Addis Ababa University
School of Graduate Studies
College of Development Studies

The Value of Children among Selected Communities in Southern Ethiopia

(A Comparative Study of Youths in Different Socio-economic Groups)

A Thesis Submitted To

The Center for Population Studies

Presented in Partial Fulfillment of the Requirements for

the Degree of Master of Science

Addis Ababa University

Addis Ababa, Ethiopia

June 2012

Addis Ababa University
School of Graduate Studies

This is to certify that the thesis prepared by **Habtamu Abdissa** entitled: "***The Value of Children Among Selected Communities in Southern Ethiopia: (A Comparative Study of Youths in Different Socio-economic Groups)*** and Submitted to Partial Fulfillment of the requirements for the Degree of Master of Science (Population Studies) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the Examining Committee:

External Examiner: **Yohannes Dibaba** Signature _____ Date 14/06/2012

Internal Examiner: **Dr. Terefe Degefa** Signature _____ Date 14/06/2012

Advisor: **Dr. Nigatu Regassa** Signature _____ Date 14 June 2012

_____
Chair of the Department of Graduate Program Coordinator

ABSTRACT

The present study attempted to investigate the current status of the value of children (VOC) for parents and tried to answer the question, "why do people want children?" The study also investigated the needs/satisfactions of having children and how these relate to fertility-related attitude. A multistage stratified probability sampling was used to select a sample size of 605 respondents consisting of unmarried youths aged between 15-29 from different socio-economic groups to examine regional similarities and differences on the VOC. Responses about advantages of having children were collected and comparisons between the different socio-economic groups and sex were made. In addition multiple regression analysis was used to investigate the relationship between socio-economic and demographic factors and the VOC in one hand and the relationship between the VOC and desired number of children on the other hand. Comparisons across different socio-economic groups and sex reflected changes in the perception of the different dimensions of VOC (social/normative, economic/utilitarian and psychological/emotional) across socio-economic groups and between sexes. Results of the study showed that with increased education and income, children's social/normative value decrease while increased household income and exposure to media are associated with decreased economic/utilitarian and increased psychological/emotional values, respectively. Sex, on the other hand, is positively associated with each of the dimensions of VOCs, indicating females' high expectations from children on each of the values. Regression analysis also revealed that where children's social/normative and economic/utilitarian values assumed important, fertility desire was high whereas psychological/emotional VOC is associated with lower desired number of children. Finally, the provision of old-age security benefits, unemployment and health insurance was recommended to lower the existence of high economic/utilitarian VOC associated with high fertility desire.

Acknowledgment

This thesis would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of the study.

First and foremost I would like to express my deepest gratitude to my advisor, Dr. Nigatu Regassa, for his encouragement, supervision, guidance and support from the preliminary to the concluding level and providing me with an excellent atmosphere for doing the research whilst allowing me the room to work in my own way. Without him, this thesis would not have been completed or written. One simply could not wish for a better or friendlier advisor.

My special appreciations go to all members of the Center for Population Studies particularly to Dr. Terefe Degefa for his inspiration to conduct my thesis on this topic.

My sincerest gratitude also goes to Mr. Seyoum Habtemariam, SalaM Health Care administrator and Sr. Bayech Tsegga, SalaM Nurses College Dean for their support in completing this program successfully.

It also gives me immense pleasure to acknowledge my cousin Shiferaw Muleta and my good friend Biruk Tensou for their encouragement and support throughout my masters program. I am also heartily thankful to my cousin Eyoel Dilgassa who was willing to go extra miles with me in the process of data collection. Special thanks also go to all dedicated supervisors and data collectors. Without their cooperation I could not have gotten such relevant data.

I also would like to make a special reference to Sidama Zone, Yirgalem town, Shebedino wereda and Hawassa city administration officials and Beza Youth, Health and Counseling Center Executive Director Mr. Molalegn Hailu for their cooperation and assistance during data collection.

Last but not least I would like to thank my families who were always supporting me and encouraging me with their best wishes and my wife, Meskerem Woldegiorgis who was always there cheering me up and stood by me through the good and bad times.

Table of Contents

Contents **Page**

Chapter Three: Data Sources and Methodology

Chapter Four: Characteristics of the Respondents

Chapter Five: Findings of the Study

List of Figures

List of Tables

List of Acronyms and Abbreviations

AAU – Addis Ababa University

CSA – Central Statistical Agency

DHS – Demographic and Health Survey

EDHS - Ethiopian Demographic and Health Survey

FGD - Focus Group Discussion

HCSE –Heteroskedasticity-Consistent Standard Error

KMO – Kaiser-Meyer-Olkin

MYSCE - Ministry of Youth, Sports & Culture Of Ethiopia

NGOs – Non-Governmental Organizations

NYP – National Youth Policy

OLS- Ordinary Least Square

PCC - Population Census Commission

PPS – Probability Proportion-to-Size

SEG – Socio-economic Groups

SNNPR - Southern Nations, Nationalities and Peoples' Regional State

SPSS - Statistical Package for Social Sciences

TFR – Total Fertility Rate

TGE – Transitional Government of Ethiopia

UN - United Nations

VIF – Variance Inflation Factor

VOC – Value of Children

WHO - World Health Organization

CHAPTER ONE
INTRODUCTION

1.1. Background

Over-population is not a recent or modern phenomenon. It has been a concern since the early times as evidenced by the writing of Tertullian entitled "Treatise of the Soul" in 210 AD. He was quoted writing that "Our teeming population is the strongest evidence our numbers are burdensome to the world, which can hardly support us from its natural elements. Our wants grow more and more keen and our complaints more bitter in all mouths, while nature fails in affording us our usual sustenance. In every deed, pestilence and famine and wars have to be regarded as a remedy for nations as the means of pruning the luxuriance of the human race" (Morris, 2009).

Many writers and scholars have argued the impacts of the abundance number of population since then (Malthus, 1798; Boserup, 1965; Hardin, 1968; Simon,1981). Among the most famous of the population pessimists was Thomas Robert Malthus, who sought to explain that, population must always be kept down to the level of the means of subsistence. He asserted that the world's population tends to increase at a faster rate than its food supply. Therefore, in the absence of consistent checks on population growth, Malthus made the gloomy prediction that in a short period of time, scarce resources will have to be shared among an increasing number of individuals (Malthus, 1798).

In the six decades since 1950, fertility has fallen substantially in developing countries. Even so, high fertility (defined as a total fertility rate (TFR) of 5.0 or higher) characterizes 33 countries in the world; twenty-nine of these countries are in Sub-Saharan Africa (World Bank, 2010). High fertility poses health risks for children and their mothers, detracts from human capital investment, slows economic growth, and exacerbates environmental threats (Hardin,1968; Ehrlich,1968). The

high-fertility countries lag in many development indicators, as reflected for example in their rate of progress toward achievement of the Millennium Development Goals (World Bank, 2010).

At present, the total population of developing countries is increasing while the population and fertility rate of developed countries particularly that of most European countries are decreasing (Bulatao and Casterline, 2001;World Bank, 2010). In societies with high fertility, the problem is to ensure sufficient material and psychological well-being, including economic security and education for the younger generation. In countries with a high birth rate in which the number of children and adolescents is higher as compared to other age groups, children are at risk to experience less care and formal education since their parents must invest in many children (Trommsdorff *et al.*, 2002). But, in countries with declining fertility, the situation is reversed: the growing number of elderly need a growing amount of support while, due to the low birth rate, relatively little manpower is actively engaged in the labor market (Feng, 2005; Fitzpatrick, 2009). These demographic phenomena are presumably related to value changes (VOC and value of family) which in turn may affect parenting and parent-child relations over the life span. These aspects of intergenerational relations may be seen as a process for the transmission of values which affect the next generation's decision to have a child, the quality of child-rearing practices, and again the intention of parents and their children to "invest" in each other's (material, social and psychological) well-being and development (Trommsdorff *et al.*, 2002).

In all societies, childbearing and rearing are universal social acts. But these are not uniform practices in all societies. Human fertility varies both among and within societies. Recently, there is growing body of consensus that a better understanding of perceived and actual benefits and costs of children is essential for understanding cross-cultural differences in reproductive behavior and perception. Approaches to studying these benefits and costs, as they apply to reproductive behavior and perception, vary with sociological, demographic,

economic and psychological frameworks used to interpret the VOC. Demographers and sociologists treat the VOC primarily at macro-level as it relates to the demographic transition at the core of which is the idea that the VOC changes over time (Kasarda and Parnell, 1993).

Values, that serve as guiding criteria for the selection of behavior, events, or people are highly relevant for demographic outcomes such as the ideal and actual number of children (Trommsdorff and Nauck, 2005). In particular, VOC often has been employed in this research domain. Hoffman and Hoffman first introduced the term 'VOC' to social and psychological research. They conceptualized VOC as the "functions children serve or the needs they fulfill for parents" prompted by a need to understand the prevalence of high fertility in several areas of the world and its implication for future population size (Hoffman and Hoffman, 1973 cited in Shobo, 2008)

The study on the VOC that aimed to detect the perceived costs and benefits of having children for parents was first carried out in the early 1970s by Hoffman and Hoffman (Hoffman et al., 1978). The original VOC study involved more than 20,000 nationally representative samples of married women under age 40 and their husbands in nine countries – Indonesia, Korea, Philippines, Singapore, Taiwan, Thailand, Turkey, and the United States, and a women's sample from Munich, Germany (Hoffman et al., 1978; Kagitcibasi, 1982b). It is surprising that no African country was included in the original study. But a series of follow up studies recently were conducted in Germany, France, Turkey, Israel, Indonesia, Korea, China, India, Ghana, and South Africa (Shobo, 2008).

In the original VOC study three basic types of values or dimensions attributed to children by parents emerged, namely, utilitarian/economic, psychological/emotional, and social/normative (Klaus et al., 2007). The utilitarian/economic VOC for parents entails children's material contribution to the family both when they are young (as child labor or help with household chores) and also in terms of their old-age security value for their parents when they reach

adulthood. This value reflects the dependence of the family, especially on mature offspring for its livelihood and the strong family loyalty of the children, a collectivistic pattern. The psychological/emotional VOC, on the other hand, is a value attributed to children by parents reflecting the joy, pride, fun, companionship, and love derived from having children. Especially in traditional society, the social or normative VOC entails mainly son preference, continuation of the family name, and the social acceptance having children brings to parents (Aycicegi-Dinn and Kagitcibasi, 2010).

Children's economic value is more important in developing countries, particularly in agrarian settings. This may be one of the main reasons for high fertility in developing countries (Mishra et al., 2005). Caldwell (1976) contended that in primitive and traditional societies where the intergenerational wealth flow is from children to parents, economic rationality dictates high fertility. In such areas, children provide benefits during childhood by assisting in the household chores or on the farm (Cain, 1977).

With changing life style, especially due to urbanization, increased parents' education, and awareness of modern life style, child work loses importance. In urban areas, children are mostly engaged in schooling and constitute an economic cost rather that an asset for families. When these socio-economic and cultural contexts are compared, the main difference appears to be a shift from an emphasis on the material VOC for the family to emphasis on psychological/emotional VOC (Becker, 1991)

Although high fertility persists in some countries, based on global experience since 1950 there is good reason to expect that these countries too will eventually experience substantial fertility decline. But uncertainty remains as to how rapidly that decline will occur, what policies and programs can accelerate the decline, and whether fertility will fall to low levels (i.e., less that 2.5 births per woman) in all countries (World Bank, 2010).

1.2. Statement of the Problem

Nowadays, the problem of under and overpopulation coexist and both may threaten population security and sustainable development of a country. In Ethiopia, the major concern for sustainable development is overpopulation (TGE, 1993). In this regard, one of the factors affecting fertility and population growth is the value parents have for children (Klaus et al., 2007).

Literatures show that in most developing countries, high VOC as attributed to a high economic VOC is believed to contribute to the high prevalence of fertility level. Other factors like social and psychological values attached to children also contribute to a high fertility (Nauck, 2007; Hoffman et al., 1978; Cain, 1977). Better understanding of the variation of the VOC to parents, the source of such variation, its relationship with fertility behavior and fertility-related attitude and the extent to which this is related with the macro level policy is very crucial. In order to understand the VOC-fertility interrelationship and formulate appropriate policies, further investigations need to be undertaken in countries like Ethiopia which is the second populous country in Africa with over 80 million people.

In Ethiopia, each successive Population and Housing Census demonstrates that national population size increased in steady increments of significant proportions; increased by more than 20 million persons during 1994-2007 and by 13.2 million people during 1984-1994. The present population of the country is projected to reach 84,320,987 in July 2012 of which 42,556,999 are male and 41,763,988 are female (CSA, 2011).

Nonetheless, in Ethiopia, a systematic and comprehensive study has rarely been conducted and no investigation has been undertaken to assess the status or structure of VOC and the effect of the needs of having children on fertility, particularly in a comparative way between urban-rural contexts. Thus, the present study tries to investigate the current state of the VOC (economic/utilitarian, psychological/emotional and social/normative) in the country and the

motivational factors which determine fertility attitude or the desire to have children by taking into account regional similarities and differences. However, it differs from the original and the recent VOC studies in significant ways in such a way that it will focus particularly on youths who are unmarried and have no children.

1.3. Objectives of the Study

The main objective of this study is to investigate the current state of the VOC in Ethiopia in terms of social/normative, economic/utilitarian and psychological/emotional dimensions.

The specific objectives are:

i. To compare the similarities and differences in the VOC with respect to different socio-economic groups
ii. To identify the factors influencing the perceptions of the VOC
iii. To examine the effect of the VOC on fertility - related attitude (desired number of children)
iv. To assess the existence of sex-preference among different socio-economic groups
v. To suggest possible policy implications to assist in future policy formulation

1.4. Rationale and Significance of the Study

The 2007 Population and Housing Census results show that the population of Ethiopia grew at an average annual rate of 2.6 percent between 1994 and 2007- a decrease of 0.2% from the annual growth rate during the previous period (1984-1994) (PCC, 2008). Even though the annual rate of growth has decreased, the population of Ethiopia is increasing from time to time; 39,868,572 in 1984 53,477,265 in 1994 and 73,918,505 in 2007 (CSA, 2010).

It is believed that significant reduction of the rate of population growth by primarily, addressing the problem of high fertility will, in the long run, be helpful in easing the pressure from contending demands for development resources. The transitional government of Ethiopia adopted the national population policy in 1993 to harmonize the rate of population growth and the capacity of the country for the development, as a major goal, and the rational utilization of natural resources so as to maximize the level of welfare of the population (TGE, 1993). Reducing the then total fertility rate of 7.7 children per woman to approximately 4.0 by the year 2015 is one of the objectives of the policy (TGE, 1993).

In order to achieve the goals and objectives set by the government, the factors that contribute to high fertility should be investigated. One of the major factors for the increase in fertility as well as population size is the value parents attach to children (Nauck and Kohlmann, 1999; Aycicegi-Dinn and Kagitcibasi, 2010). According to a study conducted in the United States, the extent to which children were seen as satisfying any particular need, that is, as providing any particular general value, is found to be dependent on the availability of alternative sources of satisfaction (Hoffman et al., 1978). Thus, this study will assess and identify which of the satisfactions that children are seen as contribute to high fertility and for which group these values are salient. Hence, the information collected and analyzed in this study is believed to provide some insight to policy makers and other concerned bodies and designing appropriate policies in providing the public with alternative sources of satisfaction in order to control the growing population.

1.5. Scope of the Study

This study has delimitation in the sense that the target population consists of only the youths aged between 15-29 who are unmarried and have no children. It also considers only the youths in one regional state of Ethiopia, SNNPR, due to resource constraints in terms of time and finance.

On the other hand, it is obvious that a full understanding of the motivation for having children includes the advantages or the needs children are seen as satisfying and the disadvantages or the perceived costs that having children entails. But this paper will concentrate mainly on the positive motivational factors of having children or what the positive values of children are.

1.6. Limitations of the Study

a) Due to resource constraints in terms of time and finance, the present study has covered only three areas located in the *Sidama zone*[1] of the SNNPR. The samples may not be representative for the whole country.

b) Data on VOC were collected using both structured and unstructured questions. The unstructured approach was adopted as it is believed to indicate the salience of the values to the respondent. That is, the advantages of having children are elicited in an open and spontaneous way with a minimum of opportunity for the interjection of bias from the interview situation itself. But it was observed that the answers to these questions were highly influenced by the respondent's ability and willingness to conceptualize and verbalize their attitudes toward children and no more than three items/values were identified by an individual respondent. Therefore, the data obtained using the structured approach to the measurement of the VOC was used in the analysis as it permits assessment of the importance of each of the values to the respondent. However, readers are advised to consider the limitation of this approach as the responses to the individual items may be affected by an overall response set or method effect.

c) Very few recent papers or articles were found regarding the factors that may affect the VOC. Thus most of the literatures referred and cited in this regard are decades away.

[1] An intermediate administrative structure below region in Ethiopia

1.7. Operational Definitions

Fertility behavior- actual number of children parents have (Source: Wikipedia).

Fertility-related attitude – youths' desired number of children (Source: Wikipedia).

Patriarchal – a family system where men are the most powerful members of the family. That is, the family is headed by the oldest man, whose word is law for the whole family (Source: Encyclopedia).

Patrilineal - system of social organization in which descent is traced through the male line and all children bear the name of the father or belong to his clan. The system is often associated with inheritance in the male line of material goods and social privileges in which the eldest son is the sole heir (Source: Encyclopedia).

Patrilocal - kinship system in which a wife goes to live with her husband's family or near her in-laws (Source: Encyclopedia).

Total Fertility Rate - average number of children that would be born alive to a woman during her child bearing life time (between age 15-49) (Siegel and Swanson, 2004)

Youth -, UN defines the youth as persons between 15-24 years and WHO,10-24. However, in the present study, it is defined as part of the society whose age is between 15-29 years as in the definition adopted by the National Youth Policy of Ethiopia (MYSCE, 2004).

Urban -In Ethiopian context, according to CSA (2010), urban center is defined as a locality with 2000 or more inhabitants. Moreover, for practical purposes, an urban center includes the following regardless of the number of inhabitants.

a) All administrative capitals
    i. Regional capitals
    ii. Zonal capitals
    iii. *Wereda* capitals not included in (i) and (ii)
    iv. Localities with Urban Dweller Association (UDAs) not included in (i-iii)
b) Municipal towns not included in (i)
c) All localities which are not included either in item (a) or (b) above, having a population of 1000 or more persons, and whose inhabitants are primarily engaged in non-agricultural activities.

CHAPTER TWO
REVIEW OF LITERATURES

2.1. Review of Literatures on the VOC

The VOC for parents has been studied for more than three decades by researchers interested in understanding population dynamics. Several studies on fertility take into account that fertility is based on individual decision making. The general assumption is that this decision is influenced by socio-economic and political conditions on the macro-level. Accordingly, it has often been assumed that high fertility is related to the economic VOC: when children are important for the economic productivity of the household, and their economic utility is high, the number of children born should be higher than when children's economic utility is low (Nauck and Kohlmann, 1999; Nauck, 2007)

The shortcomings of this view are obvious. On the one hand, it does not explain why children are born under circumstances of low economic utility or when they imply high economic costs. The question, therefore, is "why do people have children when having and bringing up children is expensive, in terms of time and money, to raise their children?" Furthermore, the economic utility approach does not explain why the birth rate is high in many countries even though the children cannot significantly contribute to the low family income (e.g., in case of unemployment). Beside the economic utility, as the basis of a "rational choice" to have children, other psychological aspects need to be taken into account in order to explain why people decide to have a child. This was the starting point for the original VOC study (Trommsdorff *et al.*, 2002).

The empirical results of the VOC study on different values were grouped into three major value types; economic/ utilitarian, social/normative, and psychological/emotional values (Aycicegi-Dinn and Kagitcibasi , 2010; Nauck , 2007). Utilitarian or economic values refer to the expected material benefits and

costs of children (e.g. help in household chores, security in old age etc). Social values refer to the expected social advantages of having children (e.g., social approval and social status when a married couple has a child; continuation of the family line in case of having a son etc). Psychological/emotional values refer to fun, stimulation, happiness, joy, and companionship etc, which parents expect to experience with their child (Trommsdorff et al., 2002).

Social, economic and demographic conditions could affect the VOC in many ways. For instance the old age security value would probably be associated with the goal of wanting many children, but social conditions would affect the point at which there were diminishing re-turns, that is, when the cost of an additional child was greater than its economic value. In the other side, in high mortality countries, for example, security in old age requires enough children to be reasonably confident that one will have a living child when old age is reached (Hoffman *et al.*, 1979).

It was identified that differential experience, social status, and roles influence people to view the advantages of children differently. The theoretical perspective was that fertility motivations are at least partially determined by the extent to which alternatives to children are available as sources of satisfaction for the various needs identified. The VOC is thus linked to the social structure and can be expected to vary as the structure changes and affects the availability of alternative sources of satisfaction (Hoffman et al., 1978).

The initial model by Hoffmann and Hoffmann (1973) already includes alternative sources of values in people and institutions that produce the same result for parents. For example, public social-security systems may make up for the children's economic value. Costs emerge for parents directly, in terms of financial and time costs, and indirectly as opportunity costs, when abstaining from other goods or activities because of the children. Barriers are defined as factors that make it more difficult to attain the desired VOC, as for example with family poverty, less-than-ideal housing conditions or maternal illness. In contrast,

incentives are factors that make it easier to reach the desired VOC: wealth, adequate housing conditions, family support, and generally positive attitudes towards children in the social context (Trommsdorff *et al., 2005).*

The relative importance of the VOC differs from society to society or culture to culture based on the state of industrialization, urbanization, etc (Aycicegi-Dinn and Kagitcibasi , 2010). In India, having children is seen as a natural and necessary aspect of life. There may be fewer differences among various VOC as compared to other cultures where the question of having or not having children is of primary interest. Furthermore, the three dimensions of VOC (economic/utilitarian, social/normative and psychological/emotional) were substantially correlated, reflecting a very strong general VOC in the country. In urban areas, older generations preferred a higher traditional value (economic and social) of children as compared to the younger generation. Thus in urban areas the younger generations are affected by a value of change while the older generations still adhere to their high traditional values. In rural areas, emotional VOC is of medium to high importance but in urban areas it is of high importance (Mishra et al., 2005).

A main finding of the original VOC Study was the greater salience of the utilitarian VOC and especially of the old-age security VOC for parents in less developed countries (Trommsdorff *et al.*, 2002). In the United States and Germany, for example, the material VOC, including old-age security value, was of minimal importance, whereas in Turkey and other collectivistic developing countries such as Indonesia, the Philippines, Thailand and Taiwan it was of very substantial salience. Within country, variations also reflected similar patterns in terms of socio-economic development. For example, as the development level of the area of residence rose in Turkey, the salience of the old-age security VOC decreased; from 100% in the less developed areas, to 73% in medium developed, to 61% in more developed, and finally to 40% in metropolitan centers (Kagitcibasi, 1982b)

At first glance these findings appeared to support a general modernization perspective, indicating decreased intergenerational dependencies (family interdependence) with socio-economic development. However, a closer examination showed this not to be the case. The findings showing decreased interdependencies concerned economic/material dependencies, not psychological/emotional dependencies. Only the economic VOC was found to decrease, not other types of VOC (Aycicegi-Dinn and Kagitcibasi , 2010). In fact researchers found that the psychological/emotional VOC either did not change with socio-economic development or even increased with it, as found, for example in Turkey (Kagitcibasi, 1982b).

The fact that in many developed countries fertility levels are surprisingly above replacement rate now (unlike earlier) shows that with continuing psychological/emotional VOC, childlessness is not desired by most people (Aycicegi-Dinn and Kagitcibasi , 2010).

2.2. Factors Affecting the Value of Children

2.2.1. Level of Education and Value of Children

Education is one of the several variables that could account for the relationship between employment and fertility. The study undertaken in Turkey revealed significant and consistent interrelations among the socio-economic background variables, VOC, and fertility, pointing to the key role of the VOC in explaining fertility (Kagitcibasi, 1982b). Analysis of the cross-sectional data suggested that, with socio-economic development and especially with increased education, children's economic value decreases whereas their psychological value increases (Kagitcibasi, 1982b).

Educational level remains very powerful in explain fertility. In a study conducted in Turkey and Palestine, it was found that the higher the

educational level, the less important the social and economic VOC (Klaus et al., 2007).

Education involvement, from formal and direct to the informal and indirect, in changing the VOC and lowering fertility seems to be channeled chiefly through educating women, elevating their status, and changing the position of female children (Turchi and Bryant, 1979). According to a study conducted in Indonesia, the level of education for the women shows that the majority of them have never been to school. These women have a positive perception of the VOC and rely on the children to help them in the future when they get old (Soeparmanto, 1980).

2.2.2. Employment and Value of Children

Employment is identified as one of the basic determinant factor which affects the VOC. Opportunities for labor force participation in the market economy may markedly affect women's readiness to marry or once married, to bear children (Turchi and Bryant, 1979). The participation of women in the labor force would provide alternative satisfactions that would decrease the salience of the advantages to be derived from children. Employment offers additional ways for getting behavioral approval from colleagues and for high economic status, which are a promising alternative to attaining a higher social status. Thus, employed individuals places less emphasis on economic and social VOC (Klaus et al., 2007).

It was also identified that paid employment provides an alternative source of adult status, stimulation, and achievement and competence. There has been some evidence to suggest that working women and especially those who work full-time and are fully committed to employment would rate economic and social VOC as less important (Terry, 1975; Hoffman *et al.*, 1979).

Alternative values will not develop in a traditional situation where work is compatible with child care. It becomes an alternative value for children when it gives a woman psychological satisfaction, when it forces her to share in providing for increasing economic costs of children, and when it forces the husband to share in the nurturing burden. It is more likely to affect fertility where economic VOC is low (Birdsall, 1976)

2.2.3. Household Income and Value of Children

Income is one of the determinant factors that affect the VOC. Aycicegi-Dinn and Kagitcibasi (2010) stated that with socio-economic development and increase in income, the material/economic dependencies in the family decreased, but the psychological dependencies remained constant.

The absolute level of income and wealth in a region may play a role in determining the VOC (Tobin, 1976). In a study conducted by Soeparmanto (1980) in Indonesia, it was observed that average family income per month is closely related to the average number of children desired. That is, the average family income per month has a significant correlation to the positive perception of the VOC. In the sample taken, the majority of the average monthly income of the respondents was low and they concluded that the lower the average monthly income, the higher the average number of children desired hoping that the children will help in the work/household chores (Soeparmanto, 1980).

2.2.4. Sex-Role Definitions and Value of Children

Sex-role definitions, orientations, and attitudes believed to play an important role in fertility desires and behaviors. Since children are an integral aspect of the housewife and homemaker role, variations in orientations toward the female role should be related to attitudes toward children (Tobin, 1976; Hoffman *et al.*, 1979; Turchi and Bryant, 1979).

It is widely agreed that role segregation by sex, and especially the restriction of women to the wife-mother role, tend to be conducive to developing in a woman a narrow life view in which she sees maternity as her only realistic goal for a successful life. In general, the value of children varies in terms of how a woman finds her purpose in life. To the extent that she is restricted to a maternal role, she will value children highly and desire and have a large family (Newland, 1979 cited in Turchi and Bryant, 1979).

It is also believed, in particular, that women who define the female role as being that of housewife and homemaker would value children more for their legitimization of adult status than would women whose definition of the female role includes outside-the-home activities that might also confirm adulthood (Turchi and Bryant, 1979). In a study conducted in the United States, women with traditional sex-role definitions rated the reasons for having children, overall, as more important than did those who were not so traditional (Hoffman *et al.*, 1979).

2.2.5. Rural-Urban Differences/Background and Value of Children

Rural-urban difference is one of the determinant factors in explaining the difference in the perception of the VOC. Parents with rural background focus on the continuation of the family and on the economic benefits of children. Thus, producing as many offspring as possible is more pronounced in these areas. On the other hand, parents with urban background, because of the economic necessities and high cost of children, put less emphasis on economic and social values and more emphasis on psychological VOC (Mishra et al., 2005).

In a study conducted in the United States, as elsewhere, economic utility and security in old age were mentioned more often as advantages of having children by those with rural background than by others. Therefore

the study revealed that as society becomes more industrialized and more urban, children lose their perceived utilitarian value (Hoffman *et al.*, 1979).

2.3. Sex Preference

Son preference is likely to be strong for socio-economic reasons where the labor market is more segmented by sex. In that case, sons may be needed as a source of economic gain as well as support against loss. According to Vlassoff (1990), in pre-transitional society, sons would typically be a crucial source of old-age security for parents.

The necessity of having a son is clarified by three aspects of the superior value of sons. First, sons give their parents status and legitimacy in their family and community. They are the ultimate marker of a parent's identity. Second, sons symbolize family continuity, and they alone can perform funeral and cult rituals. Third, sons' economic value is higher than that of daughters, given the rules of patrilocality following marriage and sons' official responsibility for their elderly parents. Thus patrilineal, patrilocal, and patriarchal kinship system is central to the understanding of the superior value placed on sons (Belanger, 2002).

Sons are preferred due to the fact that access to productive employment is barred to women not just in specific activities but in virtually all activities. In addition, women serve their parents for a relatively short time (until they get married) (Gupta, 1995). These reasons lead to differences in the value placed upon son as the ultimate source of the economic and social security. Not only this, since it is through sons that the family name continues and some cultural ceremonies are also performed by sons and thus the preference for sons is justifiable in traditional societies (Caldwell et al., 1987). In India, household work is the common role performed by daughters across all caste and groups whereas, it is the son who is the source of economic support, insurance for old-age, and perpetuation of family lineage (Gupta, 1995).

Furthermore, it is rational to combine economic/utilitarian expectations with sex preferences, while this is not rational for psychological utility expectations. On the one hand, girls can give (at least) as much psychological satisfaction as boys. On the other hand, boys are a better source of economic/utilitarian benefits, as their labor force participation is more evident and more often results in higher earnings (Nauck , 1989).

2.4. Conceptual Framework

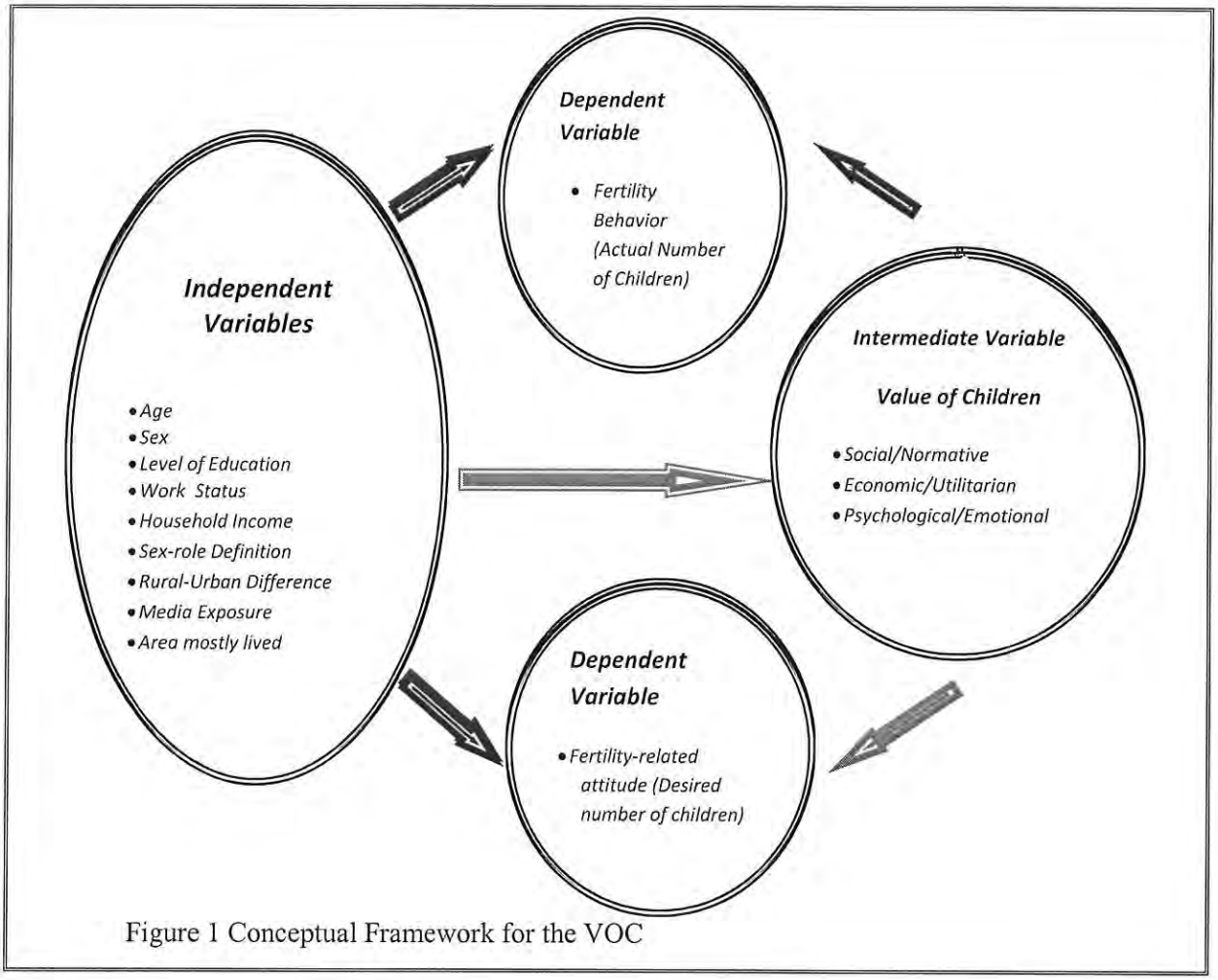

Figure 1 Conceptual Framework for the VOC

As illustrated in the above figure, the socio-economic and demographic variables directly affect fertility behavior, fertility related attitude and the VOC. The VOC, on the other hand, affects fertility behavior and fertility-related attitude or the desired number of children. In the present study, only the relationship between the independent variables and the VOC on one hand, and the relationship between the VOC and fertility- related attitude on the other were investigated. This is mainly due to the objective of the study that consider only unmarried youths. Nonetheless, the other aspect of the framework could be addressed by the author or else by any interested investigator in the future.

2.5. Description of the Variables

Dependent Variable - fertility-related attitude was considered as dependent variable.

Intermediate Variables - the three dimensions the VOC (social/normative, economic/utilitarian and psychological/emotional) were categorized as intermediate variables.

Independent Variables – Age, sex, level of education, household income, work status, sex-role definition, rural-urban difference, media exposure and area mostly lived were considered as independent variables:

i. **Age** – was labeled as scale and categorized as "15-19","20-24" and "25-29"

ii. **Sex** – was categorized as "Male" and "Female"

iii. **Level of Education** - was categorized as "No education", "Primary (Grade 1- 8)", "Secondary (Grade 9 to 12)", and "Tertiary (Diploma and above)".

iv. **Work Status** – was categorized as "Working" and "Not Working "

v. **Household Income** –It is extremely difficult to measure income accurately for a number of reasons especially in rural areas. Thus in the present study, wealth index (after DHS) was used to ascertain relative economic status based on wealth index quintile of five categories as "Lowest', "Second Lowest", "Middle" "Fourth" and "Highest" (See Appendix V for the syntax).

vi. **Sex-Role Definitions** – This variable was measured by having respondents indicate whether they agreed strongly, agreed slightly, disagreed slightly or disagreed strongly with the statement that "except in special cases the wife should do the cooking and housekeeping and the husband should provide the family with money".

vii. **Rural-Urban Differences/Background** - was categorized as "Rural background" and "Urban background"

viii. **Media Exposure** – frequency of reading newspaper, listening to the radio and watching television and categorized as "Almost every day", "At least once a week", "Less than once a week" and "Not at all".

ix. **Area Mostly Lived** – was categorized as "Total urban", "Majority Urban", "Total rural", and "Majority rural"

2.6. Hypotheses

The hypotheses tested in this study were:

Hypothesis 1. Urban residential experience has a negative effect on the economic/utilitarian and social/social value but a positive effect on psychological/emotional VOC:

a) The rural youths hold higher emphasis on social/normative VOC in comparison to that of the urban origin

b) The urban youths place less emphasis on the economic/utilitarian VOC than the rural counterparts

c) The urban youths place higher psychological/emotional VOC than the rural counterparts

Hypothesis 2. The rural youths attach high VOC for male than female due to gender biased differential comparing with the urban counterparts

Hypothesis 3. Less educated youths will give each of the VOCs a more important rating than those with greater educational attainment

Hypothesis 4. Working youth will give each of the VOCs a less important rating than those who are not working

Hypothesis 5. Youths with lower average monthly income will value children more than those who earn more

Hypothesis 6. Youths with traditional sex-role definitions (who define the female role as being that of housewife and homemaker) will rate the reasons for having children as more important than those who are not so traditional.

Hypothesis 7. Youths with rural backgrounds will rate each of the VOCs as more important than those with urban background.

Hypothesis 8. Youths who attach high social/normative and economic/utilitarian VOCs describe higher fertility-related attitude in terms of family size.

CHAPTER THREE
DATA SOURCES AND METHODOLOGY

3.1. The Study Area

For the purpose of the study, data were collected from urban (city and town) and rural settings to assess the difference in the VOC and the factors that contribute to the transformation on the perception of the VOC. The areas investigated were *Hawassa* City administration, *Yirgalem* Town and *Shebedino Wereda*[2] located in the *Sidama Zone* of SNNPR, which is one of the nine administrative divisions of Ethiopia.

The SNNPR is the third largest administrative region of Ethiopia and accounts about 20% of the country's population. According to CSA (2010), the regional population is estimated to be 16.5 million as of 2010. The region is the most diverse region in the country in terms of language, culture and ethnic background. According to the census figures, about 93% of the population was rural, and 50% is within productive age range indicating that about half of the population is economically dependent. When we see the age distribution of the population, from the total population, under 1 years of age consist 2.4% while less than 5 years of age consist 15.6%, women of child bearing age(15-49) comprises 23.3% of the population of which 3.9% are pregnant women (CSA, 2010). This implied for a higher rate of fertility in the region.

Administratively the Region is divided into 13 *zones* and 8 special *weredas*, with a total of 126 *weredas*, 22 city administrations, 3,602 rural *kebeles*[3] and 324 urban *kebeles*. The region has an area of 118, 000 square kilometres which constitutes 10% of the total area of the country (CSA, 2010).

[2] The second lowest administrative structure above kebele in Ethiopia
[3]The lowest administrative structure in Ethiopia

According to the 2005 Ethiopian demographic and health survey (EDHS), the total fertility rate (TFR) of the region was 5.6 children, which were the third highest next to Oromiya and Somali regions. Though the TFR was the third highest, "the percentage of currently pregnant women" and "mean number of children ever born to women age 40-49" were the highest of all regions; 10.25% and 7.5 children respectively (CSA, 2006). For the current study, SNNPR was considered for the above mentioned demographic and sociological reasons and easy accessibility in terms of distance and infrastructure.

Sidama Zone, located in the SNNPR, was considered in this study due to the fact that it is the most populous *zone* in the country with 2,954,136 inhabitants (CSA, 2010). The three target study areas were purposively selected due to the comparative nature of the study. That is, *Hawassa* is the only urban center labeled as a city by CSA (2010) in SNNPR with a well developed infrastructure in the region; *Yirgalem* is an old town which served as a capital of the former Sidama Province once; and *Shebedino* is a rural *wereda* located between *Hawassa* and *Yirgalem*.

Let us also briefly see the target study sites.

i. ***Hawassa City* Administration**

Hawassa is a city in Ethiopia, on the shores of Lake *Hawassa* in the Great Rift Valley. Located in the *Sidama Zone* 270 km south of Addis Ababa via Debre Zeit, and 1125 km north of Nairobi, *Hawassa* is the capital of the SNNPR.

Based on the 2007 Census conducted by CSA of Ethiopia, the city has a total population of 258,808, of whom 133,123(51.4%) are men and 125,685(48.6%) women; with an area of 157.21 square kilometers, *Hawassa* has a population density of 1,646.26. While 157,879 (61%) are urban inhabitants the rest live in rural areas. A total of 61,279 households were

counted in this city, which results in an average of 4.22 persons to a household, and 57,469 housing units.

ii. ***Yirgalem* Town**

Yirgalem is a town in the *Sidama zone* of the SNNPR located at an elevation of 1,776 with a rich history dating back to the myth of Queen Furra. It was the first provincial capital of Sidamo province.

Based on the 2007 Census conducted by CSA of Ethiopia, the town had a total population of 30,348, of whom 15,562 (50.3%) are men and 14,786 (48.7%) are women.

iii. ***Shebedino Wereda***

Shebedino wereda, located in SNNPR, is one of the 19 *weredas* in *Sidama Zone* to the south of *Hawassa* City Administration. Located at a distance of 29 kilometers from *Hawassa* city, the capital of the *wereda* is called *Leku*. With an area of 26.99 hectare, the *wereda* has a total of 35 *kebeles* of which 32 of them are rural.

According to the 2007 census conducted by CSA of Ethiopia, the *wereda* has a total population of 233,922, of whom 118,026 (50.45%) are men and 115,896(49.55%) are women; 11,831 (5.1%) are urban inhabitants while 222,091 (94.9%) live in rural areas.

3.2. Data Source

The basic data upon which the analysis was based on is primary sources of data to achieve the objectives of the study. That is, to test the stated hypothesis empirically and to accomplish the objectives outlined, primary data were collected through interview and focus group discussion.

3.3. Target Population

Unlike the previous studies, this study focused on the perception of youths aged 15-29 who are unmarried and have no children. Even though most fertility studies consider only female, the present study considered both male and female participants as our society is mainly patriarchal and fertility is determined by the husband particularly in rural areas.

Why the Youth?

In any society, even though the active participation of all segments of the society is very important in development activities, youths are important elements to bring about accelerated political, economic, social and cultural development. Youths are sympathetic to new ideas and have the potential capacity for creativity and productivity. As a result, they can play a major role in all sectors of development (MYSCE, 2004).

In relation to fertility studies, it is important to consider youths since their attitude and perception regarding children determines the fertility level of any society generation after generation. The views of youths regarding the VOC for parents and childrearing are also important in the context of generational change patterns (Aycicegi-Dinn and Kagitcibasi ,2010). It was in such premises that the youths were identified as subjects for this study.

3.4. Sampling Design

A quantitative research method was mainly employed to undertake this study. Moreover, a qualitative method was used to enrich the quantitative findings and to explore the major VOC that are salient to our society and exclude those values which are not so important.

3.4.1. Sample Size Determination

The sample size of the study was determined based on the Cochran's sample size determination formula and its assumptions (Cochran, 1977).

$$n = \frac{Z^2{}_{\alpha/2} * p(1-p)}{d^2}$$

Where n=sample size

$Z_{\alpha/2}$ = the standard normal value corresponding to the desired level of confidence in each tail

α (alpha level)= indicates the level of risk the researcher is willing to take that the true margin of error may exceed the acceptable margin of error.

p = the proportion of youths who wish or desire to have children

d = the precision or acceptable margin of error for proportion being estimated

According to Lwanga and Lemeshow (1991), if it is impossible to come up with a good estimate for p, one may set p equal to 0.5 to yield the maximum sample size. Thus, due to the absence of related studies in the study area, the proportion of youths who wish or desire to have children is taken to be 0.5.

For the present study, the level of confidence is taken to be 95% which is equivalent to 1.96 and the acceptable margin of error for the proportion being estimated is equal to 0.05.

Therefore, the sample size is calculated as follows:

$$n_o = \frac{Z^2 \alpha/2 * p(1-p)}{d^2} = n_o = \frac{(1.96)^2 * (0.5)(0.5)}{(0.05)^2} = 384$$

The above sample size formula is valid only if we apply the simple random or systematic random sampling method. Cluster or multistage sampling method requires a larger sample size to achieve the same precision. Therefore, since the present study employ multistage sampling technique, the calculated sample size using the above formula need to be multiplied by the design effect (the loss of effectiveness by the use of cluster or multistage sampling, instead of simple random sampling) (Cochran, 1977).

But, in practice, investigators rarely report their design effects in their literature and no information is available in this regard in the study area. Thus, a design effect of 1.5 is used in this study as greater value of the design effect can increase the sample size to a value which cannot be supported by the available time and finance.

$$n_1 = 384 \quad *1.5 \quad = 576$$

Finally, because of the fact that some respondents either may not be willing to be interviewed or may not be available during survey time, 5% contingency was added to find the total sample size of the study, *n*.

$$n = 576 + \quad (576 * 5\%) \quad = 605$$

Thus a total of 605 respondents were selected from the study areas to obtain the necessary information.

With regard to the proportion of sample size for each area, due to the fact that the proportion of youths in each area of study is remarkably different the study employed the probability-proportional-to-size (PPS) sampling technique to ensure that those in larger sites have the same probability of getting into the sample as those in smaller sites, and vice verse.

The PPS sampling technique is based on the following formula:

$$n_i = \frac{P_i * n}{N}, \quad where \ \ i = 1-3$$

where,

n_i = *the sample size for each area*

Pi =number of youths in each area

N=total number of youths in the three study areas

Table 1 summarizes the number of respondents interviewed in each area stratified by sex:

Table 1 Number of Respondents Interviewed in each Study Area by Sex

	Youths (aged between 15 - 29)*			**Sample size for each area of study****		
Area of Study	**Both Sexes**	**Male**	**Female**	**Both Sexes**	**Male**	**Female**
Hawassa City Administration	75,128	38,207	36,921	310	158	152
Shebedino Wereda (Rural)	59,673	28,542	31,131	246	118	128
Yirgalem Town	11,783	6,170	5,613	49	25	24
Total	146,584	72,919	73,665	605	301	304

Source: * CSA, 2010

** Calculated by the author

3.4.2. Sampling Technique

The study employed a multistage stratified sampling to select the sample from each study area (*Hawassa* city, *Yirgalem* town and, *Shebedino wereda*).

The sampling procedure to select the required sample size from the study areas was as follows:

***Hawassa* City**

- Three sub-cities (*Tabor, Misrak* and *Hawella Tula*), from a total of seven sub-cities, were selected using simple random sampling technique
- Four *kebeles* (one from *Tabor*, two from *Misrak* and one from *Hawella Tula* sub-cities) were selected using simple random sampling technique
- Eligible respondents (youths who are unmarried and have no children), were listed in each household
- The eligible respondents were stratified by sex; as male and female to construct a sampling frame.
- The allocated sample size for this area (310) was proportionally divided into four based on the listed number of youths who are unmarried and have no children in each *kebele*
- Finally, systematic sampling technique was employed to select the required number of respondents from each *kebele*.

***Yirgalem* Town**

- Both of the sub-cities (*Filwoha* and *Arada*) in *Yirgalem* town were considered in the study
- Two *kebeles* were selected from each sub-city using simple random sampling technique

- Eligible respondents (youths who are unmarried and have no children), were listed in each household
- The eligible respondents were stratified by sex; as male and female to construct a sampling frame.
- The allocated sample size for this area (49) was proportionally divided into four based on the listed number of youths who are unmarried and have no children in each *kebele*
- Finally, systematic sampling technique was employed to select the required number of respondents from each *kebele*.

Shebedino Wereda

- Four rural *kebeles* (*Morochi Negasha, Remeda, Dobe Toga and Midire Genet*) were selected from the *wereda* from a total of 32 rural *kebeles* using simple random sampling technique
- Eligible respondents (youths who are unmarried and have no children), were listed in each household
- The eligible respondents were stratified by sex; as male and female to construct a sampling frame.
- The allocated sample size for this area (246) was proportionally divided into four based on the listed number of youths who are unmarried and have no children in each *kebele*
- Finally, systematic sampling technique was employed to select the required number of respondents from each *kebele*.

The sampling procedure which was used to select the required sample size from the study areas is summarized in Figure 2.

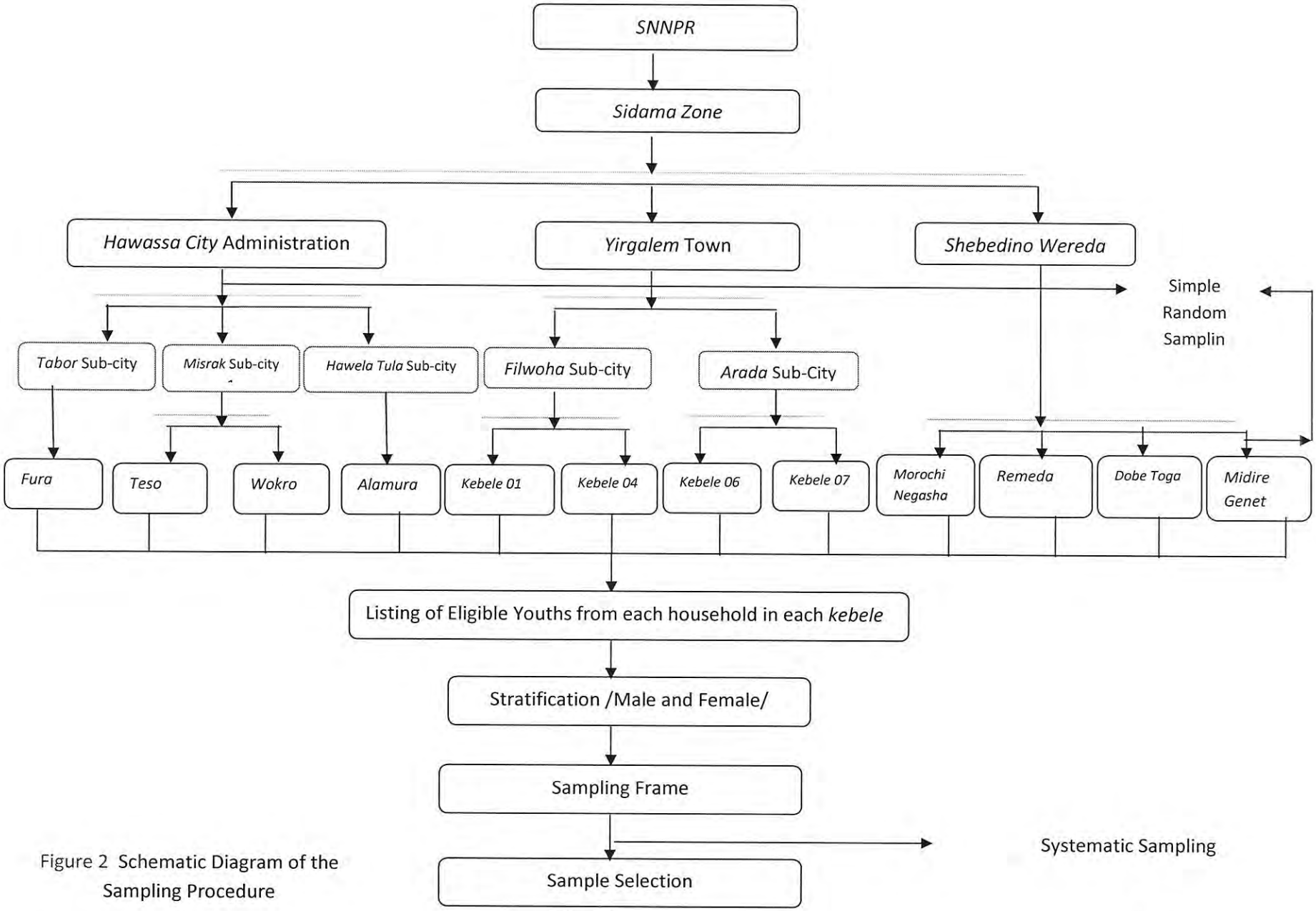

Figure 2 Schematic Diagram of the Sampling Procedure

3.5. Data Collection

3.5.1. Data Collection Instrument

The study used a modified version of the schedule designed and implemented by the VOC institute by adopting some additional country-specific items and excluding those questions that do not fit to our country's context (UC, 2010). In assessing the different VOC items identified by Hoffman and Hoffman (1973), a five-point Likert scale type response format was employed ranging from 'not important at all' (score 1) to 'very important' (score 5).

The schedule was tested before the main survey in Akaki-Kaliti and Gulele sub-cities with 7 and 8 respondents respectively to see whether there are inconsistencies/discrepancies and to plan for logistics.

In this study two different measures of the VOC were used; an unstructured procedure as well as a structured approach. This is due to the fact that the number of responses to the open-ended question presumably can be affected by the respondent's ability to conceptualize and verbalize the values. Besides, the total score on the structured items may be influenced by a desire on the part of the respondent to give answers that agree with or please the interviewer. For this reason, the unstructured procedure/schedule was administered first and then the structured approach followed. But due to a serious problem observed in the unstructured procedure in conceptualizing the VOC by respondents in all the three study areas, only the responses collected using the structured approach were used in the analysis.

In addition, to assess the status or structure of VOC in our society, a total of three homogeneous Focus Group Discussions (FGD_s) were conducted,

one in each of the study areas, with female participants in *Yirgalem* and *Shebedino* and with male participants in *Hawassa*. The results were used in framing the structured or close-ended questions. The results of the FGDs are attached in Appendix II.

3.5.2. Data Collection Procedure

A total of 15 enumerators (3 in *Yirgalem*, 5 in *Shebedino* and 7 in *Hawassa*) and three field supervisors (1 in each study area) were recruited prior to the data collection. The supervisors were *kebele* workers who were selected to facilitate and coordinate the data collection process. The data collection process took 21 days. During field data collection process close and regular supervision were undertaken to ensure that data collection activities carried out according to the given instruction.

In order to ensure data quality, enumerators were selected based on their educational level of which the lowest was college diploma. Appropriate training was provided in each of the study areas to enumerators for one day. The training focused on the purpose of the study, the importance of quality data for the study, concepts and definitions, techniques of filling the schedule and field practice interview followed by general discussions and comments.

Moreover, the interviewers were selected in such a way that male interviewers only collect data from male respondents and female respondents were approached by female interviewers. In the rural area (*Shebedino*), the interview was conducted in local language of the area. Thus the enumerators in this area were selected considering their language proficiency too.

3.6. Data Processing and Analysis

After relevant data were collected, manual check was mainly done by the researcher to check for problems of inconsistency before entry to statistical package. The data entry as well as the analysis was carried out using SPSS (Statistical Package for Social Sciences) version 20. Statistical tools such as frequencies, min-max and cross tabulation were used for cleaning, editing and checking inconsistencies in the data.

The study utilized both descriptive and inferential statistical tools and techniques for the purpose of analyzing the data. Appropriate descriptive statistics are presented using tables and figures.

For the purpose of comparing the VOC between the study areas and between sexes, a 3x2 ANOVA was used. To determine the factors which are significantly associated with the dependent variable, a preliminary assessment was conducted using the Pearson Correlation Test. But the main problem with the bi-variate approach is that it ignores the possibility that a collection of variables, each of which could be weakly associated with the outcome, can become an important predictor of the outcome when taken together (Hosmer et al., 1989). Hence, the multiple regression approach that takes into account the drawback mentioned by the bi-variant technique was used in the analysis. That is, to see the net effects of one predictor variable over the dependent variable while, at the same time, controlling the influence of the other predictors (See Appendix VII for the detail model explanation).

Before running the multiple regression model, a reliability test on the Likert scale items was used for rating the VOC by using Cronbach's alpha (See Appendix VIII for the detail). In addition factor analysis was carried out to reduce the 19 sub-VOC into three dimensions (social/normative, economic/utilitarian and psychological/emotional) so as to make the analysis simpler (See Appendix IX for the detail).

3.7. Ethical Considerations

Before the data collection process resumed, research permission was obtained from the Center for Population Studies (AAU) and from each of the selected study areas through the *Wereda* Offices and City Administration.

The study participants were informed, prior to the study, about the purpose of the study and the importance of their participation in the study and their consent was obtained. In addition appropriate time was given to respondents so that they can comprehend before the interview. After assuring the respondents that the information they provide would be kept confidential, the interview was conducted with only willing participants. Fortunately, all selected respondents cooperate positively with some call backs.

CHAPTER FOUR
CHARACTERISTICS OF THE RESPONDENTS

4.1. Demographic and Socio-economic Background of the Respondents

The results displayed in Table 2 below provide number and percentage of sampled male and female respondents aged between 15 and 29 by different socio-economic and demographic characteristics. The survey has captured almost equal representatives of both sexes. According to the survey findings, mean and median age of the study subjects is 20.84 and 20.0 respectively and the standard deviation is 3.726.

With regards to the age distribution, it is observed that about 40.8% of them were between age 15 to 19, whereas 39.3% of them were between age 20 to 24. The rest of respondents were between 25 to 29 years old. This indicate that most of the respondents (80 %) were between age 15 -24; the definition of UN for youth.

Majority of the respondents, 61.5% had rural background, whereas the rest 38.5% had urban background. Moreover, most of the respondents claimed that they have lived their whole life in urban areas (37.8%), 15.4% lived majority urban, 27.6% lived total rural and the remaining lived majority rural.

The distribution of the study subjects by ethnicity showed that the majority 52.9% were Sidama followed by Wolayita, 10.6%. On the other hand, the majority of the sampled respondents (49.6%) were Protestant followed by Orthodox Christian (33.7%) and 2.5% of the respondents hold no religion or belief. This implies that the majority of inhabitants in *Sidama zone* are of Sidama ethnic group who hold Protestant Christianity.

Table 2 Number and Percentage of Demographic and Social Characteristics of Respondents by Sex

Variable	Category	Male		Female		Total	
Age category		Count	%	Count	%	Count	%
	15-19	100	16.5	147	24.3	247	40.8
	20-24	119	19.7	119	19.6	238	39.3
	25-29	82	13.6	38	6.3	120	19.9
	Total	301	49.8	304	50.2	605	100.0
Background	Rural	186	30.8	186	30.7	372	61.5
	Urban	115	19.0	118	19.5	233	38.5
	Total	301	49.8	304	50.2	605	100
Area where respondents live most of their life	Total urban	111	18.3	118	19.5	229	37.8
	Majority urban	52	8.6	41	6.8	93	15.4
	Total rural	89	14.7	78	12.9	167	27.6
	Majority rural	49	8.1	67	11.1	116	19.2
	Total	301	49.8	304	50.2	605	100.0
Ethnicity	Sidama	163	26.9	157	26.0	320	52.9
	Wolayita	18	3.0	46	7.6	64	10.6
	Amhara	29	4.8	34	5.6	63	10.4
	Oromo	32	5.3	23	3.8	55	9.1
	Gurage	28	4.6	21	3.5	49	8.1
	Others	31	5.2	23	3.8	54	8.9
	Total	301	49.8	304	50.2	605	100.0
Religion or belief	Orthodox Christian	108	17.9	96	15.9	204	33.7
	Protestant	141	23.3	159	26.3	300	49.6
	Catholic	20	3.3	20	3.3	40	6.6
	Islam	21	3.5	25	4.1	46	7.6
	No religion/ belief	11	1.8	4	0.7	15	2.5
	Total	301	49.8	304	50.2	605	100.0

Source: Field Survey, *Sidama Zone* (January 2012)

With regards to education, as can be seen from Table 3, 87.8% of the respondents were able to read and write. However, 8.1% of them were not able both to read and write and the rest were able to read and write with difficulty. Out of those who can read and write with or without difficulty, almost all, 99.3% attended formal education. From those who attended formal education, 35.3% had primary level (grade 1-8) education, 44.25% had secondary level (grade 9-12) education, 8.2% had technical and vocational certificate and the rest 12.3 % had tertiary level education (diploma and above).

Table 3 Number and Percentage of Respondents' Educational Characteristics and Media Exposure by Sex

Variable	Category	Male		Female		Total	
		Count	%	Count	%	Count	%
Able to read and write	Yes	257	42.5	274	45.3	531	87.8
	No	34	5.6	15	2.5	49	8.1
	With difficulty	10	1.7	15	2.4	25	4.1
	Total	301	49.8	304	50.2	605	100.0
Attended formal education	Yes	265	47.7	287	51.6	552	99.3
	No	1	0.2	3	0.5	4	0.7
	Total	267	47.9	290	52.1	556	100.0
Highest level of education attained	Primary (1-8 grade)	86	15.6	109	19.7	195	35.3
	Secondary (9-12)	117	21.2	127	23.0	244	44.2
	Technical & Vocational	19	3.4	26	4.8	45	8.2
	Tertiary (Diploma & above)	43	7.8	25	4.5	68	12.3
	Total	265	48.0	287	52.0	552	100.0
Frequency of reading newspaper/ magazine	Almost everyday	20	3.6	11	2.0	31	5.6
	At least once a week	120	21.7	104	18.8	224	40.4
	Less than once a week	64	11.6	69	12.5	133	24.0
	Not at all	61	11.0	105	19.0	166	30.0
	Total	265	47.8	289	52.2	554	100.0
Frequency of listening the radio	Almost everyday	175	28.9	146	24.1	321	53.1
	At least once a week	90	14.9	92	15.2	182	30.1
	Less than once a week	21	3.5	40	6.6	61	10.1
	Not at all	15	2.5	26	4.2	41	6.7
	Total	301	49.8	304	50.2	605	100.0
Frequency of watching television	Almost everyday	148	24.5	152	25.1	300	49.6
	At least once a week	94	15.5	65	10.7	159	26.3
	Less than once a week	24	4.0	34	5.6	58	9.6
	Not at all	35	5.8	53	8.8	88	14.5
	Total	301	49.8	304	50.2	605	100.0

Source: Field Survey, *Sidama Zone* (January 2012)

The table above also show that out of those who can read and write, 5.6% read newspaper almost every day and 30.0% reported that they do not read newspaper at all. On the other hand, more than half of the respondents, 53.2% listen to the radio almost every day and 6.7% do not listen to the radio at all. With regards to exposure to television, 49.6% watch television every day and 14.6% of the respondents do not watch television at all.

With regards to economic activity, 54.2% of the sampled respondents were working during the past 12 months of the survey while the rest of respondents were not engaged in any activity except house work. Among respondents who were working at the time of the survey, the majority, 76.2% were working full time. With regards to activities the respondents were engaged in, the majority were working as a freelancer 24.4% followed by commerce, 22.2% (See Table 4).

Table 4 Distribution of Respondents' Economic Characteristics by Sex

Variable	Category	Male		Female		Total	
		Count	%	Count	%	Count	%
Working/the last 12 months of the survey	Yes	167	27.6	161	26.6	328	54.2
	No	134	22.1	143	23.6	277	45.8
	Total	301	49.8	304	50.2	605	100
Working full time	Yes	129	39.3	121	36.9	250	76.2
	No	38	11.6	40	12.2	78	23.8
	Total	167	50.9	161	49.1	328	100
Activity currently engaged	Public sector (local, state, federal gov't)	33	10.1	28	8.5	61	18.6
	Trade/craftsmanship	12	3.7	20	6.1	32	9.8
	Commerce(retail or wholesale)	22	6.7	51	15.5	73	22.2
	Agriculture	29	8.8	20	6.1	49	14.9
	Industry/ manufacturing	28	8.5	5	1.5	33	10.1
	Freelance	43	13.1	37	11.3	80	24.4
	Total	167	50.9	161	49.1	328	100
Self Evaluation of Economic Status within the area	Low	41	6.8	43	7.1	84	13.9
	Lower Middle	51	8.4	78	12.9	129	21.3
	Middle	154	25.5	114	18.8	268	44.3
	Upper Middle	42	6.9	52	8.6	94	15.5
	Upper	13	2.1	17	2.8	30	5.0
	Total	301	49.8	304	50.2	605	100.0

Source: Field Survey, *Sidama Zone* (January 2012)

The respondents were also asked to compare themselves to others living in the area where they live in terms of economic status. Accordingly, as can be seen in table 4, the majority (44.3%) of the respondents put themselves in the middle economic class while only 5.0% rate themselves as having the highest economic status.

4.2. Sex Preference of the Respondents

In order to assess the existence of sex preference in the study areas, two different questions were asked. The first question was "Would you prefer your first child to be a boy or a girl or is it all the same to you?" This same question was rephrased as "If you have exactly one child, would you prefer it to be a boy or a girl or is it all the same to you?"

Table 5 summarizes the sex preference of the respondents. As can be seen from the table, the majority, 61.8% of the respondents and 56.9% had sex preference for boys instead of girls both for the first child and in the case of only one child. The proportion of respondents who believed that sex of children does not matter is 17.4% and 18.5% for the first and only child, respectively.

Table 5 Number and Percentage of Respondents' Sex Preference by Sex

		Male		Female		Total	
Variable	**Category**	**Count**	**%**	**Count**	**%**	**Count**	**%**
Sex preference of first child	A boy	198	32.7	176	29.1	374	61.8
	A girl	36	6.0	90	14.8	126	20.8
	Doesn't matter	67	11.1	38	6.3	105	17.4
	Total	301	49.8	304	50.2	605	100
Sex preference of exactly one child	A boy	183	30.3	161	26.6	344	56.9
	A girl	43	7.1	106	17.5	149	24.6
	Doesn't matter	75	12.4	37	6.1	112	18.5
	Total	301	49.8	304	50.2	605	100

Source: Field Survey, *Sidama Zone* (January 2012)

Underlying reasons for son preference are also summarized in table 6 below. As we can see from the table, the majority of respondents (64.6%) gave "Sons are the source of economic support and old-age security" as a reason for wanting a boy as a first child followed by "Sons symbolize perpetuation of family lineage", 56.0%.

Table 6 **Distribution of Respondents' Reasons for Son Preference as a First Child and their Intentions if kept on having Daughters by Sex**

	Reasons and Intentions		Male		Female		Total		% of Cases
			Count	%	Count	%	Count	%	
Reasons	Sons symbolize perpetuation of family lineage		122	23.1	87	21.0	209	22.2	56.0
	Sons give their parents status and legitimacy in their family and community		56	10.6	49	11.8	105	11.1	28.2
	Sons perform funeral and cult rituals		11	2.1	21	5.1	32	3.4	8.6
	Sons are the source of economic support and old-age security		139	26.3	102	24.6	241	25.6	64.6
	Sons serve their parents for a relatively long time unlike daughters who serve their parents only until they get married		95	18.0	75	18.1	170	18.0	45.6
	Small number of males in the family		23	4.3	14	3.4	37	3.9	9.9
	Sons are protective of their family and take care of their younger siblings		83	15.7	66	15.9	149	15.8	39.9
	Total		529	100	414	100	943*	100.0	252.8
Intentions	Continue until a boy comes		32	16.2	35	20.2	67	17.9	
	Stop after having some daughters		84	42.4	58	32.6	142	38.0	
		1 Daughter	0	0	2	1.4	2	1.4	
		2 Daughters	14	9.9	12	8.5	26	18.3	
		3 Daughters	15	10.6	4	2.8	19	13.4	
		4 Daughters	34	23.9	21	14.8	55	38.7	
		5 or more Daughters	21	14.8	19	13.4	40	28.2	
		Total	84	59.2	58	40.8	142	100.0	
	It is up to God/fate		65	33.8	63	36.0	128	34.2	
	Uncertain		17	8.6	20	11.2	37	9.9	
	Total		198	100	176	100	374	100.0	

Source: Field Survey, *Sidama Zone* (January 2012)

* This is due to the fact that a respondent may have more than one reason to select

Respondents who prefer a boy as a first child were also asked what they would do if they kept on having daughters. The majority of respondents (38.0%) stated that they will stop after having a certain number of daughters, as presented in table 6. With regard to the number of daughters they wish to have before they stop seeking for a boy, 38.7% of the respondents stated that they will stop after having 4 daughters as can be seen from see table 6 above.

Table 7 Distribution of Respondents' Reasons for Daughter Preference as a First Child and their Intentions if kept on having Sons by Sex

			Male		Female		Total		%of Cases
Reasons and Intentions			Count	%	Count	%	Count	%	
Reasons	She assists her family in house chores		24	32.0	56	35.9	80	34.6	63.5
	She brings good fortune to the family		31	41.3	52	33.3	83	35.9	65.9
	She brings good dowry to the family		7	9.3	19	12.2	26	11.3	20.6
	Small number of girls in the family		13	17.3	29	18.6	42	18.2	33.3
	Total		75	100.0	156	100.0	231	100.0	183.3
Intentions	Continue until a girl comes		4	3.3	8	6.5	12	9.8	
	Stop after having some sons		15	12.2	45	36.6	60	48.8	
		2 Sons	5	8.3	13	21.7	18	30.0	
		3 Sons	4	6.7	12	20.0	16	26.7	
		4 Sons	4	6.7	10	16.7	14	23.3	
		5 or more Sons	2	3.3	10	16.7	12	20.0	
		Total	15	25.0	45	75.0	60	100.0	
	It is up to god/fate		14	11.4	22	17.9	36	29.3	
	Uncertain		2	1.6	13	10.6	15	12.2	
	Total		35	28.5	88	71.5	123	100.0	

Source: Field Survey, *Sidama Zone* (January 2012

Respondents who wanted to have a girl as a first child were also asked of the underlying reasons too. As can be seen from table 7 above, the majority of respondents (65.9%) gave "She brings good fortune to the family" as a reason for wanting a girl as a first child followed by "She assists her family in house chores" (63.5%). They were also asked what they would do if they kept on having sons. In this regard, the majority of respondents (48.8%) stated that they will stop after having a certain number of sons (see table 7 above).

With regard to the number of sons they wish to have before they stop seeking for a girl, 30.0% of the respondents stated that they will stop after having 2 sons(see table 7 above).

Alternative questions were also asked to see if son preference is dominant in the study areas. Accordingly, the majority of respondents (74.7%) agreed with the alternative that "Sons are more important than daughters to continue family lineage". We can also see that only two alternatives were not supported by the respondents as strong as the other alternatives: "Sons than daughters are important in household day to day work (26.3%)" and "Sons than daughters strengthen the marital bond between husband and wife (41.7%)" as can be seen from table 8 below.

With regard to girls' education, the majority of respondents (36.0%) believed that they should have college and university education while only 0.7% of them were not in favor of girls' education as can be seen from table 8 below.

Table 8 Distribution of Respondents with Alternative Measures of Son Preference and Girls' Education by Sex

		Male		Female		Total		% of Cases
		Count	%	Count	%	Count	%	
Sons are more important than daughters to continue family lineage		202	21.9	185	23.8	387	22.8	74.7
Sons than daughters are important to perform ritual functions		175	19.0	193	24.8	368	21.7	71.0
Sons than daughters are important in old age security		166	18.0	127	16.3	293	17.2	56.6
Sons than daughters are important in household day to day work		70	7.6	66	8.5	136	8.0	26.3
Sons are more important than daughters to enhance parent's social acceptance in		167	18.1	132	17.0	299	17.6	57.7
Sons than daughters strengthen the marital bond between husband and wife		141	15.3	75	9.6	216	12.7	41.7
	Total	921*	100	778*	100	1699*	100.0	328.0
Female Education	No education	3	0.5	1	0.2	4	0.7	
	Primary/1-8/	15	2.5	15	2.5	30	5.0	
	Secondary/9-12/	84	13.9	68	11.2	152	25.1	
	Higher Education /College & University/	127	21.0	91	15.0	218	36.0	
	As much as possible	72	11.9	129	21.3	201	33.2	
	Total	301	49.8	304	50.2	605	100.0	

Source: Field Survey, *Sidama Zone* (January 2012)

Percentages and totals are based on cases.

* This is due to the fact that a respondent may have more than one reason to select

4.3. Family Planning Knowledge and Utilization

Table 9 below summarizes respondents' knowledge of contraceptives and utilization. As we can see from the table, the majority of respondents, 88.4% have heard methods of delaying or preventing conception or pregnancy while only 0.3% of the respondents were not willing to respond to this particular question. From respondents who have heard ways of birth control, the majority (93.5%) reported that they have heard the "Combined oral contraceptives" followed by "Injectable contraceptive' (84.9%) as can be seen from table 10.

Table 9 Number and Percentage of Respondents' Family Planning Service Utilization

		Male		Female		Total	
Have heard ways of delaying or preventing conception		Count	%	Count	%	Count	%
	Yes	264	49.3	271	50.7	535	88.4
	No	37	54..4	31	45.6	68	11.3
	No response	0	0	2	0.3	2	0.3
	Total	301	49.7	304	50.2	605	100
Ever used any method of birth control	Yes			76	28.0		
	No			192	70.9		
	No response			3	1.1		
	Total			271	100		
Currently using any contraceptive	Yes			63	79.7		
	No			13	16.5		
	No response			3	3.8		
	Total			79	100		
Method currently using	Standard days method			3	4.8		
	Combined Oral Contraceptive			10	15.9		
	Injectable			30	47.6		
	Intrauterine device/IUD/			3	4.8		
	Male condom			13	20.6		
	Norplant			4	6.3		
	Total			63	100		

Source: Field Survey, *Sidama Zone* (January 2012)

Regarding utilization of family planning services, 70.9% of female respondents have never used a contraceptive method in their life. Out of those respondents who have ever used a contraceptive method 79.7% of the female respondents were practicing birth control method, at the time of the survey. With regard to type of contraceptive used by female respondents, the majority (47.6%) were

using Injectable contraceptive method followed by male condom (20.6%) and combined oral contraceptive (15.9%), as depicted under table 9 above

Table 10 Number and Percentage of Respondents who have heard different Birth Control Methods and their Perception on Family Planning by Sex

Knowledge and perception		Male		Female		Total		% of Cases
		Count	%	Count	%	Count	%	
Knowledge of Contraceptive type [a]	Standard days method	120	8.9	99	8.0	219	8.5	40.9
	Combined oral contraceptives	245	18.3	255	20.5	500	19.3	93.5
	Injectable contraceptive	212	15.8	242	19.5	454	17.6	84.9
	Emergency contraceptive pills	53	3.9	67	5.4	120	4.6	22.4
	Intrauterine device/IUD/	156	11.6	132	10.6	288	11.1	53.8
	Female condom	68	5.1	48	3.9	116	4.5	21.7
	Male condom	199	14.8	177	14.2	376	14.5	70.3
	Norplant	148	11.0	142	11.4	290	11.2	54.2
	Tubal legation	59	4.4	36	2.9	95	3.7	17.8
	Vasectomy	58	4.3	30	2.4	88	3.4	16.4
	Withdrawal	24	1.8	16	1.3	40	1.5	7.5
	Total	1342*	100.0	1244*	100.0	2586*	100.0	483.4
Intend to use contraceptives in the future	Yes			88	42.1			
	No			79	37.8			
	Uncertain			42	20.1			
	Total			209	100.0			
Main reason for not using contraceptives in the future	Lack of knowledge			50	41.7			
	Not approving family planning			14	11.7			
	Lack of access			4	2.5			
	Fear of side effects			29	24.2			
	Religion reasons			16	13.3			
	Inconvenience			8	6.7			
	Total			121	100.0			
Know a place where contraceptives can be obtained	Yes			230	84.9			
	No			41	15.1			
	Total			271	100.0			

Source: Field Survey, *Sidama Zone* (January 2012)

Percentages and totals are based on cases.

a. Dichotomy group tabulated at value 1.

* This is due to the fact that a respondent may have more than one reason to select

On the other hand, female respondents who have never used any contraceptive method were asked if they have any intention to use birth control in the future. In this regard, 42.1% of them intended to use contraceptive in the future while 20.1% of them were uncertain. Moreover, a question was raised for female respondents to identify the main reason why they have no intention and why they were not certain to use contraceptives in the future. Accordingly, the majority (41.7%) of those female respondents who have no intention to use contraceptive or not certain, the main reason were lack of knowledge on contraceptives followed by fear of side effects (24.2%). About 84.9% of female respondents know a place where they can obtain a contraceptive method (See Table 10)

CHAPTER FIVE

FINDINGS OF THE STUDY

5.1. Comparison of the Value of Children

In order to test the hypothesis on VOC, three different areas were assessed with different levels of socio-economic development. The three areas are respectively labeled as "rural" (*Shebedino Wereda*), "town"(*Yirgalem* Town) and "city" (*Hawassa* City) within the country context. In addition comparison was conducted to see if there is a significant difference between male and female.

Analyses of variance (3x2 ANOVA) were carried out with three socio-economic groups (rural, town and city) and two levels of sex (male and female) to test Hypothesis 1a, 1b and 1c (see page 22)

Partial eta-squared (η^2) values for each ANOVA outcome are reported to describe the magnitude of significant group differences. Effect size values (η^2) falling between 0.01 to 0.05 are considered as small, values in the range 0.051 to 0.14 are considered as moderate and values greater than 0.14 are considered as large. However partial eta-squared values less than 0.01 are described as trivial(Cohen, 1988).

Before going to the main analysis, the assumptions of ANOVA were tested. The dependent variable (VOC) was normally distributed for the groups formed by the combination of the levels of socio-economic group and sex as assessed by the Shapiro-Wilk test. That is the *p-value* of Shapiro-Wilk test is greater than the alpha level of 0.05 for each combination of socio-economic group and sex. But, the assumption of homogeneity of variance between groups as assessed by Levene's test for equality of error variances was violated (*P-value* < 0.05) for the variables social/normative VOC and psychological/emotional VOC. For this reason a reciprocal transformation was done to correct problem of heteroskedasticity. A brief explanation on each assumption of the statistical tools used in the study is also given in the subsequent sections.

5.1.1. Results of Cronbach's Alpha

Each question on VOC was a 5-point Likert item from "not important at all" to "very important". In order to understand whether the 19 sub values in this study are all reliably measure the VOC for parents, Cronbach's alpha(α) was used.

As we can see from Table 11 below all of the items fall within the ranges of acceptable. So the items in the study can measure the VOC reliably.

Table 11 Results of Cronbach's Alpha for Measuring Internal Consistency of the VOC Items

VOC Dimensions	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Social/Normative	0.712	0.707	7
Psychological/Emotional	0.769	0.705	10
Economic/Utilitarian	0.780	0.781	2

Source: Tabulated by the Author

5.1.2. Results of Factor Analysis

5.1.2.1. Checking for Multicollinearity and Singularity

In this study, the correlation coefficients are all small (less than 0.8) indicating that there is no problem of multicollinearity and singularity. Moreover, the determinant of the matrix (0.024) is greater than 0.00001. Therefore, multicollinearity and singularity is not a problem for the data collected for this study (See Appendix III).

5.1.2.2. Checking for Sample Adequacy and Sphericity

Table 12 below shows a KMO value of 0.744, which falls into the range of being good. Hence it can be claimed that factor analysis is appropriate for the data.

Table 12 Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.744
Bartlett's Test of Sphericity	Approx. Chi-Square	2.226E3
	Df	171
	Sig.	.000

Source: Tabulated by the Author

Moreover, the *P-value* for Bartlett's test of sphericity, is highly significant (*p-value* < 0.001). Therefore, there are some relationships between the variables that need to be included in the factor analysis. This implied that factor analysis is appropriate as depicted in table 12 above.

5.1.2.3. Results of Rotated Factor Extraction

Appendix IV shows results of the rotated component matrix (also called the rotated factor matrix) which is a matrix of the factor loadings for each variable onto each factor. There are several things to consider about the format of the matrix. First, factor loadings less than 0.3 have not been displayed since these loadings were suppressed. If we didn't select this option, or didn't adjust the criterion value to 0.3, then the output would differ. Besides, the variables are listed in order of size of their factor loadings since the output were "Sorted by size"; otherwise the output would look different.

5.1.2.4. Interpretation of the Factors

The final step in factor analysis is to look at the contents of sub values of VOC that load onto the same factor to identify common themes. Literatures on VOC categorize the different sub values into three dimensions (Klaus et al., 2007). Most of the sub-values that load highly on factor one seems to relate to the social/normative VOC. Therefore, this factor was labeled as "Social/Normative VOC"; whereas, the sub-values that load highly on factor two seems to all relate to the psychological/emotional VOC; therefore, it was labeled as "Psychological/Emotional VOC". Finally, the two sub values that load on factor three contain components of economic/utilitarian VOC; and hence, the factor is labeled as "Economic/Utilitarian VOC" (See Appendix IV for the rotated Component matrix).

5.1.3. Findings for the Comparison of Social/Normative VOC

It is recalled that the first hypothesis was that "The rural youths hold higher emphasis on social/normative VOC in comparison to that of the urban". Table 13 below presented results of test of between- subjects for the dependent variable.

Table 13 Results of Tests of Between-Subjects Effects for Social/Normative VOC

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	132.413[a]	5	26.483	33.638	.000	.219
Intercept	10.439	1	10.439	13.259	.000	.022
SEG	87.483	2	43.742	55.560	.000	.156
Sex	31.462	1	31.462	39.963	.000	.063
SEG * Sex	2.934	2	1.467	1.863	.156	.006
Error	471.587	599	.787			
Total	604.000	605				
Corrected Total	604.000	604				

Source: Tabulated by the Author

a. R Squared = .219 (Adjusted R Squared = .213)

As we can see from table 13, there was no statistically significant interaction between the two explanatory variables (socio-economic groups and sex) since the *p-value* (0.156) is larger than the alpha level, 0.05. Thus it can be concluded that the effects of socio-economic groups on the outcome (social/normative VOC) are the same for both sexes and sex effects on the outcome are the same for all three levels of socio-economic groups.

In order to substantiate the non existence of interaction between socio-economic groups and sex, we can also refer to the profile plot in figure 3 below.

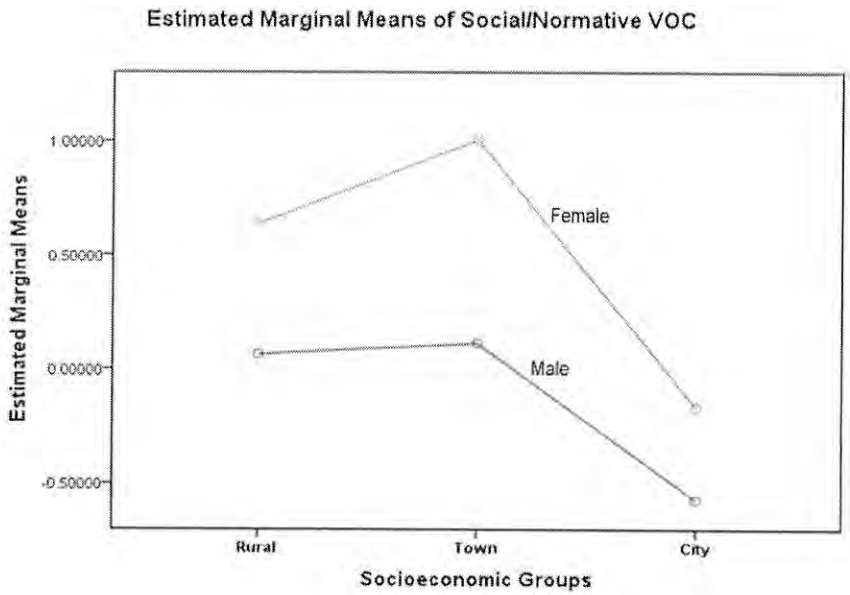

Figure 3 Profile Plot of the Estimated Marginal Means for Social/Normative VOC

Figure 3 also illustrates that outcome means have parallel pattern supporting the non-existence of interaction between the two explanatory variables. Thus, we can conclude that the additive model is adequate and we should re-run the analysis without an interaction term and interpret each of the *p-value*s realizing that the effects of changes in one factor are the same at every fixed level of the other factor. Accordingly, the analysis was done excluding the interaction term.

Similarly, table 14 shows results of the 3x2 ANOVA after re-running the analysis without the interaction term to see the main effects of socio-economic groups and sex. We can see that there were significant mean difference between levels of socio-economic groups and sex, (*p-value* < 0.05). That is, the null hypothesis which claimed that the population means of the outcome are equal for all levels of the factor ignoring the other factor is rejected.

Table 14 Results of Tests of Between-Subjects Effects for Social/Normative VOC after excluding the Interaction Term

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	129.479[a]	3	43.160	54.664	.000	.214
Intercept	10.383	1	10.383	13.151	.000	.021
SEG	87.274	2	43.637	55.268	.000	.155
Sex	39.486	1	39.486	50.010	.000	.077
Error	474.521	601	.790			
Total	604.000	605				
Corrected Total	604.000	604				

Source: Tabulated by the Author

a. R Squared = .214 (Adjusted R Squared = .210)

The value of partial eta-squared, which is a measure of effect size, also shows that 15.5% of the variability in the social/normative VOC is being accounted for by the socio-economic groups of respondents and 7.7% of the variability is being accounted for by sex. That is, the effect size of socio-economic groups of respondents on the social/normative VOC is larger than the effect size of sex. Thus socio-economic groups has a large effect on social/normative VOC ($\eta^2 > 0.14$) and sex has a moderate effect ($0.051 < \eta^2 < 0.14$).

The profile plot for social/normative VOC with the interaction term in the model shows that, the magnitude of mean difference between male and female in the town was so much bigger than it is in the rural area and the city (see figure 3). But after excluding the interaction term this difference was reduced (see figure 4). Nevertheless, both plots (before and after excluding the interaction term), shows that the mean difference in social/normative VOC is larger for females than males in all the three socio-economic groups.

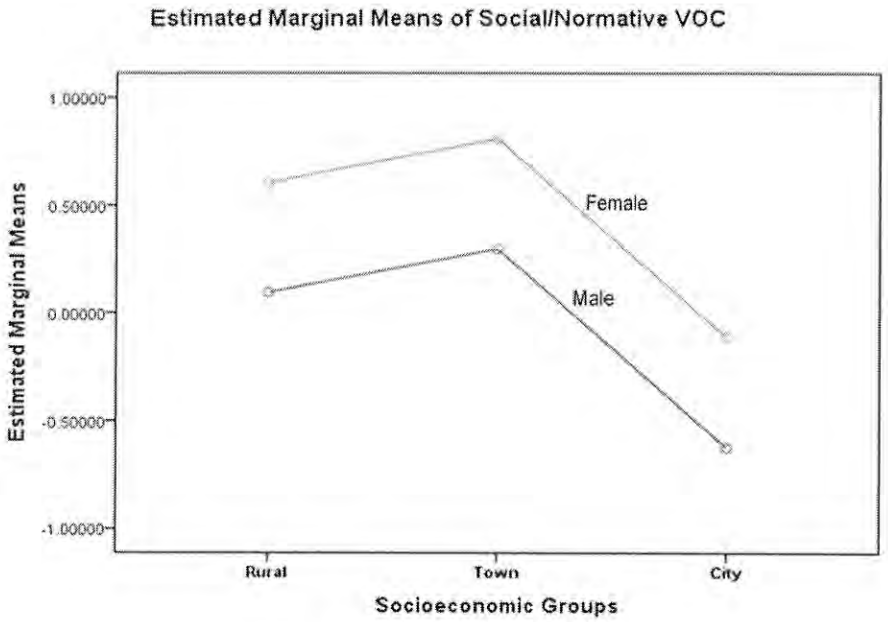

Figure 4 Profile Plot of the Estimated Marginal Means for Social/Normative VOC after excluding the Interaction Term

Looking at the *p-value* for socio-economic groups (Table 14), we can see that at least one level of socio-economic groups differs from the other two, and this is true separately for males and females because the additive model is an adequate model. But we cannot make further important statements about which levels of socio-economic groups are significantly different without additional analyses; thus, a post hoc test was performed.

Table 15 summarizes Scheffe's post-hoc test results for the different levels of socio-economic groups as shown below. We can see from the above table that there is a statistically significant mean difference in social/normative VOC between the rural area and the city as well as between the town and the city (*p-value* < 0.05). But the mean difference in social/normative VOC between the rural area and the town is not statistically significant (*p-value*=0.402 > 0.05).

Table 15 Results of Multiple Comparisons of Socio-economic Groups for Social/Normative VOC

Scheffe						
(I) SEG	(J) SEG	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Rural	Town	-.1876990	.139006	.402	-.52880	.15340
	City	.7342259*	.075871	.000	.54805	.92040
Town	Rural	.1876990	.139006	.402	-.15340	.52880
	City	.9219249*	.136602	.000	.58672	1.25712
City	Town	-.9219249*	.136602	.000	-1.25713	-.58672
	Rural	-.7342259*	.075871	.000	-.92040	-.54804

Source: Tabulated by the Author

The error term is Mean Square(Error) = .790.

*. The mean difference is significant at the .05 level.

Therefore, using a significance level of $\alpha = 0.05$, we can conclude that both socio-economic groups and sex affect social/normative VOC. Specially, because sex has only two levels, we can directly check the profile plot for estimated marginal means (Figure 4) to see that females have a higher mean than males. Thus we can conclude, based on the small *p-value*, that being female is associated with a higher rate of social/normative VOC compared to males, for each level of socio-economic groups. On the other hand we can also conclude that the social/normative VOC is highly valued by respondents from the rural areas than cities and by respondents from towns than cities. But we have no evidence to conclude that there is a difference between the perception of social/normative VOC between respondents living in rural areas and towns.

5.1.4. Findings for the Comparison of Economic/Utilitarian VOC

Under this section, an attempt was made to test hypothesis 1b which assumed that "The urban youths place less emphasis on the economic/utilitarian VOC than the rural counterparts ".

As in the case of social/normative VOC, here also we can see from table 16 that there was no statistically significant interaction between the two explanatory variables, socio-economic groups and sex (*p-value*=0.424 greater than 0.05). Thus we conclude that the effects of socio-economic groups on economic/utilitarian VOC are the same for both sexes and sex effects on the outcome are the same for all three levels of socio-economic groups.

Table 16 Results of Tests of Between-Subjects Effects for Economic/Utilitarian VOC

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	120.882[a]	5	24.176	29.975	.000	.200
Intercept	1.123	1	1.123	1.392	.239	.002
SEG	54.271	2	27.136	33.645	.000	.101
Sex	46.137	1	46.137	57.203	.000	.087
SEG * Sex	1.385	2	.692	.858	.424	.003
Error	483.118	599	.807			
Total	604.000	605				
Corrected Total	604.000	604				

Source: Tabulated by the Author

a. R Squared = .200 (Adjusted R Squared = .193)

The main effects of the socio-economic groups and sex, after excluding the interaction term is summarized in table 17.

Table 17 **Results of Tests of Between-Subjects Effects for Economic/Utilitarian VOC after excluding the Interaction Term**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	119.497[a]	3	39.832	49.410	.000	.198
Intercept	1.144	1	1.144	1.419	.234	.002
SEG	54.337	2	27.169	33.701	.000	.101
Sex	68.408	1	68.408	84.857	.000	.124
Error	484.503	601	.806			
Total	604.000	605				
Corrected Total	604.000	604				

Source: Tabulated by the Author

a. R Squared = .198 (Adjusted R Squared = .194)

Here we can see that there were significant mean difference between levels of socio-economic groups and sex, (*p-value* < 0.05 for each variable). That is, we reject the null hypothesis that the population means of the economic/utilitarian VOC are equal for all levels of the socio-economic groups ignoring sex or vice versa.

Unlike the case in social/normative VOC, the large proportion of variability in economic/utilitarian VOC is being accounted for by sex (12.4%) while socio-economic groups accounted only 10.1% of the variability. Thus sex as well as socio-economic groups have a moderate effect on economic/utilitarian VOC ($0.051 < \eta^2 < 0.14$).

Moreover, like in the case of social/normative VOC, we can see from figure 5 that the mean difference in economic/utilitarian VOC is larger for females than males in all the three socio-economic groups.

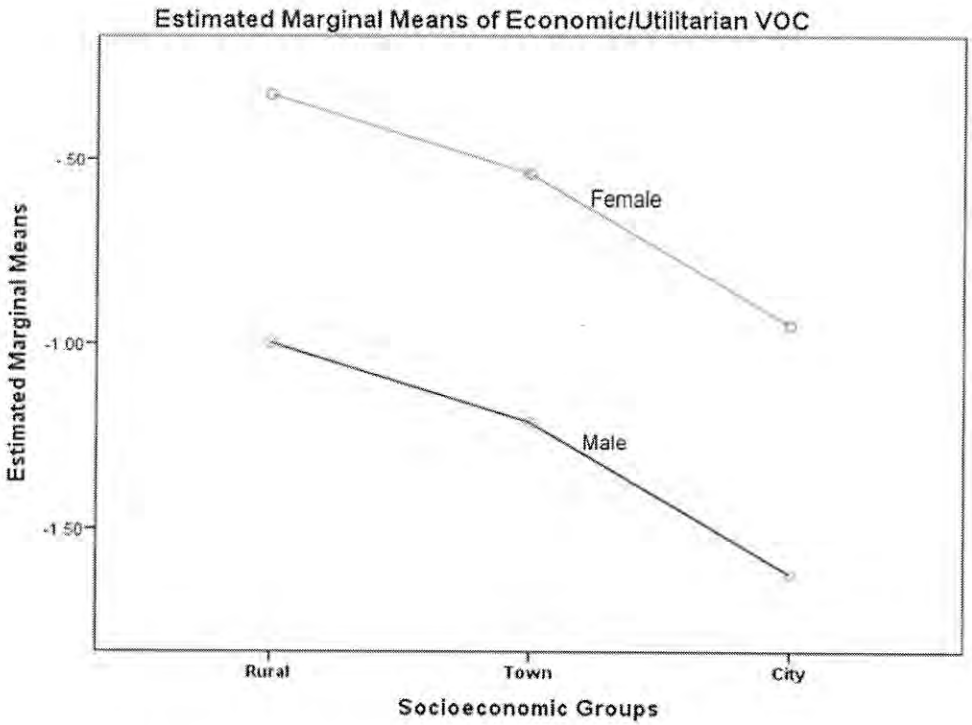

Figure 5 Profile Plot of the Estimated Marginal Means for Economic/Utilitarian VOC

Table 17 indicates that at least one level of socio-economic groups differs from the other two (*p-value* less than 0.05). To see which levels of socio-economic groups are significantly different a post hoc analysis was also made.

Table 18 summarizes the results of multiple comparisons between levels of the socio-economic groups. Accordingly, here we can see that there is a statistically significant mean difference in economic/utilitarian VOC between the rural area and the city as well as between the town and the city (*p-value* < 0.05). But the mean difference in economic/utilitarian VOC between the rural area and town is not statistically significant (*p-value*=0.384 > 0.05).

Table 18 Results of Multiple Comparisons of Socio-economic Groups for Economic/Utilitarian VOC

Economic/Utilitarian Value of Children

Scheffe

(I) SEG	(J) SEG	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Rural	Town	.1944	.14046	.384	-.1502	.5391
	City	.6048*	.07667	.000	.4167	.7929
Town	Rural	-.1944	.14046	.384	-.5391	.1502
	City	.4104*	.13803	.012	.0717	.7491
City	Town	-.4104*	.13803	.012	-.7491	-.0717
	Rural	-.6048*	.07667	.000	-.7929	-.4167

Source: Tabulated by the Author

The error term is Mean Square(Error) = .806.

*. The mean difference is significant at the .05 level.

Finally, using a significance level of $\alpha = 0.05$, we conclude that both socio-economic groups and sex affect economic/utilitarian VOC significantly. The profile plot for estimated marginal means of economic/utilitarian VOC shows that females have a higher mean than males. This leads us to conclude, based on the small *p-value*, that being female is associated with a higher rating of economic/utilitarian VOC compared to males, for each level of socio-economic groups. On the other hand we can also conclude that the economic/utilitarian VOC is highly valued by respondents from rural area than those from the city and by respondents from the town than the city. But we have no evidence to conclude that there is a difference between the perception of economic/utilitarian VOC between respondents living in the rural area and the town.

5.1.5. Findings for the Comparison of Psychological/Emotional VOC

Under this section hypothesis 1c that assumed "The urban youths place higher psychological/emotional VOC than the rural counterparts" was tested.

Unlike the case of social/normative and economic/utilitarian VOC, here we can see from table 19 that we have a statistically significant interaction between socio-economic groups and sex at p=0.000 level. We can also see that there were significant differences in the psychological/emotional VOC between the socio-economic groups as well as between sexes. Thus we conclude that, since we rejected the null hypothesis that there is an additive relationship between socio-economic groups and sex in their effects on the psychological/emotional VOC, we have evidence that any non-parallelness seen on the profile plot is "real" rather than due to random error. That is, the effects of socio-economic groups on psychological/emotional VOC depend on the levels of sex and sex effects on the outcome are also dependent upon the levels of socio-economic groups.

Table 19 Results of Tests of Between-Subjects Effects for Psychological/Emotional VOC

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	62.059[a]	5	12.412	13.72	.000	.103
Intercept	4.183	1	4.183	4.62	.032	.008
SEG	15.615	2	7.807	8.63	.000	.028
Sex	3.480	1	3.480	3.85	.050	.006
SEG * Sex	30.452	2	15.226	16.83	.000	.053
Error	541.941	599	.905			
Total	604.000	605				
Corrected Total	604.000	604				

Source: Tabulated by the Author
a. R Squared = .103 (Adjusted R Squared = .095)

We can also refer to the profile plot to see whether there is interaction effect by inspecting whether the lines are parallel or not.

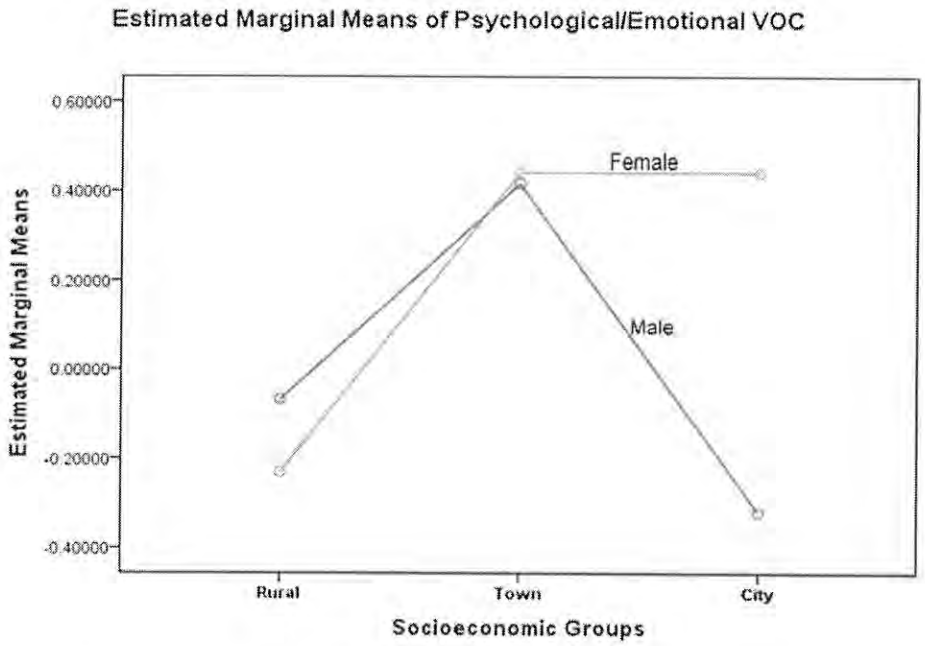

Figure 6 Profile Plot of the Estimated Marginal Means for Psychological/Emotional VOC

From Figure 6, we can see how our results from table 19 might make sense. As we can see, the lines are not parallel indicating the possibility of an interaction taking place.

When we see the effect size (η^2), only small proportion of variability in psychological/emotional VOC is being accounted for by socio-economic groups and sex; 2.8% and 0.6% respectively. Instead a higher proportion of the variability in psychological/emotional VOC was accounted for by the interaction (5.3%). Thus socio-economic groups has a small effect ($0.01 < \eta^2 < 0.05$) on psychological/emotional VOC while the interaction has a moderate effect ($0.051 < \eta^2 < 0.14$). The effect of sex is described as trivial.

The results in Table 19 only indicate that at least one level of socio-economic groups differs from the other two (*p-value* less than 0.05). We used the Scheffe's post hoc test to see which levels of socio-economic groups are significantly different.

Table 20 Results of Multiple Comparisons of Socio-economic Groups for Psychological/Emotional VOC

Psychological/Emotional VOC

Scheffe

(I) SEG	(J) SEG	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Rural	Town	-.5814426*	.148802	.001	-.94658	-.21630
	City	-.2059104*	.081218	.041	-.40521	-.00661
Town	Rural	.5814426*	.148802	.001	.21631	.94658
	City	.3755322*	.146229	.038	.01671	.73436
City	Town	-.3755322*	.146229	.038	-.73436	-.01671
	Rural	.2059104*	.081218	.041	.0066114	.40521

Source: Tabulated by the Author

The error term is Mean Square(Error) = .905.

*. The mean difference is significant at the .05 level.

a. R Squared = .103 (Adjusted R Squared = .095)

The multiple comparisons (Table 20) shows that there is a statistically significant mean difference in psychological/emotional VOC between all three different combinations of socio-economic groups (*p-value* < 0.05). The mean difference also shows that respondents living in the city put higher emphasis on psychological/emotional VOC than those living in the rural area. On the other hand, respondents from the town put higher emphasis on psychological/emotional VOC than those living the rural area as well as the city.

The results of a significant interaction effect provoke running tests of simple main effects, that is, the mean difference in psychological/emotional VOC between

sexes at each level of socio-economic groups. But SPSS doesn't allow us to do this using graphical user interface. So syntax was added to this effect (See Appendix VI for the syntax).

Table 21 Results of Pairwise Comparisons of the Socio-economic Groups for Each Level of Sex

SEG	(I) Sex	(J) Sex	Mean Difference (I-J)	SE	Sig.[a]	95% CI for Difference[a]	
						Lower Bound	Upper Bound
Rural	Male	Female	.164	.121	.178	-.075	.402
	Female	Male	-.164	.121	.178	-.402	.075
Town	Male	Female	-.025	.272	.928	-.558	.509
	Female	Male	.025	.272	.928	-.509	.558
City	Male	Female	-.760*	.108	.000	-.973	-.548
	Female	Male	.760*	.108	.000	.548	.973

Source: Tabulated by the Author

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

*. The mean difference is significant at the .050 level.

The simple main effects analysis, as summarized in table 21, showed that female respondents living in the city were significantly more interested in psychological/emotional VOC than males (*p-value* = 0.000) . But there were no significant differences between male and female respondents living in the rural area (*p-value* = 0.178) and the town (*p-value*=0.928) regarding their perception on psychological/emotional VOC.

5.2. Findings for the Comparison of Sex Preference

Hypothesis 2. The rural youths attach high value of children for male than female due to gender biased differential comparing with the urban counterparts

In order to test the hypothesis on sex preference between the different socio-economic groups and sex, a 3x2 ANOVA were carried out. The same procedures were followed as in the case of the comparison of the VOC to arrive at the results below.

As can be seen from table 22, there was no statistically significant interaction between the two explanatory variables, socio-economic groups and sex (*p-value*=0.141 greater than 0.05). Thus we conclude that the effects of socio-economic groups on sex preference are the same for both sexes and sex effects on the outcome are the same for all three levels of socio-economic groups.

Table 22 Results of Tests of Between-Subjects Effects for Sex Preference with Interaction Term

Dependent Variable:Sex preference of first child						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	50.204[a]	5	10.041	19.45	.000	.140
Intercept	767.267	1	767.267	1486.44	.000	.713
SEG	48.199	2	24.099	46.69	.000	.135
Sex	.501	1	.501	.97	.325	.002
SEG * Sex	2.030	2	1.015	1.97	.141	.007
Error	309.191	599	.516			
Total	1823.000	605				
Corrected Total	359.395	604				

Source: Tabulated by the Author

a. R Squared = .140 (Adjusted R Squared = .133)

The main effects of the socio-economic groups and sex, after re-running the ANOVA excluding the interaction term is summarized in table 23.

Table 23 Results of Tests of Between-Subjects Effects for Sex Preference after excluding the Interaction Term

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	48.173[a]	3	16.058	31.009	.000	.134
Intercept	767.629	1	767.629	1482.37	.000	.712
SEG	48.120	2	24.060	46.46	.000	.134
Sex	.001	1	.001	.002	.965	.000
Error	311.222	601	.518			
Total	1823.000	605				
Corrected Total	359.395	604				

Source: Tabulated by the Author

a. R Squared = .134 (Adjusted R Squared = .130)

Here we can see that there were significant mean difference between levels of socio-economic groups(*p-value* < 0.05) whereas no significant mean difference were observed between male and female (*p-value* > 0.05).

We can also see that large proportion of variability in sex preference is being accounted for by socio-economic groups (13.4%) while the contribution of sex is nil. Thus socio-economic groups have a moderate effect on sex preference ($0.051 < \eta^2 < 0.14$) whereas the effect of sex on the outcome is considered as trivial.

Table 24 Results of Multiple Comparisons of Socio-economic Groups for Sex Preference

Scheffe: Sex preference of first child

(I) SEG	(J) SEG	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Rural	Town	-.35*	.113	.009	-.62	-.07
	City	-.59*	.061	.000	-.74	-.44
Town	Rural	.35*	.113	.009	.07	.62
	City	-.24	.111	.087	-.52	.03
City	Town	.24	.111	.087	-.03	.52
	Rural	.59*	.061	.000	.44	.74

Source: Tabulated by the Author

The error term is Mean Square(Error) = .518

*. The mean difference is significant at the .05 level.

Table 24 above summarizes Scheffe's post-hoc test results for the different levels of socio-economic groups. We can see from the table that there is a statistically significant mean difference in sex preference between the rural area and the town as well as between the rural area and the city(*p-value* < 0.05). But there were no significant mean difference observed in sex preference between the town and the city (*p-value*= 0.087 > 0.05).

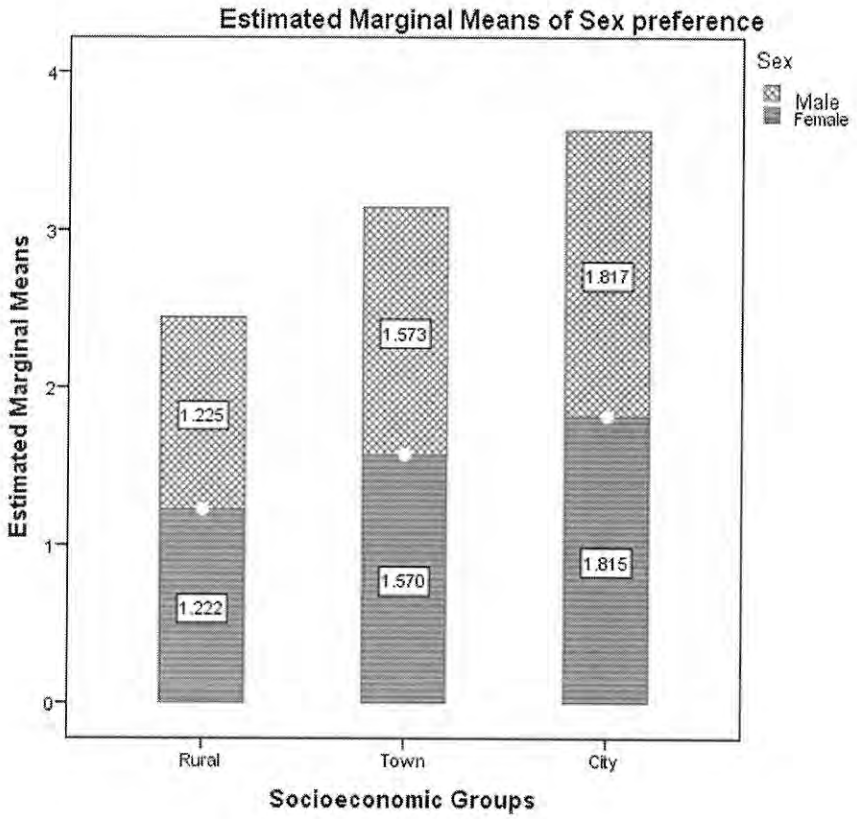

Figure 7. Profile Plot of the Estimated Marginal Means for Sex Preference

Thus using a significance level of α= 0.05, we can conclude that socio-economic groups significantly affects sex preference while sex has no effect over the outcome. Referring to the estimated marginal means in figure 7, we can also conclude that there is high sex preference for male in rural area whereas there is no significant difference in sex preference for boys in the town and the city. This is so because the lower category "1" is associated with sex preference for male.

5.3. Results of Bivariate and Multivariate Analysis of the Value of Children

5.3.1. Results of Bivariate Analysis of the Value of Children

To determine the factors which are significantly correlated with the dependent variables, a preliminary assessment was made using the Pearson Correlation test.

The results presented in Table 25 below show that the independent variables selected for the study were significantly associated with social/normative VOC except the variable ''work status". On the other hand, the independent variables were significantly associated with economic/utilitarian VOC and psychological/emotional VOC except for the variables "age'' and "work status"

Table 25 Results of Bivariate Association Between the VOC and the Independent Variables

Predictors	Social/ Normative VOC		Economic/ Utilitarian VOC		Psychological/ Emotional VOC	
	Pearson R	Sig	Pearson R	Sig	Pearson R	Sig
Age	-.177**	.000	.002	.962	.032	.432
Sex	.264**	.000	.328**	.000	.159**	.000
Background	-.386**	.000	.281**	.000	.176**	.000
Highest Level of Education	-.389**	.000	.117**	.006	.120**	.005
Area Mostly Lived	.375**	.000	-.269**	.000	-.131**	.001
Work Status	-.024	.563	.008	.836	.032	.428
Sex-role Definition	.418**	.000	-.258**	.000	-.121**	.003
Household Income	-.445**	.000	-.322**	.000	.177**	.000
Exposure to Media	.374**	.000	-.148**	.000	-.229**	.000

Source: Tabulated by the Author

** The variables are significant at 0.05 alpha level

5.3.2. Results of Multivariate Analysis of the Value of Children

As repeatedly mentioned before, the main problem with the bi-variate approach is that it ignores the possibility that a collection of variables, each of which could be weakly associated with the outcome, can become an important predictor of the outcome when taken together (Hosmer and Lemeshow, 1989). Hence, multiple regression approach that takes into account the drawback of a bi-variant technique was used in the following analysis. By using a multiple regression, the models that best describes the dependent variables were fitted based on the explanatory variables. The stepwise method was used as it always results in the most parsimonious model. The major results obtained by multiple regression for each of the dimensions of VOC is presented below.

Under this section, hypothesis 3 to 7 was tested (See page 22 and 23)

5.3.2.1. Social/Normative VOC

The minimum ratio of valid cases to independent variables for multiple regression is 5:1. With 551 valid cases and 9 independent variables, the ratio for this analysis is 61:1 which suffice the minimum requirement with regard to sample size.

Table 26 presented an ANOVA result, which assesses the overall significance of the model used. Since the *p-value* is less than 0.01, the model is highly significant. That is, the null hypothesis which claimed that there is no relationship between the set of independent variables and the social/normative VOC (R^2=0) is rejected. This indicates that the variables in the final model explain the data quite well.

Table 27 shows model summary. Here we can see that model 1, which included only household income accounted for 19.0% of the variance (Adjusted R^2 = 0.190) in the social/normative VOC. The inclusion of sex

into model 2 resulted in an additional 7.6% of the variance being explained (R^2 change = 0.076). Model 3 also included sex-role definition, and this model accounted for 33.2% of the variance (Adjusted R^2=0.332). Model 4 accounted for 35.8% of the variance (Adjusted R^2=0.358) by including highest level of education. The final model included background and this model accounted for 36.2% of the variance (Adjusted R^2=0.362).

Table 26 Results of ANOVA for Social/Normative VOC

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	106.514	1	106.514	130.27	.000[b]
	Residual	448.899	549	.818		
	Total	555.413	550			
2	Regression	148.731	2	74.365	100.21	.000[c]
	Residual	406.682	548	.742		
	Total	555.413	550			
3	Regression	186.372	3	62.124	92.08	.000[d]
	Residual	369.040	547	.675		
	Total	555.413	550			
4	Regression	201.410	4	50.352	77.66	.000[e]
	Residual	354.003	546	.648		
	Total	555.413	550			
5	Regression	204.270	5	40.854	63.41	.000[f]
	Residual	351.142	545	.644		
	Total	555.413	550			

Source: Tabulated by the Author

a. Dependent Variable: Social/Normative VOC

b. Predictors: (Constant), Household Income

c. Predictors: (Constant), Household Income, Sex

d. Predictors: (Constant), Household Income, Sex, Sex-role definition

e. Predictors: (Constant), Household Income, Sex, Sex-role definition, Highest level of education attained

f. Predictors: (Constant), Household Income, Sex, Sex-role definition, Highest level of education attained, Background

The multiple correlation, R, for the relationship between the subset of independent variables that best predict the social/normative VOC is 0.606 which would be characterized as strong. In addition, the probability of the F-statistics (F change=4.440) for the change in R^2 associated with the addition of the predictor variables to the regression analysis is less than 0.05. Thus we reject the null hypothesis that there is no improvement in the relationship between the set of independent variables and the social/normative VOC when the predictors are added (R^2 change =0)

Table 27 Results of Model Summary for Social/Normative VOC

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.438[a]	.192	.190	.9042496	.192	130.26	1	549	.000
2	.517[b]	.268	.265	.8614643	.076	56.887	1	548	.000
3	.579[c]	.336	.332	.8213785	.068	55.793	1	547	.000
4	.602[d]	.363	.358	.8052067	.027	23.193	1	546	.000
5	.606[e]	.368	.362	.8026818	.005	4.440	1	545	.036

Source: Tabulated by the Author

a. Predictors: (Constant), Household Income

b. Predictors: (Constant), Household Income, Sex

c. Predictors: (Constant), Household Income, Sex, Sex-role definition

d. Predictors: (Constant), Household Income, Sex, Sex-role definition, Highest level of education attained

e. Predictors: (Constant), Household Income, Sex, Sex-role definition, Highest level of education attained, Background

The Standardized Beta Coefficients that measure the contribution of each variable to the model and *p-value* for each of the model and results of Collinearity diagnostics are summarized in table 28. As we can see from the table, the values of tolerance are large indicating that there is no multicollinearity problem in the data.

Based on the OLS procedure, five variables (household income, sex, sex-role definition, highest level of education and background) were found to be significant. To decide whether our inference is reliable, the existence of heteroskedasticity was checked using the eyeball test and HCSE approach.

Table 28 Results of Coefficients for Social/Normative VOC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	SE	Beta			Tolerance	VIF
1	(Constant)	.903	.092		9.784	.000		
	Household Income	-.310	.027	-.438	-11.413	.000	1.000	1.000
2	(Constant)	.011	.147		.075	.940		
	Household Income	-.295	.026	-.417	-11.365	.000	.994	1.006
	Sex	.556	.074	.277	7.542	.000	.994	1.006
3	(Constant)	-.880	.184		-4.775	.000		
	Household Income	-.199	.028	-.281	-7.127	.000	.782	1.278
	Sex	.589	.070	.293	8.369	.000	.990	1.010
	Sex-role definition	.267	.036	.294	7.469	.000	.787	1.271
4	(Constant)	-.489	.198		-2.469	.014		
	Household Income	-.164	.028	-.231	-5.780	.000	.730	1.370
	Sex	.561	.069	.279	8.094	.000	.983	1.017
	Sex-role definition	.229	.036	.251	6.355	.000	.748	1.338
	Highest level of education	-.192	.040	-.183	-4.816	.000	.807	1.240
5	(Constant)	-.292	.219		-1.334	.183		
	Household Income	-.134	.032	-.189	-4.253	.000	.585	1.708
	Sex	.562	.069	.280	8.142	.000	.983	1.018
	Sex-role definition	.210	.037	.230	5.663	.000	.703	1.423
	Highest level of education	-.184	.040	-.176	-4.632	.000	.801	1.249
	Background	-.188	.089	-.092	-2.107	.036	.605	1.652

Source: Tabulated by the Author

Figure 7 shows the scatter plot for standardized predicted value versus residual. We can see that there is no pattern in the data with only some diffusion of points in the upper and lower parts of the plot. This may indicate the existence of heteroskedasticity in the data and there is reason to be suspicious of the accuracy of the standard errors and, therefore, of the *p-value*s. To test this from a statistically significant perspective, the researcher run a macro developed by Andrew F. Hayes (Hayes, 2011).

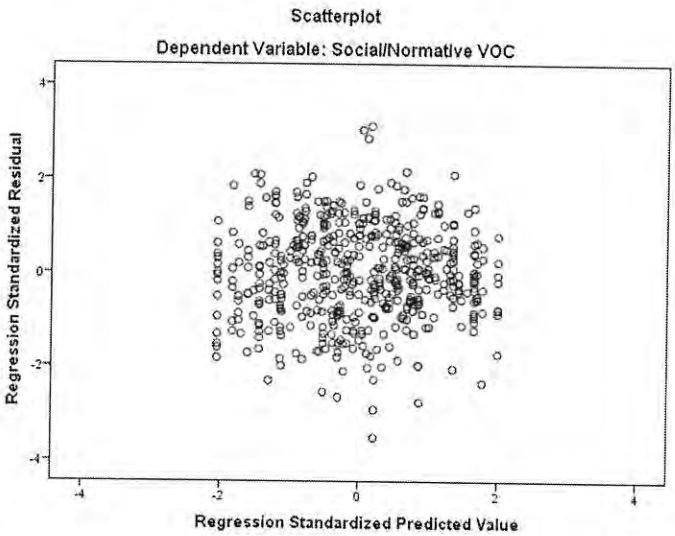

Figure 8 Scatter Plot for Standardized Predicted Value versus Residual for Social/Normative VOC

The results of HCSE approach is summarized in Table 29 and Table 30. Using the Heteroscedasticity-consistent regression approach, we found out that background is not a significant variable (*p-value*=0.3016 > 0.05) indicating model misspecification due to heteroskedasticity problem in the data.

Table 29 Results of Heteroscedasticity-Consistent Regression Model Fit for Social/Normative VOC

Criterion Variable :			Social/Normative VOC	
R-sq	F	Df1	Df2	P
.3683	42.2635	9.0000	541.0000	.0000

Source: Tabulated by the Author

Table 30 Results of Coefficients of the HCSE for Social/Normative VOC

	Coefficient	SE(HC)	T	P>|t|
Constant	-.5069	.4253	-1.1919	.2338
Age	.0042	.0112	.3741	.7085
Sex	.5672	.0707	8.0206	.0000
Background	-.1389	.1344	-1.0339	.3016
High level education	-.1897	.0497	-3.8196	.0001
Household Income	-.1310	.0377	-3.4704	.0006
Media exposure	-.0039	.0491	-.0792	.9369
Lived most of life	.0292	.0533	.5483	.5837
Work Staus	-.0229	.0778	-.2947	.7683
Sex-role definition	.2097	.0394	5.3167	.0000

Source: Tabulated by the Author

To summarize, a significant model emerged ($F_{9, 541} = 42.2635$, *p-value* < 0.05, adjusted R^2 =0.362). The significant variables are summarized in table 31.

Table 31 Results of Significant Variables for Social/Normative VOC

Predictor Variable	Standardized coefficient	*P-value*
Sex	0.5672	0.0000
Sex-role definition	0.2097	0.0000
Highest level of Education	-0.1897	0.0001
Household Income	-0.1310	0.0006

Source: Tabulated by the Author

Interpretation of the Beta Coefficients for Social/Normative VOC

Sex – is a nominal variable that is coded so that the lower numeric value 1 is associated with male respondents and the higher numeric value 2 is associated with female respondents. The positive value of beta coefficient associated with sex (beta= 0.5672) indicate that female respondents rate social/normative VOC more than the male respondents did.

Sex-role definition – is an ordinal variable coded so that lower numeric values are associated with survey respondents who were less agreed with the statement "Except in special cases, the wife should do the cooking and housekeeping and the husband should provide the family with money". The positive value of standardized coefficient (0.2097) implies that survey respondents who were strongly agreed with sex-role definition rate the social/normative VOC more.

Highest level of Education – is an ordinal variable coded so that lower numeric values are associated with survey respondents who were less educated. The negative value of beta(beta= -0.1897) associated with education level indicate that more educated respondents rate the social/normative VOC less than uneducated or less educated respondents.

Household Income – is an ordinal variable coded so that lower numeric values are associated with survey respondents who had low economic status. The negative value of beta associated with income (beta= -0.1897) indicate that respondents who earn more rate the social/normative VOC less than respondents who earn less.

Therefore, even though all the four predictors significantly affect the social/normative VOC, we can see from the values of the coefficients that sex (Beta=0.5672) has the largest effect on the dependent variable followed by sex-role definition (Beta =0.2097)

5.3.2.2. Economic/Utilitarian VOC

As we can see from table 32, the probability of the F-statistics (54.310) for the overall regression relationship is less than 0.001. Thus, we can conclude that there is statistically significant relationship between the set of independent variables and the economic/utilitarian VOC. That is, the model is highly significant.

Table 32 Results of ANOVA for Economic/Utilitarian VOC

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	57.695	1	57.695	63.128	.000[b]
	Residual	501.745	549	.914		
	Total	559.440	550			
2	Regression	121.776	2	60.888	76.238	.000[c]
	Residual	437.664	548	.799		
	Total	559.440	550			
3	Regression	128.392	3	42.797	54.310	.000[d]
	Residual	431.048	547	.788		
	Total	559.440	550			

Source: Tabulated by the Author

a. Dependent Variable: Economic/Utilitarian VOC

b. Predictors: (Constant), Sex

c. Predictors: (Constant), Sex, Household Income

d. Predictors: (Constant), Sex, Household Income, Background

Table 33 below shows model summary. Here we can see that model 1, which included only sex accounted for 10.1% of the variance (Adjusted R^2 = 0.101) in the economic/utilitarian VOC. The inclusion of household income into model 2 resulted in an additional 11.5% of the variance being explained (R^2 change = 0.115). The final model included background and this model accounted for 22.5% of the variance (Adjusted R^2=0.225).

Referring to the multiple correlation for the last model, R = 0.479, we can conclude that the relationship between the subset of independent variables that best predict the economic/utilitarian VOC would be characterized as moderate. Furthermore, the probability of the F-statistics (F change = 8.396) for the change in R^2 associated with the addition of the predictor variables to the regression analysis is less than 0.05. Thus we reject the null hypothesis that there is no improvement in the relationship between the set of independent variables and the economic/utilitarian VOC when the predictors are added (R^2 change =0)

Table 33 Results of Model Summary for Economic/Utilitarian VOC

Model	R	R^2	Adjusted R^2	SE of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.321[a]	.103	.101	.95599	.103	63.12	1	549	.000
2	.467[b]	.218	.215	.89368	.115	80.23	1	548	.000
3	.479[c]	.230	.225	.88771	.012	8.396	1	547	.004

Source: Tabulated by the Author

a. Predictors: (Constant), Sex

b. Predictors: (Constant), Sex, Household Income

c. Predictors: (Constant), Sex, Household Income, Background

d. Dependent Variable: Economic/Utilitarian VOC

In order to see the existence of multicollinearity in the data, we can refer to Table 34. The values of tolerance for each model are all large indicating that there is no multicollinearity problem in the data. We can also see that, based on the OLS procedure, three variables (sex, household income and background) were found to be significant. Here also the existence of heteroskedasticity was checked using the eyeball test and HCSE approach.

Referring to the scatter plot in figure 8, we can see that the points lend themselves distribute in an irregular fashion instead of clustering in a

nested manner. This may also indicate the existence of heteroskedasticity in the data. Thus, we need to use a robust method to see the existence of heteroskedasticity in a statistically significant way. This is done by running a macro as in the case of social/normative VOC. The results of HCSE approach is summarized in table 35 and table 36.

Table 34 Results of Coefficients for Economic/Utilitarian VOC

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	SE	Beta			Tolerance	VIF
1	(Constant)	-.958	.131		-7.342	.000		
	Sex	.648	.082	.321	7.945	.000	1.000	1.000
2	(Constant)	-1.783	.153		-11.665	.000		
	Sex	.700	.076	.347	9.162	.000	.994	1.006
	Household Income	.241	.027	.339	8.957	.000	.994	1.006
3	(Constant)	-1.992	.168		-11.848	.000		
	Sex	.696	.076	.345	9.162	.000	.994	1.006
	Household Income	-.185	.033	.261	5.617	.000	.654	1.530
	Background	.274	.094	.134	2.898	.004	.657	1.522

Source: Tabulated by the Author

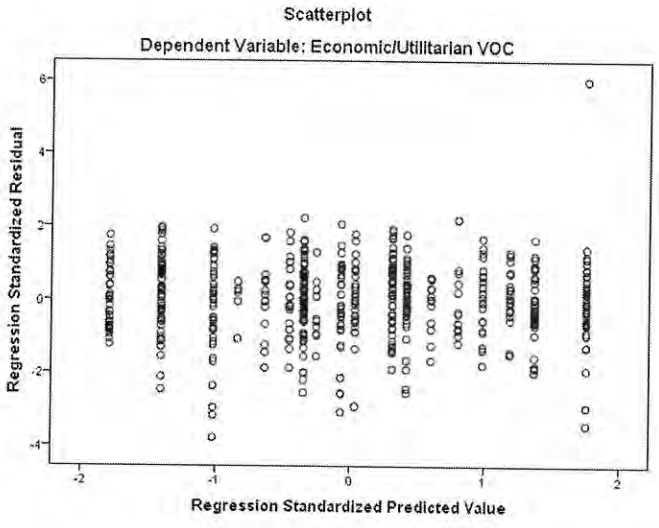

Figure 9 Scatter Plot of the Residual Vs the Predicted Value for Economic/Utilitarian VOC

The Heteroscedasticity-Consistent Regression approach identified the variable background to be insignificant (*p-value*= 0.1780 > 0.05) in explaining the economic/utilitarian VOC indicating model misspecification in the OLS regression due to heteroskedasticity problem in the data.

Table 35 Results of Heteroscedasticity-Consistent Regression Model Fit for Economic/Utilitarian VOC

Criterion Variable :			Economic/Utilitarian VOC	
R-sq	F	Df1	Df2	P
.2361	19.3216	9.0000	541.0000	.0000

Source: Tabulated by the Author

Table 36 Results of Coefficients of the HCSE Regression for Economic/Utilitarian VOC

	Coefficient	SE(HC)	T	P>|t|
Constant	-1.8274	.4818	-3.7930	.0002
Age	.0103	.0117	.8759	.3815
Sex	.6932	.0787	8.8129	.0000
Background	.1823	.1352	1.3488	.1780
High level education	-.0109	.0455	-.2404	.8101
Household Income	-.1760	.0410	4.2874	.0000
Media exposure	.0305	.0558	.5477	.5841
Lived most of life	-.0321	.0571	-.5613	.5749
Work Status	.0300	.0856	.3509	.7258
Sex-role definition	-.0685	.0468	-1.4621	.1443

Source: Tabulated by the Author

Finally, a significant model emerged ($F_{3,\ 547} = 54.310$, *p-value* < 0.05, adjusted $R^2 = 0.225$). The significant variables are summarized in table 37.

Table 37 Results of Significant Variables for Economic/Utilitarian VOC

Predictor Variable	Standardized coefficient	*P-value*
Sex	0.6932	0.0000
Household Income	-0.1760	0.0000

Source: Tabulated by the Author

Interpretation of the Beta Coefficients for Economic/Utilitarian VOC

Sex – is a nominal variable that is coded so that the lower numeric value 1 is associated with male respondents and the higher numeric value 2 is associated with female respondents. The positive value of the standardized coefficient beta associated with sex (0.6932) indicates that female respondents rate economic/utilitarian VOC more than male respondents did.

Household Income – is an ordinal variable coded so that lower numeric values are associated with survey respondents who had low economic status. The negative value of beta associated with income (-0.1760) indicate that respondents who earn more rate the economic/utilitarian VOC less than respondents who earn less.

Thus, even though both predictors significantly affect the economic/utilitarian VOC, we can see from the values of the coefficients that sex (Beta=0. 0.6932) has the largest effect on the dependent variable.

5.3.2.3. Psychological/Emotional VOC

The ANOVA results summarized in table 38, depicts that the *p-value* is less than the significance level, 0.05. Thus, the model is highly significant.

Table 38 Results ANOVA for Psychological/Emotional VOC

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.422	1	29.422	30.695	.000[b]
	Residual	526.232	549	.959		
	Total	555.654	550			
2	Regression	48.628	2	24.314	26.279	.000[c]
	Residual	507.027	548	.925		
	Total	555.654	550			

Source: Tabulated by the Author

a. Dependent Variable: Psychological/Emotional VOC

b. Predictors: (Constant), Exposure to Media

c. Predictors: (Constant), Exposure to Media, Sex

Table 39 shows model summary. Here we can see that model 1, which included only exposure to media accounted for 5.1% of the variance (Adjusted $R^2 = 0.051$) in the psychological/emotional VOC. The inclusion of sex into model 2 resulted in an additional 3.5% of the variance being explained (R^2 change = 0.035).

The value of the multiple correlation (R=0.296) for the overall model in table 39 tells us that the relationship between the subset of independent variables that best predict the psychological/emotional VOC would be characterized as weak ($R < 0.4$). Moreover, the probability of the F-statistics (F change = 20.758) for the change in R^2 associated with the addition of the predictor variable to the regression analysis is less than 0.01. Thus we reject the null hypothesis that there is no improvement in the relationship between the set of independent variables and the psychological/emotional VOC when the predictor is added (R^2 change =0)

Table 39 Results of Model Summary for Psychological/Emotional VOC

Model	R	R^2	Adjusted R^2	SE of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.051	.979045	.053	30.695	1	549	.000
2	.296[b]	.088	.084	.961889	.035	20.758	1	548	.000

Source: Tabulated by the Author

a. Predictors: (Constant), Exposure to Media

b. Predictors: (Constant), Exposure to Media, Sex

c. Dependent Variable: Psychological/Emotional VOC

As we can see from Table 40, the values of tolerance are very large indicating that there is no multicollinearity problem in the data at all. Unlike the case in social/normative and economic/utilitarian VOC, the results of OLS regression and HCSE regression are combatable for psychological/Emotional VOC. Table 40 and table 42 shows that two variables (exposure to media and sex) were found to be significant.

Table 40 Results of OLS Regression for Psychological/Emotional VOC

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	SE	Beta			Tolerance	VIF
1	(Constant)	.039	.042		.930	.353		
	Exposure to Media	-.231	.042	-.230	-5.540	.000	1.000	1.000
2	(Constant)	-.539	.133		-4.044	.000		
	Exposure to Media	-.264	.042	-.263	-6.351	.000	.969	1.032
	Sex	.380	.083	.189	4.556	.000	.969	1.032

Source: Tabulated by the Author

Table 41 Results of Heteroscedasticity-Consistent Regression Model Fit for Psychological/Emotional VOC

Criterion Variable :			Psychological/emotional VOC	
R-sq	F	Df1	Df2	P
.0960	6.5180	9.0000	541.0000	.0000

Source: Tabulated by the Author

Table 42 Results of Coefficients of the HCSE for Psychological/Emotional VOC

	Coefficient	SE(HC)	t	P>|t|
Constant	-1.1091	.5284	-2.0990	.0363
Age	-.0047	.0132	-.3527	.7244
Sex	.3690	.0863	4.2749	.0000
Background	.2689	.1558	1.7263	.0849
High Level Education	.0022	.0513	.0422	.9664
Household Income	.0102	.0467	.2173	.8281
Media Exposure	-.2421	.0553	-4.3746	.0000
Area Mostly Lived	.0725	.0707	1.0257	.3055
Work Status	.1088	.0961	1.1313	.2584
Sex-role Definition	.0241	.0489	.4940	.6215

Source: Tabulated by the Author

Thus our model is significant ($F_{2, 548} = 26.279$, *p-value* < 0.05, adjusted $R^2 = 0.084$). The significant variables are indicated in table 43

Table 43 Results of Significant Variables for Psychological/Emotional VOC

Predictor Variable	Standardized coefficient	*P-value*
Exposure to Media	-0.2421	0.0000
Sex	0.3690	0.0000

Source: Tabulated by the Author

Interpretation of the Beta Coefficients for Psychological/Emotional VOC

Sex – is a nominal variable that is coded so that the lower numeric value 1 is associated with male respondents and the higher numeric value 2 is associated with female respondents. The positive value of standardized coefficient beta associated with sex (0.3690) indicates that female respondents rate psychological/emotional VOC more than male respondents did.

Exposure to Media – is an ordinal variable coded so that lower numeric values are associated with survey respondents who were more exposed to medias (newspaper, radio and television). The negative value of beta associated with media exposure (-0.2421) indicate that respondents who were more exposed to media rate the psychological/emotional VOC more than those who were not.

To sum up, even though both predictors significantly affect the psychological/emotional VOC, we can see from the values of the coefficients that sex (Beta=0.3690) has the largest effect on the dependent variable.

5.4. Results of Bivariate and Multivariate Analysis of Desired Number of Children

In this part of the study, social/normative, economic/utilitarian and psychological/emotional VOCs are considered as predictors which are believed to have some effects on the desired number of children. Thus 8 was tested (see page 23)

Before directly going to the modeling procedure, a bivariate test was conducted to see whether the predictors are correlated with the desired number of children.

5.4.1. Results of Bivariate Analysis of Desired Number of Children

To determine the VOCs which are significantly correlated with the desired number of children, a preliminary assessment was made using the Pearson Correlation Test. The results in Table 44 shows that all the three dimensions of VOC were significantly associated with the desired number of children.

Table 44 Results of Bivariate Association between Desired Number of Children and the Value of Children

Predictors	Pearson Correlation	Sig
Social/Normative VOC	0.294**	.000
Economic/Utilitarian VOC	0.106**	.009
Psychological/Emotional VOC	-0.227**	.000

Source: Tabulated by the Author

5.4.2. Results of Multivariate Analysis of Desired Number of Children

The bivariate analysis does not show the exact association between the predictors and the dependant variable since the influence of additional variables is not controlled while looking to the net effect of independent variables. To see the combined effect of the predictors on the desired number of children, multiple regression was used. Thus the model that best describes the dependent variable

was fitted based on the explanatory variables. The default enter method was used to select the best model as the researcher has no theoretical model in mind.

Sample Size Adequacy

The minimum ratio of valid cases to independent variables for multiple regression is 5:1. With 605 valid cases and 3 explanatory variables, the ratio for this analysis is 201:1 which satisfies the minimum requirement with regard to sample size.

Model Significance

As we can see from table 45, the probability of the F-statistics (32.02) for the overall regression relationship is less than 0.05. Thus, we can conclude that there is statistically significant relationship between the set of independent variables (social/normative VOC, economic/utilitarian VOC and psychological/emotional VOC) and the desired number of children. That is, the model is highly significant.

Table 45 Results of ANOVA for Desired Number of Children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	241.962	3	80.654	32.02	.000[b]
	Residual	1513.896	601	2.519		
	Total	1755.858	604			

a. Predictors: Economic/Utilitarian, Psychological/Emotional, Social/Normative
Source: Tabulated by the Author

Model Summary

Table 46 shows model summary. Here we can see that the model is accounted for 13.3% of the variance (Adjusted R2 = 0.133)) in the desired number of children. On the other hand, the value of the multiple correlation (R=0.371) for the overall model tells us that the relationship between the set of independent variables that best predict the desired number of children would be characterized as weak (R < 0.4).

Table 46 Results of Model Summary for Desired Number of Children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.371[a]	.138	.133	1.587

a. Predictors: Economic/Utilitarian VOC, Psychological/Emotional VOC, Social/Normative VOC
Source: Tabulated by the Author

Regression Coefficients

As we can see from Table 47, the values of tolerance are all equal to one indicating that there is no multicollinearity problem in the data at all. We can also see that, based on the OLS procedure, all the three predictor variables were found to be significantly different from zero. In order to make sure that the statistical inference is reliable, the existence of heteroskedasticity was checked using the eyeball test and HCSE approach as described below.

Table 47 Results of Coefficients for Desired Number of Children

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	SE	Beta			Tolerance	VIF
1	(Constant)	3.94	.065		61.07	.000		
	Social/ Normative VOC	.495	.065	.290	7.66	.000	1.00	1.00
	Psychological/ Emotional VOC	-.353	.065	-.207	-5.47	.000	1.00	1.00
	Economic/Utilitarian VOC	.176	.065	.103	2.72	.007	1.00	1.00

a. Dependent Variable: Desired Number of children
Source: Tabulated by the Author

The Scatter Plot

The scatter plot of the standardized residual versus the standardized predicted value in figure 10 shows that the points are irregularly distributed with some points deviating from the cluster. Thus, a macro was run to see the existence of

heteroskedasticity in a statistically significant way. Results of the analysis using HCSE approach is summarized in table 48 and 49.

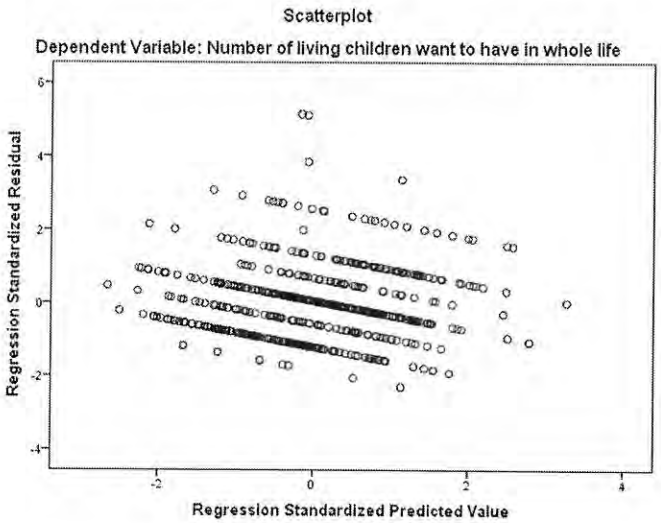

Figure 10 Scatter Plot of the Residual versus the Predicted Value for Desired Number of Children

Table 48 Results of Heteroscedasticity-Consistent Regression Model Fit for Desired Number of Children

Criterion Variable :			Desired Number of Children	
R-sq	F	Df1	Df2	P
.1378	38.2241	3.0000	601.0000	.0000

Source: Tabulated by the Author

Table 49 Results of Coefficients of the HCSE for Desired Number of Children

	Coefficient	SE(HC)	T	P>|t|
Constant	3.9405	.0647	60.8944	.0000
Social/Normative voc	.4948	.0597	8.2928	.0000
Economic/Utilitarian voc	.1758	.0583	3.0152	.0027
Psychological/Emotional voc	-.3534	.0670	-5.2755	.0000

Source: Tabulated by the Author

The results of OLS regression and HCSE regression are combatable for the desired number of children. In both methods, all the three predictors were found to be significantly different from zero. Thus, our model is significant ($F_{3, 601}$ = 38.224, *p-value* < 0.05, adjusted R^2 = 0.138). The significant variables are summarized in table 50.

Table 50 Results of Significant Variables of Desired Number of Children

Predictor Variable	Standardized coefficient	*P-value*
Social/Normative VOC	0.4948	0.0000
Economic/Utilitarian	0.1758	0.0027
Psychological/Emotional VOC	-0.3534	0.0000

Source: Tabulated by the Author

Interpretation of the Beta Coefficients for Desired Number of Children

Social/Normative VOC – the standardized coefficient for the predictor social/normative VOC is positive indicating that it has a direct relationship with desired number of children. That is, as the social/normative VOC increases on the scale, the desired number of children also increases. More explicitly, we can say that, holding other variables constant, a 1 standard deviation increase in the social/normative VOC resulted in a 0.4948 standard deviation increase in the desired number of children.

Economic/Utilitarian VOC – here also the positive value of the economic/utilitarian VOC indicates that the predictor has a direct relationship with the desired number of children. In other words, as the economic/utilitarian VOC increases on the scale, the desired number of children also increases. More explicitly, we can say that, holding other variables constant, a 1 standard deviation increase in the economic/utilitarian VOC resulted in a 0.1758 standard deviation increase in the desired number of children.

Psychological/Emotional VOC – Unlike the other two predictors above, the value of standardized coefficient for psychological/emotional VOC is negative indicating an inverse relationship with the dependent variable, desired number of children. In other words, as the psychological/emotional VOC increases on the scale, the desired number of children decreases. More explicitly, we can say that, controlling other variables constant, a 1 standard deviation increase in the psychological/emotional VOC resulted in a 0.3534 standard deviation decrease in the desired number of children.

Finally, even though all the predictors significantly affect the desired number of children, we can see from the values of the coefficients that social/normative VOC (Beta=0.4948) has the largest effect on the dependent variable followed by psychological/ emotional VOC (Beta= -0.3534).

5.5. Discussion of Major Results of the Study

The principal objective of the present study was to explore changes in the values attributed to children by parents, utilizing sex and socio-economic development level variations as indicators of change in perception. In this study, the variation among different socio-economic groups was studied by comparing three areas in *Sidama Zone* of the SNNPR. The three areas considered were *Shebedino Wereda* (Rural), *Yirgalem* Town (Urban) and *Hawassa* City (Urban) in relative terms. That is, the study areas were classified as rural and urban for the purpose of identifying the areas socio-economic development level within the country based on the definition of CSA of Ethiopia. Thus the different areas /socio-economic groups/ investigated were stated below as rural, town and city.

Moreover, this study aimed to identify demographic and socio-economic factors accounted for the transformation of the perceptions of the youths attributed to children with increasing socio-economic development. The study also looked into the impact of the perceptions of the youth towards children onto fertility-related attitude or desired number of children. The existence of sex preference in different socio-economic groups and between sexes was also assessed.

With regard to social/normative VOC, the result showed that the importance of having children for social acceptance decrease with increasing socio-economic status. Contrary to hypothesis 1a(see page 22), the importance of social/normative VOC increases from rural area to town. This result need to be investigated further.

The marked difference of the rural area and the town from the city concerning the social/normative VOC shows the importance of changes in lifestyles (rural to town and town to city) for the modifications in traditional perceptions of values towards children. In each area, the importance of social/normative VOC is higher for female respondents than male.

In line with hypothesis 1b (see page 22), socio-economic groups differences are seen in economic/utilitarian expectations from children. The results showed that

the importance of having children for economic/utilitarian purpose decreases with increasing socio-economic development. In each level of the socio-economic group the importance of economic/utilitarian VOC is higher for female respondents than male. Thus, beyond socio-economic development, economic dependencies are marked in female respondents.

As for the psychological/emotional VOC, there is again a socio-economic group differences regarding the perception of youths towards children. The findings showed that respondents living in the city put higher emphasis on psychological/emotional VOC than those living in rural area. Similar result has been reported in a study conducted in India ((Mishra et al., 2005). The weaker psychological/emotional VOC in the rural area may reflect a relative lack of salience in psychological/emotional expectation due to a stronger social/normative and economic/utilitarian emphasis.

Contrary to hypothesis 1c (see page 22), respondents from town put higher emphasis on psychological/emotional VOC than those living in rural area as well as the city. The possible explanation of the difference in the psychological/emotional VOC between the town and the city could be attributed to the small sample size taken from the town (*Yirgalem* Town). But, this deduction need to be further investigated.

With regard to perception difference between male and female, the results of simple main effects analysis showed that female respondents living in the cities were significantly more interested in psychological/emotional VOC than males. But there were no significant differences in perception with regard to psychological/emotional VOC between male and female respondents living in rural areas and towns.

In general, it can be claimed that perception differences among youths from rural area and the city suggest that with social change and development profound changes take place in social/normative and economic/utilitarian VOCs. In particular, the decrease in the importance of social/normative VOC from rural

area to the city reflects different meanings attached to children with urbanization and socio-economic development. This change in social/normative VOC is of a greater magnitude than in the other VOCs as apparent from its larger effect size.

A theme resonated on this study is the importance of the perceived differential values of sons and daughters. In line with hypothesis 2 (see page 22) , findings showed that youths in rural area put high sex preference for boys than girls while no significant difference were observed in sex preference for boys in urban areas (town and city). Moreover, the findings showed that there is no statistical difference between male and female respondents towards sex preference; that is, sex has no effect over sex preference.

The high sex preference for boys in the rural area indicates that there is high association with the high social/normative and economic/utilitarian VOC prevailed in rural areas. That is, son preference certainly has symbolic and material foundations. Unless such perceptions are questioned and altered, daughters will remain second-class children and the desire for sons will continue to drive the family building process in the country.

The findings also showed that the hypotheses stating changes in values associated with children as socio-economic conditions change were supported by the study. The social/normative VOC was significantly influenced by four factors (sex, education, household income and sex-role definition). In line with hypothesis 3,5 and 6, (see page 22 and 23) the social/normative VOC was negatively associated with education and income indicating that respondents who are more educated and who earn more are less interested in social/normative VOC. On the other hand sex-role definition is positively associated with social/normative VOC. This indicates that respondents who define the female role as being that of housewife and homemaker valued social/normative VOC more than those whose definition of the female role includes outside-the-home activities. Though not hypothesized, sex is also positively associated with social/normative VOC. It indicates that female more than male, are highly interested in social/normative VOC.

With regard to economic/utilitarian VOC, only two variables (household income and sex) were found significantly associated with it. Household income was negatively associated with economic/utilitarian VOC indicating that respondents who earn more are less interested in economic/utilitarian assistance from their children. This is in line with hypothesis 5. Sex, on the other hand, is positively associated with economic/utilitarian VOC. It indicates that female, more than male, have high expectations of economic/utilitarian support from their children while they are young and in their adulthood. This result, perhaps, is associated with the low economic status of females in our society. The great importance of this value underlies youths' (parent's) reliance on children for basic needs that are not yet met through formal institutional measures such as old-age pensions.

In the case of psychological/emotional VOC, though not hypothesized, sex and exposure to media were significantly associated with the dependent variable. Exposure to media (newspaper, radio and television) was negatively associated with psychological/emotional VOC indicating that respondents who are more exposed to information rate the psychological/emotional VOC more than those who have little or no access to media. Sex, as in the case of the other two dimensions of VOC, is positively associated with psychological/emotional VOC. It shows that female, more than male, have high expectations of psychological/emotional satisfaction from their children. Perhaps this could be due to the fact that the attachment and the companionship of mother-child are highly valued particularly in societies like ours (patriarchal).

The two independent variables, work status and rural-urban differences/background were not associated with any of the dimensions of VOC. Perhaps, the possible explanation particularly with regard to work status is the fact that large proportions (45.8%) of the respondents in the study were unemployed during the survey time. Moreover, the majority of respondents (24.4%) who were working during the survey time were engaged in irregular activities (freelance) particularly as a coffee broker during the harvesting season but are unemployed off pick season.

With regard to desired number of children, the impacts of the perceptions of the youths towards children were also examined. According to theoretical perspectives on VOC, social/normative and economic/utilitarian reasons for having children should be positively related to fertility measures while psychological/emotional reasons should be negatively related to these indicators (Kagitcibasi, 1982b). The suggested pattern was found in the present analyses of youths who are unmarried and have no children.

The findings of these analyses showed that all the three dimensions of VOC (social/normative, economic/utilitarian, and psychological/emotional) were significantly associated with the desired number of children. In line with hypothesis 8 (see page 23), social/normative and economic/utilitarian VOCs are positively associated with desired number of children. That is, youths who attach high social/normative and economic/utilitarian expectations describe high desire towards children in terms of family size. On the contrary, psychological/emotional VOC is negatively associated with desired number of children indicating an inverse relationship with the dependent variable. This indicates that the desire for more children diminishes as the psychological/emotional VOC increases. In other words, fertility decreases with development because economic/utilitarian and psychological/emotional VOCs are differentially affected by development and are differentially related to desired family size.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

One of the objectives of this study is to suggest what relevance the findings of the VOC study might have for change to assist in future policy formulation. Understanding the VOC to parents is very important to see the role and place of children in a family and the society. Studies in this regard provide rich information for policies directed at human welfare. When the perceived positive VOC and the motivations of the youths are known, it is possible to influence those motivations in desired ways and it can be used to create or support public opinions favorable to low fertility.

Analyses on the VOC in this study indicate that all the three dimensions of the VOC are of high relevance for the youths in the study. Beside, marked differences exist between the different socio-economic groups under consideration/ rural and urban areas/ and sex. Youths residing in the rural area both male and female, hold very high social/normative and economic/utilitarian VOC as compared to their counterparts in the city. Even though it was less emphasized by youths living in the city, unexpectedly, the social/normative VOC was highly valued by youths living in town than it is in rural area. With regard to psychological/emotional VOC, no differences exist between the town and the city. But in rural areas the youths hold somewhat lower psychological/emotional values.

As to sex preference, findings showed that youths in the rural area put high son preference whereas no statistical difference was observed between male and female respondents towards sex preference. Moreover, no significant difference was observed in sex preference for boys in urban areas (town and city).

Findings also showed that socio-economic and demographic factors affect the perceptions of youths towards the different dimensions of VOC. The VOCs, in

turn, as social-economical-psychological mechanisms, affect fertility-related attitude. Analysis of the data suggested that with socio-economic development and especially with increased income, children's economic value decrease. On the other hand, sex-role definition was positively associated with the social/normative VOC while education and income were associated negatively. It was also observed that the psychological/emotional VOC is positively affected by exposure to media.

An interesting pattern of VOC and fertility-related attitude was also observed that follows the proposed hypotheses. Youths who attached high social/normative and economic/utilitarian VOCs described higher desired number of children whereas youths who held high psychological/emotional VOC described lower fertility desire.

To conclude, this study gives first insights into the different aspects of the VOC, the factors that may affect these values and the effect of the VOCs on desired number of children. The results of the analysis imply that strategies and policies aimed at reducing fertility desire must be developed. Thus, the current study is important for predicting changes in fertility patterns and for affecting the motivation for fertility. Motivational factors can become more important in determining fertility behavior. Indeed, the concern of high fertility can be tackled by identifying which of the satisfactions that children are seen as providing predict high fertility. By providing alternative sources of satisfaction for the needs involved, desired family size may be diminished.

6.2. Recommendations

One of the main findings of the present study was the difference in nature and function between economic/utilitarian and psychological/emotional values associated with children; economic/utilitarian values were associated with having many children whereas psychological/emotional values were compatible with small number of desired children. This knowledge can be used to encourage lower fertility. Thus the following recommendations are forwarded:

1. The most effective alternative source of satisfaction to lower the existence of high economic/utilitarian VOC associated with high fertility desire is through the provision of old-age security benefits, unemployment and health insurance. The government of Ethiopia has currently launched Private Organization Employees Pension Proclamation as part of the country's social policy. Such measures should be expanded to reach all citizens in providing the social security system step by step. Unless the government adopts such policy, reduction of fertility particularly in rural areas may not be attained. However, the viability of such measures seems doubtful at least for some time to come. Thus, in the mean time, the other alternatives below can work well.

2. Analysis of the data in the current study showed that females more than males hold high social/normative and economic/utilitarian VOC. Thus increasing educational and employment opportunities for females would be another means for providing alternatives source of satisfaction. Education and formal employment would increase women's status in the family, enabling them to participate in family decision making, to be less dependent on their husbands and children for support, and to limit their fertility through the use of contraception. Time spent on education and work would also obstruct with having many children by raising women's age at first marriage and the opportunity costs of children. Thus, the government should raise the educational level of the community, especially of the young generations.

3. The finding of the study also showed that exposure to media has a positive effect on psychological/emotional VOC. Thus, increasing access to media can also be a source of satisfaction by increasing psychological/emotional needs of having children and decreasing the economic/utilitarian expectations and thus decreasing the desire for higher number of children. Both formal and informal education for parenthood through mass media, schools, and adult education institutions are very important to reach young adults before they have children. Programs emphasizing the contributions of few children's to satisfy parent's psychological needs better than many children and the worries/challenges of raising many children that get in the way of enjoying them are very important. Such information may help youths dissociate children's value from the notion that more children are necessarily more desirable than fewer. On the other hand, public education should also focus on increasing awareness of the cost of children. Communication efforts could encourage couples to postpone childbearing as well as to have fewer children. Hence, the rural community needs to have more communication with the outside world whether through the mass media or by other means, so that their knowledge will be broadened and their perceptions on the desire for children will increase.

Finally, the researcher is fully aware of the fact that there may be differences among residents in different regions and different ethnic groups towards the different VOC. Whether conclusions arising out of this study are valid for the whole country is a question for future research. It is also worth noting that my study is prospective; based on young males and females who are unmarried and have no children. Since the reasons for wanting a child may change once the youths become a mother or a father, a study that examines the reasons couples have for wanting a child is highly recommended. Moreover, the present study didn't accommodate generational effect on the reasons of having children. It is also recommended that future researches consider different cohorts to study the transmission of values and to assess time effects with respect to change.

References

Aycicegi-Dinn, A., and Cigdem Kagitcibasi .2010. *The Value of Children for Parents in the Minds of Emerging Adults,* Published by SAGE ccr.sagepub.com available from: http://www.sagepublications.com

Becker, Gary S. 1991. *A Treatise on the Family, Enlarged Edition.* Cambridge: Harvard University Press

Belanger, Daniele. 2002. Son Preference in a Rural Village in North Vietnam, *Studies in Family Planning, Vol. 33, No. 4 (Dec., 2002), pp. 321-334*

Birdsall, Nancy .1976. Women and Population Studies, Signs 1:699-712.

Boserup , Ester. 1965. *The Conditions Of Agricultural Growth: The Economics of Agrarian Change Under Population Pressure* in URL: http://www.tradingeconomics.com retrieved on May 7, 2011

Box, G. E. P., & Cox, D. R. 1964.. An analysis of transformations. *Journal of the Royal Statistical Society B, 26, 211-243.*

Bulatao, R.A and John B. Casterline . 2001. Global Fertility Transition *Population and Development Review: A Supplement of Volume 27, 2001*

Cain, Mead T .1977. The Economic Activities of Children in a Village in Bangladesh, *Population and Development Review, Vol. 3, No. 3 (Sep., 1977), pp. 201-227*

Caldwell, John C. and Pat Caldwell. 1987. The Cultural Context of High Fertility in sub-Saharan Africa, *Population and Development Review, Vol. 13, No. 3 (Sep., 1987), pp. 409-437*

Caldwell, J. C. (1976). Toward a restatement of demographic transition theory, *Population and Development Review, September/December, 321-438.*

Carmines, E. G., & Zeller, R. A .1979. *Reliability and validity assessment.* Thousand Oaks, CA: Sage.

Christoph, Bühler .2008. "On the structural value of children and its implication on intended fertility in Bulgaria"; *Demographic Research, Volume 18, Article 20*

Cochran, W. G. 1977. *Sampling techniques* (3rd ed.). New York: John Wiley & Sons.

Cohen, Jacob.1988. *Statistical power analysis for the behavioral sciences* (2nd edition). Hillsdale, NJ: Erlbaum

CSA (Central Statistical Agency) .2006. *Ethiopian Demographic and Health Survey, 2005*, CSA and ORC Macro Addis Ababa, Ethiopia and Calverton, MA: Central Statistical Authority and ORC Macro', 2006.

CSA (Central Statistical Agency) .2010. *Statistical Report on "The 2010 Urban Employment Unemployment Survey", Addis Ababa, Ethiopia*

CSA (Central Statistical Agency) .2010. *Statistical Report on "The 2007 Population and Housing Census of Ethiopia", Addis Ababa, Ethiopia*

CSA (Central Statistical Agency) .2011. *Statistical Abstract 2011/2012, Addis Ababa, Ethiopia*

Darlington, R. B. 1990. *Regression and linear models.* New York: McGraw-Hill.

Darlington, Richard B., Sharon Weinberg, and Herbert Walberg .1973. Canonical variate analysis and related techniques. *Review of Educational Research*, 453-454.

Ehrlich, Paul.1968. *The Population Bomb.* New York: Ballantine Books

Feng, Wang. 2005. "Can China Afford to Continue Its One-Child Policy?", *Asia Pacific Issues,* Analysis from the East-West Center *No. 77, Honolulu, Hawaii*

Field, A.P.2005. *Discovering Statistics using SPSS for Windows: Advanced Techniques for the Beginners* (2nd edition). London:Sage

Fitzpatrick, Laura. 2009. *A brief history of China's one-child policy,* available from URL: http://www.time.com/time/world/article/8599,1912861.00.htm, retrieved on December 28, 2010

George, D., & Mallery, P. 2003. *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon. page 231

Gupta ,Monica Das .1995. Fertility Decline in Punjab, India: Parallels with Historical Europe, *Population Studies, Vol. 49, No. 3 (Nov., 1995), pp. 481-500*

Hardin, Garrett.1968. The Tragedy of the Commons, *Science, New Series, Vol. 162, No. 3859., pp. 1243-1248.*

Hayes, A. F., & Cai, L.2007. Using heteroscedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation. *Behavior Research Methods, 39*, 709-722.

Hayes, Andrew F. 2011. *Macro (HCREG) for Heteroscedasticity-consistent standard error estimators in OLS regression* in URL: www.comm.ohio-state.edu/ahayes/ retrieved on February 25, 2012

Hoffman, L. Wladis and Jean Denby Manis .1979. "The Value of Children in the United States: A New Approach to the Study of Fertility"; *Journal of marriage and the family Vol. 41, No. 3, pp.91-131*

Hoffman, Lois Wladis, Arland Thornton, and Jean Denby Manis.1978. The Value of Children to Parents in the United States, *Journal of Population, Vol. 1 No.2, pp.* 583-596

Hosmer, D.W. and Lemeshow, S. 1989. *Applied Logistic Regression*, New York: JohnWiley.

Hutcheson, G., & Sofroniou, N.1999. *The multivariate social scientist: Introductory statistics using generalized linear models*. Thousand Oaks, CA: Sage Publications.

Kagitcibasi, Cigdem .1982b. *The changing value of children in Turkey.* Honolulu, HI: East-West Center.

Kaiser, H.F.1974. An index of Factorial Simplicity. *Psychometrika*, 39, 31-36.

Kasarada. J.D. and Parnell. A.M. 1993. *Third World Cities: Problems, Policies, and Prospect,* Sage Publications.

Kim, Jae-On and Mueller, Charles W. 1978. *Introduction to Factor Analysis: What It Is and How to Do It*, SAGE Publication, Inc Newbury Park, California

Klaus , Daniela, Jana Suckow and Bernhard Nauck. 2007. The Value of Children in Palestine and Turkey, *Journal of Current Sociology Vol. 55 No. 4 PP. 527–544*

Long, J. S., and Ervin, L. 2000. Using heteroscedasticity-consistent standard errors in the linear regression model, *The American Statistician*, 54, 217-224.

Lwanga, S.K and Lemeshow S .1991. *Sample Size Determination in Health Studies: A Practical Manual.* Geneva: World Health Organization.

Malthus, Thomas.1798. *An Essay on the Principle of Population* in: Electronic Scholarly Publishing Project, London

Mishra, C.Ramesh, Boris Mayer, Gisela Trommsdorff, Isabelle Albert and Beate Schwarz .2005. *The Value of Children in Urban and Rural India: Cultural Background and Empirical Results*

Morris, Julian. 2009. The Persistence of Population Pessimism, *Electronic Journal of Sustainable Development, Vol. 1, No. 3,* Available from URL: www.ejsd.org , retrieved on February 13, 2011

MYSCE(Ministry Of Youth, Sports & Culture Of Ethiopia).2004. *National Youth Policy*

Nauck , Bernhard. 2007. *Value of Children and the Framing of Fertility: Results from a Cross-cultural Comparative Survey in 10 Societies,* European Sociological Review Volume 23 No.r 5 2 PP. 615–629 available from URL: http://www.esr.oxfordjournals.org

Nauck , Bernhard.1989. Intergenerational relationships in families from Turkey and Germany: An extension of the 'value of children' approach to educational attitudes and socialization practices, *European Sociological Review, Vol. 5 No. 3,* December 1989 at Oxford University Press 1989

Nauck, B., and Kohlmann A. 1999. *Kinship as Social Capital: Network relationships in Turkish migrant families.*

Neter, J., Wasserman, W. and Kutner,M.H. 1983. Applied Linear Regression Models. Richard D. Irwin Inc., Homewood

PCC(Population Census Commission).2008. *Summary and Statistical Report of the 2007 Population and Housing Census*

Pritchett, L.N. 1994. Desired Fertility and the Impacts of Population policies, *Population and Development Review Vol 20, No.1*

Shobo, Yetty .2008. *Individualism, Collectivism, Values of Children, and Ideal number of Children: Patterns of Associations in a Period of Intense Social Change in Nigeria*

Siegel, S. Jacob and Swanson, A. David.2004. The Methods and Materials of Demography, Elsevier Academic Press 525 B Street, Suite 1900, San Diego, California 92101-4495, USA

Simon, Julian.1981. *The Ultimate Resource,* Princeton, N.J. : Princeton University Press

Soeparmanto, Palman. 1980. *Perception of The Value Of Children By Parents In Relation To Fertility Among The Maduran People In Kamal, Bangkalan Regency, Madura*

Terry, Geraldine Bryant .1975. Rival explanations in the work-fertility relationship, *Population Studies 29:191-205.*

TGE (Transitional Government of Ethiopia).1993. *The National Population Policy of Ethiopia,* Addis Ababa, Ethiopia

Tobin, Patricia Lysbeth .1976. Conjugal role definitions, value of children and contraceptive practice. *The Sociological Quarterly 17:314-22.*

Trommsdorff G., and Bernhard Nauck .2005. *.The value of children in Cross-cultural Perspective: Case of studies from eight societies,* (pp. 143-170). Lengerich: Pabst Science

Trommsdorff G., Gang Zheng and Twila Tardif .2002. *Value of Children and Intergenerational Relations in Cultural Context,* available from URL: http://kops.ub.uni-konstanz.de/volltexte/2010/11136/ retrieved on September 12, 2011

Turchi, Boone and Ellen S. Bryant.1979. *Rural Development Activities, Fertility, and the Cost and Value of Children,* University of North Carolina, Mississippi State University

UC(University of Chemnitz).2010.*The value of children research* available from URL: http://www.tu-chemnitz.de/hsw/soziologie/institut/VOC-340.html retrieved on Friday September 3, 2011

UN (United Nations). 2005. *United Nations Demographic Yearbook, Table 6,* United Nations, New York.

Vlassoff, Carol. 1990. The Value of Sons in an Indian Village: How Widows see it, *Population Studies, Vol. 44, No. 1 (Mar., 1990), pp. 5-20*

World Bank. 1984. *World Development Report 1984: Population Change and Economic Development*. New York: Oxford University Press.

World Bank. 2010. *Determinants and Consequences of High Fertility: A Synopsis of the Evidence* World Bank, Mail Stop G7-701, 1818 H Street N.W., Washington, DC 20433, USA

List of Appendixes

Appendix I. Schedule for the Value of Children

Value of Children

Schedule for the Youths aged 15 to 29 years

First of all, thank you very much for participating in this study. The purpose of the study is to explore why people want to have children and how their perception and attitude affects their fertility level.

Since we would like to find out if younger people think differently about these topics than older people do, I will be asking your opinion on the value of children. Therefore, I request you listen to each question carefully and if you have any problem understanding a question, please feel free to ask me to repeat the question or explain what I mean by it.

The information you provide is very essential to achieve the purpose of the study but it will not be used in any harmful way against you or the society. Thus you are kindly requested to cooperate by providing accurate information to the questions I am going to ask you.

Always keep in mind that there is no "right" or "wrong" responses. Just give me your personal opinion.

Thank you very much, once again, for participating in our study!

Schedule ID.: _____

Area of Study:

- ☐ Hawassa
- ☐ Yirgalem
- ☐ Shebedino

Interviewer Name.: _____

Sex of the Interviewer: _____

Date of interview (DD/MM/YYYY): _____ _____ 2011/2012

When did the interview begin? (What time?) _____:_____ a.m./p.m.

When did the interview end? (What time?) _____:_____ a.m./p.m.

Section I: Demographic and Socio-economic Background Information of the Respondent

First of all, I'd like to ask you some questions about yourself

D.1.	When was you born? (What year and month?)	Month :_____ Year: 19 _____	
D.2	Age of respondent in complete years	_____ years	*(Compare and correct D.1 & D.2 if inconsistent.*
D.3	Sex	1. Male 2. Female	
D.4.	Where were you born?	Region:_____	
D.5.	What is your ethnicity	1. Sidama 2. Wolayita 3. Amhara 4.Oromo 5.Gurage 6. Other, specify _____	
D.6.	What religions or beliefs do you hold, if any?	0. No religion or belief 1. Orthodox Christian 2. Protestant 3. Catholic 4. Islam 5.Other,Specify_____	
D.7.	Are you able both to read and write?	0. No 1.Yes 2. With difficulty	*If No, go to D. 11*
D.8.	Have you ever attended formal education?	0. No 1. Yes	*If No, go to D.10*
D.9.	What is the highest level of education that you attained?	1. Primary (1-8 grade) 2. Secondary (9-12) 3. Technical/Vocational Certificate 4. Tertiary (Diploma and above)	
D.10.	How frequent do you read a newspaper or magazine?	1. Almost every day 2. At least once a week 3. Less than once a week 4. Not at all	
D.11.	How frequent do you listen to the radio?	1. Almost every day 2. At least once a week 3. Less than once a week 4. Not at all	
D.12.	How frequent do you watch television?	1. Almost every day 2. At least once a week 3. Less than once a week 4. Not at all	
D.13.	Have you ever been living in urban area before now?	0. No 1.Yes (for how long) _____	*Only for those who live in rural areas*
D.14.	Where did you live during most of your life?	1.Total urban 2.Majority Urban 3.Total rural 4.Majority rural	

Section II: General Information

G.1.	Are you engaged in any activity of producing services or materials (except the household work) during the past 12 months	0. No 1.Yes	*If No, go to question G.4*

G.2.	In what type of activities are you currently engaged in?	1.Public Sector (Local, State, Federal Government) 2. Trade/craftsmanship 3. Commerce(retail/wholesale) 4. Agriculture	5.Industry/manufacturing 6. Freelance 7. Other, specify _____
G.3.	Are you working full time or not	1. Working fulltime	2. Not working fulltime

G.4 Does Your household have

	0.No	1.Yes		0.No	1.Yes
Electricity			Bicycle		
Watch			Motor Cycle		
Radio			Animal-Drawn Cart		
Television			Car/Truck		
Mobile Telephone			Boat without Motor		
Non-mobile telephone (fixed line, wireless)			Boat with Motor		
Refrigerator					
Kerosene/Pressure Cooker					

G.5	Does the household own the house	0. No	1.Yes	
G.6	Does the household own agricultural land	0. No	1.Yes	*If No, go to G.8*
G.7	How much of the land is owned by the household (In hectare)	_____ hectares		

G.8 Does the household own cash crops

	0. No	1. Yes	Number
Coffee plant			
Chat(in hectare)			

G.9 Does this household own any cattle and poultry

	0. No.	1. Yes	Number
Bullock			
Cow			
Sheep			
Goat			
Horse/Mule			
Donkey			
Chicken			

G.10	Compared to others living in this area, what economic status do you consider yourself to have? Where would you put yourself on this scale?	1. Low 2. Lower middle	3. Middle 4. Upper middle	5. Upper

Section III: Fertility-related Questions

Now I'd like to ask some questions about your attitudes towards children

F.1	What would you say are some of the good things or advantages of having children, compared with not having at all		(put a mark on the response based on the following scale)

1	2	3	4	5
Not important at all	Not very important	Moderately important	Important	Very important

	Reasons /Advantages	**1**	**2**	**3**	**4**	**5**
1						
2						
3						
4						
5						
6						
7						
8						

F.2	I have a list here of reasons people may give for wanting to have children in general. Please use the above scale as a guide and tell me how important the following reasons for wanting to have children are to you personally.	(put a mark on the response based on the above scale)

	Reasons /Advantages	**1**	**2**	**3**	**4**	**5**
	Because having children intensifies contacts and communication with your kin/relatives					
	To carry on the family name					
	Because it is a duty to have children according to your religion or belief					
	Because your life will be continued through your children					
	Because some of your parents or older relatives feel that you should have children					
	Because you can make new friends through your children					
	Because parenthood improves your standing and betters your reputation in the society					
	Because a child helps around the house chores or farm activities					
	Your children can help you when you're old.					

	Because it is a joy to have a small baby					
	Because it is fun to have young children around the house					
	Because of the pleasure you get from watching your children grow					
	Because of the special feeling of love that develops between a parent and a child and to have someone to love and care for					
	Because you want to share what you have and what you know with children					
	Because raising children helps you learn about life and yourself.					
	Because having children increases your sense of responsibility and helps you to develop					
	Because having children gives you more reason to succeed in your work.					
	Because having children brings husband and wife closer together or strengthen the bond between them					
	Because people with children are less likely to be lonely in old age					

F.3	How much do you agree with the following statement? "Except in special cases, the wife should do the cooking and housekeeping and the husband should provide the family with money."	1. Disagree strongly 2. Disagree slightly	3. Agree slightly 4. Agree strongly

We often talk about small and large families, but people have different ideas about what that means.

F.4	How small is a "small family" in your opinion? In other words, how many children are in a "small family"?	_____ Children	
F.5	How large is a "large family" in your opinion? In other words, how many children are in a "large family"?	_____Children	
F.6	What is the "ideal family size" in your opinion? In other words, how many children are in an "ideal family"?	_____ Children	
F.7	If you choose exactly the number of living children to have in your whole life, how many would that be?	_____ Children	*Check whether the sum of boys and girls equal the total number of children desired*

F.8	How many of these children would you like to be boys, and how many would you like to be girls	_____ Boys _____ Girls	
F.9	Do you want to have a child immediately after getting married or do you want to wait for some time	1. Immediately after getting married 2. After _____ years	
F.10	At what age do you want to get married?	_____ Years	
Questions for those respondents who are working at the time of the interview			
F.11	Suppose your income increases to double what it is now, would that affect the number of children you want to have?	0. No 2. Don't Know 1. Yes	*If Yes, go to F.12*
F.12	How would it affect the number of children you want to have?	1. Number of children increases 2. Number of children decreases	
Questions on Sex Preference			
F.13	Would you prefer your first child to be a boy or a girl or is it all the same to you?	1. A boy 2. A girl 3. Doesn't matter	*If the answer is a boy, go to question F.15 and F.16* *If the answer is a girl, go to question F.17 and F.18*
F.14	If you have exactly one child, would you prefer it to be a boy or a girl or is it all the same to you?	1. A boy 2. A girl 3. Doesn't matter	
F.15	Why is it important for you to have a boy as your first child? 1. Sons symbolize perpetuation of family lineage 2. Sons give their parents status and legitimacy in their family and community 3. Sons perform funeral and cult rituals 4. Sons are the source of economic support and old-age security 5. Sons serve their parents for a relatively long time unlike daughters who serve their parents only until they get married 6. Other(specify) _____		
F.16	If you couldn't have any sons and kept on having daughters, what would you do? Will you continue having babies until you will have a boy, or would you stop after a certain number of girls?	1. Continue until a boy comes 4. Uncertain 2. Stop after having _____daughters 5. Other(s) specify _____ 3. It is up to God/ fate	

F.17	Why is it important for you to have a girl as your first child?	1. She assist her family in house chores 2. She brings good fortune to the family 3. She bring good dowry to the family 4. Other(s) Specify _____
F.18	If you couldn't have any daughters and kept on having sons, what would you do? Will you continue having babies until you will have a daughter, or would you stop after a certain number of boys?	1. Continue until a girl comes 2. Stop after having _____sons 3. It is up to God/ fate 4. Uncertain 5. Other(s) specify _____

F.19	Now , you will tell me whether you agree with the following statement or not	- Sons are more important than daughters to continue family lineage - Sons than daughters are important to perform ritual functions - Sons than daughters are important in old age security - Sons than daughters are important in household day to day work - Sons are more important than daughters to enhance parent's social acceptance in the community - Sons than daughters strengthen the marital bond between husband and wife	1. Agree	2. Disagree

F.20	In your opinion, how much education should be given to girls these days	1. No Education 2. Primary/1-8/ 3. Secondary/9-12/ 4. Higher Education/college and University 5. As much as possible

Section IV: Family planning and Contraception

Next, I will ask you some questions about family planning

C.1.	There are various ways and methods of delaying or preventing conception or pregnancy. Have you ever heard of such methods or techniques?	0. No 2. No response 1. Yes	*If No, skip the rest of the questions of this part /Section IV/*
C.2.	What methods have you heard of?	1. Standard days method 2.Combined Oral Contraceptives 3. The Inject able Contraceptive 4. Emergency Contraception Pills 5. Intrauterine Device (IUD) 6. Female Condom	7. Male Condom 8. Norplant 9. Tubal legation 10. Vasectomy 11. Other, specify _____
Questions only for female respondents (C.3 to C.8)			
C.3.	Have you ever used any method of birth control?	0. No 1. Yes 2. No response	*(If No, go to question C.6)*
C.4	Do you currently practicing or using any contraceptive method to delay or avoid pregnancy?	0. No 1. Yes 2. No response	*(If No or No response, go to question C.6)*
C.5.	What method/s are you using now?	_____	*Use the code in C.2*
Questions for those who have never used any contraceptive methods			
C.6.	Do you intend to use any contraceptive method to delay or avoid pregnancy in the future?	0. No 2. Uncertain 1.Yes	*(If No or Uncertain, go to question C.7)*
C.7.	What is the main reason that you think you will not use a contraceptive method at any time in the future?	1. Lack of Knowledge 2.Not approving family planning 3. Lack of access/Unavailability 4. Too much costs 5. Fear of side effects	6. Religion reason 7. Inconvenience 8.other (specify) _____
C.8.	Do you know a place where you can obtain a contraception method?	0. No 2.Not Applicable 1. Yes	

Section V. Interviewer Rating

Interviewer: Please provide the following information about the respondent and the interview Situation

I.1	Where did the interview take place?	1.In the respondent's home 2.Elsewhere,specify _____
I.2.	Did anyone interfere with the interview?	1. Not at all 2. A little 3. Somewhat 4. A lot 5. Quite a lot
I.3.	How easy or difficult was it to do the interview?	1. Very easy 2. Fairly easy 3. Neither easy nor difficult 4. Fairly difficult 5. Very difficult
I.4.	How often did you have to contact the respondent until the interview was completed?	_____ Times
I.5.	How long did the entire interview take?	_____ Minutes

Appendix II. Finding of FGD in the Study Areas regarding the Value of Children

Hawassa City

1. To carry on the family name
2. Your life will be continued through your children
3. Some of your parents or older relatives feel that you should have children
4. Parenthood improves your standing and betters your reputation in the society
5. A child helps around the house chores or farm activities
6. Your children can help you when you're old.
7. It is a joy to have a small baby
8. The special feeling of love that develops between a parent and a child and to have someone to love and care for
9. To share what you have and what you know with children
10. Having children increases your sense of responsibility and helps you to develop
11. Having children gives you more reason to succeed in your work.
12. Having children brings husband and wife closer together or strengthen the bond between them

Yirgalem Town

1. To carry on the family name
2. Your life will be continued through your children
3. Some of your parents or older relatives feel that you should have children
4. Parenthood improves your standing and betters your reputation in the society
5. A child helps around the house chores or farm activities
6. Your children can help you when you're old.
7. It is a joy to have a small baby
8. To share what you have and what you know with children
9. Having children brings husband and wife closer together or strengthen the bond between them

Shebedino

1. To carry on the family name
2. Because some of your parents or older relatives feel that you should have children
3. Because parenthood improves your standing and betters your reputation in the society
4. Because a child helps around the house chores or farm activities
5. Your children can help you when you're old
6. It is a joy to have a small baby
7. It is fun to have young children around the house
8. To share what you have and what you know with children
9. Having children increases your sense of responsibility and helps you to develop

Appendix III. Correlation Matrix for Factor Analysis

Table : Correlation Matrix

		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19
Correlation	V1	1.000	.306	.020	.132	.107	.218	.107	.316	.324	-.008	.017	.104	.002	-.046	-.016	-.002	.110	.068	.109
	V2	.306	1.000	.162	.145	.182	.223	.223	.246	.256	-.081	.019	.014	.099	.040	.096	.056	.078	.056	.129
	V3	.020	.162	1.000	.096	.400	.130	.253	.176	.112	-.061	-.005	-.006	.053	-.095	-.021	-.062	-.006	-.005	.019
	V4	.132	.145	.096	1.000	.032	.131	.011	.142	.197	-.061	-.006	.104	-.012	.026	.108	.128	.072	.003	.153
	V5	.107	.182	.400	.032	1.000	.294	.316	.258	.236	-.061	.100	.024	.070	-.052	.055	-.040	.056	.007	.083
	V6	.218	.223	.130	.131	.294	1.000	.308	.253	.228	-.018	.034	.097	.059	.042	.202	.134	.229	.126	.139
	V7	.107	.223	.253	.011	.316	.308	1.000	.295	.139	-.044	.098	.054	.057	.002	.081	.078	.039	.092	.114
	V8	.316	.246	.176	.142	.258	.253	.295	1.000	.640	-.253	-.102	-.157	-.012	-.151	-.023	-.137	.046	-.041	.228
	V9	.324	.256	.112	.197	.236	.228	.139	.640	1.000	-.204	-.100	-.057	-.077	-.123	.004	-.114	.054	-.089	.254
	V10	-.008	-.081	-.061	-.061	-.061	-.018	-.044	-.253	-.204	1.000	.394	.339	.143	.082	.161	.156	.090	.234	-.002
	V11	.017	.019	-.005	-.006	.100	.034	.098	-.102	-.100	.394	1.000	.391	.164	.091	.037	.091	.069	.154	.061
	V12	.104	.014	-.006	.104	.024	.097	.054	-.157	-.057	.339	.391	1.000	.206	.212	.261	.224	.090	.236	.118
	V13	.002	.099	.053	-.012	.070	.059	.057	-.012	-.077	.143	.164	.206	1.000	.070	.110	.062	.019	.067	-.025
	V14	-.046	.040	-.095	.026	-.052	.042	.002	-.151	-.123	.082	.091	.212	.070	1.000	.330	.271	.160	.162	.243
	V15	-.016	.096	-.021	.108	.055	.202	.081	-.023	.004	.161	.037	.261	.110	.330	1.000	.464	.482	.289	.301
	V16	-.002	.056	-.062	.128	-.040	.134	.078	-.137	-.114	.156	.091	.224	.062	.271	.464	1.000	.345	.276	.185
	V17	.110	.078	-.006	.072	.056	.229	.039	.046	.054	.090	.069	.090	.019	.160	.482	.345	1.000	.294	.299
	V18	.068	.056	-.005	.003	.007	.126	.092	-.041	-.089	.234	.154	.236	.067	.162	.289	.276	.294	1.000	.274
	V19	.109	.129	.019	.153	.083	.139	.114	.228	.254	-.002	.061	.118	-.025	.243	.301	.185	.299	.274	1.000

a. Determinant .024

Appendix IV. Results of Rotated Component Matrix

Value of children	Component		
	1	2	3
Help around the house or farm activities	.714		-.538
Old age security	.654		-.566
Parents or older relatives feel that you should have children	.617		
Improves ones standing and betters reputation in the society	.559		
To make new friends through children	.544		
Carry on family name	.527		
It is a duty to have children according to religion or belief	.480		
Intensifies contact and communication with kin or relatives	.477		
Life continue through children			
Raising children helps learn about life and oneself		.754	
Fun to have young children around the house		.701	
Having children gives more reason to succeed in ones work		.674	
Having children increases ones sense of responsibility and helps to develop		.664	
Joy to have a small baby		.645	
The pleasure you get from watching children grow		.618	
People with children are less likely to be lonely in old age		.567	
To share what ones have and what ones know with children		.524	
Having children brings husband and wife closer or strengthen the bond between		.509	
The special feeling of love that develops between parent and child		.458	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Appendix V. Syntax for Wealth Index /Stata/

```
*Z score
        gen     zg4_electri     =       (g4_electri-    0.7636364       )/0.4251996
        gen     zg4_watch       =       (g4_watch-      0.5735537       )/0.4949695
        gen     zg4_radio       =       (g4_radio-      0.8876033       )/0.3161152
        gen     zg4_televis     =       (g4_televis-    0.5752066       )/0.4947206
        gen     zg4_mobiletel =         (g4_mobiletel-0.8413223         )/0.3656776
        gen     zg4_nonmobi =           (g4_nonmobi- 0.3062914          )/0.4613343
        gen     zg4_refrige     =       (g4_refrige-    0.2980132       )/0.4577644
        gen     zg4_kercooker=          (g4_kercooker-          0.3990066       )/0.6500917
        gen     zg4_bicycle     =       (g4_bicycle-    0.5157025       )/0.5001669
        gen     zg4_motorcy     =       (g4_motorcy-    0.2115702       )/0.4087596
        gen     zg4_cart        =       (g4_cart-       0.1669421       )/0.3732328
        gen     zg4_carortr     =       (g4_carortr-    0.0677686       )/0.2515564
        gen     zg4_boatwit     =       (g4_boatwit-    0)/     0
        gen     zg4_motorboat=          (g4_motorboat-0.0016529         )/0.0406558
        gen zg5_own_house=(g5_own_house-0.7173554)/0.4506577
        gen zg6_ownagri=(g6_ownagri-.4578512)/0.4986326
        gen zg7_landsize=(g7_landsize-0.8889892)/0.4555373
        gen zg8_coffplant=      (g8_coffplant   -0.9386282      )/0.2404455
        gen zg8_chat=(g8_chat           -0.3971119      )/0.4901852
        gen zg9_bullock=        (g9_bullock     -0.3652893      )/0.4819096
        gen zg9_cow=(g9_cow             -0.492562       )/0.5003584
        gen zg9_sheep=          (g9_sheep       -0.2429752      )/0.4406547
        gen zg9_goat=(g9_goat           -0.168595       )/0.3747036
        gen zg9_horsemule=      (g9_horsemule-0.0264463         )/0.1605911
        gen zg9_donkey=         (g9_donkey      -0.2198347      )/0.4144772
        gen zg9_chicken=        (g9_chicken     -0.4512397      )/0.4980285
```

```
foreach var of varlist zg4_electri- zg4_carortr zg4_motorboat zg5_own_house
zg7_landsize zg8_coffplant zg8_chat zg9_bullock zg9_cow zg9_sheep zg9_goat
zg9_horsemule zg9_donkey zg9_chicken {

        replace `var'=0 if `var'==.

    }
```

*factor

```
    factor zg4_electri- zg4_carortr zg4_motorboat zg5_own_house zg7_landsize
    zg8_coffplant zg8_chat zg9_bullock zg9_cow zg9_sheep zg9_goat
    zg9_horsemule zg9_donkey zg9_chicken, pcf
```

*rotate

```
    gen wisum=
    (zg4_electri*0.7149)+(zg4_watch*0.4721)+(zg4_radio*0.0286)+(g4_televis*0.73
    94 )+(zg4_mobile*0.4732)+(zg4_nonmobi*0.6749)+(zg4_refrige*0.6278)+(zg4_
    kercoo*0.4700)+(zg4_bicycle*0.3191)+(zg4_motorcy*0.4653)+(zg4_cart*-
    0.5581)+(zg4_carortr* 0.3444)+(zg4_motorb*0.0779)+(zg5_own_ho*-
    0.2660)+(zg7_landsize*0.0196)+(zg8_coffpl*-0.1499)+(zg8_chat*-
    0.0406)+(zg9_bullock*-0.6871)+(zg9_cow*-0.8031)+(zg9_sheep*-
    0.4020)+(zg9_goat*-0.4217)+(zg9_horsem*-0.1738)+(zg9_donkey*-
    0.6914)+(zg9_chicken*-0.7275)

    gen wisumf=
    (zg4_electri*0.7149)+(zg4_watch*0.4721)+(zg4_radio*0.0286)+(g4_televis*0.73
    94 )+(zg4_mobile*0.4732)+(zg4_nonmobi*0.6749)+(zg4_refrige*0.6278)+(zg4_
    kercoo*0.4700)+(zg4_bicycle*0.3191)+(zg4_motorcy*0.4653)+(zg4_carortr*
    0.3444)+(zg4_motorb*0.0779)+(zg7_landsize*0.0196)
```

*Percentile

```
    centile wisumf, centile (20)
    centile wisumf, centile (40)
    centile wisumf, centile (60)
    centile wisumf, centile (80)
```

```
gen wealthqf=1 if wisumf<-2.500228
replace wealthqf=2 if wisumf>=-2.500228 & wisumf<-0.9309703
replace wealthqf=3 if wisumf>=-0.9309703 & wisumf<1.308955
replace wealthqf=4 if wisumf>=1.308955 & wisumf<3.505346
replace wealthqf=5 if wisumf>=3.505346 & wisumf!=.
lab define wealthqf 1 "Lowest" 2 "Second" 3 "Middle" 4 "Fourth" 5 "Highest"
lab values wealthqf wealthqf
lab var wealthqf "Wealth quintals with out negative impact'

centile wisum, centile (20)
centile wisum, centile (40)
centile wisum, centile (60)
centile wisum, centile (80)

gen wealthq=1 if wisum<-5.741517
replace wealthq=2 if wisum>=-5.741517 & wisum<-0.9281651
replace wealthq=3 if wisum>=-0.9281651 & wisum<3.080337
replace wealthq=4 if wisum>=3.080337 & wisum<6.114527
replace wealthq=5 if wisum>=6.114527 & wisum!=.

lab define wealthq 1 "Lowest" 2 "Second" 3 "Middle" 4 "Fourth" 5 "Highest"
lab values wealthq wealthq
lab var wealthq "Wealth quintals with  negative impact'

save voc_,replace
```

Appendix VI. Syntax for Simple Main Effects

UNIANOVA Dependent Variable BY predictor1 predictor2

/EMMEANS TABLES(predictor1 predictor2) COMPARE(predcitor1).

Note: predictor1 is the variable with lower categories

Appendix VII. Multiple Linear Regression Model Specification

Multiple linear regression model is a general statistical model that is used when there are multiple independent variables and a single continuous dependent variable. It assumes that the response variable is a linear function of the model parameters.

Consider a random sample of n observations $(x_{i1}, x_{i2}, \ldots, x_{ip}, y_i)$,

where $i = 1 - n$.

The $p + 1$ random variables are assumed to satisfy the linear model

$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2}, + \beta_p x_{ip} + u_i$, $i = 1- n$ where u_i are values of an unobserved error term, u, and the unknown parameters β_i are constants.

The fit of the multiple regression model can be assessed by the *Coefficient of Multiple determination*, which is a fraction that represents the proportion of total variation of y that is explained by the regression plane. However, R square tends to somewhat over-estimate the success of the model when applied to the real world, so an Adjusted R Square value is calculated which takes into account the number of variables in the model and the number of observations (participants) the model is based on. This Adjusted R Square value gives the most useful measure of the success of our model.

Assumptions of the Model

- The error terms u_i are mutually independent and identically distributed, with mean = 0 and constant variances

  $E[u_i] = 0$ and $V[u_i] = \sigma_u^2$

This is so, because the observations $y_1, y_2, \ldots, y_n$ are random samples, they are mutually independent and hence the error terms are also mutually independent

- The distribution of the error term is independent of the joint distribution of $x_1, x_2, \ldots, x_p$
- The unknown parameters $\beta_0, \beta_1, \beta_2, \ldots, \beta_p$ are constants.

Therefore, equations relating the n observations can be written as:

$$y_1 = \beta_0 + \beta_1 x_{11} + \beta_2 x_{12} + \cdots + \beta_p x_{1p} + u_1$$

$$y_2 = \beta_0 + \beta_1 x_{21} + \beta_2 x_{22} + \cdots + \beta_p x_{2p} + u_2$$

$$\vdots$$

$$y_n = \beta_0 + \beta_1 x_{n1} + \beta_2 x_{n2} + \cdots + \beta_p x_{np} + u_n$$

Estimating the Parameters

The parameters $\beta_0, \beta_1, \beta_2, \ldots, \beta_p$ can be estimated using the least squares procedure, which minimizes the sum of square errors. Minimizing the sum of squares leads to the following equations, from which the values of β_i 's can be computed:

$$\sum_{i=1}^{n} y_i = n\beta_0 + \beta_1 \sum_{i=1}^{n} x_{i1} + \beta_2 \sum_{i=1}^{n} x_{i2} + \cdots + \beta_p \sum_{i=1}^{n} x_{ip}$$

$$\sum_{i=1}^{n}{}' x_{i1} y_i = \beta_0 \sum_{i=1}^{n}{}' x_{i1} + \beta_1 \sum_{i=1}^{n}{}' x_{i1}^2 + \beta_2 \sum_{i=1}^{n}{}' x_{i1} x_{i2} + \cdots + \beta_p \sum_{i=1}^{n} x_{i1} x_{ip}$$

$$\sum_{i=1}^{n} x_{i2} y_i = \beta_0 \sum_{i=1}^{n} x_{i2} + \beta_1 \sum_{i=1}^{n} x_{i2} x_{i2} + \beta_2 \sum_{i=1}^{n} x_{i2}^2 + \cdots + \beta_p \sum_{i=1}^{n} x_{i2} x_{ip}$$

$$\vdots$$

$$\sum_{i=1}^{n} x_{ip} y_i = \beta_0 \sum_{i=1}^{n} x_{ip} + \beta_1 \sum_{i=1}^{n} x_{i2} x_{ip} + \beta_2 \sum_{i=1}^{n} x_{i2} x_{ip} + \cdots + \beta_p \sum_{i=1}^{n} x_{ip}^2$$

$$s = \sum_{i=1}^{n} (y_i - \beta_0 - \beta_1 x_{i1} - \beta_2 x_{i2} - \cdots - \beta_p x_{ip})^2$$

Geometric Representation

The problem of multiple regression can be geometrically represented as follows. We can visualize that n observations ($x_{i1}, x_{i2}, \ldots x_{ip}, y_i$) $i = 1, 2, \ldots n$ are represented as points in a (p+1) - dimensional space. The regression problem is to determine the possible hyper-planes in the p – dimensional space, which will be the best- fit. The least squares criterion is used to locate the hyper-plane that minimizes the sum of squares of the errors, *i.e.*, the distances from the points (observations) around the plane and the point on the plane.

The estimate $\hat{y}$ will then be given as follows

$$\hat{y} = b_0 + b_1 x_1 + b_2 x_2 + \ldots + b_p x_p$$

Standard Error of the Estimate

Standard error of the estimate is given by

$$SE = \sum_{i=1}^{n} \frac{(y_i - \hat{y}_i)^2}{(n-p-1)}^{\frac{1}{2}}$$

where y_i = the sample value of the dependent variable

$\hat{y}_i$ = corresponding value estimated from the regression equation

n = number observations

p = number of predictors or independent variable

The denominator of the equation indicates that in multiple regression with p independent variables, the standard error has n-p-1 degrees of freedom. This happens because the degrees of freedom are reduced from n by p+1 numerical constants bo, b_1, b_2, ...b_p, that have been estimated from the sample.

Model Fitting

The fit of the multiple regression model can be assessed by the *Coefficient of Multiple determination*, which is a fraction that represents the proportion of total variation of y that is explained by the regression plane.

	Sum of squares due to regression	*Sum of squares due to error*
$SST = \sum_{i=1}^{n} (y_i - \bar{y})^2$ =SSR+SSE	$SSR = \sum_{i=1}^{n} (\hat{y}_i - \bar{y})^2$	$SSE = \sum_{i=1}^{n} (y_i - \hat{y}_i)^2$

The ratio *SSR/SST* represents the proportion of the total variation in y explained by the regression model. This ratio, denoted by R^2, is called the coefficient of multiple determination. R^2 is sensitive to the magnitudes of n and p in small samples. If p is large relative to n, the model tends to fit the data very well. In the extreme case, if $n = p+1$, the model would exactly fit the data.

A better goodness of fit measure is the adjusted R^2, which is computed as follows:

$$Adjusted\ R^2 = 1 - \left(\frac{n-1}{n-p-1}\right)(1-R^2)$$

$$= 1 - \frac{SSE/(n-p-1)}{SST/(n-1)}$$

Statistical Inferences for the Model

The overall goodness of fit of the regression model (*i.e.* whether the regression model is at all helpful in predicting the values of *y)* can be evaluated, using an *F*-test in the format of analysis of variance.

Under the null hypothesis: H_o: $\beta_1 = \beta_2 = \ ... = \beta_p = 0$, the statistic

$$\frac{SSR/p}{SSE/(n-p-1)} = \frac{MSR}{MSE}$$

has an *F*-distribution with p and n-1 degrees of freedom as shown below in table 3.8.6.

ANOVA Table for Multiple Regression

Source of Variation	*Sum of Squares*	*Degree of freedom*	*Mean Squares*	*F ratio*
Regression	*SSR*	*P*	*MSR*	*MSR/MSE*
Error	*SSE*	(*n*-*p*-1)	*MSE*	
Total	*SST*	(*n*-1)		

Whether a particular variable contributes significantly to the regression equation can be tested as follows:

For any specific variable x_i, we can test the null hypothesis (H_o: $\beta_i = 0$) by computing the statistic and performing a one or two tailed t-test with n-p-1 degrees of freedom. The t-test is given as follows:

$$t = \frac{b_i - 0}{SE(b_i)}$$

Standardized Regression Coefficients

The magnitude of the regression coefficients depends upon the scales of measurement used for the dependent variable y and the explanatory variables included in the regression equation. Unstandardized regression coefficients cannot be compared directly because of differing units of measurements and different variances of the x variables. It is, therefore, necessary to standardize the variables for meaningful comparisons. The standardized regression coefficients measure the impact of a unit change in the standardized value of x_i on the standardized value of y. The larger the magnitude of standardized b_i, the more x_i contributes to the prediction of y.

The estimated model

$$\hat{y}_i = b_o + b_1 x_{i1} + b_2 x_{i2} + ... b_p x_{ip}$$

can be written as:

$$\frac{\hat{y} - \bar{y}}{s_y} = \frac{b_1 s_1}{s_y}\left(\frac{x_{i1-\overline{x_1}}}{s_1}\right) + \frac{b_2 s_2}{s_y}\left(\frac{x_{i2-\overline{x_2}}}{s_2}\right) + \cdots + \frac{b_p s_p}{s_y}\left(\frac{x_{ip-\overline{x_p}}}{s_p}\right)$$

The expressions in the parentheses are standardized variables; b_i's are unstandardized regression coefficients and $s_1, s_2, \ldots s_p$ are the standard deviations of variables $x_1, x_2, \ldots x_p$ and s_y is the standard deviation of variable y.

The coefficients $\frac{b_i s_i}{s_y}, i = 1,2, \ldots, p$ are therefore called standardized regression coefficients.

Multiple Correlation

Multiple correlation coefficient, R, is a measure of the strength of the linear relationship between y and the set of variables $x_1, x_2, \ldots x_p$. It is the highest possible simple correlation between y and any linear combination of $x_1, x_2, \ldots, x_p$. This property explains that the computed value of R would never be negative. In this sense, the least squares regression plane maximizes the correlation between the x_i variables and the dependent variable y. Hence, it represents a measure of how well the regression equation fits the data. When the value of the multiple correlation R is close to zero, the regression equation barely predicts y better than sheer chance. A value of R close to 1 indicates a very good fit.

In nut shell, the rule of thumb for multiple correlation, R, is given as follows

- less than or equal to 0.20 is characterized as very weak
- greater than 0.20 and less than or equal to 0.40 is weak
- greater than 0.40 and less than or equal to 0.60 is moderate
- greater than 0.60 and less than or equal to 0.80 is strong
- greater than 0.80 is very strong.

In using a multiple regression model for any set of data, there are some pre-tests which need to be done to suffice the assumptions in its usage. These are discussed briefly below.

i. **Checking Multicollinearity**

In practice, the problem of multicollinearity occurs when some of the x variables are highly correlated. Multicollinearity can have a significant impact on the quality and stability of the fitted regression model. Hence, a common approach to multicollinearity problem is to omit explanatory variables. For example if x_1 and x_2 are highly correlated (for example, R is greater than 0.9), then the simplest approach would be to use only one of them, since one variable conveys essentially all the information in the other variable.

The simplest method for detecting a multicollinearity problem is by referring the correlation matrix; it can be used to detect if there are large correlations between pairs of explanatory variables. The determinant of the correlation matrix represents, as a single number, the generalized variance in the set of predictor variables and varies from 0 to 1. The value of the determinant near zero indicates that some or all explanatory variables are highly correlated. The value of the determinant equal to zero indicates a singular matrix, which indicates that at least one of the predictors is a linear function of one or more other predictors.

Another approach is to compute the 'tolerance' associated with a predictor. The tolerance of x_i is defined as 1 minus the squared multiple correlation between that x_i and the remaining x variables. When tolerance is small (for instance if it is less than 0.01), then it would be expedient to discard the variable with the smallest tolerance. The inverse of the tolerance is called the variance inflation factor (*VIF*). For this study tolerance was used to check the existence of multicollinearity.

ii. **Checking Heteroskedasticity**

The simplest test of the homoskedasticity assumption is the "eyeball" test, in which the residuals from the regression model are plotted against the predicted value, $\hat{Y}$. The homoskedasticity assumption is deemed to be satisfied if the dispersion of the residuals appears to be the same across all values of $\hat{Y}$. A discernible pattern in the variability of the residuals suggests a violation of the homoskedasticity assumption. But according to Darlington (1990) a visual examination of residuals can be a useful means of detecting only blatant heteroskedasticity.

In the event that heteroskedasticity exists, various statistical alternatives have been recommended for making sound inferences in its presence. Perhaps the easiest and most widely recommended method is the use of some kind of variance stabilizing transformation of Y. Commonly recommended transformations include square roots ($Y^{1/2}$), logarithmic (log(Y)), reciprocals (Y^{-1}) or the Box–Cox transformation (Box & Cox, 1964). But, typically, it is difficult to know which transformation is optimal without some kind of a priori belief about the functional form of the heteroskedasticity, which may not be well approximated by any transformation (Hayes and Cai, 2007)

An alternative and highly appealing method of reducing the effects of heteroskedasticity on inference is to employ a heteroskedasticity-consistent standard error (HCSE) estimator of OLS parameter estimates (Long and Ervin, 2000). HCSE estimators are derived from an estimate of the variance–covariance matrix of the regression coefficients that does not assume homoskedasticity of the errors.

Long and Ervin (2000) recommended that investigators should employ a heteroskedasticity-consistent estimator if not as a matter of routine,

at least as a means of double checking one's inferences to see if they might be influenced by heteroskedasticity.

Thus in this analysis both the OLS estimators as well as HCSE estimators were used to make statistical inference. But, since SPSS doesn't allow us to do HCSE estimation in a menu driven graphical user interface, the researcher used a macro written by Andrew F. Hayes for the analysis (Hayes, 2011).

Appendix VIII. Internal Consistency or Reliability of Likert Scale

Cronbach's alpha(α) is the most common measure of internal consistency (reliability) of multiple likert questions in a survey that form a scale and it is used when we wish to determine if the scale is reliable (Carmines and Zeller,1979).

Moreover, George and Mallery (2003) provided the following rules of thumb for Cronbach's alpha:

- greater than 0.9 – Excellent
- greater than 0.8 and less than 0.9 – Good
- greater than 0.7 and less than 0.8 – Acceptable
- greater than 0.6 and less than 0.7 – Questionable
- greater than 0.5 and less than 0.6 - Poor
- less than 0.5 – Unacceptable

Appendix IX. Factor Analysis

The current study of VOC identified 19 sub-VOC captured through focus group discussions held in each study area and some important value items from previous studies. In order to make comparison between study areas, these values were reduced to three dimensions; social/normative, economic/utilitarian and psychological/emotional VOC. For this purpose a factor analysis was carried out.

Factor analysis is a data reduction statistical analysis technique that tries to explain observed relationships among multiple outcome measures as a function of some underlying variables, or factors. It is especially popular in survey research and has other applications in multiple disciplines. However, factor analysis is not appropriate for all research questions, and it is important to ensure that the data meet certain assumptions before attempting the technique (Kim and Muller, 1978). Hence, a brief description of the underlying assumptions in a factor analysis is presented below as related to the variables in this study.

i. **Correlated Variables** - the fundamental assumption underlying factor analysis is that one or more underlying factors can account for the patterns of covariation among a number of observed variables. Covariation exists when two variables vary together. Therefore, before conducting a factor analysis, it is important to analyze the data for patterns of correlation. If no correlation exists, then a factor analysis is needless. If, however, we find at least moderate levels of correlation among variables in our data, factor analysis can help uncover underlying patterns that explain these relationships. Accordingly, the correlations between variables can be checked using the correlate procedure to create a correlation matrix of all variables. This matrix can also be created as part of the main factor analysis. To see whether there exist some relationships between variables or not, Bartlett's measure was used in this study (Field, 2005).

Bartlett's test is an important statistical tool used to measure sampling sphericity. It tests the null hypothesis that the original correlation matrix is an identity matrix. If the correlation matrix is an identity matrix, then all the diagonal elements would be 1 and all off diagonal elements would be zero. Therefore, we want this test to be significant (i.e. *p-value* < 0.05). A significant test tells us that the correlation matrix is not an identity matrix; therefore, there are some relationships between the variables we hope to include in the factor analysis.

Conversely, when variables are highly correlated, a counter problem arises. That is, although mild multicollinearity is not a problem for factor analysis, it is important to avoid extreme multicollinearity (variables that are highly correlated) and singularity (variables that are perfectly correlated). As with regression, singularity causes problems in factor analysis because it becomes impossible to determine the unique contribution to factor of the variables that are highly correlated.

Therefore, at the early stage we look to eliminate any variables that don't correlate with any other variables or that correlate very highly with other variables (R>0.9). Multicollinearity can be detected by looking at the determinant of the correlation matrix; if the determinant of the matrix > 0.00001, there is no problem of multicollinearity (Neter et al, 1983).

ii. **Multiple Dependent Variables** - As a data-reduction technique concerned with exploring patterns, factor analysis assumes that a researcher has multiple dependent variables; as few as three or as many as several hundred. The number of dependent variables examined in factor analysis commonly range from 10 to 100 (Darlington et al, 1973). Hence with 19 sub values, this study also meets this assumption.

iii. **Data type** - Factor analysis is generally intended for analyzing interval scale data. That is, the distance between any two adjacent points is the same. Although factor analysis is intended for interval scale data, many researchers also use the technique to analyze ordinal data, especially survey responses. The Likert scale used in many surveys (strongly agree, agree, disagree, strongly disagree) in which the responses are assigned a numerical value is an example of ordinal measurement. The current study also use Likert scale ranged from "Not important at all" to "Very important". Thus the study also satisfies this assumption.

iv. **Sample Adequacy**

In order to use factor analysis, the sample size needs to be adequate. The Kaiser-Meyer-Olkin(KMO) measure ,that varies between 0 and 1, is an important statistical tool to measure sampling adequacy. A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (hence, factor analysis is likely to be inappropriate). On the other hand, a value close to 1 indicates that the patterns of correlations are relatively compact and hence factor analysis should yield distinct and reliable factors. Accordingly, Kaiser(1974) recommended that values greater than 0.5 regarded as acceptable while values below 0.5 should lead for either to collect more data or rethink for other variables to be included. According to Hutcheson and Sofroniou (1999), values of KMO between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb.

Factor Extraction and Rotation

The most widely used method for determining a first set of loadings is the principal component method. This method seeks values of the loadings that bring the estimate of the total communality as close as possible to the total of the observed variances. When the first factor solution does not reveal the hypothesized structure of the loadings, it is customary to apply rotation in an effort to find another set of loadings that fit the observations equally well though it can be more easily interpreted. Perhaps the most widely used of these is the varimax criterion which seeks the rotated loadings that maximize the variance of the squared loadings for each factor. The goal is to make some of these loadings as large as possible, and the rest as small as possible in absolute value.

Declaration

The thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Habtamu Abdissa
Student Name

Signature

May 13, 2012
Date

I confirmed that this thesis has been submitted with my approval as a supervisor of the same.

Nigatu Regassa
Advisor

Signature

12/09/04
Date