family or relatives is

6112 and in all of the three areas is 6136. Four logistic regression analysis of women's own health care (Model 1), major household purchase (Model 2), visit to the woman's family or relatives (Model 3) and all of the three areas (Model 4).

4.2 Married Women's Participation in Decision Making: Univariate Analysis

In developing countries like Ethiopia, involvement of women's participation in household decision making is core aspects of women's empowerment which in turn have a positive effect on development. Ethiopia DHS survey currently women were interviewed about their participation in decisions about three areas of women's own health care, major household purchase and visit to women's family or relatives. About 70% of the sample married women participate in all decisions (women's own health care, major household purchase and visit to women's family or relatives). The remaining 30% were involved in either of one or two of these decisions only. The majority of currently married women reported they are involved either by their own or together with her husband/partners on women's own health care which accounts 82% of sample observation, major household purchase (78%) and visit to woman's family and relatives (84%).

Figure 4.1: Percentage of currently married women age 15-49 participating in specific decisions



Source: Own Computation from EDHS, 2016

This study examined the effect of each of the variables listed in Table 4.1 annexed indicated on decision making of married women on their own health care, major household purchase, visits to

their family or relatives and all the three decision areas. Table showed that the distribution of married women aged 15-49 in different categories of background characteristics. The percentage of women in age 25-34 (44%) are 1.8 and 1.4 more than aged 15-24 (24%) and aged 35-49 (32%) in the same age categories respectively. The majority of women's age at first marriage are under 15 years (40%). The percentages of the sample in each of women's age at first marriage decreases as age increases-women's at first marriage between 16-18 years are 32% and greater than 18 years are 28%.

Women's age gap with their spouses less than 10 years old are the majority in the distribution (79%) which is four times less than age gap between 11-20 years (19%). Age gap between spouses greater than 20 years old are minimal (2%).

With respect to the number of living children, majority of married women (60%) have between 1 up to 4 children living with them (32% have 1-2 children vs 27% have 3-4). About 10% of the married women have no any children living with them but 31% of them have 5 and more than 5 children living with them.

Majority of the married women who are currently aged 15-49 were with no education (58%) and 28% have primary education. About 8% and 5% of them have secured secondary and higher education respectively. Of the total sample married women, about 48% of them are currently working but 52% of them are not working.

According to this data, married women aged 15-49 have religion are Orthodox Christianity and Muslims (39% vs 41%), and protestant and others accounts for 19% and 2% respectively.

It is expected that if a married woman has access to any media (radio, print and television) related to women empowerment and gender equity, it may make women to be aware about decision making power that may applied in a household. Among the sample of currently married women aged 15-49, about 60% of them do not have access to media, 10% of them have infrequent access and 30% of them have frequent access to media.

A women's place of residence, whether rural or urban, and regions determines their information related to participation of married women on household decision. The women who lived in rural areas are three times more than women living in urban areas (78% vs. 23%). With respect to regions, during the survey period, about 44% of the currently married women aged 15-49 were

sampled from Amhara (14%), Oromia (16%) and SNNP (14%). Afar and Benshangul Gumez accounts 10% and 9% respectively. The three smallest sample of currently married women from Harari (5%), Gambella (5%), and Tigray (6%) all accounts (16%). About 6%, 7% and 8% of the married women live in Addis Ababa, Dire Dawa and Somali respectively.

4.3 Women's Participation on Decision Making by Background Characteristics in Ethiopia: Bivariate Analysis

Bivariate and Multivariate method were used for analysis. The bivariate method examines association of each independent variable and women's participation in decision making before the making logistic regression analysis. This association checked using Peason's chi-square test. The purpose of this test is to see exploratory association between the dependent and independent variables and then to include independent variables that are statistically significant. All significant variables are included in binary logistic regression analysis to identify the factors that influenced women's decision-making types.

Accordingly, table 4.2-4.5 put in annex summarized results of bivariate relationships between socio-economic and demographic characteristics and women's participation on household decisions on own health care, major household purchase, visiting women's family and relatives and all of these three decisions together. It showed that this decision making varies according to socio-economic and demographic characteristics like age of the women, women's age at first marriage, age gap between spouses, number of living children live with women, women's work status, women's access to media, religion of women, households wealth index, and place of residence (rural/urban) and regions in which respondent women are living at the time of the survey.

Chi-square test result were used the association between each explanatory variable and the dependent variable was checked using Pearson's chi-square test. Results showed that all explanatory variables are significantly associated with married women's participation in household decision making on own health care (except women's age, age at first marriage and age gap with spouses), major household purchases (except women's age and age at first marriage), visiting women family or relatives (except age of women, age at first marriage and

age gap b/n spouses) and all of these three decisions (except women's age, age at first marriage and age gap b/n spouses) at less than 5% level of significance.

Women's participation in her own health care decision making almost similar by age, can be observed from about 80% among married women aged 15-24, increases to 83% in middle-aged women (25-34) and then decreases to 82% in aged category 35-49. Age related visiting their family or relatives decision making is also similar across age groups that it increases from women aged 15-24 (83%) to 25-34 (84%) and this equal with 35-49 (84%)

With regard to major household purchase decision making on major household purchase increases by one unit by age, from 77% among women aged 15-24 to 78% in 25-34 aged women and then to 79% in 35-49 aged women. Similar aged related decision making on all of the three decision making can be observed (15-24 aged women 69%; 25-34 aged women 70% and 35-49 aged women 71%). Results showed that there is no difference in the involvement of married women in household decision making of own health care, major household purchase, visiting their family and relatives and all of three decisions and women's age.

As indicated in Table 4.2-4.5 annexed, women with 11-20 years of age gap with spouses showed better participation for their own health care (82%), major household purchase (79%), visiting their family or relatives (86%) and all of three decisions (72%) compared to greater than or equal 20 years and less than 10 years respectively. Results indicated that there are statistically significant association between married women age gap with their spouse with participation of women in decision of major household purchase ($P<0.05$), but not in visiting their family or relatives, health care and all three decisions. With regard to number of living children, as it is expected from a sample of currently married women, the proportion of women with number of living children is low. As the number of living children of currently married women increases, their involvement in decision making of their own health care and in all of the three decision areas increases and decreases after having two and three children respectively. Women's decision making on major household purchase and visiting their family or relatives decreases as the number of living children increases. Their decision making on health care ($P<0.001$), major household purchase ($P<0.001$), visiting their family or relatives ($P<0.005$) and in all of the three areas ($P<0.005$) are associated significantly with number of living children of married women.

Education can help women to increase their participation of decision making in a household in all of the three areas of decision making considered in this study and make them to equip with relevant information and means to function effectively. According to Table 4.2-4.5, though percentages of married women decision makings vary slightly in magnitude with their educational levels, it showed decision making participation and education levels show a positive relationship in all of the areas of decision areas. About 93 % and 92% of currently married women whose level of education are higher and secondary education participate in deciding on their own health care independently of jointly with their partners. About 83% of women that have primary education decided about their own health care compared to those with no education which accounted 79%. Women's participation in decision making on major household purchase, visiting their own family or relatives and these decisions making plus her own health care increases with increasing educational level of the women. Married women with secondary (95%) and primary education (87%) involve in major household purchase more likely, compared with 78% with no education. Similar, 87% and 80% of women who secured their secondary and primary education participate in decision making of visiting their family or relatives respectively with more possibility, compared to 69% secured no education. In general, there is significant association between women's education level and participation of currently married women in deciding their own health care ($P<0.001$), major household purchase ($P<0.001$), visiting their family or relatives ($P<0.001$) and in all of the decision areas ($P<0.001$).

Currently married women's in sample of this study and working during the survey period were more likely to be participate in decision making more likely than those who were not working in the same period. About 85% of them involved in deciding about their own health care, 82% involved in deciding on major household purchase, 86% involved in deciding visiting their own family or relatives and 73% in all of these decisions, compared to women's not working during the survey period (79% deciding on their own health, 74% in major household purchase, 82% in visiting their own family or relatives, 67% in all the three. Like education women who reported that they were working got a chance to participate in household decision making process and according to this study it directly associated significantly in either of decision making considered here and in all of the three at 1% level of significance.

Like education access to media or exposure to media is fundamental for women for strengthening their decision power in a household. Married women who watch television, listen to radio, or read a magazine or a newspaper all at least once a week are defined a being have frequent access, if they do not have exposure in either of these at least once a week are defined to have no access and if they are exposed at either of them, not all at least a week are defined infrequent access to media. In Ethiopia, in general terms, majority of the people do not have exposure to mass media and their level of exposure to it is very low. This is also showed in the univariate analysis. When exposure to media explained for decision making of women's involvement in deciding on their health care (87% vs. 80%), major household purchase (84% vs. 75%), visiting their own family or relatives (88% vs. 82%) and all of the three decisions (74% vs. 68%) are more likely compared to women who have no access to medias as defined showed a better involvement of women on decision making. Women's access to media has significantly associated with decision making ($P<0.001$) at each 1% level of significance.

During the survey period, currently married women who were Orthodox religion reported to participate more in decision making of their own health care (86%), major household purchase (84%), visiting their own family or relatives (88%),and in all of the three decisions (75%), compared to women from other religion.

About 80% of protestant women, 79% of Muslim women, 75% of women who have other religion involved in the decision making of their own health care. With regards to major household purchase (75% Protestant women and 74% of Muslim) and visiting their own family or relatives (82% of Protestant and 81% of Muslim participate with the respective decision making. About 66% of women with Protestant, 67% of women with Muslim and 62 % of women with other religion involve in all three decisions. Over all, there are statistically significance difference observed in each of participation of decision making on women's their own health care, major household purchase, visiting their family or relatives and all decision and religion of married women's religion during the survey period (in all cases $P<0.001$; at 1% level of significance).

Wealth of household is fundamental for women's decision making in household. This study observed currently married women in richest household positively & significantly ($P<0.001$) more likely associated with women decision making of her own health care, major household

purchase, visiting family or relatives and all of the three decisions compared to women in the poorest household. Even married women in category of the richest household showed better involvement among the different decision making activities compared to women from the poorest, poor, and middle household wealth status group. As indicated in Table 4.6, Women's participation in the decision making of their own health care (91% vs. 74%), major household purchase (87% vs. 69%), visiting their family or relatives (92% vs. 77%) and all decisions (79% vs. 62%) in the richest household category, compared with in the lowest wealth quintile. Middle class married women are less likely to involve in health care, major household purchase, visit to their family or relatives compared to richer and richest wealth quintiles.

Urbanity matters in the participation of women's decision making process in a household. Urban women resident (91%) compared to rural women resident counterpart (79%) of the participants in the decision making process of women's own health care. the same observed in the participation of decision on major household purchase (87% and 75% of urban and rural women residents respectively), on visiting their own family or relatives (91% and 82% of urban and rural women resident respectively), on all of the decision area (79% and 67 % of urban and rural women residents respectively). With respect to each of decision makings of women's participation significantly (P=0.000) associated with urbanity.

From regional state of Ethiopia point view, in general, there are significant association between women's decision making and region (P<0.001) but there are regional differences in the participation of women's decision making. The proportion of women's participation in decision making of their own health care (69%), major household purchase (66%), visiting their own family or relatives (71%), and all of the decision areas (59%) are lowest in Tigray. The highest is from Dire Dewa in the case of health care (93%) and visiting family or relatives (94%) and Harari in the major household purchase (89%) and all of the three areas of decision making (88%). Women's decision making living in Addis Ababa during the survey period accounts 84% in their own health care which is less than Afar (86%), Amhara (88%) , Dire Dawa (92%) and Harari (93%); 82% in major household purchase less than Afar (82%), Harari (88%), Amhara (89%) and Dire Dawa (89); 88% in visiting their family or relatives less than Harari (91%), Amhara (93%) and Dire Dawa (94%). It is about 70% in all of the three decision less than Oromia (71%), Afar (72%), Amhara (80%), Dire Dawa (81%) and Harari (88%). In each of the

women's decisions making areas, if we take Addis Ababa as a reference region, women living in the rest of the regions during the survey period less likely participate in the decision making process compared to Addis Ababa.

Table 4.6: Descriptive statistics on Women's Participation in Decision Making on their Own Health Care, Major household purchase, Visiting Family or Relatives and All decisions

Independent variables	Frequency and percentage of women participation in decision making on							
	Model 1: own health care		Model 2:Major HH Purchase		Model 3:Visiting family		Model 4:All	
	N	%	N	%	N	%	N	%
Age of the women								
15-24	1197	80.17	1140	76.56	1234	82.82	1029	68.92
25-34	2214	82.74	2094	78.11	2248	84.19	1875	69.83
35-49	1600	81.84	1535	78.64	1642	84.19	1387	70.84
Age at first marriage								
<=15 years,	1973	81.06	1870	76.80	2020	83.16	1692	69.40
16-18 years	1615	81.98	1533	77.70	1654	83.96	1377	69.72
>18 years	1423	82.73	1366	79.70	1450	84.65	1222	70.92
Age gap between spouses								
<= 10 years	3976	81.78	3788	77.94	4049	83.40	3395	69.70
11-20 years	937	82.41	896	78.87	973	86.03	817	71.73
>20 years	98	78.40	85	67.46	102	80.95	79	62.70
Number of living children								
Zero children	487	81.99	476	80.27	505	85.88	425	71.67
1-2 children	1663	84.16	1587	80.27	1682	85.12	1433	72.16

3-4 children	1372	81.96	1321	78.91	1413	84.66	1179	70.35
5 or more children	1489	79.20	1385	73.75	1524	81.11	1254	66.67
Level of education								
No education	2828	79.08	1381	78.02	1464	82.85	1223	68.98
Primary education	1465	82.77	413	86.95	437	92.19	384	80.17
Secondary education	433	91.74	286	94.70	292	96.69	266	86.64
Higher education	285	93.14	0.00	0.00	0.00	0.00	0.00	0.00
Religion								
Orthodox	2049	86.24	1999	84.10	2072	87.54	1790	75.02
Protestant	910	79.82	846	74.60	930	81.94	750	65.91
Muslim	1972	78.85	1846	73.72	2036	81.34	1685	67.27
Others	80	74.77	78	72.90	86	80.37	66	61.68
Work Status								
Working	2473	84.58	2389	81.90	2512	86.20	2143	73.16
Not working	2538	79.31	2380	74.26	2612	81.68	2148	66.98
Access to media								
No access	2936	79.87	2771	75.38	3008	81.87	2511	68.23
Infrequent access	461	79.21	440	75.73	480	83.33	392	67.35
Frequent access	1614	86.50	1558	83.54	1636	87.86	1388	74.07
Wealth Index								
Poorest	1163	73.84	1088	69.08	1210	76.83	977	62.03
Poorer	823	79.13	791	76.06	839	80.67	698	67.12
Middle	786	82.48	733	76.92	791	82.83	660	69.11
Richer	780	81.85	760	79.92	823	87.00	680	71.35
Richest	1459	91.02	1397	87.15	1461	91.54	1276	79.11
Place of residence								
Urban	1255	91.07	1198	86.94	1251	91.11	1091	78.60

Rural	3756	79.14	3571	75.27	3873	81.73	3200	67.40
Region								
Tigray	245	68.63	236	66.29	254	71.15	212	59.38
Afar	509	85.83	490	82.49	488	82.29	428	72.05
Amhara	772	88.23	767	87.86	808	93.30	705	80.11
Oromia	770	80.29	738	77.04	807	84.15	679	70.80
Somali	374	74.95	332	66.53	401	80.52	308	61.72
BG	444	79.00	403	71	460	81.85	363	64.59
SNNP	666	77.71	614	71.65	659	76.90	527	61.49
Gambella	255	76.81	243	73.41	254	76.51	202	60.84
Harari	295	92.19	289	89.47	295	90.77	283	87.89
Addis Ababa	310	83.78	302	82.07	324	88.28	258	69.54
Dire Dawa	371	92.75	355	88.53	374	94.44	326	80.89

4.4 Determinants of Women's Participation in Decision Making: Multivariate Approach

Multivariate analysis is also used to determine women's participation in decision making. It adds to the analysis of bivariate analysis by identifying factors that positively or negatively affect the likelihood of the women's decision making-women's their own health care, major household purchase, visiting their family or relatives and all of these specific decision net of all other factors, provided that all others remain constant. The study used logistic regression model to estimate coefficient or odds ratio based on maximum likelihood estimation techniques. Table 4.7 presented summary odd ratio & p-value for correlates of the likelihood that, based on Ethiopia Demographic Health Survey, 2016, currently married women aged 15-49 will involve in decision making of their own health care, making major household purchase, visiting their family or relatives and all of these specific decisions. Table 4.2, Table 4.3, Table 4.4, & Table 4.5 showed in detail such as odd ratio, standard errors, Z-value, 95% CI for OR and P-value of the coefficients for the factors that determine the decision making of women on their own health care, making major household purchase, visiting their own family or relatives and all these specific decisions together respectively. Odds ratio computed from the coefficients of the logistic

regression for each of the eleven explanatory variables for each specific decision of women under consideration. The interpretation of the results concerning each of the explanatory variable in relation to dependent variables are based on odds ratio as each adds ratio gives the increase or decrease of explanatory variable compared to the reference group.

In model 1: Married women's with younger aged 25-34, their first marriage greater than or equal to 18 years old, 1-2 number of living children living with married women, their educational status with secondary and higher education, working status, infrequent and frequent access to any media in the form of printed newspaper, radio and television, households of better wealth, place of residence urban, and regions (all except Amhara and Addis Ababa) are highly significant to women's decision making on their own health care. Those married women, in model 2, with spousal age difference between 11-20 years with their husband/partner, education are secondary and higher, religion is protestant, who worked during the survey period, access to media (infrequent and frequent access), better household's wealth, who reside in urban and live in Afar, Amhara, SNNP, Gambella, Harari and Addis Ababa statistically and significantly affected currently married women's participation in decision making of major household purchase. In the case of model 3, those variables in Model 2 affect significantly decision making of women when they visit their family or relatives but access to media (only frequent access), and region (DD in addition to those mentioned) in different magnitude. In Model 4, the same variables in found in Model 3 affect significantly all the specific decision making of women except spousal age difference, & religion protestant but in case of region-women in Somali & Benshangul Gumuz affect significantly but in Addis Ababa & Dire Dawa insignificantly. The direction and magnitude of relationship between participation of decision making and each of the explanatory variables discussed below based on Table 4.7

Table 4.7: Summary Odds ratios for correlates of the likelihood that a currently married woman aged 15-49 will involve in making a specific decision: Evidence from Ethiopia DHS

Variables	Binary logistic regression results of women's participation in decision making on											
	Model 1: Own Health Care			Model 2: Major Household Purchase			Model 3: Visiting their family			Model 4: All		
	N	Odds Ratio	SE	N	Odds Ratio	SE	N	Odds Ratio	SE	N	Odds Ratio	SE
Age of the respondent												
15-24	1197	Ref		1140	Ref		1234	Ref		1029	Ref	
25-34	2214	1.24**	0.13	2094	1.13	0.11	2248	1.08	0.12	1875	1.08	0.10
35-24	1600	1.18	0.15	1535	1.26*	0.15	1642	1.12	0.15	1387	1.19	0.13
Age at first marriage												
<=15 years	1973	Ref		1870	Ref		2020	Ref		1692	Ref	
16-18 years	1615	1.05	0.09	1533	1.05	0.08	1654	1.06	0.09	1377	1.02	0.07
>18 years	1423	0.83**	0.08	1366	0.92	0.08	1450	0.85*	0.08	1222	0.87*	0.07
Age gap between spouses												
< =10 years	3976	Ref		3788	Ref		4049			3395	Ref	
11-20 years	937	1.02	0.09	896	1.06	0.08	973	1.26**	0.12	817	1.11	0.08
> 20 years	98	0.87	0.20	85	0.62**	0.13	102	0.92	0.22	79	0.77	0.15
Number of living children												
Zero children	487	Ref		476	Ref		505	Ref		425	Ref	
1-2 children	1663	1.24	0.16	1587	1.07	0.13	1682	1.02	0.15	1433	1.08	0.12
3-4 children	1372	1.15	0.18	1321	1.05	0.15	1413	1.08	0.18	1179	1.05	0.14
5 or more children	1489	1.09	0.18	1385	0.83	0.13	1524	0.90	0.16	1254	0.92	0.13
Level of education												
No education	2828	Ref		1381	Ref		1464	Ref		1223	Ref	
Primary education	1465	1.12	0.10	413	1.02	0.08	437	0.91	0.08	384	1.01	0.07
Secondary education	433	2.00***	0.39	286	1.52***	0.25	292	1.79***	0.36	266	1.62***	0.23
Higher education	285	1.85**	0.48	0.00	3.25***	0.92	0.00	3.77***	1.13	0.00	2.29***	0.45
Religion												
Orthodox	2049	Ref		1999	Ref		2072	Ref		1790	Ref	
Protestant	910	1.07	0.13	846	0.97	0.12	930	1.34**	0.17	750	1.06	0.11
Muslim	1972	1.01	0.10	1846	0.86	0.08	2036	0.94	0.11	1685	0.96	0.08
Others	80	0.87	0.21	78	0.95	0.22	86	1.19	0.32	66	0.88	0.19
Working status												
Not Working	2473	Ref		2389	Ref		2512	Ref		2143	Ref	
Working	2538	1.16**	0.09	2380	1.29***	0.09	2612	1.14*	0.09	2148	1.16**	0.07
Access to media												
No access	2936	Ref		2771	Ref		3008	Ref		2511	Ref	
Infrequent access	461	0.70***	0.08	440	0.75***	0.08	480	0.85	0.11	392	0.74***	0.08
Frequent access	1614	0.77***	0.08	1558	0.87	0.08	1636	0.83	0.09	1388	0.75***	0.06
Wealth Index												
Poorest	1163	Ref		1088	Ref		1210	Ref		977	Ref	

Poorer	823	1.10	0.11	791	1.17	0.12	839	1.09	0.12	698	1.07	0.10
Middle	786	1.40***	0.16	733	1.23**	0.13	791	1.25	0.15	660	1.18*	0.11
Richer	780	1.35***	0.16	760	1.48***	0.17	823	1.81	0.24	680	1.35***	0.14
Richest	1459	2.24***	0.38	1397	1.89***	0.29	1461	2.48	0.43	1276	1.84***	0.25
Place of residence												
Rural (0=no)	1255	Ref		1198	Ref		1251	Ref		1091	Ref	
Urban (1=yes)	3756	1.43**	0.24	3571	1.14	0.17	3873	0.93	0.15	3200	1.08	0.14
Region												
Tigray	245	Ref		236	Ref		254	Ref		212	Ref	
Afar	509	0.43**	0.08	490	0.62***	0.12	488	0.67**	0.13	428	0.70**	0.12
Amhara	772	1.25	0.21	767	1.55***	0.24	808	2.97***	0.53	705	1.57***	0.20
Oromia	770	0.70**	0.11	738	0.83	0.12	807	1.16	0.19	679	1.02	0.13
Somali	374	0.59***	0.11	332	0.62***	0.11	401	1.18	0.23	308	0.77*	0.12
BG	444	0.64***	0.11	403	0.58***	0.09	460	0.99	0.17	363	0.73**	0.10
SNNP	666	0.57***	0.10	614	0.58***	0.09	659	0.62***	0.10	527	0.63***	0.09
Gambella	255	0.46***	0.09	243	0.54***	0.10	254	0.52***	0.10	202	0.53***	008
Harari	295	1.71**	0.44	289	1.85***	0.42	295	1.96***	0.47	283	2.76***	0.57
AA	310	0.83	0.21	302	0.78	0.17	324	1.80***	0.50	258	0.96	0.17
DD	371	0.63**	0.13	355	0.94	0.19	374	1.46*	0.33	326	0.80	0.13
Constant		3.28***	0.62		2.93***	0.52		3.06***	0.61		1.83***	0.29
Observations	**6124**			**6122**			**6112**			**6136**		

Source: Own computation from EDHS, 2016; *P<0.01; **P<0.05; ***P<0.1

Age of the women: In model 1, older married women in the peak fertility age of 25-34 compared to younger women aged 15-24 (the reference group) seems to have a better involvement of decision making in the case of their own health care in a household. In regression for the participation of decision about currently married women's own health care, an odds ratio of 1.24 as indicated in Table 4.7, means that this age category-women whose age between 25-34 are 24% higher than women aged 15-24 provided that other controls remain constant. Age of the women do not statistical and significantly affect women's involvement of decision in the case of major household purchase, visiting their family or relatives and all decision making issues taken together.

Age at first marriage: Controlling all other background characteristics of married women, age at first marriage seem to have no significant effect on women's participation in the decision making of their own health care, visiting their family or relatives and all decision

Age gap between spouses: The age gap between the currently married women and their husband or partner (11-20 years) are found to be significant explanatory variable of the participation of decision making only on visiting their family or relatives. Spousal age difference between 11-20

years affects more likely women's decision making on major household purchase (OR:1.26; P<0.05) by 26% but less likely by 38 % (OR=0.62; P<0.05) for those having age difference of greater than or equal 20 years, compared spousal age difference less than ten years.

Number of living children: Married women with fewer number of living children (1-2) are more likely to participate in decision making of own health care (OR: 1.24; P<0.10) by 24%, compared to married women with zero number of children living. Number of living children do not affect statistically women's participation of decision making in model 2, Model 3 and Model 4.

Level of Education: The ability of women to make their own decisions affected by their education. Women's participation in decision making and their level of education showed a positive relationship. According to this study, women do have better participation of decision making when their education is above secondary education. In a similar way, participation of women on their health care (OR: 2:00; P<0.001), major household purchase (OR: 1.52: P<0.01), visiting their family or relatives (OR: 1.79; P<0.001) and all of specific decision (OR: 1.62; P<0.001) considered in this study are more likely for married women secured secondary education than those who have no education during the survey period. The same is true when they have higher education i.e. married women with more schooling are more likely to make decision about their own health care (OR: 1.85; P<0.020), major household purchase (OR: 3.24; P<0.001), visiting their family or relatives (OR: 3.37; P<0.001) and all of these specific decisions (OR: 2.29; P<0.001) compared to those who have no education. Married women who have primary education do have insignificant effect on participation in any of these specific decisions making.

Religion of the women: During survey period, currently married women with religion (Orthodox, Muslim, Protestant or others) have statistically insignificant effect on participation of women in any of decision making mentioned in this study except the case of being protestant and women's visit to their family or relatives. Married women of protestant more likely to participate, compared to women of the Orthodox when deciding to visit their family or relatives by 34 percent (OR: 1.34; P<0.020)

Women's working status: During the survey time, married women who were working for earning money are significantly more likely to be involved in decision making on own health

care by 16% (OR: 1.16; P<0.050), major household purchase by 28.5% (OR: 1.285; P<0.001), visiting their family or relatives by 14% (OR: 1.14; P<0.10) and all the specific decision by 16% (OR: 1.16; P<0.020) than those who were not working.

Access to media: One surprise finding in this study is access to media in form printed newspaper or magazines, listening radio and watching television at least once a week negatively affected decision making of women on health care, major household purchase, visiting their family or relatives and all of specific decisions. However, there are similar evidence (Kishor, and Subaiya, 2008) that access to media affected negatively each of the decision making of currently married women in many countries based on Demographic and Health Survey (DHS data). So, this study attempted similar exercise in African and rest of world countries with the same methodology like ours. Based on our findings, women's access to media-infrequently and frequently were less likely to be participate in decision making of women on health care (OR:0.77; P<0.001 for case infrequent access to media OR:0.77; P<0.010 for case frequent access to media), major household purchase (OR:0.75;P<0.10 vs OR:0.87; P=0.14), visiting their family or relatives (OR:0.19;P=0.19 vs OR:0.83;P<0.070), & all specific decision (OR:0.74;P<0.001 vs OR:0.75;P<0.001). Access to media significantly & negatively affects women's participation in decision making (all decisions) except in the case of visiting their family or relatives when women's access to media is infrequent; major household purchase when media access is frequent.

Wealth of household: Household wealth have a significant positive effect on women's decision making. In this study like education, household wealth is a very important explain the variation of the women's decision making on own health care, major household purchase, visiting their family or relatives and all the specific decision. Household with richest wealth quintile are more likely and significantly increase the likelihood of married women's decision making on health care (OR: 2.24; P<0.001), major household purchase (OR: 1.89; P<0.001), visiting family or relatives (OR: 2.48; P<0.001), and all decision (OR: 1.84; P<0.001) compared to poorest wealth quintile. Women's own health, major household purchase, visiting family or relatives, and all specific decisions for which adds of making these decision are higher for married women in the middle and richer quintile than poor quintiles.

Place of residence (Urban and Rural): Married women's place of residence (rural/urban) matters in participation of married women on their health care only, but not on major household purchase, visiting family or relative and all the specific decision. Urban women are significantly more likely to participate in the decision making of their health care by 43% than rural women counter parts (OR: 1.43; P<0.05).

Regional state of Ethiopia: There is no independent evidence, to the best of our knowledge, stated about the decision making of women across regions. Similar investigation based on taking region as one of the predictors showed mixed results and showed there is variation in the participation decision making of married women by region. This study indicated compared to Tigray regional state, married women living in all regions except Harari (OR: 1.70: P<0.05) less likely to participate the likelihoods of women's decision making on health care. Moreover, married women living in Afar (OR:0.43;P<0.001), Oromia (OR:0.70;P<0.05),Somali (OR:0.59;P<0.010), Benshangul Gumez (OR:0.64; P<0.010), SNNP (OR:0.57; P=0.000), and Gambella (OR:0.46;P=0.000) significantly less likely compared to Tigray region in women's decision making on their health care . Purchase of major household assets for which adds of making of decision are significantly higher for married women living in Amhara (OR: 1.55; P<0.01), and Harari (OR: 1.85; P<0.007) but significantly lower women living in Afar (OR:0.62;P<0.01), Somali (OR:0.62:P<0.006), Benishangule Gumez (OR:0.58;P<0.007), SNNP (OR:0.58:P<0.001), and Gambella (OR:0.54;P<0.001) compared to Tigray Regional State.

With regard to women's visit to their family or relatives, women's living in Amhara (OR: 2.97; P=0.000), Harari (OR: 1.96; P<0.010), Addis Ababa (OR: 1.80; P<0.03) and Dire Dawa (OR: 1.46; P<0.090) regional state significantly & more likely but those women living in Afar (OR:0.67;P<0.04), SNNP (OR:0.62; P<0.001), & Gambela (OR:0.52;P<0.001) regional state significantly and less likely participate in this decision making area, compared to Tigray regional state.

In general, married women living in Amhara (OR: 1.57; P<0.001), and Harari (OR: 2.76; P<0.001) are more likely but those in Afar (OR: 0.70; P<0.030), Somali (OR: 0.77; P<0.090), Beneshangul Gumez (OR: 0.73; P<0.090), SNNP (OR: 0.63; P<0.001), and Gambella (OR: 0.53; P<0.001 less likely participate in all three decisions than women who are living in Tigray regional state.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study examined the women involvement level with regard to selected outcomes on own health care, major household purchase, visiting their family and all of these decision issues taken together and to identify the factors which are important for the variation of these outcomes in Ethiopia. To meet the study objectives, the study used the dataset from the Ethiopia Demographic and health Survey (EDHS) in 2016. The min-EDHS in 2019 is not released up to the completion of this study, but looked at the preliminary short report. So the 2016 Ethiopia's DHS is the most recent data. The unit of analysis is currently married women and who completed the women's participation on decision making data during the survey period. The 2016 Ethiopia's DHS is the recent nationally representative data, and cross-sectional survey done on all regional states of Ethiopia. Results of the study analyzed using descriptive statistics and multivariate logistic regression mode. STATA 14 used to analyze the data and for econometrically estimating the logistic regression models.

Based on descriptive statistics, health care, major household purchase, visiting family or relatives and all these decisions of women were analyzed. Results on this, showed that about equal percentage of women (82%) during the survey made health care and family visit decisions while 78% of the women's make decision on major household purchase alone or with their husband. Finally, taking all decisions together, about 78% of the women participated in household decisions making on all outcomes.

Moreover, women participation in household decision process, their decision towards their own healthcare, major household purchase, visiting family, and all of these decision together with what factors influenced their decision in household were very motivating topic for me in a male-centered community. Ethiopia where several interventions and programs on responsiveness for gender were implemented in one hand and still there existed factors that limit this stereotype view of women and their decision making in household on the other hand.

In Ethiopia setting of various strands of empirical literature studying women autonomy in either of the decision making, though not comprehend and specified like this study, I draw the following conclusion based in binary logistic regression results.

Peak fertility age women in the 25-34 years, late at first marriage, secondary or higher education, women working status, access to media, wealth of the household, and location such as women's place of residence urban and regions except Amhara and Addis Ababa significantly influenced women's involvement in decision making on their own health care. All these variables except women's age and age at first marriage, frequent access to media, place of residence; and with regard to location all regions except Oromia, Addis Ababa and Dire Dawa significantly affect women's participation in decision making on household purchase of major assets. Women decision's on mobility outside home to visit their family or relatives significantly influenced by spousal age difference between 11-20 years, women's secondary and higher education, being protestant, rich household member and all location (regions) except Amhara, Oromia, and Somalie. Women's participated in decision making significantly influenced by women's secondary and higher education, working status, being in rich household, and all regions except Oromia, Somalie, Addis Ababa and Dire Dawa.

On the contrary, women's religion (except the case above in specific situation), and number of living children are found not to have significant influence on decision making. Women's place of residence i.e., living in urban found to have significant influence on health care decision only while women's working status influence all decisions types except women's decision related to their mobility outside home.

More importantly, women's participation in decision making found to have positively by women's education, working status, wealth of the household (similar to Haque et al., 2012; Acharya et al., 2010) but negatively influenced by access to media (similar UNFPA, 2008 done for many countries). Mixed results confirmed that regions have a positive and negative effect on women's decisions.

5.2 Recommendations

This study calls for policy implication that improves the decision making of women on their health care, resources or economic activities, and mobility. Based on the finding of the study, the following measures are recommended

- The concerned body increase to promote about decision making through education of girls, empowerment of women's occupation (labor force), empowerment of their economy, and to make women to adhere media information related to decision making that has been supported by informed decision or evidence.
- The concerned body work on women's education to attain that means educated women are more likely have higher chance of decision making on household decision separately in health care which in turn reduce maternal, neonatal and child mortality rate and other health related issues (such as uptake of immunization).
- The concerned body improves the economic status of women. Improving the economic status of women means enable them to achieve efficient allocation of resources for the household (in general, promote financial independence trough employment from paid work), and women's ability to mobility means to increase information access from peer groups and others; and provide her freedom and human right.
- There is also variation in participation of women's decision making in household across regions and so that government may also have location specific targets intervention on decision making.
- There is also a need the government should take more measures on equity to minimize the gap between women living in urban and rural areas and in different parts of the region to have women more access to media and other related infrastructure through rural development program.

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ANNEX

Table 4.1: Socio-demographic Characteristics of Women's Participation in Decision making: Univariate Analysis

Variable	Model 1		Model 2		Model 3		Model 4	
	Freq	%	Freq	%	Freq	%	Freq	%
Age of the respondent								
15-24	1493	24.38	1489	24.32	1490	24.38	1493	24.33
25-34	2676	43.70	2681	43.79	2670	43.68	2685	43.76
35-49	1955	31.92	1952	31.89	1952	31.94	1958	31.91
Age at first marriage								
<=15 years,	2434	39.75	2435	39.77	2429	39.74	2438	39.73
16-18 years	1970	32.17	1973	32.23	1970	32.23	1975	32.19
>18 years	1720	28.09	1714	28.00	1713	28.03	1723	28.08
Age gap between spouses								
< =10 years	4862	79.39	4860	79.39	4855	79.43	4871	79.38
11-20 years	1137	18.57	1136	18.56	1131	18.50	1139	18.56
>20 years	125	2.04	126	2.06	126	2.06	126	2.05
Number of living children								
Zero children	594	9.70	593	9.69	588	9.62	593	9.66
1-2 children	1976	32.27	1977	32.29	1976	32.33	1986	32.37
3-4 children	1674	27.34	1674	27.34	1669	27.31	1676	27.31
5 or more children	1880	30.70	1878	30.68	1879	30.74	1881	30.66
Level of education								
No education	3576	58.39	3557	58.40	3569	58.39	3577	58.30
Primary education	1770	28.90	1770	28.91	1767	28.91	1773	28.90
Secondary education	472	7.71	475	7.76	474	7.76	479	7.81

Higher education	306	5.00	302	4.93	302	4.49	307	5.00
Work Status								
Working	2924	47.75	2917	47.65	2914	47.68	2929	47.73
Not working	3200	52.25	3205	52.35	3198	52.32	3207	52.27
Access to media								
No access	3676	60.03	3676	60.05	3674	60.11	3680	59.97
Infrequent access	582	9.50	581	9.49	576	9.42	582	9.49
Frequent access	1866	30.47	1865	30.46	1862	30.41	1874	30.54
Religion								
Orthodox	2376	38.80	2377	38.83	2367	38.73	2386	38.89
Protestant	1140	18.62	1134	18.52	1135	18.57	1138	18.55
Muslim	2501	40.84	2504	40.90	2503	40.97	2505	10.82
Others	107	1.75	107	1.75	107	1.75	107	1.74
Place of residence								
Urban	1378	22.50	1378	22.51	1373	22.46	1388	22.62
Rural	4746	77.50	4744	77.49	4739	77.57	4748	77.38
Wealth Index								
Poorest	1575	25.72	1575	25.73	1575	25.77	1575	25.67
Poorer	1040	16.98	1040	16.99	1040	17.02	1040	16.95
Middle	953	15.56	953	15.57	955	15.63	955	15.56
Richer	953	15.56	951	1553	946	15.48	953	15.53
Richest	1603	26.18	1603	26.18	1596	26.11	1613	26.29
Region								
Afar	593	9.68	594	9.70	593	9.70	594	9.68
Tigray	357	5.83	356	5.82	357	5.84	357	5.82
Amhara	875	14.29	873	14.26	866	14.17	880	14.34
Oromiya	959	15.66	958	15.65	959	15.69	959	15.63

Somali	499	8.15	499	8.15	498	8.15	499	8.13
BG	562	9.18	562	9.18	562	9.20	562	9.16
SNNP	857	13.99	857	14.00	857	14.02	857	13.97
Gambella	332	5.42	331	5.41	332	5.43	332	5.41
Harari	320	5.23	323	5.28	325	5.32	322	5.25
Dire Dawa	400	6.53	401	6.55	396	6.48	403	6.57
Addis Ababa	370	6.04	368	6.01	367	6.00	371	6.05
Total	6124	100	6122	100	6112	100	6136	100

Source: Own Computation from EDHS, 2016.

Table 4.2: Model 1-Women's Participation in Decision Making on Their own Health Care: Bivariate Analysis

Variable	Yes		No		Total	Chi2 Test	
	N	%	N	%		chi2(2)	P-value
Age of the women							
15-24	1197	80.17	296	19.83	1493		
25-34	2214	82.74	462	17.26	2676		
35-49	1600	81.84	355	18.16	1955	4.22	0.1210
Age at first marriage							
<=15 years,	1973	81.06	461	18.94	2434		
16-18 years	1615	81.98	355	18.02	1970		
>18 years	1423	82.73	297	17.27	1720	1.94	0.379
Age gap between spouses							
<= 10 years	3976	81.78	886	18.22	4862		
11-20 years	937	82.41	200	17.59	1137		
>20 years	98	78.40	27	21.60	125	1.26	0.534
Number of living children							
Zero children	487	81.99	107	18.01	594	15.97	0.001

1-2 children	1663	84.16	313	15.84	1976		
3-4 children	1372	81.96	302	18.04	1674		
5 or more children	1489	79.20	391	20.80	1880		
Level of education							
No education	2828	79.08	748	20.92	3576		
Primary education	1465	82.77	305	17.23	1770		
Secondary education	433	91.74	39	8.26	472		
Higher education	285	93.14	21	6.86	306	76.65	0.000
Work Status							
Working	2473	84.58	451	15.42	2473		
Not working	2538	79.31	662	20.69	3200	28.46	0.000
Access to media							
No access	2936	79.87	740	20.13	3676		
Infrequent access	461	79.21	121	20.79	582		
Frequent access	1614	86.50	252	13.50	1866	39.50	0.000
Religion							
Orthodox	2049	86.24	327	13.76	2376		
Protestant	910	79.82	230	20.18	1140		
Muslim	1972	78.85	529	21.15	2501		
Others	80	74.77	27	25.23	107	52.65	0.000
Place of residence							
Urban	1255	91.07	123	8.93	1378		
Rural	3756	79.14	990	20.86	4746	102.26	0.000
Wealth Index							
Poorest	1163	73.84	412	26.16	1575		
Poorer	823	79.13	217	20.87	1040		
Middle	786	82.48	167	17.52	953	163.91	0.000

Richer	780	81.85	173	18.15	953		
Richest	1459	91.02	144	8.98	1603		
Region						164.26	0.000
Afar	509	85.83	84	14.17	593		
Tigray	245	68.63	112	31.37	357		
Amhara	772	88.23	103	11.77	875		
Oromiya	770	80.29	189	19.71	959		
Somali	374	74.95	125	25.05	499		
BG	444	79.00	118	21.00	562		
SNNP	666	77.71	191	22.29	857		
Gambella	255	76.81	77	23.19	332		
Harari	295	92.19	25	781	320		
Dire Dawa	371	92.75	29	7.25	400		
Addis Ababa	310	83.78	60	16.22	370		

Source: Own Computation from EDHS, 2016.

Table 4.3: Model 2-Women's Participation in Decision Making on major household purchase: Bivariate Analysis

Variable	Yes		No		Total	Chi2 Test	
	N	%	N	%		chi2(2)	P-value
Age of the respondent							
15-24	1140	76.56	349	23.44	1489		
25-34	2094	78.11	587	21.89	2681		
35-49	1535	78.64	417	21.36	1952	2.23	0.328
Age at first marriage							
<=15 years,	1870	76.80	565	23.20	2435		
16-18 years	1533	77.70	440	22.30	1973		
>18 years	1366	79.70	348	20.30	1714	4.98	0.083
Age gap between spouses							

<= 10 years	3788	77.94	1072	22.06	4860		
11-20 years	896	78.87	240	21.13	1136		
>20 years	85	67.46	41	32.54	126	8.61	0.014
Number of living children							
Zero children	476	80.27	117	1973	593		
1-2 children	1587	80.27	390	19.73	1977		
3-4 children	1321	78.91	357	21.09	1674		
5 or more children	1385	73.75	493	26.25	1878	28.20	0.000
Level of education							
No education	1381	78.02	389	21.98	1770		
Primary education	413	86.95	62	13.05	475		
Secondary education	286	94.70	16	5.30	302		
Higher education	0.00	0.00	0.00	0.00	0.00	87.07	0.000
Work Status							
Working	2389	81.90	528	18.10	2917	51.78	0.000
Not working	2380	74.26	825	25.74	3205		
Access to media							
No access	2771	75.38	905	24.62	3676		
Infrequent access	440	75.73	141	24.27	5811		
Frequent access	1558	83.54	307	16.46	1865	49.58	0.000
Religion							
Orthodox	1999	84.10	378	15.90	2377		
Protestant	846	74.60	288	25.40	1134		
Muslim	1846	73.72	658	26.28	2504		
Others	78	72.90	29	27.10	107	87.13	0.000
Place of residence							
Urban	1198	86.94	180	13.06	1378	84.38	0.000

Rural	3571	75.27	1173	24.73	4744		
Wealth Index							
Poorest	1088	69.08	487	30.92	1575		
Poorer	791	76.06	249	23.94	1040		
Middle	733	76.92	220	23.08	953		
Richer	760	79.92	191	20.08	951		
Richest	1397	87.15	206	12.85	1603	155.66	0.000
Region							
Afar	490	82.49	104	17.51	594		
Tigray	236	66.29	120	33.71	356		
Amhara	767	87.86	106	12.14	873		
Oromiya	738	77.04	220	22.96	958		
Somali	332	66.53	167	33.47	499		
BG	403	71	159	28.29	562		
SNNP	614	71.65	243	28.35	857		
Gambella	243	73.41	88	26.59	331		
Harari	289	89.47	34	10.53	323		
Dire Dawa	355	88.53	46	11.47	401		
Addis Ababa	302	82.07	66	17.93	368	214.29	0.000

Source: Own Computation from EDHS, 2016.

Table 4.4: Model 3-Women's Participation in Decision Making on Visiting Family or Relatives: Bivariate Analysis

Variable	Yes		No		Total	Chi2 Test	
	N	%	N	%		chi2(2)	P-value
Age of the respondent							
15-24	1234	82.82	256	17.18	1490		
25-34	2248	84.19	422	15.81	2670		
35-49	1642	84.19	310	15.88	1952	1.50	0.471

Age at first marriage							
<=15 years,	2020	83.16	409	16.84	2429		
16-18 years	1654	83.96	316	16.04	1970		
>18 years	1450	84.65	263	15.35	1713	1.67	0.434
Age gap between spouses							
<= 10 years	4049	83.40	806	16.60	4855		
11-20 years	973	86.03	158	13.97	1131		
>20 years	102	80.95	24	19.05	126	5.48	0.065
Number of living children							
Zero children	505	85.88	83	14.12	588		
1-2 children	1682	85.12	294	14.88	1976		
3-4 children	1413	84.66	256	15.34	1669		
5 or more children	1524	81.11	355	18.89	1879	15.39	0.002
Level of education							
No education	1464	82.85	303	17.15	1767		
Primary education	437	92.19	37	7.81	474		
Secondary education	292	96.69	10	3.31	302		
Higher education	0.00	0.00	0.00	0.00	0.00	70.23	0.000
Work Status							
Working	2512	86.20	402	13.80	2914		
Not working	2612	81.68	586	18.32	3198	23.07	0.000
Access to media							
No access	3008	81.87	666	18.13	3674		
Infrequent access	480	83.33	96	16.67	576		
Frequent access	1636	87.86	226	12.14	1862	32.83	0.000
Religion							
Orthodox	2072	87.54	295	12.46	2367	39.37	0.000

Protestant	930	81.94	205	18.06	1135		
Muslim	2036	81.34	467	18.66	2503		
Others	86	80.37	21	19.63	107		
Place of residence							
Urban	1251	91.11	122	8.89	1373		
Rural	3873	81.73	866	18.27	4739	69.24	0.000
Wealth Index							
Poorest	1210	76.83	365	23.17	1575		
Poorer	839	80.67	201	19.33	1040		
Middle	791	82.83	164	17.17	955		
Richer	823	87.00	123	13.00	946		
Richest	1461	91.54	135	8.46	1596	142.47	0.000
Region							
Afar	488	82.29	105	17.71	593		
Tigray	254	71.15	103	28.85	357		
Amhara	808	93.30	58	6.70	866		
Oromiya	807	84.15	152	15.85	959		
Somali	401	80.52	97	19.48	498		
BG	460	81.85	102	18.15	562		
SNNP	659	76.90	198	23.10	857		
Gambella	254	76.51	78	23.49	332		
Harari	295	90.77	30	9.23	325		
Dire Dawa	374	94.44	22	5.56	396		
Addis Ababa	324	88.28	43	11.72	367	199.84	0.000

Source: Own Computation from EDHS, 2016

Table 4.5: Model 4-Women's Participation in Decision Making on all of the Three Decisions: Bivariate Analysis

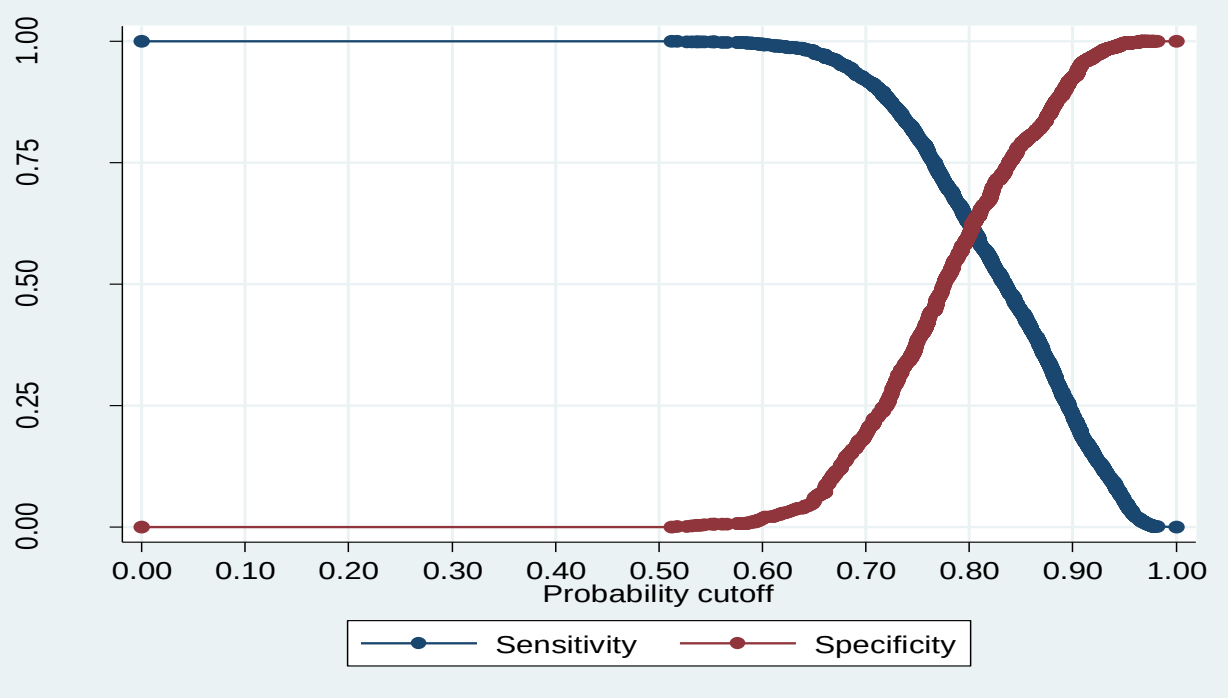
Variable	Yes		No		Total	Chi2 Test	
	N	%	N	%		chi2(2)	P-value
Age of the respondent							
15-24	1029	68.92	464	31.08	1493		
25-34	1875	69.83	810	30.17	2685		
35-49	1387	70.84	571	29.16	1958	1.50	0.472
Age at first marriage							
<15 years,	1692	69.40	746	30.60	2438		
16-18 years	1377	69.72	598	30.28	1975		
>18 years	1222	70.92	501	29.08	1723	1.73	0.556
Age gap between spouses							
< 10 years	3395	69.70	1476	30.30	4871		
11-20 years	817	71.73	322	28.27	1139		
>20 years	79	62.70	47	37.30	126	5.01	0.082
Number of living children							
Zero children	425	71.67	168	28.33	593		
1-2 children	1433	72.16	553	27.84	1986		
3-4 children	1179	70.35	497	29.65	1676		
5 or more children	1254	66.67	627	33.33	1881	15.19	0.002
Level of education							
No education	1223	68.98	550	31.02	1773		
Primary education	384	80.17	95	19.83	479		
Secondary education	266	86.64	41	13.36	307		
Higher education	0.00	0.00	0.00	0.00	0.00	74.67	0.000
Work Status							
Working	2143	73.16	786	26.84	2929	27.86	0.000

Not working	2148	66.98	1059	33.02	3207		
Access to media							
No access	2511	68.23	1169	31.77	3680		
Infrequent access	392	67.35	190	32.65	582		
Frequent access	1388	74.07	486	25.93	1874	22.12	0.000
Religion							
Orthodox	1790	75.02	596	24.98	2386		
Protestant	750	65.91	388	34.09	1138		
Muslim	1685	67.27	820	32.73	2505		
Others	66	61.68	41	38.32	107	50.10	0.000
Place of residence							
Urban	1091	78.60	297	21.40	1388		
Rural	3200	67.40	1548	32.60	4748	64.13	0.000
Wealth Index							
Poorest	977	62.03	598	37.97	1575		
Poorer	698	67.12	342	32.88	1040		
Middle	660	69.11	295	30.89	955		
Richer	680	71.35	273	28.65	953		
Richest	1276	79.11	337	20.89	1613	116.47	0.000
Region							
Afar	428	72.05	166	27.95	594		
Tigray	212	59.38	145	40.62	357		
Amhara	705	80.11	175	19.89	880		
Oromiya	679	70.80	280	29.20	959		
Somali	308	61.72	191	38.28	499		
BG	363	64.59	199	35.41	562		
SNNP	527	61.49	330	38.51	857	201.99	0.000

Gambella	202	60.84	130	39.16	332		
Harari	283	87.89	39	12.11	322		
Dire Dawa	326	80.89	77	19.11	403		
Addis Ababa	258	69.54	113	30.46	371		

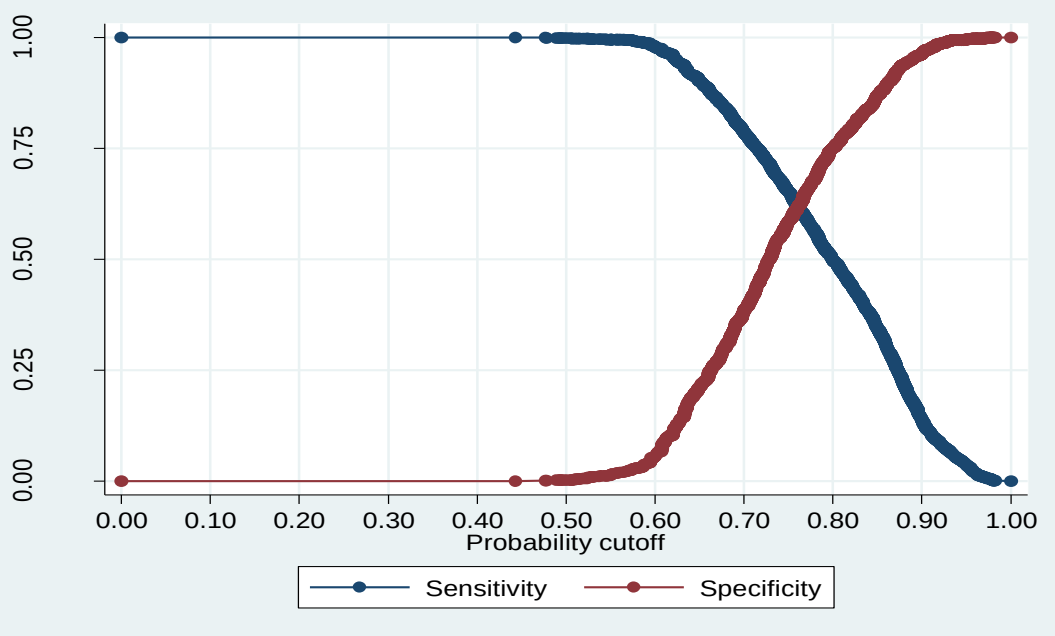
Source: Own Computation from EDHS, 2016

Figure A-1: Model 1: Probability cutoff points for sensitivity and specificity test



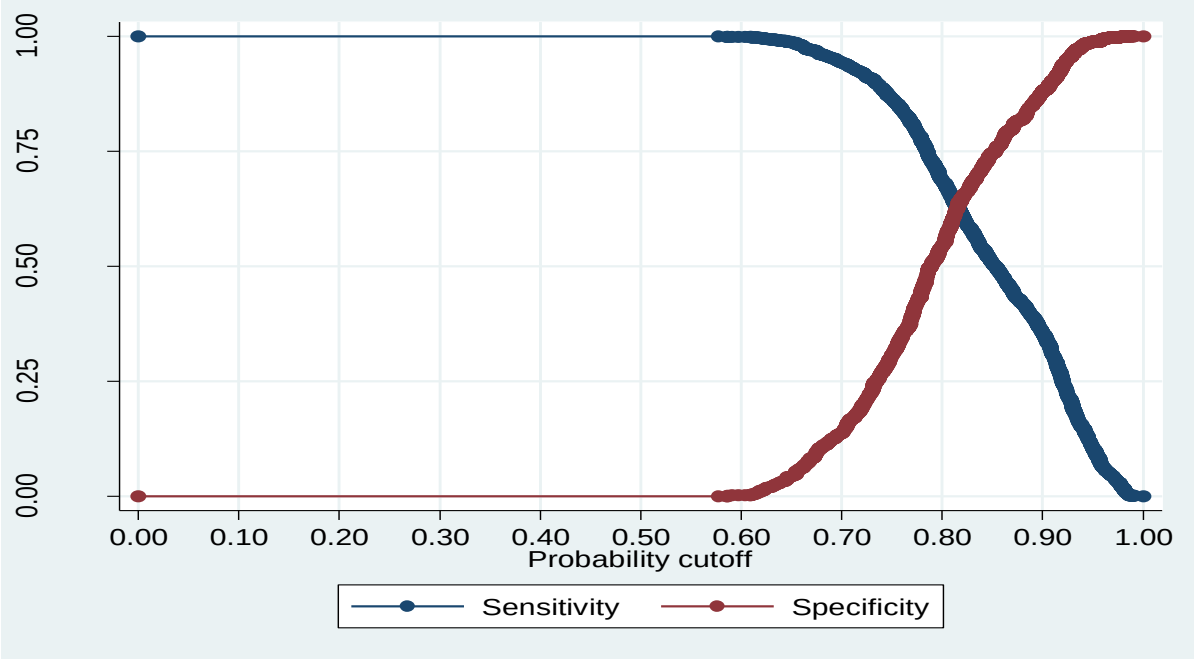
Source: Own computation from EDHS, 2016

Figure A-2: Model 2: Probability cutoff points for sensitivity and specificity test



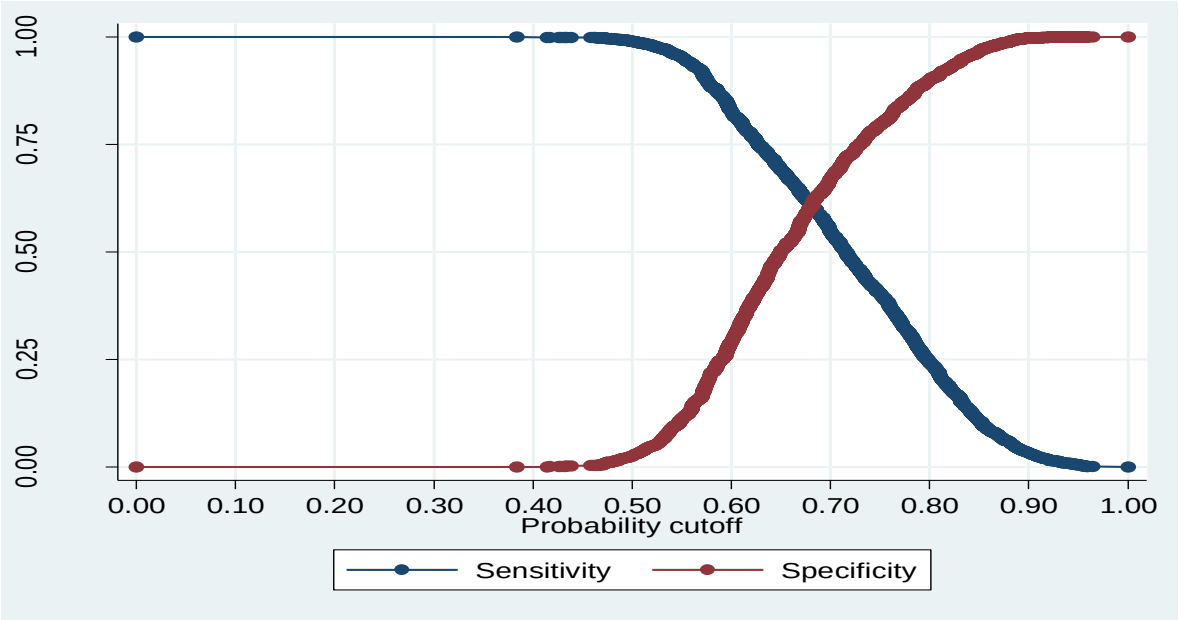
Source: Own computation from EDHS, 2016

Figure A-3: Model 3: Probability cutoff points for sensitivity and specificity test



Source: Own computation from EDHS, 2016

Figure A-4: Model 4: Probability cutoff points for sensitivity and specificity test



Source: Own computation from EDHS, 2016

Table A-1: Predictive Power of Women's Decision making on own health care model

. estat clas, cutoff(0.81)		
Logistic model for women's Decision making on own Health care		
-------- True --------		
Classified D	~D	Total
+ 2932	396	3328
- 2079	717	2796
Total 5011	1113	6124
Classified + if predicted Pr(D) >= .81		
True D defined as v743a_new != 0		
Sensitivity Pr(+ D)		58.51%

Specificity Pr(-~D)	64.42%
Positive predictive value Pr(D +)	88.10%
Negative predictive value Pr(~D -)	25.64%
False + rate for true ~D Pr(+~D)	35.58%
False - rate for true D Pr(- D)	41.49%
False + rate for classified + Pr(~D +)	11.90%
False - rate for classified - Pr(D -)	74.36%
Correctly classified	59.59%

Source: Own computation from EDHS, 2016

Table A-2: Predictive Power of Women's Decision making on major household purchase model

. estat clas, cutoff(0.76)		
Logistic model for women's Decision making on major household purchase		
-------- True --------		
Classified D	~D	Total
+ 2965 520		3485
- 1804	833	2637
Total 4769	1353	6122
Classified + if predicted Pr(D) >= .76		
True D defined as v743b_new != 0		

Sensitivity Pr(+ D)	62.17%
Specificity Pr(-~D)	61.57%
Positive predictive value Pr(D +)	85.08%
Negative predictive value Pr(~D -)	31.59%
False + rate for true ~D Pr(+~D)	38.43%
False - rate for true D Pr(- D)	37.83%
False + rate for classified + Pr(~D +)	14.92%
False - rate for classified - Pr(D -)	68.41%
Correctly classified	62.04%

Table A-3: Predictive Power of Women's Decision making on visiting family or relative's model

Logistic model for Women's Decision making on visiting family or relative's		
-------- True --------		
Classified D ~D		Total
+ 3942	544	4486
- 1182	444	1626
Total 5124	988	6112
Classified + if predicted Pr(D) >= .78		
True D defined as v743d_new != 0		
Sensitivity Pr(+ D)		76.93%
Specificity Pr(-~D)		44.94%

Positive predictive value Pr(D +)	87.87%
Negative predictive value Pr(~D -)	27.31%
False + rate for true ~D Pr(+~D)	55.06%
False - rate for true D Pr(- D)	23.07%
False + rate for classified + Pr(~D +)	12.13%
False - rate for classified - Pr(D -)	72.69%
Correctly classified	71.76%

Table A-4: Predictive Power of Women's Decision making on all three decision model

estat clas, cutoff(0.68)		
Logistic model for Women's Decision making on all three decision model		
-------- True --------		
Classified D	~D	Total
+ 2620	729	3349
- 1671	1116	2787
Total 4291	1845	6136
Classified + if predicted Pr(D) >= .68		
True D defined as v743all_desc != 0		
Sensitivity Pr(+ D)		61.06%
Specificity Pr(-~D)		60.49%
Positive predictive value Pr(D +)		78.23%
Negative predictive value Pr(~D -)		40.04%

False + rate for true ~D Pr(+~D)	39.51%
False - rate for true D Pr(- D)	38.94%
False + rate for classified + Pr(~D +)	21.77%
False - rate for classified - Pr(D -)	59.96%
Correctly classified	60.89%

Table A-5: Variance Inflation Factor for Multicollinearity Test

Variable	Model 1		Model 2		Model 3		Model 4	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
Age of the respondent								
15-24	Reference group							
25-34	2.40	0.42	2.40	0.42	2.40	0.42	2.40	0.42
35-49	3.21	0.31	3.21	0.31	3.21	0.31	3.21	0.31
Age at first marriage								
<15 years,	Reference group							
16-18 years	1.28	0.78	1.28	0.78	1.28	0.78	1.28	0.78
>18 years	1.55	0.65	1.55	0.65	1.54	0.65	1.55	0.65
Age gap between spouses								
< 10 years	Reference group							
11-20 years	1.03	0.97	1.03	0.97	1.03	0.97	1.03	0.97
>20 years	1.02	0.98	1.02	0.98	1.02	0.98	1.02	0.98
Number of living children								
Zero children	Reference group							
1-2 children	3.16	0.32	3.16	0.32	3.18	0.31	3.17	0.32
3-4 children	3.97	0.25	3.97	0.25	3.98	0.25	3.97	0.25
5 or more children	5.18	0.19	5.18	0.19	5.19	0.19	5.17	0.19

Level of education								
No education	Reference group							
Primary education	1.42	0.70	1.42	0.71	1.42	0.71	1.42	0.70
Secondary education	1.48	0.68	1.48	0.68	1.48	0.68	1.48	0.68
Higher education	1.51	0.66	1.50	0.67	1.50	0.67	1.51	0.66
Religion								
Orthodox	Reference group							
Protestant	1.98	0.50	1.99	0.50	1.99	0.50	1.98	0.50
Muslim	2.28	0.44	2.28	0.44	2.29	0.44	2.28	0.44
Others	1.11	0.90	1.11	0.90	1.11	0.90	1.11	0.90
Work Status								
Not Working	Reference group							
Working	1.16	0.86	1.16	0.86	1.16	0.86	1.16	0.86
Access to media								
No access	Reference group							
Infrequent access	1.11	0.90	1.11	0.90	1.11	0.90	1.11	0.90
Frequent access	1.83	0.55	1.83	0.55	1.83	0.55	1.84	0.54
Wealth Index								
Poorest	Reference group							
Poorer	1.60	0.62	1.61	0.62	1.60	0.62	1.61	0.62
Middle	1.62	0.62	1.62	0.62	1.62	0.62	1.62	0.62
Richer	1.70	0.59	1.69	0.59	1.69	0.59	1.70	0.59
Richest	4.16	0.24	4.16	0.24	4.17	0.24	4.18	0.24
Place of residence								
Rural	Reference group							
Urban	3.35	0.30	3.35	0.30	3.37	0.30	3.37	0.30

Region								
Tigray	Reference group							
Afar	2.01	0.50	2.01	0.50	2.01	0.50	2.01	0.50
Amhara	2.24	0.45	2.24	0.45	2.23	0.45	2.24	0.45
Oromiya	2.81	0.36	2.81	0.36	2.81	0.36	2.81	0.36
Somali	2.43	0.41	2.43	0.41	2.43	0.41	2.42	0.41
BG	2.05	0.49	2.04	0.49	2.05	0.49	2.04	0.49
SNNP	2.95	0.34	2.95	0.34	2.95	0.34	2.95	0.34
Gambella	1.75	0.57	1.75	0.57	1.75	0.57	1.75	0.57
Harari	1.82	0.55	1.82	0.55	1.83	0.55	1.82	0.55
Dire Dawa	2.07	0.48	2.06	0.48	2.05	0.49	2.07	0.48
Addis Ababa	1.94	0.52	1.93	0.52	1.93	0.52	1.93	0.52
Mean VIF	2.16		2.16		2.16		2.16	

Table A-6: Measures of Fit for logit of participation of women's decision making on health care

Log-Lik Intercept Only: -2902.945	Log-Lik Full Model:	-2742.383
D(6081): 5484.765	LR(33):	321.126
Prob > LR:	0.000	
McFadden's R2: 0.055	McFadden's Adj R2:	0.040
Maximum Likelihood R2: 0.051	Cragg & Uhler's R2:	0.051
McKelvey and Zavoina's R2: 0.120	Efron's R2:	0.049
Variance of y*: 3.739	Variance of error:	3.290
Count R2: 0.818	Adj Count R2:	0.000
AIC: 0.910	AIC*n:	5570.765
BIC: -47541.377	BIC':	-33.367

Table A-7: Measures of Fit for logit of participation of women's decision making on major household purchase

Log-Lik Intercept Only: -3233.509	Log-Lik Full Model:	-3044.550
D(6079): 6089.100	LR(33):	377.918
Prob > LR:	0.000	
McFadden's R2: 0.058	McFadden's Adj R2:	0.045
Maximum Likelihood R2: 0.060	Cragg & Uhler's R2:	0.060
McKelvey and Zavoina's R2: 0.125	Efron's R2:	0.057
Variance of y*: 3.759	Variance of error:	3.290
Count R2: 0.779	Adj Count R2:	-0.001
AIC: 1.009	AIC*n:	6175.100
BIC: -46917.617	BIC':	-90.170

Table A-8: Measures of Fit for logit of participation of women's decision making on visiting family or relatives

Log-Lik Intercept Only: -2703.916	Log-Lik Full Model:	-2524.902
D(6069): 5049.805	LR(33):	358.026
Prob > LR:	0.000	
McFadden's R2: 0.066	McFadden's Adj R2:	0.050
Maximum Likelihood R2: 0.057	Cragg & Uhler's R2:	0.057
McKelvey and Zavoina's R2: 0.155	Efron's R2:	0.054
Variance of y*: 3.894	Variance of error:	3.290

Count R2: 0.838	Adj Count R2:	0.000
AIC: 0.840	AIC*n:	5135.805
BIC: -47859.794	BIC':	-70.332

Table A-9: Measures of Fit for logit of participation of women's decision making on all of the three

Log-Lik Intercept Only: -3751.815	Log-Lik Full Model:	-3580.872
D(6093): 7161.744	LR(33):	341.887
Prob > LR:	0.000	
McFadden's R2: 0.046	McFadden's Adj R2:	0.034
Maximum Likelihood R2: 0.054	Cragg & Uhler's R2:	0.054
McKelvey and Zavoina's R2: 0.089	Efron's R2:	0.052
Variance of y*: 3.611	Variance of error:	3.290
Count R2: 0.700	Adj Count R2:	0.002
AIC: 1.181	AIC*n:	7247.744
BIC: -45980.966	BIC':	-54.063